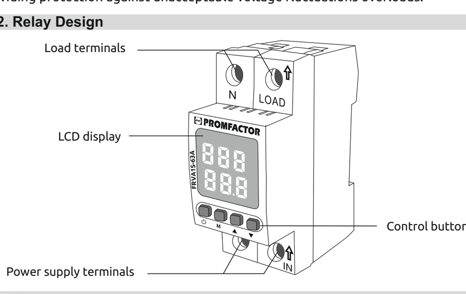
Single-Phase Voltage and Current Monitoring Relay FRVA1S-63A

Passport, Operation Manual

1. Intended Use

PThe **FRVA1S-63A** voltage and current monitoring relay (hereinafter referred to as the device or relay) is designed for continuous monitoring of voltage and current levels, providing protection against unacceptable voltage fluctuations overloads.

2. Relay Design



3. Technical Specifications

Type		FRVA1S-63A
Standard compliance		IEC/EN 60730-1
Number of phases		L, N
Rated voltage Un, V		230
Rated frequency f, Hz		50/60
Rated isolation voltage Ui, V		400
Number and type of contacts		1NO
Maximum switching current Imax, A (for 10 minutes)		80
Hysteresis		>U : 5V; <U : 3V
Current setpoint range, A		1 - 63
Overvoltage setpoint, V		220 - 300
Undervoltage setpoint, V		80 - 210
Voltage measurement accuracy ,%		1
Turn-On delay, s		5 - 600
Overload activation delay, s		0 - 600
Maximum load power (AC1), kW		13.9
Disconnection time, s	for overvoltage	≤285V : 0.04s; >285V : 0.02s
	for undervoltage	≥80V : 0.5s; <80V : 0.02s
	for overload	Ir>2Iset(max.80A) : 0.02s; Ir≤1.25Iset : Ta; 1.25Iset<Ir≤2Iset : 5s (Ta<5s)
Short-circuit tripping delay, s		0 - 5
Number of overcurrent faults		OFF - 1 - 20
Automatic recovery setting		ON - OFF
Temperature setting, °C		70 - 80/OFF
Temperature time delay, s		1 - 300
Overheating hysteresis, °C		10
Electrical wear resistance		10^4
Mechanical wear resistance		10^6
Protection level		IP20
Pollution level		3
Section of the connected conductors, mm^2		0.5...2.5
Bolt tightening torque, Nm		3.5
DIN rail mounting		TN 35
Elevation above sea level, m		2 000
Operating temperature range, °C		-5...+40
Storage temperature, °C		-25...+55

4. Control Manual

See Figure 1

5. Settings Menu

Operation example is shown in Figure 2
Settings menu is shown in Figure 3

6. Circuit and Wiring Diagrams

See Figure 4

7. Functional Diagrams

See Figure 5

8. Dimensions

See Figure 6

9. Installation and Maintenance

The relay is mounted in a plastic or mounting box on a standard 35 mm DIN rail using two-position fasteners.The relay should be installed after the protective circuit breaker.The relay must be protected by a circuit breaker or fuse with a maximum rated current not exceeding 75% of the relay's maximum current.The connection of the relay (device) must be made according to the wiring diagram.The device does not require special maintenance during operation.Regularly, at least once every 6 months, it is necessary to tighten the relay's screw terminals.

10. Safety Requirements

The product must be operated under the following environmental conditions:
- explosion-proof;
- free from aggressive gases and vapors in concentrations that could damage metals and insulations;
- not saturated with conductive dust or vapors;
- no direct exposure to ultraviolet radiation.

Installation, setup and connection must only be performed by qualified electrical personnel with at least a level III electrical safety group, who are familiar with this operation manual.

The product must be installed and connected with the power turned off.

Any use of the product under conditions different from those outlined in Section 3 of this manual must be approved by the manufacturer.
It must be installed in switchboards with at least protection class I and a protection level of at least IP30.
Failure to follow this manual may result in improper operation, electric shock, or fire.

11. Transport and Storage Conditions

The product can be transported in its original packaging by any covered transport, provided it is protected from moisture.
The product should be stored only in the manufacturer's packaging, in self-ventilated rooms, at an ambient temperature between -30 and+70°C, with a relative humidity of 80% at 25°C, and without condensation.

