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

S+S REGELTECHNIK

The electronic **PREM**ASREG® **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.

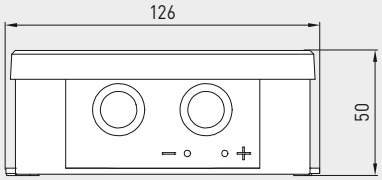
TECHNICAL DATA

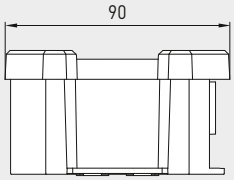
Power supply:	24 V AC/DC (± 10 %)
Load resistance:	R_L > 15 kOhm
Power consumption:	< 2 W / 24 V DC; < 4.4 VA / 24 V AC
Measuring function:	**volume flow, differential pressure, filter monitoring, fill level** (adjustable)
Measuring ranges:	**10...100%** (adjustable)
Type of pressure:	differential pressure
Pressure connection:	with connection **nozzle** for pressure hose Ø 6 mm, optionally with **quick** connect made from stainless steel for PVC fabric pressure hose Ø 6 mm (external diameter)
Medium:	clean air and non-aggressive, non-combustible gases
Media temperature:	–20...+50 °C (temperature-compensated 0...+50 °C)
Accuracy:	**Type 7161** (1000 Pa): typically ± 10 Pa **Type 7165** (5000 Pa): typically ± 35 Pa compared to the calibrated reference device
Sum of linearity+hysteresis:	< ± 1 % of final value (pressure)
Temp. drift values:	± 0.1 % / °C
Positive / negative pressure:	± 50 kPa
Signal hysteresis:	± 1 % of final value (pressure) 10 Pa / 50 Pa
Signal filtering:	**switchable 1 s / 10 s** (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:	0,2-1,5 mm², using push-in terminals
Cable connection:	**cable gland**, plastic (M 16 x 1.5; with strain relief, exchangeable, max. inner diameter 10.4 mm) **or** **M12 connector** (male, **12-pin**, A-code) according to DIN EN 61076-2-101
Housing:	plastic, 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 60 730)
Protection type:	**IP 65** (according to EN 60 529) in the built-in state
Standards:	CE conformity according to EMC Directive 2014 / 30 / EU
Equipment:	**display with illumination,** three-line, cutout approx. 70 x 40 mm (W x H), for displaying the **volume flow, differential pressure, contamination degree** or **level** and for setting the **switchpoint, K factor, measuring range limits** and other settings
K factor:	**1 to 3000** (adjustable)
Units:	**m³/s, m³/min, m³/h, l/s, l/min, l/h, %, cm** (adjustable)
Max. value displayed:	999999
ACCESSORIES	see table

Pressure port for pressure hose (as standard)

Dimensional drawing
[mm]

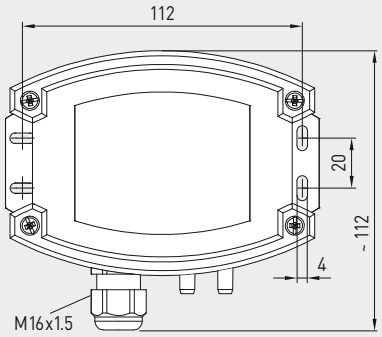
PREMASREG® **716x**

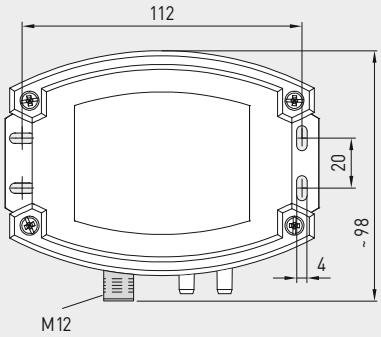


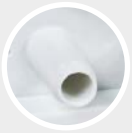


Housing with
cable gland
equipped as standard with
pressure port **nozzles**

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







Pressure port
for pressure hose
(as standard)

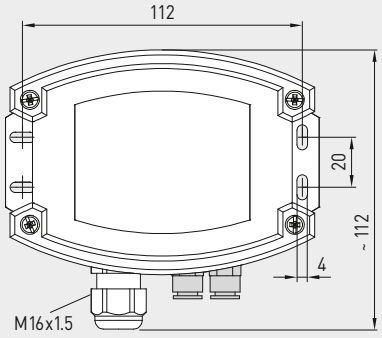
M12 connector
(male)

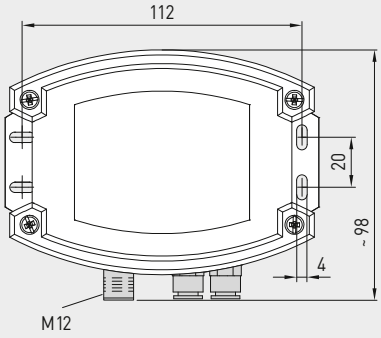
Dimensional drawing
[mm]

PREMASREG® **716x**

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)

