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CANx / LoRa 433 MHz 8 x Analog inputs / Digital ouputs

ENG - Data sheet
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Application

Universal 8 channel IO device is designed to be used in building automation applications as an extension module to LogicMachine series devices based on CAN FT bus. The configuration and monitoring of the device is done through separate LogicMachine CANx application. The device is designed for DIN-rail mounting and requires 4 DIN-units.

Types of product

CAN-UIO16	Universal canX bus IO module 16 AI/DO

Standards and norms compliance

CE conformity:	EMBS-CE-110926/01 Electromagnetic compatibility
EMC:	EN61000-6-1 EN61000-6-3
PCT	Certificate

Technical data:

Power supply:	12-32 VDC

Power consumption	15 mA (LoRa not active) 30 mA (peak LoRa activity)	
Interface:	Universal Inputs/Outputs	8
	Analog input resolution	12bits
	Digital output current	350 mA (max 2 A per whole device)
	Wrong wiring polarity protection	
	CAN FT	1
LoRa specification	Power on transmitter	1.6-50 mW (software adjustable)
	Frequency range	433-434,750 MHz
	Channel bandwidth	125 / 250 / 500 kHz
	Carrier frequency step	125 kHz
	Spreading factor	7-12
Clamps:	CAN FT	CAN FT Connection Terminal 0.8mm2
	Inputs/Outputs	3.5mm2
	Power supply	5 mm2
Enclosure:	Material:	Polyamide
	Color:	Gray
	Dimensions:	54(W)x100(H)x68(L) mm
Protection:	IP20 according to EN 60529	
Usage temperature:	-5C ... +55C	
Storage temperature:	-20C ... +70C	
Net weight:	86g	
Gross weight:	97g	

Caution

Security advice

The installation and assembly of electrical equipment may only be performed by skilled electrician. The devices must not be used in any relation with equipment that supports, directly or indirectly, human health or life or with application that can result danger of people, animals or real value

Mounting advice

The devices are supplied in operational status. The cables connections included can be clamped to the housing if required.

Electrical connection

The devices are constructed for the operation of protective low voltage (SELV). Grounding of device not needed. When switching the power supply on or off, power surges must be avoided.

Default settings

Line ID: 0

Node ID: 1

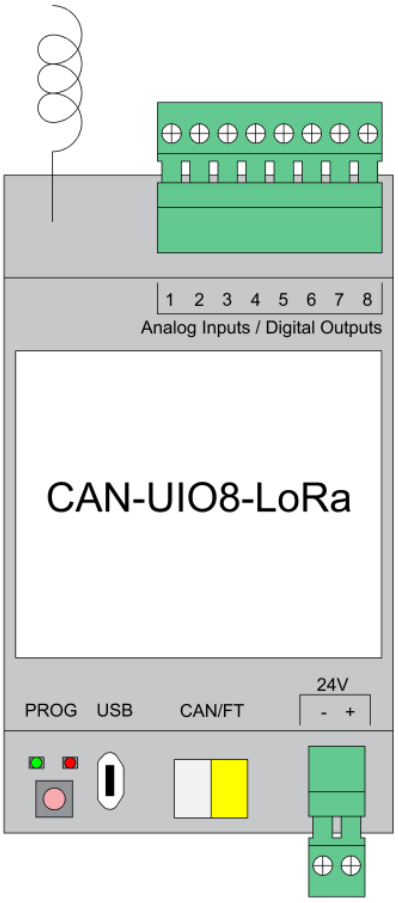
Max. number of group addresses per object : 16

Reset to defaults

Press programming button for 5 seconds, the RED LED blinks 2 times, then release button - GREEN lights up shortly.

