

LoRa Node



Highlights

LoRaWAN Support

Easy interface to Sensors

Long Battery life

Small form factor

Customizable LoRa Node

CASCADEMIC LoRa Node based on ARM Cortex MCU and Semtech UHF LoRa transeiver provides access to the emerging Long range LoRaWAN Network across geographies. This compact solution suitable for use with a variety of sensors comes with the flexibility to adjust bandwidth, spreading factor and error correction rate as required . It can be customized for multiple LoRa frequencies across the globe - 433 MHz, 865-867MHz, 915MHz, 1020MHz. It also supports both SMA and UFL antenna, with the user having the option to choose.

Sensor support

CASCADEMIC LoRa Node has multiple interface support and I/O control like GPIO, SPI, UART and I2C for ease-of-use with sensors. It can be integrated to work with variety of sensors like temperature, humidity, pressure, pH, motion sensors for a host of Industrial and Smart city applications including:

- Automated meter reading
- Remote monitoring and control
- Home automation
- Irrigation monitoring
- Energy and water monitoring
- Smart home

A Retrofit Device

CASCADEMIC's LoRa Node can be fitted onto existing industrial sensors and meters and needs no replacement of the infrastructure, thus acting as an add-on non-invasive wireless adapter to the legacy systems .

Enabling Network Intelligence



The node is made server ready and can be integrated with any of the various LoRaWAN network Servers and Gateways. The node sits at the intersection by aggregating the various sensor data, device management of nodes with the support for various types of sensors and protocols. System integrators, application developers and embedded developers find great use for this node as it helps them in minimizing their time to market, reducing their cost of ownership and bringing about maximum utility from their respective applications.

Support for End to End LoRaWAN Solution

CASCADEMIC has built strong expertise on the complete LoRaWAN Node and Gateway Solution. We customize the nodes with sensors according to the IoT Use Case, and provide the complete solution coupled with our LoRaWAN Gateway helping customers focus on their strengths and reduce their time to market.

Hardware

Processor	<ul style="list-style-type: none">ARM Cortex M0+ based CPU
Operating Speed (Max)	<ul style="list-style-type: none">48 MHz
Memory	<ul style="list-style-type: none">32KB RAM256KB ROM
Storage	<ul style="list-style-type: none">8MB SPI Flash
Power Supply	<ul style="list-style-type: none">5V through USBBattery<ul style="list-style-type: none">3.7V , 1100mAh rechargeable battery

LoRaWAN Communication

Protocol	<ul style="list-style-type: none">LoRaWAN 1.0.1
Frequency	<ul style="list-style-type: none">433 MHz863-870 MHz902-928 MHz915-928 MHz
Transmit Power	<ul style="list-style-type: none">14dBm - 20 dBm
Bit rate	<ul style="list-style-type: none">0.3 to 50 Kbps for LoRaWAN, can support up to 300 kbps
Spreading factor	<ul style="list-style-type: none">7 to 12 (Adaptive Spreading Factor Support)
Sensitivity	<ul style="list-style-type: none">Upto -148dBm

