

Multifunctional duct sensors and measuring transducers for humidity, temperature, pressure, differential pressure and volume flow, incl. mounting flange and connection set, calibratable, with Modbus connection

Maintenance-free microprocessor-controlled **PREMASGARD® 814x-Modbus** (Series) with Modbus connection, in an impact-resistant plastic housing with quick-locking screws, connection nozzles for pressure hose (Ø 6 mm), plastic sinter filter (exchangeable), optionally with/without display, to exactly detect the relative humidity (0...100% RH) and the temperature (-35...+80 °C) in ducts and to measure the differential pressure (max. ± 7000 Pa) in air. International system of units SI (default) can be switched to Imperial (via Modbus). Incl. mounting flange and connection set **ASD-06** (2 m connecting hose, two pressure port nipples, screws).

The pressure sensor is applied to measure positive, negative or differential pressure in clean air and gaseous media. It is used in the clean room, medical and filter technology, ventilation and air conditioning ducts, spray booths, large-scale catering facilities, for filter monitoring and level measurement or for triggering frequency converters.

A long-term stable, **digital humidity and temperature sensor** and a **pressure sensor** with piezoresistive measuring element guarantee exact measurement results. These measurands are used to internally calculate the following parameters that can be retrieved via Modbus: temperature, relative humidity, dew point, absolute humidity, mixture ratio, enthalpy (ignoring atmospheric air pressure), differential pressure, volume flow, air density.

Innovative Modbus sensor with galvanically separated RS485-Modbus-interface, selectable bus termination resistance, DIP switch for setting the bus parameters and bus address in current-free state, internal LEDs for telegram status display, two separate push-in terminals and large three-line display (illuminated; with customised programming in the 7-segment and dot-matrix range). The sensor is factory-calibrated; an environmental precision adjustment by an expert is possible.

PREMASGARD® 814x-Modbus



TECHNICAL DATA

Power supply:	24 V AC (± 20%) and 15...36 V DC
Power consumption:	< 4.8 W / 24 V DC typical; < 6.8 VA / 24 V AC typical
System of units:	SI (default) or Imperial (switchable via Modbus)
Data points:	differential pressure [Pa] [inWC], volume flow [m³/h] [CFM], temperature [°C] [°F], relative humidity [% RH], dew point [°C] [°F], absolute humidity [g/m³] [gr/ft³], mixing ratio [g/kg] [gr/lb], enthalpy [kJ/kg] [Btu/lb], air density [kg/m³] [lb/ft³]

HUMIDITY & TEMPERATURE

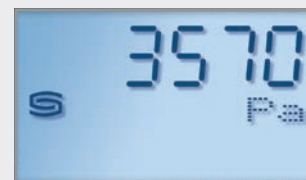
Sensors:	digital humidity sensor with integrated temperature sensor , low hysteresis, high long-term stability
Sensor protection:	plastic sinter filter, Ø 16 mm, L = 35 mm, exchangeable (optional metal sinter filter, Ø 16 mm, L = 32 mm)
Measuring range, humidity:	0...100 % RH
Operating range, humidity:	0...95 % RH (without dew formation)
Accuracy in humidity:	typically ± 2.0 % (20...80 % RH) at +25 °C, otherwise ± 3.0 %
Measuring range, temperature:	-35...+80 °C
Accuracy in temperature:	typically ± 0.2 K at +25 °C

PRESSURE

Type of pressure:	differential pressure
Pressure connection:	with connection nozzles for pressure hose Ø 6 mm (optional on request with quick connect for PVC fabric pressure hose Ø 6 mm)
Measuring range, pressure:	-500... +500 Pa or -7000...+7000 Pa depending on the type of device, see table
Accuracy, pressure:	Typ 8148 (500 Pa): typically ± 13 Pa at +25 °C Typ 8147 (7000 Pa): typically ± 105 Pa at +25 °C compared to the calibrated reference device
Above- /below-pressure:	max. ± 50 kPa
Zero point offset:	± 10 % of final value
Hysteresis:	0.3 % of final value
Linearity:	< ± 1 % of final value
Temp. drift values:	± 0.1 % per °C
Long-term stability:	± 1 % per year
Medium:	clean air and non-aggressive, non-combustible gases
Media contacting parts:	Brass, Ni, thermoset plastic, Si, epoxy, RTV, BSG, UV silicone gel
Media temperature:	-20...+50 °C (temperature-compensated 0...+50 °C)

