MLRemote®

Overview

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

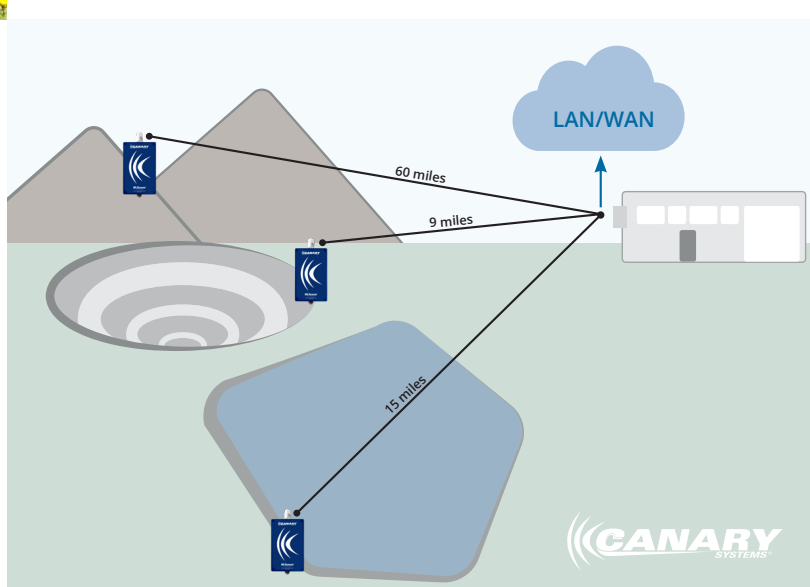
Use of proprietary "push" communication technology allows for **ultra-long battery life,** between 3 to 5 years for the standard alkaline batteries, up to 10 years when using lithium cells. The unit can easily be placed in a variety of remote locations for long-term monitoring applications. This allows the system can continue to function without needing to recharge or utilize a solar panel, such as when completely snow-covered. With fewer components, MLRemote systems are also less of a target on sites where theft is a concern compared to the larger, more visible, and expensive alternatives.

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. A range of up to 15km (9 miles) is achievable using the antenna for most topography.

System Details

Numerous sensor types are supported, including vibrating wire, 4-20mA, and linear potentiometer. **Integrated digital outputs** allow for controlling other sensors or peripherals, such as the optional **MLMux5 multiplexer.** The MLMux5 expands the channel capacity of the MLRemote and supports two switching modes, 5-channel by 4-wire switching, or 10-channel by 2-wire switching. Pulse and frequency measurements, along with digital status monitoring, are also supported.

An **integrated serial port** supports digital sensors including MDT Smart Link-485s and HART 4-20mA sensors, among others. A switched power connection also provides for managing power for connected peripherals.



LONG LASTING & LONG DISTANCE

FLEXIBLE INPUTS

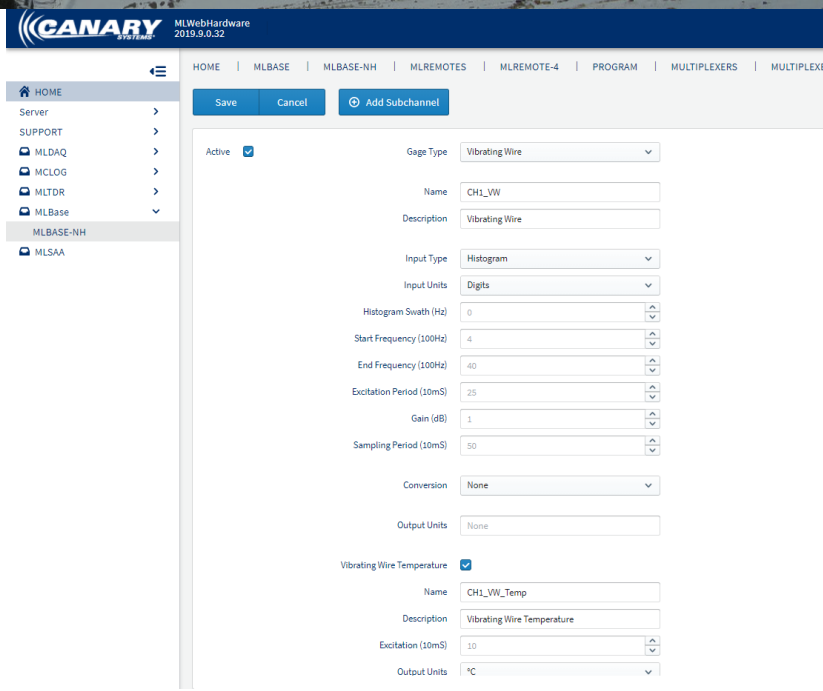
WEB-BASED CONFIGURATION

MLRemote®

Enclosure & Integration

The electronics package is designed for outdoor use with a sealed, hardened aluminum, IP65 NEMA 4X rated enclosure. The standard enclosure includes integrated battery holder, antenna, instrument or multiplexer connector and pole mounting for a 2" pole. Internal battery, temperature, and humidity monitoring allows 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, **MLWebHardware** provides for communicating with each MLBase and managing and organizing all MLRemote communications. It can also serve as a virtual MLBase for certain applications. MLRemote also includes built-in programming and control capabilities via the intuitive MLBasic programming language for very flexible measurement and control applications.



Specifications

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

Physical
- Module Dimensions (LxWxH):
  12.5 x 12.5 x 2.5 cm (5" x 5" x 1")
- Enclosure Dimensions (LxWxH):
  26 x 16 x 9 cm (10.2" x 6.3" x 3.6")
- Mounting (LxW):
  11.3 x 11.3 cm (4.5" x 4.5")
- Assembled Weight: 3.6kg (8 lbs)
- 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

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

Power Requirements
- 4-16VDC, nominal 12VDC
- Nominal: 35mA
- Quiescent: maximum 25µA

Options
MLMux5
- Expand up to 10 channels

Model	No. Channels	Enclosure Type	Size (LxWxH)	Assembled Weight	Battery	Radio	Receiving	Antenna
MLRemote-Y/O-A/L	1	Aluminum	26 x 16 x 9 cm 10.2 x 6.3 x 3.6 in	3.6 kg 8 lbs	Alkaline or Lithium	900MHz	RS-232	Directional or Panel Mount
MLRemote-Y24/O24-A/L	1	Aluminum	26 x 16 x 9 cm 10.2 x 6.3 x 3.6 in	3.6 kg 8 lbs	Alkaline or Lithium	2.4GHz	RS-232	Directional or Panel Mount
MLRemote5-Y/O-A/L	5/10	Aluminum	26 x 16 x 9 cm 10.2 x 6.3 x 3.6 in	3.6 kg 8 lbs	Alkaline or Lithium	900MHz	RS-232	Directional or Panel Mount