

# **iO-LORA Wireless Expander** Installation manual

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## Safety precautions

The *iO-LORA* wireless expander should only be installed and maintained by qualified personnel.

Please read this manual carefully prior to installation in order to avoid mistakes that can lead to malfunction or even damage to the equipment.

Always disconnect the power supply before making any electrical connections.

Any changes, modifications or repairs not authorized by the manufacturer shall render the warranty void.



Please adhere to your local waste sorting regulations and do not dispose of this equipment or its components with other household waste.



## **1** Description

*iO-LORA* wireless expanders with *RF-LORA* transceiver increase the number of inputs and outputs of the "*FLEXi*" *SP3* control panel using two-way RF communication.

Temperature sensor (1 pcs.) and readers of contact ("iButton") keys can be connected to the *iO-LORA* expander. The PGM output (relay) of the expander can be remotely controlled (on/off) by various electrical devices. *iO-LORA* has one digital input.

#### Features

#### **Communication:**

- Line-of-sight wireless range up to 5000 m.
- Up to 8 *iO-LORA* wireless expanders can be connected to the "*FLEXi*" *SP3* control panel.
- Products from HW iO-LO\_x30x\_7\_230418 version come with a standard antenna suitable for most applications. <u>In cases where it is necessary to</u> <u>provide high-quality communication at the maximum possible</u> <u>distance, an antenna (AX-ANT-KIT – 433 MHz, AX-ANT01S SF –</u> <u>868 MHz) with a higher radio signal gain should be used</u>.

#### Inputs and outputs:

- Bus "1-Wire" is intended for connection of temperature sensor (1 pcs.) and readers of contact ("iButton") keys.
- 1 input, of selectable type: NC, NO.
- 1 output (relay).

#### POWER DUTPUT POWER

#### Connection:

• The *iO-LORA* wireless expander is connected to the "FLEXi" SP3 control panel via the RF-LORA transceiver.

#### **1.1 Specifications**

Parameter	Description
Transmission frequency	4F modification: 433,3 - 434,7 MHz
	8F modification: 867 - 869 MHz
Modulation type	LORA
Power supply voltage	9-26 V DC
Current consumption	Up to 50 mA (stand-by)
	Up to 100 mA (short-term, while sending)
Report encryption	Yes
Range in open space	Up to 5000 m
Input	1, selectable type: NC, NO
Output	1, relay, 250 V AC, 4 A
Temperature sensor	1, Maxim <sup>®</sup> /Dallas <sup>®</sup> DS18S20, DS18B20
Operating environment	Temperature from –20 °C to +50 °C, relative humidity – up to 80% at +20 °C
Dimensions	62 x 77 x 25 mm
Weight	80 g



### **1.2** Expander elements



- 1. Light indicators.
- 2. Frontal case opening slot.
- 3. Terminal for external connections.
- "SW2" button for linking the device and checking the connection.
- 5. DIP switch "SW1".

**Note:** DIP switch "SW1" settings (for product HW iO-LO\_x30x\_7\_230418 version):

**1** - Radio frequency ("**OFF**" - RF1; "**ON**" - RF2). Intended for changing the radio channel if the current channel is heavily loaded.

**2** - Modulation type ("**OFF**" - fast; "**ON**" - slow). The "**ON**" position allows you to increase the communication distance by about 2 times (depending on the environmental conditions). But if a quality connection is ensured using the "**Off**" position, it is recommended to use it. In the "**On**" position system performance decreases.

NOTE: In *iO-LORA* and *RF-LORA* devices, the positions of the "SW1" switch must match! Otherwise, the radio communication will not work!

Terminal	Description
+DC	Power terminal (9-26 V DC positive)
-DC	Power terminal (9-26 V DC negative)
D0	Not used
D1	Not used
+5V	Positive 5 V power terminal for "1-Wire" devices
1Wire / OUT wgd	"1-Wire" data bus terminal ("OUT wgd" – not used)
COM	Common negative terminal
IN1	1 input, of selectable type NO, NC (factory setting: NO)
NC	Relay terminal NC
С	Relay terminal C
NO	Relay terminal NO

#### **1.3** Purpose of terminals

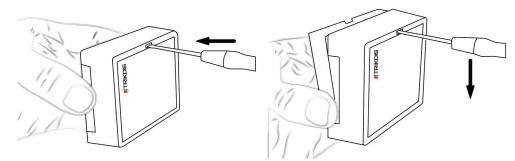
## 1.4 LED indication of operation

Indicator	Light status	Description
NETWORK	Off	No RF signal
	Green blinking	RF signal level from 0 to 10. Sufficient strength is 4.
OUTPUT/KEY	Green solid	Relay output activated
	Yellow solid	Dallas contact key activated
POWER	Off	No supply voltage
	Green blinking	Normal supply voltage level
	Yellow blinking	Low supply voltage level (≤11.5 V)