PREMASREG® **716x**
with cable gland
and display

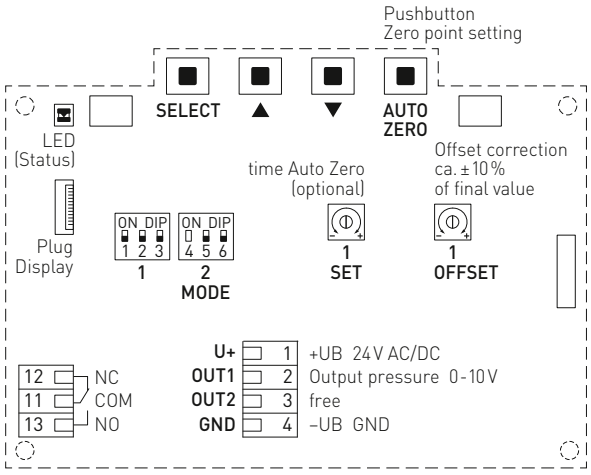
PREMASREG® **716x-Q**
with M12 connector
and display

Pressure port for
PVC/fabric pressure hose
(optional)

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

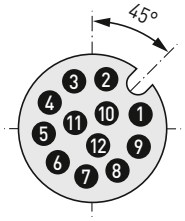
S+S REGELTECHNIK

Schematic diagram — **PREMASREG® 716x-UW**



DIP switch 4 is not assigned!

Pin assignment (M12) — **PREMASREG® 716x-UW**



1. +UB 24V AC/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**
Bidirectional (–MR...+MR)	ON
Unidirectional (0...+MR) (default)	**OFF**

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

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

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

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

PREMASREG® 716x
Function types

Volumolume flow 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_+ = higher pressure
p_- = lower pressure

Filter contamination

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

S = Contamination degree in %
Δp = Differential pressure in Pa
p_{Filter} = differential pressure filter replacement in Pa

Level display

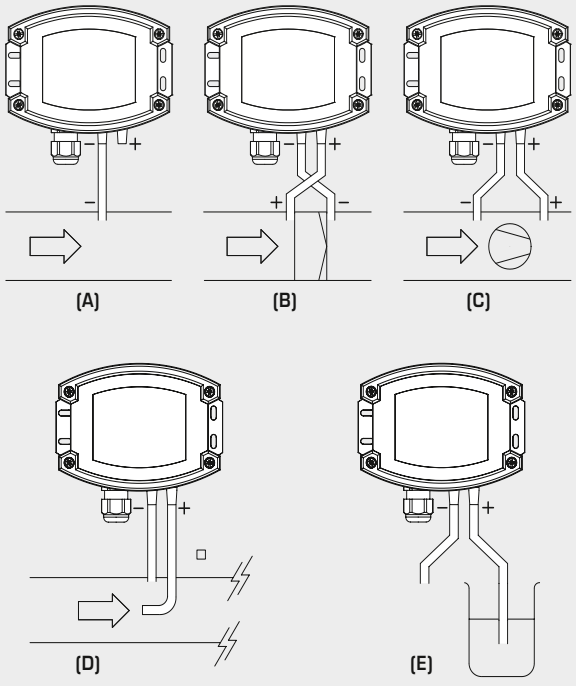
$$h = \Delta p \div (\rho \cdot g)$$

h = Fill level height in cm
Δp = Differential pressure in Pa
ρ = Density 700...1300 in kg/m³
g = 9.81 m/s²

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

PREMASREG® **716x - Q**
with display,
hinged

Mounting diagram **PREM**ASREG® **716x**



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

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

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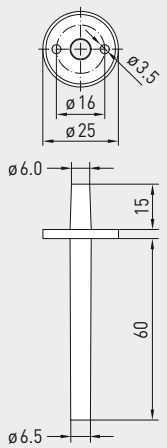
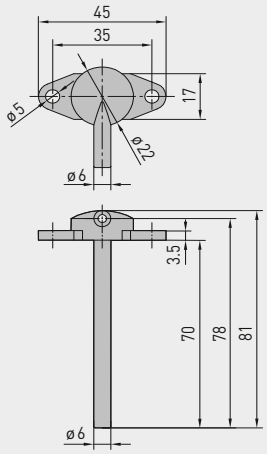
Dimensional drawing [mm] **ASD-06**



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
ASD-07	**2 connection nipples** (at 90 degree angle) made of plastic, ABS	7100-0060-7000-000
WS-03	**Weather and sun protection hood**, 200 x 180 x 150 mm, stainless steel **V2A** (1.4301)	7100-0040-6000-000
	For further information, see chapter Accessories!	

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.**
0...1000 Pa	**Type 7161**				
k = 3000 **94800 m³/h**	PREMASREG 7161-UW	LCD	0-10 V 1x Changeover contact	■	1302-7161-4161-200
	PREMASREG 7161-UW **Q**	LCD	0-10 V 1x Changeover contact	● ■	2004-6132-4100-021
0...5000 Pa	**Type 7165**				
k = 3000 **212100 m³/h**	PREMASREG 7165-UW	LCD	0-10 V 1x Changeover contact	■	1302-7161-4171-200
	PREMASREG 7165-UW **Q**	LCD	0-10 V 1x Changeover contact	● ■	2004-6132-4100-031
Housing variant "Q":	Cable connection with **M12 connector** (male, **12-pin**, A-code)				
Multi-range switching:	The **pressure ranges** depend on the device type and can be set via DIP switches.				
Extra charge:	**with optional quick connect** for PVC fabric pressure hose Ø 6 mm				