

# **Product Guide** Protection and Control

## **VOLTAGE AND FAULT INDICATORS**









- Advanced AccQTrip<sup>™</sup> Design Improves Accuracy, Performance and Reliability
- 5kV thru 35kV Rated for Underground and Overhead System Applications
- Easily Installed Test Point or Cable Clamp Mounting Styles
- Compact, Sealed, Corrosion Resistant Construction
   With Provision for Hotstick Installation and Operation
- Accurate Voltage and Phase Indicators
- Fault Indicators Include Choice of:
   Voltage or Time Reset
   Mochanical Flag or Flacking LED Di
  - Mechanical Flag or Flashing LED Display
- Units are Self Powered and Feature Automatic Trip and Reset Functions
- Exceeds ANSI/IEEE 495-1986





### **VOLTAGE AND FAULT INDICATORS**

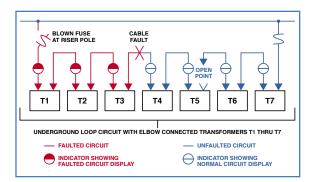
#### **Protection and Control Products**

Nowadays electric power underground distribution systems demand high performance in the form of improved reliability, improved power quality, reduced operational and maintenance costs, and flexibility of operation. These can be accomplished by sectionalizing feeders, installing equipment with minimal maintenance/installation costs, installing protection and/or automatic source transfer equipment, and providing ways to monitor the system and quickly locate a fault.

#### Thomas & Betts' Elastimold® Voltage and Fault Indicators aid

in the location and isolation of the faulted cable or equipment in overhead and underground distribution systems through 35kV. This product guide details the different types of faulted circuit indicators, voltage indicators, and phase indicators. With a complete line of elbow test point mount and cable mount indicators, you will find the best product to meet your system's performance needs.

**BENEFIT/DESCRIPTION** 



Fault Indicators reduce outage duration by quickly pinpointing the location of the fault. As shown in the circuit diagram, the fault is located between the last tripped indicator and the first untripped indicator. Once identified, this section is switched to become the new open point, allowing full service restoration to the rest of the customers during repairs.

AccQTrip™ "Off The Trip" Logic Circuitry	Prevents false tripping due to transient current surges or system overloading.
AccQClamp™ Self Adjusting Mounting Provision	No need for customer to specify cable O.D. when ordering cable mount FCI's. The AccQClamp™ maintains 10% trip accuracy over the entire clamping range (.4"-2.2"), and is composed of U.V. stable polycarbonate, stainless steel reinforced materials.
Voltage and/or Time Reset Fault Indicators	Eliminates false resetting and false tripping associated with current (reset) dependent FCI's. Ideal for use on lightly loaded circuits where sufficient current may not be available to reliably energize a current reset type fault indicator. Automatic reset upon restoration of system voltage and/or time reset after 4 hours.
High/Low Trip Setting Selection	Coordinates FCI's with current limiting fuses. No minimum load current requirements and no load surveys needed.
Inrush Restraint Circuitry	Coordinates FCI's with circuit breaker or auto reclosure operation, avoiding mis-indication due to inrush currents.
Internal Adjacent Phase Shielding	Prevents electro-magnetic interference from adjacent phase conductors.
1 mSec. Trip Response Time	Coordinates FCI's with current limiting fuses, and other protective devices.
Universal Style Fault Indicators	Reduces part numbers and inventory, simplifying the application and ordering process.
Quality Manufacturing Processes	Manufactured using state-of-the-art surface mount technology, and premium quality electronic components, for the highest degree of performance and reliability. All fault indicators meet or exceed ANSI/IEEE Standard 495-1986.



