Distribution Partner

IBC INTELLIGENT BUILDING CONTROLS

Fidelix

FdxCompact DI-16-C

16 channel digital input 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 detect

The 16 channel digital input module is used to read and detect digital signals for indication, alarm, or impulse measurement purposes. Each channel can be individually configured, and has a green and red LED to show its current status.

Connect the module to a serial Modbus master FX-controller to get reliable and fast indications from your field equipment.

Technical features

Dimensions & Weight
134mm x 78mm (x 19 mm thick), 90gr
Recommended power supply
< 25 mA @ 24VDC (+/- 10%)
Input loop current maximum
2 mA @ 24VDC per channel
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 DI-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 DI-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 DI-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.

Connection: Each channel consists of a loop between the connector marked with "S" and the corresponding numbered connector right next to it. Connect the device to detect between these two.

The connectors marked with "S" provide +/- 20-24 VDC.

A loop is considered closed when the resistance is lower than 50 kΩ. Each loop is galvanically isolated.

Types of indications: In the point programming on an FX-controller, the type of measurement is selected. The FdxCompact DI-16-C module can be used for pulse measurements (through AI points), normal indication (DI points) or alarms (Alarm points).

Impulse measurement: To count impulses, simply select the channel from the point programming of a measurement point on an FX-controller, and choose "counter" as measurement type.

The allowed pulse width can be configured between 5 and 1275 milliseconds in the point programming of the connected measurement point on an FX-controller.

LEDs: The 16 green LEDs will indicate the current status of each channel (lit when the channel is active; its loop closed).

When using alarm points from an FX-controller, the LEDs will blink and/or be red according to the status of the alarm point (acknowledged or not, active or not).

Power consumption: The module is to be powered with 24 VDC and consumes 5 mA in stand-by.

Each channel can use up to 2 mA when the input is active. It is therefore recommended to use a power supply providing at least 40 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.

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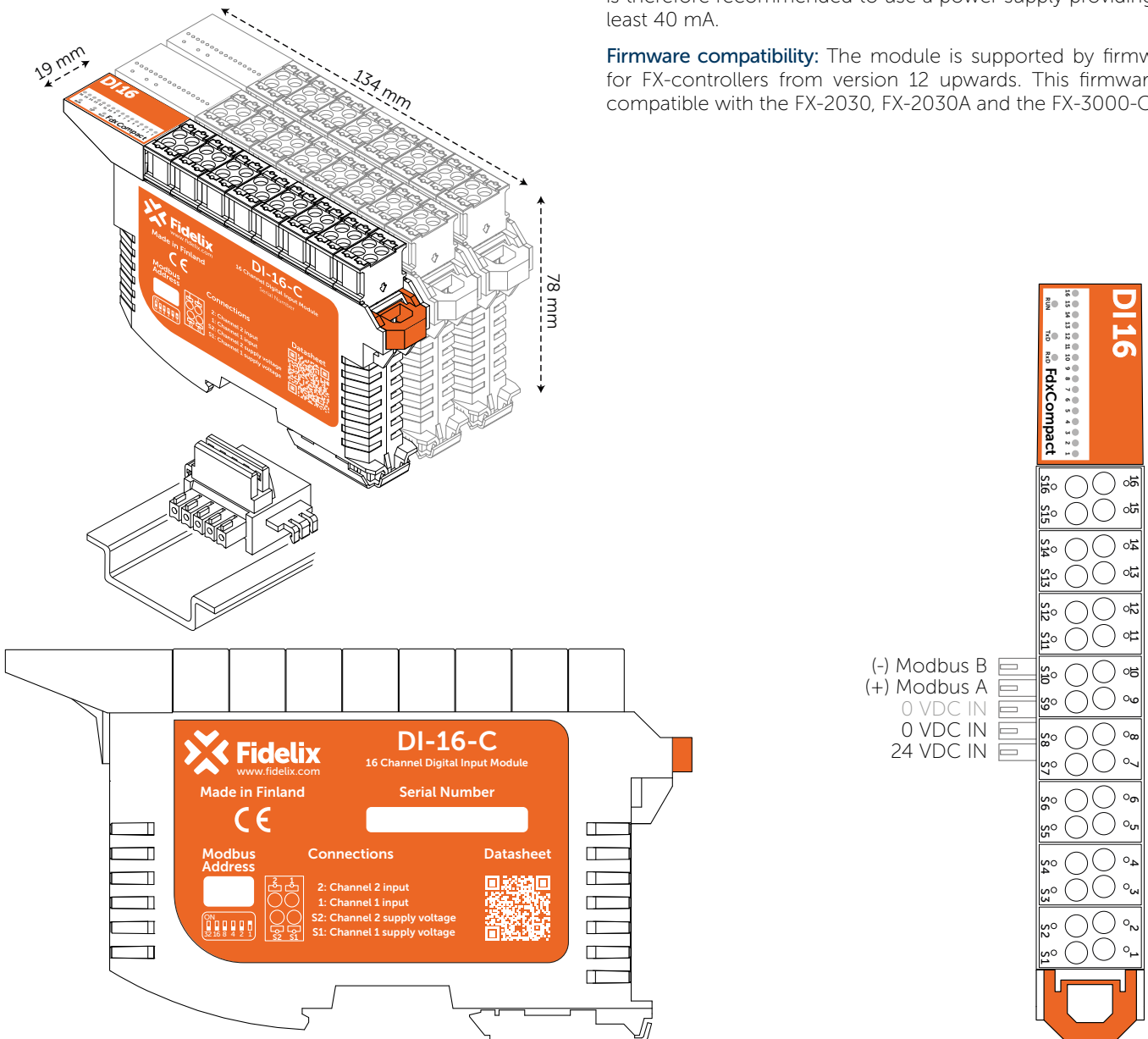
FdxCompact AI-8-C

