# MONROE 177A

Accurate and dependable continuous monitoring of the critical points in a facility to detect and warn of electrostatic charge build-up before it becomes a problem.

The Monroe 177A serves as a full-time, plant-wide automatic static build-up monitor. As static levels in your application surpass a preset value, beyond which there may be danger to personnel or possible disruption or destruction to the process or product, an initial warning is triggered and the process is allowed to continue. If the problem is rectified, the warning returns to a normal state. If the condition persists and the static level exceeds a second more crucial value, an alarm is activated and terminates the process until corrective actionis taken and the system is reset.

## PRODUCT HIGHLIGHTS

- Intrinsically safe sensor operation (with optional barriers) in explosive atmospheres
- Four channel static monitor detects static levels in as many as four locations up to 1000 feet away
- Accurate and drift-free measurement including ionized environments
- Provides analog outputs and control via RS232/485 and front panel
- Built-in, fully configurable dual level alarms programmable via front panel, PC, or PLC
- Cascade up to 32 units via RS485 providing 128 sensor locations
- PLC compatible using Modbus protocol
- Password security

## TYPICAL APPLICATIONS

- Converting, coating, and printing processes
- Dry particle transport systems
- “Static-free” environments
- Explosive atmospheres - safely monitors potentially hazardous sites to detect charge build-up. Monroe 1036 sensors are factory mutual research approved: Class I, Division 1, Groups C and D

## AT A GLANCE

### Analog Outputs (Selectable)

**±10 V, 0 to 5 V (2.5 V, ±2.5 V full scale); < 10 Ω impedance; or simultaneous 4 to 20 mA (optional)**

### Accuracy

**±3% of full scale at analog output ±3% of full scale, ±2% counts +0.3 counts/°C at front panel meters**

### Displays

**Four 3½ digit LEDs, 0.6 in (one per input channel)**

## TECHNICAL DATA

| Performance Specifications | | |
|---|---|---|
| Monitor Console Temperature Range | 15 to 45°C (59 to 113°F) | |
| Analog Outputs (User Selectable) | ±10 V, 0 to 5 V (2.5 V, ±2.5 V full scale); < 10 Ω impedance; or simultaneous 4 to 20 mA (optional) | |
| RS232/485 Control | Channel status, channel disable/enable, group control | |
| Accuracy | ±3% of full scale at analog outputs | |
| | ±3% of full scale, ±2% counts | |
| | +0.3 counts/°C | |
| Displays | Four 3 ½ digit LEDs, 0.6 in (one per input channel) | |
| Alarm Relays | Per channel fail safe, NC (Form B); System OK, Channel OK, Warning, Alarm | |
| | Contact Ratings | DC: 1A, 30 B; AC: 0.5A, 125 V |
| Connector Styles | RS485 | DB9 |
| | Probe | DB9 |
| | Analog Out | BNC |
| | Test Connector | Screw terminals |
| | 4 to 20 mA Option | Screw terminals |

| Mechanical Specifications | | |
|---|---|---|
| Dimensions | 4.45 x 48.26 x 27.9 cm (1.75 x 19 x 11 in) Mounts in a standard 19" rack | |
| Weight | ~4.08 kg (9 lb) | |
| Optional Enclosure | Capacity | Two monitor consoles |
| | Dimensions | 11.4 x 50.8 x 35.6 cm (4.5 x 20 x 14 in) |

| Electrical Specifications | |
|---|---|
| Power Requirements | 90 to 260 VAC, 47 to 60 Hz; 13 Watts max |
| 4 to 20 mA Option Power Requirements | Internal power supply 11 V min |
| | External power supply 24 V max |

| Monroe 1036 E (H) and F (H) Sensor Specifications[1] | | |
|---|---|---|
| Standard Range | ±10 kV/in | |
| Optional Ranges | ±1 kV/cm (100 kV/m) | |
| | ±10 kV/cm (1 MV/m) | |
| | ±20 kV/cm (2 MV/m) | |
| | ±1 kV/in | |
| Drift | 1% of full scale (typical), non-cumulative, long-term when purged according to manufactuer's instructions | |
| Noise | <0.05% of full scale, peak-to-peak | |
| Speed of Response | 1 sec max, 10 to 90% of ful scale (typical) | |
| Dimensions | Monroe 1036E | 15.24 x 7.62 x 5.24 cm (6.0 x 3.0 x 2.063 in) |
| | Monroe 1036F | 4.45 diameter x 3.11 cm (1.75 x 122 in) |
| Maximum Cable Length | 305 m (1000 ft) | |
| Temperature Range | Monroe 1036E/F | -30 to 80°C |
| | Monroe 1036EH/FH | -30 to 100°C |

[1] Sensors sold separately

## EASY-TO-USE OPERATION

The Monroe 177A is as easy to install and use as it is effective. In a short time you can:

1. Mount sensors at all static-critical locations.
2. Mount the Monroe 177A console in a rack enclosure. (Monitoring more than four locations requries additional consoles).
3. Connect leads between sensors and console and RS485/232 and alarm contact.
4. Install software and configure your system.
5. Turn console power on and zero each channel to be used.
6. Begin reliable, continuous, drift-free, multi-point, static measrements.

## REFERENCE NUMBERS

| Included Accessories | |
|---|---|
| - | Operator's Manual |
| - | 110 V Line Cord |
| - | 220 V Line Cord |
| - | DB9 M/F Straight-Thru Cable |
| - | USB A-Male/B-Male Cable |
| - | Mounting Hardware |
| - | 2-2 Position & 4-6 Position Plugs |

| Optional Accessories | |
|---|---|
| 1036E-6 | Standard Industrial Sensor |
| 1036F-6 | Standard General Purpose Sensor |
| 433 | Extension Cable for Monroe 1036 Sensor (Optional lengths available, contact factory) |
| 96102 | Calibration Figure for Monroe 1036 Sensors |
| 177ENC | Rack Enclosure for Monroe 177 |

## ABOUT ADVANCED ENERGY

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