### **AccQTrip™ LOGIC OPERATION**

#### Faulted Circuit Operation

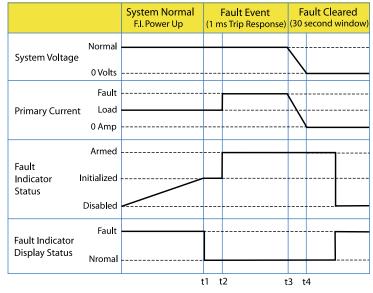
#### **Faulted Circuit Operation**

**t1** – Fault Indicator is connected to the system and powers up. At 5kV, this takes 3 min. in the case of the test point mounted unit, and 6 min. in the case of the overhead type unit. At higher voltages the power up time is shorter.

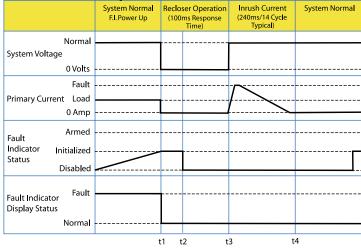
**t2** – Fault current is detected. Fault Indicator is Armed after 1ms. Fault Indicator display shows Normal.

t3 – Breaker/recloser trips open and voltage drops.

**t4** – Voltage is lost. A 30 second time window allows for the protective device to clear the fault, and reclose. If the fault persists the Fault Indicator shows Fault.



#### **Inrush Restraint Operation**



#### **Inrush Restraint Operation**

**t1** – Fault Indicator is connected to the system and powers up. At 5kV, this takes 3 min. in the case of the test point mounted unit, and 6 min. in the case of the overhead type unit. At higher voltages the power up time is shorter.

t1 - t2 - Upline recloser / breaker operation due to fault on another phase. After 100ms (t2) the Fault Indicator is disabled because there is no fault current detected.
t3 - Recloser closes back. Voltage is back to normal. Unfaulted phases see Inrush. No change in Fault Indicator.

#### **Overloading Operation**

**t1** – Fault Indicator is connected to the system and powers up. At 5kV, this takes 3 min. in the case of the test point mounted unit, and 6 min. in the case of the overhead type unit. At higher voltages the power up time is shorter.

t2 – Device downline from Fault Indicator switches creating an overload. Fault Indicator is Armed after 1ms.Fault Indicator display shows Normal.

**t3** – More than 100ms without voltage loss. Fault Indicator does not change state.

**t4** – After 30 sec. Fault Indicator goes back to initialized state.

#### **Overloading Operation**

		System Normal F.I. Power Up	Overload	Event	Syst	em Normal
	Normal					
System Voltage						
	0 Volts					
	Fault					
Primary Current	Load					
	0 Amp					
	Armed					
Fault Indicator Status						
	Initialized					
	Disabled					
Fault Indicator Display Status	Fault					
	Norma					
L		t	1 t2	t <sup>2</sup>	<b>λ</b> τ	1



### **TEST POINT MOUNTED FAULT INDICATORS**

### **TPM Series**

#### **Standard Features**

- AccQTrip<sup>TM</sup> Logic Circuitry Prevents false indications due to inrush currents, cold load pickup, and overloading
- High/Low Trip Setting Selection No minimum load current requirement, and no load surveys needed.
- Inrush Restraint Avoids misindication
- Internal Magnetic Shielding Prevents adjacent phase effects
- Trip Response .001 Seconds Coordinates with current limiting fuses, as well as other protection devices
- Magnetically Latched Flag Indication Flag Indication will not change state due to shock or vibration
- Light Weight, Compact and Sealed

**Test Point Mounted Fault Indicators** provide a clear, visual means for locating faulted cables and equipment on underground distribution systems. Indicators are self-powered and consist of a solid state current sensor connected to a faulted circuit display. Designs incorporate advanced circuit logic, monitoring system protection operation and preventing indicator tripping unless an overcurrent condition is followed by a loss of system voltage. Trip and reset operations are automatic and the same indicator may be used for 5KV thru 35KV applications.

Units are designed to mount directly to 200 & 600 Amp elbows, splices and other cable accessory components equipped with IEEE 386 Standard capacitive test points. Indicators include a universal mounting provision allowing installation on test point products as manufactured by Elastimold and others.

