# Sensors for pressure control OsiSense XM

# Catalogue





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#### Electromechanical pressure switches for power circuits

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#### For controlling the pressure of air and water

#### For regulation between 2 threshold with adjustable differential

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# Selection guide

# Sensors for pressure control OsiSense XM

UsiSense XM Electronic pressure sensors

Applications	Type of installation	Control circuits			
	Fluids controlled	Air, water, hydraulic oils, corrosive fluids			
	Type of sensor and features				
		Pressure transmitter Analogue output 4	rs 20 mA or 010 V	Pressure and vacuur Factory set switching Solid-state NPN or Pl	n switches g thresholds NP output
			A ADDRESS AND ADDRES ADDRESS AND ADDRESS A		
Fluid characteristics		Air, fresh water, hydraulic oils, corrosive fluids (- 15+ 125°C)			
Sizes		- 1 bar400 bar (- 14.5 psi5800 psi)			
Dimensions of case (mm)	Width x height x depth	Ø 22.8 x 70.1	Ø 22.8 x 85	Ø 22.8 x 70.1	Ø 22.8 x 85
Type of output		Analogue, 420 mA c	or 010 V	Solid-state, PNP or NF 150 mA, 12/24 V	PN, NC output
Degree of protection		IP 66, IP 67 conformin	g to IEC/EN60529, NEM	/A4	
Electrical connection		M12 connector (1)	Integrated quick connection (2)	M12 connector (1)	Integrated quick connection (2)
Fluid connection		G 1/4 A (male) conform	ning to ISO7 (3)		
Type reference		XMLGeeeD21, XMLGeeeD71       XMLGeeeD31TQ (4)         XMLGeeeD21TQ (4),       XMLGeeeD41TQ (4)         XMLGeeeD71TQ (4)       XMLGeeeQ31TQ (4)         XMLGeeeQ21TQ (4),       XMLGeeeQ41TQ (4)         XMLGeeeQ71TQ (4)       XMLGeeeQ41TQ (4)			
Pages		24 to 31			
Other versions		<ul> <li>(1) Other connections (AMP connector, cable, etc.), please consult our Customer Care Centre.</li> <li>(2) Phoenix Contact "Quickon" type integrated connection.</li> <li>(3) Other fluid connections (G1/4, 1/4 NPT, etc.), please consult our Customer Care Centre.</li> <li>(4) Sold in lots of 25.</li> </ul>			

Telemecanique Sensors

Control circuits		
Air, fresh water	Air, water, hydraulic oils, corrosive f	luids
Units without display		
Pressure transmitters Analogue output, 420 mA or 010 V Applications: pumping	Pressure transmitters Analogue output, 420 mA	Pressure and vacuum switches with solid-state output Regulation between 2 thresholds (adjustable differential)



34 to 41

(1) Other electrical connections, please consult our Customer Care Centre.

(2) Other fluid connections (G1/4, 1/4 NPT, etc.), please consult our Customer Care Centre.
 (3) Sold in lots of 25.

# Selection guide

# Sensors for pressure control

OsiSense XM Electronic pressure sensors



#### Control circuits

Air, water, hydraulic oils, corrosive fluids

Configurable units with	Configurable units with	Configurable units with	Configurable units with
digital display	digital display	digital display	digital display
Universal sensors	Universal sensors	Pressure and vacuum switches	Dual stage pressure and vacuum
Regulation between 2 thresholds	Regulation between 2 thresholds	with 2.5 A relay outputs	switches (solid-state outputs)
(adjustable differential)	(adjustable differential)	Regulation between 2 thresholds	Detection of 2 thresholds and
· •	· ·	(adjustable differential)	adjustable differential for each
Solid-state and analogue output	Solid-state and analogue output	· ·	threshold
current $4 - 20 \text{ mA}$	voltage 0 10 V		
current 420 mA	Voltage 0 IV V		



Air, fresh 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	
Solid-state, PNP or NPN, 200 mA, 24 V output Analogue output, 420 mA	Solid-state, PNP or NPN, 200 mA, 24 V output Analogue output, 010 V	Relay output 2.5 A, $\sim$ 120 V	2 solid-state outputs, PNP or NPN, 200 mA, 24 V	
IP 67				
M12 connector		SAE 7/8"-16UN connector	M12 connector	

G 1/4 (female) or 1/4 NPT

XMLF●●●D202●	XMLF●●●D212●	XMLF●●●E204●	XMLF●●●D203●
56 to 81			

# Selection guide

# Sensors for pressure control

OsiSense XM

Electromechanical pressure and vacuum switches



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 diffe	rential)
Air, fresh 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 bar500 bar (- 14.5 psi7250 psi)	0.7 bar131 bar (10.15 psi1900 psi)	69 bar340 bar (1000 psi4930 psi)
45 x 68 x 85	88 x 88 x 68	
2 CO single-pole, staggered, snap action	1 CO or 2 CO 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 (female) G 1¼" (female) for viscous products		G 3/8 (female)
XMLD	ACW	ADW

90 to 141	152	154

# Selection guide

# Sensors for pressure control OsiSense XM

Electromechanical pressure switches

Applications	Type of installation	Control circuits	
	Fluids controlled	Air, water	
	Type of operation	Regulation between 2 thresholds (	adjustable differential)
Fluid characteristics		Air, fresh water, sea water (0+ 70°C	2)
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 poin	ts	Internal screws	External screws
Type of contacts		1 CO single-pole, snap action	
Degree of protection		IP 54	
Electrical connection		Screw terminals: 2 entries tapped for one fitted with n° 13 cable gland, one fitted with blanking plug	n° 13 cable gland,
Fluid connection		G 1/4 or 4 x G 1/4 (female) depending	g on model
Type reference		ХМХ	ХМА
Pages		160	161
Other versions		Electromechanical pressure switches	with alternative tapped cable entries and/or fluid entries:

ISO, NPT, etc. Please consult our Customer Care Centre.

Power circuits				
Water				Air, water
Detection of a single threshold (fixed differential)	Regulation between 2 thresh	olds (adjustable differential)		
Fresh water, sea water (0+ 7	70°C)			Air, fresh water, sea water (0+ 70°C)
4.6 bar (66.7 psi)		7 bar (101.5 psi)	10.5 bar (152.3 psi)	6 bar, 12 bar and 25 bar (87 psi, 174 psi and 362.5 psi)
73 x 73 x 102	72 x 77 x 106	72 x 73 x 102		57 x 78 x 97.5
Internal screws				
2 NC snap action				2 NC or 3 NC snap action
IP 20/IP 65				IP 54 or IP 65 depending on model
Screw terminals: 2 cable entrie	es with grommet or 2 cable entries	s with n° 13 cable gland		Screw terminals: 2 entries incorporating n° 13 cable gland or without cable gland, depending on model
G 1/4 or R 1/4 (female or male	)			G 1/4, G 3/8 or 4 x G 1/4 (female) depending on model
FTG●, FTG●NE	FSG●, FSG●NE	FYG22, FYG22NE	FYG32, FYG32NE	ХМР
166 to 168				170 to 179

# Presentation

# Transie of





#### Electronic pressure sensors OsiSense XM

Pressure transmitters type XMLP For control circuits

#### Presentation

Pressure transmitters XMLP are characterised by their "thin film" technology. The stainless steel pressure sensing capsule is directly welded onto the stainless steel body of the transmitter, which provides the following advantages:

- no gasket in contact with the fluid required,
- compatibility with all types of fluid.

Designed in stainless steel AISI 304, they are compact and robust.

These transmitters are therefore specially suited to applications such as:

- hydraulic circuits on all types of machine,
- refrigeration (HVAC).

#### Functions

Pressure sensors XMLP have an analogue output signal:

- 4…20 mA,
- 0...10 V,
- 0.5...4.5 V,

proportional to the pressure ranges available (10 to 600 bar and 100 to 10 000 psi).

The XMLP offer is available in three types of electrical connection:

- M12, 4-pin connector,
- EN 175301-803-A connector (ex-DIN 43650).
- Packard Metri-Pack 150 connector.

Several types of fluid connection are available:

- G1/4 A male,
- SAE 7/16-20 UNF-2A male,
- SAE 7/16-20 UNF-2B female,
- 1/4"-18NPT male.

XMLP sensors are sold in lots of 40 or individually.

#### Other versions

aracteristics:	References:	Schemes:	Connections:	Dimensions:
je 11	pages 12 to 17	page 19	page 20	page 21
10		Telemecanique Sensors		

# **Characteristics**

**Electronic pressure sensors** OsiSense XM Pressure transmitters type XMLP For control circuits

Transmitters         L. 10 V         010V         0.545 V           Conformity to standards         CC, ROHS, IN 19326	Environment charact	eristics						
Conformity to standards         C.R.OH3, EN 01228	Transmitters			420 mA	010 V	0.54.5 V		
Control of Control         Control of Control           Reled supply voltage         Transmitters 420 mA         V         7:24         -         -           Reled supply voltage         Transmitters 510 V         V         -         -         -           Voltage limits         Transmitters 510 V         V         -         -         -         -           Transmitters 510 V         V         -         -         -         -         -           Transmitters 510 V         V         -         -         -         -         -         -           Transmitters 510 V         V         -	Conformity to standards			CE ROHS EN 61326				
Product centra unply voltage         Transmitters 420 m/L         CULB           Rated supply voltage         Transmitters 420 m/L         V         2:1224         -         -           Voltage limits         Transmitters 310 V         V         2:1224         -         -         ::::::::::::::::::::::::::::::::::::								
Finded supply voltage         Iffinitiation and only in the second of the second o	Product certifications					1		
Interaction         V         - <t< td=""><td>Rated supply voltage</td><td>Transmitters 0 10 V</td><td>V</td><td> 12/24</td><td></td><td>-</td></t<>	Rated supply voltage	Transmitters 0 10 V	V	12/24		-		
rationation         view         rest         rest         rest         rest           Votage limits         Transmitters 42 m/k         V         =         =         =           Transmitters 0.0.10 V         V         =         =         =         =           Transmitters 0.0.46 V         V         =		Transmitters 0.5 4.5 V	V	-	24	-5		
Transmitters		ratiometric	1					
Transmitters 010 V         V         -         Tat. 30         -           Transmitters 04.5 V         V         -	Voltage limits	Transmitters 420 mA	v	830	-	-		
Instantifier 0.3.4.3 V     V     -     -     T5 (£ 5 %)       Current consumption     nA     €20     € 10     €5       Protective freement     For operation     YC     3.0 + 100     €5       Protective freement     For operation     YC     3.0 + 100     For operation     For operation       Protective freement     For operation     YC     3.0 + 100     For operation     For operation       Temperature of fluids controlled     YC     3.0 + 100     For operation protective freement     For operation protective freement       For operating position     C     3.0 + 100, stan freeh water, refrigeration fluids and paster!       Operating position     Statifiess steel 17.4.PH     For operation por model: no gasket of fluorocarbon FKM (Viton) gasket       Operating position     ZB m (hall sine wave 11 ma) conforming to ENIEC 60008-2-27       Reter implies withstand voltage     Up not position     ZB m (hall sine wave 11 ma) conforming to ENIEC 61000-4-2       Reter implies withstand voltage     Up not position     Statifiess field 17.5     Statifiess field 17.5       Reter implies withstand voltage     Electrical protection     Electrical protection     Statifiess field 17.5     Statifiess field 17.5       Reter implies withstand voltage     Fast transents     4 1 NV conforming to ENIEC 6 1000-4.2     Statifies 10.0.0.4		Transmitters 010 V	V	-	1430	-		
Current consumption     mA     € 20     € 10     € 5       Protective treatment     Standard version TC		Iransmitters 0.54.5 V ratiometric	v	-	-	5 (± 5 %)		
Protective treatment Ambiant air temperature For operation For storage C Ambiant air temperature For operation For storage C Ambiant air temperature For operating For storage C For storage C For storage C For storage C For storage For operating For opera	Current consumption		mA	≤20	≤ 10	≤5		
Ambiant air temperature For storage         FC         30+ 100           Fluids or products controlled         VC         30+ 100           Fluids or products controlled         VC         30+ 100           Temperature of fluids controlled         VC         30+ 120	Protective treatment			Standard version "TC"	1	1		
For storage         °C         30, 100           Fulds or products controlled         Very analy in the star interval in the star interval	Ambiant air temperature	For operation	°C	- 30+ 100				
Fluids or products controlled     Image: solution of the solution o	-	For storage	°C	- 30+ 100				
Temperature of fluids controlled         °C         - 30, - + 120 (-20 + 120, with fluidonceation FKM (Viton) gasket)           Components materials in contact with fluid         Fuld connection         Stanless steel IXIS 304 and plastic PA68 (OF + MD)           Exercise of the stand gasket         Stanless steel IXIS 304 and plastic PA68 (OF + MD)         Exercise of the stand gasket of fluorocarbon FKM (Viton) gasket           Operating position         Vitarion resistance         20 gn (102000 Hz), conforming to ENVIEC 60068-2-64           Shock resistance         20 gn (102000 Hz), conforming to ENVIEC 61000-4-2         ENVIE 61000-4-2           Retistance to electromagnetic fields         10 Virm from 30 to 1000 MHz, conforming to ENVIEC 61000-4-2         ENVIE 61000-4-3           Retistance to electromagnetic fields         10 Virm from 30 to 1000 MHz, conforming to ENVIEC 61000-4-3         Stringes           Fast transients         ± 14 V, conforming to ENVIEC 61000-4-3         Stringes           Conducted disturbances, induced by radio frequency fields         10 Virm on 15 to 80 MHz, conforming to ENVIEC 61000-4-3           Begree of protection         Protected against reverse polarity and short-circuit           Degree of protection         Protected against reverse polarity and short-circuit           Periods (ME + VINE and Pasket connector version), conforming to ENVIEC 61000-4-5         Protected against reverse polarity and short-circuit           Degree of protection         <	Fluids or products controlled			Hydraulic oils, air, fresh wat stainless steel AISI 304	er, refrigeration fluids and all t	fluids or gas compatible with		
Components materials in contact with fluid         Fluid connection         Stainless steel /A1913 034           Contact with fluid         Stainless steel /A1913 034 and plastic PA66 (GF + MD)           External gasket         Depending on mode: no gasket of fluoreatons FKM (Viton) gasket           Operating position         All positions           Vibration resistance         20 gn (102000 Hz), conforming to ENVIEC 60068-244           Shock resistance         22 gn (haf sine wave 11 ms) conforming to ENVIEC 61000-4-2           Resistance to electromagnetite         Electrostal clickharges           Resistance to electromagnetite         Electrostal clickharges           Resistance to electromagnetic fields         10 V/m from 80 to 1000 MHz, 3 V/m from 140 to 2000 MHz, conforming to ENVIEC 61000-4-3           Fast transients         1 1 V/. conforming to ENVIEC 61000-4-3           Fast transients         1 1 V/. conforming to ENVIEC 61000-4-3           Stringer         1 1 V/. conforming to ENVIEC 61000-4-6           Induced by radio frequency fields         10 V/m from 0.15 for 80 MHz, conforming to ENVIEC 61000-4-6           Induced by radio frequency fields         10 V/m from 30 to 1000 MHz, 000 MH	Temperature of fluids controlle	d	°C	- 30+ 120 (- 20+ 120, w	ith fluorocarbon FKM (Viton)	gasket)		
Sensing element         Stalless steel 17.4PH           Housing         Stalless steel ASI 304 and plastic PA66 (GF + MD)           Derating position         All positions           Vibration resistance         25 gn (half sine wave 11 ms) conforming to EN/IEC 60088-2-64           Shock resistance         25 gn (half sine wave 11 ms) conforming to EN/IEC 61000-4-2           Rete impulse withstand voltage         Ump = 0.5 KV           Rete directromagnetic Electrostatic discharges         8 KV in air, 4KV on contact, conforming to EN/IEC 61000-4-2           Interference         Realiated electromagnetic fields         10 Vim form 80 to 1000 MHz, contorming to EN/IEC 61000-4-3           Surges         ± 1 kV, conforming to EN/IEC 61000-4-3         10 Vim form 80 to 1000 MHz, contorming to EN/IEC 61000-4-3           Surges         ± 1 kV, conforming to EN/IEC 61000-4-3         10 Vim form 80 to 1000 MHz, conforming to EN/IEC 61000-4-3           Gurges of protection         Fast transients         ± 1 kV, conforming to EN/IEC 61000-4-4           Surges         ± 1 kV, conforming to EN/IEC 61000-4-5           Electrical protection         Protected against reverse polarity and short-circuit           Degree of protection         Protected against reverse polarity and short-circuit           Degree of protection         ms < 5	Components materials in	Fluid connection		Stainless steel AISI 304				
Housing     Statuless steal AIS 304 and plastic PAG6 (SF + MD)       External gasket     Depending on model: no gasket or fluorocarbon FKM (Viton) gasket       Operating position     All positions       Vibration resistance     25 gr (fib2000 Hz), conforming to EN/IEC 60088-244       Shock resistance     25 gr (fib2000 Hz), conforming to EN/IEC 60088-247       Resistance to electromagnetic Electrostatic discharges     8 KV in air.4 KV on contact, conforming to EN/IEC 61000-4-2.       Resistance to alectromagnetic Electrostatic discharges     10 Win from 80 to 1000 MHz, 3 V/m from 1400 to 2000 MHz, conforming to EN/IEC 61000-4-3.       Fast transients     2 1 kV, conforming to EN/IEC 61000-4-3.       Surges     1 kV, conforming to EN/IEC 61000-4-3.       Conducted disturbances, induced by radio frequency field     10 V/m from 30 to 1000 MHz, 3 V/m from 1400 to 2000 MHz, conforming to EN/IEC 61000-4-8.       Electrical protection     Protected against reverse polarity and short-circuit       Degree of protection     Protected against reverse polarity and short-circuit       Pegs (M 1730-1400 K2) connoting to EN/IEC 61008-1.5     10 V/m from 30 to 1000 MHz, conforming to DIN 40050.       Output response time     ms     <5	contact with huid	Sensing element		Stainless steel 17-4PH				
External gasket         Depending on model: no gasket or full uncoration PKM (Vitor) gasket           Operating positions         All positions           Yibration resistance         20 gn (102000 Hz), conforming to EN/IEC 60068-27           Rated impulse withstand voltage         Ulinp = 0.5 kV           Resistance to electromagnetic         Electroslatic discharges         8 kV in air, 4 kV on contact, conforming to EN/IEC 61000-4-2           Interference         Radiated electromagnetic fields         10 V/m from 80 to 1000 MHz, conforming to EN/IEC 61000-4-3           Surges         1 kV, conforming to EN/IEC 61000-4-5         Conducted disturbances, induced by radio frequency fields           Induced by radio frequency fields         10 V from 0.15 to 80 MHz, conforming to EN/IEC 61000-4-6           Conducted disturbances, induced by radio frequency fields         10 V from 0.15 to 80 MHz, conforming to EN/IEC 61000-4-6           Degree of protection         IP 85 (EN 175301-803-A connector version)           Protected against reverse polarity and short-circuit         IP 85 (KM12 connector version)           Degree of protection         IP 85 (KM12 connector version)           IP 86 (M12 connector version)         IP 85 (KM12 connector version)           IP 86 (M12 connector version)         IP 85 (KM12 connector version)           IP 86 (M12 connector version)         IP 80 (KM12 connector version)           IP 80 (M12 connector version)		Housing		Stainless steel AISI 304 and	d plastic PA66 (GF + MD)			
Operating position         All positions         20 gn (102000 Hz), conforming to EN/IEC 60008-2-64           Shock resistance         25 gn (half sine wave 11 ms) conforming to EN/IEC 60008-2-27           Rated impulse withstand voltage         Ump = 0.5 kV           Resistance to electromagnetic Electrostatic discharges         18 kV in ar. 4 kV on contact, conforming to EN/IEC 61000-4-2           Interference         Radiated electromagnetic fields         3 V/m from 80 to 1000 MHz, conforming to EN/IEC 61000-4-3           Surges         ± 1 kV, conforming to EN/IEC 61000-4-5         Electrical protection           Electrical protection         Ump = 0.5 kV         Rediated electromagnetic fields           Biogram         ± 1 kV, conforming to EN/IEC 61000-4-3         Electrical protection           Degree of protection         Um pradio frequency fields         10 V from 0.15 to 80 MHz, conforming to EN/IEC 61000-4-6           Degree of protection         Ump end biol PG (MI 2 and Packard Metri-Pack connector version), conforming to EN/IEC 61000-4-6           Degree of protection         IP 65 (EN 175301-803-Aconnector version), conforming to EN/IEC 61000-4-6           Unput response time         ms         <5		External gasket		Depending on model: no ga	sket or fluorocarbon FKM (Vi	ton) gasket		
Vibration resistance       20 gn (102000 Hz), conforming to EN/IEC 60088-264         Shock resistance       25 gn (half sine wave 11 ms) conforming to EN/IEC 60088-27         Retaid impulse withstand voltage       Ump = 0.5 kV         Resistance to electromagnetic Electrostatic discharges       8 kV in air, 4 kV on contact, conforming to EN/IEC 61000-4-2         Interference       Radiated electromagnetic fields       3 V/m from 1400 to 2000 MHz, conforming to EN/IEC 61000-4-3         Surges       1 kV, conforming to EN/IEC 61000-4-5       2000-4-4         Surges       1 kV, conforming to EN/IEC 61000-4-5       2000-4-6         Conducted disturbances, induced by radio frequency fields induced by radio frequency fields       10 V from 0.15 to 80 MHz, conforming to EN/IEC 61000-4-6         Electrical protection       Protected against reverse polarity and short-circuit         Degree of protection       IP 65 (EN 175301-803-A connector version), enderthing to EN/IEC 61000-4-5         Cutput response time       ms       < 5	Operating position			All positions				
Shock resistance       25 gn (half sine wave 11 ms) conforming to EN/IEC 60068-2.27         Rated impulse withstand voltage       Uimp = 0.5 kV         Resistance to electromagnetic       Electrostatic discharges       8 kV in air. 4 kV on contact, conforming to EN/IEC 61000-4-2         Interference       Radiated electromagnetic fields       10 V m from 80 to 1000 MHz, conforming to EN/IEC 61000-4-3         Fast transients       ± 1 kV, conforming to EN/IEC 61000-4-4         Surges       ± 1 kV, conforming to EN/IEC 61000-4-5         Conducted disturbances, induced by radio frequency fields       10 V from 0.15 to 80 MHz, conforming to EN/IEC 61000-4-6         Degree of protection       Protected against reverse polarity and short-circuit         Degree of protection       Protected against reverse polarity and short-circuit         Unput response time       ms         Linearity error       < 4.0 5% of the measuring range, conforming to EN/EC 61298-2	Vibration resistance			20 gn (102000 Hz), confo	rming to EN/IEC 60068-2-64			
Rated impulse withstand voltage       Uim p = 0.5 kV         Resistance to electromagnetic electrostatic discharges       8 kV no contact, conforming to EN/EC 6 1000-4-2         Interference       Radiated electromagnetic fields       10 V/m from 30 to 1000 MHz, 3 V/m from 1400 to 2000 MHz, conforming to EN/EC 6 1000-4-3         Fast transients       ± 1 kV, conforming to EN/EC 6 1000-4-5         Conducted disturbances, induced by radio frequency fields       10 V from 0.15 to 80 MHz, conforming to EN/EC 6 1000-4-6         Induced by radio frequency fields       10 V from 0.15 to 80 MHz, conforming to EN/EC 6 1000-4-6         Induced by radio frequency fields       10 V from 0.15 to 80 MHz, conforming to EN/EC 6 1000-4-6         Induced by radio frequency fields       10 V from 0.15 to 80 MHz, conforming to EN/EC 6 1000-4-6         Induced by radio frequency fields       10 V from 0.15 to 80 MHz, conforming to EN/EC 6 1000-4-6         Output response time       ms < 5	Shock resistance			25 gn (half sine wave 11 ms	) conforming to EN/IEC 6006	8-2-27		
Resistance to electromagnetic Electrostatic discharges       8 KV in air, 4 KV on contact, conforming to EM/EC 61000-4-2         Radiated electromagnetic fields       3 V/m from 10 to 1000 MHz, 3 V/m from 10 to 100 MHz, 3 V/m from 10 to 1000 MHz, 3 V/m from 10 to 1000 M	Rated impulse withstand voltage			Uimp = 0.5 kV				
Radiated electromagnetic fields       10 V/m rm 80 to 1000 MHz, 3 V/m from 40 to 2000 MHz, conforming to EN/IEC 61000-4-3         Fast transients       ± 1 kV, conforming to EN/IEC 61000-4-4         Surges       ± 1 kV, conforming to EN/IEC 61000-4-5         Conducted disturbances, induced by radio frequency fields       10 V from 0.15 to 80 MHz, conforming to EN/IEC 61000-4-6         Electrical protection       Protected against reverse polarity and short-circuit         Degree of protection       IP 65 (EN 175301-803-A connector version)         IP 65 (EN 175301-803-A connector version)       IP 665 (EN 175301-803-A connector version)         Output response time       ms       <5	Resistance to electromagnetic	Electrostatic discharges		8 kV in air, 4 kV on contact, conforming to EN/IEC 61000-4-2				
Fast transients       ± 1 kV, conforming to EN/IEC 6 1000-4-5         Surges       ± 1 kV, conforming to EN/IEC 6 1000-4-5         Conducted disturbances, induced by radio frequency fields       10 V from 0.15 to 80 MHz, conforming to EN/IEC 6 1000-4-6         Electrical protection       Protected against reverse polarity and short-circuit         Degree of protection       IP 65 (EN 175301-803-A connector version)         IP 65 and IP 67 (M12 and Packard Metri-Pack connector versions), conforming to DIN 40050.         Output response time       ms         Linearity error       <± 0.5 % of the measuring range, conforming to IEC 61298-2	Interrerence	Radiated electromagnetic fields		3 V/m from 1400 to 2000 MHz, conforming to EN/IEC 61000-4-3				
Surges       ± 1 KV, conforming to EN/IEC 6 1000-4-5         Conducted disturbances, induced by radio frequency fields       10 V from 0.15 to 80 MHz, conforming to EN/IEC 6 1000-4-6         Electrical protection       Protected against reverse polarity and short-circuit         Degree of protection       IP 65 (EN 175301-803-Aconnector version), P6 56 K(M12 and Packard Metri-Pack connector versions), conforming to EN/IEC 60529.         Output response time       ms       <5		Fast transients		± 1 kV, conforming to EN/IE	C 61000-4-4			
Conducted disturbances, induced by radio frequency fields       10 V from 0.15 to 80 MHz, conforming to EN/IEC 61000-4-6         Electrical protection       Protected against reverse polarity and short-circuit         Degree of protection       IP 65 (EN 175301-803-A connector version) IP 65 and IP 67 (M12 and Packard Meth-Pack connector versions), conforming to EN/IEC 61296-2         Output response time       ms       <5		Surges		± 1 kV, conforming to EN/IEC 61000-4-5				
Electrical protection       Protected against reverse polarity and short-circuit         Degree of protection       IP 65 (EN 175301-803-A connector version)         IP 65 and IP 67 (M12 and Packard Metri-Pack connector versions), conforming to ENVIEC 60529.         Output response time       ms         < ± 0.5 % of the measuring range, conforming to IEC 61298-2		Conducted disturbances, induced by radio frequency fields		10 V from 0.15 to 80 MHz, conforming to EN/IEC 61000-4-6				
Degree of protection       IP 65 (EN 175301-803-A connector version) IP 65 and IP 67 (M12 and Packard Metri-Pack connector versions), conforming to ENICE 60529. IP 69K (M12 connector version), conforming to DIN 40050.         Output response time       ms       <5	Electrical protection			Protected against reverse polarity and short-circuit				
Output response time       ms       < 5	Degree of protection			IP 65 (EN 175301-803-A connector version) IP 65 and IP 67 (M12 and Packard Metri-Pack connector versions), conforming to EN/IEC 60529. IP 69K (M12 connector version), conforming to DIN 40050.				
Linearity error       < ± 0.5 % of the measuring range, conforming to IEC 61298-2			ms	< 5				
Hysteresis       < 0.2 % of the measuring range	Linearity error			< ± 0.5 % of the measuring	range, conforming to IEC 612	98-2		
Repeat accuracy       < 0.1 % of the measuring range, conforming to IEC 61298-2	Hysteresis			< 0.2 % of the measuring ra	nge			
Precision       Precision (% of full scale)         3.0	Repeat accuracy			< 0.1 % of the measuring ra	nge, conforming to IEC 61298	8-2		
Service life       > 10 million operating cycles         Fluid connection       G1/4 A (male) DIN 3852-E, G1/4 (male) DIN 3852-A, SAE 7/16-20 UNF-2B (female), SAE 7/16-20 UNF-2A (male), 1/4"-18NPT (male).         Electrical connection       M12, 4-pins connector, EN 175301-803-A (ex-DIN 43650), Packard Metri-Pack 150, 3-pins connector.				Precision (% of full sca 3,0 1,0 -1,0 -3,0 -3,0 -3,0 0	<i>lle)</i>	emperature (°C)		
Fluid connection       G1/4 A (male) DIN 3852-E, G1/4 (male) DIN 3852-A, SAE 7/16-20 UNF-2B (female), SAE 7/16-20 UNF-2A (male), 1/4"-18NPT (male).         Electrical connection       M12, 4-pins connector, EN 175301-803-A (ex-DIN 43650), Packard Metri-Pack 150, 3-pins connector.	Service life			> 10 million operating cycle	S			
Electrical connection       M12, 4-pins connector, EN 175301-803-A (ex-DIN 43650), Packard Metri-Pack 150, 3-pins connector.	Fluid connection			G1/4 A (male) DIN 3852-E, SAE 7/16-20 UNF-2A (male	G1/4 (male) DIN 3852-A, SAE ), 1/4"-18NPT (male).	E 7/16-20 UNF-2B (female),		
	Electrical connection			M12, 4-pins connector, EN Packard Metri-Pack 150, 3-	175301-803-A (ex-DIN 43650 pins connector.	),		

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Sensors

### Electronic pressure sensors

OsiSense XM Pressure transmitters type XMLP Fluid connection: G 1/4 A (male) DIN 3852-E



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## Electronic pressure sensors OsiSense XM

Pressure transmitters type XMLP Fluid connection: G 1/4 A (male) DIN 3852-A

700 psi)				
	M12 connector		EN 175301-803-A connector	
0 400 (4450 x 1)		0.050 (0005	0	
0 100 (1450 psi)	0 160 (2320 psi)	0 250 (3625 psi)	0 400 (5800 psi)	0 600 (8700 psi)
transmitters with	1 420 MA outpi	ut		
		l		l
XMLP100BD22	XMLP160BD22	XMLP250BD22	XMLP400BD22	XMLP600BD22
XMLP100BD22Q (1)	XMLP160BD22Q (1)	XMLP250BD22Q (1)	XMLP400BD22Q (1)	XMLP600BD22Q (1)
XMLP100BC22	XMLP160BC22	XMLP250BC22	XMLP400BC22	XMLP600BC22
XMLP100BC22Q (1)	XMLP160BC22Q (1)	XMLP250BC22Q (1)	XMLP400BC22Q (1)	XMLP600BC22Q (1)
transmitters with	n 010 V output			
	-			
XMLP100BD72	XMLP160BD72	XMLP250BD72	XMLP400BD72	XMLP600BD72
XMLP100BD72Q (1)	XMLP160BD72Q (1)	XMLP250BD72Q (1)	XMLP400BD72Q (1)	XMLP600BD72Q (1)
XMLP100BC72	XMLP160BC72	XMLP250BC72	XMLP400BC72	XMLP600BC72
XMLP100BC72Q (1)	XMLP160BC72Q (1)	XMLP250BC72Q (1)	XMLP400BC72Q (1)	XMLP600BC72Q (1)
transmitters with	105 45V ratio	metric output		
transmitters with	10.0	incure output		
	XMLP160BD12			XMLP000DD12
XMLP100BD12Q(1)	XMLP160BD12Q (1)	XMLP250BD12Q (1)	XMLP400BD12Q(1)	XMLP600BD12Q(1)
XMLP100BC12	YMI D160BC12	YMI DOGOD(11)		
				XMLPOUDC12
XMLP100BC12Q (1)	XMLP160BC12Q (1)	XMLP250BC12Q (1)	XMLP400BC12Q (1)	XMLP600BC12 XMLP600BC12Q (1)
XMLP100BC12Q (1) 0.050	XMLP160BC12Q (1)           0.050	XMLP250BC12           XMLP250BC12Q (1)           0.050	XMLP400BC12Q (1)           0.050	XMLP600BC12           XMLP600BC12Q (1)           0.050
XMLP100BC12Q (1)           0.050           ty 40.	<b>XMLP160BC12Q</b> (1) 0.050	XMLP250BC12Q (1)           0.050	<b>XMLP400BC12Q</b> (1) 0.050	XMLP600BC12           XMLP600BC12Q (1)           0.050
XMLP100BC12Q (1)           0.050           ty 40.           teristics not show	XMLP160BC12Q (1) 0.050 wn under genera	XMLP200BC12           XMLP250BC12Q (1)           0.050	XMLP400BC12Q (1) 0.050	XMLP600BC12           XMLP600BC12Q (1)           0.050
XMLP100BC12Q (1) 0.050 ty 40. teristics not show None. Aluminium or cop	XMLP160BC12Q (1) 0.050 wn under genera per gasket possible, plea	XMLP250BC12Q (1) 0.050 I characteristics se consult our Customer	XMLP400BC12Q (1)           0.050           Care Centre.	XMLP600BC12           XMLP600BC12Q (1)           0.050
XMLP100BC12Q (1)           0.050           ty 40.           teristics not show           None. Aluminium or cop           200 bar (2900 psi)	XMLP160BC12Q (1) 0.050 wn under genera per gasket possible, plea 320 bar (4640 psi)	XMLP250BC12Q (1) 0.050 I characteristics se consult our Customer 375 bar (5437.5 psi)	XMLP400BC12Q (1)           0.050           Care Centre.           600 bar (8700 psi)	XMLP600BC12           XMLP600BC12Q (1)           0.050           900 bar (13 050 psi)
XMLP100BC12Q (1)           0.050           ty 40.           teristics not show           None. Aluminium or cop           200 bar (2900 psi)           300 bar (4350 psi)	XMLP160BC12Q (1)           0.050           wn under genera           per gasket possible, plea           320 bar (4640 psi)           400 bar (5800 psi)	XMLP250BC12Q (1) 0.050 I characteristics se consult our Customer 375 bar (5437.5 psi) 500 bar (7250 psi)	XMLP400BC12Q (1)           0.050           Care Centre.           600 bar (8700 psi)           800 bar (11 600 psi)	XMLP600BC12           XMLP600BC12Q (1)           0.050           900 bar (13 050 psi)           1200 bar (17 400 psi)
XMLP100BC12Q (1)           0.050           ty 40.           teristics not show           None. Aluminium or cop           200 bar (2900 psi)           300 bar (4350 psi)	XMLP160BC12Q (1) 0.050 wn under genera per gasket possible, plea 320 bar (4640 psi) 400 bar (5800 psi)	XMLP250BC12Q (1) 0.050 I characteristics se consult our Customer 375 bar (5437.5 psi) 500 bar (7250 psi)	XMLP400BC12Q (1)           0.050           Care Centre.           600 bar (8700 psi)           800 bar (11 600 psi)	XMLP600BC12           XMLP600BC12Q (1)           0.050           900 bar (13 050 psi)           1200 bar (17 400 psi)
XMLP100BC12Q (1)         0.050         ty 40.         teristics not show         None. Aluminium or cop         200 bar (2900 psi)         300 bar (4350 psi)         XMLP 010 V	XMLP160BC12Q (1) 0.050 wn under genera per gasket possible, plea 320 bar (4640 psi) 400 bar (5800 psi)	XMLP200BC12 XMLP250BC12Q (1) 0.050 I characteristics se consult our Customer 375 bar (5437.5 psi) 500 bar (7250 psi) XMLP 0.54.5 V	XMLP400BC12Q (1)           0.050           Care Centre.           600 bar (8700 psi)           800 bar (11 600 psi)	XMLP600BC12           XMLP600BC12Q (1)           0.050           900 bar (13 050 psi)           1200 bar (17 400 psi)
XMLP100BC12Q (1)           0.050           tyr 40.           teristics not show           None. Aluminium or cop           200 bar (2900 psi)           300 bar (4350 psi)           XMLP 010 V           Us (V)	XMLP160BC12Q (1) 0.050 VN under genera per gasket possible, plea 320 bar (4640 psi) 400 bar (5800 psi)	XMLP 200BC 12           XMLP250BC12Q (1)           0.050           I characteristics           se consult our Customer           375 bar (5437.5 psi)           500 bar (7250 psi)           XMLP 0.54.5 V           Us (V)	XMLP400BC12Q (1)           0.050           Care Centre.           600 bar (8700 psi)           800 bar (11 600 psi)	XMLP600BC12           XMLP600BC12Q (1)           0.050           900 bar (13 050 psi)           1200 bar (17 400 psi)
	0 100 (1450 psi) transmitters with XMLP100BD22 XMLP100BD22Q (1) XMLP100BC22Q (1) transmitters with XMLP100BD72Q (1) XMLP100BD72Q (1) XMLP100BC72Q (1) transmitters with XMLP100BD72Q (1) transmitters with XMLP100BD12Q (1)	M12 connector           0 100 (1450 psi)         0 160 (2320 psi)           transmitters with 420 mA output           XMLP100BD22         XMLP160BD22           XMLP100BD22Q (1)         XMLP160BD22Q (1)           XMLP100BC22Q (1)         XMLP160BC22Q (1)           XMLP100BC72         XMLP160BD72           XMLP100BC72         XMLP160BC72Q (1)           XMLP100BC72         XMLP160BC72Q (1)           XMLP100BC72         XMLP160BC72Q (1)           XMLP100BC72         XMLP160BC72Q (1)           XMLP100BC72Q (1)         XMLP160BC72Q (1)           XMLP100BC72Q (1)         XMLP160BC72Q (1)           XMLP100BD12         XMLP160BD12           XMLP100BD12         XMLP160BD12Q (1)	M12 connector           Multicity           Multicity </td <td>M12 connector         EN 175301-803-A co           Image: Second Secon</td>	M12 connector         EN 175301-803-A co           Image: Second Secon

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### Electronic pressure sensors OsiSense XM

OsiSense XM Pressure transmitters type XMLP Fluid connection: SAE 7/16-20UNF-2A (male)

Sizes 10 to 60 bar (145	to 870 psi)					
Units with analogue ou	ıtput		M12 connector		EN 175301-803-A c	onnector
SAE 7/16-20 UNF-2A (male)						
Pressure range		0 10 (145 psi)	0 16 (232 psi)	0 25 (362.5 psi)	0 40 (580 psi)	0 60 (870 psi)
References of pres	ssure tra	nsmitters with 4	20 mA output			
M12 connector						
Sold in packs of:	1	XMLP010BD27	XMLP016BD27	XMLP025BD27	XMLP040BD27	XMLP060BD27
	bulk (1)	XMLP010BD27Q (1)	XMLP016BD27Q (1)	XMLP025BD27Q (1)	XMLP040BD27Q (1)	XMLP060BD27Q (1)
EN 175301-803-A conn	ector					
Sold in packs of:	1	XMLP010BC27	XMLP016BC27	XMLP025BC27	XMLP040BC27	XMLP060BC27
•	bulk (1)	XMLP010BC27Q (1)	XMLP016BC27Q (1)	XMLP025BC27Q (1)	XMLP040BC27Q (1)	XMLP060BC27Q (1)
References of pres	ssure tra	nsmitters with 0	10 V output			
M12 connector			inite v output			
Sold in packs of:	1	XMLP010BD77	XMLP016BD77	XMLP025BD77	XMLP040BD77	XMLP060BD77
	bulk (1)	XMLP010BD77Q (1)	XMLP016BD77Q (1)	XMLP025BD77Q (1)	XMLP040BD77Q (1)	XMLP060BD77Q (1)
EN 175301-803-A conn	ector					
Sold in packs of:	1	XMLP010BC77	XMLP016BC77	XMLP025BC77	XMLP040BC77	XMLP060BC77
	bulk (1)	XMLP010BC77Q (1)	XMLP016BC77Q (1)	XMLP025BC77Q (1)	XMLP040BC77Q (1)	XMLP060BC77Q (1)
References of pre-	ssure tra	nsmitters with 0	5 45V ratiom	etric output		
M12 connector				ourput		
Sold in packs of:	1	XMI P010BD17	XMI P016BD17	XMI P025BD17	XMI P040BD17	XMI P060BD17
	bulk (1)	XMLP010BD17Q (1)	XML P016BD17Q (1)	XML P025BD17Q (1)	XMLP040BD17Q (1)	XML P060BD17Q (1)
EN 175301-803-A conn	ector					
Sold in packs of:	1	XMLP010BC17	XMLP016BC17	XMLP025BC17	XMLP040BC17	XMLP060BC17
	bulk (1)	XMLP010BC17Q (1)	XMLP016BC17Q (1)	XMLP025BC17Q (1)	XMLP040BC17Q (1)	XMLP060BC17Q (1)
Weight (kg)		0.050	0.050	0.050	0.050	0.050
(1) Sold in lots of 40. minimu	m quantitv 40.					
Complementary c	haractori	stics not shown	under general c	haractoristics		
External dasket		None	under generale			
Maximum permissible acci pressure	dental	20 bar (290 psi)	32 bar (464 psi)	50 bar (725 psi)	80 bar (1160 psi)	120 bar (1740 psi)
Destruction pressure		30 bar (435 psi)	48 bar (696 psi)	75 bar (1087.5 psi)	120 bar (1740 psi)	180 bar (2610 psi)
Output curves						
XMLP 420 mA		<b>XMLP</b> 010 V		XMLP 0.54.5 V		
ls (mA)		Us (V)		Us (V)		
20 16 12 8 4 0 50 % 10 P (I	0 % bar)	10 5 0 50 % F	100 % P (bar)		100 % P (bar)	

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# Electronic pressure sensors OsiSense XM

Pressure transmitters type XMLP Fluid connection: SAE 7/16-20UNF-2B (female)

