

**CURRENT output configuration and connecting
with SDM-8AO by RS485 Modbus.**

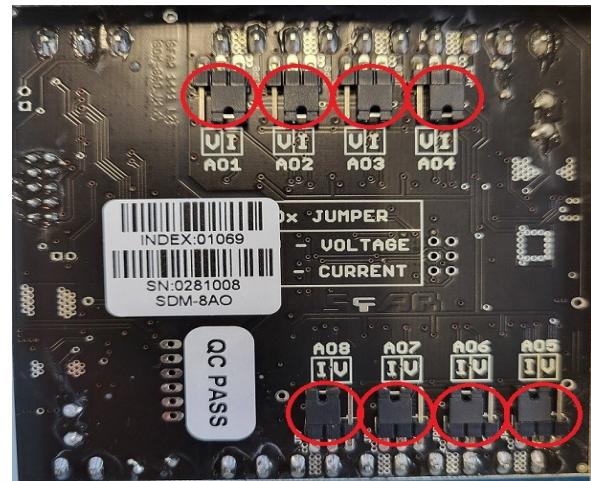
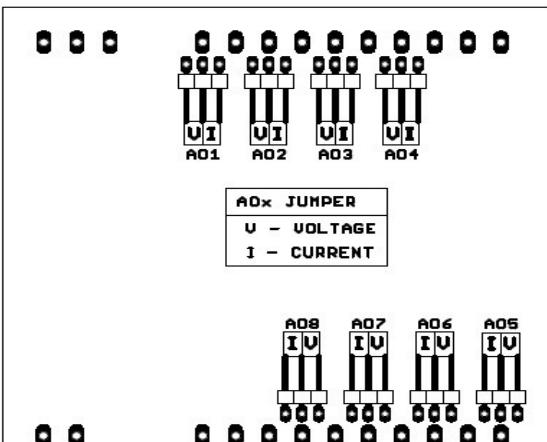
Current output configuration

1. Remove a bottom cover of **SDM-8AO**:



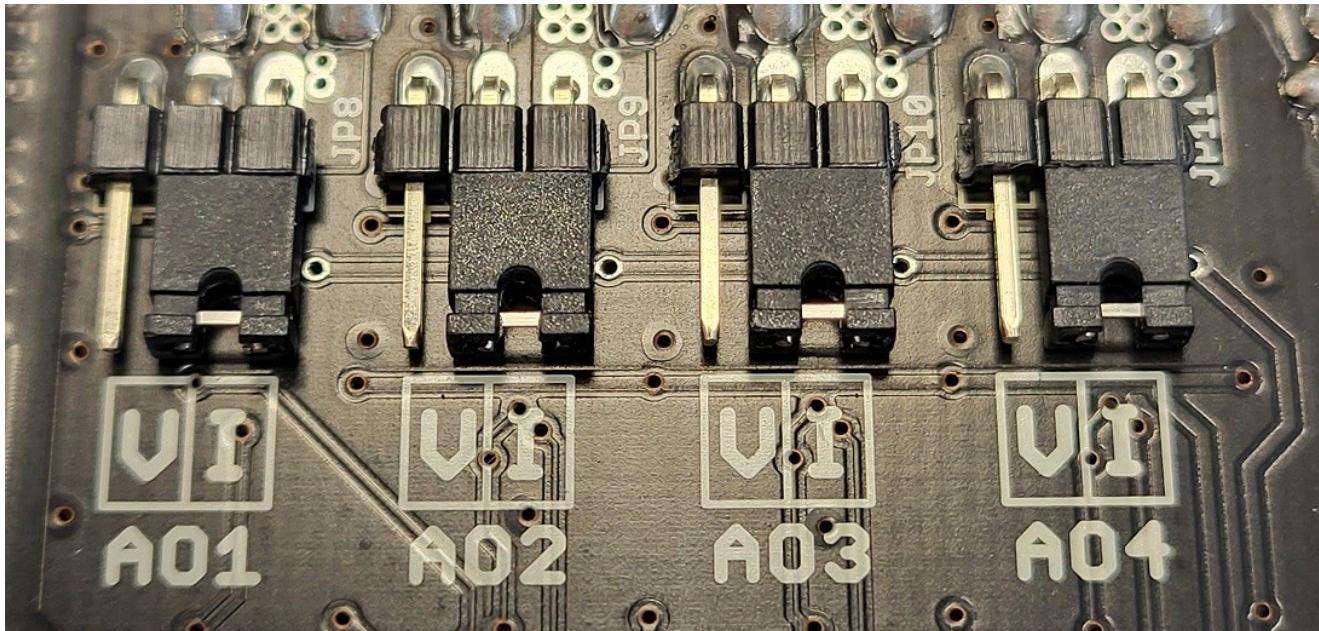
2. Set jumpers to **Current** outputs. The channel with current output must have shorted jumpers marked as current "I"

