

# D2

D2-32, D2-40, D2-50, D2-63,  
D2-32 red, D2-40 red, D2-50 red, D2-63 red  
Overvoltage protection for professionals

**Voltage monitoring relay ZUBR D2** (hereinafter referred to as the device) designed to protect electrical equipment from high and low voltage and from zero break. In case of voltage deviations, ZUBR D2 turns off the load, and in case of normalization it turns it back on. Equipment that is easily affected to line voltage deviations: refrigerators, TVs, video and audio equipment, computers, etc.

All settings are stored in non-volatile memory.

### IN THE BOX

Voltage monitoring relay	1 piece
Technical data sheet, installation and operation manual, warranty card	1 piece
The packing box	1 piece

### TECHNICAL DATA

Model	D2-32 D2-32 red	D2-40 D2-40 red	D2-50 D2-50 red	D2-63 D2-63red
Rated load current (for category AC-1)	32 A	40 A	50 A	63 A
Rated power, in 10 min (for category AC-1)	40 A	50 A	60 A	80 A
Rated power (for category AC-1)	7 000 VA	8 800 VA	11 000 VA	13 900 VA
The number of operating cycles under load, not less	100 000 cycles			10 000 cycles
The number of operating cycles without load, not less	1000 000 cycles			500 000 cycles
Relay type	electromagnetic polarized			
Voltage limit	upper 220–280 V, lower 120–210 V			
Power Volt	not less than 100 V, not more than 420 V			
Break-time at increasing	not more than 0,03 sec			
Break-time at lower:	> 120 V			0,1–10 sec
	< 120 V			not more than 0,03 sec
Device weight	0,17 kg ±10 %			
Overall dimensions (w x h x d)	36 x 85 x 66 mm			
Connection	not more than 16 mm			
IP to GOST 14254	IP20			

### INSTALLATION

**Important.** Before the installation and operation of the device, please read this document to the end. This will help to avoid possible danger, mistakes and misunderstandings.

The appliance is intended for installation inside residences. The risk of moisture or humidity in the installation site should be minimal. The ambient temperature during the installation should be within  $-5...+45^{\circ}\text{C}$ .

The appliance is installed in a special box, which allows to conduct an easy installation and operation. Cabinet should be equipped with standard mounting rail 35 mm width (DIN rail). The appliance takes of two standard module on 18 mm in width. The height of the appliance should be in the range 0,5...1,7 m from the floor.

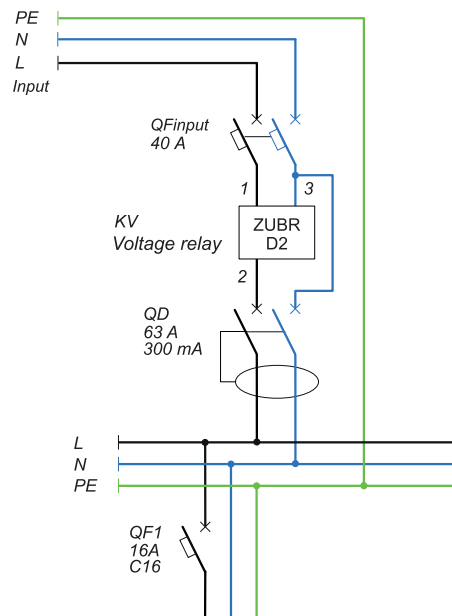
It's important to set the automatic circuit-breaker (QF) in front of the appliance in order to protect against short circuit and excess capacity in circuit load. The automatic switch off is established in the open-phase fault wire, as it is shown at the Scheme 1. Safety shutdown device is set to protect a person from electric shock leak.

Terminals of the device are designed for wire cross section 2 up to 16 mm<sup>2</sup>. It is advisable to use a soft wire, which is tightened in the terminals with a screwdriver with a tip width of no more than 6 mm with a torque of 2,4 N·m. A screwdriver with a blade more than 6 mm wide can cause mechanical damage to the terminals. Doing so will void your warranty claim.

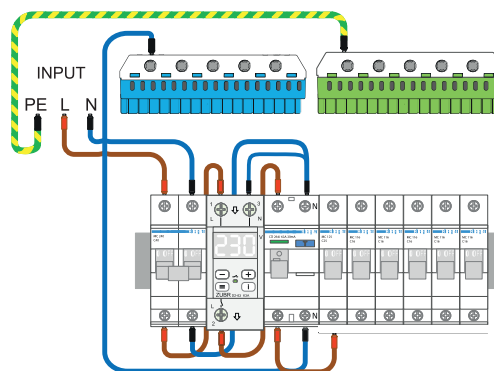
### CONNECTION SCHEMES

The power supply voltage (100–420 V, 50 Hz) is applied to terminals 1 and 3, with phase (L) connected to terminal 1 and neutral (N) to terminal 3.

