CONTROL AND MODBUS COMMUNICATION
APPENDIX TO THE DSC 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 CO2 TRANSDUCER AND INSTALLATION OF CABLES SHOULD BE DONE ACCORDING TO THE SENTERA CONTROLS DSC 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)

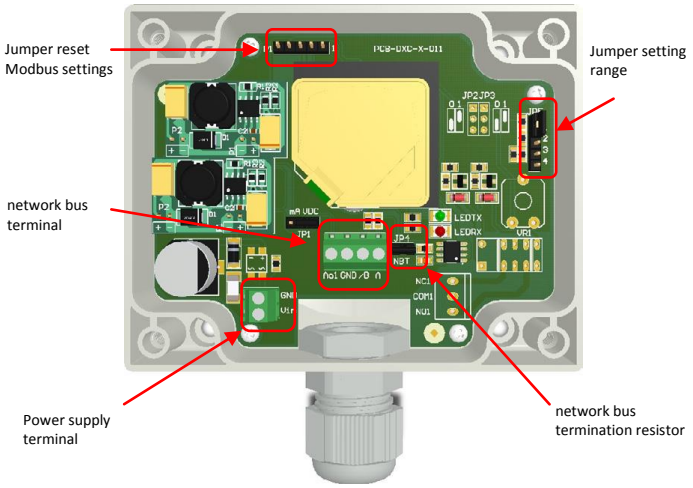

Figure 1

2. Connection

CO2 transducer

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. Reset Modbus registers procedure

Put and hold the jumper on position 1 for 20 sec

4. Communication parameters in Modbus network

Holding register

		Data type	Description	Data
1	Address	Unsigned int.	Devices address	1-247 (**default: 21**)
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