8 channel analogue input module

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

❯ Push-in spring connectors for cables

❯ Individually detachable terminal blocks per channel

Connect and measure

The 8 channel analogue input module is used to read input signals from active and passive sensors.

Its 8 individually configurable channels can read data from resistive sensors, current loops, voltage messages, and digital indications.

Poll the module from a serial Modbus master FX-controller to get reliable, accurate, precise and fast readings from your field equipment.

Technical features

Dimensions & Weight **134mm x 78mm (x 19 mm thick), 90gr**
Recommended power supply **< 25 mA @ 24VDC (+/- 10%)**
Supported sensor types **Resistive (NTC, PT, Ni, ...), 0(4)-20mA, 0(2)-10V**
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 AI-8-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 AI-8-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 AI-8-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.
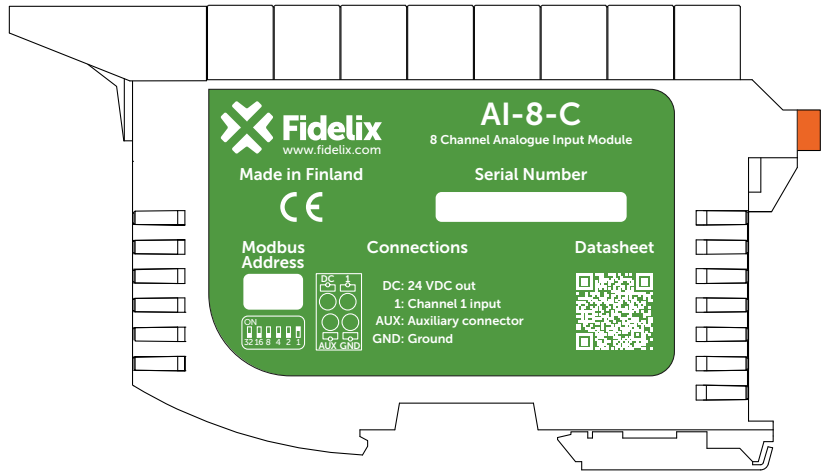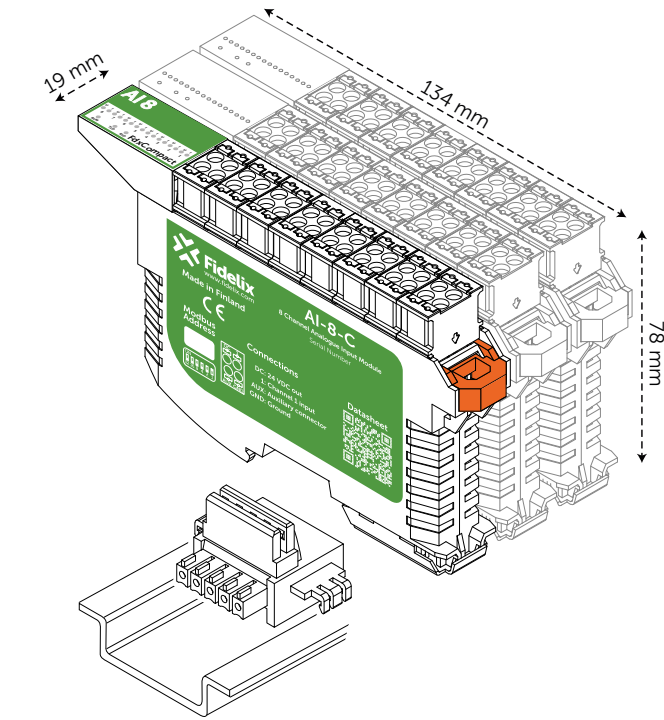
Measurement types: Supported sensor types are: resistive sensors (NTC, PT1000, Ni1000, ...), 0(4)-20mA, 0(2)-10V and digital inputs. The current for resistive sensors is 0.58 mA at 1 kΩ and 0.22 mA at 10 kΩ.
In the measurement point programming on an FX-controller, the type of measurement is selected in the conversion table used for the measurement point, or by using a digital point.

