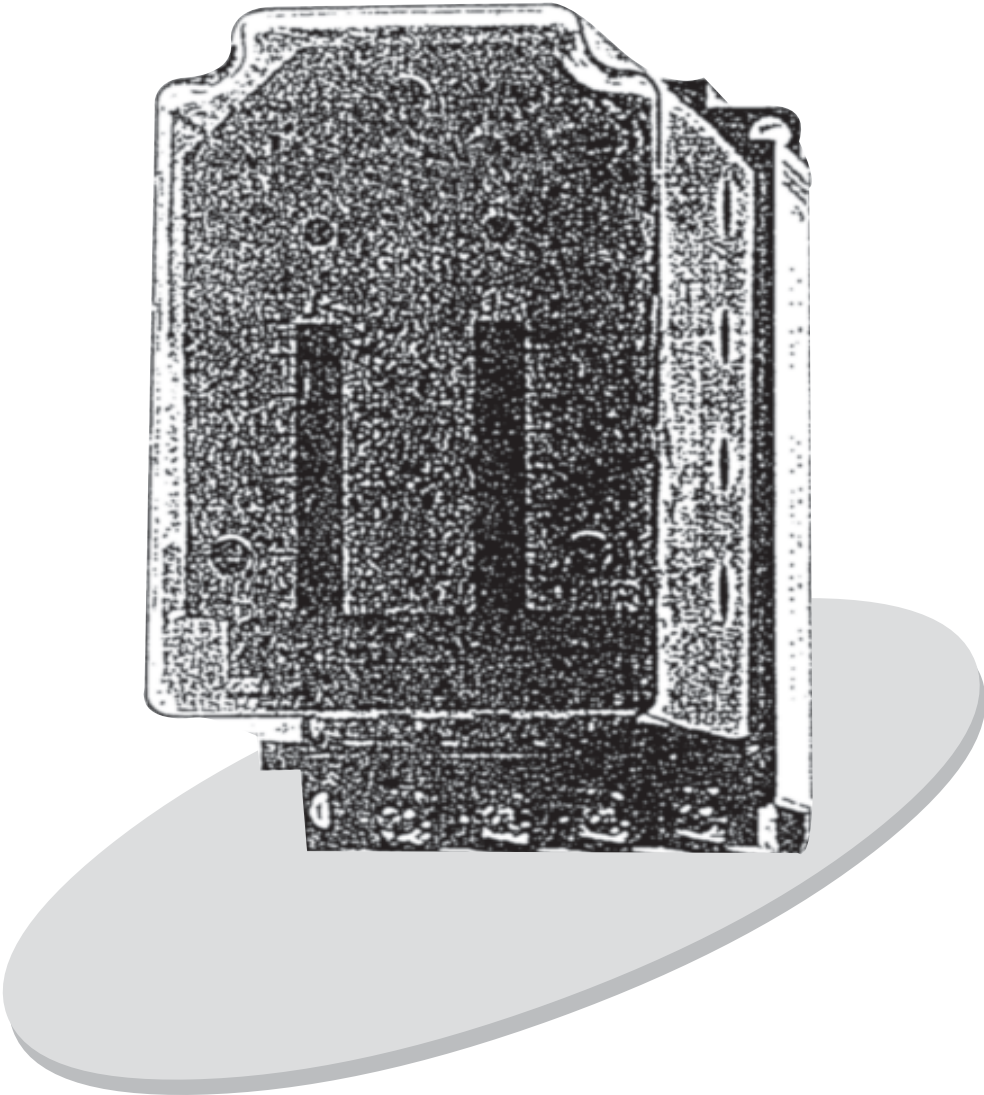


Functional Range

GK3 - DC Voltage Supervision Relay

CSPC



Contents

	Page No.
1. Application	3
2. Characteristics and Features	3
3. Operating Principle	4-5
3.1 Settings	
3.2 Contact Positions/Connection	
4. Technical Data	6-8
5. Order From	8

