XML-A010A2S11

Electromechanical pressure and vacuum switches

Nautilus®

For control circuits, type XML

Presentation

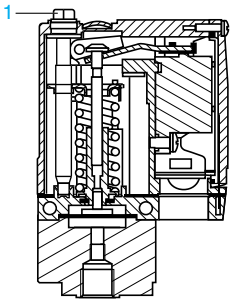
Pressure and vacuum switches type **XML** are switches for control circuits.
They are used to control the pressure of hydraulic oils, fresh water, sea water, air, steam, corrosive fluids or viscous products, up to 500 bar.

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).

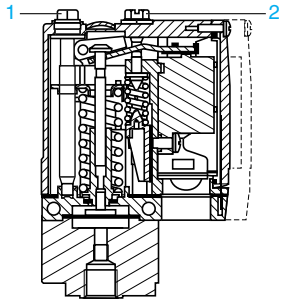
Pressure and vacuum switches with fixed differential, type XML A



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.).

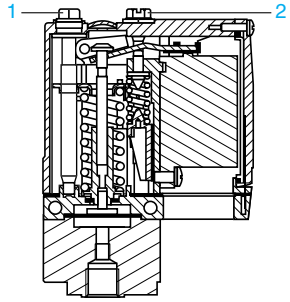
Pressure and vacuum switches with adjustable differential, types XML B and XML C



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.).

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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

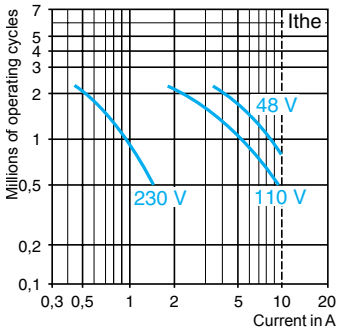
Contact block characteristics

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

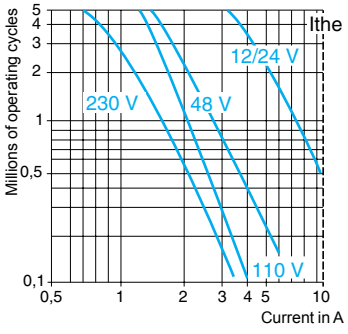
XML A and **XML B**
a.c. supply ~ 50/60 Hz
Inductive circuit, Ithe = 10 A



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

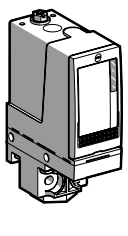
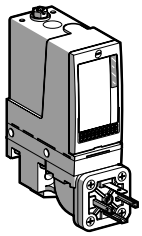
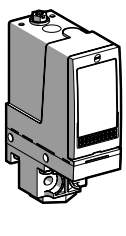
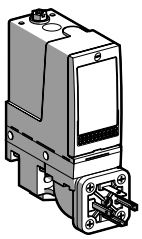


d.c. supply ⎓
Power broken in W
for 5 million operating cycles

Voltage	V	**24**	**48**	**120**
	W	10	7	4

Electromechanical 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

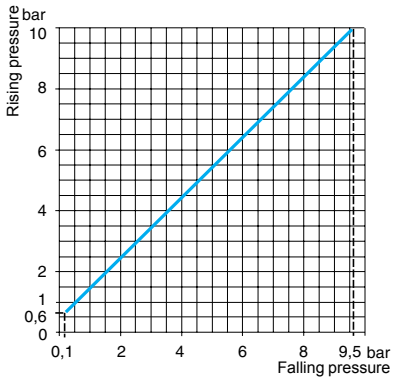
Pressure switches type XML A		With setting scale		Without setting scale	
					
Adjustable range of switching point (PH) (Rising pressure)		**0.6…10 bar (8.7…145 psi)**			
Electrical connection		Terminals	DIN connector	Terminals	DIN connector
References *(1)*					
Fluids controlled *(2)*	Hydraulic oils, 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

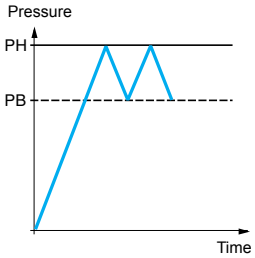
Complementary characteristics not shown under general characteristics (page 6/69)

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 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 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





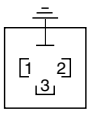
— Adjustable value
--- Non adjustable value

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.

Accessories: page 6/122
Dimensions: pages 6/123 to 6/125