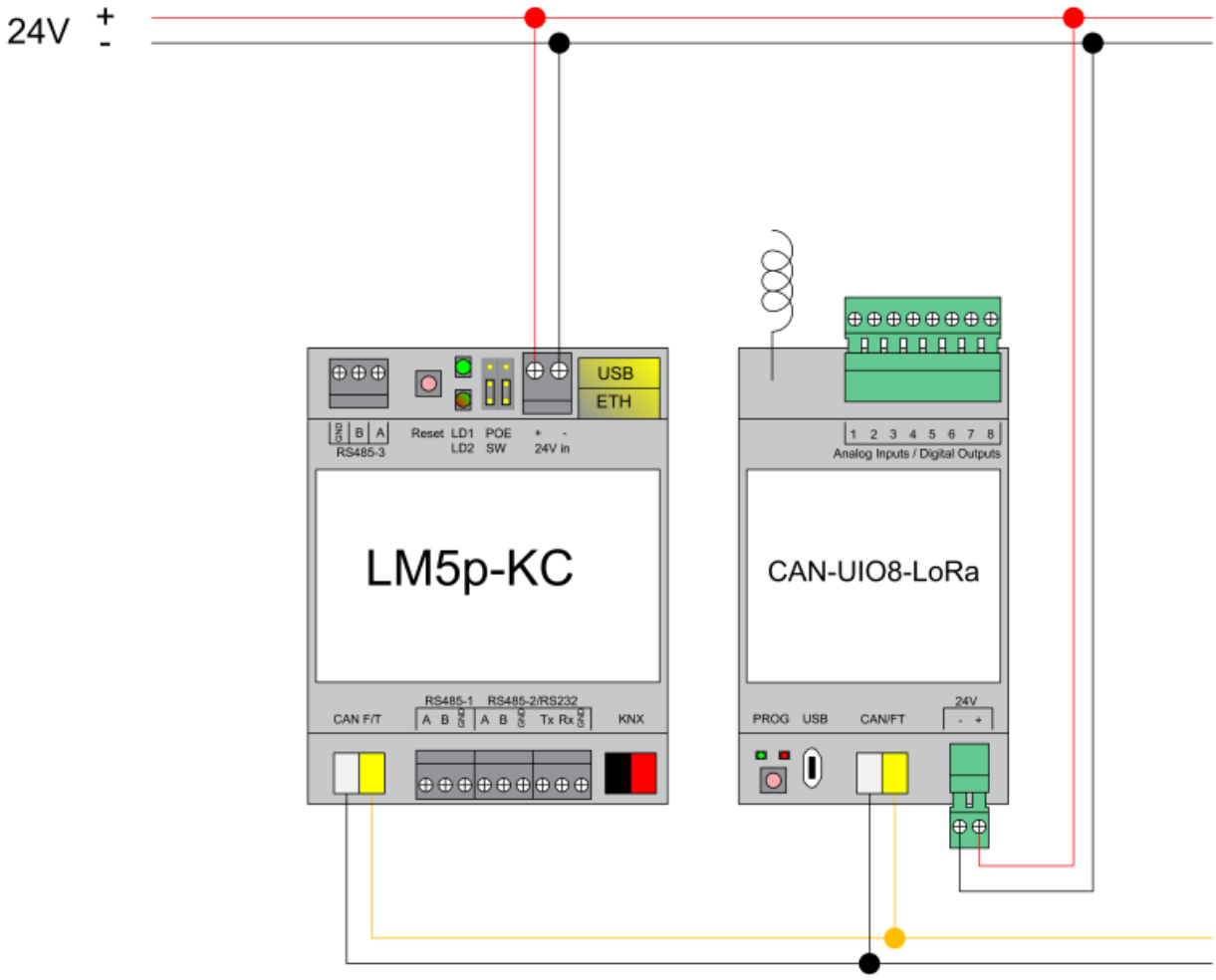
Programming physical address

Press *Tools* → *Write device address* from CANx app. Choose address and press *Write*. Then press programming button shortly on the device, GREEN LED lights up shortly. The LED is switched off automatically in 1 second which means address is written.

