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Electronic pressure sensors for control circuits

For controlling the pressure of air, water, hydraulic oils, corrosive fluids

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Electromechanical pressure and vacuum switches for control circuits

For controlling the pressure of air, water, hydraulic oils, corrosive fluids and viscous products

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For controlling the pressure of air, water, hydraulic oils and corrosive fluids

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For controlling the pressure of air and water

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Electromechanical pressure switches for power circuits

For controlling the pressure of water

- Types FTG, FSG and FYG
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For controlling the pressure of air and water

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Electromechanical pressure and vacuum switches

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Sensors for pressure control

Nautilus®
Electronic pressure sensors

Applications	Type of installation	Control circuits
	Fluids controlled	
	Type of sensor and features	
		Units without display Pressure transmitters Analogue output 4...20 mA or 0...10 V



Fluid characteristics	Air, fresh water, sea water, hydraulic oils, corrosive fluids (- 15...+ 125 °C)	
Sizes	- 1 bar...400 bar (- 14.5 psi...5800 psi)	
Dimensions of case (mm)	Width x height x depth	
	Ø 22.8 x 70.1	Ø 22.8 x 85
Type of output	Analogue, 4...20 mA or 0...10 V	
Degree of protection	IP 66, IP 67 conforming to IEC/EN60529, NEMA4	
Electrical connection	M12 connector (1)	Integrated quick connection (2)
Fluid connection	G 1/4 A (BSP male) conforming to ISO7 (3)	
Type reference	XML G●●●D21	XML G●●●Q21●●TQ (4)
	XML G●●●D21●●TQ (4)	
Pages	6/12 and 6/13, 6/14 and 6/15	

Other versions	(1) Other connections (AMP connector, cable, etc.), please consult your Regional Sales Office. (2) Phoenix Contact "Quickon" type integrated connection. (3) Other fluid connections (G1/4, 1/4 NPT, etc.), please consult your Regional Sales Office. (4) Sold in lots of 25.
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Control circuits			
Air, water, hydraulic oils, corrosive fluids			
Units without display			
Pressure and vacuum switches Factory set switching thresholds Solid-state NPN or PNP output	Pressure transmitters Analogue output 4...20 mA		Pressure and vacuum switches with solid-state output Regulation between 2 thresholds (adjustable differential)
			
Air, fresh water, sea water, hydraulic oils, corrosive fluids (- 15...+ 125 °C)		Air, fresh water, sea water, hydraulic oils, corrosive fluids (- 15...+ 80 °C)	
- 1 bar...400 bar (- 14.5 psi...5800 psi)		- 1 bar...600 bar (- 14.5 psi...8700 psi)	
Ø 22.8 x 70.1	Ø 22.8 x 85	Ø 40 x 87 (sizes - 1...25 bar) Ø 40 x 97 (sizes 60...600 bar)	
Solid-state, PNP or NPN normally closed (NC) output 150 mA, \pm 12/24 V		Analogue, 4...20 mA	Solid-state, NPN or PNP, normally closed (NC) output
IP 66, IP 67 conforming to IEC/EN60529, NEMA4		IP 65	
M12 connector (1)	Integrated quick connection (2)	DIN 43650A or M12 connector	
G 1/4 A (BSP male) conforming to ISO7 (3)		G 1/4 A (BSP male)	
XML G●●●D31●●TQ (4) XML G●●●D41●●TQ (4)	XML G●●●Q31●●TQ (4) XML G●●●Q41●●TQ (4)	XML E●●●●●●21	XML E●●●●●●31 XML E●●●●●●41
6/16 and 6/17, 6/18 and 6/19		6/24 to 6/27	6/28 to 6/31

(1) Other connections (AMP connector, cable, etc.), please consult your Regional Sales Office.

(2) Phoenix Contact "Quickon" type integrated connection.

(3) Other fluid connections (G1/4, 1/4 NPT, etc.), please consult your Regional Sales Office.

(4) Sold in lots of 25.

Sensors for pressure control

Nautilus®
Electronic pressure sensors

Applications	Type of installation	Control circuits	
	Fluids controlled	Air, water, hydraulic oils, corrosive fluids	
	Type of sensor and features	Configurable units with digital display Pressure transmitters Output current 4...20 mA	Configurable units with digital display Pressure transmitters Output voltage 0...10 V



Fluid characteristics	Air, fresh water, sea water, hydraulic oils, corrosive fluids (- 15...+ 80 °C)		
Sizes	- 1 bar...600 bar (- 14.5 psi...8700 psi)		
Dimensions of case (mm)	Width x height x depth	46 x 113 x 58	
Type of output	Analogue, 4...20 mA		Analogue, 0...10 V
Degree of protection	IP 67		
Electrical connection	M12 connector, "Snap-C" compatible		
Fluid connection	G 1/4 A (BSP) or 1/4 NPT or SAE 7/16-20UNF female		
Type reference	XML F●●●D201●		XML F●●●D211●
Pages	6/36 to 6/61		
Other versions	Pressure transmitters and electronic pressure and vacuum switches with alternative tapped fluid entries: ISO, NPT, etc. Please consult your Regional Sales Office.		

Control circuits			
Air, water, hydraulic oils, corrosive fluids			
Configurable units with digital display Universal sensors Regulation between 2 thresholds (adjustable differential)	Configurable units with digital display Universal sensors Regulation between 2 thresholds (adjustable differential)	Configurable units with digital display Pressure and vacuum switches with 2.5 A relay outputs Regulation between 2 thresholds (adjustable differential)	Configurable units with digital display Dual stage pressure and vacuum switches (solid-state outputs) Detection of 2 thresholds and adjustable differential for each threshold
Solid-state and analogue output current 4...20 mA	Solid-state and analogue output voltage 0...10 V		



Air, fresh water, sea water, hydraulic oils, corrosive fluids (- 15...+ 80 °C)

- 1 bar...600 bar (- 14.5 psi...8700 psi)

46 x 113 x 58	46 x 119 x 58	46 x 113 x 58
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Solid-state, PNP or NPN, 200 mA, $\overline{\text{---}}$ 24 V output Analogue output 4...20 mA	Solid-state, PNP or NPN, 200 mA, $\overline{\text{---}}$ 24 V output Analogue output 0...10 V	Relay output 2.5 A, \sim 120 V	2 solid-state, PNP or NPN, 200 mA, $\overline{\text{---}}$ 24 V outputs
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IP 67

M12 connector, "Snap-C" compatible	SAE 7/8-16UN connector	M12 connector, "Snap-C" compatible
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G 1/4 A (BSP) or 1/4 NPT or SAE 7/16-20UNF female

XML F...D202	XML F...D212	XML F...E204	XML F...D203
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6/36 to 6/61

Applications	Type of installation	Control circuits	
	Fluids/products controlled	Air, water, hydraulic oils, corrosive fluids, viscous products	
	Type of operation	Detection of a single threshold (fixed differential)	Regulation between 2 thresholds (adjustable differential)



Fluid characteristics	Air, fresh water, sea water, corrosive fluids, viscous products, up to 160 °C depending on model		
Sizes	- 1 bar...500 bar (- 14.5 psi...7250 psi)		
Dimensions of case (mm)	Width x height x depth	35 x 68 x 75	46 x 68 x 85
Type of contacts	1 C/O single-pole, snap action		2 C/O single-pole, simultaneous, snap action
Degree of protection	IP 66: switches with terminal connections IP 65: switches with plug-in connector		IP 66: switches with terminal connections
Electrical connection	Screw terminals: 1 entry tapped M20 x 1.5 mm for ISO cable gland, or tapped for n° 13 cable gland		
Fluid connection	G 1/4 (BSP female) G1 1/4" (BSP female) for viscous products		
Type reference	XML A	XML B	XML C
Pages	6/70 to 6/121		
Other versions	Electromechanical pressure and vacuum switches with alternative tapped cable entries and/or fluid entries: NPT etc. Please consult your Regional Sales Office.		

Control circuits	
Air, water, hydraulic oils, corrosive fluids, viscous products	Air, hydraulic oils, corrosive fluids
Dual stage switches Detection at each threshold (fixed differential)	Regulation between 2 thresholds (adjustable differential)



Air, fresh water, sea water, corrosive fluids, viscous products, up to 160 °C depending on model	Air, oils and other non corrosive fluids (- 73...+ 125 °C)	Oils and other fluids (- 30...+ 125 °C) Only oils, including synthetic oils, for certain models
- 1 bar...500 bar (- 14.5 psi...7250 psi)	0.7 bar...131 bar (10.15 psi...1900 psi)	69 bar...340 bar (1000 psi...4930 psi)
45 x 68 x 85	88 x 88 x 68	
2 C/O single-pole, staggered, snap action	1 C/O or 2 C/O single-pole, snap action	
IP 66: switches with terminal connections	IP 65	
Screw terminals: 1 entry tapped M20 x 1.5 mm for ISO cable gland or tapped for n° 13 cable gland	Screw terminals: 1 entry tapped for n° 13 cable gland	
G 1/4 (BSP female) G 1 1/4" (BSP female) for viscous products	G 3/8 (BSP female)	
XML D	ACW	ADW
6/70 to 6/121	6/132 and 6/133	6/134 and 6/135

Applications	Type of installation	Control circuits
	Fluids controlled	
	Type of operation	



Fluid characteristics	Air, fresh water, sea water (0...+ 70 °C)	
Sizes	6 bar, 12 bar and 25 bar (87 psi, 174 psi and 362.5 psi)	
Dimensions of case (mm)	Width x height x depth	57 x 78 x 97.5
Setting of switching points	Internal screws	External screws
Type of contacts	1 C/O single-pole, snap action	
Degree of protection	IP 54	
Electrical connection	Screw terminals: 2 entries tapped for n° 13 cable gland, one fitted with n° 13 cable gland, one fitted with blanking plug	
Fluid connection	G 1/4 or 4 x G 1/4 (BSP female) depending on model	
Type reference	XXM	XMA
Page(s)	6/140	6/141
Other versions	Electromechanical pressure switches with alternative tapped cable entries and/or fluid entries: ISO, NPT, etc. Please consult your Regional Sales Office.	

Power circuits		
Water		Air, water
Detection of a single threshold (fixed differential)	Regulation between 2 thresholds (adjustable differential)	



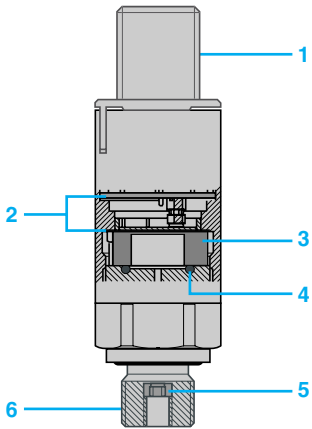
Fresh water, sea water (0...+ 70 °C)		Air, fresh water, sea water (0...+ 70 °C)	
4.6 bar (66.7 psi)		7 bar and 10.5 bar (101.5 psi and 152.3 psi)	6 bar, 12 bar and 25 bar (87 psi, 174 psi and 362.5 psi)
72 x 73 x 102	72 x 77 x 106	72 x 73 x 102	57 x 78 x 97.5
Internal screws			
2 N/C snap action		2 N/C or 3 N/C snap action	
IP 20	IP 65	IP 20	IP 54 or IP 65 depending on model
Screw terminals: 2 cable entries, with grommet	Screw terminals: 2 entries incorporating n° 13 cable gland	Screw terminals: 2 cable entries, with grommet	Screw terminals: 2 entries incorporating n° 13 cable gland or without cable gland, depending on model
G 1/4 or R 1/4 (BSP female or BSP male)	G 1/4 (BSP female)	G 1/4, G 3/8 or 4 x G 1/4 (BSP female) depending on model	

FTG	FSG ●	FSG 2NE	FYG	XMP
6/146	6/147	6/148	6/149	6/154 to 6/161

Electronic pressure sensors

Nautilus® type XML G

For control circuits



Presentation

Pressure transmitters and pressure switches type XML G are characterised by their ceramic pressure measuring cell. The deformation caused by the pressure is transmitted to the resistors of a Wheatstone bridge silk-screened on the ceramic. The change in resistance is then processed by the integrated electronics for providing either a digital or analogue output signal.

- 1 Electrical connection, for example: M12
- 2 Electronics with EMC protection
- 3 Ceramic measuring cell
- 4 Seals
- 5 Leakage protection
- 6 Threaded connection

Functions

Pressure transmitters have an analogue 4-20 mA or 0-10 V output that is proportional to the measuring range.

Pressure and vacuum switches have a solid-state NPN or PNP normally closed (NC) output.

An anti-leakage system integrated in products for pressures ≥ 40 bar prevents fluid leakage in the event of the measuring cell destruction pressure being exceeded.

These compact products that offer excellent EMC characteristics are particularly suited to difficult industrial environments.

The selling in lots is mainly intended for machine manufacturers.

Important ordering requirement

Pressure and vacuum switches XML G are factory set, the upper and lower switching thresholds must be stated when ordering.

Environmental characteristics

Conformity to standards		CE	IEC/EN 60947-1, IEC/EN 60947-5-1 EN 50081-1, EN 50082-2, EN 61000-6-2
Product certifications			UL, CSA
Rated supply voltage	Transmitters 4-20 mA	V	--- 12/24
	Pressure/vacuum switches		
	Transmitters 0-10 V	V	--- 24
Voltage limits	Transmitters 4-20 mA	V	--- 8...33
	Pressure/vacuum switches		
	Transmitters 0-10 V	V	--- 11.4...33
Current consumption	Pressure/vacuum switches	mA	< 4
	Transmitters	mA	< 20
Protective treatment			Standard version "TC"
Ambient air temperature	For operation	°C	- 15...+ 85
	For storage	°C	- 40...+ 85
Fluids or products controlled			Hydraulic oils, air, fresh water, sea water, corrosive fluids from - 15... + 125 °C
Component materials in contact with fluid			Ceramic Al ₂ O ₃ , stainless steel type AISI 303, FPM (Viton), PPS (Leakage protection for P > 40 bar)
Operating position			All positions
Vibration resistance			20 gn (9...2000 Hz) conforming to IEC 60068-2-6
Shock resistance			25 gn (half sine wave 11 ms) conforming to IEC 60068-2-27
Resistance to electromagnetic interference	Electrostatic discharges		Standard EN 61000-4-2, 15 kV in air, 8 kV on contact
	Radiated electromagnetic fields		Standard EN 61000-4-3, 200 V/m, 80...1000 MHz
	Fast transients		Standard EN 61000-4-4, 4 kV
	Surges		Standard EN 61000-4-5, 500 V 12 Ω, 1 kV 42 Ω
	Conducted disturbances, induced by radio frequency fields		Standard EN 61000-4-6, 30 V 0.15...80 MHz
			Standard EN 61000-4-8, 30 A/m, 50 Hz
Electrical protection			Protected against reverse polarity and load short-circuit
Rated impulse withstand voltage		kV	0.5
Degree of protection			IP 66, IP 67 conforming to IEC/EN 60529, NEMA 4
Output response time		ms	< 2
Repeat accuracy			± 0.1% of the measuring range
Precision	Transmitters		Combined sum of linearity, hysteresis and repeat accuracy < ± 0.3% of the measuring range Setting tolerance of zero point and measuring range limit < ± 0.3% of the measuring range
	Pressure/vacuum switches		Setting accuracy < ± 1% of the measuring range
Drift	Of the zero point		< ± 0.015% of the measuring range/°C
	Of the sensitivity		< ± 0.015% of the measuring range/°C
Service life			> 10
Fluid connection			G 1/4 A (BSP male) conforming to ISO 7
Electrical connection			M12 connector or integrated connection (1)

(1) Phoenix Contact "Quickon" type integrated connection.

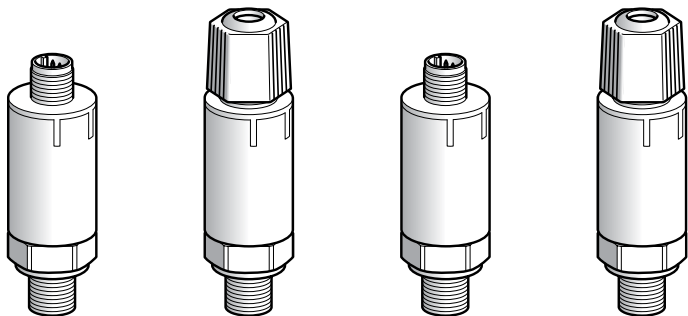
Electronic pressure sensors

Nautilus® Pressure transmitters type XML G

With analogue output 4-20 mA

Sizes - 1 to 1 bar (- 14.5 to 14.5 psi)

Units with analogue output



Pressure range (1)	- 1...0 bar (- 14.5...0 psi)		0...1 bar (0...14.5 psi)	
Type of electrical connection (2)	M12	Integrated quick connection (3)	M12	Integrated quick connection (3)

References

Sold in packs of:	1	XML GM01D21	–	XML G001D21	–
	bulk (4)	XML GM01D21TQ (4)	XML GM01Q21TQ (4)	XML G001D21TQ (4)	XML G001Q21TQ (4)
Fluid connection (5)	G 1/4 A (BSP male)				
Weight (kg)	0.095	0.095	0.095	0.095	0.095

Complementary characteristics not shown under general characteristics (page 6/11)

Rated supply voltage		--- 12/24 V	
Voltage limits		--- 8...33 V	
Analogue output (6)		4...20 mA, 2-wire technique	
Current consumption		< 20 mA	
Maximum permissible accidental pressure		2.7 bar (39.1 psi)	2.7 bar (39.1 psi)
Destruction pressure		3 bar (43.5 psi)	3 bar (43.5 psi)
Electrical connection	By connector	XML G●●●D21: M12, 3-pin male. For suitable female connectors, including pre-wired versions, see pages 6/20 and 6/21	
	Integrated	XML G●●●Q21: integrated quick connection (3)	

(1) Other pressure ranges, please consult us.

(2) Other connections (AMP connector, cable...), please consult us.

(3) Phoenix Contact "Quickon" type integrated connection.

(4) Sold in lots of 25, minimum quantity 50.

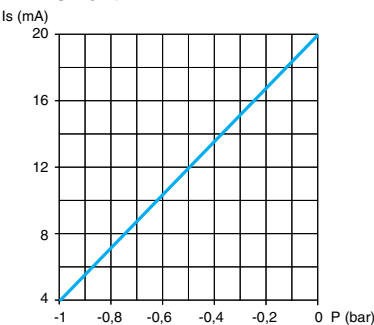
(5) Other fluid connections (G 1/4 female, 1/4" NPT...), please consult us.

Component materials of units in contact with the fluid, see page 6/11.

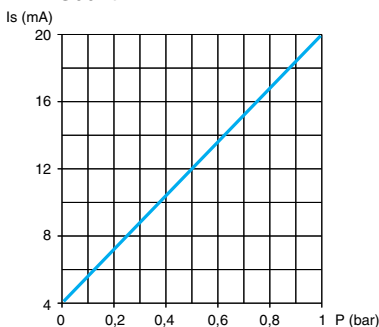
(6) To order a pressure transmitter with a 0...10 V analogue output, replace 21 in the reference by 71 (bulk packs only). Example: XML GM01D21TQ becomes XML GM01D71TQ with a 0...10 V analogue output.

Output curves

XML GM01●21



XML G001●21



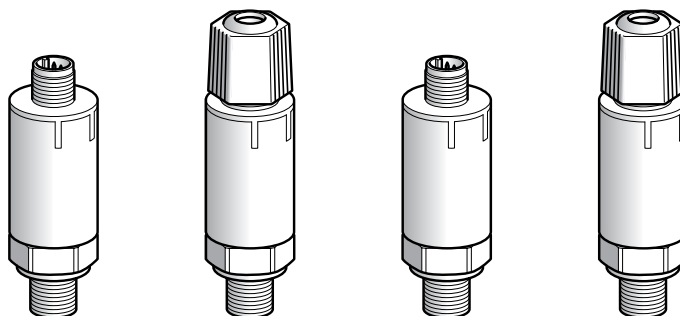
Electronic pressure sensors

Nautilus® Pressure transmitters type XML G

With analogue output 4-20 mA

Sizes 10 to 25 bar (145 to 362.5 psi)

Units with analogue output



Pressure range (1)		0...10 bar (0...145 psi)		0...25 bar (0...362.5 psi)	
Type of electrical connection (2)		M12	Integrated quick connection (3)	M12	Integrated quick connection (3)
References					
Sold in packs of:		1	XML G010D21	–	XML G025D21
		bulk (4)	XML G010D21TQ (4)	XML G010Q21TQ (4)	XML G025D21TQ (4)
Fluid connection (5)		G 1/4 A (BSP male)			
Weight (kg)		0.095	0.095	0.095	0.095
Complementary characteristics not shown under general characteristics (page 6/11)					
Rated supply voltage		--- 12/24 V			
Voltage limits		--- 8...33 V			
Analogue output (6)		4...20 mA, 2-wire technique			
Current consumption		< 20 mA			
Maximum permissible accidental pressure		22 bar (319 psi)		56 bar (812 psi)	
Destruction pressure		25 bar (362.5 psi)		62.5 bar (906.2 psi)	
Electrical connection	By connector	XML G●●●D21: M12, 3-pin male. For suitable female connectors, including pre-wired versions see pages 6/20 and 6/21			
	Integrated	XML G●●●Q21: integrated quick connection (3)			

(1) Other pressure ranges, please consult us.

(2) Other connections (AMP connector, cable...), please consult us.

(3) Phoenix Contact "Quickon" type integrated connection.

(4) Sold in lots of 25, minimum quantity 50.

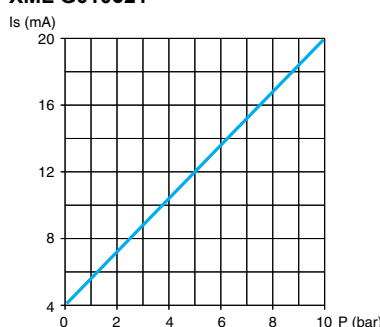
(5) Other fluid connections (G 1/4 female, 1/4" NPT...), please consult us.

Component materials of units in contact with the fluid, see page 6/11.

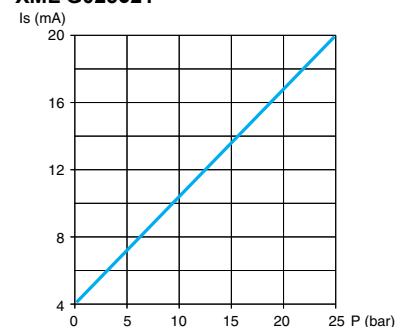
(6) To order a pressure transmitter with a 0...10 V analogue output, replace 21 in the reference by 71 (bulk packs only). Example: XML G010D21TQ becomes XML G010D71TQ with a 0...10 V analogue output.

Output curves

XML G010●21



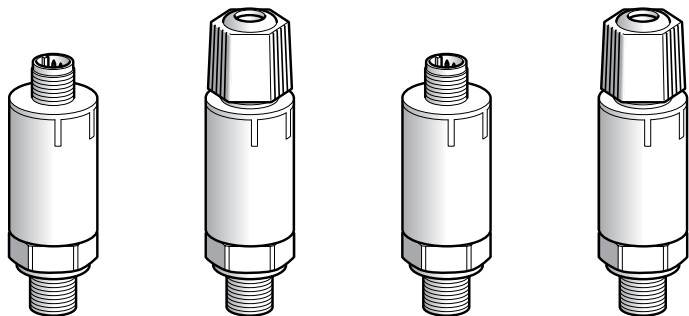
XML G025●21



Electronic pressure sensors

Nautilus® Pressure transmitters type XML G
With analogue output 4-20 mA
Sizes 100 to 250 bar (1450 to 3625 psi)

Units with analogue output



Pressure range (1)	0...100 bar (0...1450 psi)		0...250 bar (0...3625 psi)	
Type of electrical connection (2)	M12	Integrated quick connection (3)	M12	Integrated quick connection (3)

References

Sold in packs of:	1	XML G100D21	–	XML G250D21	–
	bulk (4)	XML G100D21TQ (4)	XML G100Q21TQ (4)	XML G250D21TQ (4)	XML G250Q21TQ (4)
Fluid connection (5)	G 1/4 A (BSP male)				
Weight (kg)	0.095	0.095	0.095	0.095	0.095

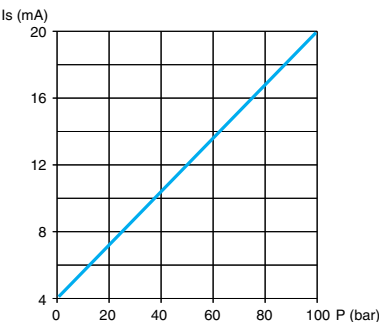
Complementary characteristics not shown under general characteristics (page 6/11)

Rated supply voltage		--- 12/24 V	
Voltage limits		--- 8...33 V	
Analogue output (6)		4...20 mA, 2-wire technique	
Current consumption		< 20 mA	
Maximum permissible accidental pressure		225 bar (3262.5 psi)	560 bar (8120 psi)
Destruction pressure		250 bar (3625 psi)	625 bar (9062.5 psi)
Electrical connection	By connector	XML G●●●D21: M12, 3-pin male. For suitable female connectors, including pre-wired versions, see pages 6/20 and 6/21	
	Integrated	XML G●●●Q21: integrated quick connection (3)	

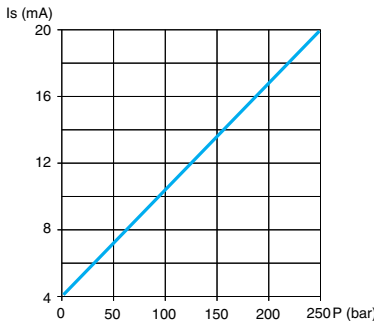
- (1) Other pressure ranges, please consult us.
(2) Other connections (AMP connector, cable...), please consult us.
(3) Phoenix Contact "Quickon" type integrated connection.
(4) Sold in lots of 25, minimum quantity 50.
(5) Other fluid connections (G 1/4 female, 1/4" NPT...), please consult us.
Component materials of units in contact with the fluid, see page 6/11.
(6) To order a pressure transmitter with a 0...10 V analogue output, replace 21 in the reference by 71 (bulk packs only). Example: XML G100D21TQ becomes XML G100D71TQ with a 0...10 V analogue output.

Output curves

XML G100●21



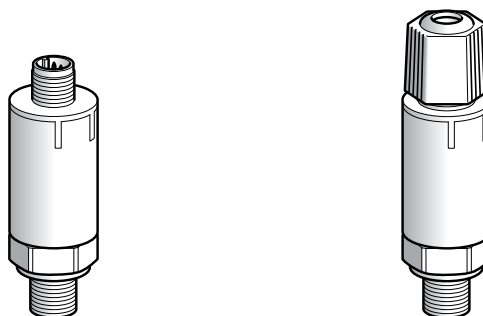
XML G250●21



Electronic pressure sensors

Nautilus® Pressure transmitters type XML G
With analogue output 4-20 mA
Size 400 bar (5800 psi)

Units with analogue output



Pressure range (1)		0...400 bar (0...5800 psi)	
Type of electrical connection (2)		M12	Integrated quick connection (3)
References			
Sold in packs of:	1	XML G400D21	—
	bulk (4)	XML G400D21TQ (4)	XML G400Q21TQ (4)
Fluid connection (5)		G 1/4 A (BSP male)	
Weight (kg)		0.095	0.095
Complementary characteristics not shown under general characteristics (page 6/11)			
Rated supply voltage		--- 12/24 V	
Voltage limits		--- 8...33 V	
Analogue output (6)		4...20 mA, 2-wire technique	
Current consumption		< 20 mA	
Maximum permissible accidental pressure		800 bar (11 600 psi)	
Destruction pressure		900 bar (13 050 psi)	
Electrical connection	By connector	XML G●●●D21: M12, 3-pin male. For suitable female connectors, including pre-wired versions see pages 6/20 and 6/21	
	Integrated	XML G●●●Q21: integrated quick connection (3)	

(1) Other pressure ranges, please consult us.

(2) Other connections (AMP connector, cable...), please consult us.

(3) Phoenix Contact "Quickon" type integrated connection.

(4) Sold in lots of 25, minimum quantity 50.

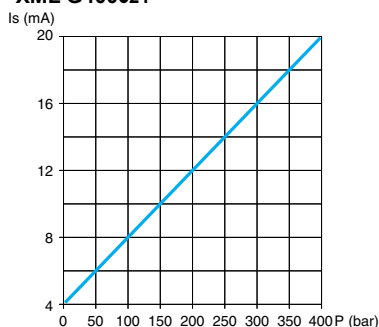
(5) Other fluid connections (G 1/4 female, 1/4" NPT...), please consult us.

Component materials of units in contact with the fluid, see page 6/11.

(6) To order a pressure transmitter with a 0...10 V analogue output, replace 21 in the reference by 71 (bulk packs only). Example: XML G400D21TQ becomes XML G400D71TQ with a 0...10 V analogue output.

Output curves

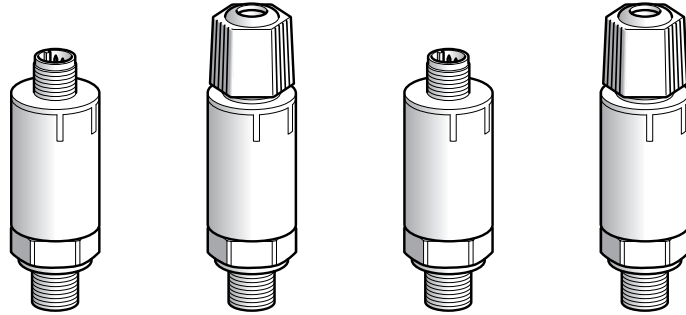
XML G400●21



Electronic pressure sensors

Nautilus® Pressure and vacuum switches type XML G
Sizes - 1 to 1 bar (- 14.5 to 14.5 psi)

Units with solid-state output (1)



Adjustable range of switching point (PH) Rising pressure (2) (8)	- 0.08...- 1 bar (- 1.16...- 14.5 psi)		0.08...1 bar (1.16...14.5 psi)	
Type of electrical connection (3)	M12	Integrated quick connection (4)	M12	Integrated quick connection (4)

References

Only sold in bulk packs (5)					
	NPN output	XML GM01D31TQ (5)	XML GM01Q31TQ (5)	XML G001D31TQ (5)	XML G001Q31TQ (5)
	PNP output	XML GM01D41TQ (5)	XML GM01Q41TQ (5)	XML G001D41TQ (5)	XML G001Q41TQ (5)
Fluid connection (6)	G 1/4 A (BSP male)				
Weight (kg)	0.095	0.095	0.095	0.095	

Complementary characteristics not shown under general characteristics (page 6/11)

Switching thresholds (7)		Factory set	
Possible differential	Min. at low setting	0.03 bar (0.44 psi)	0.03 bar (0.44 psi)
	Min. at high setting	0.03 bar (0.44 psi)	0.03 bar (0.44 psi)
	Max. at high setting	0.95 bar (13.77 psi)	0.95 bar (13.77 psi)
Maximum permissible accidental pressure		2.7 bar (39.1 psi)	2.7 bar (39.1 psi)
Destruction pressure		3 bar (43.5 psi)	3 bar (43.5 psi)
Rated supply voltage		--- 12/24 V	
Voltage limits		--- 8...33 V	
Output		Solid-state, NPN or PNP, NC	
Switching capacity		150 mA	
Current consumption		< 4 mA	
Electrical connection	By connector	XML G●●●D●●: M12, 3-pin male. For suitable female connectors, including pre-wired versions, see pages 6/20 and 6/21	
	Integrated	XML G●●●Q●●: integrated quick connection (4)	

(1) Other types of output (normally open PNP, NPN...), please consult us.

(2) Other pressure ranges, please consult us.

(3) Other connections (AMP connector, cable...), please consult us.

(4) Phoenix Contact "Quickon" type integrated connection.

(5) Sold in lots of 25, minimum quantity 50.

(6) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15...+ 125 °C.

Component materials of units in contact with the fluid, see page 6/11.

Other fluid connections (G 1/4 female, 1/4" NPT...), please consult us.

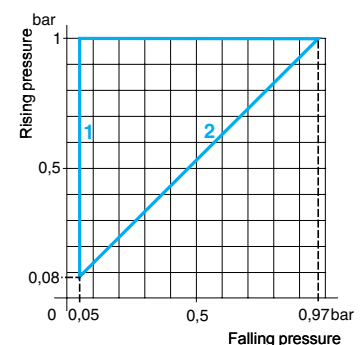
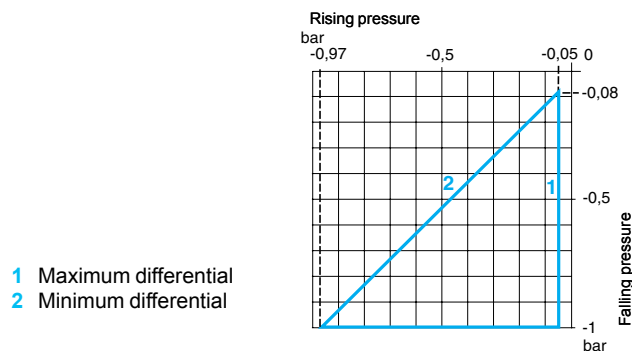
(7) State the switching threshold settings when ordering.

(8) For vacuum switches (size - 1 bar): adjustable range of switching point (PB) on falling pressure.

Operating curves

XML GM01...1

XML G001...1

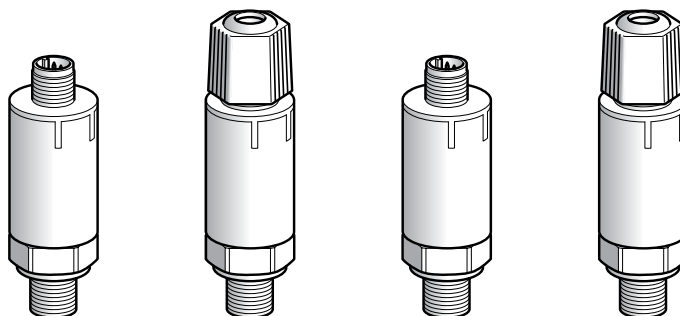


Electronic pressure sensors

Nautilus® Pressure switches type XML G

Sizes 10 to 25 bar (11.6 to 362.5 psi)

Units with solid-state output (1)



Adjustable range of switching point (PH) Rising pressure (2)	0.8...10 bar (11.6...145 psi)		2...25 bar (29...362.5 psi)	
Type of electrical connection (3)	M12	Integrated quick connection (4)	M12	Integrated quick connection (4)

References

Only sold in bulk packs (5)					
	NPN output	XML G010D31TQ (5)	XML G010Q31TQ (5)	XML G025D31TQ (5)	XML G025Q31TQ (5)
	PNP output	XML G010D41TQ (5)	XML G010Q41TQ (5)	XML G025D41TQ (5)	XML G025Q41TQ (5)
Fluid connection (6)	G 1/4 A (BSP male)				
Weight (kg)	0.095	0.095	0.095	0.095	

Complementary characteristics not shown under general characteristics (page 6/11)

Switching thresholds (7)		Factory set	
Possible differential	Min. at low setting	0.3 bar (4.4 psi)	0.75 bar (10.9 psi)
	Min. at high setting	0.3 bar (4.4 psi)	0.75 bar (10.9 psi)
	Max. at high setting	9.5 bar (137.75 psi)	23.8 bar (345.1 psi)
Maximum permissible accidental pressure		22 bar (319 psi)	56 bar (812 psi)
Destruction pressure		25 bar (362.5 psi)	62.5 bar (906.2 psi)
Rated supply voltage		--- 12/24 V	
Voltage limits		--- 8...33 V	
Output		Solid-state, NPN or PNP, NC	
Switching capacity		150 mA	
Current consumption		< 4 mA	
Electrical connection	By connector	XML G●●●D●●: M12, 3-pin male. For suitable female connectors, including pre-wired versions, see pages 6/20 and 6/21	
	Integrated	XML-G●●●Q●●: integrated quick connection (4)	

(1) Other types of output (normally open PNP, NPN...), please consult us.

(2) Other pressure ranges, please consult us.

(3) Other connections (AMP connector, cable...), please consult us.

(4) Phoenix Contact "Quickon" type integrated connection.

(5) Sold in lots of 25, minimum quantity 50.

(6) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15...+125 °C.

Component materials of units in contact with the fluid, see page 6/11.

Other fluid connections (G 1/4 female, 1/4" NPT...), please consult us.

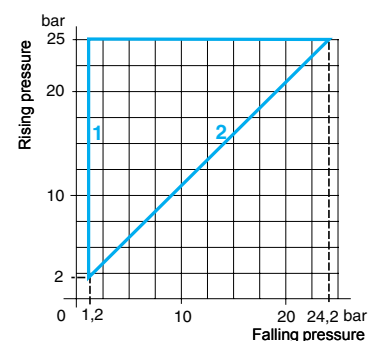
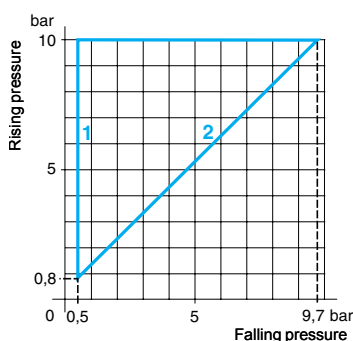
(7) State the switching threshold settings when ordering.

Operating curves

XML G010●●1

XML G025●●1

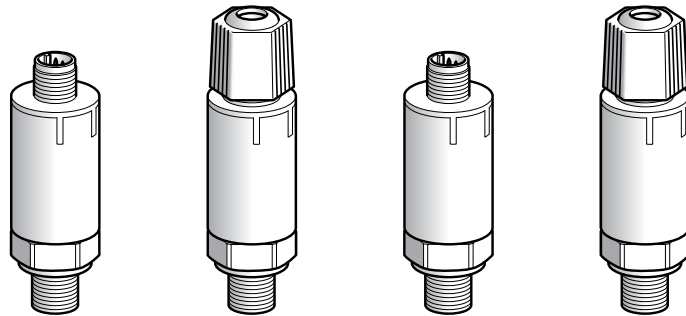
- 1 Maximum differential
2 Minimum differential



Electronic pressure sensors

Nautilus® Pressure switches type XML G
Sizes 100 to 250 bar (1450 to 3625 psi)

Units with solid-state output (1)



Adjustable range of switching point (PH) Rising pressure (2)	8...100 bar (11.6...1450 psi)		20...250 bar (29...3625 psi)	
Type of electrical connection (3)	M12	Integrated quick connection (4)	M12	Integrated quick connection (4)

References

Only sold in bulk packs (5)					
NPN output		XML G100D31TQ (5)	XML G100Q31TQ (5)	XML G250D31TQ (5)	XML G250Q31TQ (5)
PNP output		XML G100D41TQ (5)	XML G100Q41TQ (5)	XML G250D41TQ (5)	XML G250Q41TQ (5)
Fluid connection (6)	G 1/4 A (BSP male)				
Weight (kg)	0.095	0.095	0.095	0.095	

Complementary characteristics not shown under general characteristics (page 6/11)

Switching thresholds (7)		Factory set	
Possible differential	Min. at low setting	3 bar (43.5 psi)	7.5 bar (108.8 psi)
	Min. at high setting	3 bar (43.5 psi)	7.5 bar (108.8 psi)
	Max. at high setting	95 bar (1377.5 psi)	237.5 bar (3443.7 psi)
Maximum permissible accidental pressure		225 bar (3262.5 psi)	560 bar (8120 psi)
Destruction pressure		250 bar (3625 psi)	625 bar (9062.5 psi)
Rated supply voltage		--- 12/24 V	
Voltage limits		--- 8...33 V	
Output		Solid-state, NPN or PNP, NC	
Switching capacity		150 mA	
Current consumption		< 4 mA	
Electrical connection	By connector	XML G●●●D●●: M12, 3-pin male. For suitable female connectors, including pre-wired versions, see pages 6/20 and 6/21	
	Integrated	XML G●●●Q●●: integrated quick connection (4)	

(1) Other types of output (normally open PNP, NPN...), please consult us.

(2) Other pressure ranges, please consult us.

(3) Other connections (AMP connector, cable...), please consult us.

(4) Phoenix Contact "Quickon" type integrated connection.

(5) Sold in lots of 25, minimum quantity 50.

(6) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15...+125 °C.

Component materials of units in contact with the fluid, see page 6/11.

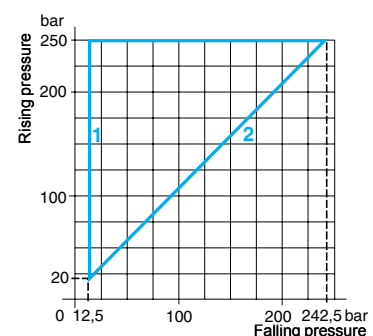
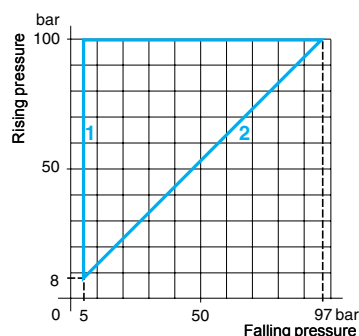
Other fluid connections (G 1/4 female, 1/4" NPT...), please consult us.

(7) State the switching threshold settings when ordering.

Operating curves

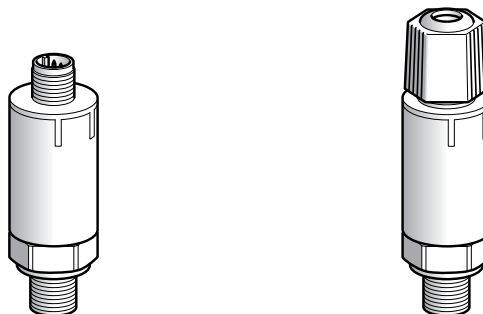
XML G100...1TQ

XML G250...1TQ



1 Maximum differential
2 Minimum differential

Units with solid-state output (1)



Adjustable range of switching point (PH)	32...400 bar (464...5800 psi)	
Rising pressure (2)		
Type of electrical connection (3)	M12	Integrated quick connection (4)

References

Only sold in bulk packs (5)		
NPN output	XML G400D31TQ (5)	XML G400Q31TQ (5)
PNP output	XML G400D41TQ (5)	XML G400Q41TQ (5)
Fluid connection (6)	G 1/4 A (BSP male)	
Weight (kg)	0.095	0.095

Complementary characteristics not shown under general characteristics (page 6/11)

Switching thresholds (7)	Factory set	
Possible differential	Min. at low setting	12 bar (174 psi)
	Min. at high setting	12 bar (174 psi)
	Max. at high setting	380 bar (5510 psi)
Maximum permissible accidental pressure	800 bar (11 600 psi)	
Destruction pressure	900 bar (13 050 psi)	
Rated supply voltage	--- 12/24 V	
Voltage limits	--- 8...33 V	
Output	Solid-state, NPN or PNP, NC	
Switching capacity	150 mA	
Current consumption	< 4 mA	
Electrical connection	By connector	XML G...D...: M12, 3-pin male. For suitable female connectors, including pre-wired versions, see pages 6/20 and 6/21
	Integrated	XML G...Q...: integrated quick connection (4)

(1) Other types of output (normally open PNP, NPN...), please consult us.

(2) Other pressure ranges, please consult us.

(3) Other connections (AMP connector, cable...), please consult us.

(4) Phoenix Contact "Quickon" type integrated connection.

(5) Sold in lots of 25, minimum quantity 50.

(6) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15...+ 125 °C.

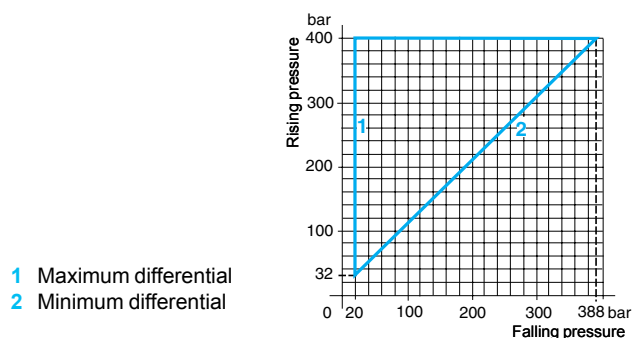
Component materials of units in contact with the fluid, see page 6/11.

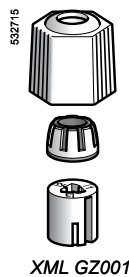
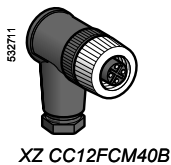
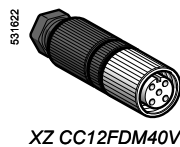
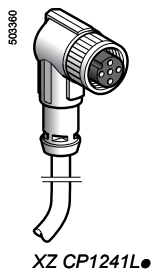
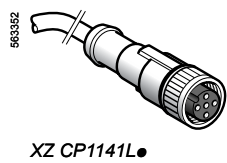
Other fluid connections (G 1/4 female, 1/4" NPT...), please consult us.

(7) State the switching threshold settings when ordering.

Operating curve

XML G400...1TQ





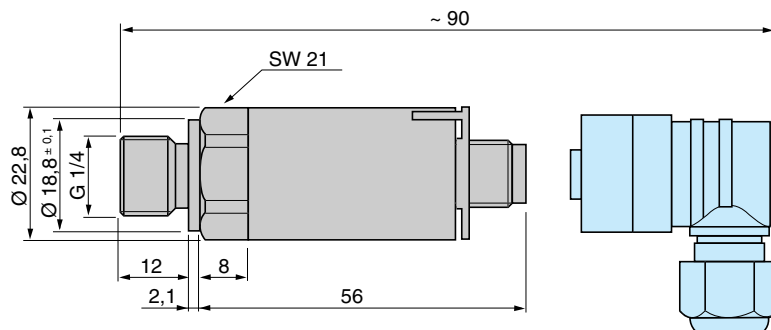
Connection accessories				
Description		Length of cable m	Reference	Weight kg
M12 “Snap C”, straight, female connector (1)		–	XZ CC12FDM40V	0.015
M12 female connector, metal clamping ring (2)	Straight	–	XZ CC12FDM40B	0.020
	Elbowed	–	XZ CC12FCM40B	0.020
Pre-wired M12 female connectors	Straight	2	XZ CP1141L2	0.090
		5	XZ CP1141L5	0.190
		10	XZ CP1141L10	0.370
	Elbowed	2	XZ CP1241L2	0.090
		5	XZ CP1241L5	0.190
		10	XZ CP1241L10	0.370

Replacement part			
Description	Sold in lots of	Unit reference	Weight kg
Quick connection (3)	10	XML GZ001	0.025

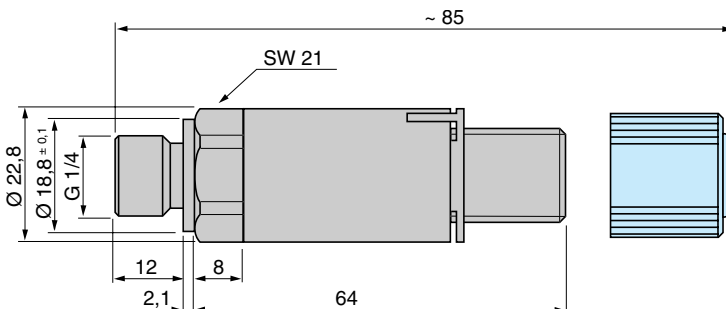
(1) Connector incorporating IDCs (Insulation Displacement Connectors) for simple and quick direct, in-line, connection to cable, without the need of a screwdriver or soldering iron.
(2) Connector with screw terminal connections.
(3) Phoenix Contact “Quickon” type connection.

Dimensions

XML G...D..., M12 x 1 connection



XML G...Q..., integrated quick connection

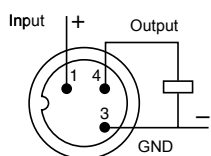


Connector schemes (pressure sensor connector pin view)

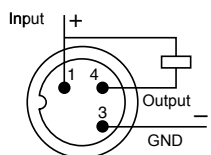
Electronic pressure switches

M12

3-wire technique (PNP)

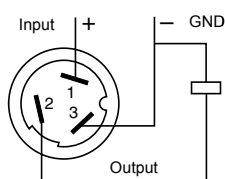


3-wire technique (NPN)

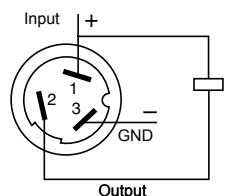


Integrated quick connection

3-wire technique (PNP)



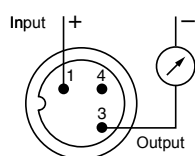
3-wire technique (NPN)



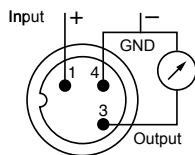
Pressure transmitters

M12

2-wire technique (4-20 mA)

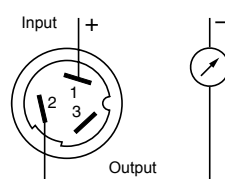


3-wire technique (0-10 V)

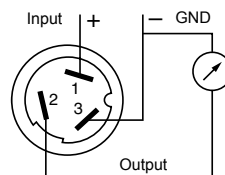


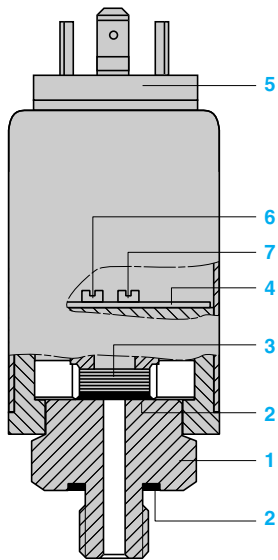
Integrated quick connection

2-wire technique (4-20 mA)



3-wire technique (0-10 V)





Presentation

Pressure switches and pressure transmitters type XML E are characterised by their ceramic pressure measuring cell.

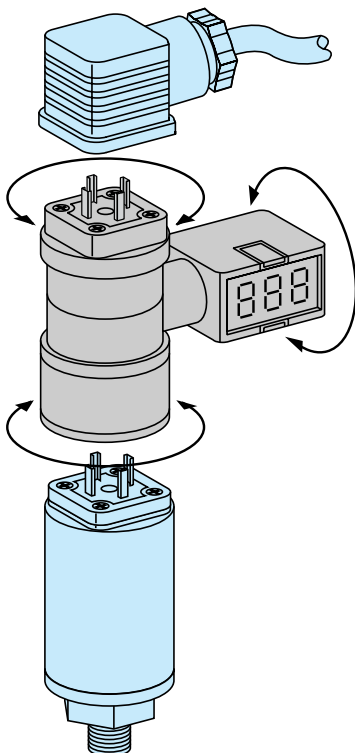
- 1 Threaded fluid entry.
- 2 Sealing gaskets.
- 3 Measuring load cell (ceramic technology).
- 4 Electronic card.
- 5 Electrical connector.
- 6 Adjustment potentiometer for switching point PH (rising pressure).
Only applicable to pressure switches.
- 7 Adjustment potentiometer for switching point PB (falling pressure).
Only applicable to pressure switches.

Operating principle

Pressure switches XML E incorporate a solid-state NPN or PNP NC output. Two potentiometers enable the setting of the PH (rising pressure) and PB (falling pressure) switching points.

Pressure transmitters XML E provide a 4 to 20 mA analogue output which is proportional to the measuring range.

A digital display unit can be directly plugged-in between the male and female DIN 43650A connectors. Simple unrestricted positioning of the display unit + sensor + connector (can be rotated through 360°). The display can be adjusted to enable reading from any direction (360° orientation both vertically and horizontally).



Characteristics		
Conformity to standards		CE, EN 50081, EN 50082
Product certifications		UL, CSA
Protective treatment		Standard version "TC"
Ambient air temperature	°C	For operation: - 15...+ 80
Fluids or products controlled		Hydraulic oils, air, fresh water, sea water, corrosive fluids from - 15...+ 80 °C
Component materials in contact with fluid		Stainless steel fluid entry type AISI 303, viton gasket
Operating position		All positions
Vibration resistance	gn	5 (25...200 Hz) and 35 (60...2000 Hz)
Shock resistance	gn	50
Electrical protection		Protected against reverse polarity, short-circuit and overload
Degree of protection		IP 65 conforming to IEC/EN 60529
Operating rate	Hz	50
Response time	ms	< 5
Service life	Op. cycles	> 10 million
Drift		Of the zero point: < ± 0.03% of the measuring range/°C Of the sensitivity: < ± 15% of the measuring range/°C
Precision		< ± 0.3% of the measuring range
Fluid connection		G 1/4 A (BSP male) conforming to NF E 03-004, ISO 7
Electrical connection		DIN 43650A or M12 connector

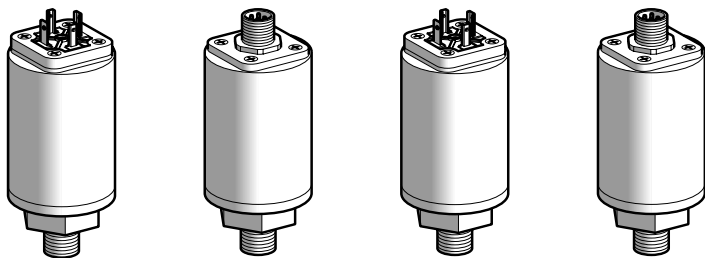
Electronic pressure sensors

Nautilus® type XML E

Transmitters without display (1)

Sizes - 1 to 25 bar (- 14.5 to 362.5 psi)

Type	With analogue output, fluid connection 1/4" BSP male			
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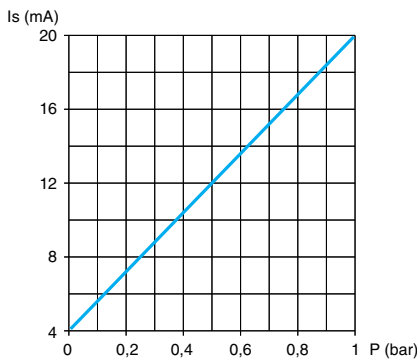
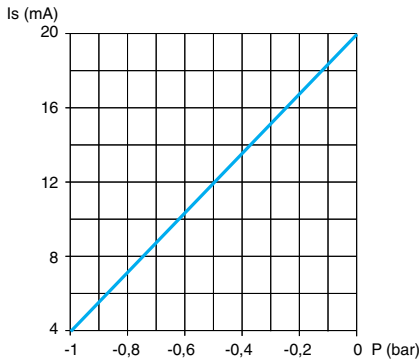
Pressure range	0...-1 bar (0...-14.5 psi)		0...1 bar (0...14.5 psi)	
Electrical connector type	DIN 43650A	M12	DIN 43650A	M12

References					
Fluids controlled (2)	Hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15...+ 80 °C	XML EM01U1C21	XML EM01U1D21	XML E001U1C21	XML E001U1D21
Weight (kg)		0.250	0.300	0.250	0.300

Complementary characteristics not shown under general characteristics (page 6/23)	
Maximum permissible accidental pressure	1 bar (14.5 psi) 2 bar (29 psi)
Destruction pressure	2 bar (29 psi) 3 bar (43.5 psi)
Rated supply voltage	≡ 24 V
Voltage limits	≡ 11...33 V
Output	Analogue, 4...20 mA, 2-wire technique
Current consumption	< 20 mA
Electrical connection	XML E●●●U1C21: DIN 43650A, 4-pin male connector. For suitable female connector, see page 6/32. XML E●●●U1D21: M12, 5-pin male connector. For suitable female pre-wired connector, see page 6/32.

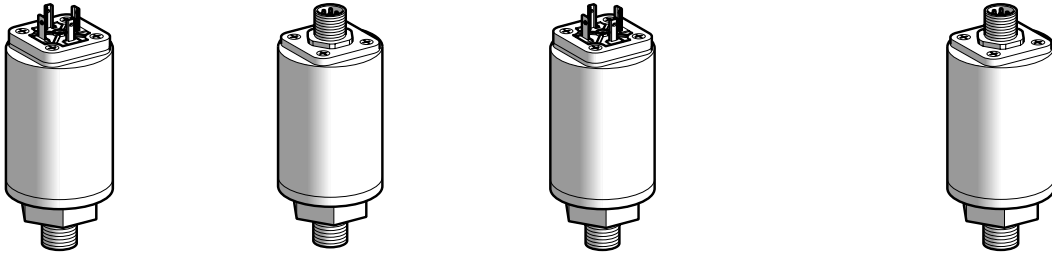
(1) Optional digital display for sensor, see page 6/32.
(2) Component materials of units in contact with the fluid, see page 6/23.

Output curves



Other versions Pressure transmitters with 1/4" NPTF fluid connection. Please consult your Regional Sales Office.

With analogue output, fluid connection 1/4" BSP male



0...10 bar (0...145 psi)

DIN 43650A

M12

0...25 bar (0...362.5 psi)

DIN 43650A

M12

References

XML E010U1C21

XML E010U1D21

XML E025U1C21

XML E025U1D21

0.250

0.300

0.250

0.300

Complementary characteristics not shown under general characteristics (page 6/23)

20 bar (290 psi)

50 bar (725 psi)

30 bar (435 psi)

75 bar (1087.5 psi)

24 V

11...33 V

Analogue, 4...20 mA, 2-wire technique

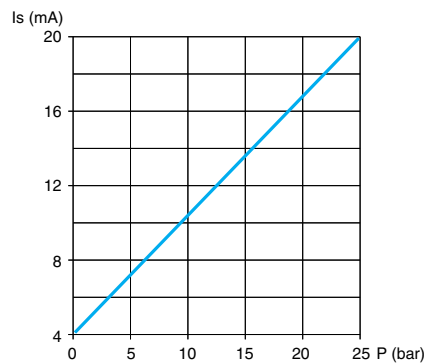
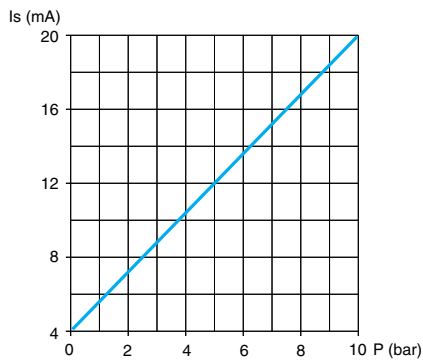
< 20 mA

XML E...U1C21: DIN 43650A, 4-pin male connector. For suitable female connector, see page 6/32.

XML E...U1D21: M12, 5-pin male connector. For suitable female pre-wired connector, see page 6/32.

6

Output curves



Electronic pressure sensors

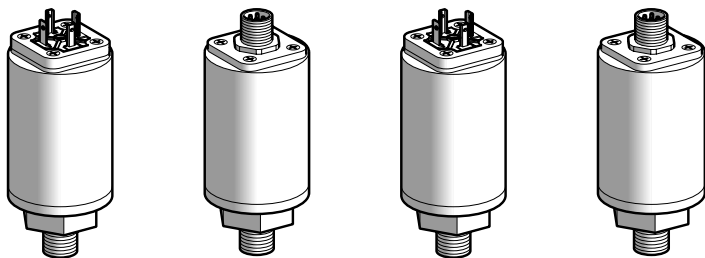
Nautilus® type XML E

Transmitters without display (1)

Sizes 60 to 600 bar (870 to 8700 psi)

Type

With analogue output, fluid connection 1/4" BSP male

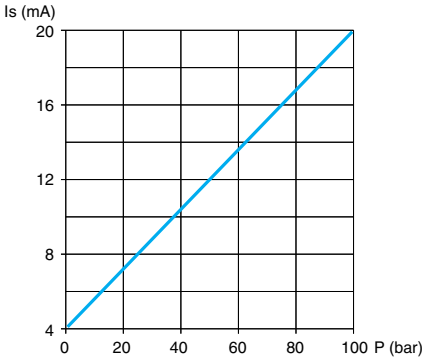
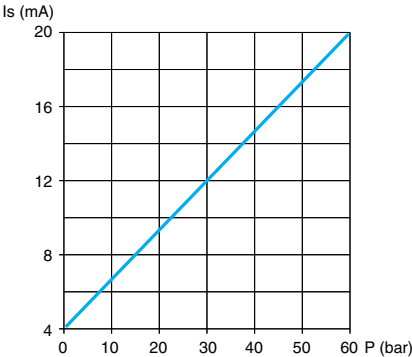


Pressure range		0...60 bar (0...870 psi)		0...100 bar (0...1450 psi)	
Electrical connector type		DIN 43650A	M12	DIN 43650A	M12
References					
Fluids controlled (2)	Hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15...+ 80 °C	XML E060U1C21	XML E060U1D21	XML E100U1C21	XML E100U1D21
Weight (kg)		0.270	0.320	0.270	0.320
Complementary characteristics not shown under general characteristics (page 6/23)					
Maximum permissible accidental pressure		120 bar (1740 psi)		200 bar (2900 psi)	
Destruction pressure		180 bar (2610 psi)		300 bar (4350 psi)	
Rated supply voltage		≡ 24 V			
Voltage limits		≡ 11...33 V			
Output		Analogue, 4...20 mA, 2-wire technique			
Current consumption		< 20 mA			
Electrical connection		XML E●●●U1C21: DIN 43650A, 4-pin male connector. For suitable female connector, see page 6/32. XML E●●●U1D21: M12, 5-pin male connector. For suitable female pre-wired connector, see page 6/32.			

(1) Optional digital display for sensor, see page 6/32.

(2) Component materials of units in contact with the fluid, see page 6/23.

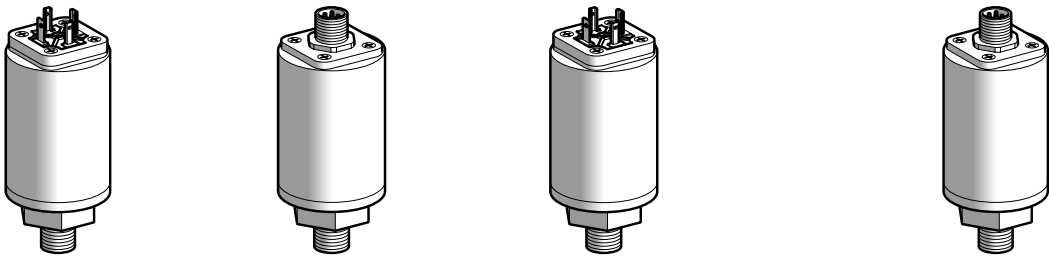
Output curves



Other versions

Pressure transmitters with 1/4" NPTF fluid connection.
Please consult your Regional Sales Office.

With analogue output, fluid connection 1/4" BSP male



0...250 bar (0...3625 psi)

DIN 43650A

M12

0...600 bar (0...8700 psi)

DIN 43650A

M12

References

XML E250U1C21

XML E250U1D21

XML E600U1C21

XML E600U1D21

0.270

0.320

0.270

0.320

Complementary characteristics not shown under general characteristics (page 6/23)

500 bar (7250 psi)

1200 bar (17 400 psi)

750 bar (10 875 psi)

1800 bar (26 100 psi)

24 V

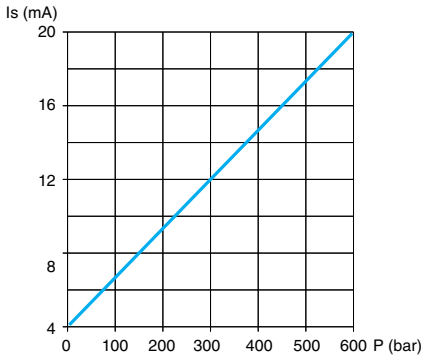
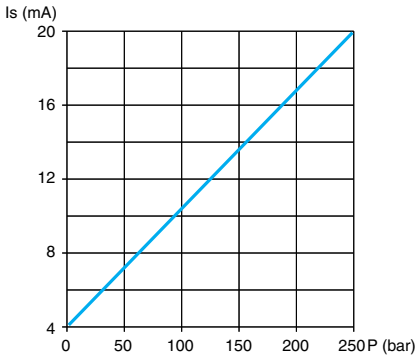
11...33 V

Analogue, 4...20 mA, 2-wire technique

< 20 mA

XML E...U1C21: DIN 43650A, 4-pin male connector. For suitable female connector, see page 6/32.
XML E...U1D21: M12, 5-pin male connector. For suitable female pre-wired connector, see page 6/32.

Output curves



Electronic pressure sensors

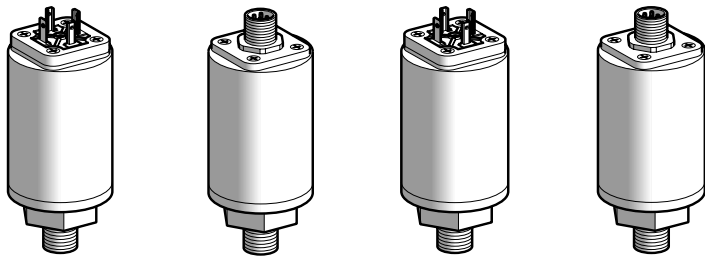
Nautilus® type XML E

Vacuum and pressure switches without display (1),
for regulation between 2 thresholds

Sizes - 1 to 25 bar (- 14.5 to 362.5 psi)

Type

With solid-state output, fluid connection 1/4" BSP male



Adjustable range of switching point (PH) (Rising pressure) (2)	- 0.07...- 1 bar (- 1.015...- 14.5 psi)		0.07...1 bar (1.015...14.5 psi)	
Electrical connector type	DIN 43650A	M12	DIN 43650A	M12

References

Fluids controlled (3)	Type of output				
Hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15 to + 80 °C	NPN	XML EM01U1C31	XML EM01U1D31	XML E001U1C31	XML E001U1D31
	PNP	XML EM01U1C41	XML EM01U1D41	XML E001U1C41	XML E001U1D41
Weight (kg)		0.250	0.300	0.250	0.300

Complementary characteristics not shown under general characteristics (page 6/23)

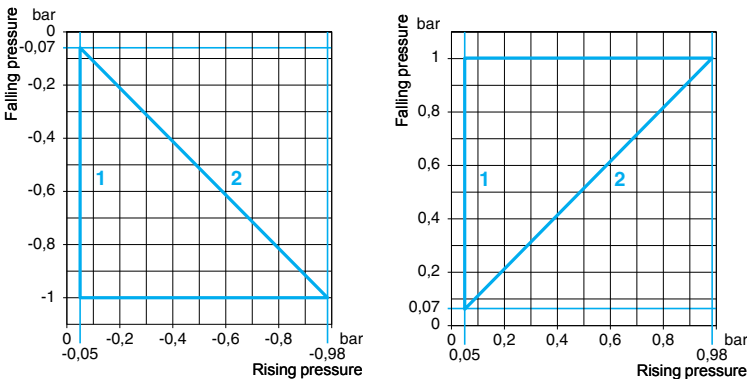
Possible differential	Min. at low setting	0.02 bar (0.29 psi)	0.02 bar (0.29 psi)
	Min. at high setting	0.02 bar (0.29 psi)	0.02 bar (0.29 psi)
	Max. at high setting	0.95 bar (13.77 psi) (max. differential at low setting)	0.95 bar (13.77 psi)
Maximum permissible accidental pressure	1 bar (14.5 psi)		2 bar (29 psi)
Destruction pressure	2 bar (29 psi)		3 bar (43.5 psi)
Rated supply voltage	--- 24 V		
Voltage limits	--- 11...33 V		
Output	Solid-state, NPN or PNP, NC		
Switching capacity	100 mA		
Current consumption	< 15 mA		
Electrical connection	XML E●●●U1C●1: DIN 43650A, 4-pin male connector. For suitable female connector, see page 6/32. XML E●●●U1D●1: M12, 4-pin male connector. For suitable female pre-wired connector, see page 6/32.		