Designs feature compact, shielded and sealed, corrosion resistant construction. The indicator is enclosed in a rugged, impact resistant Lexan housing and includes an EPDM molded rubber, test point mounting boot. A built-in pulling eye allows for easy hotstick installation and removal of the indicator from the test point.

### **Basic Operation**

A faulted circuit produces an associated magnetic field which closes a reed switch in the indicator resulting in a tripped display. Trip response occurs in .001 seconds allowing the fault indicator to properly coordinate with all types of circuit protection schemes including current limiting fuses.

To eliminate confusing false trips, indicators are equipped with inrush, overload and cold load pick up restraint circuitry as standard. Current sensors are constructed with internal shielding to prevent inadvertent tripping when located in close proximity to adjacent phases, such as junction mounted applications.





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### **TEST POINT MOUNTED FAULT INDICATORS**

### **TPM Series**

#### Specifications for TPM Voltage Reset, Flag Display: Model TPMVF

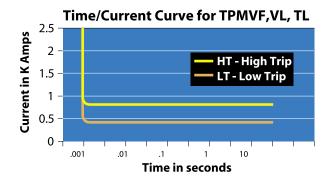
ter and the second s	
Nominal Trip Ratings	Low, 400 Amp; High, 800 Amp
Response Time	1mS
Sensor Indication Time Delay <sup>1</sup>	.00130 Sec. Subsequent To Arming
Maximum Surge Level	25kA 10 Cycles 60 Hz
Effect of Adjacent Phase	Internal Shielding Prevents Adjacent Phase Effects
Inrush Restraint Response	100mS (Disable Delay)
Load Current Requirements	None
Display Type	Mechanical Flag
Minimum Reset Voltage	5KV (Beginning Initializing Sequence)
Voltage Reset Time	3 Minutes @ 5KV
Power Source	Volt Test Point Powered
Temperature Range	-40°C To +85°C
Housing Material	Mounting BootEPDM Conductive Rubber Housing BodyUV Stabilized Polycarbonate Polymer
Weight	258 Grams

#### Specifications for TPM Voltage Reset, LED Display: Model TPMVL

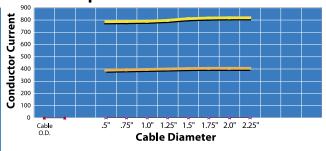
Nominal Trip Ratings	Low, 400 Amp; High, 800 Amp
Trip Response Time	1mS
Fault Clearing Time <sup>1</sup>	.00130 Sec. Subsequent To Arming
Maximum Surge Level	25kA 10 Cycles 60 Hz
Effect of Adjacent Phase	Internal Shielding Prevents Adjacent Phase Effects
Inrush Restraint Response	100mS (Disable Delay)
Load Current Requirements	None
Power Up Requirement	3 Minutes @ 5kV
Display Type	Flashing Super Bright LED
Flash Rate	30 Flashes per Minute
LED Display Time	4 HourStandard
Voltage Reset Time	3 Minutes @ 5kV
Power Source <sup>3</sup>	3.6 volt Lithium Thyonil Chloride Cell
Battery Capacity	2.4 Ah
Battery Operating Life	1200 Flash Hours Minimum
Battery Storage Life	15-20 Years
Temperature Range	-40°C To +85°C
Housing Material	Mounting BootEPDM Conductive Rubber
	Housing BodyUV Stabilized
Mainha	Polycarbonate Polymer
Weight	258 Grams

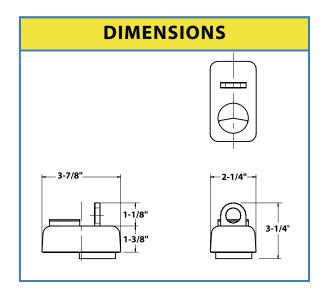
#### Specifications for TPM Time Reset, LED Display: Model TPMTL<sup>2</sup>