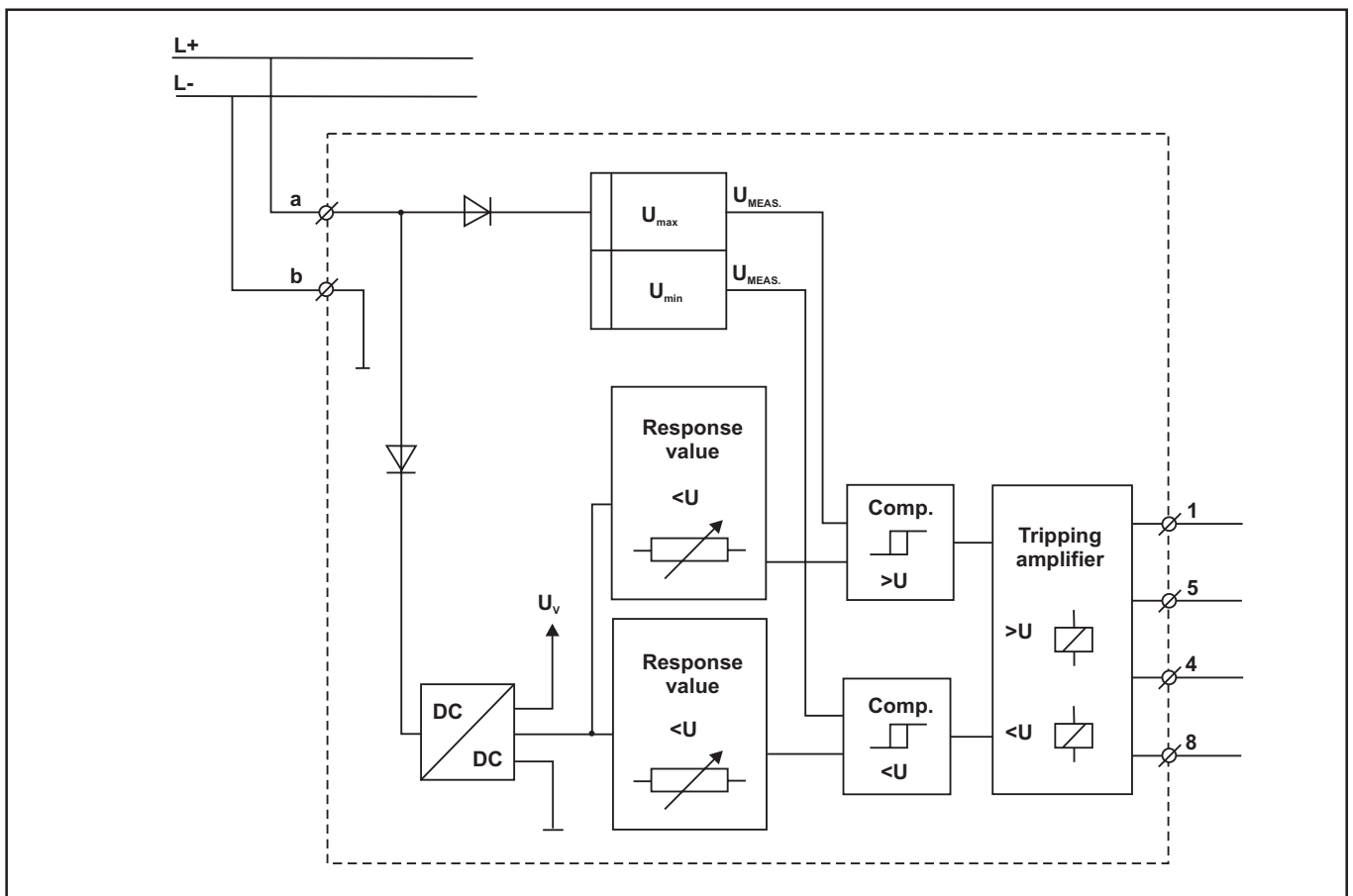
1. Application

The relay **GK3** is a static measuring relay to supervise a DC voltage in the range of 45 to 750 V. It is predominantly used for the supervision of DC intermediate circuits, (UPS batteries) and station batteries. The relay may be connected directly to the voltage to be supervised without using voltage potential divider. An additional auxiliary voltage is not required.

2. Characteristics and Features

- The **GK3** is available in the following versions :
 - as undervoltage supervision relay
 - as overvoltage supervision relay
 - as under- and overvoltage supervision relay
- Operating times < 100 ms
- Ease of setting, due to a wide adjustment range
- Precision components and over-rating guarantee a long service life and stable tripping values.
- The unit is in compliance with the regulations of VDE 0435, VDE 0160 and IEC 255-6