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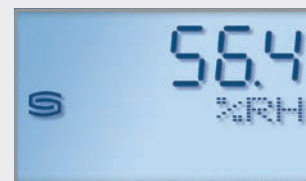
Display screen (SI or Imperial) **Modbus Tyr 2**



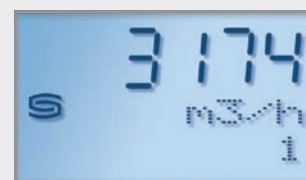
Pressure [Pa] [inWC]



Temperature [°C] [°F]

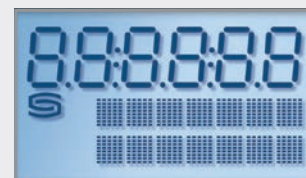


Humidity [% RH]



Volume flow rate [m³/h] [CFM]

Programmable display screen **Modbus Tyr 2**

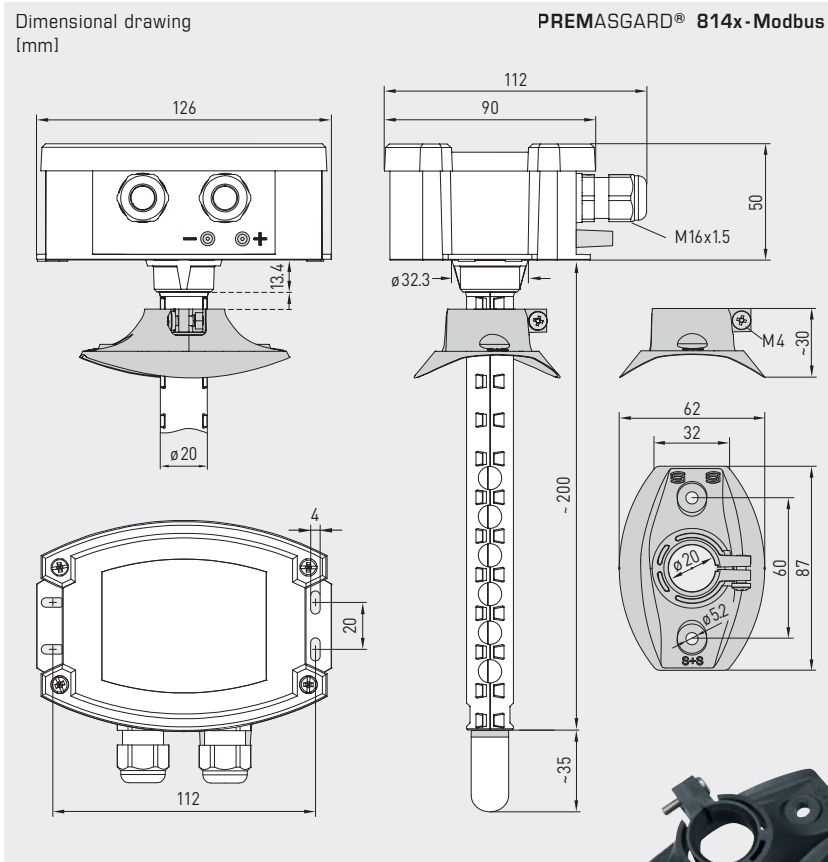




S+S REGELTECHNIK

PREMASGARD® 814x-Modbus

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MFT-20-K
Mounting flange,
plastic

