Die ENS25

A separate one-phase islanding protection device

The ENS25 is an autonomous release unit according to DIN VDE0126. This way the unit replaces the always accessible release mechanism of the power supplier.
In contrast to the old three-phase voltage monitoring now repeated tests are no longer necessary. The device monitors frequency, voltage and impedance of the grid. If the prescribed limit values are overranged, the device separates the grid two pole from the inverter.
The monitoring circuit is doubly designed, like prescribed in the instructions of one-phase feeding. Two independent circuits evaluate the network, monitor each other in their function and interrupt independently in case of error. What distinguishes this device is the low current consumption.

Note: Installations with DC-AC converters without galvanic isolation require an additional residual current switch (sensitiv to all kinds of current) and a protection against DC-Injection.

Technical characteristic

Switching capacity	5,750 W (25 A)	
Power consumption	1.5 W	
Case	plastic case	
Measurements	width x higth x depth	146 x 111 x 80 mm
Space needed	width x higth	146 x 73 mm

The device isolates the network by the following conditions according to DIN VDE0126.

Overvoltage	> 250 V	(response time 0.2 s)
Undervoltage	< 195 V	(response time 0.2 s)
Frequency drift	> 0.2 Hz	(response time 0.2 s)
Impedance step	> + 0.5 Ohm	(response time 5.0 s)

The device including the measuring method is under patent law.

Operating indication

Via two LED's the ENS indicates its operating condition and its own decision on the grid.
The status of the LED's and their meaning are explained in the following table:

Green LED	Red LED	meaning	
off	off	Test status	Grid is being checked . Relays are swiched off or power off.
on	off	Grid o.k.	Grid is o.k. Relays are switsched on.
off	on	Grid error	Impedance ist too high.
off	flashing	Grid error	A not allowable positive step of impedanche is indicated.
flashing both		Grid error	Over or undervoltage ist detected.
flashing	on	Grid error	Frequency error is detected.
alternating flashing		Error	Fuse or device defective.
flickering	flickering	Error	A measuring error or error of hardware.

The ENS25 can be delivered optionally with a LCD which makes it possible to evaluate the network junction point. The LCD indicates the voltage, frequency, impedance of the network and the operating status.
Thus a check of its load capacity and aptitude is possible already in the planning period.

Advice for installation

The device is linked with the connecting terminals L (to the phase) and N (to the neutral conductor).

The phase has to be fuse protected with maximum value 25 A. Now an inverter can be connected to Lo and No with its phase and neutral conductor.
Anyway, the earth conductor should pass the device.
Only a fuse with a value of 400 mA T at high switching capacity should be installed into the device.
An exchange is only allowed to be done by qualified personnel.

Don't pull off the device violently from the mounting bar. Use a screwdriver taken in the supposed grooves to pull off the device by a light lever movement.

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