Features

- CO2, Temperature, and Relative Humidity measurement
- 0-10V Analog Output or Modbus Communication
- 12-24VDC Power Supply
- IP20 ABS Plastic Box
- Surface Mounting

Applications

The SN100 device can measure carbon dioxide, humidity, and temperature. The device can be used as a 0-10V active input sensor in building automation and HVAC applications. The device is designed and manufactured to work with all devices with a Modbus communication option.

Usage Notes

Please read the document carefully. SN100 has been designed and manufactured with the latest technological developments and safety rules. Safety warnings must be observed to prevent injury and property damage.

Safety Advice-Caution

The device's Installation, maintenance, and repair must be done by authorized personnel. The power supply of the device should be 12-24 VDC.

insulated sleeve with a length of 6mm
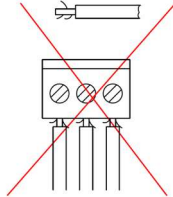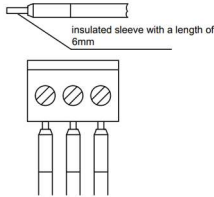
The ends of the connecting wires must be protected against delamination using insulated sleeves as shown in the figure.

About Product

Product code	Definition	Strength	Communication
SN100 .01	3 pcs 0-10V Analog Outputs 1 pc RS485 Port (Optional)	Max. 2W	Modbus RTU

Technical Specifications

|			
Power Supply	12-24VDC		
Power Consumption	Max. 2W		
Operating Temperature	-10...+60 °C		
Storage Temperature	+10°C ... +50°C		
Relative Humidity	%5 ...95 rh, non-condensing		
Wiring Connections	PCB Type Terminal Block, Max. 2.5 mm^2		
Sensor Characteristics	Temperature	Humidity	CO_2
Measurement Range	10...+60°C	0...100rh	400...2000ppm (0V = 400ppm)
Measurement Resolution	0,01°C	0.1rh	1ppm
Measurement Accuracy	+- 1°C	+- %5	+- %20
Outputs	3 pcs 0-10V analog outputs		
Communication	1 pc RS485 port, Modbus RTU communication		
Plastic box	IP20 according to EN 60529		
Box Type	Surface mount		
Plastic Box Material	ABS (UL 94 V-0)		
Dimensions	88 x 23 x 45mm (W x H x D)		

Mounting Location

Due to its structure, the device is suitable for surface mounting. It is recommended to leave space for cable connection to the terminals of the device.

Mounting Instructions

Please follow the instructions below during installation.

1. **Step:** Make sure that the device is not powered.
2. **Step:** Make the equipment and communication connections you will use according to the connection diagrams given below.
3. **Step:** Make sure that the connection and other settings are made correctly.
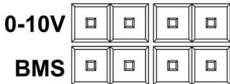4. **Step:** Power the device.

Wiring Diagram
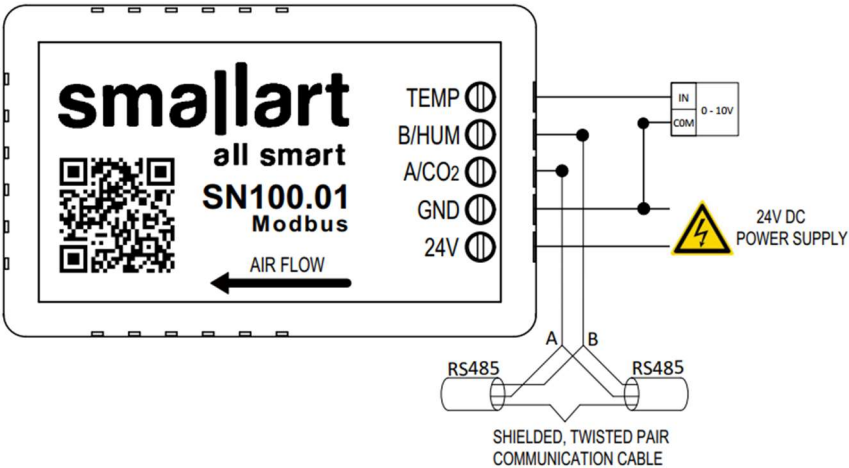
SN100 Connection Diagram (3 pcs 0-10V Analog Output)
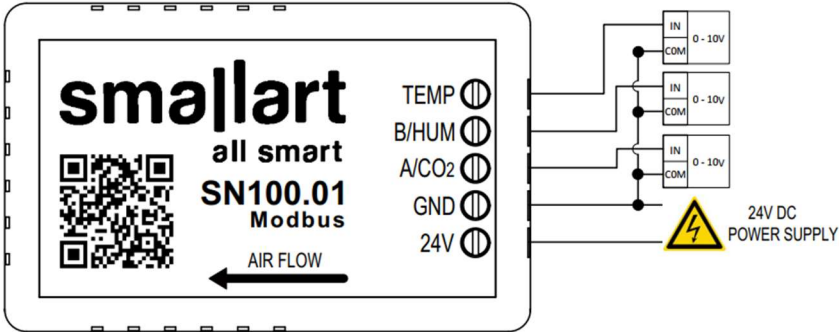
**SN100 Connection Diagram (1 pc 0-10V Analog Output and RS485 Communication)**

Note: If RS485 communication will be used, the two screws at the bottom of the device box must be removed and the two jumpers next to the BMS label on the PCB must be activated. In this case, 0-10V carbon dioxide and humidity sensors will be passive. All analog outputs will activate when the two jumpers next to the 0-10V label are activated. In this case, RS485 communication becomes passive.

