

Grid Monitoring Relay User Manual



ADDRESS: Ikitelli OSB Mah. Cevre 14.
Blok Sok. Telas Blok Dis Kapi No: 1
Kat: 1-2 Basaksehir/Istanbul

Phone: +90 212 438 80 24
Fax: +90 212 438 80 25

info@gruparge.com

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PROPER USE AND SAFETY REQUIREMENTS



Cut all the power when connecting and disconnecting the device to a panel.



Do not clean the device with a solvent or similar material. Only use a dry cloth.



Please do not intervene to the device when a technical problem is encountered and get in contact with a technical service within the shortest time.



If the warnings are not taken into account, our company or the authorized dealer shall not be held responsible for the negative consequences.



Do not dispose in the trash, the device must be delivered to the collection centers (electronic device recycling centers). It should be recycled or disposed of without harming human health and environment.



The installation, assembly, activation and operation of the device should be done and used by only expert professionals and in accordance with safety regulations and instructions.

1.INTRODUCTION

1.1. General Features

This product of the Grup Arge brand is a multifunctional (Loss of Mains) grid monitoring relay positioned between the main power grid and the renewable energy generation power plant. By continuously monitoring various parameters of the city network, it separates the power plant and the main electricity network within the time specified by the user or specifications in case of any voltage or frequency disturbance that may occur, and ensures that the renewable generation plant is reactivated when the system reaches its nominal value. The device can be explained under the following headings.

Grid monitoring relay: 3 phase-neutral voltages, phase-neutral and phase-phase voltages, frequency, voltage and frequency drift can be measured and displayed on the screen. In addition, it saves the error conditions determined in the device in its memory. Many necessary adjustments related to the device (V_{min} , V_{max} , F_{min} , F_{max}) can be made through the menu. Thanks to the communication system, all read parameters can be monitored remotely via standard Modbus Protocol and various adjustments can be made.

1.2. Key Features

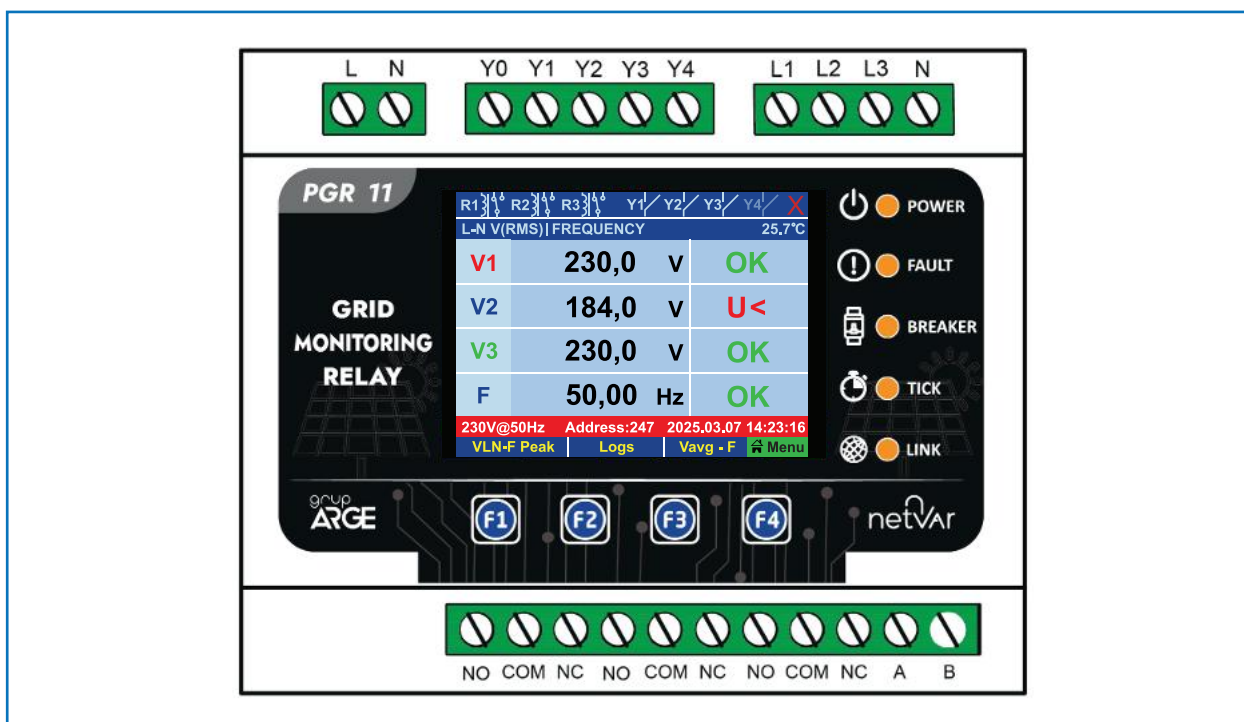
- Microprocessor Based Monitoring and Control
- **Wide Range Supply:** 85-265V AC / 24-265V DC
- **Maximum Measurement Voltage:** 0-650V L-N, 0-1125V L-L RMS
- Neutral Interruption Detection
- **Frequency Measurement Range:** 40-70 Hz
- Ease of Communication with RS-485 Modbus RTU Protocol and 247 Different Modbus Address

1.3. Inputs and Outputs

- Wide AC-DC Range Supply
- 1 24V DC Output
- 1 Modbus RS485 Port
- 4 Digital Inputs
- 3 Relay Outputs 230V AC / 32V DC 10A
- 3L-N/3L Analog Voltage Measurement Input

1.4. Display and Buttons

- Instant Voltage and Frequency Monitoring
- Setting Protection and Communication Data with the Buttons Located Below the Screen
- Real-Time Recording and Monitoring of Alarm Conditions



Power, communication, fault and breaker position led indicators (LED indicators are directly related to the control system apart from the TFT panel. In case of failure of the screen, the status can be monitored from the led indicators).

1.5. LEDs

POWER: Indicates whether the device is energized or not.

FAULT: This LED flashes when the device goes out of the specified voltage and frequency values.

BREAKER: Indicates whether the breaker is opened or not.

TICK: The breaker closure countdown LED lights up when it enters the specified voltage and frequency values.

LINK: LED flashes when communication is taking place.

2. FUNCTIONS

- Low and High Voltage 1st Step Trip / Protection
- Low and High Voltage 2nd Step Trip / Protection
- Low and High Frequency 1st Step Trip / Protection
- Low and High Frequency 2nd Step Trip / Protection
- Trip / Protection Against Incremental Frequency Change Per Second (ROCOF)
- Trip / Protection Against Voltage Angle Shift (Vector Shift)

3. COMPATIBILITY

- EMC - Immunity EN 61000-6-2
- EMC - Emission EN 61000-6-3

4. INPUTS – OUTPUTS

4.1. Device Feed Input and Operating Features

- **AC:** 85-265V (45-65 Hz), < 6 VA,
- **DC:** 24-265V < 6W
- **Surge Resistance:** 5000V
- **Operating Temperature:** -20 °C / +55 °C

4.2. Voltage and Frequency Input

Voltage

- **Measurement Phase-Phase:** AC 0-1125V (Resolution: 0.8V)
- **Measurement Phase-Neutral:** AC 0-650V (Resolution: 0.8V)
- **Phase-Neutral Adjustment Range:** AC 15-299V (Resolution: 1.2V)
- **Measurement Method:** True RMS
- **Measurement Functions:** Measurement with / without Neutral

Frequency

- **Measurement Range:** 40-70 Hz
- **Adjustment Range:** 40-65 Hz
- **Measurement Accuracy:** $\pm 0,01 \text{ Hz} \pm 1 \text{ Digit}$

4.3. Digital Input Features

There are 4 digital inputs.

The +24V coming from Y0 can be connected to Y1/Y2/Y3/Y4 terminals by returning from the auxiliary contacts of the contactors.

- Breaker Relay (Y1)
- Emergency Button (Adjustable) (Y2, Y3, Y4)
- Remote On/Off (Adjustable) (Y2, Y3, Y4)
- Leakage Current Relay Detection (Adjustable) (Y2, Y3, Y4)

4.4. Relay Outputs

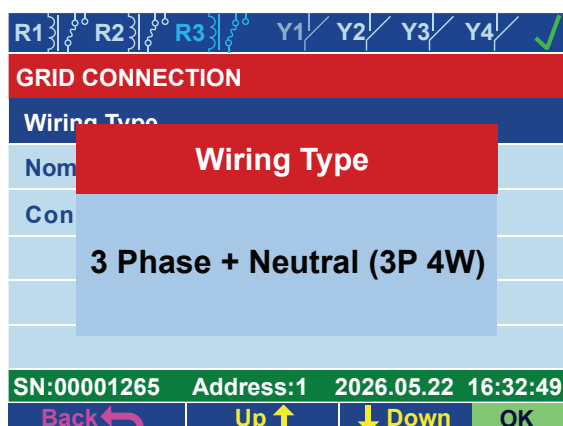
The device has 3 relay outputs. The 1st and 2nd relay can be configured according to the function of the breaker. How the 3rd relay should work together with the first two relays can be set in various ways.

