

IronLinkLoRa

Specifications

| | |
|----------------------------|---|
| Modem | LoRa: Microchip RN2483A |
| Processor | Cortex-M0 |
| Dimensions | |
| Power | Input Voltage: 2.4-5.5V Battery Input Voltage: 3.6-4.2V |
| Power Consumption | Idle: < 7uA Average: 20mA Max: 200mA(Lora) 250mA(NB-IoT) |
| Input Voltage Range | 2.4V - 5.5V 77.043mA Max current draw - 200mA(Lora Transmission) 250mA(NB-IoT Transmission) |

Connectors

| | |
|----------------------------|-----------------------|
| Micro USB | Com port & power |
| Jtag Header | Programming header |
| GPIO Connector | Communications header |
| Battery Connector | Terminal blocks |
| GPS | SMA connector |
| LoRa/NB-IoT Antenna | SMA connector |

Core Features

- GPS with Easy Mode*
Or on-board GPS with 1second lock time (*When in easy mode)
- 28 pin header for add ons board
- Fuel Gauge for accurate battery tracking
- 6 channel 12bit adc for sensor addons
- Optional external GPS antenna for greater range
- Lora Antennta 868Mhz
- Integrated EEPROM
- HAL software for easy programming
- USB serial interface for debugging
- Battery Support for 4.2V LiPo's

IronLink LoRa

| | |
|----------------------------|---|
| Product Name | IronLink LoRa 434 & 868MHz |
| Product Description | IronLink LoRa is an industrial Low-Power Long Range LoRa® Technology Transceiver with GPS capabilities. A Rugged LoRaWAN Development Board for challenging applications. Integrated battery management, GPS and Fault Detection. IronLink is suitable for simple long range sensor applications with external host MCU. |

LoRa Specs

| | |
|-----------------------------------|---|
| Frequency Band | 863.000 MHz to 870.000 MHz; 433.050 MHz to 434.790 MHz |
| Modulation Method | FSK, GFSK, and LoRa® Technology modulation |
| Max Over the Air Data Rate | 300 kbps with FSK modulation; 10937 bps with LoRa Technology modulation |
| Operation Range | Up to 15 km coverage at suburban; up to 5 km coverage at urban area |
| Sensitivity at 1% PER | -146 dBm Dependent on modulation settings, Receiver Bandwidth (RBW), and Spreading Factor (SF). |
| RF TX Power | Adjustable up to max. 10 dBm on 433 MHz band (limited to meet regulations); max. 14 dBm on the 868 MHz band. TX power is adjustable. For more information, refer to the "RN2483 LoRa® Technology Module CommandReference User's Guide" (DS40001784). |

GPS Specs

L1 Band Receiver (1575.42MHz)

| | |
|-----------|---|
| Channel: | 22 (Tracking) / 66 (Acquisition) |
| C/A Code: | |
| SBAS: | WAAS, EGNOS MSAS, GAGA |

Horizontal Position Accuracy Acceleration Accuracy

| | | | |
|-------------|---------------------|--------------|---------------------------|
| Autonomous: | <2.5m CEP | Without aid: | 0.1m/s² |
|-------------|---------------------|--------------|---------------------------|

Velocity Accuracy Timing Accuracy

| | | | |
|--------------|-------------------|-----------|-------------|
| Without aid: | <0.1m/s | 1PPS out: | 10ns |
|--------------|-------------------|-----------|-------------|

Reacquisition Time

TTFF@-130dBm with EASY™:

| | |
|-------------|----------------|
| Cold start: | <15s |
| Warm start: | <5s |
| Hot start: | <1s |

Sensitivity:

| | |
|----------------|----------------|
| Acquisition : | -148dBm |
| Tracking: | -165dBm |
| Reacquisition: | -160dBm |

TTFF@-130dBm without EASY™:

| | |
|-------------|----------------|
| Cold start: | <35s |
| Warm start: | <30s |
| Hot start: | <1s |

Dynamic Performance:

| | |
|-----------------------|--------------------|
| Maximum Altitude: | Max.18,000m |
| Maximum Velocity: | Max.515m/s |
| Maximum Acceleration: | 4G |

| | |
|-------------------------|-----------------------------------|
| Max Update Rate: | Up to 10Hz, 1Hz by default |
|-------------------------|-----------------------------------|

