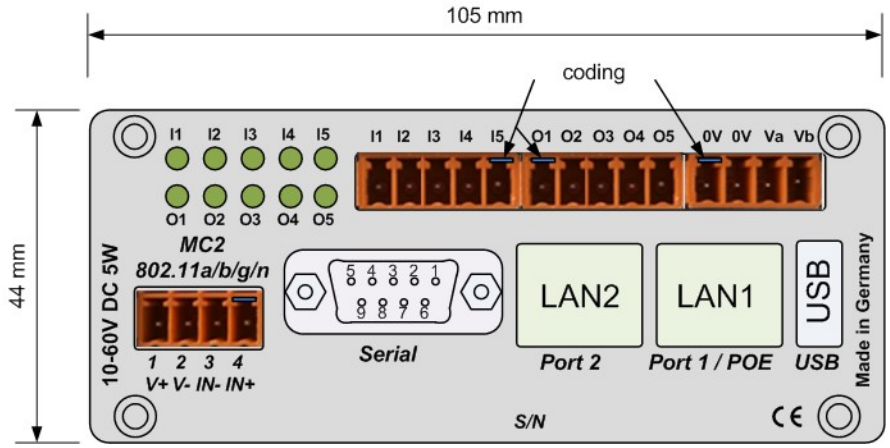
MC2 with IO - extension

The model MC2-5IO is a MC2, which is extended by an IO module with an additional board. This offers additional 5 digital inputs and 5 digital outputs.

Connections of the IO extension

The rear panel of the MC2-5IO has these connections:

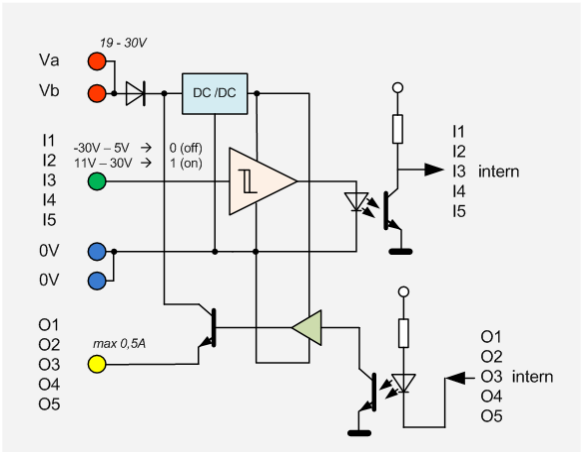


Connections and LEDs on the MC2-5IO

The power supply of the MC2-5IO is provided by a 4-pin header via the contacts V+ and V-. An additional digital input can also be connected via this connector (IN-, IN+).
The other interfaces (Serial, LAN2, LAN1 and USB) are arranged as on the standard version of the MC2.

The 5 inputs and outputs of the IO expansion are connected via 3 additional pin headers (2 x 5-pole, 1 x 4-pole).

The wiring of these inputs and outputs is as follows:



Input and output circuitry

The outputs are short-circuit proof. The connection for the supply voltage has reverse polarity protection.

The states at the inputs and outputs are indicated by the LEDs I1-I5 (inputs) and O1-O5 (outputs).

Specifications	
Voltage (Vab)	19 - 30V
Digital input I1-I5	5 x input switched by optocoupler -30 - +5V --> state 0 +11 - 30V --> state 1
Digital output O1-O5	5 x output switched via optocoupler ON --> Vab @ 0,5A (short circuit proof) OFF --> high impedance

Control of the IO extension

The inputs and outputs of the IO extension are controlled or queried with simple ASCII character commands.

A command string is always sent from a controlling device (PLC, computer) to the MC2 and starts with an upper case letter.
The MC2 sends status responses that start with a lower case letter.
The following commands are defined

<LF> = Linefeed = '\n' oder 0x0a

Command	**Set**	**Function**
O	O<O1><O2><O3><O4><O5><LF> Response of the MC2 (only in case of a change) Oxxxxx<LF> xxxxx = new state of the outputs	**Setting the outputs 1-5** Ox = '0' --> switch off Ox = '1' --> switch on Ox = 'X' --> Leave state Example: „O0111X\n“ switch O1 off O2-4 on O5 leave state.
Q	Q<LF> Relpy from MC2: oxxxxx<LF> ixxxxx<LF>	Query = query the inputs and outputs
RI	RI<I1><I2><I3><I4><I5><LF>	This allows a device to register to receive a status message when an **input** is changed.
RO	RO<O1><O2><O3><O4><O5><LF>	This allows a device to register to receive a status message when an **output** is changed.

Several commands are also allowed in one command line:
e.g.: "O01XXX\nQ\n"
Sets O1 = 0 and O2 = 1 and queries the state of the inputs and outputs.

Setting of the multi-IO extension:

Default:
Protocol: UDP
Port: freely selectable (here 4001)

LED's:
The states of the inputs and outputs are indicated by 3 colored LEDs.
In the Config you can set the colors that are displayed when "on" or "off".
The parameter "Brightness" influences the brightness of the LEDs.

With the parameter "**Keep Values**" you can define that the output states of the 5 ports are kept during and after a reset.

Debounce sets a value in ms for debouncing the inputs.
0 = no debouncing

Debug defines how "intensively" messages about the processes in the Multi-IO module in the log file are documented.