

*Are your CTs, Instrumentation Transducers, meters, protection relays and control circuits PROTECTED against over-voltage?*

# SURETECH™ CT Protector

**Protects against Current Transformer open-circuit high voltage damage**

## Features

- Eliminates high voltages from appearing on the terminals of Current Transformers should they inadvertently become open circuited
- Facilitates CTs to be used for protection and metering by bypassing ancillary circuits such as transducers in the event of faults
- Alarms operator that protection has operated
- Fits any CT by providing flat, slotted multi-angle connector arms
- Automatically resets the protection every half cycle of mains

## SURETECH CT configurations:

CT Type	VA Rating	Rated CT Current	Model
Transducers	5	1	NP/5/1
Indication	5	5	NP/5/5
Metering	10	1	NP/10/1
Tap-changers (Non-Protection)	10	5	NP/10/5
	15	1	NP/15/1
	15	5	NP/15/5

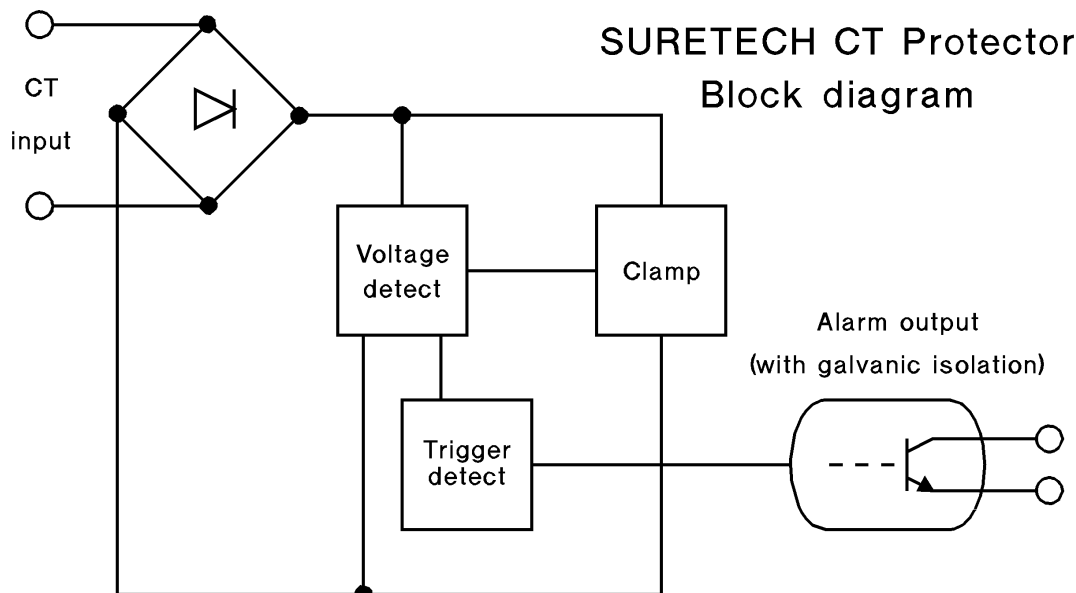
For Protection CT applications, please contact the manufacturers of SURETECH devices - SURE Engineering CC

## Why is the SURETECH CT Protector necessary?

The SURETECH CT Protector protects Current Transformers against open circuit fault conditions. When a CT is open-circuited with current flowing in the primary, then its output voltage increases. The open circuit voltage can rise high enough to cause breakdown of its own insulation, and / or damage to other control equipment connected to the CT.

## How does the SURETECH CT Protector work

The SURETECH CT Protector detects a high voltage condition and acts within microseconds to reduce the voltage, and protect the CT and associated equipment from over-voltages. Protection is automatically reset every half cycle eliminating the need for manual resets. The SURETECH CT Protectors are fitted with a remote indicator to alarm operators that the protection circuits have operated. The alarm circuit is optically isolated from the CT secondary circuit.



## Two general models available: one for protection CTs, and one for metering CTs

### ... So what's the difference???

The SURETECH CT Protector is available in two general models, to operate with protection CTs for protection, and to operate with metering CTs for metering applications. Metering CTs are designed to be accurate up to the rated current and saturate at higher currents, whereas protection CTs may well be required to convey fault current values way beyond the nominal rated current. The magnetisation characteristics of the two CT types are somewhat different. This leads to protection CTs being required to operate at higher voltages. Also, when a system fault occurs, the fault very often introduces extremely high currents into the CTs. It is just under these conditions that the user needs the protection CT to faithfully transform the fault current into a lower level equivalent so that the protection relay can make its decisions to trip the breaker or not. So if the SURETECH CT protector was triggered by the system fault, and divert current away from the protection relay, it would interfere with system protection functions. For this reason users are encouraged to contact the SURETECH manufacturers should you need SURETECH CT Protectors for Protection CT environments.

### Mixed metering and protection applications

Some users have dual functions of metering (or transducer indications) AND protection running on the same CTs. The SURETECH CT Protector can be used in these applications to ensure that the full protection current is available for the protection relay in the event of a fault condition. Any burden presented by the metering or transducer equipment is automatically bypassed if their voltage burden becomes too high.

### Earthing arrangements

It should be noted that CT secondaries should be earthed or controlled to be near earth potential. An un-earthed CT could take on the voltage of the HV conductor that it is measuring, resulting in puncturing insulation of control circuitry, and possible blow-ups.

### Mounting arrangement

The SURETECH CT Protector is a four terminal device mounted in a cast resin package. A universal mount is provided to mount onto virtually any Current Transformer. The SURETECH CT Protector is potted in a heat-sink body for good thermal management Each slotted leg is set to the correct angle and then mounted onto the CT. Two further screw terminals are provided to connect wires to the alarms circuits. The alarm output is an optically-isolated transistor that can be used to drive a relay, or input to a PLC, SCADA system etc.

### Technical Description:

- ✓ **Physical:** The circuitry is potted in a high impact epoxy resin and mounted in an aluminium casing to form the heatsink.
- ✓ **Dimensions:** 51 x 70 x 20
- ✓ **Auxiliary Power:** No auxiliary power supply is necessary, its operating power is taken from the CT
- ✓ **Sensor Circuitry:** Optically isolated open collector transistors provide output for alarms with isolation of 2kV
- ✓ **Mounting:** Units are mounted directly onto any CT with adjustable legs, which provide electrical contact to the CT

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