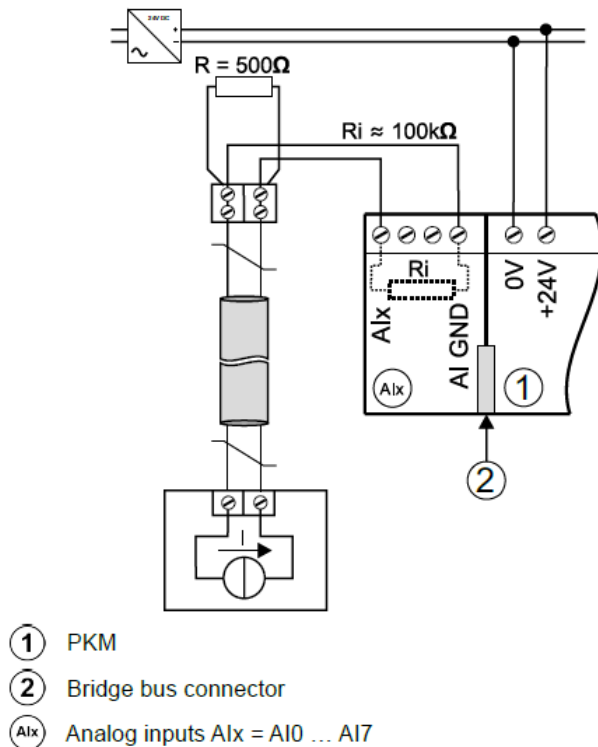


TT220403 – OPEN - Connecting 4-20mA Sensor

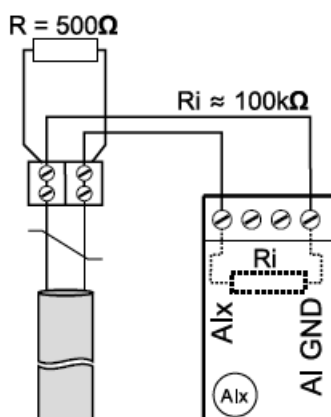
1. The OPEN 600 controller and the AI module support 0-20mA (or 4-20mA) sensors. To connect the sensor, you can refer to the below diagram (this is from the data sheet).

Analog inputs

Connection 0(4)-20mA signals (AI)



2. You need to connect a resistor of 500 ohm (Ω) across the “AIx” and “AI GND” terminals in the AI module. This convert the 0(4)-20mA signal to 0(2)-10V signal across the terminals.



3. Please note the following when connecting the AI sensors.

Note:

The connection between the ground (⏏) of the device and the terminal “AI GND” has to be made directly!

When connecting sensors, please note that measurement errors can occur due to incorrect grounding of the sensor values. These measurement errors can result when a voltage drop occurs on live ground lines.

If both passive sensors and analog 0-10V signals are connected, deviations of the measured values may occur.

4. It is suggested that you use a low tolerance (1% or less) resistor for this purpose. Below is an example of the color code of a 500Ω 0.1% tolerance resistor.

Resistor Parameters

1st Band of Color

Green 5

2nd Band of Color

Black 0

3rd Band of Color

Black 0

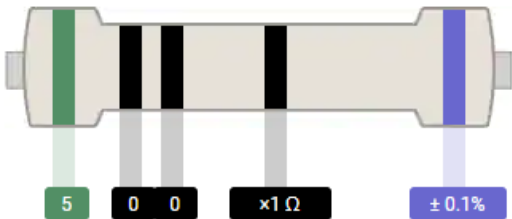
Multiplier

Black $\times 1 \Omega$

Tolerance

Violet $\pm 0.1\%$

Output



5 0 0 $\times 1 \Omega$ $\pm 0.1\%$

**Resistor value:
500 Ohms .10%**

5. In FUP, you can select sensor type “AS_V_10V_2” (17) for the sensor.

type	ident. num	sensor	range
AS_Status_00	0	input deactivated	
AS_V_10V_2	17	voltage input	0..10V

6. For example, if you’re using a 0-20mA temperature sensor and the sensor range is 0-50°C, then you can set the scale like below.

analog inputs (demokk)

General **scale** damping limitation

Identifier	input val.	=	sensor val.	input val.	=	sensor val.
AI00 AHU Return Air Temperat						
	--- (MIN-value) ---					
	0.00		0.00	10.00		50.00
	--- (MAX-value) ---					

7. If it is a 4-20mA temperature sensor and the sensor range is 0-50°C, then you can set the scale like below.

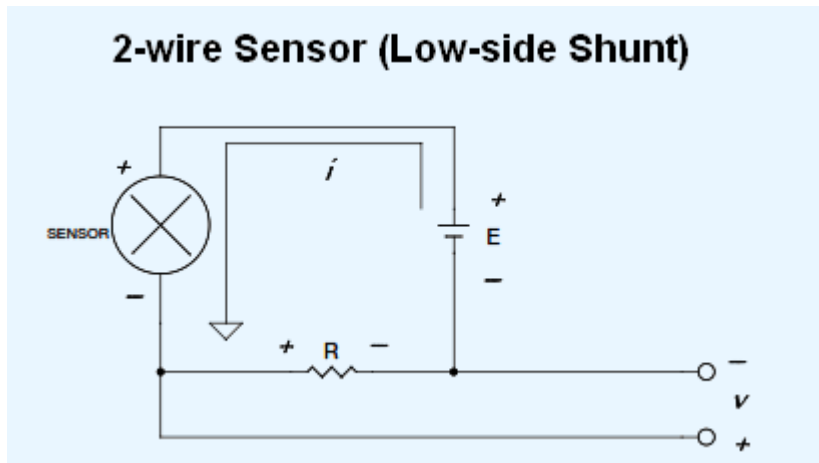
analog inputs (demokk)

General **scale** damping limitation

Identifier	input val.	=	sensor val.	input val.	=	sensor val.
AI00 AHU Return Air Temperat						
	--- (MIN-value) ---					
	2.00		0.00	10.00		50.00
	--- (MAX-value) ---					

8. Please refer to TT180801, TT210902 and TT190505 for more details regarding the AI module settings in FUP and OPENview.

9. For some 4-20mA sensors, it only has 2 wires (like below). Assuming this is a 24V DC sensor, and the below picture shows an example for the correct wiring connection.



10. The “E+” is 24V DC power source and connect to the sensor “+” terminal, “E-” connect to the “AI GND” terminal (V-) in the AI module. The sensor “-” terminal connects to the “AIx” terminal (V+) in the AI module. The 500Ω resistor is connected across the “AIx” and “AI GND” terminals.
11. Please note that it is just an example for your reference only. You should always refer to the datasheet of the sensor for wiring connection.