# Smart Navigator 2.0

High-precision measurement for overhead lines

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## Product features

- Intelligent fault detection – reduces outage times
- Overhead line monitoring – data for the evaluation of the network condition
- Energy Harvesting – simply clipped onto a phase conductor of the overhead line
- Innovative installation – on live conductors and from the ground
- Remote maintenance – configuration and updates from the control room

### Intelligent fault detection

The proven overcurrent detection alogrithm detects fault currents reliably under a wide range of network situations. Individual parameter settings tailor the Smart Navigator 2.0 perfectly for all locations in your overhead line network, eliminating false tripping.

Fault messages containing information about fault direction, voltage interruption, current drop and increase in conductor temperature support the problem detection and root cause identification. Every fault is signalled to the control room within 1 minute.

### Power supply

The Smart Navigator 2.0 harvests the energy for its power supply from the overhead line current. Thanks to dynamic adaptation of its operation to load conditions, a load current of 5 Amps suffices.

### Clamp

Thanks to the innovative clamping mechanism, unintentional detaching from the overhead line due to environmental influences is impossible.

With a hot stick, the Smart Navigator 2.0 can be mounted on an overhead line up to 12 meters high, even under live conditions. Likewise, it also can be uninstalled again without any problems.

### Service

Smart Navigators 2.0 are successfully used worldwide, on all continents, to detect and remotely report network faults.

Therefor, the Smart Navigator 2.0 is tailored to the country-specific radio approvals and the different frequency ranges of the network operators.

We are happy to support you with the connection to your server solution for the control room and the design of the network-specific tripping characteristics.

Implement your individual projects together with us: +49 2056 976 0.
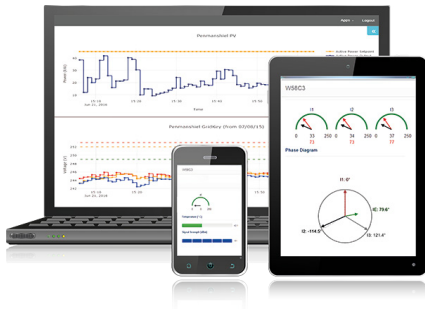
## Remote signalling and monitoring

Thanks to remote signalling, the complex, high-quality and diverse sensor technology enables clear monitoring and thus direct insight into your overhead line network. Sections containing decentralized feed-in points are clearly identified by the remotely reported load flow direction.

Remote maintenance such as software updates or configuration adjustments can be performed via the GSM / LTE connection.

### Smart Navigator 2.0 LC

For overhead lines with base loads smaller than 5 A, pole-mounted units with solar panels are used to ensure supply and control room communication. Alternatively, these can be powered from a DC or AC auxiliary power supply.

The high battery capacity of the Smart Navigators guarantees a service life of >10 years, and any load current extends the service life. Thanks to the solar or auxiliary power supply, the pole-mounted units can communicate with up to nine Smart Navigator devices simultaneously, thus monitoring and remotely reporting three overhead line sections.

### GPS-Data

The pole-mounted units feature an internal GPS sensor that provides excact position of the installation to the control room.

| Technical data | Smart Navigator 2.0 |
|---|---|
| Short-circuit trip current | Max. 1,200 A |
| Indication (short-circuit / earth fault) | Ultra bright LEDs |
| Reset | |
|    Manual | With magnet |
|    Automatic time reset | 4 h |
|    Remote | Via iHost |
|    Current restoration | >3 A load current |
|    Voltage restoration | ≥5 kV line voltage |
| Current measurement accuracy | ±2 A (0 – 10 A)<br>3 % (10 – 600 A) |
| Tripping | Different algorithms for fault detection |
| Power supply | Smart Navigator 2.0: Energy Harvesting<br>Smart Navigator 2.0 LC: Battery (shelf life >10 years)<br>Pole Master: Solar panel, DC or AC voltage supply |
| Max. permissible voltage | ≤69 kV (L – L) |
| Withstand current | 800 A (@ ≤50 °C)<br>600 A (@ ≥50 °C)<br>25 kA / 3 s<br>40 kA / 1 s |
| Remote monitoring | ▪ Fault detection<br>▪ Fault current magnitude and duration<br>▪ Loss of current or voltage<br>▪ Data monitoring |
| Communication | ▪ DNP3, HTTP, HTTPs, FTP<br>▪ Private APN , public APN<br>▪ TLS1.1, TLS1.2 |
| Cellular (WAN) | 2G/4G (GSM/LTE) |
| Server | ▪ iHost Cloud for quick system integration<br>▪ Direct connection to the control room<br>▪ Individual server solution |
| Remote maintenance | ▪ Software updates<br>▪ Configurationsettings<br>▪ Functionality monitoring |
| Installation | Hot stick (installation on live conductors) |
| Pairing | Master-Satellite-system with 2 resp. 3 Satellites |
| Cable diameter | Up to 33 mm |
| Housing | UV resistant polycarbonate, IP68 |
| Temperature range | –40 to +85 °C |