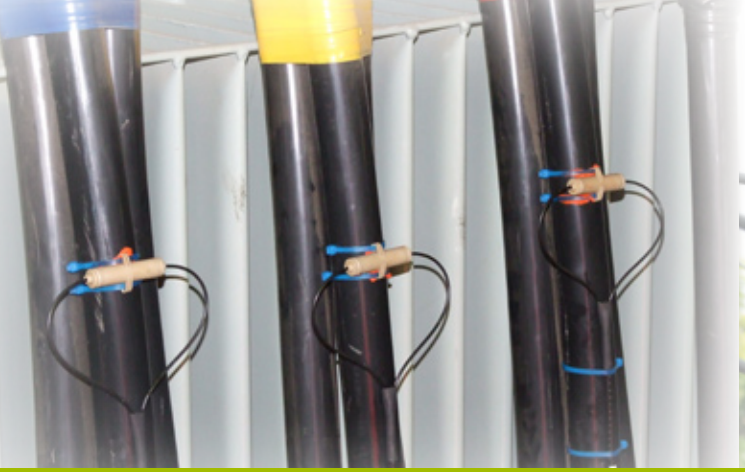


Sensor Technology

The DISCOS® System is based on advanced optical sensor technology and is specifically developed for the cost levels expected in distribution networks.

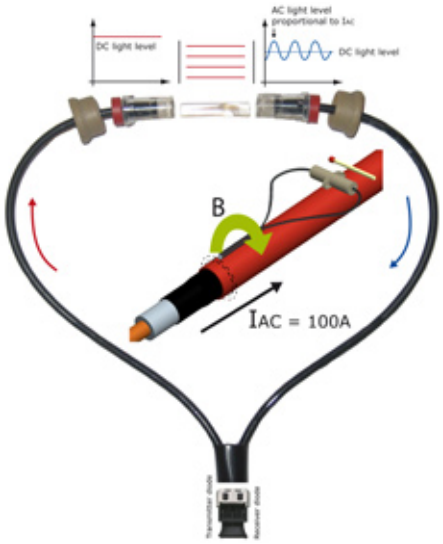
With its stability and linearity, PowerSense's cutting-edge sensor technology is setting new standards for current measurements in general. For PowerSense's primary business area of MV grid monitoring in particular, it is creating a completely new set of standards for how to monitor the MV power grid.

The DISCOS® Current Sensor is part of the DISCOS® Opti module. The DISCOS® System monitors the current size and angle on both the LV and MV side of the transformer.

The DISCOS® Current Sensor is based on the Faraday effect principles!

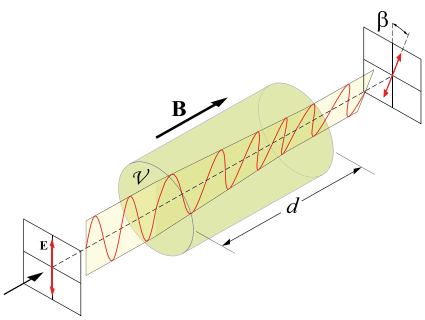
Today, only a few applications in measuring instruments are based on the Faraday effect.

Due to advanced computing techniques, PowerSense now offers a low-priced optical sensor based on the Faraday effect.



The Faraday effect is the principle employed by the sensors for their measurements: "A plane of a polarized incident light undergoes a rotation relative to the magnetic field applied". Since an electric current generates a magnetic field, the current is measured by assessing the angle of rotation of the polarization plane.

The sensors are approximately 50 mm long. Thanks to the very compact design, the sensors may be applied even in modern compact switchgear. They consist entirely of plastic (95%) and glass (5%), allowing the sensor to be mounted directly on bare MV and LV conductors, if so desired.



Here is how it works!

The relation between change of the polarization and the magnetic field in a diamagnetic material is: β = v B d.

