SFAR-S-8TO

SPECIFICATION		
Power supply	Voltage	10-38 V DC; 10-28 V AC
	Power consumption	4 W @ 24 V DC 3 V A @ 24 V AC
Triac outputs	8x Triac outputs	
	Switching Voltage: 20 to 250 V AC	
	Continuous load per channel: 0.5 A (1.5 A peak 30 s)	
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 2.5 mm^2	
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	

TOP PANEL

Status of triac outputs 1-8

Power status

1 2 3 4 5 6
ON

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

RS485 Communication

MiniUSB
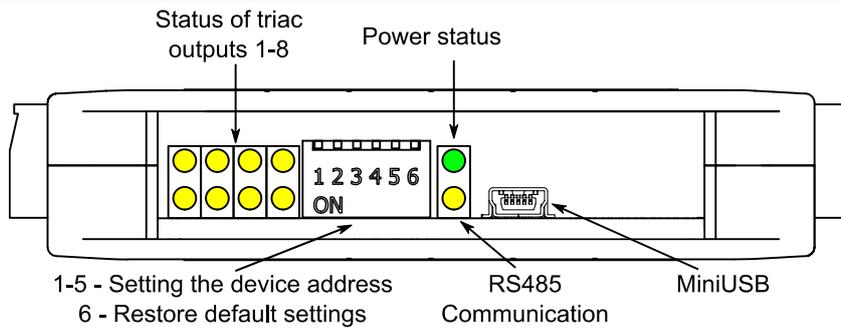
TRIAC OUTPUTS

Connection of electrovalve

TO1 TO2 TO3 TO4 TO5 TO6 TO7 TO8 L1 L1

24V AC
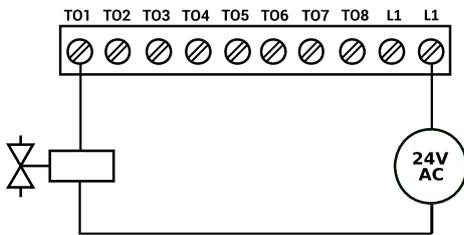
Connection of resistive load

TO1 TO2 TO3 TO4 TO5 TO6 TO7 TO8 L1 L1

N

230V AC

L
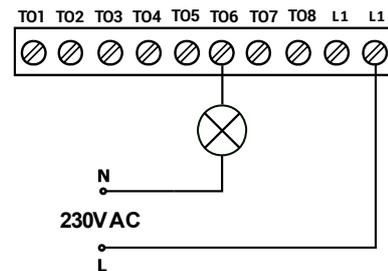
COMMUNICATION

RS485 Communication

485+ 485- GND

RS485+
RS485 -
GND

Shielded Twisted Cable

POWER SUPPLY

DC Voltage

GND VCC

POWER

+
24V DC
−

AC Voltage

GND VCC

POWER

24V AC   230V AC
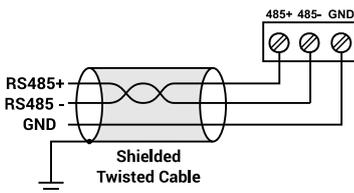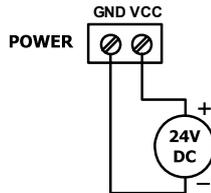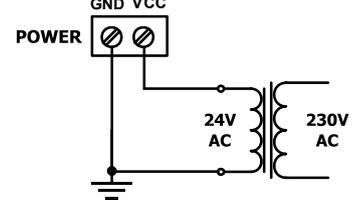
⚠ WARNING ⚠

• 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

485+ 485- GND   GND VCC

TO1 TO2 TO3 TO4 TO5 TO6 TO7 TO8 L1 L1

Registered 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)
40009	8	0x08	Watchdog	Read & Write	Watchdog
40013	12	0x0C	Default outputs state	Read & Write	Default outputs state
40019	18	0x12	PWM Output	Read & Write	PWM output state
40020	19	0x13	Default duty cycle output 1	Read & Write	Value default duty cycle output 1 From 0 to 100%
20021	20	0x14	Default duty cycle output 2	Read & Write	Value default duty cycle output 2 From 0 to 100%
20022	21	0x15	Default duty cycle output 3	Read & Write	Value default duty cycle output 3 From 0 to 100%
20023	22	0x16	Default duty cycle output 4	Read & Write	Value default duty cycle output 4 From 0 to 100%
20024	23	0x17	Default duty cycle output 5	Read & Write	Value default duty cycle output 5 From 0 to 100%

Modbus	Dec	Hex	Register Name	Access	Description
20025	24	0x18	Default duty cycle output 6	Read & Write	Value default duty cycle output 6 From 0 to 100%
20026	25	0x19	Default duty cycle output 7	Read & Write	Value default duty cycle output 7 From 0 to 100%
20027	26	0x1A	Default duty cycle output 8	Read & Write	Value default duty cycle output 8 From 0 to 100%
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	
40052	51	0x33	Outputs	Read & Write	Outputs state
40133	132	0x84	Period PWM output 1	Read & Write	Range adjustment period: 0-65535 [s]
40134	133	0x85	Period PWM output 2	Read & Write	Range adjustment period: 0-65535 [s]
40135	134	0x86	Period PWM output 3	Read & Write	Range adjustment period: 0-65535 [s]
40136	135	0x87	Period PWM output 4	Read & Write	Range adjustment period: 0-65535 [s]

Modbus	Dec	Hex	Register Name	Access	Description
40137	136	0x88	Period PWM output 5	Read & Write	Range adjustment period: 0-65535 [s]
40138	137	0x89	Period PWM output 6	Read & Write	Range adjustment period: 0-65535 [s]
40139	138	0x8A	Period PWM output 7	Read & Write	Range adjustment period: 0-65535 [s]
40140	139	0x8B	Period PWM output 8	Read & Write	Range adjustment period: 0-65535 [s]
40141	140	0x8C	Duty cycle output 1	Read & Write	Value duty cycle output 1 From 0 to 100%
40142	141	0x8D	Duty cycle output 2	Read & Write	Value duty cycle output 2 From 0 to 100%
40143	142	0x8E	Duty cycle output 3	Read & Write	Value duty cycle output 3 From 0 to 100%
40144	143	0x8F	Duty cycle output 4	Read & Write	Value duty cycle output 4 From 0 to 100%
40145	144	0x90	Duty cycle output 5	Read & Write	Value duty cycle output 5 From 0 to 100%
40146	145	0x91	Duty cycle output 6	Read & Write	Value duty cycle output 6 From 0 to 100%
40147	146	0x92	Duty cycle output 7	Read & Write	Value duty cycle output 7 From 0 to 100%
40148	147	0x93	Duty cycle output 8	Read & Write	Value duty cycle output 8 From 0 to 100%

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.