# AN-102: Encoder MDT Wiring Guide

This guide explains the wiring for our two different versions of our Encoder MDT, along with their identification within the CIT software. The following model numbers are covered:

- TW-140B-N   Neptune only Encoded meter
- TW-140B-E   Encoded meter (Sensus/Neptune)
- TW-140B-ED   Encoded meter (Sensus/Neptune) with Pulse out for Display

Newer model Encoder MDTs

All newer model Encoder MDTs will be identified as TW-140x-E(D) and can read either Neptune or Sensus meters. The are easily identified once open as the PCB is green and the connector is removable. Wiring is based on wire color of each meter type and are different for various Encoder meters. The board is labeled with the color scheme for the two primary vendors of encoded meters. Those that license the Sensus protocol may use a different color scheme, check with the manufacturer in this case to match it to the Sensus color scheme.
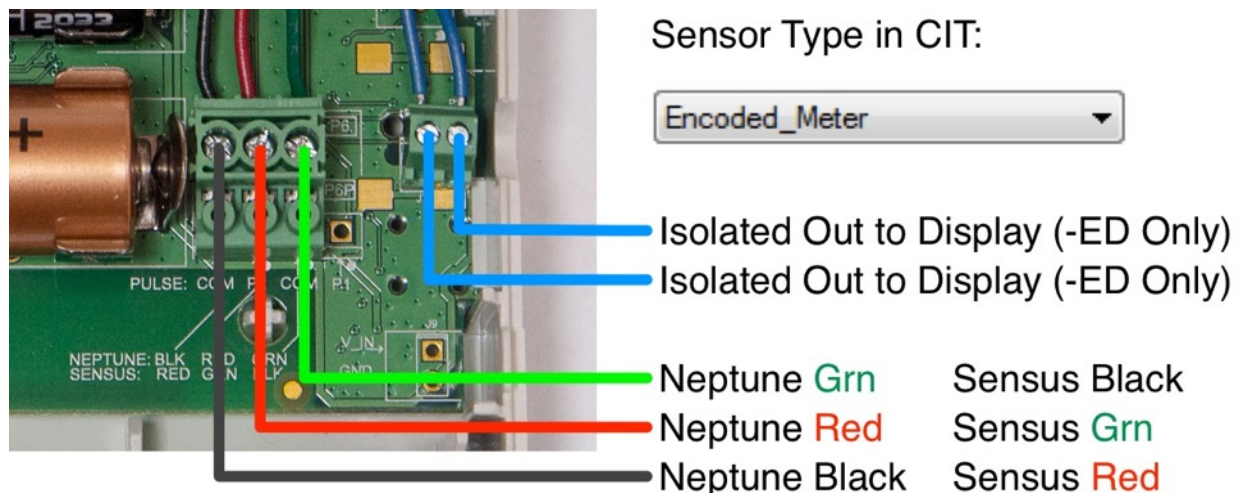

Our TW-140B-ED unit additionally provides a pulse output to drive a remote display as required in California. This output is a isolated dry-contact type and can drive any display that accepts this type of input. There is no polarity associated with this connection.

The wiring colors for each meter type is written on the board to simplify installation.

Older style Encoder MDTs

Our initial TW-140B-N product could only read Neptune registers. Later on we added Sensus support and changed the model number to TW-140B-E.

These units are easily identified once open as the PCB is blue and there is a separate module at the back to interface to the Encoder meters. The units come with a removable black connector pre-installed at the factory.
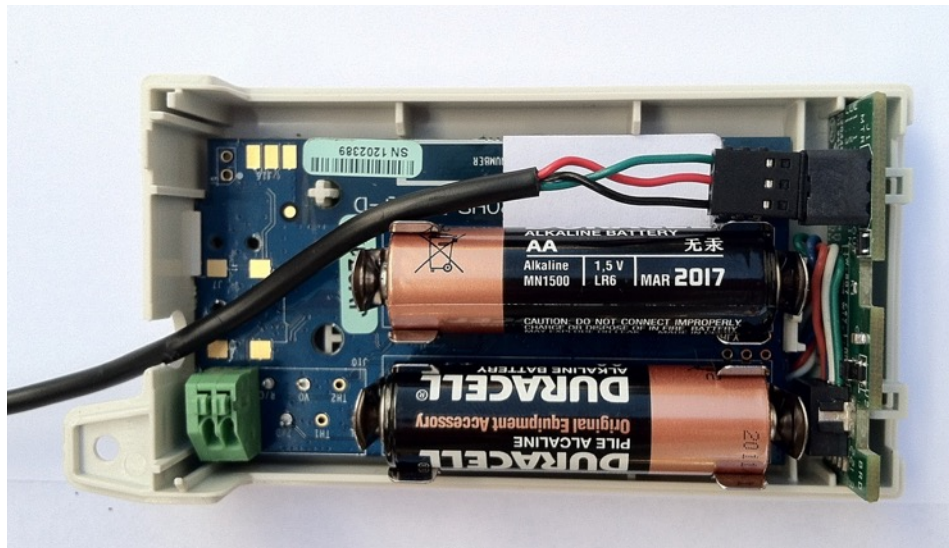

Instructions

- Remove the connector with a slight tug on the connector.
- Insert the wires from the meter into the connector. There is a small spring in the connector to catch and secure the wires. If you need to remove the wires, the spring can be released by inserting a tiny flat blade screwdriver into the rectangular holes.
- Wire gauge must be between 20 and 26. Solid wire is recommended but not required. Use of small pliers recommended when inserting stranded wire.
- Once inserted, verify the connection integrity by giving a little tug on the wire to make sure it is solidly seated.
- The connector is keyed to insert in only one orientation. Insert the connector until a snap is heard.

