addON 4o

Digital outputs extension card
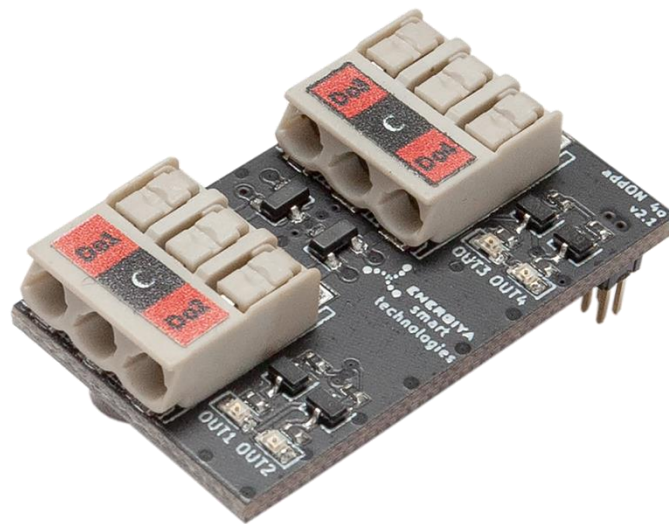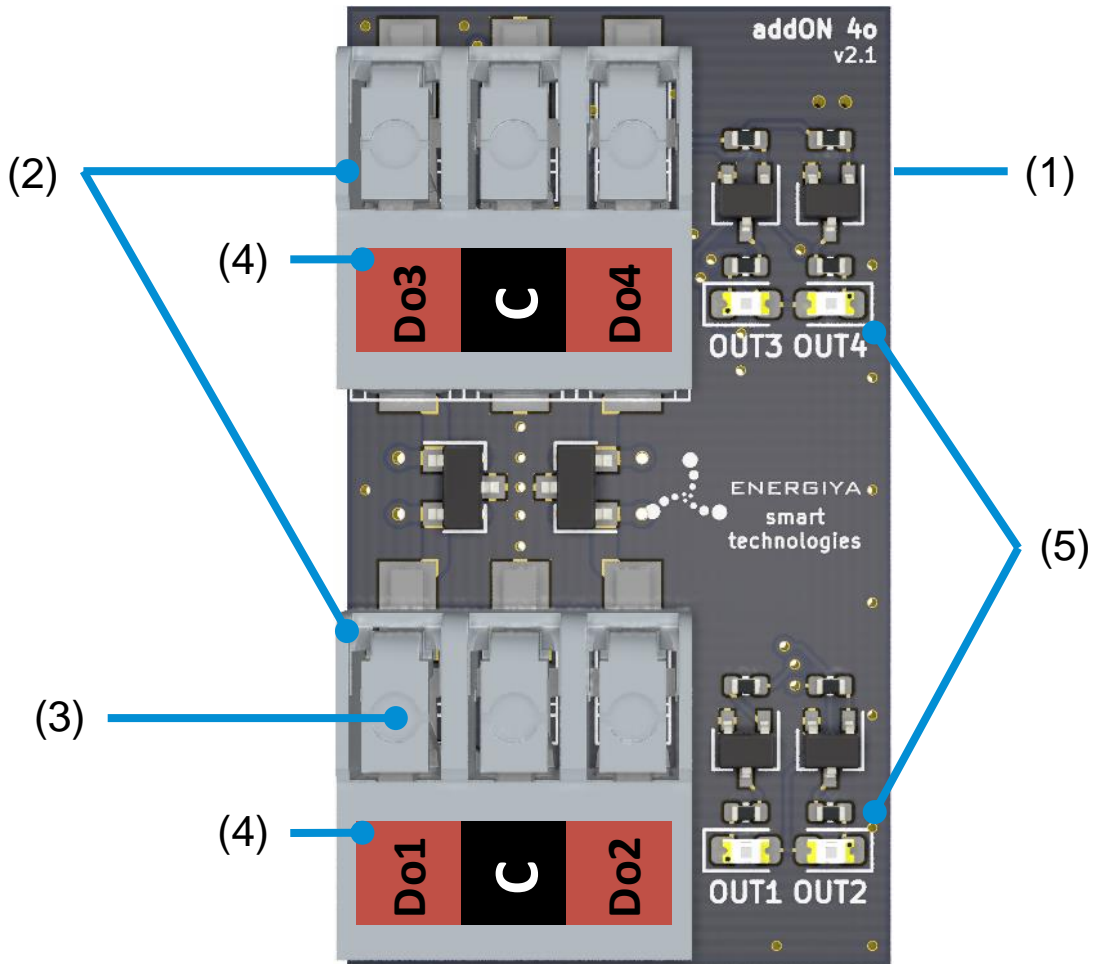
fig. 1

(1)	addON connector (on bottom side)
(2)	screwless connectors
(3)	wire release
(4)	connector description label
(5)	output status LEDs

Description

The addON expansion cards allow you to extend the functionality of IoT cards with additional inputs, outputs and interfaces.

