Contents

Nautilus™ electronic sensors for pressure control

Electronic pressure sensors for control circuits

Selection guide .......................................................... page 4

- General overview .................................................. page 8

- Nautilus type XMLG, without display
  - Introduction, specifications ..................................... page 12
  - Pressure transmitters with analog output 4–20 mA or 0–10 V .... page 14
  - Pressure and vacuum switches with solid-state NPN or PNP output ... page 18
  - Accessories, dimensions, and wiring ........................ page 22

- Nautilus type XMLE, without display
  - Introduction, specifications ..................................... page 24
  - Pressure transmitter with analog output 4–20 mA ........................ page 26
  - Pressure and vacuum switches regulating between 2 thresholds .... page 30
  - Accessories, dimensions, and wiring ........................ page 34

- Nautilus Universal, Osiconcept™, type XMLF, with digital display
  - Introduction, specifications ..................................... page 36
  - Size: 1–600 bar ...................................................... page 38
  - Accessories and replacement parts, dimensions, and wiring ........ page 64

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### Sensors for pressure control

**Nautilus™**
Electronic pressure sensors

<table>
<thead>
<tr>
<th>Applications</th>
<th>Type of installation</th>
<th>Control circuits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluids controlled</td>
<td></td>
<td>Air, water, hydraulic oils, corrosive fluids</td>
</tr>
<tr>
<td>Type of sensor and features</td>
<td></td>
<td><strong>Units without display</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Pressure transmitters</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Analog output 4–20 mA</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Pressure and vacuum switches with solid-state output</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Regulation between 2 thresholds (adjustable differential)</td>
</tr>
</tbody>
</table>

### Fluid characteristics
Air, fresh water, sea water, hydraulic oils, corrosive fluids, -15 to +80 °C (-5.0 to 176.0 °F)

### Sizes
-1 to 600 bar (-14.5 to 8700 psi)

### Dimensions of case (mm (in.))
-1 to 25 bar: Ø 40 x 87 (Ø 1.57 x 3.43)  
60 to 600 bar: Ø 40 x 97 (Ø 1.57 x 3.82)

### Type of output
- Analog, 4–20 mA
- Solid-state, NPN or PNP, normally closed (NC) output

### Degree of protection
IP65

### Electrical connection
DIN 43650A or M12 connector

### Fluid connection
1/4" NPT male

### Catalog number
XMLE23  
XMLE33  
XMLE43

### Pages
26 to 29  
30 to 33

---

(1) For other connections (such as AMP connector or cable), consult your local sales office.  
(2) Phoenix Contact® QUICKON type integrated connection.  
(3) For other fluid connections (such as G 1/4 A BSP male or 1/4" NPTF female), refer to “Interpretation of the Catalog Number” on page 25, or consult your local sales office.

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## Control circuits

Air, water, hydraulic oils, corrosive fluids

### Units without display

<table>
<thead>
<tr>
<th>Pressure transmitters</th>
<th>Pressure and vacuum switches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analog output 4–20 mA or 0–10 V</td>
<td>Factory set switching thresholds</td>
</tr>
<tr>
<td></td>
<td>Solid-state NPN or PNP output</td>
</tr>
</tbody>
</table>

-1 to 400 bar (-14.5 to 5800 psi) | -1 to 400 bar (-14.5 to 5800 psi)

Ø 22.8 x 70.1 (Ø 0.90 x 2.76) | Ø 22.8 x 85 (Ø 0.90 x 3.35)

Analog, 4–20 mA or 0–10 V | Solid-state, PNP or NPN normally closed (NC) output

IP66, IP67 conforming to IEC/EN60529, NEMA4 | IP66, IP67 conforming to IEC/EN60529, NEMA4

M12 connector (1) | Integrated quick connection (2)

1/4” NPT male conforming to ISO7 (3) | 1/4” NPT male conforming to ISO7 (3)

XML**D23** | XML**Q23**

XML**D23**TQ (4) | XML**Q23**TQ (4)

XML**D33**TQ (4) | XML**Q33**TQ (4)

XML**D43**TQ (4) | XML**Q43**TQ (4)

14 to 17 | 18 and 19, 20 and 21

(1) For other connections (such as AMP connector or cable), consult your local sales office.
(2) Phoenix Contact® QUICKON type integrated connection.
(3) For other fluid connections (such as G 1/4 A BSP male or 1/4” NPTF female), refer to “Interpretation of the Catalog Number” on page 12, or consult your local sales office.
(4) Sold in lots of 25.
## Sensors for pressure control
### Nautilus™
Electronic pressure sensors

### Applications
- Type of installation
  - Fluids controlled
- Type of sensor and features

### Control circuits
- Configurable units with digital display
  - Pressure transmitters
  - Output current 4–20 mA
  - Output voltage 0–10 V

### Fluid characteristics
- Air, fresh water, sea water, hydraulic oils, corrosive fluids, -15 to +80 °C (5.0 to 176.0 °F)

### Sizes
- 1 to 600 bar (-14.5 to 8700 psi)

### Dimensions of case
- Width x height x depth 48 x 113 x 58 (1.81 x 4.45 x 2.28)

### Type of output
- Analog, 4–20 mA
- Analog, 0–10 V

### Degree of protection
- IP67

### Electrical connection
- M12 connector, Snap-C™ compatible

### Fluid connection
- G 1/4 A (BSP) or 1/4" NPT or SAE 7/16-20 UNF female

### Catalog number
- XMLF201
- XMLF211

### Pages
- 38 to 63

### Other versions
- For pressure transmitters, electronic pressure switches, and vacuum switches with alternative tapped fluid entries, consult your local sales office.
### Control circuits

**Air, water, hydraulic oils, corrosive fluids**

<table>
<thead>
<tr>
<th>Configurable units with digital display</th>
<th>Configurable units with digital display</th>
<th>Configurable units with digital display</th>
<th>Configurable units with digital display</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universal sensors</td>
<td>Universal sensors</td>
<td>Dual stage pressure and vacuum switches (solid-state outputs)</td>
<td>Pressure and vacuum switches with 2.5 A relay outputs</td>
</tr>
<tr>
<td>Regulation between 2 thresholds</td>
<td>Regulation between 2 thresholds</td>
<td>Detection of 2 thresholds and adjustable differential for each threshold</td>
<td>Regulation between 2 thresholds (adjustable differential)</td>
</tr>
</tbody>
</table>

**Solid-state and analog output**

| current 4–20 mA                       | voltage 0–10 V                         | 2 solid-state, PNP or NPN, 200 mA, 24 V outputs | Relay output 2.5 A, 120 V~ |

**Air, fresh water, sea water, hydraulic oils, corrosive fluids, -15 to +80 °C (5.0 to 176.0 °F)**

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

- 46 x 113 x 58 (1.81 x 4.45 x 2.28)  
- 46 x 113 x 58 (1.81 x 4.45 x 2.28)  
- 46 x 119 x 58 (1.81 x 4.69 x 2.28)  

- Solid-state, PNP or NPN, 200 mA, 24 V~ output  
- Analog output 4–20 mA  
- Solid-state, PNP or NPN, 200 mA, 24 V~ output  
- Analog output 0–10 V  
- Solid-state, PNP or NPN, 200 mA, 24 V~ outputs  

**IP67**

- M12 connector, Snap-C™ compatible  
- M12 connector, Snap-C™ compatible  
- SAE 7/8-16UN connector  

**G 1/4 A (BSP) or 1/4 NPT or SAE 7/16-20UNF female**

**XMLFeD202e**  
**XMLFeD212e**  
**XMLFeD203e**  
**XMLFeD204e**

38 to 63
General overview

Electronic pressure sensors
Nautilus™ pressure sensors
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 analog 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. Also 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 setpoints characterize these electronic switches. Their robustness, along with their excellent adherence to the set values over 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 with digital output, which also include an analog output identical to that of the pressure transmitters.

**Operating principle**

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

**Pressure and vacuum switches**
Designed for regulation between 2 thresholds, these switches have both a high setpoint (PH) and a low setpoint (PB). Both of these points can be independently adjusted (adjustable differential). The difference (differential) between the two setpoints can be small or large. Since the switches are electronic, they have no mechanical moving parts.

**Operating principle with solid-state NC outputs**

**Pressure switches with digital output**

1. Output on
2. Output off

**Vacuum switches with digital output**

1. Output on
2. Output off

---

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**Electronic pressure sensors**

**Nautilus™ pressure sensors**

*For control circuits*

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**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 ranges between 0 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 analog 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 values of the minimum low setpoint (PB) and the maximum high setpoint (PH).

**Precision**

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

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

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

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

*The setting tolerances* are the manufacturer’s tolerances with regard to the zero point and sensitivity (gradient of output signal curve from pressure transmitter).

**Temperature drift**

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

*Zero point drift*, proportional to the temperature, is expressed as %MR/°C.

*Sensitivity drift*, proportional to the temperature, is expressed as %MR/°C.
### Terminology (continued)

**Switching point on rising pressure (PH)**
This is 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)**
This is the lower pressure setting at which the output of the electronic pressure or vacuum switch changes state on falling pressure.

**Differential**
This is 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**
This is 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
This is the maximum pressure (excluding pressure surges) that the sensor can occasionally withstand without permanent damage.

### Destructive pressure
This is the pressure value which, if exceeded, is likely to cause serious damage to the sensor, such as leaking, bursting, or component failure.

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

\[ R_{load} = \frac{U_{supply} - U_{supply \ min}}{0.02 \ A} \]

(U supply min = 11 V for XMLE and 17 V for XMLF)
Features of XMLF pressure sensors

XMLF pressure sensors (see page 36) feature numerous possibilities for configuring the display (response time, choice of bar or psi units), the analog output signal operation (maximum signal output adjustable between 75% and 125% of the unit size), the solid-state output operation (PNP or NPN, NO or NC, time delay on opening or on closing, response time), and the status signaling (see below).

A diagnostic function enables verification at any time of the sensor’s correct operation (see below), and also provides information regarding pressure peak values.

Self-test function (calibration shunt)

XMLF pressure sensors incorporate a diagnostic function that can be used at any time to check the correct operation of the unit. An internal system enables automatic monitoring of 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, which enables automatic verification without operator intervention. In this case, the self-test also generates an analog output signal equivalent to 50% of the sensor’s size (12 mA or 5 V), which in turn can be verified by the PLC.

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

Operational status signaling

XMLF pressure and vacuum switches feature status LED indicators for the digital outputs. Indication can be configured for two modes:

- **Hysteresis mode**: the indicator illuminates when the output is activated (output off for NC configuration or output on for NO configuration).
- **Window mode**: the indicator illuminates when the measured pressure is between the high and low setpoint values.

Selection of switch size

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

Adherence to pressure

Select a size where the nominal pressure is higher than the maximum pressure of the controlled system.

Precision, repeat accuracy

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

Minimum differential of a pressure or vacuum switch

The minimum differential for each switch size is a percentage of its operating range: 2% for XML, and 3% for XMLF.

Selection example for a pressure switch

**Maximum pressure of the system = 11 bar**
PH = 7 bar
PB = 6 bar
2 alternatives:
XMLp010 (10 bar) or
XMLp025 (25 bar)

Advantages:
XMLp010: maximum repeat accuracy and precision
XMLp025: withstand of overpressure.
Electronic pressure sensors
Nautilus™ type XMLG
For control circuits

Introduction
XMLG pressure transmitters and pressure switches are characterized 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 analog 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 analog 4–20 mA or 0–10 V output that is proportional to the measuring range.

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

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

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

Important ordering requirement
XMLG pressure and vacuum switches are factory set; the upper and lower switching thresholds must be specified when ordering.

Bulk packs are mainly intended for machine manufacturers.

Interpretation of the Catalog Number—XMLG

<table>
<thead>
<tr>
<th>XMLG</th>
<th>100</th>
<th>D</th>
<th>2</th>
<th>1</th>
<th>TQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Units without display, 22.8 mm diameter</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated pressure Code</td>
<td>psi</td>
<td>bar</td>
<td>Electrical connection</td>
<td>Output</td>
<td>Fluid connection</td>
</tr>
<tr>
<td>M01</td>
<td>-14.5 to 0</td>
<td>-1 to 0</td>
<td>D: M12</td>
<td>2: Analog, 4–20 mA</td>
<td>1: G 1/4 A (BSP male)</td>
</tr>
<tr>
<td>001</td>
<td>0 to 14.5</td>
<td>0 to 1</td>
<td>Q: Integrated quick connect</td>
<td>3: Solid state, NPN</td>
<td>3: 1/4” NPT male</td>
</tr>
<tr>
<td>010</td>
<td>0 to 145</td>
<td>0 to 10</td>
<td></td>
<td>4: Solid state, PNP</td>
<td>6: 1/4” NPTF female</td>
</tr>
<tr>
<td>025</td>
<td>0 to 362.5</td>
<td>0 to 25</td>
<td></td>
<td>7: Analog, 0–10 V (bulk packs only)</td>
<td>7: 7/16-20 UNF male</td>
</tr>
<tr>
<td>100</td>
<td>0 to 1450</td>
<td>0 to 100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>250</td>
<td>0 to 3625</td>
<td>0 to 250</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>400</td>
<td>0 to 5800</td>
<td>0 to 400</td>
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<td></td>
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</tbody>
</table>

NOTE: Use this table only to interpret the catalog number. Some combinations are not available.
### Specifications

**Electronic pressure sensors**

**Nautilus™ type XMLG**

For control circuits

<table>
<thead>
<tr>
<th>Environmental specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conformity to standards</td>
</tr>
<tr>
<td>IEC/EN 60947-1, IEC/EN 60947-5-1</td>
</tr>
<tr>
<td>EN 50081-1, EN 50082-2, EN 61000-6-2</td>
</tr>
<tr>
<td>Product certifications</td>
</tr>
<tr>
<td>UL, CSA</td>
</tr>
<tr>
<td>Rated supply voltage</td>
</tr>
<tr>
<td>Transmitters 4–20 mA</td>
</tr>
<tr>
<td>Pressure/vacuum switches</td>
</tr>
<tr>
<td>Transmitters 0–10 V</td>
</tr>
<tr>
<td>Voltage limits</td>
</tr>
<tr>
<td>Transmitters 4–20 mA</td>
</tr>
<tr>
<td>Pressure/vacuum switches</td>
</tr>
<tr>
<td>Transmitters 0–10 V</td>
</tr>
<tr>
<td>Current consumption</td>
</tr>
<tr>
<td>Pressure/vacuum switches</td>
</tr>
<tr>
<td>Transmitters</td>
</tr>
<tr>
<td>Protective treatment</td>
</tr>
<tr>
<td>Ambient air temperature</td>
</tr>
<tr>
<td>For operation</td>
</tr>
<tr>
<td>For storage</td>
</tr>
<tr>
<td>Fluids or products controlled</td>
</tr>
<tr>
<td>Hydraulic oils, air, fresh water, sea water, corrosive fluids from -15 to +125 °C (5 to 257 °F)</td>
</tr>
<tr>
<td>Component materials in contact with fluid</td>
</tr>
<tr>
<td>Operating position</td>
</tr>
<tr>
<td>Vibration resistance</td>
</tr>
<tr>
<td>Shock resistance</td>
</tr>
<tr>
<td>Resistance to electromagnetic interference</td>
</tr>
<tr>
<td>Electrostatic discharges</td>
</tr>
<tr>
<td>Radiated electromagnetic fields</td>
</tr>
<tr>
<td>Fast transients</td>
</tr>
<tr>
<td>Surges</td>
</tr>
<tr>
<td>Conducted disturbances, induced by radio frequency fields</td>
</tr>
<tr>
<td>Magnetic fields</td>
</tr>
<tr>
<td>Electrical protection</td>
</tr>
<tr>
<td>Rated impulse withstand voltage</td>
</tr>
<tr>
<td>Degree of protection</td>
</tr>
<tr>
<td>Output response time</td>
</tr>
<tr>
<td>Repeat accuracy</td>
</tr>
<tr>
<td>Precision</td>
</tr>
<tr>
<td>Transmitters</td>
</tr>
<tr>
<td>Pressure/vacuum switches</td>
</tr>
<tr>
<td>Drift</td>
</tr>
<tr>
<td>Zero point</td>
</tr>
<tr>
<td>Sensitivity</td>
</tr>
<tr>
<td>Service life</td>
</tr>
<tr>
<td>Fluid connection</td>
</tr>
<tr>
<td>Electrical connection</td>
</tr>
</tbody>
</table>
Electronic pressure sensors

Nautilus™ Pressure transmitters type XMLG
With analog output 4–20 mA
Sizes –1 to 1 bar (–14.5 to 14.5 psi)

Units with analog output

<table>
<thead>
<tr>
<th>Pressure range (1)</th>
<th>–1 to 0 bar (–14.5 to 0 psi)</th>
<th>0 to 1 bar (0 to 14.5 psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of electrical connection (2)</td>
<td>M12 Integrated quick connection</td>
<td>M12 Integrated quick connection</td>
</tr>
</tbody>
</table>

Catalog numbers

Sold in packs of:
- 1 XMLGM01D23
- bulk (3) XMLGM01D23TQ
- XMLG001D23
- XMLG001D23TQ

Fluid connection (4) 1/4" NPT male

Weight, g (oz) 95 (3.35) 95 (3.35) 95 (3.35) 95 (3.35)

Additional specifications not shown under general specifications (page 13)

- Rated supply voltage 12/24 V
- Voltage limits 8–33 V
- Analog output (5) 4–20 mA, 2-wire
- Current consumption < 20 mA
- Maximum permissible accidental pressure 2.7 bar (39.1 psi) 2.7 bar (39.1 psi)
- Destructive pressure 3 bar (43.5 psi) 3 bar (43.5 psi)
- Electrical connection By connector XMLGM01D23: M12, 3-pin male. For suitable female connectors, including pre-wired versions, see pages 22 and 23
- Integrated XMLG001D23: integrated connection, Phoenix Contact® QUICKON type

Components:
- (1) For other pressure ranges, consult your local sales office.
- (2) For other connections (such as AMP connector or cable), consult your local sales office.
- (3) Sold in lots of 25.
- (4) For other fluid connections (such as G 1/4 A BSP male or 1/4" NPTF female), refer to “Interpretation of the Catalog Number” on page 12, or consult your local sales office.
- (5) To order a pressure transmitter with a 0–10 V analog output, replace 23 in the catalog number with 73 (bulk packs only). Example: XMLGM01D23TQ becomes XMLGM01D73TQ with a 0–10 V analog output.

