

VOLTAGE MONITORING - GAMMA SERIES

FUNCTIONS

UNDER

The output relay remains switched on until the monitored value falls below the minimum value. As soon as the monitored value exceeds the maximum value, the output relay switches to the on position again.

WIN

The output relay remains switched on until the monitored value lies within the defined window. As soon as the monitored value enters the defined window again, the output relay switches to the on position again.

DELAY

If the monitored value leaves the selected range, the output relay only switches to the off position following expiry of the trip delay.

LATCH (Fault latch)

If the device detects a fault, the output relay only switches on again when the fault latch has been reset. The fault latch can be reset by means of an internal or external reset button or by interrupting the supply voltage.

VOLTAGE MONITORING MODELS



Model	G4PM690VSYL20**	G4PM500VSYL20**
Functions	Under, Under+Sequence, Window, Window+Sequence	Under, Under+Sequence, Window, Window+Sequence
Contacts	2 C/O	2 C/O
Measuring Voltage	3 Phase - 400/690VAC	3 Phase - 500VAC
Control Voltage	12 - 500VAC**	12 - 500VAC**
Tripping Delay / Fault Latch	0.1 - 10 sec / Yes	0.1 - 10 sec / Yes
Asymmetry Monitoring	5 - 25% or OFF	5 - 25% or OFF
Suitable for Frequency Converters	Yes	Yes
Suitable for Motor Applications	Yes	Yes
Size	45mm wide	45mm wide

** Please Note that a TR3 Voltage Module needs to be selected for models with ** and is fitted before dispatch. The List Price above includes the TR3 Module. All TR3 Voltage Modules are listed in the Accessories Section.

VOLTAGE MONITORING - GAMMA SERIES

FUNCTIONS

UNDER

The output relay remains switched on until the monitored value falls below the minimum value. As soon as the monitored value exceeds the maximum value, the output relay switches to the on position again.

WIN

The output relay remains switched on until the monitored value lies within the defined window. As soon as the monitored value enters the defined window again, the output relay switches to the on position again.

DELAY

If the monitored value leaves the selected range, the output relay only switches to the off position following expiry of the trip delay.

VOLTAGE MONITORING MODELS



Model	G2PM400VSY20 24-240V	G2PM400VSY20**	G2PM400VSY10**
Functions	Under, Under+Sequence, Window, Window+Sequence	Under, Under+Sequence, Window, Window+Sequence	Under, Under+Sequence, Window, Window+Sequence
Contacts	2 C/O	2 C/O	1 C/O
Measuring Voltage	3 Phase - 400VAC	3 Phase - 400/VAC	3 Phase - 400VAC
Control Voltage	24 - 240VAC/DC	12 - 440VAC**	12 - 440VAC**
Tripping Delay	0.1 - 10 sec	0.1 - 10 sec	0.1 - 10 sec
Asymmetry Monitoring	5 - 25% or OFF	5 - 25% or OFF	5 - 25% or OFF
Suitable for Frequency Converters	Yes	Yes	Yes
Suitable for Motor Applications	Yes	Yes	Yes
Size	22.5mm wide	22.5mm wide	22.5mm wide

** Please Note that a TR2 Voltage Module needs to be selected for models with ** and is fitted before dispatch. The List Price above includes the TR2 Module. All TR2 Voltage Modules are listed in the Accessories Section.

VOLTAGE MONITORING - GAMMA SERIES

FUNCTIONS

UNDER

The output relay remains switched on until the monitored value falls below the minimum value. As soon as the monitored value exceeds the maximum value, the output relay switches to the on position again.

WIN

The output relay remains switched on until the monitored value lies within the defined window. As soon as the monitored value enters the defined window again, the output relay switches to the on position again.

DELAY

If the monitored value leaves the selected range, the output relay only switches to the off position following expiry of the trip delay.

LATCH (Fault latch)

If the device detects a fault, the output relay only switches on again when the fault latch has been reset. The fault latch can be reset by means of an internal or external reset button or by interrupting the supply voltage.