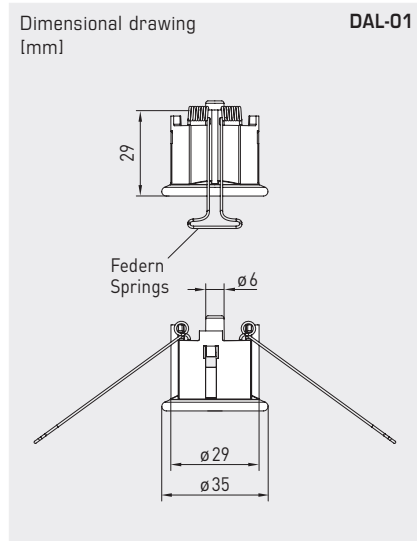
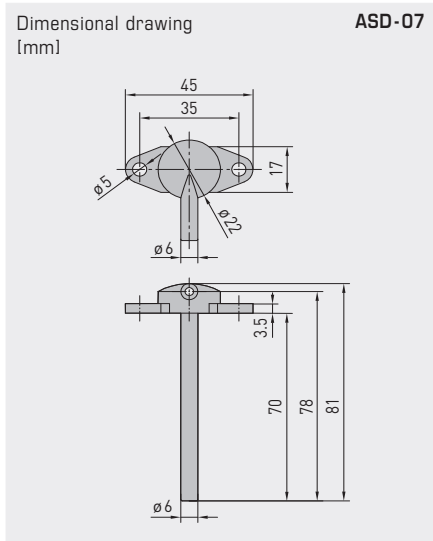
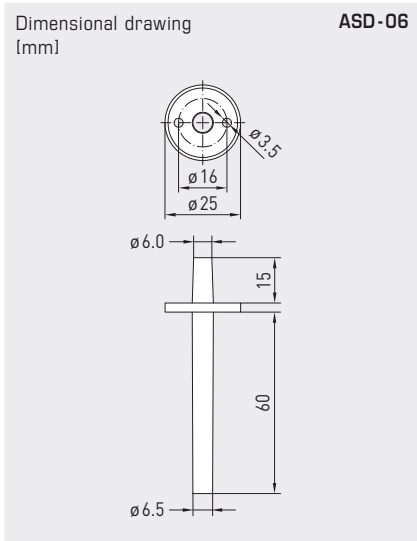


Device version
with **M12 connector**
(optional on request)



TECHNICAL DATA		(continued)
Communication:	Modbus (RTU cable)	
Bus interface:	RS 485, galvanically isolated	
Baud rate:	9600, 19200, 38400 Baud	
Bus protocol:	Modbus (RTU mode), address range 0... 247 adjustable	
Signal filtering:	4 s / 32 s at temperature / humidity 0 s / 1 s / 10 s at pressure	
Ambient temperature:	-30...+70 °C	
Electrical connection:	0.2 - 1.5 mm ² , via push-in terminal	
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)	
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), housing cover for display is transparent!	
Housing dimensions:	126 x 90 x 50 mm (Tyr 2)	
Protective tube:	PLEUROFORM™ , material: polyamide (PA6), with torsion protection, Ø 20 mm, NL = 235 mm (optional 100 mm), v _{max} = 30 m/s (air) (on request, optional stainless steel V2A (1.4301), Ø 16 mm)	
Process connection:	via mounting flange made of plastic (included in the scope of delivery)	
Protection class:	III (according to EN 60 730)	
Protection type:	IP 65 (according to EN 60 529) housing only! (PLEUROFORM IP 30)	
Standards:	CE-conformity according to EMC Directive 2014 / 30 / EU	
Optional:	three-line display with illumination , programmable, cut-out approx. 70 x 40 mm (W x H), for display actual humidity, actual temperature and ACTUAL pressure (cyclic) or a selectable parameter (static) or an individually programmable display value	
ACCESSORIES	see table	
ASD-06	connection set (nipple straight) (included in the scope of delivery)	
MFT-20K	mounting flange plastic (included in the scope of delivery)	

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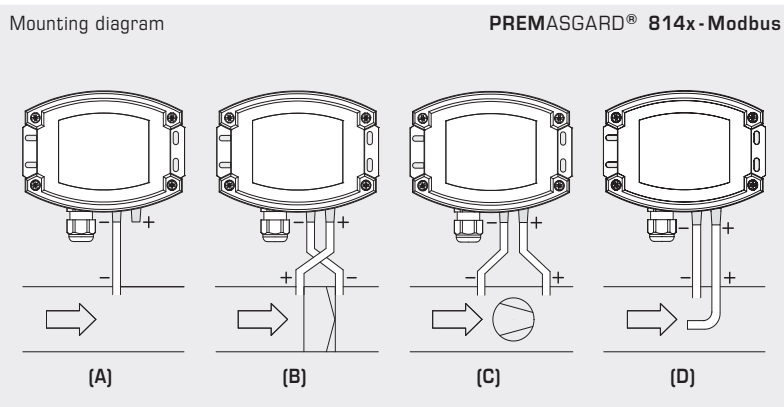
ASD-06
Connection set



ASD-07
Connection nipple



DAL-01
Pressure outlet



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

Switchable system of units

Measurements / Data points	SI (default)	→	Imperial
Differential pressure	[Pa]	→	[inWC]
Volume flow	[m³/h]	→	[CFM]
Temperature	[°C]	→	[°F]
Humidity	[% RH]	→	[% RH]
Dew point	[°C]	→	[°F]
Absolute humidity	[g/m³]	→	[gr/ft³]
Mixture ratio	[g/kg]	→	[gr/lb]
Enthalpy	[kJ/kg]	→	[Btu/lb]
Air density	[kg/m³]	→	[lb/ft³]

