OPTICAL CURRENT TRANSFORMER
A “LIGHT” REVOLUTION IN CURRENT MEASUREMENT

How can utilities ensure high dynamic range of current measurements, high performance, integrated safety, and connectivity for digitalization for the future? Trench Optical Current Transformers (TOCT) in combination with merging units offer the ideal solution.

One type of TOCT can be used for protection and metering without saturation and at the same time no danger to life and equipment due to open secondary circuits. Fiber optical connections allow complete galvanic insulation between sensor and secondary equipment and at the same time long distances coverage without issues of wiring.

TOCT are designed in accordance with IEC 61850-9-2 to provide full flexibility/connectivity for different applications and interconnection between equipment. Merging units can be used for retrofitting conventional instrument transformers.

HOW DOES THE TOCT WORK?

The Faraday effect, discovered by Michael Faraday in 1845, describes the relation between the Light and magnetism. In simple words, a defined light wave (input polarization) is moving through the glass ring and the magnetic field based on the value of the electrical current results in light output polarization rotated by angle $\alpha$. Therefore, the angle $\alpha$ is in direct relation to the electrical current.
Each merging unit for optical CTs can handle up to three optical CTs and three resistive capacitive voltage dividers*.

Binary inputs and outputs are provided on 6MU85. In case more inputs and outputs are needed, those can be added as add-on-module. The same applies in case additional analog voltage or current inputs are needed.

* For more information on Trench RC Voltage dividers please check out our webpage: https://trench-group.com/products/resistive-capacitive-voltage-dividers/