User Interface

LED Indication

- Power Status
- LoRa Connection Status

Environmental Parameters

Operating Temperature

- 0 deg.C to 55 deg.C

Storage Temperature

- 0 deg.C to 55 deg.C

Relative Humidity

- 5% to 95% Non Condensing

Mechanical Parameters

Enclosure Grade

- IP65

Dimension

- 94 x 65 x 55mm

Chassis

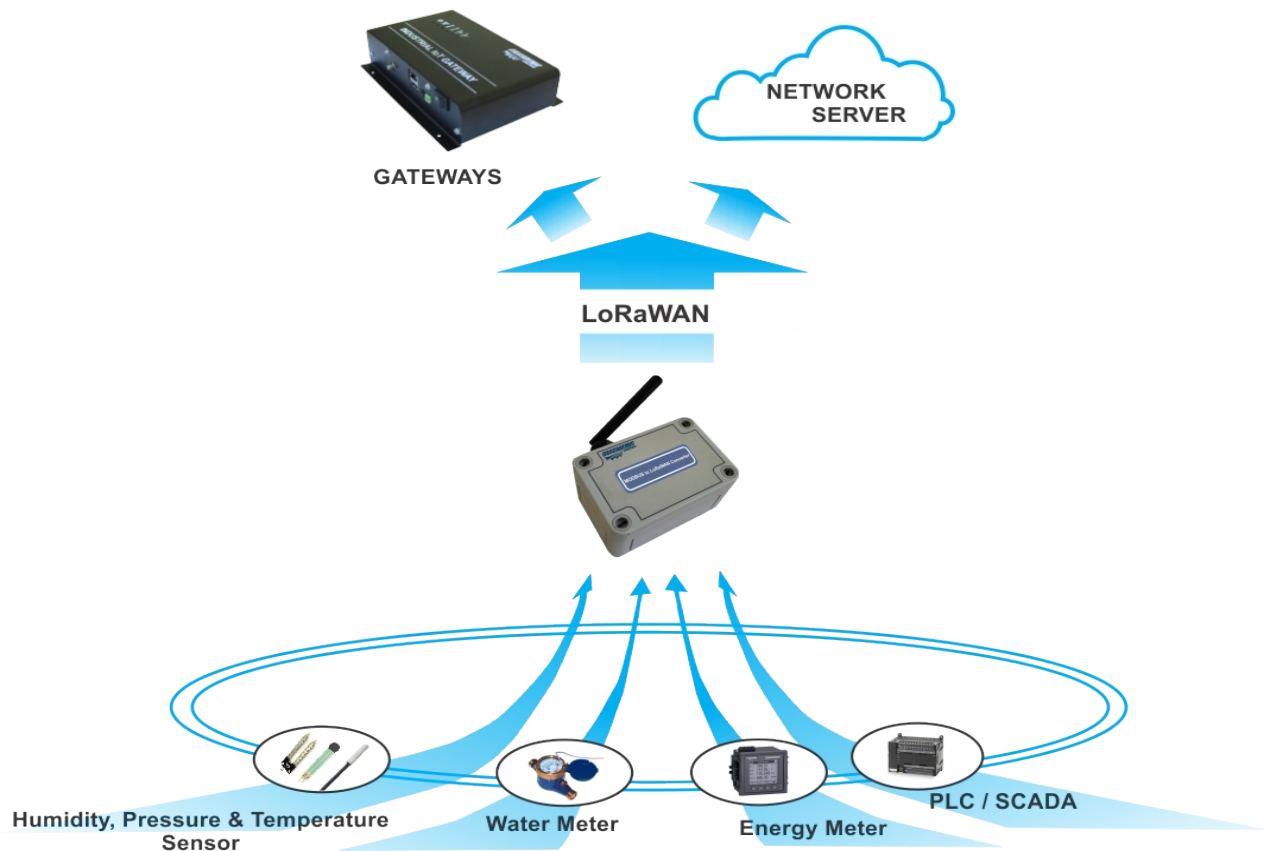
- Poly-carbonate material

Mounting

- Wall mounting
- * Certification based on Customer Requirement
- * Battery Life dependent on Data Frequency

Smart Metering

With the increase in the number of Industries and residential complexes and depleting energy resources, efficient energy management has gained high importance. With Smart Metering method from CASCADEMIC using the LoRa node it is possible to track and manage energy wastage and pilferage, thus greatly reducing operating costs. The LoRa node can be used for energy monitoring and the energy meter data can be passed on to the cloud through the LoRa Gateway thereby enabling utility based billing.



Smart Agriculture

With agriculture being the backbone of the economy of many developing nations, there is always a need to reduce the operational expenditure and maximize the productivity and profits from the farm. CASCADEMIC'S LoRa Node enables Analytics-based Smart irrigation and Smart farming. By transmitting real-time data on Soil moisture, Temperature, Pressure & Humidity from the sensors on the farm to the Cloud through LoRa Gateway, valuable decisions and control driven by analytics related to the type of crops, amount of water, irrigation systems, optimum condition of soil for efficient growth of crops, etc are made possible.



Industrial IoT Gateway



Energy Monitoring Solution



LoRa Connectivity Solution

Innovation towards Embedded Planet

Cloud Connectivity Solution



Environment Monitoring



Thermal Printer



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