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

110/√3 kV
35/√3 kV
35 kV

Optoelectronic unit
Optical voltage sensors

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

Basic specifications (to be provided)

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

*Measured voltage is directly applied to the centrosymmetric crystal ends.*