

# VOLTMETERS/PHASING SETS

## For Phase-To-Phase & Phase-To-Ground Measurements



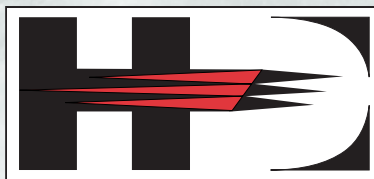
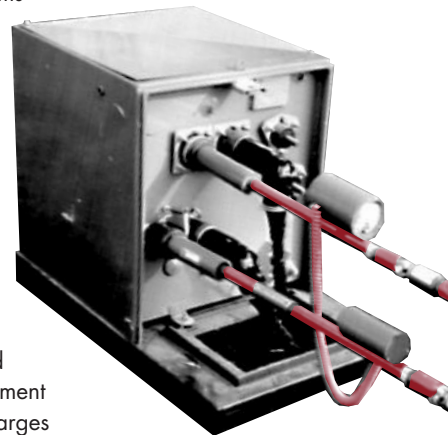
### DESCRIPTION

Our extensive line of voltmeters and phasing sets are designed to measure AC and DC voltages on conductors from phase-to-ground and phase-to-phase. These instruments also allow the user to determine if two conductors are in-phase or out-of-phase with one another. There are numerous models available with different ranges to assure the best possible range for easy readings. All models are designed for use on overhead lines and are adaptable for use on underground systems by using accessory probes.

Our analog line of voltmeters and phasing sets include the MARK® and EM series. Our digital line of voltmeters and phasing sets include the DigiVolt® series. All of the voltmeters and phasing sets feature universal splines for mounting onto hotsticks and large easy-to-read displays.

### BENEFITS

- Measure voltages from phase-to-ground and phase-to-phase up to 80kV
- Determine if two conductors are in-phase or out-of-phase
- Measure voltages and phase conductors on both overhead and underground systems
- Verify a conductor is de-energized prior to grounding
- Measure voltages in Metal Enclosed Switch Gear
- Determine whether a section of underground cable is faulted with the Cable Fault Tester (optional accessory)
- Discharge underground cables and other equipment that hold capacitive charges



®

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# analog

## Voltmeters and Phasing Sets For Phase-To-Phase and Phase-To-Ground Measurements



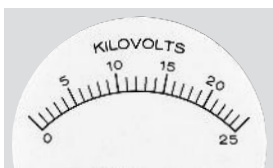
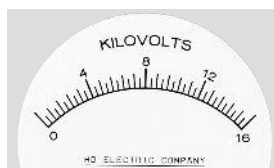
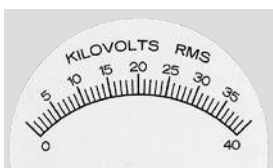
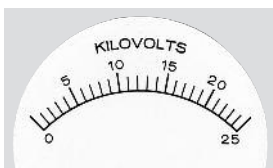
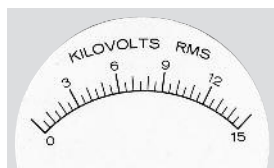
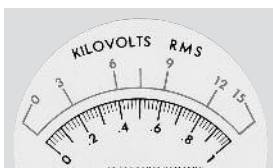
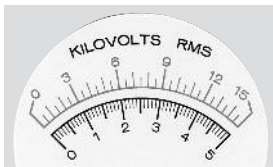
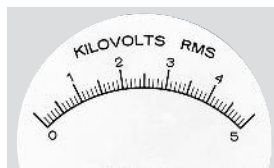
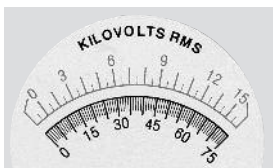
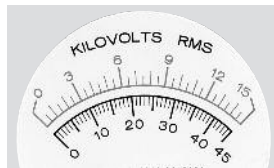
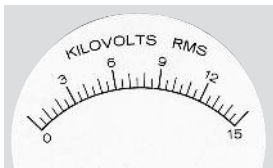
### MARK® & EM ANALOG FEATURES

There are three models of the EM series voltmeters and eleven models of the MARK series voltmeters and phasing sets. The EM series are all single stick voltmeters with one resistive probe with universal spline and ground lead, for phase-to-ground measurements only. The MARK series are all dual stick phasing voltmeters with connecting cord and universal spline for phase-to-phase and phase-to-ground measurements.

