



# MLBase



## Overview

The **MLBase™** is a communications base station for the **MLRemote®** wireless datalogging system. The MLBase provides for queuing all inbound and outbound data communications with MLRemote.

Network communication options for the MLBase include both **Wi-Fi and Cellular integration**. The MLBase offers long-distance communications and low power in a small form factor when paired with the MLRemote. Low-data rate communications of up to 15 kilometers (9 miles) is achievable, and up to 100 kilometers (60 miles) with the use of gain antennas.

## System Details

The MLBase is capable of reading supply voltage, humidity, and temperature. Additionally, the MLBase is capable of reading the status of a digital input, typically used for entry detection.

Several status LEDs are used for **reporting basic system operation** including the following:

- Power LED: Measure of battery voltage and overall system health status indicator
- Charge LED: Status of charger output voltage
- Activity: Activity on radio link from radio
- LAN Link: Network link status
- LAN Active: Network activity



## Battery & Enclosure

The standard assembly is **designed for outdoor applications with full weather protection**, including a NEMA 4X steel enclosure with an IP66 rating. Included with the MLBase is a 900MHz omnidirectional antenna for MLBase to MLRemote communications and a 2.4/5GHz directional antenna for Wi-Fi communications. When the cellular LTE option is chosen, an LTE omnidirectional antenna is provided. A 12V 50Ah battery is included for optimal performance as well as a 40-Watt solar panel and mounting bracket.



LONG DISTANCE  
COMMUNICATION



CONNECT MULTIPLE  
MLREMOTES



WEB-BASED  
CONFIGURATION

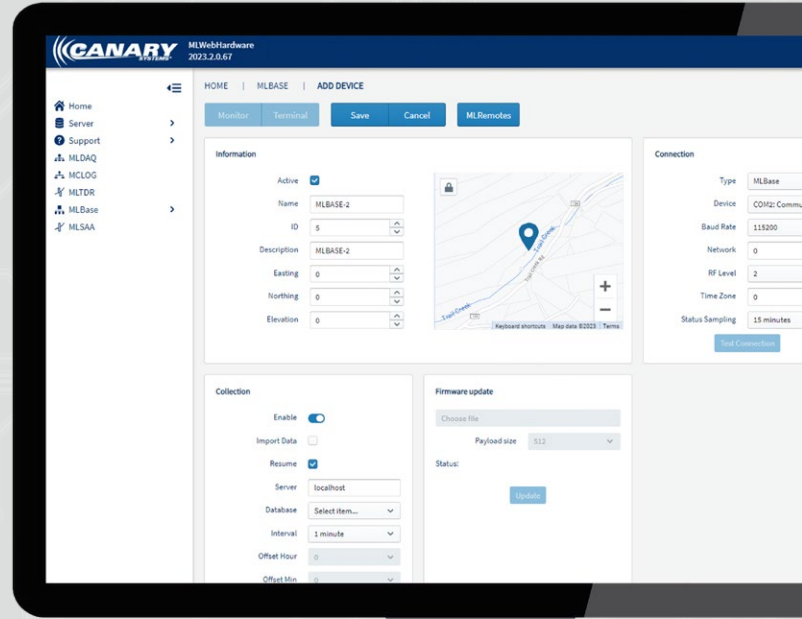


## MLSuite® Integration

Communication of the MLBase relies on MLSuite and can either be hosted through Canary Systems' cloud-based network or within the client's site network.

**MLWebHardware**, the web-based system configuration and management platform, provides the means to communicate with each MLBase and organize and administer the data received from MLRemote systems. Additionally, MLWebHardware allows for any peripheral data from the MLBase to be collected, such as battery and solar voltages.

The comprehensive, **fully integrated web-based platform MLWeb®** allows for the configuration of monitoring settings to collect, view, and present the data accordingly. MLWeb enables clients to create various levels of user access for heightened security, prepare charts and calculations, review scheduled reports, and establish presets for alarm conditions to receive alerts in real time.



