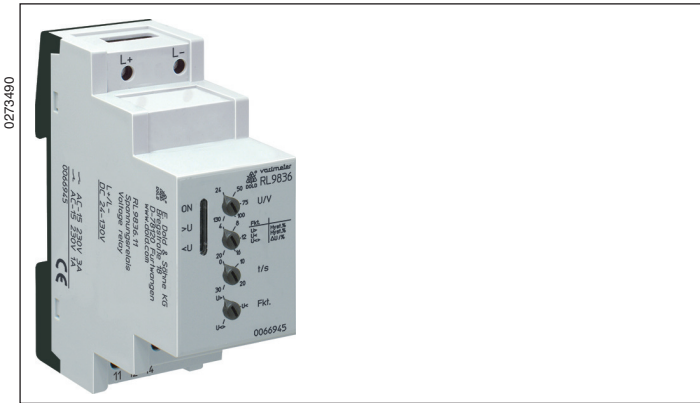


## VARIMETER Voltage Relay RL 9836



### Your Advantages

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

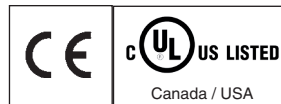
### Features

- According to IEC/EN 60 255-1
- For DC monitoring
- Detection of
  - Overvoltage
  - Undervoltage
  - Voltage range excess in single-phase AC voltage systems
- No separate auxiliary necessary
- Output: 1 changeover contact
- De-energized on trip
- Adjustable switching voltage
- Adjustable hysteresis for reset
- Adjustable switching delay
- Fast fault detection
- Width: 35 mm

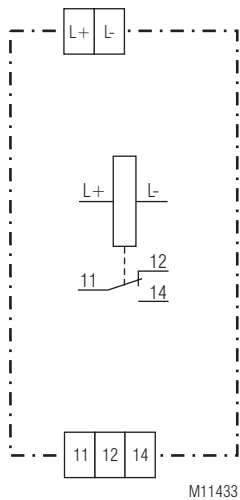
### Product Description

The measuring relay RL 9836 of the VARIMETER series monitors overvoltage, undervoltage and voltage range in DC voltage systems. The measurement is very simple and without extensive wiring as there is no auxiliary power supply necessary. 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



### Application

- For monitoring direct current voltage supply systems to detect undervoltage, overvoltage
- Switch over to emergency supply after fault detection

### Function

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

The output relay is de-energized on trip.

In the voltage range monitoring mode the nominal voltage range  $U \pm \Delta U$  is adjustable. An alarm is evoked in case the voltage leaves this monitoring range. The hysteresis for switching back into good condition is half the value set by the potentiometer  $\Delta U$ .

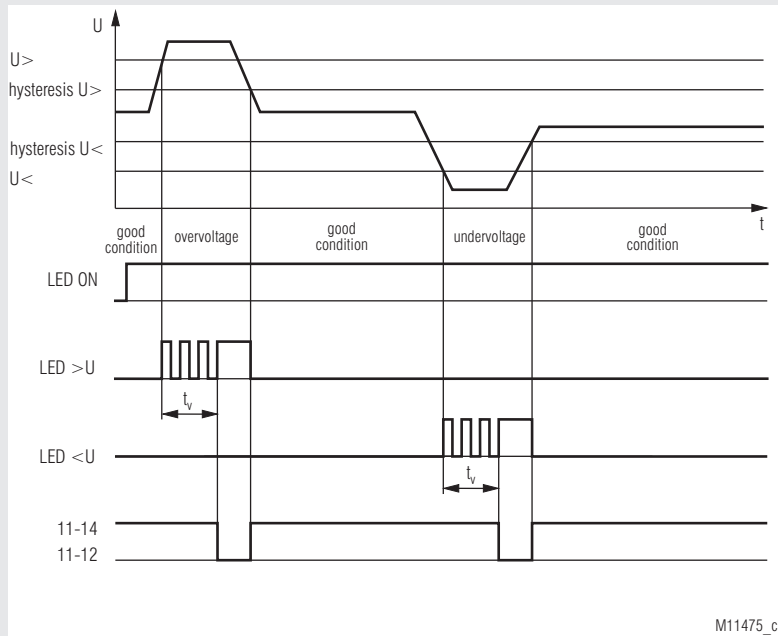
### Connection Terminals

Terminal designation	Signal description
L +	Positiv voltage measuring input
L -	Negative voltage measuring input
11, 12, 14	Changeover contact (outputrelay)

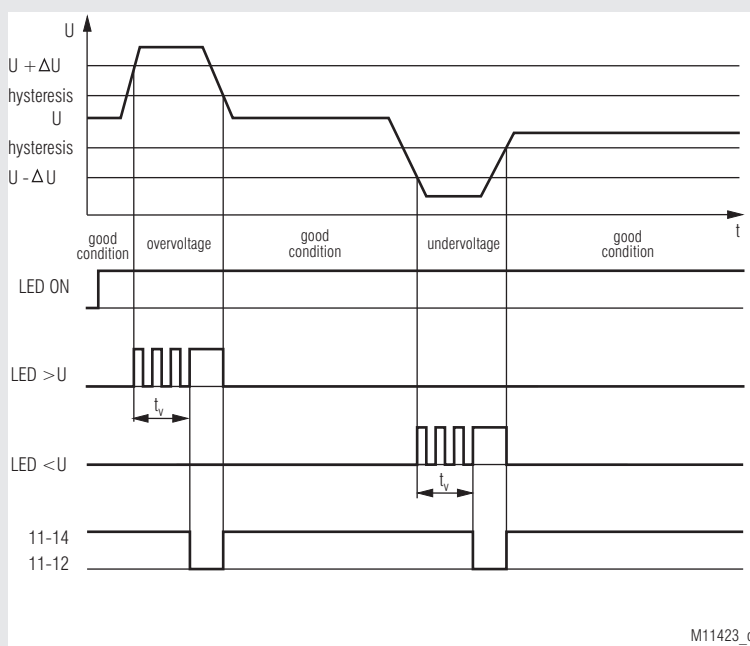
### Indicator

green LED „ON“:	on, when supply connected
red LED „>U“:	on, when overvoltage
red LED „<U“:	on, when undervoltage

