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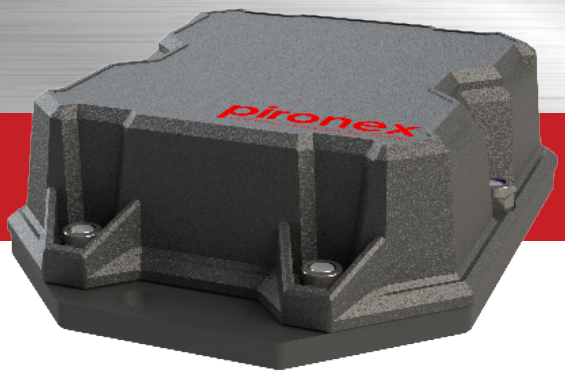
electronic and software solutions

Data sheet piSmart-Gateway

piSmart-Gateway

item number: 911130067



Unique Features

- RFID
- GNSS
- CAN-Bus
- LIN-Bus
- Accelerometer + magnetomete
- Temperature sensor
- Motor control
- 2x Fork light barrier connection

Description

As a standard gateway for the Industrial Internet of Things (IIoT), the piSmart-Gateway-I module collects data in the direct environment of machines and plants, evaluates them and processes measured values

on the gateway itself or in the cloud.

- RFID for reliable reading of RFID tags over short distances
- CAN bus for data exchange between several participants over medium distances
- GNSS for accurate location of the unit
- Multi-function sensor for various measured values such as temperatures, self-motion and orientation of the unit
- Multiple digital IOs for expansion with a motor or forked light barriers

Operation Location

The piSmart-Gateway-I is a flexible gateway for IoT applications through a wide variety of interfaces and features a small form factor.

- Activation of locks for e.g. sharing services or cycle stations
- Sensor data acquisition and data readout
- Control of a DC motor in a range specified by forked light barriers
- Vehicle theft protection
- Retrofit module for existing systems

The gateway is specifically designed for space-constrained environments and can withstand shock, vibration and extreme temperature conditions.

Application-specific modifications are possible - for example, the form factor, interfaces and performance can be customised.

User groups

- B2B
- Entwickler

Operating environment, country

- Outdoor
- Indoor
- Heim- und Industriebereich

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Microcontroller/Processor

Processor	STM32F105RC ARM 32-bit Cortex-M3 up to 72MHz
SRAM	64kB
Flash	256kB

Interfaces

CAN	1x CAN Transceiver, bis 1 Mbit/s
GNSS:	GPS, GLONASS, BeiDou
Frequency/Band	GPS: 1575MHz GLONASS: 1597,5MHz BeiDou: 1561MHz
Sensitivity	up to -165dBm
GSM/GPRS:	
Frequency/Band	GSM 800-900MHz / E-GSM: 880-960MHz
Transmission Power	up to 2 Watt
RFID:	
Supported protocolls	ISO14443 A und B, ISO15693
Frequency	13,56MHz
Programming Interface	SWD (STM32F105RC), JTAG (CC2640F128RGZT)
digital Input A:	
Operating Voltage	0V - 18V
Withstand Voltage	20 V continuous
Low-Level VL (log. "0")	Ground
High-Level VH(log. "1")	Battery Voltage or external Voltage, max. 18V!
I @ log. 0	max. 500mA
Reference Potential	Ground potential of the piSmart-Gateway
Protection	Short circuits against ground and supply
Digital Output Optorelais:	
Operating Voltage	0V - VDD
Withstand Voltage	VDD

