

**Pressure measuring transducers / switches / monitors for volume flow,  
differential pressure, filter monitoring and liquid level detection,  
incl. connection set**

S+S REGELTECHNIK

The electronic **PREMASREG® 716x** pressure sensor and switch is equipped with measuring functions for volume flow, differential pressure, filter monitoring and liquid level detection based on pressure measurement in clean air. The devices with a housing made from impact-resistant plastic, with cable gland or M12 connector according to DIN EN 61076-2-101 and pressure connection nozzles (quick connect optional) are fitted with one switching output, one continuous output and one backlit display for setting the switching point and displaying the ACTUAL values. The piezoresistive measuring element guarantees a high degree of reliability and accuracy.

This pressure sensor is used in clean room, medical and filter technology, in ventilation and air conditioning ducts, in spray booths, in large-scale catering facilities, for filter monitoring and level measurement or for triggering frequency converters. The medium measured is air (non-precipitating), or other gaseous, non-aggressive, non-combustible media.

It has a manual zero point pushbutton and an offset potentiometer for final value correction. Parameter entry is menu-based and is easy to perform using three buttons with the help of the display. The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible. A connection set **ASD-06** (2 m connection hose, two pressure nipples, screws) is included in the scope of supply.

#### TECHNICAL DATA

Power supply:	24 V AC / DC ( $\pm 10\%$ ) and 15...36 V DC
Load resistance:	$R_L > 5\text{ k}\Omega$
Power consumption:	$< 1.5\text{ VA} / 24\text{ V DC}$ , $< 2.8\text{ VA} / 24\text{ V AC}$
Measuring function:	<b>Volume flow, differential pressure, filter monitoring, fill level</b> (adjustable)
Measuring ranges:	<b>10...100%</b> (adjustable)
Type of pressure:	differential pressure
Pressure connection:	with connection <b>nozzle</b> for pressure hose $\varnothing 6\text{ mm}$ , optionally with <b>quick</b> connect made from stainless steel for PVC fabric pressure hose $\varnothing 6\text{ mm}$ (external diameter)
Medium:	clean air and non-aggressive, non-combustible gases
Media temperature:	$-20...+50\text{ }^\circ\text{C}$
Accuracy:	<b>Type 7161</b> (1000 Pa): typically $\pm 5\text{ Pa}$ <b>Type 7165</b> (5000 Pa): typically $\pm 25\text{ Pa}$ compared to the calibrated reference device
Sum of linearity+hysteresis:	$< \pm 1\%$ of final value (pressure)
Temp. drift values:	$\pm 0.1\% / ^\circ\text{C}$
Positive / negative pressure:	max. $\pm 10000\text{ Pa}$
Signal hysteresis:	$\pm 1\%$ of final value (pressure) 10 Pa / 50 Pa
Signal filtering:	<b>switchable 1 s / 10 s</b> (via DIP switches) and small value suppression $< 1\%$
Output:	0-10 V 1 changeover contact (24 V), 1 A ohmic load
Connection type:	3-wire connection
Electrical connection:	0.14 - 1.5 mm <sup>2</sup> , via plug-in screw terminal
Cable connection:	<b>cable gland</b> , plastic (M 16 x 1.5; with strain relief, exchangeable, max. inner diameter 10.4 mm) <b>or</b> <b>M12 connector</b> (male, <b>12-pin</b> , A-code) according to DIN EN 61076-2-101
Housing:	<b>plastic</b> , UV-resistant, material polyamide, 30 % glass-globe reinforced, with quick-locking screws (slotted / Phillips head combination), colour traffic white (similar to RAL 9016), cover for display is transparent!
Housing dimensions:	126 x 90 x 50 mm (Tyr 2)
Air humidity:	$< 95\%$ RH, non-precipitating air
Protection class:	III (according to EN 60730)
Protection type:	<b>IP 65</b> (according to EN 60529) in the built-in state
Standards:	CE conformity according to EMC Directive 2014 / 30 / EU, according to EN 61326-1, according to EN 61326-2-3
Equipment:	<b>display with illumination</b> , three-line, cutout approx. 70 x 40 mm (W x H), for displaying the <b>volume flow, differential pressure, contamination degree or level</b> and for setting the <b>switchpoint, K factor, measuring range limits</b> and other settings
K factor:	<b>1 to 3000</b> (adjustable)
Units:	<b>m<sup>3</sup>/s, m<sup>3</sup>/min, m<sup>3</sup>/h, l/s, l/min, l/h, %, cm</b> (adjustable)
Max. value displayed:	999999
<b>ACCESSORIES</b>	see table

