pironex
electronic and software solutions

piSmart-Gateway-LR
Article number: 911131090

Gateway

Unique Features

- LoRaWAN
- Nahbereichsfunk
- Matter/ Thread/Zigbee
- GNSS
- microSD-Karte
- Beschleunigungssensor
- Low Power
- Optional: induktives Laden

Description

The piSmart-Gateway-LR is an energy-efficient LoRaWAN IoT gateway. It is used as a GPS tracker, data logger, for data acquisition, or as a retrofit module in devices, machinery, vehicles, or industrial plants.

❱ LoRaWAN for energy-efficient data transmission over long distances

❱ GPS for precise device location

❱ µSD card slot for recording various data such as position or self-acceleration

❱ Various inputs and outputs for flexible adaptation to the application

❱ Periodic system waking for long runtime

❱ Cloud platform pironex-iot.de for data visualization and analysis

Place of use

❱ Outdoor

❱ Indoor

❱ rough Enviroment (IP67)

Operating Location

As a module with low energy consumption, it is ideally suited for applications that require minimal maintenance. The piSmart-Gateway-LR specifically covers remote tasks:

❱ Remote control of industrial plants, for example

❱ Control of sensors, actuators, or other devices in home automation

❱ GPS tracking

❱ Asset tracking

❱ Sensor data acquisition

❱ Geofencing

❱ Theft protection and access systems

The gateway is designed specifically for extreme environments with limited space and withstands water, shocks, vibrations, and extreme temperature conditions.

Application-specific modifications are possible – allowing customization of the form factor, interfaces, and performance according to customer needs.

Audience / users

❱ B2B,

❱ Hard- and Software developer

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Technical data

Microcontroller/Processor

Processor 1	STM32WLE5JC
	32-bit Arm® Cortex®-M4 CPU
	up to 48 MHz
SRAM	65KB
Flash	up to 256KB
Processor 2	EFR32MG24
	32-bit ARM® Cortex®-M33
	up to 72 MHz
RAM	256kB
Flash	1536KB

Interfaces

Qi Charging Interface	inductive charging up to 1,25A
LoRaWAN	Antenna on Board, optional: U.Fl-Connector for external antenna
Frequency/Band	868MHz
Transmission Power	22dBm
GNSS	optional: U.Fl-Connector for external antenna
Frequency/Band	GPS: 1575MHz GLONASS: 1597.5MHz BeiDou: 1561MHz
Transmission Power	15dBm
Matter/Thread/Zigbee	IEEE 802.15.4, uses same antenna as Bluetooth
Frequency/Band	2.4GHz
Transmission Power	up to 20dBm
Programming Interface	SWD (interal)
Power Supply (opt.)	12V via Terminalblock

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Additional Features

Card Slots	1x microSD/microSDHC
Sensors	3G Sensor:
	· 3 Axis
	· up to 12bit resolution
	· ± 2 g / ±4 g /± 8 g / ±16 g
	· 1Hz to 5,3kHz
Piezo Driver	for piezo speaker, up to 18Vpp, 20Hz to 300kHz
Real Time Clock	32.768kHz crystal, Alarm function, Countdown-Timer
Optical Elements	1x green LED (Status)
Control Elements	1x Switch (Wakeup)

Enviromental Conditions

Operating Location	Indoor, Outdoor: only within the limits mentioned below
Operating Temperature	-20 °C to +60 °C
Temperature while charging	+10 °C to +45 °C
Storage Temperature	-20 °C to +60 °C
Transport Temperature	-20 °C to +60 °C
Gradient of Temperature	5 K/min (avoid dew)
Relative Humidity	Max. 70%, avoid dew
Height above Sea Level	up to 2000 m
Height above Sea Level (Storage/Transport)	up to 3000 m
Degree of Pollution	Pollution Degree 2

Voltage Supply

Voltage VDC	5V-20V at receiver coil or 12VDC
max. Power Pmax	5W
max. Current Imax	420mA @ 12VDC
Battery	1x Lithium-Polymer battery or up to 2 primary cells, variable charge
Widthstand Voltage	26.4V @12VDC Input
VB(t) - Turn-Off Threshhold	3.2VDC (battery voltage)
VB(t) - Turn-On Threshhold	3.2VDC (battery voltage)
VB(t) - Undervoltage Lookout	<3.4 VDC (battery voltage)
VB(t) - Overvoltage Lookout	> 4.2 V (battery voltage)
Reverse Polarity Protection	yes

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IoT Gateway

Directives

2014/53/EU	Radio Equipment Directive
2011/65/EU	Restriction of certain Hazardous Substances (ROHS)
2012/19/EU	Waste of Electrical and Eletronic Equipment (WEEE)
EC 1907/2006	Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

Mechanic Specifications

Dimensions	88,2 mm x 111 mm x 30 mm
Weight	<300 g
IP-Class	IP67 (DIN EN 60529:2014-09; VDE 0470-1:2014-09)
Material	ABS and PA6
Resistance of the Housing against UV-Light	ja
Mounting Type	screws

Technical drawing (dimensions in mm)