Sizes 10 to 60 bar (145	to 870 psi)						
Units with analogue ou	ıtput		M12 connector		EN 175301-803-A connector		
SAE 7/16-20 UNF-2B (femal	e)						
Pressure range		0 10 (145 psi)	0 16 (232 psi)	0 25 (362.5 psi)	0 40 (580 psi)	0 60 (870 psi)	
References of pres	ssure tra	nsmitters with 4	20 mA output				
M12 connector							
Sold in packs of:	1	XMLP010BD29	XMLP016BD29	XMLP025BD29	XMLP040BD29	XMLP060BD29	
	bulk (1)	XMLP010BD29Q (1)	XMLP016BD29Q (1)	XMLP025BD29Q (1)	XMLP040BD29Q (1)	XMLP060BD29Q (1)	
EN 175301-803-A conn	ector						
Sold in packs of:	1	XMLP010BC29	XMLP016BC29	XMLP025BC29	XMLP040BC29	XMLP060BC29	
	bulk (1)	XMLP010BC29Q (1)	XMLP016BC29Q (1)	XMLP025BC29Q (1)	XMLP040BC29Q (1)	XMLP060BC29Q (1)	
References of pre-	ssure trai	nsmitters with 0	10 V output				
M12 connector							
Sold in packs of:	1	XMLP010BD79	XMLP016BD79	XMLP025BD79	XMLP040BD79	XMLP060BD79	
	bulk (1)	XMI P010BD79Q (1)	XMI P016BD79Q (1)	XMI P025BD79Q (1)	XMI P040BD79Q (1)	XMI P060BD79Q (1)	
EN 175301-803-A conn	ector						
Sold in packs of:	1	XMI P010BC79	XMI P016BC79	XMI P025BC79	XMI P040BC79	XMI P060BC79	
	bulk (1)	XML P010BC79Q (1)	XMLP016BC79Q (1)	XML P025BC79Q (1)	XMLP040BC79Q (1)	XMLP060BC79Q (1)	
Poforoncos of pro	seuro trai	nemittore with 0	5 4 5 V ratiom				
M42 compositor	ssure li a		.54.5 V ration	enicoulpul			
M12 connector	1						
Solu III packs of.	 	XMLP010BD19	XWLP010BD19	XMLP025BD19	XMLP040BD19	XML POCODD 19	
EN 475204 002 A com		XWILPUTUBD19Q (1)	XWILPUTODDT9Q (1)	XWILPU25BD19Q(1)	XWILP040BD19Q(1)	XWILPUOUDD'I9Q (1)	
EN 175301-603-A CONN Sold in packs of:			YMI D016BC10	YMI 00258C10		YMI DOGORC10	
Solu III packs of.	i bulk (1)	XMLP010BC19	XMLP016BC19	XMLP025BC19		XMLP000BC19	
Moight (kg)				0.050		0.050	
(1) Sold in lots of 40 minimu	m quantity 40	0.050	0.050	0.050	0.050	0.050	
		ation wat also was		here stariation			
Complementary c	naracteri	Stics not snown	under general d	naracteristics			
External gasket	dontal	None	22 hor (464 poi)	50 bor (725 poi)	90 hor (1160 poi)	120 bor (1740 poi)	
pressure	uentai	20 bai (290 psi)	52 bai (404 psi)	50 bai (725 psi)	60 bai (1100 psi)	120 bai (1740 psi)	
Destruction pressure		30 bar (435 psi)	48 bar (696 psi)	75 bar (1087.5 psi)	120 bar (1740 psi)	180 bar (2610 psi)	
Output curves							
<b>XMLP</b> 420 mA		XMLP 010 V		XMLP 0.54.50 V			
ls (mA)		Us (V)		Us (V)			
20 16 12 8 4 0 50 % 10 P (t	0 % Doar)	10 5 0 50 % F	100 % P (bar)		100 % P (bar)		

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## Electronic pressure sensors OsiSense XM

Pressure transmitters type XMLP Fluid connection: 1/4"-18NPT (male)

Sizes 100 tp 600 psi (6.9	9 to 41.4 ba	r)					
Units with analogue ou	tput		M12 connector		Packard Metri-Pack 150 connector		
Pressure range		0 100 psi (6.9 bar)	0 150 psi (10.3 bar)	0 200 psi (13.8 bar)	0 300 psi (20.7 bar)	0 600 psi (41.4 bar)	
<b>References of pres</b>	ssure tra	nsmitters with 4	20 mA output				
M12 connector							
Sold in packs of:	1	XMLP100PD23	XMLP150PD23	XMLP200PD23	XMLP300PD23	XMLP600PD23	
	bulk (1)	XMLP100PD23Q (1)	XMLP150PD23Q (1)	XMLP200PD23Q (1)	XMLP300PD23Q (1)	XMLP600PD23Q (1)	
Packard Metri-Pack 150	0 connecto	r					
Sold in packs of:	1	XMLP100PP23	XMLP150PP23	XMLP200PP23	XMLP300PP23	XMLP600PP23	
	bulk (1)	XMLP100PP23Q (1)	XMLP150PP23Q (1)	XMLP200PP23Q (1)	XMLP300PP23Q (1)	XMLP600PP23Q (1)	
References of pres	ssure tra	nsmitters with 0	10 V output				
M12 connector							
Sold in packs of:	1	XMLP100PD73	XMLP150PD73	XMLP200PD73	XMLP300PD73	XMLP600PD73	
	bulk (1)	XMLP100PD73Q (1)	XMLP150PD73Q (1)	XMLP200PD73Q (1)	XMLP300PD73Q (1)	XMLP600PD73Q (1)	
Packard Metri-Pack 150			VMI D450DD70	VMI DOGODD70			
Sold in packs of:	1 bulk (1)	XMLP100PP73	XMLP150PP73	XMLP200PP73	XMLP300PP73	XMLP600PP73	
					XMLP300PP73Q (1)	XMLP600PP73Q (1)	
References of pres	ssure tra	nsmitters with u	.54.5 V ratiom	etric output			
M12 connector	1	XMI B100BD12	XMI D150DD12		YMI 02000042		
Solu in packs of.	i bulk (1)	XMLP100PD130 (1)	XMLP 150PD13	XMLP200PD13	XMLP300PD13		
Packard Motri-Pack 15							
Sold in packs of:	1	XMLP100PP13	XMLP150PP13	XMLP200PP13	XMLP300PP13	XMLP600PP13	
	bulk(1)	XMLP100PP13Q (1)	XMLP150PP13Q (1)	XMLP200PP13Q (1)	XMLP300PP13Q (1)	XMLP600PP13Q (1)	
Weight (kg)		0.050	0.050	0.050	0.050	0.050	
(1) Sold in lots of 40, minimur	n quantity 40.						
Complementary ch	haracteri	stics not shown	under general g	characteristics			
External gasket		None	J				
Maximum permissible accie pressure	dental	200 psi (13.8 bar)	300 psi (20.7 bar)	400 psi (27.6 bar)	600 psi (41.4 bar)	1200 psi (82.8 bar)	
Destruction pressure		300 psi (20.7 bar)	450 psi (31.bar)	600 psi (41.4 bar)	900 psi (62 bar)	1800 psi (124 bar)	
Output curves							
XMLP 420 mA		XMLP 010 V		XMLP 0.54.5 ∨			
Is (mA)	0 % D5i)	Us (V) 10 5 5 0 50 %	100 % P (psi)	Us (V) 4.5 0.5 0 50 %	100 % P (psi)		

#### Other versions:

Presentation:	Characteristics :	Schemes:	Connections:	Dimensions:	
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## Electronic pressure sensors OsiSense XM

Pressure transmitters type XMLP Fluid connection: 1/4"-18NPT (male)

Sizes 1000 to 10 000 psi (69 to 690 bar)								
Units with analogue ou	ıtput		M12 connector		Packard Metri-Pack 150 connector			
Pressure range		0 1000 psi (69 bar)	0 2000 psi (138 bar)	0 3000 psi (207 bar)	0 6000 psi (414 bar)	0 10 000 psi (690 bar)		
References of pres	ssure tra	nsmitters with 4	20 mA output					
M12 connector								
Sold in packs of:	1	XMLP1K0PD23	XMLP2K0PD23	XMLP3K0PD23	XMLP6K0PD23	XMLP10KPD23		
	bulk (1)	XMLP1K0PD23Q (1)	XMLP2K0PD23Q (1)	XMLP3K0PD23Q (1)	XMLP6K0PD23Q (1)	XMLP10KPD23Q (1)		
Packard Metri-Pack 15	0 connecto	r						
Sold in packs of:	1	XMLP1K0PP23	XMLP2K0PP23	XMLP3K0PP23	XMLP6K0PP23	XMLP10KPP23		
	bulk (1)	XMLP1K0PP23Q (1)	XMLP2K0PP23Q (1)	XMLP3K0PP23Q (1)	XMLP6K0PP23Q (1)	XMLP10KPP23Q (1)		
References of pres	ssure tra	nsmitters with 0	10 V output					
M12 connector								
Sold in packs of:	1	XMLP1K0PD73	XMLP2K0PD73	XMLP3K0PD73	XMLP6K0PD73	XMLP10KPD73		
	bulk (1)	XMLP1K0PD73Q (1)	XMLP2K0PD73Q (1)	XMLP3K0PD73Q (1)	XMLP6K0PD73Q (1)	XMLP10KPD73Q (1)		
Packard Metri-Pack 15	0 connecto	r						
Sold in packs of:	1					XMLP10KPP73		
Defense of any					XIMLP6KUPP73Q (1)	XMLP10KPP73Q (1)		
References of pres	ssure tra	nsmitters with u	.54.5 V ratiom	etric output				
M12 connector	1							
Solu III packs of.	l bulk (1)				XMLPORUPD13			
Packard Motri Pack 15					XWILF ON OF DISQ (1)	XWILF TORF DISQ (1)		
Sold in packs of	1		XMI P2K0PP13		XMI P6K0PP13	XMI P10KPP13		
	bulk (1)	XMLP1K0PP13Q (1)	XMLP2K0PP13Q (1)	XMLP3K0PP13Q (1)	XMLP6K0PP13Q (1)	XMLP10KPP13Q (1)		
Weight (kg)	5 din (7)	0.050	0.050	0.050	0.050	0.050		
(1) Sold in lots of 40, minimu	m quantity 40.							
Complementary c	haracteri	stics not shown	under general o	haracteristics				
External gasket		None	general e					
Maximum permissible acci pressure	idental	2000 psi (138 bar)	4000 psi (276 bar)	4500 psi (310 bar)	9000 psi (620 bar)	13 050 psi (900 bar)		
Destruction pressure		3000 psi (138 bar)	5000 psi (345 bar)	6000 psi (414 bar)	12 000 psi (828 bar)	17 400 psi (1200 bar)		
Output curves								
XMLP 420 mA		XMLP 010 V		XMLP 0.54.50 V				
ls (mA)		Us (V)		Us (V)				
	7 - - - - - - - - - - - - - - - - - - -	5 50 %	100 %	0,5 0 50 %	100 %			
P (	psi)	F	- (psi)		r (psi)			
Other versions:								

Presentation:	Characteristics :	Schemes:	Connections:	Dimensions:	
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		Telemecanique Sensors			17

# References

### Electronic pressure sensors OsiSense XM

Pressure transmitters type XMLP Accessoires





XZCC12FCM40B

XZCC12FDM40B





XZCP1141L10

√ XZCP1241L5



XMLEZ...

Description	Туре		Reference	Weight
M12 female connector	Straight		XZCC12FDM40B	к <b>д</b> 0.020
metal clamping ring (1)				
	Elbowed		XZCC12FCM40B	0.020
EN 175301-803-A female connector <i>(1)</i>			XZCC43FCP40B	0.035
Description	Lenght of cable	Material of cable	Reference	Weight kg
Pre-wired M12, straight, female	2 m	PUR	XZCP1141L2	0.090
		PVC	XZCPV1141L2	0.110
	5 m	PUR	XZCP1141L5	0.190
		PVC	XZCPV1141L5	0.210
	10 m	PUR	XZCP1141L10	0.370
		PVC	XZCPV1141L10	0.390
Pre-wired M12, elbowed, female connectors	2 m	PUR	XZCP1241L2	0.090
		PVC	XZCPV1241L2	0.110
	5 m	PUR	XZCP1241L5	0.190
		PVC	XZCPV1241L5	0.210
	10 m	PUR	XZCP1241L10	0.370
		PVC	XZCPV1241L10	0.390
Description	Sensor si	ize	Reference	Weight
	bar			kg
Digital displays for analogue	010		XMLEZ010	0.100
	025		XMLEZ025	0.100
	060		XMLEZ060	0.100
	0100		XMLEZ100	0.100
	0250		XMLEZ250	0.100
	0600		XMLEZ600	0.100

(1) Connector with screw terminal connections.

**Note**: For other cabling accessories, please refer to our "Cabling accessories OsiSense XZ" catalogue.

#### Electronic pressure sensors OsiSense XM

Pressure transmitters type XMLP



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#### **Electronic pressure sensors** OsiSense XM Pressure transmitters type XMLP

Fluid connection

SAE 7/16-20UNF-2A (male)





#### SAE 7/16-20UNF-2B (female)





#### 1/4"-18NPT (male)



Presentation:	Characteristics :	References:	Schemes:	Dimensions:	
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# Electronic pressure sensors OsiSense XM

Pressure transmitters type XMLP



(1) SW 27.

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Presentation:	Characteristics :	References:	Schemes:	Connections:	



# Presentation

# **Electronic pressure sensors**

OsiSense XM, type XMLG For control circuits

#### Presentation

Pressure transmitters and pressure switches type XMLG 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  $\ge$  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 XMLG are factory set, the upper and lower switching thresholds must be stated when ordering.

# **Electronic pressure sensors** OsiSense XM, type XMLG For control circuits

Environment charact	teristics		
Conformity to standards			(6
			EN/IEC 60947-1, EN/IEC 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	833
	Pressure/vacuum switches	1	
	Transmitters 0-10 V	v	11.433
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, corrosive fluids from - 15+ 125°C
Component materials in contact with fluid			Ceramic Al <sub>2</sub> O <sub>3</sub> , stainless steel type AISI 303, FPM (Viton), PPS (Leakage protection for P > 40 bar)
Operating position			All positions
Vibration resistance			20 gn (92000 Hz) conforming to EN/IEC 60068-2-6
Shock resistance			25 gn (half sine wave 11 ms) conforming to EN/IEC 60068-2-27
Resistance to electromagnetic interference	Electrostatic discharges		15 kV in air, 8 kV on contact conforming to EN/IEC 61000-4-2
	Radiated electromagnetic fields		200 V/m, 801000 MHz conforming to EN/IEC 61000-4-3
	Fast transients		± 4 kV conforming to EN/IEC 61000-4-4
	Surges		± 500 V 12 Ω, ± 1 kV 42 Ω conforming to EN/IEC 61000-4-5
	Conducted disturbances,		30 V 0.1580 MHz conforming to EN/IEC 61000-4-6
	induced by radio frequency fields		
	Magnetic fields		30 A/m, 50 Hz conforming to EN/IEC 61000-4-8,
Electrical protection			Protected against reverse polarity and load short-circuit
Rated impulse withstand volta	ge	kV	0.5
Degree of protection			IP 66, IP 67 conforming to EN/IEC 60529, NEMA type 4
Output response time		ms	<2
Repeat accuracy			± 0.1% of the measuring range
Precision	Transmitters		Combined sum of linearity, hysteresis and repeat accuracy < $\pm$ 0.3% of the measuring range
			Setting tolerance of zero point and measuring range limit < $\pm$ 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	In millions of operating cycles		> 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 OsiSense XM, Pressure transmitters, type XMLG

With analogue output 4-20 mA and 0-10 V Sizes - 1 to 6 bar (-14.5 to 87 psi)

Units with analogue output





Pressure range (1)		- 1… 0 bar (-14.5… 0 psi)		0…1 bar (0…14.5 psi)		06 bar (087 ps	06 bar (087 psi)		
Type of electrical connection (2)		M12	Integrated quick connection (3)	M12	Integrated quick connection (3)	M12	Integrated quick connection (3)		
References									
Pressure transmitt	ers, 4-20 mA								
Sold in packs of:	1	XMLGM01D21	-	XMLG001D21	-	XMLG006D21	-		
	bulk <u>(4)</u>	XMLGM01D21TQ (4)	XMLGM01Q21TQ (4)	XMLG001D21TQ (4)	XMLG001Q21TQ (4)	XMLG006D21TQ (4)	XMLG006Q21TQ (4)		
Pressure transmitt	ers, 0-10 V								
Sold in packs of:	1	XMLGM01D71	-	XMLG001D71	-	XMLG006D71	-		
	bulk <u>(4)</u>	XMLGM01D71TQ (4)	XMLGM01Q71TQ (4)	XMLG001D71TQ (4)	XMLG001Q71TQ (4)	XMLG006D71TQ (4)	XMLG006Q71TQ (4)		
Fluid connection (5)		G 1/4 A (male)							
Weight (kg)         0.095         0.095			0.095	0.095	0.095				
Complementar	y characte	eristics not she	own under ger	neral characte	eristics				
Rated supply voltage		12/24 V (transmitters 4-20 mA, pressure/vacuum switches)							
		== 24 V (transmitters 0-10 V)							
Voltage limits									
		11.433 (transmitters 0-10 V)							
Analogue output		420 mA, 2-wire te	20 mA, 2-wire technique, or 0-10 V, 3-wire technique						
Current consumption		< 20 mA							
Maximum permissible accidental pressure		2.7 bar (39.1 psi)		2.7 bar (39.1 psi)		17.6 (255.20 psi)			
Destruction pressure		3 bar (43.5 psi)		3 bar (43.5 psi)		20 (290 psi)			
Electrical connection	By connector	XMLGeeeD21: M12	, 3-pin male. For suita	able female connecto	ors, including pre-wir	ed versions, see pag	ges 32 and 33.		
	Integrated	XMLGeeeQ21: integrated quick connection (3)							

(1) Other pressure ranges, please consult our Customer Care Centre.
 (2) Other connections (AMP connector, cable, etc.), please consult our Customer Care Centre.
 (3) Phoenix Contact "Quickon" type integrated connection.

(4) Sold in lots of 25, minimum

(5) Other fluid connections (G 1/4, 1/4 NPT, etc.), please consult our Customer Care Centre. Component materials of units in contact with the fluid, see page 23.

**Output curves** 







XMLGeee71



Sensors

# Electronic pressure sensors OsiSense XM, Pressure transmitters, type XMLG

With analogue output 4-20 mA and 0-10 V Sizes 10 to 25 bar (145 to 362.5 psi)

Units with analogue	Units with analogue output							
Pressure range (1)		010 bar (0145	psi)	016 bar (0232	psi)	025 bar (0362	.5 psi)	
Type of electrical conne	ection (2)	M12	Integrated quick connection (3)	M12	Integrated quick connection (3)	M12	Integrated quick connection (3)	
References								
Pressure transmitte	ers, 4-20 mA							
Sold in packs of:	1	XMLG010D21	-	XMLG016D21	-	XMLG025D21	-	
	bulk <u>(4)</u>	XMLG010D21TQ (4)	XMLG010Q21TQ (4)	XMLG016D21TQ (4)	XMLG016Q21TQ (4)	XMLG025D21TQ (4)	XMLG025Q21TQ (4)	
Pressure transmitte	ers, 0-10 V							
Sold in packs of:	1	XMLG010D71	-	XMLG016D71	-	XMLG025D71	-	
	bulk <u>(4)</u>	XMLG010D71TQ (4)	XMLG010Q21TQ (4)	XMLG016D71TQ (4)	XMLG016Q71TQ (4)	XMLG025D71TQ (4)	XMLG025Q71TQ (4)	
Fluid connection (5)		G 1/4 A (male)						
Weight (kg)		0.095	0.095	0.095	0.095	0.095	0.095	
Complementary	/ characte	ristics not she	own under ge	neral charact	eristics			
Rated supply voltage		12/24 V (transmi	itters 4-20 mA, press	ure/vacuum switche	s)			
		== 24 V (transmitters 0-10 V)						
Voltage limits		== 833 V (transmitters 4-20 mA, pressure/vacuum switches)						
		11.433 (transmitters 0-10 V)						
Analogue output		420 mA, 2-wire te	echnique, or 0-10 V, 3	3-wire technique				
Current consumption		< 20 mA		05.00 (540.4		50 h = (040 + s <sup>1</sup> )		
Maximum permissible a pressure	accidental	22 bar (319 psi)		35.20 (510.4 psi)		56 bar (812 psi)		
Destruction pressure		25 bar (362.5 psi)		40 (580 psi)		62.5 bar (906.2 psi	)	
Electrical connection	By connector	XMLGeeeD21: M1 pre-wired versions,	2, 3-pin male. For su see pages 32 and 3	itable female connec 3.	ctors, including			
	Integrated	XMLGeeeQ21: inte	egrated quick connec	tion (3)				
	<ul><li>(1) Other pressure ranges, please consult our Customer Care Centre.</li><li>(2) Other connections (AMP connector, cable, etc.), please consult our Customer Care Centre.</li></ul>							

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

(4) Sold in lots of 25, minimum quantity 50.
(5) Other fluid connections (G 1/4, 1/4 NPT, etc.), please consult our Customer Care Centre. Component materials of units in contact with the fluid, see page 23.



Sensors

# Electronic pressure sensors OsiSense XM, Pressure transmitters, type XMLG

With analogue output 4-20 mA and 0-10 V Sizes 100 to 250 bar (1450 to 3625 psi)

Units with analogue output	ut				
Pressure range (1)		0100 bar (01450 p	si)	0250 bar (03625 p	si)
Type of electrical connection (2)		M12	Integrated quick connection (3)	M12	Integrated quick connection (3)
References					
Pressure transmitters, 4-2	20 mA				
Sold in packs of:	1	XMLG100D21	-	XMLG250D21	-
·	bulk (4)	XMLG100D21TQ (4)	XMLG100Q21TQ (4)	XMLG250D21TQ (4)	XMLG250Q21TQ (4)
Pressure transmitters, 0-1	10 V				
Sold in packs of:	1	XMLG100D71	-	XMLG250D71	-
	bulk (4)	XMLG100D71TQ (4)	XMLG100Q71TQ (4)	XMLG250D71TQ (4)	XMLG250Q71TQ (4)
Fluid connection (5)		G 1/4 A (male)			
Weight (kg)		0.095	0.095	0.095	0.095
<b>Complementary cha</b>	racteristics not shown	under general c	haracteristics		
Rated supply voltage		= 12/24 V (transmitter	s 4-20 mA, pressure/vac	uum switches)	
		24 V (transmitters 0-10 V)			
Voltage limits		= 833 V (transmitter	s 4-20 mA, pressure/va	cuum switches)	
		== 11.433 (transmitters 0-10 V)			
Analogue output		420 mA, 2-wire technique, or 0-10 V, 3-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	<b>XMLG••D21</b> : M12, 3 see pages 32 and 33.	-pin male. For suitable fe	emale connectors, incluc	ling pre-wired versions,
	Integrated	XMLGeeeQ21: integra	ted quick connection (3)		
		<ul> <li>(1) Other pressure ranges, please consult our Customer Care Centre.</li> <li>(2) Other connections (AMP connector, cable, etc.), please consult our Customer Care Centre.</li> <li>(3) Phoenix Contact "Quickon" type integrated connection.</li> </ul>			

(4) Sold in lots of 25, minimum quantity 50.
 (5) Other fluid connections (G 1/4, 1/4 NPT, etc.), please consult our Customer Care Centre.

Component materials of units in contact with the fluid, see page 23.

#### **Output curves**









#### Electronic pressure sensors OsiSense XM, Pressure transmitters, type XMLG

OsiSense XM, Pressure transmitters, type XMLG With analogue output 4-20 mA and 0-10 V Size 400 bar (5800 psi)

Units with analogue outp	ut				
Pressure range (1)		0400 bar (05800 psi)			
Type of electrical connection	2)	M12	Integrated quick connection (3)		
References					
Pressure transmitters, 4-2	20 mA				
Sold in packs of:	1	XMI G400D21	-		
	bulk (4)	XMLG400D21TQ (4)	XMLG400Q21TQ (4)		
Pressure transmitters, 0-	10 V				
Sold in packs of:	1	XMI G400D71	-		
	bulk (4)	XMI G400D71TQ (4)	XMI G400071TQ (4)		
Fluid connection (5)		G 1/4 A (male)			
Weight (kg)		0.095	0.095		
<b>Complementary cha</b>	racteristics not shown	under general characteristics			
Rated supply voltage		= 12/24 V (transmitters 4-20 mA, pressure/vac	uum switches)		
Voltage limits		= 833 V (transmitters 4-20 mA, pressure/vacuum switches)			
5		11.433 (transmitters 0-10 V)			
Analogue output		420 mA, 2-wire technique, or 0-10 V, 3-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	XMLG•••D21: M12, 3-pin male. For suitable fe see pages 32 and 33.	male connectors, including pre-wired versions,		
	Integrated	XMLGeeeQ21: integrated quick connection (3)			
		<ul> <li>(1) Other pressure ranges, please consult our Customer Care Centre.</li> <li>(2) Other connections (AMP connector, cable, etc.), please consult our Customer Care Centre.</li> <li>(3) Phoenix Contact "Quickon" type integrated connection.</li> <li>(4) Sold in lots of 25, minimum quantity 50.</li> </ul>			

 (5) Other fluid connections (G 1/4, 1/4 NPT, etc.), please consult our Customer Care Centre. Component materials of units in contact with the fluid, see page 23.

#### **Output curves**





#### XMLGeeee71



Accessories: Dimensions: Schemes: page 32 page 33 page 33 Telemecanique

Sensors

# **Electronic pressure sensors** OsiSense XM, Pressure and vacuum switches, type XMLG

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

Units with solid-state output (1)

Adjustable range of switching	noint (PHI)				
Rising pressure (2) (8)		-0.00 1 bai (- 1.10	14.0 p3i)	0.001 bai (1.1014	
Type of electrical connection (	3)	M12	Integrated quick connection (4)	M12	Integrated quick connection (4)
References					
Only sold in bulk packs (5)	Type of output				
	NPN	XMLGM01D31TQ (5)	XMLGM01Q31TQ (5)	XMLG001D31TQ (5)	XMLG001Q31TQ (5)
	PNP	XMLGM01D41TQ (5)	XMLGM01Q41TQ (5)	XMLG001D41TQ (5)	XMLG001Q41TQ (5)
Fluid connection (6)		G 1/4 A (male)			
Weight (kg)		0.095	0.095	0.095	0.095
<b>Complementary cha</b> Switching thresholds (7)	racteristics not shown	under general of Factory set	haracteristics		
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 accider	ital 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		833 V			
Output		Solid-state NPN or PN	P, NC		
Switching capacity		150 mA			
Current consumption		< 4 mA			
Electrical connection	By connector	XMLGeeeDee: M12, 3-pin male. For suitable female connectors, including pre-wired versions, see pages 32 and 33.			
	Integrated	XMLGeeeQee: integra	ted quick connection (4)		
		<ul> <li>(1) Guter types of output (normally open PNP, NPN, etc.), please consult our Customer Care Centre.</li> <li>(2) Other pressure ranges, please consult our Customer Care Centre.</li> <li>(3) Other connections (AMP connector, cable, etc.), please consult our Customer Care Centre (4) Phoenix Contact "Quickon" type integrated connection.</li> <li>(5) Sold in lots of 25, minimum quantity 50.</li> <li>(6) Fluids controlled: hydraulic oils, fresh water, air, corrosive fluids, from -15+125°C. Component materials of units in contact with the fluid, see page 23. Other fluid connections (G 1/4, 1/4 NPT, etc.), please consult our Customer Care Centre.</li> <li>(7) State the switching threshold settings when ordering.</li> <li>(8) For vacuum switches (size - 1 bar): adjustable range of switching point (PB) on falling press</li> </ul>			our Customer Sustomer Care Centre. 15+125°C. tomer Care Centre. (PB) on falling pressure.
Operating curves		XMLGM01●●1		XMLG001●●1	



Sensors

Accessories: page 32

# Electronic pressure sensors OsiSense XM, Pressure switches type XMLG

Sizes 10 to 25 bar (145 to 362.5 psi)

Units with solid-state out	put (1)					
Adjustable range of switching Rising pressure (2)	point (PH)	0.810 bar (11.614	5 psi)	225 bar (29362.5	psi)	
Type of electrical connection (	(3)	M12	Integrated quick connection (4)	M12	Integrated quick connection (4)	
References						
Only sold in bulk packs (5)	Type of output					
	NPN	XMLG010D31TQ (5)	XMLG010Q31TQ (5)	XMLG025D31TQ (5)	XMLG025Q31TQ (5)	
	PNP	XMLG010D41TQ (5)	XMLG010Q41TQ (5)	XMLG025D41TQ (5)	XMLG025Q41TQ (5)	
Fluid connection (6)		G 1/4 A (male)				
Weight (kg)		0.095	0.095	0.095	0.095	
<b>Complementary cha</b>	racteristics not shown	under general o	haracteristics			
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 accider	ntal 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						
Voltage limits		833 V				
Output		Solid-state, NPN or PNP, NC				
Switching capacity		150 mA				
Current consumption		< 4 mA				
Electrical connection	By connector	XMLGeeeDee: M12, 3-pin male. For suitable female connectors, including pre-wired versions, see pages 32 and 33.				
	Integrated	XML-GeeeQee: integra	ated quick connection (4	!)		
	<ul> <li>(1) Other types of output (normally open PNP, N Care Centre.</li> <li>(2) Other pressure ranges, please consult our O</li> <li>(3) Other connections (AMP connector, cable, e</li> <li>(4) Phoenix Contact "Quickon" type integrated o</li> <li>(5) Sold in lots of 25, minimum quantity 50.</li> <li>(6) Fluids controlled: hydraulic oils, fresh water, a Component materials of units in contact with Other fluid connections (G 1/4, 1/4 NPT, etc.</li> <li>(7) State the switching threshold settings with</li> </ul>		PN, etc.), please consult ustomer Care Centre. c.), please consult our C onnection. ir, corrosive fluids, from - the fluid, see page 23. , please consult our Cus <b>en ordering.</b>	t our Customer Customer Care Centre. 15+125°C stomer Care Centre.		

#### **Operating curves**



Sensors

**Electronic pressure sensors** OsiSense XM, Pressure switches type XMLG Sizes 100 to 250 bar (1450 to 3625 psi)

Units with solid-state output (1)

Adjustable range of switchin Rising pressure (2)	g point (PH)	8100 bar (11.61450 psi)		20250 bar (293625 psi)	
Type of electrical connectior	ı (3)	M12	Integrated quick connection (4)	M12	Integrated quick connection (4)
References					
Only sold in bulk packs (5)	Type of output				
- · · · · · · · · · · · · · · · · · · ·	NPN	XMLG100D31TQ (5)	XMLG100Q31TQ (5)	XMLG250D31TQ (5)	XMLG250Q31TQ (5)
	PNP	XMLG100D41TQ (5)	XMLG100Q41TQ (5)	XMLG250D41TQ (5)	XMLG250Q41TQ (5)
Fluid connection (6)		G 1/4 A (male)			
Weight (kg)		0.095	0.095	0.095	0.095
Complementary cha	aracteristics not shown	under general o	haracteristics		
Switching thresholds (7)		Factory set			
Possible differential	Min. at low setting	3 har (43 5 nsi)		7 5 bar (108 8 psi)	
	Min. at high setting	3 har (43 5 nsi)		7.5 bar (108.8 psi)	
	Max at high setting	95 har (1377 5 nsi)		237 5 bar (3443 7 psi)	
Maximum permissible accid	antal pressure	225 bar (3262.5 psi)		560 bar (8120 psi)	
Destruction pressure		250 bar (3625 psi)		625 bar (0062 5 psi)	
Rated supply voltage		= 12/24 V		020 bai (0002.0 poi)	
Voltage limits		12/24 V			
		Solid-state NPN or PN			
Switching capacity		150 mA	ii , 1 <b>10</b>		
Current consumption		< 4 mA			
Electrical connection	By connector	XMLGeeeDee: M12, 3 see pages 32 and 33.	-pin male. For suitable for	emale connectors, includ	ding pre-wired versions,
	Integrated	XMLGQ integra	ted quick connection (4)	)	
		<ol> <li>Other types of output Care Centre.</li> <li>Other pressure rang (3) Other connections (/ (4) Phoenix Contact "Qu (5) Sold in lots of 25, mil (6) Fluids controlled: hyc Component material Other fluid connectio (7) State the switching</li> </ol>	t (normally open PNP, N es, please consult our C AMP connector, cable, e nickon" type integrated c nimum quantity 50. fraulic oils, fresh water, a ls of units in contact with ons (G 1/4, 1/4 NPT, etc., threshold settings wh	PN, etc.), please consul tc.), please consult our C onnection. ir, corrosive fluids, from - the fluid, see page 23. ), please consult our Cus <b>en ordering.</b>	t our Customer Customer Care Centre. 15+125°C stomer Care Centre.
Operating curves					
		MLG100●●1TQ		XMLG250●●1TQ	
		ensee 1	2	en 200 1	2

Accessories: page 32

30

Schemes: page 33 Telemecanique

8 

0

5

1 Maximum differential

2 Minimum differential

Dimensions: page 33

Sensors

50

200 242,5 bar Falling pressure

100

100

20

0 12,5

97 bar Falling pressure

# Electronic pressure sensors OsiSense XM, Pressure switches type XMLG

Size 400 bar (5800 psi)

Units with solid-state of	utput (1)		
Adjustable range of switchi Rising pressure (2)	n <b>g point</b> (PH)	32400 bar (4645800 psi	i)
Type of electrical connectio	n (3)	M12	Integrated quick connection (4)
References			
Only sold in bulk packs (5)	Type of ou	tput	
	NPN	XMLG400D31TQ (5)	XMLG400Q31TQ (5)
	PNP	XMLG400D41TQ (5)	XMLG400Q41TQ (5)
Fluid connection (6)		G 1/4 A (male)	
Weight (kg)		0.095	0.095
Complementary ch	aracteristics not sho	own under general char	acteristics
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 accid	lental pressure	800 bar (11,600 psi)	
Destruction pressure	•	900 bar (13.050 psi)	
Rated supply voltage		12/24 V	
Voltage limits			
Output		Solid-state NPN or PNP NC	
Switching capacity		150 mA	
		< 4 mA	
Electrical connection	By connector	XMI GeeeDee: M12 3-pin m	ale For suitable female connectors including pre-wired versions
		see pages 32 and 33.	
	Integrated	XMLGeeeQee: integrated qu	uick connection (4)
		<ol> <li>Other types of output (norr Care Centre.</li> <li>Other pressure ranges, ple</li> <li>Other connections (AMP c</li> <li>Phoenix Contact "Quickon</li> <li>Sold in lots of 25, minimum</li> <li>Fluids controlled: hydraulic Component materials of un</li> </ol>	nally open PNP, NPN, etc.), please consult our Customer ease consult our Customer Care Centre. onnector, cable, etc.), please consult our Customer Care Centre. " type integrated connection. or quantity 50. oils, fresh water, air, corrosive fluids, from -15+125°C nits in contact with the fluid, see page 23.

Other fluid connections (G 1/4, 1/4 NPT, etc.), please consult our Customer Care Centre. (7) State the switching threshold settings when ordering.

#### **Operating curve**

2

#### XMLG400ee1TQ





Sensors



# **Electronic pressure sensors** OsiSense XM, Accessories and replacement parts for

sensors type XMLG

	-
32711	
Ъ	
	XZCC12FCM40B

XZCP1141Le

**2**83352



XMLGZ001



Description		Length of cable m	Reference	Weight kg
M12 female connector, metal clamping ring (1)	Straight	-	XZCC12FDM40B	0.020
	Elbowed	-	XZCC12FCM40B	0.020
Pre-wired M12 female connectors	Straight	2	XZCP1141L2	0.090
		5	XZCP1141L5	0.190
		10	XZCP1141L10	0.370
	Elbowed	2	XZCP1241L2	0.090
		5	XZCP1241L5	0.190
		10	XZCP1241L10	0.370

Replacement part			
Description	Sold in lots of	Unit reference	Weight kg
Quick connection (2)	10	XMLGZ001	0.025

(1) Connector with screw terminal connections.(2) Phoenix Contact "Quickon" type connection.

Telemecanique Sensors

# Dimensions, schemes

# **Electronic pressure sensors**

OsiSense XM Transmitters and Pressure switches type XMLG For control circuits

#### Dimensions

#### XMLGeeeDee, M12 x 1 connection



#### XMLG ... , integrated quick connection



#### Connector schemes (pressure sensor connector pin view)

Integrated quick connection

#### Electronic pressure switches M12 Int

3-wire technique (PNP)



3-wire technique (NPN)





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)



# **Electronic pressure sensors**

OsiSense XM For control circuits, type XMLK



#### Presentation

Pressure transmitters type XMLK 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 an analogue output signal.

- 1 Electrical connection, for example: EN 175301-803-A connector
- 2 Seals
- 3 Threaded fluid connection
- 4 Hybrid electronics
- 5 Ceramic measuring cell

#### **Functions**

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

These compact products are available with various types of electrical connector and fluid connection.

As standard, versions are available calibrated in bar and psi. The selling in lots option offers an excellent price/performance ratio. Electronic pressure sensors XMLK are, therefore, mainly intended for manufacturers.

The sizes offered are suited to the pumping domain.
## **Characteristics**

## Electronic pressure sensors OsiSense XM

For control circuits, type XMLK

Environmental chara	acteristics				
Transmitter output signal			4-20 mA	0-10 V	
Conformity to standards			CE, ROHS, EN 61326		
Product certifications			UL, CSA		
Rated supply voltage		v	12/24 V	24 V	
Voltage limits			833 V	16.233 V	
Current consumption			< 20 mA	< 6 mA	
Protective treatment			Standard version "TC"	-	
Ambient air temperature	For operation	°C	0+ 80		
	For storage	°C	- 25+ 80		
Fluids or products controlled			Air, fresh water (0+ 80°C)		
Component materials in conta	ct with fluid		Steel, type AISI 303 (stainless steel) Nitrile (NBR)		
Operating position			All positions		
Vibration resistance			20 gn (92000 Hz) conforming to EN/IEC	/60068-2-6	
Shock resistance			25 gn (half sine wave 11 ms) conforming to	EN/IEC 60068-2-27	
Resistance to	Electrostatic discharges		8 kV in air, 6 kV on contact, conforming to EN/IEC 61000-4-2		
electromagnetic interference	Radiated electromagnetic fields		10 V/m, 801000 MHz conforming to EN/IEC 61000-4-3		
	Fast transients		± 2 kV conforming to EN/IEC 61000-4-4		
	Surges		$\pm$ 500 V 12 $\Omega,\pm$ 1 kV 42 $\Omega$ conforming to EN/IEC 61000-4-5		
	Conducted disturbances, induced by radio frequency fields		10 V 0.1580 MHz conforming to EN/IEC 61000-4-6		
	Magnetic fields		30 A/m, 50 Hz conforming to EN/IEC 61000-4-8		
Electrical protection			Protected against reverse polarity and load short-circuit		
Rated impulse withstand volta	ige	kV	0.5		
Degree of protection			IP 65 conforming to EN/IEC 60529 NEMA type 4 conforming to UL/CSA		
Output response time		ms	<2		
Repeat accuracy			± 0.3% of the measuring range		
Precision (resolution)			Combined sum of linearity, hysteresis and range	repeat accuracy < ± 1% of the measuring	
			Setting tolerance of zero point and measur range	ing range limit < ± 1% of the measuring	
Drift	Of the zero point		$< \pm 0.04\%$ of the measuring range/°K		
	Of the sensitivity		$< \pm 0.03\%$ of the measuring range/°K		
Service life	Operating cycles		> 10 million		
Fluid connection			G 1/4 A (male), DIN 3852-E or 1/4"-18NPT	male	
Electrical connection			Connector, either: M12, EN 175301-803-A or Metri-Pack (Packard)	(ex-DIN 43650A)	

## Electronic pressure sensors OsiSense XM

Pressure transmitters type XMLK, bar version With analogue output 4-20 mA Sizes 0 to 25 bar (0 to 362 psi)

Pressure transmitters type XMLK, bar version, DIN 43650A connector or M12 connector (1)						
		DIN 43650A connector		M12 connector		
Pressure range		06 bar (087 psi)	010 bar (0145 psi)	016 bar (0232 psi)	025 bar (0362.5 psi)	
References						
Pressure transmitters XM	ILK, DIN 43650A connector					
Sold in packs of:	1	XMLK006B2C21	XMLK010B2C21	XMLK016B2C21	XMLK025B2C21	
	bulk (2)	XMLK006B2C21TQ	XMLK010B2C21TQ	XMLK016B2C21TQ	XMLK025B2C21TQ	
Pressure transmitters XM	LK, M12 connector					
Sold in packs of:	1	XMLK006B2D21	XMLK010B2D21	XMLK016B2D21	XMLK025B2D21	
	bulk (2)	XMLK006B2D21TQ	XMLK010B2D21TQ	XMLK016B2D21TQ	XMLK025B2D21TQ	
Fluid connection (3)		G 1/4 A (male)				
Weight (kg)		0.110	0.110	0.110	0.110	
<b>Complementary cha</b>	racteristics not shown	under general c	haracteristics			
Rated supply voltage		24 V				
Voltage limits		833 V				
Output (4)		420 mA, 2-wire techr	nique			
Current consumption		< 20 mA				
Maximum permissible accide	ntal pressure	12 bar (174 psi)	20 bar (290 psi)	32 bar (464 psi)	50 bar (725 psi)	
Destruction pressure		18 bar (261 psi)	30 bar (435 psi)	48 bar (696 psi)	75 bar (1087.5 psi)	
Electrical connection	DIN 43650A connector	EN 175301-803-A (ma	le). For suitable female c	onnector see accessorie	es page 40.	
	M12 connector	M12, 3-pin male. For su see accessories page	uitable female connector 40.	s, including pre-wired ve	rsions,	
		<ul> <li>(1) Other types of electric</li> <li>(2) Sold in lots of 25, min</li> <li>(3) Other types of fluid of</li> </ul>	ical connection, please c nimum quantity 50.	onsult our Customer Ca	re Centre.	

r types ar

(4) Other types of output, please consult our Customer Care Centre.

## **Output curve**

#### XMLK0eeB2e21



## Electronic pressure sensors OsiSense XM

Pressure transmitters type XMLK, bar version With analogue output 0-10 V Sizes 0 to 25 bar (0 to 362 psi)

Pressure transmitters type XMLK, bar version, DIN 43650A connector or M12 connector (1)						
		DIN 43650A connector		M12 connector		
Pressure range		0…6 bar (0…87 psi)	010 bar (0145 psi)	016 bar (0232 psi)	025 bar (0362.5 psi)	
References		1	1		1	
Pressure transmitters XM	LK. DIN 43650A connector					
Sold in packs of:	1	XMLK006B2C71	XMLK010B2C71	XMLK016B2C71	XMLK025B2C71	
	bulk (2)	XMLK006B2C71TQ	XMLK010B2C71TQ	XMLK016B2C71TQ	XMLK025B2C71TQ	
Pressure transmitters XM	LK, M12 connector					
Sold in packs of:	1	XMLK006B2D71	XMLK010B2D71	XMLK016B2D71	XMLK025B2D71	
	bulk (2)	XMLK006B2D71TQ	XMLK010B2D71TQ	XMLK016B2D71TQ	XMLK025B2D71TQ	
Fluid connection (3)		G 1/4 A (male)				
Weight (kg)		0.110	0.110	0.110	0.110	
<b>Complementary char</b>	racteristics not shown	under general o	haracteristics			
Rated supply voltage		24 V				
Voltage limits		16.233 V				
Output (4)		010 V, 3-wire technique				
Current consumption		< 6 mA				
Maximum permissible accider	ntal pressure	12 bar (174 psi)	20 bar (290 psi)	32 bar (464 psi)	50 bar (725 psi)	
Destruction pressure		18 bar (261 psi)	30 bar (435 psi)	48 bar (696 psi)	75 bar (1087.5 psi)	
Electrical connection	DIN 43650A connector	EN 175301-803-A (ma	le). For suitable female of	connector see accessori	es page 40.	
	M12 connector	M12, 3-pin male. For s see accessories page	uitable female connector 40.	s, including pre-wired ve	ersions,	
	<ul> <li>(1) Other types of electrical connection, please consult our Customer Care Centre.</li> <li>(2) Sold in lots of 25, minimum quantity 50.</li> <li>(3) Other types of fluid connection, please consult our Customer Care Centre.</li> <li>(4) Other types of output, please consult our Customer Care Centre.</li> </ul>		re Centre.			

