

**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, optionally with/without display, with a plastic sinter filter (exchangeable), to exactly detect the relative humidity (0...100% r.H.) and the temperature (-35...+80 °C) in ducts and to measure the differential pressure (max. -7000...+7000 Pa) in air. Incl. mounting flange and connection set **ASD-06** (2m 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 [°C], relative humidity [% r.H.], dew point [°C], absolute humidity [g/m³], mixture ratio [g/kg], enthalpy [kJ/kg] (ignoring atmospheric air pressure), differential pressure [Pa], volume flow [m³/h], air density [kg/m³].

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, 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
with plastic sinter filter
(standard)



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
Data points:	differential pressure [Pa], temperature [°C], relative humidity [% r.H.], dew point [°C], absolute humidity [g/m³], mixture ratio [g/kg], enthalpy [kJ/kg], volume flow [m³/h], air density [kg/m³]

HUMIDITY

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% r. H.
Operating range, humidity:	0...95% r. H. (without dew formation)
Deviation in humidity:	typically ±2.0% (20...80% r.H.) at +25 °C, otherwise ±3.0%

TEMPERATURE

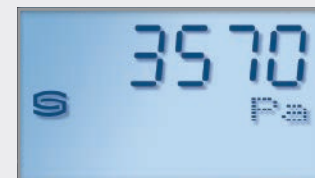
Measuring range, temperature:	-35...+80 °C
Deviation in temperature:	typically ±0.2 K at +25 °C

PRESSURE

Type of pressure:	differential pressure
Pressure connection:	with metal 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:	Type 8148 (500 Pa): typically ± 13 Pa at +25 °C Type 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
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)
Hysteresis:	0.3 % of final value
Linearity:	< ± 1 % of final value
Temp. drift values:	± 0.1 % / °C
Long-term stability:	± 1 % per year

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Display screen
(cyclic/static) **Modbus Tyr 2**



Pressure



Temperature

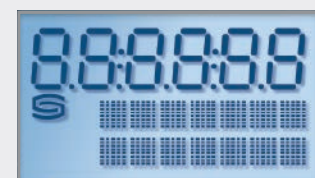


Humidity



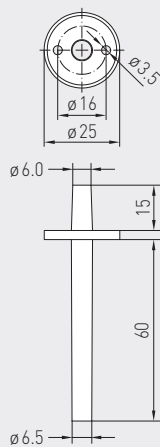
Volume flow rate

Programmable
display screen **Modbus Tyr 2**



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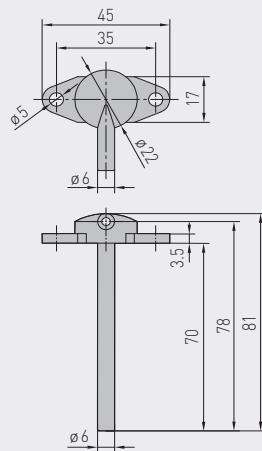
Dimensional drawing **ASD-06**
Connection set



ASD-06
Connection set



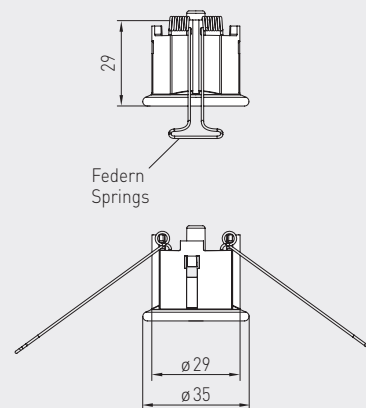
Dimensional drawing **ASD-07**
Connection nipple



ASD-07
Connection nipple



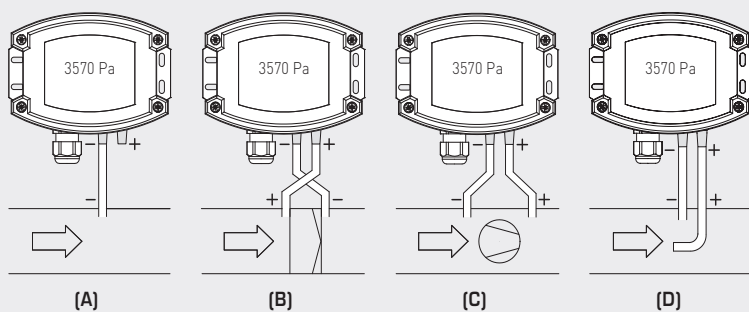
Dimensional drawing **DAL-01**
Pressure outlet