LEDs: The type of measurement will be shown on the module's label; per channel there are 2 LEDs, labelled "U" and "I" for voltage and current. If neither are lit, the AI-8-C module measures the resistance, which is also how the input is used as digital indication.

Measurement values: The analogue to digital conversion is done with an accuracy of 20 bits. In the point programming on an FX-controller, each value from the module is represented as a value between 0 and 100 000. Then, the right conversion table is selected to interpret these values.

Connecting measurements: Connect incoming signals from active sensors to the numbered connectors (channel IN). To measure resistance, connect between the numbered connector and the GND (ground).

DC and GND connectors: The ground and 24 VDC supplied through the bottom from the connectors inside the DIN-rail are also available at each terminal block through the DC and GND labelled connectors

AUX connectors: The auxiliary connectors (AUX) are a galvanically isolated loop, all connected to each other. These connectors can be used to send for instance an external AC supply voltage to your sensors.

Power consumption: The module is to be powered with 24 VDC and consumes 15 mA. It is therefore recommended to use a power supply providing at least 20 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.

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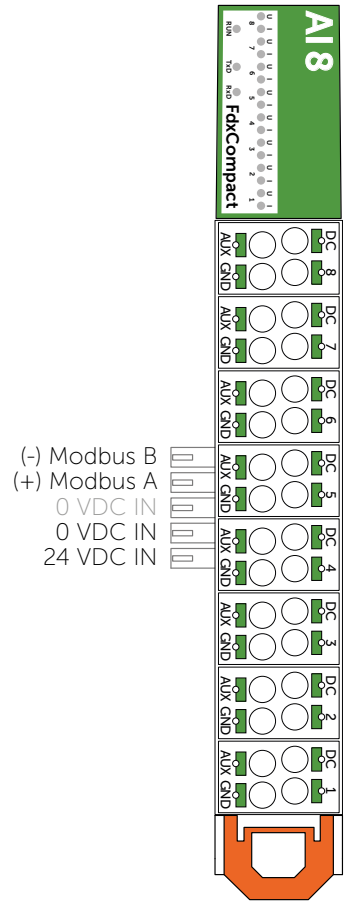
FdxCompact AO-8-C

8 channel analogue output module

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

› Push-in spring connectors for cables

› Individually detachable terminal blocks per channel

Connect and control

The 8 channel analogue output module is used to generate voltage control signals.

