PREMASGARD® 211x/212x/212x-SD

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

S+S REGELTECHNIK

The calibrateable compact pressure sensors of the **PREM**ASGARD® **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 **PREM**ASGARD® **111x / 112x / 112x-SD** (I variant with 2-wire connection).

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)



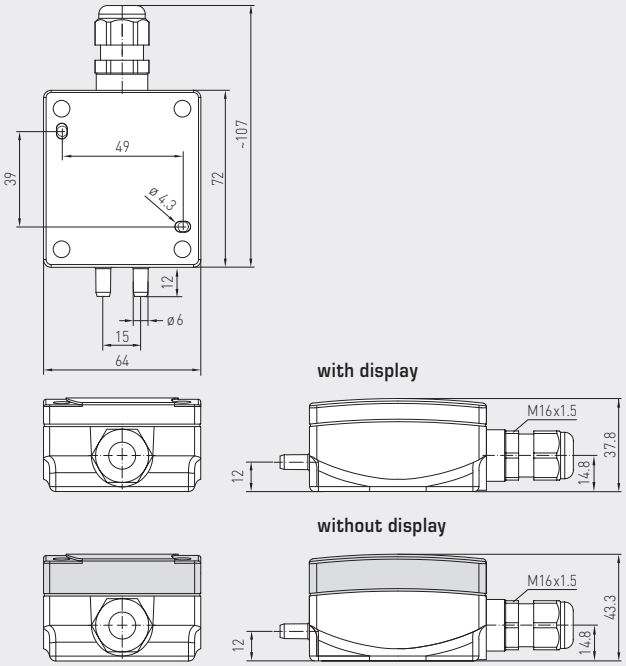
TECHNICAL DATA

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 0-10 V / 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 **Type 2116 / 2126** (10 000 Pa): typically ± 50 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 mm², via terminal screws
Humidity:	< 95 % RH, non-precipitating air
Protection class:	III (according to EN 60 730)
Protection type:	**Type 211x / 212x**: **IP 67** (according to EN 60 529)* Housing tested, TÜV SÜD, Report No. 713139052 (Tyr 1) **Type 212x-SD**: **IP 54** (according to EN 60 529)* Housing tested, TÜV SÜD, Report No. 713160960A (Tyr 01) * Housing in the built-in state
Standards:	CE conformity, electromagnetic compatibility according to EN 61 326, 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