Output curves

XMLGM01D23

XMLG001D23

Accessories: page 22
Dimensions: page 23
Wiring: page 23
# Electronic pressure sensors

**Nautilus™ Pressure transmitters type XMLG**  
**With analog output 4–20 mA**  
**Sizes 10 to 25 bar (145 to 362.5 psi)**

## Units with analog output

<table>
<thead>
<tr>
<th>Pressure range (1)</th>
<th>0–10 bar (0–145 psi)</th>
<th>0–25 bar (0–362.5 psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of electrical connection (2)</td>
<td>M12</td>
<td>M12</td>
</tr>
<tr>
<td>Fluid connection (4)</td>
<td>1/4&quot; NPT male</td>
<td>1/4&quot; NPT male</td>
</tr>
<tr>
<td>Rated supply voltage</td>
<td>12/24 Vcc</td>
<td></td>
</tr>
<tr>
<td>Voltage limits</td>
<td>8–33 Vcc</td>
<td></td>
</tr>
<tr>
<td>Analog output (5)</td>
<td>4–20 mA, 2-wire</td>
<td></td>
</tr>
<tr>
<td>Current consumption</td>
<td>&lt; 20 mA</td>
<td></td>
</tr>
<tr>
<td>Maximum permissible accidental pressure</td>
<td>22 bar (319 psi)</td>
<td>56 bar (812 psi)</td>
</tr>
<tr>
<td>Destructive pressure</td>
<td>25 bar (362.5 psi)</td>
<td>62.5 bar (906.2 psi)</td>
</tr>
<tr>
<td>Electrical connection</td>
<td>By connector</td>
<td>Integrated</td>
</tr>
</tbody>
</table>

---

## Additional specifications

- **Catalog numbers**
  - 1: XMLG010D23 — XMLG025D23
  - bulk: XMLG010D23TQ — XMLG025D23TQ
- **Weight, g (oz)**: 95 (3.35) — 95 (3.35)

---

## Output curves

![Output curves](image_url)
**Electronic pressure sensors**

**Nautilus™ Pressure transmitters type XMLG**

With analog output 4–20 mA

Sizes 100 to 250 bar (1450 to 3625 psi)

---

**Units with analog output**

<table>
<thead>
<tr>
<th>Pressure range</th>
<th>0–100 bar (0–1450 psi)</th>
<th>0–250 bar (0–3625 psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of electrical connection</td>
<td>M12 Integrated quick connection</td>
<td>M12 Integrated quick connection</td>
</tr>
</tbody>
</table>

**Catalog numbers**

<table>
<thead>
<tr>
<th>Sold in packs of:</th>
<th>XMLG100D23</th>
<th>XMLG100Q23TQ</th>
<th>XMLG100D23TQ</th>
<th>XMLG100Q23TQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>bulk (3)</td>
<td>XMLG100D23TQ</td>
<td>XMLG100Q23TQ</td>
<td>XMLG250D23TQ</td>
<td>XMLG250Q23TQ</td>
</tr>
</tbody>
</table>

**Fluid connection**

| 1/4" NPT male |

**Weight, g (oz)**

| 95 (3.35) |

**Additional specifications**

- Not shown under general specifications (page 13)
- Rated supply voltage: 12/24 V
- Voltage limits: 8–33 V
- Analog output: 4–20 mA, 2-wire
- Current consumption: < 20 mA
- Maximum permissible accidental pressure: 225 bar (3262.5 psi) 560 bar (8120 psi)
- Destructive pressure: 250 bar (3625 psi) 625 bar (9062.5 psi)

**Electrical connection**

- By connector: XMLG100D23, M12, 3-pin male. For suitable female connectors, including pre-wired versions, see pages 22 and 23
- Integrated: XMLG100Q23: integrated connection, Phoenix Contact® QUICKON type

(1) For other pressure ranges, consult your local sales office.
(2) For other connections (such as AMP connector or cable), consult your local sales office.
(3) Sold in lots of 25.
(4) For other fluid connections (such as G 1/4 A BSP male or 1/4" NPTF female), refer to “Interpretation of the Catalog Number” on page 12, or consult your local sales office.
(5) To order a pressure transmitter with a 0–10 V analog output, replace 23 in the catalog number with 73 (bulk packs only). Example: XMLG100D23TQ becomes XMLG100D73TQ with a 0–10 V analog output.

**Output curves**

![XMLG100D23 Output Curve](chart1)
![XMLG250D23 Output Curve](chart2)
**Electronic pressure sensors**

Nautilus™ Pressure transmitters type XMLG
With analog output 4–20 mA
Size: 400 bar (5800 psi)

---

**Units with analog output**

- **Pressure range (1)**: 0–400 bar (0–5800 psi)
- **Type of electrical connection (2)**: M12, Integrated quick connection

**Catalog numbers**

<table>
<thead>
<tr>
<th>Sold in packs of:</th>
<th>XMLG400D23</th>
<th>—</th>
</tr>
</thead>
<tbody>
<tr>
<td>bulk (3)</td>
<td>XMLG400D23TQ</td>
<td>XMLG400Q23TQ</td>
</tr>
</tbody>
</table>

**Fluid connection (4)**

- 1/4” NPT male

**Weight, g (oz)**

- 95 (3.35) g (3.35) oz

**Additional specifications** not shown under general specifications (page 13)

- **Rated supply voltage**: 12/24 V·
- **Voltage limits**: 8–33 V·
- **Analog output (5)**: 4–20 mA, 2-wire
- **Current consumption**: < 20 mA
- **Maximum permissible accidental pressure**: 800 bar (11,600 psi)
- **Destructive pressure**: 900 bar (13,050 psi)
- **Electrical connection**

  - By connector
    - XMLG400D23: M12, 3-pin male. For suitable female connectors, including pre-wired versions, see pages 22 and 23
  - Integrated
    - XMLG400Q23: integrated connection, Phoenix Contact® QUICKON type

---

(1) For other pressure ranges, consult your local sales office.
(2) For other connections (such as AMP connector or cable), consult your local sales office.
(3) Sold in lots of 25.
(4) For other fluid connections (such as G 1/4 A BSP male or 1/4” NPTF female), refer to “Interpretation of the Catalog Number” on page 12, or consult your local sales office.
(5) To order a pressure transmitter with a 0–10 V analog output, replace 23 in the catalog number with 73 (bulk packs only). Example: XMLG400D23TQ becomes XMLG400D73TQ with a 0–10 V analog output.

**Output curves**

![Output curve graph](image-url)
# Catalog numbers, specifications

**Electronic pressure sensors**

Nautilus™ Type XMLG pressure and vacuum switches  
Sizes -1 to 1 bar (-14.5 to 14.5 psi)

## Units with solid-state output (1)

<table>
<thead>
<tr>
<th>Adjustable range of switching point (PH)</th>
<th>-0.08 to -1 bar (-1.16 to -14.5 psi)</th>
<th>0.08–1 bar (1.16–14.5 psi)</th>
</tr>
</thead>
</table>

## Type of electrical connection (3)

- **M12**: Integrated quick connection

## Catalog numbers

<table>
<thead>
<tr>
<th>NPN output (N.C.)</th>
<th>PNP output (N.C.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>XMLGM01D33TQ</td>
<td>XMLGM01Q33TQ</td>
</tr>
<tr>
<td>XMLGM01D43TQ</td>
<td>XMLGM01Q43TQ</td>
</tr>
</tbody>
</table>

## Fluid connection (5)

- 1/4" NPT male

## Weight, g (oz)

- 95 (3.35) 95 (3.35) 95 (3.35) 95 (3.35)

## Additional specifications not shown under general specifications (page 13)

### Switching thresholds (6)

- **Factory set**
- **Possible differential**
  - Min. at low setting: 0.03 bar (0.44 psi)
  - Min. at high setting: 0.03 bar (0.44 psi)
  - Max. at high setting: 0.95 bar (13.77 psi)
- **Maximum permissible accidental pressure**
  - 2.7 bar (39.1 psi)
- **Destructive pressure**
  - 3 bar (43.5 psi)
- **Rated supply voltage**
  - 12/24 V
- **Voltage limits**
  - 8–33 V
- **Output**
  - Solid-state, NPN or PNP, NC
- **Switching capacity**
  - 150 mA
- **Current consumption**
  - < 4 mA

## Electrical connection

- **By connector**
  - XMLG001D33TQ: M12, 3-pin male. For suitable female connectors, including pre-wired versions, see pages 22 and 23
  - XMLG001D43TQ: integrated connection, Phoenix Contact® QUICKON type

## Operating curves

### XMLGM01D33TQ

- Maximum differential
- Minimum differential

### XMLGM01D43TQ

- Maximum differential
- Minimum differential

---

(1) For other types of output (such as normally open PNP or NPN), consult your local sales office.

(2) For other pressure ranges, consult your local sales office.

(3) For other connections (such as cable and AMP connector), consult your local sales office.

(4) Sold in lots of 25.

(5) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15 to +125 °C (5 to 257 °F).

For other fluid connections (such as G 1/4 A BSP male or 1/4" NPTF female), refer to "Interpretation of the Catalog Number" on page 12, or consult your local sales office.

(6) State the switching threshold settings when ordering.

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

---

**Accessories:** page 22  
**Dimensions:** page 23  
**Wiring:** page 23

---

Courtesy of Steven Engineering, Inc. ● 230 Ryan Way, South San Francisco, CA 94080-6370 ● General Inquiries: (800) 670-4183 ● www.stevenengineering.com
Electronic pressure sensors
Nautilus™ Type XMLG pressure switches
Sizes 10 to 25 bar (11.6 to 362.5 psi)

Units with solid-state output (1)

Adjustable range of switching point (PH)
Rising pressure (2)
0.8–10 bar (11.6–145 psi) 2–25 bar (29–362.5 psi)

Type of electrical connection (3)
M12 Integrated quick connection

Catalog numbers
Only sold in bulk packs (4)
NPN output (N.C.) XMLG010D33TQ XMLG010Q33TQ XMLG025D33TQ XMLG025Q33TQ
PNP output (N.C.) XMLG010D43TQ XMLG010Q43TQ XMLG025D43TQ XMLG025Q43TQ

Fluid connection (5) 1/4" NPT male

Weight, g (oz) 95 (3.35) 95 (3.35) 95 (3.35) 95 (3.35)

Additional specifications not shown under general specifications (page 13)
Switching thresholds (6) 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 (137.7 psi) 23.8 bar (345.1 psi)

Maximum permissible accidental pressure
22 bar (319 psi) 56 bar (812 psi)

Destructive pressure
25 bar (362.5 psi) 62.5 bar (906.2 psi)

Rated supply voltage 12/24 V

Voltage limits 8–33 V

Output Solid-state, NPN or PNP, NC

Switching capacity 150 mA

Current consumption < 4 mA

Electrical connection
By connector XMLG010D33TQ XMLG010Q33TQ XMLG025D33TQ XMLG025Q33TQ
Integrated XMLG010D43TQ XMLG010Q43TQ XMLG025D43TQ XMLG025Q43TQ

Operating curves

1 Maximum differential
2 Minimum differential

Accessories:
Dimensions:
Wiring:

19

Courtesy of Steven Engineering, Inc. ● 230 Ryan Way, South San Francisco, CA 94080-6370 ● General Inquiries: (800) 670-4183 ● www.stevenengineering.com
## Catalog numbers, specifications

### Electronic pressure sensors

**Nautilus™ Type XMLG pressure switches**

Sizes 100 to 250 bar (1450 to 3625 psi)

---

### Units with solid-state output (1)

<table>
<thead>
<tr>
<th>Adjustable range of switching point (PH)</th>
<th>8–100 bar (11.6–1450 psi)</th>
<th>20–250 bar (29–3625 psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rising pressure (2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of electrical connection (3)</td>
<td>M12</td>
<td>M12</td>
</tr>
<tr>
<td>Integrated quick connection</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Catalog numbers

Only sold in bulk packs (4)

- **NPN output (N.C.)**
  - XMLG100D33TQ
  - XMLG100Q33TQ
  - XMLG250D33TQ
  - XMLG250Q33TQ

- **PNP output (N.C.)**
  - XMLG100D43TQ
  - XMLG100Q43TQ
  - XMLG250D43TQ
  - XMLG250Q43TQ

### Fluid connection (5)

- 1/4" NPT male

### Weight, g (oz)

- 95 (3.35)
- 95 (3.35)
- 95 (3.35)
- 95 (3.35)

### Additional specifications not shown under general specifications (page 13)

#### Switching thresholds (6)

- **Factory set**

#### Possible differential

- Min. at low setting: 3 bar (43.5 psi) 7.5 bar (108.6 psi)
- Min. at high setting: 3 bar (43.5 psi) 7.5 bar (108.6 psi)
- Max. at high setting: 95 bar (1377.5 psi) 237.5 bar (3443.7 psi)

#### Maximum permissible accidental pressure

- 225 bar (3262.5 psi) 560 bar (8120 psi)

#### Destructive pressure

- 250 bar (3625 psi) 625 bar (9062.5 psi)

#### Rated supply voltage

- 12/24 V:—

#### Voltage limits

- 8–33 V:—

#### Output

- Solid-state, NPN or PNP, NC

#### Switching capacity

- 150 mA

#### Current consumption

- < 4 mA

- **Electrical connection**

  - By connector: XMLGGasDee: M12, 3-pin male. For suitable female connectors, including pre-wired versions, see pages 22 and 23
  - Integrated: XMLGGasDee: integrated connection, Phoenix Contact® QUICKON type

---

### Operating curves

**XMLG100G1TQ**

**XMLG250G1TQ**

---

For other types of output (such as normally open PNP or NPN), consult your local sales office.

For other pressure ranges, consult your local sales office.

For other connections (such as AMP connector or cable), consult your local sales office.

Sold in lots of 25.

Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from −15 to +125 °C (5 to 257 °F).

For other fluid connections (such as G 1/4 A BSP male or 1/4” NPTF female), refer to “Interpretation of the Catalog Number” on page 12, or consult your local sales office.

(6) State the switching threshold settings when ordering.

---

**Accessories:**

Page 22

**Dimensions:**

Page 23

**Wiring:**

Page 23

---

**Courtesy of Steven Engineering, Inc. ● 230 Ryan Way, South San Francisco, CA 94080-6370 ● General Inquiries: (800) 670-4183 ● www.stevenengineering.com**
# Electronic pressure sensors

**Nautilus™ Type XMLG pressure switches**  
Size: 400 bar (5800 psi)

## Units with solid-state output (1)

<table>
<thead>
<tr>
<th>Adjustable range of switching point (PH)</th>
<th>32–400 bar (464–5800 psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of electrical connection (3)</td>
<td>M12</td>
</tr>
<tr>
<td></td>
<td>Integrated quick connection</td>
</tr>
</tbody>
</table>

## Catalog numbers

<table>
<thead>
<tr>
<th>NPN output (N.C.)</th>
<th>XMLG400D33TQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>PNP output (N.C.)</td>
<td>XMLG400D43TQ</td>
</tr>
<tr>
<td></td>
<td>XMLG400Q33TQ</td>
</tr>
<tr>
<td></td>
<td>XMLG400Q43TQ</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fluid connection (5)</th>
<th>1/4” NPT male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight, g (oz)</td>
<td>95 (3.35)</td>
</tr>
</tbody>
</table>

## Additional specifications not shown under general specifications (page 13)

<table>
<thead>
<tr>
<th>Switching thresholds (6)</th>
<th>Factory set</th>
</tr>
</thead>
<tbody>
<tr>
<td>Possible differential</td>
<td></td>
</tr>
<tr>
<td>Min. at low setting</td>
<td>12 bar (174 psi)</td>
</tr>
<tr>
<td>Min. at high setting</td>
<td>12 bar (174 psi)</td>
</tr>
<tr>
<td>Max. at high setting</td>
<td>380 bar (5510 psi)</td>
</tr>
</tbody>
</table>

| Maximum permissible accidental pressure | 800 bar (11,600 psi) |
| Destructive pressure            | 900 bar (13,050 psi) |
| Rated supply voltage            | 12/24 VDC          |
| Voltage limits                  | 8–33 VDC           |
| Output                          | Solid-state, NPN or PNP, NC |
| Switching capacity              | 150 mA             |
| Current consumption             | < 4 mA             |

<table>
<thead>
<tr>
<th>Electrical connection</th>
<th>By connector XMLG400D33TQ: M12, 3-pin male. For suitable female connectors, including pre-wired versions, see pages 22 and 23</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Integrated XMLG400Q33TQ: integrated connection, Phoenix Contact® QUICKON type</td>
</tr>
</tbody>
</table>

(1) For other types of output (such as normally open PNP or NPN), consult your local sales office.
(2) For other pressure ranges, consult your local sales office.
(3) For other connections (such as AMP connector or cable), consult your local sales office.
(4) Sold in lots of 25.
(5) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15 to +125 °C (5 to 257 °F). For other fluid connections (such as G 1/4 A BSP male or 1/4” NPTF female), refer to “Interpretation of the Catalog Number” on page 12, or consult your local sales office.
(6) State the switching threshold settings when ordering.

