

Pressure, differential pressure and volume flow measuring transducers, including connection set, compact form, adjustable, calibratable, with multi-range switching and active output

The calibrateable compact pressure sensors of the **PREMASGARD® 211x/212x/212x-SD** series are equipped with 8 switchable measuring ranges, 2 switchable output signals (16 devices in one) and with or without optional display and are used for measuring above-atmospheric, below-atmospheric, or differential pressures and Volume flow in air. The piezo-resistive measuring element is temperature-compensated and guarantees a high degree of reliability and accuracy. These pressure transmitters have a pushbutton for manual zero point calibration and an adjustable offset. Applications of these pressure sensors are in clean room, medical and filter technology, in ventilation and air conditioning ducts, in spray booths, in large-scale catering facilities, for monitoring filters, for level measurement or for triggering frequency converters. Media measured with these pressure transducers are air (non-precipitating), or other gaseous non-aggressive, non-combustible media. The differential pressure sensor is supplied including connection set **ASD-06** (2 m connection hose, two pressure connection nipples, screws). You can find further device types under **PREMASGARD® 111x/112x/112x-SD** (I variant with 2-wire connection).

TECHNICAL DATA

Power supply:	24 V AC/DC (± 10 %)
Working resistance:	R _a (Ohm) = 25 ... 450 Ohm for I variant
Load resistance:	R _L > 25 kOhm for U variant
Power consumption:	< 1 W at 24 V DC; < 2 VA at 24 V AC
Current consumption:	< 45 mA
Measuring function:	Differential pressure, volume flow (square root output signal)
Measuring ranges:	multi-range switching with 8 switchable measuring ranges (see table)
Output:	switchable 0-10V / 4...20 mA (via DIP switches)
Electrical connection:	3-wire connection
Media temperature:	-20...+50 °C (temperature-compensated 0...+50 °C)
Pressure connection:	with connection nozzles for pressure hose Ø 6 mm
Type of pressure:	differential pressure
Medium:	clean air and other non-aggressive, non-combustible gases
Accuracy:	Type 2110/2120/2120-SD (100 Pa): typically ± 3 Pa at +25 °C Type 2111/2121/2121-SD (1000 Pa): typically ± 10 Pa at +25 °C Type 2115/2125/2125-SD (5000 Pa): typically ± 35 Pa at +25 °C compared to the calibrated reference device
Zero point offset:	± 10 % of final value
Above- / below-atmospheric pressure:	± 50 kPa
Long-term stability:	± 1 % per year
Signal filtering:	switchable 1 s / 10 s (via DIP switches)
Hysteresis:	0.3 % of final value
Media contacting parts:	Brass, Ni, Duroplast, Si, epoxy, RTV, BSG, UV silicone gel
Temperature drift values:	± 0.1 % of final value / °C
Linearity:	< ± 1 % of final value
Housing:	plastic, UV-resistant, material polyamide, 30 % glass-globe reinforced, colour traffic white (similar to RAL 9016), housing cover for display is transparent! Type 211x/212x: with quick-locking screws (slotted/Phillips head combination) Type 212x-SD: with snap-on lid
Housing dimensions:	72 x 64 x 37.8 mm (Tyr 1 / Tyr 01 without display) 72 x 64 x 43.3 mm (Tyr 1 / Tyr 01 with display)
Cable connection:	cable gland , plastic (M 16 x 1.5; with strain relief, exchangeable, max. inner diameter 10.4 mm) or M12 connector according to DIN EN 61076-2-101 (optional on request)
Electrical connection:	0.14 - 1.5 mm ² , via terminal screws
Humidity:	< 95 % r. H., non-precipitating air
Protection class:	III (according to EN 60730)
Protection type:	Type 211x/212x: IP 67 (according to EN 60529)* Housing tested, TÜV SÜD, Report No. 713139052 (Tyr 1) Type 212x-SD: IP 54 (according to EN 60529)* Housing tested, TÜV SÜD, Report No. 713160960A (Tyr 01) * Housing in the built-in state
Standards:	CE conformity, electromagnetic compatibility according to EN 61326, EMC directive 2014 / 30 / EU
Features:	two-line display with illumination , cutout approx. 36 x 15 mm (W x H), to display ACTUAL pressure
ACCESSORIES	see table