Location of the jumpers



Jumper	Description
	Current output (default)
	Voltage output

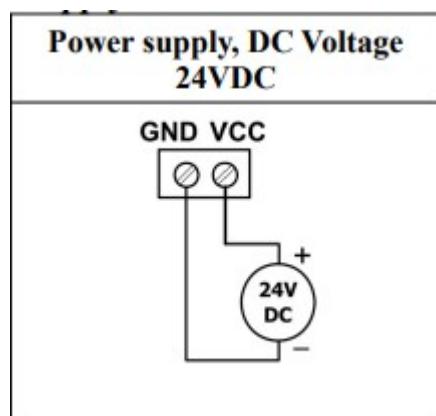
View of the shorted jumpers in the "I" position



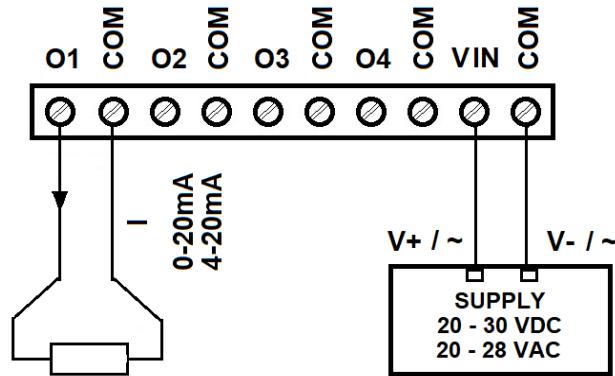
3. Close **SDM-8AO**

4. Connect

A. power supply:



B. power supply of analog outputs



5. Connect SDM-8AO by USB cable to IO Configurator and set type of output.

Link to download:

https://www.aspar.com.pl/katalogi/IOMODULES/KONFIGURATOR/software/Konfigurator_IO.zip

The IO Configurator allows to set two type of current outputs:

- 0mA to 20mA
- 4mA to 20mA

The SDM-8AO module has two type of current output mode with two different register values ranges.

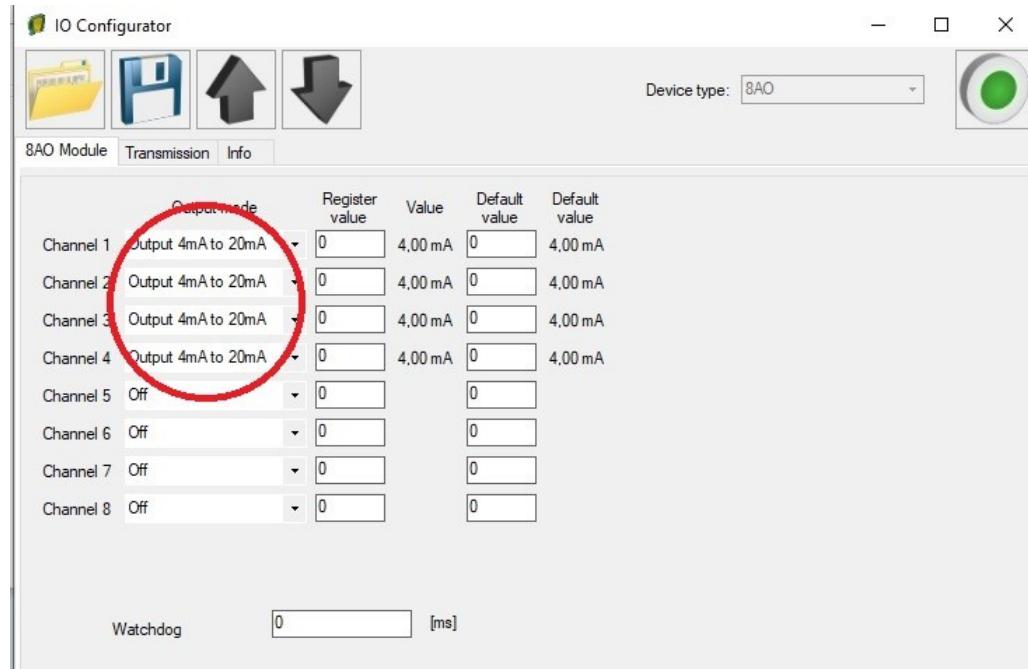
0mA - 20mA	Register value - range: 0 - 20000
4mA - 20mA	Register value - range: 0 - 1000