- Coil cord is standard on all MARK and EM series products. Coil cord is rated at 10kV. Length is 3.5' (1.7m) retracted and 12' (3.6m) fully extended. Optional lengths are available. Optional reel with straight cord available at no additional cost in lengths up to 22' (6.7m). Straight cord is rated at 15kV.



- Accuracy 3% of full scale
- Universal splines
- Rugged construction designed for heavy field use
- Overhead brass hook contact probes
- Large 3" (7.6 cm) meter face with a Lexan protective cover is specially designed for easy reading and increased accuracy. Multiple scales assist the user in avoiding misreads.
- Strain relief fittings at ends of cords reduce cable damage at point of highest stress
- All fiberglass is quality tested to ASTM F-711 and OSHA standards (100kV/foot for 5 minutes)
- High voltage resistors are encapsulated in epoxy in all resistor sticks, thereby limiting maximum current to approximately 1 milliamp at full rated voltage.
- Virtually maintenance free - no batteries required
- Measures DC through 1000Hz AC RMS



Model	Type of Unit	Range (kV)	Length w/Hook Probes	Unit Weight w/Hook Probes	Case (Included)
MARK-I-S	Dual Stick	0-15	23" (58 cm)	4.9 lbs. (2.2 kg)	CM-100/V
MARK-II-S	Dual Stick	0-15 / 0-45	32" (81 cm)	5.7 lbs. (2.6 kg)	CM-100/V
MARK-III-S	Dual Stick	0-15 / 0-75	23" (58 cm)	4.9 lbs. (2.2 kg)	CM-100/V
MARK-IV	Dual Stick	0-5	23" (58 cm)	4.9 lbs. (2.2 kg)	CM-100/V
MARK-V	Dual Stick	0-5 / 0-15	23" (58 cm)	4.9 lbs. (2.2 kg)	CM-100/V
MARK-VI	Dual Stick	0-5 / 0-15 / 0-45	23" (58 cm)	4.9 lbs. (2.2 kg)	CM-100/V
MARK-VII	Dual Stick	0-1 / 0-15	23" (58 cm)	4.9 lbs. (2.2 kg)	CM-100/V
MARK-VIII	Dual/Single Stick	0-15	26.5" (67 cm)	6.2 lbs. (2.8 kg)	CM-100/V
Convertible from Voltmeter (one stick w/ground cord) to Phaser (two stick) by simple plug and receptacle					
MARK-IX	Dual Stick	0-25	27" (69 cm)	5.2 lbs. (2.4 kg)	CM-100/V
MARK-XI	Dual Stick	0-5 / 0-25	27" (69 cm)	5.2 lbs. (2.4 kg)	CM-100/V
MARK-XII	Dual Stick	0-40	31" (79 cm)	5.7 lbs. (2.6 kg)	CM-100/V

\*All current MARK Models include (2) overhead hook probes and carrying case (CM-100/V). Hotsticks required for all MARK Models.

Model	Type of Unit	Range (kV)	Length w/Hook Probe	Unit Weight w/Hook Probe	Case (Optional)
EM-1	Single Stick	0-16	28" (71 cm)	3.7 lbs. (1.7 kg)	CM-100/V
EM-2	Single Stick	0-25	34" (86 cm)	4.0 lbs. (1.8 kg)	C-2
EM-3	Single Stick	0-1 / 0-15	30" (76 cm)	3.9 lbs. (1.8 kg)	CM-100/V

\*All current EM Models include (1) overhead hook probe. Carrying cases are optional. Hotstick required for all EM Models.

# digital

## Voltmeters and Phasing Sets For Phase-To-Phase and Phase-To-Ground Measurements

### DIGIVOLT® DIGITAL FEATURES

There are eight models of the DigiVolt series voltmeters and phasing sets. The DigiVolt-25T is a compact, high accuracy single stick voltmeter with capacitive test point mode and ground lead. The DVM-25T measures voltages up to 25kV and can be used in both overhead and underground applications.

The DigiVolt-80T is a compact, high accuracy dual stick voltmeter and phasing set with capacitive test point mode and connecting cord. The DVM-80 and DVM-80T models measure voltages up to 40kV and up to 80kV with a pair of optional add-on resistors. The two-stick design can be used in both overhead and underground applications. The DVM-80 models incorporate Phase Accurate Technology, which makes all voltage readings, whether made from line-to-line or line-to-ground, accurate and repeatable to within 1%.

The DigiVolt I and III are single stick voltmeters with one resistive probe, universal spline and ground lead. The DigiVolt II, IV and V are dual stick phasing voltmeters with connecting cord.