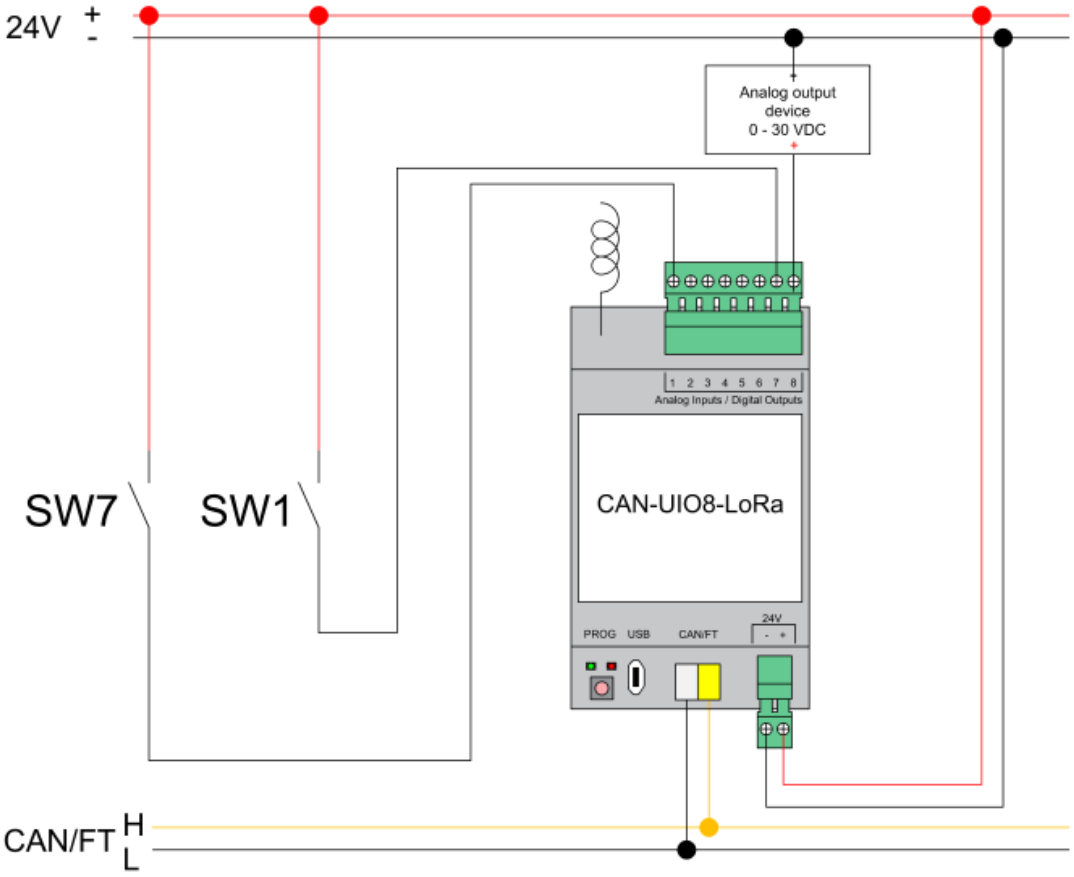


1. Connection diagrams

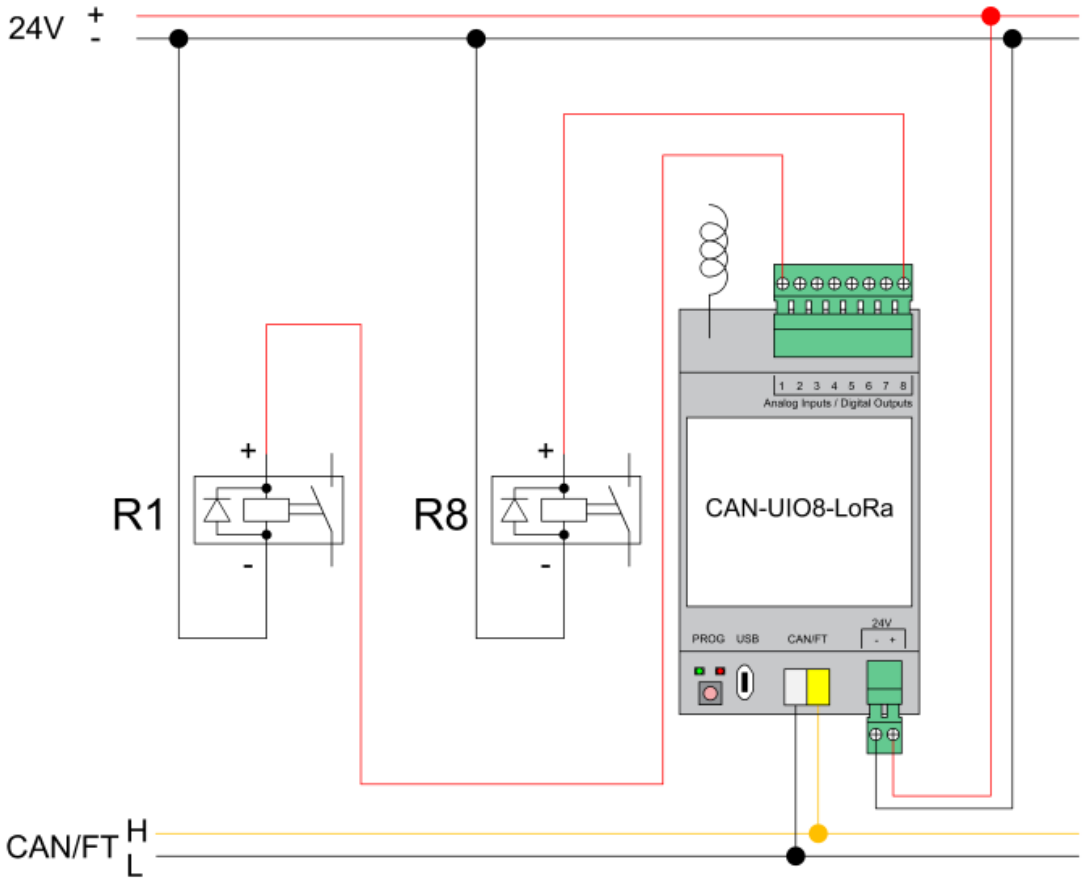
CAN FT connection



Digital / Analog input

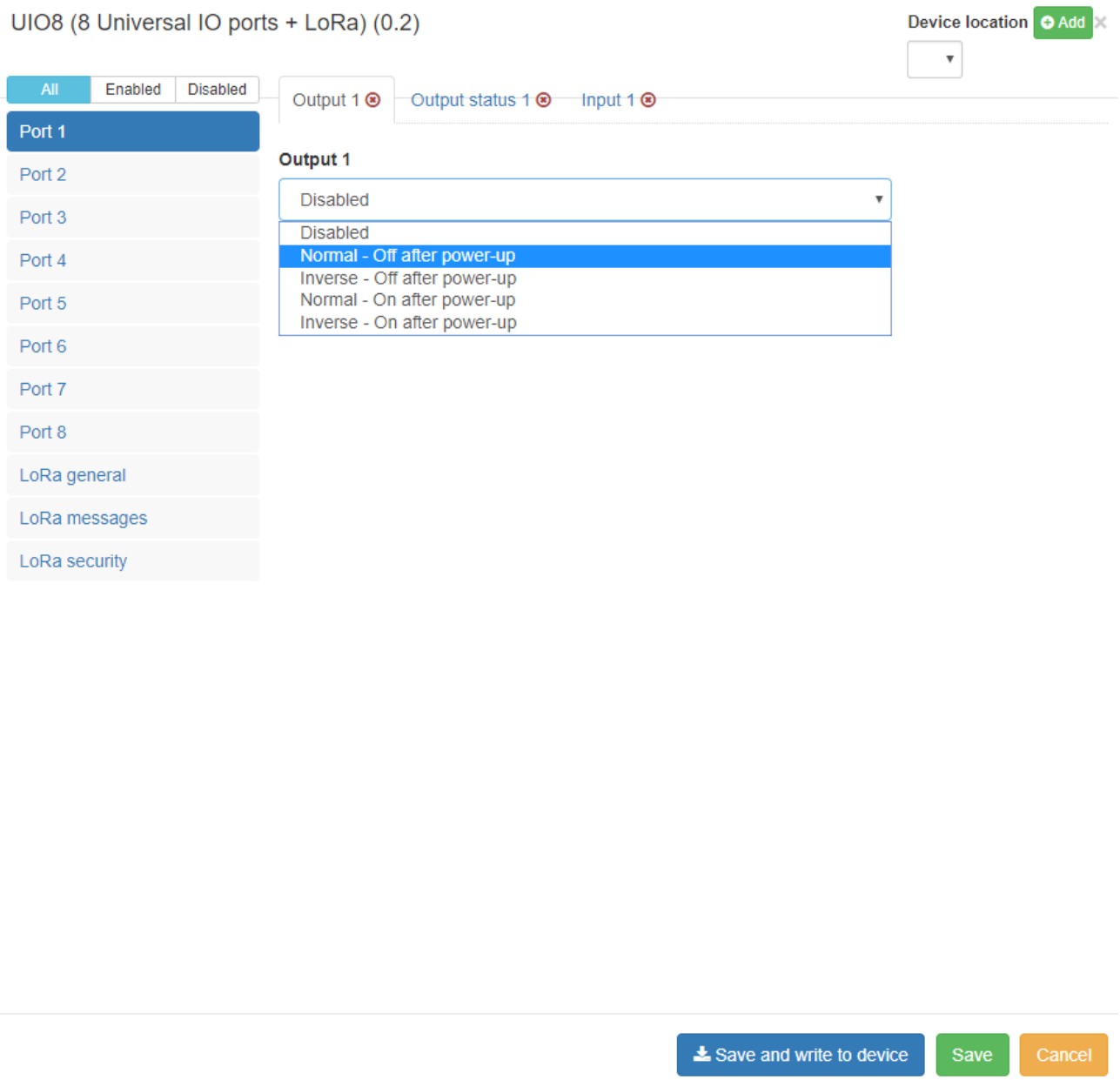


Digital output (e.g. external contactor control)



2. canX software settings

Digital output



Default flags: read (R), write (W), transmit (T)

Output mode:

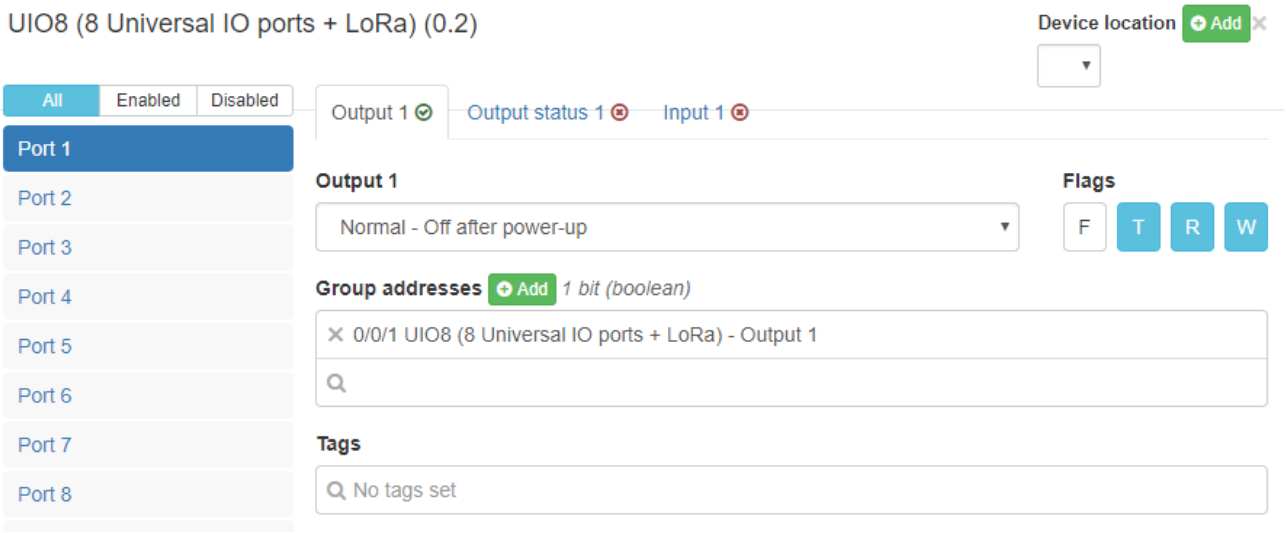
Normal – Off after power-up

Inverse – Off after power-up

Normal – On after power-up

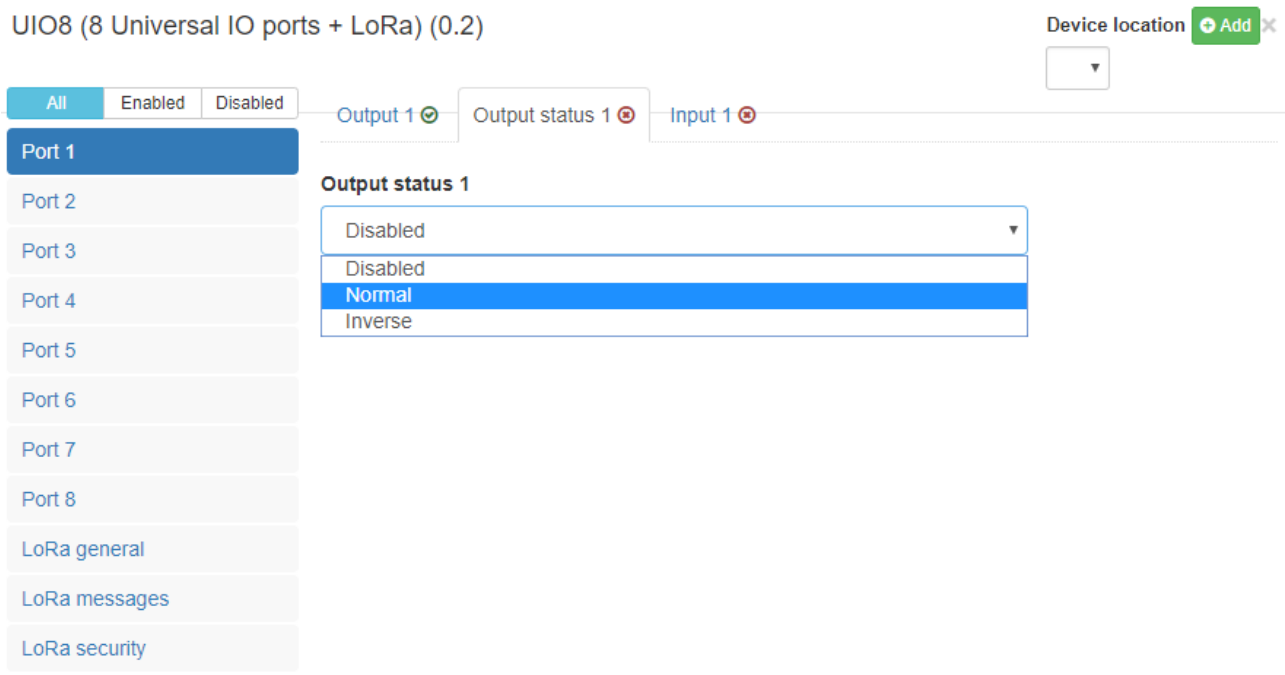
Inverse – On after power-up

Group addresses – you can assign group addresses from the predefined list or add manually by clicking on ADD button. You can assign max 16 group addresses to one object / output.



Digital output status

Status (response after read command) will return a real measurement value (1 – for high voltage, 0 – for no voltage)

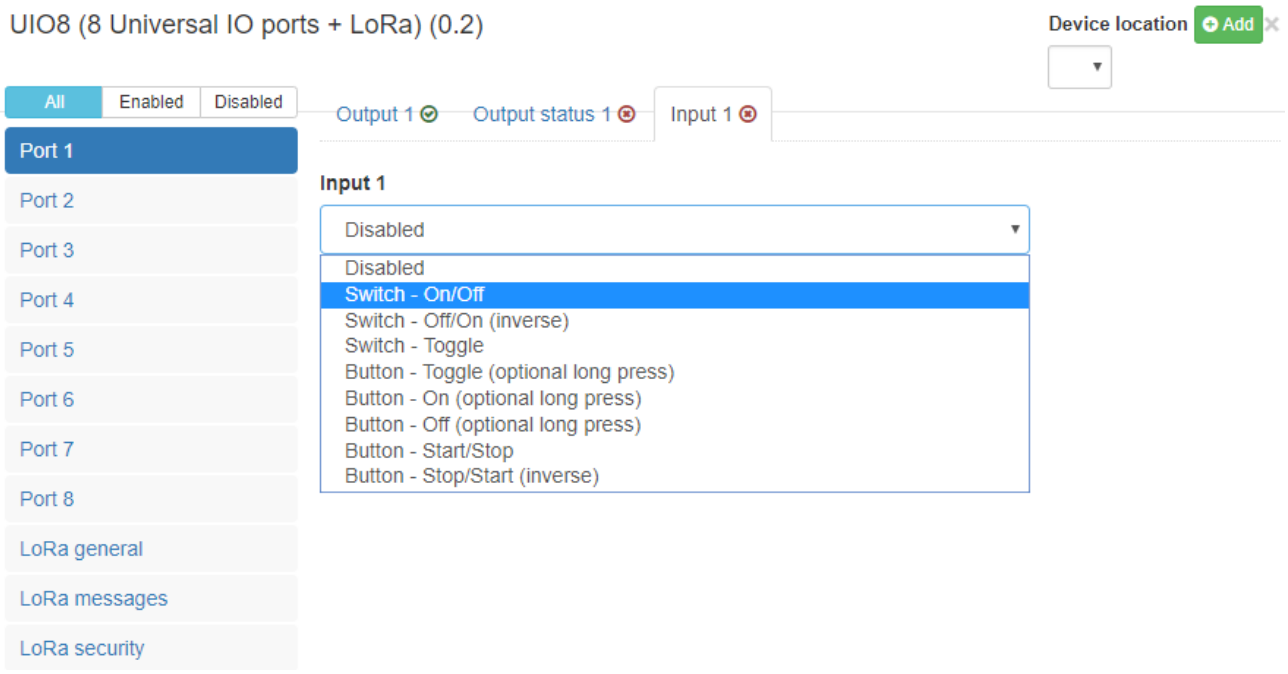


Default flags: read (R), transmit (T)