Examples

mode 4-20mA	register value: 0	output value: 4mA
mode 0-20mA	register value: 0	output value: 0mA
mode 4-20mA	register value: 500	output value: 12mA
mode 0-20mA	register value: 500	output value: 0,5mA
mode 4-20mA	register value: 1000	output value: 20mA
mode 0-20mA	register value: 1000	output value: 1mA

Current output configuration

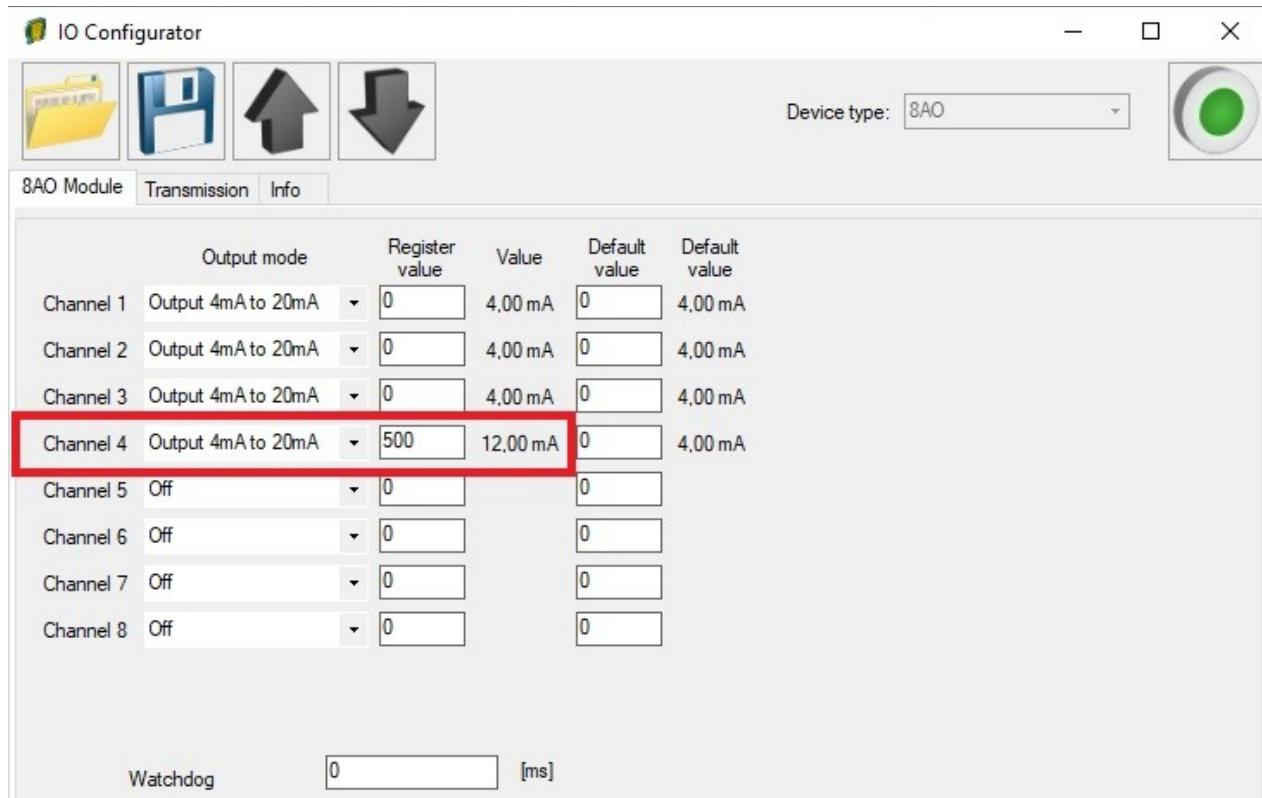
mode 0-20mA	register value: 8000	output value: 8mA
mode 0-20mA	register value: 10000	output value: 10mA
mode 0-20mA	register value: 20000	output value: 20mA



