



SPS

Differential pressure transmitter

The SPS series are very compact differential pressure transmitters. They provide an analogue / modulating output and eight selectable measuring windows. The transmitters have an implemented state-of-the-art monolithic silicon pressure sensor and are equipped with Modbus RTU communication. These make the units suitable for a wide range of applications. The SPS piezoresistive transmitters are calibrated and temperature & pressure compensated. They feature a high degree of reliability and accuracy.

Key features

- Long-term stability and accuracy
- 1 analogue or PWM (open collector) output
- 8 selectable operating ranges
- Modbus RTU (RS485) communication
- Differential pressure or air volume mode* / readout via Modbus
- Modbus register reset function (factory preset values)
- Implemented K-factor (for air volume measurement)
- Sensor calibration procedure
- Selectable response time
- Aluminium pressure connection nozzles

* Only when K-factor of the fan is known (consult the datasheets)

Technical specifications

Outputs	1 analogue output (0–10 VDC / 0–20 mA) / 1 modulating output PWM (open collector)	
Maximum power consumption	1,2 W	
Nominal or average power consumption in normal operation	0,9 W	
Imax	50 mA	
Current consumption	No load	18–34 VDC supply: 10–20 mA 15–24 VAC supply: 10–15 mA
8 adjustable ranges	SPS-G-2K0	0–100 Pa / 0–250 Pa 0–500 Pa / 0–750 Pa 0–1.000 Pa / 0–2.000 Pa -50–50 Pa / -100–100 Pa
	SPS-G-6K0	0–1.000 Pa / 0–1.500 Pa 0–2.000 Pa / 0–2.500 Pa 0–3.000 Pa / 0–4.000 Pa 0–5.000 Pa / 0–6.000 Pa
Operating modes	Differential pressure Air volume*	
Response time	0,5 / 1 / 2 / 5 s	
Accuracy (analogue voltage output)	±3 %	
Long-term stability	±1 % per year	
Protection standard	IP54 (according to EN 60529)	
Ambient conditions	Temperature	10–60 °C
	Rel. humidity	5 - 95% rH (non-condensing)

* Only when K-factor of the fan is known (consult the datasheets)

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 Modbus Register Map of the product.



Article codes

	Supply	Connections
SPS-G-2K0	15 - 24 VAC 18–34 VDC	3-wire
SPS-G-6K0	15 - 24 VAC 18–34 VDC	3-wire

Area of use

- Fan / pressure control, VAV (Variable Air Volume) and CAV* (Constant Air Volume) modes
- Valve and damper control (actuators)
- Pressure / airflow monitoring in clean rooms
- Clean air and non-aggressive, non-combustible gases

* Only when K-factor of the fan is known (consult the datasheets)

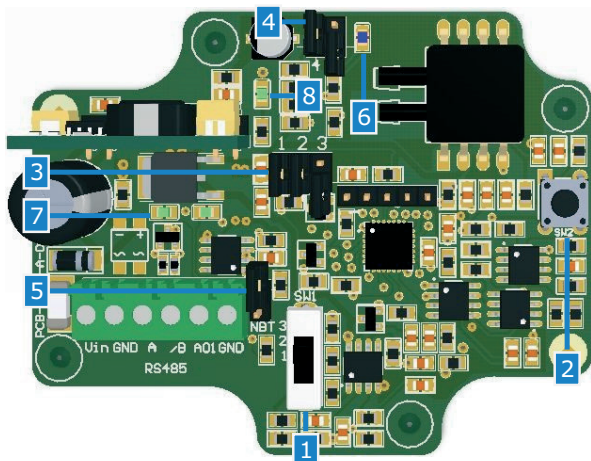
Wiring and connections

Vin	Positive DC voltage / AC ~
GND	Ground / AC ~
A	Modbus RTU (RS485) signal A
/B	Modbus RTU (RS485) signal /B
AO1	Analogue / modulating output PWM (open collector)
GND	Ground
Connections	Cable cross section: max. 0,75 mm ² Cable gland clamping range: 3–6 mm

Caution: If an AC power supply is used with any of the units in a Modbus network, the GND terminal should NOT BE CONNECTED to other units on the network or via the CNVT-USB-RS485 converter. This may cause permanent damage to the communication semiconductors and/or the computer.