VOLTAGE MONITORING MODELS



Model	G2PM230VSY20 24-240V	G2PM230VSY10**	G2YM400VL20**
Functions	Under, Under+Sequence, Window, Window+Sequence	Under, Under+Sequence, Window, Window+Sequence	Under, Under+Sequence, Window, Window+Sequence
Contacts	2 C/O	1 C/O	2 C/O
Measuring Voltage	3 Phase - 230VAC	3 Phase - 230VAC	3 Phase - 400VAC
Control Voltage	24 - 240VAC/DC	12 - 440VAC**	12 - 440VAC**
Tripping Delay / Fault Latch	0.1 - 10 sec / No	0.1 - 10 sec / No	0.1 - 10 sec / Yes
Asymmetry Monitoring	5 - 25% or OFF	5 - 25% or OFF	No
Suitable for Frequency Converters	Yes	Yes	Yes
Suitable for Motor Applications	Yes	Yes	Yes
Size	22.5mm wide	22.5mm wide	22.5mm wide

** Please Note that a TR2 Voltage Module needs to be selected for models with ** and is fitted before dispatch. The List Price above includes the TR2 Module. All TR2 Voltage Modules are listed in the Accessories Section.

VOLTAGE & FREQUENCY MONITORING - GAMMA SERIES

FUNCTIONS

UNDER

The output relay remains switched on until the monitored value falls below the minimum value. As soon as the monitored value exceeds the maximum value, the output relay switches to the on position again.

WIN

The output relay remains switched on until the monitored value lies within the defined window. As soon as the monitored value enters the defined window again, the output relay switches to the on position again.

DELAY

If the monitored value leaves the selected range, the output relay only switches to the off position following expiry of the trip delay.

START-UP

The output relay switches on when the supply voltage is applied. Changes to measured variables have no impact on the setting of the output relay during start-up suppression.

LATCH (Fault latch)

If the device detects a fault, the output relay only switches on again when the fault latch has been reset. The fault latch can be reset by means of an internal or external reset button or by interrupting the supply voltage.

VOLTAGE MONITORING MODELS



Model	G2PF400VS02	G2FW50HzYFA02**	G2FW400VL20 24-240V
Functions	Phase Failure & Sequence Monitoring	Voltage & Frequency Monitoring - 50Hz	Frequency Monitoring 50Hz or 60Hz Systems
Contacts	2 C/O	2 C/O	2 C/O
Measuring Voltage	3 Phase - 400VAC	400VAC	110VAC - 400VAC
Control Voltage	400VAC	12 - 440VAC**	24 - 240VAC/DC
Tripping Delay / Fault Latch / Start-up Delay	No	Fixed <200msec / No / 30 sec	0.1 - 10 sec / Yes / 0 - 10 sec
Asymmetry Monitoring	Fixed - 30%	No	No
Suitable for Frequency Converters	Yes	Yes	Yes
Suitable for Motor Applications	Yes	Yes	Yes
Size	22.5mm wide	22.5mm wide	22.5mm wide

** Please Note that a TR2 Voltage Module needs to be selected for models with ** and is fitted before dispatch. The List Price above includes the TR2 Module. All TR2 Voltage Modules are listed in the Accessories Section.

VOLTAGE MONITORING - GAMMA SERIES

FUNCTIONS

UNDER

The output relay remains switched on until the monitored value falls below the minimum value. As soon as the monitored value exceeds the maximum value, the output relay switches to the on position again.

WIN

The output relay remains switched on until the monitored value lies within the defined window. As soon as the monitored value enters the defined window again, the output relay switches to the on position again.

OVER

The output relay remains switched on until the monitored value exceeds the maximum value. As soon as the monitored value falls below the minimum value, the output relay switches to the on position again.

START-UP

The output relay switches on when the supply voltage is applied. Changes to measured variables have no impact on the setting of the output relay during start-up suppression.

LATCH (Fault latch)

If the device detects a fault, the output relay only switches on again when the fault latch has been reset. The fault latch can be reset by means of an internal or external reset button or by interrupting the supply voltage.

DELAY

If the monitored value leaves the selected range, the output relay only switches to the off position following expiry of the trip delay.

