

## Features:

- **Portable, Self-contained**
- **Battery-powered**
- **Easy to operate**
- **Large LCD display**
- **Two ranges**
- **Interchangeable cups**
- **Analog output**
- **Meets requirements of EIA-541 Standard**
- **Point contact measurement of small areas**

## Applications:

- **Direct charge measurement**
- **Component testing**
- **Materials qualification**
- **Triboelectric studies**
- **Static monitoring**
- **IC handlers**

## Benefits:

- **Low cost**
- **Simple operation**
- **Minimal training required**
- **Uses ordinary oscilloscope probe for contact measurement of small objects**
- **Measures performance of ESD materials**

The Model 284 NanoCoulombmeter by Monroe Electronics, Inc. offers the ability to make direct measurements of charge on materials. The material is either dropped into the optional Faraday Cup where the charge is transferred to the cup and then measured by the meter, or the operator can use an oscilloscope probe to take charge measurements on smaller objects outside the Faraday Cup.

The Model 284 is the only battery-powered nanocoulombmeter to offer two ranges: 200nC & 20nC



## General information:

Monroe Electronics Model 284 NanoCoulomb Meter enables the user to easily and accurately measure the charge generated on items such as electronic components by triboelectric charging processes. Static charges can build up on ICs as they vibrate and slide in shipping tubes or on PC boards as they move around in contact with protective packaging materials. Model 284 aids in the selection and evaluation of packaging materials when performing triboelectric charge testing as outlined in the Electronics Industries Association Standards for ESD sensitive Items (EIA-541).

Two available interchangeable standard sizes of Faraday Cups serve most needs. Inner dimensions of these are 2<sup>5</sup>/<sub>8</sub>" dia. x 2<sup>3</sup>/<sub>4</sub>" deep and 5<sup>3</sup>/<sub>4</sub>" dia. x 7" deep. Custom sizes are available on special order. In addition, individual areas of semiconductor components, MR heads or other small static-sensitive devices may be examined to evaluate manual or automatic handling techniques. Contact is made to individual leads via the tip of an ordinary 1X passive oscilloscope probe.

## NanoCoulomb Meter model 284

### Specifications:

<b>Display:</b>	½"x3½" digit LCD
	Range: Resolution:
	200nC 0.1nC
	20nC 0.01nC
<b>Optional Ranges Available:</b>	Range: Resolution:
	2000nC 1.0nC
	2.0nC 0.001nC
<b>Accuracy:</b>	2%
<b>Output:</b>	0 to ±2 volt analog
<b>Drift:</b>	0.1pC/sec. Typical
<b>Battery:</b>	9 volt Eveready #216 or equivalent NEDA #1604. Battery life over 400 hours.
<b>Dimensions:</b>	6"x3½"x2⅛" (15 cm x 9 cm x 5.5 cm)
<b>Weight:</b>	8½ oz. (0.24kg) with battery

### Compatible accessory cups and probes:

#### Faraday Cup, Model 284/22A:

Outer dimensions (nominal)—  
4" dia. x 5¾" tall (10 cm x 15 cm)  
Inner dimensions (nominal)—  
2⅝" dia. x 2¾" deep (6.5 cm x 7 cm)

#### Faraday Cup, Model 284/22B:

Outer dimensions (nominal)—  
8" dia. x 9½" tall (20 cm x 24 cm)  
Inner dimensions (nominal)—  
5¾" dia. x 7" deep (15 cm x 18 cm)

Faraday Cups are equipped with BNC connectors and furnished with a 3 foot mating cable to connect to Model 284 instrument. Can be used to measure powders and liquids as well as solid objects.

#### Point contact probe:

Various—contact factory

### 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.

### Warranty:

Monroe Electronics, Inc., warrants that each instrument and sub-assembly manufactured by them shall 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.

### The finest Electrostatic instrumentation and support:

For more than 40 years - ever since we invented the feedback--nulled electrostatic voltmeter, Monroe has been the technology and quality leader in electrostatic detection and measurement instrumentation. Today we offer the world's most complete array of fieldmeters, voltmeters, and resistivity meters. Our customers include the leading makers of photocopiers and laser printers, converters and microelectronics worldwide.

We know you need quality support as well as quality products. We pride ourselves on providing our customers with the most knowledgeable applications and installation support — as well as superior customer service.

### How can we help?

Contact your Monroe Electronics representative for price and delivery information on this and other ME products, to schedule a no-obligation demonstration at your convenience. For the name of your nearest dealer, or for technical or applications assistance, contact Monroe Electronics directly at the address and numbers below.