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

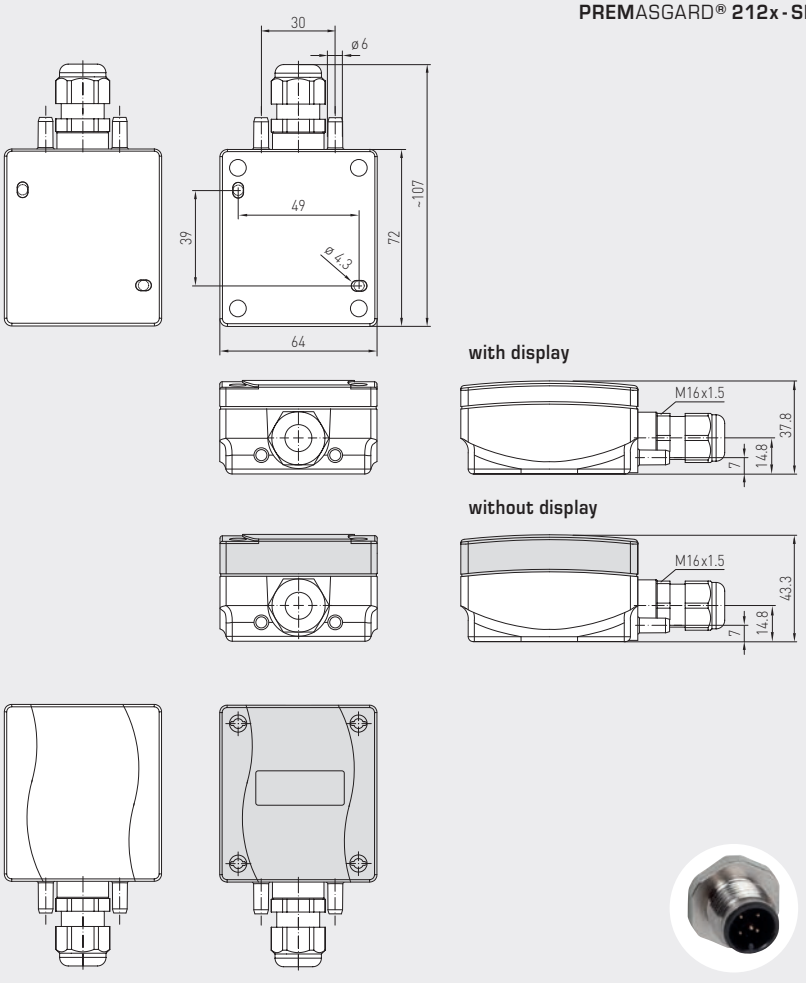


PREMASGARD® 211x
Pressure connectors
on the top side,
with display,
with quick-locking screws
(IP 67)



Dimensional drawing

PREMASGARD® 212x
PREMASGARD® 212x-SD



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



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



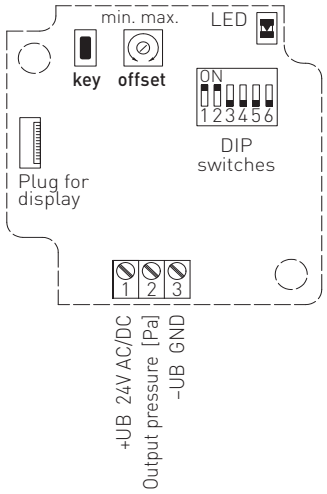
PREMASGARD® 211x/212x/212x-SD

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

S+S REGELTECHNIK

Schematic diagram

PREMASGARD® 211x
PREMASGARD® 212x
PREMASGARD® 212x-SD



Status LED (DIP 6)
I Output (ON) = orange
U Output (OFF) = green

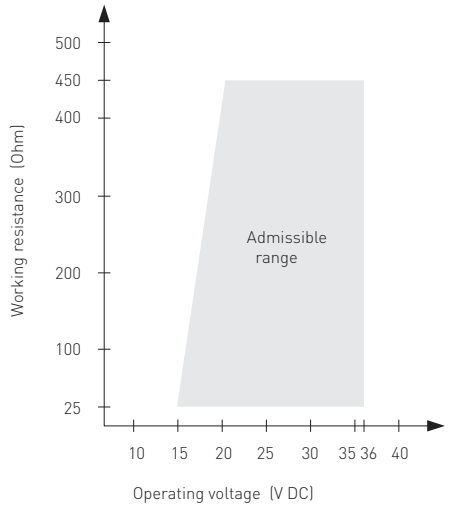
key Pushbutton
Zero point setting
(auto zero)

offset Offset correction
see graph
ca. ± 10% of
final value

Plug for display
contact is
on the right side

Load resistance diagram 4...20 mA

PREMASGARD® 211x
PREMASGARD® 212x
PREMASGARD® 212x-SD



Pressure range max. measuring range (default) is depending to the type of device								DIP 1	DIP 2
0...50 Pa	0...100 Pa	0...1000 Pa	0...4000 Pa	–50...+50 Pa	–100...+100 Pa	–1000...+1000 Pa	–4000...+4000 Pa	OFF	OFF
–	0...300 Pa	0...2000 Pa	0...6000 Pa	–	–300...+300 Pa	–2000...+2000 Pa	–6000...+6000 Pa	**ON**	OFF
–	0...500 Pa	0...3000 Pa	0...8000 Pa	–	–500...+500 Pa	–3000...+3000 Pa	–8000...+8000 Pa	OFF	**ON**
0...100 Pa	**0...1000 Pa**	**0...5000 Pa**	**0...10000 Pa**	**–100...+100 Pa**	**–1000...+1000 Pa**	**–5000...+5000 Pa**	**–10000...+10000 Pa**	**ON**	**ON**

