

SPD

Dual differential pressure transmitter

The SPD series are compact dual multi-range differential pressure transmitters providing analog / digital output for each sensor and Modbus RTU communication. The transmitters have two built-in state-of-the-art silicon pressure sensors with eight switchable measuring ranges. The SPD piezoresistive transducers are temperature and pressure compensated thus providing high degree of accuracy and reliability. Each sensor features a push-button for manual zero point calibration and adjustable offset.

Key features

- Wide power supply range
- Long-term stability and accuracy
- 2 analog / digital (PWM, open collector) outputs
- 8 selectable operating ranges
- Modbus RTU (RS485) communication
- Differential pressure, air volume* readout via Modbus RTU
- Modbus registers reset function (to factory preset values) for each sensor
- Implemented K-factor (for air volume measurement)
- Independent calibration of the sensors
- Selectable response time
- Terminal blocks with 0,75 mm² connectors
- Aluminium pressure connection nozzles

*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: $Q = A * V$



Technical specifications

Outputs	2 analog outputs (0–10 VDC / 0–20 mA) / digital outputs PWM (open collector)		
Power supply	SPD-F-2K0	18–34 VDC	
	SPD-G-2K0	18–34 VDC / 13–26 VAC	
	SPD-F-6K0	18–34 VDC	
	SPD-G-6K0	15–24 VAC ±10 % / 18–34 VDC	
Maximum power consumption	SPD-F-2K0	1,44 W	
	SPD-G-2K0	2,16 W	
	SPD-G-6K0	2,16 W	
Nominal or average power consumption in normal operation	SPD-F-2K0	1,08 W	
	SPD-G-2K0	1,62 W	
	SPD-G-6K0	1,62 W	
Imax	SPD-F-2K0	60 mA	
	SPD-G-2K0	90 mA	
	SPD-G-6K0	90 mA	
Consumption	No load:		VDC supply: 20–15 mA VAC supply: 15–10 mA
	Operating pressure ranges	SPD-F-2K0	0–100 Pa
SPD-G-2K0		0–500 Pa	0–750 Pa
		0–1.000 Pa	0–2.000 Pa
SPD-F-6K0		-50–50 Pa	-100–100 Pa
		0–1.000 Pa	0–1.500 Pa
		0–2.000 Pa	0–2.500 Pa
	0–3.000 Pa	0–4.000 Pa	
SPD-G-6K0	0–5.000 Pa	0–6.000 Pa	
	Differential pressure Air volume*		
Operating modes	Differential pressure Air volume*		
Sensor calibration procedure	Independent for each sensor		
Modbus register reset function	Independent for each sensor		
Response time	0,5 / 1 / 2 / 5 s		
Accuracy (analog voltage output)	±3 %		
Long-term stability	±1 % per year		
Protection standard	IP65 (according to EN 60529)		
Housing	reinforced ABS, colour grey RAL 7035		
Ambient conditions	Temperature	10–60 °C	
	Relative humidity	< 95 % rH (non-condensing)	

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

Article codes

	Supply	Connections
SPD-G-2K0	13–26 VAC 18–34 VDC	3-wire
SPD-F-2K0	18–34 VDC	4-wire
SPD-G-6K0	13–26 VAC 18–34 VDC	3-wire
SPD-F-6K0	18–34 VDC	4-wire

Area of use

- Differential pressure, Air flow volume* measurement in HVAC applications
- 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 datasheet of the fan)

Wiring and connections

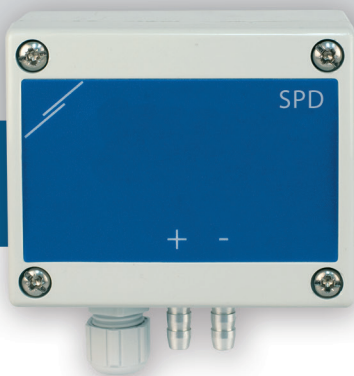
Vin	Positive DC voltage / AC ~
GND	Ground / AC ~
A	Modbus RTU (RS485) signal A
/B	Modbus RTU (RS485) signal /B
AO1	Analog / PWM (open collector) output 1
GND	Ground
AO2	Analog / PWM (open collector) output 2
GND	Ground
Connections	Cable cross section: max. 0,75 mm ² Cable gland clamping range: 3–6 mm

Caution: G and F-types devices cannot be used together in the same network. G and F-type devices must be supplied by separate power supplies. Do not connect the GND terminals of G and F-type devices together.

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!