Pressure port  
for pressure hose  
(as standard)





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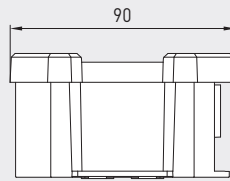
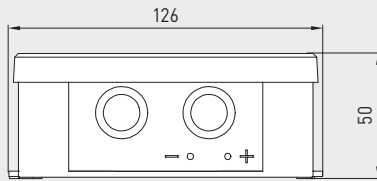
PREMASREG® 716x

Pressure measuring transducers/switches/monitors for volume flow,  
differential pressure, filter monitoring and liquid level detection,  
incl. connection set



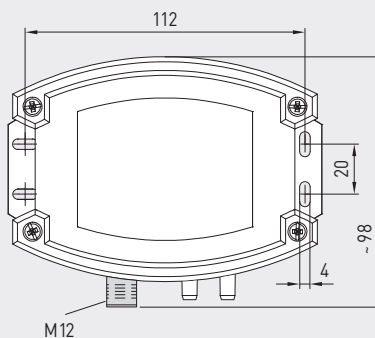
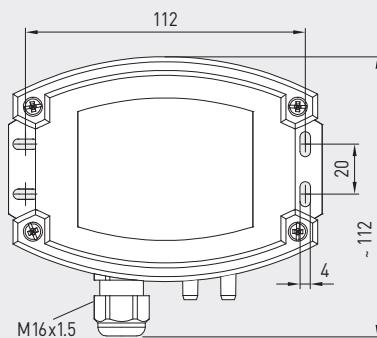
Dimensional drawing  
[mm]

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Housing with  
**cable gland**  
equipped as standard with  
pressure port **nozzles**

Housing with  
**M12 connector**  
equipped as standard with  
pressure port **nozzles**



Pressure port  
for pressure hose  
(as standard)



M12 connector  
(male)



PREMASREG® 716x-Q  
with M12 connector  
and display

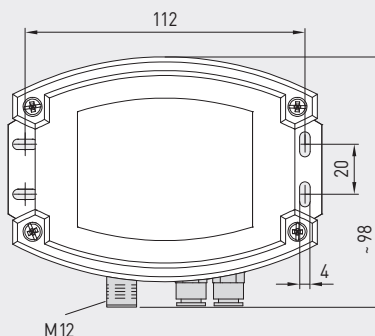
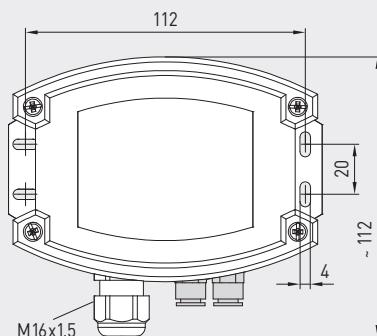


Dimensional drawing  
[mm]

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Housing with  
**cable gland**  
**optional** on request  
with **quick connect**

Housing with  
**M12 connector**  
**optional** on request  
with **quick connect**



Pressure port for  
PVC/fabric pressure hose  
(optional)



M12 connector  
(male)

Pressure port for  
PVC/fabric pressure hose  
(optional)

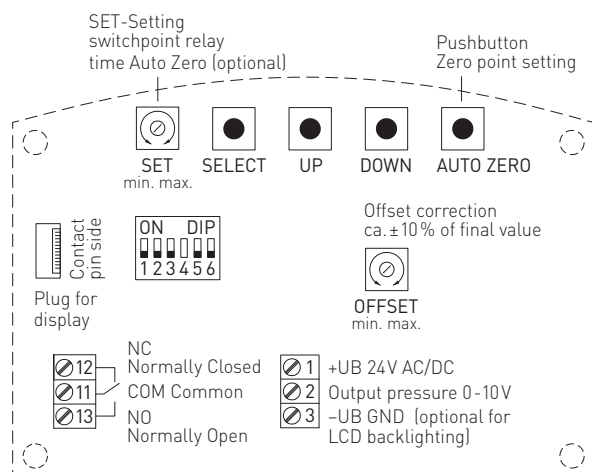


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## Schematic diagram

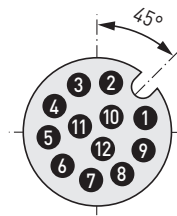
## PREMASREG® 716x-UW



DIP switch 4 is not assigned!