## Operating curve

### XMLG400D1TQ

<table>
<thead>
<tr>
<th>Maximum differential</th>
<th>Minimum differential</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bar</th>
<th>Falling pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>100</td>
<td>200</td>
</tr>
<tr>
<td>200</td>
<td>300</td>
</tr>
<tr>
<td>300</td>
<td>400</td>
</tr>
</tbody>
</table>

---

**Accessories:** page 22  
**Dimensions:** page 23  
**Wiring:** page 23
Electronic pressure sensors
Nautilus™ accessories and replacement parts for Type XMLG sensors

Connection accessories

<table>
<thead>
<tr>
<th>Description</th>
<th>Length of cable m (ft)</th>
<th>Catalog number</th>
<th>Weight g (oz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12 Snap-C™, straight, female connector (1)</td>
<td>—</td>
<td>XZCC12FDM40V</td>
<td>15</td>
</tr>
<tr>
<td>M12 female connector, metal clamping ring</td>
<td>Straight —</td>
<td>XZCC12FDM40B</td>
<td>20</td>
</tr>
<tr>
<td>Connector with screw terminal connections</td>
<td>90° —</td>
<td>XZCC12FCM40B</td>
<td>20</td>
</tr>
<tr>
<td>Pre-wired M12 female connectors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Straight (Black PVR)</td>
<td>2 (6.6)</td>
<td>XZCP1141L2</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>5 (16.4)</td>
<td>XZCP1141L5</td>
<td>190</td>
</tr>
<tr>
<td></td>
<td>10 (32.8)</td>
<td>XZCP1141L10</td>
<td>370</td>
</tr>
<tr>
<td>Straight (Yellow PVC)</td>
<td>2 (6.6)</td>
<td>XSZCD101Y</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>5 (16.4)</td>
<td>XSZCD102Y</td>
<td>190</td>
</tr>
<tr>
<td></td>
<td>10 (32.8)</td>
<td>XSZCD103Y</td>
<td>370</td>
</tr>
<tr>
<td>90°</td>
<td>2 (6.6)</td>
<td>XZCP1241L2</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>5 (16.4)</td>
<td>XZCP1241L5</td>
<td>190</td>
</tr>
<tr>
<td></td>
<td>10 (32.8)</td>
<td>XZCP1241L10</td>
<td>370</td>
</tr>
</tbody>
</table>

Replacement part

<table>
<thead>
<tr>
<th>Description</th>
<th>Sold in lots of</th>
<th>Unit catalog number</th>
<th>Weight g (oz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quick connection</td>
<td>10</td>
<td>XMLGZ001</td>
<td>25</td>
</tr>
</tbody>
</table>

(1) Connector incorporating IDCs (insulation displacement connectors) for quick, direct, in-line connection to cable without a screwdriver or soldering iron.

Catalog numbers

Courtesy of Steven Engineering, Inc. ● 230 Ryan Way, South San Francisco, CA 94080-6370 ● General Inquiries: (800) 670-4183 ● www.stevenengineering.com
**Dimensions, wiring**

Electronic pressure sensors

**Nautilus™**

Type XMLG transmitters and pressure switches

For control circuits

---

**Dimensions, mm (in.)**

<table>
<thead>
<tr>
<th>XMLG●●●D●●, M12 x 1 connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW 21 (0.83)</td>
</tr>
<tr>
<td>2.1 (0.08)</td>
</tr>
<tr>
<td>56 (2.20)</td>
</tr>
<tr>
<td>2.1 (0.08)</td>
</tr>
<tr>
<td>Ø 22.8 (0.90)</td>
</tr>
<tr>
<td>~ 90 (3.54)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>XMLG●●●Q●●, integrated quick connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW 21 (0.83)</td>
</tr>
<tr>
<td>2.1 (0.08)</td>
</tr>
<tr>
<td>64 (2.52)</td>
</tr>
<tr>
<td>2.1 (0.08)</td>
</tr>
<tr>
<td>Ø 22.8 (0.90)</td>
</tr>
<tr>
<td>~ 85 (3.35)</td>
</tr>
</tbody>
</table>

**Connector wiring (pressure sensor connector pin view)**

<table>
<thead>
<tr>
<th>Electronic pressure switches</th>
<th>Pressure transmitters</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12</td>
<td>M12</td>
</tr>
<tr>
<td>3-wire (PNP)</td>
<td>2-wire (4–20 mA)</td>
</tr>
<tr>
<td>3-wire (PNP)</td>
<td>2-wire (4–20 mA)</td>
</tr>
<tr>
<td>3-wire (NPN)</td>
<td>3-wire (0–10 V)</td>
</tr>
<tr>
<td>3-wire (NPN)</td>
<td>3-wire (0–10 V)</td>
</tr>
</tbody>
</table>

---

Courtesy of Steven Engineering, Inc. ● 230 Ryan Way, South San Francisco, CA 94080-6370 ● General Inquiries: (800) 670-4183 ● www.stevenengineering.com
**Introduction**

XMLE pressure switches and pressure transmitters are characterized by their ceramic pressure measuring cell.

1. Threaded fluid entry.
2. Sealing gaskets.
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 analog output which is proportional to the measuring range.

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

**Electronic pressure sensors**

*Nautilus™ type XMLE*

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conformity to standards</strong></td>
<td>CE, EN 50081, EN 50082</td>
</tr>
<tr>
<td><strong>Product certifications</strong></td>
<td>UL, CSA</td>
</tr>
<tr>
<td><strong>Protective treatment</strong></td>
<td>Standard version “TC”</td>
</tr>
<tr>
<td><strong>Ambient air temperature</strong></td>
<td>For operation: -15 to +80 °C (5 to 176 °F)</td>
</tr>
<tr>
<td><strong>Fluids or products controlled</strong></td>
<td>Hydraulic oils, air, fresh water, sea water, corrosive fluids from -15 to +80 °C (5 to 176 °F)</td>
</tr>
<tr>
<td><strong>Component materials in contact with fluid</strong></td>
<td>Stainless steel fluid entry type AISI 303, Viton® gasket, Ceramic pressure measuring cell</td>
</tr>
<tr>
<td><strong>Operating position</strong></td>
<td>All positions</td>
</tr>
<tr>
<td><strong>Vibration resistance</strong></td>
<td>5 gn (25–200 Hz) and 35 gn (60–2000 Hz)</td>
</tr>
<tr>
<td><strong>Shock resistance</strong></td>
<td>50 gn</td>
</tr>
<tr>
<td><strong>Electrical protection</strong></td>
<td>Protected against reverse polarity, short-circuit, and overload</td>
</tr>
<tr>
<td><strong>Degree of protection</strong></td>
<td>IP65 conforming to IEC/EN 60529</td>
</tr>
<tr>
<td><strong>Operating rate</strong></td>
<td>50 Hz</td>
</tr>
<tr>
<td><strong>Response time</strong></td>
<td>&lt; 5 ms</td>
</tr>
<tr>
<td><strong>Service life</strong></td>
<td>&gt; 10 million operating cycles</td>
</tr>
<tr>
<td><strong>Drift</strong></td>
<td>Zero point: &lt; ± 0.03% of the measuring range/°C</td>
</tr>
<tr>
<td><strong>Precision</strong></td>
<td>&lt; ± 0.3% of the measuring range</td>
</tr>
<tr>
<td><strong>Fluid connection</strong></td>
<td>1/4” NPT (male) conforming to NF E 03-004, ISO 7</td>
</tr>
<tr>
<td><strong>Electrical connection</strong></td>
<td>DIN 43650A or M12 connector</td>
</tr>
</tbody>
</table>

**Interpretation of the Catalog Number—XMLE**

<table>
<thead>
<tr>
<th>XMLE</th>
<th>Units without display, 40 mm dia.</th>
<th>Rated pressure Code psi</th>
<th>Solid state, without scale</th>
<th>Electrical connection</th>
<th>Output</th>
<th>Fluid connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>M01</td>
<td>-14.5 to 0</td>
<td>-1 to 0</td>
<td>C: DIN 43650A</td>
<td>2: Analog</td>
<td>1: G 1/4 A (BSP male)</td>
</tr>
<tr>
<td></td>
<td>001</td>
<td>0 to 14.5</td>
<td>0 to 1</td>
<td></td>
<td></td>
<td>3: 1/4” NPT male</td>
</tr>
<tr>
<td></td>
<td>010</td>
<td>0 to 145</td>
<td>0 to 10</td>
<td></td>
<td></td>
<td>6: 1/4” NPTF female</td>
</tr>
<tr>
<td></td>
<td>025</td>
<td>0 to 362.5</td>
<td>0 to 25</td>
<td></td>
<td></td>
<td>7: 7/16-20 UNF male</td>
</tr>
<tr>
<td></td>
<td>060</td>
<td>0 to 870</td>
<td>0 to 60</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>0 to 1450</td>
<td>0 to 100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>250</td>
<td>0 to 3625</td>
<td>0 to 250</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>600</td>
<td>0 to 8700</td>
<td>0 to 600</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** Use this table only to interpret the catalog number. Some combinations are not available.
**Electronic pressure sensors**

**Nautilus™ type XMLE**

Transmitters without display (1)

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

---

<table>
<thead>
<tr>
<th>Type</th>
<th>With analog output, fluid connection 1/4” NPT male</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><img src="image" alt="Image of sensors" /></td>
</tr>
</tbody>
</table>

**Pressure range**

|          | 0 to -1 bar (0 to -14.5 psi) | 0 to 1 bar (0 to 14.5 psi) |

**Electrical connector type**

|          | DIN 43650A | M12 | DIN 43650A | M12 |

**Catalog numbers**

<table>
<thead>
<tr>
<th>Fluids controlled</th>
<th>Hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15 to +80 °C (5 to 176 °F)</th>
<th>XMLEMO1U1C23</th>
<th>XMLEMO1U1D23</th>
<th>XMLE001U1C23</th>
<th>XMLE001U1D23</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight, g (oz)</td>
<td>250 (8.82)</td>
<td>300 (10.58)</td>
<td>250 (8.82)</td>
<td>300 (10.58)</td>
<td></td>
</tr>
</tbody>
</table>

**Additional specifications not shown under general specifications (page 25)**

<table>
<thead>
<tr>
<th>Maximum permissible accidental pressure</th>
<th>1 bar (14.5 psi)</th>
<th>2 bar (29 psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Destructive pressure</td>
<td>2 bar (29 psi)</td>
<td>3 bar (43.5 psi)</td>
</tr>
<tr>
<td>Rated supply voltage</td>
<td>24 V</td>
<td></td>
</tr>
<tr>
<td>Voltage limits</td>
<td>11–33 V</td>
<td></td>
</tr>
<tr>
<td>Output</td>
<td>Analog, 4–20 mA, 2-wire</td>
<td></td>
</tr>
<tr>
<td>Current consumption</td>
<td>&lt; 20 mA</td>
<td></td>
</tr>
</tbody>
</table>

**Electrical connection**

| XMLEMO1U1C23: DIN 43650A, 4-pin male connector. For suitable female connector, see page 34. |
| XMLEMO1U1D23: M12, 5-pin male connector. For suitable female pre-wired connector, see page 34. |

**Output curves**

![Graph of output curves](graph)

**Other versions**

For other fluid connections (such as G 1/4 A BSP male or 1/4” NPTF female), refer to “Interpretation of the Catalog Number” on page 25, or consult your local sales office.
With analog output, fluid connection 1/4” NPT male

<table>
<thead>
<tr>
<th>Pressure Range</th>
<th>Connector</th>
<th>Catalog Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–10 bar (0–145 psi)</td>
<td>DIN 43650A M12</td>
<td>XMLE010U1C23 250 (8.82)</td>
</tr>
<tr>
<td>0–25 bar (0–362.5 psi)</td>
<td>DIN 43650A M12</td>
<td>XMLE010U1D23 300 (10.58)</td>
</tr>
<tr>
<td>20 bar (290 psi)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 bar (435 psi)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24 V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11–33 V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analog, 4–20 mA, 2-wire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 20 mA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Output curves

Accessories: page 34
Dimensions: page 35
Wiring: page 35
Electronic pressure sensors
Nautilus™ type XMLE
Transmitters without display (1)
Sizes 60 to 600 bar (870 to 8700 psi)

<table>
<thead>
<tr>
<th>Type</th>
<th>With analog output, fluid connection 1/4&quot; NPT male</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Pressure range</th>
<th>0–60 bar (0–870 psi)</th>
<th>0–100 bar (0–1450 psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical connector type</td>
<td>DIN 43650A</td>
<td>M12</td>
</tr>
<tr>
<td>Catalog numbers</td>
<td>XMLE060U1C23</td>
<td>XMLE060U1D23</td>
</tr>
<tr>
<td>Fluids controlled (2)</td>
<td>Hydraulic oils, fresh water, seawater, air, corrosive fluids, from -15 to +80 °C (5 to 176 °F)</td>
<td></td>
</tr>
<tr>
<td>Weight, g (oz)</td>
<td>270 (9.52)</td>
<td>320 (11.29)</td>
</tr>
</tbody>
</table>

**Additional specifications** not shown under general specifications (page 25)

- Maximum permissible accidental pressure: 120 bar (1740 psi) 200 bar (2900 psi)
- Destructive pressure: 180 bar (2610 psi) 300 bar (4350 psi)
- Rated supply voltage: 24 V
- Voltage limits: 11–33 V
- Output: Analog, 4–20 mA, 2-wire
- Current consumption: < 20 mA

**Electrical connection**
XMLEppU1C23: DIN 43650A, 4-pin male connector. For suitable female connector, see page 34.
XMLEppU1D23: M12, 5-pin male connector. For suitable female pre-wired connector, see page 34.

(1) Optional digital display for sensor; see page 34.
(2) Component materials of units in contact with the fluid: see page 25.

**Output curves**

- For other fluid connections (such as G 1/4 A BSP male or 1/4" NPTF female), refer to "Interpretation of the Catalog Number" on page 25, or consult your local sales office.
With analog output, fluid connection 1/4" NPT male

<table>
<thead>
<tr>
<th>Pressure Range</th>
<th>Connection Type</th>
<th>Catalog Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–250 bar (0–3625 psi)</td>
<td>DIN 43650A M12</td>
<td>XMLE250U1C23</td>
</tr>
<tr>
<td>0–600 bar (0–8700 psi)</td>
<td>DIN 43650A M12</td>
<td>XMLE600U1C23</td>
</tr>
<tr>
<td>270 (9.52)</td>
<td>320 (11.29)</td>
<td>270 (9.52)</td>
</tr>
</tbody>
</table>

**Additional specifications** not shown under general specifications (page 25)

<table>
<thead>
<tr>
<th>Pressure Range</th>
<th>Voltage Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 bar (7250 psi)</td>
<td>11–33 VAC</td>
</tr>
<tr>
<td>750 bar (10 875 psi)</td>
<td>24 VDC</td>
</tr>
<tr>
<td>1200 bar (17 400 psi)</td>
<td>&lt; 20 mA</td>
</tr>
<tr>
<td>1800 bar (26 100 psi)</td>
<td>11–33 VAC</td>
</tr>
</tbody>
</table>

Analog, 4–20 mA, 2-wire

< 20 mA

XMLE...U1C23: DIN 43650A, 4-pin male connector. For suitable female connector, see page 34.

XMLE...U1D23: M12, 5-pin male connector. For suitable female pre-wired connector, see page 34.

