

## TECHNICAL DATA SHEET

### ECO – Line Sensors

**Voltage sensor**  
**T240C-0U**

**Non-conventional -  
instrument voltage transformer**  
**For gas insulated switchgears**



#### Description

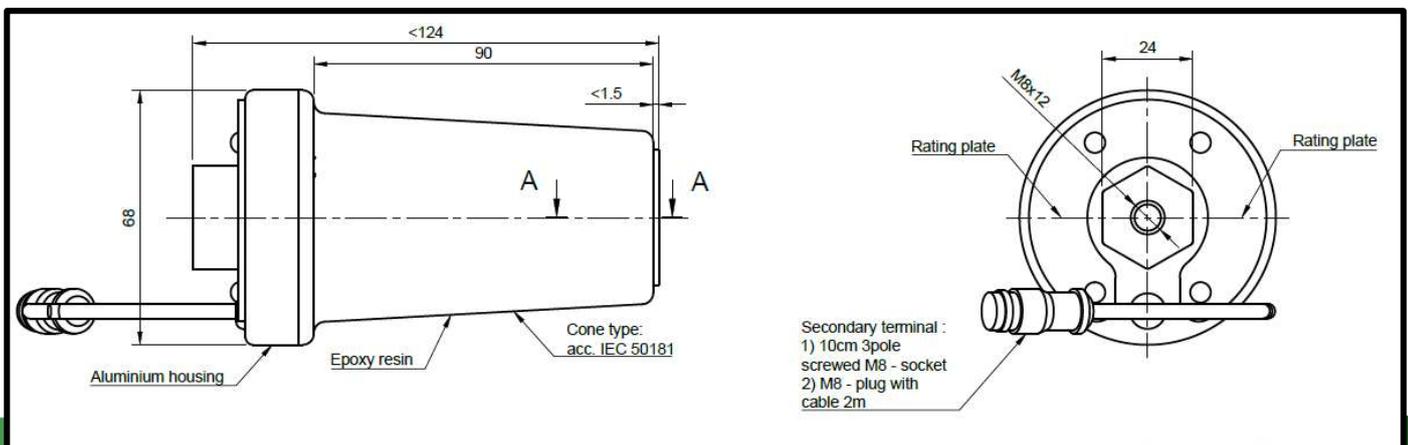
The ECO – Line range of sensors unifies high cost efficiency with maximum. This product is designed for use in conjunction with devices, which are capable to set correction factors, like the Siemens SICAM FCM device. The voltage sensor cone shape is according EN50181 type C and fits for all T-connectors using this standard.

#### Features

- No calibration on Site is needed
- Accuracy class according IEC61869-11: 0,5/1 and 3P
- Cost efficient and robust design
- DC capability up to 72kV for 15min
- Short form factor, double T-cable extensions could be used.
- Accuracy over complete lifetime
- High temperature range

#### Dimensions

The short form factor enables maximum compatibility to existing installations. The hexagonal nut is made of solid aluminium for maximum torque during the installation.

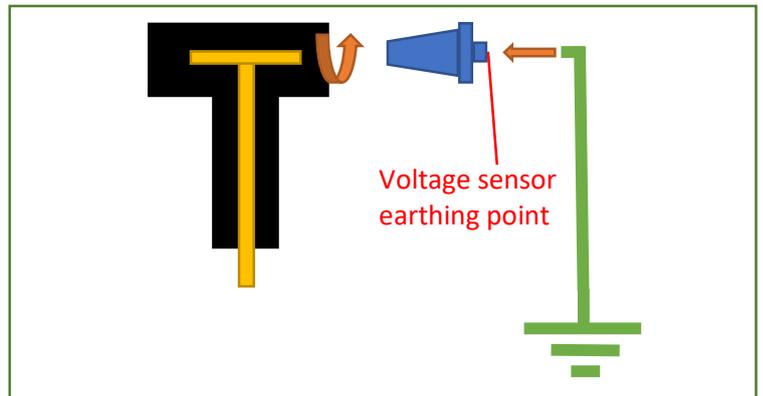


## Installation

The eco-line voltage sensor is simple to install, the existing blind plug could be removed and the voltage sensor could be screwed in, without making calibration measurements in the switch gear.

