SENTERA CONTROLS

DPS-M--LP
Differential pressure transmitter with display, PoM

The DPS-M--LP series are differential pressure transmitters (-125—125 Pa), which are equipped with a fully digital pressure transducer designed for a wide range of applications. Air velocity readout is available by connecting an external Pitot tube connection set. They are Power over Modbus supplied and parameters are accessible via Modbus RTU (3SModbus software or Sensistant).

Key features

- Built-in digital high resolution differential pressure sensor
- RJ45 connector on the PCB
- Air velocity can be measured via Modbus RTU (by using an external PSET-PTX-200 Pitot tube connection set)
- Variety of operating ranges
- Selectable response time: 0,1—10 s
- Implemented K-factor
- Differential pressure, volume flow[1] or air velocity[2] readout via Modbus RTU
- 4-digit 7-segment LED display for indicating differential pressure or volume flow
- Selectable minimum and maximum operating ranges
- Modbus registers reset function (to factory pre-set values)
- Four LED indicators for the status of the transmitter and the controlled values
- Modbus RTU communication
- Sensor calibration procedure via tact switch
- Aluminium pressure connection nozzles

Article codes

Codes	Power supply	Connection	Maximum power consumption	Nominal power consumption	Imax	Operating range
DPS-M--LP	24 VDC, Power over Modbus	RJ45 connector on the PCB	1,8 W	1,35 W	100 mA	-125—125 Pa

Technical specifications

Power supply	24 VDC (Power over Modbus)
Output	Modbus RTU (RS485)
Minimum differential pressure range span	50 Pa
Minimum volume flow range span	10 m³/h
Minimum air velocity range span	1 m/s
Operating modes	Differential pressure
	Volume flow[1]
	Air velocity[2]
Accuracy	± 2 % of the operating range
Protection standard	IP65 (according to EN 60529)
Ambient conditions — Temperature	-5—65 °C
Ambient conditions — Rel. humidity	< 95 % rH (non-condensing)

Standards

- EMC Directive 2014/30/EC:
- EN 61326-1:2013 Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements
- EN 61326-2-3:2013 Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-3: Particular requirements. Test configuration, operational conditions and performance criteria for transducers with integrated or remote signal conditioning
- WEEE Directive 2012/19/EC
- RoHs Directive 2011/65/EC

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Modbus registers

The Sensistant Modbus configurator allows you to easily monitor and/or configure Modbus parameters.

The parameters of the unit can be monitored / configured through the 3SModbus software platform. You can download it from the following link:
https://www.sentera.eu/en/3SMCenter

For more information about the Modbus registers, please refer to the product Modbus Register Map.

Area of use

- Differential pressure, volume flow[1] or air velocity [2] measurement in HVAC applications
- Differential pressure / volume flow monitoring in clean rooms
- Clean air and non-aggressive, non-combustible gases

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[1] Only when K-factor of fan / drive is known. If K-factor is unknown, volume flow can be calculated via multiplying the duct cross-sectional area (A) by air velocity (V) using the formula: $Q = A * V$.

[2] By using an external PSET-PTX-200 Pitot tube connection set
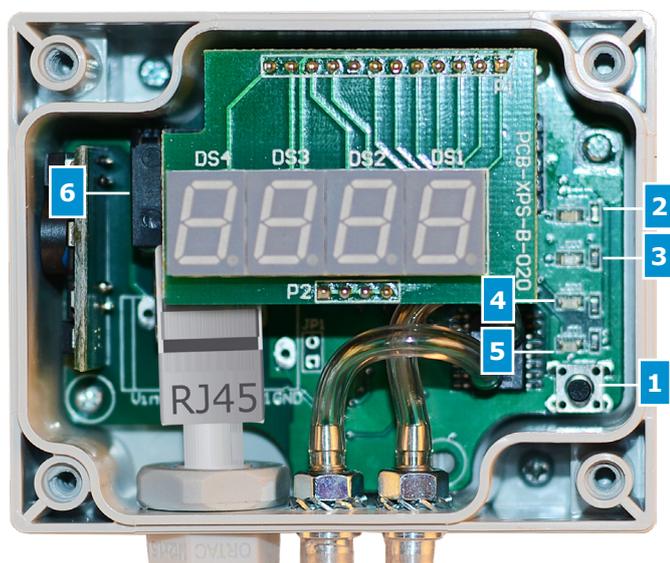
Wiring and connections

| 24 VDC	Supply voltage 24 VDC
GND	Ground
A	Modbus RTU communication, signal A
/B	Modbus RTU communication, signal /B

Operational diagram(s)