VOLTAGE MONITORING MODELS



Model	G2UM300VL10**	G2UM300VL20 24-240V	G2UM10VL20 24-240V
Functions	Under, Over, Window	Under, Over, Window	Under, Over, Window
Contacts	2 C/O	2 C/O	2 C/O
Measuring Voltage	Single Phase - 30V/60V/300V AC/DC	Single Phase - 30V/60V/300V AC/DC	Single Phase - 60mV/150mV/10V AC/DC
Control Voltage	24 - 240VAC/DC	24 - 240VAC/DC	24 - 240VAC/DC
Tripping Delay / Fault Latch / Start-up Delay	0.1 - 10 sec / Yes / 0 - 10 sec	0.1 - 10 sec / Yes / 0 - 10 sec	0.1 - 10 sec / Yes / 0 - 10 sec
Asymmetry Monitoring	No	No	No
Suitable for Frequency Converters	Yes	Yes	Yes
Suitable for Motor Applications	Yes	Yes	Yes
Size	22.5mm wide	22.5mm wide	22.5mm wide

** Please Note that a TR2 Voltage Module needs to be selected for models with ** and is fitted before dispatch. The List Price above includes the TR2 Module. All TR2 Voltage Modules are listed in the Accessories Section.

VOLTAGE & FREQUENCY MONITORING - GAMMA SERIES

FUNCTIONS

WIN

The output relay remains switched on until the monitored value lies within the defined window. As soon as the monitored value enters the defined window again, the output relay switches to the on position again.

START-UP

The output relay switches on when the supply voltage is applied. Changes to measured variables have no impact on the setting of the output relay during start-up suppression.

LATCH (Fault latch)

If the device detects a fault, the output relay only switches on again when the fault latch has been reset. The fault latch can be reset by means of an internal or external reset button or by interrupting the supply voltage.

DELAY

If the monitored value leaves the selected range, the output relay only switches to the off position following expiry of the trip delay.

VOLTAGE MONITORING MODELS



Model	G2UW300V10**
Functions	Window
Contacts	2 C/O
Measuring Voltage	Single Phase - 30V/60V/300V AC/DC
Control Voltage	24 - 240VAC/DC
Tripping Delay/Fault Latch/Start-up Delay	0.1 - 10 sec / Yes / 0 - 10 sec
Asymmetry Monitoring	No
Suitable for Frequency Converters	Yes
Suitable for Motor Applications	Yes
Size	22.5mm wide

** Please Note that a TR2 Voltage Module needs to be selected for models with ** and is fitted before dispatch. The List Price above includes the TR2 Module. All TR2 Voltage Modules are listed in the Accessories Section.

VOLTAGE MONITORING - VEO SERIES

FUNCTIONS



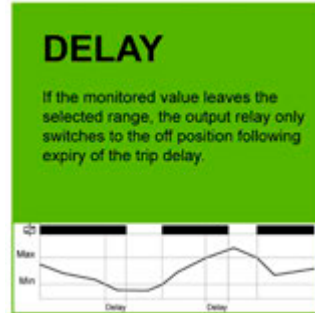
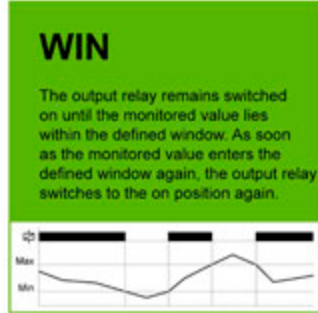
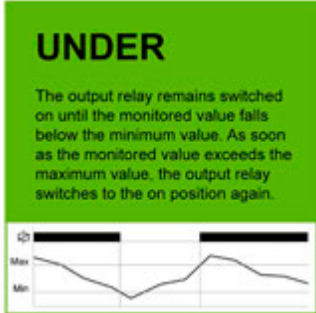
VOLTAGE MONITORING MODELS



