

The module romod 4 DIO-R provides four digital inputs and four digital outputs. It is used to control 1-stage motors, or other digital actuators, and for signaling of up to four digital messages like operating messages or error messages. The romod 4 DIO-R is a Local Override/Indication Device (LO/ID), i.e. by means of the integrated switches, the module provides the ability of manual override of the DOs which are usually controlled via Modbus commands.

Digital Outputs: The relay outputs provide the normally open contact of each relay.

Important: The signals to be switched must have the same phasing.

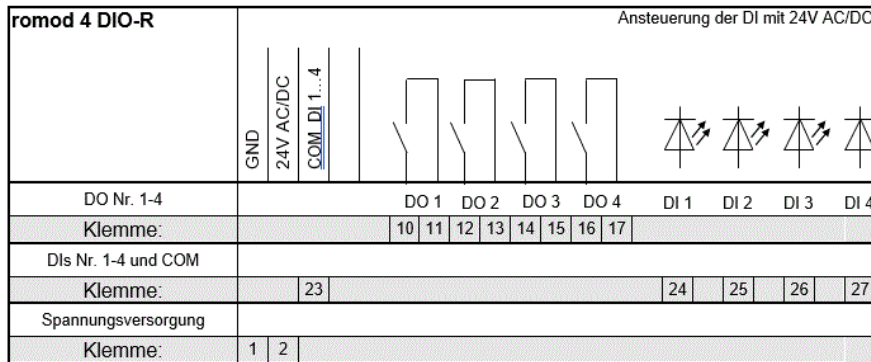
By means of configuration registers there can be defined that the digital outputs will also follow the signals of the digital inputs (in addition to the control via Modbus). Both, static control and toggling are possible. Moreover, on and off delays can be set for each output, as well as minimum times for the states ON and OFF.

Please note: The configured switching delays and minimum on / off times will only work when the outputs are activated via bus commands. Whenever manual override is applied, the operator will be responsible for the adherence to these times. Mutual interlocking of outputs is also possible.

For each DO there is a LED present which signalizes the status of the digital outputs. The current positions of the switches can be read out using two registers. There is a register that displays whether and which switch has been operated since the last time this register has been read. All digital outputs can be configured so that they will assume a defined state ('safe state') if the module has not received valid bus telegrams via the Modbus for a certain time.

Note: The time for triggering the 'safe state' should not be too short in order to avoid malfunctions as they can occur, e.g., when another device which is connected to the bus fails and will so cause time-outs.

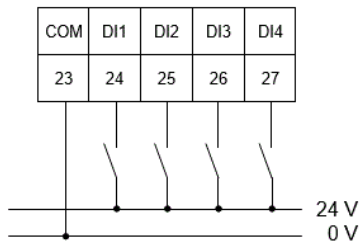
Digital Inputs: The control of the digital inputs will be done with 24 V switched by external dry contacts that are connected to the module via terminals. The reference potential is defined via the COM terminals and can be both, 0 volts and 24 volts, i.e. that reference potential for the inputs has to be connected anyway. When using a reference potential of 24 V, a control of the digital inputs with 0 V potential can be realized. Using the settings in Modbus registers, you can select open circuit or closed-circuit principle for each input separately. The digital inputs can be used as counters, but only for DC signals. The pulse duration must be at least 10 ms to be reliably detected. For AC control of the inputs, the edge detection has to be delayed via configuration registers.



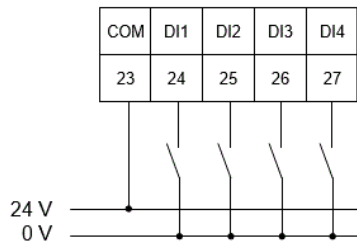
Wichtig: Die zu schaltenden Spannungen müssen die gleiche Phasenlage besitzen!

Beispiele für Ansteuerung der digitalen Eingänge im Quell- und im Senkbetrieb:

Ansteuerung DI mit „Plus“
(Quellbetrieb / positive Logik):



Ansteuerung DI mit „Minus“
(Senkbetrieb / negative Logik):



Power supply: 24 V AC/DC, connection via terminals

Current consumption:
typically 68 mA (DC), 152 mA (AC), with all relays activated

Power dissipation
max. 1.7 W (DC), 3.7 W (AC), with all relays activated

Specifications DO's: Relay outputs (NO contact), max. 250 VAC

Characteristics (Resistive Load):
Initial contact resistance 100mOhm (at 1A / 24 VDC)
Rated load 3 A at 250 VAC / 30 VDC
Max. switching voltage 277 VAC, 30 VDC
Max. switching capacity 830 VA (AC), 90 W (DC)
Endurance 100000 ops (Rated Load)
Inductive loads should be avoided or be suppressed at the source

Counting puls duration min. 10 ms
Max. counter value 4,294,967,296

Bus interface RS485

Supported baud rates
(Autobauding)
9,600 Baud, 19,200 Baud, 38,400 Baud, 57,600 Baud

Bus cycle time individually depending on the baud rate and the number of data points that will be addressed

Configuration settings are stored in the internal EEPROM, max. number of write cycles up to 100,000 times (Memory uPC internally)

Protocol Modbus rtu (RS485), Serial Port Parameter Setting 8-N-1

Environmental conditions
Operating temperature 0...50°C
Transport and storage temperature 0...70°C
Relative humidity 10...90%, non-condensing

Protection class IP 20