Nominal Trip Ratings	Low, 400 Amp; High, 800 Amp
Trip Response Time	1mS
Maximum Surge Level	25ka 10 Cycles 60 Hz
Effect of Adjacent Phase	Internal Shielding Prevents Adjacent Phase Effects
Power Up Requirement	None
Display Type	Flashing Super Bright LED
Flash Rate	30 Flashes per Minute
Reset Time	4 HourStandard
Power Source <sup>3</sup>	3.6 volt Lithium Thyonil Chloride Cell
Battery Capacity	2.4 Ah
Battery Operating Life	1200 Flash Hours Minimum
Battery Storage Life	15-20 Years
Temperature Range	-40℃ To +85℃
Housing Material	Mounting BootEPDM Conductive Rubber
	Housing BodyUV Stabilized
	Polycarbonate Polymer
Weight	258 Grams



**Trip Point vs. Cable Diameter** 





#### Footnotes

- 1) Prevents false trips due to short time interruptions without loss of voltage.
- 2) Inrush restraint is standard on voltage reset models. It is not available on time reset models.

3) Cell powers LED and it is active only when LED is ON. Lithium Thyonil Chloride Cells provide accurate indication throughout the entire temperature range.



### **URD CABLE MOUNTED FAULT INDICATORS**

### **UCM** Series

#### **Standard Features**

- AccQClamp<sup>TM</sup> Mounting Provision Universal one-size-fits-all design automatically adjusts
- High/Low Trip Setting Selection No minimum load current requirement, and no load surveys needed.
- Trip Response .001 Seconds Coordinates with current limiting fuses, as well as other protection devices
- Internal Magnetic Shielding Prevents adjacent phase effects

**URD Cable Mounted Fault Indicators** aid in locating faulted cables and equipment on underground distribution systems. Indicators are self powered and consist of a solid state current sensor connected to faulted circuit display.

Units are designed for direct installation to an underground power cable using a spring loaded, over center toggle clamp mounting provision. The clamp accommodates cables ranging from .4 to 2.2 inches in diameter and includes retainer pads to prevent slip and twist. The clamp positions the cable conductor at a constant distance from the current sensor, maintaining indicator trip accuracy over the entire range of cable sizes.

Designs feature compact, shielded and sealed, corrosion resistant construction. The indicator is enclosed in a durable, impact resistant Lexan housing and includes a built-in pulling eye for easy hotstick installation and removal from the cable.

### **Basic Operation**

A faulted circuit produces an associated magnetic field which closes a reed switch in the indicator resulting in a tripped display. Trip response occurs in .001 seconds allowing the fault indicator to properly coordinate with all types of circuit protection schemes including current limiting fuses.

URD Cable Mounted Fault Indicators are constructed with an internally shielded current sensor that prevents inadvertent tripping when located in close proximity to adjacent phases, such as junction mounted applications.







### **URD CABLE MOUNTED FAULT INDICATORS**

### **UCM Series**

#### Specifications for UCM Time Reset, LED Display: Model UCMTL

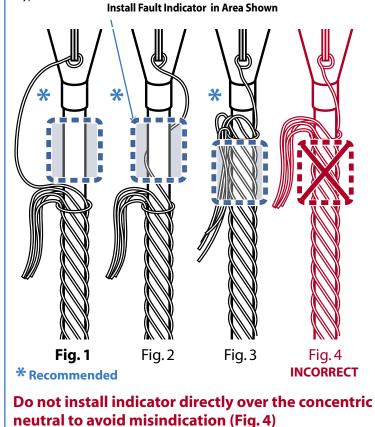
Nominal Trip Ratings	Low, 400 Amp; High, 800 Amp
Trip Response Time	1mS
Maximum Surge Level	25ka 10 Cycles 60 Hz
Effect of Adjacent Phase	Internal Shielding Prevents Adjacent Phase Effects
Display Type	Flashing Super Bright LED
Flash Rate	30 Flashes per Minute
Reset Time	4 HourStandard
Power Source <sup>1</sup>	3.6 volt Lithium Thyonil Chloride Cell
Battery Capacity	2.4 Ah
Battery Operating Life	1,200 Flash Hours Minimum
Battery Storage Life	15-20 Years
Temperature Range	-40°C To +85°C
Housing Material	Mounting Boot–EPDM Conductive Rubber Housing BodyUV Stabilized Polycarbonate Polymer
Weight	258 Grams

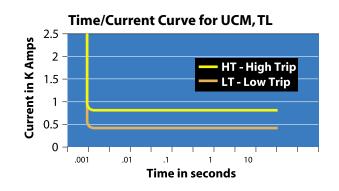
#### Footnote

1) Cell powers LED and it is active only when LED is ON. Lithium Thyonil Chloride Cells provide accurate indication throughout the entire temperature range.