## **Output curve**





## **Electronic pressure sensors**

OsiSense XM Pressure transmitters type XMLK, PSI version With analogue output 4-20 mA Sizes 0 to 300 psi (0 to 20.7 bar)

## Pressure transmitters type XMLK, PSI version, DIN 43650A, M12 or Packard connector (1)



References					
Pressure transmitters XM	ILK, DIN 43650A connector				
Sold in packs of:	1	XMLK100P2C23	XMLK150P2C23	XMLK200P2C23	XMLK300P2C23
	bulk (2)	XMLK100P2C23TQ	XMLK150P2C23TQ	XMLK200P2C23TQ	XMLK300P2C23TQ
Pressure transmitters XMLK, M12 connector					
Sold in packs of:	1	XMLK100P2D23	XMLK150P2D23	XMLK200P2D23	XMLK300P2D23
	bulk (2)	XMLK100P2D23TQ	XMLK150P2D23TQ	XMLK200P2D23TQ	XMLK300P2D23TQ
Pressure transmitters XM	LK, Packard connector				
Sold in packs of:	1	XMLK100P2P23	XMLK150P2P23	XMLK200P2P23	XMLK300P2P23
	bulk (2)	XMLK100P2P23TQ	XMLK150P2P23TQ	XMLK200P2P23TQ	XMLK300P2P23TQ
Fluid connection (3)		1/4"-18NPT male			
Weight (kg)		0.110	0.110	0.110	0.110

### Complementary characteristics not shown under general characteristics

Rated supply voltage		24 V					
Voltage limits		833 V	833 V				
Output (4)		420 mA, 2-wire technique					
Current consumption		< 20 mA					
Maximum permissible acc	cidental pressure	200 psi (13.8 bar) 300 psi (20.7 bar) 400 psi (27.5 bar) 600 psi (41 bar)					
Destruction pressure		300 psi (20.7 bar)	450 psi (31 bar)	600 psi (41 bar)	900 psi (62 bar)		
Electrical connection	DIN 43650A connector	EN 175301-803-A (ma	EN 175301-803-A (male) . For suitable female connector see accessories page 40				
	M12 connector	M12, 3-pin male. For suitable female connectors, including pre-wired versions, see accessories page 40		ersions,			
	Packard connector	3-pin Delphi (Packard) Metri-Pack 150 series.					
		(1) Other types of electrical connection, please consult our Customer Care Centre.			are Centre.		

(2) Sold in lots of 25, minimum quantity 50

(3) Other types of fluid connection, please consult our Customer Care Centre.

(4) Other types of output, please consult our Customer Care Centre.

## **Output curve**

Pressure range

#### XMLK1eeP2e23



## **Electronic pressure sensors**

OsiSense XM Pressure transmitters type XMLK, PSI version With analogue output 0-10 V Sizes 0 to 300 psi (0 to 20.7 bar)

## Pressure transmitters type XMLK, PSI version, DIN 43650A, M12 or Packard connector (1)



0...100 psi (0...6.9 bar) 0...150 psi (0...10.3 bar) 0...200 psi (0...13.8 bar) 0...300 psi (0...20.7 bar)

References					
Pressure transmitters XM	LK, DIN 43650A connector				
Sold in packs of:	1	XMLK100P2C73	XMLK150P2C73	XMLK200P2C73	XMLK300P2C73
	bulk (2)	XMLK100P2C73TQ	XMLK150P2C73TQ	XMLK200P2C73TQ	XMLK300P2C73TQ
Pressure transmitters XMLK, M12 connector					
Sold in packs of: 1	XMLK100P2D73	XMLK150P2D73	XMLK200P2D73	XMLK300P2D73	
bulk (2)		XMLK100P2D73TQ	XMLK150P2D73TQ	XMLK200P2D73TQ	XMLK300P2D73TQ
Pressure transmitters XM	LK, Packard connector				
Sold in packs of:	1	XMLK100P2P73	XMLK150P2P73	XMLK200P2P73	XMLK300P2P73
	bulk (2)	XMLK100P2P73TQ	XMLK150P2P73TQ	XMLK200P2P73TQ	XMLK300P2P73TQ
Fluid connection (3)		1/4"-18NPT male			
Weight (kg)		0.110	0.110	0.110	0.110

### Complementary characteristics not shown under general characteristics

Rated supply voltage		24 V			
Voltage limits		16.233 V			
Output (4)		010 V, 3-wire technique			
Current consumption		< 6 mA			
Maximum permissible acc	idental pressure	200 psi (13.8 bar) 300 psi (20.7 bar) 400 psi (27.5 bar) 600 psi (41 bar)			600 psi (41 bar)
Destruction pressure		300 psi (20.7 bar)	450 psi (31 bar)	600 psi (41 bar)	900 psi (62 bar)
Electrical connection	DIN 43650A connector	EN 175301-803-A (male) . For suitable female connector see accessories page 40.			es page 40.
	M12 connector	M12, 3-pin male. For suitable female connectors, including pre-wired versions, see accessories page 40.			ersions,
	Packard connector	3-pin Delphi (Packard) Metri-Pack 150 series.			
		<ul> <li>(1) Other types of electrical connection, please consult our Customer Care Centre.</li> <li>(2) Sold in lots of 25, minimum quantity 50.</li> </ul>			

(3) Other types of fluid connection, please consult our Customer Care Centre.

(4) Other types of output, please consult our Customer Care Centre.

### **Output curve**

Pressure range

#### XMLK1eeP2e73





## References, schemes

## Electronic pressure sensors Pressure transmitters type XMLK

Accessories





XZCC12FDM40B



XZCC43FCP40B



XZCP1141L10

XZCP1241L5

<b>Connection accessories</b>	;		
Description	Туре	Reference	Weight kg
M12 female connector, metal clamping ring (1)	Straight	XZCC12FDM40B	0.020
	Elbowed	XZCC12FCM40B	0.020
DIN 43650A female connector (1)		XZCC43FCP40B	0.035
Description	Length of cable	Reference	Weight kg
Pre-wired M12, straight female connectors	2 m	XZCP1141L2	0.090
	5 m	XZCP1141L5	0.190
	10 m	XZCP1141L10	0.370
Pre-wired M12, elbowed female connectors	2 m	XZCP1241L2	0.090
	5 m	XZCP1241L5	0.190
	10 m	XZCP1241L10	0.370

(1) Connector with screw terminal connections.

## Connector schemes (pressure sensor connector pin view)

Pressure transmitters XMLK 2-wire technique (4-20 mA)









3-wire technique (0-10 V)	
DIN	







## Electronic pressure sensors Pressure transmitters type XMLK



# Presentation, principle

## Electronic pressure sensors OsiSense XM, type XMLE



## Presentation

Pressure switches and pressure transmitters type XMLE 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 XMLE 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 XMLE provide a 4-20 mA analogue output which is proportional to the measuring range.

A digital display unit can be directly plugged-in between the male and female EN 175301-803-A connectors.

Simple unrestricted positioning of the display unit + sensor + connector. The display can be adjusted to enable reading from any direction (360° orientation both vertically and horizontally).

## **Characteristics**

## Electronic pressure sensors OsiSense XM, type XMLE

Characteristics		
Conformity to standards		C€, 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, 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 (25200 Hz) and 35 (602000 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: < $\pm$ 0.03% of the measuring range/°C Of the sensitivity: < $\pm$ 0.015% 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 43650 A or M12 connector

## **Electronic pressure sensors**

## OsiSense XM

Transmitters without display, type XMLE (1) Sizes - 1 to 25 bar (- 14.5 to 362.5 psi)

### With analogue output, fluid connection G 1/4 A (male)







Pressure range		0 1 bar (0 14.5 psi)		01 bar (014.5 psi)		
Electrical connector typ	e	DIN 43650 A	M12	DIN 43650 A	M12	
References		1	1		1	
Fluids controlled (2)	Hydraulic oils, fresh water, air, corrosive fluids, from - 15 to + 80°C	XMLEM01U1C21	XMLEM01U1D21	XMLE001U1C21	XMLE001U1D21	
Weight (kg)		0.250	0.300	0.250	0.300	
Complementary	characteristics not shown	under general o	characteristics	(page 43)		
Maximum permissible a	ccidental 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		1133 V				
Output		Analogue, 420 mA, 2-wire technique				
Current consumption		< 20 mA				
Electrical connection		XMLEeeeU1C21: DIN 43650A, 4-pin male conno see page 52. XMLEeeeU1D21: M12, 5-pin male connector. Fo see page 52.		connector. For suitable female connector,		

(1) Optional digital display for sensor, see page 52.(2) Component materials of units in contact with the fluid, see page 43.

### **Output curves**





Other versions

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Pressure transmitters with 1/4" NPTF fluid connection. Please consult our Customer Care Centre.

essories:	Dimensions:
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#### lelemecanique

## With analogue output, fluid connection G 1/4 A (male)









0…10 bar (0…145 psi)		025 bar (0362.5 psi)				
DIN 43650 A	M12	DIN 43650 A	M12			
References	References					
XMLE010U1C21	XMLE010U1D21	XMLE025U1C21	XMLE025U1D21			
0.250	0.300	0.250	0.300			
<b>Complementary char</b>	acteristics not shown	under general characteristics (p	bage 43)			
20 bar (290 psi)	20 bar (290 psi) 50 bar (725 psi)					
30 bar (435 psi)	l bar (435 psi) 75 bar (1087.5 psi)					
24 V						
1133 V						
Analogue, 420 mA, 2-wire technique						
< 20 mA						
XMLEeeeU1C21: DIN 43650A, 4-pin male connector. For suitable female connector, see page 52. XMLEeeeU1D21: M12, 5-pin male connector. For suitable female connector, see page 52.						

## Output curves





Accessories:	Dimensions:	Schemes:
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## **Electronic pressure sensors**

OsiSense XM Transmitters without display, type XMLE (1) Sizes 60 to 600 bar (870 to 8700 psi)

### With analogue output, fluid connection G 1/4 A (male)







Pressure range		060 bar (0870 psi)		0100 bar (01450 psi)	
Electrical connector type		DIN 43650 A	M12	DIN 43650 A	M12
References					
Fluids controlled (2)	Hydraulic oils, fresh water, air, corrosive fluids, from - 15 to + 80°C	XMLE060U1C21	XMLE060U1D21	XMLE100U1C21	XMLE100U1D21
Weight (kg)		0.270	0.320	0.270	0.320
Complementary	characteristics not shown	under general o	characteristics (	page 43)	
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 1133 V					
Output		Analogue, 420 mA, 2-wire technique			
Current consumption		< 20 mA			
Electrical connection		XMLEeeeU1C21: DIN 43650A, 4-pin male connector. For suitable female connector, see page 52. XMLEeeeU1D21: M12, 5-pin male connector. For suitable female connector, see page 52.		ale connector, ector,	

(1) Optional digital display for sensor, see page 52.

(2) Component materials of units in contact with the fluid, see page 43.

### **Output curves**





Other versions

Pressure transmitters with 1/4" NPTF fluid connection. Please consult our Customer Care Centre.

Accessories:	[
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Dimensions: page 53

Telemecanique Sensors

## With analogue output, fluid connection G 1/4 A (male)









0250 bar (03625 psi)		0600 bar (08700 psi)			
DIN 43650 A	M12	DIN 43650 A M12			
References	References				
XMLE250U1C21	XMLE250U1D21	XMLE600U1C21	XMLE600U1D21		
0.270	0.320	0.270	0.320		
Complementary characteristics not shown under general characteristics (page 43)					
500 bar (7250 psi)	00 bar (7250 psi) 1200 bar (17,400 psi)				
750 bar (10,875 psi)	50 bar (10,875 psi) 1800 bar (26,100 psi)				
1133 V					
Analogue, 420 mA, 2-wire tech	nnique				
< 20 mA					
XMLEeeeU1C21: DIN 43650 A, 4-pin male connector. For suitable female connector, see page 52. XMLEeeeU1D21: M12, 5-pin male connector. For suitable female connector, see page 52.					

## Output curves





Accessories:	Dimensions:	Schemes:	
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## Electronic pressure sensors OsiSense XM, type XMLE

Vacuum and pressure switches without display (1), with adjustable differential for regulation between 2 thresholds Sizes - 1 to 25 bar (- 14.5 to 362.5 psi)

#### With solid-state output, fluid connection G 1/4 A (male)







Adjustable range of switching point (PH) (Rising pressure) (2)	- 0.07 1 bar (- 1.015 14.5 psi)		0.071 bar (101514.5 psi)	
Electrical connector type	DIN 43650 A	M12	DIN 43650 A	M12
References				

Fluids controlled (3)	Type of output				
Hydraulic oils, fresh water, air,	NPN	XMLEM01U1C31	XMLEM01U1D31	XMLE001U1C31	XMLE001U1D31
corrosive fluids, from - 15 to + 80°C	PNP	XMLEM01U1C41	XMLEM01U1D41	XMLE001U1C41	XMLE001U1D41
Weight (kg)		0.250	0.300	0.250	0.300

## Complementary characteristics not shown under general characteristics (page 43)

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 =: :				
Voltage limits				
Output		Solid-state, NPN or PNP, NC		
Switching capacity		100 mA		
Current consumption		< 15 mA		
Electrical connection	trical connection       XMLEeeeU1Ce1: DIN 43650 A, 4-pin male connector. For suitable female connector see page 52.         XMLEeeeU1De1: M12, 4-pin male connector. For suitable female connector, see page 52.		nnector. For suitable female connector, For suitable female connector,	
		(1) Optional digital display for pressure switch, see page 52.		

(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 43.

## **Operating curves**



2 Minimum differential

#### Other versions

Pressure and vacuum switches with 1/4" NPTF fluid connection. Please consult our Customer Care Centre.

Accessories:	: Dimensions:	Schemes:
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## With solid-state output, fluid connection G 1/4 A (male)









0.7…10 bar (10.15…145 psi)		1.7525 bar (25.38362.5 psi)	
DIN 43650 A	M12	DIN 43650 A	M12
Deferrences			

#### References

XMLE010U1C31	XMLE010U1D31	XMLE025U1C31	XMLE025U1D31
XMLE010U1C41	XMLE010U1D41	XMLE025U1C41	XMLE025U1D41
0.250	0.300	0.250	0.300

## Complementary characteristics not shown under general characteristics (page 43)

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)	
Solid-state, NPN or PNP, NC		
100 mA		
< 15 mA		
XMLEeeeU1Ce1: DIN 43650 A, 4-pin male connector. For suitable female connector, see page 52. XMLEeeeU1De1: M12, 5-pin male connector. For suitable female connector, see page 52.		

## **Operating curves**





2 Minimum differential

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## Electronic pressure sensors OsiSense XM, type XMLE

Pressure switches without display (1), with adjustable differential for regulation between 2 thresholds Sizes 60 to 600 bar (870 to 8700 psi)

### With solid-state output, fluid connection G 1/4 A (male)







Adjustable range of switching point (PH) (Rising pressure)		4.2…60 bar (60.9…870 psi)		7100 bar (101.51450 psi)			
Electrical connector type			DIN 43650 A	M12	DIN 43650 A	M12	
References			1	1		1	
Fluids controlled (2)	Type of	output					
Hydraulic oils, fresh water, air,	NPN		XMLE060U1C31	XMLE060U1D31	XMLE100U1C31	XMLE100U1D31	
corrosive fluids, from - 15 to + 80°C	PNP		XMLE060U1C41	XMLE060U1D41	XMLE100U1C41	XMLE100U1D41	
Weight (kg)			0.270	0.320	0.270	0.320	
Complementary charac	teristics not s	hown	under general o	characteristics (	page 43)		
Possible differential	Min. at low setting		1.2 bar (17.4 psi)		2 bar (29 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							
Voltage limits							
Output			Solid-state, NPN or PNP, NC				
Switching capacity		100 mA					
Current consumption		< 15 mA					
Electrical connection		XMLEeeeU1Ce1: DIN 43650 A, 4-pin male connector. For suitable female connector, see page 52. XMLEeeeU1De1: M12, 5-pin male connector. For suitable female connector, see page 52.					

### (1) Optional digital display for pressure switch, see page 52.

(2) Component materials of units in contact with the fluid, see page 43.

## **Operating curves**



Other versions

Pressure and vacuum switches with 1/4" NPTF fluid connection. Please consult our Customer Care Centre.

Accesso	ries: Dimensions:	Schemes:
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## With solid-state output, fluid connection G 1/4 A (male)









17.5250 bar (253.73625 psi)		42600 bar (6098700 psi)	
DIN 43650 A	M12	DIN 43650 A	M12
References			

XMLE250U1C31	XMLE250U1D31	XMLE600U1C31	XMLE600U1D31
XMLE250U1C41	XMLE250U1D41	XMLE600U1C41	XMLE600U1D41
0.270	0.320	0.270	0.320

## Complementary characteristics not shown under general characteristics (page 43)

· · ·		
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)	
1133 V		
Solid-state, NPN or PNP, NC		
100 mA		
< 15 mA		
XMLEeeeU1Ce1: DIN 43650 A, 4-pin male connector. For suitable female connector, see page 52. XMLEeeeU1De1: M12, 5-pin male connector. For suitable female connector, see page 52.		

## **Operating curves**





	Maximum unerentie	
2	Minimum differentia	

2 Minimum differential





## Electronic pressure sensors OsiSense XM, type XMLE

Accessories

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XMLEZ



XZCC43FCP40B





Accessories			
Description	Sensor size	Reference	Weight
	bar		kg
Digital displays for analogue pressure sensors	- 10	XMLEZM01	0.100
	01	XMLEZ001	0.100
	010	XMLEZ010	0.100
	025	XMLEZ025	0.100
	060	XMLEZ060	0.100
	0100	XMLEZ100	0.100
	0250	XMLEZ250	0.100
	0600	XMLEZ600	0.100

Connection accessories			
Description	Length of cable	Reference	Weight
	m		kg
Female DIN 43650 A connector	-	XZCC43FCP40B	0.035
Pre-wired M12, straight, female connectors	2 m	XZCP1164L2	0.115
	5 m	XZCP1164L5	0.270
	10 m	XZCP1164L10	0.520
Pre-wired M12, elbowed, female connectors	2 m	XZCP1264L2	0.115
	5 m	XZCP1264L5	0.270
	10 m	XZCP1264L10	0.520

## Electronic pressure sensors OsiSense XM, type XMLE

## Dimensions

XMLE...U1C21, XMLU1C31



060, 250, 600

Ø: G 1/4 A (male)



XMLE	а	
M01, 001, 010, 025	65	
060, 250, 600	75	
Ø: G 1/4 A (male)		
Digital diaplays		



75

## Digital displays

XMLEZ...





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

## Wiring schemes



(1) Sensor connector pin view

#### Electronic pressure switches (2) XMLEeeeU1C31 XMLEeeeU1D31



+



### XMLEeeeU1C41







(2) Switch connector pin view

Telemecaníque

## **Electronic pressure sensors**

OsiSense XM For control circuits, type XMLF



### Presentation

Electronic pressure sensors type XMLF are used for pressure control of hydraulic oils, fresh water, air and corrosive fluids, between – 1 and 600 bar.

Simplicity of setting-up

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

- 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 XMLF●●●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 XMLF•••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 XMLF●●●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 XMLF●●●E2●4● for AC 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 XMLF 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 AC 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.

## Electronic pressure sensors OsiSense XM

OsiSense XM For control circuits, type XMLF

- • • • •	•		
Environment characte	ristics		
Conformity to standards		<b>C€</b> , 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	
<b>—</b>		UH 000	
Product certifications		UL, CSA	
Protective treatment		Standard version "IC"	
Ambient air temperature	For operation	- 25+ 80°C (DC models)	
		- 25+ 75°C (AC models)	
Fluids or products controlled		Hydraulic oils, air, fresh 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 (25200 Hz) and 35 gn (602000 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	Contact 4kV, air 8 kV conforming to EN 61000-4-2	
	Radiated electromagnetic fields	10 V/m conforming to EN 61000-4-3	
	Fast transients	2 kV conforming to EN 61000-4-4	
	Surges	(AC) 1 kV, (DC) 0.5 kV conforming to EN 61000-4-5	
	Conducted disturbances, induced by radio frequency fields	10 V conforming to EN 61000-4-6	
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	$\leq$ 0.6% of the measuring range, output offset < 200 mV	
	Solid-state output	≤ 0.6% of the measuring range	
Repeat accuracy		$\leq$ 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 (BSP female) conforming to NF E 03-004 and ISO 7 or 1/4" NPT female, depending on model	
Electrical connection		M12 or SAE 7/8"-16UN connector, depending on model	

Туре

# **Electronic pressure sensors** OsiSense XM, type XMLF Size - 1 bar (- 14.5 psi)

Universal sensors with adjustable

Pressure transmitters

				differential. Solid- outputs (1)	state and analogue
Adjustable range of switch (Falling pressure)	ing point (PB)	-		- 0.08 1 bar (- 1.16	14.5 psi)
Analogue output		4-20 mA	0-10 V	4-20 mA	0-10 V
References			1		
Fluid connection (2) (3)	G 1/4 female 1/4" NPT female	XMLFM01D2015 XMLFM01D2016	XMLFM01D2115 XMLFM01D2116	XMLFM01D2025 XMLFM01D2026	XMLFM01D2125 XMLFM01D2126
Neight (kg)		0.480			
<b>Complementary c</b>	haracteristics not show	n under general	characteristics	(page 55)	
Possible differential (add to PB to give PH)	Min. at low and high setting Max. at low setting	-		0.03 bar (0.44 psi) 0.95 bar (13.77 psi)	
Maximum permissible acc	idental pressure	3 bar (43.5 psi)			
Destruction pressure		5 bar (72.5 psi)			
Rated supply voltage		24 V			
Voltage limits		1733 V			
Current consumption		80 mA			
Output		-		Programmable, NPN or PNP and NO or NC	
Time delay		Adjustable time delay on trip and on rese     0 to 50 s, in steps of 1 second		on trip and on reset from second	
Switching capacity		-		200 mA	
Analogue output		420 mA or 010 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 83			
		(1) Vacuum sensors w and analogue outp	ith adjustable differentia uts.	l for regulation between 2	thresholds. Solid-state

(2) Fluids controlled: hydraulic oils, fresh water, air, corrosive fluids, from - 15 to + 80°C. Component materials of units in contact with the fluid, see page 55.

(3) For SAE 7/16-20UNF and other threads, please consult our Customer Care Centre.

#### Curves

### Analogue output curve







1 Maximum differential 2 Minimum differential



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# **Electronic pressure sensors** OsiSense XM, type XMLF Size - 1 bar (- 14.5 psi)

Туре		Vacuum switches with adjustable differential and relay output (1)	Dual stage adjustable vacuum switches with solid-state outputs (2)	
Adjustable range of switching (Falling pressure)	point(s) (PB or PB1 and PB2)	- 0.08 1 bar (- 1.16 14.5 psi)		
References				
Fluid connection	G 1/4 female	XMLFM01E2045	XMLFM01D2035	
(3) (4)	1/4" NPT female	XMLFM01E2046	XMLFM01D2036	
Weight (kg)		0.590	0.480	
<b>Complementary cha</b>	racteristics not shown	under general characteristics	(page 55)	
Possible differential (add to:	Min. at low and high setting	0.03 bar (0.44 psi)	For each stage:	
- PB to give PH - PB1 & PB2 to give PH1 & PH2	Max. at low setting	0.95 bar (13.77 psi)	min. at low and high setting: 0.03 bar (0.44 psi max. at low setting: 0.95 bar (13.77 psi)	
Maximum permissible accide	ntal pressure	3 bar (43.5 psi)		
Destruction pressure		5 bar (72.5 psi)		
Rated supply voltage		$\sim$ 120 V	24 V	
Voltage limits		$\sim$ 102132 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 83	M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 83	
		<ol> <li>Vacuum switches with adjustable differential</li> <li>Vacuum switches with 2 adjustable stages a Solid-state outputs.</li> <li>Fluids controlled: hydraulic oils, fresh water, Component materials of units in contact with</li> <li>For SAE 7/16-20UNF and other threads, ple</li> </ol>	for regulation between 2 thresholds. Relay outpu and adjustable differential for each threshold. air, corrosive fluids, from - 15 to + 80°C. the fluid, see page 55. ease consult our Customer Care Centre.	

## 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

PH PB

Time





Dimensions: page 83

Schemes: page 83

Туре

## Electronic pressure sensors OsiSense XM, type XMLF

Universal sensors with adjustable

Size 1 bar (14.5 psi)

		differential. Solid-state and analogue outputs (1)
ge of switching point (PH)	-	0.081 bar (1.1614.5 psi)

**Pressure transmitters** 

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	4-20 mA	0-10 V	
References						
Fluid connection	G 1/4 female	XMLF001D2015	XMLF001D2115	XMLF001D2025	XMLF001D2125	
(2) (3)	1/4" NPT female	XMLF001D2016	XMLF001D2116	XMLF001D2026	XMLF001D2126	
Weight (kg)		0.480				
<b>A I</b>						

Complementary cha	iracteristics not snown	under general characteristics (p	bage 55)	
Possible differential	Min. at low and high setting	-	0.03 bar (0.44 psi)	
(subtract from PH to give PB)	Max. at high setting	-	0.95 bar (13.77 psi)	
Maximum permissible accide	ntal pressure	4 bar (58 psi)		
Destruction pressure		6 bar (87 psi)		
Rated supply voltage		24 V		
Voltage limits		1733 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		420 mA or 010 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 83		
		(1) Pressure sensors with adjustable differential	for regulation between 2 thresholds Solid-state	

and analogue outputs.

(2) Fluids controlled: hydraulic oils, fresh water, air, corrosive fluids, from - 15 to + 80°C. Component materials of units in contact with the fluid, see page 55.

(3) For SAE 7/16-20UNF and other threads, please consult our Customer Care Centre.

#### Curves

### Analogue output curve



## Pressure sensor operating curves





--- Adjustable value

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# **Electronic pressure sensors** OsiSense XM, type XMLF Size 1 bar (14.5 psi)

уре		Pressure switches with adjustable differential and relay output (1)	Dual stage adjustable pressure switches with solid-state outputs (2)	
ljustable range of switching ising pressure)	point(s) (PH or PH1 and PH2)	0.08…1 bar (1.16…14.5 psi)		
eferences				
uid connection	G 1/4 female	XMLF001E2045	XMLF001D2035	
(4)	1/4" NPT female	XMLF001E2046	XMLF001D2036	
eight (kg)		0.590	0.480	
omplementary cha	racteristics not shown	under general characteristics	(page 55)	
ssible differential	Min at low and high setting	0.03 bar (0.44 psi)	For each stage	
ibtract from: H to give PB H1 & PH2 to give PB1 & PB2	Max. at high setting	0.95 bar (13.77 psi)	min. at low and high setting: 0.03 bar (0.44 ps max. at high setting: 0.95 bar (13.77 psi)	
Aximum permissible accidental pressure		4 bar (58 psi)		
struction pressure	•	6 bar (87 psi)		
ted supply voltage		$\sim$ 120 V	24 V	
Itage limits		∼ 102…132 V	1733 V	
irrent consumption		32 mA	80 mA	
Itput		Relay	Programmable, NPN or PNP and NO or NC	
ne delay		Adjustable time delay on trip and on reset from 0 to 50 s, in steps of 1 second		
vitching capacity		2.5A, AC-15, C300 (120 V - 1.5A) 200 mA		
ectrical connection		SAE 7/8-16UN, 5-pin male connector. For suitable female pre-wired connectors, see page 83	M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 83	
		<ol> <li>Pressure switches with adjustable differentia</li> <li>Pressure switches with 2 adjustable stages Solid-state outputs.</li> <li>Fluids controlled: hydraulic oils, fresh water, a Component materials of units in contact with</li> <li>For SAE 7/16-20UNF and other threads, ple</li> </ol>	I for regulation between 2 thresholds. Relay outpu and adjustable differential for each threshold. air, corrosive fluids, from - 15 to + 80°C. the fluid, see page 55. pase consult our Customer Care Centre.	
ressure switch ope	erating curves	-	1- · · ·	
Surve for each stage for di	ual stage pressure switches)	Pressure switches with relay output	Dual stage pressure switches	
bar 1 0.5 0.08 0.05 0.5	0.97bar	Pressure PH PB Time	Pressure PH2 PB2 PH1 PB1 Time	
Falling	pressure			

Accessories: page 82 Dimensions: page 83 Schemes: page 83

Telemecanique

Туре

# **Electronic pressure sensors** OsiSense XM, type XMLF Size 2.5 bar (36.25 psi)

Universal sensors with adjustable

Pressure transmitters

				differential. Solid outputs (1)	I-state and analogue	
Adjustable range of switching (Rising pressure)	g point (PH)	-		0.202.5 bar (2.9	36.25 psi)	
Analogue output		4-20 mA	0-10 V	4-20 mA	0-10 V	
References		1		1		
Fluid connection	G 1/4 female	XMLF002D2015	XMLF002D2115	XMLF002D2025	XMLF002D2125	
(2) (3)	1/4" NPT female	XMLF002D2016	XMLF002D2116	XMLF002D2026	XMLF002D2126	
Weight (kg)		0.480				
<b>Complementary cha</b>	racteristics not shown	under general	characteristics	(page 55)		
Possible differential	Min. at low and high setting	-		0.08 bar (1.09 psi)	0.08 bar (1.09 psi)	
(subtract from PH to give PB)	Max. at high setting	-		2.38 bar (34.51 psi)		
Maximum permissible accide	ntal pressure	10 bar (145 psi)				
Destruction pressure		15 bar (217.5 psi)				
Rated supply voltage						
Voltage limits						
Current consumption		80 mA				
Output		-		Programmable, NPN or PNP and NO or NC		
Time delay		<ul> <li>Adjustable time delay on trip and on reset f</li> <li>0 to 50 s, in steps of 1 second</li> </ul>		y on trip and on reset from 1 second		
Switching capacity		– 200 mA				
Analogue output		420 mA or 010 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 83				
		(1) Pressure sensors v	vith adjustable different	ial for regulation betweer	n 2 thresholds. Solid-state	

and analogue outputs.

(2) Fluids controlled: hydraulic oils, fresh water, air, corrosive fluids, from - 15 to + 80°C.

Component materials of units in contact with the fluid, see page 55. (3) For SAE 7/16-20UNF and other threads, please consult our Customer Care Centre.

#### Curves

### Analogue output curve



### Pressure sensor operating curves





-Adjustable value

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## Schemes page 83 Telemecanique Sensors

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# **Electronic pressure sensors** OsiSense XM, type XMLF Size 2.5 bar (36.25 psi)

Туре		Pressure switches with adjustable differential and relay output (1)	Dual stage adjustable pressure switches with solid-state outputs (2)
Adjustable range of switching (Rising pressure)	g point(s) (PH or PH1 and PH2)	0.202.5 bar (2.936.25 psi)	
References			
Fluid connection	G 1/4 female	XMLF002E2045	XMLF002D2035
(3) (4)	1/4" NPT female	XMLF002E2046	XMLF002D2036
Weight (kg)		0.590	0.480
<b>Complementary cha</b>	racteristics not shown	under general characteristics	(page 55)
Possible differential (subtract from: - PH to give PB	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)
- PH1 & PH2 to give PB1 & PB2	)		
Maximum permissible accide	ntal pressure	10 bar (145 psi)	
Destruction pressure		15 bar (217.5 psi)	- 24.14
Rated supply voltage		$\sim$ 120 V	
voltage limits		$\sim 102132$ V	1733 V
		32 MA	80 mA
Julpul Timo dolav		Adjustable time delay on trip and on reset from	Programmable, NPN of PNP and NO of NC
Switching capacity		Adjustable time delay on the and on reset from $2.5 \text{ A}$ AC 15 C300 (120 )/ $1.5 \text{ A}$ )	
Electrical connection		SAE 7/8-16UN, 5-pin male connector. For suitable female pre-wired connectors, see page 83	M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 83
		<ol> <li>Pressure switches with adjustable differentia</li> <li>Pressure switches with 2 adjustable stages Solid-state outputs.</li> </ol>	l for regulation between 2 thresholds. Relay outpu and adjustable differential for each threshold.
		<ul> <li>(3) Fluids controlled: hydraulic oils, fresh water, Component materials of units in contact with</li> <li>(4) For SAE 7/16-20UNF and other threads, ple</li> </ul>	air, corrosive fluids, from - 15 to + 80°C. the fluid, see page 55. ease consult our Customer Care Centre.
Prossure switch one	arating curves (Curve for	each stage for dual stage proceure ewitch	
Flessule switch ope	erating curves (Curve lord	Brossure switches with relay sutput	
		Fressure switches with relay output	Duai stage pressure switches
bar			
g2.5			
Less		Pressure	Pressure
		PH	PH2
			PB2 PH1
		PB	PB1

Time



1 Maximum differential 2 Minimum differential

1

0.20 0 0.12

Accessories: page 82

2 2.42 bar Falling pressure

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Telemecaníque Sensors

Туре

## Electronic pressure sensors OsiSense XM, type XMLF

Universal sensors with adjustable

outputs (1)

differential. Solid-state and analogue

Size 10 bar (145 psi)

Adjustable range of switching (Rising pressure)	g point (PH)	-		0.810 bar (11.6145 psi)	
Analogue output		4-20 mA	0-10 V	4-20 mA	0-10 V
References					
Fluid connection	G 1/4 female	XMLF010D2015	XMLF010D2115	XMLF010D2025	XMLF010D2125
(2) (3)	1/4" NPT female	XMLF010D2016	XMLF010D2116	XMLF010D2026	XMLF010D2126
Weight (kg)		0.480			·
<b>Complementary cha</b>	aracteristics not shown	under general o	characteristics (	page 55)	
Possible differential	Min. at low and high setting	-		0.3 bar (4.4 psi)	
(subtract from PH to give PB)	Max at high setting	_		9.5 har (137.75 nsi)	

**Pressure transmitters** 

	<b>e e</b>			
(subtract from PH to give PB)	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				
Voltage limits		== 1733 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		420 mA or 010 V, depending on model. Maximum signal level adjustable between 7.5 an 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 83		

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

(2) Fluids controlled: hydraulic oils, fresh water, air, corrosive fluids, from - 15 to +  $80^{\circ}$ C. Component materials of units in contact with the fluid, see page 55.

(3) For SAE 7/16-20UNF and other threads, please consult our Customer Care Centre.

#### Curves

### Analogue output curve



### Pressure sensor operating curves







Adjustable value

Accessories: Dimensions:	Schemes:
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Telemecaníque Sensors

# **Electronic pressure sensors** OsiSense XM, type XMLF Size 10 bar (145 psi)

Туре		Pressure switches with adjustable differential and relay output (1)	Dual stage adjustable pressure switches with solid-state outputs (2)	
Adjustable range of switch (Rising pressure)	hing point(s) (PH or PH1 and PH2)	0.810 bar (11.6145 psi)		
References				
Fluid connection	G 1/4 female	XMLF010E2045	XMLF010D2035	
(3) (4)	1/4" NPT female	XMLF010E2046	XMLF010D2036	
Weight (kg)		0.590	0.480	
Complementary of	haracteristics not showr	under general characteristics	(page 55)	
Possible differential	Min, at low and high setting	0.3 bar (4.4 psi)	For each stage:	
(subtract from: - PH to give PB - PH1 & PH2 to give PB1 & PB2)		9.5 bar (137.75 psi)	min. at low and high setting: 0.3 bar (4.4 psi) max. at high setting: 9.5 bar (137.75 psi)	
Maximum permissible acc	idental pressure	40 bar (580 psi)		
Destruction pressure		60 bar (870 psi)		
Rated supply voltage		$\sim$ 120 V		
Voltage limits		$\sim$ 102132 V	1733 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 fron	n 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 83	M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 83	
		<ol> <li>Pressure switches with adjustable differential</li> <li>Pressure switches with 2 adjustable stages Solid-state outputs.</li> <li>Fluids controlled: hydraulic oils, fresh water, Component materials of units in context with</li> </ol>	I for regulation between 2 thresholds. Relay output. and adjustable differential for each threshold. air, corrosive fluids, from - 15 to + 80°C.	

(4) For SAE 7/16-20UNF and other threads, please consult our Customer Care Centre.

## Pressure switch operating curves

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



2 Minimum differential





-Adjustable value

Telemecanique

Туре

# **Electronic pressure sensors** OsiSense XM, type XMLF Size 16 bar (232 psi)

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



Adjustable range of switching point (PH) (Rising pressure)		-		1.2816 bar (18.56232 psi)	
Analogue output		4-20 mA	0-10 V	4-20 mA	0-10 V
References					
Fluid connection	G 1/4 female	XMLF016D2015	XMLF016D2115	XMLF016D2025	XMLF016D2125
(2)	1/4" NPT female	XMLF016D2016	XMLF016D2116	XMLF016D2026	XMLF016D2126
Weight (kg)		0.480			
<b>Complementary cha</b>	racteristics not shown	under general o	haracteristics (p	age 55)	
Possible differential	Min. at low and high setting	-		0.48 bar (6.96 psi)	
(subtract from PH to give PB)	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		== 1733 V			
Current consumption	80	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	420 mA or 010 V, depending on model. Maximum signal level adjustable between 12 and 20 bar (174 and 290 psi)			
Electrical connection	M se	M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 83			
	(1)	Pressure sensors with adjustable differential	for regulation between 2 thresholds. Solid-state		

( I ) and analogue outputs.

(2) Fluids controlled: hydraulic oils, fresh water, air, corrosive fluids, from - 15 to + 80°C. Component materials of units in contact with the fluid, see page 55.

## Curves

Analogue output curve



#### Pressure sensor operating curves



2 Minimum differential



-Adjustable value

Accessories:	Dimensions:
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# **Electronic pressure sensors** OsiSense XM, type XMLF Size 16 bar (232 psi)

Туре		Pressure switches with adjustable differential and relay output (1)	Dual stage adjustable pressure switches with solid-state outputs (2)	
Adjustable range of switcl (Rising pressure)	hing point(s) (PH or PH1 and PH2)	1.28…16 bar (18.56…232 psi)		
References				
Fluid connection	G 1/4 female	XMLF016E2045	XMLF016D2035	
(3)	1/4" NPT female	XMLF016E2046	XMLF016D2036	
Weight (kg)		0.590	0.480	
Complementary of	haracteristics not shown	under general characteristics (page 55)		
Possible differential	Min. at low and high setting	0.48 bar (6.96 psi)	For each stage:	
(subtract from: - PH to give PB - PH1 & PH2 to give PB1 & PB2)		15.2 bar (220.4 psi)	min. at low and high setting: 0.48 bar (6.96 psi max. at high setting: 15.2 bar (220.4 psi)	
Maximum permissible acc	idental pressure	64 bar (928 psi)		
Destruction pressure	• • • • •	96 bar (1392 psi)		
Rated supply voltage		$\sim$ 120 V	24 V	
Voltage limits		$\sim$ 102132 V	1733 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.M12, 4-pin male connector. For suitable female pre-wired connectors, see page 83see page 83versions, see page 83		
		<ol> <li>Pressure switches with adjustable differentia</li> <li>Pressure switches with 2 adjustable stages Solid-state outputs.</li> <li>Fluids controlled: hydraulic oils, fresh water, a Component materials of units in contact with</li> </ol>	l for regulation between 2 thresholds. Relay outpu and adjustable differential for each threshold. air, corrosive fluids, from - 15 to + 80°C. the fluid, see page 55.	

## **Pressure switch operating curves**

(Curve for each stage for dual stage pressure switches)



2 Minimum differential





Pressure switches with relay output Dual stage pressure switches



Туре

# **Electronic pressure sensors** OsiSense XM, type XMLF Size 25 bar (362.5 psi)

Pressure transmitters	Universal sensors with differential. Solid-state outputs (1)







Adjustable range of switching point (PH) (Rising pressure)		-		225 bar (29362.5 psi)		
Analogue output		4-20 mA	0-10 V	4-20 mA	0-10 V	
References						
Fluid connection	G 1/4 female	XMLF025D2015	XMLF025D2115	XMLF025D2025	XMLF025D2125	
(2) (3)	1/4" NPT female	XMLF025D2016	XMLF025D2116	XMLF025D2026	XMLF025D2126	
Weight (kg)		0.480	180			
Complementary characteristics not shown		under general c	haracteristics (p	age 55)		
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)		

(Subtract norm into give i b) 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	1733 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	420 mA or 010 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 83			
	(1) Pressure sensors with adjustable differential for regulation between 2 thresholds. Solid-state			

(1) and analogue outputs.

(2) Fluids controlled: hydraulic oils, fresh water, air, corrosive fluids, from - 15 to + 80°C. Component materials of units in contact with the fluid, see page 55.
 (3) For SAE 7/16-20UNF and other threads, please consult our Customer Care Centre.

### Curves

### Analogue output curve



### Pressure sensor operating curves







-Adjustable value

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#### Telemecanique Sensor

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# **Electronic pressure sensors** OsiSense XM, type XMLF Size 25 bar (362.5 psi)

Туре		Pressure switches with adjustable differential and relay output (1)	Dual stage adjustable pressure switches with solid-state outputs (2)	
Adjustable range of swite (Rising pressure)	ching point(s) (PH or PH1 and PH2)	225 bar (29362.5 psi)		
References				
Fluid connection	G 1/4 female	XMLF025E2045	XMLF025D2035	
(3) (4)	1/4" NPT female	XMLF025E2046	XMLF025D2036	
Weight (kg)		0.590	0.480	
<b>Complementary</b>	characteristics not shown	under general characteristics (page 55)		
Possible differential	Min. at low and high setting	0.75 bar (10.9 psi)	For each stage:	
(subtract from: - PH to give PB - PH 18 PH2 to give PB1 & PB2)		23.8 bar (345.1 psi)	min. at low and high setting: 0.75 bar (10.9 psi) max. at high setting: 23.8 bar (345.1 psi)	
Maximum permissible ac	cidental pressure	100 bar (1450 psi)		
Destruction pressure		150 bar (2175 psi)		
Rated supply voltage		$\sim$ 120 V		
Voltage limits		$\sim$ 102132 V	1733 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 83	M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 83	
(1 (2 (3 (4		<ol> <li>Pressure switches with adjustable differential for regulation between 2 thresholds. Relay output</li> <li>Pressure switches with 2 adjustable stages and adjustable differential for each threshold. Solid-state outputs.</li> <li>Fluids controlled: hydraulic oils, fresh water, air, corrosive fluids, from - 15 to + 80°C. Component materials of units in contact with the fluid, see page 55.</li> <li>For SAE 7/16-20UNF and other threads, please consult our Customer Care Centre.</li> </ol>		

## Pressure switch operating curves

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











# **Electronic pressure sensors** OsiSense XM, type XMLF Size 40 bar (580 psi)

Туре

## **Pressure transmitters**

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





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	G 1/4 female	XMLF040D2015	XMLF040D2115	XMLF040D2025	XMLF040D2125
(2) (3)	1/4" NPT female	XMLF040D2016	XMLF040D2116	XMLF040D2026	XMLF040D2126
Weight (kg)		0.500			
<b>Complementary cha</b>	aracteristics not shown	under general characteristics (page 55)			
Possible differential	Min. at low and high setting	-		1.2 bar (17.4 psi)	
(subtract from PH to give PB)	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					

Rated supply voltage			
Voltage limits	1733 V		
Current consumption	80 mA		
Output	<ul> <li>Programmable, NPN or PNP and NO or N</li> </ul>		
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	420 mA or 010 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 83		
	(1) Pressure sensors with adjustable differential for regulation between 2 thresholds. Solid-state		

and analogue outputs.