Its 8 individually configurable channels are short-circuit protected, can send out precise voltages from 0 to 10 V, and have parametrisable safeguard values in case of a rupture in communication 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%)
Output current & voltage **max. 20 mA @ 10 V (max. load of 500 Ω)**
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 AO-8-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 AO-8-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 AO-8-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.
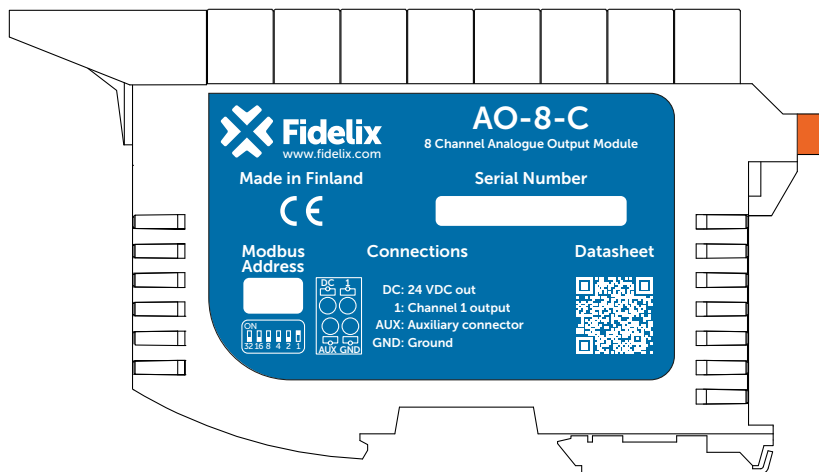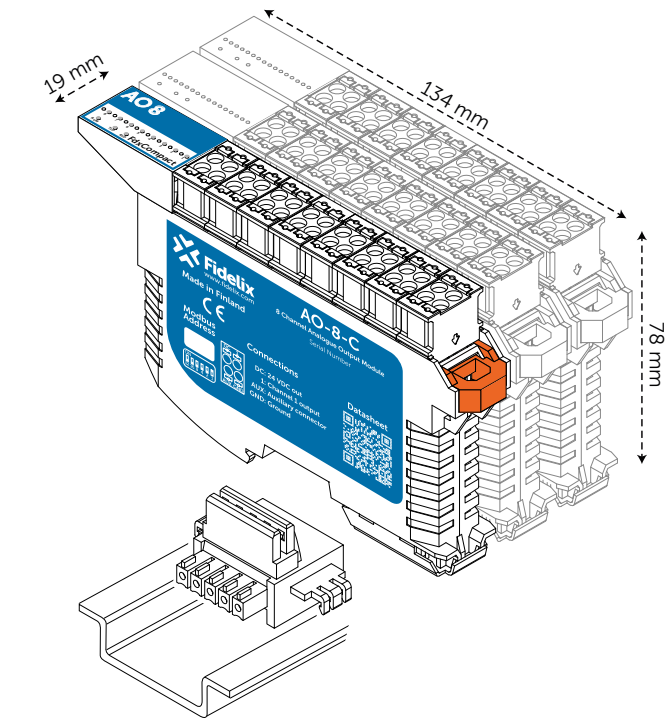
Outputs: Use analogue outputs to generate voltage controlling signals. All outputs are short circuit protected, and can be individually set to send out signals from 0 to 10V, with steps of 0.01V (In the AO point programming on an FX-controller, this is represented with a value from 0.0 to 100.0%).

The maximum output current is 20 mA at 10V, meaning a maximum load of 500 Ω. Because taking a lot of current from the module for a long period of time can cause the module to heat up, it is not recommended to put any heavy load on the module for other purposes than testing or during commissioning.

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 120 seconds. This behaviour is programmed in the AO point programming on an FX-controller.

LEDs: The on-time of the LEDs on the module's label show the output value; from always off (0V) to always on (10V); the on-time of a blinking LED corresponds to the output value.

Connecting outputs: The outgoing 0 to 10V signal comes from the numbered connectors (channel OUT).

