iSMACONTROLLI SFAR-1M-2DI1AO 2 Digital Inputs and 1 Analog Output Modbus I-O Module Instruction Manual

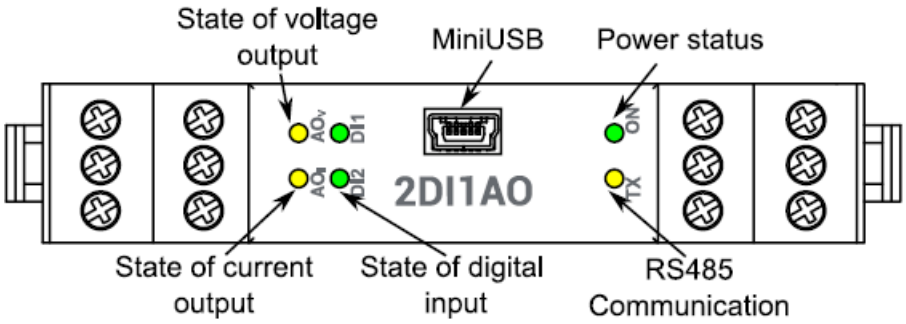
Contents

iSMACONTROLLI SFAR-1M-2DI1AO 2 Digital Inputs and 1 Analog Output Modbus I-O Module

SPECIFICATION		
Power supply	Voltage	10-38 V DC; 10-28 V AC
	Power consumption	2 W @ 24 V DC; 4 V A @ 24 V AC
Analog outputs	1x Voltage output	0 V÷10 V (resolution 1,5 mV)
	1x Current output	0 mA÷20 mA (resolution 5 uA)
		4 mA÷20 mA (resolution 16 uA)
Digital inputs	2x, logical “0”: 0-3 V, logical “1”: 6-38 V	

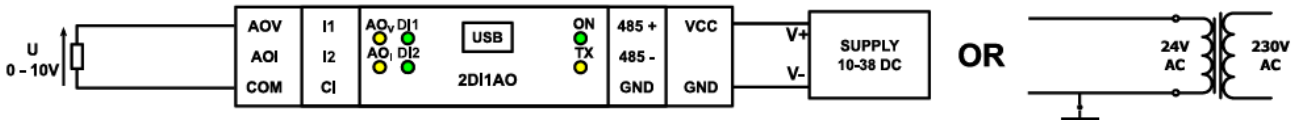
Counters	2x, Resolution 32-bits Frequency max 1 kHz
Baudrate	From 2400 to 115200 bps
Ingress protection	IP40 – for indoor installation
Temperature	Operating -10°C – +50°C; Storage – 40°C – +85°C
Relative humidity	5 to 95% RH (without condensation)
Connectors	Max 2.5 mm2
Dimension	90 mm x 56,4 mm x 17,5 mm
Mounting	DIN rail mounting (DIN EN 50022)
Housing material	Plastic, self-extinguishing PC/ABS