(1) Optional digital display for pressure switch, see page 6/32.

(2) For vacuum switches (size -1 bar): adjustable range of switching point (PB) on falling pressure.

(3) Component materials of units in contact with the fluid, see page 6/23.

Operating curves

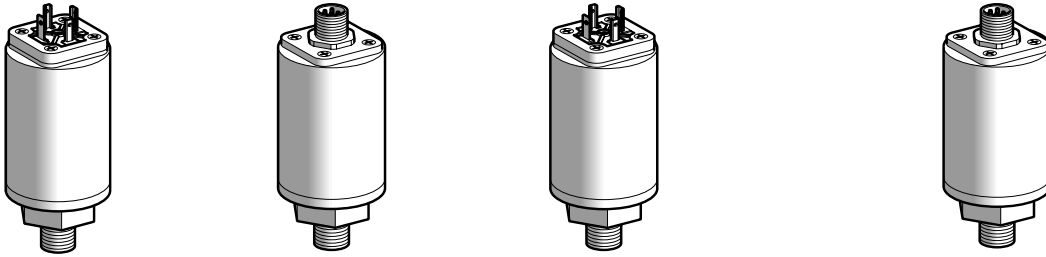


- 1 Maximum differential
2 Minimum differential

Other versions

Pressure and vacuum switches with 1/4" NPTF fluid connection.
Please consult your Regional Sales Office.

With solid-state output, fluid connection 1/4" BSP male



0.7...10 bar (10.15...145 psi)

DIN 43650A

M12

1.75...25 bar (25.38...362.5 psi)

DIN 43650A

M12

References

XML E010U1C31

XML E010U1D31

XML E025U1C31

XML E025U1D31

XML E010U1C41

XML E010U1D41

XML E025U1C41

XML E025U1D41

0.250

0.300

0.250

0.300

Complementary characteristics not shown under general characteristics (page 6/23)

0.2 bar (2.9 psi)

0.2 bar (2.9 psi)

0.2 bar (2.9 psi)

0.2 bar (2.9 psi)

9.5 bar (137.7 psi)

23.75 bar (344.37 psi)

20 bar (290 psi)

50 bar (725 psi)

30 bar (435 psi)

75 bar (1087.5 psi)

24 V

11...33 V

Solid-state, NPN or PNP, NC

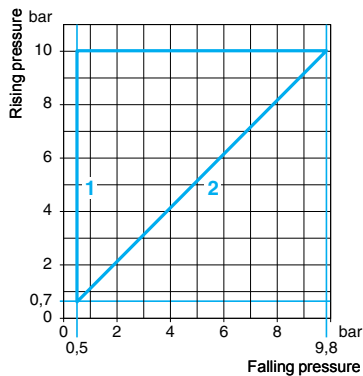
100 mA

< 15 mA

XML E...U1C...1: DIN 43650A, 4-pin male connector. For suitable female connector, see page 6/32.

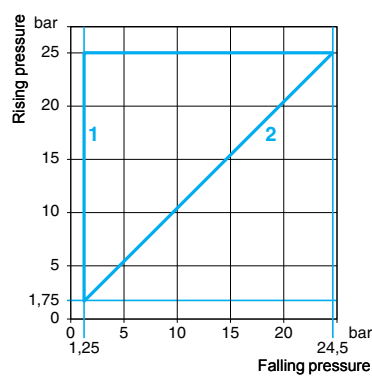
XML E...U1D...1: M12, 5-pin male connector. For suitable female pre-wired connector, see page 6/32.

Operating curves



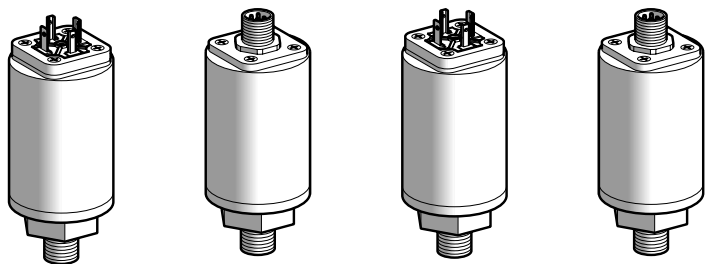
1 Maximum differential

2 Minimum differential



Electronic pressure sensors
Nautilus® type XML E
Pressure switches without display (1),
for regulation between 2 thresholds.
Sizes 60 to 600 bar (870 to 8700 psi)

Type	With solid-state output, fluid connection 1/4" BSP male			
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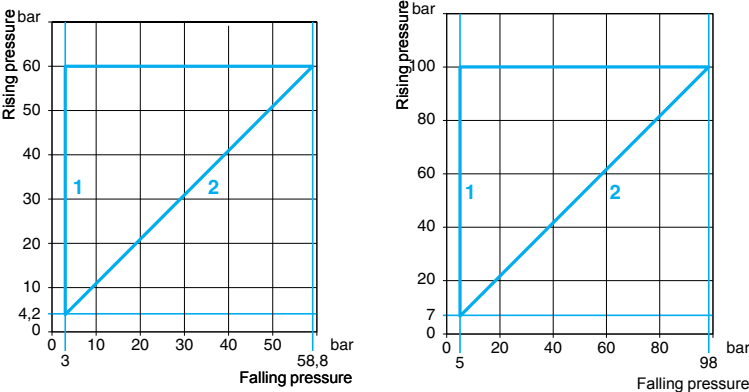
Adjustable range of switching point (PH) (Rising pressure)	4.2...60 bar (60.9...870 psi)		7...100 bar (101.5...1450 psi)	
Electrical connector type	DIN 43650A	M12	DIN 43650A	M12

References					
Fluids controlled (2)	Type of output				
		XML E060U1C31	XML E060U1D31	XML E100U1C31	XML E100U1D31
Hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15 to + 80 °C	NPN				
	PNP	XML E060U1C41	XML E060U1D41	XML E100U1C41	XML E100U1D41
Weight (kg)		0.270	0.320	0.270	0.320

Complementary characteristics not shown under general characteristics (page 6/23)			
Possible differential	Min. at low setting	1.2 bar (17.4 psi)	2 bar (29 psi)
	Min. at high setting	1.2 bar (17.4 psi)	2 bar (29 psi)
	Max. at high setting	57 bar (826.5 psi)	95 bar (1377.5 psi)
Maximum permissible accidental pressure		120 bar (1740 psi)	200 bar (2900 psi)
Destruction pressure		180 bar (2610 psi)	300 bar (4350 psi)
Rated supply voltage		--- 24 V	
Voltage limits		--- 11...33 V	
Output		Solid-state, NPN or PNP, NC	
Switching capacity		100 mA	
Current consumption		< 15 mA	
Electrical connection		XML E●●●U1C●1: DIN 43650A, 4-pin male connector. For suitable female connector, see page 6/32. XML E●●●U1D●1: M12, 5-pin male connector. For suitable female pre-wired connector, see page 6/32.	

(1) Optional digital display for pressure switch, see page 6/32.
(2) Component materials of units in contact with the fluid, see page 6/23.

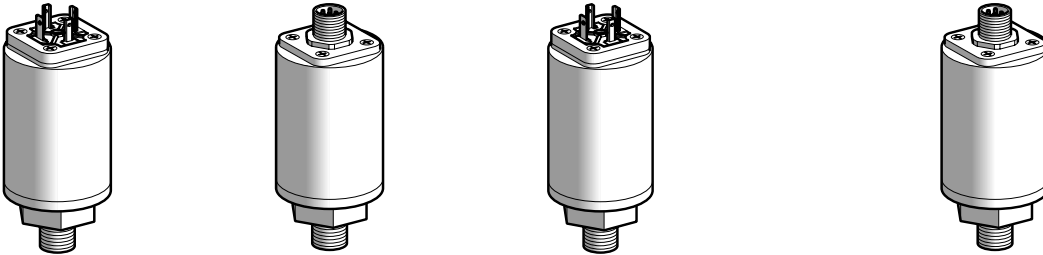
Operating curves



- 1 Maximum differential
- 2 Minimum differential

Other versions	Pressure and vacuum switches with 1/4" NPTF fluid connection. Please consult your Regional Sales Office.
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With solid-state output, fluid connection 1/4" BSP male



17.5...250 bar (253.7...3625 psi)

42...600 bar (609...8700 psi)

DIN 43650A

M12

DIN 43650A

M12

References

XML E250U1C31

XML E250U1D31

XML E600U1C31

XML E600U1D31

XML E250U1C41

XML E250U1D41

XML E600U1C41

XML E600U1D41

0.270

0.320

0.270

0.320

Complementary characteristics not shown under general characteristics (page 6/23)

5 bar (72.5 psi)

12 bar (174 psi)

5 bar (72.5 psi)

12 bar (174 psi)

237.5 bar (3443.7 psi)

570 bar (8265 psi)

500 bar (7250 psi)

1200 bar (17 400 psi)

750 bar (10 875 psi)

1800 bar (26 100 psi)

--- 24 V

--- 11...33 V

Solid-state, NPN or PNP, NC

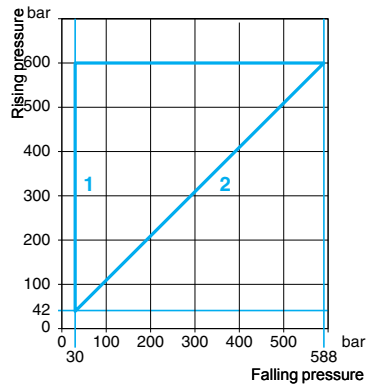
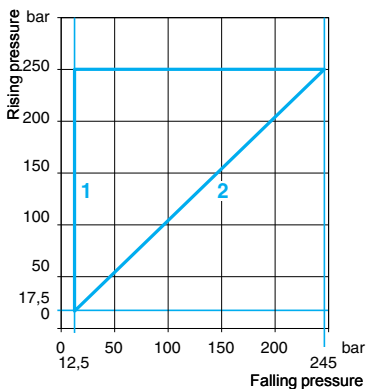
100 mA

< 15 mA

XML E●●●U1C●1: DIN 43650A, 4-pin male connector. For suitable female connector, see page 6/32.

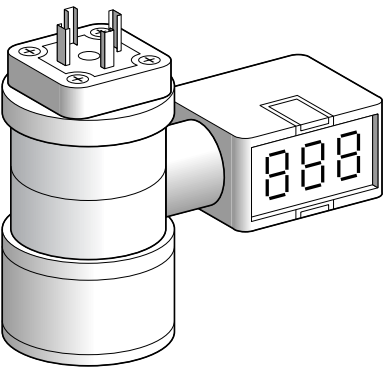
XML E●●●U1D●1: M12, 5-pin male connector. For suitable female pre-wired connector, see page 6/32.

Operating curves

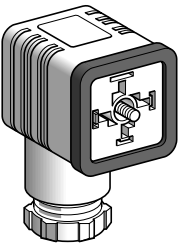


1 Maximum differential

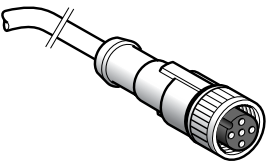
2 Minimum differential



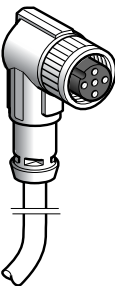
XML EZ●●●●



XZ CC43FCP40B



XZ CP1164L●



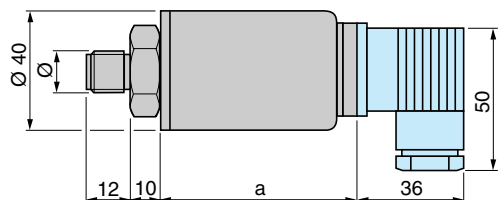
XZ CP1264L●

Accessories			
Description	Sensor size	Reference	Weight
	bar		kg
Digital displays for analogue pressure sensors	- 1...0	XML EZM01	0.100
	0...1	XML EZ001	0.100
	0...10	XML EZ010	0.100
	0...25	XML EZ025	0.100
	0...60	XML EZ060	0.100
	0...100	XML EZ100	0.100
	0...250	XML EZ250	0.100
	0...600	XML EZ600	0.100

Connection accessories			
Description	Length of cable	Reference	Weight
	m		kg
Female DIN 43650 A connector	–	XZ CC43FCP40B	0.035
DIN 43650 A - straight M12 male jumper cables for splitter boxes	1 m	XZ CR1523062K1	0.080
	2 m	XZ CR1523062K2	0.110
Pre-wired M12, straight, female connectors	2 m	XZ CP1164L2	0.115
	5 m	XZ CP1164L5	0.270
	10 m	XZ CP1164L10	0.520
Pre-wired M12, elbowed, female connectors	2 m	XZ CP1264L2	0.115
	5 m	XZ CP1264L5	0.270
	10 m	XZ CP1264L10	0.520

Dimensions

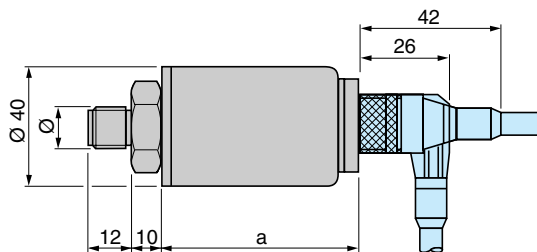
XML E...U1C21, XML U1C31



XML E	a
M01, 001, 010, 025	65
060, 250, 600	75

Ø: G 1/4 A (BSP male)

XML E...U1D31

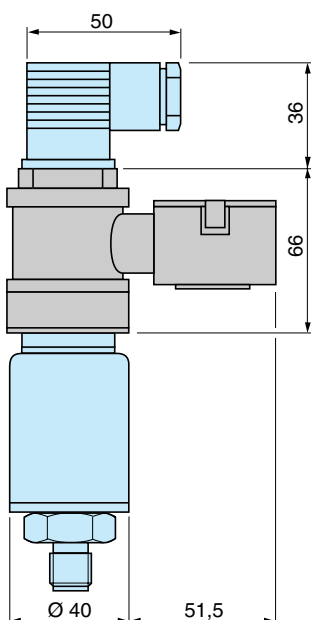
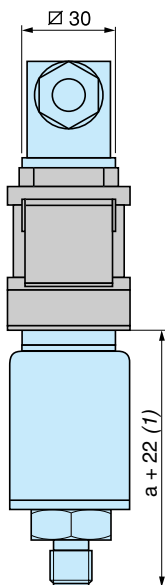


XML E	a
M01, 001, 010, 025	65
060, 250, 600	75

Ø: G 1/4 A (BSP male)

Digital displays

XML EZ...



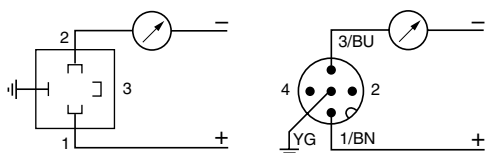
(1) a = 65 or 75, see above.

Wiring schemes

Pressure transmitters (1)

XML E...U1C21

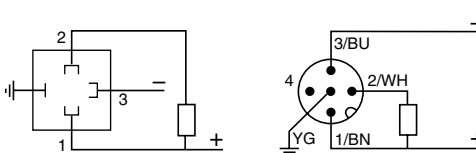
XML E...U1D21



Electronic pressure switches (2)

XML E...U1C31

XML E...U1D31

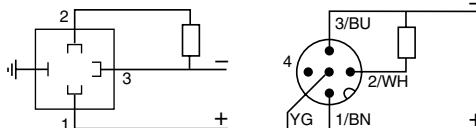
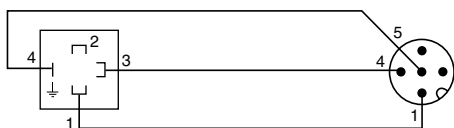


Jumper cables, DIN 43650 A - straight M12 male

XZ CR15230D62K•

XML E...U1C41

XML E...U1D41



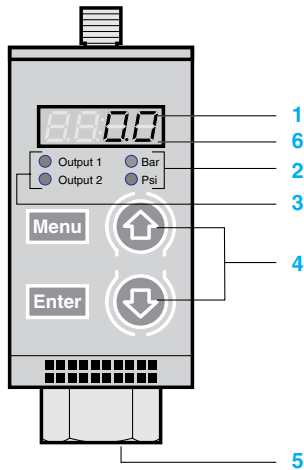
(1) sensor connector pin view

(2) switch connector pin view

Electronic pressure sensors

Nautilus® Universal, Osiconcept®

For control circuits, type XML F



Presentation

Electronic pressure sensors type XML F are used for pressure control of hydraulic oils, fresh water, sea water, air and corrosive fluids, between - 1 and 600 bar.

■ Osiconcept: simplicity of setting-up

Electronic pressure sensors type XML F are characterised by their ceramic pressure measuring cell.

- 1 Large 4-digit display indicating programming codes, parameter values or the measured pressure.
 - 2 LED indicators for pressure unit of measurement selected (direct reading of bar or psi).
 - 3 LED indicator(s) for providing status of pressure switch output(s).
 - 4 Ergonomic keys for configuring the product via the pull-down menu.
 - 5 Excellent resistance to overpressures.
 - 6 Memorisation and possibility of reading pressure peaks within the installation.
- Three menus enable the user to:
 - configure ("PROG" menu) the various functions of the unit (access to all the parameters of the product),
 - perform ("USER" menu) diagnostic operations and, for pressure switches, to set the switching point pressure values,
 - read ("READ" menu) all the configuration details, together with the values set in the "PROG" and "USER" menus.

Functions

■ Pressure transmitters **XML F...D2•1•** have a 4...20 mA or 0...10 V analogue output. In addition to having a manual diagnostic function (see below), they also incorporate a remote diagnostic function: a digital input connected, for example, to a PLC enables remote activation of the sensor's test function. When the sensor is operating correctly, the analogue output must, when testing, be close to 50% of the sensor size (12 mA or 5 V).

■ Universal sensors **XML F...D2•2•** are pressure switches with an adjustable differential, for regulation between 2 thresholds, featuring a solid-state output (configurable both for NPN or PNP and NO or NC), and a 4...20 mA or 0...10 V analogue output. They incorporate the manual diagnostic function (see below).

■ Pressure switches **XML F...D2•3•** are dual stage switches, with adjustable differential for each threshold, featuring 2 solid-state outputs (configurable both for NPN or PNP and NO or NC). They incorporate the manual diagnostic function (see below).

■ Pressure switches **XML F...E2•4•** for a.c. control are switches with adjustable differential, for regulation between 2 thresholds, featuring an ~ 2.5 A relay output (configurable for NO or NC). They incorporate the manual diagnostic function (see below).

Sensors type XML F feature:

■ Various configurable functions

- For the display:
 - pressure unit of measurement (bar or psi),
 - response time (slow: display refreshes in 1% steps of the units size, normal: display refreshes in 0.5% steps of the units size or fast: display refreshes every 10 ms).
- For the analogue output:
 - response time (adjustable from 5 to 500 ms, in steps of 1 ms),
 - maximum pressure of the output curve (adjustable from 75 to 125% of the units size).
- For each solid-state output:
 - PNP or NPN logic,
 - NO or NC output,
 - time delay both on trip and on reset (adjustable from 0 to 50 s, in steps of 1 s),
 - response time (adjustable from 5 to 500 ms, in steps of 1 ms).
- For the a.c. relay output models:
 - NO or NC contact,
 - time delay both on trip and on reset (adjustable from 0 to 50 s, in steps of 1 s),
 - response time (adjustable from 5 to 500 ms, in steps of 1 ms).

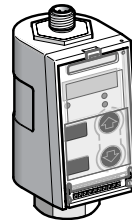
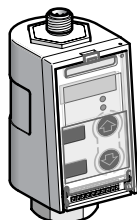
■ Manual diagnostic function enabling:

- checking correct operation of sensor,
- reading the value of the maximum pressure peak that has occurred since the last reset to zero and also, deleting this value for a fresh reset.

Environmental characteristics

Conformity to standards		CE, IEC/EN 60947-1, IEC/EN 60947-5-1, EN 50081, EN 50082, EN 61000-6-2, EN 61000-4-2/3/4/5/6/8/11
Product certifications		UL, CSA
Protective treatment		Standard version "TC"
Ambient air temperature	For operation	- 25...+ 80 °C (d.c. models)
		- 25...+ 75 °C (a.c. models)
Fluids or products controlled		Hydraulic oils, air, fresh water, sea water, corrosive fluids from - 15...+ 80 °C
Component materials in contact with fluid		Stainless steel fluid entry type AISI 303, viton gasket
Operating position		All positions
Vibration resistance		5 gn (25...200 Hz) and 35 gn (60...2000 Hz), conforming to IEC 68-2-6
Shock resistance		50 gn, conforming to IEC 68-2-27
Electrical protection		Protected against reverse polarity, short-circuit, overload and connection faults
Resistance to electromagnetic interference	Electrostatic discharges	Standard EN 61000-4-2 contact 4kV, air 8 kV
	Radiated electromagnetic fields	Standard EN 61000-4-3 10 V/m
	Fast transients	Standard EN 61000-4-4 2 kV
	Surges	Standard EN 61000-4-5 (AC) 1 kV, (DC) 0.5 kV
	Conducted disturbances, induced by radio frequency fields	Standard EN 61000-4-6 10 V
Degree of protection		IP 67 conforming to IEC/EN 60529, NEMA 4/6/12/13
Operating rate		< 50 Hz
Output response time		Adjustable from 5 to 500 ms, in steps of 1 ms
Service life	In millions of operating cycles	> 10
Drift	Of the zero point	< ± 0.1% of the measuring range/°C
	Of the sensitivity	< ± 0.03% of the measuring range/°C
Precision	Analogue output	≤ 0.6% of the measuring range, output offset < 200 mV
	Digital output	≤ 0.6% of the measuring range
Repeat accuracy		≤ 0.5% of the measuring range
Display response time		Adjustable; 3 options: - slow (1% of the units size), - normal (0.5% of the units size), or - fast (refreshed every 10 ms)
Fluid connection		G 1/4 A (BSP female) conforming to NF E 03-004 and ISO 7, 1/4" NPT or SAE 7/16-20UNF female, depending on model
Electrical connection		M12 "Snap-C" compatible connector or SAE 7/8-16UN connector, depending on model

Type	Pressure transmitters	Universal sensors with adjustable differential. Solid-state and analogue outputs (1)
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Adjustable range of switching point (PB) (Falling pressure)	—	—	- 0.08...- 1 bar (- 1.16...- 14.5 psi)
Analogue output	4-20 mA	0-10 V	4-20 mA 0-10 V

References

Fluid connection (2)	1/4" BSP female	XML FM01D2015	XML FM01D2115	XML FM01D2025	XML FM01D2125
	1/4" NPT female	XML FM01D2016	XML FM01D2116	XML FM01D2026	XML FM01D2126
	SAE 7/16-20UNF female	XML FM01D2019	XML FM01D2119	XML FM01D2029	XML FM01D2129
Weight (kg)	0.480				

Complementary characteristics not shown under general characteristics (page 6/35)

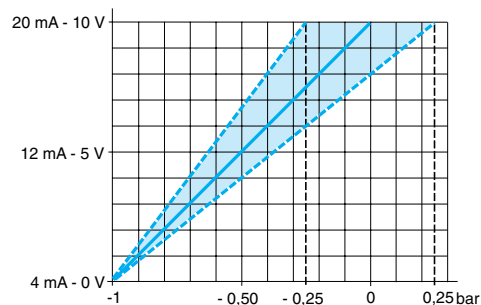
Possible differential (add to PB to give PH)	Min. at low and high setting	—	0.03 bar (0.44 psi)
	Max. at low setting	—	0.95 bar (13.77 psi)
Maximum permissible accidental pressure	3 bar (43.5 psi)		
Destruction pressure	5 bar (72.5 psi)		
Rated supply voltage	— 24 V		
Voltage limits	— 17...33 V		
Current consumption	80 mA		
Output	—	Programmable, NPN or PNP and NO or NC	
Time delay	—	Adjustable time delay on trip and on reset from 0 to 50 s, in steps of 1 second	
Switching capacity	—	200 mA	
Analogue output	4...20 mA or 0...10 V, depending on model. Maximum signal level adjustable between - 0.25 and 0.25 bar (- 3.62 and 3.62 psi)		
Electrical connection	M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 6/62		

(1) Vacuum sensors with adjustable differential for regulation between 2 thresholds. Solid-state and analogue outputs.

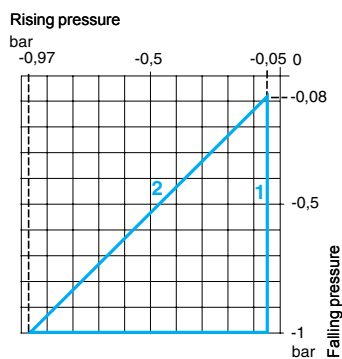
(2) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15 to + 80 °C. Component materials of units in contact with the fluid, see page 6/35.

Curves

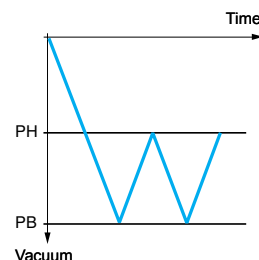
Analogue output curve



Vacuum sensor operating curves



- 1 Maximum differential
2 Minimum differential



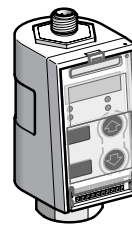
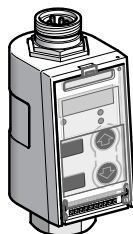
— Adjustable value

Electronic pressure sensors

Nautilus® type XML F

Size - 1 bar (- 14.5 psi)

Type	Vacuum switches with adjustable differential and relay output (1)	Dual stage adjustable vacuum switches with solid-state outputs (2)
------	---	--



Adjustable range of switching point(s) (PB or PB1 and PB2)
(Falling pressure) - 0.08...- 1 bar (- 1.16...- 14.5 psi)

References

Fluid connection (3)	1/4" BSP female	XML FM01E2045	XML FM01D2035
	1/4" NPT female	XML FM01E2046	XML FM01D2036
	SAE 7/16-20UNF female	XML FM01E2049	XML FM01D2039
Weight (kg)		0.590	0.480

Complementary characteristics not shown under general characteristics (page 6/35)

Possible differential (add to: - PB to give PH - PB1 & PB2 to give PH1 & PH2)	Min. at low and high setting	0.03 bar (0.44 psi)	For each stage: min. at low and high setting: 0.03 bar (0.44 psi) max. at low setting: 0.95 bar (13.77 psi)
	Max. at low setting	0.95 bar (13.77 psi)	
Maximum permissible accidental pressure	3 bar (43.5 psi)		
Destruction pressure	5 bar (72.5 psi)		
Rated supply voltage	~ 120 V		~ 24 V
Voltage limits	~ 102...132 V		~ 17...33 V
Current consumption	32 mA		80 mA
Output	Relay		Programmable, NPN or PNP and NO or NC
Time delay	Adjustable time delay on trip and on reset from 0 to 50 s, in steps of 1 second		
Switching capacity	2.5 A, AC-15, C300 (120 V - 1.5 A)		200 mA
Electrical connection	SAE 7/8-16UN, 5-pin male connector. For suitable female pre-wired connectors, see page 6/62.		M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 6/62

(1) Vacuum switches with adjustable differential for regulation between 2 thresholds. Relay output.

(2) Vacuum switches with 2 adjustable stages and adjustable differential for each threshold. Solid-state outputs.

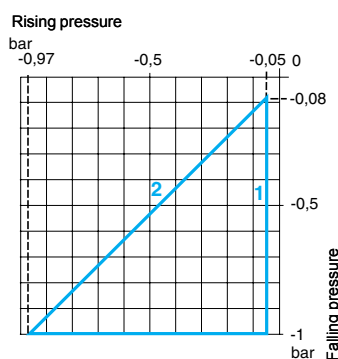
(3) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15 to + 80 °C. Component materials of units in contact with the fluid, see page 6/35.

Vacuum switch operating curves

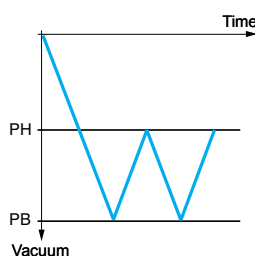
(Curve for each stage for dual stage vacuum switches)

Vacuum switches with relay output

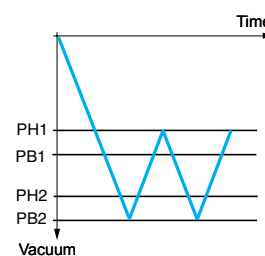
Dual stage vacuum switches



- 1 Maximum differential
- 2 Minimum differential

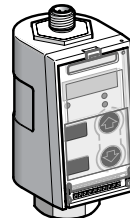
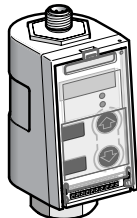


— Adjustable value



— Adjustable value

Type	Pressure transmitters	Universal sensors with adjustable differential. Solid-state and analogue outputs (1)
------	-----------------------	--



Adjustable range of switching point (PH) (Rising pressure)	—	0.08...1 bar (1.16...14.5 psi)
Analogue output	4-20 mA	0-10 V

References

Fluid connection	1/4" BSP female	XML F001D2015	XML F001D2115	XML F001D2025	XML F001D2125
(2)	1/4" NPT female	XML F001D2016	XML F001D2116	XML F001D2026	XML F001D2126
	SAE 7/16-20UNF female	XML F001D2019	XML F001D2119	XML F001D2029	XML F001D2129
Weight (kg)	0.480				

Complementary characteristics not shown under general characteristics (page 6/35)

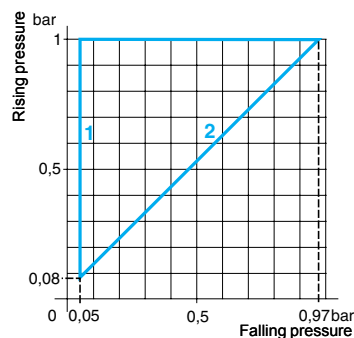
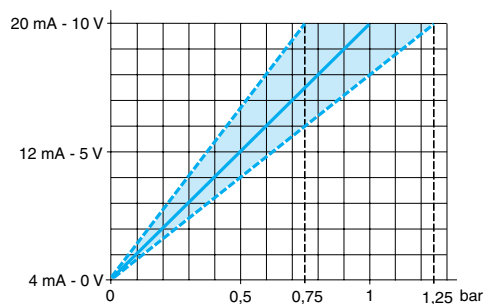
Possible differential (subtract to PH to give PB)	Min. at low and high setting	—	0.03 bar (0.44 psi)
	Max. at high setting	—	0.95 bar (13.77 psi)
Maximum permissible accidental pressure	4 bar (58 psi)		
Destruction pressure	6 bar (87 psi)		
Rated supply voltage	--- 24 V		
Voltage limits	--- 17...33 V		
Current consumption	80 mA		
Output	—		Programmable, NPN or PNP and NO or NC
Time delay	—		Adjustable time delay on trip and on reset from 0 to 50 s, in steps of 1 second
Switching capacity	—		200 mA
Analogue output	4...20 mA or 0...10 V, depending on model. Maximum signal level adjustable between 0.75 and 1.25 bar (10.88 and 18.12 psi)		
Electrical connection	M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 6/62		

(1) Pressure sensors with adjustable differential for regulation between 2 thresholds. Solid-state and analogue outputs.

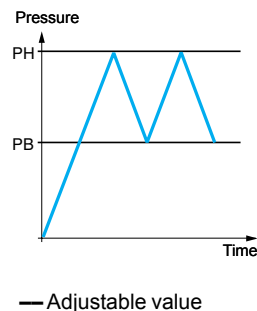
(2) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15 to + 80 °C. Component materials of units in contact with the fluid, see page 6/35.

Curves

Analogue output curve	Pressure sensor operating curves
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- 1 Maximum differential
- 2 Minimum differential

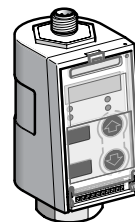


Electronic pressure sensors

Nautilus® type XML F

Size 1 bar (14.5 psi)

Type	Pressure switches with adjustable differential and relay output (1)	Dual stage adjustable pressure switches with solid-state outputs (2)
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Adjustable range of switching point(s) (PH or PH1 and PH2) (Rising pressure)	0.08...1 bar (1.16...14.5 psi)
---	--------------------------------

References

Fluid connection (3)	1/4" BSP female	XML F001E2045	XML F001D2035
	1/4" NPT female	XML F001E2046	XML F001D2036
	SAE 7/16-20UNF female	XML F001E2049	XML F001D2039
Weight (kg)	0.590	0.480	

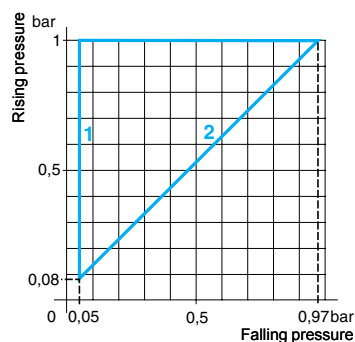
Complementary characteristics not shown under general characteristics (page 6/35)

Possible differential (subtract from: - PH to give PB - PH1 & PH2 to give PB1 & PB2)	Min. at low and high setting Max. at high setting	0.03 bar (0.44 psi) 0.95 bar (13.77 psi)	For each stage: min. at low and high setting: 0.03 bar (0.44 psi) max. at high setting: 0.95 bar (13.77 psi)
Maximum permissible accidental pressure	4 bar (58 psi)		
Destruction pressure	6 bar (87 psi)		
Rated supply voltage	~ 120 V		24 V
Voltage limits	~ 102...132 V		17...33 V
Current consumption	32 mA		80 mA
Output	Relay		Programmable, NPN or PNP and NO or NC
Time delay	Adjustable time delay on trip and on reset from 0 to 50 s, in steps of 1 second		
Switching capacity	2.5 A, AC-15, C300 (120 V - 1.5 A)		200 mA
Electrical connection	SAE 7/8-16UN, 5-pin male connector. For suitable female pre-wired connectors, see page 6/62.		M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 6/62

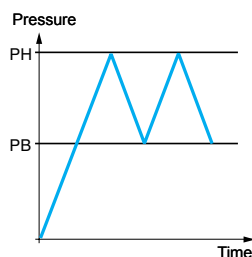
- (1) Pressure switches with adjustable differential for regulation between 2 thresholds. Relay output.
- (2) Pressure switches with 2 adjustable stages and adjustable differential for each threshold. Solid-state outputs.
- (3) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15 to + 80 °C. Component materials of units in contact with the fluid, see page 6/35.

Pressure switch operating curves

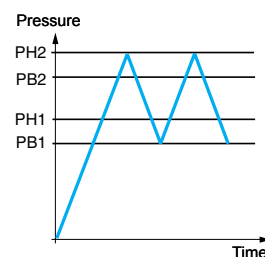
(Curve for each stage for dual stage pressure switches)	Pressure switches with relay output	Dual stage pressure switches
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- 1 Maximum differential
2 Minimum differential

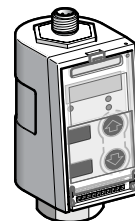
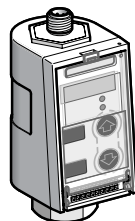


— Adjustable value



— Adjustable value

Type	Pressure transmitters	Universal sensors with adjustable differential. Solid-state and analogue outputs (1)
------	-----------------------	--



Adjustable range of switching point (PH) (Rising pressure)	—	0.20...2.5 bar (2.9...36.25 psi)
Analogue output	4-20 mA	0-10 V

References

Fluid connection	1/4" BSP female	XML F002D2015	XML F002D2115	XML F002D2025	XML F002D2125
	1/4" NPT female	XML F002D2016	XML F002D2116	XML F002D2026	XML F002D2126
	SAE 7/16-20UNF female	XML F002D2019	XML F002D2119	XML F002D2029	XML F002D2129
Weight (kg)	0.480				

Complementary characteristics not shown under general characteristics (page 6/35)

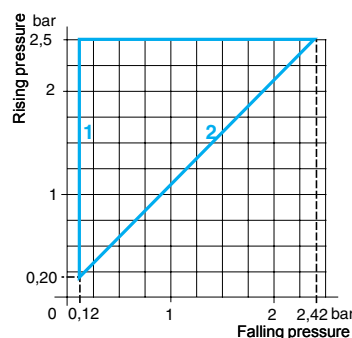
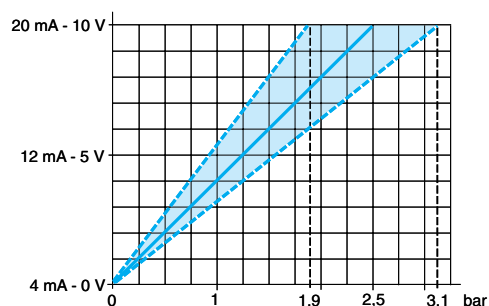
Possible differential (subtract from PH to give PB)	Min. at low and high setting	—	0.08 bar (1.09 psi)
	Max. at high setting	—	2.38 bar (34.51 psi)
Maximum permissible accidental pressure	10 bar (145 psi)		
Destruction pressure	15 bar (217.5 psi)		
Rated supply voltage	24 V		
Voltage limits	17...33 V		
Current consumption	80 mA		
Output	—		Programmable, NPN or PNP and NO or NC
Time delay	—		Adjustable time delay on trip and on reset from 0 to 50 s, in steps of 1 second
Switching capacity	—		200 mA
Analogue output	4...20 mA or 0...10 V, depending on model. Maximum signal level adjustable between 1.9 and 3.1 bar (27.5 and 44.9 psi)		
Electrical connection	M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 6/62		

(1) Pressure sensors with adjustable differential for regulation between 2 thresholds. Solid-state and analogue outputs.

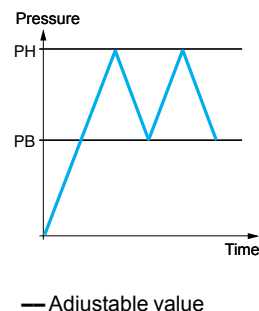
(2) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15 to + 80 °C. Component materials of units in contact with the fluid, see page 6/35.

Curves

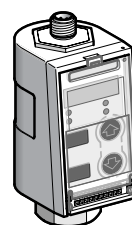
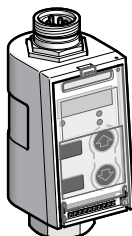
Analogue output curve	Pressure sensor operating curves
-----------------------	----------------------------------



- 1 Maximum differential
- 2 Minimum differential



Type	Pressure switches with adjustable differential and relay output (1)	Dual stage adjustable pressure switches with solid-state outputs (2)
------	---	--



Adjustable range of switching point(s) (PH or PH1 and PH2) (Rising pressure)	0.20...2.5 bar (2.9...36.25 psi)
--	----------------------------------

References

Fluid connection (3)	1/4" BSP female	XML F002E2045	XML F002D2035
	1/4" NPT female	XML F002E2046	XML F002D2036
	SAE 7/16-20UNF female	XML F002E2049	XML F002D2039
Weight (kg)		0.590	0.480

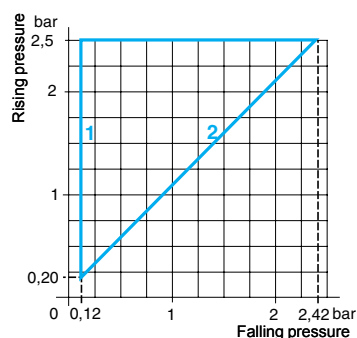
Complementary characteristics not shown under general characteristics (page 6/35)

Possible differential (subtract from: - PH to give PB - PH1 & PH2 to give PB1 & PB2)	Min. at low and high setting Max. at high setting	0.08 bar (1.09 psi) 2.38 bar (34.51 psi)	For each stage: min. at low and high setting: 0.08 bar (1.09 psi) max. at high setting: 2.38 bar (34.51 psi)
Maximum permissible accidental pressure	10 bar (145 psi)		
Destruction pressure	15 bar (217.5 psi)		
Rated supply voltage	~ 120 V		--- 24 V
Voltage limits	~ 102...132 V		--- 17...33 V
Current consumption	32 mA		80 mA
Output	Relay		Programmable, NPN or PNP and NO or NC
Time delay	Adjustable time delay on trip and on reset from 0 to 50 s, in steps of 1 second		
Switching capacity	2.5 A, AC-15, C300 (120 V - 1.5 A)		200 mA
Electrical connection	SAE 7/8-16UN, 5-pin male connector. For suitable female pre-wired connectors, see page 6/62.		M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 6/62

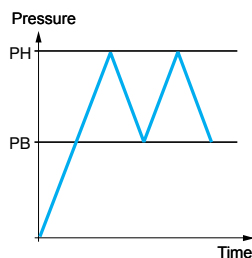
- (1) Pressure switches with adjustable differential for regulation between 2 thresholds. Relay output.
- (2) Pressure switches with 2 adjustable stages and adjustable differential for each threshold. Solid-state outputs.
- (3) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15 to + 80 °C. Component materials of units in contact with the fluid, see page 6/35.

Pressure switch operating curves

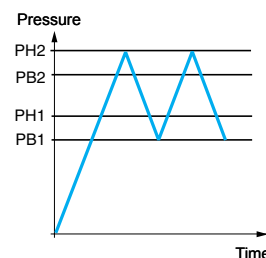
(Curve for each stage for dual stage pressure switches)	Pressure switches with relay output	Dual stage pressure switches
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- 1 Maximum differential
2 Minimum differential



— Adjustable value



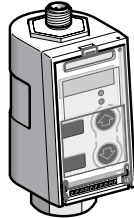
— Adjustable value

Electronic pressure sensors

Nautilus® type XML F

Size 10 bar (145 psi)

Type	Pressure transmitters	Universal sensors with adjustable differential. Solid-state and analogue outputs (1)
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Adjustable range of switching point (PH) (Rising pressure)	—	0.8...10 bar (11.6...145 psi)
Analogue output	4-20 mA	0-10 V

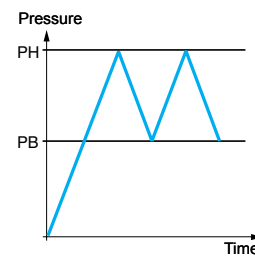
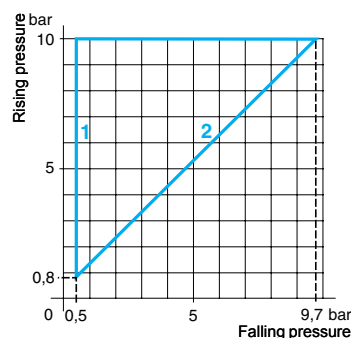
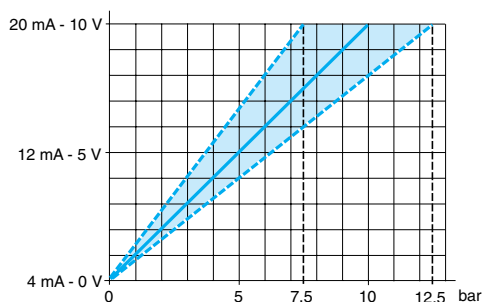
References					
Fluid connection (2)	1/4" BSP female	XML F010D2015	XML F010D2115	XML F010D2025	XML F010D2125
	1/4" NPT female	XML F010D2016	XML F010D2116	XML F010D2026	XML F010D2126
	SAE 7/16-20UNF female	XML F010D2019	XML F010D2119	XML F010D2029	XML F010D2129
Weight (kg)	0.480				

Complementary characteristics not shown under general characteristics (page 6/35)			
Possible differential (subtract from PH to give PB)	Min. at low and high setting	—	0.3 bar (4.4 psi)
	Max. at high setting	—	9.5 bar (137.75 psi)
Maximum permissible accidental pressure	40 bar (580 psi)		
Destruction pressure	60 bar (870 psi)		
Rated supply voltage	--- 24 V		
Voltage limits	--- 17...33 V		
Current consumption	80 mA		
Output	—	Programmable, NPN or PNP and NO or NC	
Time delay	—	Adjustable time delay on trip and on reset from 0 to 50 s, in steps of 1 second	
Switching capacity	—	200 mA	
Analogue output	4...20 mA or 0...10 V, depending on model. Maximum signal level adjustable between 7.5 and 12.5 bar (108.75 and 181.25 psi)		
Electrical connection	M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 6/62		

(1) Pressure sensors with adjustable differential for regulation between 2 thresholds. Solid-state and analogue outputs.

(2) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15 to + 80 °C. Component materials of units in contact with the fluid, see page 6/35.

Curves
Analogue output curve
Pressure sensor operating curves



- 1 Maximum differential
- 2 Minimum differential

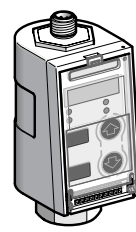
— Adjustable value

Electronic pressure sensors

Nautilus® type XML F

Size 10 bar (145 psi)

Type	Pressure switches with adjustable differential and relay output (1)	Dual stage adjustable pressure switches with solid-state outputs (2)
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Adjustable range of switching point(s) (PH or PH1 and PH2) (Rising pressure)	0.8...10 bar (11.6...145 psi)
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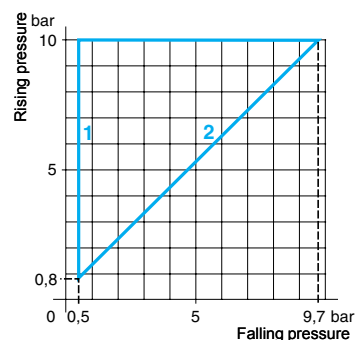
References			
Fluid connection (3)	1/4" BSP female	XML F010E2045	XML F010D2035
	1/4" NPT female	XML F010E2046	XML F010D2036
	SAE 7/16-20UNF female	XML F010E2049	XML F010D2039
Weight (kg)	0.590	0.480	

Complementary characteristics not shown under general characteristics (page 6/35)			
Possible differential (subtract from: - PH to give PB - PH1 & PH2 to give PB1 & PB2)	Min. at low and high setting	0.3 bar (4.4 psi)	For each stage: min. at low and high setting: 0.3 bar (4.4 psi) max. at high setting: 9.5 bar (137.75 psi)
	Max. at high setting	9.5 bar (137.75 psi)	
Maximum permissible accidental pressure		40 bar (580 psi)	
Destruction pressure		60 bar (870 psi)	
Rated supply voltage		~ 120 V	~ 24 V
Voltage limits		~ 102...132 V	~ 17...33 V
Current consumption		32 mA	80 mA
Output		Relay	Programmable, NPN or PNP and NO or NC
Time delay		Adjustable time delay on trip and on reset from 0 to 50 s, in steps of 1 second	
Switching capacity		2.5 A, AC-15, C300 (120 V - 1.5 A)	200 mA
Electrical connection		SAE 7/8-16UN, 5-pin male connector. For suitable female pre-wired connectors, see page 6/62.	M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 6/62

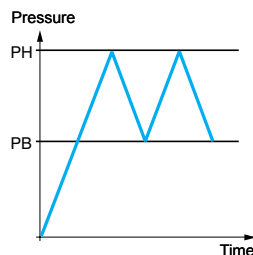
- (1) Pressure switches with adjustable differential for regulation between 2 thresholds. Relay output.
- (2) Pressure switches with 2 adjustable stages and adjustable differential for each threshold. Solid-state outputs.
- (3) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15 to + 80 °C. Component materials of units in contact with the fluid, see page 6/35.

Pressure switch operating curves	Pressure switches with relay output	Dual stage pressure switches
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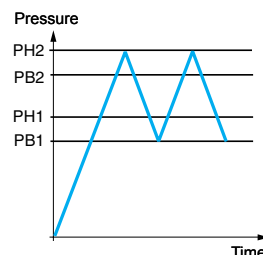
(Curve for each stage for dual stage pressure switches)



- 1 Maximum differential
2 Minimum differential



— Adjustable value



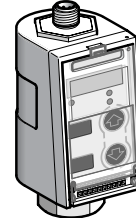
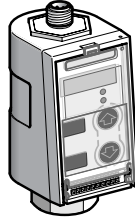
— Adjustable value

Electronic pressure sensors

Nautilus® type XML F

Size 16 bar (232 psi)

Type	Pressure transmitters	Universal sensors with adjustable differential. Solid-state and analogue outputs (1)
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Adjustable range of switching point (PH) (Rising pressure)	—	1.28...16 bar (18.56...232 psi)
Analogue output	4-20 mA	0-10 V

References

Fluid connection (2)	1/4" BSP female	XML F016D2015	XML F016D2115	XML F016D2025	XML F016D2125
	1/4" NPT female	XML F016D2016	XML F016D2116	XML F016D2026	XML F016D2126
	SAE 7/16-20UNF female	XML F016D2019	XML F016D2119	XML F016D2029	XML F016D2129
Weight (kg)	0.480				

Complementary characteristics not shown under general characteristics (page 6/35)

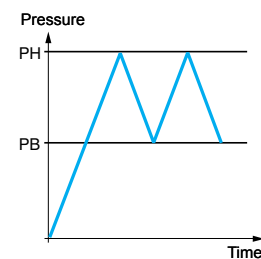
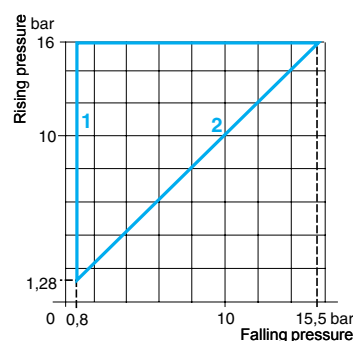
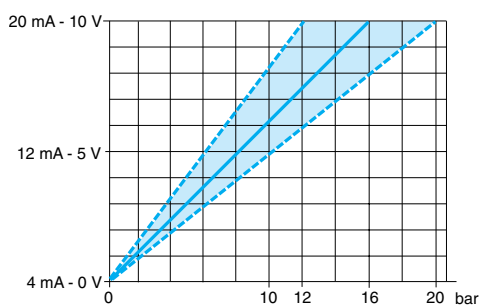
Possible differential (subtract from PH to give PB)	Min. at low and high setting	—	0.48 bar (6.96 psi)
	Max. at high setting	—	15.2 bar (220.4 psi)
Maximum permissible accidental pressure	64 bar (928 psi)		
Destruction pressure	96 bar (1392 psi)		
Rated supply voltage	— 24 V		
Voltage limits	— 17...33 V		
Current consumption	80 mA		
Output	—		
Time delay	—		
Switching capacity	—		
Analogue output	4...20 mA or 0...10 V, depending on model. Maximum signal level adjustable between 12 and 20 bar (174 and 290 psi)		
Electrical connection	M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 6/62		

(1) Pressure sensors with adjustable differential for regulation between 2 thresholds. Solid-state and analogue outputs.

(2) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15 to + 80 °C. Component materials of units in contact with the fluid, see page 6/35.

Curves

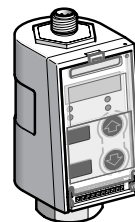
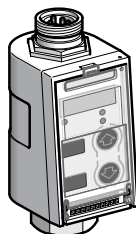
Analogue output curve	Pressure sensor operating curves
-----------------------	----------------------------------



- 1 Maximum differential
- 2 Minimum differential

— Adjustable value

Type	Pressure switches with adjustable differential and relay output (1)	Dual stage adjustable pressure switches with solid-state outputs (2)
------	---	--



Adjustable range of switching point(s) (PH or PH1 and PH2) (Rising pressure)	1.28...16 bar (18.56...232 psi)
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References

Fluid connection (3)	1/4" BSP female	XML F016E2045	XML F016D2035
	1/4" NPT female	XML F016E2046	XML F016D2036
	SAE 7/16-20UNF female	XML F016E2049	XML F016D2039
Weight (kg)		0.590	0.480

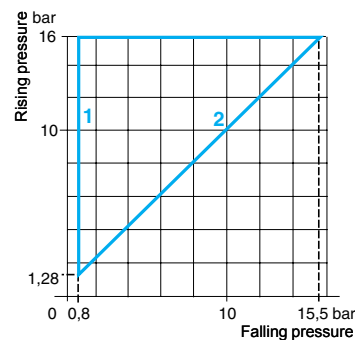
Complementary characteristics not shown under general characteristics (page 6/35)

Possible differential (subtract from: - PH to give PB - PH1 & PH2 to give PB1 & PB2)	Min. at low and high setting Max. at high setting	0.48 bar (6.96 psi) 15.2 bar (220.4 psi)	For each stage: min. at low and high setting: 0.48 bar (6.96 psi) max. at high setting: 15.2 bar (220.4 psi)
Maximum permissible accidental pressure		64 bar (928 psi)	
Destruction pressure		96 bar (1392 psi)	
Rated supply voltage		~ 120 V	~ 24 V
Voltage limits		~ 102...132 V	~ 17...33 V
Current consumption		32 mA	80 mA
Output		Relay	Programmable, NPN or PNP and NO or NC
Time delay		Adjustable time delay on trip and on reset from 0 to 50 s, in steps of 1 second	
Switching capacity		2.5 A, AC-15, C300 (120 V - 1.5 A)	200 mA
Electrical connection		SAE 7/8-16UN, 5-pin male connector. For suitable female pre-wired connectors, see page 6/62.	M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 6/62

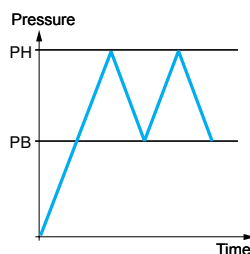
- (1) Pressure switches with adjustable differential for regulation between 2 thresholds. Relay output.
(2) Pressure switches with 2 adjustable stages and adjustable differential for each threshold. Solid-state outputs.
(3) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15 to + 80 °C. Component materials of units in contact with the fluid, see page 6/35.

Pressure switch operating curves

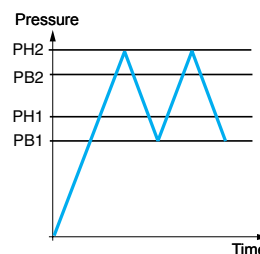
(Curve for each stage for dual stage pressure switches)	Pressure switches with relay output	Dual stage pressure switches
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- 1 Maximum differential
2 Minimum differential

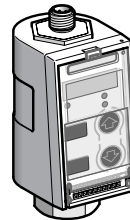
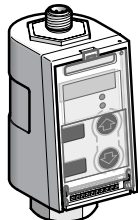


— Adjustable value



— Adjustable value

Type	Pressure transmitters	Universal sensors with adjustable differential. Solid-state and analogue outputs (1)
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Adjustable range of switching point (PH) (Rising pressure)	—	2...25 bar (29...362.5 psi)
Analogue output	4-20 mA 0-10 V	4-20 mA 0-10 V

References

Fluid connection (2)	1/4" BSP female	XML F025D2015	XML F025D2115	XML F025D2025	XML F025D2125
	1/4" NPT female	XML F025D2016	XML F025D2116	XML F025D2026	XML F025D2126
	SAE 7/16-20UNF female	XML F025D2019	XML F025D2119	XML F025D2029	XML F025D2129
Weight (kg)	0.480				

Complementary characteristics not shown under general characteristics (page 6/35)

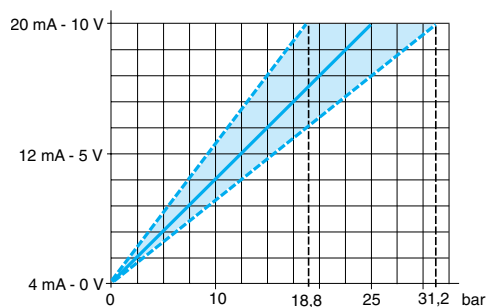
Possible differential (subtract from PH to give PB)	Min. at low and high setting	–	0.75 bar (10.9 psi)
	Max. at high setting	–	23.8 bar (345.1 psi)
Maximum permissible accidental pressure		100 bar (1450 psi)	
Destruction pressure		150 bar (2175 psi)	
Rated supply voltage		— 24 V	
Voltage limits		— 17...33 V	
Current consumption		80 mA	
Output		–	Programmable, NPN or PNP and NO or NC
Time delay		–	Adjustable time delay on trip and on reset from 0 to 50 s, in steps of 1 second
Switching capacity		–	200 mA
Analogue output		4...20 mA or 0...10 V, depending on model. Maximum signal level adjustable between 18.8 and 31.2 bar (272.6 and 452.4 psi)	
Electrical connection		M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 6/62	

(1) Pressure sensors with adjustable differential for regulation between 2 thresholds. Solid-state and analogue outputs.

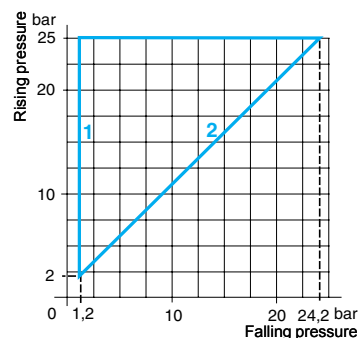
(2) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15 to + 80 °C. Component materials of units in contact with the fluid, see page 6/35.

Curves

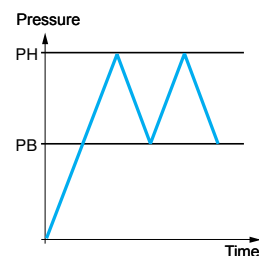
Analogue output curve



Pressure sensor operating curves

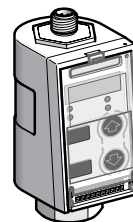
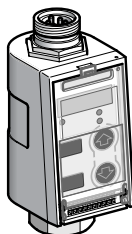


- 1 Maximum differential
2 Minimum differential



— Adjustable value

Type	Pressure switches with adjustable differential and relay output (1)	Dual stage adjustable pressure switches with solid-state outputs (2)
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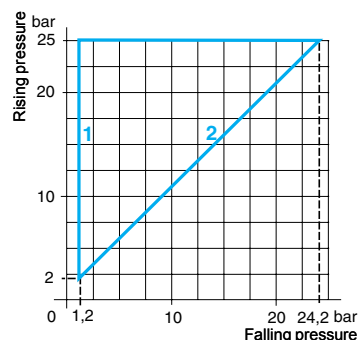
Adjustable range of switching point(s) (PH or PH1 and PH2) (Rising pressure)	2...25 bar (29...362.5 psi)
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References			
Fluid connection (3)	1/4" BSP female	XML F025E2045	XML F025D2035
	1/4" NPT female	XML F025E2046	XML F025D2036
	SAE 7/16-20UNF female	XML F025E2049	XML F025D2039
Weight (kg)	0.590	0.480	

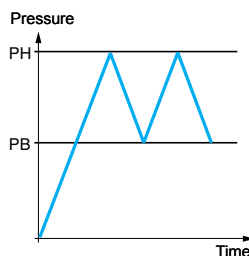
Complementary characteristics not shown under general characteristics (page 6/35)			
Possible differential (subtract from: - PH to give PB - PH1 & PH2 to give PB1 & PB2)	Min. at low and high setting Max. at high setting	0.75 bar (10.9 psi) 23.8 bar (345.1 psi)	For each stage: min. at low and high setting: 0.75 bar (10.9 psi) max. at high setting: 23.8 bar (345.1 psi)
Maximum permissible accidental pressure	100 bar (1450 psi)		
Destruction pressure	150 bar (2175 psi)		
Rated supply voltage	~ 120 V		24 V
Voltage limits	~ 102...132 V		17...33 V
Current consumption	32 mA		80 mA
Output	Relay		Programmable, NPN or PNP and NO or NC
Time delay	Adjustable time delay on trip and on reset from 0 to 50 s, in steps of 1 second		
Switching capacity	2.5 A, AC-15, C300 (120 V - 1.5 A)		200 mA
Electrical connection	SAE 7/8-16UN, 5-pin male connector. For suitable female pre-wired connectors, see page 6/62.		M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 6/62

- (1) Pressure switches with adjustable differential for regulation between 2 thresholds. Relay output.
 (2) Pressure switches with 2 adjustable stages and adjustable differential for each threshold. Solid-state outputs.
 (3) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15 to + 80 °C. Component materials of units in contact with the fluid, see page 6/35.

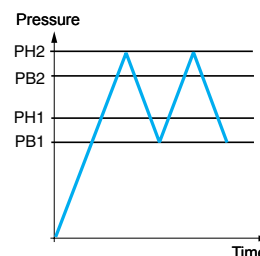
Pressure switch operating curves		
(Curve for each stage for dual stage pressure switches)	Pressure switches with relay output	Dual stage pressure switches



- 1 Maximum differential
 2 Minimum differential

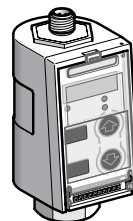
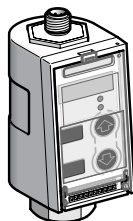


— Adjustable value



— Adjustable value

Type	Pressure transmitters	Universal sensors with adjustable differential. Solid-state and analogue outputs (1)
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Adjustable range of switching point (PH) (Rising pressure)	—	3.2...40 bar (46.4...580 psi)
Analogue output	4-20 mA 0-10 V	4-20 mA 0-10 V

References

Fluid connection (2)	1/4" BSP female	XML F040D2015	XML F040D2115	XML F040D2025	XML F040D2125
	1/4" NPT female	XML F040D2016	XML F040D2116	XML F040D2026	XML F040D2126
	SAE 7/16-20UNF female	XML F040D2019	XML F040D2119	XML F040D2029	XML F040D2129
Weight (kg)	0.500				

Complementary characteristics not shown under general characteristics (page 6/35)

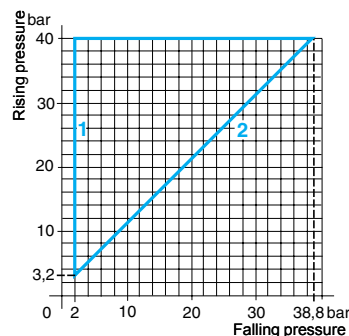
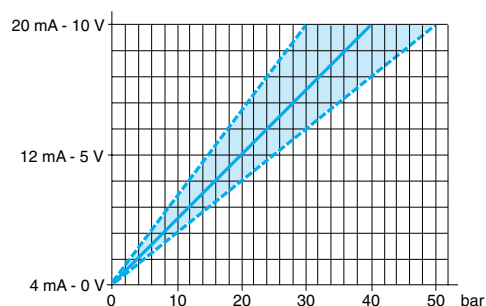
Possible differential (subtract from PH to give PB)	Min. at low and high setting	—	1.2 bar (17.4 psi)
	Max. at high setting	—	38 bar (551 psi)
Maximum permissible accidental pressure	160 bar (2320 psi)		
Destruction pressure	240 bar (3480 psi)		
Rated supply voltage	— 24 V		
Voltage limits	— 17...33 V		
Current consumption	80 mA		
Output	—		
Time delay	—		
Switching capacity	—		
Analogue output	4...20 mA or 0...10 V, depending on model. Maximum signal level adjustable between 30 and 50 bar (435 and 725 psi)		
Electrical connection	M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 6/62		

(1) Pressure sensors with adjustable differential for regulation between 2 thresholds. Solid-state and analogue outputs.

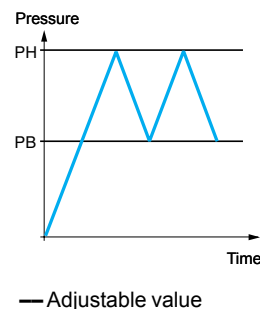
(2) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15 to + 80 °C. Component materials of units in contact with the fluid, see page 6/35.

Curves

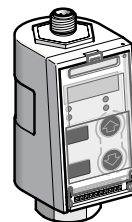
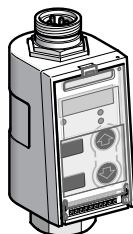
Analogue output curve	Pressure sensor operating curves
-----------------------	----------------------------------



- 1 Maximum differential
- 2 Minimum differential



Type	Pressure switches with adjustable differential and relay output (1)	Dual stage adjustable pressure switches with solid-state outputs (2)
------	---	--



Adjustable range of switching point(s) (PH or PH1 and PH2) (Rising pressure)	3.2...40 bar (46.4...580 psi)
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References

Fluid connection (3)	1/4" BSP female	XML F040E2045	XML F040D2035
	1/4" NPT female	XML F040E2046	XML F040D2036
	SAE 7/16-20UNF female	XML F040E2049	XML F040D2039
Weight (kg)	0.610	0.500	

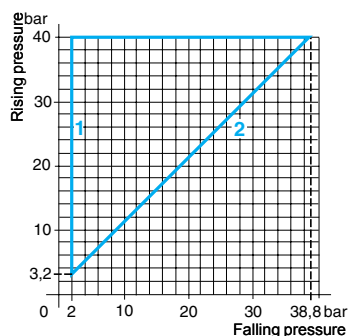
Complementary characteristics not shown under general characteristics (page 6/35)

Possible differential (subtract from: - PH to give PB - PH1 & PH2 to give PB1 & PB2)	Min. at low and high setting Max. at high setting	1.2 bar (17.4 psi) 38 bar (551 psi)	For each stage: min. at low and high setting: 1.2 bar (17.4 psi) max. at high setting: 38 bar (551 psi)
Maximum permissible accidental pressure		160 bar (2320 psi)	
Destruction pressure		240 bar (3480 psi)	
Rated supply voltage		~ 120 V	~ 24 V
Voltage limits		~ 102...132 V	~ 17...33 V
Current consumption		32 mA	80 mA
Output	Relay		Programmable, NPN or PNP and NO or NC
Time delay		Adjustable time delay on trip and on reset from 0 to 50 s, in steps of 1 second	
Switching capacity		2.5 A, AC-15, C300 (120 V - 1.5 A)	200 mA
Electrical connection		SAE 7/8-16UN, 5-pin male connector. For suitable female pre-wired connectors, see page 6/62.	M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 6/62

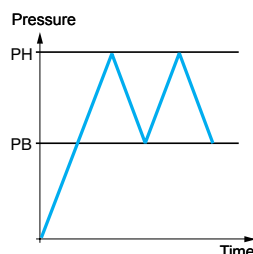
- (1) Pressure switches with adjustable differential for regulation between 2 thresholds. Relay output.
- (2) Pressure switches with 2 adjustable stages and adjustable differential for each threshold. Solid-state outputs.
- (3) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15 to + 80 °C. Component materials of units in contact with the fluid, see page 6/35.