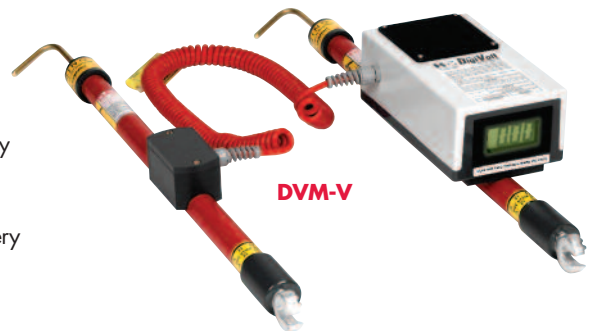
- Coil cord is standard on all DigiVolt series products. Coil cord is rated at 10kV. Length is 3.5' (1.7 m) retracted and 12' (3.6 m) fully extended. Optional lengths are available.
- Optional reel with straight cord is available on DVM-II, IV & V in lengths up to 22' (6.7m). Contact factory for details. Straight cord rated at 15kV.
- Accuracy –
  - DVM-25T and DVM-80 models within 1% of reading +/- 3 counts
  - DVM-I – DVM-V within 3% of reading +/- 3 counts
- Display – DVM-25T and DVM-80 models have 0.4" (1.0cm) LCD display with decimal point and backlight
  - DVM-I – DVM-V has 0.75" (1.9cm) LCD display with decimal point and backlight
- Auto shut-off
- Track mode
- Peak mode on DVM-I through DVM-IV
- Overhead brass hook contact probes
- Universal splines
- All fiberglass is quality tested to ASTM F-711 and OSHA standards (100kV/foot for 5 minutes)
- Operating temperature range –13F to +131F (-25C to +55C)
- Strain relief fittings on cords reduce cable damage at point of highest stress
- High voltage resistors are encapsulated in epoxy in all resistor sticks, thereby limiting maximum current to approximately 1 milliamp at full rated voltage
- Low battery indicator
- Battery – DVM-25T & DVM-80 models one (1) field replaceable 9V alkaline battery
  - DVM-I through DVM-V two (2) field replaceable 9V alkaline batteries
- Measures DC through 1000Hz AC RMS



DVM-80



DVM-25T



DVM-V

Model	Type of Unit	Range (kV)	Length w/Hook Probe(s)	Unit Weight w/Hook Probe(s)	Case (Included)	Peak Hold Mode	Capacitive Test Point Mode	RMS
DVM - 25T	Single Stick	0-25	18" (46 cm)	2.0 lbs. (0.9 kg)	CS-DVM		X	X
DVM - 80	Dual Stick	0-80 (w/add-on resistors)	18" (46 cm)	2.7 lbs. (1.2 kg)	CS-DVM			X
DVM - 80T	Dual Stick	0-80 (w/add-on resistors)	18" (46 cm)	2.7 lbs. (1.2 kg)	CS-DVM		X	X
DVM - I	Single Stick	0-20	31" (79 cm)	3.8 lbs. (1.7 kg)	CM-100/V	X		X
DVM - II	Dual Stick	0-50	31" (79 cm)	5.6 lbs. (2.5 kg)	CM-100/V	X		X
DVM - III	Single Stick	0-20	31" (79 cm)	3.8 lbs. (1.7 kg)	CM-100/V	X	X	X
DVM - IV	Dual Stick	0-50	31" (79 cm)	5.6 lbs. (2.5 kg)	CM-100/V	X	X	X
DVM - V	Dual Stick	0-20	23" (58 cm)	4.9 lbs. (2.2 kg)	CM-100/V			X

\* All current DVM Models include overhead hook probe(s) and carrying case (see chart). Hotsticks required for all DVM Models.

# ACCESSORIES



**Optional Reel with Straight Cord**

**OLPS-6** **OLPS-5**

**PT-5000B**

**Extension Hotstick**

**GCP-1**

**ASP-15/25**

**ASP-35U**

**EA-15/25**

**CFT-35**

**CS-DVM**

**B-6 Carrying Bag**

**CM-100/V Carrying Case**

Kits are available - Contact factory for details

## Optional Reel with Straight Cord

Available in lengths up to 22 feet. Cord is rated 15kV. Consult factory for details. Not available on DVM-80 units.

