Instruments for Power Industry

Crystal future of power industry

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Electro-optical instrument voltage transducer for Digital Substation applications KRISMARS-VT

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

Purpose

- Designed to convert primary (high) AC or pulse voltage into secondary (low) voltage with the established scaling factor (voltage ratio).

Field of application

- Automatic substation control and relay protection systems.

Operating principle

- Electro-optical effect of electro-gyration.

Features and benefits

- No piezoelectric effect;
- Phase-to-phase voltage can also be measured.

Components

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

Design for DSS applications

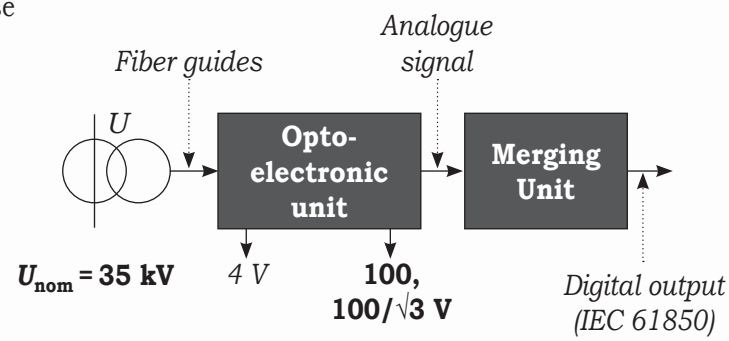
- IEC 61850-9-2LE compliant output.

Equipment for testing and calibration

- Test Sets produced by Mars-Energo.

Overall dimensions of the optical sensor

Block diagram



Measured voltage is directly applied to the centro-symmetric crystal ends.

Basic specifications (to be provided)

Parameter	Value
Rated AC voltages	from 10, 20, 35 kV to 110 kV
Accuracy classes	0.2; 0.5S
Frequency range	10 ... 6000 Hz
Output signal: • Analogue • Digital	4; 100; 100√3 V according to IEC 61850-9-2LE
Fiber guide length between the optical sensor and opto-electronic unit	up to 200 m
Dimensions and weight, no more than • Optical sensor • Optoelectronic unit	130 × 290 mm, 5 kg 134 × 215 × 450 mm, 3 kg
Power supply (optoelectronic unit)	220 V, 50 Hz

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