

Capteurs de courant et de tension pour coudée 600 Amp "T" Body

Systèmes de surveillance d'alimentation -Moyenne Tension souterrain "Advanced Smart Grid"

- Détecte les défauts de câbles souterrains
- Donne de l'information précise vers le système d'opération
- Assure un contrôle de transfert automatique avec des signaux fiables

" Lindsey ElbowSense™ "

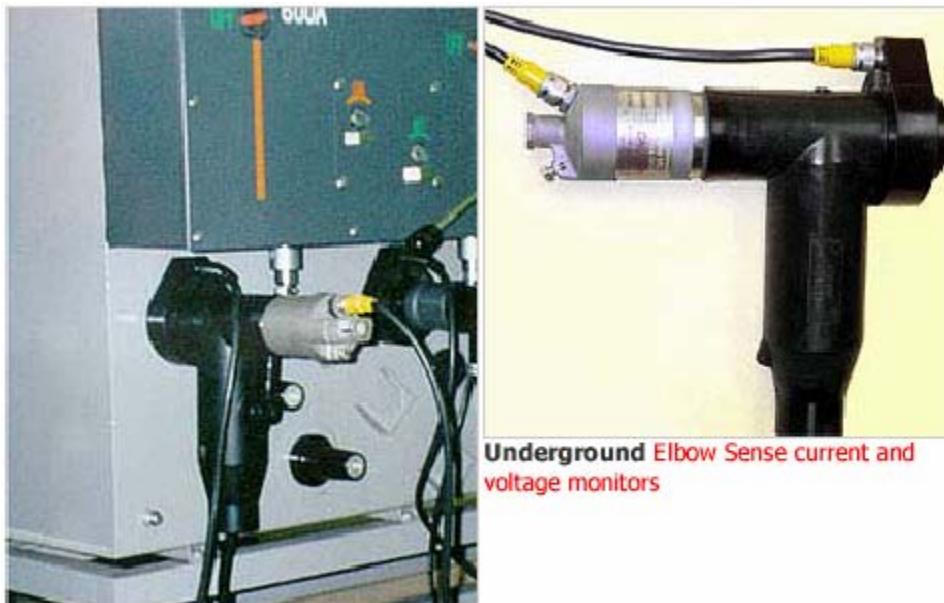
Capteurs de tension à insertion et capteurs de courant de type anneau, s'ajustent aux coudées standards 600 Amp "T" Body.

Ces capteurs sont facilement adaptables aux installations existantes pour les transformateurs sur socle ou pour les installations en voûtes.

Ces capteurs qui ont précision élevée, avec seulement 1% de marge d'erreur, peuvent également être utilisés à l'extérieur, avec les équipements qui emploient des coudées standards. Les capteurs de tension et de courant sont fournis avec un 10 pieds de câble imperméable, les connecteurs et tout l'ensemble sont résistants à la de corrosion

Le système "ElbowSense" qui surveille l'alimentation, intègre les mesures du capteur de courant et de tension, aux systèmes de haute performance du "Power Measurement RTU".

Le Power Measurement DNP3 SCADA RTU, est logé dans un boîtier submersible, qui surveille plus de 34 différentes valeurs de mesure de puissance, y compris les surtensions, les Watts, VAR, facteur de puissance, % THD et fréquence, avec un système de communication sans fil, qui communique à votre système SCADA et ainsi tirer profit du réseau de communication de votre "Smart Grid"



Underground Elbow Sense current and voltage monitors

Current and Voltage Sensors for 600 Amp “T” Body Medium Voltage Underground Advanced Smart Grid Power Monitoring Systems

- Detect underground cable fault location
- Accurate load data to system operator
- Control auto-transfer with reliable signals

Lindsey ElbowSense™ voltage plug sensors and current ring sensors fit standard 600 A T body connectors. These sensors are easily retrofitted to existing pad mount or submersible equipment using standard hot stick tools. These 1% accurate sensors may also be used with outdoor, overhead mounted equipment that use standard elbows. Both voltage plug sensors and current ring sensors are provided with a 10 foot waterproof, corrosion resistant, cable and connector in a standard 10 foot length.

ElbowSense Power Monitoring Systems integrate Lindsey current and voltage sensor measurements into a high performance Advanced Power Measurement RTU.

The Advanced Power Measurement DNP3 SCADA RTU , which is housed in a submersible enclosure, monitors more than 34 different power measurement values including Voltage, Current, Watts, VAR, Power Factor, % THD and Frequency, wirelessly communicating to your SCADA system or leveraging your Smart Grid communication network.



Current Sensor Spec.