Source: http://en.wikipedia.org/wiki/Faraday_effect

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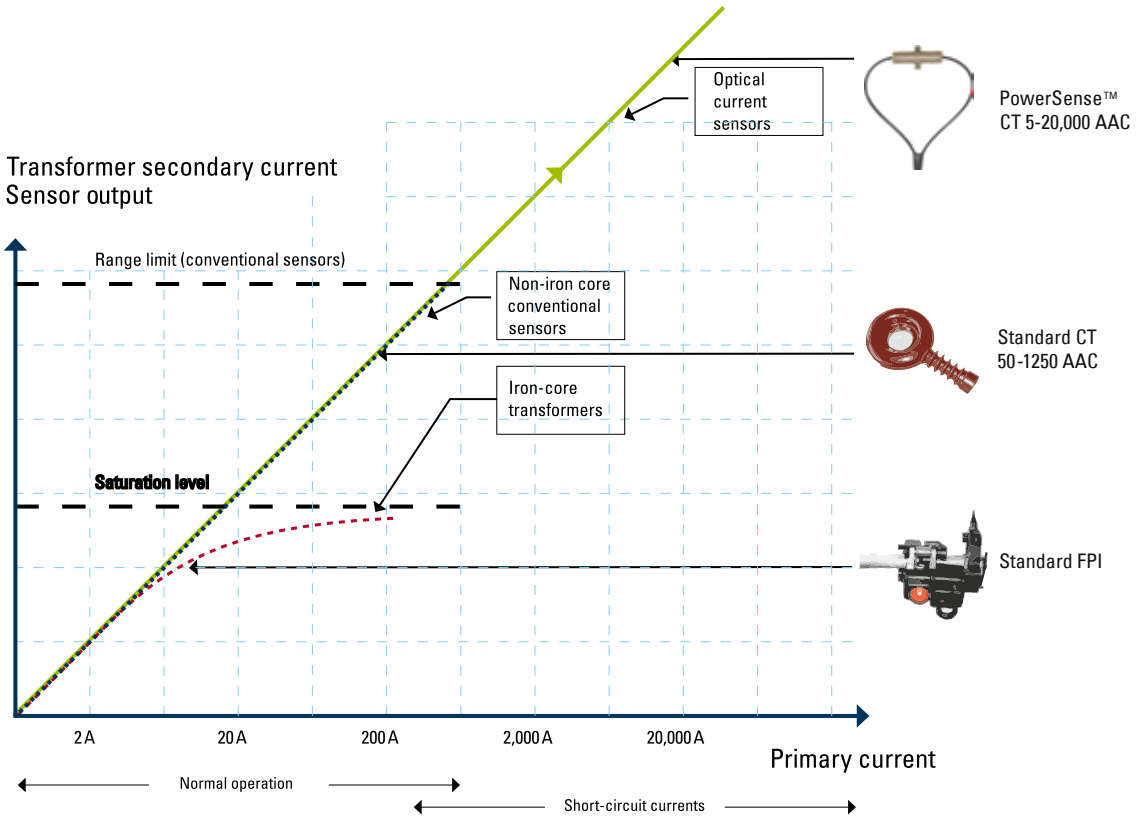
Operation Principle

Cutting-edge Sensor Technology

- *Extensive Dynamic Range for Current Measurement*
  No ferromagnetic cores are used in the optical sensors. The optical sensors allow a wide range of measurements to be achieved with the same device. They are not subject to saturation and are linear over the entire range. The system is optimized for currents up to 20,000 A.

- *Electrical Insulation*
  The sensors consist of 95% plastic and 5% glass, which also makes the sensor suitable for direct placement on bare electrical conductors. This guarantees immunity against ground loop, which usually affects ferromagnetic devices. Conventional current transformers will generate dangerous overvoltages, if a secondary circuit is opened under load. This hazard is avoided completely by using optical sensors.

- *Small Footprint and Light Weight*
  Sensors are 98% smaller and lighter than conventional current transformers. The conventional electrical wiring is replaced by compact optical cables.



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