Measuring range (Mode)	DIP 3
Unidirectional (default) (0 ...+MR)	OFF
Bidirectional (–MR ...+MR)	**ON**

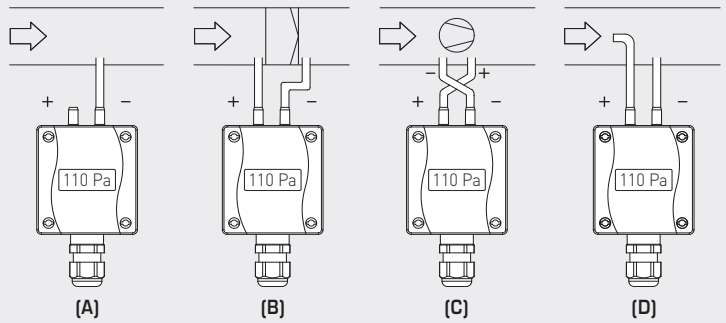
Output characteristic line (Mode)	DIP 4
linear (default) for pressure detection	OFF
Square root extracting to determine the volume flow	**ON**

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

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

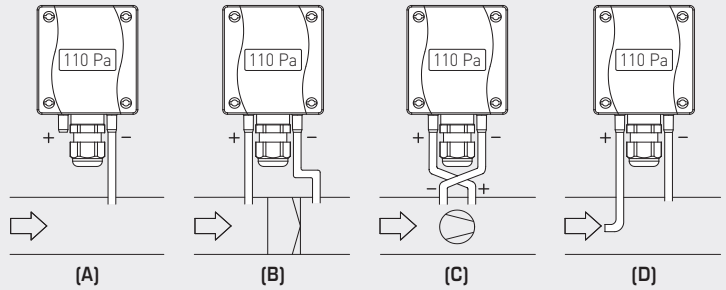
Mounting diagram

PREMASGARD® 211x



Mounting diagram

PREMASGARD® 212x / 212x-SD



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]

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

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



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



WS-04
Weather and sun protection hood
(optional)



Conversion table for pressure values:

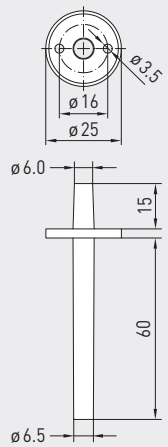
Unit =	bar	mbar	Pa	kPa	mWS
1 Pa	0.00001 bar	0.01 mbar	1 Pa	0.001 kPa	0.000101971 mWS
1 kPa	0.01 bar	10 mbar	1000 Pa	1 kPa	0.101971 mWS
1 bar	1 bar	1000 mbar	100000 Pa	100 kPa	10.1971 mWS
1 mbar	0.001 bar	1 mbar	100 Pa	0.1 kPa	0.0101971 mWS
1 mWS	0.0980665 bar	98.0665 mbar	9806.65 Pa	9.80665 kPa	1 mWS

PREMASGARD® 211x/212x/212x-SD

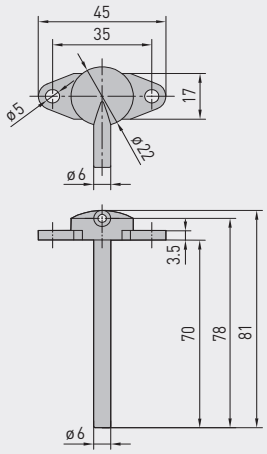
Pressure, differential pressure and volume flow measuring transducers, including connection set, compact form, adjustable, calibratable, with multi-range switching and active output