SPD

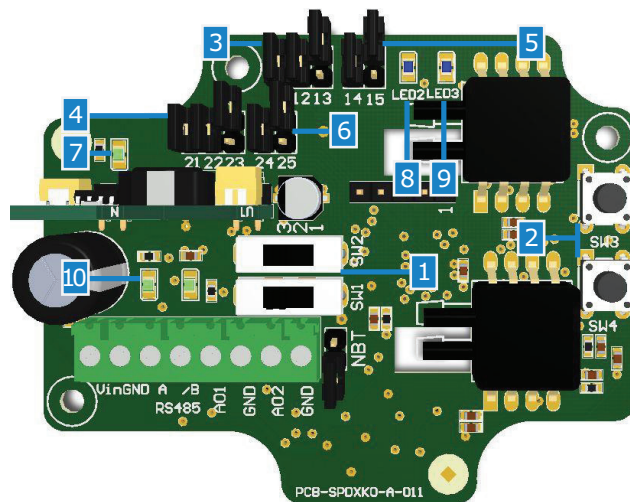
Dual differential pressure transmitter



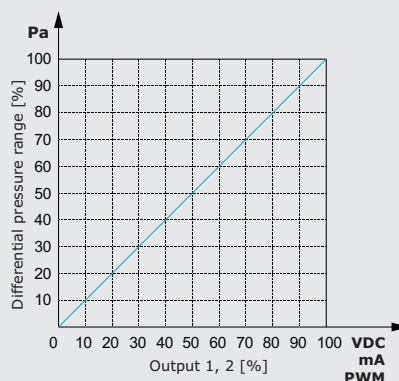
Settings and indications

1 - Analog output mode selection switch (SW1, SW2)		1: 0–10 VDC 2: 0–20 mA 3: PWM (open collector)								
2 - Sensor calibration and Modbus register reset of sensors 1, 2 (SW3, SW4)		SW3 - Sensor 1 calibration or Modbus register reset for sensor 1 SW4 - Sensor 2 calibration or Modbus register reset for sensor 2								
3 - Sensor 1 range selection jumpers	<table border="1"> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>on on on</td> <td>off on on</td> <td>on off on</td> <td>off on on</td> </tr> </table>						on on on	off on on	on off on	off on on
on on on	off on on	on off on	off on on							
SPD-X-2K0	0–100 Pa	0–250 Pa	0–500 Pa	0–750 Pa						
SPD-X-6K0	0–1.000 Pa	0–1.500 Pa	0–2.000 Pa	0–2.500 Pa						
	on on off	off on off	on off off	off off off						
SPD-X-2K0	0–1.000 Pa	0–2.000 Pa	-50–50 Pa	-100–100 Pa						
SPD-X-6K0	0–3.000 Pa	0–4.000 Pa	0–5.000 Pa	0–6.000 Pa						
4 - Sensor 2 range selection jumpers	<table border="1"> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>on on on</td> <td>off on on</td> <td>on off on</td> <td>off on on</td> </tr> </table>						on on on	off on on	on off on	off on on
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5 - Sensor 1 response time selection jumpers	<table border="1"> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>on on</td> <td>on off</td> <td>off on</td> <td>off off</td> </tr> </table>						on on	on off	off on	off off
on on	on off	off on	off off							
	0,5 s	1 s	2 s	5 s						
6 - Sensor 2 response time selection jumpers	<table border="1"> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>on on</td> <td>on off</td> <td>off on</td> <td>off off</td> </tr> </table>						on on	on off	off on	off off
on on	on off	off on	off off							
	0,5 s	1 s	2 s	5 s						
7 - Operating indication	Cont. green	Normal operation								
8 - Sensor calibration and Modbus register reset	Blinking blue LED2 (as defined)	Modbus register factory reset or calibration of sensor 1								
9 - Sensor calibration and Modbus register reset	Blinking blue LED3 (as defined)	Modbus register factory reset or calibration of sensor 2								
10 - Modbus communication indication	Blinking green	Transmitting / receiving								

indicates closed position of the jumper.)



Operational diagram(s)



Modbus registers



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

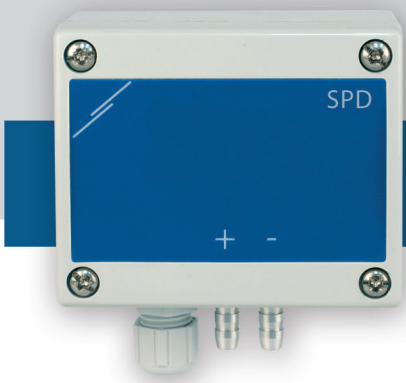
The parameters of the unit can be monitored / configured through the 3S Modbus software platform. You can download it from the following link:
<https://www.sentera.eu/en/3SMCenter>

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

Standards

- Low Voltage Directive 2014/35/EC
- EMC Directive 2014/30/EC
- WEEE Directive 2002/96/EC
- RoHS Directive 2011/65/EC

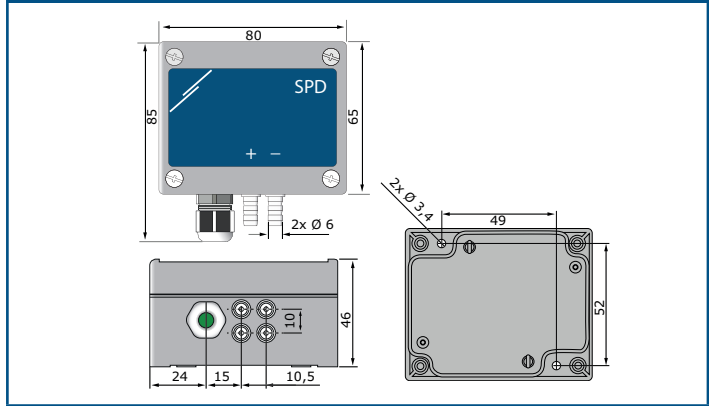




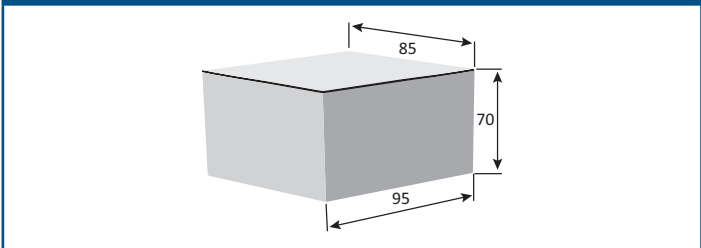
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Fixing and dimensions



Packaging



Article	Packaging	Length [mm]	Width [mm]	Height [mm]	Net weight	Gross weight
SPD	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