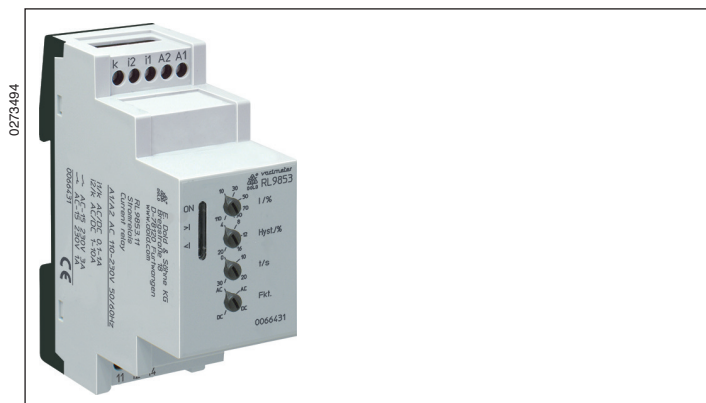


## VARIMETER Current Relay RL 9853



### Your Advantages

- Preventive maintenance
- For better productivity
- High repeat accuracy
- Wide measuring voltage range
- Easy setting

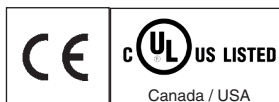
### Features

- According to IEC/EN 60 255-1
- For monitoring of current in DC and AC systems
- Detection of over- or undercurrent in AC- or DC mains
- Wide auxiliary range
- Output: 1 changeover contact
- De-Energized on trip
- Adjustable switching current
- Adjustable hysteresis for reset
- Adjustable switching delay
- Fast fault detection
- Width: 35 mm

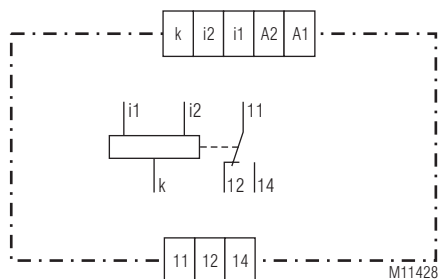
### Product Description

The measuring relay RL 9853 of the VARIMETER series monitors overcurrent and undercurrent in AC or DC current systems. The monitoring functions are easily selectable using a single turn switch without complex menu structure. The early detection of up-coming break downs and preventive maintenance avoid expensive damages. As user you profit from the reliability and availability of your plant.

### Approvals and Markings



### Circuit Diagram



Terminals i1/k: 2 mA ... 11 mA; 0,1 A ... 1,1 A  
Terminals i2/k: 10 mA ... 110 mA; 1 A ... 10 A

### Connection Terminals

Terminal designation	Signal description
A1, A2	Auxiliary voltage
i1, i2, k	Current measuting input
11, 12, 14	Changeover contact (outputrelays)

### Application

- Monitoring of current in DC and AC systems to identify overcurrent and undercurrent
- Switch over to emergency supply after fault detection