12. Package Contents

The product package includes:
- 1 x Single-Phase Voltage and Current Monitoring Relay FRVA1S-63A;
- 1 x packaging box;
- 1 x passport, operation manual.

13. Warranty Liability

The average service life is 15 years, provided the consumer follows the requirements for operation, transportation and storage.
The warranty period for the product is 5 years from the date of sale, provided the consumer follows the requirements for operation, transportation and storage.
The warranty does not apply to products with:
- mechanical damage;
- other damage caused by improper transportation, storage, installation, connection, or improper operation;
- signs of unauthorized opening and/or repairs.

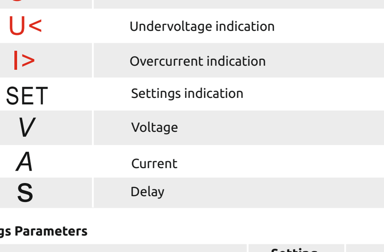
During the warranty period and technical support, please contact:**https://promfactor.com**

14. Disposal

The product should not be disposed of with regular household waste. It must be taken to organizations that handle the disposal of electrical equipment.

Control Manual

Figure 1



Symbol	Meaning
(relay symbol)	Relay ON indication
U>	Overvoltage Iindication
U<	Undervoltage indication
I>	Overcurrent indication
SET	Settings indication
V	Voltage
A	Current
S	Delay

Settings Parameters

Parameters	Setting Range	Step	Default Settings
Overvoltage setpoint, V	220-280	1V	250V
Undervoltage setpoint, V	80-210	1V	170V
Current setpoint range, A	1-63	1A	63
Turn-On delay, s	5-600	1s	5s
Overload activation delay, s	0-600	1s	90s
Short circuit delay time, s	0-5.0	0.1s	0.2s
Temperature setting, °C	70-80-OFF	1°C	70°C
Turn-on delay at temperature, s	1-300	1s	10s
Number of consecutive overcurrent starts	OFF-1...20	1	3
Automatic reset	ON/OFF		ON
Password function	ON/OFF		OFF

If a voltage deviation outside the set limits is detected during the turn-on delay, the output relay remains open, and the failure LED indicator turns on.
In normal operation, the relay displays the operating voltage and current. If an unacceptable voltage fluctuation or overcurrent occurs, the output relay opens, and the failure LED indicators turn on.
When the voltage returns to normal (within the set limits), considering the hysteresis value, the relay counts the preset delay and closes the contacts. If an overload occurs, the relay counts the preset turn-on delay and closes its contacts if the load current remains above the set limit. The disconnection cycle repeats until the current drops below the set limit.

Settings Menu

Figure 2 **Operation Example**

230 V
5 s

- When power is applied, the operating voltage is displayed at the top of the screen, and the delay time at the bottom.
- In normal operation, the operating voltage is shown at the top, and the operating current at the bottom.

230 V
oFF
>0,5s

- **Manual ON/OFF**

Press ⏻ for 0.5 seconds during normal operation to display OFF on the bottom of the screen, and the output relay will open.
Press ⏻ again for 0.5 seconds to turn the relay on (automatic start).

260 V
20.0 A

- **Failure Check**

On the main screen, press «▼» to show the flashing values of the last failure state.
The device will return to the main screen after 3 seconds.

I>
230 V
Erra A

- **Displaying Three Continuous Failures I>**

Disconnect the device causing the overload.
Press ⏻ for 0.5 seconds to reset the error.

230 V
15 S

- **Manual Reset (automatic reset is off)**

Press ⏻ for 0.1 seconds to reset.
The on-delay countdown will appear on the bottom display.

Figure 3 **Settings Menu**

230 V
20.0 A

- **Display Menu**

M >2s Accessing settings

Pin SET
000

- **Accessing settings**
M **and enter it using the «▲ ▼» buttons.**
000→999
Press M to confirm the password and enter the settings menu.

U> SET
oU V
250

- **Overvoltage Setpoint Settings**
220→300
Press M to activate the setting, then use the «▲ ▼» buttons to adjust the value.
Press M to save the value, then press «▼» to move to the next setpoint.

