



DPSPM-LP

Differential pressure PI controller

The DPSPM-LP are high resolution differential pressure controllers (-125—125 Pa). The integrated PI control with anti-windup function offers the possibility to directly control EC motors / fans. They are equipped with a fully digital state-of-the-art pressure transducer designed for a wide range of applications. Zero point calibration and Modbus registers reset can be executed via a tactile switch. All parameters are accessible via Modbus RTU (3SModbus software or Sensistant).

Key features

- 4-digit 7-segment LED display for indicating differential pressure, air volume flow and air velocity
- Built-in digital high resolution differential pressure sensor
- PI control with anti wind-up function and auto-tune function
- Active setpoint selection between differential pressure, air flow volume or air velocity
- Air flow velocity control (by using an external PSET-PTX-200 Pitot tube connection set)
- Minimum and maximum output value selection
- Integrated K-factor
- Selectable response time: 0,1—10 s
- Differential pressure, volume flow⁽¹⁾ or air velocity⁽²⁾ readout via Modbus RTU
- Modbus registers reset function (to factory pre-set values)
- Selectable internal voltage source for PWM output: 3,3 / 12 VDC
- Four LEDs with light guides for controller status indication
- Modbus RTU communication
- Zero-point calibration via tact switch
- Selectable minimum and maximum setpoint span
- Aluminium pressure connection nozzles



Area of use

- Building and controlled ventilation
- Differential pressure, volume flow⁽¹⁾ or air velocity⁽²⁾ measurement and control in HVAC applications
- Differential pressure / air flow monitoring and control in clean rooms
- Clean air and non-aggressive, non-combustible gases

Technical specifications

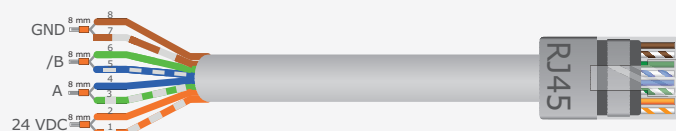
Maximum power consumption	1,44 W	
Nominal power consumption	1,08 W	
Imax	60 mA	
Output	Modbus RTU (RS485)	
Selectable minimum output value	10—50 % (default: 20 %)	
Selectable maximum output value	50—100 % (default: 100 %)	
Operating modes	Differential pressure	
	Volume flow ⁽¹⁾	
	Air velocity ⁽²⁾	
Accuracy	± 2 % of the operating range	
Protection standard	IP65 (according to EN 60529)	
Ambient conditions	Temperature	-5—65 °C
	Rel. humidity	< 95 % rH (non-condensing)

Article codes

Code	Operating range	Power supply	Connections
DPSPM-LP	-125—125 Pa	24 VDC	RJ45 connector on the PCB

Wiring and connections

24 VDC	Supply voltage 24 VDC (max. 40 mA)
GND	Ground
A	Modbus RTU communication, signal A
/B	Modbus RTU communication, signal /B



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

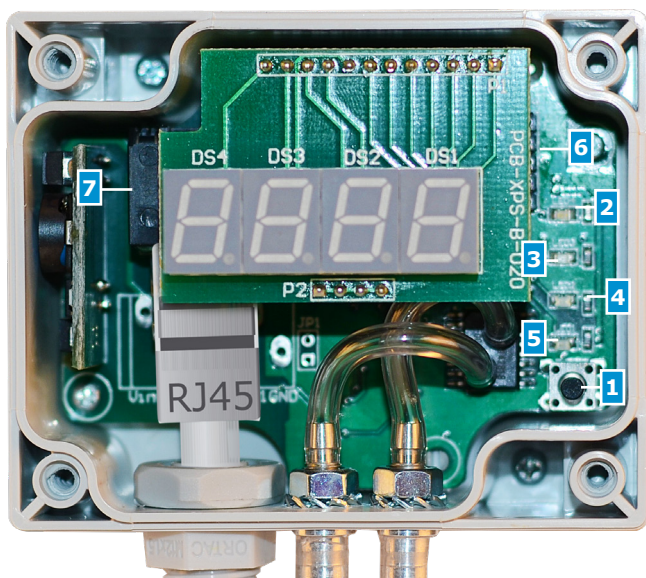
⁽²⁾ By using an external PSET-PTX-200 Pitot tube connection set