## Overhead Probes

- OLPS-5** Overhead Hook Brass Probe  
Dimensions: 4.5" (11.4 cm) • Weight: 0.2 lbs. (0.09 kg)
- OLPS-6** Overhead Pigtail Brass Probe  
Dimensions: 5.5" (14 cm) • Weight: 0.3 lbs. (0.14 kg)

## Proof Tester®

- PT-5000B** Test voltmeters/phasers prior to use.  
9V battery operated. 5000V output  
Dimensions: 5.75" x 3.5" x 1.5"  
(14.6 cm x 8.9 cm x 3.9 cm)  
Weight: 0.9 lbs. (0.41 kg)

## Insulated UD Probe

- GCP-1** General Contact Underground Distribution Probe  
Dimensions: 3" (7.6 cm) • Weight: 0.3 lbs. (0.14 kg)

## Insulated UD Bushing Probes

- ASP-15/25** 15kV & 25kV Class  
Insulated UD Probe for Loadbreak Bushings  
Dimensions: 9" (23 cm) • Weight: 0.9 lbs. (0.41 kg)
- ASP-35U** 35kV Insulated UD Probe for Loadbreak Bushings  
Designed for both Elastimold and Cooper (RTE) bushings  
Dimensions: 9.5" (24 cm) • Weight: 1.5 lbs. (0.68 kg)

## UD Loadbreak Elbow Probe

- EA-15/25** 15kV & 25kV Class UD Loadbreak Elbow Probe  
Dimensions: 10" (25 cm) • Weight: 1.1 lbs. (0.50 kg)

## Cable Fault Tester

- CFT-35** For use up to 35kV system voltages (20kV phase-to-ground)  
Dimensions: 14" (36 cm) • Weight: 0.8 lbs. (0.36 kg)

## Add-On Resistor Sticks

- R-45** Resistor stick for MARK-VI, pair required  
Length: 16" (41 cm) Weight: 1 lb (0.45 kg)
- R-75** Resistor stick for MARK-III, pair required  
Length: 27" (69 cm) Weight: 1.52 lbs (0.69 kg)
- R-80** Resistor stick for DVM-80 models, pair required  
Length: 10.5" (27 cm) Weight: 0.74 lbs (0.34 kg)

## Extension Hotsticks

- S-4H** Extension hotstick with universal spline, foam filled, 1-1/4" diameter fiberglass. Length: 4' (1.2 m) • Weight: 2 lbs. (0.91 kg)
  - S-6H** Extension hotstick with universal spline, foam filled, 1-1/4" diameter fiberglass. Length: 6' (1.8 m) • Weight: 3 lbs. (1.36 kg)
- Other lengths and telescopic hotsticks available – contact factory for details

## Carrying Bags

- B-6** Vinyl carrying bag for 4' and 6' extension hotsticks  
Dimensions: 77" x 15" (196 cm x 38 cm)  
Weight: 2.4 lbs. (1.09 kg)
- B-7** Vinyl carrying bag  
Dimensions: 29" x 6" (75 cm x 15 cm)  
Weight: 1.7 lbs. (0.77 kg)

Telescopic hotstick carrying bags available – contact factory for details

## Carrying Cases

- CM-100/V** Metal Case for all current MARK models, DVM models I - V, EM-1 & EM-3  
Dimensions: 30" x 8" x 9" (76 cm x 20 cm x 23 cm)  
Weight: 12 lbs. (5.44 kg)
- CS-DVM** Plastic Case for DVM-25T and DVM-80 models  
Dimensions: 20" x 10" x 10.5" (50 cm x 25 cm x 27 cm)  
Weight: 7 lbs. (3.17 kg)
- C-2** Aluminum Case for EM-2  
Dimensions: 42" x 8" x 5" (107 cm x 20 cm x 13 cm)  
Weight: 7.1 lbs. (3.22 kg)
- C-5** Aluminum Case for all current MARK models, DVM models I - V, EM-1 & EM-3  
Dimensions: 29" x 8" x 5" (74 cm x 20 cm x 13 cm)  
Weight: 5.3 lbs. (2.40 kg)

All sales are subject to the terms and conditions of the Limitation of Warranty and Liability set forth in the product Instruction Manual and at [www.HDElectricCompany.com](http://www.HDElectricCompany.com).

Users must read and agree to the Limitation terms, as stated, before using the product.

HD Electric Company is committed to ongoing review and improvement of its product lines, and thus reserves the right to modify product design and specifications without notice.

HD Electric Company products are available through HD sales representatives worldwide.

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