PREMASGARD® 211x
Pressure connectors **on the top side**, with quick-locking screws (IP 67)



PREMASGARD® 212x
Pressure connectors **on the bottom side**, with quick-locking screws (IP 67)



PREMASGARD® 212x-SD
Pressure connectors **on the bottom side**, with snap-on lid (IP 54)





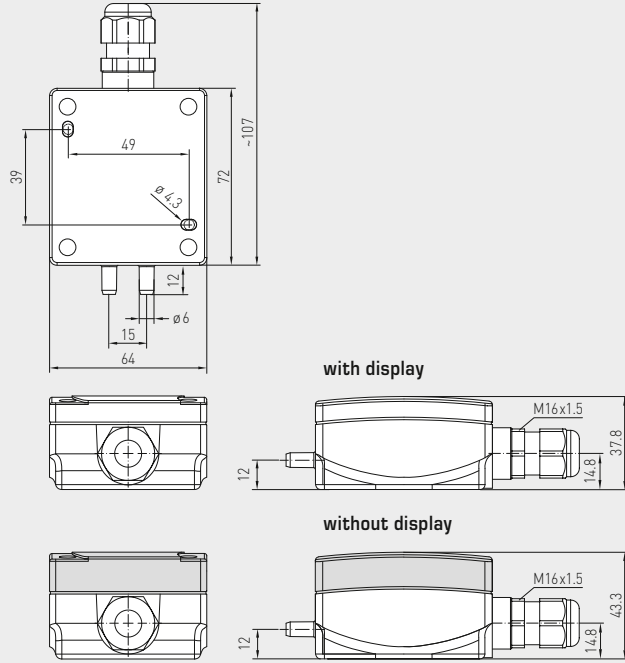
S+S REGELTECHNIK

Pressure, differential pressure and volume flow measuring transducers, including connection set, compact form, adjustable, calibratable, with multi-range switching and active output



