

VL9-M REMOTE READER FOR MIU / ABSOLUTE ENCODER REGISTERS

Firmware Version 3.00 and Later



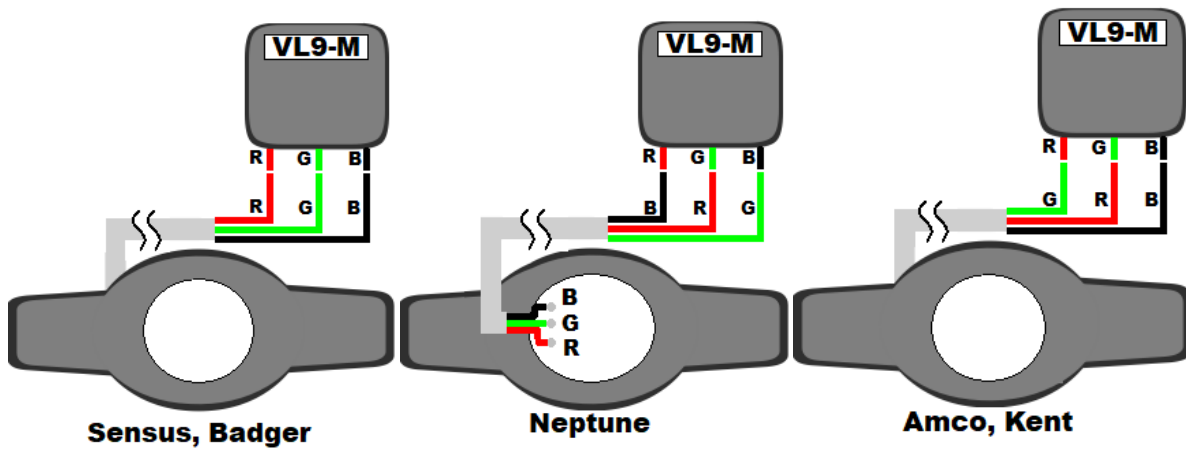
OPERATION

The VL9 remotely reads a water meter register, allowing meter readings to be displayed in a more convenient or accessible location. The VL9 is activated by striking the gold disc on the front, making an acoustic vibration. You can use your fingernail, coin, key, or even the tip of a screwdriver. The VL9 has an 8-character 14-segment alphanumeric display capable of displaying both letters and numbers. More than 8 characters can be displayed by showing part of a value, then the rest of it. All letters will be shown as capital letters. Other displayable characters include the decimal point, the space, and the dash ("-"). Any undisplayable character or error character (such as a question mark) will be shown as a dash.

When activated by striking the gold disc, the firmware version will be displayed, followed by the meter reading, then the meter ID. and finally the battery voltage. Initially the firmware version will be displayed as "VL9M x.xx" where "x.xx" is the firmware version (for example "3.04"). The letters "RD" will appear at the far left to indicate that the reading is being displayed. Some or all of the meter reading digits will be displayed to the right of "RD", then after a pause any additional reading digits will be displayed. Next, the meter/register ID will be displayed beginning with the letters "ID" at the far left. Some of the leading ID digits may be displayed to the right of "ID". After a pause, any additional ID digits will be displayed. Finally, the battery voltage will be displayed.

Striking the gold disc while the ID is being displayed will cause the VL9 to immediately restart the display sequence beginning with the meter reading.

WIRING DIAGRAMS



ERROR MESSAGES

The display will indicate one of the following messages if an error is encountered:

Message	Description
CHECK WIRING	No meter register appears to be connected--verify that the register wires are all connected correctly.
UNKNOWN REGISTER	Some type of response was obtained, but not from a supported register type. Verify that the connected meter is a supported type.
FRAMING ERROR	The data was corrupted: a STOP bit did not occur where it should have. Check the integrity of cable connections.
PARITY ERROR	An incorrect parity error check bit was received. Check the integrity of cable connections.

INSTALLATION

Suggested Tools:

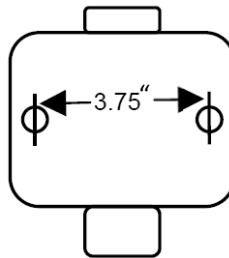
- Electric drill
- 3/16" carbide masonry drill
- Screwdriver
- Wire stripper
- Wire cutters
- Terminal crimp tool
- Scotchlock crimp tool

Materials Required:

- Masonry fasteners
- Caulking compound

The Visu-Link electronics and battery are environmentally sealed and suitable for outdoor installation, but the wire terminals are not sealed for moisture so waterproof wire connectors should be used if the wiring could be exposed to water. The unit should not be installed in locations below grade or in a submersible environment.

1. Remove VL9 cover.
2. Using the VL9 base as a template, locate and mark mounting holes on outside wall of building. For best results the VL9 should be located at eye level in an easily accessible location.
3. Secure VL9 base to wall by drilling locating holes as shown in the drawing below. Use caution when drilling holes in walls, there may be wiring inside. Wear safety glasses. Comply with all necessary ordinances and codes.



4. Run the cable from the meter to the VL9. Note: Never place the cable in a conduit with conductors carrying AC line voltage.
5. Attach cable to meter and to VL9 following the wire color connections shown in WIRING DIAGRAMS above. If connecting to a Sensus Omni meter: cut the touchpad (small round cylinder) off of the black cable, then connect VL9 red, green, and black wires to wires of the same color inside the black cable jacket, leaving the white wire disconnected.
6. Tap VL9 with a key or coin on the gold circle on front of case. The meter reading and ID should be displayed. If an error message is displayed instead, see the above table ERROR MESSAGES.

TECHNICAL SPECIFICATIONS

- ❖ **APPLICATIONS:** This unit is used whenever a water meter is not easily accessed. Whether the meter is mounted in a ceiling, a pit, or an inaccessible room, these units give remote access to the meter reading.
- ❖ **CONSTRUCTION:** Size is 4.6" X 4.3" X 2" thick (11.7cm X 10.9cm X 5.1cm thick) Weight 9oz (254g). Environmentally sealed to keep unit waterproof and to ensure no internal fogging (**IP67 certified**). Operating temperature is -4 to 140 °F (-20 to 60 °C)
- ❖ **WIRING:** Recommended cable has 3 conductors of 22 to 24 gauge solid wire, preferably without shielding. If shielded cable is used, the shield should not be connected to any of the 3 signal wires, although the shield could be connected to earth ground. Maximum tested cable distance between the meter and VL9-M remote reader is 2000 ft.
- ❖ **BATTERY:** The VL9-M has an internal non-replaceable 3.6 volt lithium battery. It has a calculated life of 10 years.
- ❖ **PROTOCOLS:** Sensus, Neptune, and AMCO/Kent 3-wire protocols are supported by the VL9-M. Most meter manufactures use one of these three protocols for communication, most commonly the Sensus UI-1203 protocol.

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