



The SPS series are very compact multi-range differential pressure transmitters. They provide an analogue / digital 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
- Selection of 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

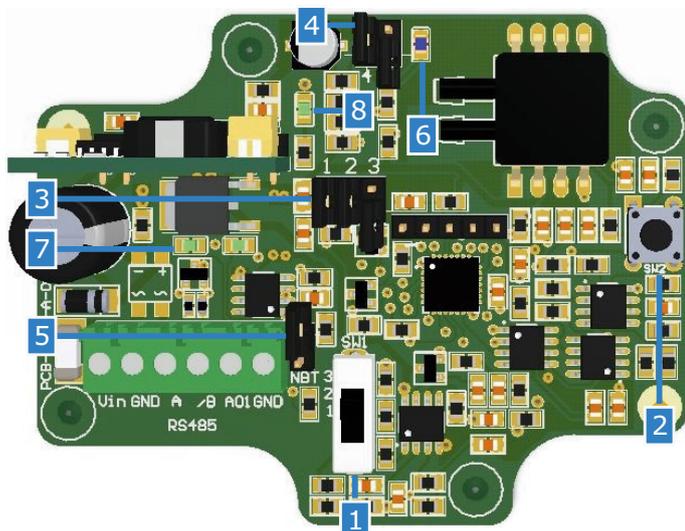
\* Only when K-factor of the fan is known (consult the datasheets)



### Technical specifications

Outputs	1 analogue output (0–10 VDC / 0–20 mA) / 1 digital output PWM (open collector)	
Consumption	No load:	18–34 VDC supply: 10–20 mA 15–24 VAC supply: 10–15 mA
Operating pressure ranges	SPS-X-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-X-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	< 95 % rH (non-condensing)

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



### Article codes

	Supply	Connections
<b>SPS-G-2K0</b>	15–24 VAC ± 10 % 18–34 VDC	3 – wire
<b>SPS-F-2K0</b>	18–34 VDC	4 – wire
<b>SPS-G-6K0</b>	15–24 VAC ± 10 % 18–34 VDC	3 – wire
<b>SPS-F-6K0</b>	18–34 VDC	4 – 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 / digital output PWM (open collector)
GND	Ground
Connections	Cable cross section: max. 0,75 mm <sup>2</sup> Cable gland clamping range: 3–6 mm

**Caution:** If a G-type article is using the same AC power supply source (transformer) as F-type article, a **SHORT CIRCUIT** may result when the power supply and analogue signal terminals are connected to the same common ground! In this case always connect different article types to separate AC transformers or use the same article version.

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!

### Modbus registers



The parameters of the unit can be configured through the 3SModbus software platform. You can download it from the following link:  
<http://www.sentera.eu/english/hvac-software-downloads.html>

You can find register maps in the mounting instructions. Download them from:  
<http://www.sentera.eu>

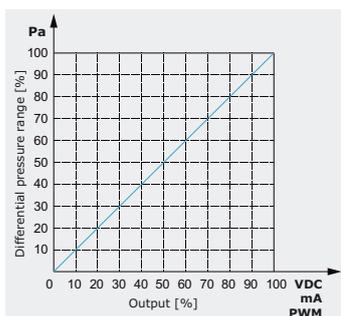


### Settings

1 - Analogue output mode selection switch (SW1)		3 2 1	1: 0–10 VDC 2: 0–20 mA 3: PWM (open collector)
2 - Sensor calibration tact switch (SW2)			Push to start sensor calibration
3 - Range selection jumpers			
<b>SPS-X-2K0</b>			
0–100 Pa	0–250 Pa	0–500 Pa	0–750 Pa
<b>SPS-X-6K0</b>			
0–1.000 Pa	0–1.500 Pa	0–2.000 Pa	0–2.500 Pa
<b>SPS-X-2K0</b>			
0–1.000 Pa	0–2.000 Pa	-50–50 Pa	-100–100 Pa
<b>SPS-X-6K0</b>			
0–3.000 Pa	0–4.000 Pa	0–5.000 Pa	0–6.000 Pa
4 - Response time selection jumpers			
0,5 s	1 s (default)	2 s	5 s
5 - Network bus resistor jumper (NBT)	<input type="checkbox"/>	SPS is the first or last unit	
6 - Sensor calibration and Modbus register reset indication / normal operation	Blinking blue (as defined)	Modbus register factory reset & sensor calibration / normal operation indication	
7 - Modbus communication indication	Blinking green	Transmitting	
	Blinking green	Receiving	
8 - Power indication	Continuous green	Power on	

indicates ON position of the jumper.)

### Operational diagram(s)



### Standards

- Low Voltage Directive 2006/95/EC
- EMC Directive 2004/108/EC: EN 61326
- WEEE Directive 2012/19/EU
- RoHS Directive 2011/65/EU



### Accessories

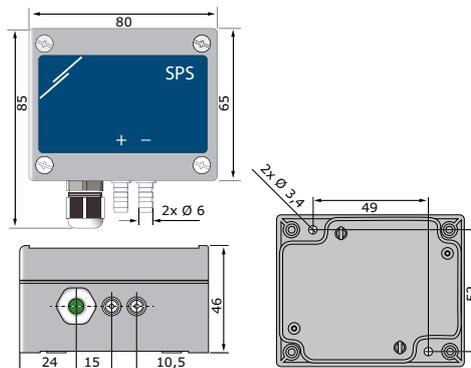
- Sensors, sensor switches & sensor controllers** PSET-PVC pressure connection set
- Sensors, sensor switches & sensor controllers** PSET-QF pressure connection set

### Combine with

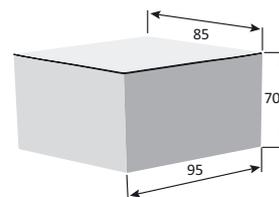
- Logic controllers, switches, timers, potentiometers, converters & relay modules**
  - DTA series
  - DTAP series
  - STEC series
- Electronic fan speed control**
  - MFC series
  - MCS series
  - MCT2 series
  - EVS(S) series
  - MVS(S) series
  - DP1S (SE-S series)
  - DP2S (SE-S series)
- Transformer controllers**
  - STVS series
- Frequency inverters**
  - FI series

For more detailed information about the product series features visit:  
<http://www.sentera.eu/english/download-catalogue.html>

### Fixing and dimensions



### Packaging



Article	Packaging	Length [mm]	Width [mm]	Height [mm]	Net weight	Gross weight
SPS-X-2K0 SPS-X-6K0	Unit (1 pc.)	95	85	70	0,12 kg	0,14 kg
	Carton (10 pcs.)	495	185	87	1,20 kg	1,53 kg
	Box (120 pcs.)	585	375	500	14,40 kg	17,90 kg