U< SET
uU V
170

- **Undervoltage Setpoint Settings**
80→210
Press M to activate the settings, then use the «▲ ▼»buttons to adjust the value.
Press M to save the value, then press «▼» to move to the next setpoint.

I> SET
oL
63 A

- **Overcurrent Protection Setpoint**
1→63
Press M to activate the setting, then use the «▲ ▼» buttons to adjust the value.
Press M to save the value, then press «▼» to move to the next setpoint.

ton SET
5 s

- **Turn-On Delay Time**
5→600
Press M to activate the setting, then use the «▲ ▼» buttons to adjust the value.
Press M to save the value, then press «▼» to move to the next setpoint

tA SET
90 s

- **Disconnection Delay for Overcurrent**
0→600
Press M to activate the setting, then use the «▲ ▼» buttons to adjust the value.
Press M to save the value, then press «▼» to move to the next setpoint.

tSd SET
0.2 s

- **Shortcut Delay Settings**
0→5.0
Press M to activate the setting, then use the «▲ ▼» buttons to adjust the value.
Press M to save the value, then press «▼» to move to the next setpoint.

°C SET
70

- **Temperature Setpoint Settings °C**
70→80→oFF
Press M to activate the setting, then use the «▲ ▼» buttons to adjust the value.
OFF: the function is off.
Press M to save the value, then press «▼» to move to the next setpoint.

t°C SET
10 s

- **Delay Setting in case of overheating**
1→300
Press M to activate the setting, then use the «▲ ▼» buttons to adjust the value.
Press M to save the value, then press «▼» to move to the next setpoint.

CPr SET
3

- **Setting the number of alarms during current overload**
oFF→1→20
Press M to activate the setting, then use the «▲ ▼» buttons to adjust the value.
OFF: the function is off.
Press M to save the value, then press «▼» to move to the next setpoint.

rEC SET
on

- **Automatic Reset Settings**
on→oFF
Press M to activate the setting, then use the «▲ ▼» buttons to adjust the value.
OFF: the function is off, ON: the function is on.
Press M to save the value, then press «▼» to move to the next setpoint.

rSt SET
on

- **Setup Settings**
on→oFF
Press M to activate the setting, then use the «▲ ▼» buttons to adjust the value.
OFF: the function is off, ON: the function is on.
Press M to save the value, then press «▼» to move to the next setpoint.

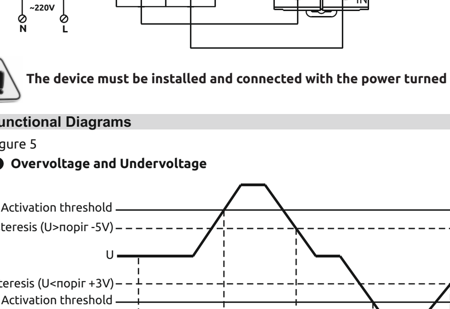
End SET

- **Setup is complete.**
Press M to exit the settings.

The relay will automatically exit the settings menu and discard any changes if no buttons are pressed for 60 seconds.

Circuit and Wiring Diagrams

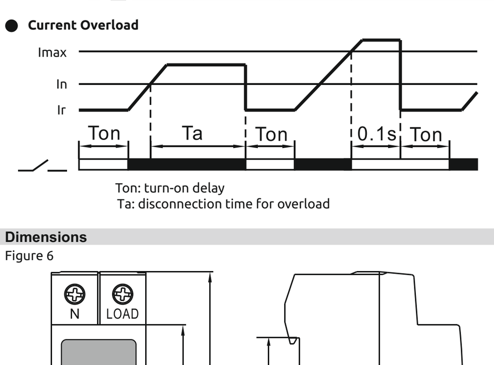
Figure 4



The device must be installed and connected with the power turned off.

Functional Diagrams

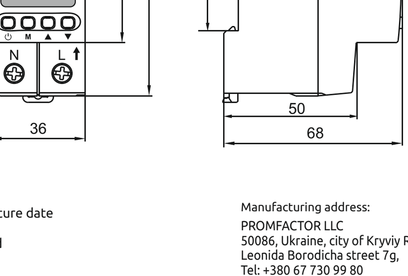
Figure 5



Ton: turn-on delay
Ta: disconnection time for overload

Dimensions

Figure 6



Manufacture date

Date sold

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