**Output curves**

![Output curves graph](attachment:output_curves_graph.png)
Electronic pressure sensors
Nautilus™ type XMLE
Vacuum and pressure switches without display (1), for regulation between 2 thresholds
Sizes -1 to 25 bar (-14.5 to 362.5 psi)

<table>
<thead>
<tr>
<th>Type</th>
<th>With solid-state output, fluid connection 1/4&quot; NPT male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustable range of switching point (PH) (Rising pressure) (2)</td>
<td>-0.07 to -1 bar (-1.015 to -14.5 psi) 0.07 to 1 bar (1.015 to 14.5 psi)</td>
</tr>
<tr>
<td>Electrical connector type</td>
<td>DIN 43650A M12 DIN 43650A M12</td>
</tr>
<tr>
<td>Catalog numbers</td>
<td>Fractions controlled (3)</td>
</tr>
<tr>
<td>Fluids controlled (3)</td>
<td>Type of output</td>
</tr>
<tr>
<td>Hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15 to +80 °C (5 to 176 °F)</td>
<td>NPN XMLEM01U1C33 XMLEM01U1D33 XMLE001U1C33 XMLE001U1D33</td>
</tr>
<tr>
<td>PNP XMLEM01U1C43 XMLEM01U1D43 XMLE001U1C43 XMLE001U1D43</td>
<td></td>
</tr>
<tr>
<td>Weight, g (oz)</td>
<td>250 (8.82) 300 (10.58) 250 (8.82) 300 (10.58)</td>
</tr>
<tr>
<td>Additional specifications not shown under general specifications (page 25)</td>
<td>Possible differential</td>
</tr>
<tr>
<td>Min. at low setting</td>
<td>0.02 bar (0.29 psi) 0.02 bar (0.29 psi)</td>
</tr>
<tr>
<td>Min. at high setting</td>
<td>0.02 bar (0.29 psi) 0.02 bar (0.29 psi)</td>
</tr>
<tr>
<td>Max. at high setting</td>
<td>0.95 bar (13.77 psi) (max. differential at low setting) 0.95 bar (13.77 psi)</td>
</tr>
<tr>
<td>Maximum permissible accidental pressure</td>
<td>1 bar (14.5 psi) 2 bar (29 psi)</td>
</tr>
<tr>
<td>Destructive pressure</td>
<td>2 bar (29 psi) 3 bar (43.5 psi)</td>
</tr>
</tbody>
</table>
| Rated supply voltage | 24 V:
| Voltage limits | 11–33 V:
| Output | Solid-state, NPN or PNP, NC |
| Switching capacity | 100 mA |
| Current consumption | < 15 mA |
| Electrical connection | XMLEM01U1C1: DIN 43650A, 4-pin male connector. For suitable female connector, see page 34.
| XMLEM01U1D1: M12, 4-pin male connector. For suitable female pre-wired connector, see page 34. |

(1) Optional digital display for pressure switch, see page 34.
(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 25.

Operating curves

1  Maximum differential
2  Minimum differential

Other versions
For other fluid connections (such as G 1/4 BSP male or 1/4" NPTF female), refer to "Interpretation of the Catalog Number" on page 25, or consult your local sales office.

Accessories: page 34
Dimensions: page 35
Wiring: page 35
With solid-state output, fluid connection 1/4" NPT male

<table>
<thead>
<tr>
<th>Differential Pressure</th>
<th>0.7–10 bar (10.15–145 psi)</th>
<th>1.75–25 bar (25.38–362.5 psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>XMLE010U1C33</td>
<td>DIN 43650A M12</td>
<td>DIN 43650A M12</td>
</tr>
<tr>
<td>XMLE010U1D33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>XMLE025U1C33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>XMLE025U1D33</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Catalog numbers

<table>
<thead>
<tr>
<th>Catalog Numbers</th>
<th>DIN 43650A M12</th>
<th>DIN 43650A M12</th>
</tr>
</thead>
<tbody>
<tr>
<td>XMLE010U1C43</td>
<td>XMLE010U1D43</td>
<td>XMLE025U1C43</td>
</tr>
<tr>
<td>XMLE010U1D43</td>
<td>XMLE025U1D43</td>
<td></td>
</tr>
<tr>
<td>250 (8.82)</td>
<td>250 (8.82)</td>
<td>300 (10.58)</td>
</tr>
<tr>
<td>300 (10.58)</td>
<td>300 (10.58)</td>
<td></td>
</tr>
</tbody>
</table>

Additional specifications not shown under general specifications (page 25)

<table>
<thead>
<tr>
<th>Voltage Range</th>
<th>Solid-state, NPN or PNP, NC</th>
</tr>
</thead>
<tbody>
<tr>
<td>11–33 VDC</td>
<td>100 mA</td>
</tr>
<tr>
<td></td>
<td>&lt; 15 mA</td>
</tr>
</tbody>
</table>

Accessories:

- DIN 43650A, 4-pin male connector. For suitable female connector, see page 34.
- M12, 5-pin male connector. For suitable female pre-wired connector, see page 34.

Operating curves

1. Maximum differential
2. Minimum differential

Accessories: page 34
Dimensions: page 35
Wiring: page 35

Courtesy of Steven Engineering, Inc. ● 230 Ryan Way, South San Francisco, CA 94080-6370 ● General Inquiries: (800) 670-4183 ● www.stevenengineering.com
# Electronic pressure sensors

**Nautilus™ type XMLE**

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

## Type

| Type | With solid-state output, fluid connection 1/4" NPT male |

## Adjustable range of switching point (PH)

- Rising pressure
  - Min. at low setting: 4.2–60 bar (60.9–870 psi)
  - Min. at high setting: 7–100 bar (101.5–1450 psi)

## Electrical connector type

- DIN 43650A
- M12

## Catalog numbers

- NPN: XMLE060U1C33, XMLE060U1D33, XMLE100U1C33, XMLE100U1D33
- PNP: XMLE060U1C43, XMLE060U1D43, XMLE100U1C43, XMLE100U1D43

## Weight, g (oz)

- 270 (9.52)
- 320 (11.29)

## Additional specifications not shown under general specifications (page 25)

- **Possible differential**
  - Min. at low setting: 1.2 bar (17.4 psi)
  - Min. at high setting: 1.2 bar (17.4 psi)
  - Max. at high setting: 57 bar (826.5 psi)

- **Maximum permissible accidental pressure**
  - 120 bar (1740 psi)
  - 200 bar (2900 psi)

- **Destructive pressure**
  - 180 bar (2610 psi)
  - 300 bar (4350 psi)

- **Rated supply voltage**
  - 24 V

- **Voltage limits**
  - 11–33 V

- **Output**
  - Solid-state, NPN or PNP, NC

- **Switching capacity**
  - 100 mA

- **Current consumption**
  - < 15 mA

- **Electrical connection**
  - XMLEpppU1C: DIN 43650A, 4-pin male connector. For suitable female connector, see page 34.  
  - XMLEpppU1D: M12, 5-pin male connector. For suitable female pre-wired connector, see page 34.

(1) Optional digital display for pressure switch, see page 34.

(2) Component materials of units in contact with the fluid: see page 25.

---

**Operating curves**

1. Maximum differential
2. Minimum differential

---

**Other versions**

For other fluid connections (such as G 1/4 A BSP male or 1/4" NPTF female), refer to “Interpretation of the Catalog Number” on page 25, or consult your local sales office.

---

**Accessories:**
- page 34

**Dimensions:**
- page 35

**Wiring:**
- page 35
With solid-state output, fluid connection 1/4” NPT male

17.5–250 bar (253.7–3625 psi)
42–600 bar (609–8700 psi)

DIN 43650A M12 DIN 43650A M12

Catalog numbers

<table>
<thead>
<tr>
<th>XML250U1C33</th>
<th>XML250U1D33</th>
<th>XML600U1C33</th>
<th>XML600U1D33</th>
</tr>
</thead>
<tbody>
<tr>
<td>270 (9.52)</td>
<td>320 (11.29)</td>
<td>270 (9.52)</td>
<td>320 (11.29)</td>
</tr>
</tbody>
</table>

Additional specifications not shown under general specifications (page 25)

5 bar (72.5 psi) 12 bar (174 psi)
5 bar (72.5 psi) 12 bar (174 psi)
237.5 bar (3443.7 psi) 570 bar (8265 psi)
500 bar (7250 psi) 1200 bar (17 400 psi)
750 bar (10 875 psi) 1800 bar (26 100 psi)

24 Vcc
11–33 Vcc
Solid-state, NPN or PNP, NC
100 mA
< 15 mA

XML...U1C...: DIN 43650A, 4-pin male connector. For suitable female connector, see page 34.
XML...U1D...: M12, 5-pin male connector. For suitable female pre-wired connector, see page 34.

Operating curves

1 Maximum differential
2 Minimum differential

Accessories:
page 34

Dimensions:
page 35

Wiring:
page 35
## Accessories

<table>
<thead>
<tr>
<th>Description</th>
<th>Sensor size</th>
<th>Catalog number</th>
<th>Weight (g)</th>
<th>Weight (oz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital displays for analog pressure sensors</td>
<td>-1 to 0</td>
<td>XMLEZM01</td>
<td>100</td>
<td>3.53</td>
</tr>
<tr>
<td></td>
<td>0 to 1</td>
<td>XMLEZ001</td>
<td>100</td>
<td>3.53</td>
</tr>
<tr>
<td></td>
<td>0 to 10</td>
<td>XMLEZ010</td>
<td>100</td>
<td>3.53</td>
</tr>
<tr>
<td></td>
<td>0 to 25</td>
<td>XMLEZ025</td>
<td>100</td>
<td>3.53</td>
</tr>
<tr>
<td></td>
<td>0 to 60</td>
<td>XMLEZ060</td>
<td>100</td>
<td>3.53</td>
</tr>
<tr>
<td></td>
<td>0 to 100</td>
<td>XMLEZ100</td>
<td>100</td>
<td>3.53</td>
</tr>
<tr>
<td></td>
<td>0 to 250</td>
<td>XMLEZ250</td>
<td>100</td>
<td>3.53</td>
</tr>
<tr>
<td></td>
<td>0 to 600</td>
<td>XMLEZ600</td>
<td>100</td>
<td>3.53</td>
</tr>
</tbody>
</table>

## Connection accessories

<table>
<thead>
<tr>
<th>Description</th>
<th>Length of cable (m (ft))</th>
<th>Catalog number</th>
<th>Weight (g)</th>
<th>Weight (oz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female DIN 43650 A connector</td>
<td>—</td>
<td>XZCC43FCP40B</td>
<td>35</td>
<td>1.23</td>
</tr>
<tr>
<td>DIN 43650 A, straight M12 male jumper cables for splitter boxes</td>
<td>1 (3.3)</td>
<td>XZCR1523062K1</td>
<td>80</td>
<td>2.82</td>
</tr>
<tr>
<td></td>
<td>2 (6.6)</td>
<td>XZCR1523062K2</td>
<td>110</td>
<td>3.88</td>
</tr>
<tr>
<td>Pre-wired M12, straight, female connectors (Black PVR)</td>
<td>2 (6.6)</td>
<td>XZCP1164L2</td>
<td>115</td>
<td>4.06</td>
</tr>
<tr>
<td></td>
<td>5 (16.4)</td>
<td>XZCP1164L5</td>
<td>270</td>
<td>9.52</td>
</tr>
<tr>
<td></td>
<td>10 (32.8)</td>
<td>XZCP1164L10</td>
<td>520</td>
<td>18.34</td>
</tr>
<tr>
<td>Pre-wired M12, straight, female connectors (Yellow PVC) (1)</td>
<td>2 (6.6)</td>
<td>XSZCD1501Y</td>
<td>115</td>
<td>4.06</td>
</tr>
<tr>
<td></td>
<td>5 (16.4)</td>
<td>XSZCD1502Y</td>
<td>270</td>
<td>9.52</td>
</tr>
<tr>
<td></td>
<td>10 (32.8)</td>
<td>XSZCD1503Y</td>
<td>520</td>
<td>18.34</td>
</tr>
<tr>
<td>Pre-wired M12, 90°, female connectors</td>
<td>2 (6.6)</td>
<td>XZCP1264L2</td>
<td>115</td>
<td>4.06</td>
</tr>
<tr>
<td></td>
<td>5 (16.4)</td>
<td>XZCP1264L5</td>
<td>270</td>
<td>9.52</td>
</tr>
<tr>
<td></td>
<td>10 (32.8)</td>
<td>XZCP1264L10</td>
<td>520</td>
<td>18.34</td>
</tr>
</tbody>
</table>

(1) Note that the yellow PVC cables have a gray wire attached to pin 5—ground, whereas the black PVR cables have a yellow/green wire attached to pin 5—ground.
Electronic pressure sensors
Nautilus™ type XMLE

Dimensions, mm (in.)

<table>
<thead>
<tr>
<th>Dimensions, mm (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>XMLE U1C23, XMLU1C33</td>
</tr>
<tr>
<td>XMLE U1D33</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>XMLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>M01, 001, 010, 025</td>
</tr>
<tr>
<td>Ø 1/4&quot; NPT male</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>XMLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>M01, 001, 010, 025</td>
</tr>
<tr>
<td>Ø 1/4&quot; NPT male</td>
</tr>
</tbody>
</table>

For dimension a, see above.

Digital displays

Wiring

Pressure transmitters (1)

<table>
<thead>
<tr>
<th>XMLE U1C23</th>
<th>XMLE U1D23</th>
</tr>
</thead>
</table>

Electronic pressure switches (2)

<table>
<thead>
<tr>
<th>XMLE U1C33</th>
<th>XMLE U1D33</th>
</tr>
</thead>
</table>

Jumper cables, DIN 43650 A, straight M12 male

| XZCR15230D62K |

<table>
<thead>
<tr>
<th>(1) sensor connector pin view</th>
</tr>
</thead>
</table>

| (2) switch connector pin view |

Catalog numbers:

pages 26 to 33
XMLF electronic pressure sensors are used for pressure control of hydraulic oils, fresh water, sea water, air, and corrosive fluids, between -1 and 600 bar (-14.5 and 8700 psi).

**Osiconcept™ technology: simplifying setup**
XMLF electronic pressure sensors are characterized by their ceramic pressure measuring cell.

1. Large 4-digit display indicating the programming codes, parameter values, or measured pressure.
2. LED indicating the selected unit of measurement (bar or psi).
3. LED indicating the status of the pressure switch output(s).
4. Ergonomic keys for configuring the product via the pull-down menu.
5. Excellent resistance to overpressure.
6. Memorization and ability to display the pressure peaks within the installation.

Three menus enable the user to do the following:
- 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 XMLFeD2e1e have a 4–20 mA or 0–10 V analog output. In addition to having a manual diagnostic function (see below), they also incorporate a remote diagnostic function: a digital input connected to a PLC, for example, enables remote activation of the sensor’s test function. When the sensor is operating correctly, the analog output must, when testing, be close to 50% of the sensor size (12 mA or 5 V).
- Universal sensors XMLFeD2e2e are pressure switches with an adjustable differential, for regulation between 2 thresholds, featuring a solid-state output (configurable for NPN or PNP, and for NO or NC), and a 4–20 mA or 0–10 V analog output. They incorporate the manual diagnostic function (see below).
- Pressure switches XMLFeD2e3e are dual stage switches, with adjustable differential for each threshold, featuring 2 solid-state outputs (configurable for NPN or PNP, and for NO or NC). They incorporate the manual diagnostic function (see below).
- Pressure switches XMLFeE2e4e for AC control are switches with adjustable differential, for regulation between 2 thresholds, featuring a 2.5 A, AC relay output (configurable for NO or NC). They incorporate the manual diagnostic function (see below).