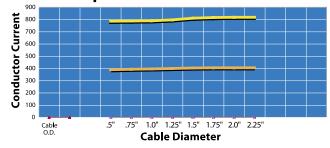
### **TYPICAL INSTALLATION**

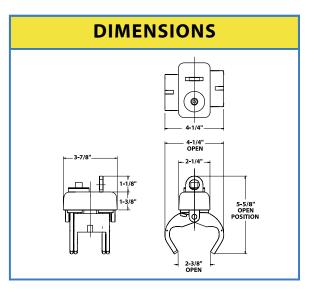
As shown below, proper installation of URD Cable Mounted Fault Indicators requires routing cable neutral wires to prevent the ground return from affecting trip accuracy. Similar procedures should be followed for tape, wire, LC or other types of shielded cable constructions.





**Trip Point vs. Cable Diameter** 







### **OVERHEAD LINE MOUNTED FAULT INDICATORS**

### **OLM Series**

#### **Standard Features**

- AccQTrip<sup>TM</sup> Logic Circuitry Prevents false indications due to inrush currents, cold load pickup, and overloading
- AccQClamp<sup>TM</sup> Mounting Provision Universal one-size-fits-all design automatically adjusts
- High/Low Trip Setting Selection No minimum load current requirement, and no load surveys needed
- Trip Response .001 Seconds Coordinates with current limiting fuses, as well as other protection devices
- Internal Magnetic Shielding Prevents adjacent phase effects
- Magnetically Latched Flag Indication Flag Indication will not change states due to shock or vibration
- Light Weight, Compact and Sealed

**Overhead Line Fault Indicators** aid in locating faulted circuits and equipment on overhead distribution systems. Indicators are self powered and consist of a solid state current sensor connected to a faulted circuit display. Designs incorporate advanced circuit logic, monitoring system protection operation and prevent indicator tripping unless an overcurrent condition is followed by a loss of system voltage. Trip and reset operations are automatic and the same indicator may be used for 5KV thru 35KV applications.

Units are designed for direct installation to the overhead line using a spring loaded, over center, toggle clamp mounting provision. The clamp accommodates conductors ranging from .4 to 2.2 inches in diameter and includes retainer pads to prevent slip and twist. The clamp positions the conductor at a constant distance from the current sensor, maintaining indicator trip accuracy over the entire range of conductors.

Designs are compact, sealed and corrosion resistant.

### **Basic Operation**

A faulted circuit produces an associated magnetic field which closes a reed switch in the indicator resulting in a tripped display. Trip response occurs in .001 seconds allowing the fault indicator to properly coordinate with all types of circuit protection schemes including current limiting fuses.

To eliminate confusing false trips, indicators are equipped with inrush, overload and cold load pick up restraint circuitry as standard. Current sensors are constructed with internal shielding to prevent inadvertent tripping when located in close proximity to adjacent phases.