5. QUICK INSTALLATION INSTRUCTIONS

5.1. Electrical Connection and Basic Configuration

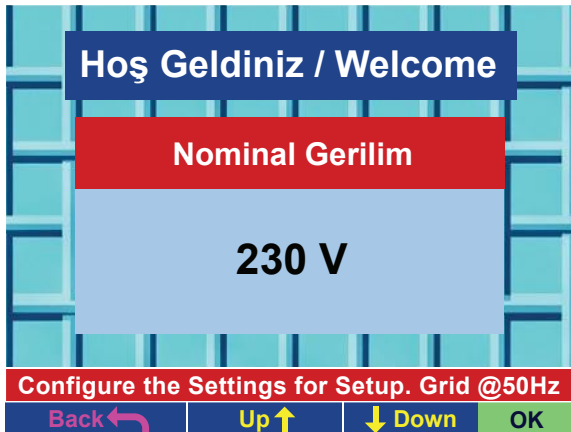
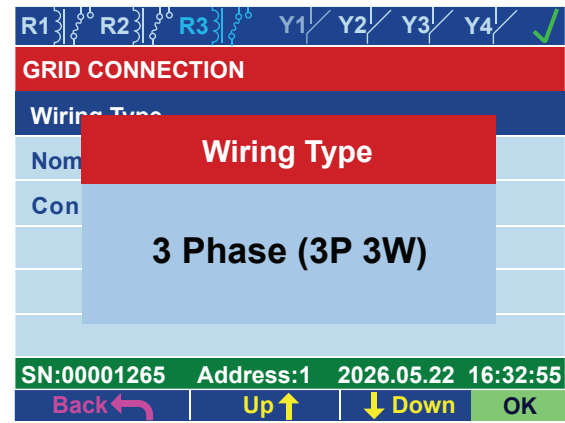
During the initial setup of the device, electrical connections and basic configurations must be carried out according to the following steps:

- Device connections are made in the following sequence: auxiliary power supply, voltage sensing inputs, relay outputs, digital inputs, and optional communication connection. After completing these connections, the device is energized.
- After energization, the appropriate selection for your system's voltage infrastructure must be made from the Connection Type menu displayed on the screen.



If a neutral line is present in your system, the **3 Phase + Neutral (3P 4W)** option must be confirmed.

If your system has an neutral-less infrastructure (e.g., 800V Nominal Voltage), the 3 Phase (3P 3W) option must be confirmed.



Following the voltage configuration, the **Nominal Voltage** selection screen will appear. You can adjust the average nominal voltage value of your system using the **F2 (Up)** and **F3 (Down)** buttons on the device.

5.2. Device Commissioning States

During initial energization, two different states may be observed depending on system electrical conditions:

5.2.1. No Connection or Value Out of Range

R1	R2	R3	Y1	Y2	Y3	Y4	X
L-N V(RMS) FRQUENCY							
V1	0,0		V	---			
V2	0,0		V	---			
V3	0,0		V	---			
F	0,00		Hz	---			
Conditions for Activation Not Met							
VLN-F Peak		Logs		Vavg - F		 Menu	

If the voltage sensing connections are not connected, or if instantaneous grid parameters fall outside the user-configured protection thresholds, the device displays "**Conditions for Activation Not Met**" on the screen and will not engage the system.

To resolve this condition, navigate through the menu steps shown below to reconfigure the **Voltage Range** (Minimum and Maximum Values) and **Frequency Range** according to your system's infrastructure.

a) Voltage Range Setting

R1	R2	R3	Y1	Y2	Y3	Y4	✓
MAIN MENU							
Grid Connection							
Grid Monitoring							
Switch On Condition							
IO Settings							
Manuel Control							
Warning & Event Logs							
SN:00001265 Address:1 2026.06.03 12:57:38							
Back Up Down OK							

R1	R2	R3	Y1	Y2	Y3	Y4	✓
SWITCH ON CONDITION							
Voltage Window							
Frequency Window							
Delay Time							
SN:00001265 Address:1 2026.06.03 12:57:39							
Back Up Down OK							

R1	R2	R3	Y1	Y2	Y3	Y4	✓
VOLTAGE WINDOW							
Activate							
Maximum Value							
Minimum Value							
SN:00001265 Address:1 2026.06.03 12:57:41							
Back Up Down OK							

b) Frequency Range Setting

R1	R2	R3	Y1	Y2	Y3	Y4	✓
MAIN MENU							
Grid Connection							
Grid Monitoring							
Switch On Condition							
IO Settings							
Manuel Control							
Warning & Event Logs							
SN:00001265 Address:1 2026.06.03 12:57:38							
Back Up Down OK							

R1	R2	R3	Y1	Y2	Y3	Y4	✓
SWITCH ON CONDITION							
Voltage Window							
Frequency Window							
Delay Time							
SN:00001265 Address:1 2026.06.03 12:58:25							
Back Up Down OK							

R1	R2	R3	Y1	Y2	Y3	Y4	✓
FREQUENCY WINDOW							
Activate							
Maximum Value							
Minimum Value							
SN:00001265 Address:1 2026.06.03 12:58:27							
Back Up Down OK							

c) Delay Time Setting

R1	R2	R3	Y1	Y2	Y3	Y4	✓
SWITCH ON CONDITION							
Voltage Window							
Frequency Window							
Delay Time							
SN:00001265 Address:1 2026.06.03 12:59:08							
Back Up Down OK							

Once grid parameters return within threshold limits, the **Delay Time** required before the device switches to the grid is factory set to **10 seconds**. This duration can be modified under the relevant menu tab as needed.

5.2.2. Normal Commissioning

If the protection fuses for the L1, L2, L3, and N lines are closed, phase voltages will be read on the display. If the measured values are within the configured nominal voltage range and commissioning condition thresholds, the device initiates a **10-second countdown** upon energization.

R1	R2	R3	Y1	Y2	Y3	Y4	✓
L-N V(RMS) FREQUENCY							
V1	217,9 v					OK	
V2	218,2 v					OK	
V3	217,9 v					OK	
F	50,11 Hz					OK	
Grid Disconnecting (Feedback): 3.0 sec							
VLN-F Peak		Logs		Vavg - F		Menu	

The device repeats this attempt up to **3 times**. If consecutive attempts fail, the screen permanently latches to "**Grid Disconnected! (Feedback Error)**".

R1	R2	R3	Y1	Y2	Y3	Y4	X
L-N V(RMS) FREQUENCY							
V1	217,8 v					—	
V2	218,1 v					—	
V3	217,8 v					—	
F	50,09 Hz					—	
Grid Connection Remaining Time: 7 sec							
VLN-F Peak		Logs		Vavg - F		Menu	

Following the countdown, the device attempts to energize the control relay. If circuit breaker position feedback is not received via input **Y1** during this attempt, the screen displays "**Grid Disconnected (Feedback)**", and the device disconnects after a brief countdown.

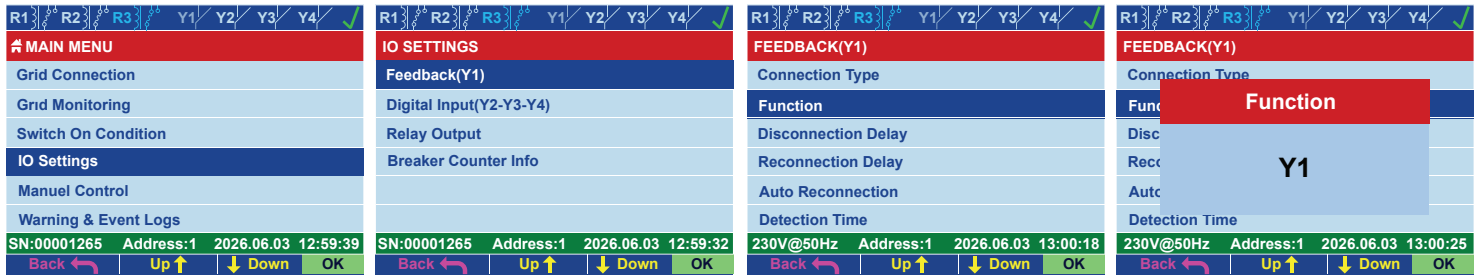
R1	R2	R3	Y1	Y2	Y3	Y4	X						
L-N V(RMS) FREQUENCY													
V1	217.8 v		—										
Feedback Error After Fixing Hold the Menu Button for 3 Seconds													
								V2	—		—		
								V3	—		—		
F	50.09 Hz		—										
Grid Disconnected! (Feedback Error)													
VLN-F Peak		Logs		Vavg - F		Menu							

5.2.2.1. Feedback (Y1) Faults and Control Steps

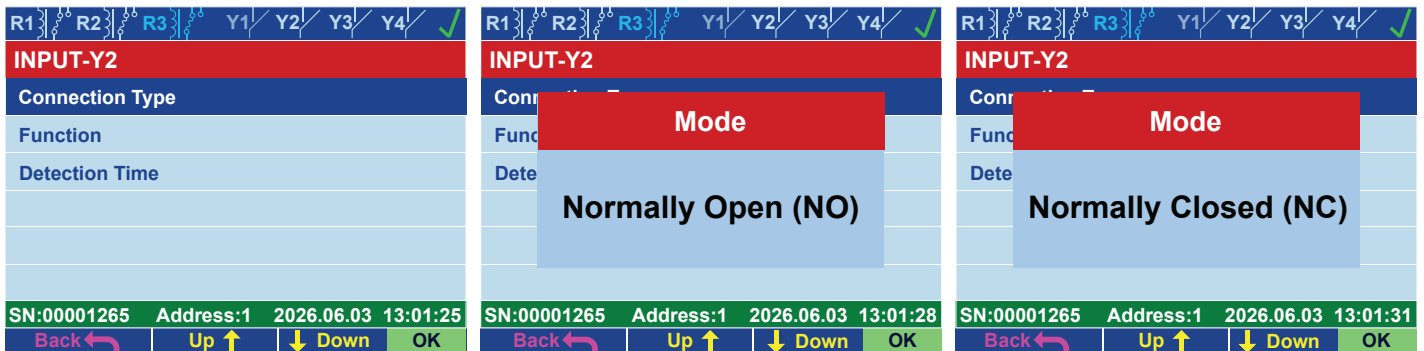
To clear the feedback fault warning and safely commission the system, execute the following steps in sequence:

Step 1: Digital Input Checks

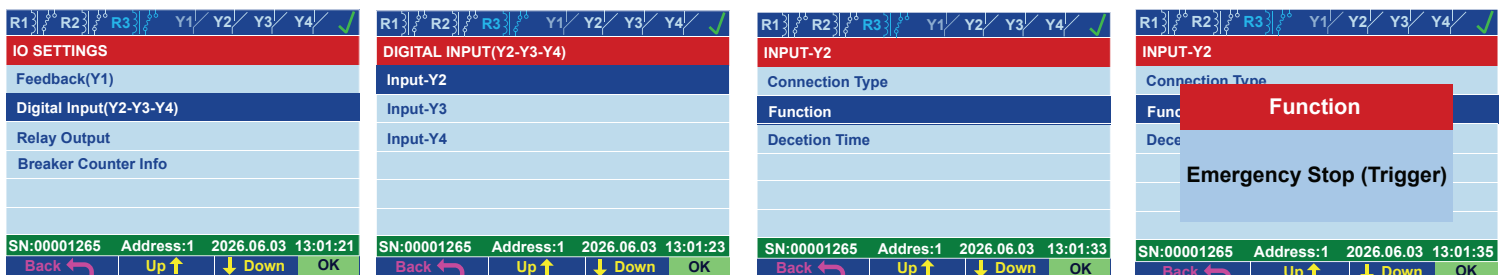
- Ensure the wiring between terminal Y0 (common digital terminal) and Y1 (feedback input)—which transfers circuit breaker position status to the device—is electrically intact.
- Confirm that channel Y1 is enabled in the device menu via:
Main Menu > Input/Output Settings > Feedback (Y1).