(2) Fluids controlled: hydraulic oils, fresh water, air, corrosive fluids, from - 15 to + 80°C. Component materials of units in contact with the fluid, see page 55.
 (3) For SAE 7/16-20UNF and other threads, please consult our Customer Care Centre.

#### Curves

## Analogue output curve



## Pressure sensor operating curves







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## **Electronic pressure sensors**

OsiSense XM, type XMLF Size 40 bar (580 psi)



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# **Electronic pressure sensors** OsiSense XM, type XMLF Size 70 bar (1015 psi)

Туре

### **Pressure transmitters**

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





Adjustable range of swite (Rising pressure)	ching point (PH)	-		5.670 bar (81.21015 psi)	
Analogue output		4-20 mA	0-10 V	4-20 mA	0-10 V
References				1	
Fluid connection	G 1/4 female	XMLF070D2015	XMLF070D2115	XMLF070D2025	XMLF070D2125
(2) (3)	1/4" NPT female	XMLF070D2016	XMLF070D2116	XMLF070D2026	XMLF070D2126
Weight (kg)		0.500		•	
Complementary	characteristics not show	n under genera	I characteristics	(page 55)	
Possible differential	Min. at low and high setting	-		2.1 bar (30.5 psi)	

(subtract from PH to give PB)	with at low and high setting		2.1 bai (66.6 p3i)	
	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		1733 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		420 mA or 010 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 83		
		(1) 5		

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

(2) Fluids controlled: hydraulic oils, fresh water, air, corrosive fluids, from - 15 to + 80°C. Component materials of units in contact with the fluid, see page 55.
 (3) For SAE 7/16-20UNF and other threads, please consult our Customer Care Centre.

#### Curves

Analogue output curve



## Pressure sensor operating curves





- Adjustable value

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#### Telemecanique Sensor

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# **Electronic pressure sensors** OsiSense XM, type XMLF Size 70 bar (1015 psi)

Туре		Pressure switches with adjustable differential and relay output (1)	Dual stage adjustable pressure switches with solid-state outputs (2)	
Adjustable range of switching (Rising pressure)	point(s) (PH or PH1 and PH2)	5.670 bar (81.21015 psi)		
References				
Fluid connection	G 1/4 female	XMLF070E2045	XMLF070D2035	
(3) (4)	1/4" NPT female	XMLF070E2046	XMLF070D2036	
Weight (kg)		0.610	0.500	
Complementary cha	racteristics not shown	under general characteristics (	page 55)	
Possible differential	Min. at low and high setting	2.1 bar (30.5 psi)	For each stage:	
(subtract from: - PH to give PB - PH1 & PH2 to give PB1 & PB2	Max. at high setting	66.5 bar (964.2 psi)	min. at low and high setting: 2.1 bar (30.5 psi) max. at high setting: 66.5 bar (964.2 psi)	
Maximum permissible accide	ntal pressure	280 bar (4060 psi)		
Destruction pressure		420 bar (6090 psi)		
Rated supply voltage		$\sim$ 120 V		
Voltage limits		$\sim$ 102132 V	1733 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 83	M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 83	
		<ol> <li>Pressure switches with adjustable differential</li> <li>Pressure switches with 2 adjustable stages a Solid-state outputs.</li> <li>Fluids controlled: hydraulic oils, fresh water, a Component materials of units in contact with t</li> <li>For SAE 7/16.201 INE and other threads, please</li> </ol>	for regulation between 2 thresholds. Relay output. and adjustable differential for each threshold. ir, corrosive fluids, from - 15 to + 80°C. he fluid, see page 55. ass consult our Customer Care Centre	

-20UNF and other threads,

## Pressure switch operating curves

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







- Adjustable value



-Adjustable value

2 Minimum differential

Accessories: page 82 Dimensions: page 83 Schemes: page 83 Telemecanique

# **Electronic pressure sensors** OsiSense XM, type XMLF Size 100 bar (1450 psi)

Туре

## **Pressure transmitters**

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





Adjustable range of switching point (PH) (Rising pressure)		-	-		8100 bar (1161450 psi)	
Analogue output		4-20 mA	0-10 V	4-20 mA	0-10 V	
References						
Fluid connection	G 1/4 female	XMLF100D2015	XMLF100D2115	XMLF100D2025	XMLF100D2125	
(2) (3)	1/4" NPT female	XMLF100D2016	XMLF100D2116	XMLF100D2026	XMLF100D2126	
Weight (kg)		0.500				

Complementary cha	racteristics not shown	under general characteristics (p	bage 55)
Possible differential	Min. at low and high setting	-	3 bar (43.5 psi)
(subtract from PH to give PB)	Max. at high setting	-	95 bar (1377.5 psi)
Maximum permissible accide	ntal pressure	400 bar (5800 psi)	
Destruction pressure		600 bar (8700 psi)	
Rated supply voltage			
Voltage limits		1733 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	logue output         420 mA or 010 V, depending on model. Maximum signal level adjustable betwee 125 bar (1087.5 and 1812.5 psi)		ximum signal level adjustable between 75 and
Electrical connection		M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 83	
		(1) Pressure sensors with adjustable differential	for regulation between 2 thresholds. Solid-state

ssure sensors with adiustable differential for regulation between 2 threshol ds. Solid-state and analogue outputs.

(2) Fluids controlled: hydraulic oils, fresh water, air, corrosive fluids, from - 15 to + 80°C.

Component materials of units in contact with the fluid, see page 55. (3) For SAE 7/16-20UNF and other threads, please consult our Customer Care Centre.

#### Curves

#### Analogue output curve









Telemecanique Sensor

# **Electronic pressure sensors** OsiSense XM, type XMLF Size 100 bar (1450 psi)

Туре		Pressure switches with adjustable differential and relay output (1)	Dual stage adjustable pressure switches with solid-state outputs (2)	
Adjustable range of switching (Rising pressure)	point(s) (PH or PH1 and PH2)	8100 bar (1161450 psi)		
References				
Fluid connection	G 1/4 female	XMLF100E2045	XMLF100D2035	
(3) (4)	1/4" NPT female	XMLF100E2046	XMLF100D2036	
Weight (kg)		0.610	0.500	
<b>Complementary cha</b>	racteristics not shown	under general characteristics (g	page 55)	
Possible differential	Min. at low and high setting	3 bar (43.5 psi)	For each stage:	
(subtract from: - PH to give PB - PH1 & PH2 to give PB1 & PB2)	Max. at high setting	95 bar (1377.5 psi)	min. at low and high setting: 3 bar (43.5 psi) max. at high setting: 95 bar (1377.5 psi)	
Maximum permissible accider	ntal pressure	400 bar (5800 psi)		
Destruction pressure	•	600 bar (8700 psi)		
Rated supply voltage		$\sim$ 120 V	24 V	
Voltage limits		∼ 102132 V	1733 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 83	M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 83	
		<ol> <li>Pressure switches with adjustable differential</li> <li>Pressure switches with 2 adjustable stages a Solid-state outputs.</li> <li>Fluids controlled: hydraulic oils, fresh water, a Component materials of units in contact with ti (4) For SAE 7/16-20UNF and other threads, pleat</li> </ol>	for regulation between 2 thresholds. Relay output. nd adjustable differential for each threshold. ir, corrosive fluids, from - 15 to + 80°C. he fluid, see page 55. ase consult our Customer Care Centre.	
Pressure switch one	rating curves			
(Curve for each store for de	al stago prossuro quitabas)	Proseuro switchos with rolay autout	Dual stage prossure switches	
(Curve for each stage for du	iai stage pressure switches)	Fressure switches with relay output	Dual stage pressure switches	





Pressure



-Adjustable value

2 Minimum differential

Accessories: page 82 Dimensions: page 83 Schemes: page 83 Telemecanique

# **Electronic pressure sensors** OsiSense XM, type XMLF Size 160 bar (2320 psi)

Туре		Pressure transmitt	ers	Universal sensors differential. Solid-s outputs (1)	with adjustable state and analogue
Adjustable range of switching (Rising pressure)	point (PH)	-		12.8160 bar (185.6	.2320 psi)
Analogue output		4-20 mA	0-10 V	4-20 mA	0-10 V
References					
Fluid connection	G 1/4 female	XMLF160D2015	XMLF160D2115	XMLF160D2025	XMLF160D2125
(2) (3)	1/4" NPT female	XMLF160D2016	XMLF160D2116	XMLF160D2026	XMLF160D2126
Weight (kg)		0.590			
Complementary cha	racteristics not shown	under general c	haracteristics (p	bage 55)	
Possible differential	Min. at low and high setting	-		4.8 bar (69.6 psi)	
(subtract from PH to give PB)	Max. at high setting	-		152 bar (2204 psi)	
Maximum permissible accide	ntal pressure	640 bar (9280 psi)			
Destruction pressure		960 bar (13 920 psi)			
Rated supply voltage		24 V			
Voltage limits		1733 V			
Current consumption		80 mA			
Output		-		Programmable, NPN or PNP and NO or NC	
Time delay		<ul> <li>Adjustable tim</li> <li>0 to 50 s, in ste</li> </ul>		Adjustable time delay o 0 to 50 s, in steps of 1 s	on trip and on reset from econd
Switching capacity		-		200 mA	
Analogue output		420 mA or 010 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 83			
		(1) Pressure sensors with	th adjustable differential	for regulation between 2	thresholds. Solid-state

and analogue outputs.

(2) Fluids controlled: hydraulic oils, fresh water, air, corrosive fluids, from - 15 to + 80°C. Component materials of units in contact with the fluid, see page 55.
 (3) For SAE 7/16-20UNF and other threads, please consult our Customer Care Centre.

#### Curves

## Analogue output curve



## Pressure sensor operating curves





- Adjustable value

Accessories: page 82 Dimensions: page 83 Schemes: page 83 Telemecanique

<sup>1</sup> Maximum differential 2 Minimum differential

# **Electronic pressure sensors** OsiSense XM, type XMLF Size 160 bar (2320 psi)

Туре		Pressure switches with adjustable differential and relay output (1)	Dual stage adjustable pressure switches with solid-state outputs (2)	
Adjustable range of switching Rising pressure)	point(s) (PH or PH1 and PH2)	12.8…160 bar (185.6…2320 psi)		
References		•		
Fluid connection	G 1/4 female	XMLF160E2045	XMLF160D2035	
(3) (4)	1/4" NPT female	XMLF160E2046	XMLF160D2036	
Neight (kg)		0.700	0.590	
Complementary cha	racteristics not shown	under general characteristics (	page 55)	
Possible differential	Min at low and high setting	4 8 har (69 6 nsi)	For each stage:	
subtract from:	Max at high setting	152 har (2204 nsi)	Min_at low and high setting: 4.8 bar (69.6 ps	
PH to give PB	Max at high ootting		Max. at high setting: 152 bar (2204 psi)	
PH1 & PH2 to give PB1 & PB2	)			
Maximum permissible accide	ntal pressure	640 bar (9280 psi)		
Destruction pressure		960 bar (13 920 psi)		
Rated supply voltage		$\sim 120 V$		
		$\sim$ 102132 V	== 1733 V	
current consumption		32 mA	80 MA	
Dutput		Relay	Programmable, NPN or PNP and NO or NC	
ime delay		Adjustable time delay on trip and on reset from	U to 50 s, in steps of 1 second	
Switching capacity		2.5 A, AC-15, C300 (120 V - 1.5 A)	200 mA	
ectrical connection		SAE 7/8-16UN, 5-pin male connector.	female connectors including pre-wired	
		see page 83	versions, see page 83	
		<ol> <li>Pressure switches with adjustable differential</li> <li>Pressure switches with 2 adjustable stages a Solid-state outputs.</li> <li>Fluids controlled: hydraulic oils, fresh water, a Component materials of units in contact with t</li> <li>For SAE 7/16-20UNF and other threads, pleat</li> </ol>	for regulation between 2 thresholds. Relay outp and adjustable differential for each threshold. ir, corrosive fluids, from - 15 to + 80°C. the fluid, see page 55. ase consult our Customer Care Centre.	
Pressure switch ope	erating curves			
(Curve for each stage for du	ual stage pressure switches)	Pressure switches with relay output	Dual stage pressure switches	
bar 160				
			D	
		Pressure	Pressure	
			PH2 PB2 PH1	
		РВ	PB1	





1 Maximum differential

2 Minimum differential





-Adjustable value

-Adjustable value



# **Electronic pressure sensors** OsiSense XM, type XMLF Size 250 bar (3625 psi)

Туре

## **Pressure transmitters**

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





Adjustable range of switching point (PH) (Rising pressure)		-		20…250 bar (290…3625 psi)	
Analogue output		4-20 mA	0-10 V	4-20 mA	0-10 V
References					
Fluid connection	G 1/4 female	XMLF250D2015	XMLF250D2115	XMLF250D2025	XMLF250D2125
(2) (3)	1/4" NPT female	XMLF250D2016	XMLF250D2116	XMLF250D2026	XMLF250D2126
Weight (kg)		0.590			
<b>Complementary characteristics not shown</b>		under general c	haracteristics (p	age 55)	
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)	

(Subtract from Fir to give FD) 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)	1500 bar (21 750 psi)			
Rated supply voltage	24 V				
Voltage limits	1733 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	420 mA or 010 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 83				
	(1) Due a sum a sum with a divertable differential	farmer with the photoes and there are a later of the state			

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

(2) Fluids controlled: hydraulic oils, fresh water, air, corrosive fluids, from - 15 to + 80°C. Component materials of units in contact with the fluid, see page 55.
 (3) For SAE 7/16-20UNF and other threads, please consult our Customer Care Centre.

## Curves

Analogue output curve









Maximum differential 2 Minimum differential

-Adjustable value

Accesso	ries: Dimensions:	Schemes:
page 82	page 83	page 83
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# **Electronic pressure sensors** OsiSense XM, type XMLF Size 250 bar (3625 psi)

Туре		Pressure switches with adjustable differential and relay output <i>(1)</i>	Dual stage adjustable pressure switches with solid-state outputs (2)
Adjustable range of switching (Rising pressure)	point(s) (PH or PH1 and PH2)	20250 bar (2903625 psi)	
References			
Fluid connection	G 1/4 female	XMLF250E2045	XMLF250D2035
(3) (4)	1/4" NPT female	XMLF250E2046	XMLF250D2036
Weight (kg)		0.700	0.590
<b>Complementary cha</b>	racteristics not shown	under general characteristics (	page 55)
Possible differential	Min. at low and high setting	7.5 bar (108.8 psi)	For each stage:
(subtract from: - PH to give PB - PH1 & PH2 to give PB1 & PB2	Max. at high setting	237.5 bar (3443.7 psi)	Min. at low and high setting: 7.5 bar (108.8 psi) Max. at high setting: 237.5 bar (3443.7 psi)
Maximum permissible accide	ntal pressure	1000 bar (14 500 psi)	
Destruction pressure	·	1500 bar (21 750 psi)	
Rated supply voltage		$\sim$ 120 V	
Voltage limits		$\sim$ 102132 V	1733 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 83	M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 83
Duran and the barries		<ol> <li>Pressure switches with adjustable differential</li> <li>Pressure switches with 2 adjustable stages a Solid-state outputs.</li> <li>Fluids controlled: hydraulic oils, fresh water, a Component materials of units in contact with a (4) For SAE 7/16-20UNF and other threads, ple</li> </ol>	for regulation between 2 thresholds. Relay outpu and adjustable differential for each threshold. ir, corrosive fluids, from - 15 to + 80°C. the fluid, see page 55. ase consult our Customer Care Centre.

(Curve for each stage for dual stage pressure switches) Pressure switches with relay output Dual stage pressure switches bar 250 200 200 Pressure Pressure PH2 PH PB2 PH1 100 PB1 PΒ 20

1 Maximum differential

100

200 242.5 bar Falling pressure

Dimensions: page 83

2 Minimum differential

0 12.5

Accessories: page 82

-Adjustable value

Schemes: page 83 Telemecanique

Sensors

Time

Time

-Adjustable value

Туре

## Electronic pressure sensors OsiSense XM, type XMLF

Universal sensors with adjustable

differential. Solid-state and analogue

Size 400 bar (5800 psi)

**Pressure transmitters** 

				outputs (1)	
Adjustable range of switching (Rising pressure)	j point (PH)	-		32400 bar (46458	00 psi)
Analogue output		4-20 mA	0-10 V	4-20 mA	0-10 V
References					
Fluid connection	G 1/4 female	XMLF400D2015	XMLF400D2115	XMLF400D2025	XMLF400D2125
(2) (3)	1/4" NPT female	XMLF400D2016	XMLF400D2116	XMLF400D2026	XMLF400D2126
Weight (kg)		0.590			
<b>Complementary cha</b>	racteristics not shown	under general o	haracteristics (	bage 55)	
Possible differential	Min. at low and high setting	-		12 bar (174 psi)	
(subtract from PH to give PB)	Max. at high setting	-		380 bar (5510 psi)	
Maximum permissible accide	ntal pressure	1200 bar (17 400 psi)			
Destruction pressure		1800 bar (26 100 psi)			
Rated supply voltage		24 V			
Voltage limits		== 1733 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		420 mA or $010$ 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 83			
	-				

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

(2) Fluids controlled: hydraulic oils, fresh water, air, corrosive fluids, from - 15 to + 80°C.

Component materials of units in contact with the fluid, see page 55. (3) For SAE 7/16-20UNF and other threads, please consult our Customer Care Centre.

#### Curves

## Analogue output curve



## Pressure sensor operating curves







- Adjustable value

Dimensions: page 83 Accessories: Schemes page 83 page 82 Telemecanique

# **Electronic pressure sensors** OsiSense XM, type XMLF Size 400 bar (5800 psi)

Туре		Pressure switches with adjustable differential and relay output (1)	Dual stage adjustable pressure switches with solid-state outputs (2)
djustable range of switching Rising pressure)	point(s) (PH or PH1 and PH2)	32…400 bar (464…5800 psi)	
References		1	
Fluid connection	G 1/4 female	XMLF400E2045	XMLF400D2035
(4)	1/4" NPT female	XMLF400E2046	XMLF400D2036
Neight (kg)		0.700	0.590
Complementary cha	racteristics not shown	under general characteristics	(page 55)
Possible differential	Min, at low and high setting	12 bar (174 psi)	For each stage:
subtract from: PH to give PB PH1 & PH2 to give PB1 & PB2	Max. at high setting	380 bar (5510 psi)	Min. at low and high setting: 12 bar (174 psi) Max. at high setting: 380 bar (5510 psi)
Maximum permissible accide	ntal pressure	1200 bar (17 400 psi)	1
Destruction pressure	• •	1800 bar (26 100 psi)	
Rated supply voltage		~ 120 V	24 V
/oltage limits		$\sim$ 102132 V	1733 V
Current consumption		32 mA	80 mA
 Output		Relay	Programmable, NPN or PNP and NO or NC
lime delay		Adjustable time delay on trip and on reset from	n 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 83	M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 83
		<ol> <li>Pressure switches with adjustable differentia</li> <li>Pressure switches with 2 adjustable stages Solid-state outputs.</li> <li>Fluids controlled: hydraulic oils, fresh water, Component materials of units in contact with</li> <li>For SAE 7/16-20UNF and other threads, place</li> </ol>	al for regulation between 2 thresholds. Relay outp and adjustable differential for each threshold. air, corrosive fluids, from - 15 to + 80°C. the fluid, see page 55. ease consult our Customer Care Centre.

(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



Туре

# **Electronic pressure sensors** OsiSense XM, type XMLF Size 600 bar (8700 psi)

Universal sensors with adjustable

differential. Solid-state and analogue

				outputs (1)	
Adjustable range of switching (Rising pressure)	g point (PH)	-		48600 bar (69687	'00 psi)
Analogue output		4-20 mA	0-10 V	4-20 mA	0-10 V
References					
Fluid connection (2) (3)	G 1/4 female 1/4" NPT female	XMLF600D2015	XMLF600D2115 XMLF600D2116	XMLF600D2025	XMLF600D2125
Weight (kg)		0.590			
Complementary cha	aracteristics not shown	under general o	characteristics (	page 55)	
Possible differential (subtract from PH to give PB)	Min. at low and high setting Max. at high setting	-		18 bar (261 psi) 570 bar (8265 psi)	
Maximum permissible accide	ntal pressure	1200 bar (17 400 psi)	1200 bar (17 400 psi)		
Destruction pressure		1800 bar (26 100 psi)			
Rated supply voltage		24 V			
Voltage limits		1733 V			
Current consumption		80 mA			
Output		Programmable, NPN or PNP and NO     Adjustable time delevant trip and any		or PNP and NO or NC	
		_		0 to 50 s, in steps of 1	second
Switching capacity		-		200 mA	
Analogue output		420 mA or 010 V, o 750 bar (6525 and 10 8	depending on model. Ma 375 psi)	aximum signal level adju	stable between 450 and
Electrical connection		M12, 4-pin male conne see page 83	ector. For suitable female	e connectors, including p	re-wired versions,
		(1) D		10 10 10	

**Pressure transmitters** 

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

(2) Fluids controlled: hydraulic oils, fresh water, air, corrosive fluids, from - 15 to + 80°C.

Component materials of units in contact with the fluid, see page 55. (3) For SAE 7/16-20UNF and other threads, please consult our Customer Care Centre.

### Curves

## Analogue output curve





Pressure sensor operating curves





- Adjustable value

Accesso	ries: Dimensions:	Schemes:
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# **Electronic pressure sensors** OsiSense XM, type XMLF Size 600 bar (8700 psi)

Туре		Pressure switches with adjustable differential and relay output (1)	Dual stage adjustable pressure switches with solid-state outputs (2)
Adjustable range of switch (Rising pressure)	ning point(s) (PH or PH1 and PH2)	48600 bar (6968700 psi)	
References			
Fluid connection	G 1/4 female	XMLF600E2045	XMLF600D2035
(3) (4)	1/4" NPT female	XMLF600E2046	XMLF600D2036
Weight (kg)		0.700	0.590
Complementary c	haracteristics not show	n under general characteristics	(page 55)
Possible differential	Min. at low and high setting	18 bar (261 psi)	For each stage:
(subtract from: - PH to give PB - PH1 & PH2 to give PB1 & F	Max. at high setting PB2)	570 bar (8265 psi)	Min. at low and high setting: 18 bar (261 psi) Max. at high setting: 570 bar (8265 psi)
Maximum permissible acc	idental pressure	1200 bar (17 400 psi)	
Destruction pressure		1800 bar (26 100 psi)	
Rated supply voltage		$\sim$ 120 V	
Voltage limits		∼ 102…132 V	== 1733 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 fro	om 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 83	M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 83
		<ol> <li>Pressure switches with adjustable different</li> <li>Pressure switches with 2 adjustable stage Solid-state outputs.</li> <li>Fluids controlled: hydraulic oils, fresh water Component materials of units in contact wit</li> <li>For SAE 7/16-20UNF and other threads, p</li> </ol>	ial for regulation between 2 thresholds. Relay outp is and adjustable differential for each threshold. r, air, corrosive fluids, from - 15 to + 80°C. th the fluid, see page 55. I lease consult our Customer Care Centre.

#### 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

Accessories: page 82	Dimensions: page 83	Schemes: page 83		_
Telemecaníque				

References

# **Electronic pressure sensors** OsiSense XM, type XMLF Accessories and replacement parts

	References			
	Replacement parts			
	Description		Reference	Weight ka
	Transparent cover with legends		XMLZL007	0.020
	Sealing gasket         All sizes (XMLF)           (Sold in lots of 10)         (Sold in lots of 10)		XMLZL010	0.015
	Accessories			
	Description	Length of cable	Reference	Weight kg
XMLZL007	Fixing bracket	-	XMLZL008	0.037
	Cooler for versions with G 1/4 A (male) fluid connection (1) Usage temperature: 150°C for the fluid, 50°C for the ambient air	-	XMLZL009	0.370
	Pre-wired M12, straight, female connectors	2 m	XZCP1141L2	0.115
		5 m	XZCP1141L5	0.270
		10 m	XZCP1141L10	0.520
XMLZL010 XMLZL008	Pre-wired M12 elbowed female connectors	2 m	X7CP1241L2	0 115
		5 m	XZCP1241L5	0 270
		10 m	XZCP1241L10	0.520
	Pre-wired 7/8"-16UN, straight, female	2 m	XZCP1764L2	0 185
	connectors	5 m	XZCP1764L5	0.460
		10 m	XZCP1764L10	0.900
XZCP1141L•				
))	M12 - M12 jumper Straight female connector	1 m	XZCR1511041C1	0.065
XZCP1241Le	cables with straight	2 m	XZCR1511041C2	0.095
	for splitter box	r <u>1 m</u>	XZCR1512041C1	0.065
		2 m	XZCR1512041C2	0.095
XZCP1764L•	(1) Available with other fluid connections (1/4" NPT Customer Care Centre.	AND SAE 7/	16-20 UNF. Please con	sult our

XZCR1511041C•

XZCR1512041C•

# **Electronic pressure sensors** OsiSense XM, type XMLF Accessories and replacement parts



## Electronic pressure sensors

OsiSense XM For control circuits

## **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** Vacuum switches with digital output digital output Pressure Time PH Adjustable differential PH--PR Adjustable differential --- Adjustable value - PB-PH = high point 2 1 2 1 2 Time 2 PB = low point Vacuum 1 Output on 1 Output on 2 Output off 2 Output off Dual stage pressure switches - Adjustable value Pressure PH1 = high point 1st stage Adjustable PB1 = low point 1<sup>st</sup> stage differential PH2 = high point 2<sup>nd</sup> stage PB2 = low point 2<sup>nd</sup> stage Output 1<sup>st</sup> stage on Adjustable differential 2 Output 1st stage off PB Output 2<sup>nd</sup> stage on 3 4 Output 2<sup>nd</sup> stage off Time

4

Telemecanique Sensors

## Electronic pressure sensors

OsiSense XM For control circuits

## Terminology

#### Measuring range

The measuring range (MR) 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 (MR) of the load cell (% MR).





**Zero point drift** This is proportional to the temperature

and is expressed as % MR/°C.

#### **Sensitivity drift** This is proportional to the temperature and is expressed as % MR/°C.



## **Electronic pressure sensors**

OsiSense XM For control circuits

## 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 load = <u>U supply - U supply min.</u> (U supply min. = 11 V for XMLE and 17 V for XMLF) 0.02 A

## **Electronic pressure sensors** OsiSense XM For control circuits

## Features of pressure sensors XMLF

Pressure sensors type XMLF (see page 54) 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 XMLF 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 XMLF 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 a 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 XMLE and 3% for XMLF 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 OsiSense XM

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.

XMLA pressure and vacuum switches have a fixed differential and are for detection of a single threshold. They incorporate a 1 CO single-pole contact.
 XMLB pressure and vacuum switches have an adjustable differential and are for regulation between 2 thresholds. They incorporate a 1 CO single-pole contact.
 XMLC pressure and vacuum switches have an adjustable differential and are for regulation between 2 thresholds. They incorporate 2 CO single-pole contacts.
 XMLD pressure and vacuum switches are dual stage switches, each stage with a fixed differential, and are for detection at each threshold. They incorporate 2 CO single-pole contacts.

## 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 XMLA

## 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 XMLB and XMLC

#### 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 XMLD

#### 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.).









## **Characteristics**

## Electromechanical pressure and vacuum switches

OsiSense XM For control circuits, type XML

Environment characteristics		
Conformity to standards		C€, 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 148 and 149
Operating position		All positions
Vibration resistance		4 gn (30500 Hz) conforming to IEC 68-2-6 except XMLeL35eeeee, XMLe001eeeee and XMLBM03eeeee: 2 gn
Shock resistance		50 gn conforming to IEC 68-2-27 except XMLeL35eeeee, XMLe001eeeee and XMLBM03eeeee: 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: $\leq$ 60 (for temperature > 0°C) Diaphragm version switches: $\leq$ 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 our Customer Care Centre)
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: <b>XMLA010A2S12</b> becomes <b>XMLA010A2S11</b> ) For an entry tapped 1/2" NPT, please consult our Customer Care Centre Connector models (either type DIN 43650 A or M12): please consult our Customer Care Centre
Contact block characteristics		
Rated operational characteristics		<ul> <li>~ AC-15; B300 (Ue = 240 V, Ie = 1.5 A - Ue = 120 V, Ie = 3 A)</li> <li> DC-13; R300 (Ue = 250 V, Ie = 0.1 A) conforming to IEC 947-5-1 Appendix A, EN 60 947-5-1</li> </ul>
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 XMLA and XMLB: 1 CO single-pole contact (4 terminal), snap action XMLC: 2 CO single-pole contacts (8 terminal), simultaneous, snap action XMLD: 2 CO 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. Minimum clamping capacity: 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

## XMLA and XMLB

AC supply  $\sim$  50/60 Hz  $_{\rm mm}$  Inductive circuit, Ithe = 10 A



120

26

for 1 million operating cycles

W

24

31

48

29

 $\begin{array}{l} \textbf{XMLC} \text{ and } \textbf{XMLD} \\ \textbf{AC supply} \sim 50/60 \text{ Hz} \\ \textbf{rm. Inductive circuit, Ithe = 10 A} \end{array}$ 



# Voltage V 24 48 120 W 10 7 4



Voltage V

m

## **Electromechanical vacuum switches**

OsiSense XM, type XML Size - 1 bar (- 14.5 psi) Fixed differential, for detection of a single threshold Switches with 1 CO single-pole contact Fluid connection G 1/4 (female)

#### Vacuum switches type XMLA

## With setting scale





Adjustable range of switching point (PB) (Falling pressure)		- 0.28 1 bar (- 4.06 14.5 psi)		
Electrical connection		Terminals	DIN connector	
References (1)				
Fluids controlled (2)	Hydraulic oils, fresh water, air, up to +70°C	XMLAM01V2S12	XMLAM01V2C11	
	Hydraulic oils, fresh water, air, corrosive fluids, up to + 160°C	XMLAM01T2S12	XMLAM01T2C11	
Weight (kg)		0.685	0.715	
<b>Complementary characteristics not shown</b>		under general characteristics (p	bage 89)	
Natural differential	At low setting (3)	0.24 bar (3.48 psi)		
(add to PB to give PH)	At high setting (3)	0.24 bar (3.48 psi)		
Maximum permissible	Per cycle	5 bar (72.5 psi)		
pressure	Accidental	9 bar (130.5 psi)		
Destruction pressure		18 bar (261 psi)		
Mechanical life		3 x 10 <sup>6</sup> 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 43650 A, 4-pin male. For suitable female connector, see page 142		
Vacuum switch type		Diaphragm		
		(1) For 1 entry tapped for n° 13 cable gland, repla	ace S12 by S11 (example: XMLAM01V2S12	

becomes XMLAM01V2S11).

(2) Component materials of units in contact with the fluid, see pages 148 and 149.

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

## **Operating curves**





## Connection

## Terminal model



Connector model Vacuum switch connector pin view



 $1 \rightarrow 11 \text{ and } 13$  $2 \rightarrow 12$  $3 \rightarrow 14$ 

- Adjustable value

--- Non adjustable value

Vacuum switches with alternative tapped cable entries: NPT etc. Please consult our Customer Care Centre.

Other versions

Accessories: Dimensions: page 142 pages143 to 145

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## **Electromechanical vacuum switches**

OsiSense XM, type XML Size - 1 bar (- 14.5 psi) Adjustable differential, for regulation between 2 thresholds Switches with 1 CO single-pole contact Fluid connection G 1/4 (female)

Vacuum swi	tches ty	pe XMLB
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## With setting scale





Adjustable range of switching point (PB) (Falling pressure)		- 0.14 1 bar (- 2.03 14.5 psi)			
Electrical connection		Terminals	DIN connector		
References (1)					
Fluids controlled (2)	Hydraulic oils, fresh water, air, up to +70°C	XMLBM02V2S12	XMLBM02V2C11		
	Hydraulic oils, fresh water, air, corrosive fluids, up to + 160°C	XMLBM02T2S12	XMLBM02T2C11		
Weight (kg)		1.015	1.030		
Complementary c	haracteristics not show	n under general characteristics	(page 89)		
Possible differential	Min. at low setting (3)	0.13 bar (1.88 psi)			
(add to PB	Min. at high setting (3)	0.13 bar (1.88 psi)	0.13 bar (1.88 psi)		
to give PH)	Max. at high setting	0.8 bar (11.6 psi)			
Maximum permissible	Per cycle	5 bar (72.5 psi)			
pressure	Accidental	9 bar (130.5 psi)			
Destruction pressure		18 bar (261 psi)			
Mechanical life		3 x 10 <sup>6</sup> operating cycles			
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for ISO cable g	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm		
Connector type for connector models		DIN 43650 A, 4-pin male. For suitable female	DIN 43650 A, 4-pin male. For suitable female connector, see page 142		
Vacuum switch type		Diaphragm			
		(1) For 1 entry tapped for n° 13 cable gland, re	eplace S12 by S11 (example: XMLBM02V2S12		

becomes XMLBM02V2S11).

(2) Component materials of units in contact with the fluid, see pages 148 and 149.
(3) Deviation of the differential at low and high setting points for switches of the same size:

± 0.02 bar (± 0.29 psi).

Time

## **Operating curves**



PH PB Vacuum

## Connection Terminal model

Connector model Vacuum switch connector pin view



 $1 \rightarrow 11 \text{ and } 13$  $2 \rightarrow 12$  $3 \rightarrow 14$ 

1 Maximum differential

2 Minimum differential

Other versions

Accessories: page 142 - Adjustable value

Vacuum switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

## **Electromechanical vacuum switches**

OsiSense XM, type XML Size - 1 bar (- 14.5 psi) Adjustable differential, for regulation between 2 thresholds Switches with 2 CO single-pole contacts Fluid connection G 1/4 (female)

Vacuum	switches	type XMLC
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## 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)		1	
Fluids controlled (2)	Hydraulic oils, fresh water, air, up to +70°C	XMLCM02V2S12	
	Hydraulic oils, fresh water, air, corrosive fluids, up to + 160°C	XMLCM02T2S12	
Weight (kg)		1.015	
<b>Complementary c</b>	haracteristics not shown	under general characteristics (page 89)	
Possible differential	Min. at low setting (3)	0.13 bar (1.89 psi)	
(add to PB	Min. at high setting (3)	0.14 bar (2.03 psi)	
to give PH)	Max. at high setting	0.8 bar (11.6 psi)	
Maximum permissible	Per cycle	5 bar (72.5 psi)	
pressure	Accidental	9 bar (130.5 psi)	
Destruction pressure		18 bar (261 psi)	
Mechanical life		3 x 10 <sup>6</sup> operating cycles	
Cable entry for terminal me	odels	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 \$12 by \$11 (example: XMLCM02V2\$12	

becomes XMLCM02V2S11).

(2) Component materials of units in contact with the fluid, see pages 148 and 149.

(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

--- Adjustable value

Maximum differential
 Minimum differential

Other versions

Vacuum switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

Dimensions: pages143 to 145

## Telemecanique

## **Electromechanical vacuum switches**

OsiSense XM, type XML

Size - 1 bar (- 14.5 psi) Dual stage, fixed differential, for detection at each threshold Switches with 2 CO single-pole contacts (one per stage) Fluid connection G 1/4 (female)

## Vacuum switches type XMLD

## 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 (P	B2 - PB1)	0.020.88 bar (0.2912.76 psi)	
Electrical connection		Terminals	
References (1)			
Fluids controlled (2)	Hydraulic oils, fresh water, air, up to +70°C	XMLDM02V1S12	
	Hydraulic oils, fresh water, air, corrosive fluids, up to + 160°C	XMLDM02T1S12	
Weight (kg)		1.015	
<b>Complementary ch</b>	aracteristics not shown	under general characteristics (page 89)	
Natural differential	At low setting (3)	0.1 bar (1.45 psi)	
(add to PB1/PB2 to give PH1/PH2)	At high setting (4)	0.1 bar (1.45 psi)	
Maximum permissible	Per cycle	5 bar (72.5 psi)	
pressure	Accidental	9 bar (130.5 psi)	
Destruction pressure		18 bar (261 psi)	
Mechanical life		3 x 10 <sup>6</sup> 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	
		<ol> <li>For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XMLDM02V1S12 becomes XMLDM02V1S11).</li> <li>Component materials of units in contact with the fluid, see pages 148 and 149.</li> </ol>	

(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).

-0.02

-0.4

88.0-Falling pressure

bar

PH1 PB1

PH2

PB2

Vacuum

-Adjustable value --- Non adjustable value Connection

> 33 5

> 4 12

Terminal model

Natural differential of contacts 1 and 2

-0.4 -0.2

0 **E**-0.12 **G**-0.2

Rising pressure

-0.6

-0.88

EF Contact 1 (stage 1)

GH Contact 2 (stage 2)

bai

## **Operating curves**

## High setting tripping points of contacts 1 and 2



## 1 Maximum differential

2 Minimum differential

Other versions

Acce page Vacuum switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

ssories:		
142		

Dimensions: pages 143 to 145

Telemecanique Sensors

Time

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

> 33 5

2 24

## **Electromechanical vacuum switches**

OsiSense XM, type XML Size - 200 mbar (- 2.9 psi) Adjustable differential, for regulation between 2 thresholds Switches with 1 CO single-pole contact Fluid connection G 1/4 (female)

## Vacuum switches type XMLB

## With setting scale



Adjustable range of switching (Falling pressure)	g point (PB)	- 20 200 mbar (- 0.29 2.9 psi)
Electrical connection		Terminals
References (1)		
Fluids controlled (2)	Hydraulic oils, air, up to + 160°C	XMLBM03R2S12
	Fresh water, corrosive fluids, up to + 160°C	XMLBM03S2S12
Weight (kg)		3.310
<b>Complementary cha</b>	racteristics not shown	under general characteristics (page 89)
Possible differential	Min. at low setting (3)	18 mbar (0.26 psi)
(add to PB	Min. at high setting (3)	18 mbar (0.26 psi)
to give PH)	Max. at high setting	180 mbar (2.6 psi)
Maximum permissible	Per cycle	1 bar (14.5 psi)
pressure	Accidental	2 bar (29 psi)
Destruction pressure		3.5 bar (50.75 psi)
Mechanical life		3 x 10 <sup>6</sup> 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: XMLBM03R2S12 becomes XMLBM03R2S11). (2) Component materials of units in contact with the fluid, see pages 148 and 149.

(3) Deviation of the differential at low and high setting points for switches of the same size: ±2 mbar (± 0.29 psi).

## **Operating curves**





-- Adjustable value



Connection **Terminal model** 

1 Maximum differential

2 Minimum differential

#### Other versions

Vacuum switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

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Pressure switches type XMLB

## **Electromechanical pressure switches**

OsiSense XM, type XML Size 50 mbar (0.72 psi) Adjustable differential, for regulation between 2 thresholds Switches with 1 CO single-pole contact Fluid connection G 1/4 (female)

Adjustable range of switching (Rising pressure)	j point (PH)	2.650 mbar (0.0380.72 psi)	
Electrical connection		Terminals	
References (1)		1	
Fluids controlled	Hydraulic oils, air, up to + 160°C	XMLBL05R2S12	
	Fresh water, corrosive fluids, up to + 160°C	XMLBL05S2S12	
Weight (kg)		2.420	
<b>Complementary cha</b>	racteristics not shown	under general characteristics (p	age 89)
Possible differential	Min. at low setting (3)	1.4 mbar (0.02 psi)	<b>Ç</b> ,
(subtract from PH	Min. at high setting (4)	4 mbar (0.06 psi)	
to give PB)	Max. at high setting	40 mbar (0.58 psi)	
Maximum permissible	Per cycle	62.5 mbar (0.90 psi)	
pressure	Accidental	112.5 mbar (1.63 psi)	
Destruction pressure		225 mbar (3.26 psi)	
Mechanical life	1-	6 x 10° operating cycles	
Cable entry for terminal mode	15	Tentry tapped M20 x 1.5 mm for ISO cable gian	d, clamping capacity 7 to 13 mm
		<ol> <li>For 1 entry tapped for n° 13 cable gland, replate becomes XMLBL05R2S11).</li> <li>Component materials of units in contact with a (3) Deviation of the differential at low setting point - 0.8 mbar, + 1.1 mbar (- 0.01 psi, + 0.02 psi).</li> <li>Deviation of the differential at high setting point ± 1.4 mbar, (+ 0.02 psi).</li> </ol>	ace <b>S12</b> by <b>S11</b> (example: <b>XMLBL05R2S12</b> the fluid, see pages 148 and 149. t for switches of the same size: nt for switches of the same size:
Operating curves			Connection
			Terminal model
mbar 50 40 40 40 40 40 40 40 40 40 40 40 40 40	0 40 46 mbar Falling pressure	Pressure PH PB Time	
<ol> <li>Maximum differential</li> <li>Minimum differential</li> </ol>		- Adjustable value	
Other versions		Pressure switches with DIN 43650 A connector o NPT, etc. Please consult our Customer Care Cer	r with alternative tapped cable entries: tre.

With setting scale

Accessories: page 142 Dimensions: pages 143 to 145 Telemecanique

## **Electromechanical vacu-pressure** switches

OsiSense XM, type XML. Size 5 bar (72.5 psi). Adjustable differential, for regulation between 2 thresholds. Switches with 1 CO single-pole contact. Fluid connection G 1/4 (female)

## Vacu-pressure switches type XMLB

## With setting scale





Adjustable range of switching point (PH) (Rising pressure)		- 0.55 bar (- 7.2572.5 psi)	
Electrical connection		Terminals	DIN connector
References (1)			
Fluids controlled (2)	Hydraulic oils, fresh water, air, up to +70°C	XMLBM05A2S12	XMLBM05A2C11
	Hydraulic oils, fresh water, air, up to 160°C	XMLBM05B2S12	XMLBM05B2C11
	Corrosive fluids, up to + 160°C	XMLBM05C2S12	XMLBM05C2C11
	Viscous products, up to + 160°C (G 1¼" fluid connection)	XMLBM05P2S12	XMLBM05P2C11
Weight (kg)		0.685	0.715
Complementary c	haracteristics not shown	under general characteristics	(page 89)
Possible differential	Min. at low setting (3)	0.5 bar (7.25 psi)	
(subtract from PH	Min. at high setting (3)	0.5 bar (7.25 psi)	
to give PB)	Max. at high setting	6 bar (87 psi)	
Maximum permissible	Per cycle	6.25 bar (90.62 psi)	
pressure	Accidental	11.25 bar (163.12 psi)	
Destruction pressure		23 bar (333.5 psi)	
Mechanical life	fe 3 x 10 <sup>6</sup> operating cycles		
Cable entry for terminal me	odels	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm	
Connector type for connect	ctor models	DIN 43650 A, 4-pin male. For suitable female connector, see page 142	
Vacu-pressure switch type	tch type Diaphragm		
		(1) For 1 entry tapped for n° 13 cable gland, re becomes XML BM05A2S11)	place S12 by S11 (example: XMLBM05A2S12

(2) Component materials of units in contact with the fluid, see pages 148 and 149.

