



**CONTROL AND MODBUS COMMUNICATION
APPENDIX TO THE SPS MANUAL**



THE FOLLOWING MANUAL ASSUMES GOOD KNOWLEDGE OF TECHNICAL DOCUMENTATION INCLUDED WITH THE AIR HANDLING UNIT (AHU). THIS MANUAL CONSIDERS ONLY THE CONTROL AND COMMUNICATION CIRCUITS. THE INSTALLATION OF THE PRESSURE TRANSDUCER AND INSTALLATION OF CABLES SHOULD BE DONE ACCORDING TO THE SENTERA CONTROLS SPS MANUAL.

1. Technical data

Power

- 18-34 VDC supply: 20-10 mA (no load)
- 15-24 VAC supply: 15-10 mA (no load)

Output

- Analog (0-10 VDC/0-20mA)
- Modbus RTU (RS485)

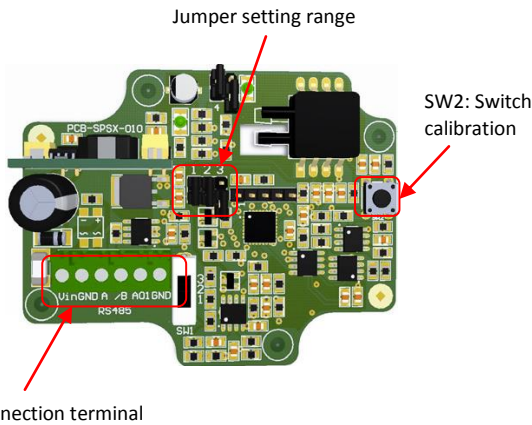


Figure 1

2. Connection (Modbus RTU)

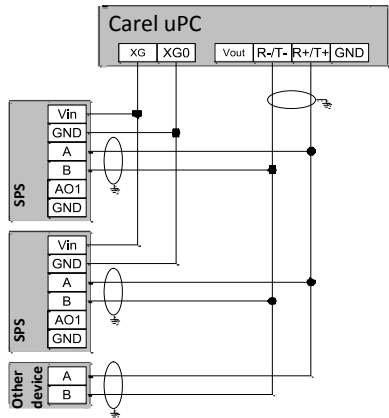


Figure 2

Pressure sensor

| | |
|-----|---------------------------|
| Vin | Positive DC voltage / AC~ |
| GND | Ground / AC~ |
| A | RS485 signal A (+) |
| B | RS485 signal B (-) |

Carel uPC

| | |
|---------|--------------------|
| XG | AC~ (24VAC) |
| X0 | AC~ (ground) |
| RX+/Tx+ | RS485 signal A (+) |
| RX-/Tx- | RS485 signal B (-) |

Cable

Use a shielded, twisted pair cable (AWG 20-22) with inter-conductor capacitance <90pF/m.

Note: In case of a Master-Slave network the max. allowable length is 1000 m. If the network is longer than 100 m, apply 120Ω, 1/4W terminating resistors to the first and last devices in the network.

3. Calibration procedure

Disconnect the nozzles. Press button SW2 for four seconds until the red LED on the printed circuit board blinks twice, then release this button. After two seconds this LED will blink twice again to indicate that the procedure is finished.

4. Reset Modbus registers procedure

Press button SW2 for four seconds until the red LED on the printed circuit board is blinking twice and keep pressing until the red LED is blinking three times. The Modbus registers are restored to their default values (factory preset).

Remark: after the first two blinks, do not release the button before it is blinking again three times. Otherwise the SPS will perform the calibration procedure instead.

5. Communication parameters in Modbus network

| Holding register | | | | |
|------------------|-------------------|---------------|--------------------------------|---|
| | Address | Data type | Description | Data |
| 1 | Address | Unsigned int. | Devices address | 1-247 (default: 11) |
| 2 | RS485 baud rate | Unsigned int. | Modbus communication baud rate | 1: 9600 (default) 2: 19200 3: 38400 |
| 3 | RS485 parity mode | Unsigned int. | Parity check mode | 0: 8N1 (default) 1: 8E1 2: 8O1 |

CAUTION!

Pressure sensor is default configured for supply side. To change from supply to exhaust side user must change device address from 11 to 12. Address can be changed by carel uPC and it is described in "Compact control gear for Supply and Supply-Exhaust Air Handling Units VS 10-650 CG UPC".