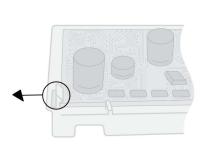
## 2 Wiring schematics

## 2.1 Fastening

1. Remove the top lid.

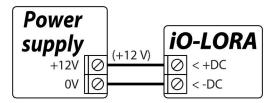


- 2. Remove the PCB board.
- 3. Fasten the base of the case in the desired place using screws.
- 4. Reinsert the board.
- 5. Close the top lid.





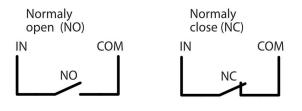
## 2.2 Schematic for connecting the power supply





## 2.3 Schematic for connecting input

iO-LORA has one input. Input type can be set: NC, NO.



#### 2.4 Schematic for connecting a temperature sensor

Temperature sensors should be connected according to the given schematic. Maxim<sup>®</sup>/Dallas<sup>®</sup> DS18S20, DS18B20 temperature sensor (1 pcs.) can be connected to the *iO-LORA* wireless expander.

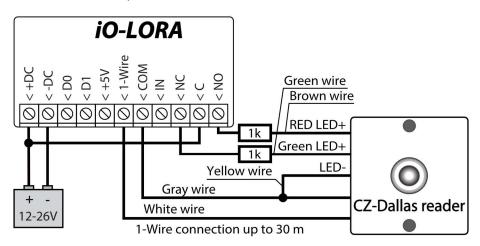
If a wire longer than 0,5 meters is used to connect a temperature sensor, we recommend using twisted pair cable (UTP4x2x0,5 or STP4x2x0,5).

The "**+5V**" terminal on the board is for supplying devices connected to the "**1-Wire**" data bus with 5 V DC voltage.

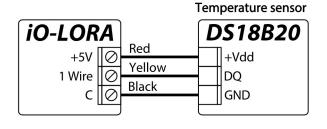
The maximum output current is 0,2 A. The output is protected from overload. If the maximum allowed current is exceeded, the power will automatically be switched off. The **"FLEXi" SP3** control panel automatically recognizes and links connected temperature sensor.

## 2.5 Schematics for connecting CZ-Dallas reader

The **CZ-Dallas** iButton key reader connects to the *iO-LORA* using the "1 Wire" data bus. The length of the wires connecting to the data bus can be up to 30 m.

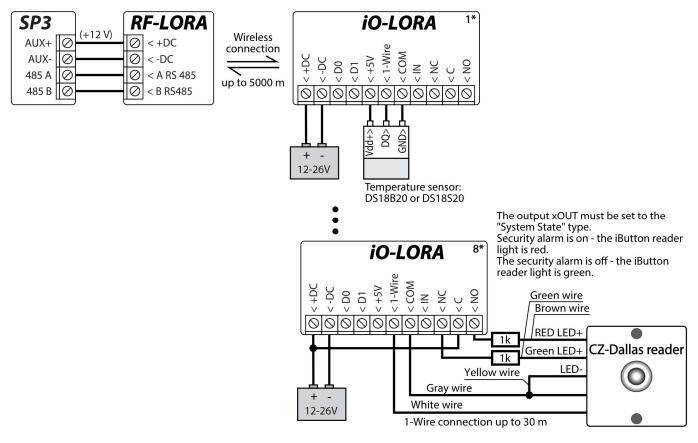


The output xOUT must be set to the "System State" type. Security alarm is on - the iButton reader light is red. The security alarm is off - the iButton reader light is green.









Note: An *RF-LORA* transceiver must be connected to the "*FLEXi*" *SP3* control panel and then up to 8 pcs. can be connected *iO-LORA* wireless expanders.
 It is recommended to use a twisted pair cable (UTP4x2x0.5 or STP4x2x0.5) to connect the temperature sensor.
 CZ-Dallas iButton key readers and temperature sensor must be connected to "1-Wire" bus.

## 3 Registering the iO-LORA wireless expander to the control panel "FLEXi" SP3

- 1. An RF-LORA transceiver must be connected to the "FLEXi" SP3 control panel.
- 2. Turn on the power supply of the "FLEXi" SP3 control panel.
- 3. Turn on the power supply to the *iO-LORA* wireless expander.
- 4. Launch TrikdisConfig.
- 5. Connect the "FLEXi" SP3 to a computer using a USB Mini-B cable or connect to the "FLEXi" SP3 remotely.
- 6. Click the button **Read [F4]** for the program to read the parameters currently set for the "*FLEXi*" *SP3* control panel. If a window for entering the Administrator code opens, enter the six-symbol administrator code.
- 7. In the "Modules" list, select "iO-LORA expander".
- 8. In the "Serial No." field, enter the serial number of the module *iO-LORA*.