(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** 



Maximum differential 1

2 Minimum differential

Other versions

page 142

96

Pressure PH1 PB1 PH2 0 Time PB2 PH3 PB3 Vacuum

## Connection

#### **Terminal model**

£ ₹ 12

## **Connector model**

Vacu-pressure switch pin view

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$\perp$	
[1_2]	
3	

 $1 \rightarrow 11$  and 13  $2 \rightarrow 12$  $3 \rightarrow 14$ 

#### --- Adjustable value

Sensors

Vacu-pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

## Electro-mechanical vacu-pressure switches

OsiSense XM, type XML. Size 5 bar (72.5 psi). Adjustable differential, for regulation between 2 thresholds. Switches with 2 CO single-pole contacts Fluid connection G 1/4 (female)

## Pressure switches type XMLC

## 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, air, up to +70°C	XMLCM05A2S12	
	Hydraulic oils, fresh water, air, up to 160°C	XMLCM05B2S12	
	Corrosive fluids, up to + 160°C	XMLCM05C2S12	
Weight (kg)		0.685	
<b>Complementary c</b>	haracteristics not shown	n under general characteristics (page 89)	
Possible differential	Min. at low setting (3)	0.45 bar (6.52 psi)	
(subtract from PH	Min. at high setting (3)	0.45 bar (6.52 psi)	
to give PB)	Max. at high setting	6 bar (87 psi)	
Maximum permissible	Per cycle	6.25 bar (90.62 psi)	
pressure	Accidental	11.25 bar (163.12 psi)	
Destruction pressure		23 bar (333.5 psi)	
Mechanical life		3 x 10 <sup>6</sup> 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: XMLCM05A2S12	

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XMLCM05A2S') becomes XMLCM05A2S11).

(2) Component materials of units in contact with the fluid, see pages 148 and 149.
 (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**



2 Minimum differential

### Other versions

Pressure PH1 PB1 PH2 PH2 PH2 PH2 PH2 PH3 PB2 PH3 Vacuum

Adjustable value

### Connection Terminal model

<u>2</u>	₽Ļ	23	5
<u>4</u>	12	24	22

Connector model Vacu-pressure switch pin view



 $1 \rightarrow 11 \text{ and } 13$  $2 \rightarrow 12$  $3 \rightarrow 14$ 

Vacu-pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

## **Electromechanical pressure switches**

OsiSense XM, type XML Size 350 mbar (5.07 psi) Adjustable differential, for regulation between 2 thresholds Switches with 1 CO single-pole contact Fluid connection G 1/4 (female)

Pressures	switches	type XMLB
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## With setting scale





Adjustable range of switching point (PH) (Rising pressure)		45350 mbar (0.655.07 psi)		
Electrical connection		Terminals	DIN connector	
References (1)				
Fluids controlled	Hydraulic oils, air, up to + 160°C	XMLBL35R2S12	XMLBL35R2C11	
	Fresh water, corrosive fluids, up to + 160°C	XMLBL35S2S12	XMLBL35S2C11	
	Viscous products, up to + 160°C (G 1¼" fluid connection)	XMLBL35P2S12	XMLBL35P2C11	
Weight (kg)		2.575	2.590	
<b>Complementary characteristics not shown</b>		under general characteristics	(page 89)	
Possible differential	Min. at low setting (3)	42 mbar (0.60 psi)		
(subtract from PH	Min. at high setting (4)	50 mbar (0.72 psi)		
to give PB)	Max. at high setting	300 mbar (4.35 psi)		
Maximum permissible	Per cycle	1.25 bar (18.12 psi)		
pressure	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 me	odels	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm		
Connector type for connect	ctor models	DIN 43650 A, 4-pin male. For suitable female connector, see page 142		
Pressure switch type		Diaphragm		
		(1) For 1 entry tapped for n° 13 cable gland rer	lace S12 by S11 (example: XMLBL35R2S12	

becomes XMLBL35R2S11).

Connection **Terminal model** 

**Connector model** 

Pressure switch connector pin view

 $1 \rightarrow 11 \text{ and } 13$ 

 $2 \rightarrow 12$ 

 $3 \rightarrow 14$ 

1

[1 2 : ப

(2) Component materials of units in contact with the fluid, see pages 148 and 149. (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).

Time

- Adjustable value

## **Operating curves**



2 Minimum differential

Pressure switches with alternative tapped cable entries: NPT... Please consult our Customer Care Centre.

Other versions

Accessories

Dimensions: pages 143 to 145

Telemecanique Sensors

Pressure

PH

PB

Pressure switches type XMLB

# Electromechanical pressure switches OsiSense XM, type XML Size 350 mbar (5.07 psi)

Adjustable differential, for regulation between 2 thresholds Switches with 1 CO single-pole contact Fluid connection G 1/4 (female)

		With setting scale
Adjustable range of switchi (Rising pressure)	ing point (PH)	42330 mbar (0.614.78 psi)
Electrical connection		Terminals
References (1)		
Fluids controlled	Hydraulic oils, air, up to + 160°C	XMLBS35R2S12
	Fresh water, corrosive fluids, up to + 160°C	-
	Viscous products, up to + 160°C (G 1¼" fluid connection)	-
Weight (kg)		3.500
Complementary ch	naracteristics not shown	under general characteristics (page 89)
Possible differential	Min. at low setting (3)	33 mbar (0.48 psi)
(subtract from PH	Min. at high setting (4)	58 mbar (0.84 psi)
to give PB)	Max. at high setting	250 mbar (3.62 psi)
Maximum permissible	Per cycle	30 bar (435 psi)
pressure	Accidental	37.5 bar (543.75 psi)
Destruction pressure		67.5 bar (978.75 psi)
Mechanical life		2 million operating cycles
Cable entry for terminal mo	dels	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm
Connector type for connect	tor models	DIN 43650 A, 4-pin male. For suitable female connector, see page 142
Pressure switch type		Diaphragm
		(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XMLBS35R1S12 becomes XMLBS35R1S11).

30 bar (435 psi) overpressure

Component materials of units in contact with the fluid, see page nes 148 and 149 (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**



2 Minimum differential

Other versions



## Connection Terminal model

**Connector model** Pressure switch connector pin view



- Adjustable value

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

Accessories:	Dimensions: pages 143 to 145	

Pressure switches type XMLC

30 bar (435 psi) overpressure

With setting scale

**Electromechanical pressure switches** OsiSense XM, type XML Size 350 mbar (5.07 psi) Adjustable differential, for regulation between 2 thresholds Switches with 2 CO single-pole contacts Fluid connection G 1/4 (female)

			C
		<b>U</b>	-
Adjustable range of switch (Rising pressure)	ing point (PH)	45350 mbar (0.655.07 psi)	42330 mbar (0.614.78 psi)
Electrical connection		Terminals	
References (1)			
Fluids controlled (2)	Hydraulic oils, air, up to + 160°C	XMLCL35R2S12	XMLCS35R2S12
	Fresh water, corrosive fluids, up to + 160°C	XMLCL35S2S12	-
Weight (kg)		2.575	3.500
Complementary c	haracteristics not shown	under general characteristic	<b>CS</b> (page 89)
Possible differential	Min. at low setting (3)	20 mbar (0.29 psi)	40 mbar (0.58 psi)
(subtract from PH	Min. at high setting (3)	35 mbar (0.51 psi)	88 mbar (1.27 psi)
to give PB)	Max. at high setting	300 mbar (4.35 psi)	230 mbar (3.33 psi)
Maximum permissible	Per cycle	1.25 bar (18.12 psi)	30 bar (435 psi)
pressure	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 mo	odels	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 ontr Honnord for nº 10 ochla along	kanlaga C12 by C11 (avample, VMI CI 25D2C12

With setting scale

) For 1 entry tapped for n° 13 c becomes **XMLCL35R2S11**). 13 cable gland, replace S12 by S11 (example: XMLCL35R2S12 (1)

(2) Component materials of units in contact with the fluid, see pages 148 and 149. (3) Deviation of the differential at low setting point for switches of the same size:

± 20 mbar (± 0.29 psi).

## **Operating curves**



## 1 Maximum differential

## 2 Minimum differential

Other versions

PH ΡВ Time

Pressure

## 14 13 13 5

Connection **Terminal model** 

12 24 23

--- Adjustable value

Pressure switches with alternative tapped cable entries: NPT... Please consult our Customer Care Centre.

Accessories page 142

Dimensions: pages 143 to 145

Telemecanique Sensors

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## **Electromechanical pressure switches**

OsiSense XM, type XML Size 350 mbar (5.07 psi) Dual stage, fixed differential, for detection at each threshold Switches with 2 CO single-pole contacts (one per stage) Fluid connection G 1/4 (female)

#### Pressure switches type XMLD

## Without setting scale



Adjustable range of each	2nd stage switching point (PH2)	58350 mbar (0.845.07 psi)		
switching point         1st stage switching point (PH1)           (Rising pressure)         1st stage switching point (PH1)		33325 mbar (0.484.71 psi)		
Spread between 2 stages (PH2 - PH1)		25310 mbar (0.364.50 psi)		
Electrical connection		Terminals		
References (1)				
Fluids controlled (2)	Hydraulic oils, air, up to + 160°C	XMLDL35R1S12		
	Fresh water, corrosive fluids, up to + 160°C	XMLDL35S1S12		
Weight (kg)		2.575		
<b>Complementary ch</b>	aracteristics not shown	under general characteristics (page 89)		
Natural differential	At low setting (3)	30 mbar (0.44 psi)		
(subtract from PH1/PH2 to give PB1/PB2)	At high setting (4)	30 mbar (0.44 psi)		
Maximum permissible	Per cycle	1.25 bar (18.12 psi)		
pressure	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 mod	leis	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: XMLDL35R1S12		

becomes XMLDL35R1S11). (2) Component materials of units in contact with the fluid, see pages 148 and 149.

Pressure

PH2

PB2

PH1 PB1

--- Adjustable value

Connection

**Terminal model** 

ო

4 2

--- Non adjustable value

Contact 1

Ξ

(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:  $\pm 8 \text{ mbar} (\pm 0.11 \text{ psi}).$ 

Natural differential of contacts 1 and 2

## **Operating curves**

High setting tripping points of contacts 1 and 2



1 Maximum differential

2 Minimum differential

Other versions

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

295.320 mb

Rising pressure

Accessories:	Dimensions:
page 142	pages 143 to 145



mba

350 325

300

200

100

58

33

0

3 28

EF Contact 1 (stage 1)

GH Contact 2 (stage 2)

100

200

Falling pressure

Time

Contact 2 (stage 1) (stage 2)

2

33

24 22

## **Electromechanical pressure switches** OsiSense XM, type XML Size 1 bar (14,5 psi)

OsiSense XM, type XML Size 1 bar (14,5 psi) Fixed differential, for detection of a single threshold Switches with 1 CO single-pole contact Fluid connection G 1/4 (female)

#### Pressure switches type XMLA

## With setting scale





Adjustable range of switch (Rising pressure)	ning point (PH)	0.03…1 bar (0.435…14.5 psi)		
Electrical connection		Terminals	DIN connector	
References (1)		'		
Fluids controlled (2)	Hydraulic oils, air, up to + 160°C	XMLA001R2S12	XMLA001R2C11	
	Fresh water, corrosive fluids, up to + 160°C	XMLA001S2S12	XMLA001S2C11	
Weight (kg)		2.555	2.570	
Complementary c	haracteristics not shown	under general character	eristics (page 89)	
Natural differential	At low setting (3)	0.02 bar (0.29 psi)		
(subtract from PH to give PB)	At high setting (3)	0.04 bar (0.58 psi)		
Maximum permissible	Per cycle	1.25 bar (18.12 psi)		
pressure	Accidental	2.25 bar (32.62 psi)		
Destruction pressure 4.5 bar (65.25 psi)				
Mechanical life	ical life 4 x 10 <sup>6</sup> operating cycles			
Cable entry for terminal me	odels	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm		
Connector type for connect	ctor models	DIN 43650 A, 4-pin male. For suitable female connector, see page 142		
Pressure switch type		Diaphragm		
		(1) For 1 entry tapped for n° 13 cab	le gland, replace <b>S12</b> by <b>S11</b> (example: <b>XMLA001F</b>	R2S12

becomes XMLA001R2S11).

(2) Component materials of units in contact with the fluid, see pages 148 and 149.

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

## **Operating curves**





## Terminal model ♡ 두 다

Connection



#### Connector model Pressure switch connector pin view



 $1 \rightarrow 11 \text{ and } 13$  $2 \rightarrow 12$  $3 \rightarrow 14$ 

Other versions

## - Adjustable value

--- Non adjustable value

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

Difficitorio.
pages143 to 145

Telemecanique Sensors

page 142 102

Accessories

## **Electromechanical pressure switches**

OsiSense XM, type XML Size 1 bar (14.5 psi) Adjustable differential, for regulation between 2 thresholds Switches with 1 CO single-pole contact Fluid connection G 1/4 (female)

#### Pressure switches type XMLB

## With setting scale





Adjustable range of switching point (PH) (Rising pressure)		0.05…1 bar (0.72…14.5 psi)	
Electrical connection		Terminals	DIN connector
References (1)			
Fluids controlled (2)	Hydraulic oils, air, up to + 160°C	XMLB001R2S12	XMLB001R2C11
	Fresh water, corrosive fluids, up to + 160°C	XMLB001S2S12	XMLB001S2C11
	Viscous products, up to + 160°C (G 1¼" fluid connection)	XMLB001P2S12	XMLB001P2C11
Weight (kg)		2.575	2.590
Complementary c	haracteristics not shown	under general characteristics	page 89)
Possible differential	Min. at low setting (3)	0.04 bar (0.58 psi)	
(subtract from PH	Min. at high setting (4)	0.06 bar (0.87 psi)	
to give PB)	Max. at high setting	0.75 bar (10.87 psi)	
Maximum permissible	Per cycle	1.25 bar (18.12 psi)	
pressure	Accidental	2.25 bar (32.62 psi)	
Destruction pressure		4.5 bar (65.25 psi)	
Mechanical life		4 x 10 <sup>6</sup> operating cycles	
Cable entry for terminal models 1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13		nd, clamping capacity 7 to 13 mm	
Connector type for connector models		DIN 43650 A, 4-pin male. For suitable female connector, see page 142	
Pressure switch type		Diaphragm	
		(1) For 1 entry tapped for n° 13 cable gland, rep	lace S12 by S11 (example: XMLB001R2S12

comes XMLB001R2S1<sup>·</sup>

(2) Component materials of units in contact with the fluid, see pages 148 and 149.

(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:  $\pm 20$  mbar ( $\pm 0.29$  psi).

## **Operating curves**



Pressure PH ΡВ Time

## Connection **Terminal model**



**Connector model** Pressure switch connector pin view



 $1 \rightarrow 11 \text{ and } 13$  $2 \rightarrow 12$  $3 \rightarrow 14$ 

#### - Adjustable value

## 2 Minimum differential

Other versions

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

Electromechanical pressure switches OsiSense XM, type XML Size 1 bar (14.5 psi) Adjustable differential, for regulation between 2 thresholds Switches with 2 CO single-pole contacts Fluid connection G 1/4 (female)

#### Pressure switches type XMLC

## 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	XMLC001R2S12	
	Fresh water, corrosive fluids, up to + 160°C	XMLC001S2S12	
Weight (kg)		2.555	
Complementary c	haracteristics not shown	under general characteristics (page 89)	
Possible differential	Min. at low setting (3)	0.03 bar (0.43 psi)	
(subtract from PH	Min. at high setting (4)	0.04 bar (0.58 psi)	
to give PB)	Max. at high setting	0.8 bar (11.6 psi)	
Maximum permissible	Per cycle	1.25 bar (18.12 psi)	
pressure Accidental		2.25 bar (32.62 psi)	
Destruction pressure		4.5 bar (65.25 psi)	
Mechanical life		4 x 10 <sup>6</sup> operating cycles	
Cable entry for terminal mo	odels	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: XMLC001R2S12	

becomes XMLC001R2S11). (2) Component materials of units in contact with the fluid, see pages 148 and 149.

(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**



Minimum differential 2

Other versions

Pressure P۲ PΒ Time

<u>,</u>	÷Ļ	23	21
4	12	24	22

Connection **Terminal model** 

- Adjustable value

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

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Dimensions: pages 143 to 145

Telemecanique

## **Electromechanical pressure switches**

OsiSense XM, type XML Size 1 bar (14.5 psi)

Dual stage, fixed differential, for detection at each threshold Switches with 2 CO single-pole contacts (one per stage) Fluid connection G 1/4 (female)

## Pressure switches type XMLD

#### Without setting scale



Adjustable range of each	2nd stage switching point (PH2)	0.121 bar (1.7414.5 psi)	
switching point (Rising pressure)	1st stage switching point (PH1)	0.040.92 bar (0.5813.34 psi)	
Spread between 2 stages (PI	H2 - PH1)	0.080.73 bar (1.1610.59 psi)	
Electrical connection		Terminals	
References (1)			
Fluids controlled (2)	Hydraulic oils, air, up to + 160°C	XMLD001R1S12	
	Fresh water, corrosive fluids, up to + 160°C	XMLD001S1S12	
Weight (kg)		2.575	
Complementary cha	aracteristics not shown	under general characteristics (page 89)	
Natural differential	At low setting (3)	0.03 bar (0.44 psi)	
(subtract from PH1/PH2 to give PB1/PB2)	At high setting (4)	0.07 bar (1.02 psi)	
Maximum permissible	Per cycle	1.25 bar (18.12 psi)	
pressure	Accidental	2.25 bar (32.62 psi)	
Destruction pressure		4.5 bar (65.25 psi)	
Mechanical life		4 x 10 <sup>6</sup> operating cycles	
Cable entry for terminal mod	lels	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: XMLD001R1S12 becomes XMLD001R1S11).	

(2) Component materials of units in contact with the fluid, see pages 148 and 149. (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).

Pressure

PH2 PB2

## **Operating curves**

High setting tripping points of contacts 1 and 2



1 Maximum differential

2 Minimum differential

## Other versions

13 5 23 2 2 4 24 22 Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer

Rising pressure 8.0 8.0 PH1 PB1 0.6 0.4 0.2 - Adjustable value --- Non adjustable value 0.12 0.04 Connection 0 0.01 0.09 0.2 0.4 0.6 0.85 0.93 bar **Terminal model** Falling pressure EF Contact 1 (stage 1)

Natural differential of contacts 1 and 2

GH Contact 2 (stage 2)

Care Centre.

Accessories	
bage 142	

Dimensions: pages 143 to 145

🕀 Telemecanique Sensors

bar

1

Time

Contact 1

(stage 1)

Contact 2

(stage 2)

## **Electromechanical pressure switches**

OsiSense XM, type XML Size 2.5 bar (36.25 psi) Fixed differential, for detection of a single threshold Switches with 1 CO single-pole contact Fluid connection G 1/4 (female)

Pressure switches type XMLA

## With setting scale





Adjustable range of switching point (PH)         0.152.5 bar (2.1736.25 psi)           (Rising pressure)         0.152.5 bar (2.1736.25 psi)			
Electrical connection		Terminals	DIN connector
References (1)			
Fluids controlled (2)	Hydraulic oils, fresh water, air, up to +70°C	XMLA002A2S12	XMLA002A2C11
	Hydraulic oils, fresh water, air, up to 160°C	XMLA002B2S12	XMLA002B2C11
	Corrosive fluids, up to + 160°C	XMLA002C2S12	XMLA002C2C11
Weight (kg)		0.995	1.010
Complementary c	haracteristics not show	n under general characteristics	<b>S</b> (page 89)
Natural differential	At low setting (3)	0.13 bar (1.88 psi)	
(subtract from PH to give PB)	At high setting (3)	0.13 bar (1.88 psi)	
Maximum permissible	Per cycle	5 bar (72.5 psi)	
pressure	Accidental	9 bar (130.5 psi)	
Destruction pressure		18 bar (261 psi)	
Mechanical life	e 8 x 10 <sup>6</sup> operating cycles		
Cable entry for terminal me	odels	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm	
Connector type for connect	nnector type for connector models DIN 43650 A, 4-pin male. For suitable female connector, see page 142		e connector, see page 142
Pressure switch type	Pressure switch type Diaphragm		
		(1) For 1 entry tapped for n° 13 cable gland, i	replace <b>\$12</b> by <b>\$11</b> (example: <b>XMLA002A2\$12</b>

(2) Component materials of units in contact with the fluid, see pages 148 and 149.

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

## **Operating curves**





## Connection

#### **Terminal model**



**Connector model** Pressure switch connector pin view



 $1 \rightarrow 11$  and 13  $2 \rightarrow 12$  $3 \rightarrow 14$ 

- Adjustable value

--- Non adjustable value

Other versions

106

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

Dimensions: pages 143 to 145

Telemecanique
## **Electromechanical pressure switches**

OsiSense XM, type XML Size 2.5 bar (36.25 psi) Adjustable differential, for regulation between 2 thresholds Switches with 1 CO single-pole contact Fluid connection G 1/4 (female)

Pressure switches type XMLB		With setting scale		30 bar (435 psi) overpressure With setting scale
Adjustable range of switchir (Rising pressure)	ng point (PH)	0.32.5 bar (4.3536.25 psi)		
Electrical connection		Terminals	DIN connector	r Terminals
References (1)				
Fluids controlled (2)	Hydraulic oils, Fresh water, air, up to +70°C	XMLB002A2S12	XMLB002A2C	C11 –
	Hydraulic oils, Fresh water, air, up to 160°C	XMLB002B2S12	XMLB002B2C	C11 –
	Hydraulic oils, fresh water, air, up to + 160°C	-		XMLBS02B2S12
	Corrosive fluids, up to + 160°C	XMLB002C2S12	XMLB002C2C	-
Weight (kg)		1.015	1.030	3.500
Complementary cl	naracteristics not shown	under general charac	cteristics (p	page 89)
Possible differential	Min. at low setting (3)	0.16 bar (2.32 psi)		0.1 bar (1.45 psi)
(SUDTRACT FROM	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	Per cycle	5 bar (72.5 psi)		30 bar (435 psi)
pressure	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° operating cycles 2 x 10° operating cycles		
Cable entry for terminal mo	dels	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm		
Connector type for connect	tor models	DIN 43650 A, 4-pin male. For suitable female connector, see page 142		
Pressure switch type		Diaphragm (1) For 1 entry tapped for n° 13 c	able gland, repla	ace S12 by S11 (example: XMLB002A2S12
		becomes XMLB002A2S11). (2) Component materials of units in contact with the fluid, see pages 148 and 149. (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).		the fluid, see pages 148 and 149. titing points for switches of the same size:
<b>Operating curves</b>				Connection
		Dressure		Terminal model
bar		FIESSULE		





-Adjustable value



#### **Connector model** Pressure switch connector pin view



Other versions

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.



Pressure switches type XMLC

## **Electromechanical pressure switches**

30 bar (435 psi) overpressure

With setting scale

OsiSense XM, type XML Size 2.5 bar (36.25 psi) Adjustable differential, for regulation between 2 thresholds Switches with 2 CO single-pole contacts Fluid connection G 1/4 (female)

Adjustable range of switch Rising pressure)	ing point (PH)	0.32.5 bar (4.3536.25 psi)	
Electrical connection		Terminals	
References (1)			
Fluids controlled	Hydraulic oils, fresh water, air, up to + 160°C	-	XMLCS02B2S12
	Hydraulic oils, fresh water, air, up to 160°C	XMLC002B2S12	-
	Corrosive fluids, up to + 160°C	XMLC002C2S12	-
Neight (kg)		0.995	3.500
<b>Complementary cl</b>	haracteristics not shown	under general characteristics (	bage 89)
Possible differential	Min. at low setting (3)	0.13 bar (1.89 psi)	0.1 bar (1.45 psi)
subtract from PH	Min. at high setting (4)	0.17 bar (2.47 psi)	0.18 bar (2.61 psi)
o give PB)	Max. at high setting	2 bar (29 psi)	1.25 bar (18.12 psi)
Maximum permissible	Per cycle	5 bar (72.5 psi)	30 bar (435 psi)
pressure	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 <sup>6</sup> operating cycles	2 x 10 <sup>6</sup> 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, repl	ace S12 by S11 (example: XMLC002B2S12

With setting scale

Ŋ (2) Component materials of units in contact with the fluid, see pages 148 and 149.

(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**



#### 1 Maximum differential

2 Minimum differential

Other versions

PH ΡВ Time

Pressure

#### Connection **Terminal model**



Adjustable value

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

cces	sories
age '	142

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Dimensions: pages 143 to 145

Telemecanique

## **Electromechanical pressure switches**

OsiSense XM, type XML Size 2.5 bar (36.25 psi)

Dual stage, fixed differential, for detection at each threshold Switches with 2 CO single-pole contacts (one per stage) Fluid connection G 1/4 (female)

#### Pressure switches type XMLD

#### Without setting scale



Adjustable range of each	2nd stage switching point (PH2)	0.342.5 bar (4.9336.25 psi)	
switching point (Rising pressure)	1st stage switching point (PH1)	0.22.36 bar (2.934.22 psi)	
Spread between 2 stages (P	H2 - PH1)	0.141.5 bar (2.0321.75 psi)	
Electrical connection		Terminals	
References (1)			
Fluids controlled (2)	Hydraulic oils, fresh water, air, up to 160°C	XMLD002B1S12	
	Corrosive fluids, up to + 160°C	XMLD002C1S12	
Weight (kg)		1.015	
<b>Complementary ch</b>	aracteristics not shown	under general characteristics (page 89)	
Natural differential	At low setting (3)	0.14 bar (2.03 psi)	
(subtract from PH1/PH2 to give PB1/PB2)	At high setting (4)	0.19 bar (2.76 psi)	
Maximum permissible	Per cycle	5 bar (72.5 psi)	
pressure	Accidental	9 bar (130.5 psi)	
Destruction pressure		18 bar (261 psi)	
Mechanical life		8 x 10 <sup>6</sup> operating cycles	
Cable entry for terminal mod	dels	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: XMLD002B1S12	

becomes XMLD002B1S11). (2) Component materials of units in contact with the fluid, see pages 148 and 149.

(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:  $\pm 0.07$  bar ( $\pm 1.02$  psi).

#### **Operating curves**

High setting tripping points of contacts 1 and 2



1 Maximum differential

2 Minimum differential

#### Other versions

Natural differential of contacts 1 and 2

### GH Contact 2 (stage 2)



 $\label{eq:pressure} Pressure \ switches \ with \ alternative \ tapped \ cable \ entries: \ NPT, \ etc. \ Please \ consult \ our \ Customer \ Care \ Centre.$ 

Accessories:	
age 142	

Dimensions: pages 143 to 145

> Telemecanique Sensors

## **Electromechanical pressure switches**

OsiSense XM, type XML

Size 4 bar (58 psi) Fixed differential, for detection of a single threshold Switches with 1 CO single-pole contact Fluid connection G 1/4 (female)

Pressure switches type XMLA

#### With setting scale





Adjustable range of switching point (PH) (Rising pressure)		0.4…4 bar (5.8…58 psi)			
Electrical connection		Terminals	DIN connector		
References (1)					
Fluids controlled (2)	Hydraulic oils, fresh water, air, up to +70°C	XMLA004A2S12	XMLA004A2C11		
	Hydraulic oils, fresh water, air, up to 160°C	XMLA004B2S12	XMLA004B2C11		
	Corrosive fluids, up to + 160°C	XMLA004C2S12	XMLA004C2C11		
	Viscous products, up to + 160°C (G 1¼" fluid connection)	XMLA004P2S12	XMLA004P2C11		
Weight (kg)		0.685	0.715		
Complementary c	haracteristics not shown	under general characteristics (	page 89)		
Natural differential	At low setting (3)	0.35 bar (5.07 psi)	0.35 bar (5.07 psi)		
(subtract from PH to give PB)	At high setting (3)	0.35 bar (5.07 psi)			
Maximum permissible	Per cycle	5 bar (72.5 psi)			
pressure	Accidental	9 bar (130.5 psi)			
Destruction pressure		18 bar (261 psi)			
Mechanical life		8 x 10 <sup>6</sup> operating cycles			
Cable entry for terminal me	odels	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm			
Connector type for connect	ctor models	DIN 43650 A, 4-pin male. For suitable female connector, see page 142			
Pressure switch type		Diaphragm			
		(1) For 1 entry tapped for n° 13 cable gland, repr	lace <b>\$12</b> by <b>\$11</b> (example: <b>XMLA004A2\$12</b>		

(2) Component materials of units in contact with the fluid, see pages 148 and 149.

 (2) Component materials of times in contact with the hald, see pages 140 and 149.
 (3) Deviation of the differential at low and high 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



 $1 \rightarrow 11 \text{ and } 13$  $2 \rightarrow 12$  $3 \rightarrow 14$ 

--- Adjustable value

--- Non adjustable value

Other versions

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

Accessories:	
page 142	

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Dimensions: pages 143 to 145

Telemecanique

**Electromechanical pressure switches** OsiSense XM, type XML Size 4 bar (58 psi) Adjustable differential, for regulation between 2 thresholds Switches with 1 CO single-pole contact Fluid connection G 1/4 (female)

Pressure switches type XMLB		With setting scale			30 bar (435 psi) overpressure With setting scale
Adjustable range of switching	point (PH)	0.254 bar (3.6258 psi)			
Electrical connection		Terminals	DIN connector		Terminals
References (1)					
Fluids controlled (2)	Hydraulic oils, fresh water, air, up to +70°C	XMLB004A2S12	XMLB004A2C	11	-
	Hydraulic oils, fresh water, air, up to 160°C	XMLB004B2S12	XMLB004B2C	11	-
	Hydraulic oils, fresh water, air, up to + 160°C	-			XMLBS04B2S12
	Corrosive fluids, up to + 160°C	XMLB004C2S12	XMLB004C2C	11	-
Weight (kg)		1.015	1.030		3.500
<b>Complementary cha</b>	racteristics not shown	under general charac	teristics (pa	age 89)	
Possible differential	Min. at low setting (3)	0.2 bar (2.9 psi)			0.15 bar (2.18 psi)
(subtract from PH	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	Per cycle	5 bar (72.5 psi)	5 bar (72.5 psi)		
pressure	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 <sup>6</sup> operating cycles			2 x 10 <sup>6</sup> operating cycles
Cable entry for terminal mode	ls	1 entry tapped M20 x 1.5 mm for	ISO cable gland	l, clamping capac	ity 7 to 13 mm
Connector type for connector	models	DIN 43650 A, 4-pin male. For sui	itable female cor	nnector, see page	142
Pressure switch type         Diaphragm           (1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XMLB004A2S1, becomes XMLB004A2S11).         (2) Component materials of units in contact with the fluid, see pages 148 and 149.           (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).			mple: <b>XMLB004A2S12</b> s 148 and 149. e same size: he same size:		
Operating curves				Connectio	n
bar		Pressure		Terminal model	
Rising pressure				12 13	
		РВ		Connector model	
2				Pressure switch	h connector pin view
	3 3.75 bar Falling pressure	Time			$1 \rightarrow 11 \text{ and } 13$ $2 \rightarrow 12$ $3 \rightarrow 14$
1 Maximum differential		- Adjustable value			
2 Minimum differential					
Other versions	Pressure switches with	alternative tapped cable entries:	NPT, etc. Please	e consult our Cust	omer Care Centre.

Accessories: page142 Dimensions: pages 143 to 145 Telemecanique

Pressure switches type XMLC

## **Electromechanical pressure switches**

30 bar (435 psi) overpressure

With setting scale

OsiSense XM, type XML Size 4 bar (58 psi)

With setting scale

Adjustable differential, for regulation between 2 thresholds Switches with 2 CO single-pole contacts Fluid connection G 1/4 (female)

		<u>, o</u>		
Adjustable range of switch (Rising pressure)	ing point (PH)	0.34 bar (4.3558 psi)		
Electrical connection		Terminals		
References (1)				
Fluids controlled (2)	Hydraulic oils, fresh water, air, up to + 160°C	-	XMLCS04B2S12	
	Hydraulic oils, fresh water, air, up to 160°C	XMLC004B2S12	-	
	Corrosive fluids, up to + 160°C	XMLC004C2S12	-	
Weight (kg)		0.685	3.500	
Complementary c	haracteristics not show	n under general characteristic	<b>CS</b> (page 89)	
Possible differential	Min. at low setting (3)	0.15 bar (2.18 psi)	0.1 bar (1.45 psi)	
(subtract from PH	Min. at high setting (3)	0.17 bar (2.47 psi)	0.25 bar (3.62 psi)	
to give PB)	Max. at high setting	2.5 bar (36.25 psi)	2.20 bar (31.9 psi)	
Maximum permissible	Per cycle	5 bar (72.5 psi)	30 bar (435 psi)	
pressure	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 <sup>6</sup> operating cycles	2 x 10 <sup>6</sup> operating cycles	
Cable entry for terminal mo	odels	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 optry toppod for p <sup>o</sup> 12 ophla along	roplage S12 by S11 (averable: VMI COO/P2S12	

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XMLC004B2S12 becomes XMLC004B2S11).

(2) Component materials of units in contact with the fluid, see pages 148 and 149.
(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**



1 Maximum differential

2 Minimum differential

Other versions

Pressure PH PB Time



Connection Terminal model

--- Adjustable value

Pressure switches with alternative tapped cable entries:  $\ensuremath{\mathsf{NPT}}$  , etc. Please consult our Customer Care Centre.

Accessories:	Dimensions:
page 142	pages143 to 145

Telemecanique Sensors

## **Electromechanical pressure switches**

OsiSense XM, type XML

Size 4 bar (58 psi) Dual stage, fixed differential, for detection at each threshold Switches with 2 CO single-pole contacts (one per stage) Fluid connection G 1/4 (female)

#### Pressure switches type XMLD

#### Without setting scale



Adjustable range of each switching point (Rising pressure)	2nd stage switching point (PH2)	0.404 bar (5.858 psi)	
	1st stage switching point (PH1)	0.193.79 bar (2.7654.96 psi)	
Spread between 2 stages (P	H2 - PH1)	0.212.18 bar (3.0531.61 psi)	
Electrical connection		Terminals	
References (1)			
Fluids controlled (2)	Hydraulic oils, fresh water, air, up to 160°C	XMLD004B1S12	
	Corrosive fluids, up to + 160°C	XMLD004C1S12	
Weight (kg)		1.015	
<b>Complementary ch</b>	aracteristics not shown	under general characteristics (page 89)	
Natural differential	At low setting (3)	0.15 bar (2.18 psi)	
(subtract from PH1/PH2 to give PB1/PB2)	At high setting (3)	0.19 bar (2.76 psi)	
Maximum permissible	Per cycle	5 bar (72.5 psi)	
pressure	Accidental	9 bar (130.5 psi)	
Destruction pressure		18 bar (261 psi)	
Mechanical life		8 x 10 <sup>6</sup> operating cycles	
Cable entry for terminal mod	dels	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm	

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XMLD004B1S12 becomes XMLD004B1S11).

(2) Component materials of units in contact with the fluid, see pages 148 and 149.(3) Deviation of the differential at low and high setting points for switches of the same size:

#### ± 0.03 bar (± 0.43 psi).

Diaphragm



1 Maximum differential

Pressure switch type

**Operating curves** 

2 Minimum differential

#### Other versions

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

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		(B) Telemecanique	

Sensors

EF Contact 1 (stage 1)

GH Contact 2 (stage 2)







Pressure

--- Non adjustable value

5 2

# Connection Terminal model Contact 2 Contact 1 (stage 2) (stage 1) $\mathfrak{P}$ $\mathfrak{P}$ $\mathfrak{P}$ $\mathfrak{P}$

5 23

## **Electromechanical pressure switches**

OsiSense XM, type XML Size 10 bar (145 psi)

Fixed differential, for detection of a single threshold Switches with 1 CO single-pole contact Fluid connection G 1/4 (female)

Pressure switches type XMLA

#### With setting scale





Adjustable range of switching point (PH) (Rising pressure)		0.6…10 bar (8.7…145 psi)		
Electrical connection		Terminals	DIN connector	
References (1)				
Fluids controlled (2)	Hydraulic oils, fresh water, air, up to +70°C	XMLA010A2S12	XMLA010A2C11	
	Hydraulic oils, fresh water, air, up to 160°C	XMLA010B2S12	XMLA010B2C11	
	Corrosive fluids, up to + 160°C	XMLA010C2S12	XMLA010C2C11	
	Viscous products, up to + 160°C (G 1¼" fluid connection)	XMLA010P2S12	XMLA010P2C11	
Weight (kg)		0.685	0.715	
Complementary characteristics not shown		under general characteristics (	page 89)	
Natural differential	At low setting (3)	0.5 bar (7.25 psi)		
(subtract from PH to give PB)	At high setting (3)	0.5 bar (7.25 psi)		
Maximum permissible	Per cycle	12.5 bar (181.25 psi)		
pressure	Accidental	22.5 bar (326.25 psi)		
Destruction pressure		45 bar (652.5 psi)		
Mechanical life		5 x 10 <sup>6</sup> 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 43650 A, 4-pin male. For suitable female connector, see page 142		
Pressure switch type		Diaphragm		
		(1) For 1 entry tapped for n° 13 cable gland, repl	ace S12 by S11 (example: XMLA010A2S12	

becomes XMLA010A2S11).

(2) Component materials of units in contact with the fluid, see pages 148 and 149.
(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**

Pressure switch connector pin view

 [1 2]	
<u>3</u>	

 $1 \rightarrow 11$  and 13  $2 \rightarrow 12$  $3 \rightarrow 14$ 

 Adjustable value --- Non adjustable value

#### Other versions

Pressure switches with alternative tapped cable entries: NPT , etc. Please consult our Customer Care Centre.

Dimensions: pages 143 to 145 Accessories page 142

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Telemecanique

## **Electromechanical pressure switches**

OsiSense XM, type XML Size 10 bar (145 psi) Adjustable differential, for regulation between 2 thresholds Switches with 1 CO single-pole contact Fluid connection G 1/4 (female)

Pressure switches type	XMLB	With setting scale		30 bar (435 psi) overpressure With setting scale
Adjustable range of switching (Rising pressure)	g point (PH)	0.710 bar (10.15145 psi)		
Electrical connection		Terminals	DIN connector	Terminals
References (1)		1		
Fluids controlled (2)	Hydraulic oils, fresh water, air, up to +70°C	XMLB010A2S12	XMLB010A2C11	-
	Hydraulic oils, fresh water, air, up to + 160°C	-	-	XMLBS10A2S12
	Hydraulic oils, fresh water, air, up to + 160°C	XMLB010B2S12	XMLB010B2C11	-
	Corrosive fluids, up to + 160°C	XMLB010C2S12	XMLB010C2C11	-
	Viscous products, up to + 160°C (G 1¼" fluid connection)	XMLB010P2S12	XMLB010P2C11	-
Weight (kg)		0.705	0.735	3.500
Complementary ch	aracteristics not shown	under general charac	cteristics (page 89)	
Possible differential	Min. at low setting (3)	0.57 bar (8.26 psi)		0.45 bar (6.52 psi)
(subtract from PH to give PB)	Min. at high setting (4)	0.85 bar (12.32 psi)		0.85 bar (12.32 psi)
(o g. (o ) 2)	Max. at high setting	7.5 bar (108.75 psi)		6.25 bar (90.62 psi)
Maximum permissible	Per cycle	12.5 bar (181.25 psi)		30 bar (435 psi)
pressure	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 <sup>e</sup> operating cycles 2 x 10 <sup>e</sup> operating		2 x 10 <sup>6</sup> operating cycles
Cable entry for terminal mod	leis	1 entry tapped M20 x 1.5 mm fo	or ISO cable gland, clampi	ing capacity 7 to 13 mm
Connector type for connector	or models	DIN 43650 A, 4-pin male. For se	uitable female connector,	see page 142
Pressure switch type		Diaphragm		
Operating curves		<ol> <li>For 1 entry tapped for n° 13 cd becomes XMLB010A2S11).</li> <li>Component materials of units</li> <li>Deviation of the differential a ± 0.05 bar (± 0.72 psi).</li> <li>Deviation of the differential at - 0.1 bar, + 0.15 bar (- 1.45 psi)</li> </ol>	able gland, replace <b>S12</b> by s in contact with the fluid, s t low setting point for switc high setting point for switc i, + 2.17 psi).	v S11 (example: XMLB010A2S12 see pages 148 and 149. ches of the same size: shes of the same size:
operating curves			Tarmai	
bar 10 buiss		Pressure PH	1   2   2   2   1   2	nai modei -[

**Connector model** Pressure switch connector pin view



6 bar Falling pressure Maximum differential

8 9.15

-Adjustable value

#### Minimum differential 2

2.5

4

Other versions

6

4

2

0.7 0 <sup>µ⊥</sup> 0.13

1

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

Time



PB

## References, characteristics (continued)

## **Electromechanical pressure switches**

OsiSense XM, type XML Size 10 bar (145 psi) Adjustable differential, for regulation between 2 thresholds Switches with 2 CO single-pole contacts Fluid connection G 1/4 (female)

Pressure switches type XMLC		With setting scale	30 bar (435 psi) overpressure With setting scale
Adjustable range of switching (Rising pressure)	point (PH)	0.710 bar (10.15145 psi)	
Electrical connection		Terminals	
References (1)			
Fluids controlled	Hydraulic oils fresh water	-	XMI CS10A2S12
(2)	air, up to + 70°C Hydraulic oils, fresh water, air, up to 160°C	XMLC010B2S12	-
	Corrosive fluids,	XMLC010C2S12	-
Weight (kg)	up 10 + 100 C	0.685	3.500
Complementary cha	racteristics not show	n under general characteristics (	(nage 89)
Possible differential	Min_at low setting (3)	0.45 bar (6.53 psi)	0 25 bar (3 62 psi)
(subtract from PH	Min. at high setting (4)	0.70 bar (10.15 psi)	0.65 bar (9.42 psi)
to give PB)	Max. at high setting	8 bar (116 psi)	5.6 bar (81.2 psi)
Maximum permissible	Per cycle	12.5 bar (181.25 psi)	30 bar (435 psi)
pressure	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 <sup>6</sup> operating cycles	2 x 10 <sup>6</sup> operating cycles
Cable entry for terminal mode	ls	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm	
		<ul> <li>(2) Component materials of units in contact with</li> <li>(3) Deviation of the differential at low setting po ± 0.05 bar (± 0.72 psi).</li> <li>(4) Deviation of the differential at high setting p ± 0.01 bar (± 1.45 psi).</li> </ul>	h the fluid, see pages 148 and 149. int for switches of the same size: oint for switches of the same size:
Operating curves			Connection
			Terminal model
bar mssadbusu 6 4 2 0.7 0.25 2 4 6 6 6 7 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7	8 9.3 bar alling pressure	Pressure PH PB DE Time	
1 Maximum differential 2 Minimum differential Other versions		Adjustable value     Pressure switches with alternative tapped cable     Care Centre.	e entries: NPT, etc. Please consult our Customer
Accessories:	Dimensions:		

Dimensions: pages 143 to 145

Telemecaníque

## **Electromechanical pressure switches**

OsiSense XM, type XML Size 10 bar (145 psi)

Dual stage, fixed differential, for detection at each threshold Switches with 2 CO single-pole contacts (one per stage) Fluid connection G 1/4 (female)

#### Pressure switches type XMLD

#### Without setting scale



Adjustable range of each	2nd stage switching point (PH2)	1.210 bar (17.4145 psi)		
switching point (Rising pressure)	1st stage switching point (PH1)	0.52…9.32 bar (7.54…135.14 psi)		
Spread between 2 stages (Pl	H2 - PH1)	0.685.8 bar (9.8684.1 psi)		
Electrical connection		Terminals		
References (1)				
Fluids controlled (2)	Hydraulic oils, fresh water, air, up to 160°C	XMLD010B1S12		
	Corrosive fluids, up to + 160°C	XMLD010C1S12		
Weight (kg)		0.705		
<b>Complementary ch</b>	aracteristics not shown	under general characteristics (page 89)		
Natural differential	At low setting (3)	0.45 bar (6.53 psi)		
(subtract from PH1/PH2 to give PB1/PB2)	At high setting (4)	0.6 bar (8.7 psi)		
Maximum permissible	Per cycle	12.5 bar (181.25 psi)		
pressure	Accidental	22.5 bar (326.25 psi)		
Destruction pressure		45 bar (652.5 psi)		
Mechanical life		5 x 10 <sup>6</sup> 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 \$12 by \$11 (example: XMI D010B1\$12		

becomes XMLD010B1S11). (2) Component materials of units in contact with the fluid, see pages 148 and 149.

