

Relay Output Module

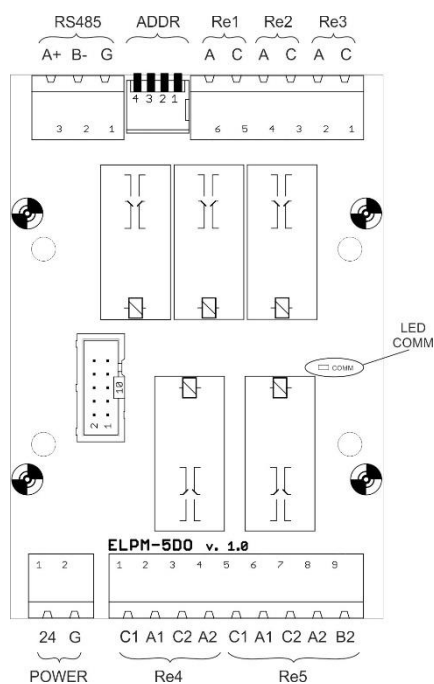
ELPM-5DO

1. Technical data



- Dimensions: 70x123 mm
- Supply voltage: 24 V AC/DC +/- 10%
- Communication ports: RS 485 - Modbus RTU protocol
- Cooperation with ELP series controllers
- 5 output relays
- Storage temperature : -20 ... 70 °C
- Operating temperature: -20 ... 50 °C
- IP protection: 30

2. Description of connectors



POWER (Power supply of the modul)

24V – supply voltage 24V AC/DC

G – power supply ground

RS485 (communication line Modbus RTU)

A+ - RS485 (+)

B- - RS485 (-)

G – power supply ground

ADDR – Modbus address switch (+16)

Re1...Re3 – relay outputs with NO, AC1, 10A contact

Re4 – relay output with 2xNO, AC1, 8A contacts

Re5 – relay outputs with NO and NO/NC, AC1, 8A contacts

LED-COMM – communication diode

3. Description

Relay Output Module ELPM-5DO is an extension dedicated for controllers with RS-485 Modbus RTU communication port. The module address is set with dip switches in the range of 1-15, however the final Modbus address is increased by 16. If the dip switch is set to address 0, than the Modbus address is 16. State of the relays is set through the register 0x0000. If the Watchdog function is not active, after power loss state of the relays will return to the last known configuration. If the Watchdog function is activated, the status of the relays will determine the configuration stored in the register 0x0001 after power loss or the register 0x0000 will not be overwritten in shorter time than defined in register 0x0002.

4. Modbus RTU protocol

In the Relay Output Module ELPM-5DO support for Modbus RTU has been implemented.

The default transmission parameters:

- transmission speed: 9600
- parity bit: none
- stop bits: 2

Address of the device on the bus can be configured with four dip switches ADDR, however please note that the final Modbus address is increased by 16.

5. Registers and Coil map

Reg.	Coil	Description	Numerical representation	Read / Write
0x0000	0-4	Current relay output state	Bits 0 - 4	R / W
0x0001	16-20	The initial secure relay output state	Bits 0 - 4	R / W
0x0002	-	Time for Watchdog function	0 – inactive, 1 - 65535 sec.	R / W
0x0003	-	Transmission speed	0 – 2k4, 1 – 4k8, 2 – 9k6, 3 – 14k4, 4 – 19k2, 5 – 28k8, 6 – 38k4, 7 – 57k6, 8 – 76k8, 9 – 115k2	R / W

6. Permitted Modbus RTU commands

Relay Output Module ELPM-5DO only supports a few commands of Modbus RTU:

- read input registers 0x03,
- write of a single register 0x06
- reading of digital type Coil 0x01

- writing a single digital value type Coil 0x05
- writing different numbers of digital values type Coil 0x0F
- reading device descriptor 0x11 or 0x12
returned descriptor contains 16 bytes in the format:
 - firmware version (2 bytes): XX.YY
 - firmware date (3 bytes): DD, MM, YY
 - device name (11 bytes): 'ELPM-5DO', complemented with zeros to 11 bytes