





THE SAFER AND
SMARTER SOLUTIONS
TO PROTECT AND
DIGITIZE YOUR
LOW VOLTAGE
POWER GRID





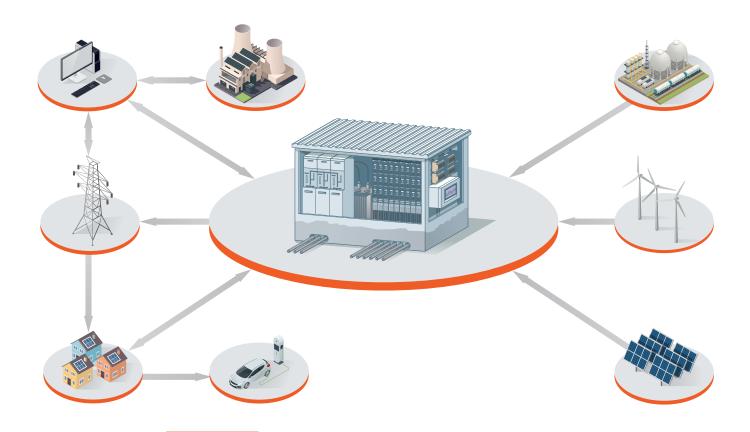
A NETWORK UNDER CONTROL

MERSEN, a key player for the energy transition

Electrical substations around the world will require massive upgrades over the next decade to keep the grid manageable in the future renewable energy system. The energy transition is driving the creation of interconnected microgrids with renewable sources and new energy consumption such as EV and heat pumps. That's why smart product offerings and data are critical to meet the needs of the transition to Smart Grid Industry 4.0.

With our ProGrid offer, MERSEN supports the distribution system operators with a tailor-made solution to enhance flexibility in the low voltage networks maintenance, in safety and energy savings, automation, faster power restoration, load and sources management.

MERSEN
IS YOUR
PREFERRED
PARTNER
FOR THE
DEVELOPMENT
OF A SMART
SUBSTATION
PROJECT.





Cybersecurity

- All Modular Measuring Devices have a cryptographic chip with HW-based secure key storage.
- Antitamper level 3: equipment opening detection and possibility of programming events.
- CPU crypto/hash HW acceleration.
- "SFI" secure firmware install.
- "SBFU" secure boot secure firmware update.
- AES128, encrypt / decrypt, Galois Field Multiply for GCMnAnd HASHfunctions, SHA-1 and SHA-1 (secure HASH algorithms), MD5, HMAC.



ProGrid Fuse Switch Disconnector

ProGrid NH Fuse Switch Disconnector protects your substation from overcurrents with high safety for end-users.

Higher performances with a patented switching mechanism in parallel and in rotation ensures IP20 touch protection and prevents any electrical contact during the handling of the handle and of the fuses. It also allows easier installation and maintenance: better visibility and handling of the switch operating covers for easier fuse replacement.

Available in 1-pole or 3-poles switching Available from size 1 (250A) to size 3 (630A) at 800V AC Available in versions gTr 910A and 1000A with solid links



Padlocking possibilities in closed and open/parking positions in 1 pole and 3 poles versions.



ProGrid is designed for easier and faster installation thanks to:

- Direct and safe fixation onto live bus bars with appropriate tooling. Possibility to mount the device on unscrewed busbars thanks to hooked clamps.
- Kit for double fuse switch disconnector assembly on-site.
- Full traceability of the stand-alone devices thanks to a QR code in the front, which enables also access to website page with additional technical information.



Upgrade to ProGrid Smart

ProGrid Smart NH Fuse Switch Disconnector monitors energy flow on low voltage outputs of the substation. ProGrid can be easily upgraded from standard to smart and old

2 versions of smart modules available:

- Top mounting module for easy installation in new panels and substations.
- Bottom mounting module for easy retrofitting of panels. ProGrid Smart with bottom module has identical footprint as the stand-alone fuse switch disconnector.



Bottom version:

the most compact smart FSD on the market

- Easy to insert and remove the modules for maintenance operation such as fault location tests in the output cables.
- Possible to replace the fuse protection for voltage measurement
- Efficient daisy chain for communication AND power supply : 24VDC.
- Integrated sensors wiring inside the fuse switch disconnector with no potential interference with bus bar side mounting.



- Measurement of I, U, P, Q, S, cos Phi. Internal temperature and fuse monitoring for increased safety and easier substation maintenance.
- Current transformers 5A, 1A, 333mV compatible to the Smart modules thanks to factory parameterization
- 8-pin DIP switch for addressing. Robust connection thanks to
- standard connections RJ45 for Modbus RTU Up to 24 slaves.



Compatibility to any Modbus RTU master interface and any preferred control system to makes the measured data available to the user.

ProGrid SmartStation: the ultimate solution for monitoring the entire environment and power quality conditions in the substation

A complete, intelligent and flexible solution to monitor, the entire environment (transformer temperature, humidity...) to provide full digitization of substations and distribution cabinets and ensure total control of the network.

This solution allows the combination of the new ProGrid Smart fuse switch disconnector with additional modular measuring devices and sensors to create a complete intelligent monitoring system for the medium/low voltage transformer substation.

The ProGrid SmartStation includes comprehensive sensors that monitor not only the energy flow of the station's low-voltage outputs, but also the complete status of your installation in the field, including environmental values, external station access and transformer status.

Real time data displayed on the "light" webpage control system. **Totally independent,** modular devices to combine at your will. Perfect for retrofit, no need to replace existing assets on the site. Reduced installation time, sensors prewired and 2-hours solution. **Cloud computing,** all devices come prepared for MQTT and Modbus TCP. **Cybersecurity,** outstanding features.

4 MMD (modular measuring devices) to keep your network under total control.

- Smoke level detection
- Opened or closed status of the door
- Outdoor temperature Indoor temperature
- Indoor humidity



- Transformer temperature
- Infra-red
- Flood detector
- Indoor temperature
- Indoor humidity
- Ozone detection
- Three phase voltage
- Temperature of feeder switches
- Three-phase current of 4 feeders
- Power
- Frequency
- + Main electrical parameters

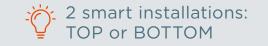


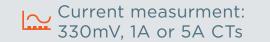
- Three phase voltage
- Three-phase current of secundary
- Power
- Harmonics
- Frequency
- + Main electrical parameters





















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