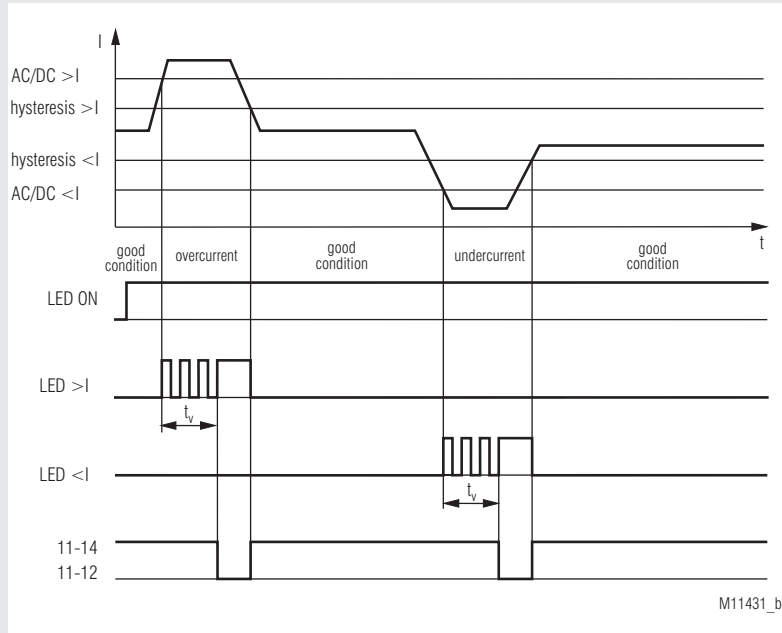
### Indicator

green LED „ON“:	on, when supply connected
red LED „>I <sub>N</sub> “:	on, when overcurrent
red LED „<I <sub>N</sub> “:	on, when undercurrent

### Function

When monitoring overcurrent or undercurrent the exceeding of the setting values above or below the thresholds is indicated by flashing of the current indicating LED. After the time delay the current indicating is continuously on and the relay de-energises. If the current returns to normal value, the LED goes immediately off and the output relay energises.

## Function Diagram



M11431\_b

### Notes

The current to be measured can also be sourced from the auxiliary supply. In this case the galvanic separation between auxiliary supply and measuring circuit is without effect. Depending on the required net form the following monitoring functions can be set using the function switch:

Function select	Type of current	Monitoring function
AC $> I_N$	AC	Overcurrent
AC $< I_N$	AC	Undercurrent
DC $> I_N$	DC	Overcurrent
DC $< I_N$	DC	Undercurrent

AC/DC measuring ranges (variant 100 mA)

Terminals	Measuring range		Internal resistance	Max. therm.contin. current
i1/k	DC	2 mA ... 11 mA	10 $\Omega$	50 mA
	AC	2 mA ... 11 mA		
i2/k	DC	10 mA ... 110 mA	1,0 $\Omega$	200 mA
	AC	10 mA ... 110 mA		

AC/DC measuring ranges (variant 10 A)

Terminals	Measuring range		Internal resistance	Max. therm.contin. current
i1/k	DC	0.1 A ... 1.1 A	40 m $\Omega$	2 A
	AC	0.1 A ... 1.1 A		
i2/k	DC	1 A ... 10 A	4 m $\Omega$	12 A
	AC	1 A ... 10 A		

## Technical Data

### Auxiliary circuit

<b>Auxiliary voltage <math>U_H</math>:</b>	DC 24 AC 110 ... 230 V 1-phase with neutral
<b>Voltage range:</b>	0.8 ... 1.1 $U_H$
<b>Nominal frequency:</b>	50 / 60 Hz
<b>Nominal consumption:</b>	approx. 5 VA

### Input

<b>Operating current <math>I_B</math>:</b>	AC/DC 2 mA ... 100 mA, 100 mA ... 10 A
--	--

### Output

<b>Contact:</b>	1 changeover contact
<b>Contact material:</b>	AgNi
<b>Switching voltage:</b>	AC 250 V
<b>Thermal current <math>I_{th}</math>:</b>	5 A
<b>Switching capacity</b> to AC 15	
NO contact:	3 A / AC 230 V IEC/EN 60 947-5-1
NC contact:	1 A / AC 230 V IEC/EN 60 947-5-1
<b>Electrical life</b> to AC 15 at 1 A, AC 230 V:	typ. $3 \times 10^5$ switching cycles
<b>Short circuit strength</b> max. fuse rating:	5 A gL IEC/EN 60 947-5-1
<b>Mechanical life:</b>	$> 30 \times 10^6$ switching cycles

### Measuring circuit

<b>Measuring current:</b>	infinite adjustable 10 % ... 110 % $I_B$
<b>Hysteresis:</b>	infinite adjustable 4 ... 20 %
<b>Switching delay <math>t_s</math>:</b>	infinite adjustable instantaneous, 2 ... 30 s
<b>Repeat accuracy:</b>	$\pm 2$ %
<b>Temperature influence:</b>	$\pm 1$ %
	<b>Attention:</b> <b>The combination of adjusted switching current I and hysteresis <math>\Delta I</math> must be within the measuring range.</b>