**XMLF sensors feature:**

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

- **Manual diagnostic function enabling:**
  - checking the correct operation of sensor
  - reading the value of the maximum pressure peak that has occurred since the last reset to zero, as well as deleting this value for a fresh reset.
Specifications

Electronic pressure sensors
Nautilus™ Universal, Osiconcept™
For control circuits, type XMLF

Environmental specifications

Conformity to standards
IEC, EN 60947-1, IEC/EN 60947-5-1, EN 50081, EN 50082, EN 61000-6-2, EN 61000-4-2/3/4/5/6/8/11

Product certifications
UL, CSA

Protective treatment
Standard version "TC"

Ambient air temperature
DC models: -25 to +80 °C (-13 to 176 °F)
AC models: -25 to +75 °C (-13 to 167 °F)

Fluids or products controlled
Hydraulic oils, air, fresh water, sea water, corrosive fluids from -15 to +80 °C (5 to 176 °F)

Component materials in contact with fluid
Stainless steel fluid entry type AISI 303, Viton® gasket
Ceramic pressure measuring cell

Drift
Of the zero point < ±0.1% of the measuring range

Service life
In millions of operating cycles
> 10

Output response time
Adjustable from 5 to 500 ms, in increments of 1 ms

Drift
Of the zero point < ±0.1% of the measuring range/°C

Precision
Analog output ≤ 0.06% of the measuring range, output offset < 200 mV

Repeat accuracy
≤ 0.3% of the measuring range

Display response time
Adjustable; 3 options:
- slow (1% of the unit size),
- normal (0.5% of the unit size), or
- fast (refreshed every 10 ms)

Fluid connection
G 1/4 A (BSP female) conforming to NF E 03-004 and ISO 7619, or SAE 7/16-20UNF female, depending on the model

Electrical connection
M12 Snap-C™ compatible connector or SAE 7/8-27UN connector, depending on the model

Interpretation of the Catalog Number—XMLF

XMLF 100 D 2 01 5

<table>
<thead>
<tr>
<th>Configurable</th>
<th>Rated pressure Code</th>
<th>Electrical Connection</th>
<th>N/A</th>
<th>Output</th>
<th>Fluid Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>M01 001</td>
<td>-1.45 to 0</td>
<td>D: M12 DC only</td>
<td></td>
<td>01: DC Analog 4–20 mA, shunt calibration</td>
<td>1: 1/4 BSP female</td>
</tr>
<tr>
<td>002</td>
<td>-1.4 to 0.25</td>
<td>E: 7/8-16 UN2A AC only</td>
<td></td>
<td>02: DC Analog 4–20 mA, digital single stage</td>
<td>6: SAE 7/16-20 UNF female</td>
</tr>
<tr>
<td>010</td>
<td>0 to 145</td>
<td></td>
<td></td>
<td>03: DC digital dual stage</td>
<td></td>
</tr>
<tr>
<td>016</td>
<td>0 to 232</td>
<td></td>
<td></td>
<td>04: AC Relay 120 V</td>
<td></td>
</tr>
<tr>
<td>025</td>
<td>0 to 362.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>040</td>
<td>0 to 580</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>070</td>
<td>0 to 1015</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>090</td>
<td>0 to 1450</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>120</td>
<td>0 to 2320</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>160</td>
<td>0 to 3625</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>240</td>
<td>0 to 5800</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>600</td>
<td>0 to 8700</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTE: Use this table only to interpret the catalog number. Some combinations are not available.
**Catalog numbers, specifications**

**Electronic pressure sensors**

**Nautilus™ type XMLF**

Size: -1 bar (-14.5 psi)

<table>
<thead>
<tr>
<th>Type</th>
<th>Pressure transmitters</th>
<th>Universal sensors with adjustable differential. Solid-state and analog outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>![Image of sensors]</td>
</tr>
</tbody>
</table>

| Adjustable range of switching point (PB) | — | -0.08 to -1 bar (-1.16 to -14.5 psi) |
| (Falling pressure)                      |   |                                      |
| **Analog output**                       | 4–20 mA | 0–10 V | 4–20 mA | 0–10 V |

**Catalog numbers**

<table>
<thead>
<tr>
<th>Fluid connection</th>
<th>1/4” BSP female</th>
<th>XMLFM01D2015</th>
<th>XMLFM01D2115</th>
<th>XMLFM01D2025</th>
<th>XMLFM01D2125</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4” NPT female</td>
<td>XMLFM01D2016</td>
<td>XMLFM01D2116</td>
<td>XMLFM01D2026</td>
<td>XMLFM01D2126</td>
<td></td>
</tr>
<tr>
<td>SAE 7/16-20UNF female</td>
<td>XMLFM01D2019</td>
<td>XMLFM01D2119</td>
<td>XMLFM01D2029</td>
<td>XMLFM01D2129</td>
<td></td>
</tr>
</tbody>
</table>

| Weight, g (oz) | 480 (16.93) |

**Additional specifications not shown under general specifications (page 37)**

| Possible differential | Min. at low and high setting | — | 0.03 bar (0.44 psi) |
|— (add to PB to give PH) | Max. at low setting | — | 0.96 bar (13.77 psi) |
|**Maximum permissible accidental pressure** | 3 bar (43.5 psi) |
|**Destructive pressure** | 5 bar (72.5 psi) |
|**Rated supply voltage** | 24 V ± |
|**Voltage limits** | 17–33 V ± |
|**Current consumption** | 80 mA |
|**Output** | — |
|**Time delay** | — |
|**Switching capacity** | — |
|**Analog output** | 4–20 mA or 0–10 V, depending on the 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 64.

(1) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15 to +80 °C (5 to 176 °F).

**Curves**

**Analog output curve**

**Vacuum sensor operating curves**

![Analog output curve graph]

- 1 Maximum differential
- 2 Minimum differential

**Adjustable value**

![Vacuum sensor operating curves graph]
Electronic pressure sensors

Nautilus™ type XMLF
Size: -1 bar (-14.5 psi)

<table>
<thead>
<tr>
<th>Type</th>
<th>Vacuum switches with adjustable differential and relay output</th>
<th>Dual stage adjustable vacuum switches with solid-state outputs</th>
</tr>
</thead>
</table>

**Adjustable range of switching point(s) (PB or PB1 and PB2) (Falling pressure)**

-0.08 to -1 bar (-1.16 to -14.5 psi)

**Catalog numbers**

<table>
<thead>
<tr>
<th>Fluid connection (1)</th>
<th>Catalog numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4” BSP female</td>
<td>XMLFM01E2045</td>
</tr>
<tr>
<td>1/4” NPT female</td>
<td>XMLFM01E2046</td>
</tr>
<tr>
<td>SAE 7/16-20UNF female</td>
<td>XMLFM01E2049</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fluid connection (1)</th>
<th>Catalog numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4” BSP female</td>
<td>XMLFM01D2035</td>
</tr>
<tr>
<td>1/4” NPT female</td>
<td>XMLFM01D2036</td>
</tr>
<tr>
<td>SAE 7/16-20UNF female</td>
<td>XMLFM01D2039</td>
</tr>
</tbody>
</table>

**Weight, g (oz)**

- 590 (20.81)
- 480 (16.93)

**Additional specifications not shown under general specifications (page 37)**

- **Possible differential (add to:)**
  - PB to get PH
    - Min. at low and high setting: 0.03 bar (0.44 psi)
  - PB1 & PB2 to get PH1 & PH2
    - Max. at low setting: 0.95 bar (13.77 psi)

- **Maximum permissible accidental pressure**
  - 3 bar (43.5 psi)

- **Destructive pressure**
  - 5 bar (72.5 psi)

- **Rated supply voltage**
  - 120 V~
  - 24 V~

- **Voltage limits**
  - 102–132 V~
  - 17–33 V~

- **Current consumption**
  - 32 mA
  - 80 mA

- **Output**
  - Relay
  - Programmable, NPN or PNP, and NO or NC

- **Time delay**
  - Adjustable time delay on trip and on reset from 0 to 50 s, in increments of 1 s

- **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 64.
  - M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 64

(1) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15 to +80 °C (5 to 176 °F).

**Vacuum switch operating curves**

(Curve for each stage for dual stage vacuum switches)

<table>
<thead>
<tr>
<th>Vacuum switches with relay output</th>
<th>Dual stage vacuum switches</th>
</tr>
</thead>
</table>

1. **Maximum differential**
2. **Minimum differential**

---

**Accessories:**  page 64  
**Dimensions:**  page 65  
**Wiring:**  page 65
## Catalog numbers, specifications

**Electronic pressure sensors**

**Nautilus™ type XMLF**

Size: 1 bar (14.5 psi)

<table>
<thead>
<tr>
<th>Type</th>
<th>Pressure transmitters</th>
<th>Universal sensors with adjustable differential. Solid-state and analog outputs (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustable range of switching point (PH) (Rising pressure)</td>
<td>—</td>
<td>0.08–1 bar (1.16–14.5 psi)</td>
</tr>
<tr>
<td>Analog output</td>
<td>4–20 mA</td>
<td>0–10 V</td>
</tr>
</tbody>
</table>

### Catalog numbers

<table>
<thead>
<tr>
<th>Fluid connection</th>
<th>XMLF001D2015</th>
<th>XMLF001D2115</th>
<th>XMLF001D2025</th>
<th>XMLF001D2125</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4” BSP female</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/4” NPT female</td>
<td>XMLF001D2016</td>
<td>XMLF001D2116</td>
<td>XMLF001D2026</td>
<td>XMLF001D2126</td>
</tr>
<tr>
<td>SAE 7/16-20UNF female</td>
<td>XMLF001D2019</td>
<td>XMLF001D2119</td>
<td>XMLF001D2029</td>
<td>XMLF001D2129</td>
</tr>
</tbody>
</table>

**Weight, g (oz)**

480 (16.93)

### Additional specifications not shown under general specifications (page 37)

<table>
<thead>
<tr>
<th>Possible differential (subtract from PH to get PB)</th>
<th>Min. at low and high setting</th>
<th>0.03 bar (0.44 psi)</th>
<th>0.95 bar (13.77 psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum permissible accidental pressure</td>
<td>4 bar (58 psi)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Destructive pressure</td>
<td>6 bar (87 psi)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rated supply voltage</td>
<td>24 V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage limits</td>
<td>17–33 V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current consumption</td>
<td>80 mA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output</td>
<td>—</td>
<td>Programmable, NPN or PNP, and NO or NC</td>
<td></td>
</tr>
<tr>
<td>Time delay</td>
<td>—</td>
<td>Adjustable time delay on trip and on reset from 0 to 50 s, in increments of 1 s</td>
<td></td>
</tr>
<tr>
<td>Switching capacity</td>
<td>—</td>
<td>200 mA</td>
<td></td>
</tr>
<tr>
<td>Analog output</td>
<td>4–20 mA or 0–10 V, depending on the model. Maximum signal level adjustable between 0.75 and 1.25 bar (10.88 and 18.12 psi)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical connection</td>
<td>M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 64</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

2 Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15 to +80 °C (5 to 176 °F). Component materials of units in contact with the fluid: see page 37.

### Curves

**Analog output curve**

**Pressure sensor operating curves**

![Analog output curve](chart1.png)

1 Maximum differential

2 Minimum differential

---

Accessories: page 64
Dimensions: page 65
Wiring: page 65

---

Courtesy of Steven Engineering, Inc. ● 230 Ryan Way, South San Francisco, CA 94080-6370 ● General Inquiries: (800) 670-4183 ● www.stevenengineering.com
Catalog numbers, specifications (continued)

Electronic pressure sensors
Nautilus™ type XMLF
Size: 1 bar (14.5 psi)

<table>
<thead>
<tr>
<th>Type</th>
<th>Pressure switches with adjustable differential and relay output (1)</th>
<th>Dual stage adjustable pressure switches with solid-state outputs (2)</th>
</tr>
</thead>
</table>

Adjustable range of switching point(s) (PH or PH1 and PH2) (Rising pressure)
0.08–1 bar (1.16–14.5 psi)

**Catalog numbers**

<table>
<thead>
<tr>
<th>Fluid connection (3)</th>
<th>XMLF001E2045</th>
<th>XMLF001D2035</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4” BSP female</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/4” NPT female</td>
<td>XMLF001E2046</td>
<td>XMLF001D2036</td>
</tr>
<tr>
<td>SAE 7/16-20UNF female</td>
<td>XMLF001E2049</td>
<td>XMLF001D2039</td>
</tr>
</tbody>
</table>

**Weight, g (oz)**

| 590 (20.81) | 480 (16.93) |

**Additional specifications not shown under general specifications (page 37)**

- **Maximum permissible accidental pressure**: 4 bar (58 psi)
- **Destructive pressure**: 6 bar (87 psi)
- **Rated supply voltage**: 120 V~
- **Output**: Relay
- **Voltage limits**: 102–132 V~
- **Current consumption**: 32 mA
- **Time delay**: Adjustable time delay on trip and on reset from 0 to 50 s, in increments of 1 s
- **Switching capacity**: 2.5 A, AO-15, C300 (120 V / 1.5 A)
- **Electrical connection**: SAE 7/8-16UN, 5-pin male connector. For suitable female pre-wired connectors, see page 64.

For each stage:
- Min. at low and high setting: 0.03 bar (0.44 psi)
- Max. at high setting: 0.95 bar (13.77 psi)

(1) Pressure switches with adjustable differential for regulation between 2 thresholds. Relay output.
(2) Pressure switches with 2 adjustable stages and adjustable differential for each threshold. Solid-state outputs.
(3) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15 to +80 °C (5 to 176 °F). Component materials of units in contact with the fluid: see page 37.

**Pressure switch operating curves**

(Curve for each stage for dual stage pressure switches)

- **Pressure switches with relay output**
- **Dual stage pressure switches**

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# Electronic pressure sensors

**Nautilus™ type XMLF**

Size: 2.5 bar (36.25 psi)

<table>
<thead>
<tr>
<th>Type</th>
<th>Pressure transmitters</th>
<th>Universal sensors with adjustable differential. Solid-state and analog outputs (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustable range of switching point (PH) (Rising pressure)</td>
<td>—</td>
<td>0.20–2.5 bar (2.9–36.25 psi)</td>
</tr>
<tr>
<td>Analog output</td>
<td>4–20 mA</td>
<td>0–10 V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4–20 mA</td>
</tr>
<tr>
<td></td>
<td>0–10 V</td>
<td></td>
</tr>
</tbody>
</table>

### Catalog numbers

- Fluid connection (2)
  - 1/4" BSP female: XMLF002D2015, XMLF002D2115, XMLF002D2025, XMLF002D2125
  - 1/4" NPT female: XMLF002D2016, XMLF002D2116, XMLF002D2026, XMLF002D2126
  - SAE 7/16-20UNF female: XMLF002D2019, XMLF002D2119, XMLF002D2029, XMLF002D2129

- Weight, g (oz): 480 (16.93)

### Additional specifications not shown under general specifications (page 37)

- 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)

- Maximum permissible accidental pressure: 10 bar (145 psi)

- Destructive pressure: 15 bar (217.5 psi)

- Rated supply voltage: 24 V

- Voltage limits: 17–33 V

- Current consumption: 80 mA

- Output: Programmable, NPN or PNP, and NO or NC

- Time delay: Adjustable time delay on trip and on reset from 0 to 50 s, in increments of 1 s

- Switching capacity: 200 mA

- Analog output: 4–20 mA or 0–10 V, depending on the 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 64

---

### Curves

#### Analog output curve

![Analog output curve](image)

1. Maximum differential
2. Minimum differential

---

### Additional notes

1. Pressure sensors with adjustable differential for regulation between 2 thresholds. Solid-state and analog outputs.
2. Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15 to +80 °C (5 to 176 °F). Component materials of units in contact with the fluid: see page 37.
Electronic pressure sensors
Nautilus™ type XMLF
Size: 2.5 bar (36.25 psi)

<table>
<thead>
<tr>
<th>Type</th>
<th>Pressure switches with adjustable differential and relay output (1)</th>
<th>Dual stage adjustable pressure switches with solid-state outputs (2)</th>
</tr>
</thead>
</table>

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

Catalog numbers

<table>
<thead>
<tr>
<th>Fluid connection (3)</th>
<th>XMLF002E2045</th>
<th>XMLF002D2035</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4” BSP female</td>
<td>XMLF002E2046</td>
<td>XMLF002D2036</td>
</tr>
<tr>
<td>SAE 7/16-20UNF female</td>
<td>XMLF002E2049</td>
<td>XMLF002D2039</td>
</tr>
</tbody>
</table>

Weight, g (oz) 590 (20.81) 480 (16.93)

Additional specifications not shown under general specifications (page 37)

Possible differential (subtract from: – PH to get PB – PH1 & PH2 to get PB1 & PB2)

<table>
<thead>
<tr>
<th>Minimum differential</th>
<th>Adjustable value</th>
<th>Maximum at high setting</th>
<th>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)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Maximum permissible accidental pressure</th>
<th>10 bar (145 psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Destructive pressure</td>
<td>15 bar (217.5 psi)</td>
</tr>
<tr>
<td>Rated supply voltage</td>
<td>120 V ac</td>
</tr>
<tr>
<td>Voltage limits</td>
<td>102–132 V ac</td>
</tr>
<tr>
<td>Current consumption</td>
<td>32 mA</td>
</tr>
<tr>
<td>Output</td>
<td>Relay</td>
</tr>
<tr>
<td>Time delay</td>
<td>Adjustable time delay on trip and on reset from 0 to 50 s, in increments of 1 s</td>
</tr>
<tr>
<td>Switching capacity</td>
<td>2.5 A, A0-18, C300 (120 V / 1.5 A)</td>
</tr>
<tr>
<td>Electrical connection</td>
<td>SAE 7/8-16UN, 5-pin male connector. For suitable female pre-wired connectors, see page 64.</td>
</tr>
<tr>
<td></td>
<td>M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 64</td>
</tr>
</tbody>
</table>

1 Pressure switches with adjustable differential for regulation between 2 thresholds. Relay output.
2 Pressure switches with 2 adjustable stages and adjustable differential for each threshold. Solid-state outputs.
3 Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15 to +80 °C (5 to 176 °F). Component materials of units in contact with the fluid: see page 37.