## Specifications

### Physical

- Operating Temperature: -40 to +60 °C (-40 to + )
- Operating Humidity: 95% non-condensing

### System Power

- Voltage: 12VDC at 700mA max, 105mA to 120mA nominal
- Battery: 12V 50Ah sealed lead-acid
- Pass Currents: Up to 2A
- Input Voltage Maximum: 40V
- Charge Voltages: 13.8V and 6.9V

### AC Adaptor

- Output Voltage: 18VDC
- Output Power: 1A maximum

### Solar Panel

- Output Voltage: 18VDC maximum (loaded)
- Output Power: 2.25A maximum (40W)

### Status LEDs

- Power: Status of battery voltage
- Charge: Status of charger output voltage
- Activity: Activity on radio link
- LAN Link: Network link status
- LAN Active: Network activity

### Memory

Storage Capacity: 32GB SD card (~31 GB effective size) **System**

### Wired/Wireless Ethernet Interface

- Module: XPico
- Ports: RS-232 (DE-9), Ethernet (RJ-45)
- Speed: 300–921.6 Kbps
- Interface: Ethernet 10Base-T or 100Base-TX (auto-sensing)
- Standards: WPA, WEP, ARP, UDP/IP, TCP/IP, ICMP, SNMP, AutoIP, DHCP, TFTP, Telenet, and HTTP
- Security: 256-bit AES
- Range (line-of-sight): 1.31 km (1 mile) with directional antenna

### LTE Interface

- Module: Sierra Wireless RC7611 (North America)
- Category: Cat 4
- Bands: B2, B4, B5, B12, B13, B14, B25, B26, B66, and B71
- Peak Download Rate: 150 Mbps
- Peak Upload Rate: 50 Mbps
- Approved Carriers: AT&T, Sprint, T-Mobile, Verizon, Sierra Wireless

### Measurements

- Internal Temp Measurement Range: -40 to +85 °C (-40 to +185 °F) at an accuracy of 0.5 °C (1 °F)
- Temperature Output: °C or °F
- Internal Humidity Measurements Range: 0-100% RH, at an accuracy of ± 4.5%
- Internal Voltage Measurement: 0–20VDC solar panel 0–16VDC battery input/output at ± 0.1VDC accuracy (over temperature range)

### RF Module (MLRemote Communication)

#### 900MHz Module

- Module: Digi International XBee-Pro SX
- Standard Range: Up to 15 km (9miles)
- Extended Range (with Enhanced Module): Up to 100 km (60 miles) with directional antenna
- Network: Point to multi-point
- Frequency Range: ISM 902 to 928Mhz
- Transmit Current: 900mA @ 30dBm
- Receive Current: 40mA
- Sleep Current: 2.5uA

#### 2.4GHz Module (optional)

- Standard Range: Up to 3.2 km (2 miles)

| Model        | MCU    | Enclosure Type | Size (L x W x H)                   | Assembled Weight | Battery | Solar | Antenna (Server)                         | Antenna (MLRemotes)               | Transmitting      |
|--------------|--------|----------------|------------------------------------|------------------|---------|-------|--|-----------------------------------|-------------------|
| MLBase-M-50S | MLBase | Steel          | 61 x 51 x 25 cm<br>24 x 20 x 10 in | 20 kg<br>44 lbs  | 50Ah    | 40W   | 900MHz dBi<br>Omnidirectional DAS        | 800/900MHz dBi<br>Omnidirectional | Cellular<br>Wi-Fi |
| MLBase-W-50S | MLBase | Steel          | 61 x 51 x 25 cm<br>24 x 20 x 10 in | 20 kg<br>44 lbs  | 50Ah    | 40W   | 2.4GHz to 5.8GHz<br>Wideband Directional | 800/900MHz dBi<br>Omnidirectional | Cellular<br>Wi-Fi |