The load connection wires are connected to terminal 2 and to the neutral terminal block (not supplied).



Scheme 1. Variant of the electrical diagram D2



Scheme 2. Variant of the wiring diagram D2

Table 1. Load shutdown time when the voltage goes beyond the limits

Pro Model (factory setting)	Upper voltage limit	220–280 V	0,03 s
OFF	Lower voltage limit	120–210 V	0,1...10 s
		< 120 V	0,03 s
Pro Model	Upper voltage limit	> 264 V	0,03 s
		220–264 V	0,5 s
ON	Lower voltage limit	176–210 V	10 s
		154–176 V	0,1...10 s
		< 154 V	0,03 s

*Note:* You can activate the Pro Model in the Menu item «Pro». The time, which is marked in blue, can be adjusted in the Menu item «LUT».

### WARRANTY TERMS

The warranty for ZUBR devices is valid for 60 months from the date of sale, provided that the instructions are followed. The warranty period for products without a warranty certificate is counted from the date of production.

If your device is not working properly, we recommend you to read the section «Possible problems» firstly. If you can not find an answer, contact Service Center. In most cases, these actions resolve all issues.

If you continue to have issues with the device, please send it to a Service Center or to the store where you purchased the device. If your device is defective due to our fault, we will repair or replace it under warranty terms within 14 business days.

Please look through the full text of the warranty and the data you need to send to your Service Center on the website <https://www.ds-electronics.company>. If you have a warranty case, please, contact the General distributor in your area.



**SERVICE CENTER CONTACT:**  
+38 (091) 481-91-81  
Viber WhatsApp Telegram  
support@dse.com.ua

### WARRANTY CARD

serial №:	date of sale:
a seller, a seal:	
place of a seal	
an owner contact for a service center:	

## EXPLOITATION

The device will immediately begin to display the voltage on phase. If the voltage is normal, the voltage will be applied to the load after the set time and the green indicator will light up.

### Setting voltage limits

(factory setting 242 V / 198 V)

To see the upper limit press «+» button, lower limit press «-» button. To change use «+» and «-» buttons.

**IMPORTANT.** During voltage limits settings use technical documentation for protected equipment.

### Menu


- Use the «≡» button to navigate through the menu.
- Use the «+» and «-» buttons to change the parameters. After first pressing parameter will flash, after second pressing it will change. After 10 sec after pressing — display returns to the mains voltage.
- To browse the abbreviation expansion of parameters, use the «i» button.

Menu	Press «≡»	Screen	Notes
<b>Delay in switching on the load</b> (factory setting 3 sec, a range of change 3–999 sec)	1 time	Łon	If a voltage surge occurs, the device displays the maximum voltage for 1.5 seconds, then the current voltage with a flashing dot in the rightmost digit.
It is used to protect compressor equipment. It is recommended to set a delay of turning on load 120–180 sec. It will allow to increase the service life of the compressor. To increase the delay, press «≡» 1 time.		Ł99 223	The countdown of the delay from 3 s to 100 s will be displayed in seconds until the load is switched on («t99.», «t98.»,...) A delay countdown of more than 100 seconds will be displayed in the format — the current mains voltage with a flashing dot on the right.
<b>Correction</b> (factory setting 0 V, a range of change ±20 V)	2 times	Łor	You can use correction if voltage indications on the screen of the device and your reference device differ.
<b>Professional load switch-off time delay model</b> (factory setting «oFF»)	3 times	Pro	It is useful for low quality AC power or power that is overloaded with powerful equipment. Activate this feature to keep the equipment running during voltage fluctuations that are safe in magnitude and duration.
<b>Switch-off time in case of voltage failure</b> (factory setting 1 sec a range of change 0,1–10 sec)	4 times	Łut	It is necessary for more fine-tuning of the protection reaction time to voltage sags. Check Table 1 to see the ranges for which the time can be set.
<b>Delay type of load starting</b> (factory setting «tAr»)	5 times	ođŁ	«tAr» — delay is counted from the moment of voltage recovery. «tAo» — delay is counted from the moment the relay is turned off and takes into account response time of the emergency in the total on-delay time.
<b>Hysteresis</b> (factory setting 1 V, a range of change 0–5 V)	6 times	Hy5	It is necessary to reduce the number of the device operations by the limit, when the voltage in the network is close to the limit and is not stable. Scan QR code for more details.
<b>Maximum number of protection actions in a row</b> (factory setting 3, a range of change 1–5 or «oFF»)	7 times	rEP	Protection against frequent actuations. It limits the number of repeated trips beyond the limit if no more than 20 sec have elapsed between turning on the load and activation of the protection. To disable the function, select «oFF».
<b>Standby brightness</b> (factory setting 100 %, a range of change 0–100 %)	8 times	br1	If the brightness setting is 0, the screen will turn off completely for 30 seconds after the last button press. During an emergency, the screen will be 100 % lit.