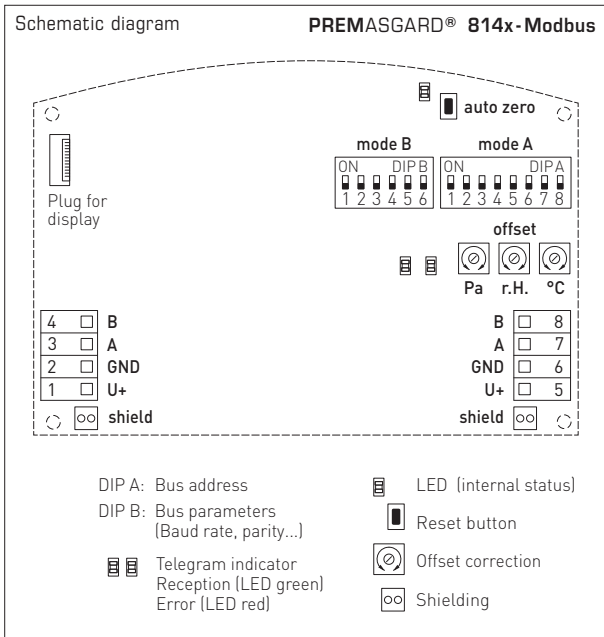
Measuring ranges	SI (default)	→	Imperial
Type 8148	-500...+500 Pa	→	-2.0...+2.0 inWC
Type 8147	-7000...+7000 Pa	→	-28...+28 inWC
Type 814x	-35...+80 °C	→	-31...+176 °F
Type 814x	0...100 % RH	→	0...100 % RH
Alternative parameters are calculated internally.			



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PREMASGARD® 814x-Modbus with display



SF-K
Plastic sinter filter (standard)



SF-M
Metal sinter filter (optional)
stainless steel protective tube (optional on request)

PREMASGARD® 814x-Modbus		Multifunctional duct sensor for humidity, temperature, pressure, differential pressure and volume flow rate, <i>Deluxe</i>					Price
Type/WG02	Measuring ranges	Humidity	Temperature	Output	Item no.		
	Pressure			Display			
Type 8148 ± 500 Pa							
PREMASGARD 8148-Modbus	-500...+500 Pa	0...100% RH	-35...+80°C	Modbus	1301-8144-0910-20V	569,66 €	
PREMASGARD 8148-Modbus LCD	-500...+500 Pa	0...100% RH	-35...+80°C	Modbus	■ 1301-8144-4910-20V	622,12 €	
Equipped as standard with automatic zero point calibration							
Type 8147 ± 7000 Pa							
PREMASGARD 8147-Modbus	-7000...+7000 Pa	0...100% RH	-35...+80°C	Modbus	1301-8144-0950-200	503,63 €	
PREMASGARD 8147-Modbus LCD	-7000...+7000 Pa	0...100% RH	-35...+80°C	Modbus	■ 1301-8144-4950-200	556,74 €	
Extra charge:	with optional automatic zero point calibration (please specify in your order)					80,06 €	
Optional:	Cable connection with M12 connector according to DIN EN 61076-2-101 shortened protective tube PLEUROFORM™ , NL = 100 mm				on request	on request	
Note:	System of units SI (default) or imperial (can be changed via Modbus).						
ACCESSORIES							
KA2-Modbus	Communication adapter (USB/RS485) for system connection				1906-1200-0000-100	236,11 €	
LA-Modbus	Line termination device (with terminating resistor) as an active bus termination				1906-1300-0000-100	88,05 €	
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	8,43 €	
ASD-07	2 connection nipples (at 90° angle) made of ABS				7100-0060-7000-000	8,43 €	
DAL-01	Pressure outlet for ceiling or in-wall installation (e.g. in clean rooms)				7300-0060-3000-001	39,46 €	
SF-M	Metal sinter filter , Ø 16 mm, L = 32 mm, exchangeable, stainless steel V4A (1.4404)				7000-0050-2200-100	46,70 €	
MFT-20-K	Mounting flange , plastic (included in the scope of delivery)				7000-0031-0000-000	10,55 €	

For further information see last chapter!