- Circuit breaker auxiliary contacts are typically changeover types (one NO + one NC with a shared mechanism). Therefore, the **Connection Type** parameter for terminal Y1 and other digital inputs (Y2, Y3, Y4) must be set to **Normally Open (NO)** or **Normally Closed (NC)** according to the physical contact wired on the breaker.



- **Application Example:** If multiple emergency stop buttons are connected in the system, all buttons can be wired in parallel to the panel using **NO (Normally Open)** contacts. In this configuration, the **Connection Type** parameter for that digital input must be set to "NO" in the menu.



Step 2: Relay Output Configuration

- Depending on your system's electrical control architecture, the **K1** and **K2** relay output modes may be incorrectly configured.
- Determine whether the relay output trigger mode should operate in "**Continuous**" mode or "**Pulse (Trip-Close Signal)**" mode.
- From the configuration menu:
Configure Relay **K1** as the **Closing Trigger** to close the breaker.

R1 R2 R3 Y1 Y2 Y3 Y4 ✓	R1 R2 R3 Y1 Y2 Y3 Y4 ✓	R1 R2 R3 Y1 Y2 Y3 Y4 ✓	R1 R2 R3 Y1 Y2 Y3 Y4 ✓
IO SETTINGS	RELAY OUTPUT	OUTPUT-K1	OUTPUT-K1
Feedback(Y1)	Output-K1	Mode	Mode
Digital Input(Y2-Y3-Y4)	Output-K2	On Duration	On Duration
Relay Output	Output-K3(User)	Trigger Interval	Trigger Interval
Breaker Counter Info			
230V@50Hz Address:1 2026.06.03 13:06:25	230V@50Hz Address:1 2026.06.03 13:08:27	230V@50Hz Address:1 2026.06.03 13:08:27	SN:00001265 Address:1 2026.06.03 13:06:31
Back Up Down OK	Back Up Down OK	Back Up Down OK	Back Up Down OK

- Configure Relay **K2** as the **Tripping Trigger** to trip the breaker.

R1 R2 R3 Y1 Y2 Y3 Y4 ✓	R1 R2 R3 Y1 Y2 Y3 Y4 ✓	R1 R2 R3 Y1 Y2 Y3 Y4 ✓	R1 R2 R3 Y1 Y2 Y3 Y4 ✓
IO SETTINGS	RELAY OUTPUT	OUTPUT-K2	OUTPUT-K2
Feedback(Y1)	Output-K1	Mode	Mode
Digital Input(Y2-Y3-Y4)	Output-K2	On Duration	On Duration
Relay Output	Output-K3(User)	Trigger Interval	Trigger Interval
Breaker Counter Info			
230V@50Hz Address:1 2026.06.03 13:06:25	230V@50Hz Address:1 2026.06.03 13:07:07	230V@50Hz Address:1 2026.06.03 13:07:09	230V@50Hz Address:1 2026.06.03 13:07:11
Back Up Down OK	Back Up Down OK	Back Up Down OK	Back Up Down OK

- Once these parameters are set, power-cycle (restart) the device to test whether the system successfully commissions.

To configure other connections under the digital input section,

R1 R2 R3 Y1 Y2 Y3 Y4 ✓	R1 R2 R3 Y1 Y2 Y3 Y4 ✓	R1 R2 R3 Y1 Y2 Y3 Y4 ✓
MAIN MENU	IO SETTINGS	DIGITAL INPUT(Y2-Y3-Y4)
Grid Connection	Feedback(Y1)	Input-Y2
Grid Monitoring	Dijital Giriş(Y2-Y3-Y4)	Input-Y3
Switch On Condition	Relay Output	Input-Y4
IO Settings	Breaker Counter Info	
Manuel Control		
Warning & Event Logs		
SN:00001265 Adres:1 2026.06.03 12:58:30	SN:00001265 Adres:1 2026.06.03 13:01:21	SN:00001265 Adres:1 2026.06.03 13:01:23
Back Up Down OK	Back Up Down OK	Back Up Down OK

access the setting menu of the corresponding digital input channel and select **"Function"**. Detailed parameter descriptions can be found in the user manual (see pp. 16-17-18).

6. GRID MONITORING RELAY ERROR CONDITIONS

Under Voltage Stage 1

This fault occurs when the **“Under Voltage Stage 1”** protection function is triggered for the relevant phase (trip threshold and delay time).

R1 R2 R3 Y1 Y2 Y3 Y4 X	L-N V(RMS) FREQUENCY		25.7°C
V1	230,0	v	OK
V2	184,0	v	U<
V3	230,0	v	OK
F	50,00	Hz	OK
230V@50Hz Address:247 2025.03.07 14:23:16	VLN-F Peak	Logs	Vavg - F Menu

U<

R1	R2	R3	Y1	Y2	Y3	Y4	X
L-N V(RMS) FREQUENCY							25.7°C
V1	230,0	v	OK				
V2	161,0	v	U<<				
V3	230,0	v	OK				
F	50,00	Hz	OK				
230V@50Hz Address:247 2025.03.07 14:41:45							
VLN-F Peak		Logs	Vavg - F		🏠 Menu		

U<<

Over Voltage Stage 1

This fault occurs when the “**Over Voltage Stage 1**” protection function is triggered for the relevant phase (trip threshold and delay time).

R1	R2	R3	Y1	Y2	Y3	Y4	X
L-N V(RMS) FREQUENCY							25.7°C
V1	230,0		v	OK			
V2	299,0		v	U>>			
V3	230,0		v	OK			
F	50,00		Hz	OK			
230V@50Hz Address:247 2025.03.07 14:48:22							
VLN-F Peak		Logs		Vavg - F		🏠 Menu	

U>>

Average Over Voltage

This fault occurs when the “**Average Over Voltage**” protection function is triggered for the relevant phase (trip threshold and delay time).

Under Voltage Stage 2

This fault occurs when the “**Under Voltage Stage 2**” protection function is triggered for the relevant phase (trip threshold and delay time).

R1	R2	R3	Y1	Y2	Y3	Y4	X
L-N V(RMS) FREQUENCY							25.7°C
V1	230,0		v	OK			
V2	276,0		v	U>			
V3	230,0		v	OK			
F	50,00		Hz	OK			
230V@50Hz Address:247 2025.03.07 14:45:02							
VLN-F Peak		Logs		Vavg - F		Menu	

U>

Over Voltage Stage 2

This fault occurs when the “**Over Voltage Stage 2**” protection function is triggered for the relevant phase (trip threshold and delay time).

R1	R2	R3	Y1	Y2	Y3	Y4	X
L-N Vort(RMS) FREQUENCY							25.7°C
V1Av	230,0		v	OK			
V2Av	253,0		v	UM>			
V3Av	230,0		v	OK			
F	50,00		Hz	OK			
SN:00000008							Address:247
2025.03.07							15:50:53
VI N-F		VShft -F		Menu			

UM>

R1	R2	R3	Y1	Y2	Y3	Y4	X
L-N V(RMS) FREQUENCY							25.7°C
V1	230,0	v	OK				
V2	230,0	v	OK				
V3	230,0	v	OK				
F	50,00	Hz	ROCOF				
230V@50Hz Address:247							2025.03.07 15:11:50
VLN-F Peak		Logs	Vavg - F		Menu		

ROCOF

Vector Shift

This fault occurs when the “Vector Shift” protection function is triggered (trip threshold and fault duration).

ROCOF Protection

This fault occurs when the “ROCOF” (Rate of Change of Frequency) protection function is triggered (trip threshold, number of cycles measured, and delay time).

R1 R2 R3 Y1 Y2 Y3 Y4			
L-N V(RMS) FREQUENCY			25.7°C
V1	230,0	v	OK
V2	230,0	v	VS
V3	230,0	v	OK
F	50,00	Hz	OK
Network Disconnection: 4 sec			
VLN-F Peak	Logs	Vavg - F	Menu

VS

R1	R2	R3	Y1	Y2	Y3	Y4	X
L-N V(RMS) FREQUENCY							25.7°C
V1	230,0	v	OK				
V2	230,0	v	OK				
V3	230,0	v	OK				
F	47,00	Hz	F<				
230V@50Hz Address:247 2025.03.07 15:08:50							
VLN-F Peak		Logs	Vavg - F		 Menu		

F<

Under Frequency Stage 1

This fault occurs when the “Under Frequency Stage 1” protection function is triggered for the relevant phase (trip threshold and delay time).

Under Frequency Stage 2

This fault occurs when the “Under Frequency Stage 2” protection function is triggered for the relevant phase (trip threshold and delay time).