Figure 1 Block diagram

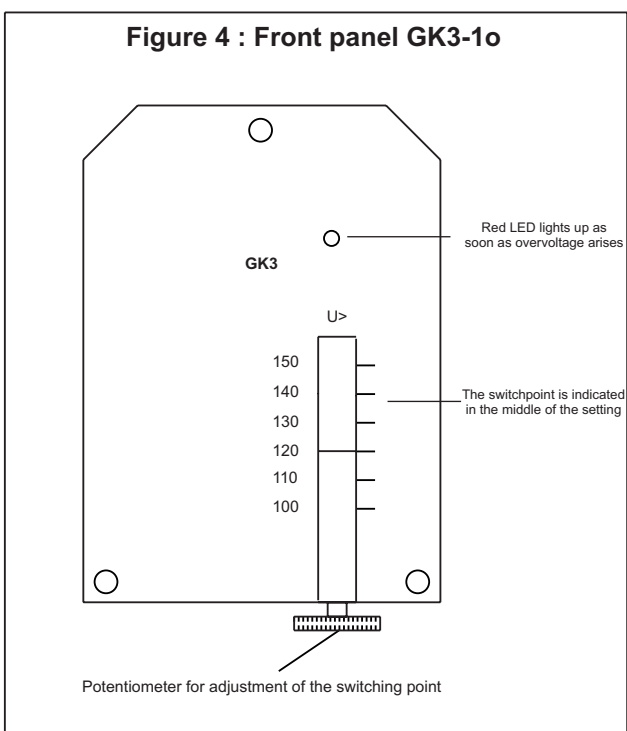
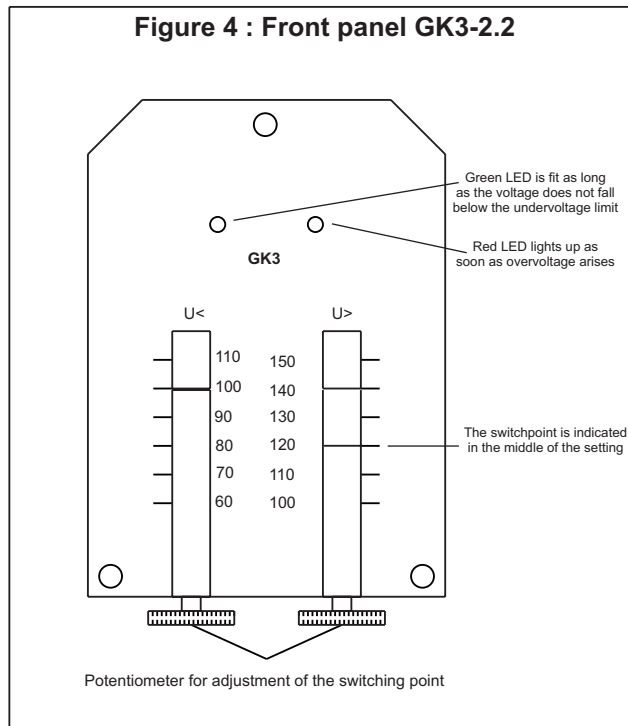
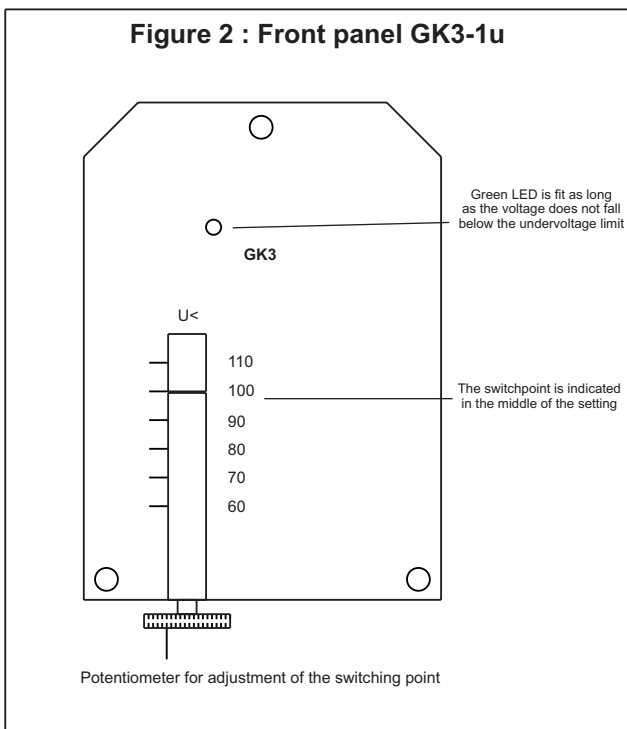


3. Operating Principle

From the existing measuring voltage, the GK3 generates the internal supply voltage and an highly precise reference voltage. Therefore, an additional auxiliary voltage is not required. Measuring voltage and reference voltage are fed to the two comparators $U<$ and $U>$. They compare the measured values to the set threshold values. If the values remain below or exceed these threshold values a signal to the appropriate tripping relay $U<$ or $U>$ is given through a tripping amplifier.