DAL-01
Pressure outlet



Mounting diagram **PREMASGARD® 814x-Modbus**



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

Conversion table for pressure values:

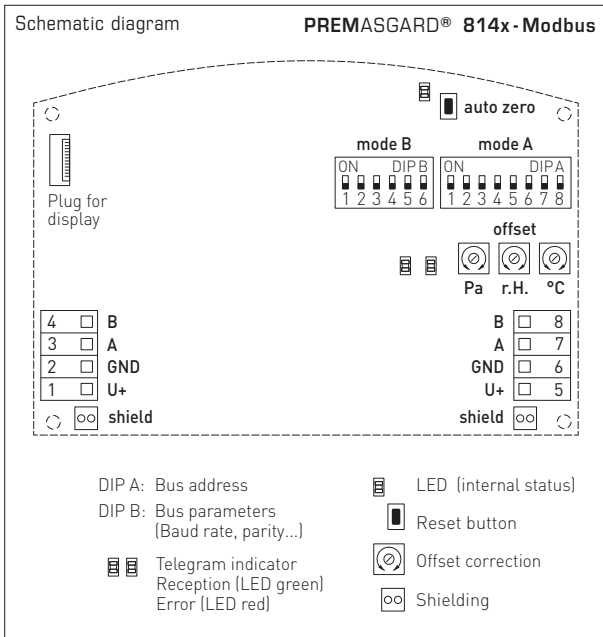
Unit =	bar	mbar	Pa	kPa	mWS
1 Pa	0.00001 bar	0.01 mbar	1 Pa	0.001 kPa	0.000101971 mWS
1 kPa	0.01 bar	10 mbar	1000 Pa	1 kPa	0.101971 mWS
1 bar	1 bar	1000 mbar	100000 Pa	100 kPa	10.1971 mWS
1 mbar	0.001 bar	1 mbar	100 Pa	0.1 kPa	0.0101971 mWS
1 mWS	0.0980665 bar	98.0665 mbar	9806.65 Pa	9.80665 kPa	1 mWS



S+S REGELTECHNIK

PREMASGARD® 814x-Modbus

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



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, *Deluxe*

Type / WG02	Measuring ranges	Humidity	Temperature	Output	Display	Item no.	Price
PREMASGARD® 8148-Modbus	- 500...+ 500 Pa						
PREMASGARD 8148-Modbus	-500...+ 500 Pa	0...100%r.H.	-35...+80°C	Modbus		1301-8144-0910-20V	491,72 €
PREMASGARD 8148-Modbus LCD	-500...+ 500 Pa	0...100%r.H.	-35...+80°C	Modbus	■	1301-8144-4910-20V	537,00 €
Equipped as standard with automatic zero point calibration							
PREMASGARD® 8147-Modbus	- 7000...+ 7000 Pa						
PREMASGARD 8147-Modbus	-7000...+ 7000 Pa	0...100%r.H.	-35...+80°C	Modbus		1301-8144-0950-200	434,72 €
PREMASGARD 8147-Modbus LCD	-7000...+ 7000 Pa	0...100%r.H.	-35...+80°C	Modbus	■	1301-8144-4950-200	480,56 €
Extra charge:	with optional automatic zero point calibration (please specify in your order)						69,10 €
Optional:	Cable connection with M12 connector according to DIN EN 61076-2-101						on request

ACCESSORIES			
KA2-Modbus	Communication adapter (USB/RS485) for system connection		1906-1200-0000-100 203,80 €
LA-Modbus	Line termination device (with terminating resistor) as an active bus termination		1906-1300-0000-100 76,01 €
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 7,28 €
ASD-07	2 connection nipples (at 90° angle) made of ABS		7100-0060-7000-000 7,28 €
DAL-01	Pressure outlet for ceiling or in-wall installation (e.g. in clean rooms)		7300-0060-3000-001 34,07 €
SF-M	Metal sinter filter , Ø 16 mm, L = 32 mm, exchangeable, stainless steel V4A (1.4404)		7000-0050-2200-100 40,31 €
MFT-20-K	Mounting flange , plastic (included in the scope of delivery)		7000-0031-0000-000 9,10 €

For further information see last chapter!