Pressure

PH2 PB2

PH1 PB1

--- Adjustable value

Connection

**Terminal model** 

ო 5

4 12

--- Non adjustable value

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

(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).

Natural differential of contacts 1 and 2

4

6

#### **Operating curves**

#### High setting tripping points of contacts 1 and 2



Maximum differential 1



Other versions

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

1: i

Falling pressure

8.72 9.4 bar

Accessories: page 142	Dimensions: pages 143 to 145	

bar 10

Rising pressure 8 8 8

6

2

0.07 0.75 2

EF Contact 1 (stage 1)

GH Contact 2 (stage 2)

1.2

0.52 0

Time

5

22 24

## **Electromechanical pressure switches**

OsiSense XM, type XML Size 20 bar (290 psi) Fixed differential, for detection of a single threshold Switches with 1 CO single-pole contact Fluid connection G 1/4 (female)

Pressure switches type XMLA

#### With setting scale





Adjustable range of switching point (PH) (Rising pressure)		120 bar (14.5290 psi)		
Electrical connection		Terminals	DIN connector	
References (1)				
Fluids controlled (2)	Hydraulic oils, fresh water, air, up to +70°C	XMLA020A2S12	XMLA020A2C11	
	Hydraulic oils, fresh water, air, up to 160°C	XMLA020B2S12	XMLA020B2C11	
	Corrosive fluids, up to + 160°C	XMLA020C2S12	XMLA020C2C11	
	Viscous products, up to + 160°C (G 1¼" fluid connection)	XMLA020P2S12	XMLA020P2C11	
Weight (kg)		0.685	0.715	
Complementary c	haracteristics not shown	under general characteristics (	page 89)	
Natural differential	At low setting (3)	0.4 bar (5.8 psi)		
(subtract from PH to give PB)	At high setting (3)	1 bar (14.5 psi)		
Maximum permissible	Per cycle	25 bar (362.5 psi)		
pressure	Accidental	45 bar (652.5 psi)		
Destruction pressure		90 bar (1305 psi)		
Mechanical life		5 x 10 <sup>6</sup> operating cycles		
Cable entry for terminal me	odels	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm		
Connector type for connect	tor models	DIN 43650 A, 4-pin male. For suitable female connector, see page 142		
Pressure switch type		Diaphragm		
		<ol> <li>For 1 entry tapped for n° 13 cable gland, rep becomes XMLA020A2S11).</li> <li>Component materials of units in contact with (3) Deviation of the differential at high setting portion.</li> </ol>	lace <b>S12</b> by <b>S11</b> (example: <b>XMLA020A2S12</b> In the fluid, see pages 148 and 149. pint for switches of the same size:	
		+ () 1 bar (+ 1 45 nsi)		

 $\pm$  0.1 bar ( $\pm$  1.45 psi). Deviation of the differential at low setting point:  $\pm$  0.2 bar ( $\pm$  2.9 psi).

#### **Operating curves**





### **Connection**

#### Terminal model

#### Connector model Pressure switch connector pin view



 $1 \rightarrow 11 \text{ and } 13$  $2 \rightarrow 12$  $3 \rightarrow 14$ 

#### --- Adjustable value --- Non adjustable value

#### Other versions

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

Accesso page 14	ries: Dimensions: 2 pages 143 to 145	
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## **Electromechanical pressure switches**

OsiSense XM, type XML Size 20 bar (290 psi) Adjustable differential, for regulation between 2 thresholds Switches with 1 CO single-pole contact Fluid connection G 1/4 (female)

Pressure switches type XMLB		With setting scale			30 bar (435 psi) overpressure With setting scale
				6	
Adjustable range of switching p	ooint (PH)	1.320 bar (18.9290 psi)			
Electrical connection		Terminals	DIN connector		Terminals
References (1)			1		
Fluids controlled (2)	Hydraulic oils, fresh water, air, up to +70°C	XMLB020A2S12	XMLB020A2C	11	-
	Hydraulic oils, fresh water, air, up to + 160°C	-	-		XMLBS20A2S12
	Hydraulic oils, fresh water, air, up to + 160°C	XMLB020B2S12	XMLB020B2C	:11	-
	Corrosive fluids, up to + 160°C	XMLB020C2S12	XMLB020C2C11		-
	Viscous products, up to + 160°C (G 1¼" fluid connection)	XMLB020P2S12	XMLB020P2C	11	-
Weight (kg)		0.705	0.735		3.500
Complementary cha	racteristics not shown	under general charac	teristics (pa	age 89)	
Possible differential	Min. at low setting (3)	1 bar (14.5 psi)			0.95 bar (13.78 psi)
(subtract from PH	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	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 Dar (978.75 psi)
Mechanical life	la.	5 x 10° operating cycles			2 x 10° operating cycles
Capital for connector	models	DIN 43650 A 4 pip male. For su	itable female co	n clamping capac	142
Pressure switch type	inodels	Diaphragm			142
		(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XMLB020A2S12			
		<ul> <li>(2) Component materials of units</li> <li>(3) Deviation of the differential at + 0.25 bar (+ 3.63 psi)</li> </ul>	in contact with ti low and high set	he fluid, see page ting points for swi	s 148 and 149. tches of the same size:
Operating curves		1 0.20 bul (1 0.00 ps)).		Connectio	n
bar		Pressure		Terminal mod	el
				1 13	
Sea Contraction of the second				\/	
		4         4		12 12	
		РВ		Connector m	odel
				Pressure switch	n connector pin view
		/		÷.	
		/			$1 \rightarrow 11$ and 13
		Time		[1 2]	$2 \rightarrow 12$
				<u></u>	$3 \rightarrow 14$

2 Minimum differential Other versions

1 Maximum differential

0.3 5 910

15 18.4 bar Falling pressure

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

- Adjustable value

Pressure switches type XMLC

Adjustable range of switching point (PH)

## **Electromechanical pressure switches**

30 bar (435 psi) overpressure

With setting scale

OsiSense XM, type XML Size 20 bar (290 psi) Adjustable differential, for regulation between 2 thresholds Switches with 2 CO single-pole contacts Fluid connection G 1/4 (female)

Rising pressure)			
Electrical connection		Terminals	
References (1)			
Fluids controlled	Hydraulic oils, fresh water, air, up to + 70°C	-	XMLCS20A2S12
	Hydraulic oils, fresh water, air, up to 160°C	XMLC020B2S12	-
	Corrosive fluids, up to + 160°C	XMLC020C2S12	-
Neight (kg)		0.685	3.500
<b>Complementary characteristics not shown</b>		under general characteristics (p	bage 89)
Possible differential	Min. at low setting (3)	0.7 bar (10.15 psi)	0.7 bar (10.15 psi)
subtract from PH	Min. at high setting (3)	1 bar (14.5 psi)	1.15 bar (16.67 psi)
o give PB)	Max. at high setting	11 bar (159.5 psi)	11.70 bar (169.6 psi)
Maximum permissible	Per cycle	25 bar (362.5 psi)	30 bar (435 psi)
pressure	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 <sup>6</sup> operating cycles	2 x 10 <sup>6</sup> 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	

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

With setting scale

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XMLC020B2S12 becomes XMLC020B2S11).

(2) Component materials of units in contact with the fluid, see pages 148 and 149.

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

#### **Operating curves**



Pressure PH ΡВ Time



Connection

--- Adjustable value

Maximum differential 1 Minimum differential 2

Other versions

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

sorie	es:		
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Dimensions: pages 143 to 145

Telemecanique

Sensors

Acces

## **Electromechanical pressure switches**

OsiSense XM, type XML

Size 20 bar (290 psi) Dual stage, fixed differential, for detection at each threshold Switches with 2 CO single-pole contacts (one per stage) Fluid connection G 1/4 (female)

#### Pressure switches type XMLD

#### Without setting scale



Adjustable range of each	2nd stage switching point (PH2)	2.1420 bar (31.03290 psi)		
switching point (Rising pressure)	1st stage switching point (PH1)	0.918.76 bar (13.05272.02 psi)		
Spread between 2 stages (P	H2 - PH1)	1.249.55 bar (17.98138.48 psi)		
Electrical connection		Terminals		
References (1)				
Fluids controlled (2)	Hydraulic oils, fresh water, air, up to 160°C	XMLD020B1S12		
	Corrosive fluids, up to + 160°C	XMLD020C1S12		
Weight (kg)		0.705		
Complementary ch	aracteristics not shown	under general characteristics (page 89)		
Natural differential	At low setting (3)	0.7 bar (10.15 psi)		
(subtract from PH1/PH2 to give PB1/PB2)	At high setting (4)	1.3 bar (18.85 psi)		
Maximum permissible	Per cycle	25 bar (362.5 psi)		
pressure	Accidental	45 bar (652.5 psi)		
Destruction pressure		90 bar (1305 psi)		
Mechanical life		5 x 10 <sup>6</sup> 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: XMLD020B1S12 becomes XMLD020B1S11).		

(2) Component materials of units in contact with the fluid, see pages 148 and 149.
 (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

Other versions

Natural differential of contacts 1 and 2





#### Connection



Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

## **Electromechanical pressure switches**

OsiSense XM, type XML Size 35 bar (507.5 psi) Fixed differential, for detection of a single threshold Switches with 1 CO single-pole contact Fluid connection G 1/4 (female)

#### Pressure switches type XMLA

#### With setting scale





Adjustable range of switching point (PH) (Rising pressure)		1.535 bar (21.75507.5 psi)		
Electrical connection		Terminals	DIN connector	
References (1)				
Fluids controlled (2)	Hydraulic oils, fresh water, air, up to +70°C	XMLA035A2S12	XMLA035A2C11	
	Hydraulic oils, fresh water, air, up to 160°C	XMLA035B2S12	XMLA035B2C11	
	Corrosive fluids, up to + 160°C	XMLA035C2S12	XMLA035C2C11	
	Viscous products, up to + 160°C (G 1¼" fluid connection)	XMLA035P2S12	XMLA035P2C11	
Weight (kg)		0.695	0.725	
Complementary of	haracteristics not shown	under general characteristics (	page 89)	
Natural differential	At low setting (3)	1.25 bar (18.12 psi)		
(subtract from PH to give PB)	At high setting (3)	1.25 bar (18.12 psi)		
Maximum permissible	Per cycle	45 bar (652.5 psi)		
pressure	Accidental	80 bar (1160 psi)		
Destruction pressure		160 bar (2320 psi)		
Mechanical life		5 x 10 <sup>e</sup> operating cycles		
Cable entry for terminal m	odels	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm		
Connector type for connector	ctor models	DIN 43650 A, 4-pin male. For suitable female connector, see page 142		
Pressure switch type		Diaphragm		
		(1) For 1 entry tapped for n° 13 cable gland, rep becomes XML A035A2S11)	lace S12 by S11 (example: XMLA035A2S12	

(2) Component materials of units in contact with the fluid, see pages 148 and 149.
(3) Deviation of the differential at low and high setting points for switches of the same size: ± 0.25 bar (± 3.62 psi).

#### **Operating curves**





-Adjustable value --- Non adjustable value

#### Connection

#### Terminal model

### **Connector model**

Pressure switch connector pin view



1→	11	and	13
$2 \rightarrow$	12		
$3 \rightarrow$	14		

#### Other versions

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

Accessories: page 142

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Dimensions: pages 143 to 145

Telemecanique

## **Electromechanical pressure switches**

OsiSense XM, type XML Size 35 bar (507.5 psi) Adjustable differential, for regulation between 2 thresholds Switches with 1 CO single-pole contact Fluid connection G 1/4 (female)

#### Pressure switches type XMLB

#### With setting scale





Adjustable range of switching point (PH) (Rising pressure)		3.5…35 bar (50.75…507.5 psi)		
Electrical connection		Terminals	DIN connector	
References (1)				
Fluids controlled (2)	Hydraulic oils, fresh water, air, up to +70°C	XMLB035A2S12	XMLB035A2C11	
	Hydraulic oils, fresh water, air, up to 160°C	XMLB035B2S12	XMLB035B2C11	
	Corrosive fluids, up to + 160°C	XMLB035C2S12	XMLB035C2C11	
	Viscous products, up to + 160°C (G 1¼" fluid connection)	XMLB035P2S12	XMLB035P2C11	
Weight (kg)		0.715	0.745	
Complementary characteristics not shown		under general characteristics (	page 89)	
Possible differential	Min. at low setting (3)	1.7 bar (24.65 psi)		
(subtract from PH	Min. at high setting (3)	2.55 bar (36.97 psi)		
to give PB)	Max. at high setting	20 bar (290 psi)		
Maximum permissible	Per cycle	45 bar (652.5 psi)		
pressure	Accidental	80 bar (1160 psi)		
Destruction pressure		160 bar (2320 psi)		
Mechanical life		5 x 10 <sup>6</sup> operating cycles		
Cable entry for terminal m	odels	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm		
Connector type for connector models		DIN 43650 A, 4-pin male. For suitable female connector, see page 142		
Pressure switch type		Diaphragm		
		(1) For 1 entry tapped for n° 13 cable gland, rep	lace S12 by S11 (example: XMLB035A2S12	

becomes XMLB035A2S11).

(2) Component materials of units in contact with the fluid, see pages 148 and 149.
 (3) Deviation of the differential at low and high 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** Pressure switch connector pin view



 $1 \rightarrow 11$  and 13 $2 \rightarrow 12$  $3 \rightarrow 14$ 

1 Maximum differential

#### Minimum differential

Other versions

-Adjustable value

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

Dimensions: pages 143 to 145

#### Telemecanique Sensors

## **Electromechanical pressure switches**

OsiSense XM, type XML Size 35 bar (507.5 psi)

Adjustable differential, for regulation between 2 thresholds Switches with 2 CO single-pole contacts Fluid connection G 1/4 (female)

#### Pressure switches type XMLC

#### With setting scale



Adjustable range of switching point (PH) (Rising pressure)		3.535 bar (50.75507.5 psi)		
Electrical connection		Terminals		
References (1)				
Fluids controlled (2)	Hydraulic oils, fresh water, air, up to 160°C	XMLC035B2S12		
	Corrosive fluids, up to + 160°C	XMLC035C2S12		
Weight (kg)		0.695		
Complementary c	haracteristics not show	n under general characteristics (page 89)		
Possible differential	Min. at low setting (3)	1 bar (14.5 psi)		
(subtract from PH	Min. at high setting (4)	1.5 bar (21.75 psi)		
to give PB)	Max. at high setting	22 bar (319 psi)		
Maximum permissible	Per cycle	45 bar (652.5 psi)		
pressure	Accidental	80 bar (1160 psi)		
Destruction pressure		160 bar (2320 psi)		
Mechanical life		5 x 10 <sup>6</sup> 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: XMLC035B2S12 becomes XMLC035B2S11).		
		(2) Component materials of units in contact with the fluid, see pages 148 and 149.		

(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**



Pressure PH ΡВ Time

### 23 2

Connection **Terminal model** 

- Adjustable value

#### 1 Maximum differential 2 Minimum differential

Other versions

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Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

## **Electromechanical pressure switches**

OsiSense XM, type XML Size 35 bar (507.5 psi)

Dual stage, fixed differential, for detection at each threshold Switches with 2 CO single-pole contacts (one per stage) Fluid connection G 1/4 (female)

#### Pressure switches type XMLD

#### Without setting scale



Adjustable range of each	2nd stage switching point (PH2)	4.435 bar (63.8507.5 psi)				
switching point (Rising pressure)	1st stage switching point (PH1)	) 1.932.5 bar (27.55471.25 psi)				
Spread between 2 stages (Pl	H2 - PH1)	2.520.4 bar (36.25295.8 psi)				
Electrical connection		Terminals				
References (1)						
Fluids controlled (2)	Hydraulic oils, fresh water, air, up to 160°C	XMLD035B1S12				
	Corrosive fluids, up to + 160°C	XMLD035C1S12				
Weight (kg)		0.715				
<b>Complementary ch</b>	aracteristics not shown	under general characteristics (page 89)				
Natural differential	At low setting (3)	1.5 bar (21.75 psi)				
(subtract from PH1/PH2 to give PB1/PB2)	At high setting (4)	2.6 bar (37.7 psi)				
Maximum permissible	Per cycle	45 bar (652.5 psi)				
pressure	Accidental	80 bar (1160 psi)				
Destruction pressure		160 bar (2320 psi)				
Mechanical life		5 x 10 <sup>e</sup> operating cycles				
Cable entry for terminal mod	leis	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: XMLD035B1S12 becomes XMLD035B1S11).				

(2) Component materials of units in contact with the fluid, see pages 148 and 149.
(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

Other versions





#### Connection

#### Terminal model

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

 23
 24
 13
 13

 23
 23
 14
 13

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.



## **Electromechanical pressure switches**

OsiSense XM, type XML Size 70 bar (1015 psi) Fixed differential, for detection of a single threshold Switches with 1 CO single-pole contact Fluid connection G 1/4 (female)

Pressure switches type XMLA

#### With setting scale





Adjustable range of switching point (PH) (Rising pressure)		570 bar (72.51015 psi)	570 bar (72.51015 psi)		
Electrical connection		Terminals	DIN connector		
References (1)					
Fluids controlled (2)	Hydraulic oils, up to + 160°C	XMLA070D2S12	XMLA070D2C11		
	Fresh water, up to + 160°C	XMLA070E2S12	XMLA070E2C11		
	Corrosive fluids, air, up to + 160°C	XMLA070N2S12	XMLA070N2C11		
Weight (kg)		0.695	0.725		
Complementary characteristics not shown		own under general charact	eristics (page 89)		
Natural differential	At low setting (3)	3 bar (43.5 psi)	3 bar (43.5 psi)		
(subtract from PH to give PB)	At high setting (3)	9.5 bar (137.75 psi)	9.5 bar (137.75 psi)		
Maximum permissible	Per cycle	90 bar (1035 psi)	90 bar (1035 psi)		
pressure	Accidental	160 bar (2320 psi)	160 bar (2320 psi)		
Destruction pressure		320 bar (4640 psi)	320 bar (4640 psi)		
Mechanical life		6 x 10 <sup>6</sup> operating cycles	6 x 10 <sup>6</sup> operating cycles		
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm		
Connector type for connect	tor models	DIN 43650 A, 4-pin male. For suit	DIN 43650 A, 4-pin male. For suitable female connector, see page 142		
Pressure switch type		Piston	Piston		
		(1) For 1 entry tapped for n° 13 ca	ble gland, replace \$12 by \$11 (example: XMLA070D2\$12		

becomes XMLA070D2S11). (2) Component materials of units in contact with the fluid, see pages 148 and 149. (3) Deviation of the differential at low and high setting points for switches of the same size:

± 1 bar (± 14.5 psi)

#### **Operating curves**





-Adjustable value --- Non adjustable value

### Connection

#### **Terminal model**



**Connector model** Pressure switch connector pin view



 $1 \rightarrow 11$  and 13  $2 \rightarrow 12$  $3 \rightarrow 14$ 

Other versions

Accessories

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Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

Dimensions: pages 143 to145 page 142

Telemecanique

## **Electromechanical pressure switches**

OsiSense XM, type XML Size 70 bar (1015 psi) Adjustable differential, for regulation between 2 thresholds Switches with 1 CO single-pole contact Fluid connection G 1/4 (female)

#### Pressure switches type XMLB

#### With setting scale





Adjustable range of switching point (PH) (Rising pressure)		770 bar (101.51015 psi)	770 bar (101.51015 psi)		
Electrical connection		Terminals		DIN connector	
References (1)					
Fluids controlled (2)	Hydraulic oils, up to + 160°C	XMLB070D2S12		XMLB070D2C11	
	Fresh water, up to + 160°C	XMLB070E2S12		XMLB070E2C11	
	Corrosive fluids, air, up to + 160°C	XMLB070N2S12		XMLB070N2C11	
Weight (kg)		0.715		0.745	
Complementary c	haracteristics not show	wn under general charact	eristics (p	page 89)	
Possible differential	Min. at low setting (3)	4.7 bar (68.15 psi)			
(subtract from PH	Min. at high setting (4)	9.5 bar (137.75 psi)			
to give PB)	Max. at high setting	50 bar (725 psi)			
Maximum permissible	Per cycle	90 bar (1035 psi)			
pressure	Accidental	160 bar (2320 psi)			
Destruction pressure		320 bar (4640 psi)			
Mechanical life		6 x 10 <sup>6</sup> operating cycles	6 x 10 <sup>6</sup> operating cycles		
Cable entry for terminal me	odels	1 entry tapped M20 x 1.5 mm for I	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm		
Connector type for connect	ctor models	DIN 43650 A, 4-pin male. For suita	DIN 43650 A, 4-pin male. For suitable female connector, see page 142		
Pressure switch type		Piston	Piston		
		(1) For 1 entry tapped for n° 13 cab becomes XMLB070D2S11).	ole gland, repla	ace S12 by S11 (example: XMLB070D2S12	

(2) Component materials of units in contact with the fluid, see pages 148 and 149.

(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**





#### Connection

Terminal model



**Connector model** Pressure switch connector pin view



 $1 \rightarrow 11$  and 13  $2 \rightarrow 12$  $3 \rightarrow 14$ 

#### 1 Maximum differential

2 Minimum differential

Other versions

- Adjustable value

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

Dimensions: pages 143 to145

Telemecanique Sensors

## **Electromechanical pressure switches**

OsiSense XM, type XML Size 70 bar (1015 psi)

Size 70 bar (1015 psi) Adjustable differential, for regulation between 2 thresholds Switches with 2 CO single-pole contacts Fluid connection G 1/4 (female)

#### Pressure switches type XMLC

#### With setting scale



Adjustable range of switching point (PH) (Rising pressure)		770 bar (101.51015 psi)	
Electrical connection		Terminals	
References (1)			
Fluids controlled (2)	Hydraulic oils, up to + 160°C	XMLC070D2S12	
	Fresh water, up to + 160°C	XMLC070E2S12	
	Corrosive fluids, up to + 160°C	XMLC070N2S12	
Weight (kg)		0.695	
<b>Complementary c</b>	haracteristics not show	vn under general characteristics (page 89)	
Possible differential	Min. at low setting (3)	4.5 bar (65.25 psi)	
(subtract from PH	Min. at high setting (3)	9.5 bar (137.75 psi)	
to give PB)	Max. at high setting	60 bar (870 psi)	
Maximum permissible	Per cycle	90 bar (1035 psi)	
pressure	Accidental	160 bar (2320 psi)	
Destruction pressure		320 bar (4640 psi)	
Mechanical life		6 x 10 <sup>6</sup> 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; XMLC070D2S12	

becomes XMLC070D2S11).

(2) Component materials of units in contact with the fluid, see pages 148 and 149.
 (3) Deviation of the differential at low and high setting points for switches of the same size:

± 0.8 bar (± 11.6 psi).

#### **Operating curves**



Pressure PH PB Time

## 23 14 13 25 23 14 13

Connection Terminal model

--- Adjustable value

1 Maximum differential

#### 2 Minimum differential

Other versions

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

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Dimensions: pages 143 to 145

Telemecanique



## **Electromechanical pressure switches**

OsiSense XM, type XML Size 70 bar (1015 psi)

Dual stage, fixed differential, for detection at each threshold Switches with 2 CO single-pole contacts (one per stage) Fluid connection G 1/4 (female)

### Pressure switches type XMLD

#### Without setting scale



Adjustable range of each	2nd stage switching point (PH2)	9.470 bar (136.31015 psi)				
switching point (Rising pressure)	1st stage switching point (PH1)	) 6.667.2 bar (95.7974.4 psi)				
Spread between 2 stages (P	H2 - PH1)	2.846 bar (40.6667 psi)				
Electrical connection		Terminals				
References (1)						
Fluids controlled (2)	Hydraulic oils, up to + 160°C	XMLD070D1S12				
	Fresh water, up to + 160°C	XMLD070E1S12				
	Corrosive fluids, air, up to + 160°C	XMLD070N1S12				
Weight (kg)		0.715				
<b>Complementary ch</b>	aracteristics not shown	under general characteristics (page 89)				
Natural differential	At low setting (3)	5 bar (72.5 psi)				
(subtract from PH1/PH2 to give PB1/PB2)	At high setting (4)	9.5 bar (137.75 psi)				
Maximum permissible	Per cycle	90 bar (1035 psi)				
pressure	Accidental	160 bar (2320 psi)				
Destruction pressure		320 bar (4640 psi)				
Mechanical life		6 x 10 <sup>6</sup> operating cycles				
Cable entry for terminal mod	dels	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 nº 13 cable gland replace S12 by S11 (example: XMI D070D1S12				

 For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XMLD070D1S12 becomes XMLD070D1S11).

(2) Component materials of units in contact with the fluid, see pages 148 and 149.
 (3) Deviation of the differential at low setting point for switches of the same size:
 15 hor (+21 - 5 poil)

± 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).

Pressure

PH2 PB2

PH1

#### **Operating curves**

High setting tripping points of contacts 1 and 2



1 Maximum differential



Other versions

Natural differential of contacts 1 and 2







22

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.



# Electromechanical pressure switches OsiSense XM, type XML Size 160 bar (2320 psi)

Fixed differential, for detection of a single threshold Switches with 1 CO single-pole contact Fluid connection G 1/4 (female)

#### Pressure switches type XMLA

#### With setting scale





Adjustable range of switching point (PH) (Rising pressure)		10…160 bar (145…2320 psi)	10…160 bar (145…2320 psi)		
Electrical connection		Terminals	DIN connector		
References (1)					
Fluids controlled (2)	Hydraulic oils, up to + 160°C	XMLA160D2S12	XMLA160D2C11		
	Fresh water, up to + 160°C	XMLA160E2S12	XMLA160E2C11		
	Corrosive fluids, air, up to + 160°C	XMLA160N2S12	XMLA160N2C11		
Weight (kg)		0.750	0.780		
Complementary characteristics not shown		own under general charac	teristics (page 89)		
Natural differential	At low setting (3)	5.5 bar (79.75 psi)	5.5 bar (79.75 psi)		
(subtract from PH to give PB)	At high setting (4)	18 bar (261 psi)			
Maximum permissible	Per cycle	200 bar (2900 psi)	200 bar (2900 psi)		
pressure	Accidental	360 bar (5220 psi)	360 bar (5220 psi)		
Destruction pressure		720 bar (10,440 psi)	720 bar (10,440 psi)		
Mechanical life		6 x 10 <sup>6</sup> operating cycles	6 x 10 <sup>6</sup> operating cycles		
Cable entry for terminal me	odels	1 entry tapped M20 x 1.5 mm for	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm		
Connector type for connect	tor models	DIN 43650 A, 4-pin male. For su	DIN 43650 A, 4-pin male. For suitable female connector, see page 142		
Pressure switch type		Piston	Piston		
		(1) For 1 entry tapped for n° 13 ca	ble gland, replace <b>\$12</b> by <b>\$11</b> (example: <b>XMLA160D2\$12</b>		

becomes XMLA160D2S11).

(2) Component materials of units in contact with the fluid, see pages 148 and 149.
(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



 $1 \rightarrow 11$  and 13  $2 \rightarrow 12$  $3 \rightarrow 14$ 

-Adjustable value

--- Non adjustable value

Other versions

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

Acces

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Dimensions: pages 143 to 145

Telemecanique

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Sensors
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Electromechanical pressure switches OsiSense XM, type XML Size 160 bar (2320 psi) Adjustable differential, for regulation between 2 thresholds Switches with 1 CO single-pole contact Fluid connection G 1/4 (female)

#### Pressure switches type XMLB

#### With setting scale





Adjustable range of switching point (PH) (Rising pressure)		10160 bar (1452320 psi)	10…160 bar (145…2320 psi)		
Electrical connection		Terminals		DIN connector	
References (1)					
Fluids controlled (2)	Hydraulic oils, up to + 160°C	XMLB160D2S12		XMLB160D2C11	
	Fresh water, up to + 160°C	XMLB160E2S12		XMLB160E2C11	
	Corrosive fluids, air, up to + 160°C	XMLB160N2S12		XMLB160N2C11	
Weight (kg)		0.750		0.780	
<b>Complementary characteristics not shown</b>		vn under general charact	eristics (p	bage 89)	
Possible differential	Min. at low setting (3)	9.3 bar (134.85 psi)	9.3 bar (134.85 psi)		
(subtract from PH	Min. at high setting (4)	20.8 bar (301.6 psi)			
to give PB)	Max. at high setting	100 bar (1450 psi)			
Maximum permissible	Per cycle	200 bar (2900 psi)			
pressure	Accidental	360 bar (5220 psi)			
Destruction pressure		720 bar (10,440 psi)			
Mechanical life		6 x 10 <sup>6</sup> operating cycles	6 x 10 <sup>6</sup> operating cycles		
Cable entry for terminal me	odels	1 entry tapped M20 x 1.5 mm for I	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm		
Connector type for connect	tor models	DIN 43650 A, 4-pin male. For suita	DIN 43650 A, 4-pin male. For suitable female connector, see page 142		
Pressure switch type		Piston	Piston		
		(1) For 1 entry tapped for n° 13 cab becomes XMLB160D2S11).	ole gland, repla	ace S12 by S11 (example: XMLB160D2S12	

(2) Component materials of units in contact with the fluid, see pages 148 and 149.

(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**





#### Connection

Terminal model



**Connector model** Pressure switch connector pin view



 $1 \rightarrow 11$  and 13  $2 \rightarrow 12$  $3 \rightarrow 14$ 

#### Maximum differential

2 Minimum differential

Other versions

- Adjustable value

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

Dimensions: pages 143 to 145

Telemecanique Sensors

## **Electromechanical pressure switches**

OsiSense XM, type XML Size 160 bar (2320 psi)

Adjustable differential, for regulation between 2 thresholds Switches with 2 CO single-pole contacts Fluid connection G 1/4 (female)

#### Pressure switches type XMLC

#### With setting scale



point (PH)	12160 bar (1742320 psi)	
	Terminals	
Hydraulic oils, up to + 160°C	XMLC160D2S12	
Fresh water, up to + 160°C	XMLC160E2S12	
Corrosive fluids, up to + 160°C	XMLC160N2S12	
	0.750	
racteristics not shown	under general characteristics (page 89)	
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)	
Per cycle	200 bar (2900 psi)	
Accidental	360 bar (5220 psi)	
	720 bar (10,440 psi)	
	6 x 10 <sup>6</sup> operating cycles	
S	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm	
	Piston	
	point (PH) Hydraulic oils, up to + 160°C Fresh water, up to + 160°C Corrosive fluids, up to + 160°C <b>acteristics not shown</b> Min. at low setting (3) Min. at high setting (3) Max. at high setting Per cycle Accidental	

(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XMLC160D2S12 becomes XMLC160D2S11).

(2) Component materials of units in contact with the fluid, see pages 148 and 149.

(3) Deviation of the differential at low and high setting points for switches of the same size: ± 0.9 bar (± 13.05 psi).

#### **Operating curves**



## Pressure PH ΡВ Time

--- Adjustable value

#### Connection **Terminal model**

13	÷۲	23	₽[
<b>4</b>	12	24	22

1 Maximum differential

2 Minimum differential

Other versions

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

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Dimensions: pages 143 to 145

## **Electromechanical pressure switches**

OsiSense XM, type XML Size 160 bar (2320 psi)

Dual stage, fixed differential, for detection at each threshold Switches with 2 CO single-pole contacts (one per stage) Fluid connection G 1/4 (female)

#### Pressure switches type XMLD

#### Without setting scale



Adjustable range of each	2nd stage switching point (PH2)	16.5160 bar (239.252320 psi)
switching point (Rising pressure)	1st stage switching point (PH1)	10.5…154 bar (152.25…2233 psi)
Spread between 2 stages (P	H2 - PH1)	683 bar (871203.5 psi)
Electrical connection		Terminals
References (1)		
Fluids controlled (2)	Hydraulic oils, up to + 160°C	XMLD160D1S12
	Fresh water, up to + 160°C	XMLD160E1S12
	Corrosive fluids, air, up to + 160°C	XMLD160N1S12
Weight (kg)		0.750
<b>Complementary ch</b>	aracteristics not shown	under general characteristics (page 89)
Natural differential	At low setting (3)	8.8 bar (127.6 psi)
(subtract from PH1/PH2 to give PB1/PB2)	At high setting (4)	20 bar (290 psi)
Maximum permissible	Per cycle	200 bar (2900 psi)
pressure	Accidental	360 bar (5220 psi)
Destruction pressure		720 bar (10,440 psi)
Mechanical life		6 x 10 <sup>6</sup> operating cycles
Cable entry for terminal mod	dels	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 \$12 by \$11 (example: \$MI D160D1\$12

becomes XMLD160D1S11). (2) Component materials of units in contact with the fluid, see pages 148 and 149.

Pressure

PH2

PB2

PH1

PB1

(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).

Natural differential of contacts 1 and 2

bar

140

120

100

80 60

40

16.5 10.5

E 0

1.77.7

EF Contact 1 (stage 1)

GH Contact 2 (stage 2)

40 60 80

Rising pressure 154

#### **Operating curves**

High setting tripping points of contacts 1 and 2



1 Maximum differential

2 Minimum differential

Other versions

Accessories:

page 142

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

134140 160 bar

Falling pressure

100

Dimensions:			

Telemecanique Sensors

Time

Contact 1

(stage 1)

22 24

33 3

--- Adjustable value
--- Non adjustable value

Contact 2

(stage 2)

Connection

**Terminal model** 

3 ÷

4 12

# Electromechanical pressure switches OsiSense XM, type XML Size 300 bar (4350 psi)

Fixed differential, for detection of a single threshold Switches with 1 CO single-pole contact Fluid connection G 1/4 (female)

#### Pressure switches type XMLA

#### With setting scale





Adjustable range of switching point (PH) (Rising pressure)		20300 bar (2904350 psi)	20300 bar (2904350 psi)		
Electrical connection		Terminals	DIN connector		
References (1)					
Fluids controlled (2) (5)	Hydraulic oils, up to + 160°C	XMLA300D2S12	XMLA300D2C11		
	Fresh water, up to + 160°C	XMLA300E2S12	XMLA300E2C11		
	Corrosive fluids, air, up to + 160°C	XMLA300N2S12	XMLA300N2C11		
Weight (kg)		0.750	0.780		
Complementary c	haracteristics not sho	own under general charac	cteristics (page 89)		
Natural differential	At low setting (3)	16.5 bar (239.25 psi)	16.5 bar (239.25 psi)		
(subtract from PH to give PB)	At high setting (4)	35 bar (507.5 psi)			
Maximum permissible	Per cycle	375 bar (5437.5 psi)	375 bar (5437.5 psi)		
pressure	Accidental	675 bar (9787.5 psi)	675 bar (9787.5 psi)		
Destruction pressure		1350 bar (19,575 psi)	1350 bar (19,575 psi)		
Mechanical life		3 x 10 <sup>6</sup> operating cycles	3 x 10 <sup>6</sup> operating cycles		
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm fo	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm		
Connector type for connect	ctor models	DIN 43650 A, 4-pin male. For su	DIN 43650 A, 4-pin male. For suitable female connector, see page 142		
Pressure switch type		Piston			
		(1) For 1 entry tapped for n° 13 ca becomes XMLA300D2S11)	able gland, replace <b>\$12</b> by <b>\$11</b> (example: <b>XMLA300D2\$12</b>		

(2) Component materials of units in contact with the fluid, see pages 148 and 149.
(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

	<u> </u>	
	$\perp$	
	1 2	
	്ച്	
-		

 $1 \rightarrow 11$  and 13  $2 \rightarrow 12$  $3 \rightarrow 14$ 

--- Adjustable value

--- Non adjustable value

Other versions

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

Accessories page 142

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Dimensions: pages 143 to 145

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# Electromechanical pressure switches OsiSense XM, type XML Size 300 bar (4350 psi)

Adjustable differential, for regulation between 2 thresholds Switches with 1 CO single-pole contact Fluid connection G 1/4 (female)

#### Pressure switches type XMLB

#### With setting scale





Adjustable range of switching point (PH) (Rising pressure)		22…300 bar (319…4350 psi)	22300 bar (3194350 psi)		
Electrical connection		Terminals	DIN connector		
References (1)					
Fluids controlled (2) (5)	Hydraulic oils, up to + 160°C	XMLB300D2S12	XMLB300D2C11		
	Fresh water, up to + 160°C	XMLB300E2S12	XMLB300E2C11		
	Corrosive fluids, air, up to + 160°C	XMLB300N2S12	XMLB300N2C11		
Weight (kg)		0.750	0.780		
Complementary c	haracteristics not sho	wn under general charac	teristics (page 89)		
Possible differential	Min. at low setting (3)	19.4 bar (281.3 psi)	19.4 bar (281.3 psi)		
(subtract from PH	Min. at high setting (4)	37 bar (536.5 psi)	37 bar (536.5 psi)		
to give PB)	Max. at high setting	200 bar (2900 psi)	200 bar (2900 psi)		
Maximum permissible	Per cycle	375 bar (5437.5 psi)			
pressure	Accidental	675 bar (9787.5 psi)	675 bar (9787.5 psi)		
Destruction pressure		1350 bar (19,575 psi)	1350 bar (19,575 psi)		
Mechanical life		3 x 10 <sup>6</sup> operating cycles	3 x 10 <sup>6</sup> operating cycles		
Cable entry for terminal me	odels	1 entry tapped M20 x 1.5 mm for	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm		
Connector type for connector models		DIN 43650 A, 4-pin male. For sui	DIN 43650 A, 4-pin male. For suitable female connector, see page 142		
Pressure switch type		Piston			
		<ul> <li>(1) For 1 entry tapped for n° 13 ca becomes XMLB300D2S11).</li> <li>(2) Component materials of units</li> </ul>	ble gland, replace <b>S12</b> by <b>S11</b> (example: <b>XMLB300D2S12</b> in contact with the fluid, see pages 148 and 149.		
		(2) Deviation of the differential of	any acting point for any itabas of the same size.		

(3) Deviation of the differential at low setting point for switches of the same size:

(4) Deviation of the differential at high setting point for switches of the same size:
(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** 

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**Connector model** Pressure switch connector pin view



 $1 \rightarrow 11 \text{ and } 13$  $2 \rightarrow 12$  $3 \rightarrow 14$ 

1 Maximum differential

Minimum differential 2

Other versions

-Adjustable value

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

Dimensions: pages 143 to 145

Telemecanique Sensors

Electromechanical pressure switches OsiSense XM, type XML Size 300 bar (4350 psi) Adjustable differential, for regulation between 2 thresholds Switches with 2 CO single-pole contacts Fluid connection G 1/4 (female)

#### Pressure switches type XMLC

#### With setting scale



Adjustable range of switching point (PH) (Rising pressure)		22300 bar (3194350 psi)
Electrical connection		Terminals
References (1)		
Fluids controlled (2) (4)	Hydraulic oils, up to + 160°C	XMLC300D2S12
	Fresh water, up to + 160°C	XMLC300E2S12
	Corrosive fluids, air, up to + 160°C	XMLC300N2S12
Weight (kg)		0.750
<b>Complementary c</b>	haracteristics not sho	wn under general characteristics (page 89)
Possible differential	Min. at low setting (3)	16 bar (232 psi)
(subtract from PH	Min. at high setting (3)	35 bar (507.5 psi)
to give PB)	Max. at high setting	240 bar (3480 psi)
Maximum permissible	Per cycle	375 bar (5437.5 psi)
pressure	Accidental	675 bar (9787.5 psi)
Destruction pressure		1350 bar (19,575 psi)
Mechanical life		3 x 10 <sup>6</sup> operating cycles
Cable entry for terminal mo	odels	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: XMLC300D2S12 becomes XMLC300D2S11).