3.1 Settings

At the front panel of the GK3, each according to type there are one or two spindle potentiometers for the setting of the over- and undervoltage switching-points. To adjust the potentiometers, the cover of the housing has to be removed. The relay's operating state is indicated by LEDs.



3.2 Contact Positions / Connection

The contact positions of the different unit types are shown below :

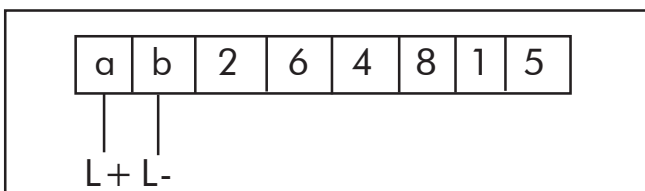
Relay GK3-1u with a common tripping relay

Contact Position 1	Contact Position 2
<p>no voltage relay operated tripping</p>	<p>measuring voltage is in the set limits</p>

Relay GK3-1o with a common tripping relay

Contact Position 1	Contact Position 2
<p>no overvoltage</p>	<p>overvoltage tripping</p>

Voltage inputs GK3



Relay GK3-2.2 with separate tripping relays for under- and overvoltage

Contact Position 1	Contact Position 2
<p>no voltage under voltage</p>	<p>voltage is applied no undervoltage no overvoltage</p>
Contact Position 3	Additional contact*
<p>no undervoltage but overvoltage</p>	<p>voltage is between the preset values</p>

*applies to GK3-2.2 only

4. Technical Data

GK3 - DC Voltage Supervision Relay

Types	:	GK3-1u undervoltage relay GK3-1o overvoltage relay GK3-2.2 under and overvoltage relay with separate tripping relays
-------	---	--

General Data

Design	:	static measuring relay
Regulations	:	VDE 0435 part 303; VDE 0160; IEC 255-6
Tests according to	:	VDE 0435 part 303
Maintenance	:	maintenance-free
Duty	:	continuous
Mounting position	:	optional

Measuring-/Auxiliary Circuits

Nominal voltage	:	64V, 100V, 200V, 400V, 500V																		
Setting ranges	:	stepless adjustable <table><thead><tr><th>U_N</th><th>Range U<</th><th>Range U></th></tr></thead><tbody><tr><td>64V</td><td>45V-70V</td><td>60V-85V</td></tr><tr><td>100V</td><td>60V-110V</td><td>100V-150V</td></tr><tr><td>200V</td><td>120V-220V</td><td>200V-300V</td></tr><tr><td>400V</td><td>240V-440V</td><td>400V-600V</td></tr><tr><td>500V</td><td>300V-550V</td><td>500V-750V</td></tr></tbody></table>	U_N	Range U<	Range U>	64V	45V-70V	60V-85V	100V	60V-110V	100V-150V	200V	120V-220V	200V-300V	400V	240V-440V	400V-600V	500V	300V-550V	500V-750V
U_N	Range U<	Range U>																		
64V	45V-70V	60V-85V																		
100V	60V-110V	100V-150V																		
200V	120V-220V	200V-300V																		
400V	240V-440V	400V-600V																		
500V	300V-550V	500V-750V																		
Max. input voltage	:	Highest adjustable value: continuous 1.5 x highest adjustable value for 30s																		
Max. power consumption	:	$U_N = 64V: \leq 1.5 \text{ W}$ $U_N = 100V: \leq 1.0 \text{ W}$ $U_N = 200V: \leq 2.0 \text{ W}$ $U_N = 400V: \leq 2.0 \text{ W}$ $U_N = 500V: \leq 2.5 \text{ W}$																		
Operating time	:	$\leq 100\text{ms}$ if voltage is above or below 20% of the switching-point $\leq 50\text{ms U}<$: in case of a blackout $U>$: when exceeding 50% of the switching-point																		
Response times of the measuring circuits: after application of the measuring voltage	:	undervoltage measuring circuit: 1s overvoltage measuring circuit, undelayed																		

Output Relay

Tripping relay:

● potential free contacts:	:	GK3-1u and GK3-1o, 1 normally open contact, 1 normally closed contact GK3-2.2: 2 normally open contacts, 1 normally closed contact
----------------------------	---	---

- breaking capacity : 1250 VA / 150 W ohmic, 500 VA/90W inductive
- max. making current (16ms) : 20 A
- max. breaking voltage : 400 V/AC, 125 V/DC
- max. continuous current: : 5 A
- contact material : Ag/AgNi
- contact service life : 10⁵ switching operations at 1250 VA
- hysteresis : 3% ± 0.5%