Output status: Disabled, Normal, Inverse

Group addresses – you can assign group addresses from the predefined list or add manually by clicking on ADD button. You can assign max 16 group addresses to one object / output status

<u>Input mode</u>

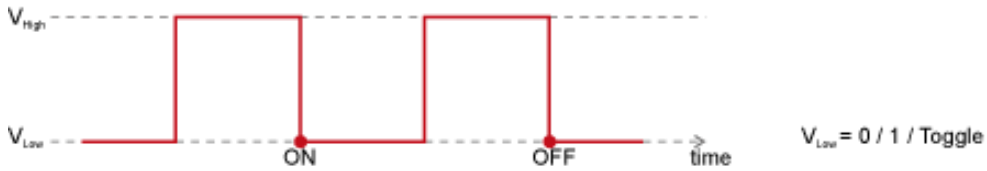


Default flags: read (R), write (W), transmit (T)

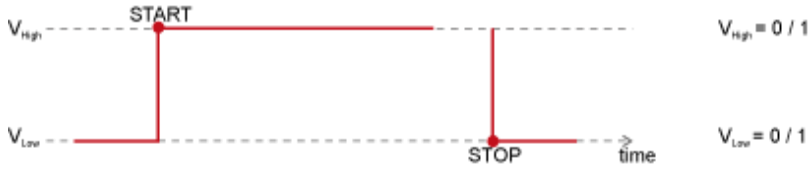
Input mode:

Switch on/off – send 1 to bus if switched ON or 0 if switched OFF
Switch off/on (inverse) – send 0 to bus if switched ON or 1 if switched OFF
Switch Toggle - change status to inverted with every push

Button Toggle (optional long press) – change status to inverted with every push
Button On (optional long press) – push 1 to bus every pulse
Button Off (optional long press) – push 0 to bus every pulse



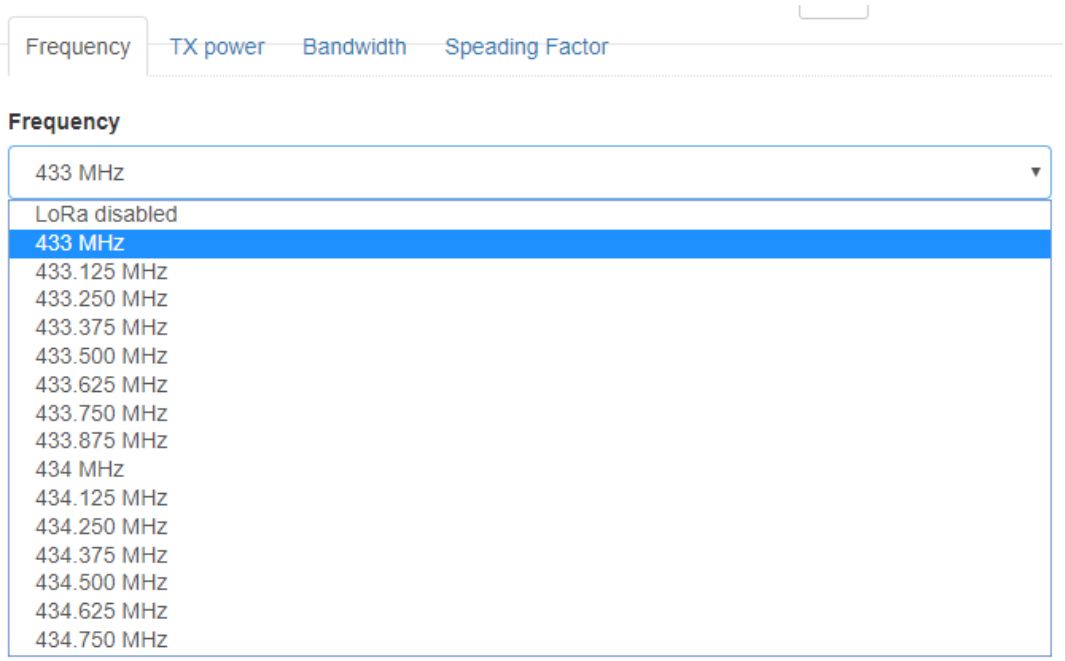
Button Start/Stop – send 1 when pushed and 0 when released
Button Stop/Start (inverse) – send 0 when pushed and 1 when released



