



## SENTRON 3NA COM NH SERIES FUSE FOR LOCAL GRID TRANSFORMER STATIONS

# Current direction detection for optimized grid operation

The increasing feed-in of decentralized and renewable energy sources is making grid operation more complex. At the same time, many local grid transformer stations lack the necessary transparency. The SENTRON 3NA COM NH series fuse with current direction detection is the first to provide reliable data directly from the transformer station. It creates visibility, facilitates fault location and lays the foundation for predictive grid management.

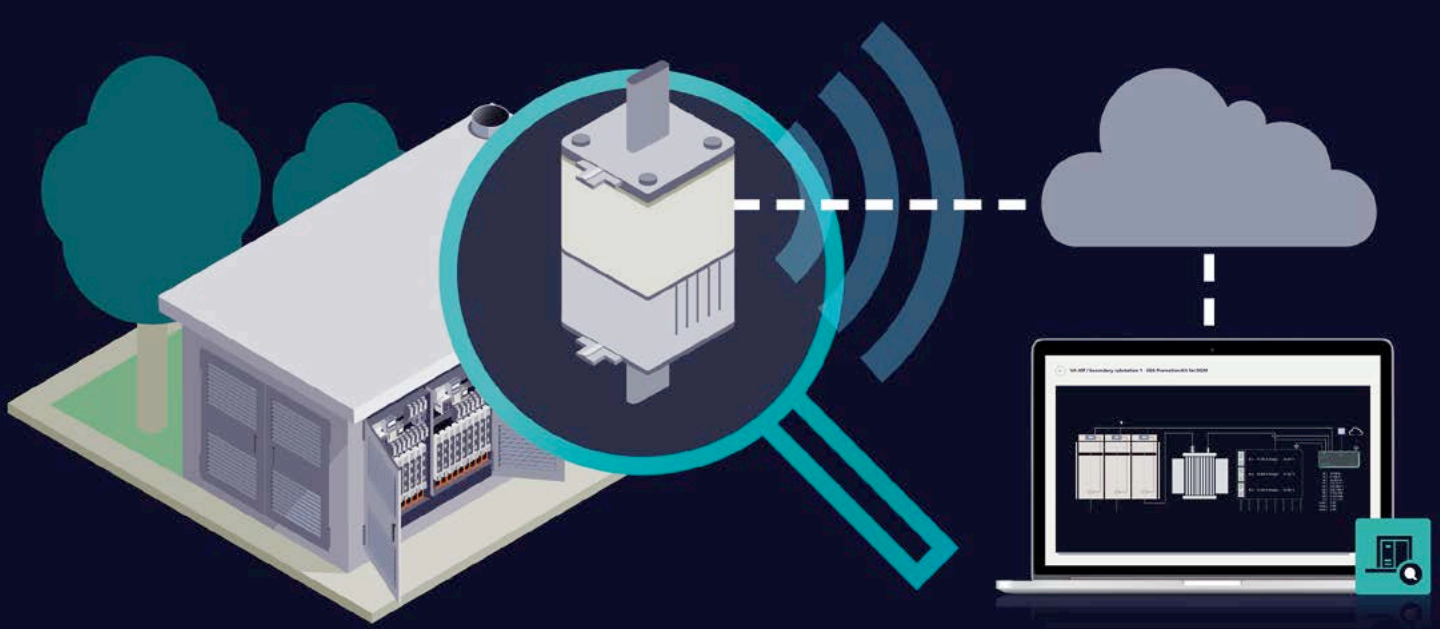
[siemens.com/sentron-3na-com](https://www.siemens.com/sentron-3na-com)

### Feed-in from the grid, consumption or reversed feed

The innovative SENTRON 3NA COM NH series fuse measures the currents and temperatures in the low-voltage outputs of local grid transformer stations. It is also the first NH series fuse to also detect the direction of current flow. This allows you to determine whether there is a feed-in or consumption.