Accuracy: ±0.3% Standard Ring, ±1.0% Split Current Ring

Phase Shift: 0 degrees nominal, ± 0.5 degrees

Operating Temperature Range: -40°C to +65°C

Ratio: 600Amp : 10Volt 600Amp : 5Amp 600Amp : 1Amp 300Amp : 5Amp

Burden: 10,000 Ohms, MIN. 0.9 Ohms, Max. 22.5 Ohms, Max. 0.22 Ohms, Max.

Max Open Circuit Voltage @ 600 Amps: 10 14.5 88 8

Voltage Sensor Spec.

Output Impedance: Standard calibration is for a 1 megohm load, other calibrations optional

Accuracy: ±1%

Phase Shift: 0 degrees nominal ±0.5 degrees

Insulation Class: 15kV 25kV 35kV

BIL (kV): 95 125 150

Weight (lbs): 8 8 13


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CURRENT AND VOLTAGE SENSORS

General Information



Overhead Current and Voltage Monitoring Insulators (CVMI)

Many electric utilities are using Distribution Automation (DA) for both overhead and underground systems. DA systems enable a utility to monitor, coordinate and operate distribution systems in real time mode from remote locations. Utilities that have installed DA systems have experienced the greatest benefits in the following areas:

- Reduced customer outage minutes per year
- Increased revenues due to faster restoration in problem areas
- Reduced customer complaints
- Reduced system losses



Underground Elbow Sense current and voltage monitors

These benefits are realized by:

- Automatic feeder reconfiguration
- Providing data to system operators during emergency conditions for sectionalizing
- Monitoring and data-logging circuits
- Detecting equipment failures, transients or harmonics
- Reducing VARs in substations and feeders by intelligent control of capacitor banks

Full scale implementation of DA has been limited by the high initial cost of equipment. But in the last few years the cost of remote terminal units (RTU) and communication equipment has decreased steadily while reliability has been increasing.

A former obstacle has been a lack of economical devices to accurately measure current and voltage in remote locations. However, Lindsey Manufacturing Co. has eliminated that

obstacle, and created a complete line of accurate, cost effective, **overhead** and **underground** Current and Voltage Sensors. These Lindsey Current and Voltage Sensors can easily be retrofitted to existing equipment or built into new equipment.

Overhead Current and Voltage Monitoring Insulators (CVMI)

Lindsey Current and Voltage Monitoring Insulators (**CVMI**) are approved for distribution systems operating at **15, 25, 35 and 46kV**, and each meet the BIL test requirements for its insulator class. Different styles of **CVMI**'s have been developed for a variety of applications



Clamp Top CVMI for replacing any horizontal or vertical line post insulator



Bus Bar style CVMIs are equipped with standard 2 or 4 hole NEMA pads



Substation/Switchgear style CVMIs are used where a conductor can be threaded through and clamped to the stainless steel tube



Multicore Sensor eliminates the need to cut the conductor or make a jumper through a tube



Voltage Sensing Standoff Insulators are interchangeable with porcelain standoffs with a 3 in. bolt circle



Standard Voltage Monitoring Insulator (SVM) for **recloser applications** Requiring voltage sensing on both sides of a recloser

Typical Applications of Lindsey CVMI & SVMIs



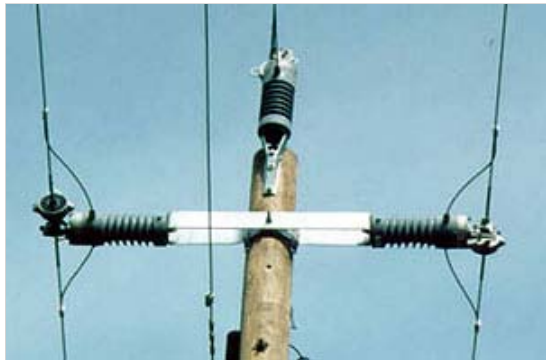
Substation/Switchgear style **CVMI** on air break and vacuum bottle switches and for SCADA in substations with 1% accuracy



Bus Bar style **CVMI**s and Voltage Sensing Standoff Insulators used in conjunction with an SF6 switch



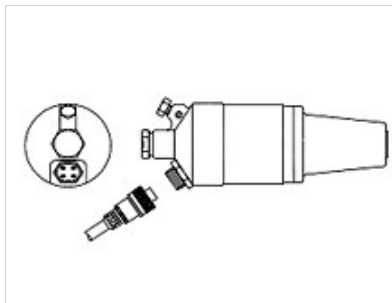
Lindsey Standard Voltage Monitoring Insulators (**SVMI**) are used on a team of three reclosers to determine location of a fault and automatically reconfigure the feeder.