DPSPM-LP

Differential pressure PI controller



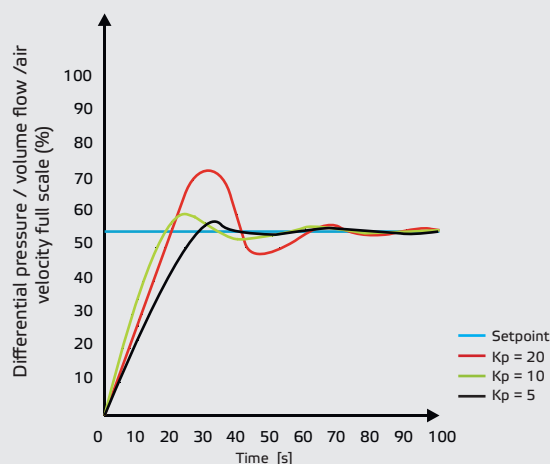
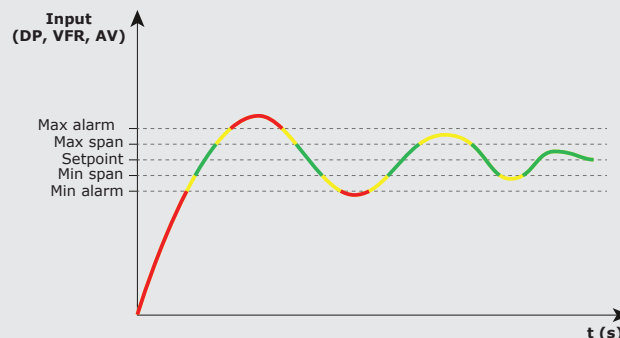
Settings and indications



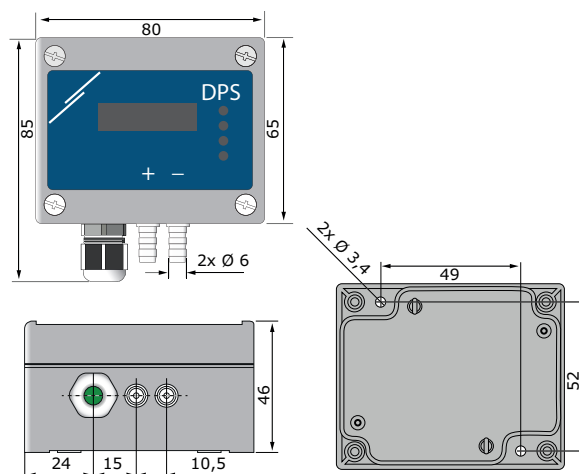
1 - Sensor calibration and Modbus register reset tactile switch (SW1)		Push to start the Modbus RTU register factory reset or the sensor calibration
2 - Red LED4	On	Measured value (pressure, volume or air velocity depending on operating mode selected) is out of the alarm range
	Blinking	Sensor element failure or no feedback
3 - Yellow LED3	On	Measured differential pressure, volume flow or air velocity (depending on the selected setpoint) is in out of the setpoint span
4 - Green LED2	On	Measured differential pressure, volume flow or air velocity (depending on the selected setpoint) is within the setpoint span
5 - Green LED1	On	Power OK; active Modbus RTU communication
6 - Modbus holding registers reset jumper (P4)*		Put a jumper onto pins 1 and 2 for at least 20 s to reset holding registers 1-3
7 - RJ45 Socket		Plug the communication and power cable into the socket

* The reset jumper is not included in the set
** indicates closed position of the jumper.

Operational diagrams



Fixing and dimensions



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 3S Modbus software platform. You can download it from the following link:
<https://www.sentera.eu/en/3SMCenter>

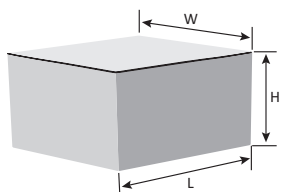
For more information about the Modbus registers, please refer to the product Modbus Register Map.



DPSPM-LP

Differential pressure PI controller

Packaging



Article	Packaging	Length [mm]	Width [mm]	Height [mm]	Net weight	Gross weight
DPSPM-LP	Unit (1 pc.)	95	85	70	0,132 kg	0,142 kg
	Carton (10 pcs.)	495	185	87	1,32 kg	1,55 kg
	Box (60 pcs.)	590	380	280	7,92 kg	9,93 kg

Standards



- EMC directive 2014/30/EU:
- 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

Application example