## Pin assignment (M12)

## PREMASREG® 716x-UW



- 1 +UB 24V AC / 15...36V DC
- 2 Output pressure 0-10V
- 3 free
- 4 -UB GND
- 5 free
- 6 free
- 7 COM Common
- 8 NC Normally Closed
- 9 NO Normally Open
- 10 free
- 11 free
- 12 free

Measuring range mode (Mode selectable)	DIP 1
Unidirectional (0...+MR) (default)	OFF
Bidirectional (-MR...+MR)	ON

Small value suppression (measured values < 1% of end value (pressure) = 0)	DIP 2
Deactivated (default)	OFF
Active	ON

Relay (Function adjustable)	DIP 3
Deactivated (default)	OFF
Active (display shows switching point)	ON

Measurement signal filtering (Time interval selectable)	DIP 5
10 s (default)	OFF
1 s	ON

Service mode (display adjustable)	DIP 6
Standard (according to configuration) (default)	OFF
Service (differential pressure in Pa)	ON

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Function types

## Volumeflow rate

$$V = k \cdot \sqrt{\Delta p}$$

V = Volume flow in m³/h

k = K factor 1...3000

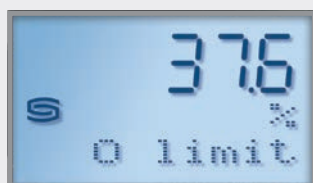
Δp = Differential pressure in Pa



## Differential pressure

$$\Delta p = p_+ - p_-$$

Δp = Differential pressure in Pa

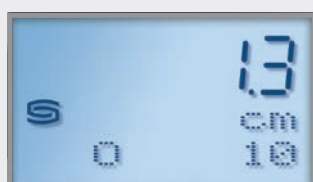
p<sub>+</sub> = higher pressurep<sub>-</sub> = lower pressure

## Filter contamination

$$S = 100\% \cdot \Delta p \div p_{Filter}$$

S = Contamination degree in %

Δp = Differential pressure in Pa

p<sub>Filter</sub> = differential pressure filter replacement in Pa

## Level display

$$h = \Delta p \div (\rho \cdot g)$$

h = Fill level height in cm

Δp = Differential pressure in Pa

ρ = Density 700...1300 in kg/m³

g = 9.81 m/s²



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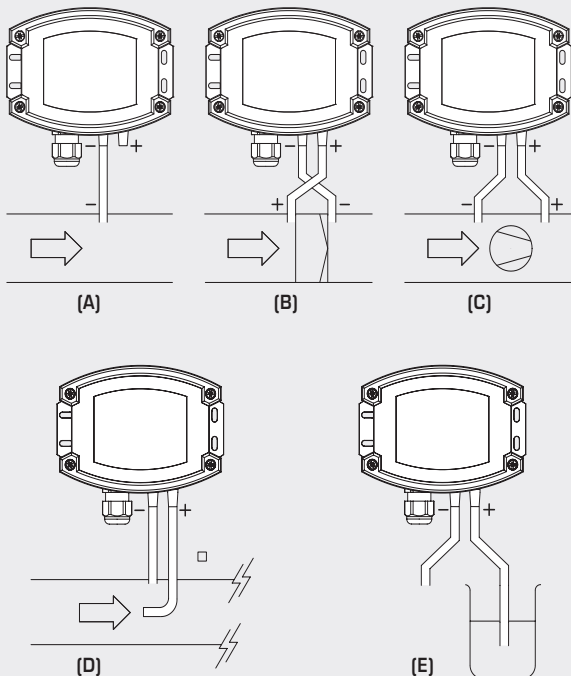
Pressure measuring transducers/switches/monitors for volume flow,  
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PREMASREG® 716x-Q  
with display,  
hinged



Mounting diagram

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#### TYPES OF MONITORING:

##### (A) Below-atmospheric pressure:

P1 (+) is not connected,  
but open to the atmosphere  
P2 (-) connected to inside of duct

##### (B) Filter:

P1 (+) connected upstream of filter  
P2 (-) connected downstream of filter

##### (C) Ventilator:

P1 (+) connected downstream of ventilator  
P2 (-) connected upstream of ventilator

##### (D) Volume flow:

P1 (+) dynamic pressure,  
Connected in flow direction  
P2 (-) static pressure,  
Connected free of dynamic pressure components

##### (E) Level:

P1 (+) Connection submerged in medium  
P2 (-) Connection is open to the atmosphere

Pressure connections at the pressure switch are marked with  
P1 (+) for higher pressure and  
P2 (-) for lower pressure.

