Lobaro
Industrial IoT Solutions

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OVERVIEW

The *Dzero Gateway 4x* is a battery powered device and used for remote reading of electricity meters with optical D0 / "INFO" interface.

FEATURES

- The device supports the SML protocol and IEC 62056-21 and has a protocol autodetection
- Uplink data via NB-IoT mobile radio (LTE bands: 3, 8, 20)) or LoRaWAN v1.0.2 (EU-868)) or wMBus
- Communication with meters takes place by means of the round Lobaro add-on module ("opto head")
- Up to four electricity meters can be read with only one Dzero Gateway 4x
- Automatic detection of the amount of connected opto heads
- Opto head is attached to meter with an integrated magnet
- One opto head is included, three more can be connected
- Connection to a TH 35 top-hat rail is given via a top-hat rail holder
- Interface D0 is intended to be used by end-users **and not for billing** purposes of the electricity supplier

APPLICATION

The *Dzero Gateway 4X* is a battery powered device. It is used for automated LoRaWAN, wMbus, Nb-IoT or LTE-M remote read out of novel "smart metering" devices via the standardized optical customer interface ("INFO") of the electricity meter.

TECHNICAL SPECIFICATIONS

General

Type	LOB-GW-SUN-DZERO
Purchase name	Dzero Gateway 4X
Input Voltage	3.3V to 5V, 3.6V (standard)
Item number	8000195

Cellular NB-IoT / LTE Cat. M1 Modem

LTE SIP	Nordic nRF9160
LTE bands	Standard: B8, B20, B3 (791 MHz - 969 MHz, 1710 MHz – 1785 MHz)
	Other Bands on request
SIM card	4FF (Nano-SIM)
Data Upload	Secure CoAP over DTLS (via Lobaro IoT Platform)

LoRaWAN

Type	Semtech SX1261
LoRaWAN Protocol Version	Class A LoRaWAN 1.0.2 (EU-868)
TX power	≤ +14 dBm
Activation method	Over-the-air activation (OTAA)
	Activation by personalization (ABP)
Typical RF range	≤ 2km
Ideal RF range	≤ 10km (free line of sight)
Encryption	AES128

Antenna

Ext. type	SMA female connector ≤ 2 dBi
Internal type	Optional: Multiband PCB monopole (NB-IoT)

Battery

Approved type	SAFT LSH-20
Voltage	3.6V
Other types	On request
Chemistry	Li-SOCl2
Capacity	≤ 13 Ah
Max. Current	≤ 1.8 A
Weight	≤ 120 g
Connector	JST-XH 2-Pin

Additional I/O

Local configuration port	PC based initial configuration via USB adapter
LED	RGB Led to signal different operating modes
4 x RJ45	Connection of opto heads with 1m cable
Jack socket, 3,5mm	Connection for folding converter

TECHNICAL SPECIFICATIONS

Power Supply

Supply Voltage Connection	JST XH 2P Connector
Supply Voltage Range	3.3V – 5V Volt (DC)
Max. Power Consumption	≤ 2.5W
Typical Power Consumption	≤ 1.5W

Housing

Dimensions	147,3mm (l) x 77,9 mm (b) x 46mm (h)
Material	Polystyrol
Weight	≤ XXX g (incl. battery)
Protection class	IP4X
Color	black (RAL 9016)
Opto head	31,6(d) x 27,2(h)

Environment

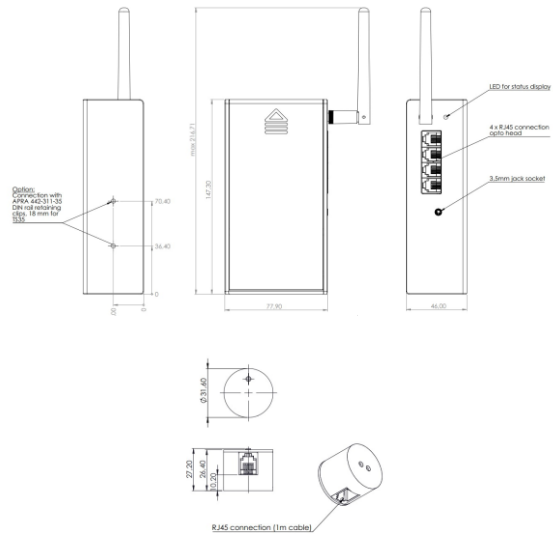|	
Operating temp.	-20 °C to 55 °C
Storage temp.	0 °C to 30 °C

Certificates and approvals

- EN 300 220-1 (RF)
- EN 300 220-2 (RF)
- EN 301 908-1 (RF)
- EN 301 908-13 (RF)
- EN 301 489-3 & EN 301 489-52 (EMC)
- EN 62368-1 (Electrical Safety)
- EN 62311:2008 (Electrical Safety)
- IEC 63000:2018 (RoHS)

DIMENSIONAL DRAWINGS

WARRANTY AND GUARANTEE

Warranty and guarantee claims can only be asserted if the device has been used as intended and the technical specifications and applicable technical rules have been observed.

RADIO FREQUENCY

RX: receive mode, TX: transmit mode

Direction	Protocol	Frequency	Bandwidth	Modulation	Duty-Cycle	Transmit Power (EIRP)
RX	wMBUS C1/T1	868.95 MHz	+/- 0.050 MHz	FSK	-	-
RX	wMBUS S1	868.3 MHz	+/- 0.050 MHz	FSK	-	-
RX + TX	NB-IoT Band 8	880-915 MHz (up) 925-960 MHz (down)	25 MHz	NB-IoT	-	≤ 23 dBm
RX + TX	NB-IoT Band 20	832-862 MHz (up) 791-821 MHz (down)	30 MHz	NB-IoT	-	≤ 23 dBm
RX + TX	NB-IoT Band 3	1710-1785 MHz (up) 1805-1880MHz (down)	75 MHz	NB-IoT	-	≤ 23 dBm