This allows energy suppliers and grid operators to identify potential issues, such as bottlenecks or overloads, at an early stage. Faults can be located and diagnosed more quickly and accurately. And measures can be taken immediately. This ensures a more stable grid frequency and reduces downtime. Faults can be rectified more cost-effectively, and personnel costs are reduced. Additionally, the measurement data provides valuable insights for optimizing grid planning and load distribution.

# SIEMENS



## Greater transparency regarding decentralized feed-in

As photovoltaic power plants and wind farms continue to expand, more and more energy producers are feeding electricity into the grid in a decentralized manner. This makes it difficult for grid operators to keep track of actual load flows and current directions in the low-voltage grid.

The SENTRON 3NA COM measurement- and communication-capable NH series fuse with current direction detection recognizes whether the current is flowing from the local grid transformer station or the low-voltage grid to consumers or whether there is a reverse current flow – from a decentralized source into the low-voltage grid. Thanks to their communication capability, this NH series fuse can transmit the information to the grid control center in real time.

### Customer benefits

- Improved grid transparency
- Early detection of reversed feeding
- Basis for intelligent grid planning

## Reliable real-time data for grid optimization

Without measurement data from the local grid – for example, the low-voltage grid – a predictive grid optimization and targeted expansion to avoid bottlenecks and overloads is virtually impossible. Until now, grid operators have often had to rely on estimates.

The SENTRON 3NA COM NH series fuse continuously measures the current strength, temperature, and current direction. When combined with SICAM EGS, it also measures the voltage in the low-voltage circuits of local grid transformer stations. The fuse also continuously communicates the measurement data in real time to the grid control center or a central data management system. This provides those responsible with reliable data from an otherwise “black box” area of the grid.

### Customer benefits

- Data-based grid planning
- Early detection of bottlenecks
- Basis for smart grid functionalities



## Faster and safer fault location in the event of short circuits

In the event of a short circuit, it is often difficult to determine whether the fault is being fed in from the grid or fed back from a photovoltaic system. This makes fault location more difficult and prolongs fault clearance times.

The current direction detection feature of the SENTRON 3NA COM measurement- and communication-capable NH series fuse indicates the origin of the fault – whether it is from the transformer station, the medium-voltage grid, or a decentralized generator. This allows the location of the fault to be narrowed down more precisely, identified more quickly, and thus rectified in less time and with less effort.

### Customer benefits

- Faster fault diagnosis
- Shorter downtimes
- Lower costs for troubleshooting and personnel