Pressure switch operating curves

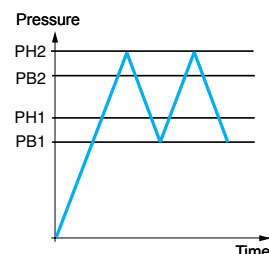
(Curve for each stage for dual stage pressure switches)	Pressure switches with relay output	Dual stage pressure switches
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- 1 Maximum differential
2 Minimum differential



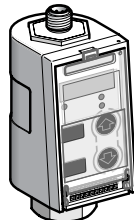
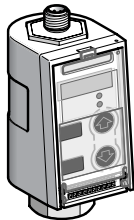
— Adjustable value



— Adjustable value

Electronic pressure sensors
Nautilus® type XML F
Size 70 bar (1015 psi)

Type	Pressure transmitters	Universal sensors with adjustable differential. Solid-state and analogue outputs (1)
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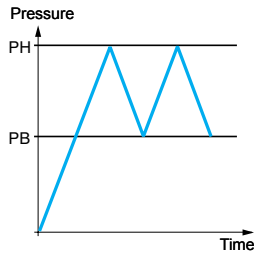
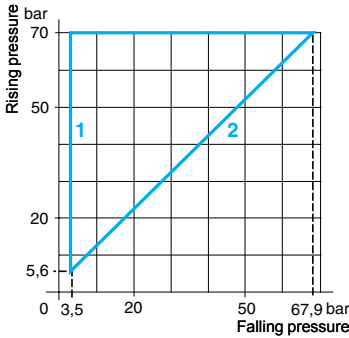
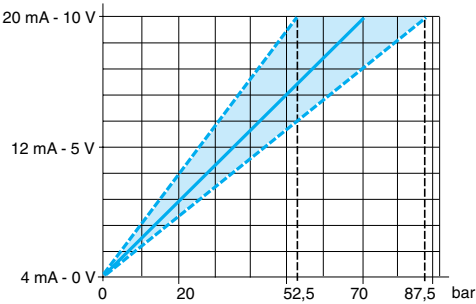
Adjustable range of switching point (PH) (Rising pressure)	—	5.6...70 bar (81.2...1015 psi)
Analogue output	4-20 mA	0-10 V

References					
Fluid connection (2)	1/4" BSP female	XML F070D2015	XML F070D2115	XML F070D2025	XML F070D2125
	1/4" NPT female	XML F070D2016	XML F070D2116	XML F070D2026	XML F070D2126
	SAE 7/16-20UNF female	XML F070D2019	XML F070D2119	XML F070D2029	XML F070D2129
Weight (kg)	0.500				

Complementary characteristics not shown under general characteristics (page 6/35)		
Possible differential (subtract from PH to give PB)	Min. at low and high setting	2.1 bar (30.5 psi)
	Max. at high setting	66.5 bar (964.2 psi)
Maximum permissible accidental pressure	280 bar (4060 psi)	
Destruction pressure	420 bar (6090 psi)	
Rated supply voltage	24 V	
Voltage limits	17...33 V	
Current consumption	80 mA	
Output	—	Programmable, NPN or PNP and NO or NC
Time delay	—	Adjustable time delay on trip and on reset from 0 to 50 s, in steps of 1 second
Switching capacity	—	200 mA
Analogue output	4...20 mA or 0...10 V, depending on model. Maximum signal level adjustable between 52.5 and 87.5 bar (761.3 and 1268.7 psi)	
Electrical connection	M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 6/62	

- (1) Pressure sensors with adjustable differential for regulation between 2 thresholds. Solid-state and analogue outputs.
(2) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15 to + 80 °C. Component materials of units in contact with the fluid, see page 6/35.

Curves
Analogue output curve
Pressure sensor operating curves



- 1 Maximum differential
2 Minimum differential

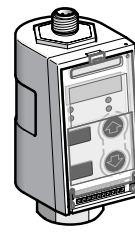
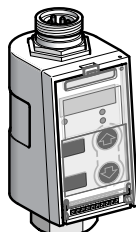
— Adjustable value

Electronic pressure sensors

Nautilus® type XML F

Size 70 bar (1015 psi)

Type	Pressure switches with adjustable differential and relay output (1)	Dual stage adjustable pressure switches with solid-state outputs (2)
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Adjustable range of switching point(s) (PH or PH1 and PH2) (Rising pressure)	5.6...70 bar (81.2...1015 psi)
---	--------------------------------

References

Fluid connection (3)	1/4" BSP female	XML F070E2045	XML F070D2035
	1/4" NPT female	XML F070E2046	XML F070D2036
	SAE 7/16-20UNF female	XML F070E2049	XML F070D2039
Weight (kg)	0.610	0.500	

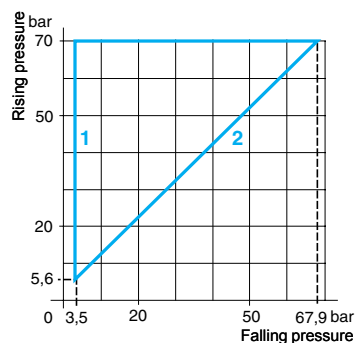
Complementary characteristics not shown under general characteristics (page 6/35)

Possible differential (subtract from: - PH to give PB - PH1 & PH2 to give PB1 & PB2)	Min. at low and high setting	2.1 bar (30.5 psi)	For each stage: min. at low and high setting: 2.1 bar (30.5 psi) max. at high setting: 66.5 bar (964.2 psi)
	Max. at high setting	66.5 bar (964.2 psi)	
Maximum permissible accidental pressure		280 bar (4060 psi)	
Destruction pressure		420 bar (6090 psi)	
Rated supply voltage		~ 120 V	≡ 24 V
Voltage limits		~ 102...132 V	≡ 17...33 V
Current consumption		32 mA	80 mA
Output		Relay	Programmable, NPN or PNP and NO or NC
Time delay		Adjustable time delay on trip and on reset from 0 to 50 s, in steps of 1 second	
Switching capacity		2.5 A, AC-15, C300 (120 V - 1.5 A)	200 mA
Electrical connection		SAE 7/8-16UN, 5-pin male connector. For suitable female pre-wired connectors, see page 6/62.	M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 6/62

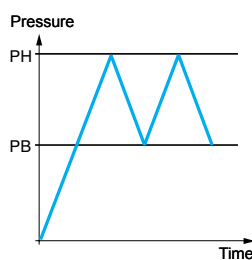
- (1) Pressure switches with adjustable differential for regulation between 2 thresholds. Relay output.
- (2) Pressure switches with 2 adjustable stages and adjustable differential for each threshold. Solid-state outputs.
- (3) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15 to + 80 °C. Component materials of units in contact with the fluid, see page 6/35.

Pressure switch operating curves

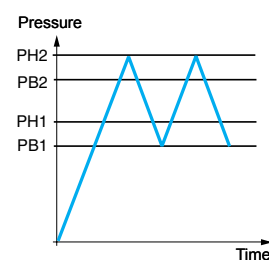
(Curve for each stage for dual stage pressure switches)	Pressure switches with relay output	Dual stage pressure switches
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- 1 Maximum differential
2 Minimum differential

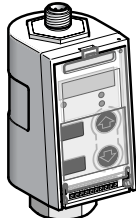
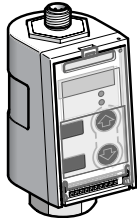


— Adjustable value



— Adjustable value

Type	Pressure transmitters	Universal sensors with adjustable differential. Solid-state and analogue outputs (1)
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Adjustable range of switching point (PH) (Rising pressure)	—	8...100 bar (116...1450 psi)
Analogue output	4-20 mA	0-10 V

References

Fluid connection	1/4" BSP female	XML F100D2015	XML F100D2115	XML F100D2025	XML F100D2125
(2)	1/4" NPT female	XML F100D2016	XML F100D2116	XML F100D2026	XML F100D2126
	SAE 7/16-20UNF female	XML F100D2019	XML F100D2119	XML F100D2029	XML F100D2129

Weight (kg)	0.500
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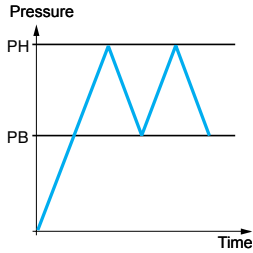
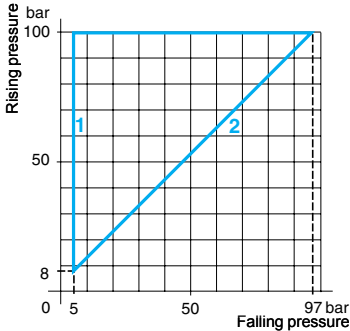
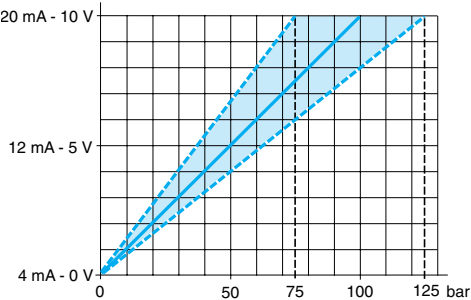
Complementary characteristics not shown under general characteristics (page 6/35)

Possible differential (subtract from PH to give PB)	Min. at low and high setting	—	3 bar (43.5 psi)
	Max. at high setting	—	95 bar (1377.5 psi)
Maximum permissible accidental pressure		400 bar (5800 psi)	
Destruction pressure		600 bar (8700 psi)	
Rated supply voltage		— 24 V	
Voltage limits		— 17...33 V	
Current consumption		80 mA	
Output		—	Programmable, NPN or PNP and NO or NC
Time delay		—	Adjustable time delay on trip and on reset from 0 to 50 s, in steps of 1 second
Switching capacity		—	200 mA
Analogue output		4...20 mA or 0...10 V, depending on model. Maximum signal level adjustable between 75 and 125 bar (1087.5 and 1812.5 psi)	
Electrical connection		M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 6/62	

- (1) Pressure sensors with adjustable differential for regulation between 2 thresholds. Solid-state and analogue outputs.
(2) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15 to + 80 °C. Component materials of units in contact with the fluid, see page 6/35.

Curves

Analogue output curve	Pressure sensor operating curves
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- 1 Maximum differential
2 Minimum differential

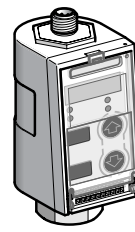
— Adjustable value

Electronic pressure sensors

Nautilus® type XML F

Size 100 bar (1450 psi)

Type	Pressure switches with adjustable differential and relay output (1)	Dual stage adjustable pressure switches with solid-state outputs (2)
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Adjustable range of switching point(s) (PH or PH1 and PH2) (Rising pressure)	8...100 bar (116...1450 psi)
---	------------------------------

References

Fluid connection	1/4" BSP female	XML F100E2045	XML F100D2035
(3)	1/4" NPT female	XML F100E2046	XML F100D2036
	SAE 7/16-20UNF female	XML F100E2049	XML F100D2039

Weight (kg)	0.610	0.500
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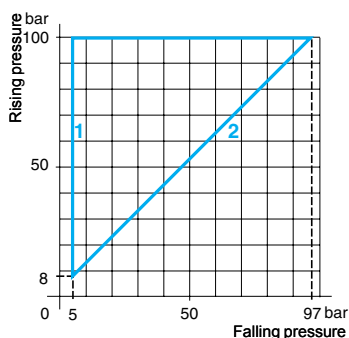
Complementary characteristics not shown under general characteristics (page 6/35)

Possible differential (subtract from: - PH to give PB - PH1 & PH2 to give PB1 & PB2)	Min. at low and high setting Max. at high setting	3 bar (43.5 psi) 95 bar (1377.5 psi)	For each stage: min. at low and high setting: 3 bar (43.5 psi) max. at high setting: 95 bar (1377.5 psi)
Maximum permissible accidental pressure	400 bar (5800 psi)		
Destruction pressure	600 bar (8700 psi)		
Rated supply voltage	~ 120 V		
Voltage limits	~ 102...132 V		
Current consumption	32 mA		
Output	Relay		
Time delay	Adjustable time delay on trip and on reset from 0 to 50 s, in steps of 1 second		
Switching capacity	2.5 A, AC-15, C300 (120 V - 1.5 A)		
Electrical connection	SAE 7/8-16UN, 5-pin male connector. For suitable female pre-wired connectors, see page 6/62.		

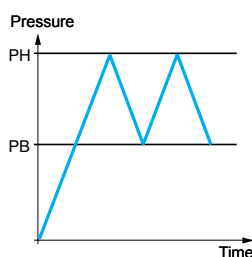
- (1) Pressure switches with adjustable differential for regulation between 2 thresholds. Relay output.
- (2) Pressure switches with 2 adjustable stages and adjustable differential for each threshold. Solid-state outputs.
- (3) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15 to + 80 °C. Component materials of units in contact with the fluid, see page 6/35.

Pressure switch operating curves

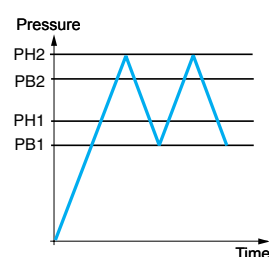
(Curve for each stage for dual stage pressure switches)	Pressure switches with relay output	Dual stage pressure switches
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- 1 Maximum differential
2 Minimum differential

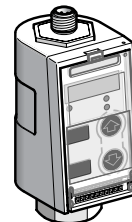
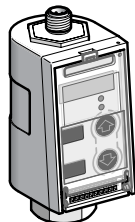


— Adjustable value



— Adjustable value

Type	Pressure transmitters	Universal sensors with adjustable differential. Solid-state and analogue outputs (1)
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Adjustable range of switching point (PH) (Rising pressure)	—	12.8...160 bar (185.6...2320 psi)
Analogue output	4-20 mA 0-10 V	4-20 mA 0-10 V

References

Fluid connection (2)	1/4" BSP female	XML F160D2015	XML F160D2115	XML F160D2025	XML F160D2125
	1/4" NPT female	XML F160D2016	XML F160D2116	XML F160D2026	XML F160D2126
	SAE 7/16-20UNF female	XML F160D2019	XML F160D2119	XML F160D2029	XML F160D2129
Weight (kg)	0.590				

Complementary characteristics not shown under general characteristics (page 6/35)

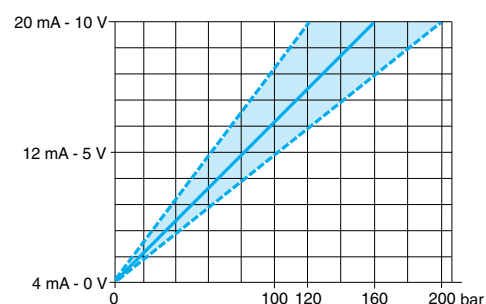
Possible differential (subtract from PH to give PB)	Min. at low and high setting	—	4.8 bar (69.6 psi)
	Max. at high setting	—	152 bar (2204 psi)
Maximum permissible occasional surge pressure	640 bar (9280 psi)		
Destruction pressure	960 bar (13 920 psi)		
Rated supply voltage	— 24 V		
Voltage limits	— 17...33 V		
Current consumption	80 mA		
Output	—		
Time delay	—		
Switching capacity	—		
Analogue output	4...20 mA or 0...10 V, depending on model. Maximum signal level adjustable between 120 and 200 bar (1740 and 2900 psi)		
Electrical connection	M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 6/62		

(1) Pressure sensors with adjustable differential for regulation between 2 thresholds. Solid-state and analogue outputs.

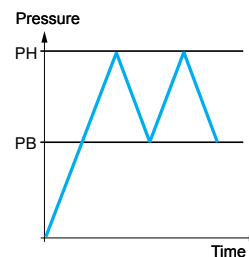
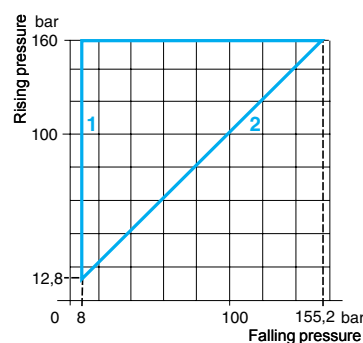
(2) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15 to + 80 °C. Component materials of units in contact with the fluid, see page 6/35.

Curves

Analogue output curve



Pressure sensor operating curves



- 1 Maximum differential
2 Minimum differential

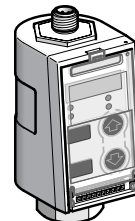
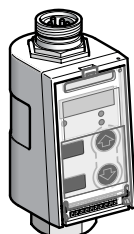
— Adjustable value

Electronic pressure sensors

Nautilus® type XML F

Size 160 bar (2320 psi)

Type	Pressure switches with adjustable differential and relay output (1)	Dual stage adjustable pressure switches with solid-state outputs (2)
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Adjustable range of switching point(s) (PH or PH1 and PH2)
(Rising pressure)

12.8...160 bar (185.6...2320 psi)

References

Fluid connection (3)	1/4" BSP female	XML F160E2045	XML F160D2035
	1/4" NPT female	XML F160E2046	XML F160D2036
	SAE 7/16-20UNF female	XML F160E2049	XML F160D2039
Weight (kg)	0.700		0.590

Complementary characteristics not shown under general characteristics (page 6/35)

Possible differential (subtract from: - PH to give PB - PH1 & PH2 to give PB1 & PB2)	Min. at low and high setting	4.8 bar (69.6 psi)	For each stage: min. at low and high setting: 4.8 bar (69.6 psi) max. at high setting: 152 bar (2204 psi)
	Max. at high setting	152 bar (2204 psi)	
Maximum permissible accidental pressure	640 bar (9280 psi)		
Destruction pressure	960 bar (13 920 psi)		
Rated supply voltage	~ 120 V		~ 24 V
Voltage limits	~ 102...132 V		~ 17...33 V
Current consumption	32 mA		80 mA
Output	Relay		Programmable, NPN or PNP and NO or NC
Time delay	Adjustable time delay on trip and on reset from 0 to 50 s, in steps of 1 second		
Switching capacity	2.5 A, AC-15, C300 (120 V - 1.5 A)		200 mA
Electrical connection	SAE 7/8-16UN, 5-pin male connector. For suitable female pre-wired connectors, see page 6/62.		M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 6/62

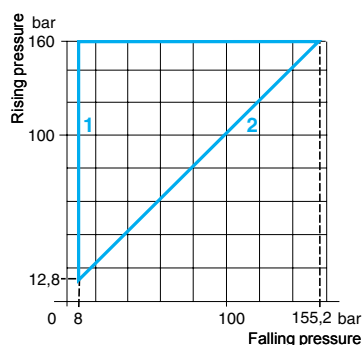
- (1) Pressure switches with adjustable differential for regulation between 2 thresholds. Relay output.
(2) Pressure switches with 2 adjustable stages and adjustable differential for each threshold. Solid-state outputs.
(3) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15 to + 80 °C. Component materials of units in contact with the fluid, see page 6/35.

Pressure switch operating curves

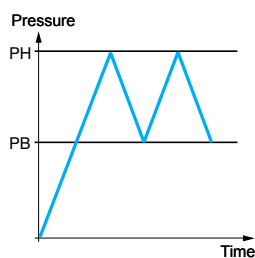
(Curve for each stage for dual stage pressure switches)

Pressure switches with relay output

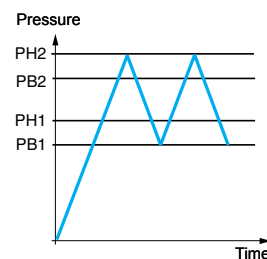
Dual stage pressure switches



- 1 Maximum differential
2 Minimum differential

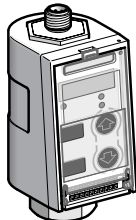
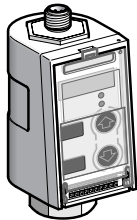


— Adjustable value



— Adjustable value

Type	Pressure transmitters	Universal sensors with adjustable differential. Solid-state and analogue outputs (1)
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Adjustable range of switching point (PH) (Rising pressure)	—	20...250 bar (290...3625 psi)
Analogue output	4-20 mA	0-10 V

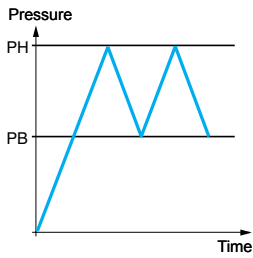
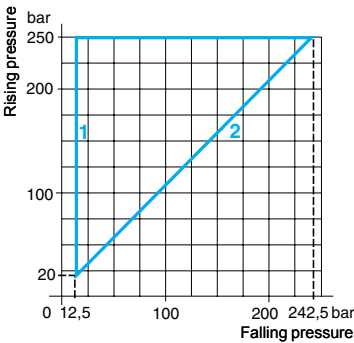
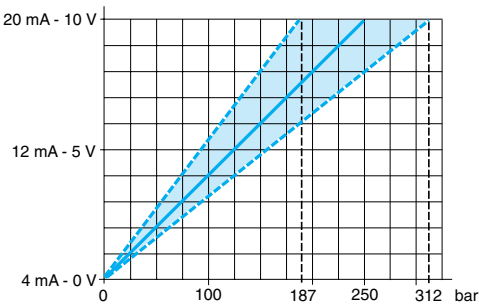
References					
Fluid connection (2)	1/4" BSP female	XML F250D2015	XML F250D2115	XML F250D2025	XML F250D2125
	1/4" NPT female	XML F250D2016	XML F250D2116	XML F250D2026	XML F250D2126
	SAE 7/16-20UNF female	XML F250D2019	XML F250D2119	XML F250D2029	XML F250D2129
Weight (kg)	0.590				

Complementary characteristics not shown under general characteristics (page 6/35)		
Possible differential (subtract from PH to give PB)	Min. at low and high setting	7.5 bar (108.8 psi)
	Max. at high setting	237.5 bar (3443.7 psi)
Maximum permissible accidental pressure	1000 bar (14 500 psi)	
Destruction pressure	1500 bar (21 750 psi)	
Rated supply voltage	24 V	
Voltage limits	17...33 V	
Current consumption	80 mA	
Output	—	Programmable, NPN or PNP and NO or NC
Time delay	—	Adjustable time delay on trip and on reset from 0 to 50 s, in steps of 1 second
Switching capacity	—	200 mA
Analogue output	4...20 mA or 0...10 V, depending on model. Maximum signal level adjustable between 187 and 312 bar (2711 and 4524 psi)	
Electrical connection	M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 6/62	

- (1) Pressure sensors with adjustable differential for regulation between 2 thresholds. Solid-state and analogue outputs.
(2) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15 to + 80 °C. Component materials of units in contact with the fluid, see page 6/35.

Curves	Pressure sensor operating curves
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Analogue output curve



- 1 Maximum differential
2 Minimum differential

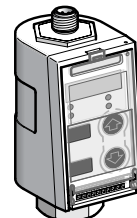
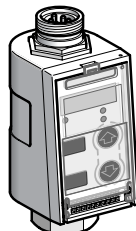
— Adjustable value

Electronic pressure sensors

Nautilus® type XML F

Size 250 bar (3625 psi)

Type	Pressure switches with adjustable differential and relay output (1)	Dual stage adjustable pressure switches with solid-state outputs (2)
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Adjustable range of switching point(s) (PH or PH1 and PH2) (Rising pressure)	20...250 bar (290...3625 psi)
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References

Fluid connection	1/4" BSP female	XML F250E2045	XML F250D2035
(3)	1/4" NPT female	XML F250E2046	XML F250D2036
	SAE 7/16-20UNF female	XML F250E2049	XML F250D2039

Weight (kg)	0.700	0.590
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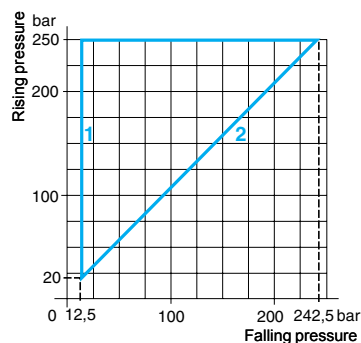
Complementary characteristics not shown under general characteristics (page 6/35)

Possible differential (subtract from: - PH to give PB - PH1 & PH2 to give PB1 & PB2)	Min. at low and high setting Max. at high setting	7.5 bar (108.8 psi) 237.5 bar (3443.7 psi)	For each stage: Min. at low and high setting: 7.5 bar (108.8 psi) Max. at high setting: 237.5 bar (3443.7 psi)
Maximum permissible accidental pressure		1000 bar (14 500 psi)	
Destruction pressure		1500 bar (21 750 psi)	
Rated supply voltage		~ 120 V	~ 24 V
Voltage limits		~ 102...132 V	~ 17...33 V
Current consumption		32 mA	80 mA
Output		Relay	Programmable, NPN or PNP and NO or NC
Time delay		Adjustable time delay on trip and on reset from 0 to 50 s, in steps of 1 second	
Switching capacity		2.5 A, AC-15, C300 (120 V - 1.5 A)	200 mA
Electrical connection		SAE 7/8-16UN, 5-pin male connector. For suitable female pre-wired connectors, see page 6/62.	M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 6/62

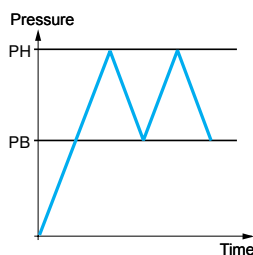
- (1) Pressure switches with adjustable differential for regulation between 2 thresholds. Relay output.
(2) Pressure switches with 2 adjustable stages and adjustable differential for each threshold. Solid-state outputs.
(3) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15 to + 80 °C. Component materials of units in contact with the fluid, see page 6/35.

Pressure switch operating curves

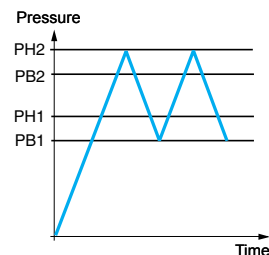
(Curve for each stage for dual stage pressure switches)	Pressure switches with relay output	Dual stage pressure switches
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- 1 Maximum differential
2 Minimum differential



— Adjustable value



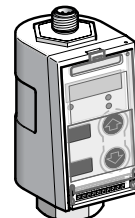
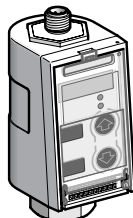
— Adjustable value

Electronic pressure sensors

Nautilus® type XML F

Size 400 bar (5800 psi)

Type	Pressure transmitters	Universal sensors with adjustable differential. Solid-state and analogue outputs (1)
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Adjustable range of switching point (PH) (Rising pressure)	—	32...400 bar (464...5800 psi)
Analogue output	4-20 mA 0-10 V	4-20 mA 0-10 V

References

Fluid connection (2)	1/4" BSP female	XML F400D2015	XML F400D2115	XML F400D2025	XML F400D2125
	1/4" NPT female	XML F400D2016	XML F400D2116	XML F400D2026	XML F400D2126
	SAE 7/16-20UNF female	XML F400D2019	XML F400D2119	XML F400D2029	XML F400D2129
Weight (kg)	0.590				

Complementary characteristics not shown under general characteristics (page 6/35)

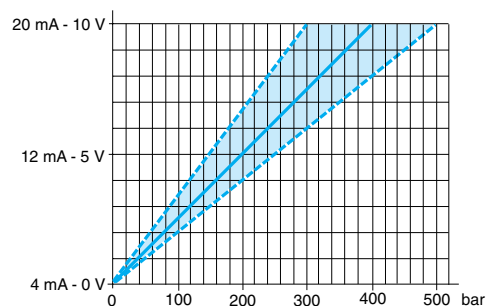
Possible differential (subtract from PH to give PB)	Min. at low and high setting	—	12 bar (174 psi)
	Max. at high setting	—	380 bar (5510 psi)
Maximum permissible accidental pressure	1200 bar (17 400 psi)		
Destruction pressure	1800 bar (26 100 psi)		
Rated supply voltage	— 24 V		
Voltage limits	— 17...33 V		
Current consumption	80 mA		
Output	—		
Time delay	—		
Switching capacity	—		
Analogue output	4...20 mA or 0...10 V, depending on model. Maximum signal level adjustable between 300 and 500 bar (4350 and 7250 psi)		
Electrical connection	M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 6/62		

(1) Pressure sensors with adjustable differential for regulation between 2 thresholds. Solid-state and analogue outputs.

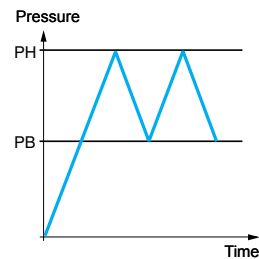
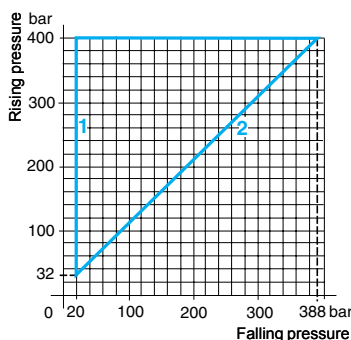
(2) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15 to + 80 °C. Component materials of units in contact with the fluid, see page 6/35.

Curves

Analogue output curve



Pressure sensor operating curves



- 1 Maximum differential
2 Minimum differential

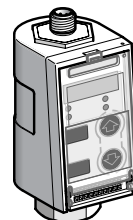
— Adjustable value

Electronic pressure sensors

Nautilus® type XML F

Size 400 bar (5800 psi)

Type	Pressure switches with adjustable differential and relay output (1)	Dual stage adjustable pressure switches with solid-state outputs (2)
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Adjustable range of switching point(s) (PH or PH1 and PH2)
(Rising pressure)

32...400 bar (464...5800 psi)

References

Fluid connection (3)	1/4" BSP female	XML F400E2045	XML F400D2035
	1/4" NPT female	XML F400E2046	XML F400D2036
	SAE 7/16-20UNF female	XML F400E2049	XML F400D2039

Weight (kg)

0.700

0.590

Complementary characteristics not shown under general characteristics (page 6/35)

Possible differential (subtract from: - PH to give PB - PH1 & PH2 to give PB1 & PB2)	Min. at low and high setting	12 bar (174 psi)	For each stage: min. at low and high setting: 12 bar (174 psi) max. at high setting: 380 bar (5510 psi)
	Max. at high setting	380 bar (5510 psi)	
Maximum permissible accidental pressure		1200 bar (17,400 psi)	
Destruction pressure		1800 bar (26 100 psi)	
Rated supply voltage		~ 120 V	~ 24 V
Voltage limits		~ 102...132 V	~ 17...33 V
Current consumption		32 mA	80 mA
Output		Relay	Programmable, NPN or PNP and NO or NC
Time delay		Adjustable time delay on trip and on reset from 0 to 50 s, in steps of 1 second	
Switching capacity		2.5 A, AC-15, C300 (120 V - 1.5 A)	200 mA
Electrical connection		SAE 7/8-16UN, 5-pin male connector. For suitable female pre-wired connectors, see page 6/62.	M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 6/62

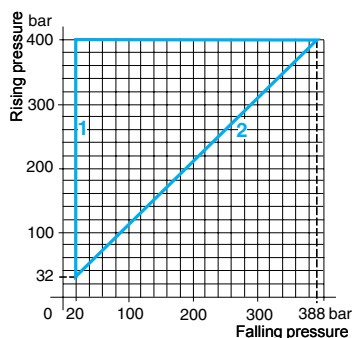
- (1) Pressure switches with adjustable differential for regulation between 2 thresholds. Relay output.
(2) Pressure switches with 2 adjustable stages and adjustable differential for each threshold. Solid-state outputs.
(3) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15 to + 80 °C. Component materials of units in contact with the fluid, see page 6/35.

Pressure switch operating curves

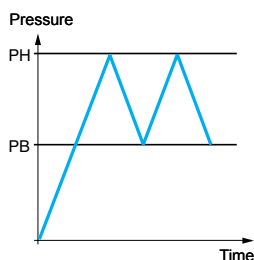
(Curve for each stage for dual stage pressure switches)

Pressure switches with relay output

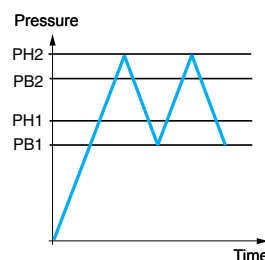
Dual stage pressure switches



- 1 Maximum differential
2 Minimum differential

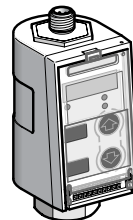
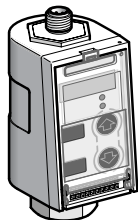


— Adjustable value



— Adjustable value

Type	Pressure transmitters	Universal sensors with adjustable differential. Solid-state and analogue outputs (1)
------	-----------------------	--



Adjustable range of switching point (PH) (Rising pressure)	—	48...600 bar (696...8700 psi)
Analogue output	4-20 mA 0-10 V	4-20 mA 0-10 V

References

Fluid connection (2)	1/4" BSP female	XML F600D2015	XML F600D2115	XML F600D2025	XML F600D2125
	1/4" NPT female	XML F600D2016	XML F600D2116	XML F600D2026	XML F600D2126
	SAE 7/16-20UNF female	XML F600D2019	XML F600D2119	XML F600D2029	XML F600D2129
Weight (kg)	0.590				

Complementary characteristics not shown under general characteristics (page 6/35)

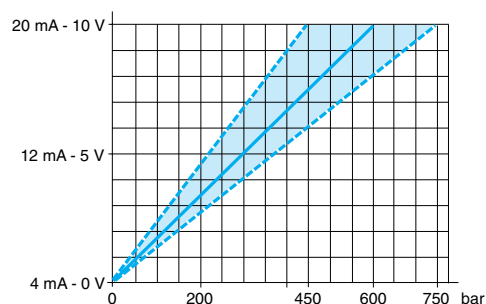
Possible differential (subtract from PH to give PB)	Min. at low and high setting	—	18 bar (261 psi)
	Max. at high setting	—	570 bar (8265 psi)
Maximum permissible accidental pressure		1200 bar (17 400 psi)	
Destruction pressure		1800 bar (26 100 psi)	
Rated supply voltage		--- 24 V	
Voltage limits		--- 17...33 V	
Current consumption		80 mA	
Output		—	Programmable, NPN or PNP and NO or NC
Time delay		—	Adjustable time delay on trip and on reset from 0 to 50 s, in steps of 1 second
Switching capacity		—	200 mA
Analogue output		4...20 mA or 0...10 V, depending on model. Maximum signal level adjustable between 450 and 750 bar (6525 and 10 875 psi)	
Electrical connection		M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 6/62	

(1) Pressure sensors with adjustable differential for regulation between 2 thresholds. Solid-state and analogue outputs.

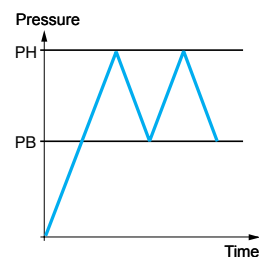
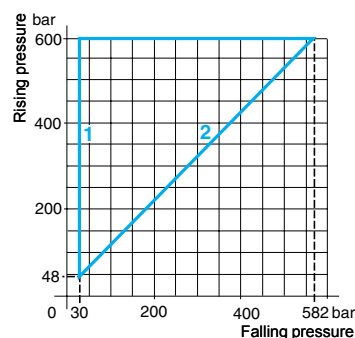
(2) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15 to + 80 °C. Component materials of units in contact with the fluid, see page 6/35.

Curves

Analogue output curve



Pressure sensor operating curves



- 1 Maximum differential
2 Minimum differential

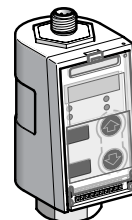
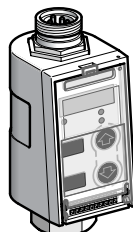
— Adjustable value

Electronic pressure sensors

Nautilus® type XML F

Size 600 bar (8700 psi)

Type	Pressure switches with adjustable differential and relay output (1)	Dual stage adjustable pressure switches with solid-state outputs (2)
------	---	--



Adjustable range of switching point(s) (PH or PH1 and PH2)
(Rising pressure) 48...600 bar (696...8700 psi)

References

Fluid connection (3)	1/4" BSP female	XML F600E2045	XML F600D2035
	1/4" NPT female	XML F600E2046	XML F600D2036
	SAE 7/16-20UNF female	XML F600E2049	XML F600D2039
Weight (kg)	0.700	0.590	

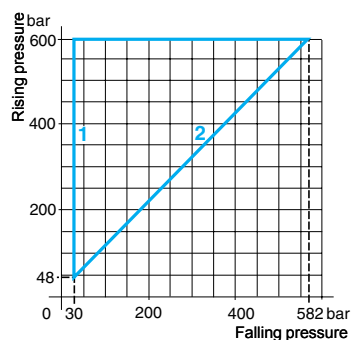
Complementary characteristics not shown under general characteristics (page 6/35)

Possible differential (subtract from: - PH to give PB - PH1 & PH2 to give PB1 & PB2)	Min. at low and high setting	18 bar (261 psi)	For each stage: min. at low and high setting: 18 bar (261 psi) max. at high setting: 570 bar (8265 psi)
	Max. at high setting	570 bar (8265 psi)	
Maximum permissible accidental pressure		1200 bar (17 400 psi)	
Destruction pressure		1800 bar (26 100 psi)	
Rated supply voltage		~ 120 V	~ 24 V
Voltage limits		~ 102...132 V	~ 17...33 V
Current consumption		32 mA	80 mA
Output		Relay	Programmable, NPN or PNP and NO or NC
Time delay		Adjustable time delay on trip and on reset from 0 to 50 s, in steps of 1 second	
Switching capacity		2.5 A, AC-15, C300 (120 V - 1.5 A)	200 mA
Electrical connection		SAE 7/8-16UN, 5-pin male connector. For suitable female pre-wired connectors, see page 6/62.	M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 6/62

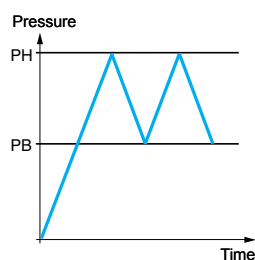
- (1) Pressure switches with adjustable differential for regulation between 2 thresholds. Relay output.
(2) Pressure switches with 2 adjustable stages and adjustable differential for each threshold. Solid-state outputs.
(3) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from - 15 to + 80 °C. Component materials of units in contact with the fluid, see page 6/35.

Pressure switch operating curves

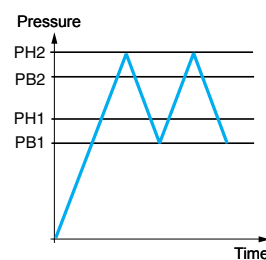
(Curve for each stage for dual stage pressure switches) Pressure switches with relay output Dual stage pressure switches



- 1 Maximum differential
2 Minimum differential



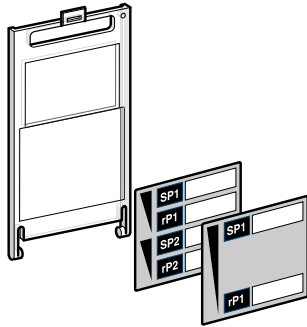
— Adjustable value



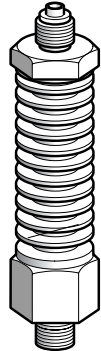
— Adjustable value

Electronic pressure sensors

Nautilus® Universal, Osiconcept®, type XML F
Accessories and replacement parts



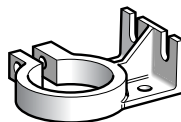
XML ZL007



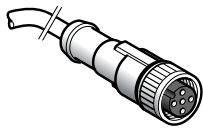
XML ZL009



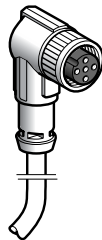
XML ZL010



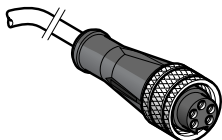
XML ZL008



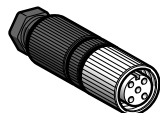
XZ CP1141L●



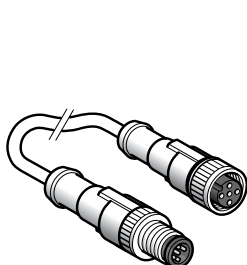
XZ CP1241L●



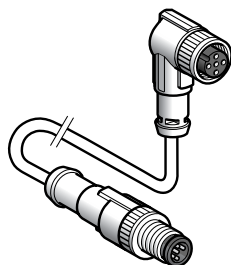
XZ CP1764L●



XZ CC12FDM40V



XZ CR1511041C●



XZ CR1512041C●

References

Replacement parts

Description		Reference	Weight kg
Transparent cover with legends		XML ZL007	0.020
Sealing gasket	All sizes (XML F)	XML ZL010	0.015

Accessories

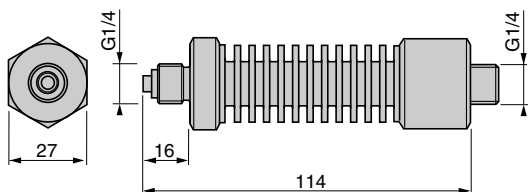
Description		Length of cable	Reference	Weight kg
Fixing bracket		–	XML ZL008	0.037
Cooler for versions with 1/4" BSP fluid connection (2) Usage temperature: 150 °C max. for the fluid, 50 °C for the ambient air		–	XML ZL009	0.370
Pre-wired M12, straight, female connectors		2 m	XZ CP1141L2	0.115
		5 m	XZ CP1141L5	0.270
		10 m	XZ CP1141L10	0.520
Pre-wired M12, elbowed, female connectors		2 m	XZ CP1241L2	0.115
		5 m	XZ CP1241L5	0.270
		10 m	XZ CP1241L10	0.520
Pre-wired 7/8" 16UN, straight, female connectors		2 m	XZ CP1764L2	0.185
		5 m	XZ CP1764L5	0.460
		10 m	XZ CP1764L10	0.900
M12 "Snap C", straight, female connector (1)		–	XZ CC12FDM40V	0.520
M12 - M12 jumper cables with straight male connector, for splitter box	Straight female connector	1 m	XZ CR1511041C1	0.065
		2 m	XZ CR1511041C2	0.095
	Elbowed female connector	1 m	XZ CR1512041C1	0.065
		2 m	XZ CR1512041C2	0.095

(1) Connector incorporating IDCs (Insulation Displacement Connectors) for simple and quick direct, in-line, connection to cable, without the need of a screwdriver or soldering iron.

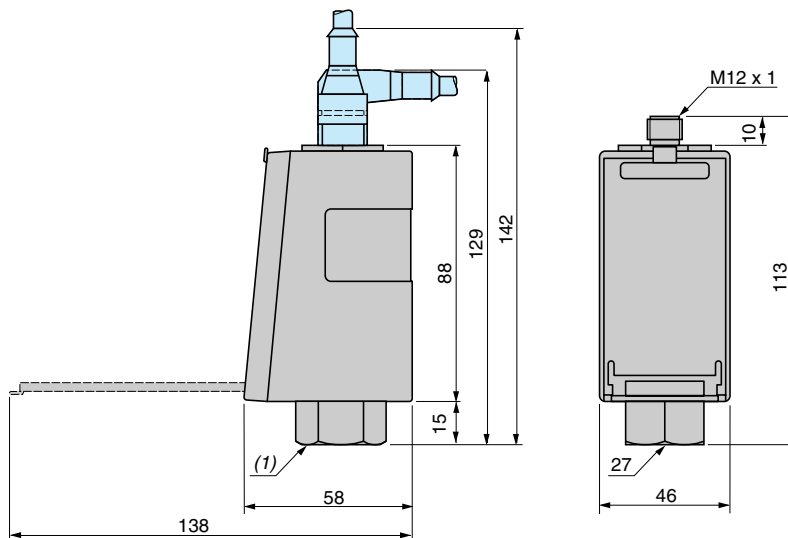
(2) Available with other fluid connections (1/4" NPT and SAE 7/16-20 UNF).

Dimensions

XML ZL009



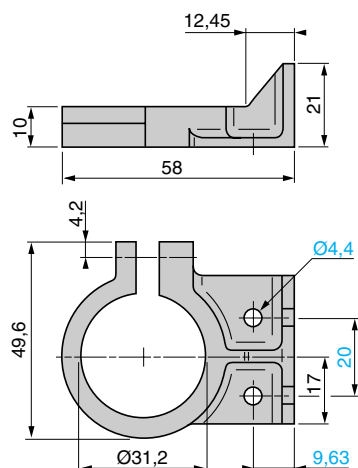
XML F...D2...



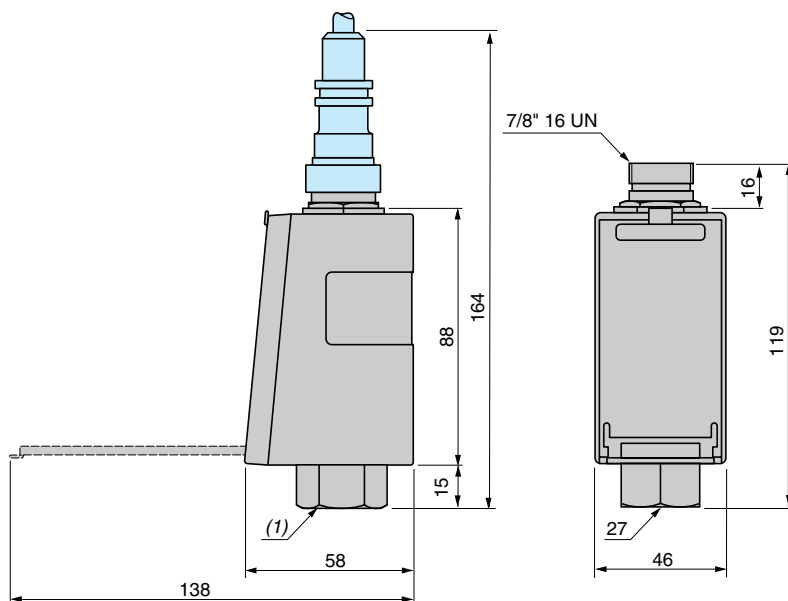
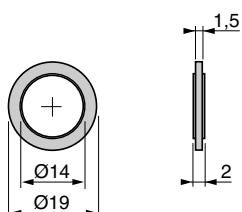
- (1) Female fluid entry
XML F...D2...5: G 1/4 A (BSP)
XML F...D2...6: 1/4" NPT
XML F...D2...9: SAE 7/16-20UNF

XML F...E2...

XML ZL008



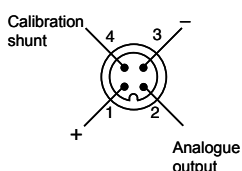
XML ZL010



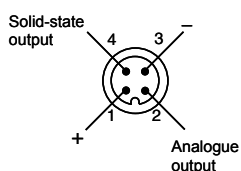
- (1) Female fluid entry
XML F...E2...5: G 1/4 A (BSP)
XML F...E2...6: 1/4" NPT
XML F...E2...9: SAE 7/16-20UNF

Connections (pressure sensor connector pin view)

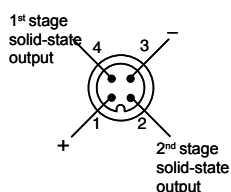
XML F...D201, F...D211



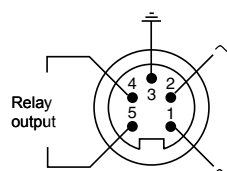
XML F...D202, F...D212



XML F...D203



XML F...E204



Functions

Pressure transmitters

The function of pressure transmitters is the control and measurement of pressure or vacuum levels in hydraulic or pneumatic systems. They transform the pressure into an electrical signal which is proportional to the pressure measured.

Their high precision makes them suitable for all industrial applications requiring pressure/vacuum display, control or regulation.

Being very robust, they are equally suitable for applications involving high operating rates.

Pressure and vacuum switches

The function of electronic pressure and vacuum switches is the control or regulation of pressure or vacuum levels in hydraulic or pneumatic systems. They transform the pressure change into a digital output signal when the preset pressure or vacuum points are reached. The very wide adjustment range for the setting points characterise these electronic switches.

Their robustness, together with their excellent adherence to the set values over a period of time, make them ideal for applications involving high operating rates.

In addition, the high repeat accuracy and fast response time of these sensors make them equally suitable for applications requiring accurate pressure regulation and monitoring.

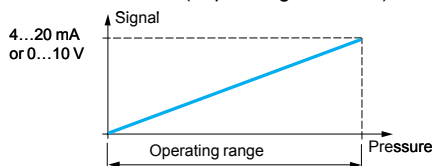
Universal sensors

Universal sensors are electronic pressure and vacuum switches which include an analogue output, identical to that of the pressure transmitters.

Operating principle

Pressure transmitters

The electrical signal from the pressure transmitter (signal proportional to the pressure being monitored) is amplified, calibrated and output as a standard 4 to 20 mA or 0 to 10 V (depending on model) analogue signal.



Pressure and vacuum switches

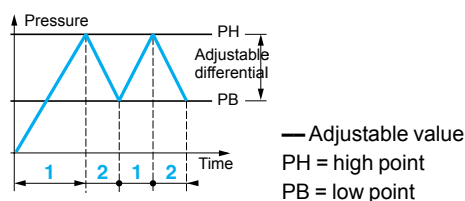
Designed for regulation between 2 thresholds (adjustable differential), these switches have both a high point setting (PH) and a low point setting (PB). Both of these points can be independently adjusted.

The difference (differential) between the two setting points can be little or considerable, thus enabling small or large differentials to be set.

Being electronic, the switches have no mechanical moving parts.

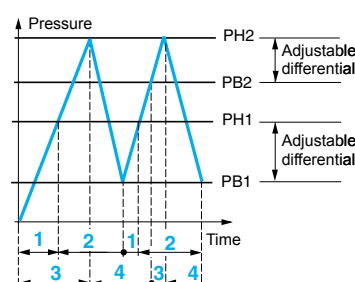
Operating principle with solid-state NC outputs

Pressure switches with digital output

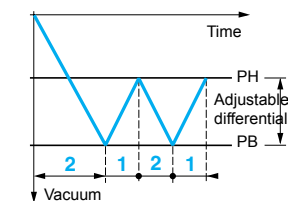


- 1 Output on
- 2 Output off

Dual stage pressure switches



Vacuum switches with digital output



- 1 Output on
- 2 Output off

- Adjustable value
PH1 = high point 1st stage
PB1 = low point 1st stage
PH2 = high point 2nd stage
PB2 = low point 2nd stage
- 1 Output 1st stage on
 - 2 Output 1st stage off
 - 3 Output 2nd stage on
 - 4 Output 2nd stage off

Terminology

Measuring range

The measuring range (M.R.) of a pressure sensor corresponds to the difference between the upper and lower values measured by the load cell. It is comprised between 0 bar and the pressure corresponding to the size of the sensor.

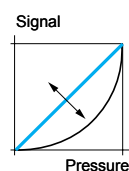
Operating range

The operating range of a pressure transmitter corresponds to its measuring range. Within this range, its analogue output signal varies between 4 and 20 mA or 0 and 10 V and is proportional to the measured pressure.

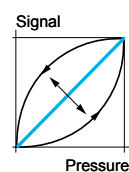
The operating range of a pressure or vacuum switch is the difference between the minimum low point (PB) and the maximum high point (PH) setting values.

Precision

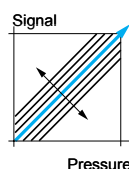
This comprises linearity, hysteresis, repeat accuracy and setting tolerances. It is expressed as a % of the measuring range (M.R.) of the load cell (% M.R.).



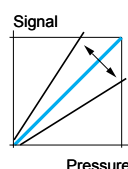
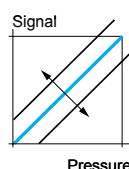
The linearity is the maximum deviation between the real transmitted curve and the ideal curve.



The hysteresis is the maximum deviation between the rising pressure curve and the falling pressure curve.



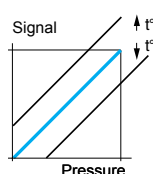
The repeat accuracy is the maximum drift encountered at varying pressures under given conditions.



The setting tolerances are the manufacturer's tolerances regarding the zero point and sensitivity (gradient of output signal curve from pressure transmitter).

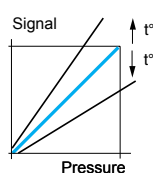
Temperature drift

The precision of a pressure sensor is always susceptible to variation due to the operating temperature.



Zero point drift

This is proportional to the temperature and is expressed as % M.R./°C.



Sensitivity drift

This is proportional to the temperature and is expressed as % M.R./°C.

Terminology (continued)**Switching point on rising pressure (PH)**

The upper pressure setting at which the output of the electronic pressure or vacuum switch changes state on rising pressure.

Switching point on falling pressure (PB)

The lower pressure setting at which the output of the electronic pressure or vacuum switch changes state on falling pressure.

Differential

The difference between the switching point on rising pressure (PH) and the switching point on falling pressure (PB). The low point can be set at the values indicated on the operating curves shown on the product pages.

Repeat accuracy

The variation of the operating point of the pressure or vacuum switch between several successive operations.

Size**Pressure transmitters and pressure switches**

This is the maximum value of the operating range.

Vacuum transmitters and vacuum switches

This is the minimum value of the operating range.

Maximum permissible accidental pressure

The maximum pressure (excluding pressure surges) that the sensor can occasionally withstand without permanent damage.

Destruction pressure

The pressure value which if exceeded is likely to cause serious damage to the sensor, i.e. leaking, bursting, component failure, etc.

Load resistance of pressure transmitters

The supply voltage and load resistance of a pressure transmitter must be selected according to the formula:

$$R \text{ load} = \frac{U_{\text{supply}} - U_{\text{supply min.}}}{0.02 \text{ A}} \quad (U_{\text{supply min.}} = 11 \text{ V for XML E and 17 V for XML F})$$

Features of pressure sensors XML F

Pressure sensors type XML F (see page 6/34) feature numerous configuration possibilities with regards to the display (response time, choice of bar or psi units of measurement), analogue output signal operation (maximum signal output adjustable between 75% and 125% of the units size), solid-state output operation (PNP or NPN, NO or NC, time delay on opening or on closing, response time) and status signalling (see below).

A diagnostic function is incorporated which enables verification, at any time, of the sensors correct operation (see below) and also, to provide information regarding pressure peak values.

Self-test function (calibration shunt)

All pressure sensors XML F incorporate a diagnostic function which can be used, at any time, to check the correct operation of the unit. It comprises an internal system which enables automatic monitoring of all the sensor circuits, including the ceramic pressure measuring load cell.

For all models, this function is manually activated and the result of the test is indicated on the display (DONE or ERR).

For pressure transmitters, this function can also be remotely activated via a digital input connected to a PLC, thus enabling automatic verification without the need of intervention by an operator. In this instance, the self-test also generates an analogue output signal which is equivalent to 50% of the sensors size (12 mA or 5 V) which, in turn, can be verified by the PLC.

The unit can be considered as defective if the difference between the signal transmitted and the standard theoretical value is too great.

Operational status signalling

Pressure and vacuum switches XML F feature status LED indicators for the digital outputs. Indication can be configured for 2 modes:

- "hysteresis" mode: indicator illuminated when output activated (output off for NC configuration or output on for NO configuration).
- "window" mode: indicator illuminated when the pressure being measured is between the high and low set point values.

Selection of switch size

Size selection is made according to the maximum pressure of the system to be controlled.

Adherence to pressure

Select a size whereby the nominal pressure is higher than the maximum pressure of the system to be controlled.

Precision, repeat accuracy

The precision and repeat accuracy are expressed as a percentage of the measuring range and better detection is achieved when the size of the sensor is close to that of the maximum pressure of the system to be controlled. As general rule, avoid working towards the bottom limit of the measuring range.

Minimum differential of a pressure or vacuum switch

The minimum differential for each switch size is 2% for XML E and 3% for XML F of its operating range.

Selection example for a pressure switch

Maximum pressure of system = 11 bar

PH = 7 bar

PB = 6 bar

2 alternative choices:

XML ●010●●●●● (10 bar) or

XML ●025●●●●● (25 bar)

Advantages:

XML ●010●●●●●: maximum repeat accuracy and precision

XML ●025●●●●●: withstand to overpressure.

Electromechanical pressure and vacuum switches

Nautilus®

For control circuits, type XML

Presentation

Pressure and vacuum switches type **XML** are switches for control circuits. They are used to control the pressure of hydraulic oils, fresh water, sea water, air, steam, corrosive fluids or viscous products, up to 500 bar.

XML A pressure and vacuum switches have a fixed differential and are for detection of a single threshold. They incorporate a 1 C/O single-pole contact.

XML B pressure and vacuum switches have an adjustable differential and are for regulation between 2 thresholds. They incorporate a 1 C/O single-pole contact.

XML C pressure and vacuum switches have an adjustable differential and are for regulation between 2 thresholds. They incorporate 2 C/O single-pole contacts.

XML D pressure and vacuum switches are dual stage switches, each stage with a fixed differential, and are for detection at each threshold. They incorporate 2 C/O single-pole contacts (one per stage).

Setting

When setting pressure and vacuum switches XML, adjust the switching point on rising pressure (PH) first and then the switching point on falling pressure (PB).

Pressure and vacuum switches with fixed differential, type XML A

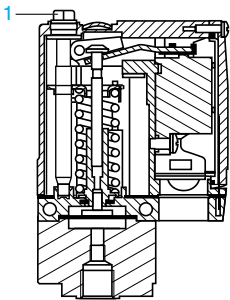
Switching point on rising pressure

The switching point on rising pressure (PH) is set by adjusting the red screw **1**.

Switching point on falling pressure

The switching point on falling pressure (PB) is not adjustable.

The difference between the tripping and resetting points of the contact is the natural differential of the switch (contact differential, friction, etc.).



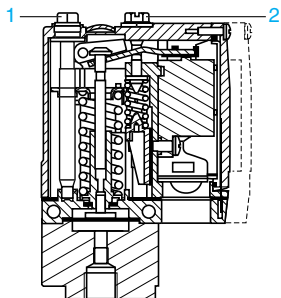
Pressure and vacuum switches with adjustable differential, types XML B and XML C

Switching point on rising pressure

The switching point on rising pressure (PH) is set by adjusting the red screw **1**.

Switching point on falling pressure

The switching point on falling pressure (PB) is set by adjusting the green screw **2**.



Dual stage pressure and vacuum switches with fixed differential for each threshold, type XML D

Switching point on rising pressure of stage 1 and stage 2

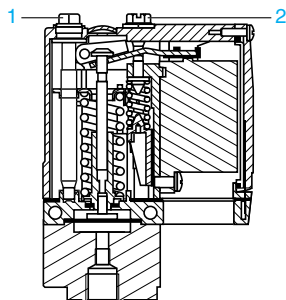
The first stage switching point on rising pressure (PH1) is set by adjusting the red screw **1**.

The second stage switching point on rising pressure (PH2) is set by adjusting the blue screw **2**.

Switching point on falling pressure

The switching points on falling pressure (PB1 and PB2) are not adjustable.

The difference between the tripping and resetting points of each contact is the natural differential of the switch (contact differential, friction, etc.).



Electromechanical pressure and vacuum switches

Nautilus®

For control circuits, type XML

Environmental characteristics

Conformity to standards		CE, IEC/EN 60947-5-1, UL 508, CSA C22-2 n° 14
Product certifications		UL, CSA, CCC, BV, LROS, RINA, GL, DNV, VIT-SEPRO
Protective treatment		Standard version "TC". Special version "TH"
Ambient air temperature	°C	For operation: - 25...+ 70. For storage: - 40 ...+ 70
Fluids or products controlled		Hydraulic oils, air, fresh water, sea water (0...+ 160 °C), depending on model Steam, corrosive fluids, viscous products (0...+ 160 °C), depending on model
Materials		Case: zinc alloy Component materials in contact with fluid: see pages 6/128 and 6/129
Operating position		All positions
Vibration resistance		4 gn (30...500 Hz) conforming to IEC 68-2-6 except XML ●L35●●●●●, XML ●001●●●●● and XML BM03●●●●●: 2 gn
Shock resistance		50 gn conforming to IEC 68-2-27 except XML ●L35●●●●●, XML ●001●●●●● and XML BM03●●●●●: 30 gn
Electric shock protection		Class I conforming to IEC 1140, IEC 536 and NF C 20-030
Degree of protection		Screw terminal models: IP 66 conforming to IEC/EN 60529 Connector models: IP 65 conforming to IEC/EN 60529
Operating rate	Op. cycles/min	Piston version switches: ≤ 60 (for temperature > 0 °C) Diaphragm version switches: ≤ 120 (for temperature > 0 °C)
Repeat accuracy		< 2%
Fluid connection		G 1/4 (BSP female) conforming to NF E 03-005, ISO 228 or 1/4" NPTF (consult your Regional Sales Office)
Electrical connection		Screw terminal models: ISO M20 x 1.5 tapped entry For an entry tapped for n° 13 (DIN Pg 13.5) cable gland, replace the last number of the reference by 1 (example: XML A010A2S12 becomes XML A010A2S11) For an entry tapped 1/2" NPT, please consult your Regional Sales Office Connector models (either type DIN 43650 A or M12): please consult your Regional Sales Office

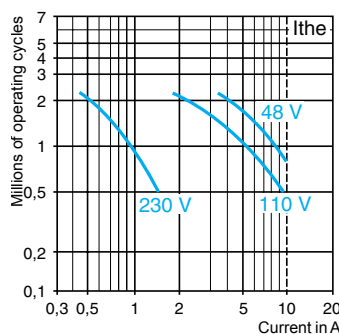
Contact block characteristics

Rated operational characteristics		~ AC-15; B300 (Ue = 240 V, Ie = 1.5 A - Ue = 120 V, Ie = 3 A) --- DC-13; R300 (Ue = 250 V, Ie = 0.1 A) conforming to IEC 947-5-1 Appendix A, EN 60 947-5-1
Rated insulation voltage		Ui = 500 V conforming to IEC/EN 60947-1 Ui = 300 V conforming to UL 508, CSA C22-2 n° 14
Rated impulse withstand voltage		U imp = 6 kV conforming to IEC/EN 60947-1
Type of contacts		Silver tipped contacts XML A and XML B: 1 C/O single-pole contact (4 terminal), snap action XML C: 2 C/O single-pole contacts (8 terminal), simultaneous, snap action XML D: 2 C/O single-pole contacts (8 terminal), staggered, snap action
Resistance across terminals	mΩ	< 25 conforming to NF C 93-050 method A or IEC 255-7 category 3
Terminal referencing		Conforming to CENELEC EN 50013
Short-circuit protection		10 A cartridge fuse type gG (gl)
Connection		Screw clamp terminals. Clamping capacity, min: 1 x 0.2 mm², max: 2 x 2.5 mm²

Electrical durability
Conforming to IEC/EN 60947-5-1 Appendix C
Utilisation categories AC-15 and DC-13

Operating rate: 3600 operating cycles/hour
Load factor: 0.5

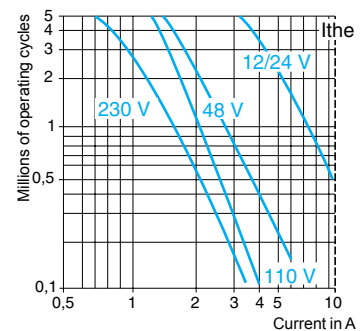
XML A and XML B
a.c. supply ~ 50/60 Hz
~ Inductive circuit, Ithe = 10 A



d.c. supply ---
Power broken in W
for 1 million operating cycles

Voltage V	24	48	120
~ W	31	29	26

XML C and XML D
a.c. supply ~ 50/60 Hz
~ Inductive circuit, Ithe = 10 A



d.c. supply ---
Power broken in W
for 5 million operating cycles

Voltage V	24	48	120
~ W	10	7	4

Electromechanical vacuum switches

Nautilus® type XML

Size - 1 bar (- 14.5 psi)

Fixed differential, for detection of a single threshold

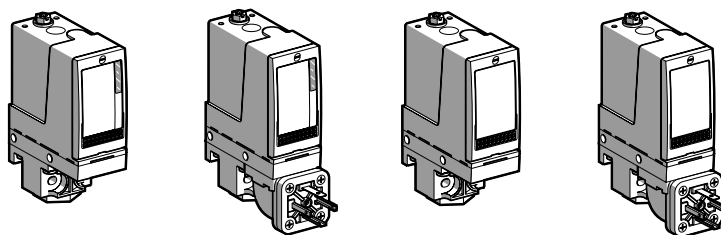
Switches with 1 C/O single-pole contact

Fluid connection 1/4" BSP

Vacuum switches type XML A

With setting scale

Without setting scale


Adjustable range of switching point (PB)
(Falling pressure)

- 0.28...- 1 bar (- 4.06...- 14.5 psi)

Electrical connection

Terminals

DIN connector

Terminals

DIN connector

References (1)

Fluids controlled
(2)

Hydraulic oils, fresh water, sea
water, air, up to + 70 °C

Hydraulic oils, fresh water, sea
water, air, corrosive fluids, up to
+ 160 °C

XML AM01V2S12

XML AM01V2C11

XML AM01V1S12

XML AM01V1C11

XML AM01T2S12

XML AM01T2C11

XML AM01T1S12

XML AM01T1C11

Weight (kg)

0.685

0.715

0.685

0.715

Complementary characteristics not shown under general characteristics (page 6/69)

Natural differential
(add to PB to give PH)

At low setting (3)

0.24 bar (3.48 psi)

At high setting (3)

0.24 bar (3.48 psi)

Maximum permissible
pressure

Per cycle

5 bar (72.5 psi)

Accidental

9 bar (130.5 psi)

Destruction pressure

18 bar (261 psi)

Mechanical life

3 x 10⁶ operating cycles

Cable entry for terminal models

1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm

Connector type for connector models

DIN 43650A, 4-pin male. For suitable female connector, see page 6/122

Vacuum switch type

Diaphragm

(1) For 1 entry tapped for n° 13 cable gland, replace **S12** by **S11** (example: **XML AM01V2S12** becomes **XML AM01V2S11**).