Conversion table for pressure values:

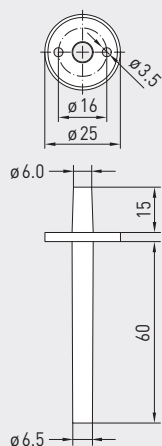
Unit =	bar	mbar	Pa	kPa	mWS
1 Pa	0,00001 bar	0,01 mbar	1 Pa	0,001 kPa	0,000101971 mWS
1 kPa	0,01 bar	10 mbar	1000 Pa	1 kPa	0,101971 mWS
1 bar	1 bar	1000 mbar	100000 Pa	100 kPa	10,1971 mWS
1 mbar	0,001 bar	1 mbar	100 Pa	0,1 kPa	0,0101971 mWS
1 mWS	0,0980665 bar	98,0665 mbar	9806,65 Pa	9,80665 kPa	1 mWS

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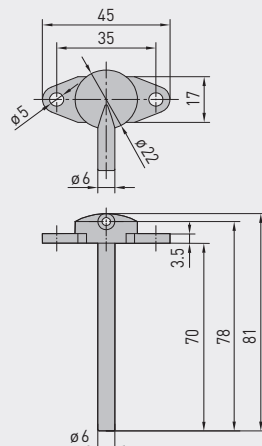
Dimensional drawing  
[mm]

ASD-06



Dimensional drawing  
[mm]

ASD-07



ASD-06  
Connection set



ASD-07  
Connection nipple



WS-03  
Weather and sun protection hood  
(optional)

Pressure port for  
pressure hose  
(as standard)



Pressure port for  
PVC/fabric pressure hose  
(optional)



## ACCESSORIES

ASD-06	Connection set (included in the scope of delivery), consisting of 2 connection nipples (straight) made of ABS, 2 m PVC hose (soft, UV-resistant) and 4 screws	7100-0060-3000-000	7,64 €
ASD-07	2 connection nipples (at 90 degree angle) made of plastic, ABS	7100-0060-7000-000	7,64 €
WS-03	Weather and sun protection hood, 200 x 180 x 150 mm, stainless steel V2A (1.4301)	7100-0040-6000-000	44,74 €

For further information, see chapter Accessories!



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PREMASREG® 716x-Q  
with M12 connector



PREMASREG® 716x  
with cable gland



## PREMASREG® 716x

Pressure measuring transducers / switches / monitors for volume flow,  
differential pressure, filter monitoring and liquid level detection, *Deluxe*  
(with cable gland or M12 connector)

Measuring Range Pressure / Volume Flow	Type / WG02	Output	Display ● = Q	Item No.	Price
<b>0...1000 Pa</b>					
<b>Type 7161</b>					
<b>k = 3000</b> <b>94800 m³/h</b>	PREMASREG 7161-UW    LCD	0-10V 1x Changeover contact	■	1302-7161-4161-200	<b>278,15 €</b>
	PREMASREG 7161-UW <b>Q</b> LCD	0-10V 1x Changeover contact	● ■	2004-6132-4100-021	<b>320,06 €</b>
<b>0...5000 Pa</b>					
<b>Type 7165</b>					
<b>k = 3000</b> <b>212100 m³/h</b>	PREMASREG 7165-UW    LCD	0-10V 1x Changeover contact	■	1302-7161-4171-200	<b>278,15 €</b>
	PREMASREG 7165-UW <b>Q</b> LCD	0-10V 1x Changeover contact	● ■	2004-6132-4100-031	<b>320,06 €</b>
<b>Housing variant "Q":</b> Cable connection with <b>M12 connector</b> (male, <b>12-pin</b> , A-code)					
<b>Multi-range switching:</b> The <b>pressure ranges</b> depend on the device type and can be set via DIP switches.					
<b>Extra charge:</b> <b>with optional quick connect</b> for PVC fabric pressure hose Ø 6 mm					<b>41,94 €</b>