## Function Diagrams



Monitoring function: overvoltage / undervoltage; rotary switch: „U>“ / „U<“



Monitoring function: voltage range; rotary switch: „U<>“

## Notes

The following monitoring functions are selectable using the 3-step function switch:

Function select	Monitoring function
U>	Overvoltage
U<	Undervoltage
U<>	Voltage range

## Technical Data

### Input

<b>Operating voltage <math>U_b</math>:</b>	DC 24 ... 130 V; DC 50 ... 250 V
<b>Voltage rated operating <math>U_e</math>:</b>	DC 28 ... 118 V; DC 59 ... 227 V
<b>Nominal consumption:</b>	approx. 2 W

### Output

<b>Contacts:</b>	1 changeover contact	
<b>Contact material:</b>	AgNi	
<b>Switching voltage:</b>	AC/DC 250 V	
<b>Thermal current <math>I_{th}</math>:</b>	5 A	
<b>Switching capacity to AC 15</b>		
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
to DC1:	5 A / DC 30 V	IEC/EN 60 947-4-1
	0.3 A / DC 250 V	IEC/EN 60 947-4-1
<b>Electrical life to AC 15 at 1 A, AC 230 V:</b>	typ. $3 \times 10^5$ switching cycles	
<b>Short circuit strength max. fuse rating:</b>	5 A gG / gL IEC/EN 60 947-5-1	
<b>Mechanical life:</b>	$> 30 \times 10^6$ switching cycles	

### Measuring circuit

<b>Measuring voltage:</b>	infinite adjustable DC 24 ... 130 V; DC 50 ... 250 V
<b>Hysteresis:</b>	infinite adjustable 4 ... 20 %
<b>Switching delay <math>t_d</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 voltage U and hysteresis <math>\Delta U</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): HF irradiation	8 kV (air)	IEC/EN 61 000-4-2
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: Surge between wires for power supply: between wire and ground: HF wire guided:	2 kV	IEC/EN 61 000-4-4
Interference suppression:	Limit value class B	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	

## Technical Data

<b>Vibration resistance:</b>	Amplitude 0.35 mm Class I IEC/EN 60 255-21 20 / 055 / 04 IEC/EN 60 068-1 EN 50 005
<b>Climate resistance:</b>	
<b>Terminal designation:</b>	
<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>Nettogewicht:</b>	approx. 105 g

### Dimensions

<b>Width x height x depth:</b>	35 x 90 x 71 mm
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## 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.
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<b>Wire connection:</b>	60°C / 75°C copper conductors only AWG 24 - 12 Sol/Str Torque 0.6 Nm
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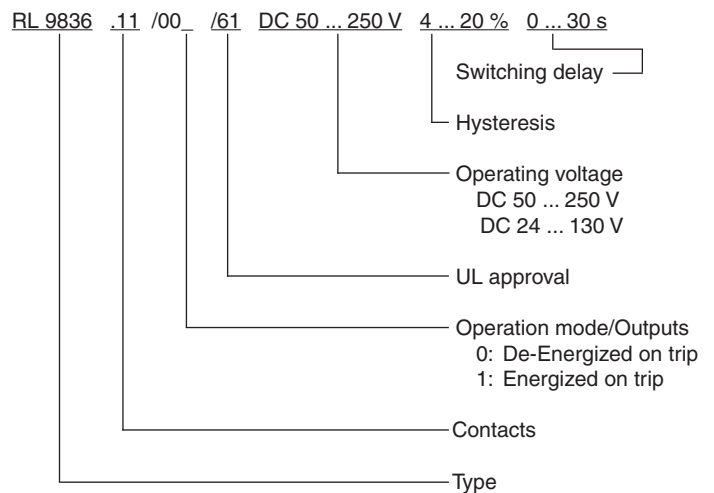


Technical data that is not stated in the UL-Data, can be found in the technical data section

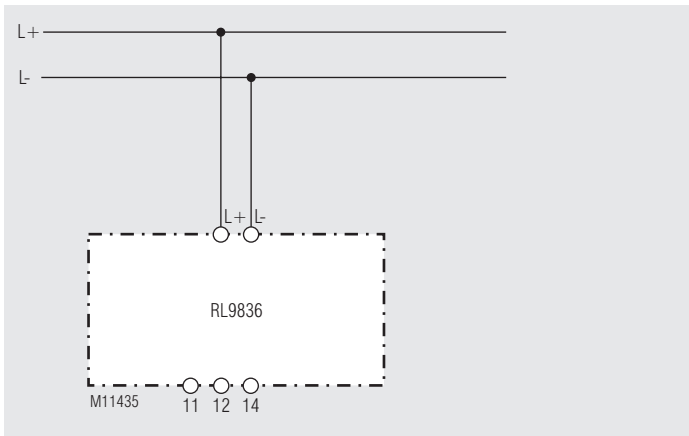
## Standard Type

RL 9836.11/61	DC 50 ... 250 V	4 ... 20 %	0 ... 30 s
Article number:	0066430		
• Output:	1 Wechsler		
• Operating voltage:	DC 50 ... 250 V		
• Hysteresis:	4 ... 20 %		
• Switching delay:	0 ... 30 s		
• Width:	35 mm		

## Ordering example



## Connection Example



Single-phase connection