Pressure switch operating curves

<table>
<thead>
<tr>
<th>Pressure switches with relay output</th>
<th>Dual stage pressure switches</th>
</tr>
</thead>
</table>

(Curve for each stage for dual stage pressure switches)

1 Maximum differential
2 Minimum differential

---

Accessories: page 64
Dimensions: page 65
Wiring: page 65

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Electronic pressure sensors
Nautilus™ type XMLF
Size: 10 bar (145 psi)

<table>
<thead>
<tr>
<th>Type</th>
<th>Pressure transmitters</th>
<th>Universal sensors with adjustable differential. Solid-state and analog outputs (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Adjustable range of switching point (PH) (Rising pressure) — 0.8–10 bar (11.6–145 psi)
Analog output 4–20 mA 0–10 V 4–20 mA 0–10 V

Catalog numbers
Fluid connection (2)
1/4" BSP female XMLF010D2015 XMLF010D2115 XMLF010D2025 XMLF010D2125
1/4" NPT female XMLF010D2016 XMLF010D2116 XMLF010D2026 XMLF010D2126
SAE 7/16-20UNF female XMLF010D2019 XMLF010D2119 XMLF010D2029 XMLF010D2129

Weight, g (oz) 480 (16.93)

Additional specifications not shown under general specifications (page 37)
Possible differential
(subtract from PH to give PB) Min. at low and high setting — 0.3 bar (4.4 psi)
Max. at high setting — 9.5 bar (137.75 psi)

Maximum permissible accidental pressure 40 bar (580 psi)
Destructive pressure 60 bar (870 psi)
Rated supply voltage 24 V
Voltage limits 17–33 V
Current consumption 80 mA
Output — Programmable, NPN or PNP, and NO or NC
Time delay — Adjustable time delay on trip and on reset from 0 to 50 s, in increments of 1 s
Switching capacity — 200 mA
Analog output 4–20 mA or 0–10 V, depending on the model. Maximum signal level adjustable between 7.5 and 12.5 bar (106.75 and 181.25 psi)
Electrical connection M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 64

(1) Pressure sensors with adjustable differential for regulation between 2 thresholds. Solid-state and analog outputs.
(2) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15 to +80 °C (5 to 176 °F). Component materials of units in contact with the fluid: see page 37.

Curves
Analog output curve Pressure sensor operating curves

<table>
<thead>
<tr>
<th>Analog output curve</th>
<th>Pressure sensor operating curves</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 mA - 10 V</td>
<td></td>
</tr>
<tr>
<td>12 mA - 5 V</td>
<td></td>
</tr>
<tr>
<td>4 mA - 0 V</td>
<td></td>
</tr>
</tbody>
</table>

1 Maximum differential
2 Minimum differential
— Adjustable value

Accessories: page 64
Dimensions: page 65
Wiring: page 65

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### Catalog numbers, specifications (continued)

**Electronic pressure sensors**

**Nautilus™ type XMLF**

Size: 10 bar (145 psi)

<table>
<thead>
<tr>
<th>Type</th>
<th>Pressure switches with adjustable differential and relay output (1)</th>
<th>Dual stage adjustable pressure switches with solid-state outputs (2)</th>
</tr>
</thead>
</table>

| Adjustable range of switching point(s) (PH or PH1 and PH2) (Rising pressure) | 0.8–10 bar (11.6–145 psi) |

**Catalog numbers**

<table>
<thead>
<tr>
<th>Fluid connection</th>
<th>XMLF010E2045</th>
<th>XMLF010D2035</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot; BSP female</td>
<td>XMLF010E2046</td>
<td>XMLF010D2036</td>
</tr>
<tr>
<td>1/4&quot; NPT female</td>
<td>XMLF010E2049</td>
<td>XMLF010D2039</td>
</tr>
<tr>
<td>SAE 7/16-20UNF female</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight, g (oz)</td>
<td>590 (20.81)</td>
<td>480 (16.93)</td>
</tr>
</tbody>
</table>

**Additional specifications not shown under general specifications (page 37)**

<table>
<thead>
<tr>
<th>Possible differential</th>
<th>Min. at low and high setting</th>
<th>0.3 bar (4.4 psi)</th>
<th>For each stage: min. at low and high setting: 0.3 bar (4.4 psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(subtract from:</td>
<td>Max. at high setting</td>
<td>9.5 bar (137.75 psi)</td>
<td>max. at high setting: 9.5 bar (137.75 psi)</td>
</tr>
<tr>
<td>– PH to get PB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>– PH1 &amp; PH2 to get PB1 &amp; PB2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Maximum permissible accidental pressure**

| 40 bar (580 psi) |

**Destructive pressure**

| 60 bar (870 psi) |

**Rated supply voltage**

| 120 V~ (4 AC) | 24 V\(||\) |

**Voltage limits**

| 102–132 V\(~\) | 17–33 V\(||\) |

**Current consumption**

| 32 mA | 80 mA |

**Output**

| Relay | Programmable, NPN or PNP, and NO or NC |

**Time delay**

| Adjustable time delay on trip and on reset from 0 to 50 s, in increments of 1 s |

**Swapping 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 64. | M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 64. |

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

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

(3) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15 to +80 °C (5 to 176 °F). Component materials of units in contact with the fluid: see page 37.

### Pressure switch operating curves

(Curve for each stage for dual stage pressure switches)

<table>
<thead>
<tr>
<th>Pressure switches with relay output</th>
<th>Dual stage pressure switches</th>
</tr>
</thead>
</table>

![Pressure switch operating curves](image)

1. Maximum differential
2. Minimum differential

---

**Accessories:**

page 64

**Dimensions:**

page 65

**Wiring:**

page 65
**Electronic pressure sensors**

**Nautilus™ type XMLF**

Size: 16 bar (232 psi)

<table>
<thead>
<tr>
<th>Type</th>
<th>Pressure transmitters</th>
<th>Universal sensors with adjustable differential. Solid-state and analog outputs (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th></th>
<th>1.28–16 bar (18.56–232 psi)</th>
</tr>
</thead>
</table>

Analog output

<table>
<thead>
<tr>
<th></th>
<th>4–20 mA</th>
<th>0–10 V</th>
</tr>
</thead>
</table>

**Catalog numbers**

<table>
<thead>
<tr>
<th>Fluid connection</th>
<th>Catalog numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot; BSP female</td>
<td>XMLF016D2015 XMLF016D2115 XMLF016D2025 XMLF016D2125</td>
</tr>
<tr>
<td>1/4&quot; NPT female</td>
<td>XMLF016D2016 XMLF016D2116 XMLF016D2026 XMLF016D2126</td>
</tr>
<tr>
<td>SAE 7/16-20UNF female</td>
<td>XMLF016D2019 XMLF016D2119 XMLF016D2029 XMLF016D2129</td>
</tr>
</tbody>
</table>

Weight, g (oz)

<table>
<thead>
<tr>
<th></th>
<th>480 (16.93)</th>
</tr>
</thead>
</table>

**Additional specifications** not shown under general specifications (page 37)

Possible differential (subtract from PH to give PB)

| Min. at low and high setting | — |
| Max. at high setting         | 0.48 bar (6.96 psi) |
|                             | 15.2 bar (220.4 psi) |

Maximum permissible accidental pressure

<table>
<thead>
<tr>
<th>64 bar (928 psi)</th>
</tr>
</thead>
</table>

Destructive pressure

<table>
<thead>
<tr>
<th>96 bar (1392 psi)</th>
</tr>
</thead>
</table>

Rated supply voltage

<table>
<thead>
<tr>
<th>24 V</th>
</tr>
</thead>
</table>

Voltage limits

<table>
<thead>
<tr>
<th>17–33 V</th>
</tr>
</thead>
</table>

Current consumption

<table>
<thead>
<tr>
<th>80 mA</th>
</tr>
</thead>
</table>

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 increments of 1 s |

Switching capacity

| — |
| 200 mA |

Analog output

| 4–20 mA or 0–10 V, depending on the model. Maximum signal level adjustable between 12 and 20 bar (174 and 290 psi) |

Electrical connection

| M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 64 |

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

(2) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15 to +80 °C (5 to 176 °F). Component materials of units in contact with the fluid: see page 37.

**Curves**

**Analog output curve**

**Pressure sensor operating curves**

<table>
<thead>
<tr>
<th>20 mA - 10 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 mA - 5 V</td>
</tr>
<tr>
<td>4 mA - 0 V</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>0</th>
<th>10</th>
<th>12</th>
<th>16</th>
<th>20 bar</th>
</tr>
</thead>
</table>

1 Maximum differential

2 Minimum differential

— Adjustable value
### Electronic pressure sensors

**Nautilus™ type XMLF**

Size: 16 bar (232 psi)

<table>
<thead>
<tr>
<th>Type</th>
<th>Pressure switches with adjustable differential and relay output (1)</th>
<th>Dual stage adjustable pressure switches with solid-state outputs (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.28–16 bar (18.56–232 psi)</td>
<td></td>
</tr>
</tbody>
</table>

### Adjustable range of switching point(s) (PH or PH1 and PH2) (Rising pressure)

1.28–16 bar (18.56–232 psi)

### Catalog numbers

<table>
<thead>
<tr>
<th>Fluid connection (3)</th>
<th>Catalog numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot; BSP female</td>
<td>XMLF016E2045</td>
</tr>
<tr>
<td>1/4&quot; NPT female</td>
<td>XMLF016E2046</td>
</tr>
<tr>
<td>SAE 7/16-20UNF female</td>
<td>XMLF016E2049</td>
</tr>
</tbody>
</table>

| Weight, g (oz) | 590 (20.81) | 480 (16.93) |

### Additional specifications not shown under general specifications (page 37)

- **Possible differential** (subtract from:  – PH to get PB
  – PH1 & PH2 to get PB1 & PB2)
  - Min. at low and high setting: 0.48 bar (6.96 psi)
  - Max. at high setting: 15.2 bar (220.4 psi)

- **Max. at high setting**: 15.2 bar (220.4 psi)

### Maximum permissible accidental pressure

64 bar (928 psi)

### Destructive pressure

96 bar (1392 psi)

### Rated supply voltage

- 120 V~
- 102–132 V~

### Voltage limits

- 120 V~
- 17–33 V~

### Current consumption

- Relay: 32 mA
- 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 increments of 1 s

### 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 64
- M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 64

---

(1) Pressure switches with adjustable differential for regulation between 2 thresholds. Relay output.
(2) Pressure switches with 2 adjustable stages and adjustable differential for each threshold. Solid-state outputs.
(3) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15 to +80 °C (5 to 176 °F). Component materials of units in contact with the fluid: see page 37.

---

### Pressure switch operating curves

(Curve for each stage for dual stage pressure switches)

<table>
<thead>
<tr>
<th>Pressure switches with relay output</th>
<th>Dual stage pressure switches</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Diagram 1]</td>
<td>[Diagram 2]</td>
</tr>
</tbody>
</table>

1. **Maximum differential**
2. **Minimum differential**

---

Accessories: page 64
Dimensions: page 65
Wiring: page 65

---

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### Electronic pressure sensors

**Nautilus™ type XMLF**  
Size: 25 bar (362.5 psi)

<table>
<thead>
<tr>
<th>Type</th>
<th>Pressure transmitters</th>
<th>Universal sensors with adjustable differential. Solid-state and analog outputs (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Adjustable range of switching point (PH) (Rising pressure)**: —
- **Analog output**: 4–20 mA 0–10 V 4–20 mA 0–10 V

#### Catalog numbers

<table>
<thead>
<tr>
<th>Fluid connection (2)</th>
<th>XMLF025D2015</th>
<th>XMLF025D2115</th>
<th>XMLF025D2025</th>
<th>XMLF025D2125</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4” BSP female</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/4” NPT female</td>
<td>XMLF025D2016</td>
<td>XMLF025D2116</td>
<td>XMLF025D2026</td>
<td>XMLF025D2126</td>
</tr>
<tr>
<td>SAE 7/16-20UNF female</td>
<td>XMLF025D2019</td>
<td>XMLF025D2119</td>
<td>XMLF025D2029</td>
<td>XMLF025D2129</td>
</tr>
</tbody>
</table>

- **Weight, g (oz)**: 480 (16.93)

#### Additional specifications not shown under general specifications (page 37)

- **Possible differential**: Min. at low and high setting — 0.75 bar (10.9 psi)
- **Max. at high setting**: — 23.8 bar (345.1 psi)

- **Maximum permissible accidental pressure**: 100 bar (1450 psi)
- **Destructive pressure**: 150 bar (2175 psi)
- **Rated supply voltage**: 24 V
- **Voltage limits**: 17–33 V
- **Current consumption**: 80 mA
- **Output**: — Programmable, NPN or PNP, and NO or NC
- **Time delay**: — Adjustable time delay on trip and on reset from 0 to 50 s, in increments of 1 s
- **Switching capacity**: — 200 mA
- **Analog output**: 4–20 mA or 0–10 V, depending on the 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 64.

1. Pressure sensors with adjustable differential for regulation between 2 thresholds. Solid-state and analog outputs.
2. Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15 to +80 °C (5 to 176 °F). Component materials of units in contact with the fluid: see page 37.

#### Curves

**Analog output curve**

**Pressure sensor operating curves**

1. Maximum differential
2. Minimum differential

---

**Accessories**: page 64  
**Dimensions**: page 65  
**Wiring**: page 65

---

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Electronic pressure sensors
Nautilus™ type XMLF
Size: 25 bar (362.5 psi)

<table>
<thead>
<tr>
<th>Type</th>
<th>Pressure switches with adjustable differential and relay output (1)</th>
<th>Dual stage adjustable pressure switches with solid-state outputs (2)</th>
</tr>
</thead>
</table>

Adjustable range of switching point(s) (PH or PH1 and PH2) (Rising pressure)
2–25 bar (29–362.5 psi)

Catalog numbers

<table>
<thead>
<tr>
<th>Fluid connection</th>
<th>XMLF025E2045</th>
<th>XMLF025D2035</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot; BSP female</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/4&quot; NPT female</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAE 7/16-20UNF female</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Weight, g (oz)

|                  | 590 (20.81) | 480 (16.93) |

Additional specifications not shown under general specifications (page 37)

Possible differential (subtract from: – PH to get PB
– PH1 & PH2 to get PB1 & PB2)
Min. at low and high setting 0.75 bar (10.9 psi)
Max. at high setting: 23.8 bar (345.1 psi)

Maximum permissible accidental pressure
100 bar (1450 psi)

Destructive pressure
150 bar (2175 psi)

Rated supply voltage
24 V

Voltage limits
102–132 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 increments of 1 s

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 64.
M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 64

Pressure switch operating curves

<table>
<thead>
<tr>
<th>Curve for each stage for dual stage pressure switches</th>
<th>Pressure switches with relay output</th>
<th>Dual stage pressure switches</th>
</tr>
</thead>
</table>

1 Maximum differential
2 Minimum differential

Accessible: page 64
Dimensions: page 65
Wiring: page 65

(1) Pressure switches with adjustable differential for regulation between 2 thresholds. Relay output.
(2) Pressure switches with 2 adjustable stages and adjustable differential for each threshold. Solid-state outputs.
(3) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15 to +80 °C (5 to 176 °F). Component materials of units in contact with the fluid: see page 37.
# Electronic pressure sensors

**Nautilus™ type XMLF**

Size: 40 bar (580 psi)

<table>
<thead>
<tr>
<th>Type</th>
<th>Pressure transmitters</th>
<th>Universal sensors with adjustable differential. Solid-state and analog outputs (1)</th>
</tr>
</thead>
</table>

## Adjustable range of switching point (PH)
- Minimum at low and high setting
- Maximum at high setting

<table>
<thead>
<tr>
<th>Analog output</th>
<th>4–20 mA</th>
<th>0–10 V</th>
<th>4–20 mA</th>
<th>0–10 V</th>
</tr>
</thead>
</table>

## Catalog numbers

<table>
<thead>
<tr>
<th>Fluid connection (2)</th>
<th>1/4” BSP female</th>
<th>XMLF040D2015</th>
<th>XMLF040D2115</th>
<th>XMLF040D2025</th>
<th>XMLF040D2125</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1/4” NPT female</td>
<td>XMLF040D2016</td>
<td>XMLF040D2116</td>
<td>XMLF040D2026</td>
<td>XMLF040D2126</td>
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<tr>
<td></td>
<td>SAE 7/16-20UNF female</td>
<td>XMLF040D2019</td>
<td>XMLF040D2119</td>
<td>XMLF040D2029</td>
<td>XMLF040D2129</td>
</tr>
</tbody>
</table>

Weight, g (oz): 500 (17.64)

## Additional specifications

- Possible differential:
  - Min. at low and high setting
  - Max. at high setting

- Maximum permissible accidental pressure: 160 bar (2320 psi)
- Destructive pressure: 240 bar (3480 psi)
- Rated supply voltage: 24 V
- Voltage limits: 17–33 V
- Current consumption: 80 mA
- Output:
  - Programmable, NPN or PNP, and NO or NC
  - Adjustable time delay on trip and on reset from 0 to 50 s, in increments of 1 s
- Switching capacity: 200 mA
- Analog output: 4–20 mA or 0–10 V, depending on the 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 64

---

**Curves**

### Analog output curve

**Pressure sensor operating curves**

1. Maximum differential
2. Minimum differential

---

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

(2) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15 to +80 °C (5 to 176 °F). Component materials of units in contact with the fluid: see page 37.
**Electronic pressure sensors**

Nautilus™ type XMLF

Size: 40 bar (580 psi)

**Type**

Pressure switches with adjustable differential and relay output (1)

Dual stage adjustable pressure switches with solid-state outputs (2)

---

**Adjustable range of switching point(s) (PH or PH1 and PH2)**

(Rising pressure)

3.2–40 bar (46.4–580 psi)