### **OVERHEAD LINE MOUNTED FAULT INDICATORS**

### **OLM Series**

#### Specifications for OLM Voltage Reset, Flag Display: Model OLMVF

Nominal Trip Ratings	Low, 400 Amp; High, 800 Amp
Trip Response Time	1mS
Fault Clearing Time <sup>1</sup>	.00130 Sec. Subsequent To Arming
Maximum Surge Level	25kA 10 Cycles 60 Hz
Effect of Adjacent Phase	Internal Shielding Prevents Adjacent Phase Effects
Inrush Restraint Response	100mS
Load Current Requirements	None
Display Type	Mechanical Flag
Minimum Reset Voltage	5KV
Voltage Reset Time	6 Minutes @ 5KV
Temperature Range	-40°C To +85°C
Housing Material	Mounting BootEPDM Conductive Rubber
	Housing BodyUV Stabilized
	Polycarbonate Polymer
Weight	258 Grams

#### Specifications for OLM Voltage Reset, LED Display: Model OLMVL

Nominal Trip Ratings	Low, 400 Amp; High, 800 Amp
Trip Response Time	1mS
Fault Clearing Time <sup>1</sup>	.00130 Sec. Subsequent To Arming
Maximum Surge Level	25kA 10 Cycles 60 Hz
Effect of Adjacent Phase	Internal Shielding Prevents Adjacent Phase Effects
Inrush Restraint Response	100mS
Load Current Requirements	None
Display Type	Flashing Super Bright LED
Flash Rate	30 Flashes per Minute
LED Display Time	4 HourStandard
Voltage Reset Time	6 Minutes @ 5kV
Power Source <sup>3</sup>	3.6 volt Lithium Thyonil Chloride Cell
Battery Capacity	2.4 Ah
Battery Operating Life	1,200 Flash Hours Minimum
Battery Storage Life	15-20 Years
Temperature Range	-40°C To +85°C
Housing Material	Mounting BootEPDM Conductive Rubber
	Housing BodyUV Stabilized
	Polycarbonate Polymer
Weight	258 Grams

#### Specifications for OLM Time Reset, LED Display: Model OLMTL<sup>2</sup>

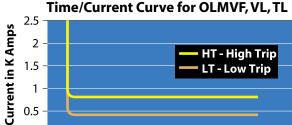
Nominal Trip Ratings	Low, 400 Amp; High, 800 Amp
Trip Response Time	1mS
Maximum Surge Level	25ka 10 Cycles 60 Hz
Effect of Adjacent Phase	Internal Shielding Prevents Adjacent Phase Effects
Power Up Requirement	None
Display Type	Flashing Super Bright LED
Flash Rate	30 Flashes per Minute
Reset Time	4 HourStandard
Power Source <sup>3</sup>	3.6 volt Lithium Thyonil Chloride Cell
Battery Capacity	2.4 Ah
Battery Operating Life	1200 Flash Hours Minimum
Battery Storage Life	15-20 Years
Temperature Range	-40°C To +85°C
Housing Material	Mounting BootEPDM Conductive Rubber Housing BodyUV Stabilized Polycarbonate Polymer
Weight	258 Grams

#### Footnotes

1) Prevents false trips due to short time interruptions without loss of voltage.

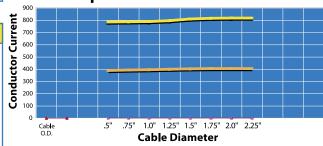
2) Inrush restraint is standard on voltage reset models. It is not available on time reset models.

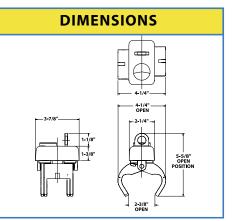
3) Cell powers LED and it is active only when LED is ON. Lithium Thyonil Chloride Cells provide accurate indication throughout the entire temperature range.

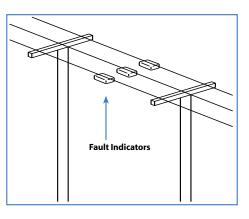




**Trip Point vs. Cable Diameter** 









### **TEST POINT MOUNTED NEON VOLTAGE INDICATORS**

### V2 Series

**Test Point Mounted Neon Voltage Indicators** provide a convenient, visual method for determining the energized status of underground distribution circuits. The indicator consists of a self-powered voltage sensor connected to a neon light that flashes when energized. Flash rate is proportional to the system voltage and the same indicator may be used for 5KV thru 35KV applications.