Measured value (pressure, volume flow or air velocity) vs. output

Settings

| 1 - Sensor calibration and Modbus register reset tact switch (SW1)		Push to start the Modbus RTU register factory reset or sensor calibration
2 - Red LED4	Continuous	Measured differential pressure, volume flow or air velocity is out of range
	Blinking	Sensor element failure
3 - Yellow LED3	On	Measured differential pressure, volume flow or air velocity is in the alert range
4 - Green LED2	On	Measured differential pressure, volume flow or air velocity is within range
5 - Green LED1	On	Power OK; active Modbus RTU communication
6 - RJ45 Socket		Modbus RTU communication and 24 VDC power supply: Blinking green LED on the left indicates that data is transmitted; Blinking green LED on the right indicates that data is received
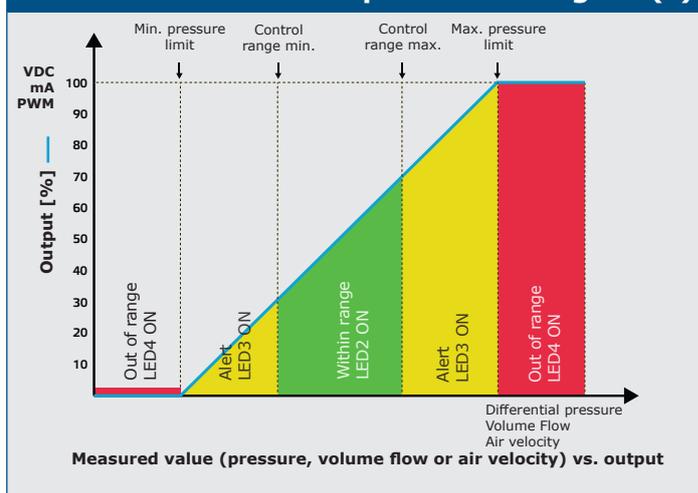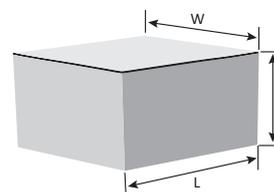
Packaging

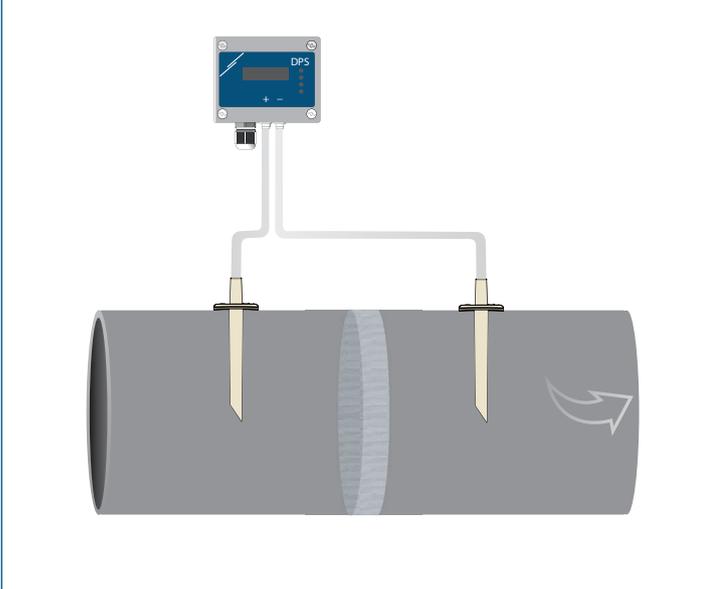| Article	Packaging	Length [mm]	Width [mm]	Height [mm]	Net weight	Gross weight
DPS-M--LP	Unit (1 pc.)	95	85	70	0,13 kg	0,14 kg
	Carton (10 pcs.)	495	185	87	1,30 kg	1,40 kg
	Box (60 pcs.)	590	380	280	7,80 kg	8,40 kg

Fixing and dimensions
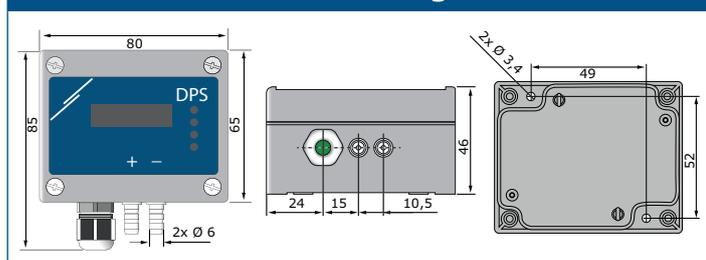
Application 1: Measuring differential pressure [Pa] or volume flow [m³/h] using PSET-PVC connection set

Application 2: Measuring supplied volume flow [m³/h] or air velocity [m/s] using PSET-PT Pitot tube connection set