---

**Catalog numbers**

<table>
<thead>
<tr>
<th>Fluid connection</th>
<th>XMLF040E2045</th>
<th>XMLF040D2035</th>
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</thead>
<tbody>
<tr>
<td>1/4&quot; BSP female</td>
<td>XMLF040E2046</td>
<td>XMLF040D2036</td>
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<tr>
<td>1/4&quot; NPT female</td>
<td>XMLF040E2049</td>
<td>XMLF040D2039</td>
</tr>
<tr>
<td>SAE 7/16-20UNF female</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Weight, g (oz)**

610 (21.52)

500 (17.64)

---

**Additional specifications not shown under general specifications (page 37)**

- **Possible differential**
  - Min. at low and high setting: 1.2 bar (17.4 psi)
  - Max. at high setting: 38 bar (551 psi)

- **Maximum permissible accidental pressure**
  - 160 bar (2320 psi)

- **Destructive pressure**
  - 240 bar (3480 psi)

- **Rated supply voltage**
  - 120 V~
  - 24 V~

- **Voltage limits**
  - 102–132 V~
  - 17–33 V~

- **Current consumption**
  - 32 mA
  - 80 mA

- **Output**
  - Relay
  - Programmable, NPN or PNP, and NO or NC

- **Time delay**
  - Adjustable time delay on trip and on reset from 0 to 50 s, in increments of 1 s

- **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 64
  - M12, 4-pin male connector.
  - For suitable female connectors, including pre-wired versions, see page 64

---

**Pressure switch operating curves**

(Curve for each stage for dual stage pressure switches)

<table>
<thead>
<tr>
<th>Pressure switches with relay output</th>
<th>Dual stage pressure switches</th>
</tr>
</thead>
</table>

---

1. Maximum differential
2. Minimum differential

---

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

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

(3) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15 to +80 °C (5 to 176 °F). Component materials of units in contact with the fluid: see page 37.
Electronic pressure sensors
Nautilus™ type XMLF
Size: 70 bar (1015 psi)

<table>
<thead>
<tr>
<th>Type</th>
<th>Pressure transmitters</th>
<th>Universal sensors with adjustable differential. Solid-state and analog outputs (1)</th>
</tr>
</thead>
</table>

Adjustable range of switching point (PH) (Rising pressure) — 5.6–70 bar (81.2–1015 psi)

Analog output
4–20 mA 0–10 V 4–20 mA 0–10 V

Catalog numbers
Fluid connection (2)

<table>
<thead>
<tr>
<th>Fluid connection</th>
<th>Catalog numbers</th>
</tr>
</thead>
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<tr>
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<tr>
<td>1/4&quot; NPT female</td>
<td>XMLF070D2016  XMLF070D2116</td>
</tr>
<tr>
<td>SAE 7/16-20UNF female</td>
<td>XMLF070D2019  XMLF070D2119</td>
</tr>
</tbody>
</table>

Weight, g (oz)
500 (17.64)

Additional specifications not shown under general specifications (page 37)

Possible differential

<table>
<thead>
<tr>
<th>Min. at low and high setting</th>
<th>Max. at high setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>—</td>
<td>2.1 bar (30.5 psi)</td>
</tr>
<tr>
<td>—</td>
<td>66.5 bar (964.2 psi)</td>
</tr>
</tbody>
</table>

Maximum permissible accidental pressure
280 bar (4060 psi)

Destructive pressure
420 bar (6090 psi)

Rated supply voltage
24 V

Voltage limits
17–33 V

Current consumption
80 mA

Output
Programmable, NPN or PNP, and NO or NC

Time delay
Adjustable time delay on trip and on reset from 0 to 50 s, in increments of 1 s

Switching capacity
200 mA

Analog output
4–20 mA or 0–10 V, depending on the model. Maximum signal level adjustable between 52.5 and 67.9 bar (781.3 and 1268.7 psi)

Electrical connection
M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 64

(1) Pressure sensors with adjustable differential for regulation between 2 thresholds. Solid-state and analog outputs.
(2) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15 to +80 °C (5 to 176 °F). Component materials of units in contact with the fluid: see page 37.

Curves

Analog output curve

Pressure sensor operating curves

1 Maximum differential
2 Minimum differential

Adjustable value

Accessories:
page 64
Dimensions:
page 65
Wiring:
page 65

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Electronic pressure sensors
Nautilus™ type XMLF
Size: 70 bar (1015 psi)

<table>
<thead>
<tr>
<th>Type</th>
<th>Pressure switches with adjustable differential and relay output (1)</th>
<th>Dual stage adjustable pressure switches with solid-state outputs (2)</th>
</tr>
</thead>
</table>

Adjustable range of switching point(s) (PH or PH1 and PH2) (Rising pressure) 5.6–70 bar (81.2–1015 psi)

**Catalog numbers**

<table>
<thead>
<tr>
<th>Fluid connection</th>
<th>Catalog numbers</th>
<th>Catalog numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4” BSP female</td>
<td>XMLF070E2045</td>
<td>XMLF070D2035</td>
</tr>
<tr>
<td>1/4” NPT female</td>
<td>XMLF070E2046</td>
<td>XMLF070D2036</td>
</tr>
<tr>
<td>SAE 7/16-20UNF female</td>
<td>XMLF070E2049</td>
<td>XMLF070D2039</td>
</tr>
</tbody>
</table>

Weight, g (oz) 610 (21.52) 500 (17.64)

**Additional specifications not shown under general specifications (page 37)**

- **Possible differential**
  - Min. at low and high setting: 2.1 bar (30.5 psi)
  - Max. at high setting: 66.5 bar (964.2 psi)

- **Maximum permissible accidental pressure**: 280 bar (4060 psi)

- **Destructive pressure**: 420 bar (6090 psi)

- **Rated supply voltage**: 120 V~ 24 V~

- **Voltage limits**: 102–132 V~ 17–33 V~

- **Current consumption**: 32 mA 80 mA

- **Output**: Relay Programmable, NPN or PNP, and NO or NC

- **Time delay**: Adjustable time delay on trip and on reset from 0 to 50 s, in increments of 1 s

- **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 64. M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 64

(1) Pressure switches with adjustable differential for regulation between 2 thresholds. Relay output.
(2) Pressure switches with 2 adjustable stages and adjustable differential for each threshold. Solid-state outputs.
(3) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15 to +80 °C (5 to 176 °F). Component materials of units in contact with the fluid: see page 37.

**Pressure switch operating curves**

(Curve for each stage for dual stage pressure switches)

1 Maximum differential
2 Minimum differential

---

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Electronic pressure sensors
Nautilus™ type XMLF
Size: 100 bar (1450 psi)

### Catalog numbers, specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>Pressure transmitters</th>
<th>Universal sensors with adjustable differential. Solid-state and analog outputs (1)</th>
</tr>
</thead>
</table>

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

**Analog output**
- 4–20 mA
- 0–10 V
- 4–20 mA
- 0–10 V

### Catalog numbers

<table>
<thead>
<tr>
<th>Fluid connection (2)</th>
<th>XMLF100D2015</th>
<th>XMLF100D2115</th>
<th>XMLF100D2025</th>
<th>XMLF100D2125</th>
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</thead>
<tbody>
<tr>
<td>1/4” BSP female</td>
<td>XMLF100D2016</td>
<td>XMLF100D2116</td>
<td>XMLF100D2026</td>
<td>XMLF100D2126</td>
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<tr>
<td>1/4” NPT female</td>
<td>XMLF100D2016</td>
<td>XMLF100D2116</td>
<td>XMLF100D2026</td>
<td>XMLF100D2126</td>
</tr>
<tr>
<td>SAE 7/16-20UNF female</td>
<td>XMLF100D2019</td>
<td>XMLF100D2119</td>
<td>XMLF100D2029</td>
<td>XMLF100D2129</td>
</tr>
</tbody>
</table>

**Weight, g (oz)**
- 500 (17.64)

### Additional specifications not shown under general specifications (page 37)

**Possible differential**
- Min. at low and high setting
- Max. at high setting

**Maximum permissible accidental pressure**
- 400 bar (5800 psi)

**Destructive pressure**
- 600 bar (8700 psi)

**Rated supply voltage**
- 24 V

**Voltage limits**
- 17–33 V

**Current consumption**
- 80 mA

**Output**
- Programmable, NPN or PNP, and NO or NC

**Time delay**
- Adjustable time delay on trip and on reset from 0 to 50 s, in increments of 1 s

**Switching capacity**
- 200 mA

**Analog output**
- 4–20 mA or 0–10 V, depending on the model. Maximum signal level adjustable between 75 and 125 bar (1087.5 and 1812.5 psi)

**Electrical connection**
- M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 64.

1. Pressure sensors with adjustable differential for regulation between 2 thresholds. Solid-state and analog outputs.
2. Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15 to +80 °C (5 to 176 °F). Component materials of units in contact with the fluid: see page 37.

### Curves

**Analog output curve**

**Pressure sensor operating curves**

---

Accessories: page 64
Dimensions: page 65
Wiring: page 65

---

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Electronic pressure sensors
Nautilus™ type XMLF
Size: 100 bar (1450 psi)

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

Adjustable range of switching point(s) (PH or PH1 and PH2) (Rising pressure) | 8–100 bar (116–1450 psi)

Catalog numbers
Fluid connection (3) | XMLF100E2045 | XMLF100E2046 | XMLF100D2035 | XMLF100D2036 | XMLF100E2049 | XMLF100D2039
1/4” BSP female | 1/4” NPT female | SAE 7/16-20UNF female

Weight, g (oz) | 610 (21.52) | 500 (17.64)

Additional specifications not shown under general specifications (page 37)
Possible differential (subtract from: – PH to get PB
– PH1 & PH2 to get PB1 & PB2) | Min. at low and high setting 3 bar (43.5 psi) | Max. at high setting 95 bar (1377.5 psi) | For each stage: min. at low and high setting: 3 bar (43.5 psi) max. at high setting: 95 bar (1377.5 psi)

Maximum permissible accidental pressure | 400 bar (5800 psi)
Destructive pressure | 600 bar (8700 psi)
Rated supply voltage | 120 V ~ | 24 V ~
Voltage limits | 102–132 V ~ | 17–33 V ~
Current consumption | 32 mA | 80 mA
Output | Relay Programmable, NPN or PNP, and NO or NC
Time delay | Adjustable time delay on trip and on reset from 0 to 50 s, in increments of 1 s
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 64 | M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 64

(1) Pressure switches with adjustable differential for regulation between 2 thresholds. Relay output.
(2) Pressure switches with 2 adjustable stages and adjustable differential for each threshold. Solid-state outputs.
(3) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15 to +80 °C (5 to 176 °F). Component materials of units in contact with the fluid: see page 37.

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

Accessories: page 64
Dimensions: page 65
Wiring: page 65
**Electronic pressure sensors**

**Nautilus™ type XMLF**

Size: 160 bar (2320 psi)

<table>
<thead>
<tr>
<th>Type</th>
<th>Pressure transmitters</th>
<th>Universal sensors with adjustable differential. Solid-state and analog outputs (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Adjustable range of switching point (PH)
- **Rising pressure**
  - 12.8–160 bar (185.6–2320 psi)

### Analog output
- 4–20 mA
- 0–10 V
- 4–20 mA
- 0–10 V

### Catalog numbers

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>1/4” BSP female</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1/4” NPT female</td>
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<td></td>
<td></td>
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<tr>
<td>SAE 7/16-20UNF female</td>
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<td>XMLF160D2029</td>
<td>XMLF160D2129</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Weight, g (oz)**

- 590 (20.81)

### Additional specifications

- **Possible differential** (subtract from PH to give PB)
  - **Min. at low and high setting** —
  - **Max. at high setting** —
  - 4.8 bar (69.6 psi)
  - 152 bar (2204 psi)

- **Maximum permissible occasional surge pressure**
  - 640 bar (9280 psi)

- **Destructive pressure**
  - 960 bar (13,920 psi)

- **Rated supply voltage**
  - 24 V

- **Voltage limits**
  - 17–33 V

- **Current consumption**
  - 80 mA

- **Output**
  - — Programmable, NPN or PNP, and NO or NC

- **Time delay**
  - Adjustable time delay on trip and on reset from 0 to 50 s, in increments of 1 s

- **Switching capacity**
  - 200 mA

- **Analog output**
  - 4–20 mA or 0–10 V, depending on the 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 64

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

(2) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15 to +80 °C (5 to 176 °F). Component materials of units in contact with the fluid: see page 37.

**Curves**

- **Analog output curve**
- **Pressure sensor operating curves**

1. Maximum differential
2. Minimum differential

---

**Accessories:** page 64

**Dimensions:** page 65

**Wiring:** page 65

---

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### Electronic pressure sensors

**Nautilus™ type XMLF**  
Size: 160 bar (2320 psi)

<table>
<thead>
<tr>
<th>Type</th>
<th>Pressure switches with adjustable differential and relay output (1)</th>
<th>Dual stage adjustable pressure switches with solid-state outputs (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Adjustable range of switching point(s) (PH or PH1 and PH2)**  
  (Rising pressure)  
  12.8–160 bar (185.6–2320 psi)

### Catalog numbers

<table>
<thead>
<tr>
<th>Fluid connection</th>
<th>Fluid connection</th>
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</thead>
<tbody>
<tr>
<td>1/4” BSP female</td>
<td>XMLF160E2045</td>
</tr>
<tr>
<td>1/4” NPT female</td>
<td>XMLF160E2046</td>
</tr>
<tr>
<td>SAE 7/16-20UNF female</td>
<td>XMLF160E2049</td>
</tr>
</tbody>
</table>

### Additional specifications

- **Possile differential**  
  Min. at low and high setting: 4.8 bar (69.6 psi)  
  Max. at high setting: 152 bar (2204 psi)  
  For each stage: min. at low and high setting: 4.8 bar (69.6 psi)  
  max. at high setting: 152 bar (2204 psi)

- **Maximum permissible accidental pressure**  
  840 bar (12,080 psi)

- **Rated supply voltage**  
  120 V~

- **Voltage limits**  
  102–132 V~

- **输出**  
  80 mA

- **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 64  
  M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 64

(1) Pressure switches with adjustable differential for regulation between 2 thresholds. Relay output.  
(2) Pressure switches with 2 adjustable stages and adjustable differential for each threshold. Solid-state outputs.  
(3) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15 to +80 °C (5 to 176 °F). Component materials of units in contact with the fluid: see page 37.

### Pressure switch operating curves

**(Curve for each stage for dual stage pressure switches)**

1. Maximum differential
2. Minimum differential

---

**Accessories:** page 64  
**Dimensions:** page 65  
**Wiring:** page 65

---

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Electronic pressure sensors
Nautilus™ type XMLF
Size: 250 bar (3625 psi)

<table>
<thead>
<tr>
<th>Type</th>
<th>Pressure transmitters</th>
<th>Universal sensors with adjustable differential. Solid-state and analog outputs ([1])</th>
</tr>
</thead>
</table>

Adjustable range of switching point (PH) (Rising pressure) — 20–250 bar (290–3625 psi)

Analog output
4–20 mA 0–10 V 4–20 mA 0–10 V

Catalog numbers

<table>
<thead>
<tr>
<th>Fluid connection</th>
<th>/2</th>
<th>XMLF250D2015</th>
<th>XMLF250D2115</th>
<th>XMLF250D2025</th>
<th>XMLF250D2125</th>
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<tbody>
<tr>
<td>1/4” BSP female</td>
<td></td>
<td>XMLF250D2016</td>
<td>XMLF250D2116</td>
<td>XMLF250D2026</td>
<td>XMLF250D2126</td>
</tr>
<tr>
<td>1/4” NPT female</td>
<td></td>
<td>XMLF250D2019</td>
<td>XMLF250D2119</td>
<td>XMLF250D2029</td>
<td>XMLF250D2129</td>
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<tr>
<td>SAE 7/16-20UNF female</td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Weight, g (oz) 590 (20.81)

Additional specifications not shown under general specifications (page 37)

Possible differential
Min. at low and high setting — 7.5 bar (108.8 psi)
Max. at high setting — 237.5 bar (3443.7 psi)

Maximum permissible accidental pressure 1000 bar (14,500 psi)

Destructive pressure 1500 bar (21,750 psi)

Rated supply voltage 24 V:

Voltage limits 17–33 V:

Current consumption 80 mA

Output Programmable, NPN or PNP, and NO or NC

Time delay Adjustable time delay on trip and on reset from 0 to 50 s, in increments of 1 s

Switching capacity — 200 mA

Analog output 4–20 mA or 0–10 V, depending on the 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 64

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

2 Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15 to +80 °C (5 to 176 °F). Component materials of units in contact with the fluid: see page 37.