R1	R2	R3	Y1	Y2	Y3	Y4	X
L-N V(RMS) FREQUENCY							25.7°C
V1	230,0	v	OK				
V2	230,0	v	OK				
V3	230,0	v	OK				
F	45,00	Hz	F<<				
Network Interrupted: Low Frequency (F<)							
VLN-F Peak		Logs	Vavg - F	Menu			

F<<

Over Frequency Stage 1

This fault occurs when the “Over Frequency Stage 1” protection function is triggered for the relevant phase (trip threshold and delay time).

R1	R2	R3	Y1	Y2	Y3	Y4	X
L-N V(RMS) FREQUENCY							25.7°C
V1	230,0	v	OK				
V2	230,0	v	OK				
V3	230,0	v	OK				
F	51,00	Hz	F>				
230V@50Hz Address:247 2025.03.07 15:11:50							
VLN-F Peak		Logs	Vavg - F	Menu			

F>

Over Frequency Stage 2

This fault occurs when the “Over Frequency Stage 2” protection function is triggered for the relevant phase (trip threshold and delay time).

R1	R2	R3	Y1	Y2	Y3	Y4	X
L-N V(RMS) FREQUENCY							25.7°C
V1	230,0	v	OK				
V2	230,0	v	OK				
V3	230,0	v	OK				
F	52,00	Hz	F>>				
SN:00000008 Address:247 2025.03.07 15:12:53							
VLN-F Peak		Logs	Vavg - F		Menu		

F>>

Feedback Error

This fault occurs due to a “Feedback Error” on the Y1 input. After the issue is resolved, the connection can be restored by pressing and holding the menu button for 3 seconds.

R1	R2	R3	Y1	Y2	Y3	Y4	X
L-N V(RMS) FREQUENCY							25.7°C
V1	230,0	v	---				
User Closed After Correction Hold Menu Key for 3 secs							
V2	230,0	v	---				
V3	230,0	v	---				
F	51,57	Hz	---				
Network Interrupted! (Emergency Stop)							
							Menu

POTENTIAL FEEDBACK LINE FAULTS

a. Physical Wire Break in Feedback Line (Y0–Y1):

A cable break or loose terminal connection may exist on the feedback line (Y0–Y1). Because the device cannot verify breaker contact position, it enters protection mode. To verify, test wire continuity with a multimeter in buzzer/continuity mode while the system is de-energized.

b. Reversed NC/NO Breaker Auxiliary Wiring:

A fault occurs if COM and NC contacts are physically wired from the breaker dry contacts while the device menu parameter remains set to NO. The tripping signal forces the breaker to change state, but due to inverted wiring logic, the device reads an incorrect state (NO signal) and trips.

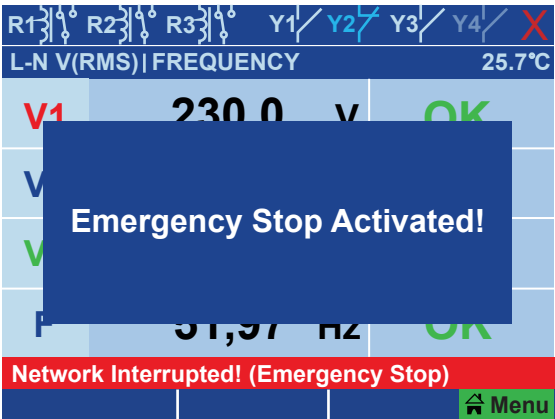
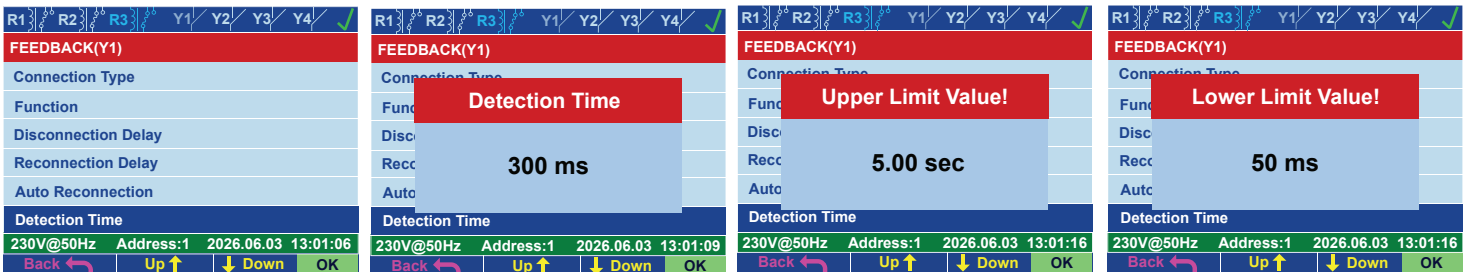
c. Reversed Trip / Close Coil Wiring:

Due to potential confusion between the **Trip Coil** (disengaging the system) and **Closing Coil** (engaging the system), coil wiring connections may be swapped. In this scenario, the signal intended to close the breaker energizes the trip coil instead, preventing energization. Because the breaker never physically closes, no feedback signal is returned over Y1, causing a feedback fault.

d. Fault Due to Feedback Detection Delay Time:

Field contact bounce, sensing sensitivity, or high electrical noise in the environment can cause transient loss of the **feedback** signal. In noisy environments, increase the Feedback **Detection Delay Time** parameter.

Access path: **Main Menu > Digital Input > Y1**



Emergency Stop

This screen appears when the input programmed as “Emergency Stop” is activated.

The device provides two selectable operational modes for this input:

Emergency Stop (Trigger / Manual Reset):

When this mode is selected, releasing (deactivating) the field emergency stop button will **not** automatically reconnect the system to the grid. Manual confirmation is required: hold the **F4** button on the device for **5 seconds**. Upon user confirmation—and assuming grid parameters are within limits—the system begins its reclosing countdown.

R1	R2	R3	Y1	Y2	Y3	Y4	✓
DIGITAL INPUT(Y2-Y3-Y4)							
Input-Y2							
Input-Y3							
Input-Y4							
SN:00001265 Address:1 2026.06.03 13:01:23							
Back		Up		Down		OK	

R1	R2	R3	Y1	Y2	Y3	Y4	✓
INPUT-Y2							
Connection Type							
Function							
Detection Time							
SN:00001265 Address:1 2026.06.03 13:01:33							
Back		Up		Down		OK	

R1	R2	R3	Y1	Y2	Y3	Y4	✓
INPUT-Y2							
Connection Type							
Function							
Detection Time							
SN:00001265 Address:1 2026.06.03 13:01:35							
Back		Up		Down		OK	

Emergency Stop (Latched / Auto-Reset):

In this mode, as soon as the emergency stop button is physically released, the device immediately measures grid parameters. If all electrical conditions are within normal limits, the system automatically reconnects to the grid after the configured delay time.

R1	R2	R3	Y1	Y2	Y3	Y4	✓
DIGITAL INPUT(Y2-Y3-Y4)							
Input-Y2							
Input-Y3							
Input-Y4							
SN:00001265 Address:1 2026.06.03 13:01:23							
Back		Up		Down		OK	

R1	R2	R3	Y1	Y2	Y3	Y4	✓
INPUT-Y2							
Connection Type							
Function							
Detection Time							
SN:00001265 Address:1 2026.06.03 13:01:33							
Back		Up		Down		OK	

R1	R2	R3	Y1	Y2	Y3	Y4	✓
INPUT-Y2							
Connection Type							
Function							
Detection Time							
SN:00001265 Address:1 2026.06.03 13:01:38							
Back		Up		Down		OK	

Grid Disconnection via Menu Button

The grid connection can be interrupted by holding the “**Menu Button (F4)**” for 5 seconds. A countdown is displayed at the bottom of the screen during the hold.

R1 R2 R3 Y1 Y2 Y3 Y4				✓
L-N V(RMS) FREQUENCY				25.7°C
V1	230,0	v	OK	
V2	230,0	v	OK	
V3	230,0	v	OK	
F	50,00	Hz	OK	
Network Disconnection: 4 sec				
VLN-F Peak		Logs	Vavg - F	Menu

R1	R2	R3	Y1	Y2	Y3	Y4	
L-N V(RMS) FREQUENCY							27.2°C
V1	230,0	v	OK				
V2	230,0	v	OK				
V3	230,0	v	OK				
F	50,00	Hz	OK				
Removing from Error State: 2 sec							
		Vort - F	Diaries	RESET			

Remote or Manual Shutdown

This screen appears when the “**Remote Shutdown**” function is used or the menu button(F4) is held for 5 seconds. To reconnect, hold the menu button for 3 seconds or activate the remote start input.

R1	R2	R3	Y1	Y2	Y3	Y4	X
L-N V(RMS) FREQUENCY							25.7°C
V1	230,0		v	OK			
V2	230,0		v	OK			
V3	230,0		v	OK			
F	50,00		Hz	OK			
Remaining Time for Network Connection: 5 sec							
VLN-F Peak		Logs		Vavg - F		 Menu	

Leakage Current Detection

This screen appears when the input programmed as “**Leakage Current Detection**” is triggered. The grid disconnects when the leakage relay is activated, and reconnects automatically after deactivation and a delay period.

Grid Connection via Menu Button

This status screen can be used to reactivate the system when the system is disabled in any case or when the system is intervened by the user. When the “**Menu Button (F4)**” is pressed for 5 seconds, the RESET icon appears and if the connection conditions are met, the connection is established.

R1	R2	R3	Y1	Y2	Y3	Y4	X						
L-N V(RMS) FREQUENCY							25.7°C						
V1	230.0	V	---										
User Closed After Correction Hold Menu Key for 3 secs													
								V2	---				
								V3	---				
F	50.00	Hz	---										
Network Interrupted! (By User)													
							Menu						

Remote Start

This screen appears when the input programmed as “**Remote Start**” is triggered. If connection conditions are met, the grid connection is re-established.