Dimensional drawing

PREMASGARD® 211x

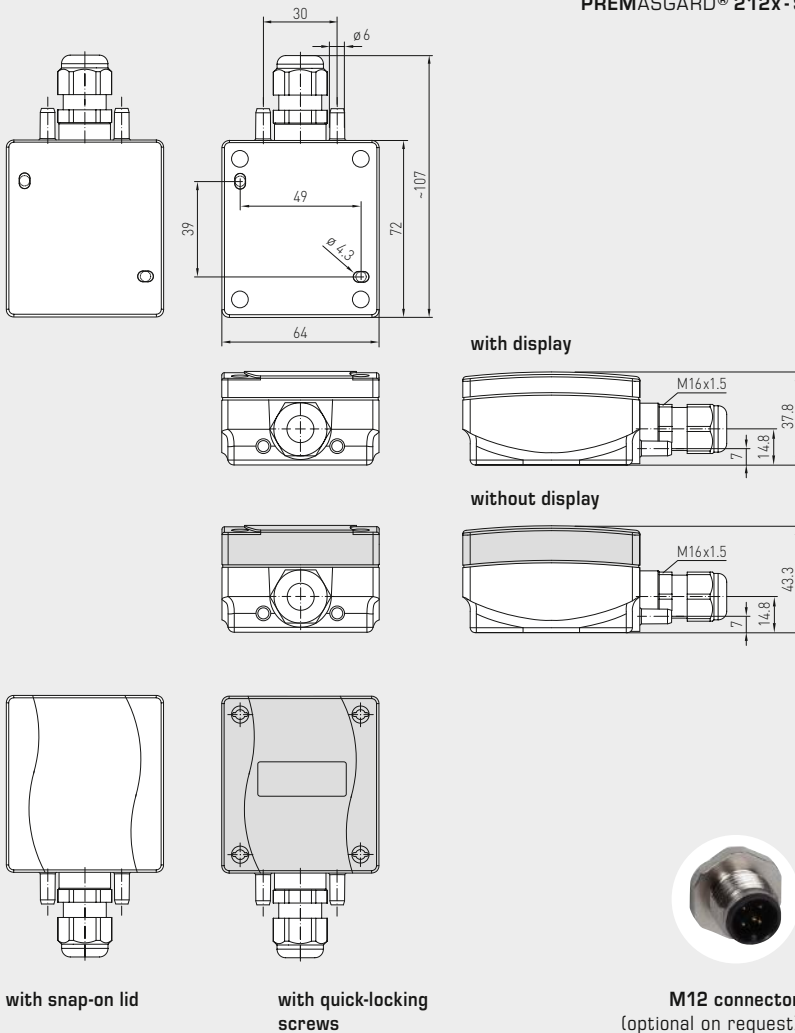


PREMASGARD® 211x Pressure connectors on the top side, with display, with quick-locking screws (IP67)



Dimensional drawing

PREMASGARD® 212x
PREMASGARD® 212x-SD



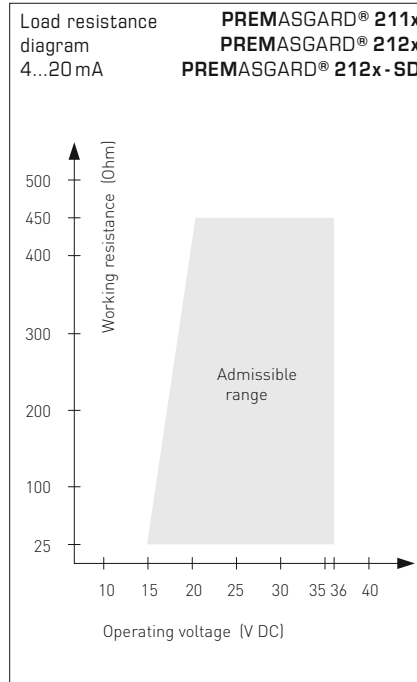
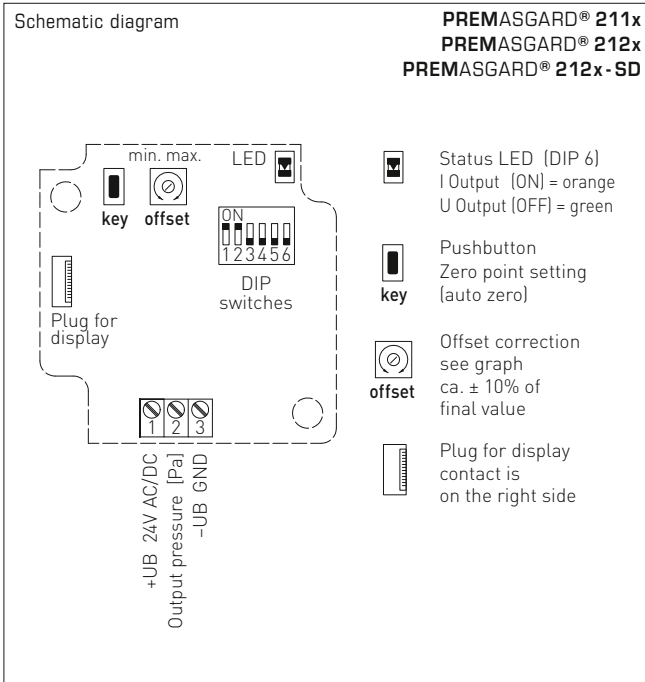
PREMASGARD® 212x Pressure connectors on the bottom side, with display, with quick-locking screws (IP67)



PREMASGARD® 212x-SD Pressure connectors on the bottom side, with display, with snap-on lid (IP54)



Pressure, differential pressure and volume flow measuring transducers, including connection set, compact form, adjustable, calibratable, with multi-range switching and active output



