



# TINKER & RASOR

1948 60 YEARS OF QUALITY 2008



## PRODUCT INSTRUCTIONS

### MODEL CPV-2 VOLTMETER

#### Model CPV-2

The Model CPV-2 Cathodic Protection Voltmeter is used for measuring D.C. potentials on buried or submerged metal structures.

#### Unpacking

Check all components against packing list. If damage has occurred in shipment, file a claim with the carrier immediately. If it is necessary to contact your supplier or the manufacturer concerning damaged or missing items, be sure to include all the information such as serial number, purchase order number and invoice number. This will ensure you of obtaining proper and expeditious service.

#### Operating with Half Cell Electrode Attached

- A. Remove protective vinyl cover from end of half cell electrode.
- B. Place ceramic end of half cell in contact with moist earth. (Half cell must be properly prepared.)
- C. Connect test lead from negative terminal on instrument to the structure.
- D. Observe and record meter reading. **Note:** No switch to push for taking reading.

#### Differences Between Methods Of Connection

The Model CPV-4 has a connection for the halfcell to screw into the back of the voltmeter. When using this option, the halfcell is connected to the Positive (+) side of the voltmeter. A test lead is then connected between the Negative (-) post of the voltmeter and the structure.

This setup is used by many companies and technicians, as a "good" read, for instance 0.85v, is displayed as a positive number. Many companies and technicians like to use positive numbers in recording reads. Also, an analog meter may not display a negative reading, so companies or technicians who have both digital and analog meters have standardized using this method.

However, there are some groups that teach a different connection method. NACE International and Peabody's Control of Pipeline Corrosion, for example, both suggest connecting the Negative (-) terminal to the half cell, and the Positive (+) to the structure. This would then change the polarity of the reading, so that the same reading as given in the previous example would then be displayed as -0.85v.

To connect the Model CPV-4 CP Voltmeter using the NACE / Peabody method, do not screw the half cell into the voltmeter. Use both lead cables provided, connecting the Red (+) cable between the structure and the Positive (+) terminal on the voltmeter, and the Black (-) cable between the half cell and the Negative (-) terminal on the voltmeter.

#### Operation Without Half Cell Electrode

Use same as any standard voltmeter for measuring D.C. potentials from 0 - 2 volts.

#### Battery Test

To check batteries, depress red button on instrument panel. Instrument should not be in operating position while testing batteries. Maximum battery drain is in the order of 110 microamperes; therefore, they should have a life expectancy of nearly one year.

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### Battery Replacement

See photo below.

First, remove the half-cell electrode if in use. Then remove the two screws on the back cover using a Phillips-head screw driver. Care should be exercised in observing the polarity of the batteries and cover when being replaced. **Note:** Cover positive (+) position should align with red dot terminal under the cover. Replace the two "AA" cell batteries with alkaline equivalent. T&R #010-002. Reverse the steps to return the instrument back to operational status.



### Warranty

Warranty is on workmanship and material for 90 days from date of purchase. Warranty does not cover transportation nor damages beyond normal wear and tear.

### Non-warranty Repair Policy

Tinker & Rasor will repair any reparable past -warranty Model CPV-2 (instrument only) for a charge not to exceed 35% of current list price for a period of five years from date of sale.

### Shipping instructions

All instruments being returned for repair should be sent PREPAID to:

Tinker & Rasor

791 S. Waterman Ave.

San Bernardino, CA 92408

Include with shipment, information on nature of problem, purchase order and return address.

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