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IronLink LoRa

Specifications

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

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

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Product Name	**IronLink LoRa 434 & 868MHz**
Product Description	IronLink LoRa is an industrail 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

Autonomous: **<2.5m CEP**

Acceleration Accuracy

Without aid: **0.1m/s²**

Velocity Accuracy

Without aid: **<0.1m/s**

Timing Accuracy

1PPS out: **10ns**

Reacquisition Time

TTFF@-130dBm with EASY™:

Cold start:	**<15s**
Warm start:	**<5s**
Hot start:	**<1s**

TTFF@-130dBm without EASY™:

Cold start:	**<35s**
Warm start:	**<30s**
Hot start:	**<1s**

Sensitivity:

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

Dynamic Performance:

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

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

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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

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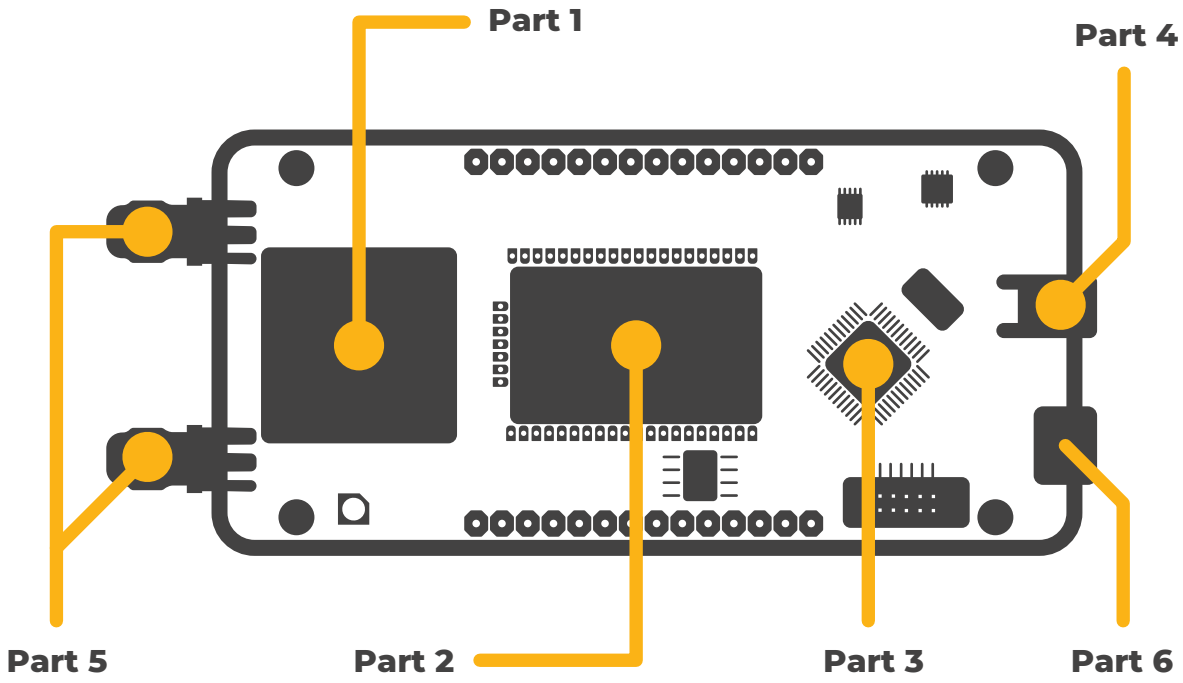
Board Layout