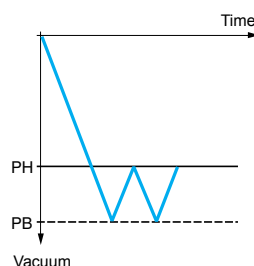
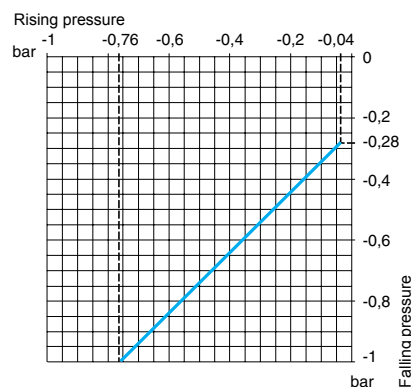
(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at low and high setting points for switches of the same size:
± 0.05 bar (± 0.72 psi).

Operating curves

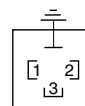
Connection

Terminal model



Connector model

Vacuum switch connector pin view


1 → 11 and 13
2 → 12
3 → 14

— Adjustable value

--- Non adjustable value

Other versions

Vacuum switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Nautilus® type XML

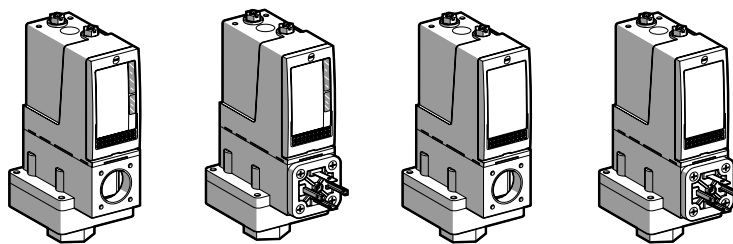
Size - 1 bar (- 14.5 psi)

Adjustable differential, for regulation between 2 thresholds

Switches with 1 C/O single-pole contact

Fluid connection 1/4" BSP

Vacuum switches type XML B	With setting scale	Without setting scale
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Adjustable range of switching point (PB) (Falling pressure)	- 0.14...- 1 bar (- 2.03...- 14.5 psi)			
Electrical connection	Terminals	DIN connector	Terminals	DIN connector

References (1)					
Fluids controlled (2)	Hydraulic oils, fresh water, sea water, air, up to + 70 °C	XML BM02V2S12	XML BM02V2C11	XML BM02V1S12	XML BM02V1C11
	Hydraulic oils, fresh water, sea water, air, corrosive fluids, up to + 160 °C	XML BM02T2S12	XML BM02T2C11	XML BM02T1S12	XML BM02T1C11
Weight (kg)		1.015	1.030	1.015	1.030

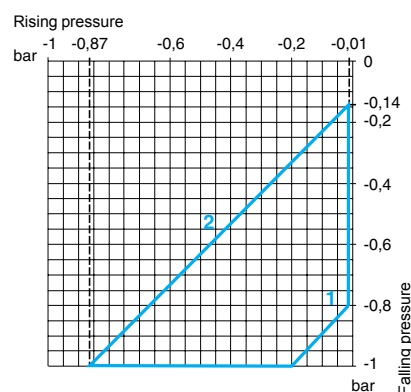
Complementary characteristics not shown under general characteristics (page 6/69)		
Possible differential (add to PB to give PH)	Min. at low setting (3)	0.13 bar (1.88 psi)
	Min. at high setting (3)	0.13 bar (1.88 psi)
	Max. at high setting	0.8 bar (11.6 psi)
Maximum permissible pressure	Per cycle	5 bar (72.5 psi)
	Accidental	9 bar (130.5 psi)
Destruction pressure		18 bar (261 psi)
Mechanical life		3 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Connector type for connector models		DIN 43650A, 4-pin male. For suitable female connector, see page 6/122
Vacuum switch type		Diaphragm

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML BM02V2S12 becomes XML BM02V2S11).

(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

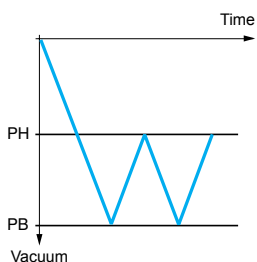
(3) Deviation of the differential at low and high setting points for switches of the same size: ± 0.02 bar (± 0.29 psi).

Operating curves	Connection
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- 1 Maximum differential
2 Minimum differential

Other versions



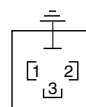
— Adjustable value

Terminal model



Connector model

Vacuum switch connector pin view



- 1 → 11 and 13
2 → 12
3 → 14

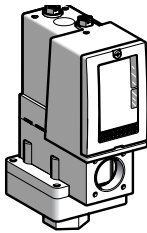
Vacuum switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Electromechanical vacuum switches

Nautilus® type XML
Size - 1 bar (- 14.5 psi)
Adjustable differential, for regulation between 2 thresholds
Switches with 2 C/O single-pole contacts
Fluid connection 1/4" BSP

Vacuum switches type XML C

With setting scale



Adjustable range of switching point (PB) (Falling pressure)	- 0.14...- 1 bar (- 2.03...- 14.5 psi)
Electrical connection	Terminals

References (1)

Fluids controlled (2)	Hydraulic oils, fresh water, sea water, air, up to + 70 °C	XML CM02V2S12
	Hydraulic oils, fresh water, sea water, air, corrosive fluids, up to + 160 °C	XML CM02T2S12
Weight (kg)	1.015	

Complementary characteristics not shown under general characteristics (page 6/69)

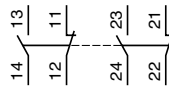
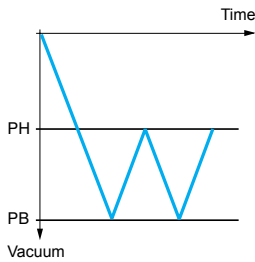
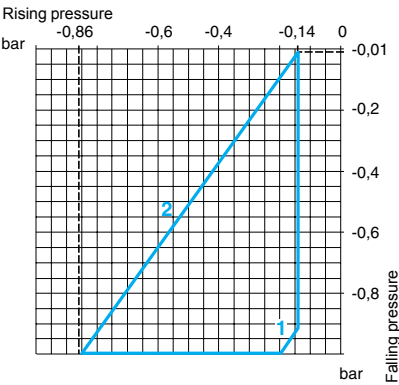
Possible differential (add to PB to give PH)	Min. at low setting (3)	0.13 bar (1.89 psi)
	Min. at high setting (3)	0.14 bar (2.03 psi)
	Max. at high setting	0.8 bar (11.6 psi)
Maximum permissible pressure	Per cycle	5 bar (72.5 psi)
	Accidental	9 bar (130.5 psi)
Destruction pressure	18 bar (261 psi)	
Mechanical life	3 x 10 ⁶ operating cycles	
Cable entry for terminal models	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm	
Vacuum switch type	Diaphragm	

- (1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML CM02V2S12 becomes XML CM02V2S11).
(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.
(3) Deviation of the differential at low and high setting points for switches of the same size: ± 0.02 bar (± 0.29 psi).

Operating curves

Connection

Terminal model



- 1 Maximum differential
2 Minimum differential

— Adjustable value

Other versions

Vacuum switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Nautilus® type XML

Size - 1 bar (- 14.5 psi)

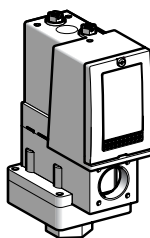
Dual stage, fixed differential, for detection at each threshold

Switches with 2 C/O single-pole contacts (one per stage)

Fluid connection 1/4" BSP

Vacuum switches type XML D

Without setting scale



Adjustable range of each switching point (Falling pressure)	2nd stage switching point (PB2)	- 0.12...- 1 bar (- 1.74...- 14.5 psi)
	1st stage switching point (PB1)	- 0.10...- 0.98 bar (- 1.45...- 14.21 psi)
Spread between 2 stages (PB2 - PB1)		0.02...0.88 bar (0.29...12.76 psi)
Electrical connection		Terminals

References (1)

Fluids controlled (2)	Hydraulic oils, fresh water, sea water, air, up to + 70 °C	XML DM02V1S12
	Hydraulic oils, fresh water, sea water, air, corrosive fluids, up to + 160 °C	XML DM02T1S12
Weight (kg)		1.015

Complementary characteristics not shown under general characteristics (page 6/69)

Natural differential (add to PB1/PB2 to give PH1/PH2)	At low setting (3)	0.1 bar (1.45 psi)
	At high setting (4)	0.1 bar (1.45 psi)
Maximum permissible pressure	Per cycle	5 bar (72.5 psi)
	Accidental	9 bar (130.5 psi)
Destruction pressure		18 bar (261 psi)
Mechanical life		3 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Vacuum switch type		Diaphragm

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML DM02V1S12 becomes XML DM02V1S11).

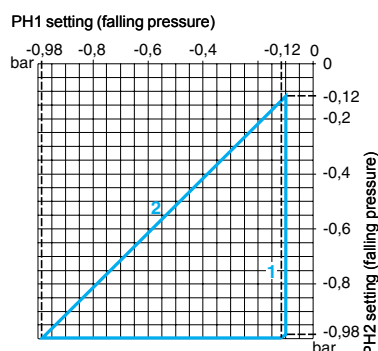
(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at low setting point for switches of the same size: ± 0.035 bar (± 0.51 psi).

(4) Deviation of the differential at high setting point for switches of the same size: ± 0.02 bar (± 0.29 psi).

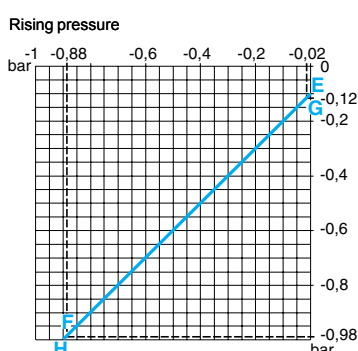
Operating curves

High setting tripping points of contacts 1 and 2

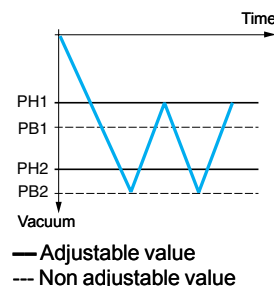


- 1 Maximum differential
- 2 Minimum differential

Natural differential of contacts 1 and 2



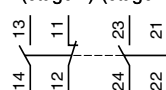
- EF Contact 1 (stage 1)
- GH Contact 2 (stage 2)



Connection

Terminal model

Contact 1 (stage 1) Contact 2 (stage 2)



Other versions

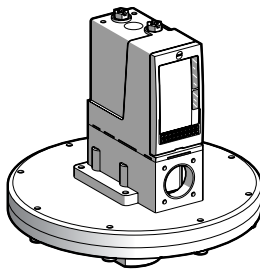
Vacuum switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Electromechanical vacuum switches

Nautilus® type XML
Size - 200 mbar (- 2.9 psi)
Adjustable differential, for regulation between 2 thresholds
Switches with 1 C/O single-pole contact
Fluid connection 1/4" BSP

Vacuum switches type XML B

With setting scale



Adjustable range of switching point (PB) (Falling pressure)	- 20...- 200 mbar (- 0.29...- 2.9 psi)
Electrical connection	Terminals

References (1)

Fluids controlled (2)	Hydraulic oils, air, up to + 160 °C Fresh water, sea water, corrosive fluids, up to + 160 °C	XML BM03R2S12 XML BM03S2S12
Weight (kg)		3.310

Complementary characteristics not shown under general characteristics (page 6/69)

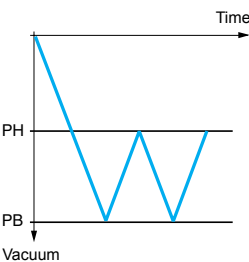
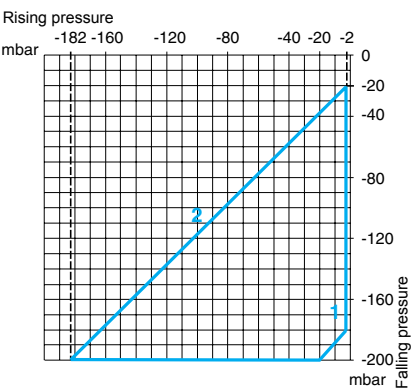
Possible differential (add to PB to give PH)	Min. at low setting (3)	18 mbar (0.26 psi)
	Min. at high setting (3)	18 mbar (0.26 psi)
	Max. at high setting	180 mbar (2.6 psi)
Maximum permissible pressure	Per cycle	1 bar (14.5 psi)
	Accidental	2 bar (29 psi)
Destruction pressure		3.5 bar (50.75 psi)
Mechanical life		3 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Vacuum switch type		Diaphragm

- (1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML BM03R2S12 becomes XML BM03R2S11).
(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.
(3) Deviation of the differential at low and high setting points for switches of the same size: ± 2 mbar (± 0.29 psi).

Operating curves

Connection

Terminal model



- 1 Maximum differential
2 Minimum differential

— Adjustable value

Other versions

Vacuum switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Nautilus® type XML

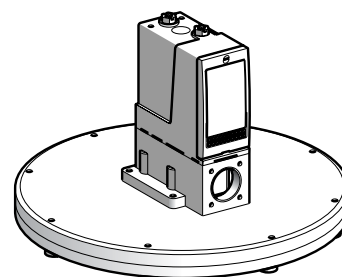
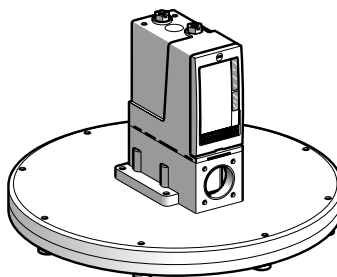
Size 50 mbar (0.72 psi)

Adjustable differential, for regulation between 2 thresholds

Switches with 1 C/O single-pole contact

Fluid connection 1/4" BSP

Pressure switches type XML B	With setting scale	Without setting scale
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Adjustable range of switching point (PH) (Rising pressure)	2.6...50 mbar (0.038...0.72 psi)
Electrical connection	Terminals

References (1)

Fluids controlled (2)	Hydraulic oils, air, up to + 160 °C	XML BL05R2S12	XML BL05R1S12
	Fresh water, sea water, corrosive fluids, up to + 160 °C	XML BL05S2S12	XML BL05S1S12

Weight (kg)	2.420
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Complementary characteristics not shown under general characteristics (page 6/69)

Possible differential (subtract from PH to give PB)	Min. at low setting (3)	1.4 mbar (0.02 psi)
	Min. at high setting (4)	4 mbar (0.06 psi)
	Max. at high setting	40 mbar (0.58 psi)
Maximum permissible pressure	Per cycle	62.5 mbar (0.90 psi)
	Accidental	112.5 mbar (1.63 psi)
Destruction pressure		225 mbar (3.26 psi)
Mechanical life		6 x 10 ⁸ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Pressure switch type		Diaphragm

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML BL05R2S12 becomes XML BL05R2S11).

(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

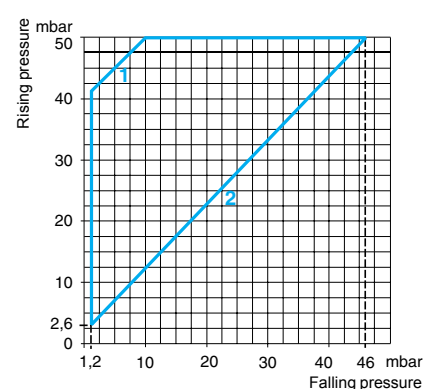
(3) Deviation of the differential at low setting point for switches of the same size:
- 0.8 mbar, + 1.1 mbar (- 0.01 psi, + 0.02 psi).

(4) Deviation of the differential at high setting point for switches of the same size:
± 1.4 mbar, (+ 0.02 psi).

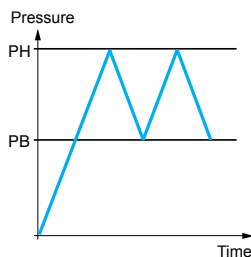
Operating curves

Connection

Terminal model



- 1 Maximum differential
2 Minimum differential



— Adjustable value



Other versions	Pressure switches with DIN 43650A connector or with alternative tapped cable entries: NPT etc. Please consult your Regional Sales Office.
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Electromechanical vacu-pressure switches

Nautilus® type XML. Size 5 bar (72.5 psi).

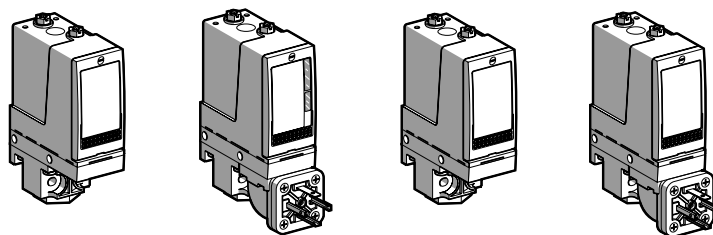
Adjustable differential, for regulation between 2 thresholds.

Switches with 1 C/O single-pole contact. Fluid connection 1/4" BSP

Vacu-pressure switches type XML B

With setting scale

Without setting scale



Adjustable range of switching point (PH)
(Rising pressure)

- 0.5...5 bar (- 7.25...72.5 psi)

Electrical connection

Terminals

DIN connector

Terminals

DIN connector

References (1)

Fluids controlled
(2)

Hydraulic oils, fresh water, sea water, air, up to + 70 °C
Hydraulic oils, fresh water, sea water, air, up to + 160 °C
Corrosive fluids, up to + 160 °C
Viscous products, up to + 160 °C (G1¼" fluid connection)

XML BM05A2S12

XML BM05A2C11

XML BM05A1S12

XML BM05A1C11

XML BM05B2S12

XML BM05B2C11

XML BM05B1S12

XML BM05B1C11

XML BM05C2S12

XML BM05C2C11

XML BM05C1S12

XML BM05C1C11

XML BM05P2S12

XML BM05P2C11

XML BM05P1S12

XML BM05P1C11

Weight (kg)

0.685

0.715

0.705

0.735

Complementary characteristics not shown under general characteristics (page 6/69)

Possible differential
(subtract from PH to give PB)

Min. at low setting (3)

0.5 bar (7.25 psi)

Min. at high setting (3)

0.5 bar (7.25 psi)

Max. at high setting

6 bar (87 psi)

Maximum permissible pressure

Per cycle

6.25 bar (90.62 psi)

Accidental

11.25 bar (163.12 psi)

Destruction pressure

23 bar (333.5 psi)

Mechanical life

3 x 10⁶ operating cycles

Cable entry for terminal models

1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm

Connector type for connector models

DIN 43650A, 4-pin male. For suitable female connector, see page 6/122

Vacu-pressure switch type

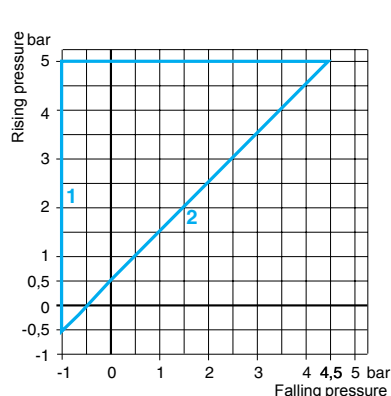
Diaphragm

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML BM05A2S12 becomes XML BM05A2S11).

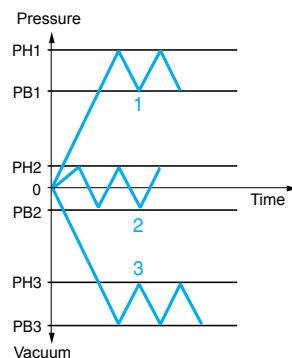
(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at low and high setting points for switches of the same size: ± 0.05 bar (± 0.72 psi).

Operating curves



- 1 Maximum differential
2 Minimum differential



— Adjustable value

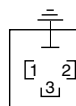
Connection

Terminal model



Connector model

Vacu-pressure switch pin view



- 1 → 11 and 13
2 → 12
3 → 14

Other versions

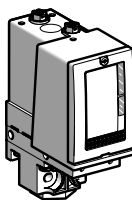
Vacu-pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Electromechanical vacu-pressure switches

Nautilus® type XML. Size 5 bar (72.5 psi).
Adjustable differential, for regulation between 2 thresholds.
Switches with 2 C/O single-pole contacts. Fluid connection 1/4" BSP

Vacu-pressure switches type XML C

With setting scale



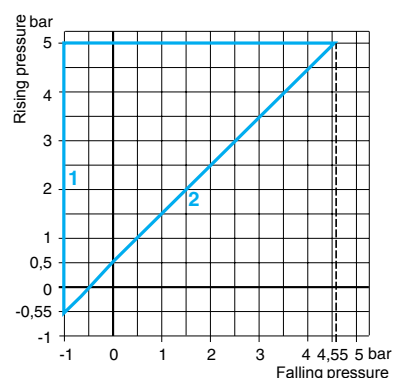
Adjustable range of switching point (PH) (Rising pressure)		- 0.55...5 bar (- 7.97...72.5 psi)
Electrical connection		Terminals
References (1)		
Fluids controlled (2)	Hydraulic oils, fresh water, sea water, air, up to + 70 °C	XML CM05A2S12
	Hydraulic oils, fresh water, sea water, air, up to + 160 °C	XML CM05B2S12
	Corrosive fluids, up to + 160 °C	XML CM05C2S12
Weight (kg)	0.685	
Complementary characteristics not shown under general characteristics (page 6/69)		
Possible differential (subtract from PH to give PB)	Min. at low setting (3)	0.45 bar (6.52 psi)
	Min. at high setting (3)	0.45 bar (6.52 psi)
	Max. at high setting	6 bar (87 psi)
Maximum permissible pressure	Per cycle	6.25 bar (90.62 psi)
	Accidental	11.25 bar (163.12 psi)
Destruction pressure		23 bar (333.5 psi)
Mechanical life		3 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Vacu-pressure switch type		Diaphragm

(1) For 1 entry tapped for n° 13 cable gland, replace **S12** by **S11** (example: **XML CM05A2S12** becomes **XML CM05A2S11**).

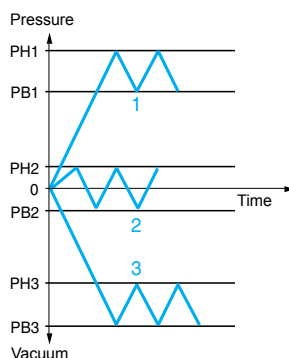
(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at low and high setting points for switches of the same size: ± 0.1 bar (± 1.45 psi).

Operating curves



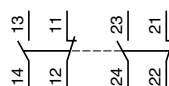
- 1 Maximum differential
2 Minimum differential



— Adjustable value

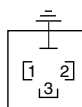
Connection

Terminal model



Connector model

Vacu-pressure switch pin view



- 1 → 11 and 13
2 → 12
3 → 14

Other versions

Vacu-pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Electromechanical pressure switches

Nautilus® type XML

Size 350 mbar (5.07 psi)

Adjustable differential, for regulation between 2 thresholds

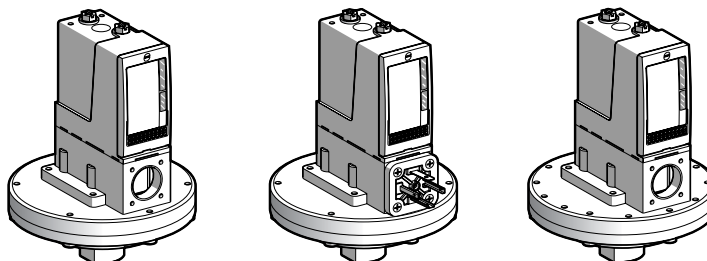
Switches with 1 C/O single-pole contact

Fluid connection 1/4" BSP

Pressure switches type XML B

With setting scale

30 bar (435 psi)
overpressure
With setting scale



Adjustable range of switching point (PH) (Rising pressure)	45...350 mbar (0.65...5.07 psi)		42...330 mbar (0.61...4.78 psi)
Electrical connection	Terminals	DIN connector	Terminals

References (1)

Fluids controlled (2)	Hydraulic oils, air, up to + 160 °C	XML BL35R2S12	XML BL35R2C11	XML BS35R2S12
	Fresh water, sea water, corrosive fluids, up to + 160 °C	XML BL35S2S12	XML BL35S2C11	—
	Viscous products, up to + 160 °C (G1¼" fluid connection)	XML BL35P2S12	XML BL35P2C11	—
Weight (kg)		2.575	2.590	3.500

Complementary characteristics not shown under general characteristics (page 6/69)

Possible differential (subtract from PH to give PB)	Min. at low setting (3)	42 mbar (0.60 psi)	33 mbar (0.48 psi)
	Min. at high setting (4)	50 mbar (0.72 psi)	58 mbar (0.84 psi)
	Max. at high setting	300 mbar (4.35 psi)	250 mbar (3.62 psi)
Maximum permissible pressure	Per cycle	1.25 bar (18.12 psi)	30 bar (435 psi)
	Accidental	2.25 bar (32.62 psi)	37.5 bar (543.75 psi)
Destruction pressure		4.5 bar (65.25 psi)	67.5 bar (978.75 psi)
Mechanical life		4 million operating cycles	2 million operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm	
Connector type for connector models		DIN 43650A, 4-pin male. For suitable female connector, see page 6/122	
Pressure switch type		Diaphragm	

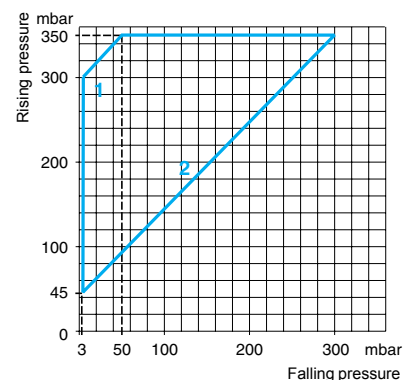
(1) For 1 entry tapped for n° 13 cable gland, replace **S12** by **S11** (example: **XML BL35R2S12** becomes **XML BL35R2S11**).

(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

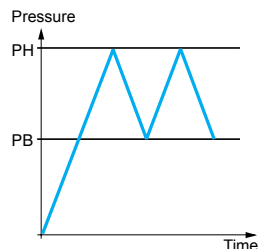
(3) Deviation of the differential at low setting point for switches of the same size:
- 8 mbar, + 3 mbar (- 0.12 psi, + 0.04 psi).

(4) Deviation of the differential at high setting point for switches of the same size:
± 8 mbar (± 0.11 psi).

Operating curves



- 1 Maximum differential
2 Minimum differential



— Adjustable value

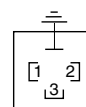
Connection

Terminal model



Connector model

Pressure switch connector pin view



- 1 → 11 and 13
2 → 12
3 → 14

Other versions

Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Nautilus® type XML

Size 350 mbar (5.07 psi)

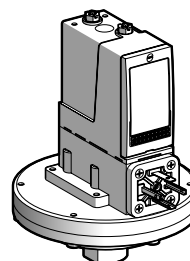
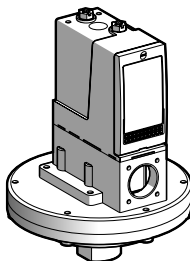
Adjustable differential, for regulation between 2 thresholds

Switches with 1 C/O single-pole contact

Fluid connection 1/4" BSP

Pressure switches type XML B

Without setting scale



Adjustable range of switching point (PH) (Rising pressure)		45...350 mbar (0.65...5.07 psi)	
Electrical connection		Terminals	DIN connector
References (1)			
Fluids controlled (2)	Hydraulic oils, air, up to + 160 °C	XML BL35R1S12	XML BL35R1C11
	Fresh water, sea water, corrosive fluids, up to + 160 °C	XML BL35S1S12	XML BL35S1C11
	Viscous products, up to + 160 °C (G1/4" fluid connection)	XML BL35P1S12	XML BL35P1C11
Weight (kg)		2.575	2.590
Complementary characteristics not shown under general characteristics (page 6/69)			
Possible differential (subtract from PH to give PB)	Min. at low setting (3)	42 mbar (0.60 psi)	
	Min. at high setting (4)	50 mbar (0.72 psi)	
	Max. at high setting	300 mbar (4.35 psi)	
Maximum permissible pressure	Per cycle	1.25 bar (18.12 psi)	
	Accidental	2.25 bar (32.62 psi)	
Destruction pressure		4.5 bar (65.25 psi)	
Mechanical life		4 million operating cycles	
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm	
Connector type for connector models		DIN 43650A, 4-pin male. For suitable female connector, see page 6/122	
Pressure switch type		Diaphragm	

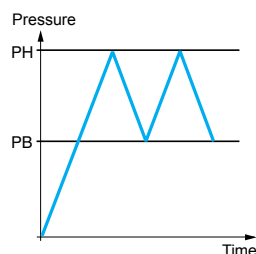
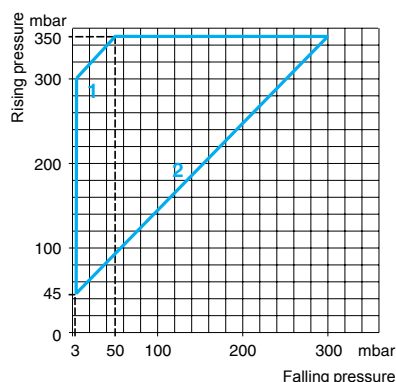
(1) For 1 entry tapped for n° 13 cable gland, replace **S12** by **S11** (example: **XML BL35R1S12** becomes **XML BL35R1S11**).

(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at low setting point for switches of the same size:
- 8 mbar, + 3 mbar (- 0.12 psi, + 0.04 psi).

(4) Deviation of the differential at high setting point for switches of the same size:
± 8 mbar (± 0.11 psi).

Operating curves



— Adjustable value

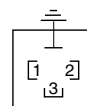
Connection

Terminal model



Connector model

Pressure switch connector pin view



1 → 11 and 13
2 → 12
3 → 14

- 1 Maximum differential
- 2 Minimum differential

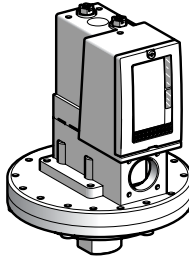
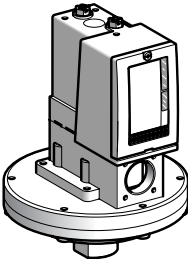
Other versions

Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Electromechanical pressure switches

Nautilus® type XML
Size 350 mbar (5.07 psi)
Adjustable differential, for regulation between 2 thresholds
Switches with 2 C/O single-pole contacts
Fluid connection 1/4" BSP

Pressure switches type XML C	With setting scale	30 bar (435 psi) overpressure With setting scale
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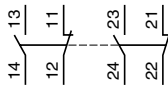
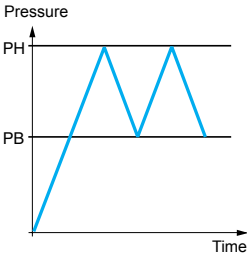
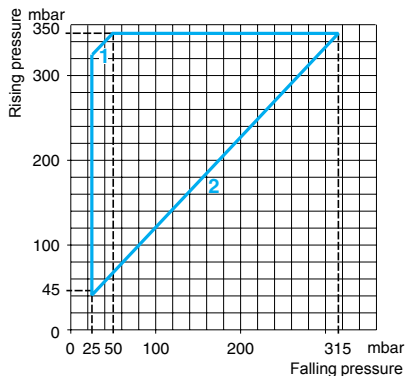
Adjustable range of switching point (PH) (Rising pressure)	45...350 mbar (0.65...5.07 psi)	42...330 mbar (0.61...4.78 psi)
Electrical connection	Terminals	

References (1)			
Fluids controlled (2)	Hydraulic oils, air, up to + 160 °C	XML CL35R2S12	XML CS35R2S12
	Fresh water, sea water, corrosive fluids, up to + 160 °C	XML CL35S2S12	—
Weight (kg)		2.575	3.500

Complementary characteristics not shown under general characteristics (page 6/69)			
Possible differential (subtract from PH to give PB)	Min. at low setting (3)	20 mbar (0.29 psi)	40 mbar (0.58 psi)
	Min. at high setting (3)	35 mbar (0.51 psi)	88 mbar (1.27 psi)
	Max. at high setting	300 mbar (4.35 psi)	230 mbar (3.33 psi)
Maximum permissible pressure	Per cycle	1.25 bar (18.12 psi)	30 bar (435 psi)
	Accidental	2.25 bar (32.62 psi)	37.5 bar (543.75 psi)
Destruction pressure		4.5 bar (65.25 psi)	67.5 bar (978.75 psi)
Mechanical life		4 million operating cycles	2 million operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm	
Pressure switch type		Diaphragm	

- (1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML CL35R2S12 becomes XML CL35R2S11).
(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.
(3) Deviation of the differential at low setting point for switches of the same size:
± 20 mbar (± 0.29 psi).

Operating curves	Connection Terminal model
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- 1 Maximum differential
2 Minimum differential

— Adjustable value

Other versions	Pressure switches with alternative tapped cable entries: NPT etc. Please consult your Regional Sales Office.
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Electromechanical pressure switches

Nautilus® type XML

Size 350 mbar (5.07 psi)

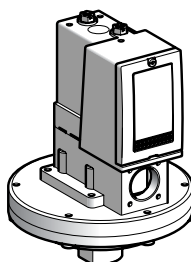
Dual stage, fixed differential, for detection at each threshold

Switches with 2 C/O single-pole contacts (one per stage)

Fluid connection 1/4" BSP

Pressure switches type XML D

Without setting scale



Adjustable range of each switching point (Rising pressure)	2nd stage switching point (PH2)	58...350 mbar (0.84...5.07 psi)
	1st stage switching point (PH1)	33...325 mbar (0.48...4.71 psi)
Spread between 2 stages (PH2 - PH1)		25...310 mbar (0.36...4.50 psi)
Electrical connection		Terminals
References (1)		
Fluids controlled (2)	Hydraulic oils, air, up to + 160 °C	XML DL35R1S12
	Fresh water, sea water, corrosive fluids, up to + 160 °C	XML DL35S1S12
Weight (kg)		2.575
Complementary characteristics not shown under general characteristics (page 6/69)		
Natural differential (subtract from PH1/PH2 to give PB1/PB2)	At low setting (3)	30 mbar (0.44 psi)
	At high setting (4)	30 mbar (0.44 psi)
Maximum permissible pressure	Per cycle	1.25 bar (18.12 psi)
	Accidental	2.25 bar (32.62 psi)
Destruction pressure		4.5 bar (65.25 psi)
Mechanical life		4 million operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Pressure switch type		Diaphragm

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML DL35R1S12 becomes XML DL35R1S11).

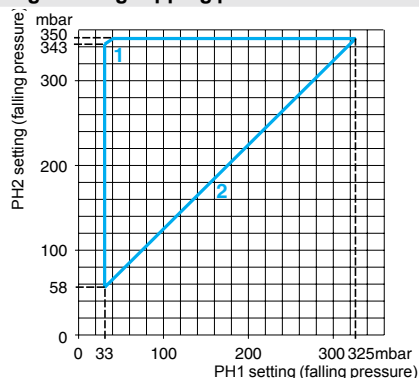
(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at low setting point for switches of the same size:
± 10 mbar (± 0.15 psi).

(4) Deviation of the differential at high setting point for switches of the same size:
± 8 mbar (± 0.11 psi).

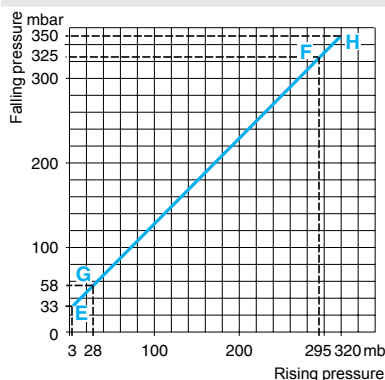
Operating curves

High setting tripping points of contacts 1 and 2

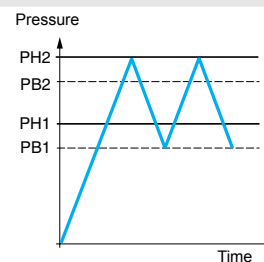


- 1 Maximum differential
2 Minimum differential

Natural differential of contacts 1 and 2



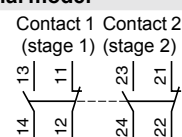
- EF Contact 1 (stage 1)
GH Contact 2 (stage 2)



— Adjustable value
--- Non adjustable value

Connection

Terminal model



Other versions

Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

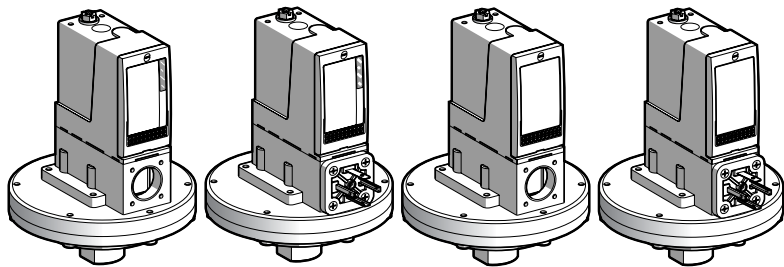
Electromechanical pressure switches

Nautilus® type XML
Size 1 bar (14.5 psi)
Fixed differential, for detection of a single threshold
Switches with 1 C/O single-pole contact
Fluid connection 1/4" BSP

Pressure switches type XML A

With setting scale

Without setting scale



Adjustable range of switching point (PH) (Rising pressure)	0.03...1 bar (0.435...14.5 psi)			
Electrical connection	Terminals	DIN connector	Terminals	DIN connector

References (1)

Fluids controlled (2)	Hydraulic oils, air, up to + 160 °C	XML A001R2S12	XML A001R2C11	XML A001R1S12	XML A001R1C11
	Fresh water, sea water, corrosive fluids, up to + 160 °C	XML A001S2S12	XML A001S2C11	XML A001S1S12	XML A001S1C11
Weight (kg)		2.555	2.570	2.555	2.570

Complementary characteristics not shown under general characteristics (page 6/69)

Natural differential (subtract from PH to give PB)	At low setting (3)	0.02 bar (0.29 psi)
	At high setting (3)	0.04 bar (0.58 psi)
Maximum permissible pressure	Per cycle	1.25 bar (18.12 psi)
	Accidental	2.25 bar (32.62 psi)
Destruction pressure		4.5 bar (65.25 psi)
Mechanical life		4 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Connector type for connector models		DIN 43650A, 4-pin male. For suitable female connector, see page 6/122
Pressure switch type		Diaphragm

- (1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML A001R2S12 becomes XML A001R2S11).
(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.
(3) Deviation of the differential at high and low setting points for switches of the same size: ± 0.01 bar (± 0.14 psi).

Operating curves

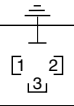
Connection

Terminal model

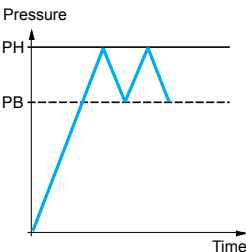
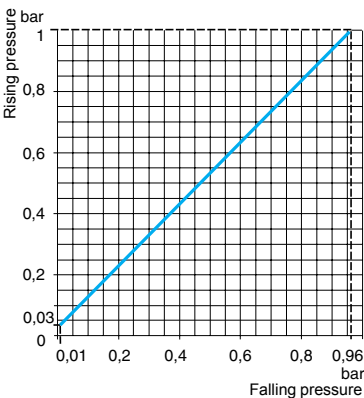


Connector model

Pressure switch connector pin view



- 1 → 11 and 13
2 → 12
3 → 14



- Adjustable value
--- Non adjustable value

Other versions

Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Electromechanical pressure switches

Nautilus® type XML

Size 1 bar (14.5 psi)

Adjustable differential, for regulation between 2 thresholds

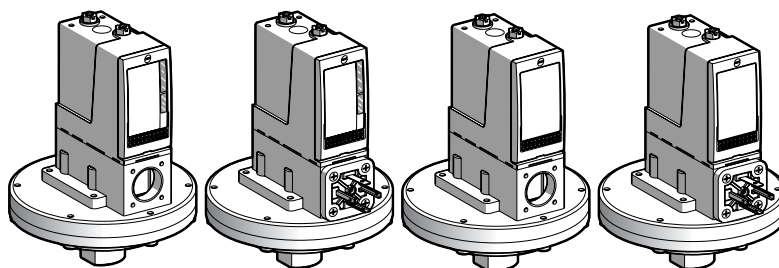
Switches with 1 C/O single-pole contact

Fluid connection 1/4" BSP

Pressure switches type XML B

With setting scale

Without setting scale


Adjustable range of switching point (PH)
(Rising pressure)

0.05...1 bar (0.72...14.5 psi)

Electrical connection

Terminals

DIN connector

Terminals

DIN connector

References (1)

Fluids controlled (2)	Hydraulic oils, air, up to + 160 °C	XML B001R2S12	XML B001R2C11	XML B001R1S12	XML B001R1C11
	Fresh water, sea water, corrosive fluids, up to + 160 °C	XML B001S2S12	XML B001S2C11	XML B001S1S12	XML B001S1C11
	Viscous products, up to + 160 °C (G1 1/4" fluid connection)	XML B001P2S12	XML B001P2C11	XML B001P1S12	XML B001P1C11
Weight (kg)		2.575	2.590	2.575	2.590

Complementary characteristics not shown under general characteristics (page 6/69)

Possible differential (subtract from PH to give PB)	Min. at low setting (3)	0.04 bar (0.58 psi)
	Min. at high setting (4)	0.06 bar (0.87 psi)
	Max. at high setting	0.75 bar (10.87 psi)
Maximum permissible pressure	Per cycle	1.25 bar (18.12 psi)
	Accidental	2.25 bar (32.62 psi)
Destruction pressure		4.5 bar (65.25 psi)
Mechanical life		4 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Connector type for connector models		DIN 43650A, 4-pin male. For suitable female connector, see page 6/122
Pressure switch type		Diaphragm

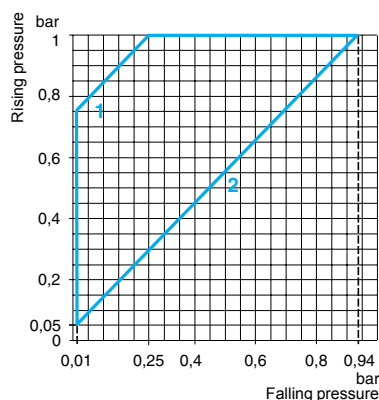
(1) For 1 entry tapped for n° 13 cable gland, replace **S12** by **S11** (example: **XML B001R2S12** becomes **XML B001R2S11**).

(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at low setting point for switches of the same size:
± 10 mbar (± 0.14 psi).

(4) Deviation of the differential at high setting point for switches of the same size:
± 20 mbar (± 0.29 psi).

Operating curves



- 1 Maximum differential
2 Minimum differential

Other versions

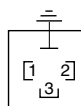
Connection

Terminal model



Connector model

Pressure switch connector pin view



- 1 → 11 and 13
2 → 12
3 → 14

— Adjustable value

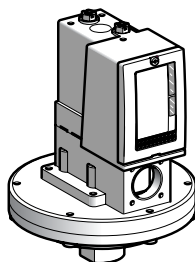
Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Electromechanical pressure switches

Nautilus® type XML
Size 1 bar (14.5 psi)
Adjustable differential, for regulation between 2 thresholds
Switches with 2 C/O single-pole contacts
Fluid connection 1/4" BSP

Pressure switches type XML C

With setting scale



Adjustable range of switching point (PH) (Rising pressure)	0.05...1 bar (0.725...14.5 psi)
Electrical connection	Terminals

References (1)

Fluids controlled (2)	Hydraulic oils, air, up to + 160 °C	XML C001R2S12
	Fresh water, sea water, corrosive fluids, up to + 160 °C	XML C001S2S12
Weight (kg)		2.555

Complementary characteristics not shown under general characteristics (page 6/69)

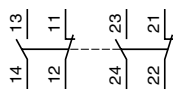
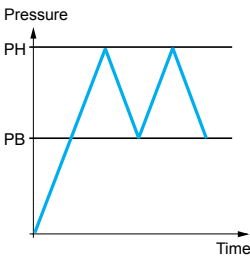
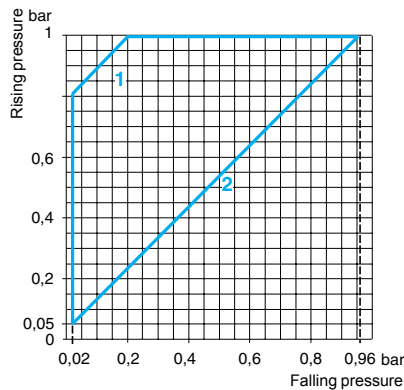
Possible differential (subtract from PH to give PB)	Min. at low setting (3)	0.03 bar (0.43 psi)
	Min. at high setting (4)	0.04 bar (0.58 psi)
	Max. at high setting	0.8 bar (11.6 psi)
Maximum permissible pressure	Per cycle	1.25 bar (18.12 psi)
	Accidental	2.25 bar (32.62 psi)
Destruction pressure		4.5 bar (65.25 psi)
Mechanical life		4 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Pressure switch type		Diaphragm

- (1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML C001R2S12 becomes XML C001R2S11).
- (2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.
- (3) Deviation of the differential at low setting point for switches of the same size:
± 0.01 bar (± 0.14 psi).
- (4) Deviation of the differential at high setting point for switches of the same size:
± 0.03 bar (± 0.43 psi).

Operating curves

Connection

Terminal model



- 1 Maximum differential
2 Minimum differential

— Adjustable value

Other versions

Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Electromechanical pressure switches

Nautilus® type XML

Size 1 bar (14.5 psi)

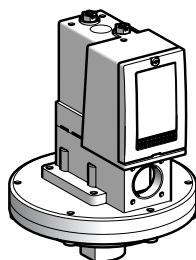
Dual stage, fixed differential, for detection at each threshold

Switches with 2 C/O single-pole contacts (one per stage)

Fluid connection 1/4" BSP

Pressure switches type XML D

Without setting scale



Adjustable range of each switching point (Rising pressure)	2nd stage switching point (PH2)	0.12...1 bar (1.74...14.5 psi)
	1st stage switching point (PH1)	0.04...0.92 bar (0.58...13.34 psi)
Spread between 2 stages (PH2 - PH1)		0.08...0.73 bar (1.16...10.59 psi)
Electrical connection		Terminals

References (1)

Fluids controlled (2)	Hydraulic oils, air, up to + 160 °C	XML D001R1S12
	Fresh water, sea water, corrosive fluids, up to + 160 °C	XML D001S1S12
Weight (kg)		2.575

Complementary characteristics not shown under general characteristics (page 6/69)

Natural differential (subtract from PH1/PH2 to give PB1/PB2)	At low setting (3)	0.03 bar (0.44 psi)
	At high setting (4)	0.07 bar (1.02 psi)
Maximum permissible pressure	Per cycle	1.25 bar (18.12 psi)
	Accidental	2.25 bar (32.62 psi)
Destruction pressure		4.5 bar (65.25 psi)
Mechanical life		4 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Pressure switch type		Diaphragm

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML D001R1S12 becomes XML D001R1S11).

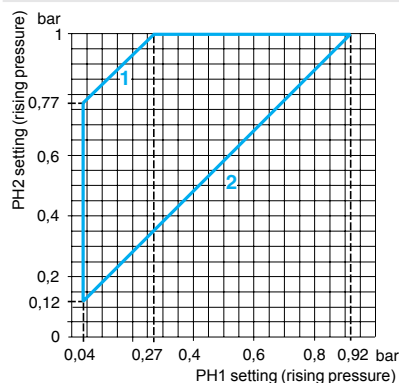
(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at low setting point for switches of the same size:
± 0.01 bar (± 0.14 psi).

(4) Deviation of the differential at high setting point for switches of the same size:
± 0.04 bar (± 0.58 psi).

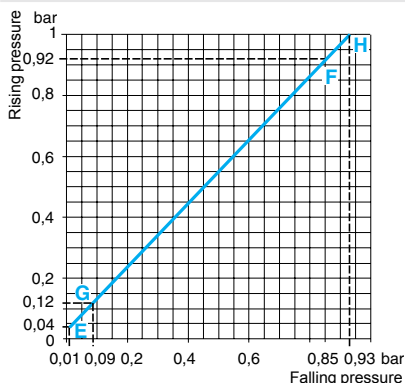
Operating curves

High setting tripping points of contacts 1 and 2

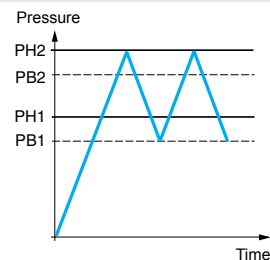


- 1 Maximum differential
- 2 Minimum differential

Natural differential of contacts 1 and 2



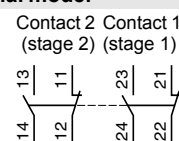
- EF Contact 1 (stage 1)
- GH Contact 2 (stage 2)



— Adjustable value
--- Non adjustable value

Connection

Terminal model



Other versions

Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Electromechanical pressure switches

Nautilus® type XML

Size 2.5 bar (36.25 psi)

Fixed differential, for detection of a single threshold

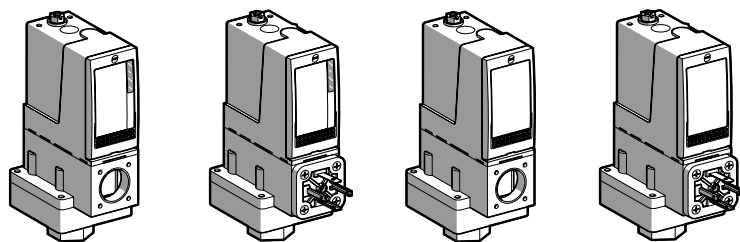
Switches with 1 C/O single-pole contact

Fluid connection 1/4" BSP

Pressure switches type XML A

With setting scale

Without setting scale


Adjustable range of switching point (PH)
(Rising pressure)

0.15...2.5 bar (2.17...36.25 psi)

Electrical connection

Terminals

DIN connector

Terminals

DIN connector

References (1)

Fluids controlled
(2)

Hydraulic oils, fresh water, sea water, air, up to + 70 °C

XML A002A2S12

XML A002A2C11

XML A002A1S12

XML A002A1C11

Hydraulic oils, fresh water, sea water, air, up to + 160 °C

XML A002B2S12

XML A002B2C11

XML A002B1S12

XML A002B1C11

Corrosive fluids, up to + 160 °C

XML A002C2S12

XML A002C2C11

XML A002C1S12

XML A002C1C11

Weight (kg)

0.995

1.010

0.995

1.010

Complementary characteristics not shown under general characteristics (page 6/69)

Natural differential
(subtract from PH to give PB)

At low setting (3)

0.13 bar (1.88 psi)

At high setting (3)

0.13 bar (1.88 psi)

Maximum permissible
pressure

Per cycle

5 bar (72.5 psi)

Accidental

9 bar (130.5 psi)

Destruction pressure

18 bar (261 psi)

Mechanical life

8 x 10⁶ operating cycles

Cable entry for terminal models

1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm

Connector type for connector models

DIN 43650A, 4-pin male. For suitable female connector, see page 6/122

Pressure switch type

Diaphragm

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML A002A2S12 becomes XML A002A2S11).

(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at high and low setting points for switches of the same size: ± 0.03 bar (± 0.43 psi).

Operating curves

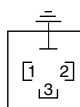
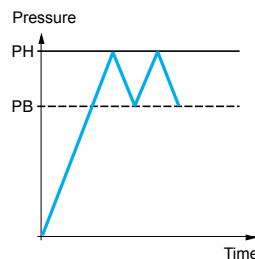
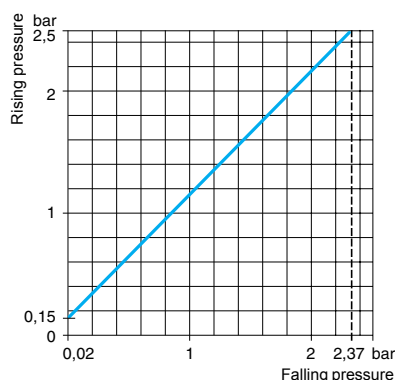
Connection

Terminal model



Connector model

Pressure switch connector pin view


1 → 11 and 13
2 → 12
3 → 14


— Adjustable value

--- Non adjustable value

Other versions

Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Electromechanical pressure switches

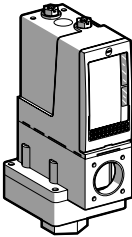
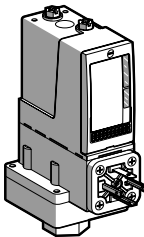
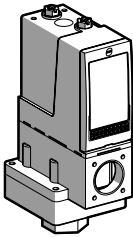
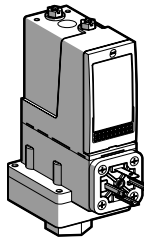
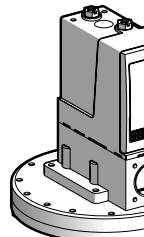

Nautilus® type XML

Size 2.5 bar (36.25 psi)

Adjustable differential, for regulation between 2 thresholds

Switches with 1 C/O single-pole contact

Fluid connection 1/4" BSP

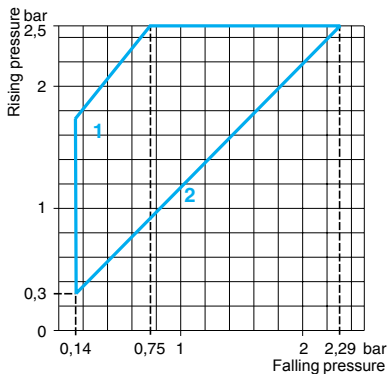

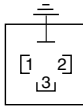
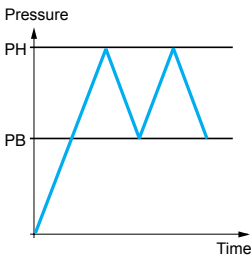
Pressure switches type XML B	With setting scale	Without setting scale	30 bar (435 psi) overpressure With setting scale
			
			

Adjustable range of switching point (PH) (Rising pressure)		0.3...2.5 bar (4.35...36.25 psi)				
Electrical connection		Terminals	DIN connector	Terminals	DIN connector	Terminals
References (1)						
Fluids controlled (2)	Hydraulic oils, fresh water, sea water, air, up to + 70 °C	XML B002A2S12	XML B002A2C11	XML B002A1S12	XML B002A1C11	—
	Hydraulic oils, fresh water, sea water, air, up to + 160 °C	XML B002B2S12	XML B002B2C11	XML B002B1S12	XML B002B1C11	—
	Hydraulic oils, fresh water, air, up to + 160 °C	—	—	—	—	XML BS02B2S12
	Corrosive fluids, up to + 160 °C	XML B002C2S12	XML B002C2C11	XML B002C1S12	XML B002C1C11	—
Weight (kg)		1.015	1.030	1.015	1.030	3.500
Complementary characteristics not shown under general characteristics (page 6/69)						
Possible differential (subtract from PH to give PB)	Min. at low setting (3)	0.16 bar (2.32 psi)				0.1 bar (1.45 psi)
	Min. at high setting (3)	0.21 bar (3.04 psi)				0.22 bar (3.19 psi)
	Max. at high setting	1.75 bar (25.37 psi)				1.45 bar (21 psi)
Maximum permissible pressure	Per cycle	5 bar (72.5 psi)				30 bar (435 psi)
	Accidental	9 bar (130.5 psi)				37.5 bar (543.75 psi)
Destruction pressure		18 bar (261 psi)				67.5 bar (978.75 psi)
Mechanical life		8 x 10 ⁶ operating cycles				2 x 10 ⁶ op. cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm				
Connector type for connector models		DIN 43650A, 4-pin male. For suitable female connector, see page 6/122				
Pressure switch type		Diaphragm				

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML B002A2S12 becomes XML B002A2S11).

(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at low and high setting points for switches of the same size:
- 0.03 bar, + 0.05 bar (- 0.43 psi, + 0.72 psi).

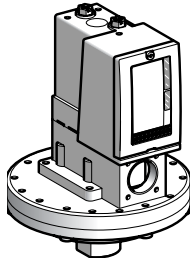
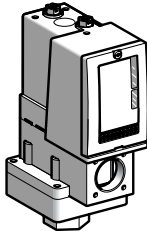
Operating curves	Connection
 <p>1 Maximum differential 2 Minimum differential</p>	<p>Terminal model</p>  <p>Connector model Pressure switch connector pin view</p>  <p>1 → 11 and 13 2 → 12 3 → 14</p>
 <p>— Adjustable value</p>	

Other versions	Pressure switches with alternative tapped cable entries: NPT etc. Please consult your Regional Sales Office.
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Electromechanical pressure switches

Nautilus® type XML
Size 2.5 bar (36.25 psi)
Adjustable differential, for regulation between 2 thresholds
Switches with 2 C/O single-pole contacts
Fluid connection 1/4" BSP

Pressure switches type XML C	With setting scale	30 bar (435 psi) overpressure With setting scale
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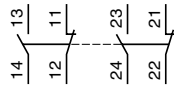
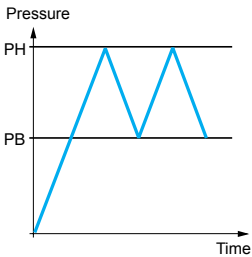
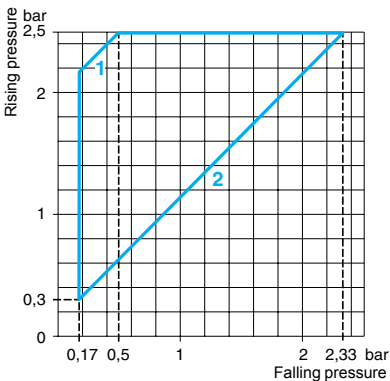
Adjustable range of switching point (PH) (Rising pressure)	0.3...2.5 bar (4.35...36.25 psi)
Electrical connection	Terminals

References (1)			
Fluids controlled (2)	Hydraulic oils, fresh water, air, up to + 160 °C	—	XML CS02B2S12
	Hydraulic oils, fresh water, sea water, air, up to + 160 °C	XML C002B2S12	—
	Corrosive fluids, up to + 160 °C	XML C002C2S12	—
Weight (kg)	0.995	3.500	

Complementary characteristics not shown under general characteristics (page 6/69)			
Possible differential (subtract from PH to give PB)	Min. at low setting (3)	0.13 bar (1.89 psi)	0.1 bar (1.45 psi)
	Min. at high setting (4)	0.17 bar (2.47 psi)	0.18 bar (2.61 psi)
	Max. at high setting	2 bar (29 psi)	1.25 bar (18.12 psi)
Maximum permissible pressure	Per cycle	5 bar (72.5 psi)	30 bar (435 psi)
	Accidental	9 bar (130.5 psi)	37.5 bar (543.75 psi)
Destruction pressure		18 bar (261 psi)	67.5 bar (978.75 psi)
Mechanical life		8 x 10 ⁶ operating cycles	2 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm	
Pressure switch type		Diaphragm	

- (1) For 1 entry tapped for n° 13 cable gland, replace **S12** by **S11** (example: **XML C002B2S12** becomes **XML C002B2S11**).
- (2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.
- (3) Deviation of the differential at low setting point for switches of the same size:
± 0.02 bar (± 0.29 psi).
- (4) Deviation of the differential at high setting point for switches of the same size:
± 0.03 bar (± 0.43 psi).

Operating curves	Connection
	Terminal model



- 1 Maximum differential
2 Minimum differential

— Adjustable value

Other versions	Pressure switches with alternative tapped cable entries: NPT etc. Please consult your Regional Sales Office.
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Nautilus® type XML

Size 2.5 bar (36.25 psi)

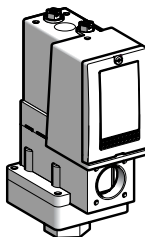
Dual stage, fixed differential, for detection at each threshold

Switches with 2 C/O single-pole contacts (one per stage)

Fluid connection 1/4" BSP

Pressure switches type XML D

Without setting scale



Adjustable range of each switching point (Rising pressure)	2nd stage switching point (PH2)	0.34...2.5 bar (4.93...36.25 psi)
	1st stage switching point (PH1)	0.2...2.36 bar (2.9...34.22 psi)
Spread between 2 stages (PH2 - PH1)		0.14...1.5 bar (2.03...21.75 psi)
Electrical connection		Terminals

References (1)

Fluids controlled (2)	Hydraulic oils, fresh water, sea water, air, up to + 160 °C	XML D002B1S12
	Corrosive fluids, up to + 160 °C	XML D002C1S12
Weight (kg)		1.015

Complementary characteristics not shown under general characteristics (page 6/69)

Natural differential (subtract from PH1/PH2 to give PB1/PB2)	At low setting (3)	0.14 bar (2.03 psi)
	At high setting (4)	0.19 bar (2.76 psi)
Maximum permissible pressure	Per cycle	5 bar (72.5 psi)
	Accidental	9 bar (130.5 psi)
Destruction pressure		18 bar (261 psi)
Mechanical life		8 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Pressure switch type		Diaphragm

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML D002B1S12 becomes XML D002B1S11).

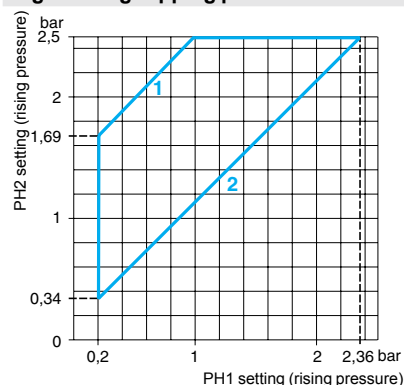
(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at low setting point for switches of the same size:
± 0.04 bar (± 0.58 psi).

(4) Deviation of the differential at high setting point for switches of the same size:
± 0.07 bar (± 1.02 psi).

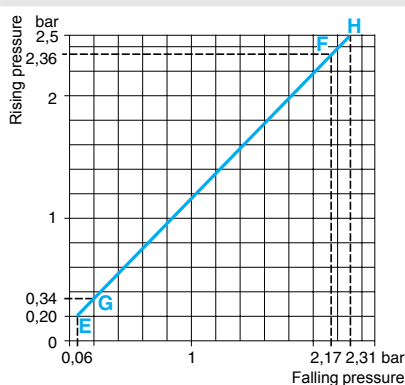
Operating curves

High setting tripping points of contacts 1 and 2

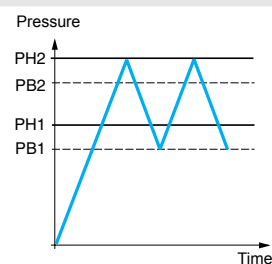


- 1 Maximum differential
- 2 Minimum differential

Natural differential of contacts 1 and 2



- EF Contact 1 (stage 1)
- GH Contact 2 (stage 2)

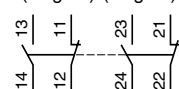


— Adjustable value
--- Non adjustable value

Connection

Terminal model

Contact 2 (stage 2) Contact 1 (stage 1)



Other versions

Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Electromechanical pressure switches

Nautilus® type XML

Size 4 bar (58 psi)

Fixed differential, for detection of a single threshold

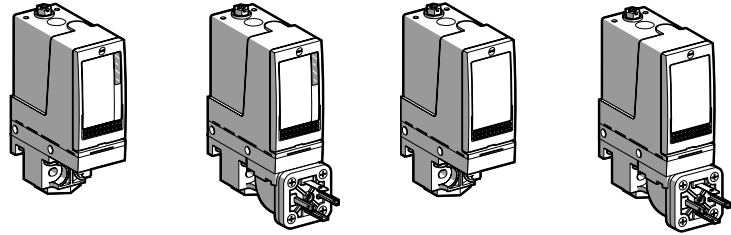
Switches with 1 C/O single-pole contact

Fluid connection 1/4" BSP

Pressure switches type XML A

With setting scale

Without setting scale



Adjustable range of switching point (PH)
(Rising pressure)

0.4...4 bar (5.8...58 psi)

Electrical connection

Terminals

DIN connector

Terminals

DIN connector

References (1)

Fluids controlled (2)	Hydraulic oils, fresh water, sea water, air, up to + 70 °C	XML A004A2S12	XML A004A2C11	XML A004A1S12	XML A004A1C11
	Hydraulic oils, fresh water, sea water, air, up to + 160 °C	XML A004B2S12	XML A004B2C11	XML A004B1S12	XML A004B1C11
	Corrosive fluids, up to + 160 °C	XML A004C2S12	XML A004C2C11	XML A004C1S12	XML A004C1C11
	Viscous products, up to + 160 °C (G1¼" fluid connection)	XML A004P2S12	XML A004P2C11	XML A004P1S12	XML A004P1C11
Weight (kg)		0.685	0.715	0.685	0.715

Complementary characteristics not shown under general characteristics (page 6/69)

Natural differential (subtract from PH to give PB)	At low setting (3)	0.35 bar (5.07 psi)
	At high setting (3)	0.35 bar (5.07 psi)
Maximum permissible pressure	Per cycle	5 bar (72.5 psi)
	Accidental	9 bar (130.5 psi)
Destruction pressure		18 bar (261 psi)
Mechanical life		8 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Connector type for connector models		DIN 43650A, 4-pin male. For suitable female connector, see page 6/122
Pressure switch type		Diaphragm

(1) For 1 entry tapped for n° 13 cable gland, replace **S12** by **S11** (example: **XML A004A2S12** becomes **XML A004A2S11**).