DC and GND connectors: The ground and 24 VDC supplied through the bottom from the connectors inside the DIN-rail are also available at each terminal block through the DC and GND labelled connectors.

AUX connectors: The auxiliary connectors (AUX) are a galvanically isolated loop, all connected to each other. These connectors can be used to send for instance an external AC supply voltage to your field devices.

Power consumption: The module is to be powered with 24 VDC and consumes 10 mA in stand-by. Each channel can use up to 20 mA when the output is active. It is therefore recommended to use a power supply providing at least 90 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.

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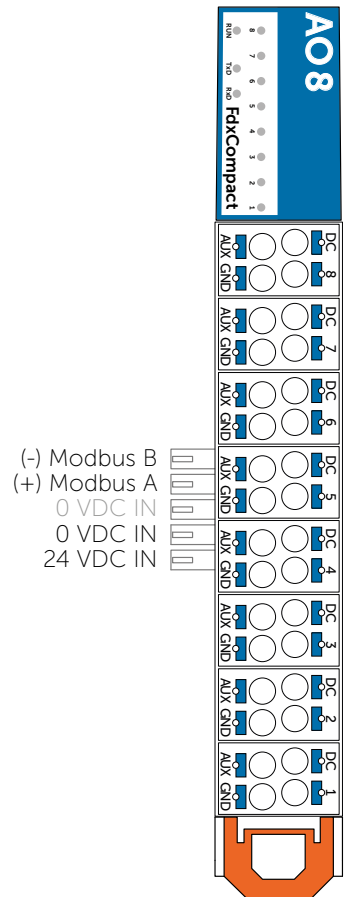
FdxCompact DO-8-C

8 channel digital output module

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

> Push-in spring connectors for cables

> Individually detachable terminal blocks per channel

Connect and control

The 8 channel digital output module has 8 changeover relays, capable of taking on a maximum load of 2A at 24 VAC, or 6A at 12 VDC.

Each channel has a LED indicating its current status. Control loops with a load up to 1 A at 30 volts from each channel 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%) + 10 mA / active relay
Maximum switching capacity
1 A @ 30 V
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 DO-8-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 DO-8-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 DO-8-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.

Relays: The 8 changeover type relays each have a maximum switching capacity of 1 A at 30 V. The consumption of the relays itself is about 10 mA / active relay.

LEDs: Each channel has a green LED, lighting up when the relay is activated.

Connection: Each channel has 2 common connectors (xCOM), 1 normally closed connector (xNC) and 1 normally open connector (xNO). Relays can be combined in the DO point programming on an FX-controller to work as tristate points.

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 8 mA in stand-by.

Each channel can use up to 9 mA when the output is active. It is therefore recommended to use a power supply providing at least 90 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.