Using the addON 4o card we will expand any IoT card by 4 digital outputs (open collector).

The addON card is compatible with all of Energiya IoT cards.

Mounting the addON card

The addON card is mounted on top of the IoT card in a dedicated connector.
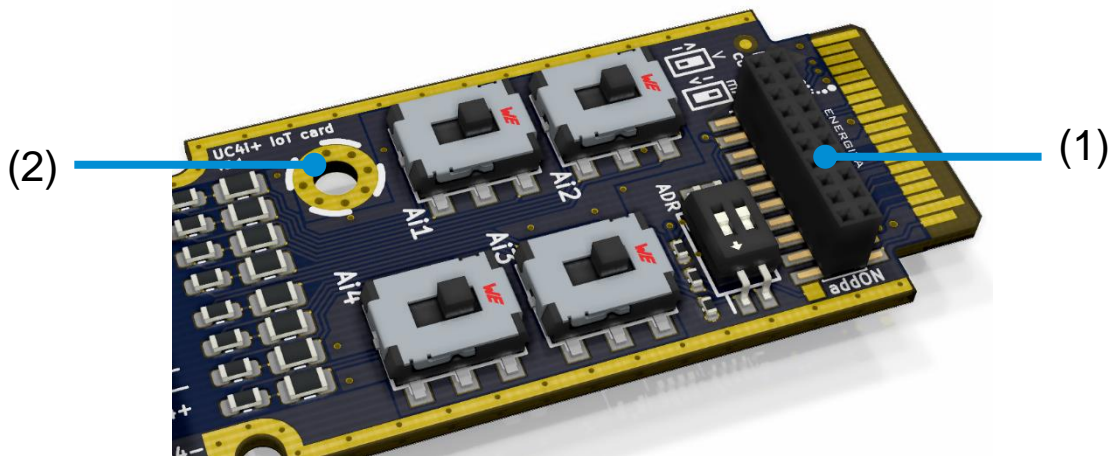

fig. 2

First place the addON card into the slot on the top of the IoT card (1). Then use the polyamide screw (supplied with the addON) to screw the expansion card to the IoT board (2).

There are two types of addON slots. Please find below the picture of correct assembly:
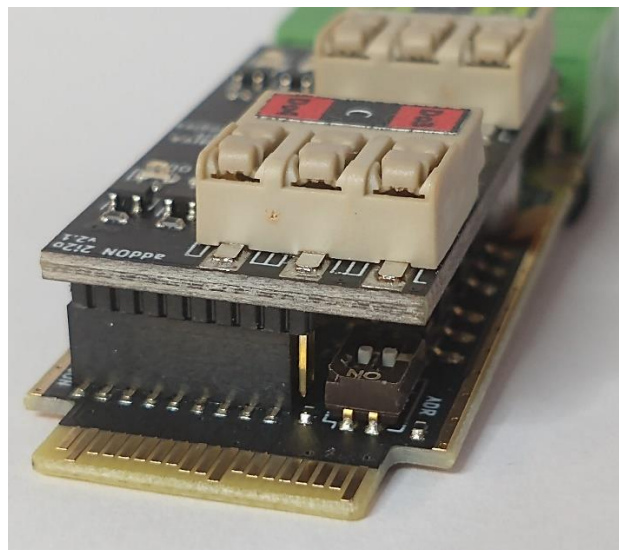
- 18 pin addON slot (fig. 3):