Units are designed to mount directly to 200 & 600 Amp elbows, splices and other cable accessory components equipped with IEEE 386 Standard capacitive test points. Indicators include a universal mounting provision allowing installation on test point products as manufactured by Elastimold and others.

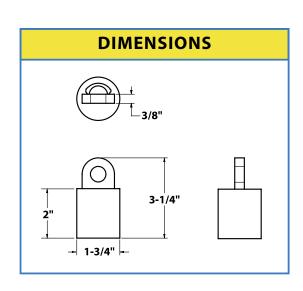
Designs feature compact, shielded and sealed, corrosion resistant construction. The indicator is enclosed in a durable EPDM molded rubber housing and includes a built-in pulling eye for easy hotstick installation and removal of the indicator from the test point.

### **Self Powered Flashing Neon Display**

Elastimold Voltage Indicators are self powered from the test point and are provided with a 20-year, long life neon bulb. A reflective background surrounds the bulb to provide increased brightness. Flash rate per minute is proportional to the phase to phase system voltage with output as follows:

Voltage	Flash Rate
5KV	20
10KV	40
15KV	70
20KV	100
25KV	140
30KV	160
35KV	180





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### **PHASE & VOLTAGE INDICATOR TEST TOOL**

### **PD35 Series**

### **Standard Features**

Used for determining the correct phasing and energized status of single and three phase underground distribution circuits, rated 5KV thru 35KV. The unit has been specifically designed for use on 200 & 600 Amp elbows, splices and other cable accessory components equipped with IEEE 386 Standard capacitive test points. The tool eliminates direct exposure to high voltage while using established indirect test methods for capacitance-coupled, cable connection test points.

The Phase & Voltage Indicator is designed for hotstick operation and includes universal end fittings for convenient mounting to existing hotsticks. The unit is lightweight, portable and selfpowered by a built-in, replaceable, standard 9-volt battery. The tool features rugged, impact resistant construction and easily readable LED indicator lights. Advanced low impedance, solid state circuitry provides accurate and reliable readings with sensitivity as low as 1.5KV phase to ground.

#### **Basic Operation**

- 1. Attach the metered probe to a hotstick and connect the BLACK ground lead.
- 2. Switch the meter to the ON position. The red LED power light will illuminate indicating that battery voltage is sufficient. All other LED indicators will momentarily light up showing that the meter is operating properly.

#### 3. To test for voltage:

- Touch the metered probe to the test point on the cable connection.
- The amber PHASE 1 LED indicator light will illuminate showing that the high voltage circuit is energized.

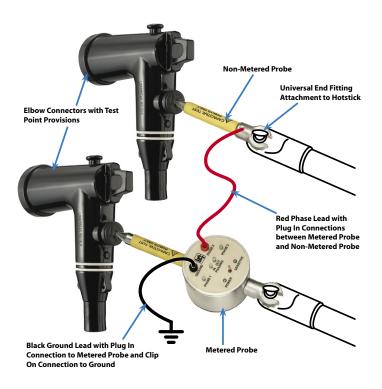
#### 4. To test for proper phasing:

- Attach the non-metered probe to an additional hotstick and connect the RED phase lead from the metered probe to the non-metered probe.
- Touch one probe to the test point on one of the cable connections. Touch the other probe to the test point on the other cable connection.
- The amber PHASE 1 and PHASE 2 LED indicator lights will illuminate showing that each of the high voltage circuits are energized.
- If the circuits are IN PHASE the green LED will illuminate. If the circuits are OUT of PHASE the red LED will illuminate.

#### Ordering Information

To order a Phase & Voltage Indicator: **Specify Catalog Number PD35.** Units are furnished complete with battery, 10-foot test leads, operating instructions and a foam lined carrying case.







### **ORDERING INFORMATION**

#### **Ordering Overview**

Elastimold Fault Indicators are available in three mounting styles: Test Point Mount (TPM), Overhead Line Mount (OLM), and Underground Cable Mount (UCM).

To Select a Catalog Number, complete the steps outlined below:

Step 1: From TABLE 1, select a catalog prefix based on Mounting Style, Reset Type, and Display Options.

