Grid and system protection

Autonomously working disconnecting unit for small power plants

WHY?

In the event of a network shutdown or network disruption, small power plants must be disconnected from the grid immediately to avoid any danger to people andmachinery.

FUNCTION

An automatic disconnection device monitors the feed-in of energy to the 230/400V grid. In case of a power failure or disruption by the energy supplier it is vital for small power plants to be disconnected within a few milliseconds. Voltage- and frequency monitoring as well as island operation detection are the main requirements for an automatic disconnection device.

REQUIREMENT

Converting renewable energy into electricity is a key element in stabilizing the global climate. In the context of small and micro power plants we mainly see photovoltaic installations, small wind power generators, cogeneration plants or small hydropower plants being used. The energy obtained is used to cover own consumption or increasingly fed into the public low-voltage grid at a profit. To ensure network safety, an automatic interface monitors the transfer between small power plants and the grid of the energy supplier (ES). Large power plants are managed and monitored directly by the ES using telecontrol technology. Yet, this method is too expensive and therefore uneconomical for many small electricity producers.

In the event of a power cut or a disruption in the grid of the energy supplier, small power plants have to be disconnected immediately from the public grid to prevent unwanted feed-in, and to protect maintenance personnel and consumers from risk of improper voltages and frequencies. Monitoring and automatic disconnection are carried out by an automated

interface. Small power plants must be equipped with an automatic isolation unit that is checked and permitted by an accredited authority. Country-specific norms define in-depth how the interface must be constructed and certified. To meet requirements of the energy supply companies' standards the market offers solutions as individual components, multinational components as well as integrated solutions. If required by the network operator, the thresholds can be adjusted even outside of standard values. Functionally safe devices also fulfil the monitoring function in the event of faults, detect these faults and ensure safe operating conditions.

TELE's NA003-M64 offers an optimal solution for each country and any requirement.

✔ Multifunctional device

✔ Open setup, fully configurable without any limitations

✔ One device for low and medium voltage grid

Wind power plant

Hydro power plant

Combined heat and power plant

Biomass power plant

Photovoltaics

Battery storage

MODEL: NA003-M64 **PART NO: 2700100 B**

FUNCTIONALITY

Implemented standards	Complies with new and previous standards which makes replacement of existing installations fast and easy. Predefined parameter settings for several countries. **Check all available standards and settings by scanning the QR Code:**	
Measuring variable	phase to phase voltage, phase to neutral voltage, 10 minutes voltage average, frequency, frequency change (RoCoF), phase shift (PShift)	
Measuring range	phase to phase voltage: 0 ... 560 VAC, phase to neutral voltage: 0 ... 325 VAC frequency: 40 ... 60 Hz, RoCoF 100 mHz/s ... 2.000 mHz/s, Pshift 1 ... 15°	
Monitoring functions	. 2 × phase to neutral overvoltage 2 × phase to neutral undervoltage; . 2 × phase to phase overvoltage 2 × phase to phase undervoltage;	. 1 × 10 minutes voltage average (over) . 4 × overfrequency, 4 × underfrequency, 1 × random overfrequency . 1 × RoCoF (over), 1 × PShift (over)
Features	. each turn-off threshold is associated with its own turn off time . fixed turn-on time, random turn-on time . configurable feedback contact evaluation . enable / disable functions via digital inputs . enable / disable functions via selectable mode	. 4 different connection and measuring modes: 2 wire (single phase L1, N); 3 wire (3 phase without N); 4 wire (3 phase LL only); 4 wire (3 phase LL + LN) . configurable nominal voltage . functional safety . password protection and sealing capability . error memory with time stamp (entries)
Supply voltage	24 V DC ± 10 %, 110 ... 240 V AC ± 30 %,	
Rated frequency	50/60 Hz or DC	
Tolerance of rated frequency	48...63 Hz	
Output circuit	3 CO contacts 5 A, 250 V AC (1250 VA)	
Digital inputs	5 inputs for potential free contacts (24 V / 5 mA)	

DESIGN

Dimensions (W × H × D)	106.3 × 90.5 × 62 mm
Certificates	CE, EAC