OrionM2M

LORAWAN MULTIFUNCTION DEVICE

LA-IP

OrionMeter · pulse inputs · RS-485 / M-BUS · LoRaWAN + wM-Bus · IP65 / IP68



01 FEATURES

- LoRaWAN 1.0.3 and wM-Bus T1/T2 simultaneously — firmware 3.x
- 3 pulse inputs for water, gas and heat meters
- RS-485 with 9 V meter supply, or M-BUS
- Li-SOCl$_2$ 3.6 V and BatteryCare® — up to 10 years
- 230 V mains or DC 9…32 V versions, Class C
- Hourly archive up to 54 days, input events

APPLICATIONS

- Water, gas, heat and electricity metering
- Security sensors and industrial automation
- Meter polling over RS-485 and M-BUS
- Smart agriculture: soil sensors

02 GENERAL

Activation · indication	**magnet · LED**	
Hourly archive: FW below 3.0 / FW 3.x	**54 / 49**	days
Operating temp.	**–20 … +60**	°C
Housing	**polycarbonate**	120×50×30 mm
Ingress protection	**IP65**	IP68 — [68E]
Weight	**≤ 112**	g · [68E]: 175
Mounting	**DIN rail · wall**	· zip ties
Warranty	**36**	months

03 POWER

Li-SOCl$_2$ battery, 3.6 V	**3650 / 4100**	mAh
Battery service life [1]	**up to 10**	years
230 V mains — version [A]	**90 … 265**	V AC
External DC — version [D]	**9 … 32**	V, SELV
BatteryCare® supercapacitor	**0.5 / 1.5**	F

[1] Up to 10 years at ≤ 6 sessions per day and ≤ +25 °C, at least 7 years at ≤ 12 sessions; at +40 °C the life drops by about a quarter.

04 INPUTS & INTERFACES

Pulse inputs (DI)	**3**	[40]: 4 DI + DO
Sensor type	**reed · button · OC**	no NAMUR
Max. pulse frequency	**41.7**	Hz
RS-485 — RSP versions	**1 port**	≤ 4 devices
M-BUS — MBUS version	**1 port**	≤ 4 devices
Meter supply (RSP)	**3.3 / 9**	V, ≤ 40 mA

05 RADIO: LORAWAN · WM-BUS

LoRaWAN · class	**1.0.3 · A**	OTAA · ABP
Frequency plans (field F)	**8**	plans · p. 2
Transmitter power	**up to 14**	dBm (25 mW)
Receiver sensitivity	**–137**	dBm
Data transfer rate	**0.3 … 40**	kbps · ADR
Range: urban / line of sight	**up to 5 / 15**	km
wM-Bus — firmware 3.x	**T1/T2 · 868.95**	MHz
wM-Bus: period (10 s … 42 min)	**60**	s default
wM-Bus: encryption	**AES-128**	mode 5

06 VERSIONS

Parameter	LA-IP	LA-IP [40]	LA-IP [68E]	LA-IP-RSP	LA-IP-RSP [A]	LA-IP-RSP [D]	LA-IP-MBUS
DI inputs / DO output	3 / —	**4 / 1**	**2 / —**	3 / —	3 / —	3 / —	—
Digital interface	—	—	—	**RS-485**	**RS-485**	**RS-485**	**M-BUS**
Meter supply	—	—	—	3.3 / 9 V	3.3 / 9 V	3.3 / 9 V	via M-BUS
Power source	battery	battery	battery	battery	**90 … 265 V AC**	**DC 9…32 V**	battery
LoRaWAN class	A	A	A	A	**A / C**	**A / C**	A
Ingress protection	IP65	IP65	**IP68**	IP65	IP65	IP65	IP65
Antenna (E — external SMA)	int.	int.	**external SMA**	int. · option E	int. · option E	int. · option E	int.

07 ORDER INFO

SKU	DESCRIPTION
LA-IP[DICAOV]/S-F	OrionMeter LA-IP LoRaWAN Multifunction Device: 3 DI (version [4O] — 4 DI + 1 DO), 3.6 V 3650 mAh battery
LA-IP-RSP[ICAP]/T-S-F	Same with RS-485 port and DC 9 V meter supply; battery / 230 V mains [A] / DC 9…32 V [D]; sensor or adapter per field T
LA-IP-MBUS[CAV]/S-F	M-BUS to LoRaWAN converter, up to 4 devices on the bus; 3.6 V 3650 mAh battery

Only options other than "–" are written: LA-IP[4O], LA-IP[68E], LA-IP-RSP[E] (external antenna), LA-IP-RSP[EA] (external antenna, 230 V mains), LA-IP-RSP[A]/01-KZ.