Model	V2PM400Y/230VS10	V2PF480Y/277VSY01	V4PF480Y/277VSYTK02
Model PUSH-IN Type	V2PM400Y/230VS10P	V2PF480Y/277VSY01P	V4PF480Y/277VSYTK02P
Functions	Under, Under+Sequence, Window, Window+Sequence	Under, Under+Sequence	Under, Under+Sequence, Motor Temperature (PTC)
Contacts	1 C/O	1 C/O	1 C/O
Measuring Voltage	3 Phase - 400VAC	3 Phase - 400/VAC	3 Phase - 400VAC
Control Voltage	400VAC	400VAC	400VAC
Tripping Delay	0.1 - 10 sec	Fixed < 250m sec	Fixed < 250m sec
Asymmetry Monitoring	No	5 - 25% or OFF	5 - 25% or OFF
Suitable for Frequency Converters	Yes	Yes	Yes
Suitable for Motor Applications	Yes	Yes	Yes
Size	22.5mm wide	22.5mm wide	45mm wide

VOLTAGE MONITORING - VEO SERIES

FUNCTIONS



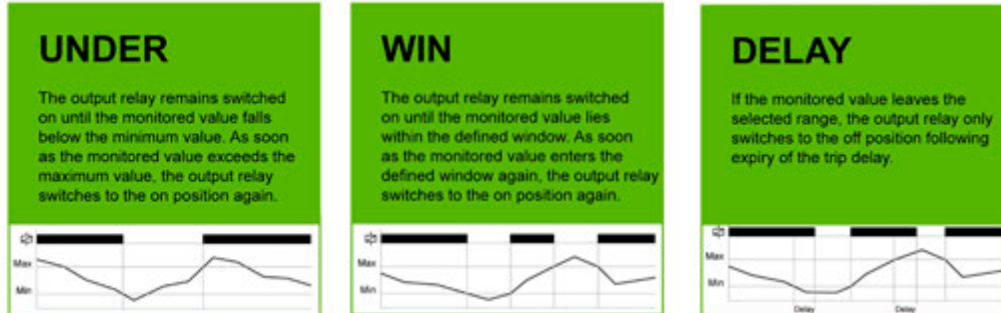
VOLTAGE MONITORING MODELS



Model	V2UM230V10	V2UF230V10
Functions	Under, Window	Voltage Drop Detector 10 to 40msec
Contacts	1 C/O	1 C/O
Measuring Voltage	1 Phase - 24VDC or 230VAC/DC	1 Phase
Control Voltage	24VDC or 230VAC/DC	230VAC
Tripping Delay	0.1 - 10 sec	0.1 - 10 sec
Asymmetry Monitoring	No	No
Suitable for Frequency Converters	Yes	Yes
Suitable for Motor Applications	Yes	Yes
Size	22.5mm wide	22.5mm wide

VOLTAGE MONITORING - ENYA SERIES

FUNCTIONS



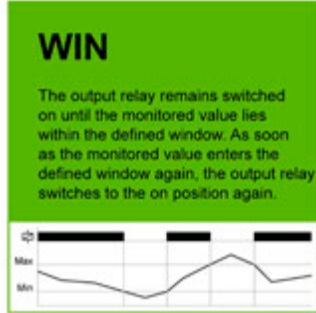
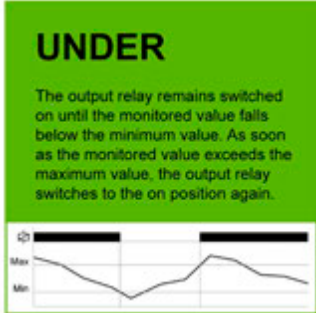
VOLTAGE MONITORING MODELS



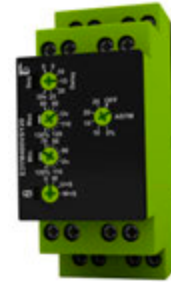
Model	E1YM400VS10	E1PF400VSY01	E3PF400VSY02
Functions	Under, Under+Sequence, Window, Window+Sequence	Under, Under+Sequence	Under, Under+Sequence
Contacts	1 C/O	1 C/O	2 C/O
Measuring Voltage	3 & 1 Phase - 400/230VAC	3 Phase - 400/VAC	3 Phase - 400/VAC
Control Voltage	400/230VAC	400VAC	400VAC
Tripping Delay	0.1 - 10 sec	Fixed - 100m sec	Fixed - 100m sec
Asymmetry Monitoring	No	5 - 25% or OFF	5 - 25% or OFF
Suitable for Frequency Converters	No	No	No
Suitable for Motor Applications	Yes	Yes	Yes
Size	17.5mm wide	17.5mm wide	55mm wide