(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at high and low setting points for switches of the same size: ± 0.03 bar (± 0.43 psi).

Operating curves

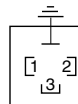
Connection

Terminal model

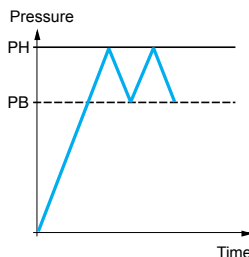
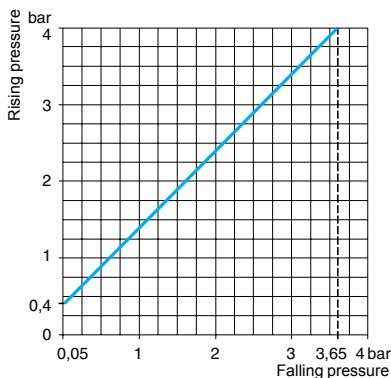


Connector model

Pressure switch connector pin view



1 → 11 and 13
2 → 12
3 → 14



— Adjustable value

--- Non adjustable value

Other versions

Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Nautilus® type XML

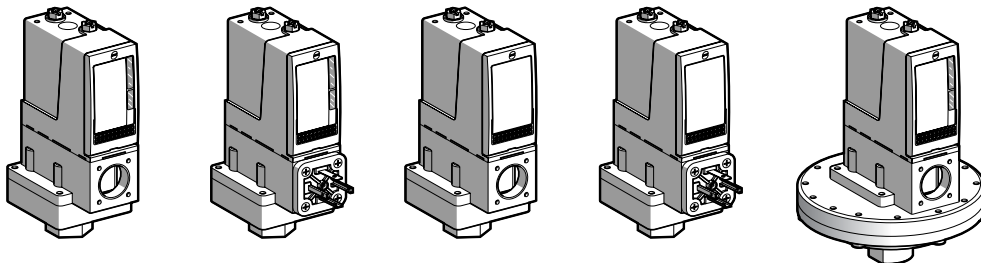
Size 4 bar (58 psi)

Adjustable differential, for regulation between 2 thresholds

Switches with 1 C/O single-pole contact

Fluid connection 1/4" BSP

Pressure switches type XML B	With setting scale	Without setting scale	30 bar (435 psi) overpressure With setting scale
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Adjustable range of switching point (PH)
(Rising pressure) 0.25...4 bar (3.62...58 psi)

Electrical connection	Terminals	DIN connector	Terminals	DIN connector	Terminals
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References (1)

Fluids controlled (2)	Hydraulic oils, fresh water, sea water, air, up to + 70 °C	XML B004A2S12	XML B004A2C11	XML B004A1S12	XML B004A1C11	—
	Hydraulic oils, fresh water, sea water, air, up to + 160 °C	XML B004B2S12	XML B004B2C11	XML B004B1S12	XML B004B1C11	—
	Hydraulic oils, fresh water, air, up to + 160 °C	—	—	—	—	XML BS04B2S12
	Corrosive fluids, up to + 160 °C	XML B004C2S12	XML B004C2C11	XML B004C1S12	XML B004C1C11	—
Weight (kg)		1.015	1.030	1.015	1.030	3.500

Complementary characteristics not shown under general characteristics (page 6/69)

Possible differential (subtract from PH to give PB)	Min. at low setting (3)	0.2 bar (2.9 psi)	0.15 bar (2.18 psi)
	Min. at high setting (4)	0.25 bar (3.62 psi)	0.34 bar (4.93 psi)
	Max. at high setting	2.4 bar (34.8 psi)	2.46 bar (35.67 psi)
Maximum permissible pressure	Per cycle	5 bar (72.5 psi)	30 bar (435 psi)
	Accidental	9 bar (130.5 psi)	37.5 bar (543.75 psi)
Destruction pressure		18 bar (261 psi)	67.5 bar (978.75 psi)
Mechanical life		8 x 10 ⁶ operating cycles	2 x 10 ⁶ op. cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm	
Connector type for connector models		DIN 43650A, 4-pin male. For suitable female connector, see page 6/122	
Pressure switch type		Diaphragm	

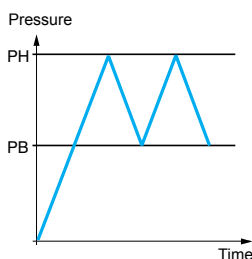
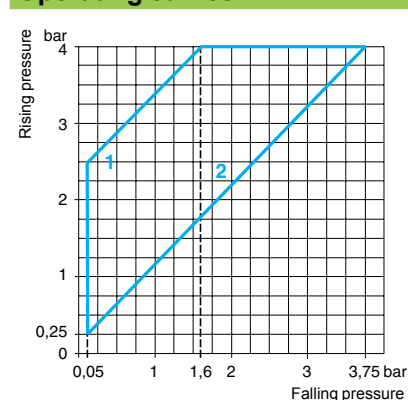
(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML B004A2S12 becomes XML B004A2S11).

(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at low setting point for switches of the same size:
± 0.01 bar (± 0.14 psi).

(4) Deviation of the differential at high setting point for switches of the same size:
- 0.03 bar, + 0.05 bar (- 0.43 psi, + 0.72 psi).

Operating curves



— Adjustable value

- 1 Maximum differential
- 2 Minimum differential

Other versions

Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

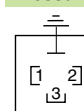
Connection

Terminal model



Connector model

Pressure switch connector pin view

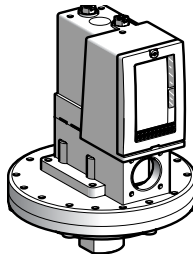
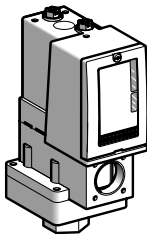


- 1 → 11 and 13
- 2 → 12
- 3 → 14

Electromechanical pressure switches

Nautilus® type XML
Size 4 bar (58 psi)
Adjustable differential, for regulation between 2 thresholds
Switches with 2 C/O single-pole contacts
Fluid connection 1/4" BSP

Pressure switches type XML C	With setting scale	30 bar (435 psi) overpressure With setting scale
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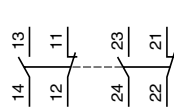
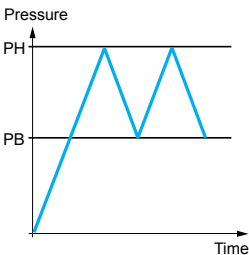
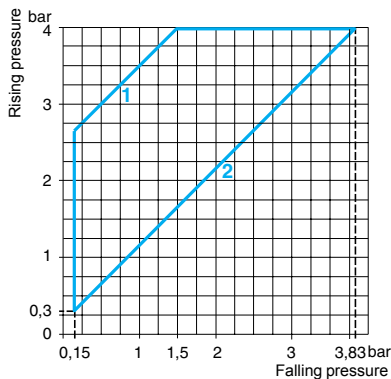
Adjustable range of switching point (PH) (Rising pressure)	0.3...4 bar (4.35...58 psi)
Electrical connection	Terminals

References (1)			
Fluids controlled (2)	Hydraulic oils, fresh water, air, up to + 160 °C	—	XML CS04B2S12
	Hydraulic oils, fresh water, sea water, air, up to + 160 °C	XML C004B2S12	—
	Corrosive fluids, up to + 160 °C	XML C004C2S12	—
Weight (kg)	0.685	3.500	

Complementary characteristics not shown under general characteristics (page 6/69)			
Possible differential (subtract from PH to give PB)	Min. at low setting (3)	0.15 bar (2.18 psi)	0.1 bar (1.45 psi)
	Min. at high setting (3)	0.17 bar (2.47 psi)	0.25 bar (3.62 psi)
	Max. at high setting	2.5 bar (36.25 psi)	2.20 bar (31.9 psi)
Maximum permissible pressure	Per cycle	5 bar (72.5 psi)	30 bar (435 psi)
	Accidental	9 bar (130.5 psi)	37.5 bar (543.75 psi)
Destruction pressure		18 bar (261 psi)	67.5 bar (978.75 psi)
Mechanical life		8 x 10 ⁶ operating cycles	2 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm	
Pressure switch type		Diaphragm	

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML C004B2S12 becomes XML C004B2S11).
(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.
(3) Deviation of the differential at high and low setting points for switches of the same size:
± 0.02 bar (± 0.29 psi).

Operating curves	Connection
	Terminal model



- 1 Maximum differential
- 2 Minimum differential

— Adjustable value

Other versions	Pressure switches with alternative tapped cable entries: NPT etc. Please consult your Regional Sales Office.
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Nautilus® type XML

Size 4 bar (58 psi)

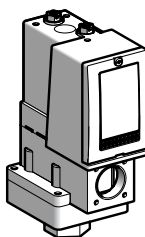
Dual stage, fixed differential, for detection at each threshold

Switches with 2 C/O single-pole contacts (one per stage)

Fluid connection 1/4" BSP

Pressure switches type XML D

Without setting scale



Adjustable range of each switching point (Rising pressure)	2nd stage switching point (PH2)	0.40...4 bar (5.8...58 psi)
	1st stage switching point (PH1)	0.19...3.79 bar (2.76...54.96 psi)
Spread between 2 stages (PH2 - PH1)		0.21...2.18 bar (3.05...31.61 psi)
Electrical connection		Terminals

References (1)

Fluids controlled (2)	Hydraulic oils, fresh water, sea water, air, up to + 160 °C	XML D004B1S12
	Corrosive fluids, up to + 160 °C	XML D004C1S12
Weight (kg)		1.015

Complementary characteristics not shown under general characteristics (page 6/69)

Natural differential (subtract from PH1/PH2 to give PB1/PB2)	At low setting (3)	0.15 bar (2.18 psi)
	At high setting (3)	0.19 bar (2.76 psi)
Maximum permissible pressure	Per cycle	5 bar (72.5 psi)
	Accidental	9 bar (130.5 psi)
Destruction pressure		18 bar (261 psi)
Mechanical life		8 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Pressure switch type		Diaphragm

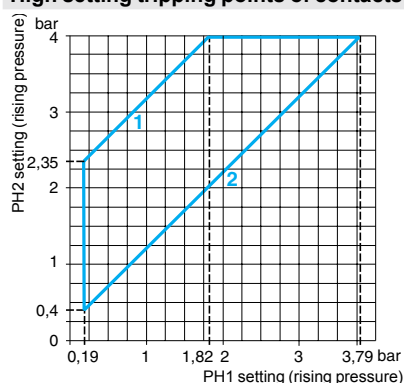
(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML D004B1S12 becomes XML D004B1S11).

(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at high and low setting points for switches of the same size: ± 0.03 bar (± 0.43 psi).

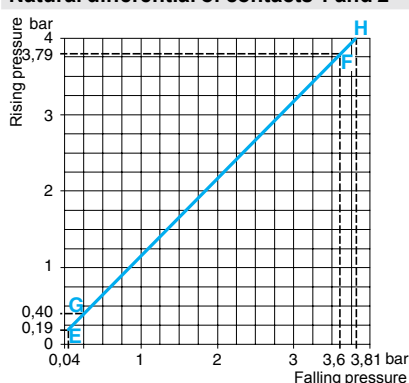
Operating curves

High setting tripping points of contacts 1 and 2

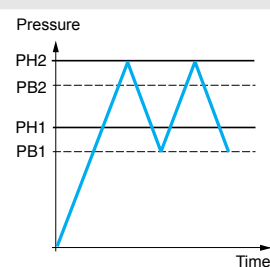


- 1 Maximum differential
- 2 Minimum differential

Natural differential of contacts 1 and 2



- EF Contact 1 (stage 1)
- GH Contact 2 (stage 2)

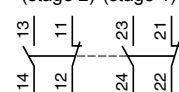


— Adjustable value
--- Non adjustable value

Connection

Terminal model

Contact 2 Contact 1
(stage 2) (stage 1)



Other versions

Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Electromechanical pressure switches

Nautilus® type XML

Size 10 bar (145 psi)

Fixed differential, for detection of a single threshold

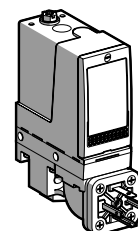
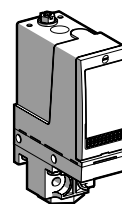
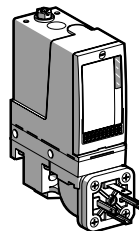
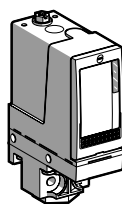
Switches with 1 C/O single-pole contact

Fluid connection 1/4" BSP

Pressure switches type XML A

With setting scale

Without setting scale


Adjustable range of switching point (PH)
(Rising pressure)

0.6...10 bar (8.7...145 psi)

Electrical connection

Terminals

DIN connector

Terminals

DIN connector

References (1)

Fluids controlled
(2)

Hydraulic oils, fresh water, sea water, air, up to + 70 °C

XML A010A2S12

XML A010A2C11

XML A010A1S12

XML A010A1C11

Hydraulic oils, fresh water, sea water, air, up to + 160 °C

XML A010B2S12

XML A010B2C11

XML A010B1S12

XML A010B1C11

Corrosive fluids, up to + 160 °C

XML A010C2S12

XML A010C2C11

XML A010C1S12

XML A010C1C11

Viscous products, up to + 160 °C
(G1¼" fluid connection)

XML A010P2S12

XML A010P2C11

XML A010P1S12

XML A010P1C11

Weight (kg)

0.685

0.715

0.685

0.715

Complementary characteristics not shown under general characteristics (page 6/69)

Natural differential
(subtract from PH to give PB)

At low setting (3)

0.5 bar (7.25 psi)

At high setting (3)

0.5 bar (7.25 psi)

Maximum permissible
pressure

Per cycle

12.5 bar (181.25 psi)

Accidental

22.5 bar (326.25 psi)

Destruction pressure

45 bar (652.5 psi)

Mechanical life

5 x 10⁶ operating cycles

Cable entry for terminal models

1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm

Connector type for connector models

DIN 43650A, 4-pin male. For suitable female connector, see page 6/122

Pressure switch type

Diaphragm

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML A010A2S12 becomes XML A010A2S11).

(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at high and low setting points for switches of the same size: ± 0.05 bar (± 0.72 psi).

Operating curves

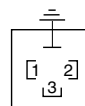
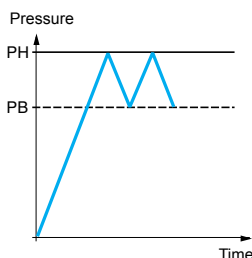
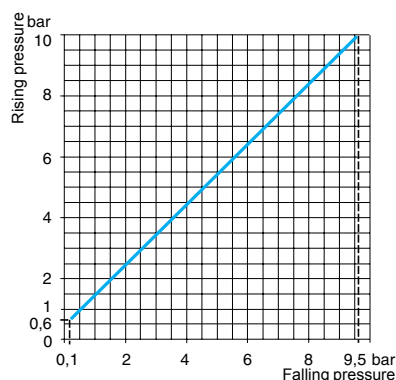
Connection

Terminal model



Connector model

Pressure switch connector pin view


1 → 11 and 13
2 → 12
3 → 14


— Adjustable value

--- Non adjustable value

Other versions

Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Electromechanical pressure switches

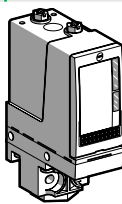
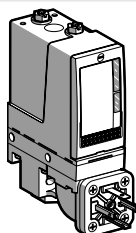
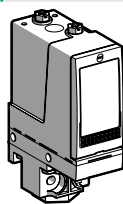
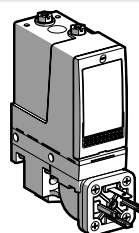
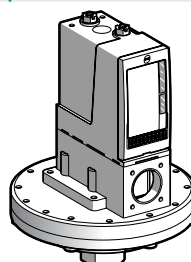
Nautilus® type XML

Size 10 bar (145 psi)

Adjustable differential, for regulation between 2 thresholds

Switches with 1 C/O single-pole contact

Fluid connection 1/4" BSP

Pressure switches type XML B	With setting scale	Without setting scale	30 bar (435 psi) overpressure With setting scale		
					

Adjustable range of switching point (PH) (Rising pressure)		0.7...10 bar (10.15...145 psi)				
Electrical connection		Terminals	DIN connector	Terminals	DIN connector	Terminals
References (1)						
Fluids controlled (2)	Hydraulic oils, fresh water, sea water, air, up to + 70 °C	XML B010A2S12	XML B010A2C11	XML B010A1S12	XML B010A1C11	—
	Hydraulic oils, fresh water, air, up to + 160 °C	—	—	—	—	XML BS10A2S12
	Hydraulic oils, fresh water, air, up to + 160 °C	XML B010B2S12	XML B010B2C11	XML B010B1S12	XML B010B1C11	—
	Corrosive fluids, up to + 160 °C	XML B010C2S12	XML B010C2C11	XML B010C1S12	XML B010C1C11	—
	Viscous products, up to + 160 °C (G1¼" fluid connection)	XML B010P2S12	XML B010P2C11	XML B010P1S12	XML B010P1C11	—
Weight (kg)		0.705	0.735	0.705	0.735	3.500

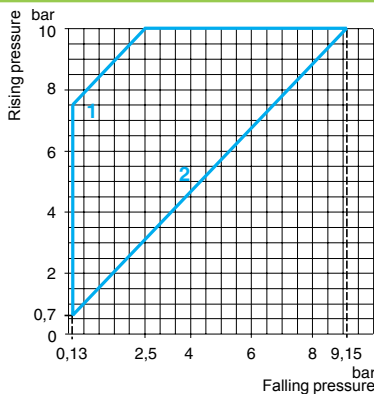


Complementary characteristics not shown under general characteristics (page 6/69)						
Possible differential (subtract from PH to give PB)	Min. at low setting (3)	0.57 bar (8.26 psi)				0.45 bar (6.52 psi)
	Min. at high setting (4)	0.85 bar (12.32 psi)				0.85 bar (12.32 psi)
	Max. at high setting	7.5 bar (108.75 psi)				6.25 bar (90.62 psi)
Maximum permissible pressure	Per cycle	12.5 bar (181.25 psi)				30 bar (435 psi)
	Accidental	22.5 bar (326.25 psi)				37.5 bar (543.75 psi)
Destruction pressure		45 bar (652.5 psi)				67.5 bar (978.75 psi)
Mechanical life		5 x 10 ⁶ operating cycles				2 x 10 ⁶ op. cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm				
Connector type for connector models		DIN 43650A, 4-pin male. For suitable female connector, see page 6/122				
Pressure switch type		Diaphragm				

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML B010A2S12 becomes XML B010A2S11).

(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at low setting point for switches of the same size:
± 0.05 bar (± 0.72 psi).

(4) Deviation of the differential at high setting point for switches of the same size:
- 0.1 bar, + 0.15 bar (- 1.45 psi, + 2.17 psi).

Operating curves	Connection
 <p>1 Maximum differential 2 Minimum differential</p>	<p>Terminal model</p>  <p>Connector model Pressure switch connector pin view</p>  <p>1 → 11 and 13 2 → 12 3 → 14</p>

Other versions Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Electromechanical pressure switches

Nautilus® type XML

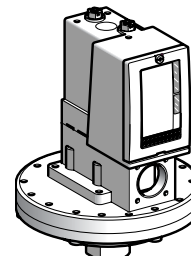
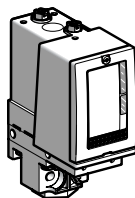
Size 10 bar (145 psi)

Adjustable differential, for regulation between 2 thresholds

Switches with 2 C/O single-pole contacts

Fluid connection 1/4" BSP

Pressure switches type XML C	With setting scale	30 bar (435 psi) overpressure With setting scale
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Adjustable range of switching point (PH) (Rising pressure)	0.7...10 bar (10.15...145 psi)
Electrical connection	Terminals

References (1)			
Fluids controlled (2)	Hydraulic oils, fresh water, air, up to + 70 °C	—	XML CS10A2S12
	Hydraulic oils, fresh water, sea water, air, up to + 160 °C	XML C010B2S12	—
	Corrosive fluids, up to + 160 °C	XML C010C2S12	—
Weight (kg)	0.685	3.500	

Complementary characteristics not shown under general characteristics (page 6/69)			
Possible differential (subtract from PH to give PB)	Min. at low setting (3)	0.45 bar (6.53 psi)	0.25 bar (3.62 psi)
	Min. at high setting (4)	0.70 bar (10.15 psi)	0.65 bar (9.42 psi)
	Max. at high setting	8 bar (116 psi)	5.6 bar (81.2 psi)
Maximum permissible pressure	Per cycle	12.5 bar (181.25 psi)	30 bar (435 psi)
	Accidental	22.5 bar (326.25 psi)	37.5 bar (543.75 psi)
Destruction pressure		45 bar (652.5 psi)	67.5 bar (978.75 psi)
Mechanical life		5 x 10 ⁶ operating cycles	2 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm	
Pressure switch type		Diaphragm	

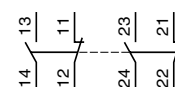
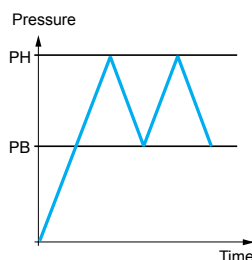
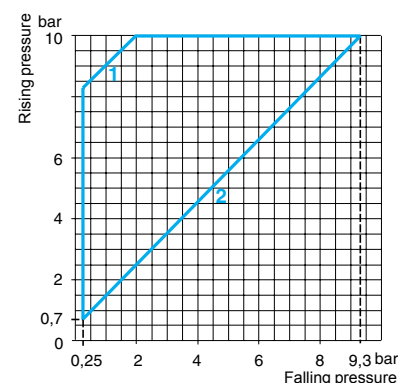
(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML C010B2S12 becomes XML C010B2S11).

(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at low setting point for switches of the same size:
± 0.05 bar (± 0.72 psi).

(4) Deviation of the differential at high setting point for switches of the same size:
± 0.01 bar (± 1.45 psi).

Operating curves	Connection
	Terminal model



- 1 Maximum differential
- 2 Minimum differential

— Adjustable value

Other versions	Pressure switches with alternative tapped cable entries: NPT etc. Please consult your Regional Sales Office.
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Electromechanical pressure switches

Nautilus® type XML

Size 10 bar (145 psi)

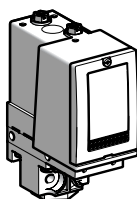
Dual stage, fixed differential, for detection at each threshold

Switches with 2 C/O single-pole contacts (one per stage)

Fluid connection 1/4" BSP

Pressure switches type XML D

Without setting scale



Adjustable range of each switching point (Rising pressure)	2nd stage switching point (PH2)	1.2...10 bar (17.4...145 psi)
	1st stage switching point (PH1)	0.52...9.32 bar (7.54...135.14 psi)
Spread between 2 stages (PH2 - PH1)		0.68...5.8 bar (9.86...84.1 psi)
Electrical connection		Terminals

References (1)

Fluids controlled (2)	Hydraulic oils, fresh water, sea water, air, up to + 160 °C	XML D010B1S12
	Corrosive fluids, up to + 160 °C	XML D010C1S12
Weight (kg)		0.705

Complementary characteristics not shown under general characteristics (page 6/69)

Natural differential (subtract from PH1/PH2 to give PB1/PB2)	At low setting (3)	0.45 bar (6.53 psi)
	At high setting (4)	0.6 bar (8.7 psi)
Maximum permissible pressure	Per cycle	12.5 bar (181.25 psi)
	Accidental	22.5 bar (326.25 psi)
Destruction pressure		45 bar (652.5 psi)
Mechanical life		5 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Pressure switch type		Diaphragm

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML D010B1S12 becomes XML D010B1S11).

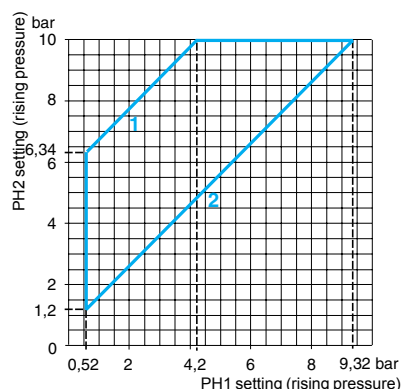
(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at low setting point for switches of the same size:
± 0.05 bar (± 0.72 psi).

(4) Deviation of the differential at high setting point for switches of the same size:
± 0.1 bar (± 1.45 psi).

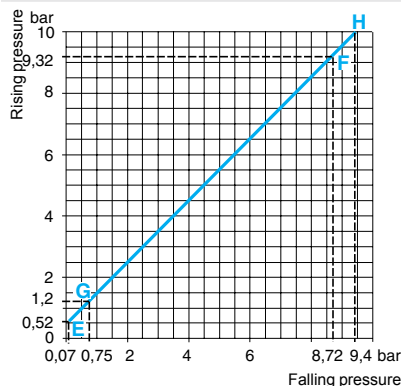
Operating curves

High setting tripping points of contacts 1 and 2

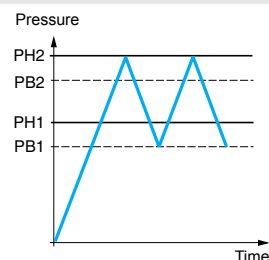


- 1 Maximum differential
- 2 Minimum differential

Natural differential of contacts 1 and 2



- EF Contact 1 (stage 1)
- GH Contact 2 (stage 2)

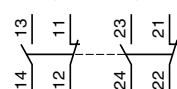


— Adjustable value
--- Non adjustable value

Connection

Terminal model

Contact 2 Contact 1
(stage 2) (stage 1)



Other versions

Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Electromechanical pressure switches

Nautilus® type XML

Size 20 bar (290 psi)

Fixed differential, for detection of a single threshold

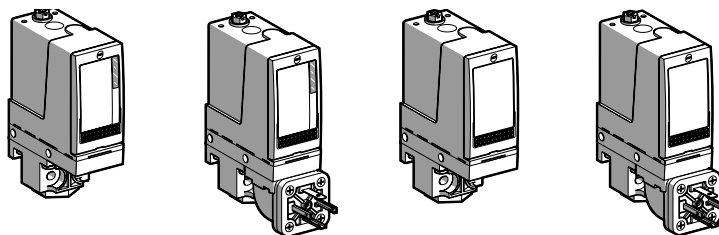
Switches with 1 C/O single-pole contact

Fluid connection 1/4" BSP

Pressure switches type XML A

With setting scale

Without setting scale



Adjustable range of switching point (PH)
(Rising pressure)

1...20 bar (14.5...290 psi)

Electrical connection

Terminals

DIN connector

Terminals

DIN connector

References (1)

Fluids controlled
(2)

Hydraulic oils, fresh water, sea water, air, up to + 70 °C
Hydraulic oils, fresh water, sea water, air, up to + 160 °C
Corrosive fluids, up to + 160 °C
Viscous products, up to + 160 °C (G1 1/4" fluid connection)

XML A020A2S12

XML A020A2C11

XML A020A1S12

XML A020A1C11

XML A020B2S12

XML A020B2C11

XML A020B1S12

XML A020B1C11

XML A020C2S12

XML A020C2C11

XML A020C1S12

XML A020C1C11

XML A020P2S12

XML A020P2C11

XML A020P1S12

XML A020P1C11

Weight (kg)

0.685

0.715

0.685

0.715

Complementary characteristics not shown under general characteristics (page 6/69)

Natural differential
(subtract from PH to give PB)

At low setting (3)
At high setting (3)

0.4 bar (5.8 psi)
1 bar (14.5 psi)

Maximum permissible pressure

Per cycle
Accidental

25 bar (362.5 psi)
45 bar (652.5 psi)

Destruction pressure

90 bar (1305 psi)

Mechanical life

5 x 10⁶ operating cycles

Cable entry for terminal models

1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm

Connector type for connector models

DIN 43650A, 4-pin male. For suitable female connector, see page 6/122

Pressure switch type

Diaphragm

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML A020A2S12 becomes XML A020A2S11).

(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at high setting points for switches of the same size:
± 0.1 bar (± 1.45 psi).

Deviation of the differential at low setting points: ± 0.2 bar (± 2.9 psi).

Operating curves

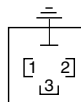
Connection

Terminal model

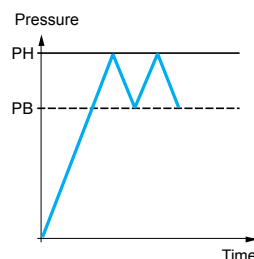
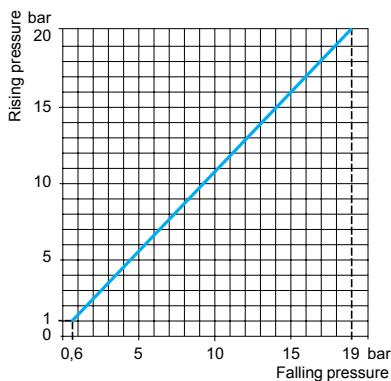


Connector model

Pressure switch connector pin view



1 → 11 and 13
2 → 12
3 → 14



— Adjustable value

--- Non adjustable value

Other versions

Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Electromechanical pressure switches

Nautilus® type XML

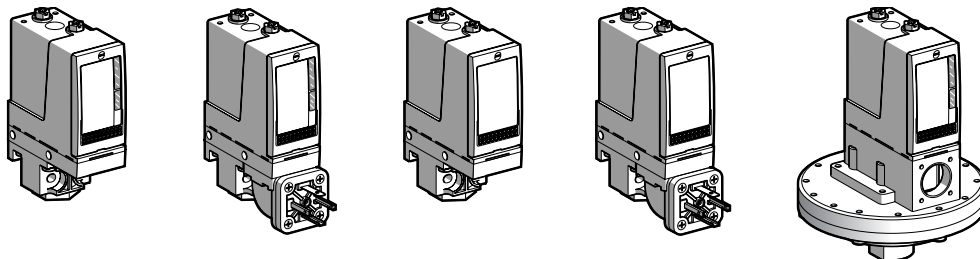
Size 20 bar (290 psi)

Adjustable differential, for regulation between 2 thresholds

Switches with 1 C/O single-pole contact

Fluid connection 1/4" BSP

Pressure switches type XML B	With setting scale	Without setting scale	30 bar (435 psi) overpressure With setting scale
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Adjustable range of switching point (PH) (Rising pressure)		1.3...20 bar (18.9...290 psi)			
Electrical connection		Terminals	DIN connector	Terminals	DIN connector
References (1)					
Fluids controlled (2)	Hydraulic oils, fresh water, sea water, air, up to + 70 °C	XML B020A2S12	XML B020A2C11	XML B020A1S12	XML B020A1C11
	Hydraulic oils, fresh water, air, up to + 160 °C	—	—	—	—
	Hydraulic oils, fresh water, air, up to + 160 °C	XML B020B2S12	XML B020B2C11	XML B020B1S12	XML B020B1C11
	Corrosive fluids, up to + 160 °C	XML B020C2S12	XML B020C2C11	XML B020C1S12	XML B020C1C11
	Viscous products, up to + 160 °C (G1¼" fluid connection)	XML B020P2S12	XML B020P2C11	XML B020P1S12	XML B020P1C11
Weight (kg)		0.705	0.735	0.705	0.735

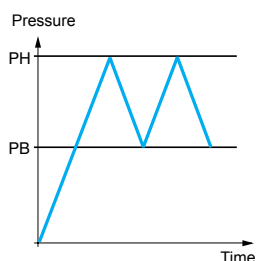
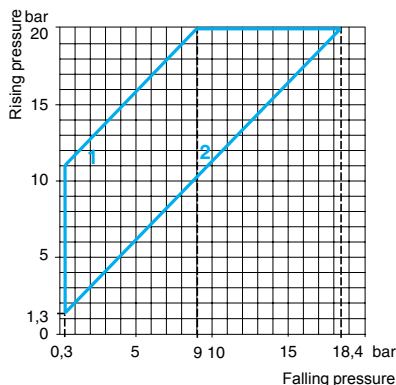
Complementary characteristics not shown under general characteristics (page 6/69)					
Possible differential (subtract from PH to give PB)	Min. at low setting (3)	1 bar (14.5 psi)			0.95 bar (13.78 psi)
	Min. at high setting (3)	1.6 bar (23.20 psi)			1.45 bar (21.03 psi)
	Max. at high setting	11 bar (159.5 psi)			12.6 bar (182.7 psi)
Maximum permissible pressure	Per cycle	25 bar (362.5 psi)			30 bar (435 psi)
	Accidental	45 bar (652.5 psi)			37.5 bar (543.75 psi)
Destruction pressure		90 bar (1305 psi)			67.5 bar (978.75 psi)
Mechanical life		5 x 10 ⁶ operating cycles			2 x 10 ⁶ op. cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm			
Connector type for connector models		DIN 43650A, 4-pin male. For suitable female connector, see page 6/122			
Pressure switch type		Diaphragm			

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML B020A2S12 becomes XML B020A2S11).

(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at high and low setting points for switches of the same size: ± 0.25 bar (± 3.63 psi).

Operating curves



— Adjustable value

- Maximum differential
- Minimum differential

Other versions

Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

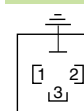
Connection

Terminal model



Connector model

Pressure switch connector pin view



- 1 → 11 and 13
2 → 12
3 → 14

Electromechanical pressure switches

Nautilus® type XML

Size 20 bar (290 psi)

Adjustable differential, for regulation between 2 thresholds

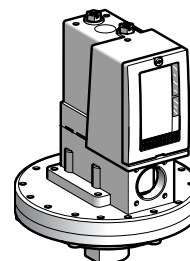
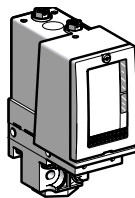
Switches with 2 C/O single-pole contacts

Fluid connection 1/4" BSP

Pressure switches type XML C

With setting scale

30 bar (435 psi) overpressure With setting scale



Adjustable range of switching point (PH)
(Rising pressure)

1.3...20 bar (18.85...290 psi)

Electrical connection

Terminals

References (1)

Fluids controlled (2)	Hydraulic oils, fresh water, air, up to + 70 °C	—	XML CS20A2S12
	Hydraulic oils, fresh water, sea water, air, up to + 160 °C	XML C020B2S12	—
	Corrosive fluids, up to + 160 °C	XML C020C2S12	—
Weight (kg)		0.685	3.500

Complementary characteristics not shown under general characteristics (page 6/69)

Possible differential (subtract from PH to give PB)	Min. at low setting (3)	0.7 bar (10.15 psi)	0.7 bar (10.15 psi)
	Min. at high setting (3)	1 bar (14.5 psi)	1.15 bar (16.67 psi)
	Max. at high setting	11 bar (159.5 psi)	11.70 bar (169.6 psi)
Maximum permissible pressure	Per cycle	25 bar (362.5 psi)	30 bar (435 psi)
	Accidental	45 bar (652.5 psi)	37.5 bar (543.75 psi)
Destruction pressure		90 bar (1305 psi)	67.5 bar (978.75 psi)
Mechanical life		5 x 10 ⁶ operating cycles	2 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm	
Pressure switch type		Diaphragm	

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML C020B2S12 becomes XML C020B2S11).

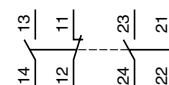
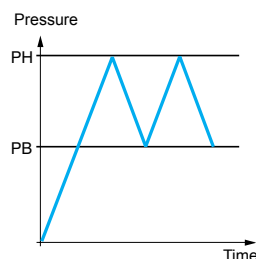
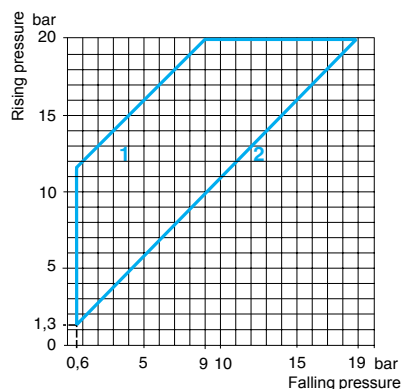
(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at high and low setting points for switches of the same size: ± 0.2 bar (± 2.9 psi).

Operating curves

Connection

Terminal model



- 1 Maximum differential
- 2 Minimum differential

— Adjustable value

Other versions

Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Electromechanical pressure switches

Nautilus® type XML

Size 20 bar (290 psi)

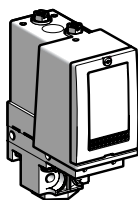
Dual stage, fixed differential, for detection at each threshold

Switches with 2 C/O single-pole contacts (one per stage)

Fluid connection 1/4" BSP

Pressure switches type XML D

Without setting scale



Adjustable range of each switching point (Rising pressure)	2nd stage switching point (PH2)	2.14...20 bar (31.03...290 psi)
	1st stage switching point (PH1)	0.9...18.76 bar (13.05...272.02 psi)
Spread between 2 stages (PH2 - PH1)		1.24...9.55 bar (17.98...138.48 psi)
Electrical connection		Terminals

References (1)

Fluids controlled (2)	Hydraulic oils, fresh water, sea water, air, up to + 160 °C	XML D020B1S12
	Corrosive fluids, up to + 160 °C	XML D020C1S12
Weight (kg)		0.705

Complementary characteristics not shown under general characteristics (page 6/69)

Natural differential (subtract from PH1/PH2 to give PB1/PB2)	At low setting (3)	0.7 bar (10.15 psi)
	At high setting (4)	1.3 bar (18.85 psi)
Maximum permissible pressure	Per cycle	25 bar (362.5 psi)
	Accidental	45 bar (652.5 psi)
Destruction pressure		90 bar (1305 psi)
Mechanical life		5 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Pressure switch type		Diaphragm

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML D020B1S12 becomes XML D020B1S11).

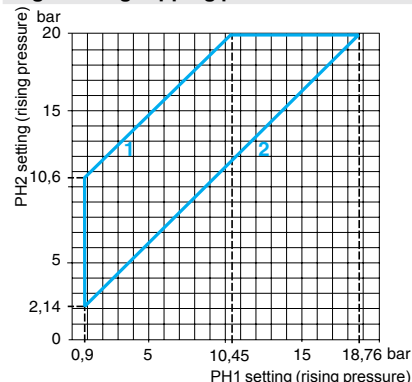
(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at low setting point for switches of the same size:
± 0.15 bar (± 2.18 psi).

(4) Deviation of the differential at high setting point for switches of the same size:
± 0.3 bar (± 4.35 psi).

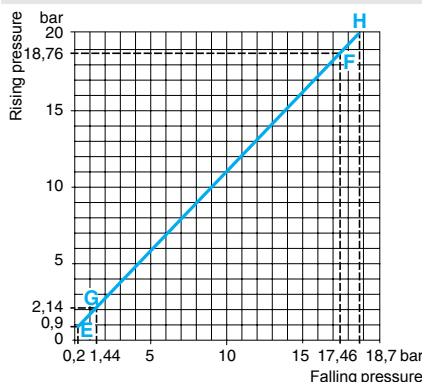
Operating curves

High setting tripping points of contacts 1 and 2

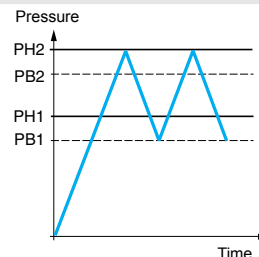


- 1 Maximum differential
- 2 Minimum differential

Natural differential of contacts 1 and 2



- EF Contact 1 (stage 1)
- GH Contact 2 (stage 2)

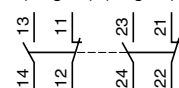


— Adjustable value
--- Non adjustable value

Connection

Terminal model

Contact 2 Contact 1
(stage 2) (stage 1)



Other versions

Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

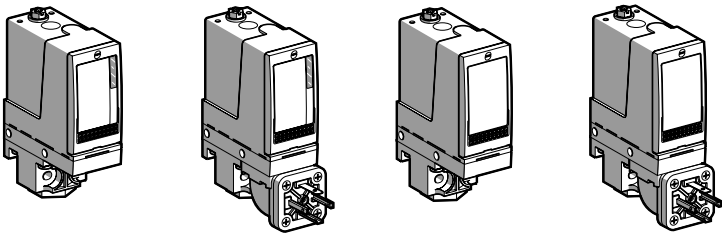
Electromechanical pressure switches

Nautilus® type XML
Size 35 bar (507.5 psi)
Fixed differential, for detection of a single threshold
Switches with 1 C/O single-pole contact
Fluid connection 1/4" BSP

Pressure switches type XML A

With setting scale

Without setting scale



Adjustable range of switching point (PH) (Rising pressure)	1.5...35 bar (21.75...507.5 psi)			
Electrical connection	Terminals	DIN connector	Terminals	DIN connector

References (1)

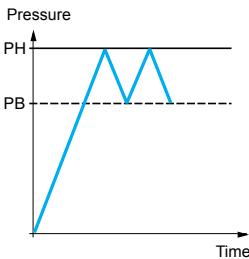
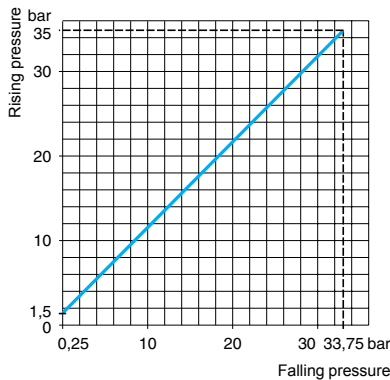
Fluids controlled (2)	Hydraulic oils, fresh water, sea water, air, up to + 70 °C	XML A035A2S12	XML A035A2C11	XML A035A1S12	XML A035A1C11
	Hydraulic oils, fresh water, sea water, air, up to + 160 °C	XML A035B2S12	XML A035B2C11	XML A035B1S12	XML A035B1C11
	Corrosive fluids, up to + 160 °C	XML A035C2S12	XML A035C2C11	XML A035C1S12	XML A035C1C11
	Viscous products, up to + 160 °C (G1¼" fluid connection)	XML A035P2S12	XML A035P2C11	XML A035P1S12	XML A035P1C11
Weight (kg)		0.695	0.725	0.695	0.725

Complementary characteristics not shown under general characteristics (page 6/69)

Natural differential (subtract from PH to give PB)	At low setting (3)	1.25 bar (18.12 psi)
	At high setting (3)	1.25 bar (18.12 psi)
Maximum permissible pressure	Per cycle	45 bar (652.5 psi)
	Accidental	80 bar (1160 psi)
Destruction pressure		160 bar (2320 psi)
Mechanical life		5 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Connector type for connector models		DIN 43650A, 4-pin male. For suitable female connector, see page 6/122
Pressure switch type		Diaphragm

- (1) For 1 entry tapped for n° 13 cable gland, replace **S12** by **S11** (example: **XML A035A2S12** becomes **XML A035A2S11**).
- (2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.
- (3) Deviation of the differential at high and low setting points for switches of the same size: ± 0.25 bar (± 3.62 psi).

Operating curves



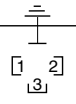
Connection

Terminal model



Connector model

Pressure switch connector pin view



- 1 → 11 and 13
2 → 12
3 → 14

- Adjustable value
--- Non adjustable value

Other versions

Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Electromechanical pressure switches

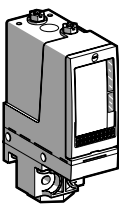
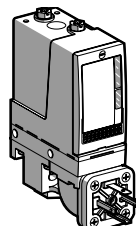
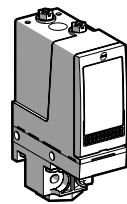
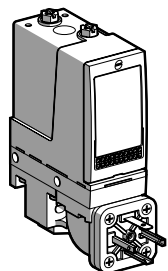
Nautilus® type XML

Size 35 bar (507.5 psi)

Adjustable differential, for regulation between 2 thresholds

Switches with 1 C/O single-pole contact

Fluid connection 1/4" BSP

Pressure switches type XML B	With setting scale		Without setting scale	
				

Adjustable range of switching point (PH) (Rising pressure)	3.5...35 bar (50.75...507.5 psi)			
Electrical connection	Terminals	DIN connector	Terminals	DIN connector

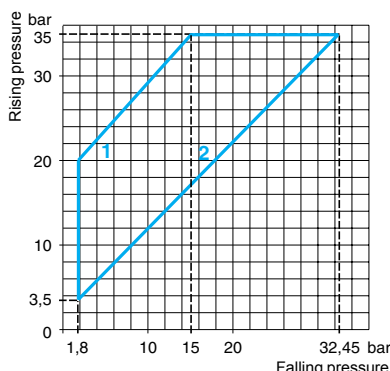

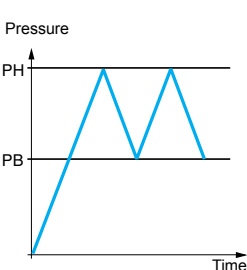
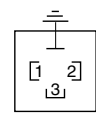
References (1)					
Fluids controlled (2)	Hydraulic oils, fresh water, sea water, air, up to + 70 °C	XML B035A2S12	XML B035A2C11	XML B035A1S12	XML B035A1C11
	Hydraulic oils, fresh water, sea water, air, up to + 160 °C	XML B035B2S12	XML B035B2C11	XML B035B1S12	XML B035B1C11
	Corrosive fluids, up to + 160 °C	XML B035C2S12	XML B035C2C11	XML B035C1S12	XML B035C1C11
	Viscous products, up to + 160 °C (G1¼" fluid connection)	XML B035P2S12	XML B035P2C11	XML B035P1S12	XML B035P1C11
Weight (kg)		0.715	0.745	0.715	0.745

Complementary characteristics not shown under general characteristics (page 6/69)		
Possible differential (subtract from PH to give PB)	Min. at low setting (3)	1.7 bar (24.65 psi)
	Min. at high setting (3)	2.55 bar (36.97 psi)
	Max. at high setting	20 bar (290 psi)
Maximum permissible pressure	Per cycle	45 bar (652.5 psi)
	Accidental	80 bar (1160 psi)
Destruction pressure		160 bar (2320 psi)
Mechanical life		5 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Connector type for connector models		DIN 43650A, 4-pin male. For suitable female connector, see page 6/122
Pressure switch type		Diaphragm

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML B035A2S12 becomes XML B035A2S11).

(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at high and low setting points for switches of the same size:
- 0.5 bar, + 0.7 bar (- 7.25 psi, + 10.15 psi).

Operating curves	Connection
	Terminal model
	
	Connector model
	<p>Pressure switch connector pin view</p>  <p>1 → 11 and 13 2 → 12 3 → 14</p>

- 1 Maximum differential
- 2 Minimum differential

— Adjustable value

Other versions

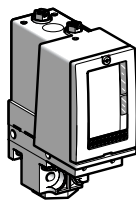
Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Electromechanical pressure switches

Nautilus® type XML
Size 35 bar (507.5 psi)
Adjustable differential, for regulation between 2 thresholds
Switches with 2 C/O single-pole contacts
Fluid connection 1/4" BSP

Pressure switches type XML C

With setting scale



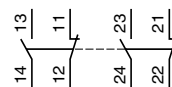
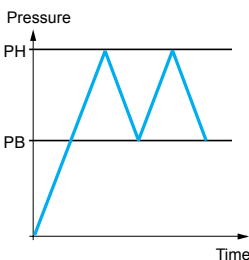
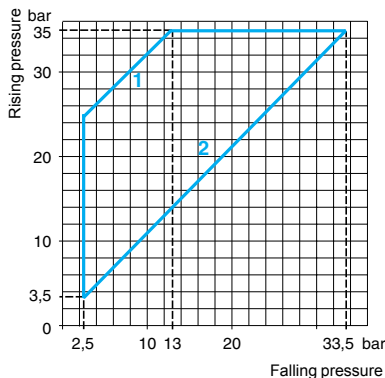
Adjustable range of switching point (PH) (Rising pressure)	3.5...35 bar (50.75...507.5 psi)
Electrical connection	Terminals

References (1)		
Fluids controlled (2)	Hydraulic oils, fresh water, sea water, air, up to + 160 °C	XML C035B2S12
	Corrosive fluids, up to + 160 °C	XML C035C2S12
Weight (kg)		0.695

Complementary characteristics not shown under general characteristics (page 6/69)		
Possible differential (subtract from PH to give PB)	Min. at low setting (3)	1 bar (14.5 psi)
	Min. at high setting (4)	1.5 bar (21.75 psi)
	Max. at high setting	22 bar (319 psi)
Maximum permissible pressure	Per cycle	45 bar (652.5 psi)
	Accidental	80 bar (1160 psi)
Destruction pressure		160 bar (2320 psi)
Mechanical life		5 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Pressure switch type		Diaphragm

- (1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML C035B2S12 becomes XML C035B2S11).
- (2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.
- (3) Deviation of the differential at low setting point for switches of the same size:
± 0.2 bar (± 2.9 psi).
- (4) Deviation of the differential at high setting point for switches of the same size:
± 0.5 bar (± 7.25 psi).

Operating curves	Connection
	Terminal model



- 1 Maximum differential
2 Minimum differential

— Adjustable value

Other versions

Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Nautilus® type XML

Size 35 bar (507.5 psi)

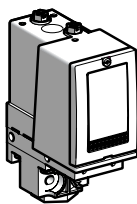
Dual stage, fixed differential, for detection at each threshold

Switches with 2 C/O single-pole contacts (one per stage)

Fluid connection 1/4" BSP

Pressure switches type XML D

Without setting scale



Adjustable range of each switching point (Rising pressure)	2nd stage switching point (PH2)	4.4...35 bar (63.8...507.5 psi)
	1st stage switching point (PH1)	1.9...32.5 bar (27.55...471.25 psi)
Spread between 2 stages (PH2 - PH1)		2.5...20.4 bar (36.25...295.8 psi)
Electrical connection		Terminals

References (1)

Fluids controlled (2)	Hydraulic oils, fresh water, sea water, air, up to + 160 °C	XML D035B1S12
	Corrosive fluids, up to + 160 °C	XML D035C1S12
Weight (kg)		0.715

Complementary characteristics not shown under general characteristics (page 6/69)

Natural differential (subtract from PH1/PH2 to give PB1/PB2)	At low setting (3)	1.5 bar (21.75 psi)
	At high setting (4)	2.6 bar (37.7 psi)
Maximum permissible pressure	Per cycle	45 bar (652.5 psi)
	Accidental	80 bar (1160 psi)
Destruction pressure		160 bar (2320 psi)
Mechanical life		5 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Pressure switch type		Diaphragm

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML D035B1S12 becomes XML D035B1S11).

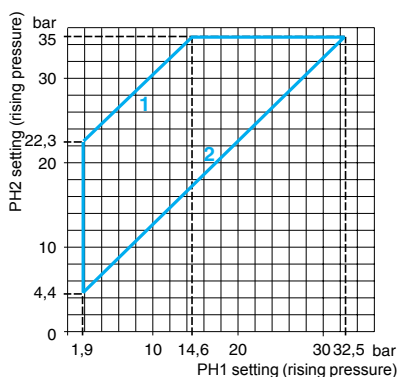
(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at low setting point for switches of the same size:
± 0.3 bar (± 4.35 psi).

(4) Deviation of the differential at high setting point for switches of the same size:
± 0.7 bar (± 10.15 psi).

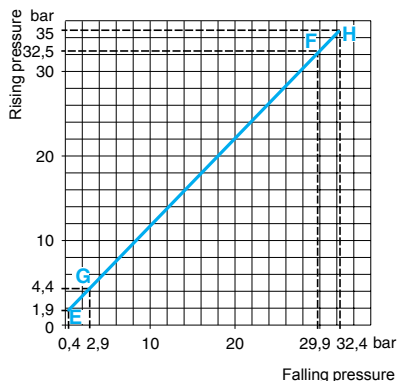
Operating curves

High setting tripping points of contacts 1 and 2

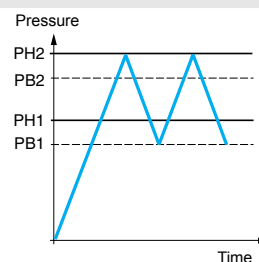


- 1 Maximum differential
- 2 Minimum differential

Natural differential of contacts 1 and 2



- EF Contact 1 (stage 1)
- GH Contact 2 (stage 2)

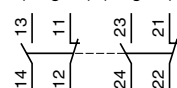


— Adjustable value
--- Non adjustable value

Connection

Terminal model

Contact 2 (stage 2) Contact 1 (stage 1)

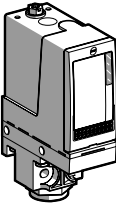
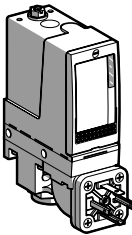
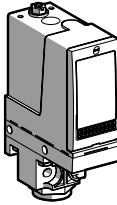
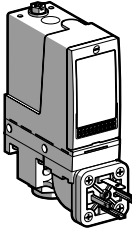


Other versions

Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

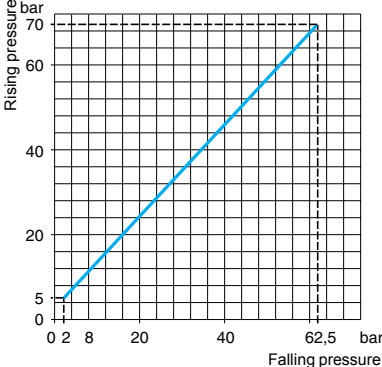
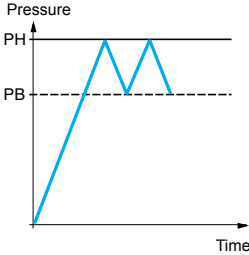


Electromechanical pressure switches

Nautilus® type XML
Size 70 bar (1015 psi)
Fixed differential, for detection of a single threshold
Switches with 1 C/O single-pole contact
Fluid connection 1/4" BSP

Pressure switches type XML A	With setting scale		Without setting scale	
				

Adjustable range of switching point (PH) (Rising pressure)		5...70 bar (72.5...1015 psi)			
Electrical connection		Terminals	DIN connector	Terminals	DIN connector
References (1)					
Fluids controlled (2)	Hydraulic oils, up to + 160 °C	XML A070D2S12	XML A070D2C11	XML A070D1S12	XML A070D1C11
	Fresh water, sea water, up to + 160 °C	XML A070E2S12	XML A070E2C11	XML A070E1S12	XML A070E1C11
	Corrosive fluids, air, up to + 160 °C	XML A070N2S12	XML A070N2C11	XML A070N1S12	XML A070N1C11
Weight (kg)		0.695	0.725	0.695	0.725
Complementary characteristics not shown under general characteristics (page 6/69)					
Natural differential (subtract from PH to give PB)	At low setting (3)	3 bar (43.5 psi)			
	At high setting (3)	7.5 bar (108.75 psi)			
Maximum permissible pressure	Per cycle	90 bar (1035 psi)			
	Accidental	160 bar (2320 psi)			
Destruction pressure		320 bar (4640 psi)			
Mechanical life		6 x 10 ⁶ operating cycles			
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm			
Connector type for connector models		DIN 43650A, 4-pin male. For suitable female connector, see page 6/122			
Pressure switch type		Piston			

- (1) For 1 entry tapped for n° 13 cable gland, replace **S12** by **S11** (example: **XML A070D2S12** becomes **XML A070D2S11**).
- (2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.
- (3) Deviation of the differential at high and low setting points for switches of the same size: ± 1 bar (± 14.5 psi).

Operating curves	Connection
 	Terminal model 
	Connector model Pressure switch connector pin view  <div>1 → 11 and 13 2 → 12 3 → 14</div>

Other versions	Pressure switches with alternative tapped cable entries: NPT etc. Please consult your Regional Sales Office.
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Nautilus® type XML

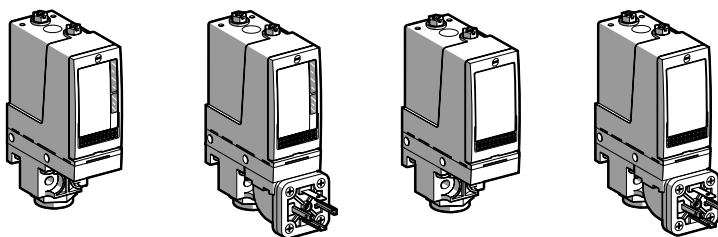
Size 70 bar (1015 psi)

Adjustable differential, for regulation between 2 thresholds

Switches with 1 C/O single-pole contact

Fluid connection 1/4" BSP

Pressure switches type XML B	With setting scale	Without setting scale
------------------------------	--------------------	-----------------------



Adjustable range of switching point (PH) (Rising pressure)	7...70 bar (101.5...1015 psi)			
Electrical connection	Terminals	DIN connector	Terminals	DIN connector

References (1)

Fluids controlled (2)	Hydraulic oils, up to + 160 °C	XML B070D2S12	XML B070D2C11	XML B070D1S12	XML B070D1C11
	Fresh water, sea water, up to + 160 °C	XML B070E2S12	XML B070E2C11	XML B070E1S12	XML B070E1C11
	Corrosive fluids, air, up to + 160 °C	XML B070N2S12	XML B070N2C11	XML B070N1S12	XML B070N1C11
Weight (kg)		0.715	0.745	0.715	0.745

Complementary characteristics not shown under general characteristics (page 6/69)

Possible differential (subtract from PH to give PB)	Min. at low setting (3)	4.7 bar (68.15 psi)
	Min. at high setting (4)	8.8 bar (127.6 psi)
	Max. at high setting	50 bar (725 psi)
Maximum permissible pressure	Per cycle	90 bar (1035 psi)
	Accidental	160 bar (2320 psi)
Destruction pressure		320 bar (4640 psi)
Mechanical life		6 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Connector type for connector models		DIN 43650A, 4-pin male. For suitable female connector, see page 6/122
Pressure switch type		Piston

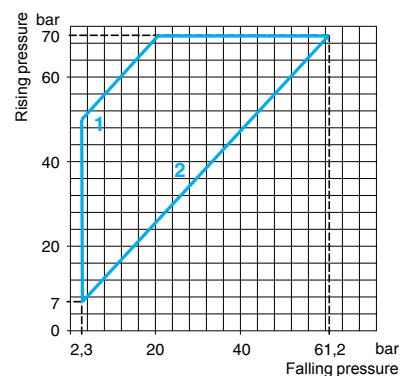
(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML B070D2S12 becomes XML B070D2S11).

(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

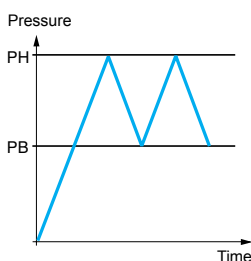
(3) Deviation of the differential at low setting point for switches of the same size:
- 0.4 bar, + 0.7 bar (- 5.8 psi, + 10.15 psi).

(4) Deviation of the differential at high setting point for switches of the same size:
- 0.6 bar, + 0.8 bar (- 8.7 psi, + 11.6 psi).

Operating curves



- 1 Maximum differential
2 Minimum differential



— Adjustable value

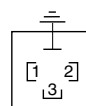
Connection

Terminal model



Connector model

Pressure switch connector pin view



- 1 → 11 and 13
2 → 12
3 → 14

Other versions

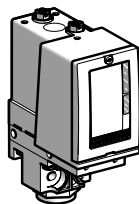
Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Electromechanical pressure switches

Nautilus® type XML
Size 70 bar (1015 psi)
Adjustable differential, for regulation between 2 thresholds
Switches with 2 C/O single-pole contacts
Fluid connection 1/4" BSP

Pressure switches type XML C

With setting scale



Adjustable range of switching point (PH) (Rising pressure)	7...70 bar (101.5...1015 psi)
Electrical connection	Terminals

References (1)		
Fluids controlled (2)	Hydraulic oils, up to + 160 °C	XML C070D2S12
	Fresh water, sea water, up to + 160 °C	XML C070E2S12
	Corrosive fluids, up to + 160 °C	XML C070N2S12
Weight (kg)	0.695	

Complementary characteristics not shown under general characteristics (page 6/69)

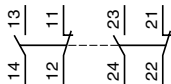
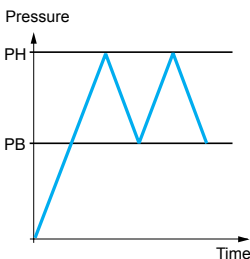
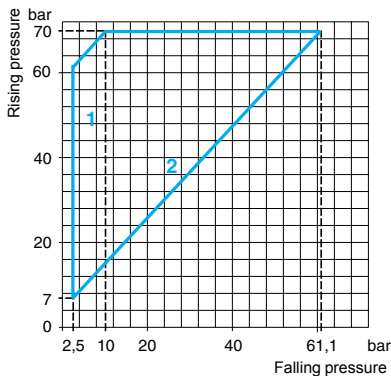
Possible differential (subtract from PH to give PB)	Min. at low setting (3)	4.5 bar (65.25 psi)
	Min. at high setting (3)	8.9 bar (129.05 psi)
	Max. at high setting	60 bar (870 psi)
Maximum permissible pressure	Per cycle	90 bar (1035 psi)
	Accidental	160 bar (2320 psi)
Destruction pressure	320 bar (4640 psi)	
Mechanical life	6 x 10 ⁶ operating cycles	
Cable entry for terminal models	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm	
Pressure switch type	Piston	

- (1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML C070D2S12 becomes XML C070D2S11).
(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.
(3) Deviation of the differential at high and low setting points for switches of the same size: ± 0.8 bar (± 11.6 psi).

Operating curves

Connection

Terminal model



- 1 Maximum differential
2 Minimum differential

— Adjustable value

Other versions

Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Nautilus® type XML

Size 70 bar (1015 psi)

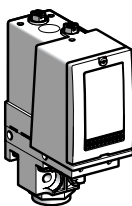
Dual stage, fixed differential, for detection at each threshold

Switches with 2 C/O single-pole contacts (one per stage)

Fluid connection 1/4" BSP

Pressure switches type XML D

Without setting scale



Adjustable range of each switching point (Rising pressure)	2nd stage switching point (PH2)	9.4...70 bar (136.3...1015 psi)
	1st stage switching point (PH1)	6.6...67.2 bar (95.7...974.4 psi)
Spread between 2 stages (PH2 - PH1)		2.8...46 bar (40.6...667 psi)
Electrical connection		Terminals

References (1)

Fluids controlled (2)	Hydraulic oils, up to + 160 °C	XML D070D1S12
	Fresh water, sea water, up to + 160 °C	XML D070E1S12
	Corrosive fluids, air, up to + 160 °C	XML D070N1S12
Weight (kg)		0.715

Complementary characteristics not shown under general characteristics (page 6/69)

Natural differential (subtract from PH1/PH2 to give PB1/PB2)	At low setting (3)	5 bar (72.5 psi)
	At high setting (4)	9.5 bar (137.75 psi)
Maximum permissible pressure	Per cycle	90 bar (1035 psi)
	Accidental	160 bar (2320 psi)
Destruction pressure		320 bar (4640 psi)
Mechanical life		6 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Pressure switch type		Piston

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML D070D1S12 becomes XML D070D1S11).

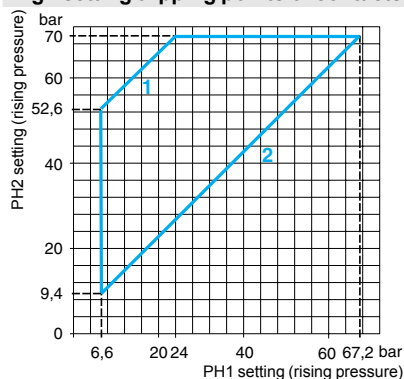
(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at low setting point for switches of the same size:
± 1.5 bar (± 21.75 psi).

(4) Deviation of the differential at high setting point for switches of the same size:
± 2 bar (± 29 psi).

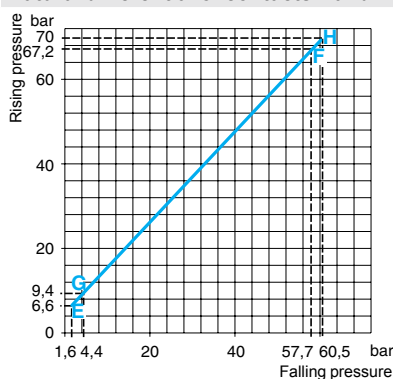
Operating curves

High setting tripping points of contacts 1 and 2

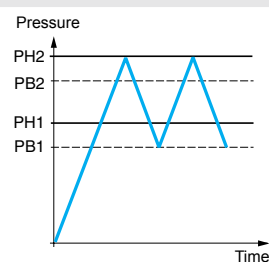


- 1 Maximum differential
- 2 Minimum differential

Natural differential of contacts 1 and 2



- EF Contact 1 (stage 1)
- GH Contact 2 (stage 2)

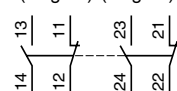


— Adjustable value
--- Non adjustable value

Connection

Terminal model

Contact 2 (stage 2) Contact 1 (stage 1)



Other versions

Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Electromechanical pressure switches

Nautilus® type XML

Size 160 bar (2320 psi)

Fixed differential, for detection of a single threshold

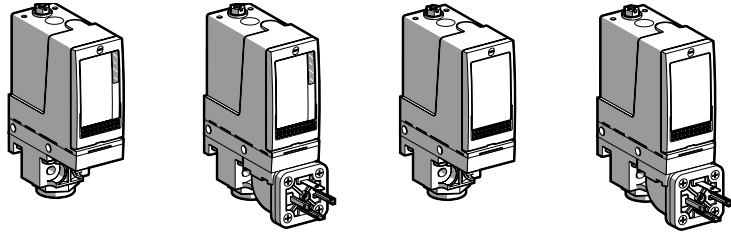
Switches with 1 C/O single-pole contact

Fluid connection 1/4" BSP

Pressure switches type XML A

With setting scale

Without setting scale


Adjustable range of switching point (PH)
(Rising pressure)

10...160 bar (145...2320 psi)

Electrical connection

Terminals

DIN connector

Terminals

DIN connector

References (1)

Fluids controlled (2)	Hydraulic oils, up to + 160 °C	XML A160D2S12	XML A160D2C11	XML A160D1S12	XML A160D1C11
	Fresh water, sea water, up to + 160 °C	XML A160E2S12	XML A160E2C11	XML A160E1S12	XML A160E1C11
	Corrosive fluids, air, up to + 160 °C	XML A160N2S12	XML A160N2C11	XML A160N1S12	XML A160N1C11
Weight (kg)		0.750	0.780	0.750	0.780

Complementary characteristics not shown under general characteristics (page 6/69)

Natural differential (subtract from PH to give PB)	At low setting (3)	5.5 bar (79.75 psi)
	At high setting (4)	18 bar (261 psi)
Maximum permissible pressure	Per cycle	200 bar (2900 psi)
	Accidental	360 bar (5220 psi)
Destruction pressure		720 bar (10 440 psi)
Mechanical life		6 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Connector type for connector models		DIN 43650A, 4-pin male. For suitable female connector, see page 6/122
Pressure switch type		Piston

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML A160D2S12 becomes XML A160D2S11).

