Fidelix

FDX Compact DOOC-16-C

16 channel digital output module

> Screwless installation with click-on DIN-rail communication bus and power connectors

> Push-in spring connectors for cables

> Detachable terminal blocks per 2 channels

Connect and control

The 16 channel digital output module has 16 open collector outputs, each capable of taking on a maximum load of 100 mA.
Each channel has a green and red LED indicating its current status, and a built-in safety feature to deactivate a channel when power leakage is detected. The module can control 16 high power relays and swiftly command any device from a serial Modbus master FX-controller.

Technical features

Dimensions & Weight
134mm x 78mm (x 19 mm thick), 90gr
Recommended power supply
< 25 mA @ 24VDC (+/- 10%) + max.
100 mA / output
Maximum load **100 mA / output**
Operating temperature **0 to +40°C**
Communication **Modbus RTU (RS485)**
at speeds up to 57600 bps

Power and communication: Power and the communication bus are connected to the DOOC-16-C module by clicking it onto the connector, which in its turn clicks onto the DIN rail. The FdxCompact controllers provide both natively, or you can use the connectors from the Fdx-Terminal-C set.
The middle connector is internally connected to the 0 VDC IN.

Modbus address: The address of the DOOC-16-C module can be set from 1 to 63 by changing the position of dip-switches 1-6. Each dip-switch represents a binary value, as indicated on the module (ST1...ST32).

DIP 1 (32)	DIP 2 (16)	DIP 3 (8)	DIP 4 (4)	DIP 5 (2)	DIP 6 (1)	Modbus address
0	0	0	0	0	1	1
0	0	0	0	1	0	2
0	0	0	0	1	1	3
...	...	...	...	...	...	...
1	0	1	0	1	0	42
...	...	...	...	...	...	...
1	1	1	1	1	1	63

Modbus communication: Use no parity, 8 data bits and 1 stop bit, and the DOOC-16-C module will auto-detect the communication speed of the bus (9600, 19200, 38400 or 57600 bps).

Modbus loop termination: On the last module, the Modbus loop must be closed by connecting a 120 Ω resistor between the A- and the B-side of the RS-485 loop.
Use the terminal that is delivered with your FdxCompact controller, or from the Fdx-Terminal-C set.

Outputs: The 16 open collector outputs each provide maximum 100 mA at 24 VDC, whereas the minimum load on each channel is 2.5 mA. With a load smaller than 2.5 mA, the output is detected as a closed circuit, causing the short-circuit fail-safe feature of the module to switch the output.

LEDs: Each channel has a green LED, lighting up steadily when the output is active, blinking green when the output is active but too little current is used (less than 2.5 mA or the resistance is bigger than +/- 10 kΩ), and blinking red when the output is active but there is a short-circuit detected (resistance is < 240 Ω).

Connection: The 24 VDC and ground supplied through the bottom from the connectors inside the DIN-rail are also available at each terminal block through the DC and the numbered connectors. The DC connectors are connected through a recoverable 2A or 3A PTC fuse.

Connections should be made between the connectors marked with DC and the numbered connectors (bearing in mind the minimum load of 2.5 mA and the maximum load of 100 mA).

Short-circuit: When a short-circuit is detected, the module will deactivate the output (break the connection) for a few seconds, during which the channel's LED will be red. After that, the module will activate the channel's output again. If a short-circuit is still detected, the same cycle of actions is repeated.

Default value without communication: Each channel can be configured to preserve its last output value, or to change to a programmable value in case of a rupture in the communication with the serial Modbus master FX-controller of more than 30 seconds. This behaviour is programmed in the DO point programming on an FX-controller.

Power consumption: The module is to be powered with 24 VDC and consumes 5 mA in stand-by. Each channel can use up to 100 mA when the output is active. Most equipment will, however, not use that much. It is therefore recommended to use a power supply providing at least 400 mA.

Firmware compatibility: The module is supported by firmware for FX-controllers from version 12 upwards. This firmware is compatible with the FX-2030, FX-2030A and the FX-3000-C.