VOLTAGE MONITORING - ENYA SERIES

FUNCTIONS



VOLTAGE MONITORING MODELS



Model	E3YM400VSY20
Functions	Under, Under+Sequence, Window, Window+Sequence, Asymmetry
Contacts	2 C/O
Measuring Voltage	3 & 1 Phase - 400/230VAC
Control Voltage	400/230VAC
Tripping Delay	0 - 30 sec
Asymmetry Monitoring	5 - 25% or OFF
Suitable for Frequency Converters	No
Suitable for Motor Applications	Yes
Size	35mm wide

VOLTAGE MONITORING - ENYA SERIES

FUNCTIONS

UNDER

The output relay remains switched on until the monitored value falls below the minimum value. As soon as the monitored value exceeds the maximum value, the output relay switches to the on position again.

VOLTAGE MONITORING MODELS



Model	E1PF480Y/277VSY01	E1YU400V01	E3YU400V02
Functions	Under + Sequence	Under (adjustable)	Under (adjustable)
Contacts	1 C/O	1 C/O	2 C/O
Measuring Voltage	3 Phase - 480/277VAC	3 & 1 Phase - 400/230VAC	3 & 1 Phase - 400/230VAC
Control Voltage	480/277VAC	400/230VAC	400/230VAC
Tripping Delay	Fixed - 100m sec	Fixed - 200m sec	Fixed - 200m sec
Asymmetry Monitoring	5 - 25% or OFF	No	No
Suitable for Frequency Converters	No	No	No
Suitable for Motor Applications	Yes	No	No
Size	17.5mm wide	17.5mm wide	35mm wide

VOLTAGE MONITORING - ENYA SERIES

FUNCTIONS

UNDER

The output relay remains switched on until the monitored value falls below the minimum value. As soon as the monitored value exceeds the maximum value, the output relay switches to the on position again.

WIN

The output relay remains switched on until the monitored value lies within the defined window. As soon as the monitored value enters the defined window again, the output relay switches to the on position again.

LATCH (Fault latch)

If the device detects a fault, the output relay only switches on again when the fault latch has been reset. The fault latch can be reset by means of an internal or external reset button or by interrupting the supply voltage.

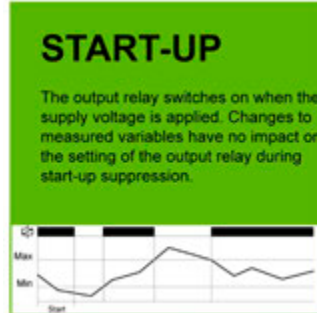
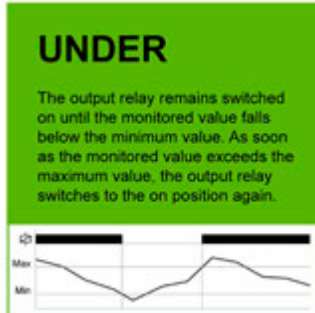
VOLTAGE MONITORING MODELS



Model	E1YF400VT01	E3YF400VT02	E3YF400VFA02
Functions	Under, Test	Under, Test	Window, Latch
Contacts	1 C/O	2 C/O	2 C/O
Measuring Voltage	3 & 1 Phase - 400/230VAC	3 & 1 Phase - 400/230VAC	3 & 1 Phase - 400/230VAC
Control Voltage	400/230VAC	400/230VAC	400/230VAC
Tripping Delay / Failure Delay	Fixed - 200m sec	Fixed - 200m sec	Fixed - 200m sec / 20m sec
Asymmetry Monitoring	No	No	No
Suitable for Frequency Converters	No	No	No
Suitable for Motor Applications	No	No	No
Size	17.5mm wide	35mm wide	35mm wide