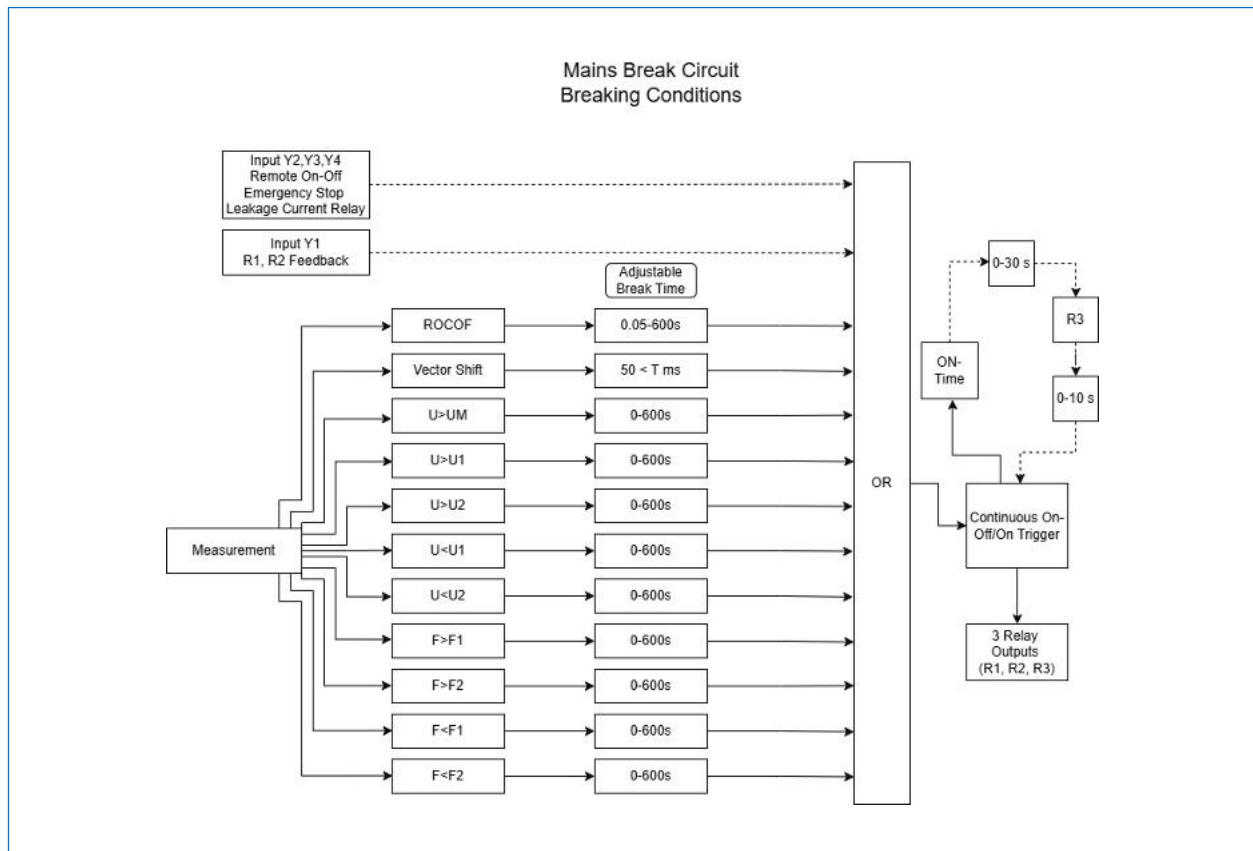
R1	R2	R3	Y1	Y2	Y3	Y4	X
L-N V(RMS) FREQUENCY							25.7°C
V1	230.0	V	---				
V2	---						
V3	---						
F	50.00	Hz	---				
Leakage Current Detected!							
Network Interrupted! (Leakage Current Detected)							
							Menu

7. CONFIGURATION PARAMETERS

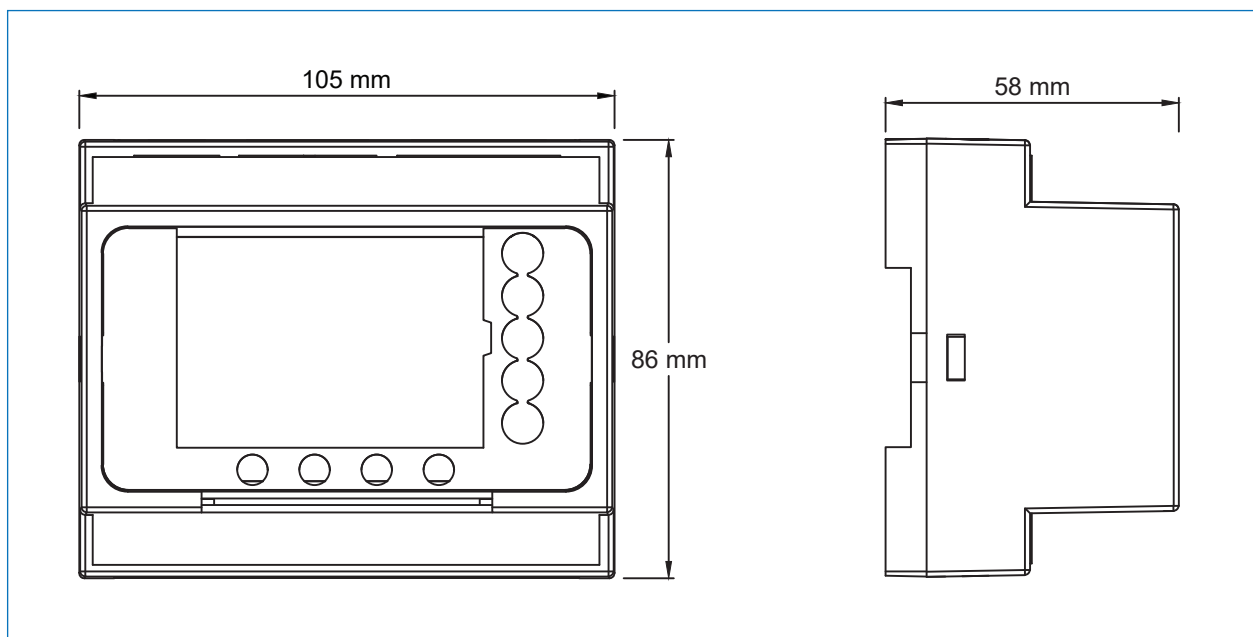
Menu			Setting Range	Standart Settings
Grid Connection	Connection Type		3 Phase + Neutral	3P 4W
			3 Phase	3P 3W
	Nominal Voltage		50-300 V	230 V
	Connection Control	Measurement Break Detection		Deactivated
Grid Monitoring	Voltage	Neutral Break Detection		Deactivated
		Over Voltage U> (59>S2)	Cut-off Threshold Value	69-345 V
			Binding Threshold Value	57,5-333,5 V
			Cutting Delay Time	0-600 s
			Binding Delay Time	0.05-600 s
		Over Voltage U>> (59>S2)	Cut-off Threshold Value	69-345 V
			Binding Threshold Value	57,5-333,5 V
			Cutting Delay Time	0-600 s
			Binding Delay Time	0.05-600 s
		Under Voltage U< (27<S1)	Cut-off Threshold Value	57,5-333,5 V
			Binding Threshold Value	69-345 V
			Cutting Delay Time	0-600 s
			Binding Delay Time	0.05-600 s
		Under Voltage U<< (27<S2)	Cut-off Threshold Value	57,5-333,5 V
			Binding Threshold Value	69-345 V
			Cutting Delay Time	0-600 s
			Binding Delay Time	0.05-600 s
		Average Over Voltage UM	Cut-off Threshold Value	6,9-333,5 V
			Binding Threshold Value	5,7-345 V
			Cutting Delay Time	0-600 s
			Binding Delay Time	0.05-600 s
		Frequency	Cut-off Threshold Value	40-62 Hz
			Binding Threshold Value	42-65 Hz
			Cutting Delay Time	0-600 s
			Binding Delay Time	0.05-600 s
			Cut-off Threshold Value	40-62 Hz
			Binding Threshold Value	42-65 Hz
			Cutting Delay Time	0-600 s
			Binding Delay Time	0.05-600 s
			Cut-off Threshold Value	42-65 Hz
			Binding Threshold Value	40-62 Hz
			Cutting Delay Time	0-600
			Binding Delay Time	0.05-600 s
		Under Frequency F<< (81<S2)	Cut-off Threshold Value	42-65 Hz
			Binding Threshold Value	40-62 Hz
			Cutting Delay Time	0-600
			Binding Delay Time	0.05-600 s
			Binding Delay Time	0.05-600 s
	ROCOF	Activate		Deactivated
		Threshold Value		0.1-5 Hz
		Number of Periods		4-50
		Cutting Delay Time		0-600 s
		Binding Delay Time		0.05-600 s
	Vector Shifting	Activate		Deactivated
		Threshold Value		2-60°
		Error Duration		3-600 sn
Switch-on Condition	Voltage Range		57.5-333.5 V(x0.250-x1450)	195V-253 V
	Frequency Range		1-65 Hz	49.50-50.50Hz
	Delay Time		100 dk	10 s