Settings



5 - Network bus resistor jumper (NBT)		SPS is the first or last unit
	Continuously blinking	Normal operation
6 - Blue LED6	Blinking twice (by pushing SW2)	Start sensor calibration
	Blinking twice, then 3 times (by pushing SW2)	Start Modbus register reset
7 - Modbus communication indication	Blinking green	Transmitting / receiving
8 - Power indication	Constantly green LED	ON

indicates closed position of the jumper.)

Standards

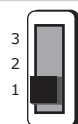


- EMC Directive 2014/35/EU
- EN 61326-2-3:2013 Electrical equipment for measurement, control and laboratory use EMC requirements - Part 2-3: Particular requirements - Test configuration, operational conditions and performance criteria for transducers with integrated or remote signal conditioning

- WEEE Directive 2012/19/EU

- RoHS Directive 2011/65/EU

1 - Analogue output mode selection switch (SW1)



1: 0–10 VDC
2: 0–20 mA
3: PWM (open collector)

2 - Tact switch (SW2) for sensor calibration and Modbus register reset



Push to start sensor calibration (LED6 blinking twice)
Push to start Modbus register reset (LED6 blinking twice, then 3 times)

3 - Range selection jumpers



SPS-G-2K0

0–100 Pa	0–250 Pa	0–500 Pa	0–750 Pa
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SPS-G-6K0

0–1.000 Pa	0–1.500 Pa	0–2.000 Pa	0–2.500 Pa
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SPS-G-2K0

0–1.000 Pa (default)	0–2.000 Pa	-50–50 Pa	-100–100 Pa
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SPS-G-6K0

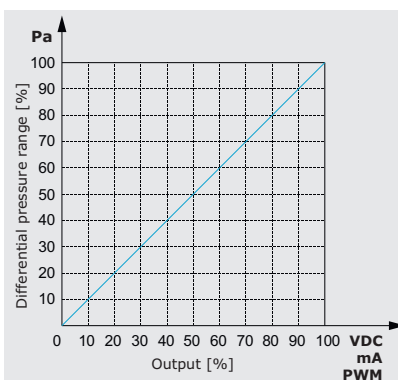
0–3.000 Pa (default)	0–4.000 Pa	0–5.000 Pa	0–6.000 Pa
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4 - Response time selection jumpers

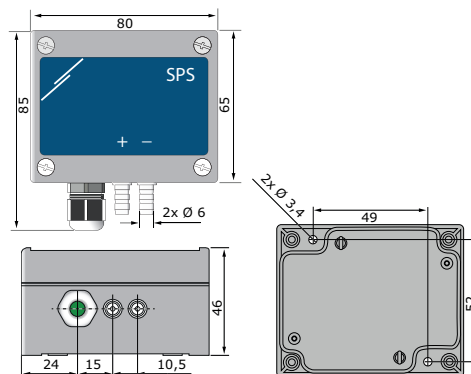


0,5 s	1 s (default)	2 s	5 s
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Operational diagram(s)



Fixing and dimensions

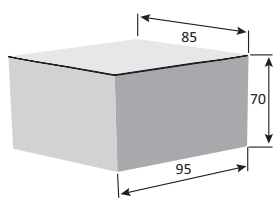




SPS

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Packaging



Article	Packaging	Length [mm]	Width [mm]	Height [mm]	Net weight	Gross weight
SPS	Unit (1 pc.)	95	85	70	0,12 kg	0,15 kg
	Carton (10 pcs.)	492	182	84	1,20 kg	1,63 kg
	Box (60 pcs.)	590	380	280	7,2 kg	10,39 kg