



MLRemote®



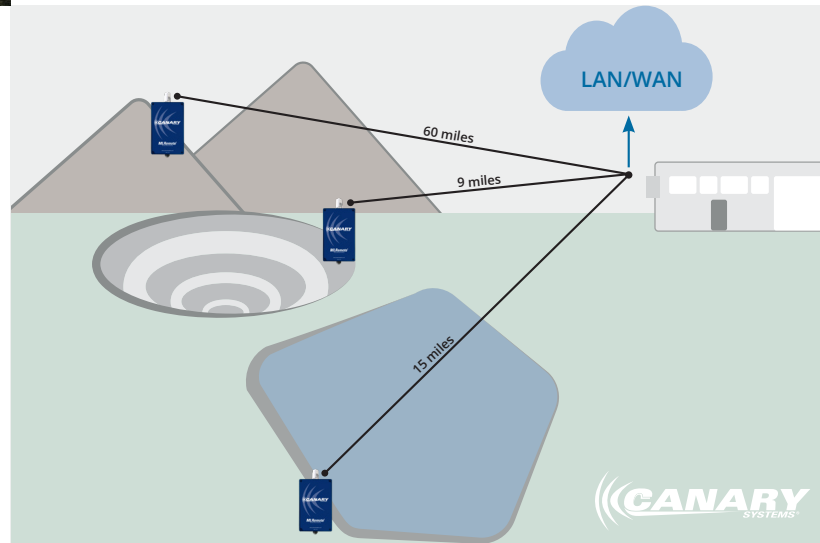
## Overview

The **Canary Systems® MLRemote®** is a low-power, point-to-multipoint, wireless datalogging system designed for demanding environments. It is ideal for environments where the monitoring assets consist of numerous types of instruments, distributed over a large area, and are difficult to access or otherwise manage. The system was purpose designed for the mining, geotechnical, structural and environmental markets.

Use of proprietary communication “push” technology allows for **ultra-long battery life**, between 3-5 years for the standard alkaline batteries, up to 10-years when using Lithium cells. The **high performance spread spectrum radio** is available in 900MHz or 2.4GHz frequencies, and a range of up to 100km (60 miles) is possible with use of gain antennas and excellent topography. Range of up to 15km (9 miles) is easily achievable using the standard antenna and most topography. Canary Systems staff can assist with network design and deployment to ensure high reliability network operation.

## System Details

Numerous sensor types are supported, including vibrating wire, 4-20mA, and linear potentiometer. Pulse and frequency measurements, along with digital status monitoring, are also supported with the integrated digital inputs. **Integrated digital outputs** allow for controlling other sensors or peripherals, such as multiplexers, to support channel expansion. Each **MLRemote®** can control a multiplexer with up to 32 channels. Digital sensors are also supported including Measurand SAAs, MDT Smart Link-485's, HART 4-20mA sensors, among others, through use of the **integrated serial port**. A switched power connection also provides for managing power for connected peripherals.



LONG LASTING & LONG DISTANCE

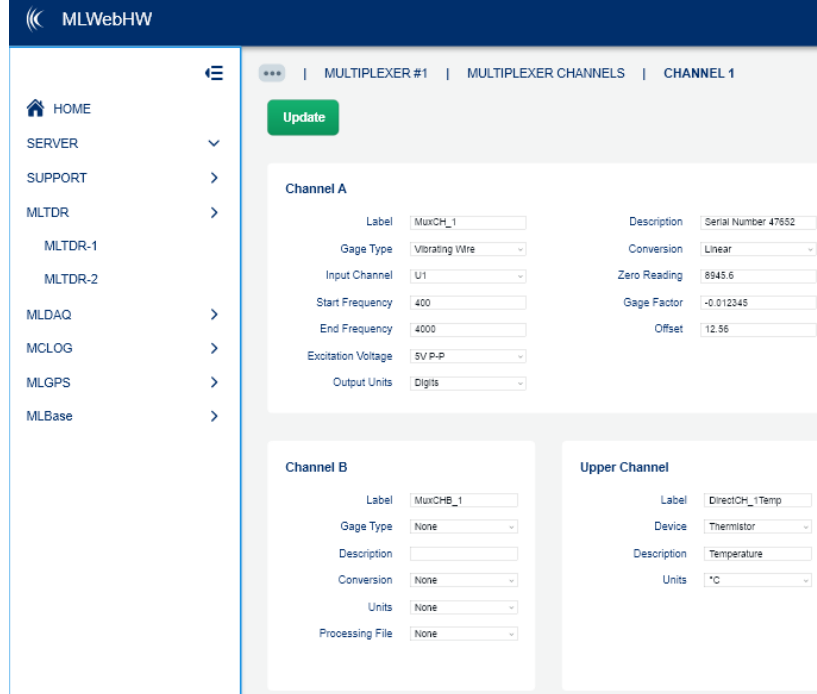
FLEXIBLE INPUTS

WEB-BASED CONFIGURATION

## Enclosure & Integration

The electronics package is designed for outdoor use with sealed, hardened aluminum, IP 65 NEMA 4X rated enclosure. The standard enclosure includes integrated battery holder, antenna, instrument or multiplexer connector and pole mounting. Internal battery, temperature, and humidity monitoring provides for managing environmental conditions which may affect MLRemote operation.

Each system includes one or more **MLBase™** units. These provide for queuing all inbound and outbound data communications with MLRemotes. Our web-based system configuration and management platform, **MLWeb Hardware**, provides for communicating with each MLBase and managing and organizing all MLRemote communications. MLRemote also includes built-in programming and control capabilities for very flexible measurement and control applications.



## Specifications MLRemote

### Communications

- Standard range: Up to 15km (9 miles)
- Extended range: Up to 100km (60 miles) with gain antennas

### Control Outputs

- Switched Power
- Digital outputs (2) 5VDC logic levels
- Maximum current: 20mA
- Precision Output: 2.5VDC
- Accuracy: <2.5mV
- Current: maximum 100mA

### Serial Ports

- Type: RS-232
- Configuration range: 1200-115200bps

### Power Requirements

- 4-16VDC, nominal 12VDC
- Nominal: 25mA
- Quiescent: maximum 25µA

### Physical

- Module Dimensions (LxWxH): 125mm(5") x 125mm(5") x 25mm (1")
- Enclosure Dimensions (LxWxH): 260mm(10.24") x 160mm(6.3") x 90.4mm(3.6")
- Mounting (LxW): 112.5mm (4.5") x 112.5mm (4.5")
- Temperature: -40 to +60 °C
- 95% humidity

### Analog Measurement Inputs

- Inputs: up to 5VDC
- Minimum resolution: 14-bit

### Vibrating Wire Input

- Supports differential excitation and signal conditioning front-end
- Adjustable gain range: 20DB to 65DB
- Nominal input impedance ranges: 90 to 180Ω
- Excitation voltage: minimum 5V
- Timing resolution: minimum 1µS
- Sampling frequency: minimum 16384Hz

### System Measurements

- Battery Voltage
- Measurable range: 3.5VDC to 26VDC
- Accuracy: +/-0.1VDC
- Internal temperature
- Measurement range: -40 to +85 °C
- Accuracy: 0.5 °C
- Internal humidity
- Measurement range: 0-100%RH
- Accuracy: 4.5%
- Temperature range: -40 to +100 °C

### Measurement Inputs

- Vibrating wire
- Thermistor
- Two digital counters (e.g. rain gage, pulse flowmeters)
- -2.5VDC to +5VDC sensors
- 4-20mA sensors

### Memory

- FLASH Memory 8MB SPI
- Data storage up to 250,000 arrays