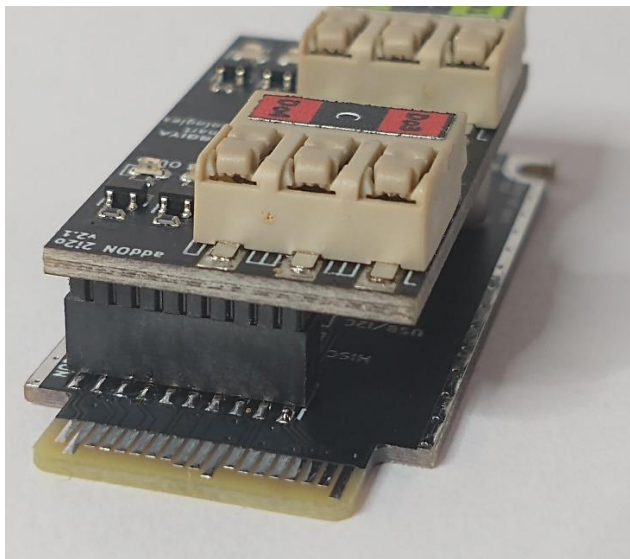*fig. 3*

- 20 pin addON slot (fig. 4):

fig. 4

⚠ **Important!** Never mount or remove the addON card with power on! This way you can easily cause a short circuit and damage the card.

⚠ **Important!** Always remember to secure the card with a polyamide screw! Vibration can make slide out the card out of the connector and cause short circuit.

Status LEDs

LEDs are used to indicate the current state of the addON outputs.

Digital outputs wiring

Wire insertion and removal is very simple. To insert the cable, you just have to push it into the connector. To pull the cable out, press the release lever (see figure 1, element 2, 3 and 4).

Do1, Do2, Do3, Do4	digital outputs (open collector)
C	common

Important! To avoid short circuits, it is recommended to connect or disconnect the cables to the addON when the power is off.

The open collector outputs can be connected directly with the digital input of external system.

Important! Please note that the outputs of the open collector are not polarized (floating point in normal state, low when active state).

The load can be connected directly to the open collector output. With a voltage not higher than 30 VDC and a current not exceeding 500 mA.

Important! Maximum onboard transistor power is 500 mW. If the load is of the inductive type, an additional rectifier diode should be connected.
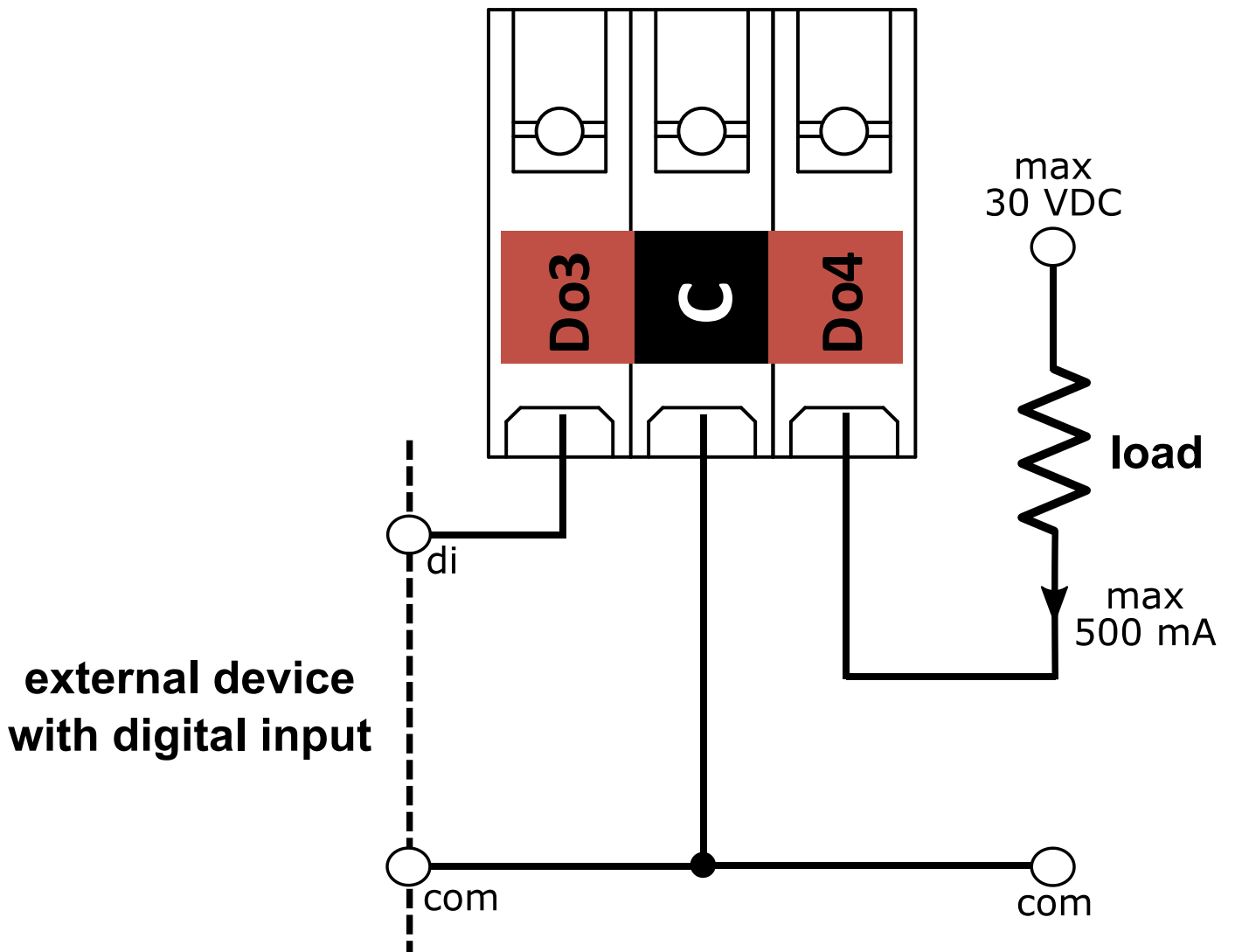

