

## MEASURING EQUIPMENT

### Multimeter Model B3A2

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German Cathodic Protection



### Multimeter Model B3A2

#### Advantages

- Designed for the corrosion control industry
- Increased dependability through solid state design
- RFI shielded throughout
- Accurate, stable readings
- Active filtering for power frequency rejection
- Selectable input resistance
- Withstands the most harsh environments
- Flexible multimeter for all your corrosion tests

#### Specifications

##### Left meter:

- 9 DC voltage ranges, zero to full scale: 2 mV, 10 mV, 20 mV, 100 mV, 200 mV, 1 V, 2 V, 10 V, 100 V
- Minus 10% of full scale on all ranges
- Input polarity reversal switch on volts and amps ranges eliminates the need to reverse test leads
- Best resolution: 20  $\mu$ V (0.00002 V) on the 2 mV range
- Input Resistance: 10 000  $\Omega$  on 2 mV and 10 mV ranges 10 M $\Omega$  on 20 mV to 100 V ranges
- Line frequency rejection: >60dB @ 60Hz
- RF rejection: > 70dB @ 1MHz
- Overload protection: 10 times full scale
- 9 DC ampere ranges, zero to full scale: 2 mA, 10 mA, 20 mA, 100 mA, 200 mA, 1 A, 2 A, 10 A, 20 A
- Minus 10% of full scale on all ranges
- Best resolution: 20  $\mu$ A on the 2 mA range
- Burden voltage: 20 mV
- Overload allowed: 5 times full scale, less than 5 sec.
- Contact check: > 200 mA short circuit
- Adjustable output current supply: controllable 0 to 3 VDC and 0 to 4 A
- Control external current flow with built-in 25 W adjustable rheostats
- Read internal battery voltage directly
- Left meter switch: internally connects right meter to left terminals, enabling current and voltage to be read simultaneously

##### Right meter:

- 9 DC voltage ranges, zero to full scale: 2 mV, 10 mV, 20 mV, 100 mV, 200 mV, 1 V, 2 V, 10 V, 20 V
- Minus 10% of full scale on all ranges
- Input polarity reversal switch on volts
- Best resolution: 20  $\mu$ V(0.00002 V) on the 2 mV range
- Input resistance: 100,000 $\Omega$  on 2mV and 10mV ranges. selectable from 1 M $\Omega$ , 10 M $\Omega$ , 25 M $\Omega$ , 50 M $\Omega$ , 100 M $\Omega$ , 200 M $\Omega$  on 20 mV to 100 V ranges
- Line frequency rejection > 60 dB @ 60 Hz
- RF rejection > 70dB @ 1 MHz
- Bias control  $\pm$  full scale, all ranges
- Overload protection 10 times full scale



#### General Information

- A major design achievement was to eliminate the effects of RFI, and offer accurate, repeatable readings.
- Impact resistant d'Arsonval meters with taut band movement to withstand rough handling.
- Resistant to rain, dust and temperature: - 0°F to 150°F.
- 10% up scale: -0.1, 0, 1; -.02, 0, 2: a visual prompt which indicates when the reading crosses zero.
- Knife-edge pointer with easy-to-view mirror scale.
- Accuracy:  $\pm$ 0.5% of full scale for all ranges.
- Tracking accuracy:  $\pm$ 0.5%

#### Applications

The B3A2 was designed specifically as a cathodic protection test instrument. In most cases it is all that is required for the test and evaluation of existing systems or design of new installation. It can be utilized in making the following tests, all of which are illustrated in the B3A2 operating manual:

- Structure-to-soil potentials
- Current measurements (direct null-amp method, 2 or 4 terminal zero resistance)
- IR drops and calibration of IR drop test stations
- Soil or water resistivity by soil box and by 4-electrode method
- Soil potential gradients
- Continuity tests
- Pipe coating resistance tests and fault surveys (over-the-ground method)
- Galvanic anode rectifier output and cathodic protection interference tests
- Duct slug survey on lead covered cables and concrete bridge deck surveys
- pH determination
- Grounding tests