There are some important points that must be considered during the installation process:

- Always power down before installation
- Due to the design of this product, there is no danger of product damage, if the sensor is short circuited and the sensor is connected to earth



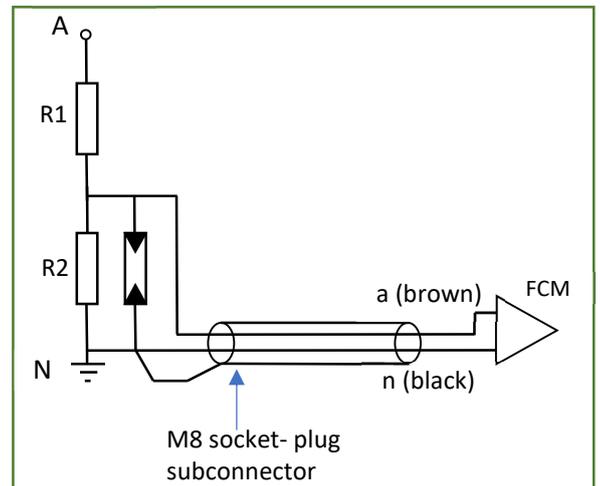
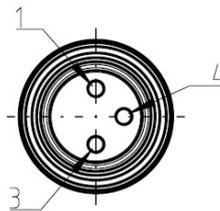
**The voltage sensor earthing point (M8) must be connected with  $\geq 6\text{mm}^2$  wire to the switch gear ground**

## Connection

The voltage sensor is directly connected to a measurement device, like the Siemens SICAM FCM. 3 Voltage sensors should be used for each device.

### M8-Subconnector

- 1... Connection a, brown wire
- 3... Connection n, black wire
- 4... Shield connection point



## Correction factor definition

The voltage sensor uses a correction factor which is defined by following rule:

$$CF_U = \frac{U_{Sr}}{U_S} \quad \text{and} \quad \varphi_{0_{cor}} = -\varphi_S \rightarrow \text{defined at } 100\% U_n$$

$CF_U$ ... is the correction factor of the amplitude error ( $U_S * CF_U$ )

$\varphi_{0_{cor}}$ ... is the correction factor of the phase shift error ( $\varphi_S + \varphi_{0_{cor}}$ )

$U_{Sr}$ ... is the rated secondary voltage

$U_S$ ... is the measured secondary voltage according the routine test protocol

$\varphi_S$ ... is the measured secondary phase shift error according the routine test protocol

## List of compatible T-connectors, surge arrestors, adaptors and coupling connectors

	Connections	TxxxC-xx (Type C-cone)	Accessories
Nexans*	T-connector	(K)400TB/G, (K)440TB/G	
	Transformer adapter	KAA4	Adapter ring
	Surge arrestor	400PB-5SA, 400PB-10SA	
Südkabel	T-connector	SEHDT 13, SEHDT 23	
	Surge arrestor	MUT33 <sup>1</sup>	
Cellpack*	T-connector	CTS-S 630 A 24kV	
NKT	CB24 adapter	Sensor adapter	M12-M16 adapter

\* Components successfully tested with GWP product at GWP

### Specification

Applied Standards:	IEC61869-1, IEC61869-6, IEC61869-11, Type C cone acc. EN50181
Primary voltage:	20000/ $\sqrt{3}$ V
Voltage factor	1,9*Un for 8h
Secondary output:	3,25/ $\sqrt{3}$ V
Burden:	200k $\Omega$ $\pm$ 1%, 350pF $\pm$ 10%
Insulation level:	24/50/125kV
Accuracy class:	1/0,5 by using correction CF <sub>U</sub> and $\phi_{ocor}$ according IEC61869-11
Protection class:	3P
Operating temperature range:	-40°C to +80°C
Storage temperature range:	-40°C to +80°C
Frequency:	50 or 60Hz
Overvoltage protection:	Internal surge arrestor
Cable:	2pole, shielded, twisted pair, 2m, open ends (brown-a, black-n)

29.07.2019 by Greenwood-Power Rev8

<sup>1</sup> Only applicable to Um max. 24kV