

# Transient and permanent surge voltages

Transient surge voltages are active for time periods ranging from  $\mu\text{s}$  to  $\text{ms}$ . The surge voltage peak, however, can reach up to several thousand volts during this short time period. The causes for this include direct or remote lightning strikes, short-term interruptions, or switching operations involving large loads. Electrical facilities can be protected by the use of surge arresters. The arresters safely short-circuit dangerous voltage differences and discharge this energy.

Permanent surge voltages can occur for several seconds or several hours. Thus this voltage exceeds the tolerance level of the voltage rating. Permanent surge voltage arise from fluctuations in unstable voltage supplies. A neutral-wire interruption in a three-phase system can also lead to an unacceptably high voltage level. This permanent surge voltage is a prohibited state of operations. It can lead to the destruction of electrical devices and surge arresters.

The PU Vlimit is suitable for detecting permanent raised voltages. Together with an RCD (residual current device) it can cut-out to 30 mA or 0.3 A.

The PU Vlimit detects voltages greater than 255 V...275 V. It then sends a short pulse to the PE. The RCD recognizes this residual current and switches off. The normal mains supply voltage must be reactivated in order for the RCD to be switched back on.

The PU Vlimit can be used in a three-phase system with 230 / 400 V, or in a single-phase system with 230 V in conjunction with a Class II arrester from Weidmüller's PU II series.

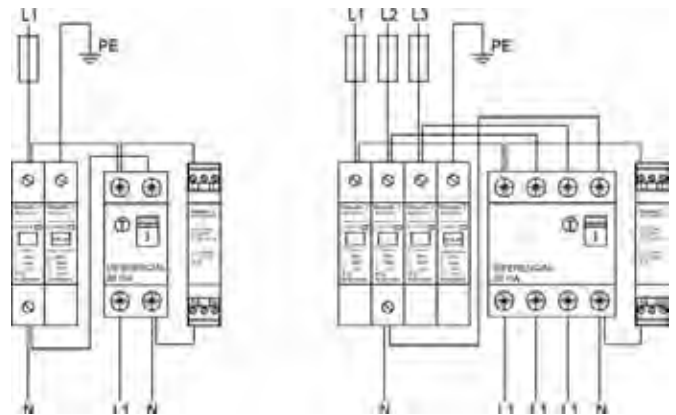
The operation of the RCD can be tested by pressing the button before it is installed by a technician. The RCD must trigger.

The RCD can also be triggered by pressing the button on the PU Vlimit.

The earth (ground) resistance must be  $< 166 \Omega$ .

## Function

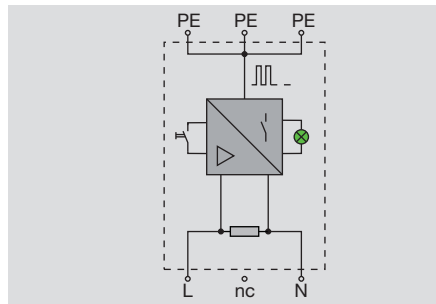
The PU Vlimit measures the mains supply voltage for voltage increases. As soon as the voltage is in the 255 V...275 V range for more than 4 seconds, a pulse is triggered on the PE or RCD. The RCD can be turned back on only when there is no permanent surge voltage.



Protection from permanent surge voltages

- Quick response time of < 1 sec
- Slim design of only 18 mm
- Function indicator
- Test function

**PU VLIMIT 225-275 V**



**Technical data**

Nominal voltage  
 Switching threshold  
 max. continuous voltage, U<sub>c</sub>  
 Suitable for RCD  
 Response time t<sub>a</sub>  
 Protection class  
 Optical function indicator

230 V / 400 V AC 50-60Hz  
 255 V...275 V  
 400 V AC  
 30 mA / 300 mA  
 < 315 V, t<sub>a</sub> < 4 s / U > 315 V, t<sub>a</sub> < 1 s  
 IP20

Green LED flashes slowly:  
 PU Vlimit is connected to the rated voltage  
 Green LED flashes quickly:  
 The permanent surge voltage is measured.

Ambient temperature (operational)  
 Storage temperature  
 Connection cross-section

-20 °C ... 55 °C  
 -40 °C ... 70 °C  
 0.5 ... 2.5 mm<sup>2</sup>

**Dimensions**

Length x width x height mm 91 x 18 x 61

**Note**

National regulations governing the installation must be followed.

**Ordering data**

Version	Type	Qty.	Order No.
	PU VLIMIT 255-275V	1	8881840000

**Note**

**Accessories**

**Note**