Input / Output Setting	Feedback(Y1)	Connection Type		Normally Open (NO), Normally Close (NC)	NO	
		Function		Y1, Deactivated	Y1	
		Cutting Delay Time		1-600 s	5 s	
		Binding Delay Time		1-999 s	10 s	
		Automatic Binding	Number of Attempts	0-255	3	
		Detection Time		50ms-5sn	300ms	
	Digital Input(Y2-Y3-Y4)	Input-Y2	Connection Type	Normally Open (NO), Normally Close (NC)	NO	
			Function	Emergency Stop, Leakage Current Relay Detection, Remote On, Remote Off, Y1 Disable, Deactivate	Deactivated	
		Input-Y3	Connection Type	Normally Open (NO), Normally Close (NC)	NO	
			Function	Emergency Stop, Leakage Current Relay Detection, Remote On, Remote Off, Y1 Disable, Deactivate	Deactivated	
		Input-Y4	Connection Type	Normally Open (NO), Normally Close (NC)	NO	
			Function	Emergency Stop, Leakage Current Relay Detection, Remote On, Remote Off, Y1 Disable, Deactivate	Deactivated	
	Digital Output	Output - K1	Function	Switch-on Trigger	100ms - 30sn	
				Switch-off Trigger	100ms - 30sn	
				Continuous		
				Deactivated		
		Output - K2	Function	Switch-on Trigger	100ms - 30sn	
				Switch-off Trigger	100ms - 30sn	
				Continuous		
				Deactivated		
		Output - K3 (User)	Function	Synchronous - K1		
				Asynchronous - K1 (0- 30s Delay)	0sn - 10sn	
				Synchronous - K2		
				Asynchronous - K2 (0- 30s Delay)	0sn - 10sn	
			Continuously Activated			
			Timed Activated	0sn - 10sn		
	Breaker Meter Information	Number of Breaker Openings				
		Number of Breaker Closures				
		Delete / Reset				
	Manual Control	Disconnect via Key			Deactivated	
		Disconnect Grid				
		Connect Grid				
Warning and Event Logging	List Screen Settings	List Selection		Warnings, Events & Warnings, Events		
		Alarm Selection		5-250		
		Filter Duration		0-255		
	Delete List					
Error Logging		Deactivated - Activated				
Device Settings	Modbus Configuration	Date and Time				
		Modbus Address		1-247		
		Modbus Speed		4800, 9600, 19200, 38400, 57600, 115200, 256000		
		Data, Stop Bits and Parity	Number of Data Bits			
			Parity Setting	Single, Double, Empty		
			Number of Stop Bits		1, 2	
		Silent Interval		4-128		
		Mode		ASCII, RTU		
		Modbus Protection	Reading Protection			
			Writing Protection			
			Reading Password			
			Writing Password			
		Delete Peak Values				
	Display settings	Average	Number of Samples	1-16		
			Refresh Period	0.1-1s		
			Control Percentage	%5-%50		
		Password Protection				
		Access Level				
		Display Protector				
		Display Timeout		2-240 dk		
	Brightness Level		%5-%100			
	Time Zone (GMT)		-12 - 12			
	Expert Settings	Default Settings				
		Device Reset				
		Make Quality Control				

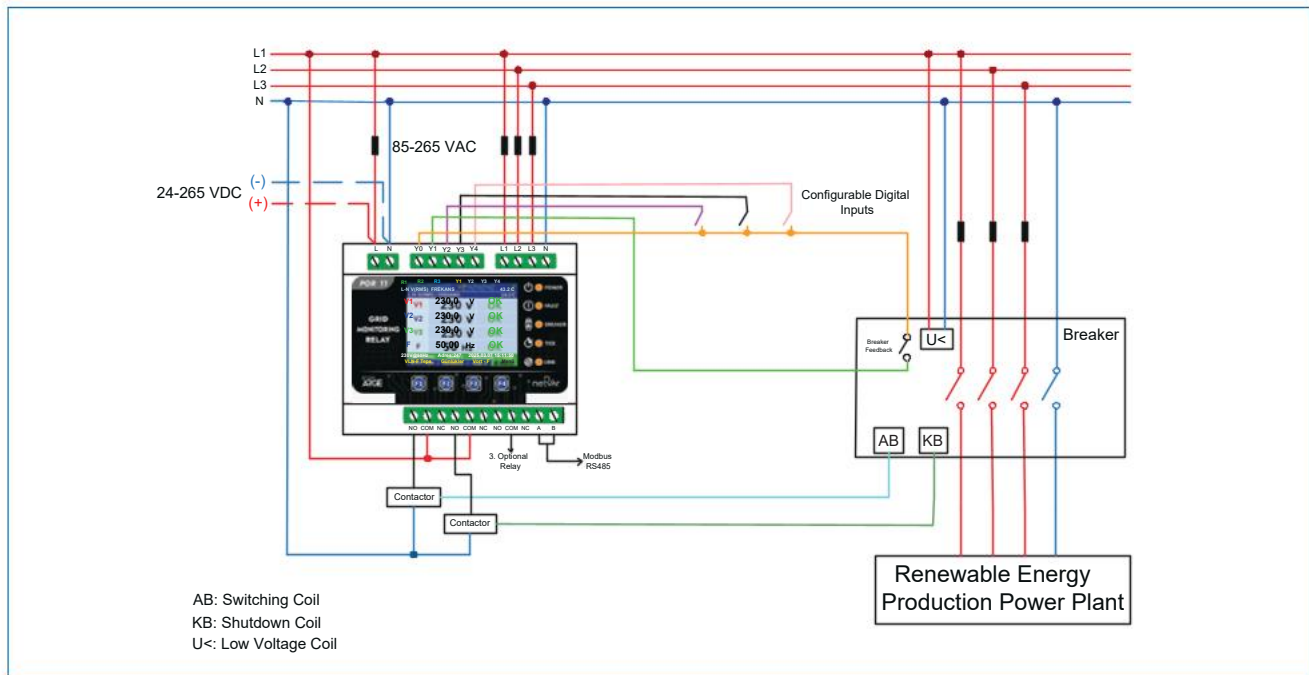
8. CIRCUIT BREAKING CONDITIONS



9. TECHNICAL DRAWING



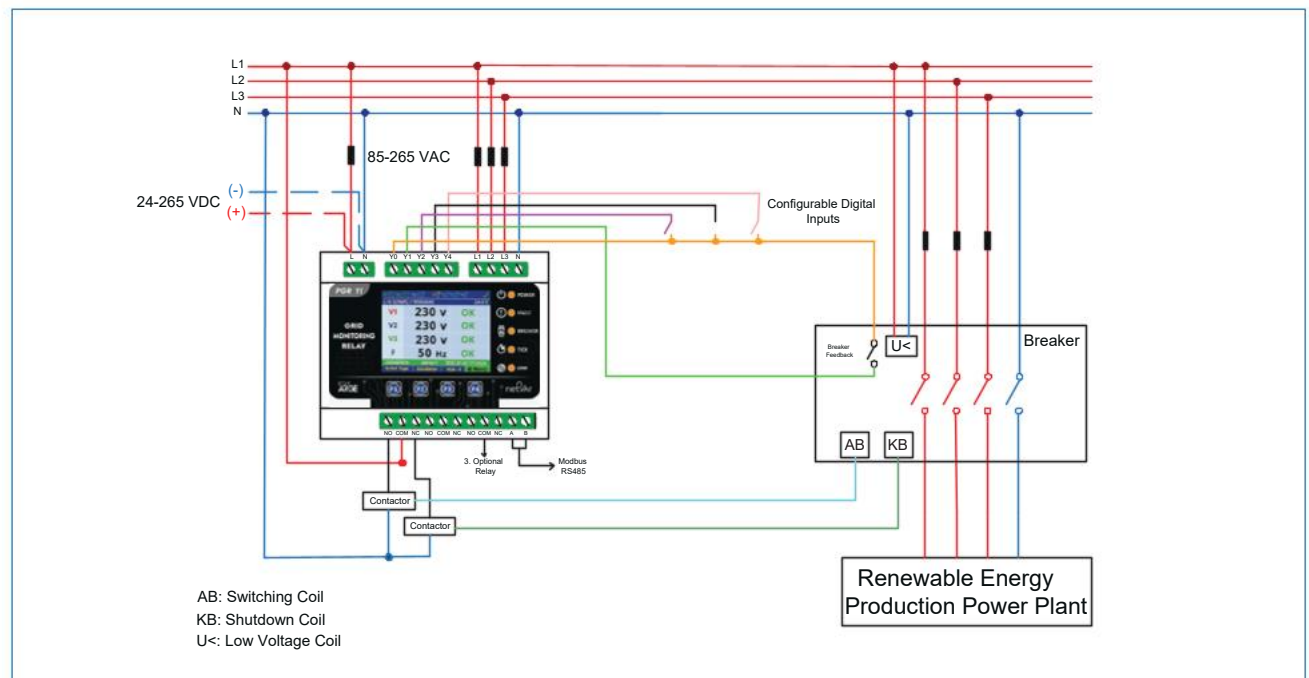
10. CONNECTION DIAGRAM



Pulse Mode (Discrete Mode): To operate in this mode;

INPUT / OUTPUT SETTINGS -> Relay Output -> Output-K1 -> Mode -> Open Trigger

INPUT / OUTPUT SETTINGS -> Relay Output -> Output-K2 -> Mode -> Close Trigger.



Continuous Mode (Continuous Operation): To operate in this mode;

INPUT / OUTPUT SETTINGS -> Relay Output -> Output-K1 -> Mode -> Continuous

INPUT / OUTPUT SETTINGS -> Relay Output -> Output-K2 -> Mode -> Continuous.

NOTE: In systems that do not have a low voltage coil in the switch and operate only with an on-off coil, it is recommended to use a UPS (Uninterruptible Power Supply) to ensure control integrity against power outages.

In order to monitor contact status and provide remote control functions reliably, it is recommended that the control circuit and device be supplied via a 24V DC output rectifier.

