

# Magneto-optical instrument current transducer for Digital Substation applications KRISMARS-CT

*Optical current sensor 5 kA*



*Optoelectronic unit*

**Project status: Research & Development; investment offer**  
**Result: testing and adjustment of prototype**

## Purpose

- Designed to convert primary AC or pulse current into secondary current (analogue or digital signal) with the established scaling factor (current ratio).

## Field of application

- Automatic substation control and relay protection systems.

## Operating principle

- Magneto-optical (Faraday) effect.

## Features and benefits

- No magnetizing and magnetic saturation effects.

## Components

- Optical sensor of current;
- Optoelectronic unit (the desired current signal is taken from its output) + Merging Unit (for Digital Substation applications).

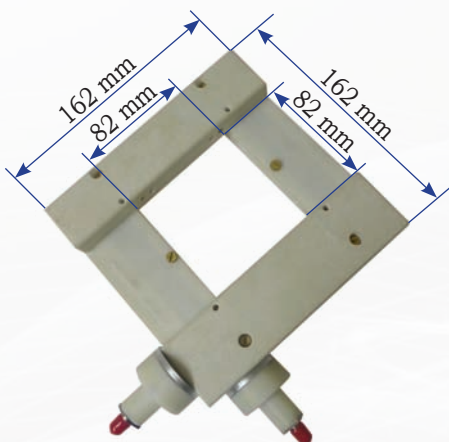
## Design for DSS applications

- IEC 61850-9-2LE compliant output.

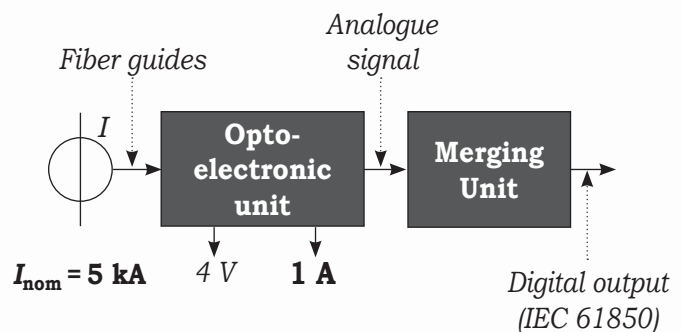
## Equipment for testing and calibration

- Test Sets produced by Mars-Energo.

## Overall dimensions of the optical sensor



## Block diagram



- The prototype is designed for current carrying lines of up to 80 mm
- The optical sensor is designed for mounting /dismounting from the line without brealing into current circuits.

## Basic specifications (to be provided)

Parameter	Value
Operating voltage range	0.4 ... 35 kV
Frequency range	10 ... 6000 Hz
Nominal primary current	100 ... 5000 A
Accuracy classes	0.2S; 0.5S
Thermal and electrodynamic withstand	100; 150 kA
Output signal:	
• Analogue	1 A; 4 V
• Digital	According to IEC 61850-9-2LE
Fiber guide length between the optical sensor and optoelectronic unit	up to 200 m
Dimensions and weight, no more than	
• Optical sensor	162 × 162 mm, 1 kg
• Optoelectronic unit	134 × 215 × 450 mm; 3 kg
Power supply (optoelectronic unit)	220 V; 50 Hz