**Step 2:** Select a catalog suffix based on the Application.

### **Application - General Guidelines for Trip Selection**

- 1. All fused taps use LOW trip rating (Suffix LT).
- 2. For 200 Amp. URD applications, use LOW trip rating (Suffix LT).
- 3. For 600 Amp. URD applications, use HIGH trip rating (Suffix HT).
- 4. For overhead bulk feeder applications, use HIGH or LOW trip ratings (whichever is greater than the minimum pickup setting of the related protection device).

Example: To order a Test Point Mount, Voltage Reset with Flag Display for Low Trip application, specify catalog number TPMVF-LT.

BLE 1 - CAIALOG PREFIX			
Catalog Number	Description	Reset Operation	
<b>TEST POINT </b>	NOUNT		
TPMTL	Time Reset with LED Display	Indicator auto-resets to normal after a four-hour time duration. Indicator may also be manually reset using an FTT test tool.	
TPMVF	Voltage Reset with Flag Display	Indicator auto-resets to normal after system voltage restoration. Reset requires 5kV minimum voltage to operate. Reset operation time is proportional to system voltage.	
TPMVL	Voltage Reset with LED Display	Example: at 15kV, reset occurs 30 seconds after system voltage restoration.	
V2	Voltage Indicator with Neon Display	Indicator auto-resets to normal after system voltage restoration.	
URD CABLE	MOUNT		
UCMTL	Time Reset with LED Display	Indicator auto-resets to normal after a four-hour time duration. Indicator may also be manually reset using an FTT test tool.	
OVERHEAD L	INE MOUNT		
OLMVF	Voltage Reset with Flag Display	Indicator auto-resets to normal after system voltage restoration. Reset requires 5kV minimum voltage to operate. Reset operation time is proportional to	
OLMVL	Voltage Reset with LED Display	system voltage. Example: at 15kV, reset occurs 30 seconds after system voltage restoration.	
OLMTL	Time Reset with LED Display	Indicator auto-resets to normal after a four-hour time duration. Indicator may also be manually reset using an FTT test tool.	

#### TABLE 1 - CATALOG PREFIX

AccQTrip<sup>™</sup> and AccQClamp<sup>™</sup> are trademarks of Quality Indications, Inc.



### **TESTING & ACCESSORIES**

#### **Voltage Indicator Test Box**

Permits field testing of V2 Voltage Indicators and provides assurance that the indicator is properly functioning. The test box is lightweight, portable and self powered by replaceable C-Size batteries. The unit includes a standard Elastimold test point, a push to test button, a green LED operation indicating light and a rugged, impact resistant plastic housing.

#### **Basic Operation**

- 1. Mount the Neon Voltage Indicator to the test point provision on the test box.
- 2. Push and hold the test button to energize the test point. The green LED light will flash indicating that battery voltage is sufficient and that the test box is operating properly.
- 3. Continue holding the test button until the Neon Voltage Indicator begins to flash. If flashing does not occur after approximately 30 seconds then the Neon Voltage Indicator is defective and should be discarded.



#### **Ordering Information**

To order a Voltage Indicator Test Box: **Specify Catalog Number V2TB.** Units are furnished complete with batteries and operating instructions. Overall dimensions are: 5-3/8" wide X 4" high X 2-3/8" deep.



#### **Field Test Tool**

Permits field testing and reset of fault indicators and provides assurance that the indicator is properly functioning. The test tool is light weight, portable and incorporates a built-in magnet which operates the indicator trip and reset functions. The unit is equipped with provisions for hotstick handling and operation.

**Ordering Information** To order a Field Test Tool: **Specify Catalog Number FTT.** Overall dimensions are 2" wide x 3" high x 5/8" deep.



**SPECIFICATION NOTES** 



**APPLICATION NOTES** 



# **Protection and Control**

**VOLTAGE AND FAULT INDICATORS** 



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Catalog# PC-V.F. INDICATORS-0903