Device Power Connection

Connect the 12-24VDC output of the power supply to the 24V terminal of the card and the GND or COM output of the power supply to the GND terminal of the card.

Analog Outputs
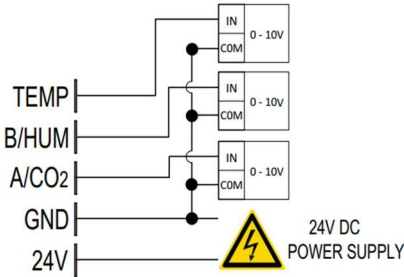
Connect the output cables of the 0-10V temperature, humidity, or carbon dioxide sensor to IN or AIx terminal of the relevant device. Connect the GND output cables to the GND or COM terminal of the relevant device.

Note: To use 0-10V sensor outputs, activate the two jumpers in front of the 0-10V label on the PCB.

Restoring Factory Settings

The switch on the card is used to restore factory settings. When the switch is placed in the "ON" position, the LED blinks and a reset occurs. The switch is brought back to the "OFF" position. A few seconds after this the card will return to factory settings.

Communication Connection and End of Line Resistance (EOL)
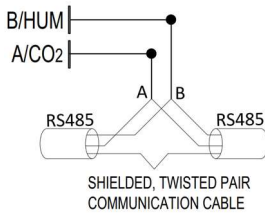
As shown in the figure on the left, connect the communication cable between the "A" or "+" terminal of the selected port of your communication device and the "A" terminal of the sensor then the "B" or "-" terminal of your device and the "B" terminal of the sensor. The end-of-line resistor (EOL) on the PCB can be activated if needed.

Note: To use Modbus communication, the two jumpers next to the BMS label on the PCB must be activated.

Modbus Communication Settings
Device Address: Default 1
Baud Rate: Default 9600 bps
Parity: Default None

Note: Communication settings can be changed via Modbus parameters by connecting to the device with default settings. For the change to be valid, a power reset must be applied to the device. To return the device to default settings, factory settings restore must be performed.

SN100 Modbus Parameters

Modbus Address	Parameter Name	Read/ Write (R/W)	Default	Minimum	Maximum	Description
Decimal: 0	Hardware ID	R	100	0	9999	Indicates the hardware ID information of the device. 100 =>1.0
Decimal: 1	Software ID	R	100	0	9999	Indicates the software ID information of the device. 100 =>1.0
Decimal: 2	Modbus Slave ID	R/W	1	1	247	The communication address can change with this parameter.
Decimal: 3	Baud Rate	R/W	0	0	3	The baud rate can be changed with this parameter. 0 = 9600 bps 1 = 19200 bps 2 = 38400 bps 3 = 76800 bps
Decimal: 4 : Decimal: 9	Reserved	-	-	-	-	-
Decimal: 10	Carbon Dioxide Sensor Value	R	0	400	2000	This parameter shows the carbon dioxide value read from the sensor. 400ppm corresponds to 0V. 400...2000ppm
Decimal: 11	Humidity Sensor Value	R	0	0	1000	This parameter shows the humidity value read from the sensor. 0 ... 1000 => 0 ... 100rh
Decimal: 12	Temperature Sensor Value	R	0	-1000	6000	This parameter shows the temperature value read from the sensor. -1000 ... 6000 => -10°C ... 60°C
Decimal: 13 : Decimal: 14	Reserved	-	-	-	-	-
Decimal: 15	Humidity Value Float MSB	R	0	-32768	32767	It is the MSB equivalent of the humidity sensor value.
Decimal: 16	Humidity Value Float LSB	R	0	-32768	32767	It is the LSB equivalent of the humidity sensor value.
Decimal: 17	Temperature Value Float MSB	R	0	-32768	32767	It is the MSB equivalent of the temperature sensor value.
Decimal: 18	Temperature Value Float LSB	R	0	-32768	32767	It is the LSB equivalent of the temperature sensor value.
Decimal: 19 : Decimal: 39	Reserved	-	-	-	-	-
Decimal: 40	Carbon Dioxide Calibration	R/W	0	-100	100	This parameter is the calibration point for the carbon dioxide sensor. -100...100ppm
Decimal: 41	Humidity Calibration	R/W	0	-100	100	This parameter is the calibration point for the humidity sensor. -100...100 => -10...10rh

Decimal: 42	Temperature Calibration	R/W	0	-1000	1000	This parameter is the calibration point for the temperature sensor. -1000...1000 => -10...10 °C
Decimal: 43 : Decimal: 50	Reserved	-	-	-	-	-

Dimensions (mm)