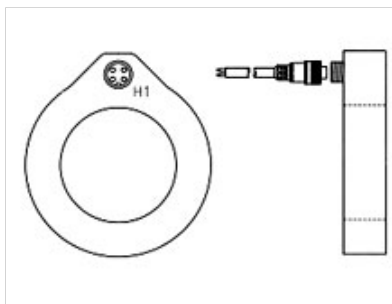
Clamp Top **CVMI**s for monitoring feeders with 1% current and voltage accuracy

Underground **Elbow Sense Current & Voltage Monitors**

Lindsey ElbowSense Current and Voltage Monitors use proven CT and voltage sensor technology from the original Lindsey **CVMI** and fit standard 600 amp T-body 15, 25 and 35kV connectors. They are easily retrofitted to existing padmount or submersible equipment. These sensors may also be used with outdoor, overhead mounted equipment that use standard elbows.



The ElbowSense voltage monitoring plug replaces the standard plug insert furnished with all 15 to 34.5kV, 600 Amp T-Body elbow assemblies. Instead of relying on an inaccurate capacitive test point, the encapsulated, precision, resistive voltage divider provides a 1% accurate AC signal proportional to phase-to-ground voltage.



The ElbowSense Current Monitoring Ring is a special purpose window type current transformer sized to fit over 600 amp or 200 amp elbow connectors. These ElbowSense Current Monitoring Rings are sealed and encapsulated in a durable, waterproof housing and fitted with a watertight connector.

Typical Applications of Lindsey **Elbow Sense Current & Voltage Monitors**



ElbowSense voltage monitoring plug installed in a 35kV pad-mounted switch enclosure

ElbowSense Current Monitoring Ring used in a Two Way Submersible switch.




Smart-Point® Power Monitoring System NEW!

Measure Thirteen Power Parameters including % THD and K Factor, From your desk top without an installed SCADA system

Smart-Point® Measurements

- U.S. & International Pat. Pend.
- Measure Thirteen Power Parameters including % THD and K Factor,
- From your desk top without an installed SCADA system
- 3 Ø Voltage (L-N)
- 3 Ø Voltage (L-L)
- 3 Ø Current
- Neutral Current
- Bidirectional kW (3 Ø and Total)
- Bidirectional kVAR (3 Ø and Total)
- kVA (3 Ø and Total)
- PF (3 Ø and Total)
- Bidirectional kWh
- kVha
- Frequency
- % THD
- K Factor
- Harmonic Measurements,
- Voltage and Current, Each phase,
- through 31st Order

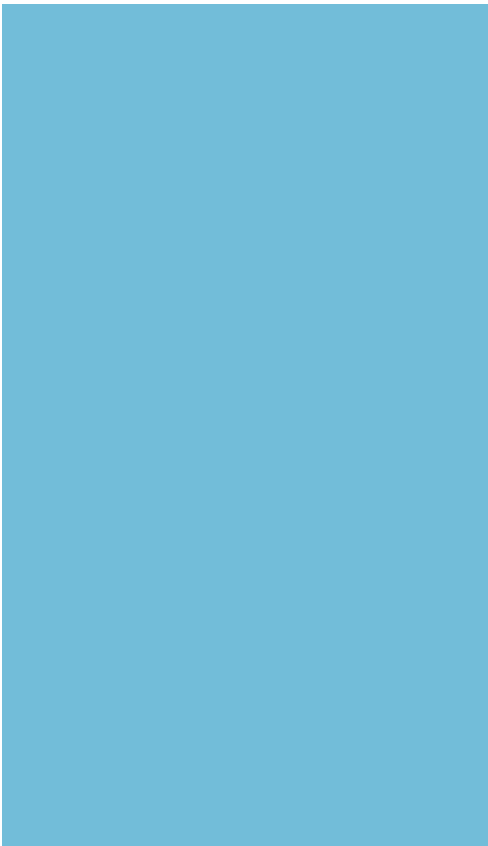


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Underground: DC Power Supply

The DC Power is proportional to the current through the CTs. The power supply can deliver 20W DC power with only 50A through primary underground cable, 50W with 300A and 65W with 600A through primary underground cable. The three sealed, split-core CTs can be installed on a single phase or on three separate phases. Watertight cables connect the CTs to the watertight DC Power Supply enclosure. The enclosure is connected to the motor operator, communications system or battery with a watertight 12ft (3.6m) cable and terminals.

Features:



1. 12V, 20-65W DC Power for motor operations and communications systems.
2. 12V, 33 amp-hour battery charger with 6.0A currents limiter and temperature compensation.
3. Applicable for 200A or 600A, 15kV-35kV underground systems.
4. Easy installation (split-core CTs fit over the underground cable), no maintenance or calibration.



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