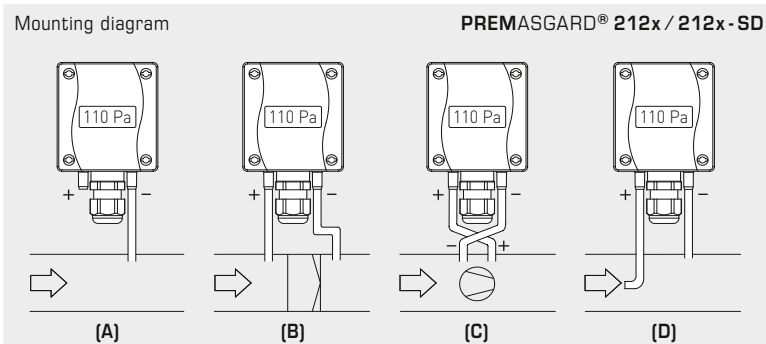
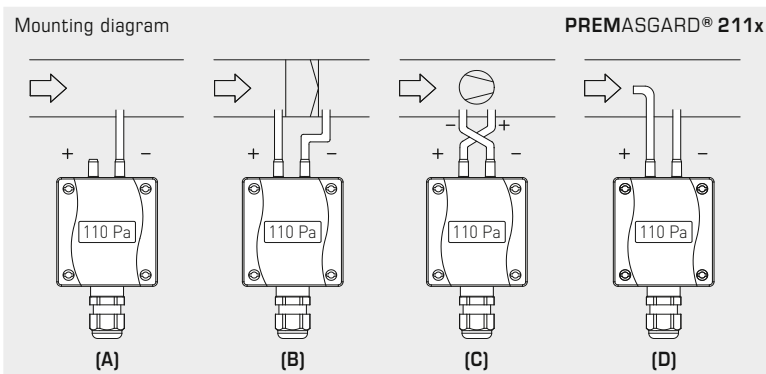
Pressure range (selectable) – max. measuring range (default) is depending to the type of device						DIP 1	DIP 2
0...50 Pa	0...100 Pa	0...1000 Pa	-50...+50 Pa	-100...+100 Pa	-1000...+1000 Pa	OFF	OFF
-	0...300 Pa	0...2000 Pa	-	-300...+300 Pa	-2000...+2000 Pa	ON	OFF
-	0...500 Pa	0...3000 Pa	-	-500...+500 Pa	-3000...+3000 Pa	OFF	ON
0...100 Pa	0...1000 Pa	0...5000 Pa	-100...+100 Pa	-1000...+1000 Pa	-5000...+5000 Pa	ON	ON

Output characteristic line (Mode selectable)	DIP 4
Linear (default) (for pressure detection)	OFF
Square root extracting (to determine the volume flow)	ON

Measuring range mode (Mode selectable)	DIP 3
Unidirectional (0...+MR) (default)	OFF
Bidirectional (-MR...+MR)	ON

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

Output (selectable)	DIP 6
Voltage 0-10 V (default)	OFF
Current 4...20 mA	ON



TYPES OF MONITORING:

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

(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

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

V = Volume flow

k = K factor

Δp = Differential pressure [Pa]



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PREMAGARD® 211x
Pressure connectors
on the top side,
with display



PREMAGARD® 212x
Pressure connectors
on the bottom side,
with display



WS-04
Weather and sun protection hood
(optional)



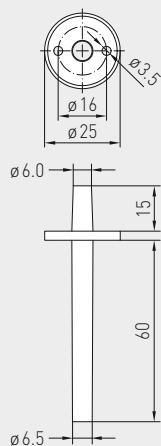
Conversion table for pressure values:

Unit =	bar	mbar	Pa	kPa	mH ₂ O
1 Pa	0.00001 bar	0.01 mbar	1 Pa	0.001 kPa	0.000101971 mH ₂ O
1 kPa	0.01 bar	10 mbar	1000 Pa	1 kPa	0.101971 mH ₂ O
1 bar	1 bar	1000 mbar	100000 Pa	100 kPa	10.1971 mH ₂ O
1 mbar	0.001 bar	1 mbar	100 Pa	0.1 kPa	0.0101971 mH ₂ O
1 mH ₂ O	0.0980665 bar	98.0665 mbar	9806.65 Pa	9.80665 kPa	1 mH ₂ O