IBC INTELLIGENT BUILDING CONTROLS

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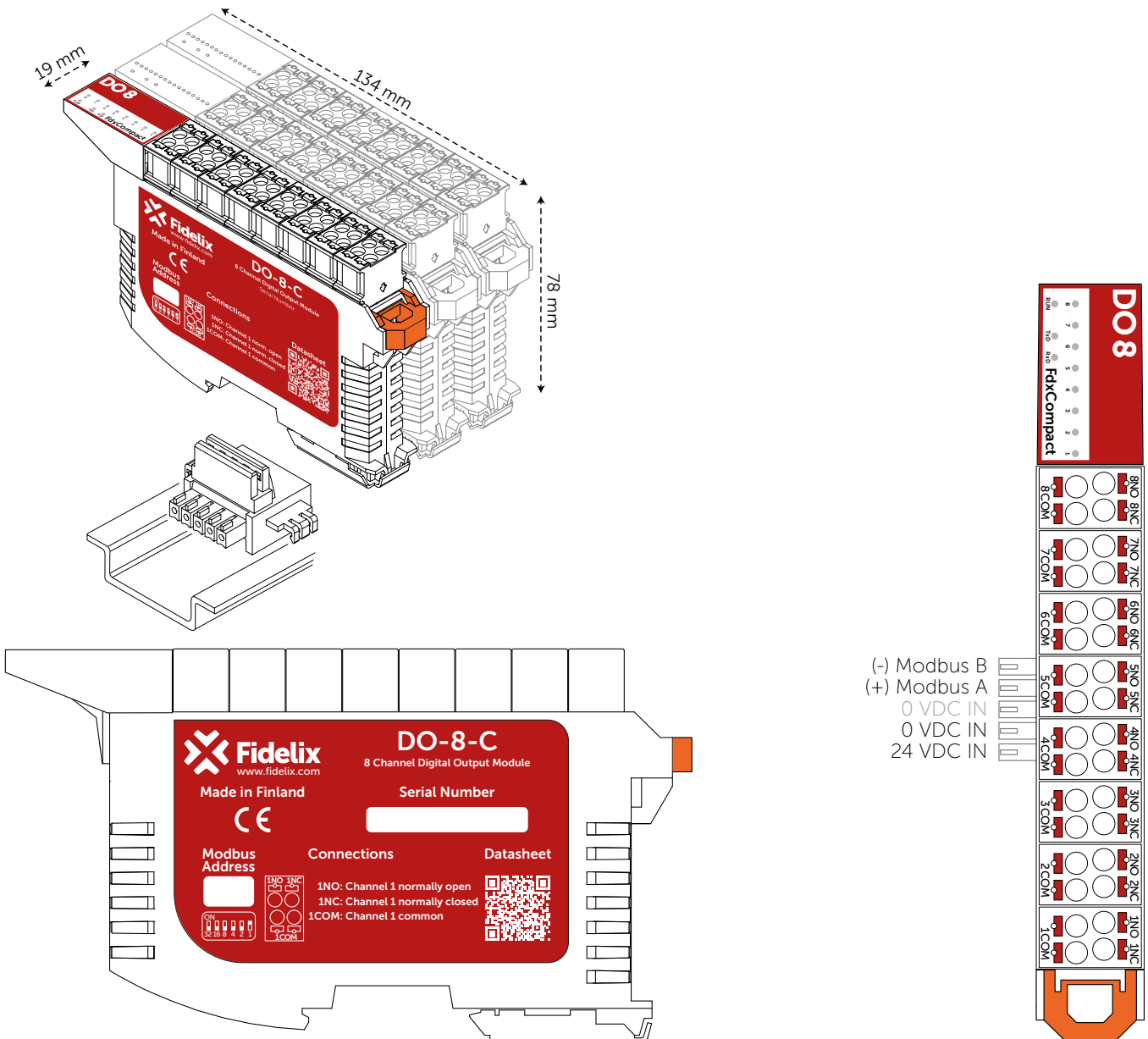
FDX Compact DOOC-16-C
16 channel digital output module

> 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.