## Alarm log for 100 values

The device stores in non-volatile memory the voltage values at which the load was interrupted or overheat triggering «oht» (scan QR code for more details).

To view the alarms press «i». Log entries are displayed in order from the last to the oldest («n 0» is the last entry, «n99» is the oldest). Hold down «i» to browse through the log quickly. To browse up or down, use «+» or «-».

 The value of each alarm is accompanied by a single flash of display with its number, where «n 0» — is the newest and «n99» — is the oldest.

To reset the log, wait until the device returns to the mains voltage display. Then hold down the «i» button for 3 sec until «rSt» appears. After releasing the button, the log will be cleared.

### Button lock


Hold down the «+» and «-» for more than 6 sec until the message «Loc»/«unLoc» appears on the screen.

**View the temperature inside the case.** If overheating has occurred and «oht» is displayed, press the «i». If there is no overheating, hold «i» for 24 seconds.

**View the firmware version.** Hold «i» for 6 seconds.

**A tripping counter.** Hold «i» for 12 sec. Viewing only.

### Reset to factory settings

 Hold «-» and «≡» buttons simultaneously until the «dEF» message appears on the screen. When you release the button, the settings are reset and the device reboots.

## POSSIBLE PROBLEMS, CAUSES AND WAYS TO OVERCOME THEM

### At turning on neither the indicator nor the screen don't light up

*Possible cause:* there is no power supply voltage.


*It is necessary to:* ensure supply voltage presence.

### Screen normal voltage level, load is not turning on

*Possible cause:* the current voltage in the network is close to the established limits and not stable.

*It is necessary to:* check the values of the limits; increase their values so that the protected equipment is tolerated to them. In other cases, please, address to a service centre.


### The load is disabled, «oht» flashes on the screen

 The temperature inside the enclosure is above 80 °C and the Overheat Protection has tripped.

*It is necessary to:* check the tightness of the power wires in the device terminals; make sure that the power to be switched does not exceed the permissible load and that the connection cross-section of the wires is correct.

If the protection trips more than 5 times a day, the relay will lock and «oht» will be displayed permanently. Eliminate the overheating problem and wait until the temperature inside the relay drops below 60 °C — the relay will indicate this by displaying a dot at the end of «oht.» Then, to unlock, press any button on the relay.


### The load is disabled, the screen displays «rEP»

 The relay was locked to draw attention to the dangerous situation and protect the equipment.

*Cause:* the maximum number of frequent operations in case of unstable network has been exceeded.

*Required:* unlock the relay by pressing any button, then press «i» to find out the cause of tripping in the Alarm log. Take steps to correct the problem, if possible. Note that the relay will unlock automatically 1 hour after the «rEP» is triggered, this measure will keep your equipment partially operational until the network problem is corrected.

### Every 5 sec the screen displays «Ert»

 Possible cause: open or short circuit of the internal overheating sensor. Control over inner overheating will not be done.

*It is necessary to:* send the device to the Service Center.

## More information

Please note that your device only has the functions described in these instructions.



## SAFETY INSTRUCTIONS

Carefully read and become aware of these instructions.

Connection of the device must be done by a qualified electrician.

Before the installation (dismantling) and connection (disconnection) of the device, turn off voltage supply and also act according to the «Rules of an arrangement of electric installations».

Turning on and off, configure the device should be with dry hands.

Do not connect the device to the network disassembled.

Avoid hitting of water or moisture to the device.

Do not expose the device to extreme temperatures (higher than 40 °C or below –5 °C) and high humidity.

Never clean the device with the use of chemicals such as benzene, solvents.

Do not store the device and do not use it in areas with the dust.

Do not attempt to disassemble and repair the device.

Do not exceed the landmarks value adaptor and power.

To protect against overvoltage caused by lightning discharges, use a lightning protector.

Protect the children from games with the working device, it is dangerous.

## ADDITIONAL INFORMATION

Do not fire and do not throw away the device with the household waste.

After the end of its service life, the product must be disposed of in accordance with applicable law.

Transportation of goods carried in the package ensures the safety of the product.

The device can be transported by any kind of transport (rail, sea, motor, air transportation).

Date of manufacture is on the back side of device. Application time is unlimited.

The device does not contain harmful substances.

If you have any questions or something is not clear, call the Service centre, the telephone number is listed below.

d2.1.3G.33.4\_2404



EMC Directive 2014/30/EU  
Low Voltage Directive 2014/35/EU

Manufacturer and vendor: DS ELECTRONICS, LTD  
Ukraine, 04136, Kyiv region, Kyiv, 1–3 Pivnichno-Syretska str.  
Sales Department: +38 (091) 481-91-81, support@dse.com.ua  
www.ds-electronics.company