D: inputs
- **0**: 0 inputs
- **–**: 3 inputs
- **4**: 4 inputs

I: IP rating
- **–**: IP65
- **68**: IP68

C: type
- **–**: LoRaWAN

A: antenna
- **–**: internal 868 MHz
- **9**: internal 915 MHz
- **E**: external SMA-female

P: power supply
- **–**: battery 3.6 V, 3650 mAh
- **A**: external AC 230 V
- **D**: external DC 9…32 V

O: outputs
- **–**: no outputs
- **O**: 1 output

V: shipping variant
- **–**: standard shipping
- **W**: without housing

T: external connections
- **0**: no external connections
- **S1**: soil moisture sensor
- **S2**: soil temperature sensor
- **S3**: soil EC sensor
- **S4**: soil moisture, temp. & EC sensor
- **S5**: soil nitrogen sensor
- **S6**: soil phosphorus sensor
- **S7**: soil potassium sensor
- **S8**: soil NPK sensor (fertilizer)
- **S9**: moisture, temp., EC, salinity & NPK
- **R2**: RS-232 adapter

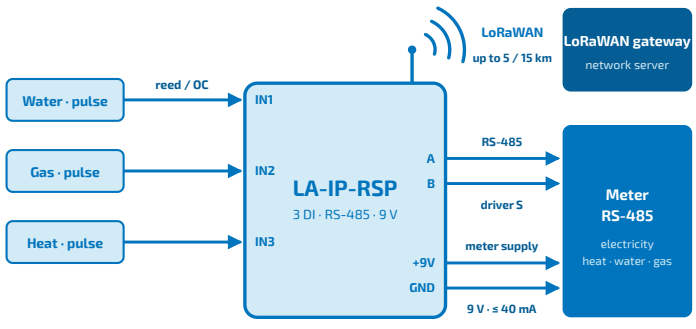
S: serial device driver — one per device
- **01**: Incotex Меркурий 230, 234
- **02**: Incotex Меркурий 200.02, 200.04, 206
- **03**: Energomera CE102M, CE301, CE302, CE303
- **04**: Decast Metronic СТК «Марс», NEO, NEO У; Teplovodohran ПУЛЬСАР, ПУЛЬСАР-К
- **06**: Termotronic ТВ-7
- **07**: VZLET ТСРВ-033, ТСРВ-034
- **10**: Saiman ОТАН САРЗУ-Э712, САР4У-Э712
- **11**: Saiman ОРМАН СО-Э711
- **12**: Saiman ДАЛА СА4У-Э720, СА4-Э720
- **13**: Saiman ОРМАН СОАР-Э717
- **14**: Modbus RTU — universal
- **15**: Mirtek-12, Mirtek-32
- **16**: Sempal СВТУ-11Т_RP
- **17**: Proservis Прамер ТС-100-К
- **18**: Valtec VHM-T-C
- **19**: SPBZIP ЦЭ2726А, ЦЭ2727А
- **20**: Puls СТК-15-М
- **22**: Sempal СВТУ-11Т
- **23**: Apator ELF-M M-BUS
- **24**: Karat-2-213-223 M-BUS
- **25**: M-BUS — universal M-BUS
- **32**: Chronos СИПУ — pulse counter
- **33**: Pulsar — water meter
- **34**: Elcor — gas corrector
- **35**: Kamstrup Multical (KMP)

Codes 01–20, 22, 32–35 — RS-485 versions (LA-IP-RSP); codes 23–25 — LA-IP-MBUS.

F: default frequency plan
- **EU**: EU863-870
- **IN**: IN865-867
- **RU**: RU864-870
- **KZ**: KZ865-868 default
- **US**: US902-928
- **AU**: AU915-928
- **AS1**: AS923-1
- **AS3**: AS923-3

Package content: radio modem, product passport, silica gel bag inside the housing, cable gland O-rings.

08 TYPICAL CONNECTION



Pulse inputs and RS-485 (LA-IP-RSP version)

09 MOUNTING AND COMMISSIONING

Mounting zip ties to a pipe or mast, screws to a wall, TH35 DIN rail (latch on the housing). Keep metal structures away from the radio modem.

Cables through the cable glands with sealing rings; keep the silica gel bag inside. Inputs IN1…IN3 are clamp terminal pairs; observe polarity for sensors with a diode or transistor.

RS-485 up to 4 devices on the bus; enable the 120-ohm terminator on the end device with the on-board DIP switch. The 3.3 or 9 V meter supply is applied during polling and set by configuration.

Power-up the radio modem ships in Store mode; exit it with a magnet at the Hall sensor, confirmed by the green LED. Then OTAA join: three Join Request attempts at SF10, SF11, SF12.

Configuration over the air by downlink commands (EasyTool): inputs, reporting period, meter driver and supply, frequency plan from the firmware set, wM-Bus telegram period and key.