

Operator's Manual
for
Monroe Electronics, Inc.

Model 282 I S Digital Stat-Arc™ 2
Electrostatic Fieldmeter
for Hazardous Locations

P/N 0340110
282/100
Rev A



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Description

Model 282 I S Digital Stat-Arc™ 2 is a pocket-size, non-contacting static meter which produces consistently accurate readings, is easy to use, and is backed by a 2-year warranty, the best in the business.

The 282 I S features:

- Pulsing-beam range finder for always obtaining the correct reading
- Drift- free accuracy even in ionized environments
- HOLD button to capture transient readings
- Recorder output and 40-hour battery life for unattended monitoring
- Exclusive auto-zero circuit
- Available charged-plate adaptor (Model 282CPS)

With the Model 282 I S, accuracy is unquestioned. Simply hold the instrument so the range finder LED beams form a non-pulsing circle indicating you're at exactly the right distance (1 inch) from the target for readings up to 20 kV. To read higher voltage, use the greater distances given in Specifications.

For location where it's hard to read the display, you can freeze it, and then read it. Simply position the meter at the correct distance from the target, press and release the HOLD button, move the instrument to a more convenient position, then read the display.

Zeroing is push-button simple, and Model 282 I S 's chopper stabilized circuitry is immune to ionization so accuracy is assured in all environments. For long term monitoring, the front panel output jack provides easy interfacing with a recorder, oscilloscope or automated data acquisition system.

Specifications

Display: LCD 3 ½ digit, auto-polarity readout, HOLD and LOW BATT indicators
Range: 0 to ± 19.99kV at 1 inch. Voltages of 20kV and higher may be read by increasing the distance to the target:

Kv	Distance	Multiply Reading By
0 - 40	4.0 inches	2
0 - 60	6.5 inches	3
0 - 80	8.5 inches	4

Accuracy: ± 5% of reading, + zero offset, + 2 lsd

Analog Output:

Jack Type: Accepts standard 3/32 inch (2.5mm) monaural phone plug
Amplitude: 1V signal denotes 10kV reading at 1 inch for high impedance loads
Impedance: 10kΩ Load > 1 meg for < 1% error. Sleeve GND tip 1/10,000
Response

Time: Typ. 80 – 100 m sec 10 – 90%

Battery Type: 9V NEDA #1604 or equivalent life: 40 hours normal use, with alkaline battery (refer to Safety Considerations on bacl.)

Physical: (L x W x H) 2.4 x 4.2 x 0.9 inches (6.1 x 10.7 x 2.3cm)
Weight: 5 oz. (142 gm) with battery

Operating

Environment: 0 –50° C, 0 85% RH (non-condensing) unaffected by ionizing equipment

Operation

1. Turn the instrument on. Press and release the ON/ZERO button. The display appears and the range finder LEDs begin to flash alternately.
2. Discharge the instrument. Grounding (discharging) your body discharges the instrument through its conductive case. If you are not wearing a grounded wrist strap, discharge your body by touching a grounded metal object such as water pipe, conduit or workbench. As an alternative, place a grounded wrist strap around the instrument itself.
3. Zero the instrument. Point the sensor plate away from any charged object, press and hold the ON/ZERO button until reading stabilizes then release. As an alternative, point it toward, but *do not* touch, a known grounded surface such as the palm of your hand.

CAUTION

If you bring the instrument (or any grounded object) too close to a charged surface, an electrical arc may be created. To avoid this and take readings safely, check the voltage/distance ranges given in Specifications. Always bring the instrument toward a target surface from a distance of several inches. As the distance closes, watch the display to be sure that the proper distance is maintained for each voltage range.

4. Take a reading. For voltages less than 20 kV, move the sensor plate of the instrument toward the target surface. When the instrument is exactly the correct distance (1 inch) from the target, the image projected by the range finder LEDs appears as a stationary circle. To read voltages of 20 kV and higher use the distances and multiplying factors given under "Range" in Specifications.
5. Hold a reading. Press and release the HOLD/OFF button. The present reading is displayed along with the word "HOLD." To conserve battery life the LEDs go off while the reading is held. To take another measurement press and release the HOLD/OFF button again.
6. Turn the instrument off. Press the HOLD/OFF button for more than 3 seconds.

Getting the most out of your Model 282 I S

The shell of the front-panel output jack can be used to provide a "hard" ground connection. However, the instrument case is sufficiently conductive to provide a good ground path via the user or a ground strap that is wrapped around the case.

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Calibration

Monroe Electronics instruments are factory-calibrated prior to shipment. Recalibration should be performed annually, or more frequently if specified by contract or company policy. Your instrument should also be recalibrated any time it has been repaired or tampered with. We are happy to recalibrate your instrument for you at a reasonable cost, or provide information and procedures on calibration upon request. We also offer calibration services with traceability to NIST, MIL-STD-45662A or ISO 17025 compliant.

Maintenance

Battery Care The battery should be replaced annually, whenever you plan an extended period of unattended monitoring, or whenever “BAT” appears in the display for more than an instant. See Specifications for replacement type. If unit fails to operate after replacing the battery, remove battery, press and release the ON/ZERO button then re-connect the battery. Remove the battery before long-term storage.

Cleaning To obtain accurate, drift-free readings the sensor plate and especially the area around the aperture must be kept absolutely clean at all times. Always keep the instrument in its protective case when not actually taking measurements. **Never touch the aperture with anything-not even cotton swabs.** To remove dust or other particulate matter, use low-pressure instrument grade air. To remove severe contamination spray or flush with the smallest practical amounts of clean technical grade isopropyl alcohol. The stand the instrument on the aperture end and allow it to dry for several hours. **DO NOT** clean with any solvent on a regular basis.

Zero Drift Apply anti-stat solution to plastic surrounding the sensor plate using lint free applicator. **DO NOT** allow entry into aperture.

Safety Considerations

The Model 282 I S has undergone testing to qualify for the following CE and UL markings:
CE — Radiated and ESD immunity to severity levels for industrial devices according to EN 50082-1 and radiated emissions with limits for Group 1, Class A product of EN 55011 to the generic standard EN 50081-2 (1992).

UL — Certification for use in Class I, Division 1, Groups D, C, B, and A and Class II, Division 1, Groups G, F and E hazardous areas when powered by a 9-volt carbon/zinc or zinc chloride battery, NEDA 1604 or NEDA 1604D and for use in Class I, Division 1, Groups D and C hazardous areas only, when powered by a 9-volt alkaline battery.

Two-Year Warranty

Monroe Electronics, Inc. warrants this instrument to be free from defects in material and workmanship for a period of two years after shipment from the factory. This warranty is applicable to the original purchaser only. Liability is limited to service, adjustment or replacement of defective parts (other than fuses or batteries) on any instrument returned to the factory, transportation charges prepaid. It does not apply to any instrument subjected to abuse, abnormal operating conditions, or unauthorized repair or modification. No other warranties, explicit or implied, apply. Under no circumstances shall Monroe Electronics be responsible for damages either direct or consequential. For additional information concerning this product, contact Monroe Electronics, Inc.

