**OVERVIEW**

The **Canary Systems WRMT-AT-12S** is a Wireless Remote Station designed to monitor vibrating wire sensors and level switches. The Remote Station does not contain a data logger; instead, multiple remotes can be paired with a Canary Systems MLDAQ base station serving as the master datalogger. The WRMT-AT contains a Campbell Scientific AVW200 module, Canary Systems MicroMux or MiniMux multiplexer, and MDS Transnet Radio.

The AVW200 is a **vibrating-wire interface** that allows to measure vibrating-wire strain gauges, pressure transducers, piezometers, tiltmeters, crackmeters, and load cells. In addition to vibrating wire sensors, the Remote Station also has the ability to read thermistor or resistive sensors. This allows the use of other types of sensors besides vibrating wire. The AVW200 provides 2 sensor inputs. The optional MicroMux or MiniMux multiplexers provide 4 and 16 additional Channels of VW sensor inputs, expanding the channel measurement capability from 2 sensors to 5 or 17, respectively.
The MDS Transnet Radio is available in 900MHz or 2.4GHz models, depending on the application and desired range, and comes with the appropriate 900MHz 9dBi Yagi or 2.4GHz 12 dBi Yagi Antenna. Ranges of up to 30 miles (48km) are possible.

Power to all components is supplied by a rechargeable 12V 12AHr lead-acid and 20W solar panel. The batteries are suitable for several weeks of operation without sunlight, and are delivered installed and ready to use. They should last for 3-5 years. The application and measurement interval have a large effect on battery life.

The WRMT-AT-12S is capable of retrieval and storage of its own battery voltages. These metrics are valuable to monitoring the status of power to the stations.

At the bottom of the steel enclosure are connections for the solar panel, external antenna and 2-16 cable glands for vibrating wire sensors. There are LED indications on the AVW200 and the MDS TransNET Radio. The charging is controlled by a Sunsaver charge controller unit.

The complete list of features and specifications is detailed on the AVW200 and MicroMux data sheets available from our website or by contacting Canary Systems directly. Warranty for the WRMT-AT is applicable for 1 year.

### Specifications

**MDS TransNET EL805 radio**
- Power: 6-30VDC
- Power (quiescent): ~4mA
- Power (receive): ~100mA @ 13.8VDC
- Power (transmit): ~500mA @ 13.8VDC
- Communications: RS-232, RS-485
- Communications Speed: 1.2 - 115.2kbps
- 900MHz Band: 902 - 928MHz @ 1W
- 900MHz Range: Up to 30 miles
- 2.4GHz Band: 2.450 - 2.482GHz @ 50mW
- 2.4GHz Range: Up to 15 miles

**Solar Panel**
- Output Voltage: 17.2VDC maximum (loaded)
- Output Power: 1.17A maximum (20W)

**AVW200 vibrating wire interface**
- VW Channels: 2
- VW Range: 200-6000Hz
- VW Resolution: 0.001 Hz
- Thermistor Channel: 2
- Range: +/-2500mV
- Resolution: 24-bit
- Digital Ports: 3
- Communications: RS-232, SDI-12

**Multiplexer (optional)**

**Model: Canary Systems MicroMux**
- Channels: (4) 4-channel or (8) 2-channel (switch selectable)
- Control Inputs: 2
- Control Input Range: 5-16V
- Power: 9-16VDC
- Power Consumption (quiescent): <0.1µA
- Power Consumption (active): ~42mA
- Relay Contacts: Gold clad silver alloy
- Contact Resistance: 50mΩ

**Model: Canary Systems MiniMux**
- Channels: (16) 4-channel or (32) 2-channel (switch selectable)
- Control Inputs: 2
- Control Input Range: 5-16V
- Power: 10-16VDC
- Power Consumption (quiescent): <0.1µA
- Power Consumption (active): ~42mA
- Relay Contacts: Gold clad silver alloy
- Contact Resistance: 50mΩ
- Soil Resistance: 1028Ω

**System Power**
- Battery 12V 12AHr sealed lead-acid
- Solar Power 12V 12AHr
- Solar Panel 20W
- Power Consumption: 12V 12AHr 20W

**Software**
- Sensors
- Loggers
- Comms
- Transnet
- MicroMux
- MiniMux

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### WRMT-AT-12S

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<thead>
<tr>
<th>Model</th>
<th>MCU</th>
<th>Enclosure Type</th>
<th>Size (LxWxH)</th>
<th>Weight (lbs)</th>
<th>Battery</th>
<th>Solar</th>
<th>Comms</th>
<th>Wireless</th>
<th>VW Comm</th>
<th>Options</th>
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<td>Steel</td>
<td>12x10x6</td>
<td>19</td>
<td>12AHr</td>
<td>20W</td>
<td>RS-232</td>
<td>TransNet</td>
<td>No</td>
<td>MicroMux MiniMux</td>
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