IronLinkLoRa

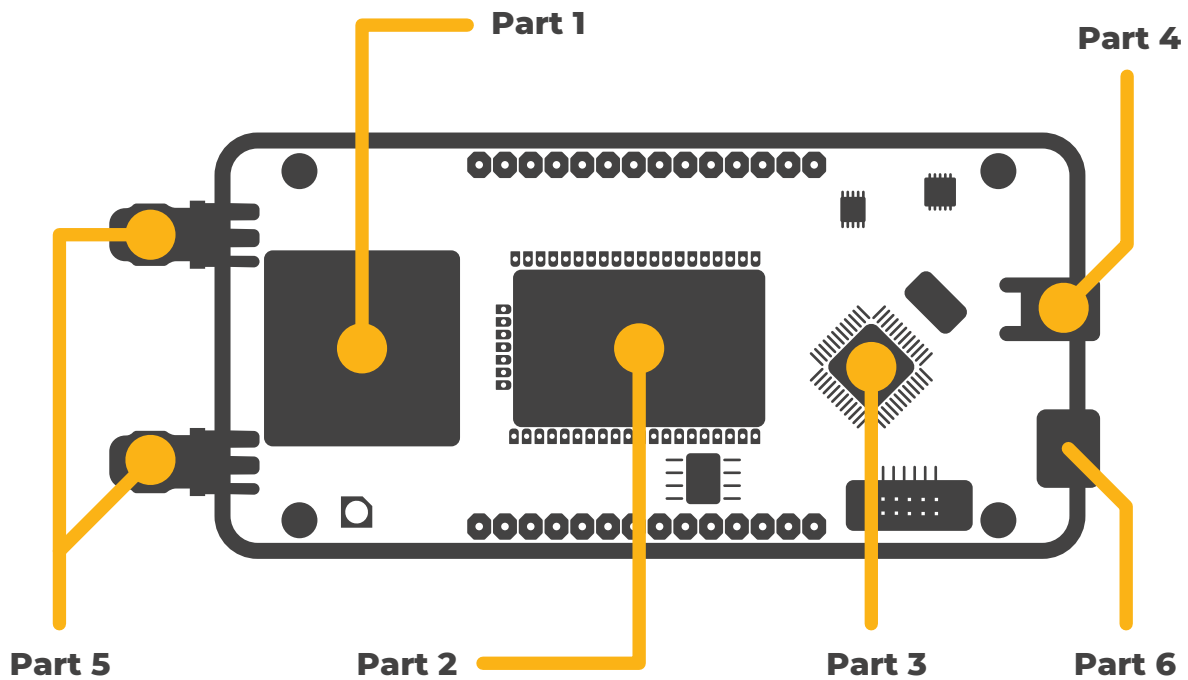
GPIO Layout

| Pin# | Function |
|------|-----------|
| 1 | GND |
| 2 | VBATT |
| 3 | GPIO3 |
| 4 | GND |
| 5 | UART1_RX |
| 6 | UART1_TX |
| 7 | GPIO2 |
| 8 | GPIO7 |
| 9 | I2C2_SDA |
| 10 | I2C2_SCL |
| 11 | UART4_RTS |
| 12 | GPIO5 |
| 13 | GND |
| 14 | 3V3 |

| Pin# | Function |
|------|-----------|
| 1 | GND |
| 2 | GPIO1 |
| 3 | UART4_CTS |
| 4 | I2C1_SCL |
| 5 | I2C1_SDA |
| 6 | SPI_MISO |
| 7 | I2C1_SMBA |
| 8 | UART4_Rx |
| 9 | UART4_TX |
| 10 | SPI_SCK |
| 11 | SPI_MOSI |
| 12 | GPIO4 |
| 13 | GND |
| 14 | 3v3 |