TOP PANEL

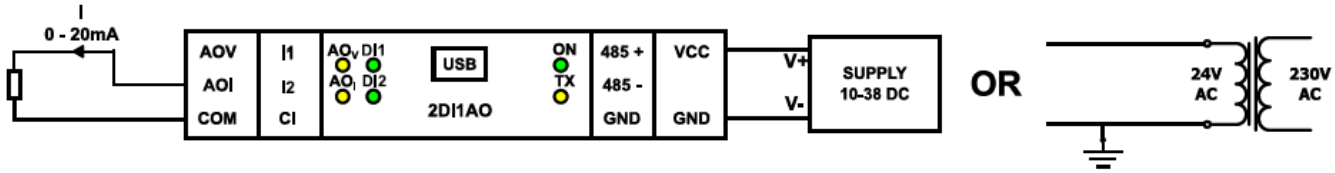


CONNECTION OF OUTPUTS

Voltage output

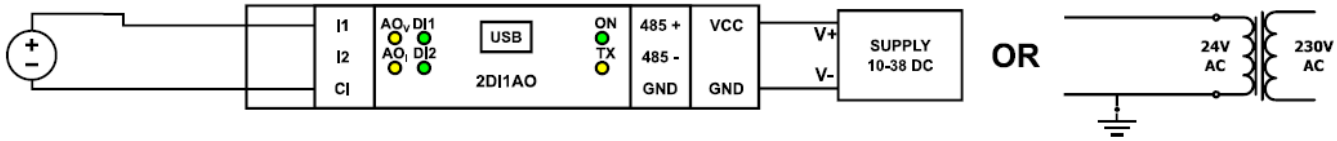


Current output



CONNECTION OF INPUTS

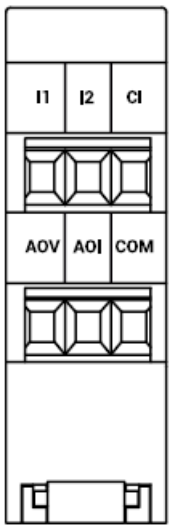
Digital inputs

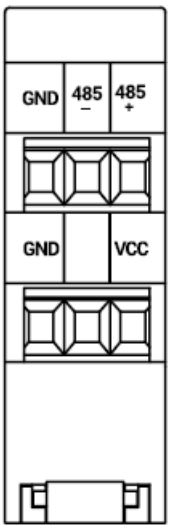


WARNING

- Note, an incorrect wiring of this product can damage it and lead to other hazards. Make sure the product has been correctly wired before turning the power ON.
- Before wiring, or removing/mounting the product, be sure to turn the power OFF. Failure to do so might cause electric shock.
- Do not touch electrically charged parts such as the power terminals. Doing so might cause electric shock.
- Do not disassemble the product. Doing so might cause electric shock or faulty operation.
- Use the product within the operating ranges recommended in the specification (temperature, humidity, voltage, shock, mounting direction, atmosphere etc.). Failure to do so might cause fire or faulty operation.
- Firmly tighten the wires to the terminal. Insufficient tightening of the wires to the terminal might cause fire.

TERMINALS OF THE DEVICE





Register access

Modbus	Dec	Hex	Register Name	Access	Description
30001	0	0x00	Version/Type	Read	Version and Type of the device
30002	1	0x01	Address	Read	Module Address
40003	2	0x02	Baud rate	Read & W rite	RS485 baud rate
40004	3	0x03	Stop Bits & Data Bits	Read & W rite	No of Stop bits & Data Bits

40005	4	0x04	Parity	Read & Write	Parity bit
40006	5	0x05	Response Delay	Read & Write	Response delay in ms
40007	6	0x06	Modbus Mode	Read & Write	Modbus Mode (ASCII or RTU)
40009	8	0x08	Watchdog	Read & Write	Watchdog
40013	12	0x0C	Default Output State	Read & Write	Default output state (after power on or watchdog reset)
40033	32	0x20	Received packets LSR (Least Significant Reg.)	Read & Write	No of received packets
40034	33	0x21	Received packets MSR (Most Significant Reg.)	Read & Write	

40035	34	0x22	Incorrect packets LSR	Read & W rite	No of received packets with error
40036	35	0x23	Incorrect packets MSR	Read & W rite	
40037	36	0x24	Sent packets LSR	Read & W rite	No of sent packets
40038	37	0x25	Sent packets MSR	Read & W rite	
30051	50	0x32	Inputs	Read	Inputs state
40052	51	0x33	Outputs	Read & W rite	Output state
40053	52	0x34	Counter 1 LSR	Read & W rite	32-bit counter 1

40054	53	0x35	Counter 1 MSR	Read & Write	
40055	54	0x36	Counter 2 LSR	Read & Write	32-bit counter 2
40056	55	0x37	Counter 2 MSR	Read & Write	
40061	60	0x3C	CCounter 1 LSR	Read & Write	32-bit value of captured counter 1
40062	61	0x3D	CCounter 1 MSR	Read & Write	
40063	62	0x3E	CCounter 2 LSR	Read & Write	32-bit value of captured counter 2
40064	63	0x3F	CCounter 2 MSR	Read & Write	