(2) Component materials of units in contact with the fluid, see pages 148 and 149.
 (3) Deviation of the differential at low and high 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** bar 300 200 200 12 13 13 23 Pressure PH ΡВ 100

Time

- Adjustable value

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre

6	60	100	

100

#### 1 Maximum differential 2 Minimum differential

#### Other versions

22 0

Access sories page 142

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Dimensions: pages 143 to 145

265 bar

200 265 I Falling pressure

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**Electromechanical pressure switches** OsiSense XM, type XML Size 300 bar (4350 psi) Dual stage, fixed differential, for detection at each threshold Switches with 2 CO single-pole contacts (one per stage) Fluid connection G 1/4 (female)

#### Pressure switches type XMLD

#### Without setting scale



		-	
Adjustable range of each	2nd stage switching point (PH2)	36300 bar (5224350 psi)	
switching point (Rising pressure)	1st stage switching point (PH1)	25289 bar (362.54190.5 psi)	
Spread between 2 stages (PH	12 - PH1)	11…189 bar (159.5…2740.5 psi)	
Electrical connection	· · · · ·	Terminals	
References (1)			
Fluids controlled (2) (5)	Hydraulic oils, up to + 160°C	XMLD300D1S12	
	Fresh water, up to + 160°C	XMLD300E1S12	
	Corrosive fluids, air, up to + 160°C	XMLD300N1S12	
Weight (kg)		0.750	
<b>Complementary cha</b>	aracteristics not shown	under general characteristics (page 89)	
Natural differential	At low setting (3)	17 bar (246.5 psi)	
(subtract from PH1/PH2 to give PB1/PB2)	At high setting (4)	42 bar (609 psi)	
Maximum permissible	Per cycle	375 bar (5437.5 psi)	
pressure	Accidental	675 bar (9787.5 psi)	
Destruction pressure		1350 bar (19,575 psi)	
Mechanical life		3 X 10° operating cycles	
Pressure switch type	eis	Piston	
		<ul> <li>(2) Component materials of units in contact with the fluid, see pages 148 and 149.</li> <li>(3) Deviation of the differential at low setting point for switches of the same size: ±2.5 bar (±36.25 psi).</li> <li>(4) Deviation of the differential at high setting point for switches of the same size: ±9 bar (±130.5 psi).</li> <li>(5) Only for control of group 2 fluids, in accordance with directive 97/23/EEC.</li> </ul>	
Operating curves			
High setting tripping poi	nts of contacts 1 and 2	Natural differential of contacts 1 and 2	
bar 300 (a) 215 215 0 0 215 200 0 215 200 0 215 200 0 215 200 0 215 200 0 215 200 0 215 200 0 215 200 0 200 200 200 200 200 200 200 200	200 289 bar gpressure)	Pressure PH2 PB2 PH2 PH2 PH2 PH2 PH2 PH2 PH2 PH2 PH2 PH	
		(stage 2) (stage 1)	
Maximum differential     Minimum differential		EF Contact 1 (stage 1) $\mathfrak{P}$ $\mathfrak{T}$ $\mathfrak{R}$ GH Contact 2 (stage 2) $\mathfrak{P}$ $\mathfrak{T}$ $\mathfrak{R}$	
Other versions		Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Custo	mer

# Electromechanical pressure switches OsiSense XM, type XML Size 500 bar (7250 psi)

Fixed differential, for detection of a single threshold Switches with 1 CO single-pole contact Fluid connection G 1/4 (female)

#### Pressure switches type XMLA

#### With setting scale





Adjustable range of switching point (PH) (Rising pressure)		30…500 bar (435…7250 psi)			
Electrical connection		Terminals	DIN connector		
References (1)					
Fluids controlled (2) (5)	Hydraulic oils, up to + 160°C	XMLA500D2S12	XMLA500D2C11		
	Fresh water, up to + 160°C	XMLA500E2S12	XMLA500E2C11		
	Corrosive fluids, air, up to + 160°C	XMLA500N2S12	XMLA500N2C11		
Weight (kg)		0.750	0.780		
Complementary c	haracteristics not sho	own under general charac	teristics (page 89)		
Natural differential	At low setting (3)	20 bar (290 psi)	20 bar (290 psi)		
(subtract from PH to give PB)	At high setting (4)	45 bar (652.5 psi)	45 bar (652.5 psi)		
Maximum permissible	Per cycle	625 bar (9062.5 psi)	625 bar (9062.5 psi)		
pressure	Accidental	1125 bar (16,312.5 psi)	1125 bar (16,312.5 psi)		
Destruction pressure		2250 bar (32,625 psi)	2250 bar (32,625 psi)		
Mechanical life		3 x 10 <sup>6</sup> operating cycles	3 x 10 <sup>6</sup> operating cycles		
Cable entry for terminal models 1 entry tapped M20 x 1.5 mm for ISO cable		ISO cable gland, clamping capacity 7 to 13 mm			
Connector type for connector	ctor models	DIN 43650 A, 4-pin male. For su	itable female connector, see page 142		
Pressure switch type		Piston			
		(1) For 1 entry tapped for n° 13 ca becomes XMI A500D2S11)	able gland, replace <b>\$12</b> by <b>\$11</b> (example: <b>XMLA500D2\$12</b>		

(2) Component materials of units in contact with the fluid, see pages 148 and 149.

(3) Deviation of the differential at low setting point for switches of the same size: ± 6 bar (± 87 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**





#### Connection **Terminal model**

1

#### **Connector model**

Pressure switch connector pin view

<u> </u>	_
⊥ [1_2] _3	$\begin{vmatrix} & 1 \\ & 2 \\ & 3 \\ & 3 \\ \end{pmatrix}$

11 and 13 12 14

--- Adjustable value --- Non adjustable value

#### Other versions

138

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

Accessories:	Dimensions:
page 142	pages 143 to 145

ensor

## **Electromechanical pressure switches**

OsiSense XM, type XML Size 500 bar (7250 psi) Adjustable differential, for regulation between 2 thresholds Switches with 1 CO single-pole contact Fluid connection G 1/4 (female)

#### Pressure switches type XMLB

#### With setting scale





Adjustable range of switching point (PH) (Rising pressure)		30500 bar (4357250 psi)			
Electrical connection		Terminals		DIN connector	
References (1)					
Fluids controlled (2) (5)	Hydraulic oils, up to + 160°C	XMLB500D2S12		XMLB500D2C11	
	Fresh water, up to + 160°C	XMLB500E2S12		XMLB500E2C11	
	Corrosive fluids, air, up to + 160°C	XMLB500N2S12		XMLB500N2C11	
Weight (kg)		0.750		0.780	
Complementary c	haracteristics not sho	wn under general charact	teristics (p	bage 89)	
Possible differential	Min. at low setting (3)	23 bar (333.5 psi)	23 bar (333.5 psi)		
(subtract from PH	Min. at high setting (4)	52.6 bar (762.7 psi)			
to give PB)	Max. at high setting	300 bar (4350 psi)	300 bar (4350 psi)		
Maximum permissible	Per cycle	625 bar (9062.5 psi)	625 bar (9062.5 psi)		
pressure	Accidental	1125 bar (16,312.5 psi)			
Destruction pressure		2250 bar (32,625 psi)	2250 bar (32,625 psi)		
Mechanical life		3 x 10 <sup>6</sup> operating cycles	3 x 10 <sup>6</sup> operating cycles		
Cable entry for terminal models		1 entry tapped M20 x 1.5 mm for	1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13 mm		
Connector type for connector models		DIN 43650 A, 4-pin male. For suitable female connector, see page 142			
Pressure switch type		Piston	Piston		
		(1) For 1 entry tapped for n° 13 cal	ble gland, repl	ace <b>\$12</b> by <b>\$11</b> (example: <b>XMLB500D2\$12</b>	

becomes XMLB500D2S11).

(2) Component materials of units in contact with the fluid, see pages 148 and 149.
 (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 ps) + 162.4 ps)

- 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**



## Pressure PH PB Time

### Connection Terminal model



Connector model Pressure switch connector pin view



 $1 \rightarrow 11 \text{ and } 13$  $2 \rightarrow 12$  $3 \rightarrow 14$ 

#### 1 Maximum differential

2 Minimum differential

#### Other versions

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.



-Adjustable value

## **Electromechanical pressure switches**

OsiSense XM, type XML Size 500 bar (7250 psi) Adjustable differential, for regulation between 2 thresholds Switches with 2 CO single-pole contacts Fluid connection G 1/4 (female)

#### Pressure switches type XMLC

#### With setting scale



Adjustable range of switching point (PH) (Rising pressure)		30500 bar (4357250 psi)		
Electrical connection		Terminals		
References (1)				
Fluids controlled (2) (4)	Hydraulic oils, up to + 160°C	XMLC500D2S12		
	Fresh water, up to + 160°C	XMLC500E2S12		
	Corrosive fluids, air, up to + 160°C	XMLC500N2S12		
Weight (kg)		0.750		
<b>Complementary c</b>	haracteristics not sho	wn under general characteristics (page 89)		
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	Per cycle	625 bar (9062.5 psi)		
pressure	Accidental	1125 bar (16,312.5 psi)		
Destruction pressure		2250 bar (32,625 psi)		
Mechanical life		3 x 10 <sup>6</sup> 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: XMLC500D2S12 becomes XMLC500D2S11).		

(2) Component materials of units in contact with the fluid, see pages 148 and 149.
 (3) Deviation of the differential at low and high 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** bar 500 400 200 12 11 Pressure 23 PH PB 300 200 Time

- Adjustable value

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre

cces	SOI	les.
age 1	42	

140

100 30 

0

11

Other versions

| i

100 160 200

1 Maximum differential

2 Minimum differential

Dimensions: pages 143 to 145

300 400 448 bar Falling pressure

#### Telemecanique Sensors

## **Electromechanical pressure switches**

OsiSense XM, type XML Size 500 bar (7250 psi) Dual stage, fixed differential, for detection at each threshold Switches with 2 CO single-pole contacts (one per stage) Fluid connection G 1/4 (female)

#### Pressure switches type XMLD

#### Without setting scale



Adjustable range of each switching point (Rising pressure)	2nd stage switching point (PH2)	41500 bar (594.57250 psi)		
	1st stage switching point (PH1)	25484 bar (362.57018 psi)		
Spread between 2 stages (P	'H2 - PH1)	16…244 bar (232…3538 psi)		
Electrical connection		Terminals		
References (1)				
Fluids controlled (2) (5)	Hydraulic oils, up to + 160°C	XMLD500D1S12		
	Fresh water, up to + 160°C	XMLD500E1S12		
	Corrosive fluids, air, up to + 160°C	XMLD500N1S12		
Weight (kg)		0.750		
Complementary ch	naracteristics not shown	under general characteristics (page 89)		
Natural differential	At low setting (3)	21 bar (304.5 psi)		
(subtract from PH1/PH2 to give PB1/PB2)	At high setting (4)	65 bar (942.5 psi)		
Maximum permissible	Per cycle	625 bar (9062.5 psi)		
pressure	Accidental	1125 bar (16,312.5 psi)		
Destruction pressure		2250 bar (32,625 psi)		
Mechanical life		3 x 10 <sup>6</sup> operating cycles		
Cable entry for terminal mo	e entry for terminal models 1 entry tapped M20 x 1.5 mm for ISO cable gland, clamping capacity 7 to 13			
Pressure switch type		Piston		
		(1) For 1 entry tapped for n° 13 cable gland, replace S12 by S11 (example: XMLD500D1S12		

becomes XMLD500D1S11). (2) Component materials of units in contact with the fluid, see pages 148 and 149.

(3) Deviation of the differential at low setting point for switches of the same size:  $\pm 3$  bar ( $\pm 43.5$  psi).

(4) Deviation of the differential at high setting point for switches of the same size:

Pressure

PH2

PB2

PH1

PB1

--- Adjustable value

Connection

**Terminal model** 

3 5

14 12

--- Non adjustable value

± 10 bar (± 145 psi).

baı 484

400

300

200

100

4

420 100

Rising pressure

Natural differential of contacts 1 and 2

200

300

(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

Other versions

Pressure switches with alternative tapped cable entries: NPT, etc. Please consult our Customer Care Centre.

419 435 bar

Falling pressure

Dimensions: pages 143 to 145 Accessories page 142

EF Contact 1 (stage 1)

GH Contact 2 (stage 2)

Time

(stage 1)

Contact 2 Contact 1 (stage 2)

> 23 5

24 22

## References

## Electromechanical pressure and vacuum switches OsiSense XM

Types XMLA, XMLB, XMLC and XMLD Accessories and replacement parts





XMLZL003









XMLZL005



XMLZA•••, XMLZB•••



Accessories for pr	essure swit	ches and vacuur	n switches		
Description		Specific characteristics	For use with switches	Unit reference	Weight kg
Rear fixing bracket for vibrations > 2 gn		-	XMLeL35 XMLe001	XMLZL006	0.230
Additional top support bracket for vibrations > 4 gn		-	XMLAM01 XML•M05 XMLA004 XML•010 XML•500	XMLZL002	0.020
Knurled adjustment knob, & fits over adjustment screw(s) setting	<b>ð 36 mm</b> to facilitate	-	All models	XMLZL003	0.010
Fixing plate for replacing an XMJA or XMGB switch by an XML switch		-	XMLAM01 XML•M05 XMLA004 XML•010 XML•500	XMLZL004	0.110
Lead sealable protective cover to prevent unauthorised access to adjustment screws and fixing screw of switch cover		-	XMLA XMLB	XMLZL001	0.035
Lead sealable protective cover to prevent unauthorised access to adjustment screws		-	All models	XMLZL011	0.030
Indicator modules and associated covers, 2 LEDs	Without setting scale	$\sim$ or == 24/48 V	XMLA/B	XMLZZ024	0.090
(orange and green)		$\sim$ 110/240 V	XMLA/B	XMLZZ120	0.090
	With setting scale	$\sim$ or == 24/48 V	XMLA	XMLZA024	0.090
			XMLB	XMLZB024	0.090
		$\sim$ 110/240 V	XMLA	XMLZA120	0.090
			XMLB	XMLZB120	0.090
Hydraulic block for base mounting directly onto fluid manifold		-	All models	XMLZL005	0.240
Female DIN 43650 A connector		-	XML	XZCC43FCP40B	0.035
Adaptor, G 1/4"/G 3/8" male/female		-	All models	XMLZL012	0.130
<b>Replacement parts</b>	;				
Sealing gasket		For sizes ≥ 300 bar (XM	LA/B/C/D)	XMLZL010	0.015
Diaphragms		-	XML•S35	XMLZL013	0.060
			XML •S02	XMLZL014	0.040
			XML •S04	XMLZL015	0.030
**Dimensions** 

## Electromechanical pressure and vacuum switches **OsiSense XM**

Types XMLA, XMLB, XMLC and XMLD

#### XMLeL35, XMLe001, XMLeS





(1) 1 fluid entry, tapped G 1/4 (BSP female) (2) 1 electrical connections entry, tapped M20 x 1.5 or Pg 13.5

XMLBM03, XMLBL05





(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



	Du	01		
BM03	150	155.5	80.5	
BL05	200	204	104	
●L35, ●001	110	-	-	
●S35, ●S02, ●S04	110	-	-	
●S10, ●S20	86	_	_	



References: pages 90 to 141



### **Electromechanical pressure and** vacuum switches

OsiSense XM Types XMLA, XMLB, XMLC and XMLD

#### XMLAM01, XMLBM05, XMLCM05, XMLA004, XML•010...500





XMLC/D : 90 XMLA/B: 77,5 (1) 30 122

oles Ø 5.2 x 6

XMLeM02, XMLe002, XMLB004, XMLC004, XMLD004

hed

 (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



References: pages 90 to 141 Telemecanique Sensors

Characteristics: pages 89 to 141

## **Electromechanical pressure and** vacuum switches

175

OsiSense XM Types XMLA, XMLB, XMLC and XMLD



(1) 1 fluid entry, tapped G 1¼ (BSP female)
(2) 1 electrical connections entry, tapped M20 x 1.5 or Pg 13.5

XMLBM05P, XMLA004P, XMLe010P, XMLe020P, XMLe035P





(1) 1 fluid entry, tapped G 1¼ (BSP female)
(2) 1 electrical connections entry, tapped M20 x 1.5 or Pg 13.5



Sensors

### Substitution table

# Electromechanical pressure and vacuum switches

OsiSense XM

Equivalent model references of pressure and vacuum switches XML for previous range switches XM2JM, XMJ and XMG

Pressure and vac	uum switches with fixed dif	ferential	
Old XM2JM	New XMLA	Old XM2JM	New XMLA
XM2JM091	XMLAM01V2S11	XM2JM3004	XMLA300E2S11
XM2JM002	XMLA002A2S11	XM2JM500	XMLA500D2S11
XM2JM0025	XMLA002C2S11	XM2JM5004	XMLA500E2S11
XM2JM004	XMLA004A2S11	XM2JM0912	XMLAM01V2S11
XM2JM0045	XMLA004C2S11	XM2JM0022	XMLA002B2S11
XM2JM0046	XMLA004P2S11	XM2JM00225	XMLA002C2S11
XM2JM012 (1)	XMLA010A2S11	XM2JM0042	XMLA004B2S11
XM2JM012 (1)	XMLA020A2S11	XM2JM00425	XMLA004C2S11
XM2JM0125 (1)	XMLA010C2S11	XM2JM00426	XMLA004P2S11
XM2JM0125 (1)	XMLA020C2S11	XM2JM0122	XMLA010B2S11
XM2JM0126 (1)	XMLA010P2S11	XM2JM01225	XMLA010C2S11
XM2JM0126 (1)	XMLA020P2S11	XM2JM01226	XMLA010P2S11
XM2JM030 (2)	XMLA020A2S11	XM2JM0302	XMLA035B2S11
XM2JM030 (2)	XMLA035A2S11	XM2JM03024	XMLA035B2S11
XM2JM0304 (2)	XMLA020A2S11	XM2JM0502	XMLA070D2S11
XM2JM0304 (2)	XMLA035A2S11	XM2JM05024	XMLA070E2S11
XM2JM050 (3)	XMLA035A2S11	XM2JM1602	XMLA160D2S11
XM2JM050 (3)	XMLA070D2S11	XM2JM16024	XMLA160E2S11
XM2JM0504 (3)	XMLA035A2S11	XM2JM3002	XMLA300D2S11
XM2JM0504 (3)	XMLA070E2S11	XM2JM30024	XMLA300E2S11
XM2JM160	XMLA160D2S11	XM2JM5002	XMLA500D2S11
XM2JM1604	XMLA160E2S11	XM2JM50024	XMLA500E2S11
XM2JM300	XMLA300D2S11		
Old XMJA	New XMLA	Old XMJA	New XMLA
XMJA091	XMLAM01V2S11	XMJA0507 (3)	XMLA070D2S11
XMJA0915	XMLAM0112S11	XMJA0507 (4)	XMLA070E2S11
XMJA0037	XMLA004A2S11	XMJA0507 (4)	XMLA070N2S11
XMJA003	XMLA004A2S11	XMJA0707	XMLA070D2S11
XMJA00375	XMLA004C2S11	XMJA070	XMLA070D2S11
XMJA0035	XMLA004C2S11	XMJA07074	XMLA070E2S11
$\frac{\text{XMJA0127 (1)}}{\text{XMJA0127 (4)}}$	XMLA010A2511	XIVIJA0704	XMLA070E2S11
XIVIJAU 127 (1)	XMLA020A2S11	XIVIJA07075	XMLA070N2S11
$\frac{\text{XMJA012}(1)}{\text{XMJA012}(1)}$	XMLA020A2S11	XIVIJAU7078	XMLA070N2S11
XIVIJAU 12 (1)	XMLA020A2S11		XMLA070N2S11
XMIA01275 (1)	XMLA010C2S11	XMJA0700	XMLA070D2S11
XMIΔ0125 (1)	XMLA020C2S11	$\frac{1}{2} = \frac{1}{2} $	XMLA070E2S11
XMIA0125 (1)	XMLA020C2S11	XMI0/(115 (4) (5)	XMLA070N2S11
XM.IA020	XML A020A2S11	XM.IA115 (4) (5)	XMLA160D2S11
XMJA0207	XMLA020A2S11	XMJA115 (4) (5)	XMLA160E2S11
XMJA02075	XMLA020C2S11	XMJA115 (4) (5)	XMLA160N2S11
XMJA0205	XMLA020C2S11	XMJA1157 (4) (5)	XMLA070D2S11
XMJA0307 (2)	XMLA020A2S11	XMJA1157 (4) (5)	XMLA070E2S11
XMJA0307 (2)	XMLA035A2S11	XMJA1157 (4) (5)	XMLA070N2S11
XMJA03074 (2)	XMLA020A2S11	XMJA1157 (4) (5)	XMLA160D2S11
XMJA03074 (2)	XMLA035A2S11	XMJA1157 (4) (5)	XMLA160E2S11
XMJA03078 (2)	XMLA020A2S11	XMJA1157 (4) (5)	XMLA160N2S11
XMJA03078 (2)	XMLA035A2S11	XMJA1607	XMLA160D2S11
XMJA030 (2)	XMLA020A2S11	XMJA160	XMLA160D2S11
XMJA030 (2)	XMLA035A2S11	XMJA16074	XMLA160E2S11
XMJA0304 (2)	XMLA020A2S11	XMJA1604	XMLA160E2S11
XMJA0304 (2)	XMLA035A2S11	XMJA16075	XMLA160N2S11
XMJA0308 (2)	XMLA020A2S11	XMJA16078	XMLA160N2S11
XMJA0308 (2)	XMLA035A2S11	XMJA1605	XMLA160N2S11
XMJA03075 (2)	XMLA020C2S11	XMJA1608	XMLA160N2S11
XMJA03075 (2)	XMLA035C2S11	XMJA3007	XMLA300D2S11
XMJA0305 (2)	XMLA020C2S11	XMJA300	XMLA300D2S11
XMJA0305 (2)	XMLA035C2S11	XMJA30074	XMLA300E2S11
XMJA050 (3)	XMLA035A2S11	XMJA3004	XMLA300E2S11
XMJA050 (3)	XMLA070D2S11	XMJA30075	XMLA300N2S11
XMJA050 (4)	XMLA070E2S11	XMJA30078	XMLA300N2S11
XMJA050 (4)	XMLA070N2S11	XMJA3005	XMLA300N2S11
XMJA0507 (3)	XMLA035A2S11	XMJA3008	XMLA300N2S11



# Electromechanical pressure and vacuum switches

**OsiSense XM** 

Equivalent model references of pressure and vacuum switches XML for previous range switches XM2JM, XMJ and XMG

Pressure and vacuum switches with fixed differential (continued)								
Old XMJA	New XMLA	Old XMJA	New XMLA					
XMJA5007	XMLA500D2S11	XMJA50075	XMLA500N2S11					
XMJA500	XMLA500D2S11	XMJA50078	XMLA500N2S11					
XMJA50074	XMLA500E2S11	XMJA5005	XMLA500N2S11					
XMJA5004	XMLA500E2S11	XMJA5008	XMLA500N2S11					

### Pressure and vacuum switches with adjustable differential

i lessure	and vacuum sv	vitches with	aujustable uli	lerentiai			
Old XMGB	New XMLB	Old XMGB	New XMLC	Old XMGB	New XMLB	Old XMGB	New XMLC
XMGB091	XMLBM02V2S11	XMGB0912	XMLCM02V2S11	XMGB0146 (1)	XMLB020P2S11	XMGB01462	(8)
XMGB092	XMLBM02V2S11	XMGB0922	XMLCM02V2S11	XMGB0286 (6)	XMLB020P2S11	XMGB02862	(8)
XMGB093	XMLBM02V2S11 (8)	XMGB0932	XMLCM02V2S11	XMGB0286 (6)	XMLB035P2S11	XMGB02862	(8)
XMGB0911	XMLBM02T2S11	XMGB09112	XMLCM02T2S11	XMGB070	XMLB070D2S11	XMGB0702	XMLC070D2S11
XMGB0921	XMLBM02T2S11	XMGB09212	XMLCM02T2S11	XMGB140	XMLB160D2S11	XMGB1402	XMLC160D2S11
XMGB0917	XMLBM02T2S11	XMGB09172	XMLCM02T2S11	XMGB280	XMLB300D2S11	XMGB2802	XMLC300D2S11
XMGB0927	XMLBM02T2S11	XMGB09272	XMLCM02T2S11	XMGB500	XMLB500D2S11	XMGB5002	XMLC500D2S11
XMGB001 (4)	XMLBL35R2S11	XMGB0012 (4)	XMLCL35R2S11	XMGB0704	XMLB070E2S11	XMGB07042	XMLC070E2S11
XMGB001 (4)	XMLBL35S2S11	XMGB0012 (4)	XMLCL35S2S11	XMGB1404	XMLB160E2S11	XMGB14042	XMLC160E2S11
XMGB002	XMLB002A2S11	XMGB0022	XMLC002A2S11	XMGB2804	XMLB300E2S11	XMGB28042	XMLC300E2S11
XMGB003	XMLB004A2S11	XMGB0032	XMLC004A2S11	XMGB5004	XMLB500E2S11	XMGB50042	XMLC500E2S11
XMGB008	XMLB010A2S11	XMGB0082	XMLC010A2S11	XMGB0708	XMLB070N2S11	XMGB07082	XMLC070N2S11
XMGB014 (1)	XMLB010A2S11	XMGB0142 (1)	XMLC010A2S11	XMGB1408	XMLB160N2S11	XMGB14082	XMLC160N2S11
XMGB014 (1)	XMLB020A2S11	XMGB0142 (1)	XMLC020A2S11	XMGB2808	XMLB300N2S11	XMGB28082	XMLC300N2S11
XMGB028 (6)	XMLB020A2S11	XMGB0282 (6)	XMLC020A2S11	XMGB5008	XMLB500N2S11	XMGB50082	XMLC500N2S11
XMGB028 (6)	XMLB035A2S11	XMGB0282 (6)	XMLC035A2S11	XMGB0701 (4)	XMLB070D2S11	XMGB07012 (4)	XMLC070D2S11
XMGB0011 (4)	XMLBL35R2S11	XMGB00112 (4)	XMLCL35R2S11	XMGB0701 (4)	XMLB070E2S11	XMGB07012 (4)	XMLC070E2S11
XMGB0011 (4)	XMLBL35S2S11	XMGB00112 (4)	XMLCL35S2S11	XMGB1401 (4)	XMLB160D2S11	XMGB14012 (4)	XMLC160D2S11
XMGB0021	XMLB002B2S11	XMGB00212	XMLC002B2S11	XMGB1401 (4)	XMLB160E2S11	XMGB14012 (4)	XMLC160E2S11
XMGB0031	XMLB004B2S11	XMGB00312	XMLC004B2S11	XMGB2801 (4)	XMLB300D2S11	XMGB28012 (4)	XMLC300D2S11
XMGB0081	XMLB010B2S11	XMGB00812	XMLC010B2S11	XMGB2801 (4)	XMLB300E2S11	XMGB28012 (4)	XMLC300E2S11
XMGB0141 (1)	XMLB010B2S11	XMGB01412 (1)	XMLC010B2S11	XMGB5001 (4)	XMLB500D2S11	XMGB50012 (4)	XMLC500D2S11
XMGB0141 (1)	XMLB020B2S11	XMGB01412 (1)	XMLC020B2S11	XMGB5001 (4)	XMLB500E2S11	XMGB50012 (4)	XMLC500E2S11
XMGB0281 (6)	XMLB020B2S11	XMGB02812 (6)	XMLC020B2S11	XMGB0707	XMLB070N2S11	XMGB07072	XMLC070N2S11
XMGB0281 (6)	XMLB035B2S11	XMGB02812 (6)	XMLC035B2S11	XMGB1407	XMLB160N2S11	XMGB14072	XMLC160N2S11
XMGB0017	XMLBL35S2S11	XMGB00172	XMLCL35S2S11	XMGB2807	XMLB300N2S11	XMGB28072	XMLC300N2S11
XMGB0027	XMLB002C2S11	XMGB00272	XMLC002C2S11	XMGB5007	XMLB500N2S11	XMGB50072	XMLC500N2S11
XMGB0037	XMLB004C2S11	XMGB00372	XMLC004C2S11	XMGB0018	XMLBS35R2S11	XMGB00182	XMLCS35R2S11
XMGB0087	XMLB010C2S11	XMGB00872	XMLC010C2S11	XMGB0028	XMLBS02B2S11	XMGB00282	XMLCS02B2S11
XMGB0147 (1)	XMLB010C2S11	XMGB01472 (1)	XMLC010C2S11	XMGB0038	XMLBS04B2S11	XMGB00382	XMLCS04B2S11
XMGB0147 (1)	XMLB020C2S11	XMGB01472 (1)	XMLC020C2S11	XMGB0088	XMLBS10A2S11 (7)	XMGB00882	XMLCS10A2S11 (7)
XMGB0287 (6)	XMLB020C2S11	XMGB02872 (6)	XMLC020C2S11	XMGB0148 (1)	XMLBS10A2S11 (7)	XMGB01482 (1)	XMLCS10A2S11 (7)
XMGB0287 (6)	XMLB035C2S11	XMGB02872 (6)	XMLC035C2S11	XMGB0148 (1)	XMLBS20A2S11 (7)	XMGB01482 (1)	XMLCS20A2S11 (7)
XMGB0016	XMLBL35P2S11	XMGB00162	(8)	XMGB0120 (5) (4)	XMLB070D2S11	XMGB01202 (5) (4)	XMLC070D2S11
XMGB0026	XMLBM05P2S11	XMGB00262	(8)	XMGB0120 (5) (4)	XMLB070E2S11	XMGB01202 (5) (4)	XMLC070E2S11
XMGB0036	XMLBM05P2S11	XMGB00362	(8)	XMGB0120 (5) (4)	XMLB160D2S11	XMGB01202 (5) (4)	XMLC160D2S11
XMGB0086	XMLB010P2S11	XMGB00862	(8)	XMGB0120 (5) (4)	XMLB160E2S11	XMGB01202 (5) (4)	XMLC160E2S11
XMGB0146 (1)	XMLB010P2S11	XMGB01462	(8)				

(1) Depending on required adjustment range, examples:

(2) Depending on required adjustment range, examples:

(3) Depending on required adjustment range, examples:

(4) Depending on fluid to be controlled.

(5) Depending on required adjustment range, examples:

(6) Depending on required adjustment range, examples:

(7) Temperature of fluid to be controlled limited to 70°C(8) Please consult our Customer Care Centre.

pressure < 8 bar = XMLA/B/C010, pressure > 8 bar = XMLA/B/C020. pressure < 18 bar = XMLA/B/C020, pressure > 18 bar = XMLA/B/C035. pressure < 32 bar = XMLA/B/C035, pressure > 32 bar = XMLA/B/C070.

pressure < 65 bar = XMLA/B/C070, pressure > 65 bar = XMLA/B/C160. pressure < 18 bar = XMLA/B/C020, pressure > 18 bar = XMLA/B/C035.

### 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

OsiSense XM, type XML

	Component materials in contact with fluid							
Pressure or vacuum switch reference	Zinc alloy	Stainless steel	Brass	Steel	Nitrile	PTFE	FPM, FKM	Aluminium
XMLAM01Veeee, XMLeM02Veeee		(1)						
XMLAM01Teeee, XMLeM02Teeee		(2)						
XMLBM03Reeee								
XMLBM03S++++		(3)						
XMLeM05Aeeee		(1)						
XMLeM05Beeee		(1)						
XMLeM05Ceeee		(1)						
XMLBM05Peeee		(1)						
XMLBL05Reeee								
XMLBL05Seeee		(3)						
XMLeL35Reese, XMLeS35Reese		(1)						
XMLeL35Seeee		(3)						
XMLBL35Peeee		(1)						
XMLe001Reese		(1)						
XMLe001Seeee		(3)						
XMLB001Peeee		(1)						
XMLe002Aeeee								
XMLe002Beeee, XMLeS02Beeee								
XMLe002Ceeee		(3)						
XMLA004A								
XMLA004Beeee								
XMLA004Ceeee		(2)						
XMLA004Peeee								

Materials in contact with fluid

(1) 1.4307 (AISI 304L) (2) 1.4404 (AISI 316L) (3) 1.4305 (AISI 316L)

### 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

OsiSense XM, type XML

	Materials i	n contact w	vith fluid					
Pressure switch reference	Zinc alloy	Stainless steel	Brass	Steel	Nitrile	PTFE	FPM, FKM	Aluminium
XMLB004A								
XMLe004Beeee, XMLeS04Beeee								
XMLe004Ceeee		(3)						
XMLe010Aeeee								
XMLe010Beeee								
XMLe010Ceeee		(2)						
XMLe010Peeee, XMLeS10Aeeee								
XMLe020Aeeee, XMLe035Aeeee								
XMLe020Beeee, XMLe035Beeee								
XMLe020Ceeee, XMLe035Ceeee		(2)						
XMLe020Peeee, XMLe035Peeee, XMLeS20Aeeee								
XMLe070Deeee, XMLe160Deeee								
XMLe070Eeeee, XMLe160Eeeee		(4)						
XMLe070Neeee, XMLe160Neeee		(5)						
XMLe300Deeee								
XMLe300Eeeee		(4)						
XML•300N••••		(5)						
XML•500D••••								
XML•500E••••								
XML•500N••••4		(5)						

Component materials in contact with fluid

(2) 1.4404 (AISI 316L) (3) 1.4305 (AISI 316L) (4) 1.4404 (AISI 316L) + 1.4462 (5) 1.4404 (AISI 316L) + 1.4305 (AISI 303)

### Presentation

### Electromechanical pressure switches OsiSense XM

For control circuits, types ACW and ADW

### 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).









### **Characteristics**

### Electromechanical pressure switches OsiSense XM

For control circuits, types ACW and ADW

Environment characteristics						
Pressure switch type		ACW (bellows operated)		ADW (piston	operated)	
Conformity to standards		C€, IEC/EN 60947-5-1				
Product certifications		CSA, UL (Recognized)				
Protective treatment		"TC"				
Materials		Zinc alloy case Phosphor bronze bellows		Zinc alloy cas Pressure swit Buna N diaph cylinder Pressure swit seal: Buna N seal, stainless	e ches with drainage hole: ragm, steel piston, cast iron ches with Quad-Ring piston diaphragm, Teflon and Viton s steel piston and cylinder	
Ambient air temperature (for operation)	°C	- 56+ 85		- 30+ 85		
Fluids controlled		Air, oils and other non corros from - 73 to + 125°C	Air, oils and other non corrosive fluids, from - 73 to + 125°C       Oils and (for AD)         Oils (inc 30 to + 125°C)       Oils (inc 30 to + 125°C)		d other fluids, from - 25 to + 120°C <b>DW5, 6, 7S1, 25, 26, 27S1</b> ) Including synthetic) only, from - 125°C (for <b>ADW3, 4, 7, 23, 24, 27</b> )	
Degree of protection		IP 65 conforming to IEC/EN 60529				
Fluid connection		G 1/4 (BSP female) conforming G 3/8 (BSP fe to NF E 03-005, ISO 228 to NF E 03-00		male) conforming 05, ISO 228		
Electrical connection		Terminals. 1 tapped entry for	r n° 13 (DIN Pg	13.5) cable gla	and	
Contact block characteristics						
Rated operational current Category AC-15		Ue 24 V 110 V 220 V 500 V	1 CO single- pressure swi le 5 A 5 A 3 A 1.4 A	pole itches	2 CO single-pole pressure switches le 3 A 3 A 1.5 A 0.7 A	
Category DC-13		Ue 24 V 110 V 220 V 500 V 600 V	le 5 A 0.5 A 0.25 A 0.10 A 0.06 A		le 1.5 A 0.25 A – –	
Short-circuit protection		10 A cartridge fuse type gG				
Connection		Screw terminals Minimum clamping capacity Maximum clamping capacity	: 1 x 1 mm <sup>2</sup> y: 2 x 2.5 mm <sup>2</sup>			



## References, characteristics

### Electromechanical pressure switches OsiSense XM

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 G 1/4 (female)

### Bellows operated





Adjustable range of switching point (PB) (Falling pressure)		0.070.70 bar (1.0110.15 psi)	0.071.4 bar (1.0120.3 psi)	0.075.2 bar (1.0175.4 psi)	0.077.6 bar (1.01110.2 psi)			
References								
Switches with 1 CO sing	gle-pole contact							
Fluids controlled	Air, oils and other non corrosive fluids, from - 73 to + 125°C (1)		ACW3M129012	ACW4M129012	ACW5M129012	ACW1M129012		
Weight (kg)			1.750		1.550			
Switches with 2 CO sing	le-pole contacts	;	1		1			
Fluids controlled	Air, oils and other non corrosive fluids, from - 73 to + 125°C (1)		ACW23M129012	ACW24M129012	ACW25M129012	ACW21M129012		
Weight (kg)		1.750	1.750 1.550					
Complementary ch	aracteristics	not shown	under general	characteristics	(page 151)			
Possible differential (add to PB to give PH)	1 CO 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 CO 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 <sup>6</sup> 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 151.					

#### **Operating curve**



Contact block connections



-Adjustable value

Other versions

Pressure switches with alternative tapped cable entries: ISO, NPT, etc. Please consult our Customer Care Centre.

Dimensions: page 156

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#### **Bellows operated**





1.412 bar (20.3174 psi)	0.7…18 bar (10.15…261 psi)	0.721 bar (10.15304.5 psi)	5.234 bar (75.4493 psi)	10…69 bar (145…1000 psi)	24…131 bar (348…1900 psi)	
References						
Switches with 1 CO s	single-pole contact					
ACW8M129012	ACW9M129012	ACW2M129012	ACW6M129012	ACW7M129012	ACW10M129012	
1.550	I	2.100	1	1	I	
Switches with 2 CO single-pole contacts						
ACW28M129012	ACW29M129012	ACW22M129012	ACW26M129012	ACW27M129012	ACW20M129012	
1.550	•	2.100		1	1	
Complementary	characteristics no	t shown under ge	neral characterist	<b>iCS</b> (page 151)		
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)	

140 bar (2030 psi)

41 bar (549.5 psi)

1 x 10<sup>6</sup> 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

20 bar (290 psi)

Other versions

17 bar (246.5 psi)

Pressure switches with alternative tapped cable entries: ISO, NPT, etc. Please consult our Customer Care Centre.

140 bar (2030 psi)

175 bar (2538 psi)



## References, characteristics

### Electromechanical pressure switches OsiSense XM

OSISENSE XIVI For control circuits, type ADW Sizes 69 to 340 bar (1000 to 4930 psi) Adjustable differential, for regulation between 2 thresholds Fluid connection G 3/8 (female)

#### Pressure switches type ADW

#### Piston operated, with drainage hole (1)



Adjustable range of switching point (PH) (Rising pressure)			9.369 bar (1351000 psi)	28…210 bar (406…3045 psi)	38340 bar (5514930 psi)		
References							
Switches with 1 CO single	e-pole contact						
Fluids controlled	Oils (including synthetic), from - 30°C to + 125°C (2) (3)		ADW3M129012	ADW4M129012	ADW7M129012		
Weight (kg)			1.880				
Switches with 2 CO single	e-pole contacts	5					
Fluids controlled	Oils (including sy from - 30°C to +	/nthetic), 125°C <i>(2) (3)</i>	ADW23M129012	ADW24M129012	ADW27M129012		
Weight (kg)			1.880				
<b>Complementary cha</b>	racteristics	not shown	under general cha	racteristics (page 151)			
Possible differential (subtract from PH to give PB)	1 CO 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 CO 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 pressu	re		690 bar (10 000 psi)		1		
Mechanical life			1 x 10 <sup>6</sup> 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					
			<ol> <li>Since it is normal for pist a slight oil leakage past t To avoid back pressure, is undesirable, use press</li> <li>See "Component materia"</li> <li>Only for control of group</li> </ol>	on type pressure switches (no he piston, a drain hole through this hole should never be plug sure switches incorporating a als of units in contact with the 2 fluids, in accordance with di	t incorporating a piston seal) to have the cylinder wall is incorporated. ged. If for any reason this oil leakage Quad-Ring piston seal. fluid", page 151. rective 97/23/EEC.		

#### **Operating curve**



#### **Contact block connections**



- Adjustable value

Other versions

Pressure switches with alternative tapped cable entries: ISO, NPT, etc. Please consult our Customer Care Centre.

Dimensions: page 156

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### 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)	38340 bar (5514930 psi)			
References							
Switches with 1 CO sing	le-pole contact						
Fluids controlled	Iled Oils and other fluids, from - 25°C to + 120°C (1) (2)		ADW5M129012	ADW6M129012	ADW7S1M129012		
Weight (kg)			1.880				
Switches with 2 CO sing	le-pole contacts	5					
Fluids controlled	S controlled Oils and other fluids, from - 25°C to + 120°C (1) (2)		ADW25M129012	ADW26M129012	ADW27S1M129012		
Weight (kg)			1.880				
<b>Complementary cha</b>	aracteristics	not shown	under general chara	acteristics (page 151)			
Possible differential (subtract from PH to give PB)	1 CO 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 CO 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 press	ure		690 bar (10,000 psi)				
Mechanical life		1 x 10 <sup>6</sup> 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					
			<ul><li>(1) See "Component materials</li><li>(2) Only for control of group 2 f</li></ul>	of units in contact with the fluid fluids, in accordance with direct	", page 151. ive 97/23/EEC.		

Only for control of group 2 fluids, in accordance with directive 97/23/EEC.

### **Operating curve**



### **Contact block connections**



-Adjustable value

Other versions

Pressure switches with alternative tapped cable entries: ISO, NPT, etc. Please consult our Customer Care Centre.



**Dimensions** 

### **Electromechanical pressure** switches OsiSense XM

For control circuits, type ACW







(1) Tapped entry for  $n^{\circ}$  13 cable gland Ø: G 1/4 (female)

#### ACW2, 22





68 31 9.5 (  $(\oplus$  $\otimes$ 60

(1) Tapped entry for n° 13 cable gland

Ø: G 1/4 (female)

ACW6, 7, 10, 26, 27, 20

88 9,5 **6**9 31 

9,5

17



(1) Tapped entry for n° 13 cable gland Ø: G 1/4 (female)

(1) Tapped entry for n° 13 cable gland Ø: G 1/4 (female)

Characteristics: pages 151 to 155

References: pages 152 to 155

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### **Dimensions**

### Electromechanical pressure switches OsiSense XM

For control circuits, type ADW

### ADW3, 4, 7, 23, 24, 27



(1) Tapped entry for n° 13 cable gland
(2) Drainage hole, tapped G 1/8 (female)
Ø: G 3/8 (female)

ADW5, 6, 7S1, 25, 26, 27S1



Ø: G 3/8 (female)

References: pages 152 to 155





### **Electromechanical pressure switches**

OsiSense XM For control circuits, types XMX and XMA

#### 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.



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### **Characteristics**

### Electromechanical pressure switches OsiSense XM

For control circuits, types XMX and XMA

Environment characteristics		
Conformity to standards		C€, IEC/EN 60947-5-1
Product certifications		UL, CSA, ccc
Protective treatment		"ТС"
Ambient air temperature	°C	For operation: - 25+ 70 for 6 and 25 bar versions - 25+ 55 for 12 bar version
		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 version
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 CO 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 <sup>2</sup> Maximum clamping capacity: 2 x 2.5 mm <sup>2</sup>
Electrical durability		AC supply 50/60Hz, Ith = 10 A Inductive circuit, utilisation category AC-15, 3 A/240 V: 1 million operating cycles



### References, characteristics

## Electromechanical pressure switches OsiSense XM 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 CO single-pole contact

### Pressure switches type XMX (internal setting screw)



Adjustable range of switching point (PH) (Rising pressure)		16 bar (14.587 psi)	1.312 bar (18.85174 psi)	3.525 bar (50.75362.5 psi)	16 bar (14.587 psi)	1.312 bar (18.85174 psi)	3.525 bar (50.75362.5 psi)
Fluid connection		G 1/4 (female)			4 x G 1/4 (female	e)	
References							
Switches with blac	ck opaque cover						
Fluids controlled	Air, fresh water, sea water (1)	XMXA06L2135	XMXA12L2135	XMXA25L2135	XMXA06L2435	XMXA12L2435	XMXA25L2435
Weight (kg)		0.430		0.650	0.430		0.650
Complementa	ry characteristic	s not shown	under gener	al characteris	stics (page 159	)	
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 <sup>e</sup> 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 mat	torials of units in cou	ntact with the fluid	00 0000 150		

#### XMXA06 XMXA12 XMXA25 Pressure bar 30 bar 6 <sub>T</sub> bar 12 PH Rising pressure Rising pressure Rising pressure 25 20 PΒ 15 З 2 4 10 Time 2 1 3.5 1.3 - Adjustable value il i | i | 0 0 0 10 10.3 20.5 25 30 bar 3 4 4.8 Falling pressure 15 0.2 1 1.8 2 6 bar 0.3 2 3.64 6 8 bar 0.1 5 10 Falling pressure Falling pressure Connections 1 Maximum differential 1 Maximum differential 1 Maximum differential 3 2 Minimum differential 2 Minimum differential 2 Minimum differential 2 4 3

#### Other versions

**Operating curves** 

Pressure switches with alternative tapped cable entries: ISO, NPT, etc. Please consult our Customer Care Centre.

