

# SFAR-S-8AI2DO



SPECIFICATION		
Power supply	Voltage	10-38 V DC; 10-28 V AC
	Power consumption	2,4 W @ 24 V DC 3 VA @ 24 V AC
Analog inputs	8x Voltage or current input, Resolution of the transmitter 14bits	
Digital outputs	2x Transistor output NPN type max 55 V DC, max 500 mA	
Isolation	Max 1000 V DC	
Interface	RS485, up to 128 devices on the bus	
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 2.5mm <sup>2</sup>	
Dimension	119,1 mm x 101 mm x 22,6 mm	
Mounting	DIN rail mounting (DIN EN 50022)	
Housing material	Plastic, self-extinguishing PC/ABS	

### JUMPER SETTING

**JUMPER SETTING**

- OPEN VOLTAGE
- CLOSE CURRENT

### TOP PANEL

Status of analog inputs 1-8      Power status      Status of digital outputs 1-2

1-5 - Setting the device address  
6 - Restore default settings

RS485 Communication      MiniUSB

### ANALOG INPUTS

#### Voltage measurement

Sensor 0-10V

#### Current measurement

0-20mA

### DIGITAL OUTPUTS

#### Output PNP

24V DC

#### Output NPN

24V DC

### COMMUNICATION

#### RS485 Communication

RS485+      RS485-      GND

Shielded Twisted Cable

### POWER SUPPLY

#### DC Voltage

GND VCC

24V DC

#### AC Voltage

GND VCC

24V AC      230V AC

### 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	Switches	Read	Switches state
40003	2	0x02	Baud rate	Read & write	RS485 baud rate
40004	3	0x03	Stop Bits & Data Bits	Read & write	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)
40010	9	0x09	Analog filtering	Read & write	Analog filtering configuration
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 & write	No of received packets with error
40036	35	0x23	Incorrect packets MSR	Read & write	
40037	36	0x24	Sent packets LSR	Read & write	No of sent packets
40038	37	0x25	Sent packets MSR	Read & write	
30051	50	0x32	Inputs	Read	Connected inputs
40052	51	0x33	Outputs	Read & write	Alarms state
30053	52	0x34	Analog 1	Read	Value of Analog Input in mV for voltage inputs in µA for current inputs
30054	53	0x35	Analog 2	Read	
30055	54	0x36	Analog 3	Read	
30056	55	0x37	Analog 4	Read	
30057	56	0x38	Analog 5	Read	
30058	57	0x39	Analog 6	Read	
30059	58	0x3A	Analog 7	Read	
30060	59	0x3B	Analog 8	Read	

Modbus	Dec	Hex	Register Name	Access	Description
30061	60	0x3C	Value of 1. alarm input	Read	Current values of voltage / current for alarm inputs
30062	61	0x3D	Value of 2. alarm input	Read	
40063	62	0x3E	MAX alarm level 1	Read & write	If the analog signal exceeds this value the corresponding alarm flag is set
40064	63	0x3F	MAX alarm level 2	Read & write	
40065	64	0x40	MAX alarm level 3	Read & write	
40066	65	0x41	MAX alarm level 4	Read & write	
40067	66	0x42	MAX alarm level 5	Read & write	
40068	67	0x43	MAX alarm level 6	Read & write	
40069	68	0x44	MAX alarm level 7	Read & write	
40070	69	0x45	MAX alarm level 8	Read & write	
40071	70	0x46	MIN alarm level 1	Read & write	If the analog signal is below this value corresponding alarm flag is set
40072	71	0x47	MIN alarm level 2	Read & write	
40073	72	0x48	MIN alarm level 3	Read & write	
40074	73	0x49	MIN alarm level 4	Read & write	
40075	74	0x4A	MIN alarm level 5	Read & write	
40076	75	0x4B	MIN alarm level 6	Read & write	
40077	76	0x4C	MIN alarm level 7	Read & write	
40078	77	0x4D	MIN alarm level 8	Read & write	
40079	78	0x4E	Alarm settings 1	Read & write	Alarm settings  0 – alarm due to the current analog signal value 1 – Remember the value of the alarm, until reset by the master via Modbus
40080	79	0x4F	Alarm settings 2	Read & write	
40081	80	0x50	Alarm settings 3	Read & write	
40082	81	0x51	Alarm settings 4	Read & write	
40083	82	0x52	Alarm settings 5	Read & write	
40084	83	0x53	Alarm settings 6	Read & write	
40085	84	0x54	Alarm settings 7	Read & write	
40086	85	0x55	Alarm settings 8	Read & write	

Modbus	Dec	Hex	Register Name	Access	Description
40087	86	0x56	Input 1 settings	Read & write	Analog input mode:  0 – input disabled 1 – voltage 0 V to 10 V 2 – voltage -10 V to 10 V 3 – voltage 0 V to 1 V 4 – voltage -1 V to 1 V 5 – current 4 mA to 20 mA 6 – current 0 mA to 20 mA 7 – current -20 mA to 20 mA  To change the input mode you must to set jumper inside of module
40088	87	0x57	Input 2 settings	Read & write	
40089	88	0x58	Input 3 settings	Read & write	
40090	89	0x59	Input 4 settings	Read & write	
40091	90	0x5A	Input 5 settings	Read & write	
40092	91	0x5B	Input 6 settings	Read & write	
40093	92	0x5C	Input 7 settings	Read & write	
40094	93	0x5D	Input 8 settings	Read & write	
40095	94	0x5E	Output 1 settings	Read & write	Alarm output settings 0 – output is set by PLC +1 – value from input 1 +2 – value from input 2 +4 – value from input 3 +8 – value from input 4 +16 – value from input 5 +32 – value from input 6 +64 – value from input 7 +128 – value from input 8  +256 – Output is set if value is greater than Alarm Value (register 40097 or 40098) („cooling") +512 – Output is set if value is less than Alarm Value ( register 40097 or 40098) („heating")
40096	95	0x5F	Output 2 settings	Read & write	
40097	96	0x60	Alarm Value 1	Read & write	Alarm value for outputs
40098	97	0x61	Alarm Value 2	Read & write	
40099	98	0x62	Alarm hysteresis 1	Read & write	The hysteresis value for alarm outputs
40100	99	0x63	Alarm hysteresis 2	Read & write	



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](mailto: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.