

New Style!



## MFD10 Digital Capacitor Tester

With it's one hand operation, the MFD provides the fastest measurements for capacitor values.

### Applications

- Verification of Start and Run Capacitors
- Checks for open and short capacitors
- Identify unmarked capacitors
- Confirms weak capacitors
- Use as continuity tester

### Features/Benefits

- Range 0.01 to 10,000 mF
- Accuracy  $\pm 5\%$
- Test clip storage within case
- Alligator clips to capacitor terminals
- LED display
- One button operation
- Operates on one 9V Battery (not included)



### Standard Accessories

#### Part No.

MFDCAUSE	Soft Case
MFDFAUSE	Fuse

## CO1000 *New!* Carbon Monoxide Meter

Measure CO quick and easy in working and living environments.

### Applications

- Check dangerous CO levels
- Identify malfunctioning equipment

### Features/Benefits

- Backlit LCD
- Automatic calibration
- Max Hold and Data Hold
- Auto Power Off
- Audible Alarm
  - From 35 PPM to 200 PPM, the beeper sounds periodically
  - Above 200 PPM, the beeper sounds continuously



### Specifications

Measurement range	0 to 1000 PPM
Measurement Resolution	1 PPM
Accuracy	5% or $\pm 10$ PPM (0-100 PPM) 10% $\pm 10$ PPM (> 100PPM)
Warm Up Period	< 2 Seconds
Operating Temperature	32°F to 122°F (0°C to 50°C)
Storage Temperature	-22°F to 140°F (-30° to 60°C)
Operating Humidity	0-99% Relative Humidity (non-condensing)
Battery	9V (included)
Auto Power Off	After 15 minutes of inactivity
Sensor Type	Stabilized electrochemical Gas-specific (CO)
Typical Sensor Life	3 years

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## M500 Insulation Tester/Electronic Megohmmeter

An inexpensive alternative to expensive taut band (swing needle) megohmmeters, the M500 provides fast and accurate measurements to verify the condition of insulation.

### Features/Benefits

- Measure insulation values up to 1000 megohms @ 500 VAC
- Zone scale to indicate insulation condition
- Hand held
- Test Leads store in case
- Operates on 2 C batteries (not included)
- Impact resistant

### Standard Accessories

#### Part No.

MCASE	Soft case
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## DAM1 Digital Air Flow Meter

Measuring cubic feet per minute, feet per second and temperature make balancing air systems a breeze with the DAM1.

### Applications

- Balancing air flow
- Identify problem ventilation areas

### Features/Benefits

- Measures Cubic feet per minute (CFM) and feet per second (FPS)
- Air Flow range 80 – 6900 FPM
- Measures Temperature in °F and °C (14°F to 122°F/-10°C to 50°C)
- Displays: CFM/FPM/MPH/Knots/KPH/MPS
- Dual display
- Auto Power Off
- Records up to 8 readings
- Min/Max record
- One hand operation
- Comes in durable carry case



Specialty Instruments

### Applications

Test motor winding insulation and diagnose heat damaged, deteriorating insulation in...

- Hermetic Refrigeration compressors
- Appliances
- Panel boards
- Relay control circuits
- Motors



## M501 Insulation Tester/Electronic Megohmmeter

Enjoy the same great features of the M500 in a sturdy service case.





### DHS55 Digital Handheld Scale

This compact handheld scale provides quick measurements for your refrigeration applications.

#### Features/Benefits

- 55 lbs max scale
- 2% accuracy
- One button operation
- Auto shut off
- Lbs/Kgs switchable
- Max weight memory
- 9 V battery included



### CTC3 Cap Tube Computer

Calculate the flow rate of a defective cap tube and duplicate that flow rate with cap tubes that have a different I.D.

#### Features/Benefits

- Computes inside diameter, length, refrigerant, horse power, application and flow rate
- Shows temperature/pressure charts for 12 refrigerants
- Compact, light weight & easy to use!
- Converts Cap Tubing used with refrigerants R12, 134A, R22, and R502

Note: See Cap Tubing Section pages 31-33 for a complete listing of Cap Tubing Replacements used with alternative refrigerants.

### Specialty Instrument Selection Guide

Model No.	Measurement/Function	Range
CO1000	Carbon Monoxide	0 to 1000 PPM
MFD10	Capacitance	0.01 to 10,000 mfd
DAM1	Air Flow/Temperature	125 to 5500 fpm/14°F to 122°F
M500	Insulation Resistance	20 to 1000 megohms
M501	Insulation Resistance	20 to 1000 megohms
DHS55	Weight	0 to 55 lbs
CTC3	Cap Tube parameters	Various

### Application Note:

#### Testing HVAC and Refrigeration Compressors and Motors

Many HVAC and Refrigeration motors require special test parameters since the winding operates in an oil and refrigerant atmosphere.

In a hermetic motor, under normal conditions the oil and refrigerant have a high electrical resistance. However, when they are contaminated with moisture, the electrical resistance changes and a low megohm reading of the winding terminal to ground may actually be the resistance of the contaminants in the oil and not in the winding insulation.

Newer motors have a insulation resistance value of more than 100 megohms, typically. Measurements of 50 megohms or less indicate a problem. Either the winding insulation is deteriorating or the oil/refrigerant is contaminated.

Installing an oversized drier may clean up the system or another possible solution could be replacing all the compressor oil. In either case, if the megohm tests show even the slightest improvement in resistance values the remedy may have checked a declining condition.

A good 'rule of thumb' is to smell a small sample of the oil. If the motor was ever severely overloaded, it will leave a tell tale trace in the oil that can only be removed by changing all of it.

The odor of burnt insulation is easily recognized and a low resistance value of 20 megohms or less will verify that the motor insulation may be severely damaged.