(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at low setting point for switches of the same size:
± 1 bar (± 14.5 psi).

(4) Deviation of the differential at high setting point for switches of the same size:
± 3 bar (± 43.5 psi).

Operating curves

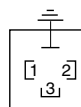
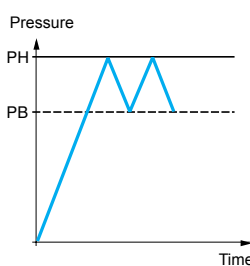
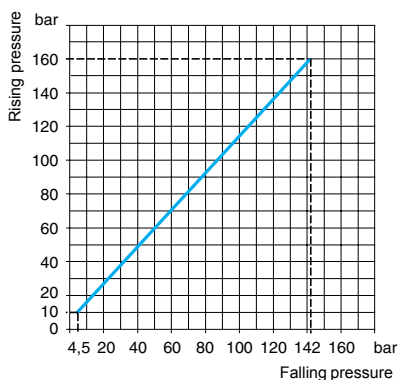
Connection

Terminal model



Connector model

Pressure switch connector pin view


1 → 11 and 13
2 → 12
3 → 14


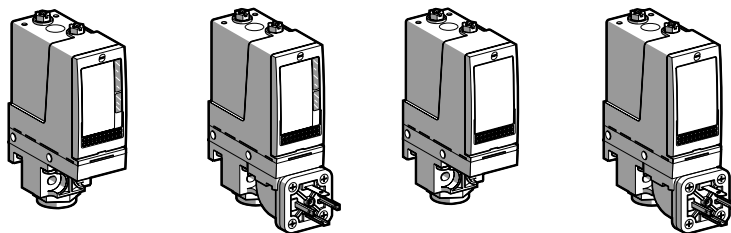
— Adjustable value

--- Non adjustable value

Other versions

Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Pressure switches type XML B	With setting scale	Without setting scale
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Adjustable range of switching point (PH) (Rising pressure)	10...160 bar (145...2320 psi)			
Electrical connection	Terminals	DIN connector	Terminals	DIN connector

References (1)

Fluids controlled (2)	Hydraulic oils, up to + 160 °C	XML B160D2S12	XML B160D2C11	XML B160D1S12	XML B160D1C11
	Fresh water, sea water, up to + 160 °C	XML B160E2S12	XML B160E2C11	XML B160E1S12	XML B160E1C11
	Corrosive fluids, air, up to + 160 °C	XML B160N2S12	XML B160N2C11	XML B160N1S12	XML B160N1C11
Weight (kg)		0.750	0.780	0.750	0.780

Complementary characteristics not shown under general characteristics (page 6/69)

Possible differential (subtract from PH to give PB)	Min. at low setting (3)	9.3 bar (134.85 psi)
	Min. at high setting (4)	20.8 bar (301.6 psi)
	Max. at high setting	100 bar (1450 psi)
Maximum permissible pressure	Per cycle	200 bar (2900 psi)
	Accidental	360 bar (5220 psi)
Destruction pressure		720 bar (10 440 psi)
Mechanical life		6 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Connector type for connector models		DIN 43650A, 4-pin male. For suitable female connector, see page 6/122
Pressure switch type		Piston

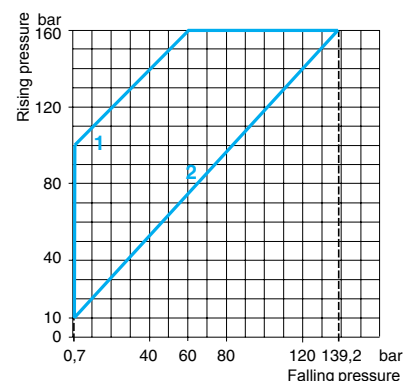
(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML B160D2S12 becomes XML B160D2S11).

(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

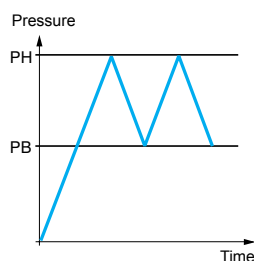
(3) Deviation of the differential at low setting point for switches of the same size:
- 1.8 bar, + 1.5 bar (- 26.1 psi, + 21.75 psi).

(4) Deviation of the differential at high setting point for switches of the same size:
- 1.9 bar, + 1.6 bar (- 27.55 psi, + 23.2 psi).

Operating curves



- 1 Maximum differential
2 Minimum differential



— Adjustable value

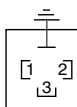
Connection

Terminal model



Connector model

Pressure switch connector pin view



- 1 → 11 and 13
2 → 12
3 → 14

Other versions

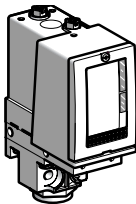
Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Electromechanical pressure switches

Nautilus® type XML
Size 160 bar (2320 psi)
Adjustable differential, for regulation between 2 thresholds
Switches with 2 C/O single-pole contacts
Fluid connection 1/4" BSP

Pressure switches type XML C

With setting scale



Adjustable range of switching point (PH) (Rising pressure)	12...160 bar (174...2320 psi)
Electrical connection	Terminals

References (1)

Fluids controlled (2)	Hydraulic oils, up to + 160 °C	XML C160D2S12
	Fresh water, sea water, up to + 160 °C	XML C160E2S12
	Corrosive fluids, up to + 160 °C	XML C160N2S12

Weight (kg)	0.750
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Complementary characteristics not shown under general characteristics (page 6/69)

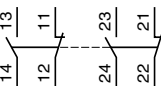
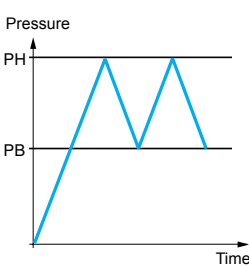
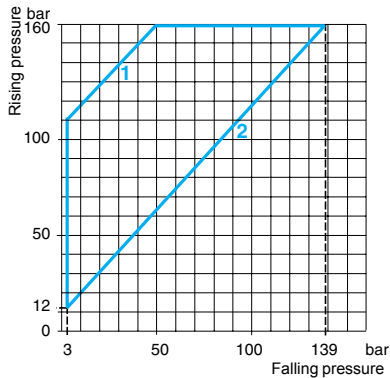
Possible differential (subtract from PH to give PB)	Min. at low setting (3)	9 bar (130.5 psi)
	Min. at high setting (3)	21 bar (304.5 psi)
	Max. at high setting	110 bar (1590 psi)
Maximum permissible pressure	Per cycle	200 bar (2900 psi)
	Accidental	360 bar (5220 psi)
Destruction pressure		720 bar (10 440 psi)
Mechanical life		6 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Pressure switch type		Piston

- (1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML C160D2S12 becomes XML C160D2S11).
(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.
(3) Deviation of the differential at high and low setting points for switches of the same size: ± 0.9 bar (± 13.05 psi).

Operating curves

Connection

Terminal model



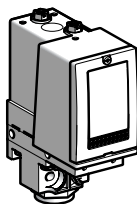
- 1 Maximum differential
2 Minimum differential

— Adjustable value

Other versions	Pressure switches with alternative tapped cable entries: NPT etc. Please consult your Regional Sales Office.
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Pressure switches type XML D

Without setting scale



Adjustable range of each switching point (Rising pressure)	2nd stage switching point (PH2)	16.5...160 bar (239.25...2320 psi)
	1st stage switching point (PH1)	10.5...154 bar (152.25...2233 psi)
Spread between 2 stages (PH2 - PH1)		6...83 bar (87...1203.5 psi)
Electrical connection		Terminals

References (1)

Fluids controlled (2)	Hydraulic oils, up to + 160 °C	XML D160D1S12
	Fresh water, sea water, up to + 160 °C	XML D160E1S12
	Corrosive fluids, air, up to + 160 °C	XML D160N1S12
Weight (kg)		0.750

Complementary characteristics not shown under general characteristics (page 6/69)

Natural differential (subtract from PH1/PH2 to give PB1/PB2)	At low setting (3)	8.8 bar (127.6 psi)
	At high setting (4)	20 bar (290 psi)
Maximum permissible pressure	Per cycle	200 bar (2900 psi)
	Accidental	360 bar (5220 psi)
Destruction pressure		720 bar (10 440 psi)
Mechanical life		6 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Pressure switch type		Piston

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML D160D1S12 becomes XML D160D1S11).

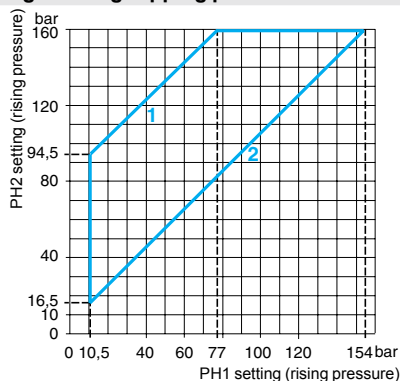
(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at low setting point for switches of the same size:
± 1.5 bar (± 21.75 psi).

(4) Deviation of the differential at high setting point for switches of the same size:
± 7 bar (± 101.5 psi).

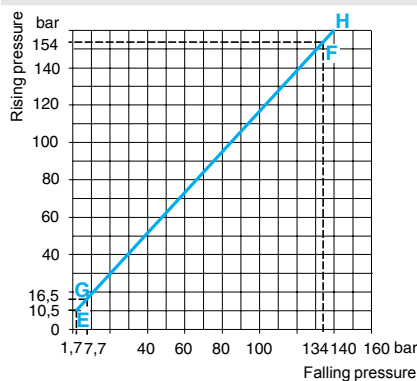
Operating curves

High setting tripping points of contacts 1 and 2

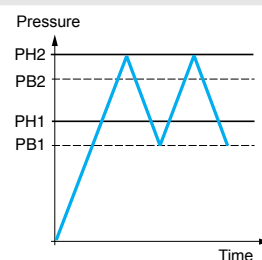


- 1 Maximum differential
- 2 Minimum differential

Natural differential of contacts 1 and 2



- EF Contact 1 (stage 1)
- GH Contact 2 (stage 2)

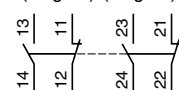


— Adjustable value
--- Non adjustable value

Connection

Terminal model

Contact 2 (stage 2) Contact 1 (stage 1)



Other versions

Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Electromechanical pressure switches

Nautilus® type XML

Size 300 bar (4350 psi)

Fixed differential, for detection of a single threshold

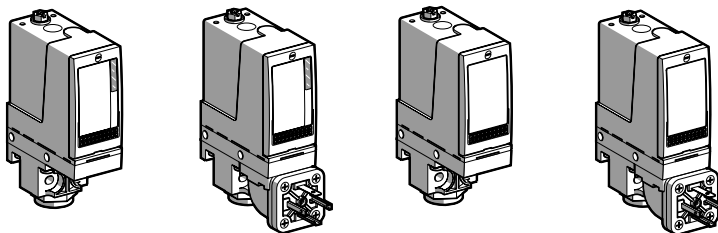
Switches with 1 C/O single-pole contact

Fluid connection 1/4" BSP

Pressure switches type XML A

With setting scale

Without setting scale


Adjustable range of switching point (PH)
(Rising pressure)

20...300 bar (290...4350 psi)

Electrical connection

Terminals

DIN connector

Terminals

DIN connector

References (1)

Fluids controlled
(2) (5)

Hydraulic oils, up to + 160 °C

Fresh water, sea water,
up to + 160 °C

Corrosive fluids, air,
up to + 160 °C

XML A300D2S12

XML A300D2C11

XML A300D1S12

XML A300D1C11

XML A300E2S12

XML A300E2C11

XML A300E1S12

XML A300E1C11

XML A300N2S12

XML A300N2C11

XML A300N1S12

XML A300N1C11

Weight (kg)

0.750

0.780

0.750

0.780

Complementary characteristics not shown under general characteristics (page 6/69)

Natural differential
(subtract from PH to give PB)

At low setting (3)

At high setting (4)

16.5 bar (239.25 psi)

35 bar (507.5 psi)

Maximum permissible
pressure

Per cycle

Accidental

375 bar (5437.5 psi)

675 bar (9787.5 psi)

Destruction pressure

1350 bar (19 575 psi)

Mechanical life

3 x 10⁶ operating cycles

Cable entry for terminal models

1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm

Connector type for connector models

DIN 43650A, 4-pin male. For suitable female connector, see page 6/122

Pressure switch type

Piston

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML A300D2S12 becomes XML A300D2S11).

(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at low setting point for switches of the same size:

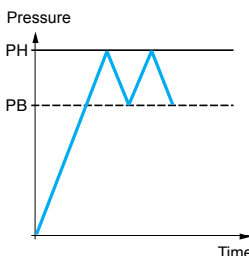
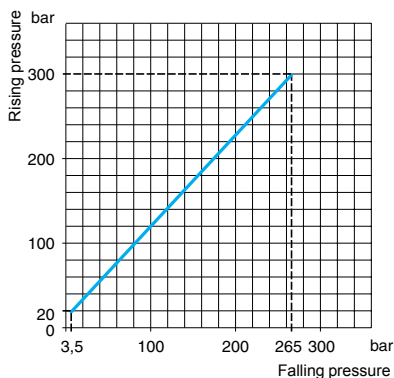
± 3 bar (± 43.5 psi).

(4) Deviation of the differential at high setting point for switches of the same size:

± 6 bar (± 87 psi).

(5) Only for control of group 2 fluids, in accordance with directive 97/23/EEC.

Operating curves



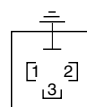
Connection

Terminal model



Connector model

Pressure switch connector pin view



1 → 11 and 13

2 → 12

3 → 14

— Adjustable value

--- Non adjustable value

Other versions

Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Electromechanical pressure switches

Nautilus® type XML

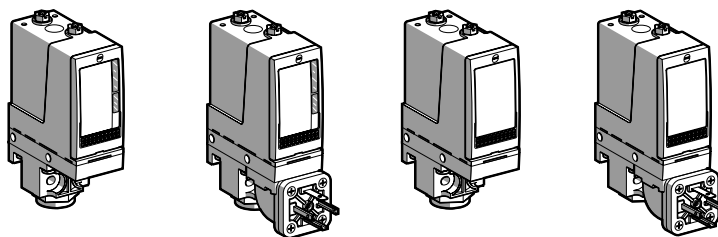
Size 300 bar (4350 psi)

Adjustable differential, for regulation between 2 thresholds

Switches with 1 C/O single-pole contact

Fluid connection 1/4" BSP

Pressure switches type XML B	With setting scale	Without setting scale
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Adjustable range of switching point (PH) (Rising pressure)	22...300 bar (319...4350 psi)			
Electrical connection	Terminals	DIN connector	Terminals	DIN connector

References (1)

Fluids controlled (2) (5)	Hydraulic oils, up to + 160 °C	XML B300D2S12	XML B300D2C11	XML B300D1S12	XML B300D1C11
	Fresh water, sea water, up to + 160 °C	XML B300E2S12	XML B300E2C11	XML B300E1S12	XML B300E1C11
	Corrosive fluids, air, up to + 160 °C	XML B300N2S12	XML B300N2C11	XML B300N1S12	XML B300N1C11
Weight (kg)		0.750	0.780	0.750	0.780

Complementary characteristics not shown under general characteristics (page 6/69)

Possible differential (subtract from PH to give PB)	Min. at low setting (3)	19.4 bar (281.3 psi)
	Min. at high setting (4)	37 bar (536.5 psi)
	Max. at high setting	200 bar (2900 psi)
Maximum permissible pressure	Per cycle	375 bar (5437.5 psi)
	Accidental	675 bar (9787.5 psi)
Destruction pressure		1350 bar (19 575 psi)
Mechanical life		3 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Connector type for connector models		DIN 43650A, 4-pin male. For suitable female connector, see page 6/122
Pressure switch type		Piston

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML B300D2S12 becomes XML B300D2S11).

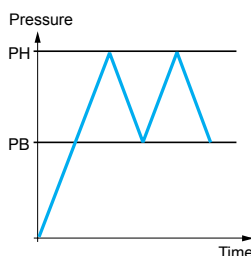
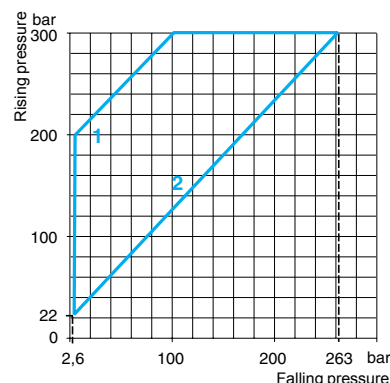
(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at low setting point for switches of the same size:
- 1.5 bar, + 1.7 bar (- 21.75 psi, + 24.65 psi).

(4) Deviation of the differential at high setting point for switches of the same size:
- 1 bar, + 4 bar (- 14.5 psi, + 58 psi).

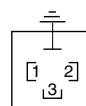
(5) Only for control of group 2 fluids, in accordance with directive 97/23/EEC.

Operating curves	Connection
	Terminal model



Connector model

Pressure switch connector pin view



1 → 11 and 13
2 → 12
3 → 14

- 1 Maximum differential
- 2 Minimum differential

Other versions

— Adjustable value

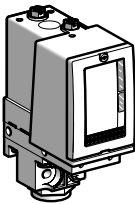
Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Electromechanical pressure switches

Nautilus® type XML
Size 300 bar (4350 psi)
Adjustable differential, for regulation between 2 thresholds
Switches with 2 C/O single-pole contacts
Fluid connection 1/4" BSP

Pressure switches type XML C

With setting scale



Adjustable range of switching point (PH) (Rising pressure)	22...300 bar (319...4350 psi)
Electrical connection	Terminals

References (1)

Fluids controlled (2) (4)	Hydraulic oils, up to + 160 °C	XML C300D2S12
	Fresh water, sea water, up to + 160 °C	XML C300E2S12
	Corrosive fluids, air, up to + 160 °C	XML C300N2S12

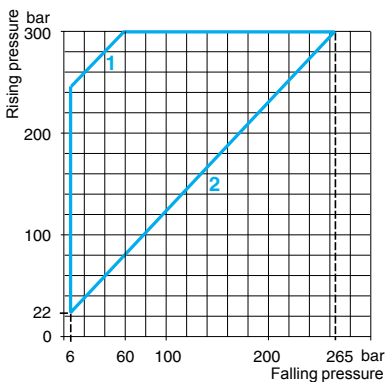
Weight (kg)	0.750
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Complementary characteristics not shown under general characteristics (page 6/69)

Possible differential (subtract from PH to give PB)	Min. at low setting (3)	16 bar (232 psi)
	Min. at high setting (3)	35 bar (507.5 psi)
	Max. at high setting	240 bar (3480 psi)
Maximum permissible pressure	Per cycle	375 bar (5437.5 psi)
	Accidental	675 bar (9787.5 psi)
Destruction pressure		1350 bar (19 575 psi)
Mechanical life		3 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Pressure switch type		Piston

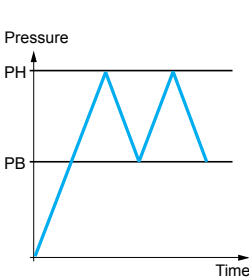
- (1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML C300D2S12 becomes XML C300D2S11).
(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.
(3) Deviation of the differential at high and low setting points for switches of the same size:
± 0.9 bar (± 13.05 psi).
(4) Only for control of group 2 fluids, in accordance with directive 97/23/EEC.

Operating curves



- 1 Maximum differential
2 Minimum differential

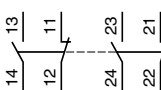
Other versions



— Adjustable value

Connection

Terminal model



Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Nautilus® type XML

Size 300 bar (4350 psi)

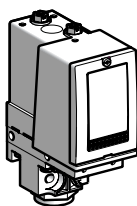
Dual stage, fixed differential, for detection at each threshold

Switches with 2 C/O single-pole contacts (one per stage)

Fluid connection 1/4" BSP

Pressure switches type XML D

Without setting scale



Adjustable range of each switching point (Rising pressure)	2nd stage switching point (PH2)	36...300 bar (522...4350 psi)
	1st stage switching point (PH1)	25...289 bar (362.5...4190.5 psi)
Spread between 2 stages (PH2 - PH1)		11...189 bar (159.5...2740.5 psi)
Electrical connection		Terminals
References (1)		
Fluids controlled (2) (5)	Hydraulic oils, up to + 160 °C	XML D300D1S12
	Fresh water, sea water, up to + 160 °C	XML D300E1S12
	Corrosive fluids, air, up to + 160 °C	XML D300N1S12
Weight (kg)		0.750
Complementary characteristics not shown under general characteristics (page 6/69)		
Natural differential (subtract from PH1/PH2 to give PB1/PB2)	At low setting (3)	17 bar (246.5 psi)
	At high setting (4)	42 bar (609 psi)
Maximum permissible pressure	Per cycle	375 bar (5437.5 psi)
	Accidental	675 bar (9787.5 psi)
Destruction pressure		1350 bar (19 575 psi)
Mechanical life		3 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Pressure switch type		Piston

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML D300D1S12 becomes XML D300D1S11).

(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at low setting point for switches of the same size:

± 2.5 bar (± 36.25 psi).

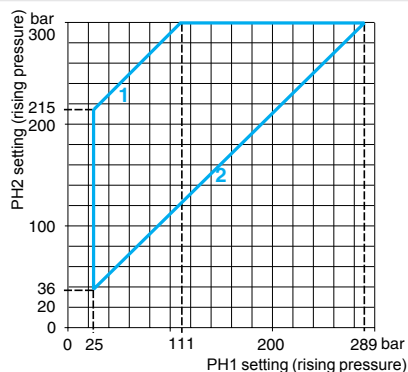
(4) Deviation of the differential at high setting point for switches of the same size:

± 9 bar (± 130.5 psi).

(5) Only for control of group 2 fluids, in accordance with directive 97/23/EEC.

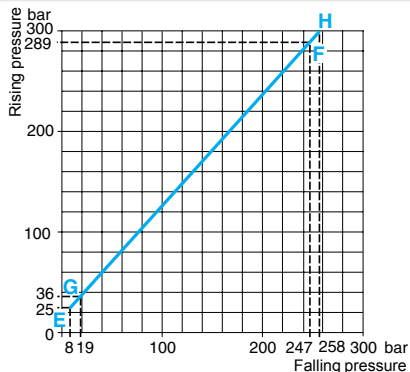
Operating curves

High setting tripping points of contacts 1 and 2

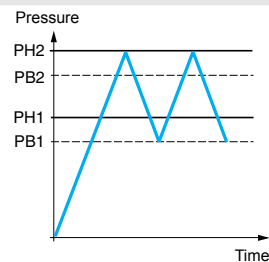


- 1 Maximum differential
2 Minimum differential

Natural differential of contacts 1 and 2



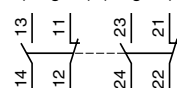
- EF Contact 1 (stage 1)
GH Contact 2 (stage 2)


— Adjustable value
--- Non adjustable value

Connection

Terminal model

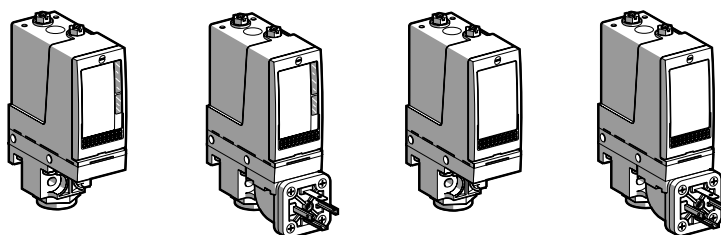
Contact 2 (stage 2) Contact 1 (stage 1)



Other versions

Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Pressure switches type XML B	With setting scale	Without setting scale
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Adjustable range of switching point (PH) (Rising pressure)	30...500 bar (435...7250 psi)			
Electrical connection	Terminals	DIN connector	Terminals	DIN connector

References (1)

Fluids controlled (2) (5)	Hydraulic oils, up to + 160 °C	XML B500D2S12	XML B500D2C11	XML B500D1S12	XML B500D1C11
	Fresh water, sea water, up to + 160 °C	XML B500E2S12	XML B500E2C11	XML B500E1S12	XML B500E1C11
	Corrosive fluids, air, up to + 160 °C	XML B500N2S12	XML B500N2C11	XML B500N1S12	XML B500N1C11
Weight (kg)		0.750	0.780	0.750	0.780

Complementary characteristics not shown under general characteristics (page 6/69)

Possible differential (subtract from PH to give PB)	Min. at low setting (3)	23 bar (333.5 psi)
	Min. at high setting (4)	52.6 bar (762.7 psi)
	Max. at high setting	300 bar (4350 psi)
Maximum permissible pressure	Per cycle	625 bar (9062.5 psi)
	Accidental	1125 bar (16 312.5 psi)
Destruction pressure		2250 bar (32 625 psi)
Mechanical life		3 x 10 ⁸ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Connector type for connector models		DIN 43650A, 4-pin male. For suitable female connector, see page 6/122
Pressure switch type		Piston

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML B500D2S12 becomes XML B500D2S11).

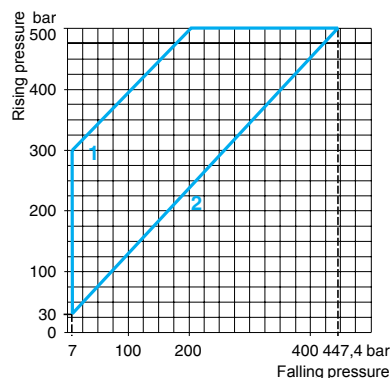
(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

(3) Deviation of the differential at low setting point for switches of the same size:
- 2.6 bar, + 3.8 bar (- 37.7 psi, + 55.1 psi).

(4) Deviation of the differential at high setting point for switches of the same size:
- 14.8 bar, + 11.2 bar (- 214.6 psi, + 162.4 psi).

(5) Only for control of group 2 fluids, in accordance with directive 97/23/EEC.

Operating curves



- 1 Maximum differential
2 Minimum differential

Other versions

— Adjustable value

Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

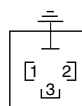
Connection

Terminal model



Connector model

Pressure switch connector pin view



- 1 → 11 and 13
2 → 12
3 → 14

Electromechanical pressure switches

Nautilus® type XML

Size 500 bar (7250 psi)

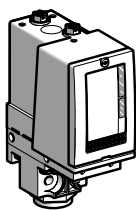
Adjustable differential, for regulation between 2 thresholds

Switches with 2 C/O single-pole contacts

Fluid connection 1/4" BSP

Pressure switches type XML C

With setting scale



Adjustable range of switching point (PH) (Rising pressure) **30...500 bar (435...7250 psi)**

Electrical connection Terminals

References (1)

Fluids controlled (2) (4)	Hydraulic oils, up to + 160 °C	XML C500D2S12
	Fresh water, sea water, up to + 160 °C	XML C500E2S12
	Corrosive fluids, air, up to + 160 °C	XML C500N2S12

Weight (kg) 0.750

Complementary characteristics not shown under general characteristics (page 6/69)

Possible differential (subtract from PH to give PB)	Min. at low setting (3)	19 bar (275.5 psi)
	Min. at high setting (3)	52 bar (754 psi)
	Max. at high setting	340 bar (4930 psi)
Maximum permissible pressure	Per cycle	625 bar (9062.5 psi)
	Accidental	1125 bar (16 312.5 psi)
Destruction pressure		2250 bar (32 625 psi)
Mechanical life		3 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Pressure switch type		Piston

(1) For 1 entry tapped for n° 13 cable gland, replace **S12** by **S11** (example: **XML C500D2S12** becomes **XML C500D2S11**).

(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

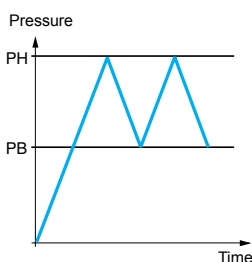
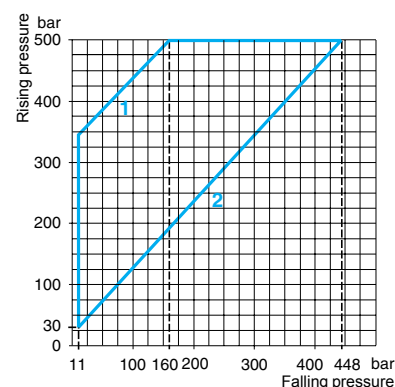
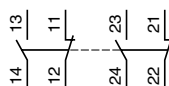
(3) Deviation of the differential at high and low setting points for switches of the same size: ± 0.9 bar (± 13.05 psi).

(4) Only for control of group 2 fluids, in accordance with directive 97/23/EEC.

Operating curves

Connection

Terminal model



- 1 Maximum differential
- 2 Minimum differential

— Adjustable value

Other versions

Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Nautilus® type XML

Size 500 bar (7250 psi)

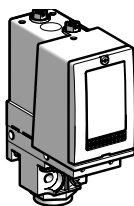
Dual stage, fixed differential, for detection at each threshold

Switches with 2 C/O single-pole contacts (one per stage)

Fluid connection 1/4" BSP

Pressure switches type XML D

Without setting scale



Adjustable range of each switching point (Rising pressure)	2nd stage switching point (PH2)	41...500 bar (594.5...7250 psi)
	1st stage switching point (PH1)	25...484 bar (362.5...7018 psi)
Spread between 2 stages (PH2 - PH1)		16...244 bar (232...3538 psi)
Electrical connection		Terminals
References (1)		
Fluids controlled (2) (5)	Hydraulic oils, up to + 160 °C	XML D500D1S12
	Fresh water, sea water, up to + 160 °C	XML D500E1S12
	Corrosive fluids, air, up to + 160 °C	XML D500N1S12
Weight (kg)		0.750
Complementary characteristics not shown under general characteristics (page 6/69)		
Natural differential (subtract from PH1/PH2 to give PB1/PB2)	At low setting (3)	21 bar (304.5 psi)
	At high setting (4)	65 bar (942.5 psi)
Maximum permissible pressure	Per cycle	625 bar (9062.5 psi)
	Accidental	1125 bar (16 312.5 psi)
Destruction pressure		2250 bar (32 625 psi)
Mechanical life		3 x 10 ⁶ operating cycles
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Pressure switch type		Piston

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XML D500D1S12 becomes XML D500D1S11).

(2) Component materials of units in contact with the fluid, see pages 6/128 and 6/129.

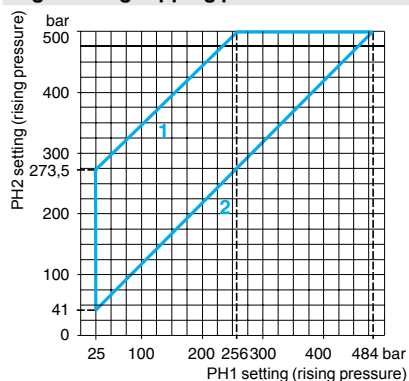
(3) Deviation of the differential at low setting point for switches of the same size:
± 3 bar (± 43.5 psi).

(4) Deviation of the differential at high setting point for switches of the same size:
± 10 bar (± 145 psi).

(5) Only for control of group 2 fluids, in accordance with directive 97/23/EEC.

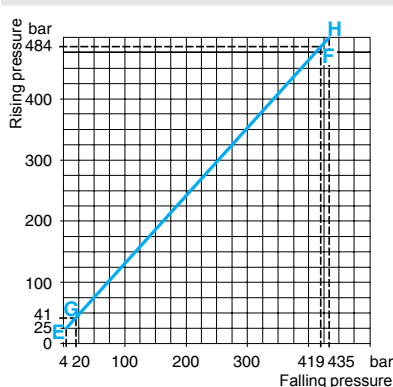
Operating curves

High setting tripping points of contacts 1 and 2

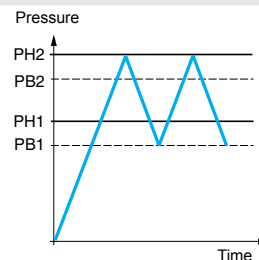


- 1 Maximum differential
2 Minimum differential

Natural differential of contacts 1 and 2



- EF Contact 1 (stage 1)
GH Contact 2 (stage 2)

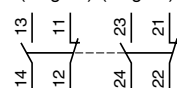


— Adjustable value
--- Non adjustable value

Connection

Terminal model

Contact 2 (stage 2) Contact 1 (stage 1)

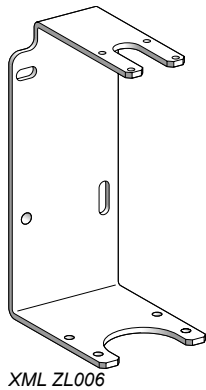


Other versions

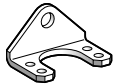
Pressure switches with alternative tapped cable entries: NPT etc.
Please consult your Regional Sales Office.

Electromechanical pressure and vacuum switches

Nautilus® type XML A, XML B, XML C and XML D
Accessories and replacement parts



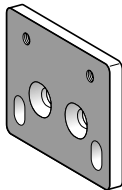
XML ZL006



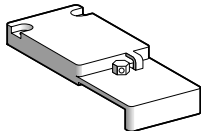
XML ZL002



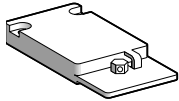
XML ZL003



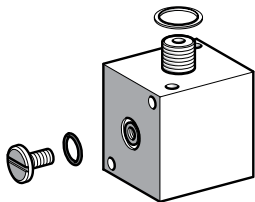
XML ZL004



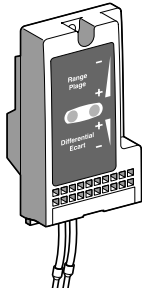
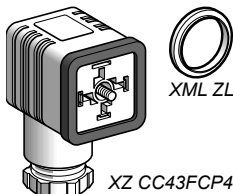
XML ZL001



XML ZL011



XML ZL005

XML ZA●●●,
XML ZB●●●

XML ZL010

XZ CC43FCP40B

Accessories for pressure switches and vacuum switches

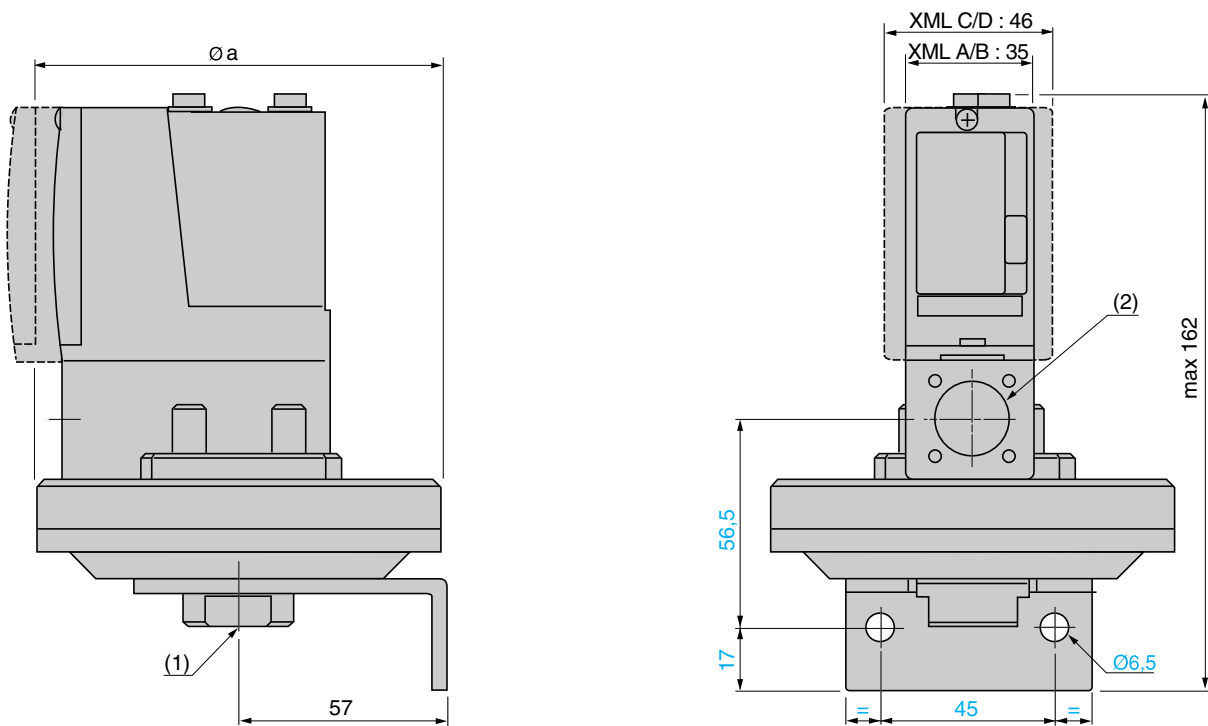
Description		Specific characteristics	For use with switches	Unit reference	Weight kg
Rear fixing bracket for vibrations > 2 gn		–	XML ●L35 XML ●001	XML ZL006	0.230
Additional top support bracket for vibrations > 4 gn		–	XML AM01 XML ●M05 XML A004 XML ●010... XML ●500	XML ZL002	0.020
Knurled adjustment knob, Ø 36 mm fits over adjustment screw(s) to facilitate setting		–	All models	XML ZL003	0.010
Fixing plate for replacing an XMJ A or XMG B switch by an XML switch		–	XML AM01 XML ●M05 XML A004 XML ●010... XML ●500	XML ZL004	0.110
Lead sealable protective cover to prevent unauthorised access to adjustment screws and fixing screw of switch cover		–	XML A XML B	XML ZL001	0.035
Lead sealable protective cover to prevent unauthorised access to adjustment screws		–	All models	XML ZL011	0.030
Indicator modules and associated covers, 2 LEDs (orange and green)	Without setting scale	~ or ~ 24/48 V	XML A/B	XML ZZ024	0.090
		~ 110/240 V	XML A/B	XML ZZ120	0.090
	With setting scale	~ or ~ 24/48 V	XML A	XML ZA024	0.090
			XML B	XML ZB024	0.090
		~ 110/240 V	XML A	XML ZA120	0.090
			XML B	XML ZB120	0.090
Hydraulic block for base mounting directly onto fluid manifold		–	All models	XML ZL005	0.240
Female connector, DIN 43650A		–	XML ●●●●●●C11	XZ CC43FCP40B	0.035

Female connector, DIN 43650A	—	XML ●●●●●C11	XZ CC43FCP40B	0.035
Jumper cables, DIN 43650 A - M12, straight, male for splitter boxes (see connections, page 6/33)	L = 1 m	XML ●●●●●C11	XZ CR1523062K1	0.080
	L = 2 m	XML ●●●●●C11	XZ CR1523062K2	0.110
Adaptor, G 1/4"/G3/8" male/female	—	All models	XML ZL012	0.130

Replacement parts

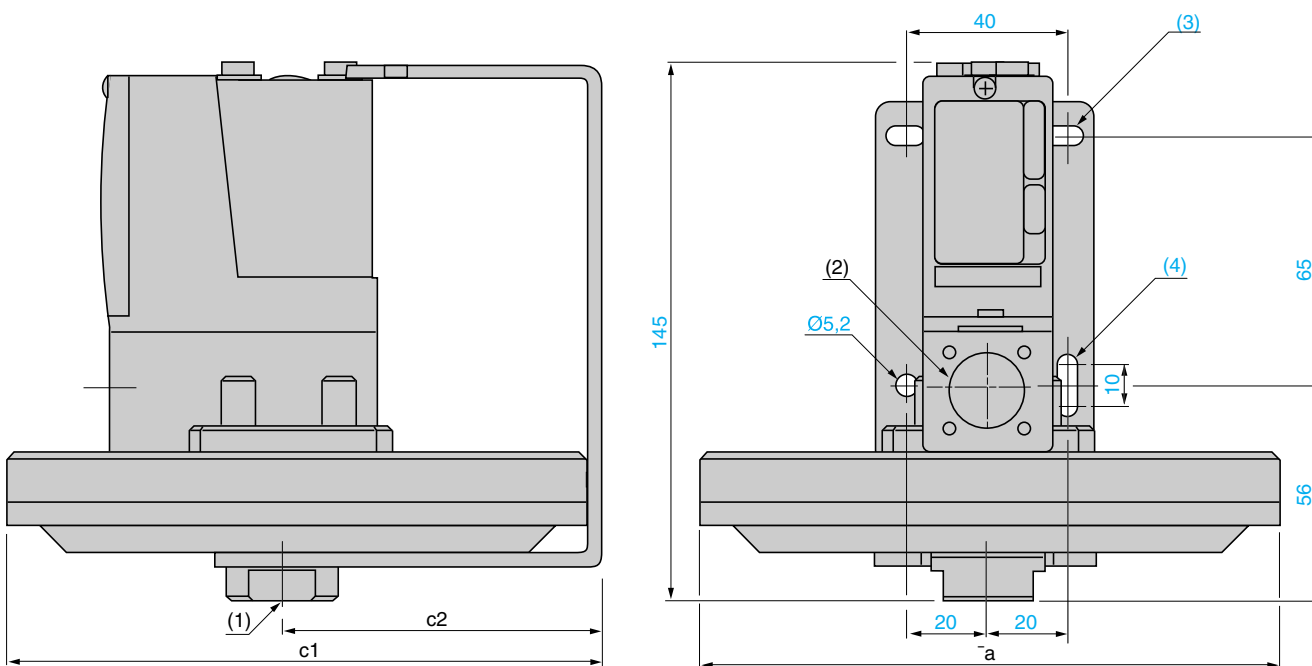
Sealing gasket	For sizes ≥ 300 bar (XML A/B/C/D)		XML ZL010	0.015
Diaphragms	—	XML ●S35	XML ZL013	0.060
		XML ●S02	XML ZL014	0.040
		XML ●S04	XML ZL015	0.030

XML ●L35, XML ●001, XML ●S



- (1) 1 fluid entry, tapped G 1/4 (BSP female)
(2) 1 electrical connections entry, tapped M20 x 1.5 or Pg 13.5

XML BM03, XML BL05



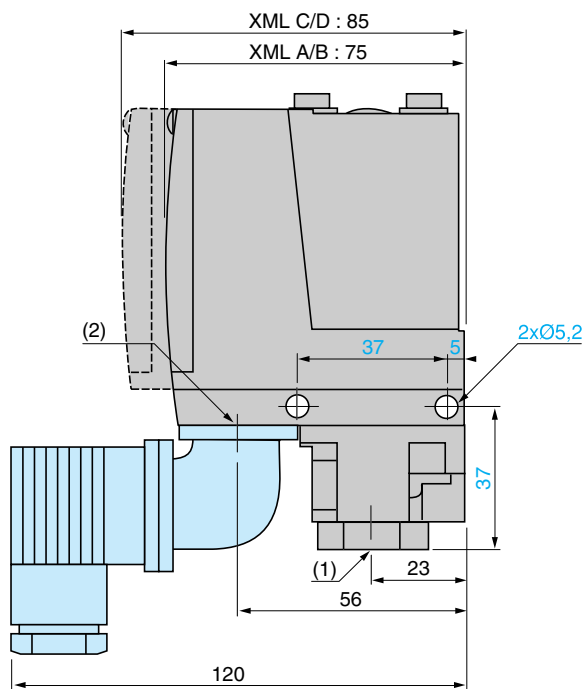
- (1) 1 fluid entry, tapped G 1/4 (BSP female)
(2) 1 electrical connections entry, tapped M20 x 1.5 or Pg 13.5
(3) 2 elongated holes Ø 10.2 x 5.2
(4) 1 elongated hole Ø 15.2 x 5.2

XML	Øa	c1	c2
BM03	150	155.5	80.5
BL05	200	204	104
●L35, ●001	110	—	—
●S35, ●S02, ●S04	110	—	—
●S10, ●S20	86	—	—

Electromechanical pressure and vacuum switches

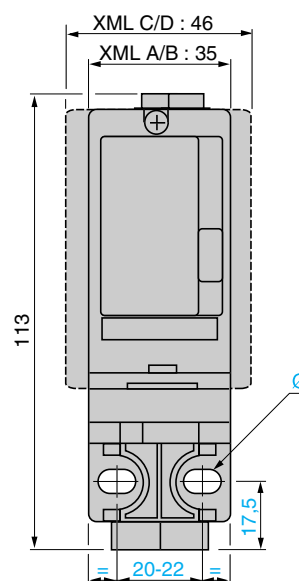
Nautilus® type XML A, XML B, XML C and XML D

XML AM01, XML BM05, XML CM05, XML A004, XML 010...500

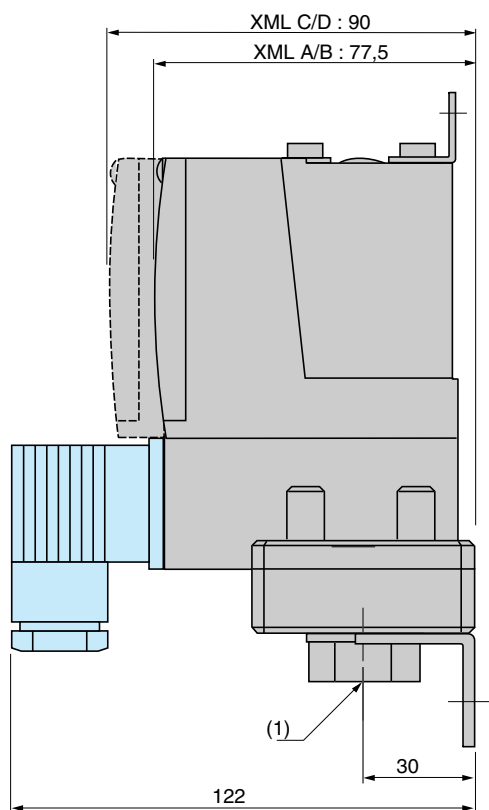


(1) 1 fluid entry, tapped G 1/4 (BSP female)
 (2) 1 electrical connections entry, tapped M20 x 1.5 or Pg 13.5
 Ø: 2 elongated holes Ø 5.2 x 6.7

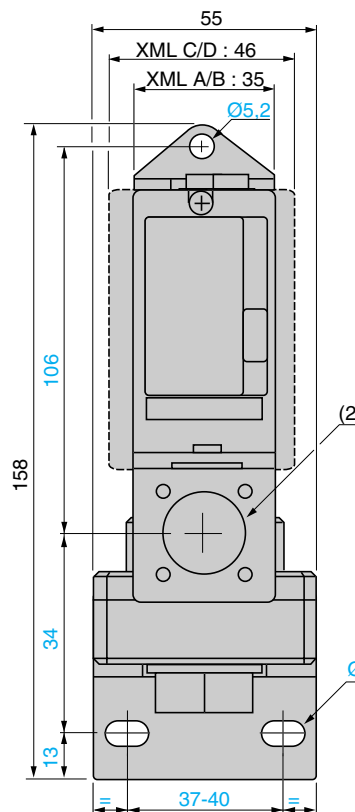
XML 0M02, XML 0002, XML B004, XML C004, XML D004



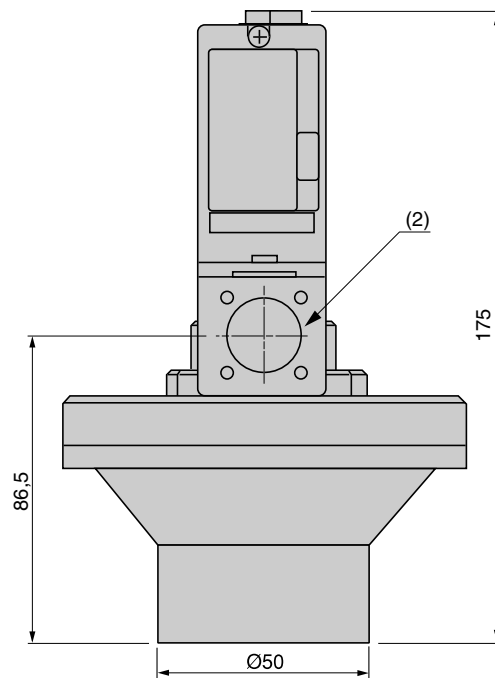
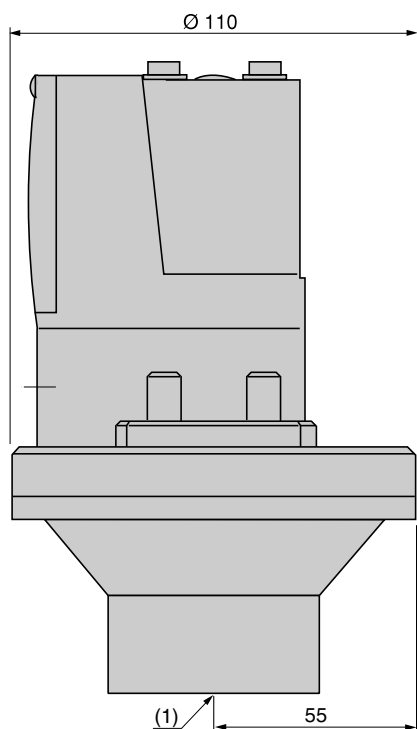
6



(1) 1 fluid entry, tapped G 1/4 (BSP female)
 (2) 1 electrical connections entry, tapped M20 x 1.5 or Pg 13.5
 Ø: 2 elongated holes Ø 10.2 x 5.2

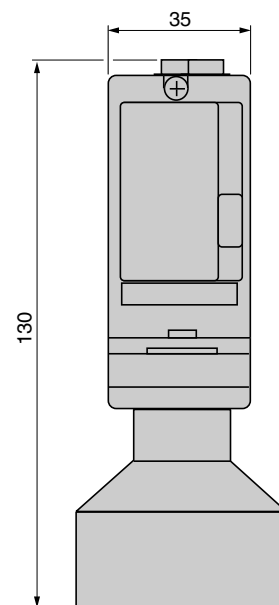
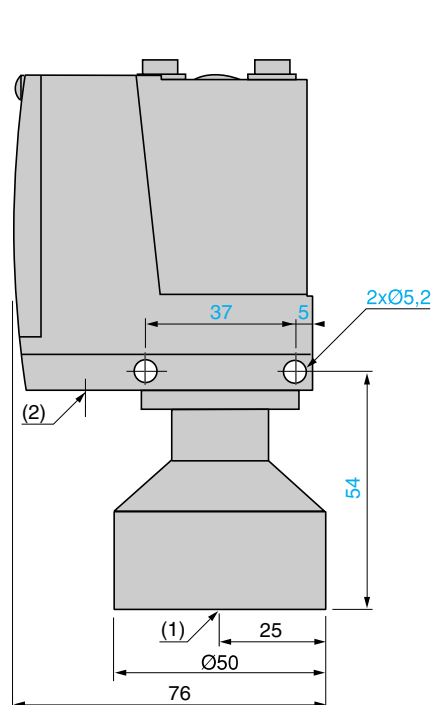


XML BL35P, XML B001P



- (1) 1 fluid entry, tapped G 1¼ (BSP female)
(2) 1 electrical connections entry, tapped M20 x 1.5 or Pg 13.5

XML BM05P, XML A004P, XML ●010P, XML ●020P, XML ●035P



- (1) 1 fluid entry, tapped G 1¼ (BSP female)
(2) 1 electrical connections entry, tapped M20 x 1.5 or Pg 13.5

Electromechanical pressure and vacuum switches

Nautilus®

Equivalent model references of pressure and vacuum switches XML for previous range switches XM2 JM, XMJ and XMG

Pressure and vacuum switches with fixed differential

XM2 JM reference	Equivalent XML A reference
XM2 JM091	XML AM01V1S11
XM2 JM002	XML A002A1S11
XM2 JM0025	XML A002C1S11
XM2 JM004	XML A004A1S11
XM2 JM0045	XML A004C1S11
XM2 JM0046	XML A004P1S11
XM2 JM012 (1)	XML A010A1S11
XM2 JM012 (1)	XML A020A1S11
XM2 JM0125 (1)	XML A010C1S11
XM2 JM0125 (1)	XML A020C1S11
XM2 JM0126 (1)	XML A010P1S11
XM2 JM0126 (1)	XML A020P1S11
XM2 JM030 (2)	XML A020A1S11
XM2 JM030 (2)	XML A035A1S11
XM2 JM0304 (2)	XML A020A1S11
XM2 JM0304 (2)	XML A035A1S11
XM2 JM050 (3)	XML A035A1S11
XM2 JM050 (3)	XML A070D1S11
XM2 JM0504 (3)	XML A035A1S11
XM2 JM0504 (3)	XML A070E1S11
XM2 JM160	XML A160D1S11
XM2 JM1604	XML A160E1S11
XM2 JM300	XML A300D1S11

XMJ A reference	Equivalent XML A reference
XMJ A091	XML AM01V1S11
XMJ A0915	XML AM01T1S11
XMJ A0037	XML A004A2S11
XMJ A003	XML A004A1S11
XMJ A00375	XML A004C2S11
XMJ A0035	XML A004C1S11
XMJ A0127 (1)	XML A010A2S11
XMJ A0127 (1)	XML A020A2S11
XMJ A012 (1)	XML A010A1S11
XMJ A012 (1)	XML A020A1S11
XMJ A01275 (1)	XML A010C2S11
XMJ A01275 (1)	XML A020C2S11
XMJ A0125 (1)	XML A010C1S11
XMJ A0125 (1)	XML A020C1S11
XMJ A020	XML A020A1S11
XMJ A0207	XML A020A2S11
XMJ A02075	XML A020C2S11
XMJ A0205	XML A020C1S11
XMJ A0307 (2)	XML A020A2S11
XMJ A0307 (2)	XML A035A2S11
XMJ A03074 (2)	XML A020A2S11
XMJ A03074 (2)	XML A035A2S11
XMJ A03078 (2)	XML A020A2S11
XMJ A03078 (2)	XML A035A2S11
XMJ A030 (2)	XML A020A1S11
XMJ A030 (2)	XML A035A1S11
XMJ A0304 (2)	XML A020A1S11
XMJ A0304 (2)	XML A035A1S11
XMJ A0308 (2)	XML A020A1S11
XMJ A0308 (2)	XML A035A1S11
XMJ A03075 (2)	XML A020C2S11
XMJ A03075 (2)	XML A035C2S11
XMJ A0305 (2)	XML A020C1S11
XMJ A0305 (2)	XML A035C1S11
XMJ A050 (3)	XML A035A1S11
XMJ A050 (3)	XML A070D1S11
XMJ A050 (4)	XML A070E1S11
XMJ A050 (4)	XML A070N1S11
XMJ A0507 (3)	XML A035A2S11

XM2 JM reference	Equivalent XML A reference
XM2 JM3004	XML A300E1S11
XM2 JM500	XML A500D1S11
XM2 JM5004	XML A500E1S11
XM2 JM0912	XML AM01V1S11
XM2 JM0022	XML A002B1S11
XM2 JM00225	XML A002C1S11
XM2 JM0042	XML A004B1S11
XM2 JM00425	XML A004C1S11
XM2 JM00426	XML A004P1S11
XM2 JM0122	XML A010B1S11
XM2 JM01225	XML A010C1S11
XM2 JM01226	XML A010P1S11
XM2 JM0302	XML A035B1S11
XM2 JM03024	XML A035B1S11
XM2 JM0502	XML A070D1S11
XM2 JM05024	XML A070E1S11
XM2 JM1602	XML A160D1S11
XM2 JM16024	XML A160E1S11
XM2 JM3002	XML A300D1S11
XM2 JM30024	XML A300E1S11
XM2 JM5002	XML A500D1S11
XM2 JM50024	XML A500E1S11

XMJ A reference	Equivalent XML A reference
XMJ A0507 (3)	XML A070D2S11
XMJ A0507 (4)	XML A070E2S11
XMJ A0507 (4)	XML A070N2S11
XMJ A0707	XML A070D2S11
XMJ A070	XML A070D1S11
XMJ A07074	XML A070E2S11
XMJ A0704	XML A070E1S11
XMJ A07075	XML A070N2S11
XMJ A07078	XML A070N2S11
XMJ A0705	XML A070N1S11
XMJ A0708	XML A070N1S11
XMJ A115 (4) (5)	XML A070D1S11
XMJ A115 (4) (5)	XML A070E1S11
XMJ A115 (4) (5)	XML A070N1S11
XMJ A115 (4) (5)	XML A160D1S11
XMJ A115 (4) (5)	XML A160E1S11
XMJ A115 (4) (5)	XML A160N1S11
XMJ A1157 (4) (5)	XML A070D2S11
XMJ A1157 (4) (5)	XML A070E2S11
XMJ A1157 (4) (5)	XML A070N2S11
XMJ A1157 (4) (5)	XML A160D2S11
XMJ A1157 (4) (5)	XML A160E2S11
XMJ A1157 (4) (5)	XML A160N2S11
XMJ A1607	XML A160D2S11
XMJ A160	XML A160D1S11
XMJ A16074	XML A160E2S11
XMJ A1604	XML A160E1S11
XMJ A16075	XML A160N2S11
XMJ A16078	XML A160N2S11
XMJ A1605	XML A160N1S11
XMJ A1608	XML A160N1S11
XMJ A3007	XML A300D2S11
XMJ A300	XML A300D1S11
XMJ A30074	XML A300E2S11
XMJ A3004	XML A300E1S11
XMJ A30075	XML A300N2S11
XMJ A30078	XML A300N2S11
XMJ A3005	XML A300N1S11
XMJ A3008	XML A300N1S11

Electromechanical pressure and vacuum switches

Nautilus®

Equivalent model references of pressure and vacuum switches XML for previous range switches XM2 JM, XMJ and XMG

Pressure and vacuum switches with fixed differential (continued)

XMJ A reference	Equivalent XML A reference	XMJ A reference	Equivalent XML A reference
XMJ A5007	XML A500D2S11	XMJ A50075	XML A500N2S11
XMJ A500	XML A500D1S11	XMJ A50078	XML A500N2S11
XMJ A50074	XML A500E2S11	XMJ A5005	XML A500N1S11
XMJ A5004	XML A500E1S11	XMJ A5008	XML A500N1S11

Pressure and vacuum switches with adjustable differential

XMJ B reference	Equivalent XML B reference	XMJ B reference	Equivalent XML B reference	XMJ B reference	Equivalent XML B reference	XMJ B reference	Equivalent XML B reference
XMJ B091	XML BM02V2S11	XMJ B0912	XML CM02V2S11	XMJ B0146 (1)	XML B020P2S11	XMJ B01462	(8)
XMJ B092	XML BM02V2S11	XMJ B0922	XML CM02V2S11	XMJ B0286 (6)	XML B020P2S11	XMJ B02862	(8)
XMJ B093	XML BM02V2S11 (8)	XMJ B0932	XML CM02V2S11	XMJ B0286 (6)	XML B035P2S11	XMJ B02862	(8)
XMJ B0911	XML BM02T2S11	XMJ B09112	XML CM02T2S11	XMJ B070	XML B070D2S11	XMJ B0702	XML C070D2S11
XMJ B0921	XML BM02T2S11	XMJ B09212	XML CM02T2S11	XMJ B140	XML B160D2S11	XMJ B1402	XML C160D2S11
XMJ B0917	XML BM02T2S11	XMJ B09172	XML CM02T2S11	XMJ B280	XML B300D2S11	XMJ B2802	XML C300D2S11
XMJ B0927	XML BM02T2S11	XMJ B09272	XML CM02T2S11	XMJ B500	XML B500D2S11	XMJ B5002	XML C500D2S11
XMJ B001 (4)	XML BL35R2S11	XMJ B0012 (4)	XML CL35R2S11	XMJ B0704	XML B070E2S11	XMJ B07042	XML C070E2S11
XMJ B001 (4)	XML BL35S2S11	XMJ B0012 (4)	XML CL35S2S11	XMJ B1404	XML B160E2S11	XMJ B14042	XML C160E2S11
XMJ B002	XML B002A2S11	XMJ B0022	XML C002A2S11	XMJ B2804	XML B300E2S11	XMJ B28042	XML C300E2S11
XMJ B003	XML B004A2S11	XMJ B0032	XML C004A2S11	XMJ B5004	XML B500E2S11	XMJ B50042	XML C500E2S11
XMJ B008	XML B010A2S11	XMJ B0082	XML C010A2S11	XMJ B0708	XML B070N2S11	XMJ B07082	XML C070N2S11
XMJ B014 (1)	XML B010A2S11	XMJ B0142 (1)	XML C010A2S11	XMJ B1408	XML B160N2S11	XMJ B14082	XML C160N2S11
XMJ B014 (1)	XML B020A2S11	XMJ B0142 (1)	XML C020A2S11	XMJ B2808	XML B300N2S11	XMJ B28082	XML C300N2S11
XMJ B028 (6)	XML B035A2S11	XMJ B0282 (6)	XML C035A2S11	XMJ B5008	XML B500N2S11	XMJ B50082	XML C500N2S11
XMJ B028 (6)	XML B035A2S11	XMJ B0282 (6)	XML C035A2S11	XMJ B0701 (4)	XML B070D2S11	XMJ B07012 (4)	XML C070D2S11
XMJ B0011 (4)	XML BL35R2S11	XMJ B00112 (4)	XML CL35R2S11	XMJ B0701 (4)	XML B070E2S11	XMJ B07012 (4)	XML C070E2S11
XMJ B0011 (4)	XML BL35S2S11	XMJ B00112 (4)	XML CL35S2S11	XMJ B1401 (4)	XML B160D2S11	XMJ B14012 (4)	XML C160D2S11
XMJ B0021	XML B002B2S11	XMJ B00212	XML C002B2S11	XMJ B1401 (4)	XML B160E2S11	XMJ B14012 (4)	XML C160E2S11
XMJ B0031	XML B004B2S11	XMJ B00312	XML C004B2S11	XMJ B2801 (4)	XML B300D2S11	XMJ B28012 (4)	XML C300D2S11
XMJ B0081	XML B010B2S11	XMJ B00812	XML C010B2S11	XMJ B2801 (4)	XML B300E2S11	XMJ B28012 (4)	XML C300E2S11
XMJ B0141 (1)	XML B010B2S11	XMJ B01412 (1)	XML C010B2S11	XMJ B5001 (4)	XML B500D2S11	XMJ B50012 (4)	XML C500D2S11
XMJ B0141 (1)	XML B020B2S11	XMJ B01412 (1)	XML C020B2S11	XMJ B5001 (4)	XML B500E2S11	XMJ B50012 (4)	XML C500E2S11
XMJ B0281 (6)	XML B020B2S11	XMJ B02812 (6)	XML C020B2S11	XMJ B0707	XML B070N2S11	XMJ B07072	XML C070N2S11
XMJ B0281 (6)	XML B035B2S11	XMJ B02812 (6)	XML C035B2S11	XMJ B1407	XML B160N2S11	XMJ B14072	XML C160N2S11
XMJ B0017	XML BL35S2S11	XMJ B00172	XML CL35S2S11	XMJ B2807	XML B300N2S11	XMJ B28072	XML C300N2S11
XMJ B0027	XML B002C2S11	XMJ B00272	XML C002C2S11	XMJ B5007	XML B500N2S11	XMJ B50072	XML C500N2S11
XMJ B0037	XML B004C2S11	XMJ B00372	XML C004C2S11	XMJ B0018	XML BS35R2S11	XMJ B00182	XML CS35R2S11
XMJ B0087	XML B010C2S11	XMJ B00872	XML C010C2S11	XMJ B0028	XML BS02B2S11	XMJ B00282	XML CS02B2S11
XMJ B0147 (1)	XML B010C2S11	XMJ B01472 (1)	XML C010C2S11	XMJ B0038	XML BS04B2S11	XMJ B00382	XML CS04B2S11
XMJ B0147 (1)	XML B020C2S11	XMJ B01472 (1)	XML C020C2S11	XMJ B0088	XML BS10A2S11 (7)	XMJ B00882	XML CS10A2S11 (7)
XMJ B0287 (6)	XML B020C2S11	XMJ B02872 (6)	XML C020C2S11	XMJ B0148 (1)	XML BS10A2S11 (7)	XMJ B01482 (1)	XML CS10A2S11 (7)
XMJ B0287 (6)	XML B035C2S11	XMJ B02872 (6)	XML C035C2S11	XMJ B0148 (1)	XML BS20A2S11 (7)	XMJ B01482 (1)	XML CS20A2S11 (7)
XMJ B0016	XML BL35P2S11	XMJ B00162	(8)	XMJ B0120 (5) (4)	XML B070D2S11	XMJ B01202 (5) (4)	XML C070D2S11
XMJ B0026	XML BM05P2S11	XMJ B00262	(8)	XMJ B0120 (5) (4)	XML B070E2S11	XMJ B01202 (5) (4)	XML C070E2S11
XMJ B0036	XML BM05P2S11	XMJ B00362	(8)	XMJ B0120 (5) (4)	XML B160D2S11	XMJ B01202 (5) (4)	XML C160D2S11
XMJ B0086	XML B010P2S11	XMJ B00862	(8)	XMJ B0120 (5) (4)	XML B160E2S11	XMJ B01202 (5) (4)	XML C160E2S11
XMJ B0146 (1)	XML B010P2S11	XMJ B01462	(8)				

(1) Depending on required adjustment range, examples:

pressure < 8 bar = **XML A/B/C010**,
pressure > 8 bar = **XML A/B/C010**.

(2) Depending on required adjustment range, examples:

pressure < 18 bar = **XML A/B/C020**,
pressure > 18 bar = **XML A/B/C035**.

(3) Depending on required adjustment range, examples:

pressure < 32 bar = **XML A/B/C035**,
pressure > 32 bar = **XML A/B/C070**.

(4) Depending on fluid to be controlled.

(5) Depending on required adjustment range, examples:

pressure < 65 bar = **XML A/B/C070**,
pressure > 65 bar = **XML A/B/C160**.

(6) Depending on required adjustment range, examples:

pressure < 18 bar = **XML A/B/C020**,
pressure > 18 bar = **XML A/B/C035**.

(7) Temperature of fluid to be controlled limited to 70 °C.