S+S REGELTECHNIK

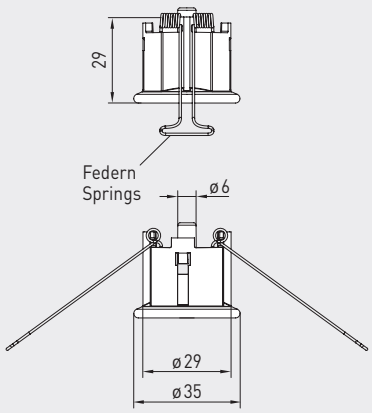
Dimensional drawing **ASD-06**



Dimensional drawing **ASD-07**



Dimensional drawing **DAL-01**



ASD-06
Connection set



ASD-07
Connection nipple



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	**7,87 €**
ASD-07	**2 connection nipples** (at 90 degree angle) made of plastic, ABS	7100-0060-7000-000	**7,87 €**
DAL-01	**Pressure outlet** for ceiling or in-wall installation (e.g. in clean rooms)	7300-0060-3000-001	**36,84 €**
WS-04	**Weather and sun protection hood**, 130 x 180 x 135 mm, stainless steel **V2A** (1.4301)	7100-0040-7000-000	**38,61 €**
	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 / WG01B** (3-wire connection)	**Output** (switchable)	**Display**	**Item No.** (with snap-on lid)	**Price**
max. – 1000...+ 1000 Pa	**Type 2121-SD**			**IP 54**	
0... 100 Pa / – 100...+ 100 Pa 0... 300 Pa / – 300...+ 300 Pa 0... 500 Pa / – 500...+ 500 Pa 0...1000 Pa / –1000...+1000 Pa	PREMASGARD 2121-SD	0-10 V / 4...20 mA		1301-11B7-0010-000	**140,58 €**
	PREMASGARD 2121-SD **LCD**	0-10 V / 4...20 mA	■	1301-11B7-2010-000	**190,62 €**
max. – 5000...+ 5000 Pa	**Type 2125-SD**			**IP 54**	
0...1000 Pa / – 1000...+ 1000 Pa 0...2000 Pa / – 2000...+ 2000 Pa 0...3000 Pa / – 3000...+ 3000 Pa 0...5000 Pa / – 5000...+ 5000 Pa	PREMASGARD 2125-SD	0-10 V / 4...20 mA		1301-11B7-0050-000	**140,58 €**
	PREMASGARD 2125-SD **LCD**	0-10 V / 4...20 mA	■	1301-11B7-2050-000	**190,62 €**
max. – 100...+ 100 Pa	**Type 2120-SD**			**IP 54**	
0... 50 Pa / – 50...+ 50 Pa 0... 100 Pa / – 100...+ 100 Pa	PREMASGARD 2120-SD	0-10 V / 4...20 mA		1301-11B7-0110-000	**140,58 €**
	PREMASGARD 2120-SD **LCD**	0-10 V / 4...20 mA	■	1301-11B7-2110-000	**190,62 €**
Multi-range switching:	The **pressure ranges** depend on the device type and can be set via DIP switches.				
Output / Connection:	**0-10 V or 4...20 mA** (selectable via DIP switches) / **3-wire** connection				
Optional:	Cable connection with **M12 connector** according to DIN EN 61076-2-101 (on request)				

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

PREMASGARD® **211x** (IP 67)



PREMASGARD® **212x** (IP 67)



PREMASGARD® **212x-SD** (IP 54)