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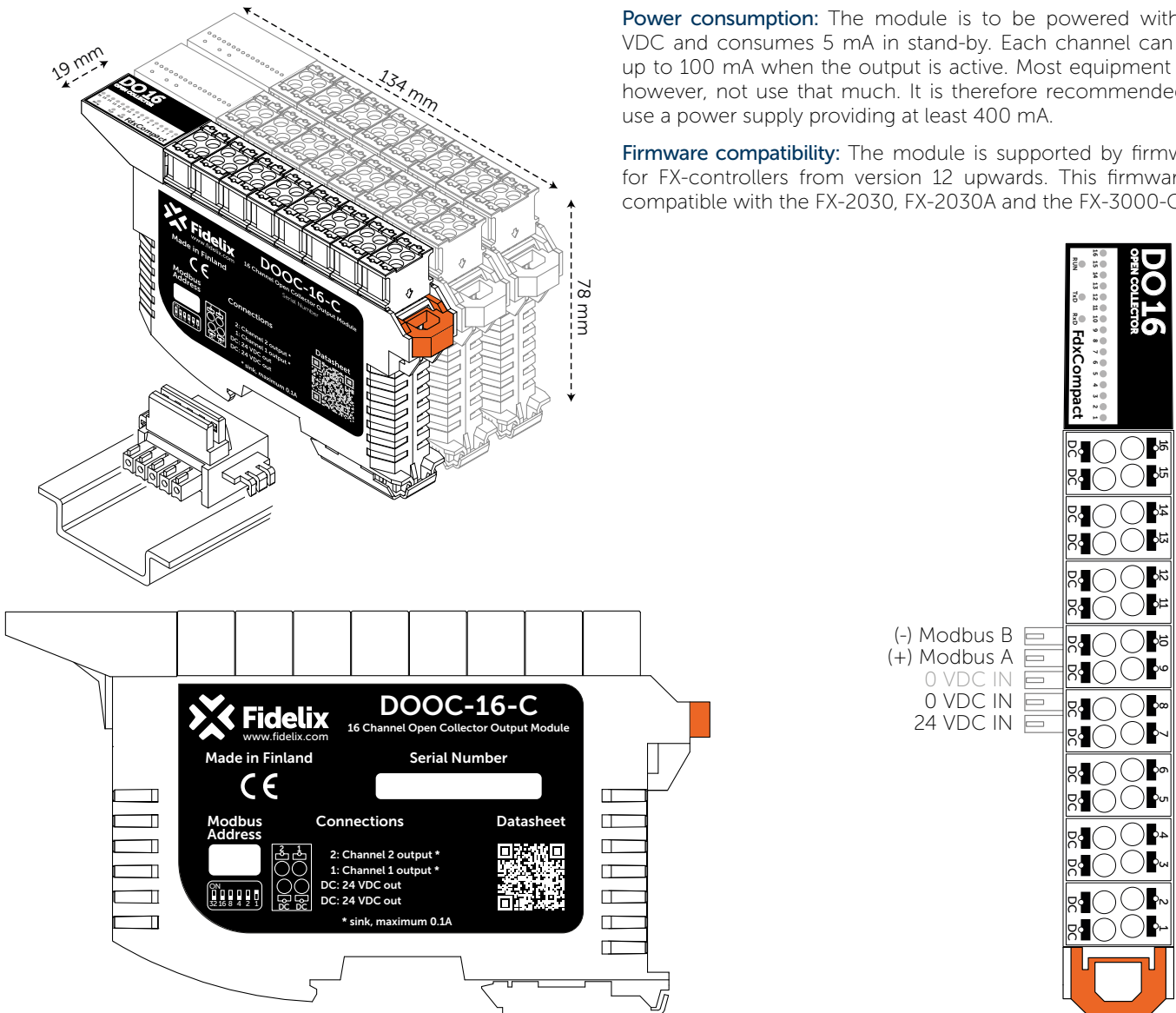
FdxCompact TRIAC-8-C
8 channel analogue output module

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

> Push-in spring connectors for cables

> Individually detachable terminal blocks per channel

Connect and control

The 8 channel Triac module is used to send control signals to Triac field equipment. Its 8 individually configurable channels can send out control signals between 0 and 100%, and each have parametrisable safeguard values in case of a rupture in communication 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%)
Output current **maximum 500 mA / channel**
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 TRIAC-8-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 TRIAC-8-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 TRIAC-8-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: Use TRIAC outputs to generate Triac time-based control signals. All outputs can be individually set to close for a percentage of the configurable control signal pulse time, with steps of 0.1% (In the AO point programming on an FX-controller, this is represented with a value from 0.0 to 100.0%).

The default control signal pulse time is 1.0 second.

The maximum load per output is 500 mA.

LEDs: The on-time of the LEDs on the module's label show the output value; from always off (0%) to always on (100%); the on-time of a blinking LED corresponds to the output value, or the time the circuit is closed.

Connecting outputs: The outgoing 24VAC signal comes from the Vx connectors (channel output). While the channel's output is active, the Tx connector will be connected to the 24VAC G0 level. The module itself is powered using 24VDC, so 24VAC has to be connected from an external power supply to one of the AC/G0 connectors.