Current output configuration

6. Set 12mA on channel 4 using IO Configurator. Channel 4 is configured as 4-20mA. The range of register is: 0-1000. This means that the register value should be **500** to get **12mA** at the analog output.

mode 4-20mA register value: 500 output value: 12mA



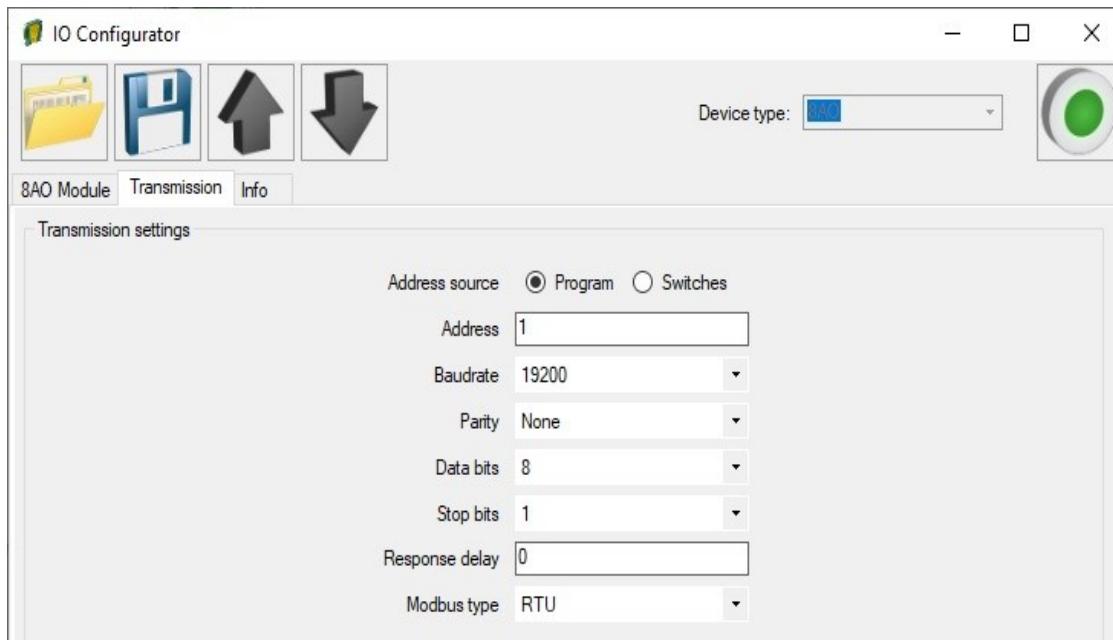
6.1. Measure the output current on channel 4 with a multimeter.



Current output configuration

7. Set 8mA on channel 1 using **Modbus** protocol. Channel 1 is configured as 4-20mA. The range of register is: 0-1000. This means that the register value should be **250** to get **8mA** at the analog output.

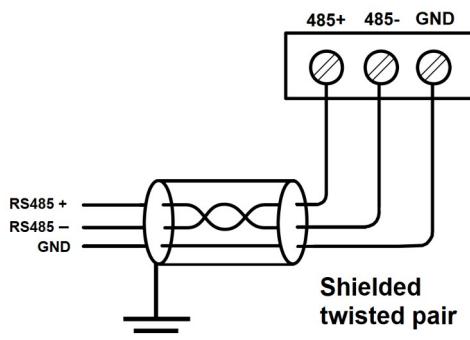
7.1. Set communication parameters in IO Configurator (SDM-8AO is a Modbus slave, client)



7.2. Set communication parameters in your **Master Device** (Baudrate, parity, Data bits, Stop bits, Modbus type – the same, Address – other).

