

*New indoor and outdoor High Voltage instrumentation transducers extend our HV Transducer range of high accuracy sensors*

## **SURETECH™**

### **Voltage & Current Sensor for MV**

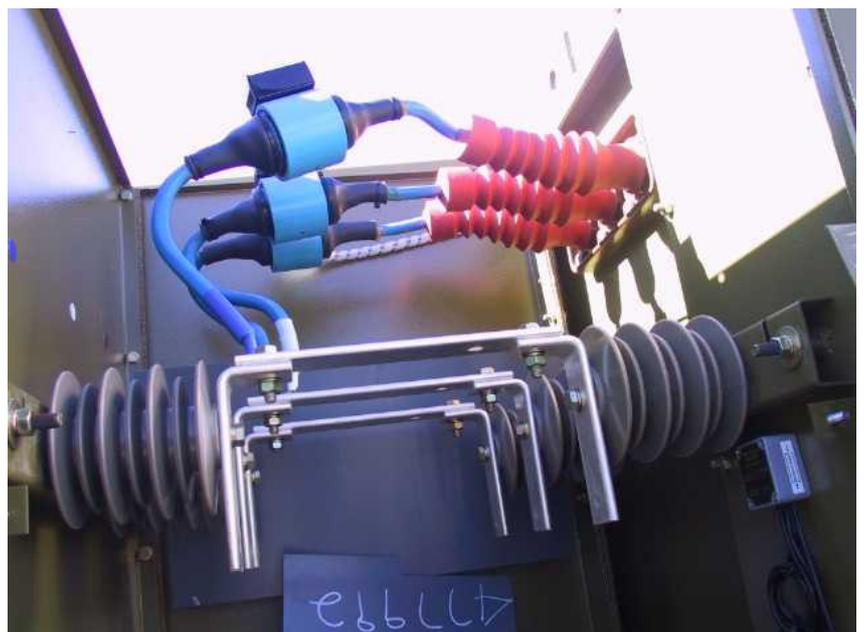
A range of MV VT and CT sensors are available using bar primary format (Medium Voltage, Voltage Transformer and Current Transformer). They are designed to be installed into metal cabinets, within switchgear panels, MV cable boxes, ring main units etc.. The VT/CT sensors shown below are provided with double insulated unscreened cable, for integration by the user into an enclosure of their choice. The pictures show integration into an Alstom type mini-substation. The end user can specify the length of cable-ends. The little black box contains the sensor elements for current and voltage, and are at earth potential. Internally, the maximum electric field within the sensor is 1kV per mm, which is an order of magnitude lower than normal MV cable operates. The VT/CT core is potted with resin for stability of capacitive coupling and hence voltage reading. VT/CT pair present no load to primary circuit, and are effectively like a normal bushing, so are ULTRA SAFE. It is also IMPOSSIBLE under normal operating conditions for the VT or CT to back transform and regenerate any dangerous voltages, and so are well suited to dangerous or explosive environments such as mining, petroleum or chemical plant.

#### **Current and Voltage sensor elements**

The current sensor uses Rogowski technology while the voltage element uses capacitive sensing. Both of these technologies have been developed by SURETECH over the past decade, and offers extremely linear and wide band width capabilities. Output functions supported include normal metering, protection, monitoring, logging, control, Quality Of Supply. These functions are available through the use of SURETECH SLPs (Smart Load Processor), which perform these functions. I.e the SURETECH VI Sensors DO NOT output 110Volts / 5Amps. See our website or enquire for the (ever expanding) range of SLP functions available. We can also provide custom output functionality, normally without extra cost.

#### **Typical Applications:**

- ✓ MV voltage monitoring
- ✓ MV switchyards voltage alarms (upper & lower)
- ✓ MV recloser voltage control
- ✓ MV lines voltage measurements
- ✓ MV frequency counter
- ✓ MV phase angle measurements
- ✓ MV phase rotation measurements
- ✓ MV protection and metering
- ✓ Monitor and measure induced voltages on power circuits without loading it
- ✓ Safety interlocks in MV substations and switchyards



## General Features:

- ✓ Frequency measurement accuracy 50ppm
- ✓ Capacitively coupled to HV source through air or insulation
- ✓ Ultra linear measurement circuits
- ✓ Bandwidth: 5MHz standard
- ✓ High frequency sensors can be ordered to sense partial discharge, and other noise etc.
- ✓ Partial discharge and other filters available, to either reject or measure it
- ✓ Dimensions of sensor: OD 110mm, sensor length 280mm for 11kV
- ✓ User to specify tail lengths
- ✓ Integral cable connection to LV enclosure, user to specify length
- ✓ Transient suppression on inputs and outputs
- ✓ Galvanically isolated from HV source
- ✓ Engineering backup to provide you support for design, applications information, installation & calibration, maintenance
- ✓ For use on 50Hz and 60Hz systems
- ✓ Patent pending

## Calibration

SURETECH SLPs have means of software calibration to ease installation, and provide means of getting the best accuracy possible.

- Instruments are factory calibrated to 0.5%, and the user can perform his own calibration to better than 0.1%
- Phase accuracy: <0.5 degree

## Output formats

A wide range of output formats are available. Please enquire with the factory for interfacing the MV VT CT with our SLPs (Smart Load Processors)

## Installation dimensions:

- The installer should make provision for bends in MV cable tails, when installing within your cabinet, and allow adequate distance to earth to reduce electric field strength

System Voltage	OD	Sensor Length
11000	110	280
22000	150	380
33000	190	450

- The sensor box dimensions are: 30mm high, 72mm long, and 50mm wide
- The installer should ensure that the screened cable (supplied) running from this sensor box to the LV chamber is permanently strapped well away from any MV part (see pictures above for examples)

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