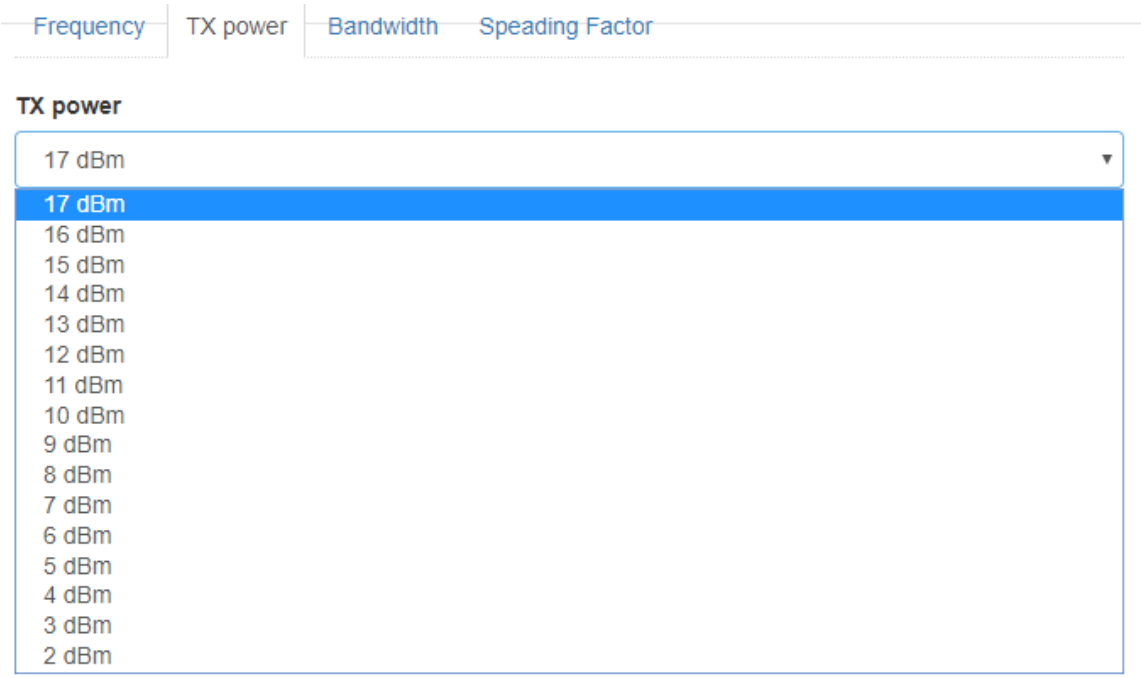
Button long press toggle - Send 0 or 1 to bus with every long press
Button long press send 1 - Send 1 with every long press
Button long press send 0 - Send 0 with every long press

LoRa General settings

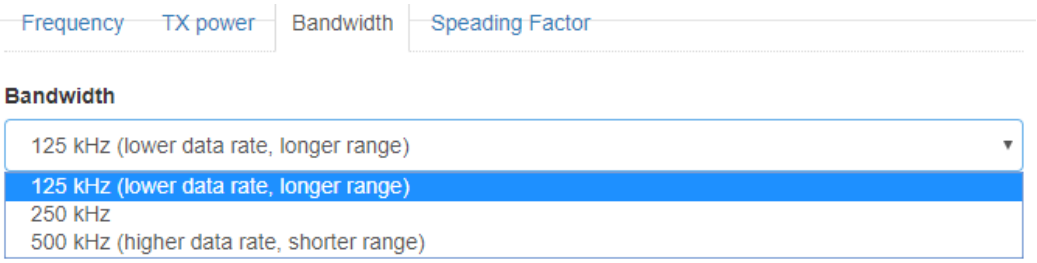
Frequency – define the frequency LoRa will operate in. Frequency should be equal on transmitter and receiver(-s).



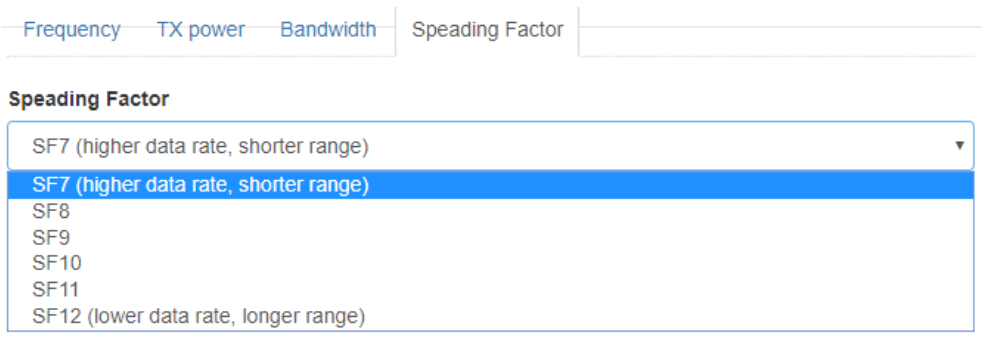
TX power – output power of LoRa transceiver



Bandwidth – define the bandwidth of the channel. The lower the bandwidth – the lower the data rate / longer the distance. Bandwith should be equal on transmitter and receiver(-s).



Spreading factor - The basic principle of spread spectrum is that each bit of information is encoded as multiple chirps. Within the given bandwidth the relationship between the bit and chirp rate for LoRa modulation may differ between spreading factor (SF) 7 to 12. Spreading factor should be equal on transmitter and receiver(-s).