VOLTAGE MONITORING - ENYA SERIES

FUNCTIONS



VOLTAGE MONITORING MODELS



Model	E1YF400V01	E3YF400V02	E3YF400VE20
Functions	Under (85%)	Under (85%)	Under (85%), On-Delay
Contacts	1 C/O	2 C/O	2 C/O
Measuring Voltage	3 & 1 Phase - 400/230VAC	3 & 1 Phase - 400/230VAC	3 & 1 Phase - 400/230VAC
Control Voltage	400/230VAC	400/230VAC	400/230VAC
Tripping Delay	Fixed - 200m sec	Fixed - 200m sec	Reset Time 0.5 sec
Asymmetry Monitoring	No	No	No
Suitable for Frequency Converters	No	No	No
Suitable for Motor Applications	No	No	No
Size	17.5mm wide	35mm wide	35mm wide

VOLTAGE MONITORING - ENYA SERIES

FUNCTIONS

UNDER

The output relay remains switched on until the monitored value falls below the minimum value. As soon as the monitored value exceeds the maximum value, the output relay switches to the on position again.



WIN

The output relay remains switched on until the monitored value lies within the defined window. As soon as the monitored value enters the defined window again, the output relay switches to the on position again.



VOLTAGE MONITORING MODELS



Model	E1UM230V01
Functions	1 Phase AC/DC Monitoring Win, Under
Contacts	1 C/O
Measuring Voltage	24AC/24VDC/230VAC
Tripping Delay	N/A
Asymmetry Monitoring	No
Suitable for Frequency Converters	No
Suitable for Motor Applications	No
Size	17.5mm wide

VOLTAGE MONITORING - KAPPA SERIES

FUNCTIONS

UNDER

The output relay remains switched on until the monitored value falls below the minimum value. As soon as the monitored value exceeds the maximum value, the output relay switches to the on position again.

WIN

The output relay remains switched on until the monitored value lies within the defined window. As soon as the monitored value enters the defined window again, the output relay switches to the on position again.

DELAY

If the monitored value leaves the selected range, the output relay only switches to the off position following expiry of the trip delay.

VOLTAGE MONITORING MODELS



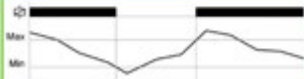
Model	R11X	K3YM400VSY20	K3PF400VSY02
Functions	11 Pin Base	Under, Under+Sequence, Window, Window+Sequence	Under + Sequence
Contacts	300VAC	2 C/O	2 C/O
Measuring Voltage		3 & 1 Phase - 400/230VAC	3 Phase - 400VAC
Control Voltage		400/230VAC	400VAC
Tripping Delay		0.1 - 10 sec	Fixed - 100m sec
Asymmetry Monitoring		5 - 30% or OFF	5 - 30% or OFF
Suitable for Frequency Converters		No	No
Suitable for Motor Applications		Yes	Yes
Size	38mm wide	38mm wide	38mm wide

VOLTAGE MONITORING - KAPPA SERIES

FUNCTIONS

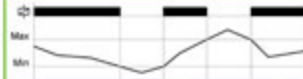
UNDER

The output relay remains switched on until the monitored value falls below the minimum value. As soon as the monitored value exceeds the maximum value, the output relay switches to the on position again.



WIN

The output relay remains switched on until the monitored value lies within the defined window. As soon as the monitored value enters the defined window again, the output relay switches to the on position again.



VOLTAGE MONITORING MODELS



Model	R11X	K3UM230VAC02	K3UM24VDC02
Functions	11 Pin Base	Under & Window	Under & Window
Contacts	300VAC	2 C/O	2 C/O
Measuring Voltage		Single Phase - 230VAC	Single Phase - 24VDC
Control Voltage		230VAC	24VDC
Tripping Delay		None	None
Asymmetry Monitoring		No	No
Suitable for Frequency Converters		No	No
Suitable for Motor Applications		Yes	Yes
Size	38mm wide	38mm wide	38mm wide

GRID AND SYSTEM PROTECTION



Autonomously working disconnecting point for private small power plants

Why? Small power plants must be disconnected from the grid immediately in the event of a network shutdown or network disruption to avoid any danger to people and equipment.