fig. 5

Digital outputs operation

Each GPIOx is gated with an nRESET signal. This way, during the reset, we avoid transient states on the outputs. Figure 9 shows the logical scheme of the GPIOx connection with the nRESET signal on the AND logical gate.
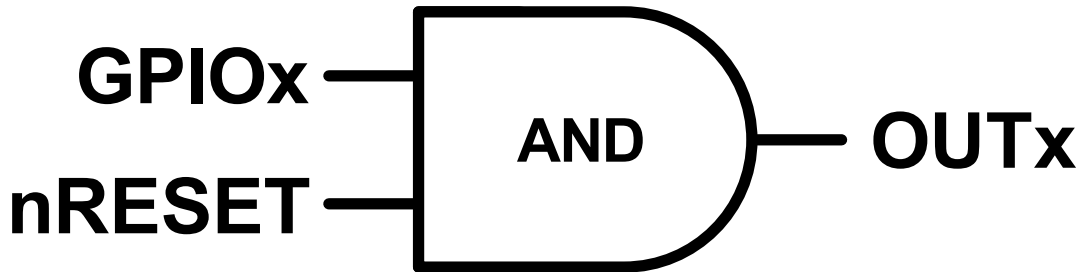

fig. 6

The following table shows the possible states of the OUTx digital outputs.

nRESET	GPIOx	OUTx
Hi	Lo	off
Hi	Hi	on
Lo	X	off

GPIO host - card connections

The table below shows logical connections between addON card, IoT card and the host.

addON type	IoT card	FX30 FX30S	manhgOH Yellow	manhgOH Red	manhgOH Green		
4o	GPIOx	IoT0	IoT0	IoT0	IoT0	IoT1	IoT2
out 1	GPIO 1	GPIO 42	GPIO 42	GPIO 42	GPIO 42	GPIO 25	GPIO 22
out 2	GPIO 2	GPIO 33	GPIO 13	GPIO 13	GPIO 33	GPIO 32	GPIO 23
out 3	GPIO 3	GPIO 13	GPIO 7	GPIO 7	GPIO 32	GPIO 7	GPIO 24
out 4	GPIO 4	GPIO 8	GPIO 8	GPIO 8	GPIO 8	GPIO 21	EXT_GPS

Specifications

Dimensions (W x H x D)	19.3 x 33.6 x 11.5 mm
Operating temp	–40 to +85°C
Weight	5 g
Current consumption	8 mA
Digital outputs	4
Digital outputs type	open drain (OD)
Output max load	500 mW / 30 VDC / 500 mA
Connector type	screwless connector
Wire range	0.2 to 1.0 mm^2 (24 to 17 AWG)
ESD protection	yes
Latching cover for FX30	yes

Troubleshooting

Digital output does not work	check the cable connections, make sure that the common signals from addON to external device are connected, watch the LEDs

Send us your feedback and suggestion to help us improve our products! 😊 **info@energiya.pl**

Please consider the environment before printing this manual.