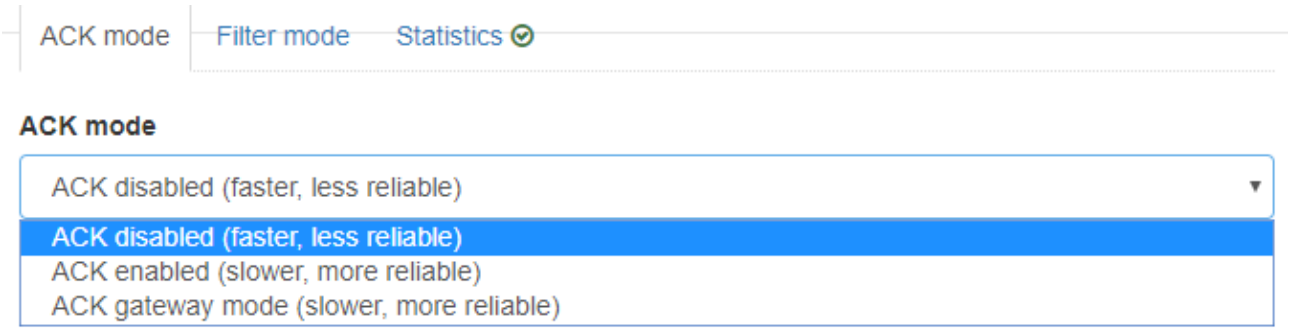
LoRa Messages

ACK mode – message acknowledgement mode

ACK disabled - no ACK will be done (faster and less reliable communication)

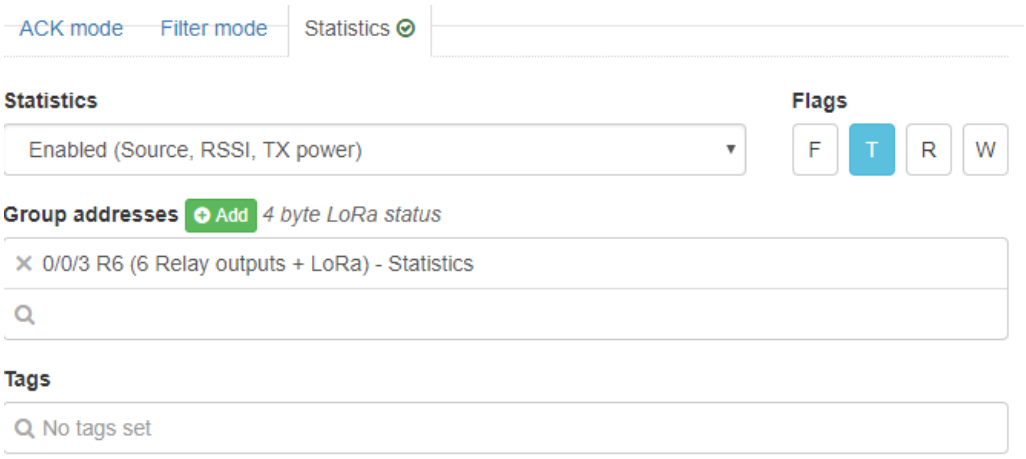
ACK enabled - each message will be acknowledged (slower, more reliable)

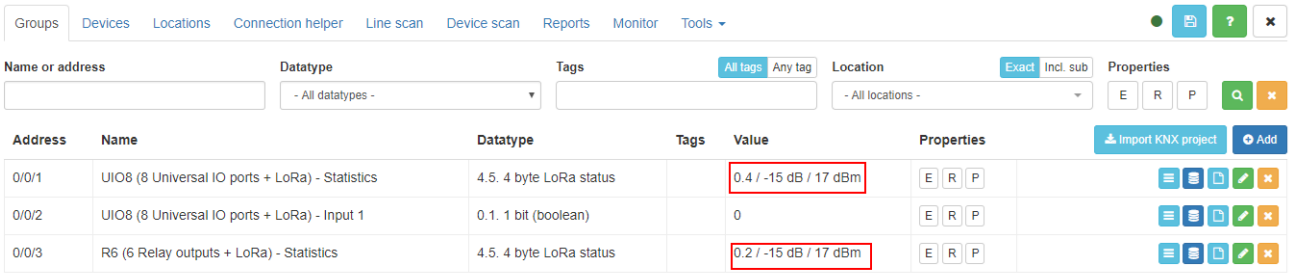
ACK gateway mode – the node will retransmit ACK to the next node



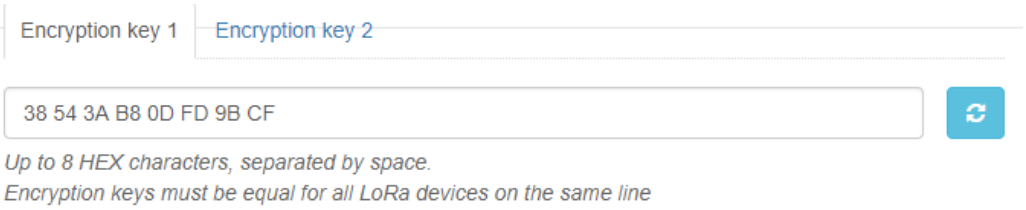
Filter mode – define either to pass messages with F (Filter) flag enabled in object settings

Statistics – receive statistic information to group address – source address / RSSI signal level / TX power





LoRa Security – define security key 1 or/and key 2 in HEX form. Up to 8 HEX characters are supported for each of the keys. Encryption keys must be equal for all LoRa devices on the same line



Notification LEDs

- During transmission you can see two LEDs on LoRa device

	Sending LoRa telegram
	Receiving LoRa telegram

- In case statistics is enabled on receiver device and CAN FT line is disconnected from it, both LEDs will light up (receiving telegram from sender, sending telegram with statistics).
- In case ACK is enabled, both orange and blue LEDs will light up.