40069	68	0x44	Counter Config 1	Read & W rite	Counter Configuration +1 – time measurement (if 0 counting impulses) +2 – autocatch counter every 1 sec +4 – catch value when input low +8 – reset counter after catch +16 – reset counter if input low +32 – encoder
40070	69	0x45	Counter Config 2	Read & W rite	
40073	72	0x48	Catch	Read & W rite	Catch counter
40074	73	0x49	Status	Read & W rite	Captured counter

INSTALLATION GUIDELINE

Please read the instruction before use or operating the device. In case of any questions after reading this document, please contact the iSMA CONTROLLI Support Team (**support@ismacontrolli.com**).

- Before wiring or removing/mounting the product, make sure to turn the power off. Failure to do so might cause an electric shock.
- Improper wiring of the product can damage it and lead to other hazards. Make sure that the product has been correctly wired before turning the power on.
- Do not touch electrically charged parts such as power terminals. Doing so might cause an electric shock.
- Do not disassemble the product. Doing so might cause an electric shock or faulty operation.
- Use the product only within the operating ranges recommended in the specification (temperature, humidity, voltage, shock, mounting direction, atmosphere, etc.). Failure to do so might cause a fire or faulty operation.
- Firmly tighten the wires to the terminal. Failure to do so might cause a fire.

- Avoid installing the product in close proximity to high-power electrical devices and cables, inductive loads, and switching devices. Proximity of such objects may cause an uncontrolled interference, resulting in an instable operation of the product.
- Proper arrangement of the power and signal cabling affects the operation of the entire control system. Avoid laying the power and signal wiring in parallel cable trays. It can cause interferences in monitored and control signals.
- It is recommended to power controllers/modules with AC/DC power suppliers. They provide better and more stable insulation for devices compared to AC/AC transformer systems, which transmit disturbances and transient phenomena like surges and bursts to devices. They also isolate products from inductive phenomena from other transformers and loads.
- Power supply systems for the product should be protected by external devices limiting overvoltage and effects of lightning discharges.
- Avoid powering the product and its controlled/monitored devices, especially high power and inductive loads, from a single power source. Powering devices from a single power source causes a risk of introducing disturbances from the loads to the control devices.
- If an AC/AC transformer is used to supply control devices, it is strongly recommended to use a maximum 100 VA Class 2 transformer to avoid unwanted inductive effects, which are dangerous for devices.
- Long monitoring and control lines may cause loops in connection with the shared power supply, causing disturbances in the operation of devices, including external communication. It is recommended to use galvanic separators.
- To protect signal and communication lines against external electromagnetic interferences, use properly grounded shielded cables and ferrite beads.
- Switching the digital output relays of large (exceeding specification) inductive loads can cause interference pulses to the electronics installed inside the product. Therefore, it is recommended to use external relays/contactors, etc. to switch such loads. The use of controllers with triac outputs also limits similar overvoltage phenomena.
- Many cases of disturbances and overvoltage in control systems are generated by switched, inductive loads supplied by alternating mains voltage (AC 120/230 V). If they do not have appropriate built-in noise reduction circuits, it is recommended to use external circuits such as snubbers, varistors, or protection diodes to limit these effects.

Electrical installation of this product must be done in accordance with national wiring codes and conform to local regulations.

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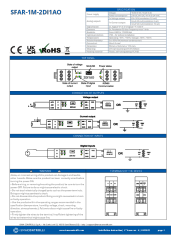
Documents / Resources

	**iSMACONTROLLI SFAR-1M-2DI1AO 2 Digital Inputs and 1 Analog Output Modbus I-O Module** [pdf] Instruction Manual SFAR-1M-2DI1AO, 2 Digital Inputs and 1 Analog Output Modbus I-O Module, 1 Analog Output Modbus I-O Module, Output Modbus I-O Module, Modbus I-O Module, SFAR-1M-2DI1AO, Module

References

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