



## Lxx - MICROPNP WIRELESS DEVICE (LoRaWAN)

### PRODUCT DESCRIPTION

MicroPnP™ is an Industrial Internet of Things (IIoT) suite that provides a simple, reliable and affordable solution for wireless sensing and control.

Each MicroPnP Wireless Device acts as a wireless hub for up to three plug-and-play sensors (e.g. humidity or temperature) and actuators (e.g. relays or buzzers). A full list of compatible sensors and actuators can be found in the VersaSense Catalog.

The MicroPnP software automatically installs and configures all necessary drivers, eliminating the cost and complexity of deploying an IoT network.

You can immediately interact with your sensors and actuators via a web interface or programmatically using standard REST or Web Sockets APIs.

### LoRaWAN DEVICE

LoRaWAN™, the Long Range Wide-Area Network, provides long range and low power networking for the IoT.

LoRaWAN is a 'star-of-star' network, wherein several gateways are coordinated by a single server. Each gateway is able to cover up to 10KM, which allows even a small LoRa® network to cover large geographic areas, such as a farm, campus, harbor or even a city.

VersaSense includes an accurate real-time clock in each LoRa device allowing for precise control over transmission scheduling and a lifetime of up to 10 years.

### APPLICATION FEATURES

- ★ Atmel® ATmega1284P<sup>1</sup>
- ★ 3 \* MicroPnP sensor ports (UART, I2C, SPI, digital, analog)
- ★ Wide range of plug and play sensors and actuators
- ★ Open data model
- ★ < 60μA average current
- ★ Secure code updates

### NETWORK FEATURES

- ★ MicroChip RN family transceiver
- ★ LoRa transceiver: RN2483<sup>2</sup> (868MHz) or RN2903<sup>3</sup> (915MHz)
- ★ Up to 10KM suburban range
- ★ Chirp Spread Spectrum (CSS) gives excellent resilience to interference
- ★ < 50μA average routing current
- ★ < 125mA transmit current
- ★ AES-128-CTR Security

### POWER FEATURES

- ★ LTC3335<sup>4</sup> Nanopower Buck-Boost DC/DC and Coulomb Counter
- ★ 0.25% Accurate real-time battery monitoring
- ★ Up to 10 year battery lifetime

### AVAILABLE VERSIONS

- ★ L07: High capacity 4200mAh dual replaceable battery pack, 2 \* Saft 17330 batteries or similar
- ★ L06: version without batteries
- ★ Lxx-EU: RN2483 (868MHz)
- ★ Lxx-US: RN2903 (915MHz)

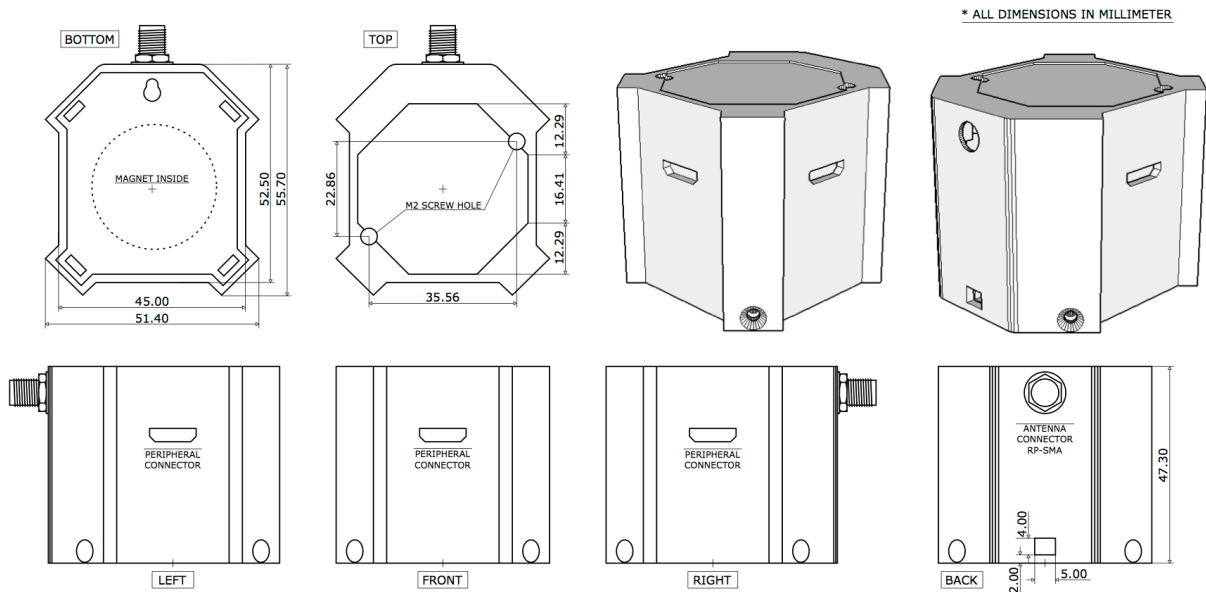
<sup>1</sup> [www.atmel.com/ru/ru/Images/doc8059.pdf](http://www.atmel.com/ru/ru/Images/doc8059.pdf)

<sup>2</sup> [microchip.com/downloads/en/DeviceDoc/50002346B.pdf](http://microchip.com/downloads/en/DeviceDoc/50002346B.pdf)

<sup>3</sup> [microchip.com/downloads/en/DeviceDoc/50002390C.pdf](http://microchip.com/downloads/en/DeviceDoc/50002390C.pdf)

<sup>4</sup> <http://cds.linear.com/docs/en/datasheet/3335f.pdf>

## MECHANICAL SPECIFICATIONS



Case construction material.....	Polyamide <sup>5</sup>
Antenna connector.....	R-SMA
Peripheral connectors.....	µPnP v1.0
Weight including batteries and antenna.....	107g

**NOTE:** Peripheral connectors resemble mini HDMI sockets, but they are in no way compatible. The connection of a HDMI device to a peripheral connector may result in damage to one or both devices.

### DEVICE CHARACTERISTICS:

Supply voltage range.....	1.8V to 3.8V
Maximum current draw.....	125mA
Temperature range.....	0°C to 40°C
Maximum humidity.....	90% RH
Minimum software updates before EEPROM failure.....	10,000x
Recommended maximum distance between wireless devices (outdoor).....	10KM <sup>6</sup>
Recommended maximum distance between wireless devices (indoor).....	2KM <sup>6</sup>
Maximum link layer data rate .....	0.3 Kbps
Maximum link layer data rate .....	50 Kbps

### PRODUCT INFORMATION:

Product brochure:	<a href="http://www.versasense.com/files/VersaSense-Brochure.pdf">http://www.versasense.com/files/VersaSense-Brochure.pdf</a>
Product catalog:	<a href="http://www.versasense.com/files/VersaSense-Catalog.pdf">http://www.versasense.com/files/VersaSense-Catalog.pdf</a>
Documentation:	<a href="http://www.versasense.com/docs/">http://www.versasense.com/docs/</a>

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<sup>5</sup> <https://i.materialise.com/3d-printing-materials/polyamide/technical-specifications>

<sup>6</sup> **Note:** Longer range links are feasible, but are discouraged for reasons of robustness.