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Low-Level VL (log. "0")	[0 V ; VDD*0,25]
High-Level VH(log. "1")	[VDD*0,75 ; VDD]
I @ log. 1	max. 100 mA
Reference Potential	Ground potential of the piSmart-Gateway
Protection	Short circuits against ground and supply
Analog Input Voltage Measurement	
Operating Voltage	0V - VDD or 0V - 1,49V, if supply is set as internal reference
Withstand Voltage	supply voltage continuous
Input Resistance	>1MΩ
Input Current	max. 2 mA
Resolution ADC	12 bit
Convertion Rate ADC	200 ksps
Differential Nonlinearity ADC (DNL)	≥-1LSB
Integral Nonlinearity ADC (INL)	±3 LSB
Protection	Short circuits against ground and supply

Additional Features

Sensors	3G-Sensor: · 3 axis · 14 bit · ± 2 g / ±4 g /± 8 g / ±16 g Magnetometer · 3 Axis · 16 bit · ±1200 µT
Optical elements	1x Dual-Color-LED

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Enviromental Conditions

Operating Location	Indoor, Outdoor: only within the limits mentioned below, protect from direct sun
Operating Temperature	"with Voltage Supply: -40 °C to +60 °C when used with Battery Pack: -10 °C to 40 °C"
Storage Temperature	-40 °C to +60 °C
Transport Temperature	-40 °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, 4,5V-55V or 9V-75V, variant dependend
max. Power Pmax	2,5W
max. Current Imax	0,5A
max. Current @ Booting	0,5A
Battery	Lithium-Polymer-Akku or primary cell, chargw variable / 3,7 V
Widthstand Voltage	5V, 55V or 75V continuous, variant dependend
Reverse Polarity Protection	yes

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)

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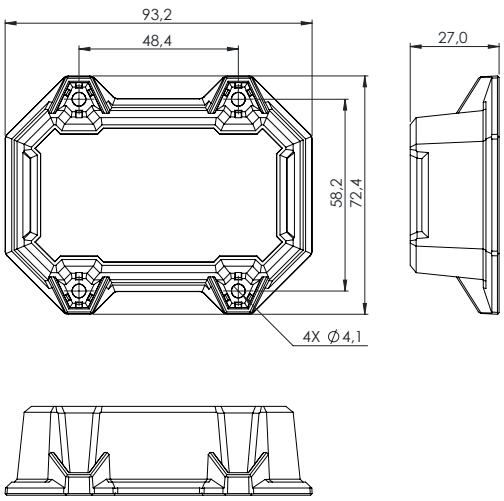
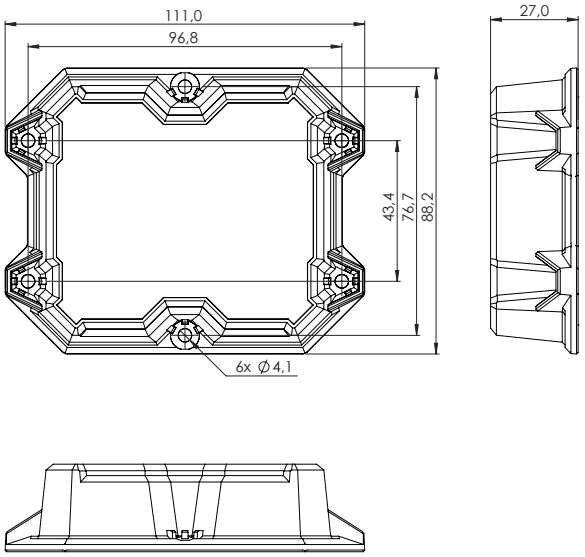
Mechanic

Dimensions	88.2 mm x 122 mm x 32 mm height depending on the required mounting plate
Weight	195g inc. Battery
IP-Class	IP65-68 (DIN EN 60529:2014-09; VDE 0470-1:2014-09) depending on the number and type of cables required.
Material	Housing PA6GF / base plate depending on application Almg3 or PC
Resistance of the Housing against aggressive chemicals	Resistant to cooling lubricants and hydraulic fluids Light cleaning agents
Resistance of the Housing against UV-Light	yes in industrial use
Mounting Type	Customised mounting plate / housing is screwed in place

Technical drawing (dimensions in mm)