(8) Please consult your Regional Sales Office.

Component materials of units in contact with fluid

This information will assist in checking the corrosion resistance of the pressure or vacuum switches in relation to the fluids controlled

Electromechanical pressure and vacuum switches

Nautilus® type XML

Pressure or vacuum switch reference	Component materials in contact with fluid							
	Zinc alloy	Stainless steel	Brass	Steel	Nitrile	PTFE	FPM, FKM	Aluminium
XML AM01V●●●●, XML ●M02V●●●●		(1)						
XML AM01T●●●●, XML ●M02T●●●●		(2)						
XML BM03R●●●●								
XML BM03S●●●●		(3)						
XML ●M05A●●●●		(1)						
XML ●M05B●●●●		(1)						
XML ●M05C●●●●		(1)						
XML BM05P●●●●		(1)						
XML BL05R●●●●								
XML BL05S●●●●		(3)						
XML ●L35R●●●●, XML ●S35R●●●●		(1)						
XML ●L35S●●●●		(3)						
XML BL35P●●●●		(1)						
XML ●001R●●●●		(1)						
XML ●001S●●●●		(3)						
XML B001P●●●●		(1)						
XML ●002A●●●●								
XML ●002B●●●●, XML ●S02B●●●●								
XML ●002C●●●●		(3)						
XML A004A●●●●								
XML A004B●●●●								
XML A004C●●●●		(2)						
XML A004P●●●●								

Materials in contact with fluid

(1) 1.4307 (AISI 316L)

(2) 1.4404 (AISI 316L)

(3) 1.4305 (AISI 303)

Component materials of units in contact with fluid

This information will assist in checking the corrosion resistance of the pressure or vacuum switches in relation to the fluids controlled

Electromechanical pressure and vacuum switches

Nautilus® type XML

Pressure switch reference	Component materials in contact with fluid							
	Zinc alloy	Stainless steel	Brass	Steel	Nitrile	PTFE	FPM, FKM	Aluminium
XML B004A●●●●								
XML ●004B●●●●, XML ●S04B●●●●								
XML ●004C●●●●		(3)						
XML ●010A●●●●								
XML ●010B●●●●								
XML ●010C●●●●		(2)						
XML ●010P●●●●, XML ●S10A●●●●								
XML ●020A●●●●, XML ●035A●●●●								
XML ●020B●●●●, XML ●035B●●●●								
XML ●020C●●●●, XML ●035C●●●●		(2)						
XML ●020P●●●●, XML ●035P●●●●, XML ●S20A●●●●								
XML ●070D●●●●, XML ●160D●●●●								
XML ●070E●●●●, XML ●160E●●●●		(4)						
XML ●070N●●●●, XML ●160N●●●●		(5)						
XML ●300D●●●●								
XML ●300E●●●●		(4)						
XML ●300N●●●●		(5)						
XML ●500D●●●●								
XML ●500E●●●●								
XML ●500N●●●●4		(5)						

Materials in contact with fluid

(2) 1.4404 (AISI 316L)

(3) 1.4305 (AISI 303)

(4) 1.4404 (AISI 316L) + 1.4462

(5) 1.4404 (AISI 316L) + 1.4305 (AISI 303)

Presentation

Pressure switches type ACW and ADW are switches for control circuits, with an adjustable differential.

Pressure switches type ACW are used to control the pressure of air, oils and other non corrosive fluids, up to 131 bar.

Pressure switches type ADW are used to control the pressure of oils (including synthetic), up to 340 bar.

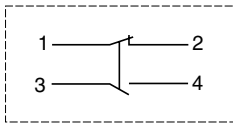
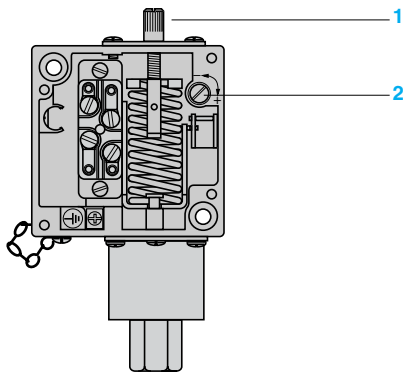
Setting, operating principle

Pressure switches type ACW

The switching point on falling pressure (low point - PB) is adjusted using screw **1**.

The switching point on rising pressure (high point - PH) is made by adjusting screw **2**. This sets the differential between the low and high points, giving a switching point on rising pressure of the displayed low point setting plus the differential setting.

The two adjustments are completely independent.



Contact block operation

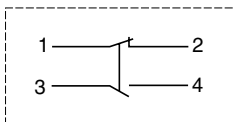
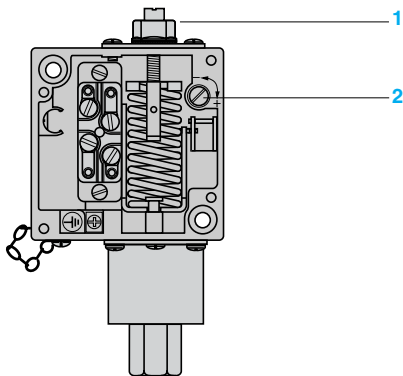
When the rising pressure reaches the high point setting (low point setting + differential setting), contact B (1-2) opens and contact A (3-4) closes. The contacts remain actuated until the pressure falls back to the low point setting.

Pressure switches type ADW

The switching point on rising pressure (high point - PH) is adjusted using screw **1**.

The switching point on falling pressure (low point - PB) is made by adjusting screw **2**. This sets the differential between the high and low points, giving a switching point on falling pressure of the displayed high point setting minus the differential setting.

The two adjustments are completely independent.



Contact block operation

When the rising pressure reaches the high point setting, contact B (1-2) opens and contact A (3-4) closes. The contacts remain actuated until the pressure falls back to the low point setting (high point setting - differential setting).

Environmental characteristics				
Pressure switch type		ACW (bellows operated)	ADW (piston operated)	
Conformity to standards		CE, IEC/EN 60947-5-1		
Product certifications		CSA, UL (Recognized)		
Protective treatment		"TC"		
Materials		Zinc alloy case Phosphor bronze bellows	Zinc alloy case Pressure switches with drainage hole: Buna N diaphragm, steel piston, cast iron cylinder Pressure switches with Quad-Ring piston seal: Buna N diaphragm, Teflon and Viton seal, stainless steel piston and cylinder	
Ambient air temperature (for operation)	°C	- 56...+ 85	- 30...+ 85	
Fluids controlled		Air, oils and other non corrosive fluids, from - 73 to + 125 °C	Oils and other fluids, from - 25 to + 120 °C (for ADW 5, 6, 7S1, 25, 26, 27S1) Oils (including synthetic) only, from - 30 to + 125 °C (for ADW 3, 4, 7, 23, 24, 27)	
Degree of protection		IP 65 conforming to IEC/EN 60529		
Fluid connection		G 1/4 (BSP female) conforming to NF E 03-005, ISO 228	G 3/8 (BSP female) conforming to NF E 03-005, ISO 228	
Electrical connection		Terminals. 1 tapped entry for n° 13 (DIN Pg 13.5) cable gland		
Contact block characteristics				
Rated operational current	Category AC-15	Ue 24 V 110 V 220 V 500 V	1 C/O single-pole pressure switches Ie 5 A 5 A 3 A 1.4 A	2 C/O single-pole pressure switches Ie 3 A 3 A 1.5 A 0.7 A
	Category DC-13	Ue 24 V 110 V 220 V 500 V 600 V	Ie 5 A 0.5 A 0.25 A 0.10 A 0.06 A	Ie 1.5 A 0.25 A — — —
Short-circuit protection		10 A cartridge fuse type gG		
Connection		Screw terminals Minimum clamping capacity: 1 x 1 mm² Maximum clamping capacity: 2 x 2.5 mm²		

Electromechanical pressure switches
For control circuits, type ACW
Sizes 0.70 to 131 bar (10.15 to 1900 psi)
Adjustable differential, for regulation between 2 thresholds
Fluid connection 1/4" BSP

Pressure switches type ACW | Bellows operated



Adjustable range of switching point (PB) (Falling pressure)	0.07...0.70 bar (1.01...10.15 psi)	0.07...1.4 bar (1.01...20.3 psi)	0.07...5.2 bar (1.01...75.4 psi)	0.07...7.6 bar (1.01...110.2 psi)
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References

Switches with 1 C/O single-pole contact				
Fluids controlled	Air, oils and other non corrosive fluids, from - 73 °C to + 125 °C (1)	ACW 3M129012	ACW 4M129012	ACW 5M129012
Weight (kg)	1.750		1.550	

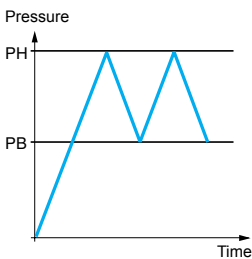
Switches with 2 C/O single-pole contacts				
Fluids controlled	Air, oils and other non corrosive fluids, from - 73 °C to + 125 °C (1)	ACW 23M129012	ACW 24M129012	ACW 25M129012
Weight (kg)	1.750		1.550	

Complementary characteristics not shown under general characteristics (page 6/131)

Possible differential (add to PB to give PH)	1 C/O switches	Min.	0.04 bar (0.58 psi)	0.10 bar (1.45 psi)	0.30 bar (4.35 psi)	0.50 bar (7.25 psi)
		Max.	0.34 bar (4.93 psi)	0.40 bar (5.8 psi)	1 bar (14.5 psi)	2 bar (29 psi)
	2 C/O switches	Min.	0.05 bar (0.73 psi)	0.14 bar (2.03 psi)	0.41 bar (5.95 psi)	0.9 bar (13.05 psi)
		Max.	0.48 bar (6.96 psi)	0.70 bar (10.15 psi)	1.4 bar (20.3 psi)	2.8 bar (40.6 psi)
Maximum permissible pressure			2 bar (29 psi)		7 bar (101.5 psi)	17 bar (246.5 psi)
Mechanical life			1 x 10 ⁶ operating cycles (average value, depending on application)			
Cable entry			1 entry tapped for n° 13 cable gland, conforming to NF C 68-300 (DIN Pg 13.5). Clamping capacity 9 to 13 mm			

(1) See "Component materials of units in contact with the fluid", page 6/131.

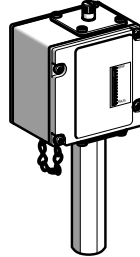
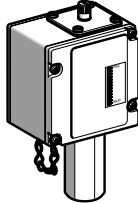
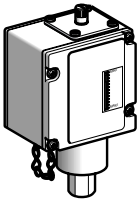
Operating curve | Contact block connections



— Adjustable value

Other versions	Pressure switches with alternative tapped cable entries: ISO, NPT, etc. Please consult your Regional Sales Office.
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Bellows operated



1.4...12 bar (20.3...174 psi)	0.7...18 bar (10.15...261 psi)	0.7...21 bar (10.15...304.5 psi)	5.2...34 bar (75.4...493 psi)	10...69 bar (145...1000 psi)	24...131 bar (348...1900 psi)
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References

Switches with 1 C/O single-pole contact

ACW 8M129012	ACW 9M129012	ACW 2M129012	ACW 6M129012	ACW 7M129012	ACW 10M129012
1.550		2.100			

Switches with 2 C/O single-pole contacts

ACW 28M129012	ACW 29M129012	ACW 22M129012	ACW 26M129012	ACW 27M129012	ACW 20M129012
1.550		2.100			

Complementary characteristics not shown under general characteristics (page 6/131)

0.70 bar (10.15 psi)	1 bar (14.5 psi)	1.7 bar (24.7 psi)	3.4 bar (49.3 psi)	5.9 bar (85.6 psi)	11 bar (159.5 psi)
2 bar (29 psi)	1.7 bar (24.7 psi)	8.6 bar (124.7 psi)	8.3 bar (120.4 psi)	10 bar (145 psi)	21 bar (304.5 psi)
1 bar (14.5 psi)	1.6 bar (23.2 psi)	2.4 bar (34.8 psi)	5.9 bar (85.6 psi)	9.3 bar (134.9 psi)	17 bar (246.5 psi)
2.8 bar (40.6 psi)	2.4 bar (34.8 psi)	10 bar (145 psi)	11 bar (159.5 psi)	14 bar (203 psi)	24 bar (348 psi)
17 bar (246.5 psi)	20 bar (290 psi)	41 bar (549.5 psi)	140 bar (2030 psi)	140 bar (2030 psi)	175 bar (2538 psi)

1 x 10⁶ operating cycles (average value, depending on application)

1 entry tapped for n° 13 cable gland, conforming to NF C 68-300 (DIN Pg 13.5).
Clamping capacity 9 to 13 mm

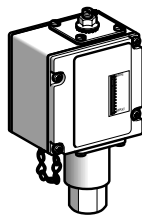
Other versions

Pressure switches with alternative tapped cable entries: ISO, NPT, etc.
Please consult your Regional Sales Office.

Electromechanical pressure switches
For control circuits, type ADW
Sizes 69 to 340 bar (1000 to 4930 psi)
Adjustable differential, for regulation between 2 thresholds
Fluid connection 3/8" BSP

Pressure switches type ADW

Piston operated, with drainage hole (1)



Adjustable range of switching point (PH) (Rising pressure)	9.3...69 bar (135...1000 psi)	28...210 bar (406...3045 psi)	38...340 bar (551...4930 psi)
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References

Switches with 1 C/O single-pole contact

Fluids controlled	Oils (including synthetic), from - 30 °C to + 125 °C (2) (3)	ADW 3M129012	ADW 4M129012	ADW 7M129012
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Weight (kg)	1.880
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Switches with 2 C/O single-pole contacts

Fluids controlled	Oils (including synthetic), from - 30 °C to + 125 °C (2) (3)	ADW 23M129012	ADW 24M129012	ADW 27M129012
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Weight (kg)	1.880
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Complementary characteristics not shown under general characteristics (page 6/131)

Possible differential (subtract from PH to give PB)	1 C/O switches	Min.	2.4 bar (34.8 psi)	6.9 bar (100 psi)	8.6 bar (124.7 psi)
		Max.	9.3 bar (135 psi)	28 bar (406 psi)	38 bar (551 psi)
	2 C/O switches	Min.	3.1 bar (45 psi)	8.6 bar (124.7 psi)	14 bar (203 psi)
		Max.	14 bar (203 psi)	34 bar (493 psi)	41 bar (594.5 psi)

Maximum permissible pressure	690 bar (10 000 psi)
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Mechanical life	1 x 10 ⁶ operating cycles (average value, depending on application)
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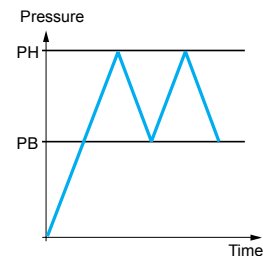
Cable entry	1 entry tapped for n° 13 cable gland, conforming to NF C 68-300 (DIN Pg 13.5). Clamping capacity 9 to 13 mm
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(1) Since it is normal for piston type pressure switches (not incorporating a piston seal) to have a slight oil leakage past the piston, a drain hole through the cylinder wall is incorporated. To avoid back pressure, this hole should never be plugged. If for any reason this oil leakage is undesirable, use pressure switches incorporating a Quad-Ring piston seal.

(2) See "Component materials of units in contact with the fluid", page 6/131.

(3) Only for control of group 2 fluids, in accordance with directive 97/23/EEC.

Operating curve



— Adjustable value

Contact block connections



Other versions	Pressure switches with alternative tapped cable entries: ISO, NPT, etc. Please consult your Regional Sales Office.
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Electromechanical pressure switches

For control circuits, type ADW

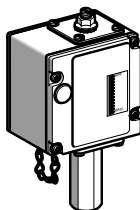
Sizes 69 to 340 bar (1000 to 4930 psi)

Adjustable differential, for regulation between 2 thresholds

Fluid connection 3/8" BSP

Pressure switches type ADW

Piston operated, with Quad-Ring piston seal



Adjustable range of switching point (PH)
(Falling pressure)

9.3...69 bar
(135...1000 psi)

28...210 bar
(406...3045 psi)

38...340 bar
(551...4930 psi)

References

Switches with 1 C/O single-pole contact

Fluids controlled Oils and other fluids,
from - 25 °C to + 120 °C (1) (2)

ADW 5M129012

ADW 6M129012

ADW 7S1M129012

Weight (kg)

1.880

Switches with 2 C/O single-pole contacts

Fluids controlled Oils and other fluids,
from - 25 °C to + 120 °C (1) (2)

ADW 25M129012

ADW 26M129012

ADW 27S1M129012

Weight (kg)

1.880

Complementary characteristics not shown under general characteristics (page 6/131)

Possible differential (subtract from PH to give PB)	1 C/O switches	Min./max. at low setting	4.8/6.9 bar (69.6/100 psi)	14/21 bar (203/304.5 psi)	19/25 bar (275.5/362.5 psi)
		Min./max. at high setting	8.6/10 bar (124.7/145 psi)	28/34 bar (406/493 psi)	38/45 bar (551/652.5 psi)
	2 C/O switches	Min./max. at low setting	6.2/7.9 bar (89.9/114.6 psi)	17/24 bar (246.5/348 psi)	22/28 bar (319/406 psi)
		Min./max. at high setting	10/12 bar (145/174 psi)	34/39 bar (493/565.5 psi)	44/50 bar (638/725 psi)

Maximum permissible pressure

690 bar (10 000 psi)

Mechanical life

1 x 10⁶ operating cycles (average value, depending on application)

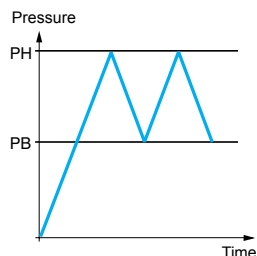
Cable entry

1 entry tapped for n° 13 cable gland, conforming to NF C 68-300 (DIN Pg 13.5).
Clamping capacity 9 to 13 mm

(1) See "Component materials of units in contact with the fluid", page 6/131.

(2) Only for control of group 2 fluids, in accordance with directive 97/23/EEC.

Operating curve



— Adjustable value

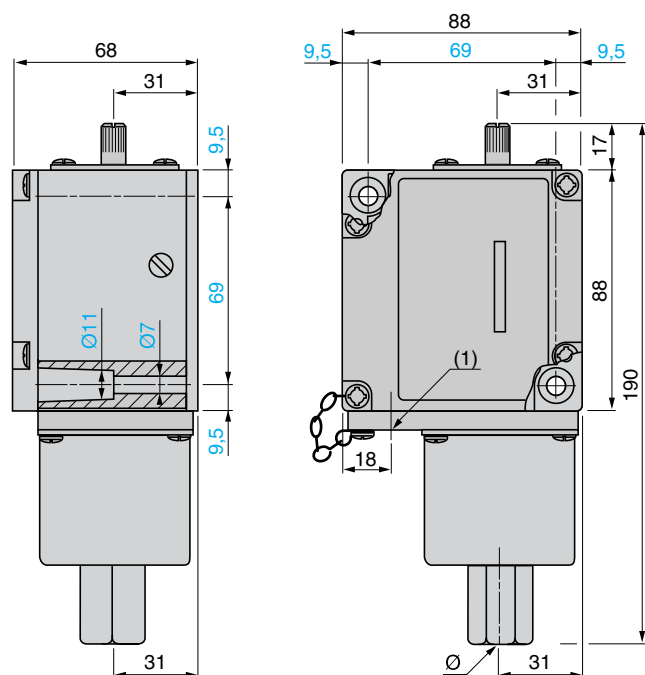
Contact block connections



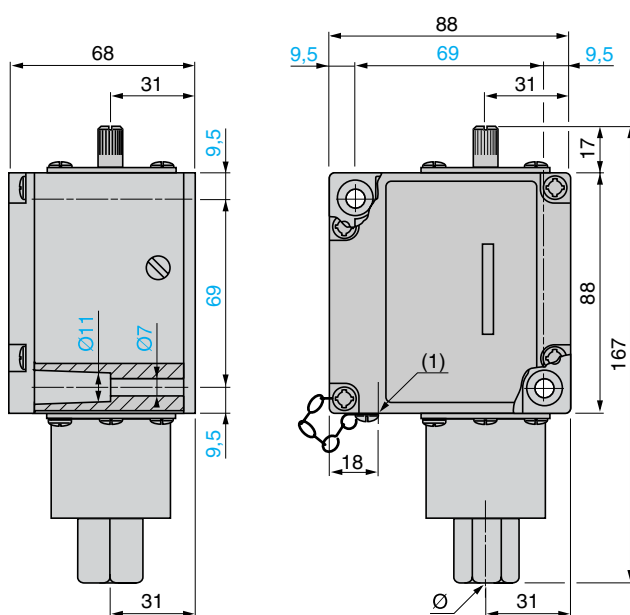
Other versions

Pressure switches with alternative tapped cable entries: ISO, NPT, etc.
Please consult your Regional Sales Office.

ACW 1, 5, 8, 9, 21, 25, 28, 29

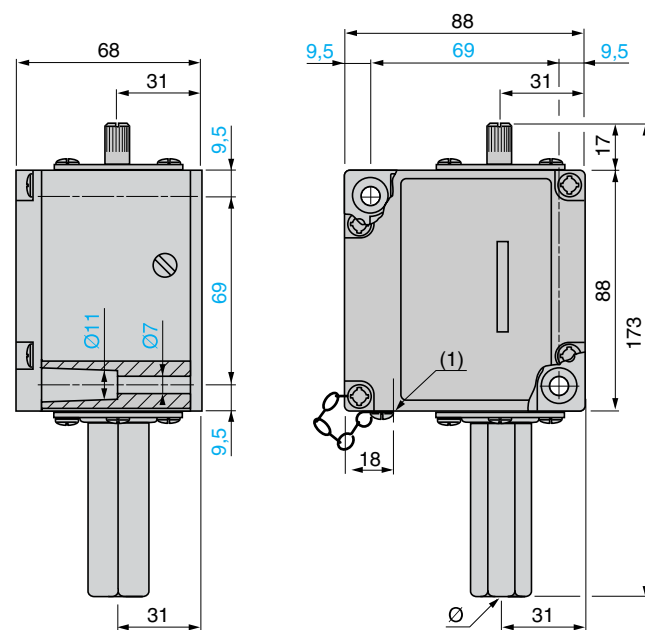


(1) Tapped entry for n° 13 cable gland
Ø: G 1/4 (BSP female)

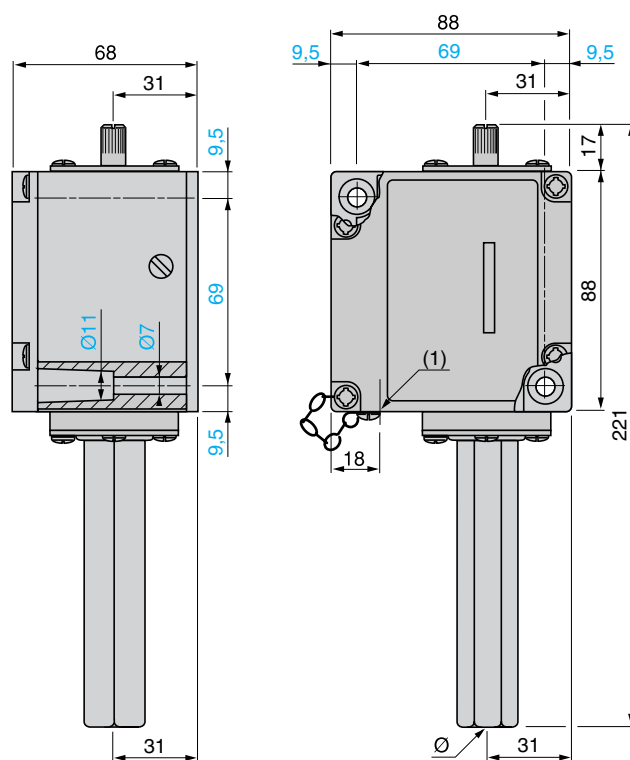


(1) Tapped entry for n° 13 cable gland
Ø: G 1/4 (BSP female)

ACW 6, 7, 10, 26, 27, 20

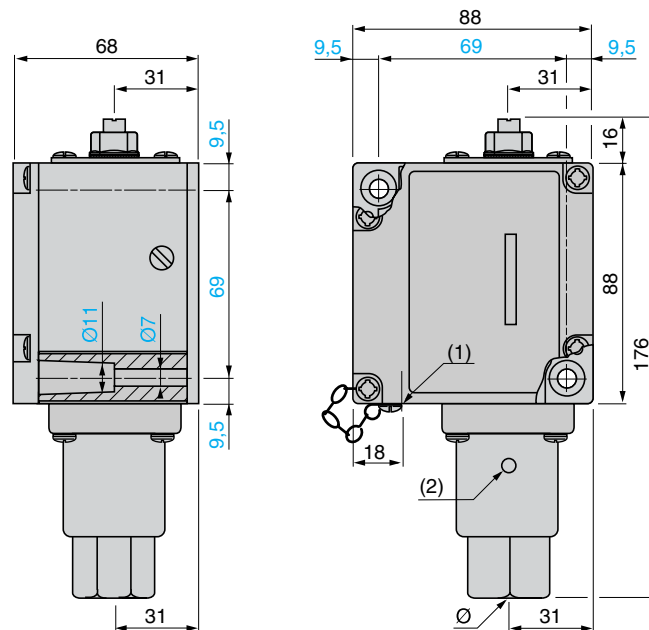


(1) Tapped entry for n° 13 cable gland
Ø: G 1/4 (BSP female)



(1) Tapped entry for n° 13 cable gland
Ø: G 1/4 (BSP female)

ADW 3, 4, 7, 23, 24, 27

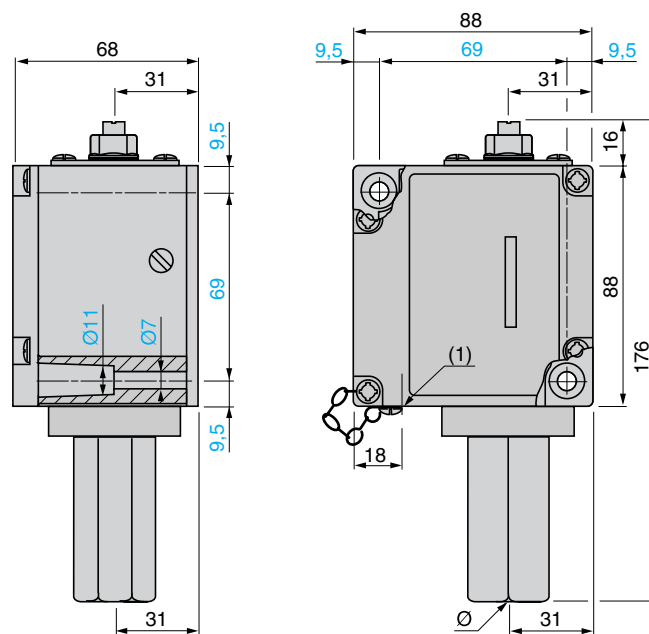


(1) Tapped entry for n° 13 cable gland

(2) Drainage hole, tapped G 1/8 (BSP female)

Ø: G 3/8 (BSP female)

ADW 5, 6, 7S1, 25, 26, 27S1



(1) Tapped entry for n° 13 cable gland

Ø: G 3/8 (BSP female)

Presentation

Pressure switches type XMX and XMA are switches for control circuits, with an adjustable differential.

They are used to control the pressure of water and air, up to 25 bar.

Equipment fitted to the various models

Location of setting screw

Pressure switches type XMX have an internal setting screw that is only accessible after removing the cover.

Pressure switches type XMA have an external setting screw that is accessible without removing the cover.

Case

Pressure switches type XMX have a black opaque case.

Pressure switches type XMA can have a transparent case or a black opaque case.

Setting

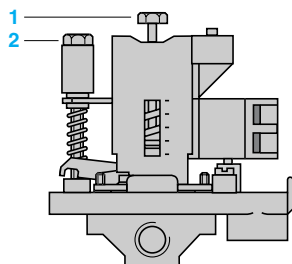
When setting pressure switches XMX or XMA, adjust the switching point on rising pressure (PH) first and then the switching point on falling pressure (PB).

Switching point on rising pressure

The switching point on rising pressure (PH) is set by adjusting screw-nut **1**.

Switching point on falling pressure

The switching point on falling pressure (PB) is set by adjusting screw-nut **2**.



Environmental characteristics		
Conformity to standards		CE, IEC/EN 60947-5-1
Product certifications		UL, CSA, ccc
Protective treatment		"TC"
Ambient air temperature	°C	For operation: - 25...+ 70 for 6 and 25 bar versions - 25...+ 55 for 12 bar versions For storage: - 40...+ 70
Fluids controlled	°C	Air, fresh water, sea water: 0...+ 70 °C for 6 and 25 bar versions 0...+ 55 °C for 12 bar versions
Materials		Case: polycarbonate impregnated with Lexan 500R fibreglass (black opaque cover) or polycarbonate impregnated with Lexan 123 fibreglass (transparent cover) Component materials in contact with fluid: chromated zinc alloy (fluid entry), canvas covered nitrile (diaphragm)
Operating position		All positions
Electric shock protection		Class I conforming to IEC 536
Degree of protection		IP 54 conforming to IEC/EN 60529
Operating rate	Op. cycles/h	600
Repeat accuracy		< 3.5%
Fluid connection		G 1/4 or 4 x G 1/4 (BSP female) conforming to NF E 03-005, ISO 228
Electrical connection		Terminals 2 tapped entries for n° 13 (DIN Pg 13.5) cable gland
Contact block characteristics		
Rated operational characteristics		~ AC-15, B300 (Ue = 240 V, Ie = 1.5 A; Ue = 120 V, Ie = 3 A) --- DC-13, R300 (Ue = 250 V, Ie = 0.1 A)
Rated insulation voltage	V	Ui = 500 conforming to IEC/EN 60947-1
Rated impulse withstand voltage	kV	U imp = 6 conforming to IEC/EN 60947-1
Type of contacts		1 C/O single-pole contact, snap action
Terminal referencing		Conforming to CENELEC EN 50013
Short-circuit protection		10 A cartridge fuse type gG (gl)
Connection		Screw clamp terminals Minimum clamping capacity: 1 x 1 mm ² Maximum clamping capacity: 2 x 2.5 mm ²
Electrical durability		a.c. supply 50/60 Hz, Ith = 10 A Inductive circuit, utilisation category AC-15, 3 A/240 V: 1 million operating cycles

Electromechanical pressure switches

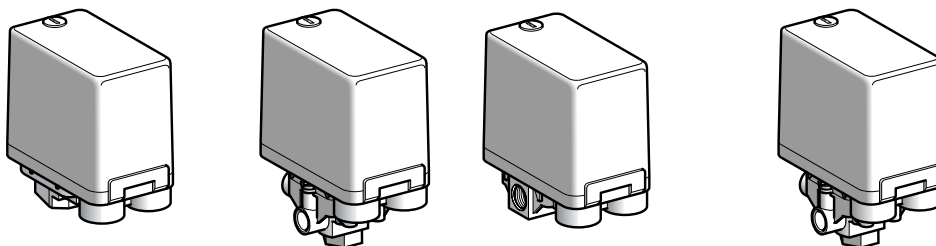
For control circuits, type XMX

Sizes 6 to 25 bar (87 to 362.5 psi)

Adjustable differential, for regulation between 2 thresholds

Switches with 1 C/O single-pole contact

Pressure switches type XMX (internal setting screw)



Adjustable range of switching point (PH) (Rising pressure)	1...6 bar (14.5...87 psi)	1.3...12 bar (18.85...174 psi)	3.5...25 bar (50.75...362.5 psi)	1...6 bar (14.5...87 psi)	1.3...12 bar (18.85...174 psi)	3.5...25 bar (50.75...362.5 psi)
Fluid connection	G 1/4 (BSP female)			4 x G 1/4 (BSP female)		

References

Switches with black opaque cover

Fluids controlled	Air, fresh water, sea water (1)	XMX A06L2135	XMX A12L2135	XMX A25L2135	XMX A06L2435	XMX A12L2435	XMX A25L2435
Weight (kg)		0.430		0.650	0.430		0.650

Complementary characteristics not shown under general characteristics (page 6/139)

Possible differential (subtract from PH to give PB)	Min. at low setting	0.8 bar (11.6 psi)	1 bar (14.5 psi)	3.4 bar (49.3 psi)	0.8 bar (11.6 psi)	1 bar (14.5 psi)	3.4 bar (49.3 psi)
	Min. at high setting	1.2 bar (17.4 psi)	1.7 bar (24.6 psi)	4.5 bar (65.2 psi)	1.2 bar (17.4 psi)	1.7 bar (24.6 psi)	4.5 bar (65.2 psi)
	Max. at high setting	4.2 bar (60.9 psi)	8.4 bar (121.8 psi)	20 bar (290 psi)	4.2 bar (60.9 psi)	8.4 bar (121.8 psi)	20 bar (290 psi)
Maximum permissible pressure	Per cycle	7.5 bar (108.7 psi)	15 bar (217.5 psi)	31.25 bar (453.1 psi)	7.5 bar (108.7 psi)	15 bar (217.5 psi)	31.25 bar (453.1 psi)
	Accidental	13.5 bar (195.7 psi)	27 bar (391.5 psi)	56.25 bar (815.6 psi)	13.5 bar (195.7 psi)	27 bar (391.5 psi)	56.25 bar (815.6 psi)
Destruction pressure		30 bar (435 psi)		100 bar (1450 psi)	30 bar (435 psi)		100 bar (1450 psi)
Mechanical life		1 x 10 ⁶ operating cycles					
Cable entry		2 entries tapped for n° 13 cable gland, conforming to NF C 68-300 (DIN Pg 13.5)					
Pressure switch type		Diaphragm					

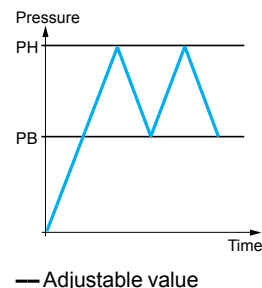
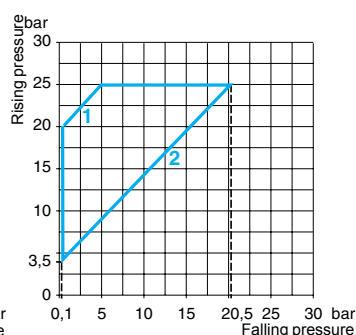
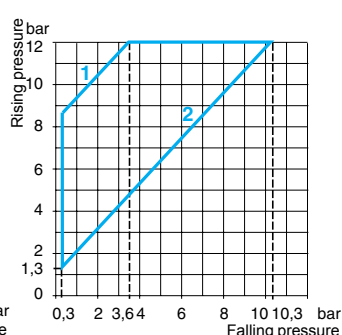
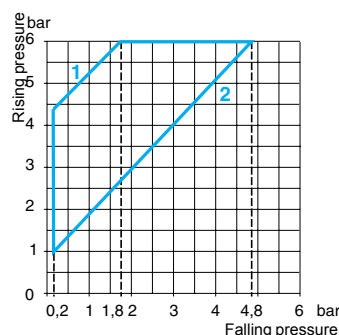
(1) Component materials of units in contact with the fluid, see page 6/139.

Operating curves

XMX A06.....

XMX A12.....

XMX A25.....



- 1 Maximum differential
- 2 Minimum differential

- 1 Maximum differential
- 2 Minimum differential

- 1 Maximum differential
- 2 Minimum differential

Connections



Other versions

Pressure switches with alternative tapped cable entries: ISO, NPT, etc.
Please consult your Regional Sales Office.

Electromechanical pressure switches

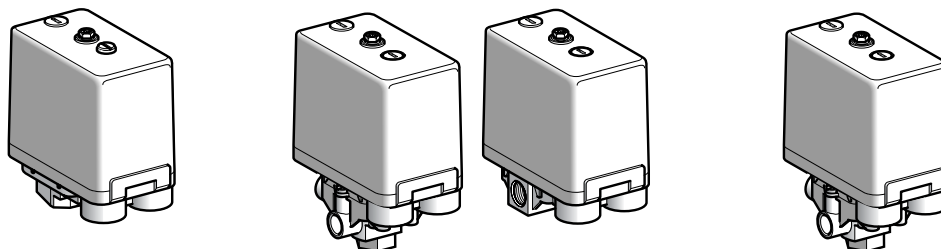
For control circuits, type XMA

Sizes 6 to 25 bar (87 to 362.5 psi)

Adjustable differential, for regulation between 2 thresholds

Switches with 1 C/O single-pole contact

Pressure switches type XMA (external setting screw)



Adjustable range of switching point (PH) (Rising pressure)	1...6 bar (14.5...87 psi)	1.3...12 bar (18.85...174 psi)	3.5...25 bar (50.75...362.5 psi)	1...6 bar (14.5...87 psi)	1.3...12 bar (18.85...174 psi)	3.5...25 bar (50.75...362.5 psi)
Fluid connection	G 1/4 (BSP female)			4 x G 1/4 (BSP female)		

References

Switches with black opaque cover

Fluids controlled	Air, fresh water, sea water (1)	XMA H06L2135	XMA H12L2135	XMA H25L2135	XMA H06L2435	XMA H12L2435	XMA H25L2435
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Switches with transparent cover

Fluids controlled	Air, fresh water, sea water (1)	XMA V06L2135	XMA V12L2135	XMA V25L2135	XMA V06L2435	XMA V12L2435	XMA V25L2435
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Weight (kg)	0.430		0.650	0.430		0.650
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Complementary characteristics not shown under general characteristics (page 6/139)

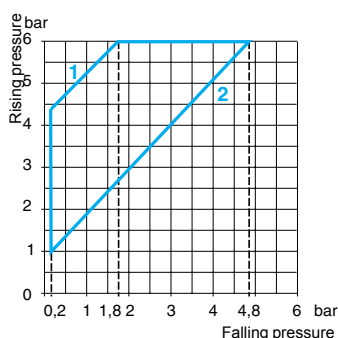
Possible differential (subtract from PH to give PB)	Min. at low setting	0.8 bar (11.6 psi)	1 bar (14.5 psi)	3.4 bar (49.3 psi)	0.8 bar (11.6 psi)	1 bar (14.5 psi)	3.4 bar (49.3 psi)
	Min. at high setting	1.2 bar (17.4 psi)	1.7 bar (24.6 psi)	4.5 bar (65.2 psi)	1.2 bar (17.4 psi)	1.7 bar (24.6 psi)	4.5 bar (65.2 psi)
	Max. at high setting	4.2 bar (60.9 psi)	8.4 bar (121.8 psi)	20 bar (290 psi)	4.2 bar (60.9 psi)	8.4 bar (121.8 psi)	20 bar (290 psi)
Maximum permissible pressure	Per cycle	7.5 bar (108.7 psi)	15 bar (217.5 psi)	31.25 bar (453.1 psi)	7.5 bar (108.7 psi)	15 bar (217.5 psi)	31.25 bar (453.1 psi)
	Accidental	13.5 bar (195.7 psi)	27 bar (391.5 psi)	56.25 bar (815.6 psi)	13.5 bar (195.7 psi)	27 bar (391.5 psi)	56.25 bar (815.6 psi)
Destruction pressure		30 bar (435 psi)		100 bar (1450 psi)	30 bar (435 psi)		100 bar (1450 psi)
Mechanical life		1 x 10 ⁶ operating cycles					
Cable entry		2 entries tapped for n° 13 cable gland, conforming to NF C 68-300 (DIN Pg 13.5)					
Pressure switch type		Diaphragm					

(1) Component materials of units in contact with the fluid, see page 6/139.

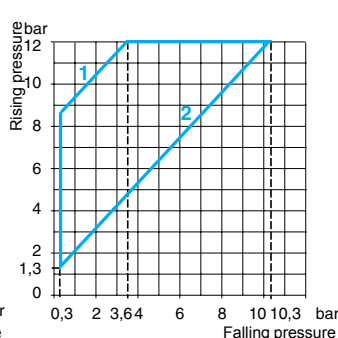
6

Operating curves

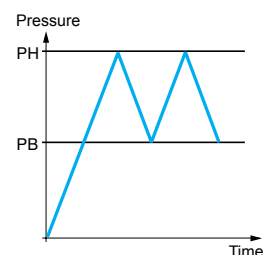
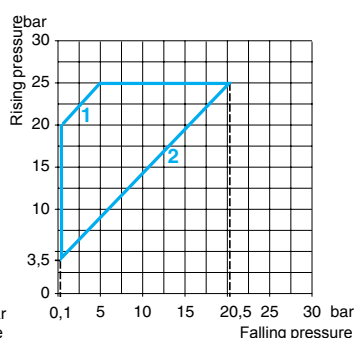
XMA 06.....



XMA 12.....



XMA 25.....



— Adjustable value

- 1 Maximum differential
- 2 Minimum differential

- 1 Maximum differential
- 2 Minimum differential

- 1 Maximum differential
- 2 Minimum differential

Connections



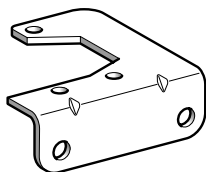
Other versions

Pressure switches with alternative tapped cable entries: ISO, NPT, etc.
Please consult your Regional Sales Office.

Electromechanical pressure switches

For control circuits, types XMX and XMA

Accessories and replacement parts



XMA ZL001



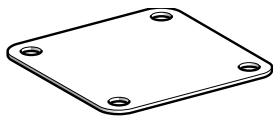
XML ZL003



DE9 PM1201



DE9 PM1202



XMP Z3●

Description	Reference	Weight kg
Fixing bracket	XMA ZL001	0.035

Knurled adjustment knob, Ø 36 mm fits over adjustment screws to facilitate setting	XML ZL003	0.010
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N° 13 plastic cable gland	With anti pull-out ring (for cable Ø 6...9 mm)	DE9 PM1201	0.005
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	Without anti pull-out ring (for cable Ø 6...9 mm)	DE9 PM1202	0.005
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	With anti pull-out ring (for cable Ø 9...12.5 mm)	DE9 PM1203	0.005
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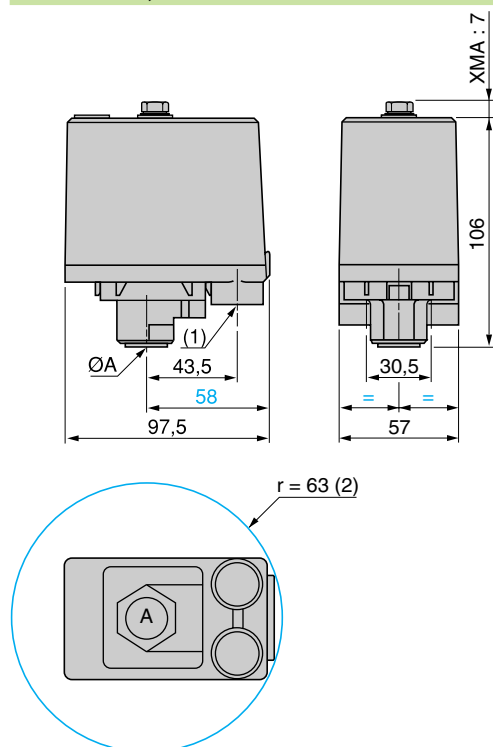
	Without anti pull-out ring (for cable Ø 9...12.5 mm)	DE9 PM1204	0.005
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Description	For pressure switch	Reference	Weight kg
Diaphragms	Size 6 bar	XMP Z31	0.005

	Size 12 bar	XMP Z32	0.005
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	Size 25 bar	XMP Z33	0.005
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XMX A06L2135, XMX A12L2135
XMA ●06L2135, XMA ●12L2135

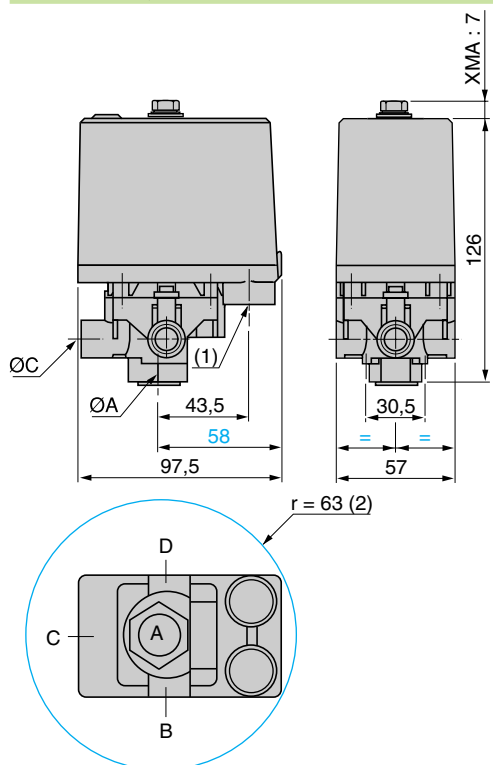


$\varnothing A = G \frac{1}{4}$ (BSP female)

(1) 2 tapped entries for n° 13 cable gland

(2) Minimum clearance zone for screwing-on pressure switch at point A

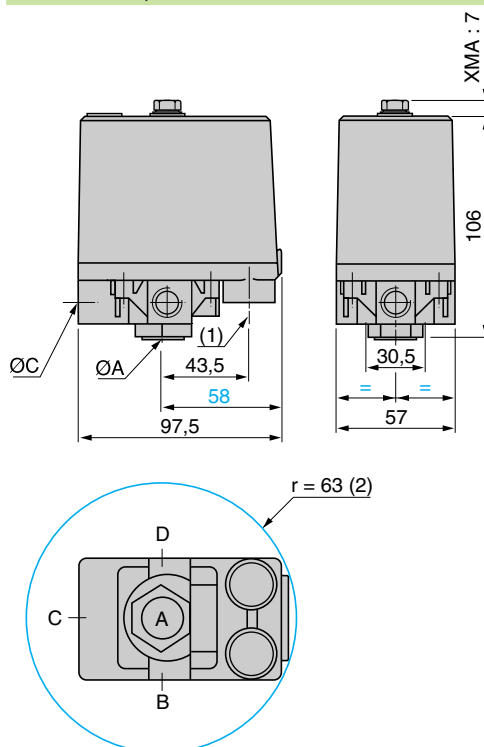
XMX A25L2135, XMX A25L2435
XMA ●25L2135, XMA ●25L2435



XM● ●25L2135: $\varnothing A$ only = $G \frac{1}{4}$ (BSP female)

XM● ●25L2435: $\varnothing A = \varnothing B = \varnothing C = \varnothing D = G \frac{1}{4}$ (BSP female)

XMX A06L2435, XMX A12L2435
XMA ●06L2435, XMA ●12L2435

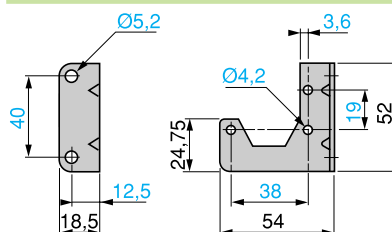


$\varnothing A = \varnothing B = \varnothing C = \varnothing D = G \frac{1}{4}$ (BSP female)

(1) 2 tapped entries for n° 13 cable gland

(2) Minimum clearance zone for screwing-on pressure switch at point A

Fixing bracket
XMA ZL001



(1) 2 tapped entries for n° 13 cable gland

(2) Minimum clearance zone for screwing-on pressure switch at point A

Presentation

Pressure switches types FTG, FSG and FYG are switches for power circuits. They are used to control the pressure of water, up to 10.5 bar. Pressure switches type FTG have a fixed differential and are for detection of a single threshold. Pressure switches type FSG and FYG have an adjustable differential and are for regulation between 2 thresholds.

Setting

Pressure switches with fixed differential (type FTG)

Only the switching point on rising pressure is adjustable.

Switching point on rising pressure

The switching point on rising pressure (PH) is set by adjusting screw-nut **1**.

Switching point on falling pressure

The switching point on falling pressure (PB) is not adjustable. The difference between the tripping and resetting points of the contact is the natural differential of the switch (contact differential, friction, etc.).

Pressure switches with adjustable differential (types FSG and FYG)

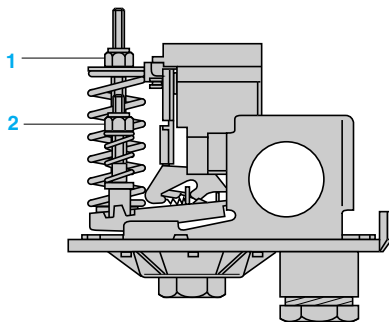
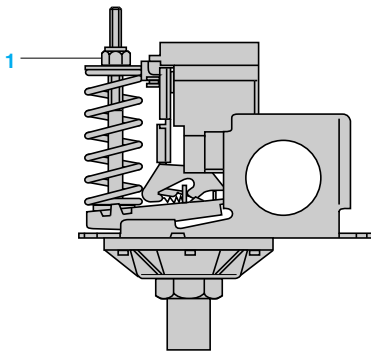
When setting the pressure switch, adjust the switching point on rising pressure (PH) first and then the switching point on falling pressure (PB).

Switching point on rising pressure

The switching point on rising pressure (PH) is set by adjusting screw-nut **1**.

Switching point on falling pressure

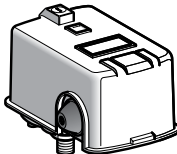
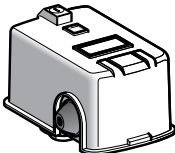
The switching point on falling pressure (PB) is set by adjusting screw-nut **2**.



Environmental characteristics								
Pressure switch type			FTG ●		FSG ● and FYG ●2		FSG 2NE	
Conformity to standards			CE, IEC/EN 60730					
Protective treatment			Standard version: “TC”					
Ambient air temperature		°C	For operation: 0...+ 45. For storage: - 30...+ 80					
Fluids controlled			Fresh water, sea water (0...+ 70 °C)					
Materials			Case: polystyrene, resistant to mechanical impact Component materials in contact with fluid: nylon 6/6, zinc plated steel, nitrile					
Operating position			All positions					
Electric shock protection			Class I conforming to IEC 536					
Degree of protection			IP 20 conforming to IEC/EN 60529				IP 65 conforming to IEC/EN 60529	
Operating rate		Op. cycles/h	600					
Repeat accuracy			< 2%					
Fluid connection			F●G 2, FYG ●2: G 1/4 (BSP female) conforming to NF E 03-005, ISO 228 F●G 9: R 1/4 (BSP male) conforming to NF E 03-004, ISO 7					
Electrical connection			Terminals. 2 cable entries, with grommet				Terminals. 2 entries incorporating n° 13 plastic cable gland (DIN Pg 13.5)	
Contact block characteristics								
Rated operational characteristics			Ie = 10 A, Ue = ~ 250 V conforming to EN 60730-1					
Power ratings of controlled motors	Voltage		~ 2-pole 1-phase	~ 2-pole 3-phase	~ 2-pole 1-phase	~ 2-pole 3-phase	~ 2-pole 1-phase	~ 2-pole 3-phase
	110 V		0.75 kW (1 HP)	1.1 kW (1.5 HP)	0.75 kW (1 HP)	1.1 kW (1.5 HP)	0.75 kW (1 HP)	1.1 kW (1.5 HP)
	230 V		1.1 kW (1.5 HP)	1.5 kW (2 HP)	1.5 kW (2 HP)	2.2 kW (3 HP)	1.5 kW (2 HP)	2.2 kW (3 HP)
	400 V		1.5 kW (2 HP)	1.5 kW (2 HP)	1.5 kW (2 HP)	2.2 kW (3 HP)	1.5 kW (2 HP)	2.2 kW (3 HP)
Rated insulation voltage		V	Ui = 500 conforming to IEC/EN 60947-1					
Rated impulse withstand voltage		kV	U imp = 6 conforming to IEC/EN 60947-1					
Type of contacts			One 2-pole 2 N/C (4 terminal) contact, snap action					
Short-circuit protection			20 A cartridge fuse type gG					
Connection			Screw clamp terminals. Clamping capacity, min: 1 x 1 mm², max: 2 x 2 mm²					
Electrical durability		Op. cycles	40 000 at an operating rate of 600 operating cycles/hour		100 000 at an operating rate of 600 operating cycles/hour			

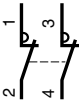
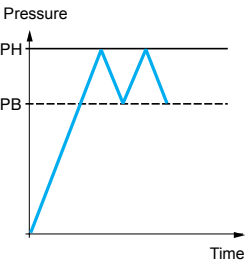
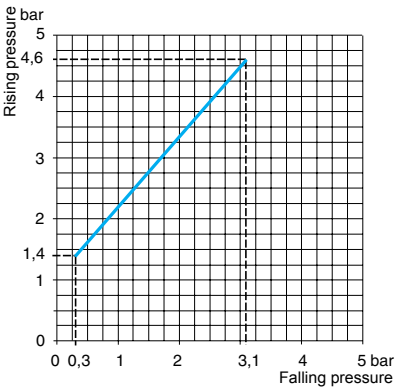
Electromechanical pressure switches

For power circuits, type FTG
Size 4.6 bar (66.7 psi), fixed differential, for detection of
a single threshold. Switches with 2-pole 2 N/C contact.
Degree of protection IP 20

Fluid connection		G 1/4 (BSP female)	R 1/4 (BSP male)
<div></div>			
Adjustable range of switching point (PH) (Rising pressure)		1.4...4.6 bar (20.3...66.7 psi)	
References			
Fluids controlled	Fresh water, sea water, from 0 °C to + 70 °C (1)	FTG 2	FTG 9
Weight (kg)		0.340	
Complementary characteristics not shown under general characteristics (page 6/145)			
Natural differential (subtract from PH to give PB)	At low setting	1.1 bar (15.95 psi)	
	At middle setting	1.3 bar (18.85 psi)	
	At high setting	1.5 bar (21.75 psi)	
Maximum permissible pressure	Per cycle	5.75 bar (83.38 psi)	
	Accidental	8 bar (116 psi)	
Destruction pressure		20 bar (290 psi)	
Mechanical life		4 x 10 ⁵ operating cycles	
Cable entry		2 cable entries, with grommet	
Pressure switch type		Diaphragm	

(1) Component materials of units in contact with the fluid, see page 6/145.

Operating curvesConnections

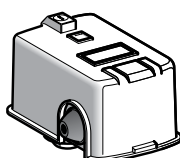
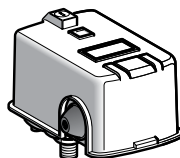


— Adjustable value
---- Non adjustable value

Electromechanical pressure switches

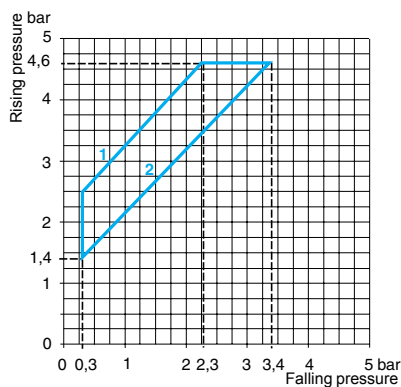
For power circuits, type FSG

Size 4.6 bar (66.7 psi), adjustable differential, for regulation between 2 thresholds. Switches with 2-pole 2 N/C contact. Degree of protection IP 20

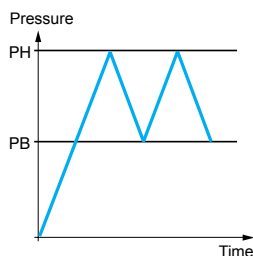
Fluid connection		G 1/4 (BSP female)	R 1/4 (BSP male)
			
Adjustable range of switching point (PH) (Rising pressure)		1.4...4.6 bar (20.3...66.7 psi)	
References			
Fluids controlled	Fresh water, sea water, from 0 °C to + 70 °C (1)	FSG 2	FSG 9
Weight (kg)	0.340		
Complementary characteristics not shown under general characteristics (page 6/145)			
Possible differential (subtract from PH to give PB)	Max. at low setting	2.1 bar (30.45 psi)	
	Max. at middle setting	2.2 bar (31.9 psi)	
	Max. at high setting	2.3 bar (33.35 psi)	
	Min. at low setting	1 bar (14.5 psi)	
	Min. at middle setting	1.1 bar (15.95 psi)	
	Min. at high setting	1.2 bar (17.4 psi)	
Maximum permissible pressure	Per cycle	5.75 bar (83.38 psi)	
	Accidental	8 bar (116 psi)	
Destruction pressure	20 bar (290 psi)		
Mechanical life	1 x 10 ⁶ operating cycles		
Cable entry	2 cable entries, with grommet		
Pressure switch type	Diaphragm		

(1) Component materials of units in contact with the fluid, see page 6/145.

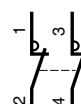
Operating curves



- 1 Maximum differential
- 2 Minimum differential



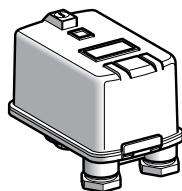
— Adjustable value



Electromechanical pressure switches

For power circuits, type FSG 2NE
Size 4.6 bar (66.7 psi), adjustable differential, for
regulation between 2 thresholds. Switches with 2-pole
2 N/C contact. Degree of protection IP 65

Fluid connection	G 1/4 (BSP female)
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Adjustable range of switching point (PH) (Rising pressure)	1.4...4.6 bar (20.3...66.7 psi)
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References

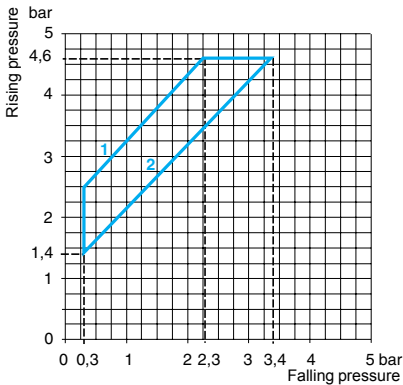
Fluids controlled	Fresh water, sea water, from 0 °C to + 70 °C (1)	FSG 2NE
Weight (kg)		0.360

Complementary characteristics not shown under general characteristics (page 6/145)

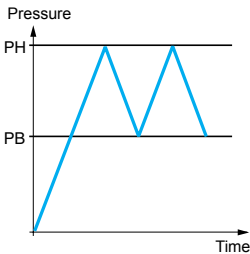
Possible differential (subtract from PH to give PB)	Max. at low setting	2.1 bar (30.45 psi)
	Max. at middle setting	2.2 bar (31.9 psi)
	Max. at high setting	2.3 bar (33.35 psi)
	Min. at low setting	1 bar (14.5 psi)
	Min. at middle setting	1.1 bar (15.95 psi)
	Min. at high setting	1.2 bar (17.4 psi)
Maximum permissible pressure	Per cycle	5.75 bar (83.38 psi)
	Accidental	8 bar (116 psi)
Destruction pressure		20 bar (290 psi)
Mechanical life		1 x 10 ⁶ operating cycles
Cable entry		2 entries incorporating n° 13 plastic cable gland, conforming to NF C 68-300 (DIN Pg 13.5). Clamping capacity 9 to 13 mm
Pressure switch type		Diaphragm

(1) Component materials of units in contact with the fluid, see page 6/145.

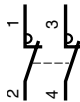
Operating curves



- 1 Maximum differential
- 2 Minimum differential



— Adjustable value



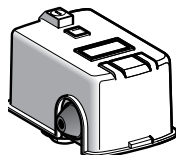
Electromechanical pressure switches

For power circuits, type FYG

Sizes 7 and 10.5 bar (101.5 and 152.3 psi), adjustable differential, for regulation between 2 thresholds. Switches with 2-pole 2 N/C contact. Degree of protection IP 20

Fluid connection

G 1/4 (BSP female)



Adjustable range of switching point (PH)
(Rising pressure)

2.8...7 bar (40.6...101.5 psi)

5.6...10.5 bar (81.2...152.3 psi)

References

Fluids controlled

Fresh water, sea water,
from 0 °C to +70 °C (1)

FYG 22

FYG 32

Weight (kg)

0.340

Complementary characteristics not shown under general characteristics (page 6/145)

Possible differential
(subtract from PH
to give PB)

Max. at low setting

2.3 bar (33.35 psi)

3 bar (43.5 psi)

Max. at middle setting

2.5 bar (36.25 psi)

3.2 bar (46.4 psi)

Max. at high setting

2.7 bar (39.15 psi)

3.4 bar (49.3 psi)

Min. at low setting

1.2 bar (17.4 psi)

1.9 bar (27.55 psi)

Min. at middle setting

1.4 bar (20.3 psi)

2.1 bar (30.45 psi)

Min. at high setting

1.6 bar (23.2 psi)

2.3 bar (33.35 psi)

Maximum permissible
pressure

Per cycle

8.75 bar (126.9 psi)

13 bar (188.5 psi)

Accidental

15 bar (217.5 psi)

15 bar (217.5 psi)

Destruction pressure

20 bar (290 psi)

20 bar (290 psi)

Mechanical life

1 x 10⁶ operating cycles

Cable entry

2 cable entries, with grommet

Pressure switch type

Diaphragm

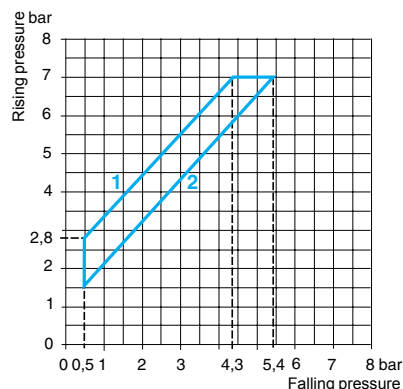
(1) Component materials of units in contact with the fluid, see page 6/145.

Operating curves

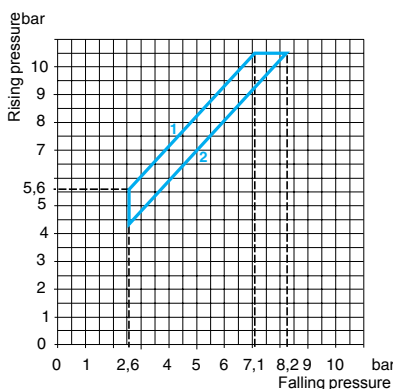
Connections

FYG 22

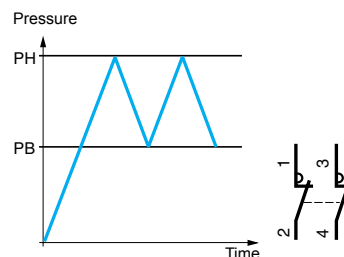
FYG 32



- 1 Maximum differential
- 2 Minimum differential



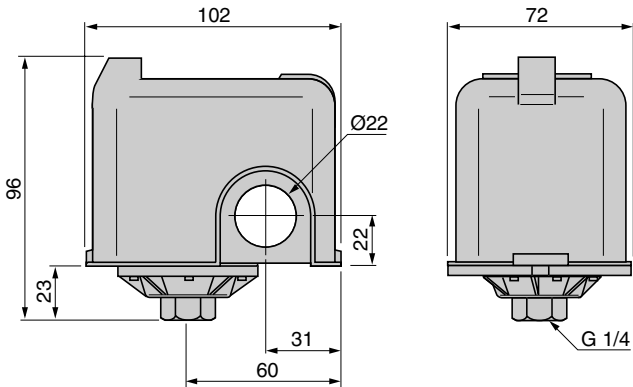
- 1 Maximum differential
- 2 Minimum differential



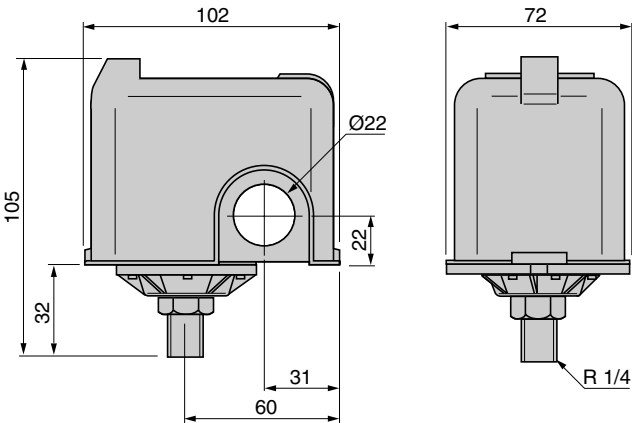
— Adjustable value

Dimensions

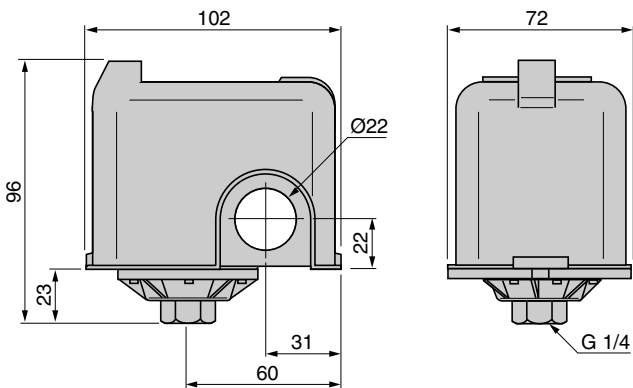
FTG 2



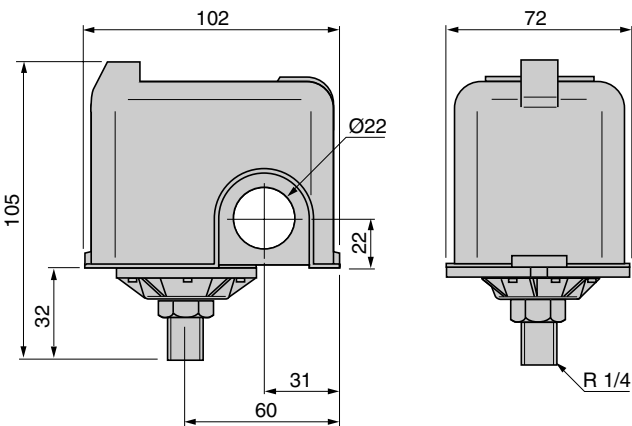
FTG 9



FSG 2

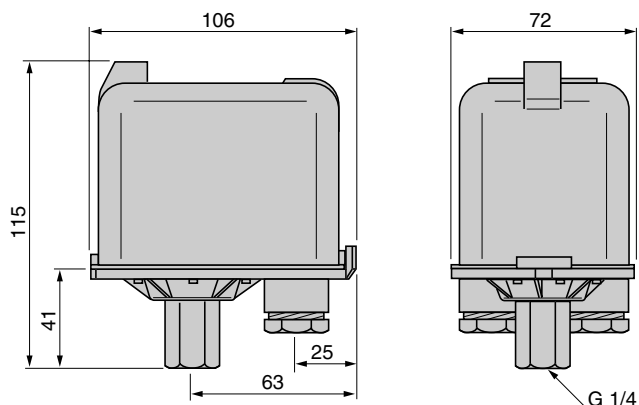


FSG 9

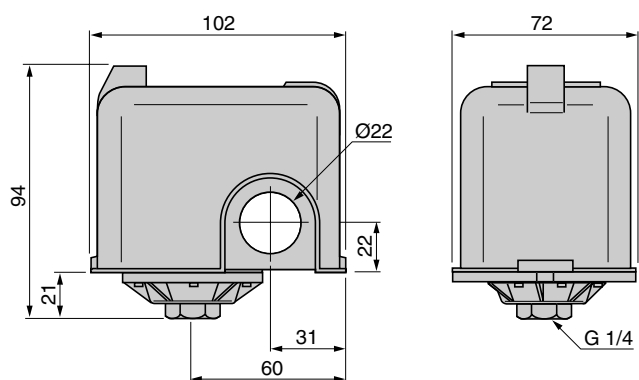


Dimensions (continued)

FSG 2NE



FYG 22, FYG 32



Presentation

Pressure switches type XMP are switches for power circuits (direct switching), with an adjustable differential.