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 120 seconds.
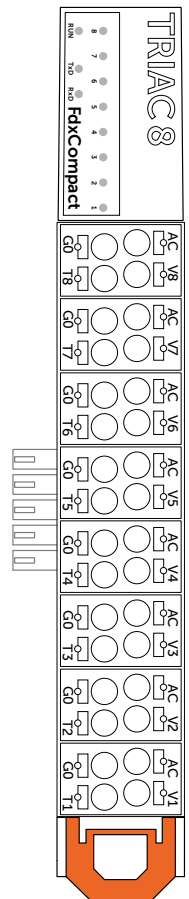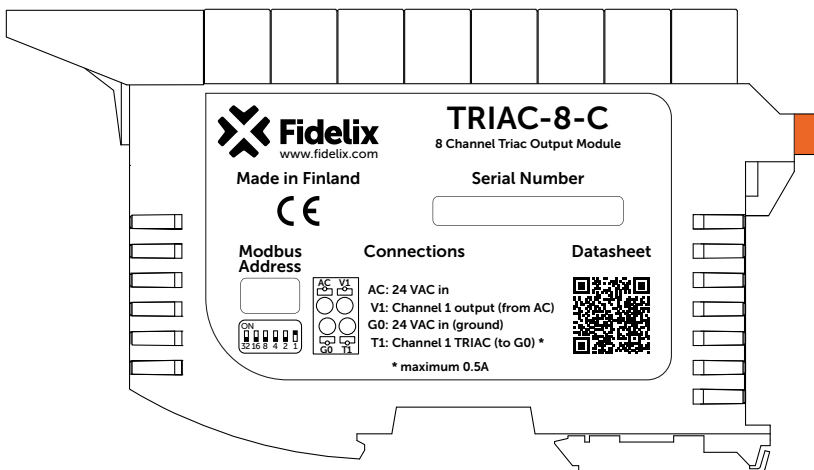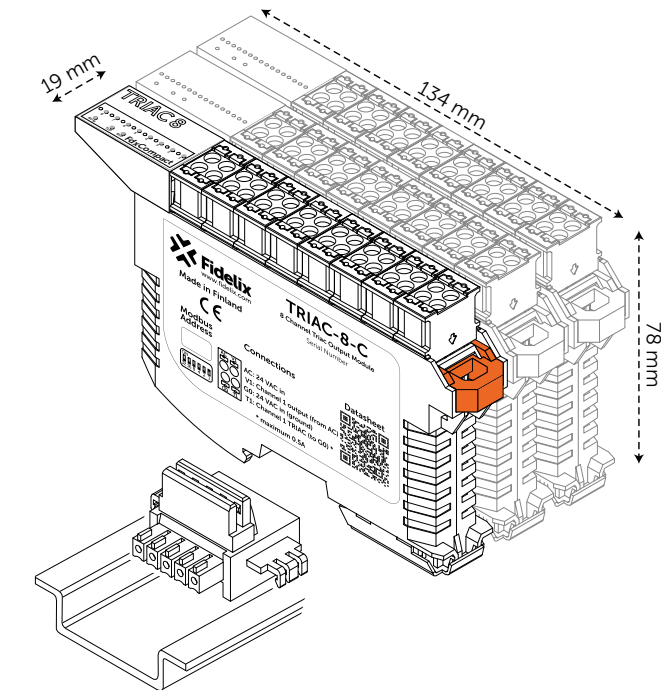
This behaviour is programmed in the AO point programming on an FX-controller.

AC and G0 connectors: Connect an external power supply to one of the AC/G0 connectors to provide the 24VAC to all the Vx/Tx connectors, and to all other AC/G0 connectors.

Power consumption: The module is to be powered with 24 VDC and consumes 5 mA in stand-by.

Each channel can use up to 3 mA when the output is active. It is therefore recommended to use a power supply providing at least 40 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.

TRIAC-8-C
8 Channel Triac Output Module

Fidelix
www.fidelix.com
Made in Finland
CE
Serial Number

Modbus Address
Connections
Datasheet

AC: 24 VAC in
V1: Channel 1 output (from AC)
G0: 24 VAC in (ground)
T1: Channel 1 TRIAC (to G0) *
* maximum 0.5A

TRIAC 8
FdxCompact

(-) Modbus B
(+) Modbus A
0 VDC IN
0 VDC IN
24 VDC IN