### References, characteristics

## Electromechanical pressure switches OsiSense XM 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 CO single-pole contact

### Pressure switches type XMA (external setting screw)







Adjustable range of switching point (PH) (Rising pressure)		16 bar (14.587 psi)	1.312 bar (18.85174 psi)	3.525 bar (50.75362.5 psi)	16 bar (14.587 psi)	1.312 bar (18.85174 psi)	3.525 bar (50.75362.5 psi)
Fluid connection		G 1/4 (female)	G 1/4 (female) 4 x G 1/4 (female)				
References							
Switches with blac	k opaque cover						
Fluids controlled	Air, fresh water, sea water (1)	XMAH06L2135	XMAH12L2135	XMAH25L2135	XMAH06L2435	XMAH12L2435	XMAH25L2435
Switches with transparent cover							
Fluids controlled	Air, fresh water, sea water (1)	XMAV06L2135	XMAV12L2135	XMAV25L2135	XMAV06L2435	XMAV12L2435	XMAV25L2435
Weight (kg)		0.430		0.650	0.430		0.650
Complementary characteristics not shown under general characteristics (page 159)							
Possible differential (subtract from PH	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)
to give PB)	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 <sup>6</sup> 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 ma	terials of units in co	ntact with the fluid, s	see page 159.		





### Customer Care Centre.

Accessories: page 162	Dimensions: page 163		-
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Sensors

### References







DE9PM1201



DE9PM1202



XMPZ3•

### Electromechanical pressure switches OsiSense XM

For control circuits, types XMX and XMA Accessories and replacement parts

Description		Reference	Weight ka
Fixing bracket		XMAZL001	0.035
Knurled adjustm fits over adjustme	nent knob, Ø 36 mm Int screws to facilitate setting	XMLZL003	0.010
13P cable gland	With anti pull-out ring (for cable $\emptyset$ 69 mm)	DE9PM1201	0.005
	Without anti pull-out ring (for cable Ø 69 mm)	DE9PM1202	0.005
	With anti pull-out ring (for cable Ø 912.5 mm)	DE9PM1203	0.005
	Without anti pull-out ring (for cable $\emptyset$ 912.5 mm)	DE9PM1204	0.005
Description	For pressure switch	Reference	Weight ka
Diaphragms	Size 6 bar	XMPZ31	0.005
	Size 12 bar	XMPZ32	0.005
	Size 25 bar	XMPZ33	0.005

Dimensions: page 163 **Dimensions** 

# Electromechanical pressure switches

OsiSense XM For control circuits, types XMX and XMA Accessories and replacement parts



### Presentation

### Electromechanical pressure switches OsiSense XM

For power circuits, types FTG, FSG and FYG

#### 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.

2 types of product are available:

pressure switches type FTG with fixed differential, for detection of a single threshold,
 pressure switches type FSG and FYG with an adjustable differential, for regulation between 2 thresholds.

For specific needs, these 2 types of product can be supplied in IP 65 versions, thus ensuring a higher degree of protection. They feature 2 cable entries, fitted with cable gland, and are referenced  $F \bullet G \bullet NE$ .

#### 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.





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Dimensions page 169

#### Telemecanique Sensors

### **Characteristics**

### Electromechanical pressure switches OsiSense XM

For power circuits, types FTG, FSG and FYG

<b>Environment characteristi</b>	cs							
Pressure switch type			FTG● FTG●NE		FSGe and FYGe FSGeNE and FYG	NE		
Conformity to standards			C€, IEC/EN 60730					
Protective treatment			Standard version: "TC"					
Ambient air temperature			For operation: 0+	45. For storage: - 30	+ 80			
Fluids controlled			Fresh water, sea wa	ater (0+ 70°C)				
Materials			Case: polystyrene, Component materia	resistant to mechanica als in contact with fluid:	l impact nylon 6/6, zinc platec	l steel, nitrile		
Operating position			All positions					
Electric shock protection			Class I conforming	to IEC 536				
Degree of protection	FTG●, FSG● and FYG●		IP 20					
	FTGeNE, FSGeNE and EYGeNE		IP 65					
Operating rate		Op. cycles/h	600					
Repeat accuracy		-,	<2%					
Fluid connection FeG 2, FYGe2			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 FTGe, FSGe and			Terminals. 2 cable e	Terminals. 2 cable entries, with grommet				
	FTG•NE, FSG•NE and FYG•NE		Terminals. 2 entries incorporating 13P cable gland (DIN Pg 13.5)					
<b>Contact block characteris</b>	tics		1					
Rated operational characteristics			le = 10 A, Ue = $\sim$ 25	50 V conforming to EN	60730-1			
Power ratings of controlled motors	Voltage		$\sim$ 2-pole 1-phase	$\sim$ 2-pole 3-phase	$\sim$ 2-pole 1-phase	$\sim$ 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)		
	230 V		1.1 kW (1.5 HP)	1.5 kW (2 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)		
Rated insulation voltage		v	Ui = 500					
Rated impulse withstand voltage conforming to IEC/EN 60947-1		kV	U imp = 6					
Type of contacts			1 2-pole 2 NC (4 te	erminal) contact, snap	action			
Short-circuit protection		20 A cartridge fuse type gG						
Connection			Screw clamp terminals. Minimum clamping capacity: 1 x 1 mm <sup>2</sup> , max: 2 x 2 mm <sup>2</sup>					
Electrical durability at an operating rate of 600 operating cycles/hour		Op. cycles	40 000		100 000			



## References, characteristics

### **Electromechanical pressure switches**

OsiSense XM

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 NC contact. Degree of protection IP 20 or IP 65

Fluid connection		G 1/4 (female)	R 1/4 (male)	G 1/4 (female)	R 1/4 (male)	
Adjustable range of switching (Rising pressure)	point (PH)	1.44.6 bar (20.366	5.7 psi)			
Degree of protection conforming to IEC/EN 60529		IP 20		IP 65		
References						
Fluids controlled	Fresh water, sea water, from 0°C to + 70°C (1)	FTG2	FTG9	FTG2NE	FTG9NE	
Weight (kg)		0.340				
<b>Complementary cha</b>	racteristics not shown	under general o	haracteristics (p	oage 165)		
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 <sup>5</sup> operating cycles				
Cable entry		2 cable entries, with grommet 2 entries with 13P cable gland (DIN Pg 13.5)			e gland	
Clamping capacity		- 9 to 13 mm				
Pressure switch type		Diaphragm				

(1) Component materials of units in contact with the fluid, see page 165.

### **Operating curves**





---- Adjustable value



Connections

Dimensions: page 169

### References, characteristics

## **Electromechanical pressure switches**

**OsiSense XM** 

For power circuits, type FSG

Size 4.6 bar (66.7 psi), adjustable differential, for regulation between 2 thresholds. Switches with 2-pole 2 NC contact. Degree protection IP 20 or IP 65

Fluid connection		G 1/4 (female)	R 1/4 (male)	G 1/4 (female)	R 1/4 (male)	
Adjustable range of switching (Rising pressure)	g point (PH)	1.44.6 bar (20.366	6.7 psi)			
Degree of protection conforming to IEC/EN 60529		IP 20		IP 65		
References						
Fluids controlled	Fresh water, sea water, from 0°C to + 70°C (1)	FSG2	FSG9	FSG2NE (2)	FSG9NE	
Weight (kg)		0.340				
<b>Complementary cha</b>	racteristics not shown	under general o	haracteristics (p	bage 165)		
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 <sup>6</sup> operating cycles	3			
Cable entry		2 cable entries, with gro	ommet	2 entries with 13P cable (DIN Pg 13.5)	egland	
Clamping capacity		-		9 to 13 mm		
Pressure switch type		Diaphragm				

(1) Component materials of units in contact with the fluid, see page 165.

(2) Variant: for a G 3/8 female fluid entry that pivots throughout 360°, select the FSG2NEG.

#### **Operating curves**



2 Minimum differential





### Connections

-|\_\_| *|*--/



## References, characteristics

## Electromechanical pressure switches

OsiSense XM

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 NC contact. Degree of protection IP 20 or IP 65

Fluid	connectio	n
-------	-----------	---

G 1/4 (female)





Adjustable range of switching point (PH) (Rising pressure)		2.87 bar (40.6	2.87 bar (40.6101.5 psi)		5.610.5 bar (81.2152.3 psi)	
Degree of protection conforming to EN/IEC 60529		IP 20	IP 65	IP 20	IP 65	
References						
Fluids controlled	Fresh water, sea water, from 0°C to + 70°C <i>(1)</i>	<b>FYG22</b> (2)	FYG22NE	<b>FYG32</b> (3)	FYG32NE	
Weight (kg)		0.340		•	•	

Complementary characteristics not shown under general characteristics (page 165)				
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)	

	Max. at high setting	2.7 bar (33.13 par)	3.+ bai (+3.5 p3i)		
	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 10 <sup>6</sup> operating cycles	1 x 10 <sup>e</sup> operating cycles		
Cable entry		2 cable entries, with grommet	2 cable entries, with grommet		
Pressure switch type		Diaphragm			

(1) Component materials of units in contact with the fluid, see page 165.

(2) Variant: for a 2.8 to 7 bar, IP 20, pressure switch with R 1/4 (male) fluid entry, select the FYG29.

(3) Variant: for a 5.6 to 10.5 bar, IP20, pressure switch with R 1/4 (male) fluid entry, select the FYG39.



#### Dimensions page 169

Telemecanique Sensors



### Electromechanical pressure switches OsiSense XM

For power circuits, types FTG, FSG and FYG



FTG9/FSG9









FYG22, FYG32





FYG22NE, FYG32NE





Characteristics: page 165	References: page 166				
(iii) Telemecanique					

ensors

Presentation

### **Electromechanical pressure** switches OsiSense XM

For power circuits, type XMP

#### 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 of 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 degrees of protection:
- □ 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).



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### **Characteristics**

### Electromechanical pressure switches OsiSense XM

For power circuits, type XMP

Environment characteristics				
Environment characteristics				
Conformity to standards		CE, IEC/EN 60947-4-1		
Ambient air temperature	۰C	For operation: 25 + 70		
Ambient all temperature	C C	For storage: - 40+ 70		
Fluids controlled		Air, fresh water, sea water (0	+ 70°C)	
Materials		Case: polyamide impregnate	ed with fibreglass	
		Component materials in con	tact with fluid: chromated zind	c alloy (fluid entry),
		canvas covered nitrile (diaph	nragm)	
		All 11		
Operating position		All positions		
Vibration resistance		3 gn (10500 Hz) conformir	ng to IEC 68-2-6	
Shock resistance		50 gn, conforming to IEC 68-	-2-27	
Electric shock protection		Class I conforming to IEC 53	6	
		Class reciniciting to incoming to incoming		
Degree of protection		IP 54 conforming to IEC/EN 60529 or IP 65 for universal model		nodel
Operating rate	Op. cvcles/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		E 03-005, ISO 228
Electrical compation		Otenned entries for a <sup>0</sup> 40 (D	NDr 40 5) askis sland	
Electrical connection		2 tapped entries for in 13 (D	IN Pg 13.5) cable gland	
Contact block characteristics				
Rated insulation voltage	v	Ui = 500 conforming to IEC/I	EN 60947-1	
Rated impulse withstand voltage	v	U imp = 6 kV conforming to I	EC/EN 60 947-1	
		One 2 note 2 NC or 2 note 2	NC contact apop action	
Type of contacts			NO COMACI, SHAP ACTION	
Resistance across terminals	mΩ	≤ 25 conforming to NF C 93-	050 method A or IEC 255-7 c	ategory 3
Terminal referencing		Conforming to CENELEC EI	N 50013	
Short-circuit protection		Cartridge fuse type Am		
		our indge ruse type / in		
Connection		Screw clamp terminals. Mini	mum clamping capacity: 2 x 4	1 mm <sup>2</sup>
Electrical durability		Power	Number of operating cycles	
Operating rate: 600 operating cycles/hour		kW/	A. 400 V 3-nhase	0.230 V 3-phase
Load factor: 0.4			4 000 v, 3-priase	
		1.5		600 000
		2.2	700 000	-
		3	500 000	-



## References, characteristics

### Electromechanical pressure switches OsiSense XM, Type XMP, IP 54

OsiSense XM, Type XMP, IP 54 Size 6 bar (87 psi) Adjustable differential, for regulation between 2 thresholds Switches with 2-pole 2 NC or 3-pole 3 NC contact

```
Fluid connection G 1/4 (female)
```



Adjustable range of switching point (PH) (Rising pressure)	16 bar (14.587 psi)	
Type of contact	2-pole 2 NC	3-pole 3 NC
References (1)		
Switches without decompression valve		
Bare case 1	XMPA06B2131	XMPA06C2131
Case with reset knob 2	XMPB06B2131	-
Case with On/Off knob 2	XMPC06B2131	XMPC06C2131
Weight (kg)	0.430	
Switches with straight decompression valve, instant	connection	
Bare case 1	XMPD06B2131	XMPD06C2131
Case with On/Off knob 2	XMPE06B2131	XMPE06C2131
Weight (kg)	0.450	

Complementary characteristics not shown under general characteristics (page 171)

Possible differential	Min. at low setting	0.8 bar (11.6 psi)
(subtract from PH to give PB)	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.

 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 XMPA06B2131 in one package becomes XMPA06B2131C.

Pressure

#### **Operating curves**



2 Minimum differential



Accessories: page 180

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4 x G 1/4 (female)		G 3/8 (female)	
			2
16 bar (14.587 psi)			
2-pole 2 NC	3-pole 3 NC	2-pole 2 NC	3-pole 3 NC
References (1)			
Switches without de	compression valve		
-	•	XMPA06B2242	XMPA06C2242
_		XMPB06B2242	-
-		XMPC06B2242	XMPC06C2242
-		0.430	
Switches with straig	ht decompression valve, in	stant connection	
-		XMPD06B2242	XMPD06C2242
XMPE06B2431	XMPE06C2431	XMPE06B2242	XMPE06C2242
0.450			
Complementary	characteristics not sh	nown under general charact	eristics (page 171)
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	3		

2 entries incorporating n° 13 plastic cable gland (DIN Pg 13.5) Clamping capacity 9 to 13 mm	
Pressure switches not listed above, comprising the equipment proposed for the choice of reference. Please consult our Customer Care Centre.	
(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 XMPA06B2242 in one package becomes XMPA06B2242C.	

### **Terminal connections**

ХМРөөөВөөөө	ХМРеееСееее



### References, characteristics (continued)

### Electromechanical pressure switches OsiSense XM, Type XMP, IP 54

OsiSense XM, Type XMP, IP 54 Size 12 bar (174 psi) Adjustable differential, for regulation between 2 thresholds Switches with 2-pole 2 NC or 3-pole 3 NC contact

```
Fluid connection
```

G 1/4 (female)





Adjustable range of switching point (PH) (Rising pressure)	1.3…12 bar (18.85…174 psi)	
Type of contact	2-pole 2 NC	3-pole 3 NC
References (1)		
Switches without decompression valve		
Bare case 1	XMPA12B2131	XMPA12C2131
Case with reset knob 2	XMPB12B2131	-
Case with On/Off knob 2	XMPC12B2131	XMPC12C2131
Weight (kg)	0.430	
Switches with straight decompression valve, instant	connection	
Bare case 1	XMPD12B2131	XMPD12C2131
Case with On/Off knob 2	XMPE12B2131	XMPE12C2131
Weight (kg)	0.450	
Switches with straight decompression valve, olive co	nnection	
Case with On/Off knob 2	XMPR12B2131	XMPR12C2131
Weight (kg)	0.450	

#### Complementary characteristics not shown under general characteristics (page 171)

-		
Possible differential	Min. at low setting	1 bar (14.5 psi)
(subtract from PH to give PB)	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

To order, add the letter C to the reference selected from above. Example: reference for lot of 10 pressure switches XMPA12B2131 in one package becomes XMPA12B2131C.

### **Operating curves**



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Accessori page 180

ories

4 x G 1/4 (female)		G 3/8 (female)	
		1	2
.312 bar (18.85174	psi)		
2-pole 2 NC	3-pole 3 NC	2-pole 2 NC	3-pole 3 NC
References (1)		1	1
Switches without de	ecompression valve		
•		XMPA12B2242	XMPA12C2242
•		XMPB12B2242	-
		XMPC12B2242	XMPC12C2242
-		0.430	·
Switches with straig	ht decompression valve, in	stant connection	
-		XMPD12B2242	XMPD12C2242
XMPE12B2431	XMPE12C2431	XMPE12B2242	XMPE12C2242
0.450			
Switches with straig	ht decompression valve, ol	live connection	
-			
-			

### Complementary characteristics not shown under general characteristics (page 171)

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	2 entries incorporating n° 13 plastic cable gland (DIN Pg 13.5)
to NF C 68-300 (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 our Customer Care Centre.
	(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 XMPA12B2242 in one package becomes XMPA12B2242C.

Terminal connections		
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### References, characteristics (continued)

Fluid connection

**Electromechanical pressure switches** OsiSense XM, Type XMP, IP 54 Size 25 bar (362.5 psi) Adjustable differential, for regulation between 2 thresholds Switches with 2-pole 2 NC or 3-pole 3 NC contact

Adjustable range of switching (Rising pressure)	j point (PH)	3.525 bar (50.75362.5 psi)	
Type of contact		2-pole 2 NC	
References (1)			
Switches without decom	pression valve		
Bare case 1		XMPA25B2131	
Case with reset knob 2		XMPB25B2131	
Case with On/Off knob 2		XMPC25B2131	
Weight (kg)		0.650	
Switches with straight de	compression valve, olive co	nnection	
Case with On/Off knob 2		XMPR25B2131	
Weight (kg)		0.670	
Complementary cha	racteristics not shown	under general characteristics (page 171)	
Possible differential	Min. at low setting	3.4 bar (49.3 psi)	
(subtract from PH to give PB)	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	

G 1/4 (female)

**Operating curves** 









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### G 1/4 (female)





#### 3.5...25 bar (50.75...362.5 psi)

3-pole 3 NC

References (1)	
Switches without decompression	valve
XMPA25C2131	
-	
XMPC25C2131	
0.650	
Switches with straight decompress	sion valve, olive connection
XMPR25C2131	
0.670	
<b>Complementary characteris</b>	tics not shown under general characteristics (page 171)
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, cont	forming 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 our Customer Care Centre.
	(1) References for individually packaged switches. Also available packaged in lots of 10. To order, add the letter <b>C</b> to the reference selected from above. Example: reference for

To order, add the letter C to the reference selected from above. Example: reference for lot of 10 pressure switches XMPA25C2131 in one package becomes XMPA25C2131C.

### **Terminal connections**

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ХМРеееСееее



### References, characteristics (continued)

**Electromechanical pressure switches** OsiSense XM, 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 NC or 3-pole 3 NC contact

Fluid connection		G 1/4 (female)							
Adjustable range of switching point (PH) (Rising pressure)		16 bar (14.587 psi)		1.312 bar (18.85174 psi)		3.525 bar (50.75362.5 psi)			
Type of contact		2-pole 2 NC	3-pole 3 NC	2-pole 2 NC	3-pole 3 NC	2-pole 2 NC	3-pole 3 NC		
References (1)	)								
Switches with stra	aight decompressio	n valve, olive co	nnection						
Case with On/Off knob		XMPR06B2133	XMPR06C2133	XMPR12B2133	XMPR12C2133	XMPR25B2133	XMPR25C2133		
Weight (kg)		0.450				0.670			
Complementary characteristics not shown under general characteristics (page 171)									
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					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 s	etting point (PH)	By screw-nut							
Pressure switch type		Diaphragm							
			(1) References for To order, add th lot of 10 pressu	individually package e letter <b>C</b> to the refe re switches <b>XMPRO</b>	ed switches. Also av rence selected from 6 <b>B2133</b> in one pack	ailable packaged in above. Example: r age becomes <b>XMP</b>	lots of 10. eference for <b>R06B2133C</b> .		


# 4 x G 1/4 (female)







16 bar (14.587 psi)		1.312 bar (18.8	5…174 psi)	3.525 bar (50.7	3.525 bar (50.75362.5 psi)		
2-pole 2 NC	3-pole 3 NC	2-pole 2 NC	3-pole 3 NC	2-pole 2 NC	3-pole 3 NC		
References (1)							
Switches with strai	ight decompression valve, ol	ive connection					
XMPR06B2433	XMPR06C2433	XMPR12B2433	XMPR12C2433	XMPR25B2433	XMPR25C2433		
0.450		· · ·	· ·	0.670	· ·		
Complementar	v characteristics not sl	nown under gener	al characteristic	<b>S</b> (page 171)			
0.8 bar (11.6 psi)	,	1 bar (14.5 psi)		3.4 bar (49.3 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)	4.5 bar (65.2 psi)		
4.2 bar (60.9 psi)		8.4 bar (121.8 psi)	8.4 bar (121.8 psi)		20 bar (290 psi)		
30 bar (435 psi)				100 bar (1450 psi)	100 bar (1450 psi)		
1 million operating cycle	es			•			
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 of reference. Please	Pressure switches not listed above, comprising the equipment proposed for the choice of reference. Please consult our Customer Care Centre.				
		(1) References for i	(1) References for individually packaged switches. Also available packaged in lots of 10.				

(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 XMPR06B2433 in one package becomes XMPR06B2433C.

# **Terminal connections**

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# References

# Electromechanical pressure switches OsiSense XM For power circuits, type XMP Accessories and replacement parts

Nº -	References				
	Description			Reference	Weight kg
XMAZL001	Fixing bracket			XMAZL001	0.035
And the second	Knurled adjustment knob, Ø 3 fits over adjustment screws to fa	6 mm cilitate setting		XMPMDR01	0.010
XMPMDR01	13P cable gland	With anti pull-ou (for cable Ø 6	ut ring .9 mm)	DE9PM1201	0.005
DE9PM1201		Without anti pul (for cable Ø 6	ll-out ring 9 mm)	DE9PM1202	0.005
		With anti pull-ou (for cable Ø 9	ut ring .12.5 mm)	DE9PM1203	0.005
DE9PM1202					
		Without anti pul (for cable Ø 9	l-out ring 12.5 mm)	DE9PM1204	0.005
	Description	For pressure	Sold in lots of	Unit	Weight
	Diaphragms	switch Size 6 bar	50	reference XMPZ31	<b>kg</b> 0.005
	July in Ugino	0.20 0 001			0.000
XMPZ3•		Size 25 bar	50	XMPZ33	0.005

# Dimensions

# Electromechanical pressure switches

OsiSense XM For power circuits, type XMP Accessories and replacement parts



 $\frac{1}{\text{XMP} \bullet 25 \bullet 24 \bullet \bullet} = \emptyset \text{A} = \emptyset \text{A} = \emptyset \text{C} = \emptyset \text{D} = \text{G} 1/4 \text{ (female)}$ 

(1) 2 tapped entries for n° 13 cable gland

(2) Minimum clearance zone for screwing-on pressure switch

at point A

OsiSense XM

# 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.



## **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

# **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.



OsiSense XM

# 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.



# **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.



### **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.





3

12

2

2

1

OsiSense XM

# 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.).

OsiSense XM



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.



OsiSense XM

# Application range of pressure and vacuum switches types XML, XMA and XMX, for control circuits

On standard loads

Continuous duty, frequent switching.





- Standard PLC input, type 2
   Switching capacity conforming to IEC 947-5-1, utilisation category AC-15, DC-13
- B300 240 V 1.5 A
  B300 250 V 0.1 A
  Switching capacity conforming to IEC 947-5-1, utilisation category AC-15, DC-13

PLC: Programmable Logic Controller

3 A

0.22 A

120 V

125 V



## On small loads

B300

R300

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.

OsiSense XM

# 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





20 bar

XMLA020 •••• Differential = 1 bar

- 80 bar

15

35



XMLA035 •••• Differential = 2 bar

XMLA010 Differential = 0.5 bar Select an XMLA010 •••• (the lowest size)

Main criterion: tolerance to overpressures Example: for a selected high point (PH) of 12 bar



XMLA020 •••• Permissible accidental overpressure = 45 bar Select an XMLA035 •• • • (the highest size)

XMLA035 Permissible accidental overpressure = 80 bar

12 1.5

Main criterion: repeat accuracy, precision and minimum drift Example: for a selected high point (PH) of 18 bar





As a general rule, working at the upper or lower limits of the operating range should be avoided.

XMI A020

XMLA035 Adjustable from 1 to 20 bar Adjustable from 1.5 to 35 bar Select an XMLA035 ••••

Units of pressure conversion table							
	psi	kg/cm²	bar	atm	mm Hg (Torr)	mm H <sub>2</sub> O	Ра
1 psi =	1	0.07031	0.06895	0.06805	51.71	703.7	6895
1 kg/cm <sup>2</sup> =	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 <sup>5</sup>
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 <sup>-3</sup>	1.333 x 10 <sup>-3</sup>	1.316 x 10 <sup>-3</sup>	1	13.59	133.3
1 mm H <sub>2</sub> O =	1.421 x 10 <sup>-3</sup>	10-4	~10⁴	$\sim$ 10 <sup>-4</sup>	0.07361	1	$\sim$ 9.80
1 Pa =	1.45 x 10 <sup>-4</sup>	1.0197 x 10 <sup>-5</sup>	10-5	9.8695 x 10 <sup>-6</sup>	7.5 x 10 <sup>-3</sup>	0.10197	1

Example: 1 bar = 14.50 psi = 10<sup>5</sup> Pa



Fixed differential switches, for detection of a single threshold



Adjustable differential switches, for regulation between 2 thresholds



# Operating curves (switching points on rising pressure)

# Electromechanical pressure and vacuum switches

Dual stage, fixed differential switches, for detection at each threshold



# Operating curves (switching points on falling pressure)

# Electromechanical pressure and vacuum switches

Dual stage, fixed differential switches, for detection at each threshold





# **Technical information** Protective treatment of equipment according to climatic environment

Depending on the climatic and environmental conditions in which the equipment is placed, Telemecanique Sensors can offer specially adapted products to meet your requirements.

In order to make the correct choice of protective finish, two points should be remembered:

■ the prevailing climate of the country is never the only criterion,

• only the atmosphere in the immediate vicinity of the equipment need be considered.

# All climates treatment "TC"

This is the standard treatment for Telemecanique Sensors brand equipment and is suitable for the vast majority of applications. It is the equivalent of treatments described as "Klimafest", "Climateproof".

In particular, it meets the requirements specified in the following publications:

- Publication UTE C 63-100 (method I), successive cycles of humid heat at:
- + 40 °C and 95 % relative humidity.
- DIN 50016 Variations of ambient conditions within a climatic chamber:
- + 23 °C and 83 % relative humidity,
- + 40 °C and 92 % relative humidity.

It also meets the requirements of the following marine classification societies: BV-LR-GL-DNV-RINA.

### Characteristics

■ Steel components are usually treated with zinc. When they have a mechanical function, they may also be painted.

Insulating materials are selected for their high electrical, dielectric and mechanical characteristics.

Metal enclosures have a stoved paint finish, applied over a primary phosphate protective coat, or are galvanised (e.g. some prefabricated busbar trunking components).

# Limits for use of "TC" (All climates) treatment

■ "TC" treatment is suitable for the following temperatures and humidity: Temperature (°C)
Polative humidity (%)

Temperature ( O)	Relative number (70)
20	95
40	80
50	50

"TC" treatment is therefore suitable for all latitudes and in particular tropical and equatorial regions where the equipment is mounted in normally ventilated industrial premises. Being sheltered from external climatic conditions, temperature variations are small, the risk of condensation is minimised and the risk of dripping water is virtually non-existent.

### Extension of use of "TC" (All climates) treatment

In cases where the humidity around the equipment exceeds the conditions described above, or in equatorial regions if the equipment is mounted outdoors, or if it is placed in a very humid location (laundries, sugar refineries, steam rooms, etc.), "TC" treatment can still be used if the following precautions are taken:

■ The enclosure in which the equipment is mounted must be protected with a "TH" finish (see next page) and must be well ventilated to avoid condensation and dripping water (e.g. enclosure base plate mounted on spacers).

■ Components mounted inside the enclosure must have a "TC" finish.

■ If the equipment is to be switched off for long periods, a heater must be provided (0.2 to 0.5 kW per square decimetre of enclosure), that switches on automatically when the equipment is turned off. This heater keeps the inside of the enclosure at a temperature slightly higher than the outside surrounding temperature, thereby avoiding any risk of condensation and dripping water (the heat produced by the equipment itself during normal running is sufficient to provide this temperature difference).

■ Special considerations for "Operator dialog" and "Detection" products: for certain pilot devices, the use of "TC" treatment can be extended to outdoor use provided their enclosure is made of light alloys, zinc alloys or plastic material. In this case, it is also essential to ensure that the degree of protection against penetration of liquids and solid objects is suitable for the applications involved. Protective treatment of equipment according to climatic environment

# "TH" treatment for hot and humid environments

This treatment is suitable for hot and humid atmospheres where installations are regularly subject to condensation, dripping water and the risk of fungi.

In addition, plastic insulating components are resistant to attacks from insects such as termites and cockroaches. These properties have often led to this treatment being described as "Tropical Finish", but this does not mean that all equipment installed in tropical and equatorial regions must systematically have undergone "TH" treatment. On the other hand, certain operating conditions in temperate climates may well require the use of "TH" treated equipment (see limitations for use of "TC" treatment).

# Special characteristics of "TH" treatment

All insulating components are made of materials which are either resistant to fungi or treated with a fungicide, and which have increased resistance to creepage (Standards IEC 60112, NF C 26-220, DIN 5348).

■ Metal enclosures receive a top-coat of stoved, fungicidal paint, applied over a rust inhibiting undercoat. Components with "TH" treatment may be subject to a surcharge (1). Please consult your Customer Care Centre.

# Protective treatment selection guide

Surrounding	Duty cycle	Internal	Type of climate	Protective		
environment		heating of		treatment		
		enclosure when not in use		of equip- ment	of enclo- sure	
Indoors						
No dripping water or condensation	Unimportant	Not necessary	Unimportant	"TC"	"TC"	
Presence of dripping	Frequent	No	Temperate	"TC"	"TH"	
water or condensation	switching off for periods of more than 1 day		Equatorial	"TH"	"TH"	
		Yes	Unimportant	"TC"	"TH"	
	Continuous	Not necessary	Unimportant	"TC"	"TH"	
Outdoors (sheltered	d)					
No dripping water	Unimportant	Not necessary	Temperate	"TC"	"TC"	
ordew			Equatorial	"TH"	"TH"	
Exposed outdoors of	or near the sea					
Frequent and regular	Frequent	No	Temperate	"TC"	"TH"	
presence of dripping	switching off for		Equatorial	"TH"	"TH"	
water of dew	than 1 day	Yes	Unimportant	"TC"	"TH"	
	Continuous	Not necessary	Unimportant	"TC"	"TH"	

These treatments cover, in particular, the applications defined by methods I and II of guide UTE C 63-100.

# Special precautions for electronic equipment

Electronic products always meet the requirements of "TC" treatment. A number of them are "TH" treated as standard.

Some electronic products (for example: programmable controllers, flush mountable controllers CCX and flush mountable operator terminals XBT) require the use of an enclosure providing a degree of protection to at least IP 54, as defined by standards IEC 60664 and NF C 20 040, for use in industrial applications or in environmental conditions requiring "TH" treatment.

These electronic products, including flush mountable products, must have a degree of protection to at least IP 20 (provided either by their own enclosure or by their installation method) for restricted access locations where the degree of pollution does not exceed 2 (a test booth not containing machinery or other dust producing activities, for example).

## **Special treatments**

For particularly harsh industrial environments, Telemecanique Sensors is able to offer special protective treatments. Please consult your Customer Care Centre.

(1) A large number of the Telemecanique Sensors brand products are "TH" treated as standard and are, therefore, not subject to a surcharge.



# Standardisation

### Conformity to standards

Telemecanique Sensors products satisfy, in the majority of cases, national (for example; BS in Great Britain, NF in France, DIN in Germany), European (for example: CENELEC) or international (IEC) standards. These product standards precisely define the performance of the designated products (such as IEC 60947 for low voltage equipment).

When used correctly, as designated by the manufacturer and in accordance with regulations and correct practices, these products will allow users to build equipment, machine systems or installations that conform to their appropriate standards (for example: IEC 60204-1, relating to electrical equipment used on industrial machines).

Telemecanique Sensors is able to provide proof of conformity of its production to the standards it has chosen to comply with, through its quality assurance system.

On request, and depending on the situation, Telemecanique Sensors can provide the following: a declaration of conformity,
a certificate of conformity (ASEFA/LOVAG),
a homologation certificate or approval, in the countries where this procedure is required or for

particular specifications, such as those existing in the merchant navy.

Code	Certification authority	Country	
	Name	Abbreviation	_ 
ANSI	American National Standards Institute	ANSI	USA
BS	British Standards Institution	BSI	Great Britain
CEI	Comitato Elettrotecnico Italiano	CEI	Italy
DIN/VDE	Verband Deutscher Electrotechniker	VDE	Germany
EN	Comité Européen de Normalisation Electrotechnique	CENELEC	Europe
GOST	Gosudarstvenne Komitet Standartov	GOST	Russia
IEC	International Electrotechnical Commission	IEC	Worldwide
JIS	Japanese Industrial Standards Committee	JISC	Japan
NBN	Institut Belge de Normalisation	IBN	Belgium
NEN	Nederlands Normalisatie Institut	NNI	Netherlands
NF	Union Technique de l'Electricité	UTE	France
SAA	Standards Association of Australia	SAA	Australia
UNE	Asociacion Española de Normalizacion y Certificacion	AENOR	Spain

## **European EN standards**

These are technical specifications established in conjunction with, and with approval of, the relative bodies within the various CENELEC member countries (European Union, European Free Trade Association and many central and eastern European countries having «member» or «affiliated» status). Prepared in accordance with the principle of consensus, the European standards are the result of a weighted majority vote. Such adopted standards are then integrated into the national collection of standards, and contradictory national standards are withdrawn European standards incorporated within the French collection of standards carry the prefix NF EN. At the 'Union Technique de l'Electricité' (Technical Union of Electricity) (UTE), the French version of a corresponding European standard carries a dual number: European reference (NF EN ...) and classification index (C ...).

Therefore, the standard NF EN 60947-4-1 relating to motor contactors and starters, effectively constitutes the French version of the European standard EN 60947-4-1 and carries the UTE classification C 63-110.

This standard is identical to the British standard BS EN 60947-4-1 or the German standard DIN EN 60947-4-1.

Whenever reasonably practical. European standards reflect the international standards (IEC). With regard to automation system components and distribution equipment, in addition to complying with the requirements of French NF standards, Telemecanique Sensors brand components conform to the standards of all other major industrial countries.

# Regulations

### **European Directives**

Opening up of European markets assumes harmonisation of the regulations pertaining to each of the member countries of the European Union.

The purpose of the European Directive is to eliminate obstacles hindering the free circulation of goods within the European Union, and it must be applied in all member countries. Member countries are obliged to transcribe each Directive into their national legislation and to simultaneously withdraw any contradictory regulations. The Directives, in particular those of a technical nature which concern us, only establish the objectives to be achieved, referred to as "essential requirements"

The manufacturer must take all the necessary measures to ensure that his products conform to the requirements of each Directive applicable to his production.

As a general rule, the manufacturer certifies conformity to the essential requirements of the Directive(s) for his product by affixing the CE mark

The CC mark is affixed to Telemecanique Sensors brand products concerned, in order to comply with French and European regulations.

### Significance of the CE mark

- The CE mark affixed to a product signifies that the manufacturer certifies that the product conforms to the relevant European Directive(s) which concern it; this condition must be met to allow free distribution and circulation within the countries of the European Union of any product subject to one or more of the E.U. Directives.
- The CE mark is intended solely for national market control authorities.
- The C€ mark must not be confused with a conformity marking.

# **Technical information**

# Product standards and certifications

### European Directives (continued)

For electrical equipment, only conformity to standards signifies that the product is suitable for its designated function, and only the guarantee of an established manufacturer can provide a high level of quality assurance.

For Telemecanique Sensors brand products, one or several Directives are likely to be applicable, depending on the product, and in particular:

- the Low Voltage Directive 2006/95/EC: the C€ mark relating to this Directive has been
- compulsory since 16<sup>th</sup> January 2007.
   the Electromagnetic Compatibility Directive 89/336/EEC, amended by Directives 92/31/EEC and 93/68/EEC: the C€ mark on products covered by this Directive has been compulsory since 1st January 1996.

### **ASEFA-LOVAG** certification

The function of ASEFA (Association des Stations d'Essais Française d'Appareils électriques - Association of French Testing Stations for Low Voltage Industrial Electrical Equipment) is to carry out tests of conformity to standards and to issue certificates of conformity and test reports. ASEFA laboratories are authorised by the French authorisation committee (CÓFRAC). ASEFA is now a member of the European agreement group LOVAG (Low Voltage Agreement Group). This means that any certificates issued by LOVAG/ASEFA are recognised by all the authorities which are members of the group and carry the same validity as those issued by any of the member authorities.

# Quality labels

When components can be used in domestic and similar applications, it is sometimes recommended that a "Quality label" be obtained, which is a form of certification of conformity.

Code	Quality label	Country
CEBEC	Comité Electrotechnique Belge	Belgium
KEMA-KEUR	Keuring van Electrotechnische Materialen	Netherlands
NF	Union Technique de l'Electricité	France
ÖVE	Österreichischer Verband für Electrotechnik	Austria
SEMKO	Svenska Electriska Materiel Kontrollanatalten	Sweden

### Product certifications

In some countries, the certification of certain electrical components is a legal requirement. In this case, a certificate of conformity to the standard is issued by the official test authority. Each certified device must bear the relevant certification symbols when these are mandatory

Code	Certification authority	Country
CSA	Canadian Standards Association	Canada
UL	Underwriters Laboratories	USA
CCC	China Compulsory Certification	China

Note on certifications issued by the Underwriters Laboratories (UL). There are two levels of approval

"Recognized" ( 🔊 )	The component is fully approved for inclusion in equipment built in a workshop, where the operating limits are known by the equipment manufacturer and where its use within such limits is acceptable by the Underwriters Laboratories. The component is not approved as a "Product for general use" because its manufacturing characteristics are incomplete or its application possibilities are limited. A "Recognized" component does not necessarily carry the certification symbol.
"Listed" (UL)	The component conforms to all the requirements of the classification applicable to it and may therefore be used both as a "Product for general use" and as a component in assembled equipment. A "Listed" component must carry the certification symbol.

### Marine classification societies

Prior approval (= certification) by certain marine classification societies is generally required for electrical equipment which is intended for use on board merchant vessels

Code	Classification authority	Country
BV	Bureau Veritas	France
DNV	Det Norske Veritas	Norway
GL	Germanischer Lloyd	Germany
LR	Lloyd's Register	Great Britain
NKK	Nippon Kaiji Kyokaï	Japan
RINA	Registro Italiano Navale	Italy
RRS	Register of Shipping	Russia

# Note

For further details on a specific product, please refer to the "Characteristics" pages in this catalogue or consult your Customer Care Centre.



Degrees of protection against the penetration of solid bodies, water and personnel access to live parts

The European standard EN 60529 dated October 1991, IEC publication 529 (2<sup>nd</sup> edition - November 1989), defines a coding system (IP code) for indicating the degree of protection provided by electrical equipment enclosures against accidental direct contact with live parts and against the ingress of solid foreign objects or water. This standard does not apply to protection against the risk of explosion or conditions such as humidity, corrosive gasses, fungi or vermin.

Certain equipment is designed to be mounted on an enclosure which will contribute towards achieving the required degree of protection (example : control devices mounted on an enclosure).

Different parts of an equipment can have different degrees of protection (example : enclosure with an opening in the base).

Standard NF C 15-100 (May 1991 edition), section 512, table 51 A, provides a cross-reference between the various degrees of protection and the environmental conditions classification, relating to the selection of equipment according to external factors.

Practical guide UTE C 15-103 shows, in the form of tables, the characteristics required for electrical equipment (including minimum degrees of protection), according to the locations in which they are installed.

# IP ••• code

The IP code comprises **2 characteristic numerals** (e.g. **IP 55**) and may include **an additional letter** when the actual protection of personnel against direct contact with live parts is better than that indicated by the first numeral (e.g. IP 20C).

Any characteristic numeral which is unspecified is replaced by an X (e.g. IP XXB).

Protection of

# 1<sup>st</sup> characteristic numeral:

Protection of the equipment

corresponds to protection of the equipment against penetration of solid objects and protection of personnel against direct contact with live parts. **2<sup>nd</sup> characteristic numeral:** A corresponds to protection of the equipment against penetration of water with harmful effects.

### Additional letter:

corresponds to protection of personnel against direct contact with live parts.

			personnel					
0	Non-protected		Non-protected	0	Non-protected		Α	With the back of the hand.
1	Ø 50 mm	Protected against the penetration of solid objects having a diameter greater than or equal to 50 mm	Protected against direct contact with the back of the hand (accidental contacts).	1 ()		Protected against vertical dripping water, (condensation).	В	With the finger.
2	Ø 12,5 mm	Protected against the penetration of solid objects having a diameter greater than or equal to 12.5 mm.	Protected against direct finger contact.	2	15-1	Protected against dripping water at an angle of up to 15°.	С	With a Ø 2.5 mm tool.
3	Ø 2,5 mm	Protected against the penetration of solid objects having a diameter greater than or equal to 2.5 mm.	Protected against direct contact with a Ø 2.5 mm tool.	3 ()	Č.	Protected against rain at an angle of up to 60°.	D	With a Ø 1 mm wire.
4	Ø 1 mm	Protected against the penetration of solid objects having a diameter greater than or equal to 1 mm.	Protected against direct contact with a Ø 1 mm wire.	4		Protected against splashing water in all directions.		
5		Dust protected (no harmful deposits).	Protected against direct contact with a Ø 1 mm wire.	5 () () () () () () () () () () () () ()		Protected against water jets in all directions.		
6		Dust tight.	Protected against direct contact with a Ø 1 mm wire.	6		Protected against powerful jets of water and waves.		
				7 ひ ひ	1 min	Protected against the effects of temporary immersion.		
				8 ∂ ∂	m A	Protected against the effects of prolonged immersion under specified conditions.		

### Telemecanique Sensors

Degrees of protection provided by enclosures IK code

# Degrees of protection against mechanical impact

The European standard EN 50102 dated March 1995 defines a coding system (IK code) for indicating the degree of protection provided by electrical equipment enclosures against external mechanical impact.

Standard NF C 15-100 (May 1991 edition), section 512, table 51 A, provides a cross-reference between the various degrees of protection and the environmental conditions classification, relating to the selection of equipment according to external factors.

Practical guide UTE C 15-103 shows, in the form of tables, the characteristics required for electrical equipment (including minimum degrees of protection), according to the locations in which they are installed.

# IK •• code

The IK code comprises 2 characteristic numerals (e.g. IK 05).

# 2 characteristic numerals:

corresponding to a value of impact energy.

			h (cm)	Energy (J)
00	Non-protected			
01	0,2 kg		7.5	0.15
02		h	10	0.2
03			17.5	0.35
04			25	0.5
05			35	0.7
06	0,5 kg		20	1
07		‡ h	40	2
08	1,7 kg	‡ h	30	5
09	5 kg	1	20	10
10	0	‡ h	40	20

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XZCF1/04L10	02
X20PV1141L2	18
X2CPV1141L5	18
XZCPV1141L10	18
XZCPV1241L2	18
XZCPV1241L5	18
XZCPV1241L10	18
XZCR1511041C1	82
XZCR1511041C2	82
XZCR1512041C1	82
XZCR1512041C2	82

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