They are used to control the pressure of water and air, up to 25 bar.

Equipment fitted to the various models

Case

Pressure switches type XMP, depending on the model, include:

■ 3 types case:

- bare case,
- case with On/Off knob (black): used as a switch for starting and stopping the installation,
- case with reset knob (yellow): necessary when the safety requirements of the system include tripping in the event of overpressure. Resetting is not automatic on return to normal pressure, and it can only be achieved by manually turning the "Reset" knob".

■ 2 levels of sealing:

- IP 54,
- IP 65.

Decompression valve

Depending on the model, 2 types of decompression valve can be fitted to pressure switches type XMP:

- Straight, instant connection, decompression valve (connection by Ø 6 mm plastic tube).
- Straight, olive connection, decompression valve (connection by Ø 6 mm plastic or metal tube).

Setting

When setting XMP pressure switches, adjust the switching point on rising pressure (PH) first and then the switching point on falling pressure (PB).

Switching point on rising pressure

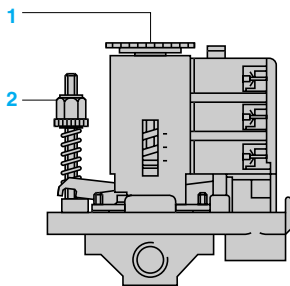
The switching point on rising pressure (PH) is set by adjusting the screw-nut or knurled knob **1**.

Tighten either the nut or knurled knob **1** to increase the high point switching value.

Switching point on falling pressure

The switching point on falling pressure is set by adjusting screw-nut **2**.

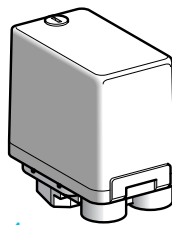
Tighten nut **2** to reduce the low point switching value (increase in differential).



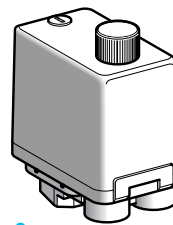
Environmental characteristics				
Conformity to standards		CE, IEC/EN 60947-4-1		
Ambient air temperature	°C	For operation: - 25...+ 70 For storage: - 40...+ 70		
Fluids controlled		Air, fresh water, sea water (0...+ 70 °C)		
Materials		Case: polyamide impregnated with fibreglass Component materials in contact with fluid: chromated zinc alloy (fluid entry), canvas covered nitrile (diaphragm)		
Operating position		All positions		
Vibration resistance		3 gn (10...500 Hz), conforming to IEC 68-2-6		
Shock resistance		50 gn, conforming to IEC 68-2-27		
Electric shock protection		Class I conforming to IEC 536		
Degree of protection		IP 54 conforming to IEC/EN 60529 or IP 65 for universal model		
Operating rate	Op. cycles/h	≤ 600		
Repeat accuracy		< 3.5%		
Fluid connection		G 1/4, 4 x G 1/4 or G 3/8 (BSP female) conforming to NF E 03-005, ISO 228		
Electrical connection		2 tapped entries for n° 13 (DIN Pg 13.5) cable gland		
Contact block characteristics				
Rated insulation voltage	V	Ui = 500 conforming to IEC/EN 60947-1		
Rated impulse withstand voltage	V	U imp = 6 kV conforming to IEC/EN 60 947-1		
Type of contacts		One 2-pole 2 N/C or 3-pole 3 N/C contact, snap action		
Resistance across terminals	mΩ	≤ 25 conforming to NF C 93-050 method A or IEC 255-7 category 3		
Terminal referencing		Conforming to CENELEC EN 50013		
Short-circuit protection		Cartridge fuse type Am		
Connection		Screw clamp terminals. Minimum clamping capacity: 2 x 4 mm²		
Electrical durability Operating rate: 600 operating cycles/hour Load factor: 0.4		Power	Number of operating cycles	
		kW	~ 400 V, 3-phase	~ 230 V, 3-phase
		1.5	1 000 000	600 000
		2.2	700 000	–
		3	500 000	–

Electromechanical pressure switches
Type XMP, IP 54
Size 6 bar (87 psi)
Adjustable differential, for regulation between 2 thresholds
Switches with 2-pole 2 N/C or 3-pole 3 N/C contact

Fluid connection	G 1/4 (BSP female)
------------------	--------------------



1



2

Adjustable range of switching point (PH) (Rising pressure)	1...6 bar (14.5...87 psi)	
Type of contact	2-pole 2 N/C	3-pole 3 N/C

References (1)

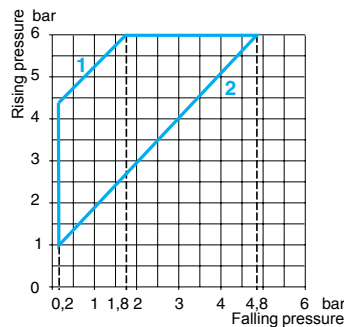
Switches without decompression valve		
Bare case 1	XMP A06B2131	XMP A06C2131
Case with reset knob 2	XMP B06B2131	–
Case with On/Off knob 2	XMP C06B2131	XMP C06C2131
Weight (kg)	0.430	
Switches with straight decompression valve, instant connection		
Bare case 1	XMP D06B2131	XMP D06C2131
Case with On/Off knob 2	XMP E06B2131	XMP E06C2131
Weight (kg)	0.450	

Complementary characteristics not shown under general characteristics (page 6/153)

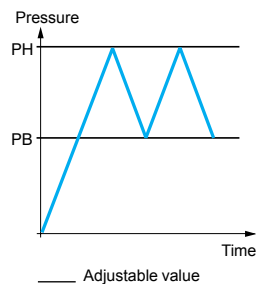
Possible differential (subtract from PH to give PB)	Min. at low setting	0.8 bar (11.6 psi)
	Min. at high setting	1.2 bar (17.4 psi)
	Max. at high setting	4.2 bar (60.9 psi)
Destruction pressure	30 bar (435 psi)	
Mechanical life	1 million operating cycles	
Cable entry	2 entries tapped for n° 13 cable gland, conforming to NF C 68-300 (DIN Pg 13.5)	
Pressure switch type	Diaphragm	

(1) References for individually packaged switches. Also available packaged in lots of 10. To order, add the letter C to the reference selected from above. Example: reference for lot of 10 pressure switches XMP A06B2131 in one package becomes XMP A06B2131C.

Operating curves

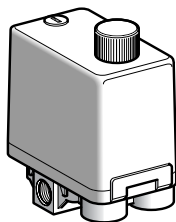


- 1 Maximum differential
2 Minimum differential

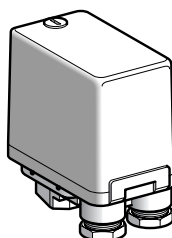


4 x G 1/4 (BSP female)

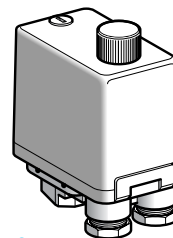
G 3/8 (BSP female)



2



1



2

1...6 bar (14.5...87 psi)

2-pole 2 N/C

3-pole 3 N/C

2-pole 2 N/C

3-pole 3 N/C

References (1)**Switches without decompression valve**

–	XMP A06B2242	XMP A06C2242
–	XMP B06B2242	–
–	XMP C06B2242	XMP C06C2242
–	0.430	

Switches with straight decompression valve, instant connection

–	XMP D06B2242	XMP D06C2242
XMP E06B2431	XMP E06C2431	XMP E06B2242
0.450		XMP E06C2242

Complementary characteristics not shown under general characteristics (page 6/153)

0.8 bar (11.6 psi)

1.2 bar (17.4 psi)

4.2 bar (60.9 psi)

30 bar (435 psi)

1 million operating cycles

2 entries tapped for n° 13 cable gland, conforming to NF C 68-300 (DIN Pg 13.5)

2 entries incorporating n° 13 plastic cable gland (DIN Pg 13.5)
Clamping capacity 9 to 13 mm

Diaphragm

Other versions

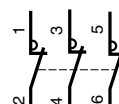
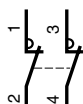
Pressure switches not listed above, comprising the equipment proposed for the choice of reference. Please consult your Regional Sales Office.

(1) References for individually packaged switches. Also available packaged in lots of 10. To order, add the letter **C** to the reference selected from above. Example: reference for lot of 10 pressure switches **XMP A06B2242** in one package becomes **XMP A06B2242C**.

Terminal connections

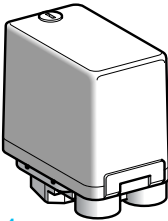
XMP ●●●B●●●●

XMP ●●●C●●●●

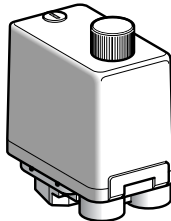


Electromechanical pressure switches
Type XMP, IP 54
Size 12 bar (174 psi)
Adjustable differential, for regulation between 2 thresholds
Switches with 2-pole 2 N/C or 3-pole 3 N/C contact

Fluid connection	G 1/4 (BSP female)
------------------	--------------------



1



2

Adjustable range of switching point (PH) (Rising pressure)	1.3...12 bar (18.85...174 psi)	
Type of contact	2-pole 2 N/C	3-pole 3 N/C

References (1)

Switches without decompression valve

Bare case 1	XMP A12B2131	XMP A12C2131
Case with reset knob 2	XMP B12B2131	—
Case with On/Off knob 2	XMP C12B2131	XMP C12C2131
Weight (kg)	0.430	

Switches with straight decompression valve, instant connection

Bare case 1	XMP D12B2131	XMP D12C2131
Case with On/Off knob 2	XMP E12B2131	XMP E12C2131
Weight (kg)	0.450	

Switches with straight decompression valve, olive connection

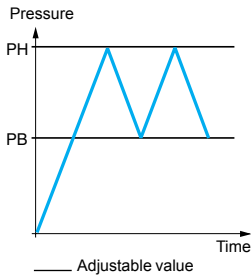
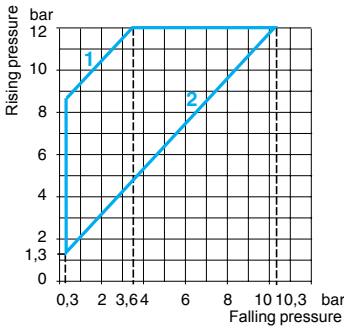
Case with On/Off knob 2	XMP R12B2131	XMP R12C2131
Weight (kg)	0.450	

Complementary characteristics not shown under general characteristics (page 6/153)

Possible differential (subtract from PH to give PB)	Min. at low setting	1 bar (14.5 psi)
	Min. at high setting	1.7 bar (24.6 psi)
	Max. at high setting	8.4 bar (121.8 psi)
Destruction pressure	30 bar (435 psi)	
Mechanical life	1 million operating cycles	
Cable entry	2 entries tapped for n° 13 cable gland, conforming to NF C 68-300 (DIN Pg 13.5)	
Pressure switch type	Diaphragm	

(1) References for individually packaged switches. Also available packaged in lots of 10. To order, add the letter C to the reference selected from above. Example: reference for lot of 10 pressure switches XMP A12B2131 in one package becomes XMP A12B2131C.

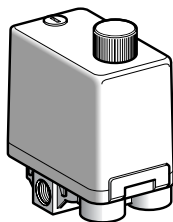
Operating curves



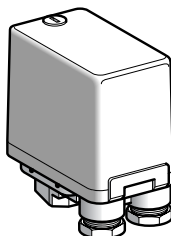
- 1 Maximum differential
- 2 Minimum differential

4 x G 1/4 (BSP female)

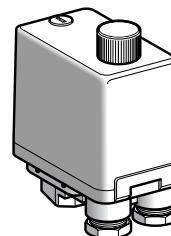
G 3/8 (BSP female)



2



1



2

1.3...12 bar (18.85...174 psi)

2-pole 2 N/C

3-pole 3 N/C

2-pole 2 N/C

3-pole 3 N/C

References (1)**Switches without decompression valve**

–	XMP A12B2242	XMP A12C2242
–	XMP B12B2242	–
–	XMP C12B2242	XMP C12C2242
–	0.430	

Switches with straight decompression valve, instant connection

–	XMP D12B2242	XMP D12C2242
XMP E12B2431	XMP E12C2431	XMP E12B2242
		XMP E12C2242

0.450

Switches with straight decompression valve, olive connection

–
–

Complementary characteristics not shown under general characteristics (page 6/153)

1 bar (14.5 psi)	
1.7 bar (24.6 psi)	
8.4 bar (121.8 psi)	
30 bar (435 psi)	
1 million operating cycles	
2 entries tapped for n° 13 cable gland, conforming to NF C 68-300 (DIN Pg 13.5)	2 entries incorporating n° 13 plastic cable gland (DIN Pg 13.5)
Diaphragm	Clamping capacity 9 to 13 mm

Other versions

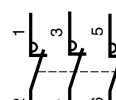
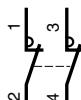
Pressure switches not listed above, comprising the equipment proposed for the choice of reference. Please consult your Regional Sales Office.

(1) References for individually packaged switches. Also available packaged in lots of 10. To order, add the letter **C** to the reference selected from above. Example: reference for lot of 10 pressure switches **XMP A12B2242** in one package becomes **XMP A12B2242C**.

Terminal connections

XMP ●●●B●●●●

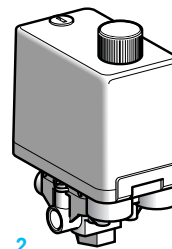
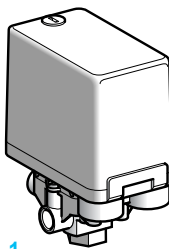
XMP ●●●C●●●●



Electromechanical pressure switches

Type XMP, IP 54
Size 25 bar (362.5 psi)
Adjustable differential, for regulation between 2 thresholds
Switches with 2-pole 2 N/C or 3-pole 3 N/C contact

Fluid connection G 1/4 (BSP female)



Adjustable range of switching point (PH)
(Rising pressure) 3.5...25 bar (50.75...362.5 psi)

Type of contact 2-pole 2 N/C

References (1)

Switches without decompression valve

Bare case 1 XMP A25B2131

Case with reset knob 2 XMP B25B2131

Case with On/Off knob 2 XMP C25B2131

Weight (kg) 0.650

Switches with straight decompression valve, olive connection

Case with On/Off knob 2 XMP R25B2131

Weight (kg) 0.670

Complementary characteristics not shown under general characteristics (page 6/153)

Possible differential (subtract from PH to give PB)
Min. at low setting 3.4 bar (49.3 psi)
Min. at high setting 4.5 bar (65.2 psi)
Max. at high setting 20 bar (290 psi)

Destruction pressure 100 bar (1450 psi)

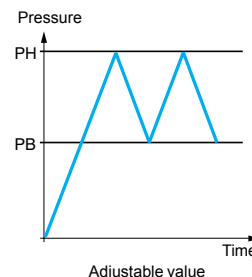
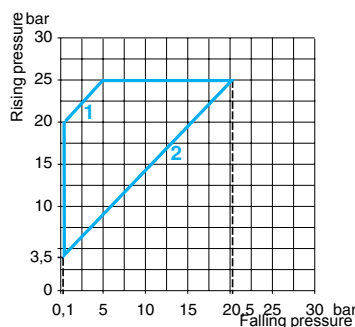
Mechanical life 1 million operating cycles

Cable entry 2 entries tapped for n° 13 cable gland, conforming to NF C 68-300 (DIN Pg 13.5)

Pressure switch type Diaphragm

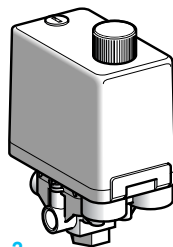
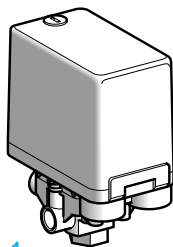
(1) References for individually packaged switches. Also available packaged in lots of 10. To order, add the letter C to the reference selected from above. Example: reference for lot of 10 pressure switches XMP A25B2131 in one package becomes XMP 25B2131C.

Operating curves



- 1 Maximum differential
- 2 Minimum differential

G 1/4 (BSP female)



3.5...25 bar (50.75...362.5 psi)

3-pole 3 N/C

References (1)

Switches without decompression valve

XMP A25C2131

—

XMP C25C2131

0.650

Switches with straight decompression valve, olive connection

XMP R25C2131

0.670

Complementary characteristics not shown under general characteristics (page 6/153)

3.4 bar (49.3 psi)

4.5 bar (65.2 psi)

20 bar (290 psi)

100 bar (1450 psi)

1 million operating cycles

2 entries tapped for n° 13 cable gland, conforming to NF C 68-300 (DIN Pg 13.5)

Diaphragm

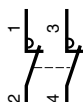
Other versions

Pressure switches not listed above, comprising the equipment proposed for the choice of reference. Please consult your Regional Sales Office.

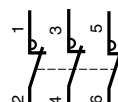
(1) References for individually packaged switches. Also available packaged in lots of 10. To order, add the letter C to the reference selected from above. Example: reference for lot of 10 pressure switches XMP A25C2131 in one package becomes XMP A25C2131C.

Terminal connections

XMP ●●●B●●●●



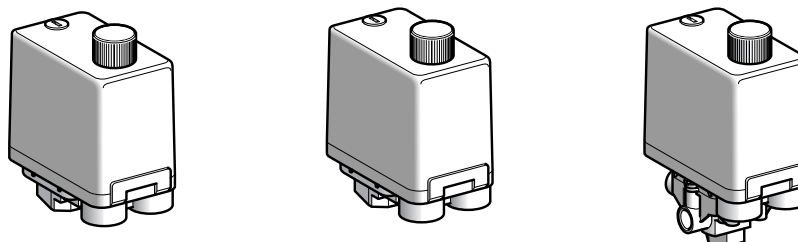
XMP ●●●C●●●●



Electromechanical pressure switches

Type XMP, IP 65
 Sizes 6 to 25 bar (87 to 362.5 psi)
 Adjustable differential, for regulation between 2 thresholds
 Switches with 2-pole 2 N/C or 3-pole 3 N/C contact

Fluid connection G 1/4 (BSP female)



Adjustable range of switching point (PH) (Rising pressure)	1...6 bar (14.5...87 psi)		1.3...12 bar (18.85...174 psi)		3.5...25 bar (50.75...362.5 psi)	
Type of contact	2-pole 2 N/C	3-pole 3 N/C	2-pole 2 N/C	3-pole 3 N/C	2-pole 2 N/C	3-pole 3 N/C

References (1)

Switches with straight decompression valve, olive connection

Case with On/Off knob	XMP R06B2133	XMP R06C2133	XMP R12B2133	XMP R12C2133	XMP R25B2133	XMP R25C2133
Weight (kg)	0.450				0.670	

Complementary characteristics not shown under general characteristics (page 6/153)

Possible differential (subtract from PH to give PB)	Min. at low setting	0.8 bar (11.6 psi)	1 bar (14.5 psi)	3.4 bar (49.3 psi)
	Min. at high setting	1.2 bar (17.4 psi)	1.7 bar (24.6 psi)	4.5 bar (65.2 psi)
	Max. at high setting	4.2 bar (60.9 psi)	8.4 bar (121.8 psi)	20 bar (290 psi)
Destruction pressure		30 bar (435 psi)		100 bar (1450 psi)
Mechanical life		1 million operating cycles		
Cable entry		2 entries tapped for n° 13 cable gland, conforming to NF C 68-300 (DIN Pg 13.5)		
Adjustment of high setting point (PH)		By screw-nut		
Pressure switch type		Diaphragm		

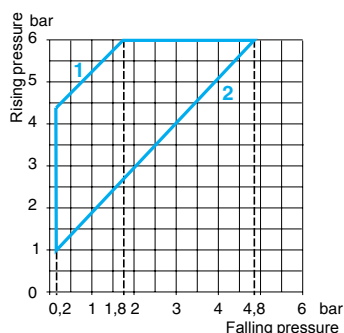
(1) References for individually packaged switches. Also available packaged in lots of 10. To order, add the letter C to the reference selected from above. Example: reference for lot of 10 pressure switches XMP R06B2133 in one package becomes XMP R06B2133C.

Operating curves

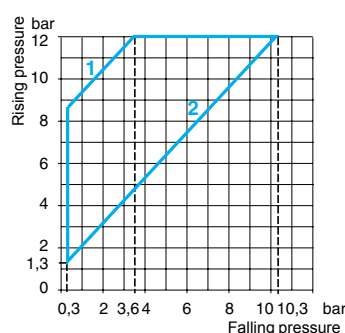
XMP R06●●●●●

XMP R12●●●●●

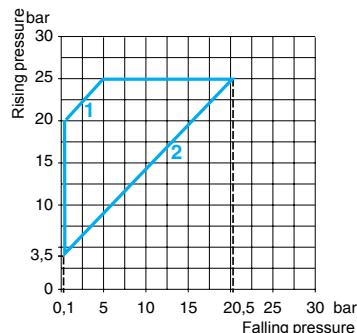
XMP R25●●●●●



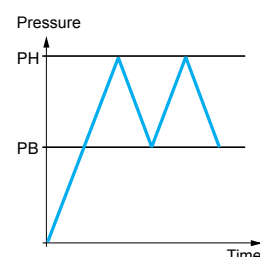
- 1 Maximum differential
2 Minimum differential



- 1 Maximum differential
2 Minimum differential

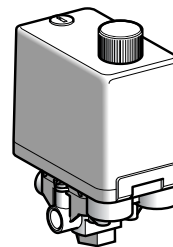
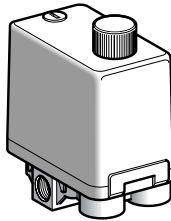
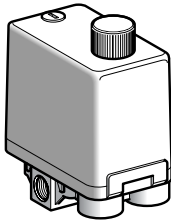


- 1 Maximum differential
2 Minimum differential



— Adjustable value

4 x G 1/4 (BSP female)



1...6 bar (14.5...87 psi)		1.3...12 bar (18.85...174 psi)		3.5...25 bar (50.75...362.5 psi)	
2-pole 2 N/C	3-pole 3 N/C	2-pole 2 N/C	3-pole 3 N/C	2-pole 2 N/C	3-pole 3 N/C

References (1)

Switches with straight decompression valve, olive connection

XMP R06B2433	XMP R06C2433	XMP R12B2433	XMP R12C2433	XMP R25B2433	XMP R25C2433
0.450				0.670	

Complementary characteristics not shown under general characteristics (page 6/153)

0.8 bar (11.6 psi)	1 bar (14.5 psi)	3.4 bar (49.3 psi)
1.2 bar (17.4 psi)	1.7 bar (24.6 psi)	4.5 bar (65.2 psi)
4.2 bar (60.9 psi)	8.4 bar (121.8 psi)	20 bar (290 psi)
30 bar (435 psi)		100 bar (1450 psi)
1 million operating cycles		
2 entries tapped for n° 13 cable gland, conforming to NF C 68-300 (DIN Pg 13.5)		
By screw-nut		
Diaphragm		

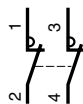
Other versions

Pressure switches not listed above, comprising the equipment proposed for the choice of reference. Please consult your Regional Sales Office.

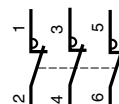
(1) References for individually packaged switches. Also available packaged in lots of 10. To order, add the letter **C** to the reference selected from above. Example: reference for lot of 10 pressure switches **XMP R06B2433** in one package becomes **XMP R06B2433C**.

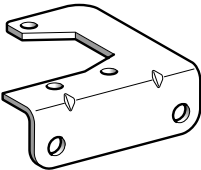
Terminal connections

XMP ...B....



XMP ...C....





XMA ZL001



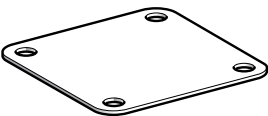
XMP MDR01



DE9 PM1201



DE9 PM1202



XMP Z3●

References		
Description	Reference	Weight kg
Fixing bracket	XMA ZL001	0.035

Knurled adjustment knob, Ø 36 mm fits over adjustment screws to facilitate setting	XMP MDR01	0.010
---	-----------	-------

N° 13 plastic cable gland	With anti pull-out ring (for cable Ø 6...9 mm)	DE9 PM1201	0.005
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	Without anti pull-out ring (for cable Ø 6...9 mm)	DE9 PM1202	0.005
--	--	------------	-------

	With anti pull-out ring (for cable Ø 9...12.5 mm)	DE9 PM1203	0.005
--	--	------------	-------

	Without anti pull-out ring (for cable Ø 9...12.5 mm)	DE9 PM1204	0.005
--	---	------------	-------

Description	For pressure switch	Reference	Weight kg
Diaphragms	Size 6 bar	XMP Z31	0.005

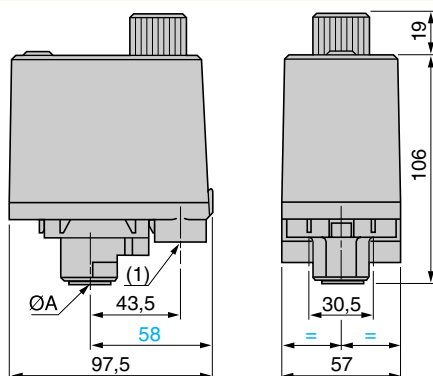
	Size 12 bar	XMP Z32	0.005
--	-------------	---------	-------

	Size 25 bar	XMP Z33	0.005
--	-------------	---------	-------

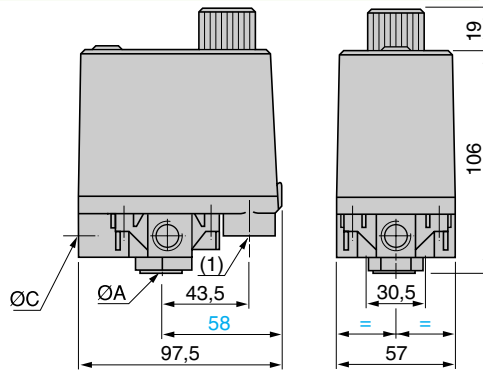
Dimensions

XMP 0600000 and XMP 0120000

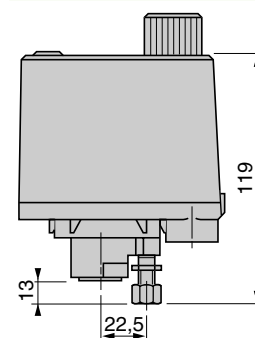
Fluid connection G 1/4 or G 3/8 (BSP female)
Without decompression valve



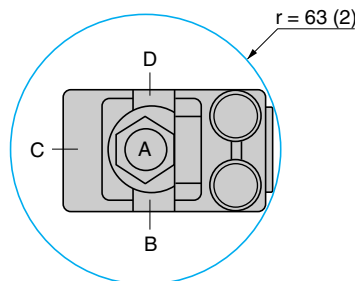
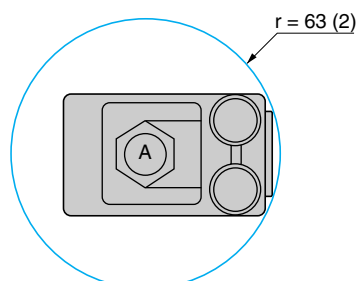
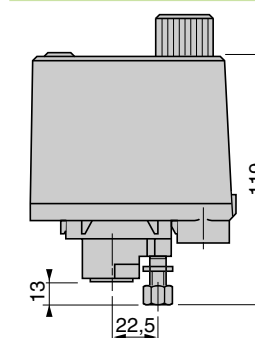
Fluid connection 4 x G 1/4 (BSP female)
Without decompression valve



With straight, instant connection, decompression valve



With straight, olive connection, decompression valve



$\varnothing A = G 1/4$ or $G 3/8$ (BSP female)

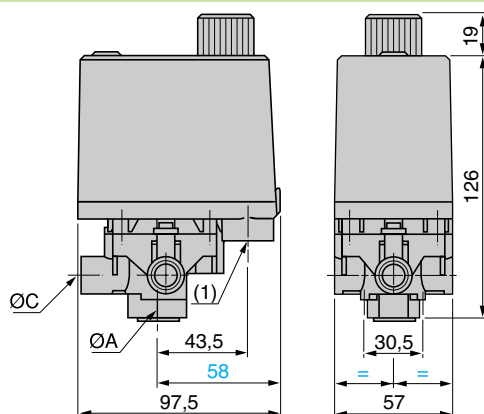
$\varnothing A = \varnothing B = \varnothing C = \varnothing D = G 1/4$ (BSP female)

(1) 2 tapped entries for n° 13 cable gland

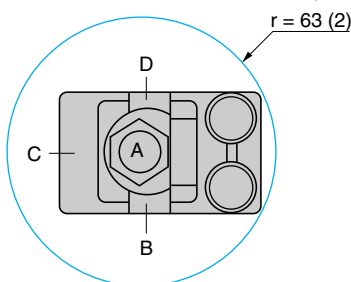
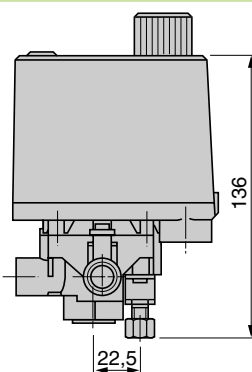
(2) Minimum clearance zone for screwing-on pressure switch at point A

XMP 2500000

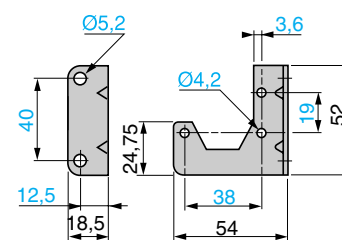
Fluid connection G 1/4 or 4 x G 1/4 (BSP female)
Without decompression valve



With straight, olive connection, decompression valve



Fixing bracket XMA ZL001



XMP 2502100: $\varnothing A$ only = $G 1/4$ (BSP female)

XMP 2502400: $\varnothing A = \varnothing B = \varnothing C = \varnothing D = G 1/4$ (BSP female)

(1) 2 tapped entries for n° 13 cable gland

(2) Minimum clearance zone for screwing-on pressure switch at point A

Electromechanical pressure and vacuum switches

Nautilus®

Function

The function of pressure and vacuum switches is the control or regulation of pressure or vacuum levels in hydraulic or pneumatic systems. They transform the pressure change into a digital electrical signal when the preset switching points are reached.

Switches for power circuits

Switches with power electrical contacts, either 2-pole or 3-pole, designed for direct switching of single-phase or 3-phase motors (pumps, compressors, etc.).

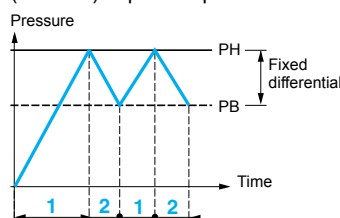
Switches for control circuits

Switches with standard electrical contacts, designed for control of contactors, relays, power valves, PLC inputs, etc.

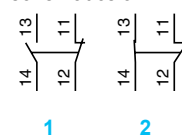
Pressure switch operating principle

Detection of a single threshold

The switches for detection of a single threshold (fixed differential) have a single adjustable setting point (PH). The differential between the high and low points (PH - PB) depends upon the natural characteristics of the switch. It is not adjustable.



Example: contact schematics of XML A

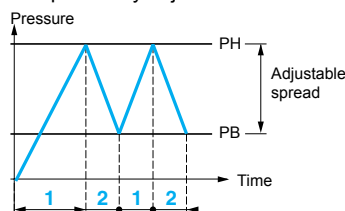


— Adjustable value
--- Non adjustable value

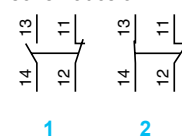
PH = High point
PB = Low point

Regulation between 2 thresholds

The switches for regulation between 2 thresholds (adjustable differential) have both a high point setting (PH) and a low point setting (PB). Both of these points can be independently adjusted.



Example: contact schematics of XML B

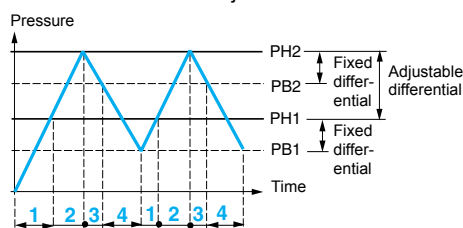


— Adjustable value

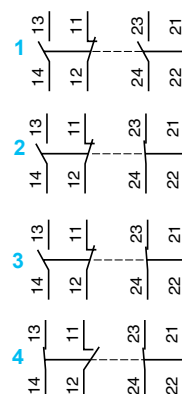
PH = High point
PB = Low point

Detection of 2 thresholds

The dual stage switches, for detection at each threshold, have an adjustable high point setting for each stage (PH1 and PH2). Both of these points can be independently adjusted. For both stages, the differential between the high point and the low point (PH1 - PB1 and PH2 - PB2) depends upon the natural characteristics of the switch. It is not adjustable.



Example: contact schematics of XML D



— Adjustable value
--- Non adjustable value

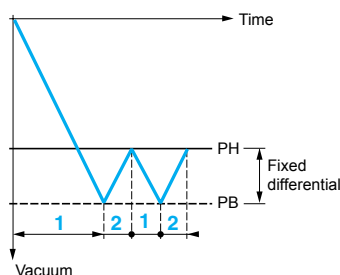
PH = High point
PB = Low point

Vacuum switch operating principle

Detection of a single threshold

The switches for detection of a single threshold (fixed differential) have a single adjustable setting point (PH).

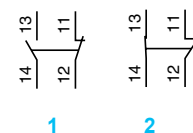
The differential between the high and low points (PH - PB) depends upon the natural characteristics of the switch. It is not adjustable.



— Adjustable value
--- Non adjustable value

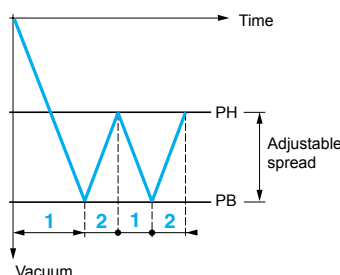
PH = High point
PB = Low point

Example: contact schematics of XML A



Regulation between 2 thresholds

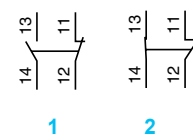
The switches for regulation between 2 thresholds (adjustable differential) have both a high point setting (PH) and a low point setting (PB). Both of these points can be independently adjusted.



— Adjustable value

PH = High point
PB = Low point

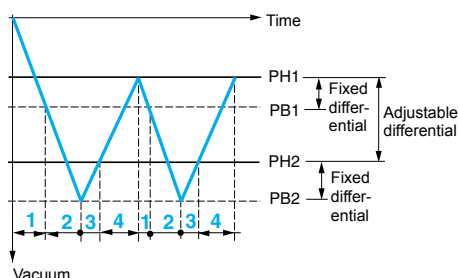
Example: contact schematics of XML B



Detection of 2 thresholds

The dual stage switches, for detection at each threshold, have an adjustable high point setting for each stage (PH1 and PH2). Both of these points can be independently adjusted.

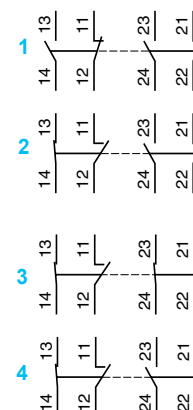
For both stages, the differential between the high point and the low point (PH1 - PB1 and PH2 - PB2) depends upon the natural characteristics of the switch. It is not adjustable.



— Adjustable value
--- Non adjustable value

PH = High point
PB = Low point

Example: contact schematics of XML D



Terminology

Operating range

The difference between the minimum low point (PB) and the maximum high point (PH) setting values.

Size

Pressure switches and vacuum-pressure switches (vacu-pressure switches)
Maximum value of the operating range.

Vacuum switches

Minimum value of the operating range.

Switching point on rising pressure (PH)

Pressure switches

The upper pressure setting at which the pressure switch will actuate the contacts on rising pressure.

Vacuum switches

The lower vacuum setting at which the vacuum switch will reset the contacts on rising pressure.

Switching point on falling pressure (PB)

The pressure at which the switch output changes state on falling pressure.

Switches with fixed differential

The lower point (PB) is not adjustable and is entirely dependent on the high point setting (PH) and the natural differential of the switch.

Switches with adjustable differential

The adjustable differential enables the independent setting of the lower point (PB).

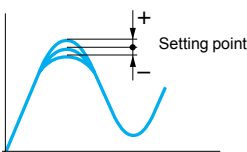
Differential

The difference between the switching point on rising pressure (PH) and the switching point on falling pressure (PB).

Spread

For dual stage switches, the spread indicates the difference between the 2 switching points on rising pressure (PH2 and PH1) and, for vacuum switches, the difference between the 2 switching points on falling pressure (PB2 and PB1).

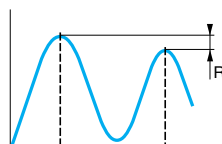
Accuracy (switches with setting scale)



The tolerance between the point at which the switch actuates its contacts and the value indicated on the setting scale. Where very high setting accuracy is required (initial installation of the product), it is recommended to use separate measuring equipment (pressure gauge, etc.).

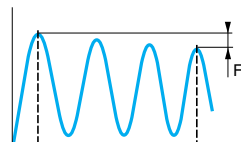
Terminology (continued)

Repeat accuracy (R)



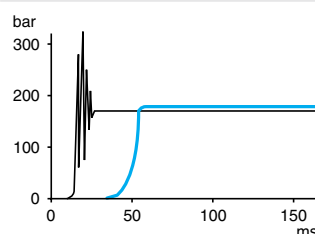
The tolerance between two consecutive switching operations

Drift (F)



The tolerance of the switching point throughout the entire service life of the switch.

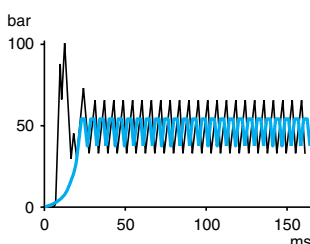
Accidental overpressure



This is an accidental pressure surge of very short duration (a few milliseconds).

If accidental overpressures occur and their duration is less than 50 milliseconds, the pressure damping device incorporated in the XML switches (sizes 10 bar and greater) will diminish the effect.

Example 1: with destructive pressure level.



Example 2: with destructive pressure level and destructive pressure oscillations.

— Without damping device
— With damping device

Maximum permissible pressure per cycle (Ps)

A pressure switch can withstand this pressure, without detrimental effect, on each cycle throughout its service life.

Its minimum value is at least equal to 1.25 times the switch size.

Maximum permissible accidental pressure

The maximum accidental pressure is at least equal to 2.25 times the switch size.

Destruction pressure

The maximum guaranteed pressure that the switch will withstand before its destruction, i.e. bursting, rupturing, component failure, etc.

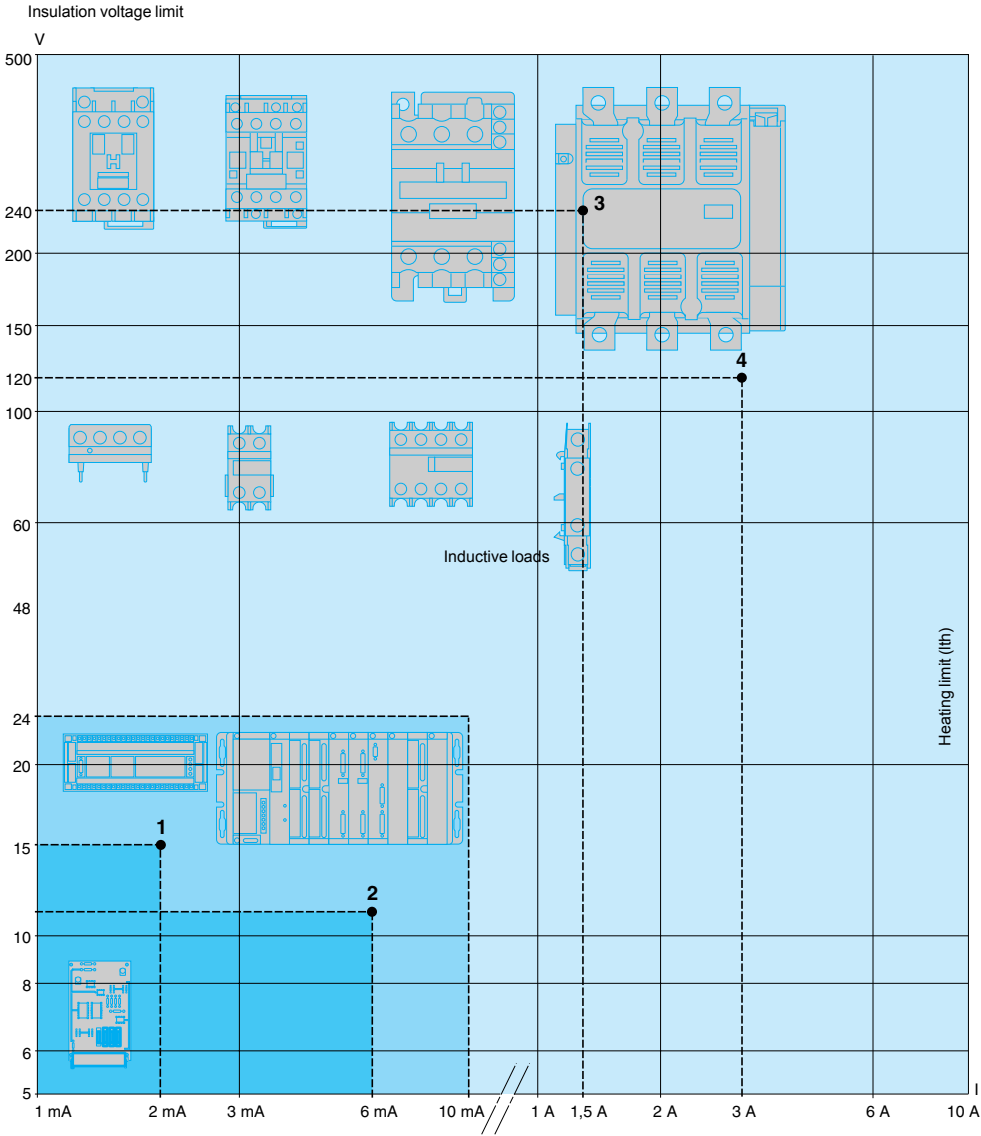
Its value is at least equal to 4.5 times the switch size.

Electromechanical pressure and vacuum switches

Nautilus®

Application range of pressure and vacuum switches types XML, XMA and XMX, for control circuits

On standard loads
Continuous duty, frequent switching.



- 1 Standard PLC input, type 1
- 2 Standard PLC input, type 2
- 3 Switching capacity conforming to IEC 947-5-1, utilisation category AC-15, DC-13
B300 240 V 1.5 A
R300 250 V 0.1 A
- 4 Switching capacity conforming to IEC 947-5-1, utilisation category AC-15, DC-13
B300 120 V 3 A
R300 125 V 0.22 A

PLC: Programmable Logic Controller

On small loads

The use of electromechanical pressure and vacuum switches with programmable logic controllers is becoming more predominant.
On small loads, the reliability of the switches maintain a failure rate of less than 1 for 100 million operating cycles.

Pressure switches	Application range		
XML A XML B XML C XML D XML X, XMA			
XML E XML F XML G			

Selection of switch size

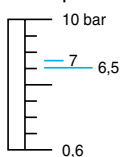
After establishing the type of switch required for the application (single threshold detection or regulation between 2 thresholds), the selection of its size will depend on the following criteria:

- the differential: difference between the high point (PH) and the low point (PB),
- the maximum pressure permissible per cycle,
- repeat accuracy, precision and minimum drift.

Examples of a fixed differential pressure switch selection, for detection of a single threshold

Main criterion: minimum differential

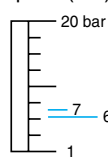
Example: for a selected high point (PH) of 7 bar



XML A010●●●●●

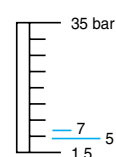
Differential = 0.5 bar

Select an XML A010●●●●● (the lowest size)



XML A020●●●●●

Differential = 1 bar

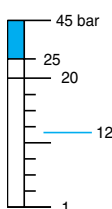


XML A035●●●●●

Differential = 2 bar

Main criterion: tolerance to overpressures

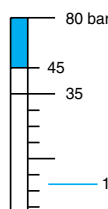
Example: for a selected high point (PH) of 12 bar



XML A020●●●●●

Permissible accidental overpressure = 45 bar

Select an XML A035●●●●● (the highest size)

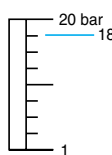


XML A035●●●●●

Permissible accidental overpressure = 80 bar

Main criterion: repeat accuracy, precision and minimum drift

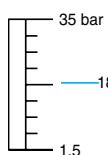
Example: for a selected high point (PH) of 18 bar



XML A020●●●●●

Adjustable from 1 to 20 bar

Select an XML A035●●●●●



XML A035●●●●●

Adjustable from 1.5 to 35 bar

As a general rule, working at the upper or lower limits of the operating range should be avoided.

Units of pressure conversion table

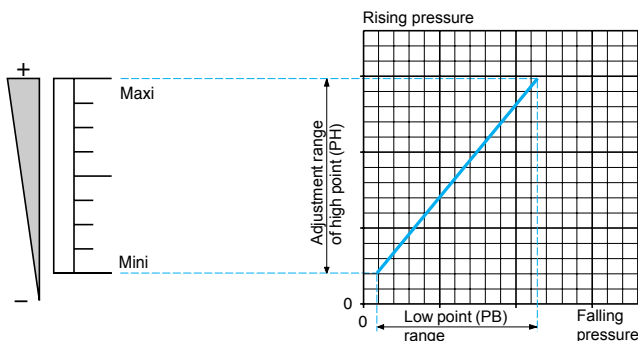
	psi	kg/cm ²	bar	atm	mm Hg (Torr)	mm H ₂ O	Pa
1 psi =	1	0.07031	0.06895	0.06805	51.71	703.7	6895
1 kg/cm ² =	14.22	1	0.98066	0.96784	735.55	10 000	98 066
1 bar =	14.50	1.0197	1	0.98695	750.06	10 197	10 ⁵
1 atm =	14.70	1.0333	1.0132	1	760.0	10 333	101 325
1 mm Hg = (Torr)	0.01934	1.360 x 10 ⁻³	1.333 x 10 ⁻³	1.316 x 10 ⁻³	1	13.59	133.3
1 mm H ₂ O =	1.421 x 10 ⁻³	10 ⁻⁴	~ 10 ⁻⁴	~ 10 ⁻⁴	0.07361	1	~ 9.80
1 Pa =	1.45 x 10 ⁻⁴	1.0197 x 10 ⁻⁵	10 ⁻⁵	9.8695 x 10 ⁻⁶	7.5 x 10 ⁻³	0.10197	1

Example: 1 bar = 14.50 psi = 10⁵ Pa

Electromechanical pressure and vacuum switches

Fixed differential switches, for detection of a single threshold

Adjustment range of the high point

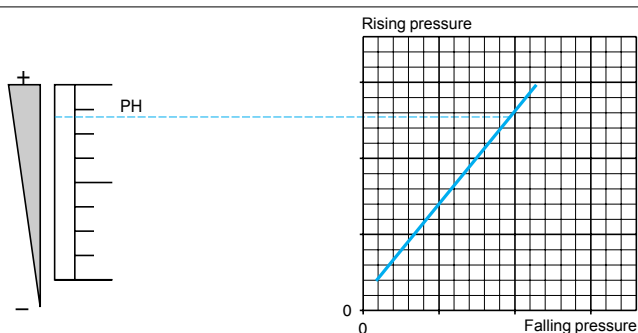


Defined by the difference between the minimum and maximum high point (PH) setting values.

For a high set point (PH), the lower point (PB) is fixed and cannot be adjusted.

For a low set point (PB), the higher point (PH) is fixed and cannot be adjusted.

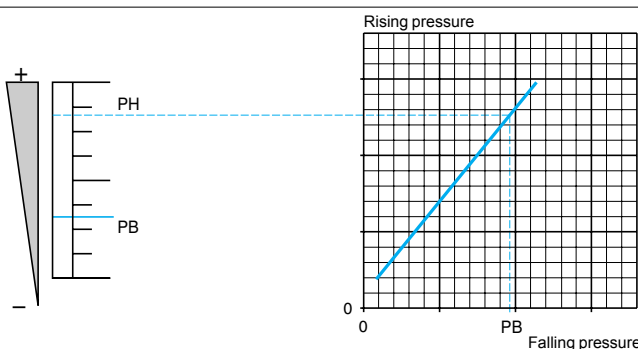
Switching point on rising pressure (PH)



The upper pressure setting at which the pressure or vacuum switch will actuate the contacts on rising pressure.

Adjustable throughout the range on rising pressure.

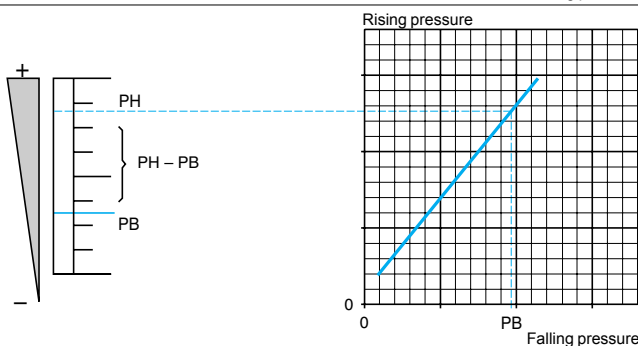
Switching point on falling pressure (PB)



The pressure at which the switch contact changes state on falling pressure.

The lower point (PB) is not adjustable and is entirely dependent on the high point setting (PH) and the natural differential of the switch.

Differential



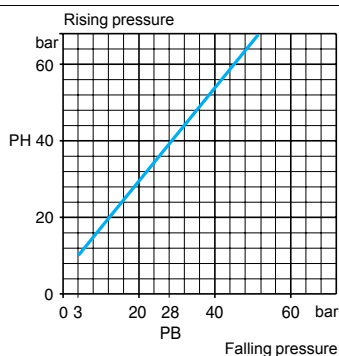
$PH - PB = \text{natural differential}$

The difference between the switching point on rising pressure (PH) and the switching point on falling pressure (PB).

This point is not adjustable and therefore, the value of the differential is fixed.

It is the natural differential of the switch (contact differential, friction, etc.).

Example



■ Consider a switching point on rising pressure (PH) of 40 bar (set value at which the contact will change state on rising pressure).

■ It can be seen that the switching point on falling pressure (PB) is 28 bar (fixed value at which the contact will return to its original state).

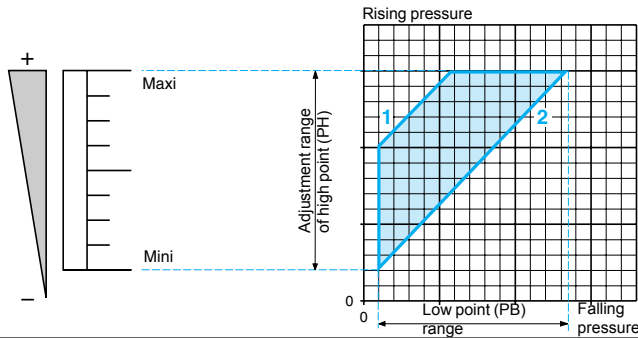
Conclusion:

□ the differential will be $40 - 28 = 12$ bar.

Electromechanical pressure and vacuum switches

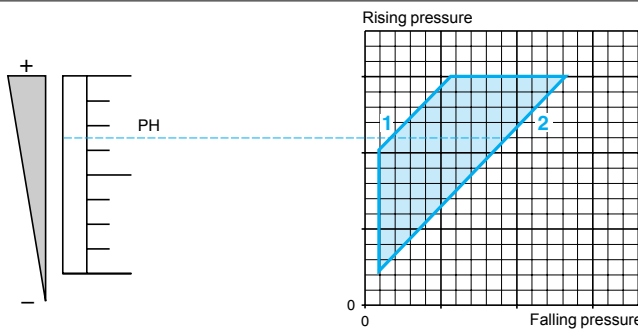
Adjustable differential switches, for regulation between 2 thresholds

Adjustment range of the high point



Defined by the difference between the minimum and maximum high point (PH) setting values.

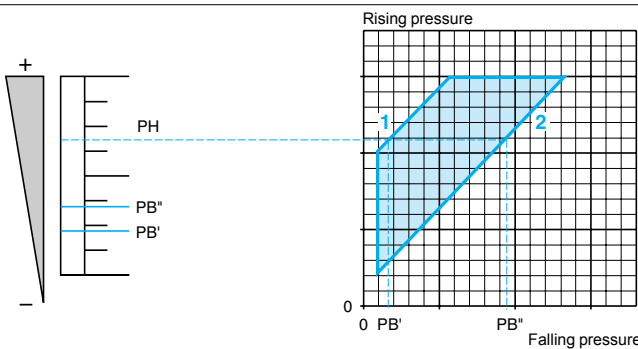
Switching point on rising pressure (PH)



The upper pressure setting at which the pressure or vacuum switch will actuate the contacts on rising pressure.

Adjustable throughout the range on rising pressure.

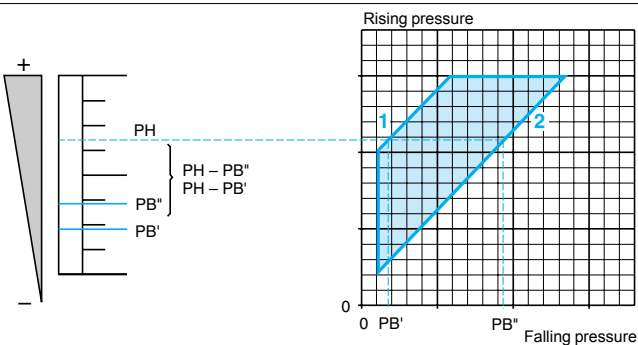
Switching point on falling pressure (PB)



The pressure at which the switch contact changes state on falling pressure.

The adjustable differential enables the independent setting of the lower point (PB).

Differential

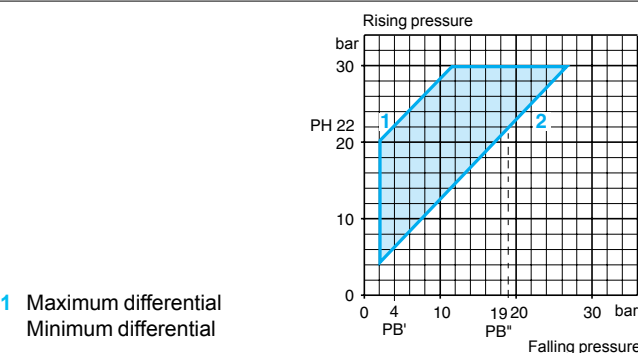


Low point < High point
 $PH - PB' = \text{natural differential}$
 $PH - PB'' = \text{minimum differential}$

The difference between the switching point on rising pressure (PH) and the switching point on falling pressure (PB).

Note: the low point can be set at any value between PB' and PB'' .

Example



1 Maximum differential
 Minimum differential

■ Consider a switching point on rising pressure (PH) of 22 bar (set value at which the contact will change state on rising pressure).

■ It can be seen that the switching point on falling pressure (PB) can be between 4 and 19 bar inclusive (set value at which the contact will return to its original state).

Conclusion:

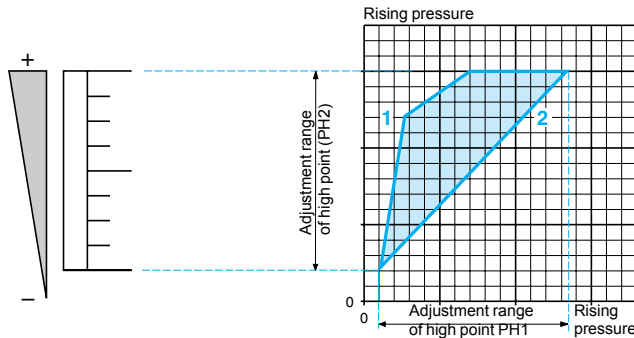
- the maximum differential will be $22 - 4 = 18$ bar,
- the minimum differential will be $22 - 19 = 3$ bar.

Operating curves (switching points on rising pressure)

Electromechanical pressure and vacuum switches

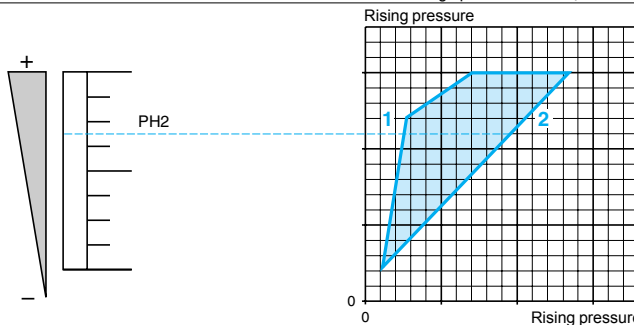
Dual stage, fixed differential switches, for detection at each threshold

Adjustment ranges of the switching points PH1 and PH2 on rising pressure



Defined by the difference between the minimum and maximum high point setting values of each stage (PH1 and PH2).

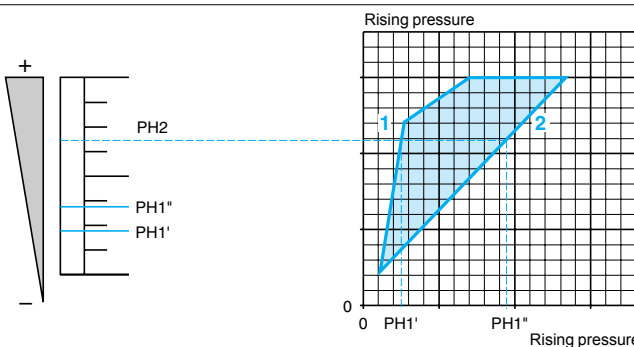
Switching point PH2 on rising pressure



The upper pressure setting at which the pressure or vacuum switch will actuate contact 2 on rising pressure.

Adjustable throughout the range on rising pressure.

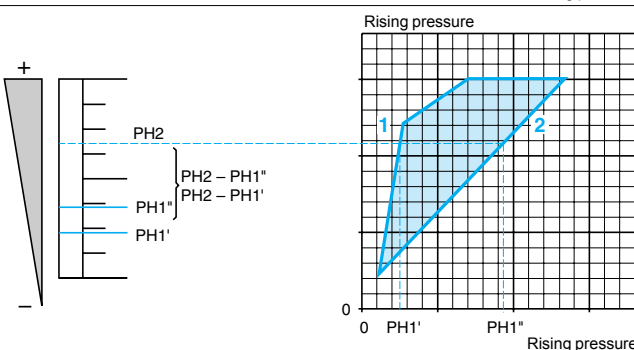
Switching point PH1 on rising pressure



The upper pressure setting at which the pressure or vacuum switch will actuate contact 1 on rising pressure.

6

Spread



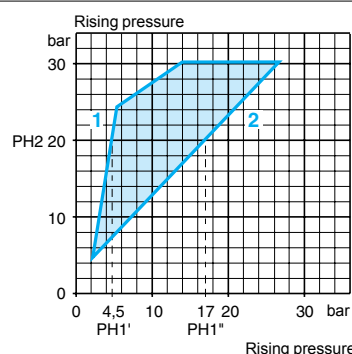
$PH1 < PH2$
 $PH2 - PH1' = \text{maximum spread}$
 $PH2 - PH1'' = \text{minimum spread}$

The difference between switching points PH2 and PH1 on rising pressure.

Note: switching point PH1 can be set at any value between PH1' and PH1''.

Example:
Determining switching points on rising pressure for the 2 stages

- 1 Maximum spread
- 2 Minimum spread



■ Consider a 2nd stage switching point on rising pressure (PH2) of 20 bar (set value at which contact 2 will change state on rising pressure).

■ It can be seen that the 1st stage switching point (PH1) can be set between 4.5 and 17 bar on rising pressure.

Conclusion:

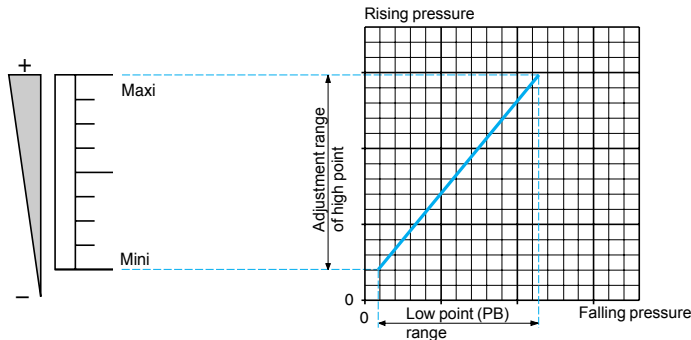
- the maximum spread will be:
 $20 - 4.5 = 15.5 \text{ bar}$,
- the minimum spread will be:
 $20 - 17 = 3 \text{ bar}$.

Operating curves (switching points on rising pressure)

Electromechanical pressure and vacuum switches

Dual stage, fixed differential switches, for detection at each threshold

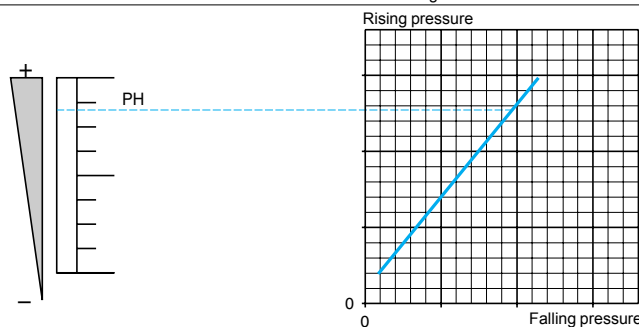
Adjustment range of high point (PH1 or PH2)



Defined by the difference between the minimum and maximum high point (PH1 or PH2) setting values for each stage.

For a high set point (PH1 or PH2), the lower point (PB1 or PB2) is fixed and cannot be adjusted.
For a low set point (PB1 or PB2), the higher point (PH1 or PH2) is fixed and cannot be adjusted.

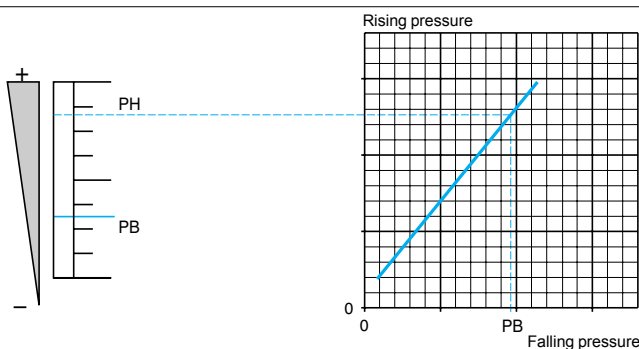
Switching point on rising pressure (PH1 or PH2)



The upper pressure setting at which the pressure or vacuum switch will actuate the contact, for each stage, on rising pressure.

Adjustable throughout the range on rising pressure.

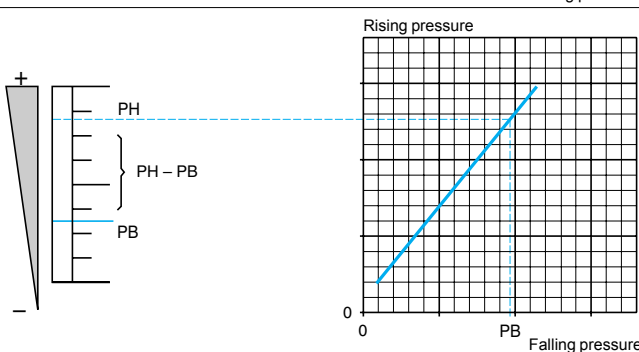
Switching point on falling pressure (PB1 or PB2)



The pressure at which the switch contact changes state, for each stage, on falling pressure.

The lower point (PB) is not adjustable and is entirely dependent on the high point setting (PH) and the natural differential of the switch.

Differential



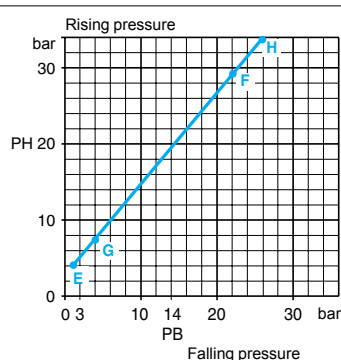
$PH - PB = \text{natural differential}$

The difference between the switching point on rising pressure (PH) and the switching point on falling pressure (PB), for each stage.

This point is not adjustable and therefore, the value of the differential is fixed.

It is the natural differential of the switch (contact differential, friction, etc.) for each of its 2 stages.

Example:
stage 1 = segment EF
stage 2 = segment GH



- 1 Maximum spread
- 2 Minimum spread

For stage 2 (segment GH):

■ Consider a switching point on rising pressure (PH2) of 20 bar (set value at which contact 2 will change state on rising pressure).

■ It can be seen that the switching point on falling pressure (PB2) is 14 bar (fixed value at which contact 2 will return to its original state).

Conclusion:

for stage 2, the differential will be: $20 - 14 = 6$ bar.

Repeat the same procedure for stage 1 (segment EF).