Part 1 - GPS

Part 2 - Communication Model

Part 3 - Processor

Part 4 - Battery Port

Part 5 - SMA Antenna

Part 6 - Micro usb

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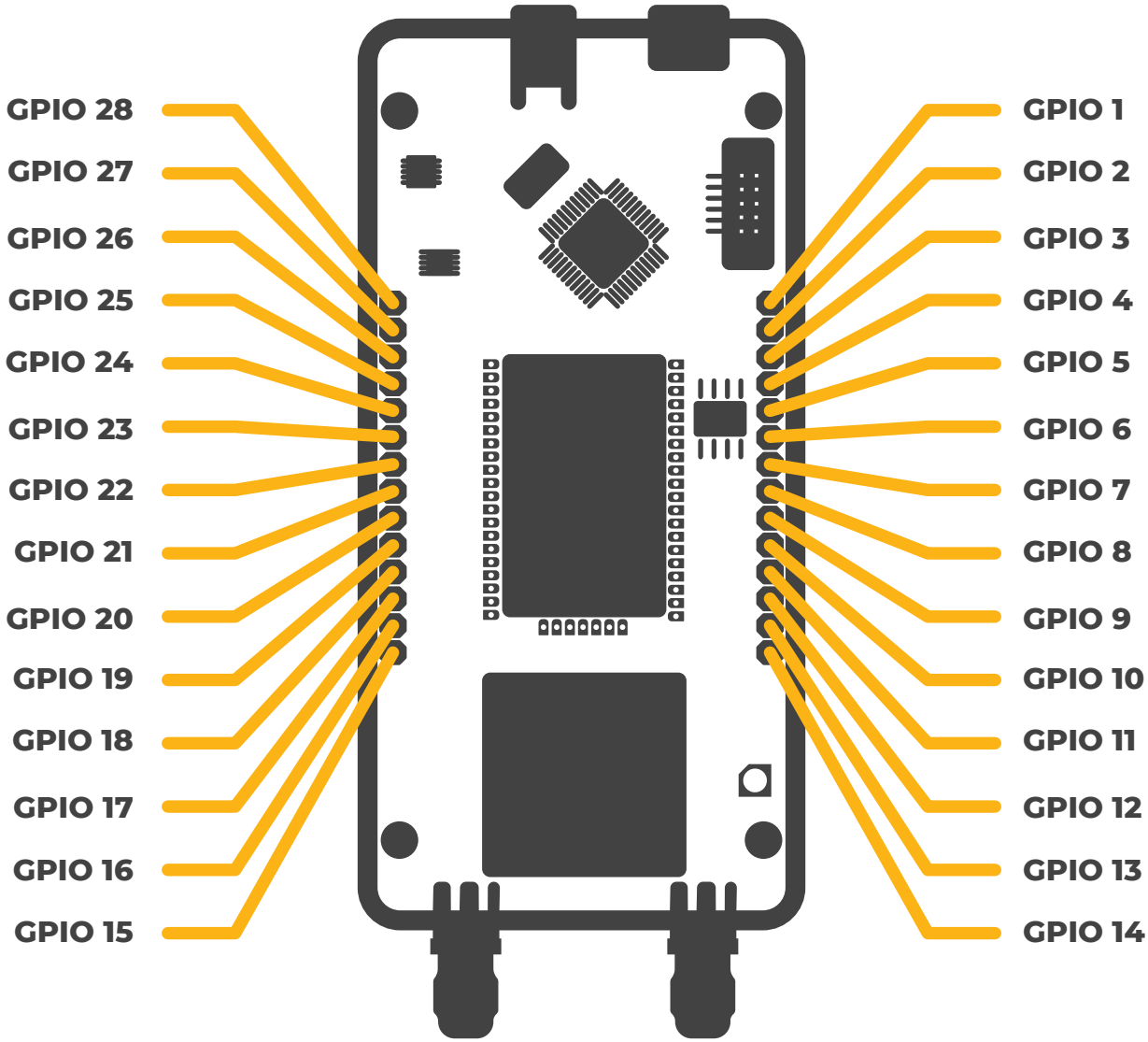
Board Layout