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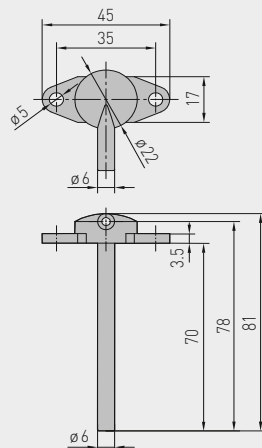
Dimensional drawing **ASD-06**
Connection set



ASD-06
Connection set



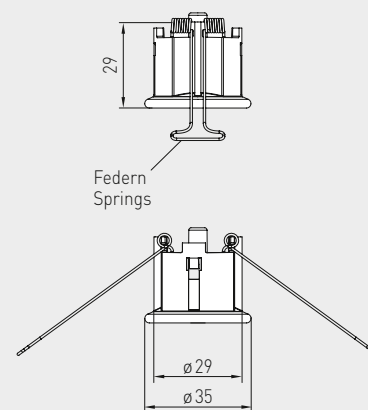
Dimensional drawing **ASD-07**
Connection nipple



ASD-07
Connection nipple



Dimensional drawing **DAL-01**
Pressure outlet



DAL-01
Pressure outlet



ACCESSORIES		Item No.	Price
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	6,74 €
ASD-07	2 connection nipples (at 90 degree angle) made of plastic, ABS	7100-0060-7000-000	6,74 €
DAL-01	Pressure outlet for ceiling or in-wall installation (e.g. in clean rooms)	7300-0060-3000-001	31,55 €
WS-04	Weather and sun protection hood , 130 x 180 x 135 mm, stainless steel V2A (1.4301)	7100-0040-7000-000	33,06 €

For further information, see last chapter Accessories!

PREMASGARD® 212x-SD Pressure, differential pressure and volume flow measuring transducers, *Standard* (Pressure connectors on the bottom side)

Pressure range (Ranges adjustable)	Type / WGD1B (3-wire connection)	Output (switchable)	Display	Item No. (with snap-on lid)	Price
max. - 1000...+ 1000 Pa	PREMASGARD® 2121-SD		IP 54		
0... 100 Pa / - 100...+ 100 Pa	PREMASGARD 2121-SD	0-10V / 4...20mA		1301-11B7-0010-000	120,36 €
0... 300 Pa / - 300...+ 300 Pa	PREMASGARD 2121-SD LCD	0-10V / 4...20mA	■	1301-11B7-2010-000	163,20 €
0... 500 Pa / - 500...+ 500 Pa					
0... 1000 Pa / -1000...+ 1000 Pa					
max. - 5000...+ 5000 Pa	PREMASGARD® 2125-SD		IP 54		
0...1000 Pa / -1000...+1000 Pa	PREMASGARD 2125-SD	0-10V / 4...20mA		1301-11B7-0050-000	120,36 €
0...2000 Pa / -2000...+2000 Pa	PREMASGARD 2125-SD LCD	0-10V / 4...20mA	■	1301-11B7-2050-000	163,20 €
0...3000 Pa / -3000...+3000 Pa					
0...5000 Pa / -5000...+5000 Pa					
max. - 100...+ 100 Pa	PREMASGARD® 2120-SD		IP 54		
0... 50 Pa / - 50...+ 50 Pa	PREMASGARD 2120-SD	0-10V / 4...20mA		1301-11B7-0110-000	120,36 €
0... 100 Pa / -100...+ 100 Pa	PREMASGARD 2120-SD LCD	0-10V / 4...20mA	■	1301-11B7-2110-000	163,20 €
Multi-range switching:	The pressure ranges depend on the device type and can be set via DIP switches.				
Output:	0-10V or 4...20mA (selectable via DIP switches)				
Optional:	Cable connection with M12 connector according to DIN EN 61076-2-101 (on request)				



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PREMASGARD® 211x

Pressure connectors on the top side, with/without display, with quick-locking screws (IP 67)

PREMASGARD® 212x

Pressure connectors on the bottom side, with/without display, with quick-locking screws (IP 67)

PREMASGARD® 212x-SD

Pressure connectors on the bottom side, with/without display, with snap-on lid (IP 54)