### General Data

<b>Operating mode:</b>	continuous operation
<b>Temperature range</b>	
Operation:	- 20 ... + 55 °C
Storage:	- 25 ... + 60 °C
Relative air humidity:	93 % at 40 °C
<b>Altitude:</b>	< 2,000 m
<b>Clearance and creepage distances</b>	
Rated impuls voltage/ Pollution degree:	4 kV / 2 IEC 60 664-1
<b>EMC</b>	
Electrostatic discharge (ESD):	8 kV (air) IEC/EN 61 000-4-2
HF irradiation	
80 MHz ... 1 GHz:	12 V / m IEC/EN 61 000-4-3
1 GHz ... 2,7 GHz:	10 V / m IEC/EN 61 000-4-3
Fast transients:	2 kV IEC/EN 61 000-4-4
Surge	
between	
wires for power supply:	2 kV IEC/EN 61 000-4-5
between wire and ground:	4 kV IEC/EN 61 000-4-5
HF wire guided:	10 V IEC/EN 61 000-4-6
Interference suppression:	Limit value class A EN 55 011
<b>Degree of protection:</b>	
Housing:	IP 40 IEC/EN 60 529
Terminals:	IP 20 IEC/EN 60 529
<b>Enclosure:</b>	Thermoplastic with V0 behaviour acc. to UL subject 94
<b>Vibration resistance:</b>	Amplitude 0.35 mm Class I IEC/EN 60 255-21
<b>Climate resistance:</b>	20 / 055 / 04 IEC/EN 60 068-1
<b>Terminal designation:</b>	EN 50 005

## Technical Data

<b>Wire connection:</b>	DIN 46 228-1/-2/-3/-4
<b>Fixed screw terminals</b>	
Cross section:	0.2 ... 4 mm <sup>2</sup> (AWG 24 - 12) solid or 0.2 ... 2.5 mm <sup>2</sup> (AWG 24 - 12) stranded wire with and without ferrules
Stripping length:	7 mm
<b>Fixing torque:</b>	0.6 Nm EN 60 999-1
<b>Wire fixing:</b>	Captive slotted screw / M2.5
<b>Mounting:</b>	DIN rail IEC/EN 60 715
<b>Weight:</b>	approx. 105 g

### Dimensions

<b>Width x height x depth:</b>	35 x 90 x 71 mm
--------------------------------	-----------------

### UL-Data

ANSI/UL 60947-1, 5<sup>th</sup> Edition  
ANSI/UL 60947-5-1, 3<sup>rd</sup> Edition

CAN/CSA-C22.2 No. 60947-1-13, 2<sup>nd</sup> Edition  
CAN/CSA-C22.2 No. 60947-5-1-14, 1<sup>st</sup> Edition

<b>Switching capacity:</b>	Pilot duty B300 5A 240Vac Resistive, G.P. 5A 30Vdc Resistive or G.P. 5A 250Vac G.P.
----------------------------	--

<b>Wire connection:</b>	60°C / 75°C copper conductors only AWG 24 - 12 Sol/Str Torque 0.6 Nm
-------------------------	---



Technical data that is not stated in the UL-Data, can be found in the technical data section

### Standard Type

RL 9853.11/61 AC/DC 0.1 ... 10 A AC 110 ... 230 V 4 ... 20 % 0 ... 30 s	
Article number:	0066431
• Output:	1 Wechsler
• Operating current:	AC/DC 0.1 ... 10 A
• Auxiliary voltage $U_H$ :	AC 110 ... 230 V
• Hysteresis:	4 ... 20 %
• Switching delay:	0 ... 30 s
• Width:	35 mm

### Ordering Example

RL 9853 .11 /00 /61 AC/DC 0.1 ... 10 A AC 110 ... 230 V 4 ... 20 % 0 ... 30 s	
	Switching delay
	Hysteresis
	Auxiliary voltage
	Operating current AC/DC 2 ... 100 mA AC/DC 0.1 ... 10 A
	UL approval
	Operation mode/Outputs 0: De-Energized on trip 1: Energized on trip
	Contacts
	Type

## Connection Example