PREMASGARD® **211x** — Pressure, differential pressure and volume flow measuring transducers, *Premium* (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	**Type 2111**			**IP 67**	
0... 100 Pa / – 100...+ 100 Pa 0... 300 Pa / – 300...+ 300 Pa 0... 500 Pa / – 500...+ 500 Pa 0...1000 Pa / –1000...+1000 Pa	PREMASGARD 2111	0-10 V / 4...20 mA		1301-1197-0010-000	**156,67 €**
	PREMASGARD 2111 **LCD**	0-10 V / 4...20 mA	■	1301-1197-2010-000	**208,82 €**
max. – 5000...+ 5000 Pa	**Type 2115**			**IP 67**	
0...1000 Pa / –1000...+1000 Pa 0...2000 Pa / –2000...+2000 Pa 0...3000 Pa / –3000...+3000 Pa 0...5000 Pa / –5000...+5000 Pa	PREMASGARD 2115	0-10 V / 4...20 mA		1301-1197-0050-000	**156,67 €**
	PREMASGARD 2115 **LCD**	0-10 V / 4...20 mA	■	1301-1197-2050-000	**208,82 €**
max. – 10000...+ 10000 Pa	**Type 2116**			**IP 67**	
0... 4000 Pa / – 4000...+ 4000 Pa 0... 6000 Pa / – 6000...+ 6000 Pa 0... 8000 Pa / – 8000...+ 8000 Pa 0...10000 Pa / –10000...+10000 Pa	PREMASGARD 2116	0-10 V / 4...20 mA		1301-1197-0060-000	**177,88 €**
	PREMASGARD 2116 **LCD**	0-10 V / 4...20 mA	■	1301-1197-2060-000	**230,03 €**
max. – 100...+ 100 Pa	**Type 2110**			**IP 67**	
0... 50 Pa / – 50...+ 50 Pa 0... 100 Pa / –100...+100 Pa	PREMASGARD 2110	0-10 V / 4...20 mA		1301-1197-0110-000	**156,67 €**
	PREMASGARD 2110 **LCD**	0-10 V / 4...20 mA	■	1301-1197-2110-000	**208,82 €**
Multi-range switching:	The **pressure ranges** depend on the device type and can be set via DIP switches.				
Output / Connection:	**0-10 V or 4...20 mA** (selectable via DIP switches) / **3-wire** connection				
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, *Premium* (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	**Type 2121**			**IP 67**	
0... 100 Pa / – 100...+ 100 Pa 0... 300 Pa / – 300...+ 300 Pa 0... 500 Pa / – 500...+ 500 Pa 0...1000 Pa / –1000...+1000 Pa	PREMASGARD 2121	0-10 V / 4...20 mA		1301-11A7-0010-000	**156,67 €**
	PREMASGARD 2121 **LCD**	0-10 V / 4...20 mA	■	1301-11A7-2010-000	**208,82 €**
max. – 5000...+ 5000 Pa	**Type 2125**			**IP 67**	
0...1000 Pa / –1000...+1000 Pa 0...2000 Pa / –2000...+2000 Pa 0...3000 Pa / –3000...+3000 Pa 0...5000 Pa / –5000...+5000 Pa	PREMASGARD 2125	0-10 V / 4...20 mA		1301-11A7-0050-000	**156,67 €**
	PREMASGARD 2125 **LCD**	0-10 V / 4...20 mA	■	1301-11A7-2050-000	**208,82 €**
max. – 10000...+ 10000 Pa	**Type 2126**			**IP 67**	
0... 4000 Pa / – 4000...+ 4000 Pa 0... 6000 Pa / – 6000...+ 6000 Pa 0... 8000 Pa / – 8000...+ 8000 Pa 0...10000 Pa / –10000...+10000 Pa	PREMASGARD 2126	0-10 V / 4...20 mA		1301-11A7-0060-000	**177,88 €**
	PREMASGARD 2126 **LCD**	0-10 V / 4...20 mA	■	1301-11A7-2060-000	**230,03 €**
max. – 100...+ 100 Pa	**Type 2120**			**IP 67**	
0... 50 Pa / – 50...+ 50 Pa 0... 100 Pa / –100...+100 Pa	PREMASGARD 2120	0-10 V / 4...20 mA		1301-11A7-0110-000	**156,67 €**
	PREMASGARD 2120 **LCD**	0-10 V / 4...20 mA	■	1301-11A7-2110-000	**208,82 €**
Multi-range switching:	The **pressure ranges** depend on the device type and can be set via DIP switches.				
Output / Connection:	**0-10 V or 4...20 mA** (selectable via DIP switches) / **3-wire** connection				
Optional:	Cable connection with **M12 connector** according to DIN EN 61076-2-101 (on request)				