11. MODBUS MAP

Parameter	Address	W/R	Type	Unit	Min	Max	Default	Step
Parameter Version	200	R	Uint 16	-	0	255	6	-
Operating Time	201	R	Uint 16	-	0	32767	0	-
Reset Status	202	R	Uint 16	-	0	1	0	-
Modbus Address	206	W/R	Uint 16	-	1	247	1	1
Modbus Speed (Table-2)*	210	W/R	Uint 16	bps	0	5	1	1
Read Protection Bit	214	R	Uint 16	-	0	1	0	1
Write Protection Bit	215	R	Uint 16	-	0	1	0	1
Read Password Confirmation	216	W/R	Uint 16	-			0	1
Write Password Confirmation	217	W/R	Uint 16	-			0	1
Reset - Unknown	240	R	Uint 16	-	0	65535	0	1
Reset - Power On	241	R	Uint 16	-	0	65535	0	1
Reset - Brown Out	242	R	Uint 16	-	0	65535	0	1
Reset - WatchDog Timer	243	R	Uint 16	-	0	65535	0	1
Reset - Software Reset	244	R	Uint 16	-	0	65535	0	1
Reset - MCLR	245	R	Uint 16	-	0	65535	0	1
Reset - Option Byte Loader	246	R	Uint 16	-	0	65535	0	1
Reset - V1.8 Power	247	R	Uint 16	-	0	65535	0	1
Time Zone (GMT)	249	W/R	int 16	-	-12	12	3	1
Date - Time Timestamp (High)	250	W/R	Uint 16	-	0	65535	0	1
Date - Time Timestamp (Low)	251	W/R	Uint 16	-	0	65535	0	1
Number of Samples	252	W/R	Uint 16	-	1	16	5	1
Control Percentage	253	W/R	Uint 16	%	5	50	30	1
Refresh Period	254	W/R	Uint 16	ms	1	10	3	100
Screen Saver Enable	256	W/R	Uint 16	-	0	1	1	-
Screen Saver Timeout	257	W/R	Uint 16	dk	2	180	30	1
Display Brightness Level	258	W/R	Uint 16	%	5	100	90	1
Language	260	W/R	Uint 16	-	0	1	0	-
Access Level	261	W/R	Uint 16	-	0	2	0	-
Access Control Enable	262	W/R	Uint 16	-	0	1	0	-
Connection Type	264	W/R	Uint 16	table	0	1	0	1
Nominal Voltage	265	W/R	Uint 16	-	50	1000	230	1
Button Trip (Table-1)	267	W/R	Uint 16	table	0	1	1	-
Meas Connection Loss Detect	268	W/R	Uint 16	table	0	1	0	-
Neutral Loss Detect	269	W/R	Uint 16	table	0	1	1	-
Overvoltage (U>) Enable	270	W/R	Uint 16	-	0	1	1	-
Overvoltage (U>) Trip Threshold	271	W/R	Uint 16	-	60	300	240	5
Overvoltage (U>) Close Threshold	272	W/R	Uint 16	-	50	290	233	5
Overvoltage (U>) Trip Delay	274	W/R	Uint 32	ms	0	60000	20	10
Overvoltage (U>) Close Delay	276	W/R	Uint 32	ms	5	60000	1000	10
Overvoltage (U>>) Enable	280	W/R	Uint 16	table	0	1	0	-
Overvoltage (U>>) Trip Threshold	281	W/R	Uint 16	-	60	300	260	5
Overvoltage (U>>) Close Threshold	282	W/R	Uint 16	-	50	290	253	5
Overvoltage (U>>) Trip Delay	284	W/R	Uint 32	ms	0	60000	20	10
Overvoltage (U>>) Close Delay	286	W/R	Uint 32	ms	5	60000	1000	10
Undervoltage (U<) Enable	290	W/R	Uint 16	-	0	1	1	-
Undervoltage (U<) Trip Threshold	291	W/R	Uint 16	-	50	290	160	5
Undervoltage (U<) Close Threshold	292	W/R	Uint 16	-	60	300	164	5
Undervoltage (U<) Trip Delay	294	W/R	Uint 32	ms	0	60000	150	10
Undervoltage (U<) Close Delay	296	W/R	Uint 32	ms	5	60000	1000	10
Undervoltage (U<<) Enable	300	W/R	Uint 16	table	0	1	1	-
Undervoltage (U<<) Trip Threshold	301	W/R	Uint 16	-	50	290	140	5
Undervoltage (U<<) Close Threshold	302	W/R	Uint 16	-	60	300	144	5
Undervoltage (U<<) Trip Delay	304	W/R	Uint 32	ms	0	60000	20	10
Undervoltage (U<<) Close Delay	306	W/R	Uint 32	ms	5	60000	1000	10
Over Voltage (UM>) Enable	310	W/R	Uint 16	table	0	1	0	-
Over Voltage (UM>) Trip Threshold	311	W/R	Uint 16	-	60	290	220	5
Over Voltage (UM>) Close Threshold	312	W/R	Uint 16	-	50	300	213	5
Over Voltage (UM>) Trip Delay	314	W/R	Uint 32	sec	0	60000	600	1
Over Voltage (UM>) Close Delay	316	W/R	Uint 32	sec	5	60000	10	1
Overfrequency (F>) Enable	320	W/R	Uint 16	-	0	1	1	-
Overfrequency (F>) Trip Threshold	321	W/R	Uint 16	hz(x0.01)	4000	6200	5100	1
Overfrequency (F>) Close Threshold	322	W/R	Uint 16	hz(x0.01)	4200	6500	5050	1
Overfrequency (F>) Trip Delay	324	W/R	Uint 32	ms	0	60000	50	10
Overfrequency (F>) Close Delay	326	W/R	Uint 32	ms	5	60000	1000	10
Overfrequency (F>>) Enable	330	W/R	Uint 16	table	0	1	0	-
Overfrequency (F>>) Trip Threshold	331	W/R	Uint 16	hz(x0.01)	4000	6200	5200	1
Overfrequency (F>>) Close Threshold	332	W/R	Uint 16	hz(x0.01)	4200	6500	5150	1
Overfrequency (F>>) Trip Delay	334	W/R	Uint 32	ms	0	60000	20	10
Overfrequency (F>>) Close Delay	336	W/R	Uint 32	ms	5	60000	1000	10
Underfrequency (F<) Enable	340	W/R	Uint 16	table	0	1	1	-
Underfrequency (F<) Trip Threshold	341	W/R	Uint 16	hz(x0.01)	4200	6500	4700	1
Underfrequency (F<) Close Threshold	342	W/R	Uint 16	hz(x0.01)	4000	6200	4750	1
Underfrequency (F<) Trip Delay	344	W/R	Uint 32	ms	0	60000	50	1
Underfrequency (F<) Close Delay	346	W/R	Uint 32	ms	5	60000	1000	1
Underfrequency (F<<) Enable	350	W/R	Uint 16	table	0	1	0	-
Underfrequency (F<<) Trip Threshold	351	W/R	Uint 16	hz(x0.01)	4200	6500	4500	5
Underfrequency (F<<) Close Threshold	352	W/R	Uint 16	hz(x0.01)	4000	6200	4550	5
Underfrequency (F<<) Trip Delay	354	W/R	Uint 32	ms(x10)	0	60000	20	1
Underfrequency (F<<) Close Delay	356	W/R	Uint 32	ms(x10)	0	60000	1000	1

Table-1	
Index	Status
0	Disabled
1	Enabled

Table-2	
Index	Modbus Speed
0	4800 bps
1	9600 bps
2	19200 bps
3	38400 bps
4	57600 bps
5	115200 bps

Table-3	
Index	Output K3 (User)
0	Disabled
1	Synchronous K1
2	Asynchronous K1
3	Synchronous K2
4	Asynchronous K2
5	Always On
6	On With Duration

Table-4	
Index	Connection Type
0	Normally Open
1	Normally Close

Table-5	
Index	Input Function
0	Disabled
1	Emergency Stop(Latched)
2	Emergency Stop(Trigger)
3	Residual Current Detected
4	Remote Close
5	Remote Trip
6	Y1 Suppress

Table-6	
Index	Feedback Function
0	Y1
1	Disabled

Table-7	
Index	Access Level
1	Operator
2	Supervisor

Table-8	
Index	Alarm List Type
0	Events
1	Warnings
2	Events & Warnings

Table-9	
Index	Output Mode
0	Disabled
1	Close Trigger
2	Open Trigger
3	Continuous

Table-10	
Index	Connection Type
0	3 Phase + Neutral (3P4W)
1	3 Phase (3P3W)

ROCOF Enable	360	W/R	Uint_16	table	0	1	0	-
ROCOF Threshold	361	W/R	Uint_16	hz(x0.001)	100	5000	500	5
ROCOF Period Count	362	W/R	Uint_16	-	4	50	8	1
ROCOF Trip Delay	364	W/R	Uint_32	ms(x10)	0	60000	20	1
ROCOF Close Delay	366	W/R	Uint_32	ms(x10)	5	60000	1000	1
Vector Shift Enable	369	W/R	Uint_16	table	0	1	0	-
Vector Shift Threshold	370	W/R	Uint_16	degree	20	600	90	0.1
Vector Shift Trip Delay	371	W/R	Uint_32	ms(x10)	0	60000	100	1
Vector Shift Close Delay	373	W/R	Uint_32	ms(x10)	0	60000	1000	1
Voltage Range Enable	375	W/R	Uint_16	table	0	1	1	-
Voltage Range Maximum	376	W/R	Uint_16	-	60	300	220	5
Voltage Range Minimum	377	W/R	Uint_16	-	50	290	170	5
Frequency Range Enable	380	W/R	Uint_16	table	0	1	1	-
Frequency Range Maximum	381	W/R	Uint_16	hz(x0.01)	4000	6500	5050	1
Frequency Range Minimum	382	W/R	Uint_16	hz(x0.01)	4000	6500	4950	1
Start Up Delay	386	W/R	Uint_16	sec	3	6000	10	1
Auto Reclose Enable	390	W/R	Uint_16	table	0	4	0	1
User Output (K3) Mode	392	W/R	Uint_16	ms	0	300	10	100
User Output (K3) Delay	393	W/R	Uint_16	ms	0	100	10	100
User Output (K3) On Duration	396	W/R	Uint_16	table	0	1	0	1
Input (Y2) Connection Type	397	W/R	Uint_16	table	0	5	0	1
Input (Y2) Function	398	W/R	Uint_16	table	0	1	0	1
Input (Y3) Connection Type	399	W/R	Uint_16	table	0	5	0	1
Input (Y3) Function	400	W/R	Uint_16	table	0	1	0	1
Input (Y4) Connection Type	401	W/R	Uint_16	table	0	5	0	1
Input (Y4) Function	405	W/R	Uint_16	table	0	1	0	1
Feedback (Y1) Connection Type	406	W/R	Uint_16	table	0	4	0	1
Feedback (Y1) Function	407	W/R	Uint_16	sec	1	60	5	1
Feedback (Y1) Trip Delay	408	W/R	Uint_16	sec	1	999	10	1
Feedback (Y1) Close Delay	409	W/R	Uint_16	-	0	255	3	1
Output (K1) Mode	412	W/R	Uint_16	table	0	4	0	1
Output (K1) On Duration	413	W/R	Uint_16	ms	1	100	10	100
Output (K1) Trigger Interval	414	W/R	Uint_16	ms	2	300	10	10
Output (K2) Mode	416	W/R	Uint_16	table	0	4	0	1
Output (K2) On Duration	417	W/R	Uint_16	ms	1	100	10	100
Output (K2) Trigger Interval	418	W/R	Uint_16	ms	2	300	10	10
Alarm List Type	420	W/R	Uint_16	table	1	60	5	1
Alarm List Entry Count	421	W/R	Uint_16	-	1	250	25	1
Alarm List Filter Time	422	W/R	Uint_16	sec	0	255	30	1