PREMASGARD® 211x		Pressure, differential pressure and volume flow measuring transducers, <i>Premium</i> (Pressure connectors on the top side)			
Pressure range (Ranges adjustable)	Type /WG01 (3-wire connection)	Output (switchable)	Display	Item No. (with quick-locking screws)	Price
max. - 1000...+ 1000 Pa	PREMASGARD® 2111			IP 67	
0... 100 Pa / - 100...+ 100 Pa	PREMASGARD 2111	0-10V / 4...20mA		1301-1197-0010-000	134,14 €
0... 300 Pa / - 300...+ 300 Pa	PREMASGARD 2111 LCD	0-10V / 4...20mA	■	1301-1197-2010-000	178,79 €
0... 500 Pa / - 500...+ 500 Pa					
0... 1000 Pa / - 1000...+ 1000 Pa					
max. - 5000...+ 5000 Pa	PREMASGARD® 2115			IP 67	
0...1000 Pa / - 1000...+ 1000 Pa	PREMASGARD 2115	0-10V / 4...20mA		1301-1197-0050-000	134,14 €
0...2000 Pa / - 2000...+ 2000 Pa	PREMASGARD 2115 LCD	0-10V / 4...20mA	■	1301-1197-2050-000	178,79 €
0...3000 Pa / - 3000...+ 3000 Pa					
0...5000 Pa / - 5000...+ 5000 Pa					
max. - 100...+ 100 Pa	PREMASGARD® 2110			IP 67	
0... 50 Pa / - 50...+ 50 Pa	PREMASGARD 2110	0-10V / 4...20mA		1301-1197-0110-000	134,14 €
0... 100 Pa / - 100...+ 100 Pa	PREMASGARD 2110 LCD	0-10V / 4...20mA	■	1301-1197-2110-000	178,79 €
Multi-range switching:	The pressure ranges depend on the device type and can be set via DIP switches.				
Output:	0-10V or 4...20mA (selectable via DIP switches)				
Optional:	Cable connection with M12 connector according to DIN EN 61076-2-101 (on request)				

PREMASGARD® 212x		Pressure, differential pressure and volume flow measuring transducers, <i>Premium</i> (Pressure connectors on the bottom side)			
Pressure range (Ranges adjustable)	Type /WG01 (3-wire connection)	Output (switchable)	Display	Item No. (with quick-locking screws)	Price
max. - 1000...+ 1000 Pa	PREMASGARD® 2121			IP 67	
0... 100 Pa / - 100...+ 100 Pa	PREMASGARD 2121	0-10V / 4...20mA		1301-11A7-0010-000	134,14 €
0... 300 Pa / - 300...+ 300 Pa	PREMASGARD 2121 LCD	0-10V / 4...20mA	■	1301-11A7-2010-000	178,79 €
0... 500 Pa / - 500...+ 500 Pa					
0... 1000 Pa / - 1000...+ 1000 Pa					
max. - 5000...+ 5000 Pa	PREMASGARD® 2125			IP 67	
0...1000 Pa / - 1000...+ 1000 Pa	PREMASGARD 2125	0-10V / 4...20mA		1301-11A7-0050-000	134,14 €
0...2000 Pa / - 2000...+ 2000 Pa	PREMASGARD 2125 LCD	0-10V / 4...20mA	■	1301-11A7-2050-000	178,79 €
0...3000 Pa / - 3000...+ 3000 Pa					
0...5000 Pa / - 5000...+ 5000 Pa					
max. - 100...+ 100 Pa	PREMASGARD® 2120			IP 67	
0... 50 Pa / - 50...+ 50 Pa	PREMASGARD 2120	0-10V / 4...20mA		1301-11A7-0110-000	134,14 €
0... 100 Pa / - 100...+ 100 Pa	PREMASGARD 2120 LCD	0-10V / 4...20mA	■	1301-11A7-2110-000	178,79 €
Multi-range switching:	The pressure ranges depend on the device type and can be set via DIP switches.				
Output:	0-10V or 4...20mA (selectable via DIP switches)				
Optional:	Cable connection with M12 connector according to DIN EN 61076-2-101 (on request)				