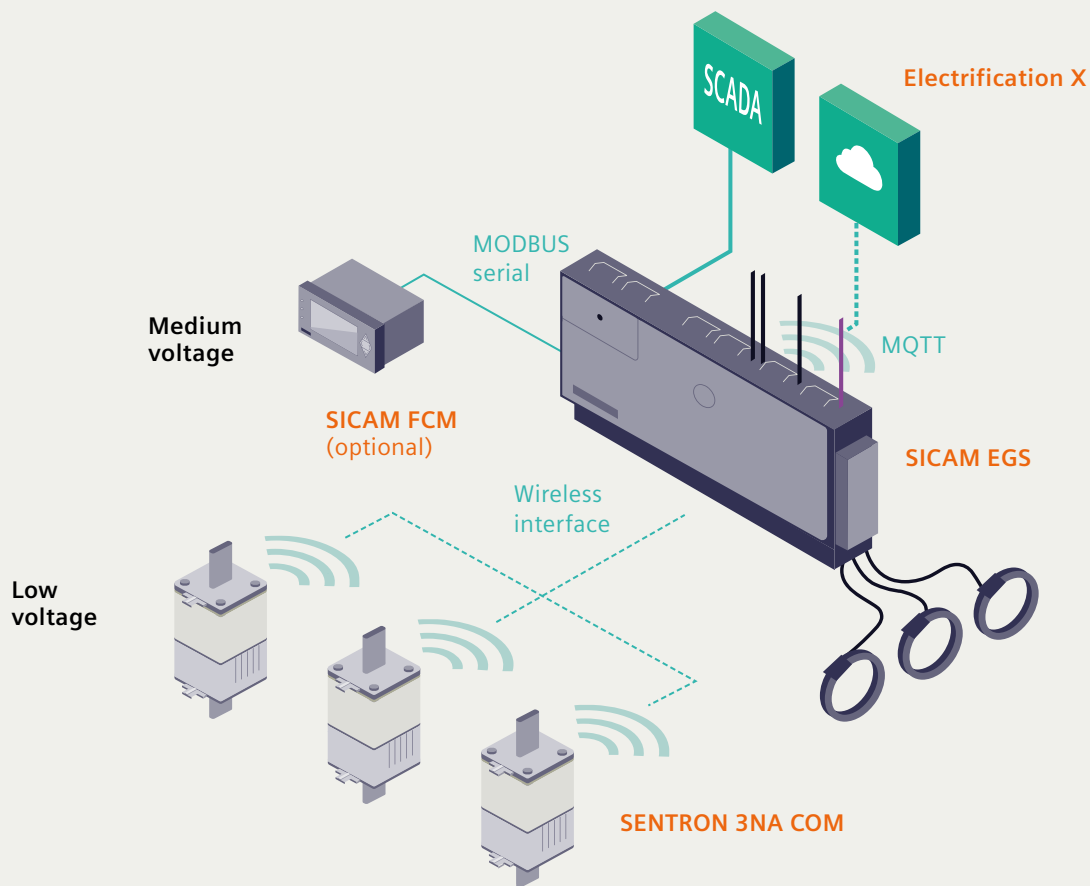
## Integration of renewable energies into local grids

At low voltage levels, the feed-in of renewable energy sources, such as combined heat and power plants, biogas plants, photovoltaic systems, and balcony power plants, is volatile and difficult to predict. This makes grid stability challenging.

The combination of current direction detection, the measurement of the current strength, the temperature and, in conjunction with SICAM EGS, also the voltage, and the forwarding of all this data offers real advantages: This enables the SENTRON 3NA COM NH series fuse to help identify decentralized feed-in points and evaluate their influence on the entire grid.

### Customer benefits

- Reliable operation despite high feed-in
- Support for the energy transition
- Future-proof grid structure



SENTRON 3NA COM measurement- and communication-capable NH series fuse



SICAM EGS enhanced grid sensor (gateway)



Electrification X – Distribution Grid Monitoring

## The path to a digital local grid transformer station

The SENTRON 3NA COM NH series fuse seamlessly connects the low-voltage power distribution of the local grid to higher-level digital systems via the smart SICAM EGS grid sensor and its gateway function. The NH HRC fuse link wirelessly transmits its measured values to the grid sensor.

The SICAM EGS grid sensor can process data from up to 48 NH series fuses and forward it to SCADA systems or to the secure Electrification X visualization software.

The measured values of the SENTRON 3NA COM NH series fuse can thus be used, for example, for even more precise monitoring of distribution grid stations with Electrification X – Distribution Grid Monitoring.

**Tip:** Using the SENTRON Powerconfig mobile app, it is easy to configure and commission the SENTRON 3NA COM NH series fuse digitally with a smartphone or tablet.

### Published by Siemens AG

Smart Infrastructure  
Electrical Products  
Siemensstrasse 10  
93055 Regensburg  
Germany

Article No. SIEP-B10510-00-7600  
DY 250212 DA 0725  
© Siemens 2025

### For the U.S. published by Siemens Industry Inc.

3617 Parkway Lane  
Peachtree Corners, GA 30092  
United States

Subject to changes and errors.  
The information given in this document only contains general descriptions and/or performance features which may not always specifically reflect those described, or which may undergo modification in the course of further development of the products. The requested performance features are binding only when they are expressly agreed upon in the concluded contract.