Accuracy

- Influence of temperature : ≤ 1% at -5°C <math><0</math><math><55^{\circ}\text{C}</math>
- Reading error : ≤ 2.5%

Tests

- Insulation test : 2.5kV between independent circuits and to mounting plate
- High voltage impulse withstand : VDE 0435 part 303 class III 1.2/50 μs; 5 kV; 0,5 J
- High frequency disturbance : VDE 0435 part 303 class III 1 MHz; 2.5 kV, 400 times per seconds

Ambient conditions

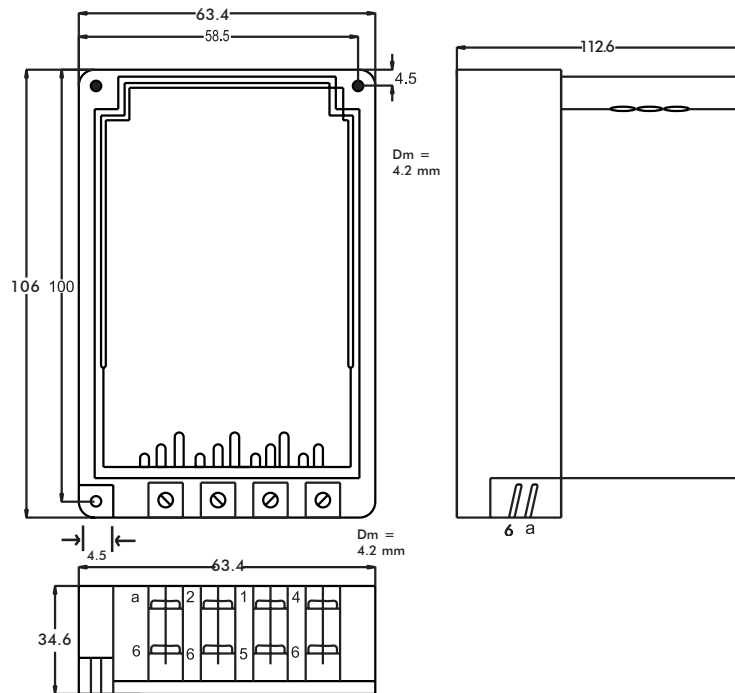
- Perm. storage temperature : -40°C to + 70°C
- Perm. operating temperature : -20°C to +70°C
- Humidity resistance: : class F acc. to DIN 40040, tested acc. to DIN IEC 68 part 2-3
(56 days at 40°C and 93% relative humidity)

Case, dimensions weight and installation

- Case : CSPC-standard housing
- Material : track resistant moulded base and transparent cover
- Height x width x depth: : 63.4 mm x 106 mm x 112.6 mm
- Weight : 0.4 kg
- Protection class case : IP 10
- housing : IP 00

Dimensions

(dimensions in mm)



8. Order from

When placing an order, please fill in the form on the right.

DC Voltage Supervision Relay		GK3
Number	Type	Voltage
<input style="width: 50px; height: 20px;" type="text"/>	GK3 - <input style="width: 50px; height: 20px;" type="text"/>	- <input style="width: 50px; height: 20px;" type="text"/>
<p>1U = Undervoltage relay 1O = Overvoltage relay 2.2 = Under and overvoltage relay with separate tripping relays</p>		
<p>64 = Rated voltage 64 V 100 = Rated voltage 100 V 200 = Rated voltage 200 V 400 = Rated voltage 400 V 500 = Rated voltage 500 V</p>		

For further information, please contact :



C&S Protection & Control Ltd.

44, Okhla Indl. Estate, New Delhi-110020, Ph.: 011-55602414, 26319465-66 Fax: 011-55602413 email: cspc@controlsindia.com

Marketing Office : DELHI : Ph.: 55602414, 26319465-66 Fax: 55602413 CHANDIGARH : Ph. 2776154, 2776151, 2726153 Fax: 2726154
 KOLKATA : Ph. 24549607-08 Fax: 24549371 MUMBAI : Ph.: 24114727-28 Fax : 24126631 PUNE : Ph.: 5444822-824, Fax: 5410820,
 AHMEDABAD : Ph.: 65841425, 6589132 Fax : 6589132 BANGALORE : Ph.: 5586147, 5323582, 5594939 Fax: 5582796,
 CHENNAI : Ph.: 26426475, 26426572 Fax: 26411972 HYDERABAD : Ph.: 27813003, 55332304 Fax: 27812987