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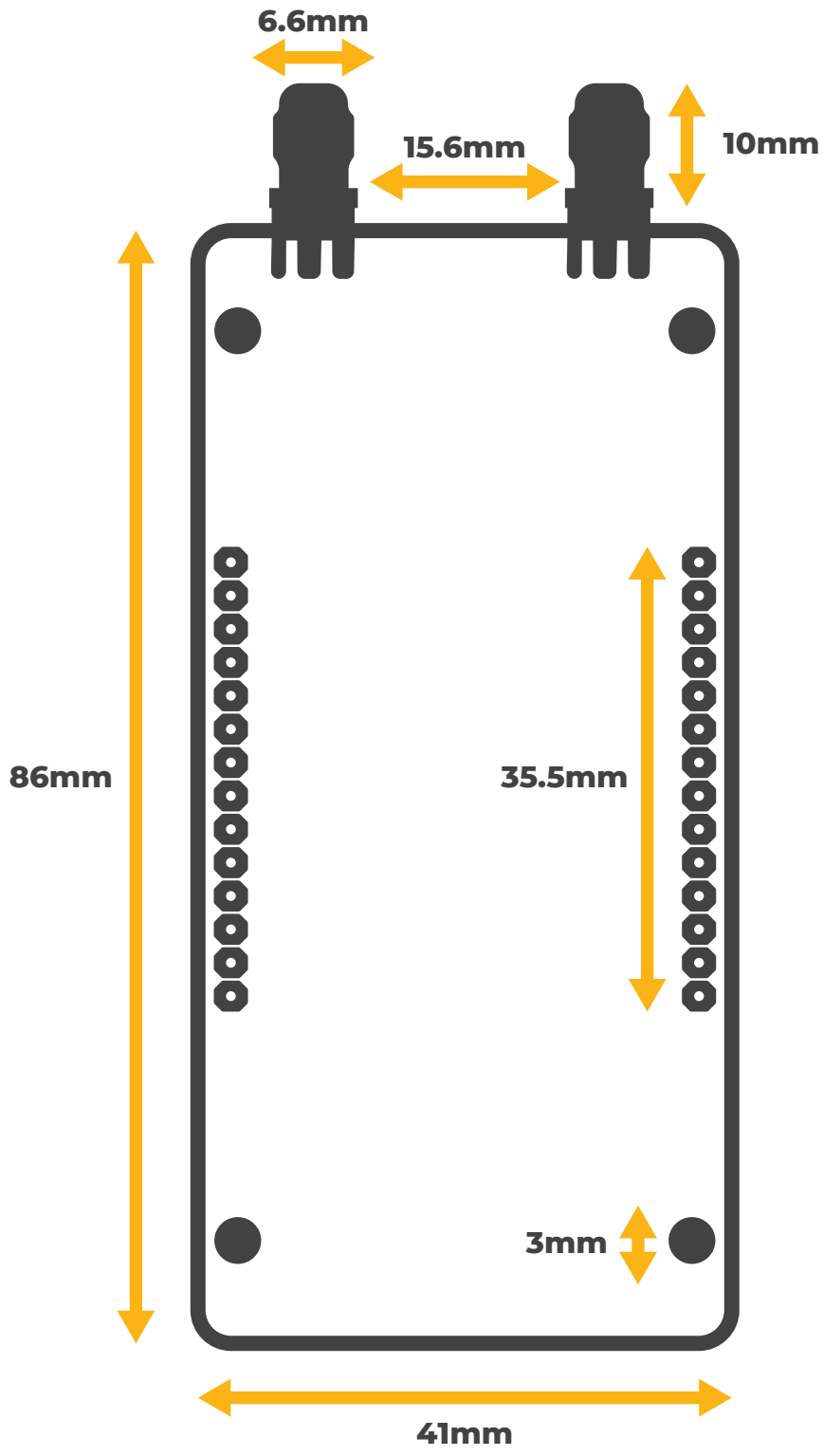
Board Measurements



IRONLINK
LoRa

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.

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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

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