Function: An automatic disconnection device monitors the feed-in of energy to the 230/400V grid. In case of a power failure or disruptions by the energy supplier it is vital for small power plants to be disconnected within a few milliseconds. Monitoring the voltage and frequency and recognizing isolated (off-grid) operation are essential requirements for any automatic disconnection device.

Requirement: Converting renewable energy into electricity is a key element of stabilising 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 produced in this way is used to cover own consumption needs, or fed into the public grid to generate 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 engineering. This is too expensive and therefore uneconomical for the many private producers of electricity.

In the event of a power cut or a disruption in the grid of the energy supplier, small private power plants immediately have to be disconnected from the public grid to prevent unwanted feed-in.

Failure to disconnect from the grid without delay puts maintenance personnel at risk, while consumers can also be exposed to improper voltages and frequencies. The monitoring and the automatic disconnection are carried out by an automated interface. Small power plants have to be equipped with an automatic isolation unit that is checked and permitted by an accredited body. Country-specific norms define how the interface should be realised and checked in detail.

To meet the requirements of the standards and of the energy supply companies, the market offers solutions as individual components, multinational components as well as integrated solutions. The thresholds can even be adjusted outside the standard values if required by the network operator. Functionally safe devices also fulfil the monitoring function in the event of faults, recognise these faults and ensure a safe operating condition.

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



Wind power plant



Hydropower station



Combined heat and power plant



Biomass power plant



Photovoltaic



Battery storage

GRID AND SYSTEM PROTECTION



NA003

- ✓ Multifunctional device
- ✓ Open setup, fully configurable without any limitations
- ✓ One device for low and medium voltage grid

TYPE DESIGNATION	NA003
ORDER INFORMATION	
Art. No.	2700000
FUNCTIONALITY	
Implemented standards	CEI 0-21 (Italy) VDE V 0126-1-1 (Turkey, Belgium, France, Greece, ...) VDE-AR-N 4105 - tested in accordance with VDE V 0124-100 (Germany, ...) G59/3 (Great Britain - low voltage) G59/3 (Great Britain - medium voltage) G83/2 (Great Britain) C10-11 (Belgium - low voltage) C10-11 (Belgium - medium voltage) TR3, TR8 - certified in accordance with BDEW 2008 (Germany - medium voltage) OENorm E 8001-4-712 (Austria) EN50438 (Europe) EN50438 Denmark NRS 097-2-1 (South Africa) Open setup
Measuring variable	phase to phase voltage, phase to neutral voltage, 10 minute voltage average, frequency, frequency change (RoCoF), Phase shift (PShift)
Measuring range	phase to phase voltage: 0 ... 560VAC, phase to neutral voltage: 0 ... 325VAC frequency: 40 ... 60Hz, RoCoF 100mHz/s ... 2.000mHz/s, Pshift 1 ... 15°
Monitoring functions	2 x phase to neutral overvoltage, 2 x phase to neutral undervoltage 2 x phase to phase overvoltage, 2 x phase to phase undervoltage 1 x 10 minutes voltage average (over) 4 x overfrequency, 4 x underfrequency, 1 x random overfrequency 1 x RoCoF (over), 1 x PShift (over)
Features	Each turn-off threshold is associated with its own turn-off time Fixed turn-on time, random turn-on time Configurable evaluation of the feedback contact Enable / Disable functions via digital inputs Enable / Disable functions via selectable operational 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 ability to seal Error memory with time stamp (entries)
Supply voltage	24V DC ± 10%, 110 ... 240V AC ± 30%,
Rated frequency	50/60Hz or DC
Tolerance of rated frequency	48...63Hz
Output circuit	3 CO contacts 5A, 250V AC (1250VA)
Digital inputs	5 inputs for potential free contacts (24V / 5mA)
DESIGN	
Dimensions (w x h x d)	106.3 x 90.5 x 62mm
Certificates	CE, EAC