TrikdisConfig 1.66.47 SP3						- 1	
🔅 Program 🛛 🎤 Action	About						
	Read [F4]	Write [F5]	Open [F8] Sav	/e [F9]		Disconnect	
System Options	Keypads	RS485 modules					
Reporting to CMS	RS485 n	nodules					
Users & Reporting	ID	Module	Serial No.	Area	Name	Firmware version	
obero de riceporting					1		
Modules	1	iO-LORA expander	012345	1	Expander ID1		



#### 9. In the "Zones" tab, make settings for the expander's input.

TrikdisConfig 1.66.47 SP3												-	×
🏠 Program 🥜 Action	D Abou	ıt											
	Read	[F4] W	rite [F5]	Open [F8]		Save [F9]				Disc	connect	t	
System Options	Zone	s settings	MS & Call reporting										
Reporting to CMS		s seconds E	and a can reporting										
Users & Reporting	Zone	Name	Input Area	Definition	Туре	Chime	🗌 Bypas	Force	CMS	Prot.	Delay	CID Code	
	1	Zone 1	SP3 1 1/0 Y 1 *	Keyswitch	NO	-	-		~	~	400	409	
Modules	2	Zone 2	Disable	Instant Sta	NO	1	-		~	-	400	110	
Wireless	3	Zone 3	RS485 Expander ID1, IN1	nstant	NO	1	~		~	-	400	130	
Zones	4	Zone 4	Keypad ID3 input	nstant	NO	1	~		~	-	400	130	
	5	Zone 5	Keypad ID4 input	nstant Sta	NO	-	~		~	-	400	130	
PGM	6	Zone 6	Keypad ID5 input	nstant	NO	1	1		1	1	400	130	

#### 10. In the "**PGM**" tab, configure the expander's PGM output.

TrikdisConfig 1.66.47 SP3									-		
🗱 Program 🛛 🎤 Action	About										
	Read [F4]	Write	[F5]	Open [F	8] S	ave [F9]		Dis	sconnect		
System Options	Outputs	Set Action	Control Schee	duler Thermostat	SMS & C	all repor	ting				
Reporting to CMS											
Users & Reporting	PGM No	Name	PGM output		1	Areas	Output definition	Pulse Time, s	CMS	Prot.	
	1	PGM 1	BELL			1,2,5 -	Siren	20	$\checkmark$	$\checkmark$	
Modules	2	PGM 2	RS485 Expan	der ID1, OUT1			Remote Control	10	<ul> <li>Image: A start of the start of</li></ul>	-	
Wireless	3	PGM 3	Disable			-	Remote Control	20	<ul> <li>Image: A start of the start of</li></ul>	-	1
Zones	4	PGM 4	Disable			-	Remote Control	20	Image: A start of the start	-	
	5	PGM 5	Disable			*	Remote Control	20	<ul> <li>Image: A start of the start of</li></ul>	-	
PGM	6	PGM 6	Disable			*	Remote Control	20			

11. Temperature sensors will be included in the "Sensors" list if a temperature sensor is connected to the *iO-LORA* expander.

About lead [F4] Write [F5] Module type RS485 Expander ID1	Open   Serial No.	[F8] Save [F9] Sensor name	Max	Min	Disconne	_	
Module type	Serial No.		Max			_	_
		Sensor name	Max	Min	Illah		
DC 495 Europeder ID1					High	Low	Delay, min
r 5403 Expander ID I	00000000000000000	Sensor 1	30	20	1	-	0
Disable	000000000000000000000000000000000000000	Sensor 2	30	2	-	-	0
Disable	00000000000000000	Sensor 3	30	2	~	-	0
Disable	00000000000000000	Sensor 4	30	2	~	-	0
Disable	00000000000000000	Sensor 5	30	2	~	-	0
Disable	000000000000000000000000000000000000000	Sensor 6	30	2	-	-	0
Disable	000000000000000000000000000000000000000	Sensor 7	30	2	-	-	0
Disable	000000000000000000000000000000000000000	Sensor 8	30	2	-	-	0
	Disable Disable Disable Disable Disable Disable Disable	Disable         000000000000000000000000000000000000					

12. Once configuration is complete, click the **Write [F5]** button.

- 13. Wait for the updates to finish.
- 14. Click the "Disconnect" button and disconnect the USB cable.