Electromechanical pressure and vacuum switches

Nautilus®
For control circuits, type XML

Function

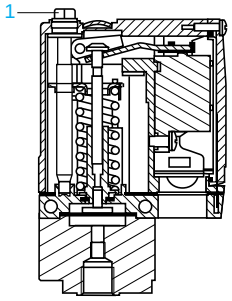
Pressure and vacuum switches type **XML** are switches for control circuits.
They are used to control the pressure of hydraulic oils, fresh water, sea water, air, steam, corrosive fluids or viscous products, up to 500 bar.

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

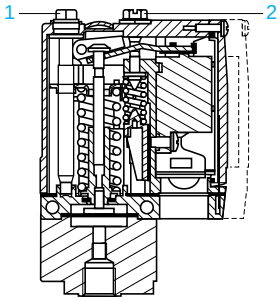
Pressure and vacuum switches with fixed differential, type XML-A



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.).

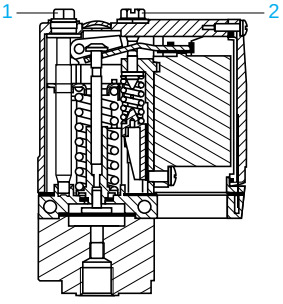
Pressure and vacuum switches with adjustable differential, types XML-B and XML-C



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 points 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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Environment characteristics

Conforming to standards		CE, IEC/EN 60947-5-1, UL 508, CSA C22-2 n° 14
Product certifications		UL, CSA
Protective treatment		Standard version “TC”. Special version “TH”.
Ambient air temperature	°C	Operation : - 25…+ 70. 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 30369/2 and 30369/3
Operating position		All positions
Vibration resistance		4 gn (30 to 500 Hz) 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	Operat. cycl./min	Piston version switches : ≤ 60 (for temperatures > 0 °C) Diaphragm version switches : ≤ 120 (for temperatures > 0 °C)
Repeat accuracy		< 2 %
Fluid connections		G 1/4 (BSP female) conforming to NF E 03-005, ISO 228 or 1/4" NPTF (consult your Regional Sales Office)
Electrical connections		Screw terminal models : entry tapped ISO M20 x 1.5. For an entry tapped for n° 13 (DIN Pg 13.5) cable gland, replace the last number of the reference by 1 (example : **XMLA010A2S12** becomes **XMLA010A2S11**). For an entry tapped 1/2" NPT, please consult your Regional Sales Office. Connector models : either type DIN 43650 A or M12 connector, please consult your Regional Sales Office

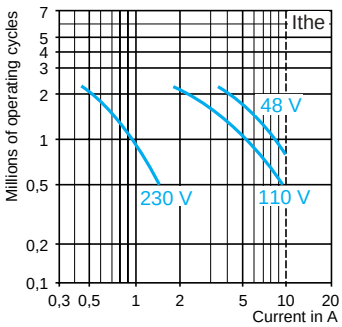
Contact block characteristics

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
Contact operation		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)
Cabling		Screw clamp terminals. Clamping capacity, min. : 1 x 0.2 mm², max. : 2 x 2.5 mm²

Electrical durability
conforming to IEC 947-5-1 Appendix C
Utilisation categories AC-15 and DC-13

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

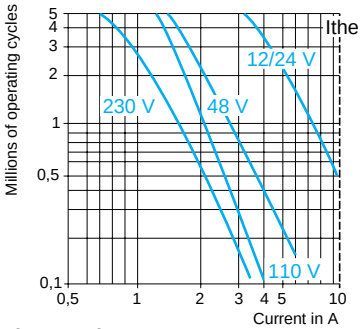
XML-A and XML-B
a.c. supply ~ 50/60 Hz
Inductive circuit Ithe = 10 A



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