Instantaneous Values	Adress	Multiplier	Unit	Type	W/R
Nominal Line Voltage	10030	1	V	int 32	R
Temperature 1	10036	0.1	Celsius	int 32	R
Date / Time (UTC)	10046	1	Timestamp	int 32	R
Serial Number	10048	1	-	int 32	R
L1 Phase Neutral Voltage	10050	0.1	Volt	int 32	R
L2 Phase Neutral Voltage	10052	0.1	Volt	int 32	R
L3 Phase Neutral Voltage	10054	0.1	Volt	int 32	R
Frequency	10070	0,01	Hz	int 32	R
L1 Vector Shift	10080	0.1	Degree	int 32	R
L2 Vector Shift	10082	0.1	Degree	int 32	R
L3 Vector Shift	10084	0.1	Degree	int 32	R
Breaker Trip Count	10100	1	-	int 32	R
Breaker Close Count	10102	1	-	int 32	R
Breaker Status	10104	1	-	int 32	R

Instantaneous Peak Values	Adress	Multiplier	Unit	Type	W/R
Phase 1 Min Voltage (LN)	11010	0.1	V(Volt)	int32	R
Phase 2 Min Voltage(LN)	11012	0.1	V(Volt)	int32	R
Phase 3 Min Voltage(LN)	11014	0.1	V(Volt)	int32	R
Phase 1 Max Voltage(LN)	11020	0.1	V(Volt)	int32	R
Phase 2 Max Voltage(LN)	11022	0.1	V(Volt)	int32	R
Phase 3 Max Voltage(LN)	11024	0.1	V(Volt)	int32	R
Min Frequency	11050	0.01	V(Volt)	int32	R
Max Frequency	11052	0.01	V(Volt)	int32	R

Adress	Command		W/R
9002	Clear Peak Values	0xAA55	43605
9022	System Password Reset	0xAA55	43605
9024	Factory Reset	0xAA55	43605
9025	Device Reset	0xAA55	43605
9043	Clear Alarm List	0xAA55	43605
9050	Connect Grid	0xAA55	43605
9052	Clear Breaker Counters	0xAA55	43605

LIST NUMBER	WARNINGS AND EVENTS	ADDRESS	MULTIPLIER	UNIT	DATA TYPE
1	Alarm No	56000	-	-	uint32_t
1	Alarm Type	56002	-	-	uint32_t
1	Alarm Time (UTC)	56004	-	-	uint32_t
1	Alarm Data	56006	-	-	uint32_t
2	Alarm No	56008	-	-	uint32_t
2	Alarm Type	56010	-	-	uint32_t
2	Alarm Time (UTC)	56012	-	-	uint32_t
2	Alarm Data	56014	-	-	uint32_t
3	Alarm No	56016	-	-	uint32_t
3	Alarm Type	56018	-	-	uint32_t
3	Alarm Time (UTC)	56020	-	-	uint32_t
3	Alarm Data	56022	-	-	uint32_t
N	Alarm No	56000+((N-1)*8)	-	-	uint32_t
N	Alarm Type	56002+((N-1)*8)	-	-	uint32_t
N	Alarm Time (UTC)	56004+((N-1)*8)	-	-	uint32_t
N	Alarm Data	56006+((N-1)*8)	-	-	uint32_t

WARNING NO	WARNING NAME
1	Over Voltage (U>)
2	Over Voltage (U>>)
3	Under Voltage (U<)
4	Under Voltage (U<<)
5	Over Voltage (UM>)
6	Over Frequency (F>)
7	Over Frequency (F>>)
8	Under Frequency (F<)
9	Under Frequency (F<<)
10	Rocof Error
11	Vector Shifting
12	Conditional Trip Fault
13	Feedback Error
14	User Opened (Menu)
15	User Closed (Button)
16	User Opened (Comm)
17	User Opened (Input)
18	Emergency Stop
19	Residual Current Detected
20	Measurements Unreadable
21	Neutral Loss
22	System Enabled
23	VT Ratio Changed

LIST NUMBER	WARNINGS	ADDRESS	MULTIPLIER	UNIT	DATA TYPE	W/R
1	Alarm No	57000	-	-	uint32_t	R
1	Alarm Type	57002	-	-	uint32_t	R
1	Alarm Time(UTC)	57004	-	-	uint32_t	R
1	Alarm Data	57006	-	-	uint32_t	R
2	Alarm No	57008	-	-	uint32_t	R
2	Alarm Type	57010	-	-	uint32_t	R
2	Alarm Time(UTC)	57012	-	-	uint32_t	R
2	Alarm Data	57014	-	-	uint32_t	R
3	Alarm No	57016	-	-	uint32_t	R
3	Alarm Type	57018	-	-	uint32_t	R
3	Alarm Time(UTC)	57020	-	-	uint32_t	R
3	Alarm Data	57022	-	-	uint32_t	R
N	Alarm No	$57000+((N-1)*8)$	-	-	uint32_t	R
N	Alarm Type	$57002+((N-1)*8)$	-	-	uint32_t	R
N	Alarm Time(UTC)	$57004+((N-1)*8)$	-	-	uint32_t	R
N	Alarm Data	$57006+((N-1)*8)$	-	-	uint32_t	R

LIST NUMBER	EVENTS	ADDRESS	MULTIPLIER	UNIT	DATA TYPE	W/R
1	Alarm No	58000	-	-	uint32_t	R
1	Alarm Type	58002	-	-	uint32_t	R
1	Alarm Time(UTC)	58004	-	-	uint32_t	R
1	Alarm Data	58006	-	-	uint32_t	R
2	Alarm No	58008	-	-	uint32_t	R
2	Alarm Type	58010	-	-	uint32_t	R
2	Alarm Time(UTC)	58012	-	-	uint32_t	R
2	Alarm Data	58014	-	-	uint32_t	R
3	Alarm No	58016	-	-	uint32_t	R
3	Alarm Type	58018	-	-	uint32_t	R
3	Alarm Time(UTC)	58020	-	-	uint32_t	R
3	Alarm Data	58022	-	-	uint32_t	R
N	Alarm No	$58000+((N-1)*8)$	-	-	uint32_t	R
N	Alarm Type	$58002+((N-1)*8)$	-	-	uint32_t	R
N	Alarm Time(UTC)	$58004+((N-1)*8)$	-	-	uint32_t	R
N	Alarm Data	$58006+((N-1)*8)$	-	-	uint32_t	R

Event No	Event Name
1	Modbus Address Changed
2	Modbus Speed Changed
3	Modbus Param Changed
4	Device Powered On
5	Device Shutdown
6	Date/Time Updated
7	Date/Time Updated
8	Date/Time Updated
9	Invalid PIN Entry
10	PIN Changed
11	Special PIN Entered
12	PIN Tamper Attempt
13	Min Max Cleared
14	Language Changed
15	Factory Reset Executed
16	Mains Frequency Changed
17	Phase 1 Loss
18	Phase 2 Loss
19	Phase 3 Loss
20	Connection Type Changed
21	Nominal Voltage Changed
22	Measurement Check Enabled
23	Measurement Check Disabled
24	Neutral Check Enabled
25	Neutral Check Disabled
26	Button Trip Enabled
27	Button Trip Disabled
28	UM> Enabled
29	UM> Disabled
30	UM> Param Changed
31	U> Enabled
32	U> Disabled
33	U> Param Changed
34	U>> Enabled
35	U>> Disabled
36	U>> Param Changed
37	U< Enabled
38	U< Disabled
39	U< Param Changed
40	U<< Enabled
41	U<< Disabled
42	U<< Param Changed
43	F> Enabled
44	F> Disabled
45	F> Param Changed
46	F>> Enabled
47	F>> Disabled
48	F>> Param Changed
49	F< Enabled
50	F< Disabled
51	F< Param Changed
52	F<< Enabled
53	F<< Disabled
54	F<< Param Changed
55	Rocof Enabled
56	Rocof Disabled
57	Rocof Param Changed
58	Vector Shift Enabled
59	Vector Shift Disabled
60	Vector Shift Param Changed
61	Voltage Range Enabled
62	Voltage Range Disabled
63	Voltage Range Param Changed
64	Frequency Range Enabled
65	Frequency Range Disabled
66	Frequency Range Param Changed
67	Feedback Y1 Enabled
68	Feedback Y1 Disabled
69	Feedback Y1 Param Changed
70	Input Y2 Enabled
71	Input Y2 Disabled
72	Input Y3 Enabled
73	Input Y3 Disabled
74	Input Y4 Enabled
75	Input Y4 Disabled
76	Output K1 Enabled
77	Output K1 Disabled
78	Output K2 Enabled
79	Output K2 Disabled
80	Output K3 Enabled
81	Output K3 Disabled