IronLinkLoRa

Board Layout



Part 1 - GPS

Part 2 - Communication Model

Part 3 - Processor

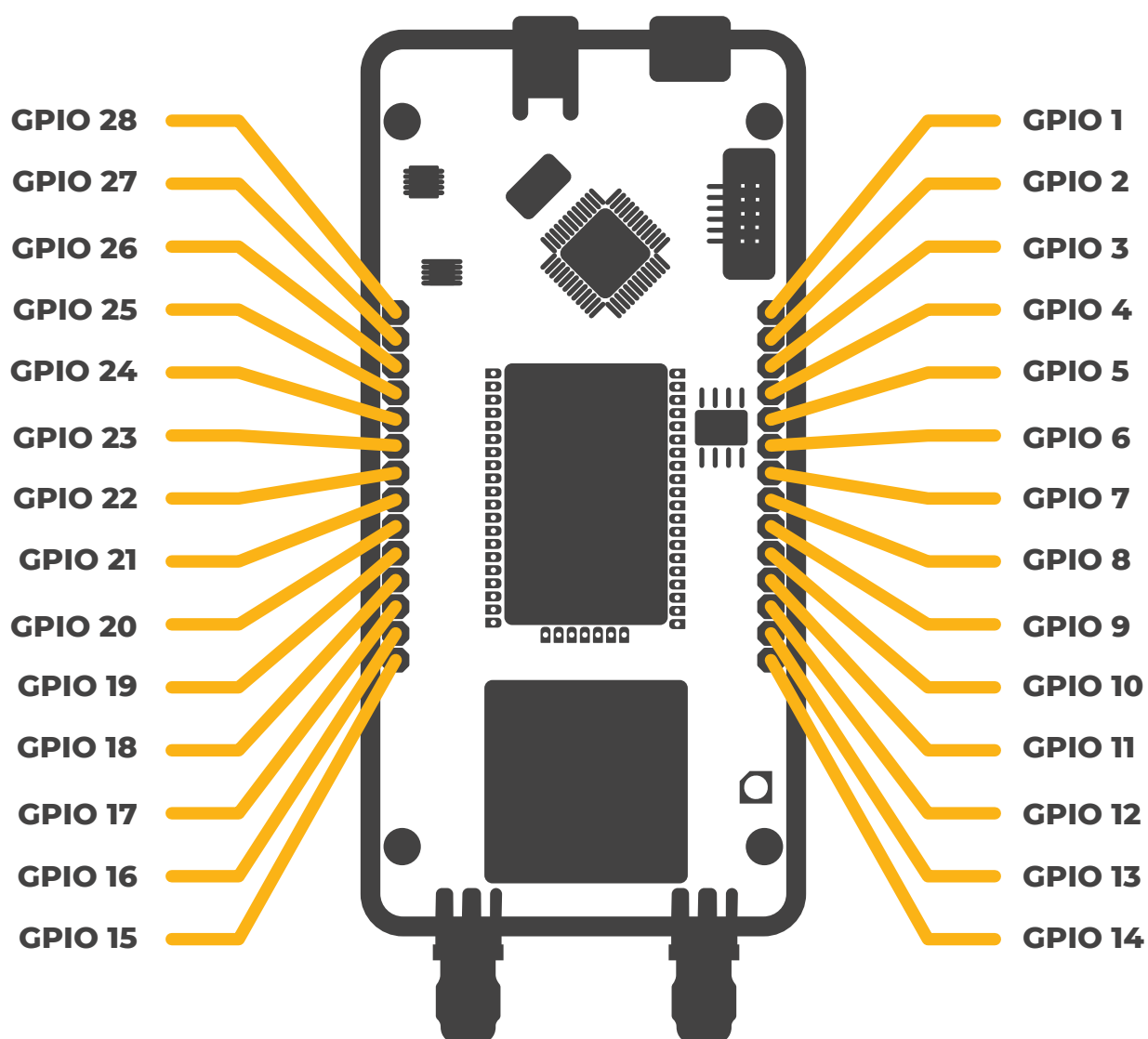
Part 4 - Battery Port

Part 5 - SMA Antenna

Part 6 - Micro usb

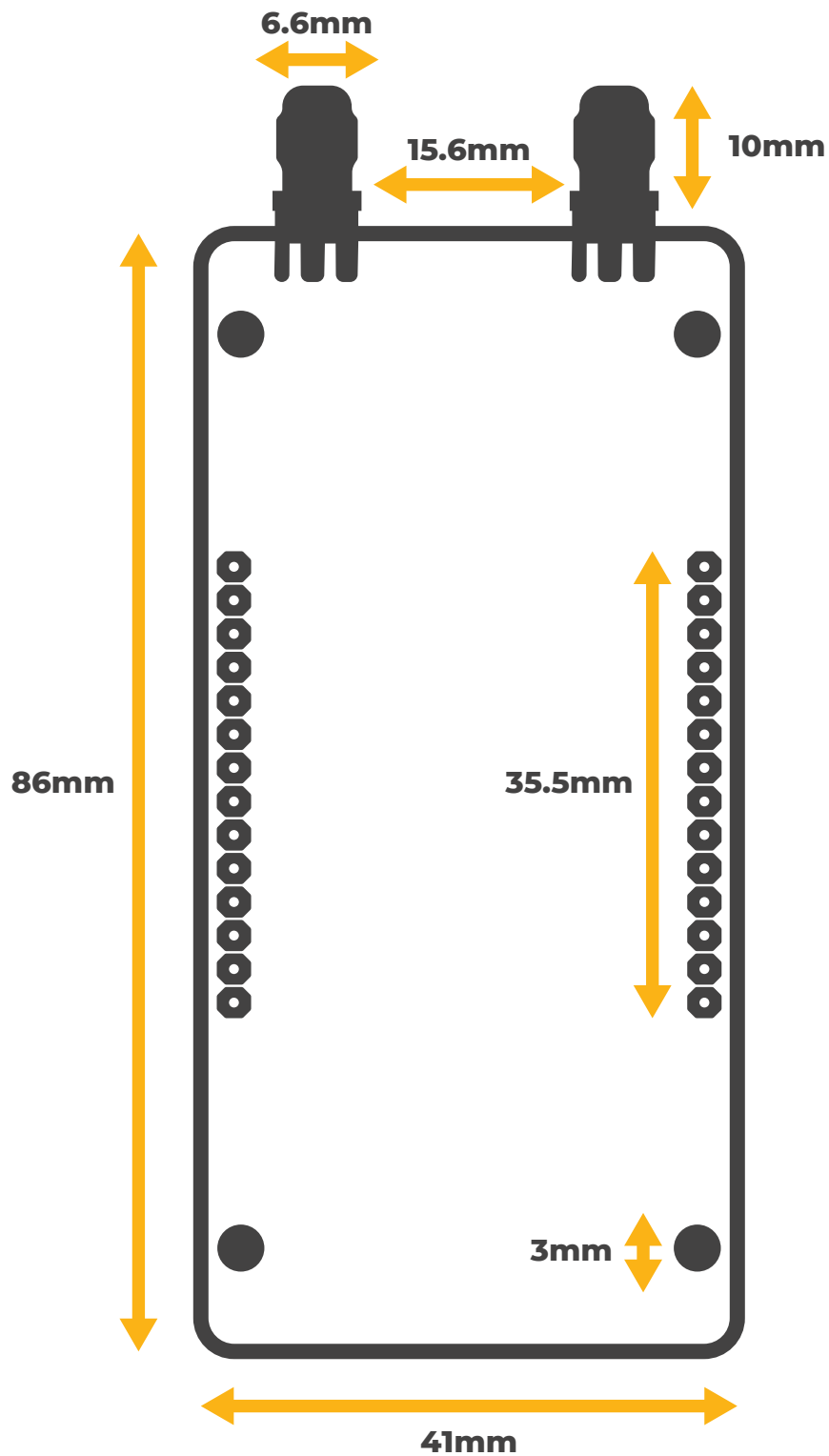
IronLinkLoRa

Board Layout



IronLinkLoRa

Board Measurements



A Rugged Development Board for Challenging Applications.
Integrated Battery Management, GPS and Fault Detection.
High temperature operations and ESD resistance.
Large range of fully supported sensors.

Smart
Agriculture



Smart
Homes & Buildings



Smart
Industrial Control



Smart
Cities

Smart
Environment



Smart
Metering



Smart
Healthcare



Smart
Supply Chain & Logistics



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IRONLINK

LoRa + NB-IoT Add-on Boards

Out of the Box Support

Large range of fully supported sensors.



**Infrared Sensor
(IR)**



**Temperature, Pressure,
Humidity, and Indoor Air Quality**



**Proximity
Sensor**



**Ultrasonic
Sensor**



**Accelerometers &
Gyroscope Sensor**



**Hall Effect
Sensor**



Load Cell



**PIR Motion Detector &
Vibration Sensor**



**Humidity, Soil
Moisture & Rain**



Touch Sensor



Light Sensor



Colour Sensor



Tilt Sensor



**Flow and Level
Sensor**



**Metal detector, Water
Flow & Heartbeat Sensor**



**Smoke, Fog, Gas,
Ethanol &
Alcohol Sensor**