The color coding for each meter type is on the following page.

For Neptune Meters

- Following the color coding marks on the Neptune meter, B/G/R (Black, Green, Red), insert the wires into the connector in the order shown below.
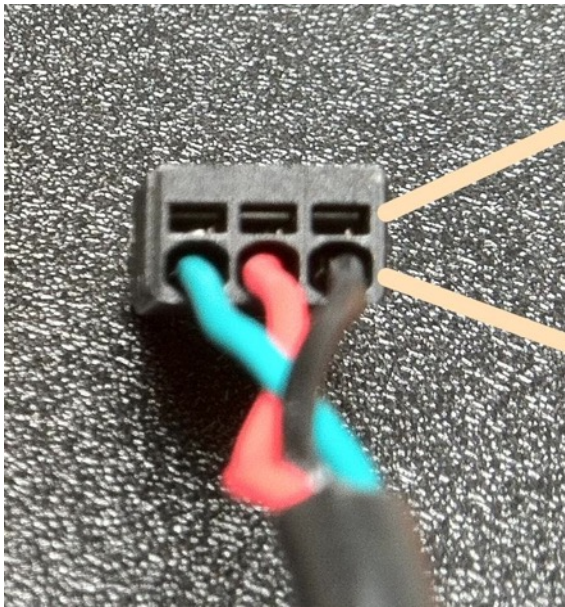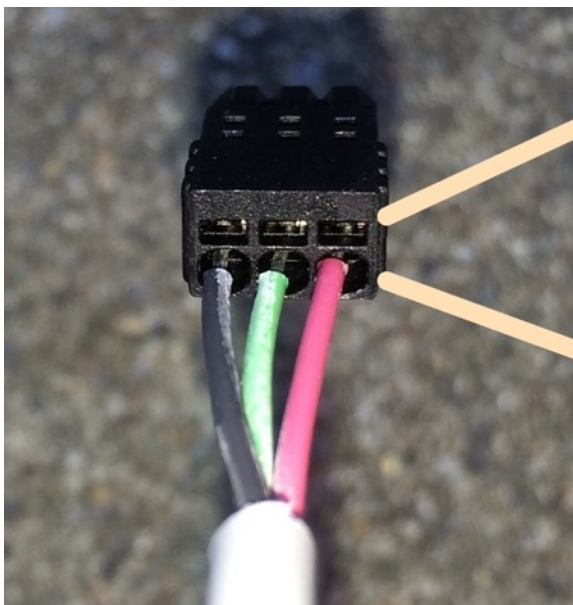
Insert small screwdriver into top hole to remove wire.

Push wires into bottom holes. Pinch spring will secure wire.

Neptune Wiring

For Sensus Meters

- Insert wires from the meter in the order shown here

Insert small screwdriver into top hole to remove wire.

Push wires into bottom holes. Pinch spring will secure wire.

Sensus Wiring

Older style ED (Display output) units

The meter connection is the same as shown above. The display is connected to the MDT using the spring terminals as shown below. The connection between the MDT and the display is not polarity sensitive.
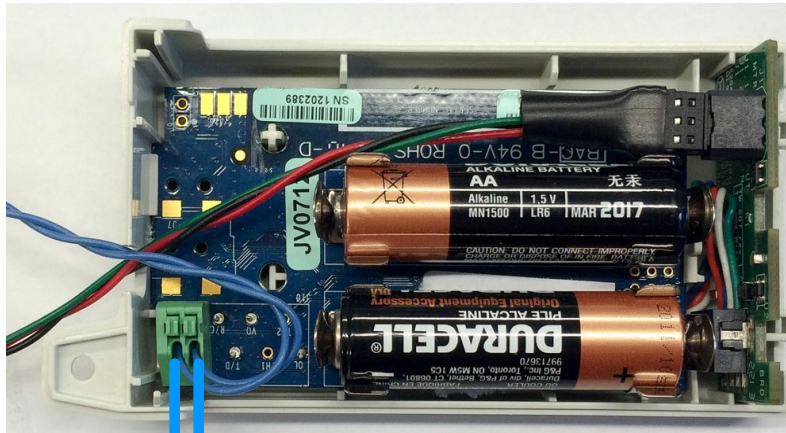
Isolated Out to Display (-ED Only)
Isolated Out to Display (-ED Only)