Curves

Analog output curve

Pressure sensor operating curves

1 Maximum differential
2 Minimum differential

--- Adjustable value

Accessories: page 64
Dimensions: page 65
Wiring: page 65

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Electronic pressure sensors
Nautilus™ type XMLF
Size: 250 bar (3625 psi)

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

Adjustable range of switching point(s) (PH or PH1 and PH2) (Rising pressure) | 20–250 bar (290–3625 psi)

Catalog numbers
Fluid connection (3) | 1/4" BSP female | XMLF250E2045 | XMLF250D2035
1/4" NPT female | XMLF250E2046 | XMLF250D2036
SAE 7/16-20UNF female | XMLF250E2049 | XMLF250D2039

Weight, g (oz) | 700 (24.69) | 590 (20.81)

Additional specifications not shown under general specifications (page 37)
Possible differential (subtract from:
- PH to get PB
- PH1 & PH2 to get PB1 & PB2) | Min. at low and high setting: 7.5 bar (108.8 psi)
Max. at high setting: 237.5 bar (3443.7 psi)
For each stage:
Min. at low and high setting: 7.5 bar (108.8 psi)
Max. at high setting: 237.5 bar (3443.7 psi)

Maximum permissible accidental pressure | 1000 bar (14,500 psi)
Destructive pressure | 1500 bar (21,750 psi)
Rated supply voltage | 120 VAC, 24 VDC
Voltage limits | 102–132 VAC, 17–33 VDC
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 increments of 1 s
Switching capacity | 2.5 A, AC-15, C300 (120 V / 1.5 A)
Electrical connection | SAE 7/8-16UNF, 5-pin male connector. For suitable female pre-wired connectors, see page 64.
M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 64

(1) Pressure switches with adjustable differential for regulation between 2 thresholds. Relay output.
(2) Pressure switches with 2 adjustable stages and adjustable differential for each threshold. Solid-state outputs.
(3) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15 to +80 °C (5 to 176 °F). Component materials of units in contact with the fluid; see page 37.

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
Electronic pressure sensors
Nautilus™ type XMLF
Size: 400 bar (5800 psi)

<table>
<thead>
<tr>
<th>Type</th>
<th>Pressure transmitters</th>
<th>Universal sensors with adjustable differential. Solid-state and analog outputs (1)</th>
</tr>
</thead>
</table>

Adjustable range of switching point (PH) (Rising pressure) — 32–400 bar (464–5800 psi)
Analog output 4–20 mA 0–10 V 4–20 mA 0–10 V

Catalog numbers
Fluid connection (2) 1/4” BSP female XMLF400D2015 XMLF400D2115 XMLF400D2025 XMLF400D2125
1/4” NPT female XMLF400D2016 XMLF400D2116 XMLF400D2026 XMLF400D2126
SAE 7/16-20UNF female XMLF400D2019 XMLF400D2119 XMLF400D2029 XMLF400D2129

Weight, g (oz) 590 (20.81)

Additional specifications not shown under general specifications (page 37)
Possible differential Min. at low and high setting — 12 bar (174 psi)
Max. at high setting — 380 bar (5510 psi)

Maximum permissible accidental pressure 1200 bar (17,400 psi)
Destructive pressure 1800 bar (26,100 psi)
Rated supply voltage 24 V
Voltage limits 17–33 V
Current consumption 80 mA
Output Programmable, NPN or PNP, and NO or NC
Time delay Adjustable time delay on trip and on reset from 0 to 50 s, in increments of 1 s
Switching capacity 200 mA
Analog output 4–20 mA or 0–10 V, depending on the 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 64.

(1) Pressure sensors with adjustable differential for regulation between 2 thresholds. Solid-state and analog outputs.
(2) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15 to +80 °C (5 to 176 °F). Component materials of units in contact with the fluid: see page 37.

Curves
Analog output curve Pressure sensor operating curves

1 Maximum differential
2 Minimum differential — Adjustable value

Accessories: page 64
Dimensions: page 65
Wiring: page 65

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Electronic pressure sensors
Nautilus™ type XMLF
Size: 400 bar (5800 psi)

<table>
<thead>
<tr>
<th>Type</th>
<th>Pressure switches with adjustable differential and relay output (1)</th>
<th>Dual stage adjustable pressure switches with solid-state outputs (2)</th>
</tr>
</thead>
</table>

Adjustable range of switching point(s) (PH or PH1 and PH2) (Rising pressure) 32–400 bar (464–5800 psi)

**Catalog numbers**

<table>
<thead>
<tr>
<th>Fluid connection (3)</th>
<th>1/4&quot; BSP female XMLF400E2045</th>
<th>XMLF400D2035</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot; NPT female XMLF400E2046</td>
<td>XMLF400D2036</td>
<td></td>
</tr>
<tr>
<td>SAE 7/16-20UNF female XMLF400E2049</td>
<td>XMLF400D2039</td>
<td></td>
</tr>
</tbody>
</table>

Weight, g (oz) 700 (24.69) 590 (20.81)

**Additional specifications not shown under general specifications (page 37)**

- Possible differential (subtract from: – PH to get PB – PH1 & PH2 to get PB1 & PB2)
  - Min. at low and high setting 12 bar (174 psi)
  - Max. at high setting 380 bar (5510 psi)

- Maximum permissible accidental pressure 1200 bar (17,400 psi)

- Destructive pressure 1800 bar (26,100 psi)

- Rated supply voltage 120 V~ 24 V~

- Voltage limits 102–132 V~ 17–33 V~

- Current consumption 32 mA 80 mA 200 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 increments of 1 s

- 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 64 M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 64

**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

---

Accessories: page 64
Dimensions: page 65
Wiring: page 65

---

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### Catalog numbers, specifications

**Electronic pressure sensors**  
**Nautilus™ type XMLF**  
Size: 600 bar (8700 psi)

<table>
<thead>
<tr>
<th>Type</th>
<th>Pressure transmitters</th>
<th>Universal sensors with adjustable differential. Solid-state and analog outputs (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustable range of switching point (PH) (Rising pressure)</td>
<td>—</td>
<td>48–600 bar (696–8700 psi)</td>
</tr>
<tr>
<td>Analog output</td>
<td>4–20 mA</td>
<td>0–10 V</td>
</tr>
<tr>
<td></td>
<td>0–10 V</td>
<td>4–20 mA</td>
</tr>
</tbody>
</table>

#### Catalog numbers

<table>
<thead>
<tr>
<th>Fluid connection</th>
<th>XMLF600D2015</th>
<th>XMLF600D2115</th>
<th>XMLF600D2025</th>
<th>XMLF600D2125</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot; BSP female</td>
<td>XMLF600D2016</td>
<td>XMLF600D2116</td>
<td>XMLF600D2026</td>
<td>XMLF600D2126</td>
</tr>
<tr>
<td>1/4&quot; NPT female</td>
<td>XMLF600D2019</td>
<td>XMLF600D2119</td>
<td>XMLF600D2029</td>
<td>XMLF600D2129</td>
</tr>
<tr>
<td>SAE 7/16-20UNF female</td>
<td>XMLF600D2016</td>
<td>XMLF600D2116</td>
<td>XMLF600D2026</td>
<td>XMLF600D2126</td>
</tr>
</tbody>
</table>

| Weight, g (oz) | 590 (20.81) |

#### Additional specifications not shown under general specifications (page 37)

<table>
<thead>
<tr>
<th>Possible differential (subtract from PH to give PB)</th>
<th>Min. at low and high setting</th>
<th>—</th>
<th>18 bar (261 psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Max. at high setting</td>
<td>—</td>
<td>570 bar (8265 psi)</td>
</tr>
</tbody>
</table>

| Maximum permissible accidental pressure              | 1200 bar (17,400 psi)       |
| Destructive pressure                                  | 1800 bar (26,100 psi)       |
| Rated supply voltage                                  | 24 Vc                       |
| Voltage limits                                        | 17–33 Vc                    |
| 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 increments of 1 s |
| Switching capacity                                   | —                           | 200 mA                       |
| Analog output                                         | 4–20 mA or 0–10 V, depending on the model. Maximum signal level adjustable between 450 and 750 bar (6525 and 10 875 psi) |
| Electrical connection                                | M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 64 |

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

(2) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15 to +80 °C (5 to 176 °F). Component materials of units in contact with the fluid: see page 37.

#### Curves

**Analog output curve**

**Pressure sensor operating curves**

![Analog output curve](image1)

![Pressure sensor operating curves](image2)

1. Maximum differential
2. Minimum differential — Adjustable value
**Electronic pressure sensors**

**Nautilus™ type XMLF**

Size: 600 bar (8700 psi)

<table>
<thead>
<tr>
<th>Type</th>
<th>Pressure switches with adjustable differential and relay output (1)</th>
<th>Dual stage adjustable pressure switches with solid-state outputs (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Adjustable range of switching point(s) (PH or PH1 and PH2) (Rising pressure)

48–600 bar (696–8700 psi)

**Catalog numbers**

<table>
<thead>
<tr>
<th>Fluid connection</th>
<th>XMLF600E2045</th>
<th>XMLF600D2035</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4” BSP female</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/4” NPT female</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAE 7/16-20UNF female</td>
<td>XMLF600E2046</td>
<td>XMLF600D2036</td>
</tr>
<tr>
<td></td>
<td>XMLF600E2049</td>
<td>XMLF600D2039</td>
</tr>
</tbody>
</table>

**Additional specifications not shown under general specifications (page 37)**

<table>
<thead>
<tr>
<th>Possible differential</th>
<th>Min. at low and high setting 18 bar (261 psi)</th>
<th>For each stage:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min. at low and high setting</td>
<td>570 bar (8265 psi)</td>
<td>min. at low and high setting: 18 bar (261 psi) max. at high setting: 570 bar (8265 psi)</td>
</tr>
<tr>
<td>Max. at high setting</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Maximum permissible accidental pressure</th>
<th>1200 bar (17,400 psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Destructive pressure</td>
<td>1800 bar (25,100 psi)</td>
</tr>
<tr>
<td>Rated supply voltage</td>
<td>120 V~ 24 V~</td>
</tr>
<tr>
<td>Voltage limits</td>
<td>102<del>132 V</del> 17<del>33 V</del></td>
</tr>
<tr>
<td>Current consumption</td>
<td>32 mA 80 mA</td>
</tr>
<tr>
<td>Output</td>
<td>Relay Programmable, NPN or PNP, and NO or NC</td>
</tr>
<tr>
<td>Time delay</td>
<td>Adjustable time delay on trip and on reset from 0 to 50 s, in increments of 1 s</td>
</tr>
<tr>
<td>Switching capacity</td>
<td>2.5 A, AC-18, C300 (120 V / 1.5 A) 200 mA</td>
</tr>
<tr>
<td>Electrical connection</td>
<td>SAE 7/8-16UN, 5-pin male connector. For suitable female pre-wired connectors, see page 64</td>
</tr>
<tr>
<td></td>
<td>M12, 4-pin male connector. For suitable female connectors, including pre-wired versions, see page 64</td>
</tr>
</tbody>
</table>

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

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

(3) Fluids controlled: hydraulic oils, fresh water, sea water, air, corrosive fluids, from -15 to +80 °C (5 to 176 °F). Component materials of units in contact with the fluid: see page 37.

**Pressure switch operating curves**

(Curve for each stage for dual stage pressure switches)

1. Maximum differential
2. Minimum differential

---

<table>
<thead>
<tr>
<th>Accessory</th>
<th>Dimensions</th>
<th>Wiring</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>page 64</td>
<td>page 65</td>
</tr>
</tbody>
</table>
Electronic pressure sensors

Nautilus™ Universal, Osiconcept™, type XMLF

Accessories and replacement parts

Catalog numbers

<table>
<thead>
<tr>
<th>Description</th>
<th>Catalog number</th>
<th>Weight (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transparent cover with legends</td>
<td>XMLZL007</td>
<td>20 (0.71)</td>
</tr>
<tr>
<td>Sealing gasket</td>
<td>XMLZL010</td>
<td>15 (0.53)</td>
</tr>
</tbody>
</table>

Accessories

<table>
<thead>
<tr>
<th>Description</th>
<th>Catalog number</th>
<th>Weight (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixing bracket</td>
<td>XMLZL008</td>
<td>37 (1.31)</td>
</tr>
<tr>
<td>Cooler for versions with 1/4” BSP</td>
<td>XMLZL009</td>
<td>370 (13.05)</td>
</tr>
</tbody>
</table>

Usage temperature: 150 °C (302 °F) max. for the fluid, 50 °C (122 °F) for the ambient air

Connectors

<table>
<thead>
<tr>
<th>Description</th>
<th>Length of cable (m (ft))</th>
<th>Catalog number</th>
<th>Weight (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-wired M12, straight, female</td>
<td>2 (6.6)</td>
<td>XZCP1141L2</td>
<td>115 (4.06)</td>
</tr>
<tr>
<td>connectors (Black PVR)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 (16.4)</td>
<td>XZCP1141L5</td>
<td>270 (9.52)</td>
</tr>
<tr>
<td></td>
<td>10 (32.8)</td>
<td>XZCP1141L10</td>
<td>520 (18.34)</td>
</tr>
<tr>
<td>Pre-wired M12, straight, female</td>
<td>2 (6.6)</td>
<td>XZSCD101Y</td>
<td>90 (3.17)</td>
</tr>
<tr>
<td>connectors (Yellow PVC)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 (16.4)</td>
<td>XZSCD102Y</td>
<td>190 (6.70)</td>
</tr>
<tr>
<td></td>
<td>10 (32.8)</td>
<td>XZSCD103Y</td>
<td>370 (13.05)</td>
</tr>
<tr>
<td>Pre-wired M12, 90°, female connectors</td>
<td>2 (6.6)</td>
<td>XZCP1241L2</td>
<td>115 (4.06)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 (16.4)</td>
<td>XZCP1241L5</td>
<td>270 (9.52)</td>
</tr>
<tr>
<td></td>
<td>10 (32.8)</td>
<td>XZCP1241L10</td>
<td>520 (18.34)</td>
</tr>
<tr>
<td>Pre-wired 7/8”16UN, straight</td>
<td>2 (6.6)</td>
<td>XZCP1764L2</td>
<td>185 (6.53)</td>
</tr>
<tr>
<td>female connectors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 (16.4)</td>
<td>XZCP1764L5</td>
<td>460 (16.23)</td>
</tr>
<tr>
<td></td>
<td>10 (32.8)</td>
<td>XZCP1764L10</td>
<td>900 (31.75)</td>
</tr>
<tr>
<td>M12 Snap-C™, straight, female</td>
<td>-</td>
<td>XZCC12FDM40V</td>
<td>520 (18.34)</td>
</tr>
<tr>
<td>connector (1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M12–M12 jumper cables with</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>straight male connector, for</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>splitter box</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st stage solid-state output</td>
<td>1 (3.3)</td>
<td>XZCR1511041C1</td>
<td>65 (2.29)</td>
</tr>
<tr>
<td>2nd stage solid-state output</td>
<td>2 (6.6)</td>
<td>XZCR1511041C2</td>
<td>95 (3.35)</td>
</tr>
<tr>
<td>90° female connector</td>
<td>1 (3.3)</td>
<td>XZCR1512041C1</td>
<td>65 (2.29)</td>
</tr>
<tr>
<td></td>
<td>2 (6.6)</td>
<td>XZCR1512041C2</td>
<td>95 (3.35)</td>
</tr>
</tbody>
</table>

(1) Connector incorporating IDCs (insulation displacement connectors) for quick, direct, in-line connection to cable without a screwdriver or soldering iron.

(2) Available with other fluid connections (1/4” NPT and SAE 7/16-20 UNF).
Electronic pressure sensors
Nautilus™ Universal, Osicontact™, type XMLF
Accessories and replacement parts

Dimensions, mm (in.)

<table>
<thead>
<tr>
<th>Description</th>
<th>XMLZL008</th>
<th>XMLF0002D2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female fluid entry</td>
<td>12.45 (0.49)</td>
<td>138 (5.43)</td>
</tr>
<tr>
<td>Ø31.2 (1.23)</td>
<td>9.63 (0.38)</td>
<td>7/8&quot; 16 UN</td>
</tr>
<tr>
<td>Ø14 (0.55)</td>
<td>2 (0.08)</td>
<td>1.5 (0.06)</td>
</tr>
</tbody>
</table>

(1) Female fluid entry
XMLFD2008: G 1/4 A (BSP)
XMLFD2008: 1/4" NPT
XMLFD2008: SAE 7/16-20UNF

XMLZL010

<table>
<thead>
<tr>
<th>Description</th>
<th>XMLZL008</th>
<th>XMLF0002D2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female fluid entry</td>
<td>Ø14 (0.55)</td>
<td>Ø19 (0.75)</td>
</tr>
<tr>
<td>Ø14 (0.55)</td>
<td>Ø19 (0.75)</td>
<td></td>
</tr>
<tr>
<td>1.5 (0.06)</td>
<td>2 (0.08)</td>
<td>1.5 (0.06)</td>
</tr>
<tr>
<td>1.5 (0.06)</td>
<td>2 (0.08)</td>
<td>1.5 (0.06)</td>
</tr>
</tbody>
</table>

(1) Female fluid entry
XMLFD2008: G 1/4 A (BSP)
XMLFD2008: 1/4" NPT
XMLFD2008: SAE 7/16-20UNF

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- Freedom in implementation

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- User-friendly product operation, either directly or remotely

**Openness**
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- Enabling of decentralized or remote surveillance via the Web with Transparent Ready products

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