7.3. Disconnect IO Configurator

7.4. Connect SDM-8AO with your Master Device by RS485:

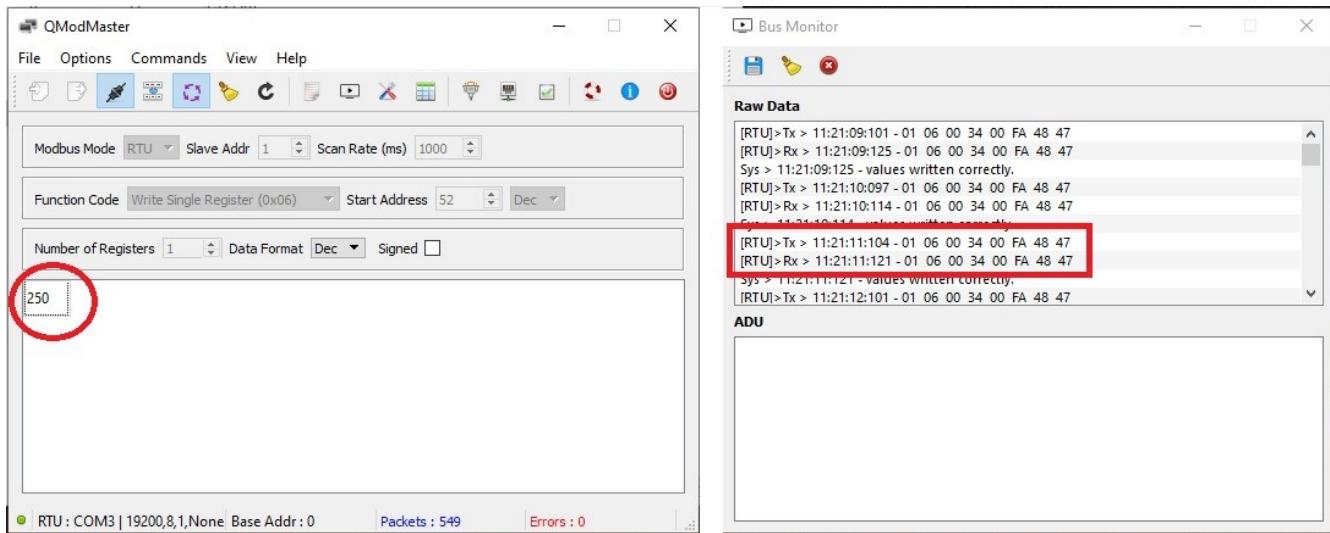


Current output configuration

7.5. Master Device: Send a query to SDM-8AO – write value of analog output AO 1 (Channel 1). Use Modbus function - **Write Single Register 06**. Address of the register analog output 1 (AO 1): **52** (dec) or **34** (hex). New register value – 250.

40053	52	0x34	Analog output 1	Read & Write	Value of analog output: in mV for voltage output (max 10240) in μ A for current output 0 - 20mA (max 20480) in % for current output 4-20mA (max 1000)
40054	53	0x35	Analog output 2	Read & Write	
40055	54	0x36	Analog output 3	Read & Write	
40056	55	0x37	Analog output 4	Read & Write	
40057	56	0x38	Analog output 5	Read & Write	
40058	57	0x39	Analog output 6	Read & Write	
40059	58	0x3A	Analog output 7	Read & Write	
40060	59	0x3B	Analog output 8	Read & Write	

In this example Modbus Master Device is software – QModMaster:



7.6. View of communication frame:

A. query to SDM-8AO:

01 06 00 **34** 00 FA 48 47

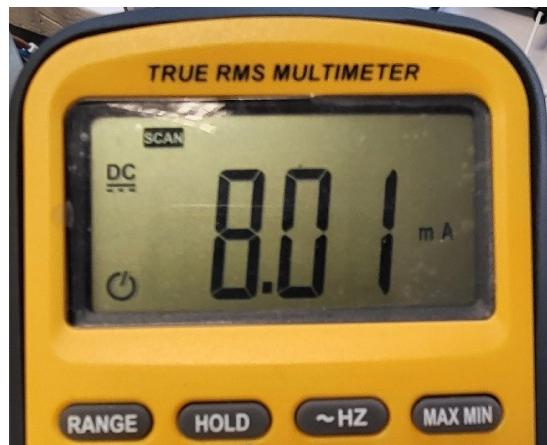
B. answer from SDM-8AO

01 06 00 34 **00 FA** 48 47

00 FA (hex) = 250 (dec)

7.7. The new value of register 52 (dec) – AI 1 – analog output 1 is: **250**.
250 =8,00mA

7.8. Measure the output current on channel 1 with a multimeter.



8. Connection of the current output.

