Voltage Monitor for 3-Phase Networks Type SW31K

Undervoltage

SW31K

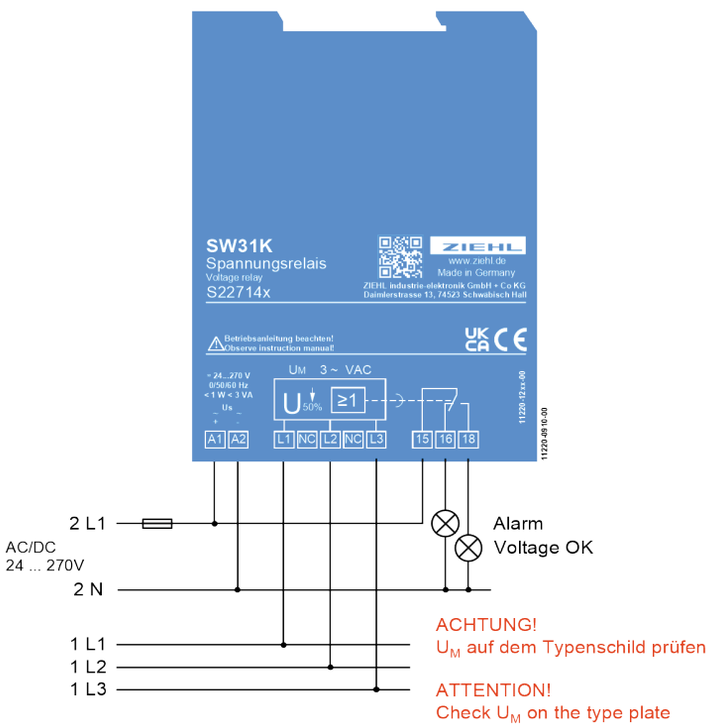
Undervoltage monitor for three-phase networks without N for monitoring on voltage failure. The voltage is being measured between phases and an artificial neutral point. At symmetrical decrease of the voltage to approx. 50% of the nominal value or in case of failure of a phase the integrated relay (1 change-over contact) releases with a delay of approx. 1s.

With engines running-on on 2 phases, so much back voltage can be produced

Application:
- Monitoring of three-phase networks on loss of a phase
- monitoring of fuses

Part numbers:

S227140	AC 400 V
S227141	AC 690 V



Technical Data

Rated supply voltage Us:	**AC/DC 24 – 270 V 0/50/60 Hz**
Tolerance	AC 20 - 297 V / DC 20,4 - 297 V
Power consumption	< 3 VA, < 1 W
Output relay K1	**change over contact**
Switching voltage	max. AC 300 V; DC 300 V
Switch-on current (NO)	AC 15 A 4s 10% ED
min. voltage / current	12 V 10 mA
conventional thermal current Ith	max. 5 A
Switching power max. AC cos φ = 1	2000 VA
Switching power max. DC (ohm)	0.3 A 300 V; 0.4 A 120 V; 0.8 A 60 V; 8 A 30 V
Contact life electrical	cos φ = 1 -> 5 x 10^5 operating cycles 250 V / 2 A
Contact life meachanical	3 x 10^7 operating cycles
Recommended fuse NO	4 A time-lag or miniature circuit-breaker MCB B4
Recommended fuse NC	3,15 A time-lag
Utilization category	AC-15 Ie = 3 A Ue = 250 V
Rated operational current	DC-13 Ie = 2 A Ue = 24 V

Rated operational voltage	DC-13 Ie = 0.4 A Ue = 120 V; DC-13 Ie = 0.2 A Ue = 240 V
UL electrical ratings	250 Vac, 3 A, general use 240 Vac, 1/4 hp, 2.9 FLA 120 Vac, 1/10 hp, 3.0 FLA C300

Measurement voltage U_M	3AC 400V 50/60Hz 3AC690V 50/60Hz	
Permissable tolerance	0,7 … 1,1 UM	
Nominal switch-off value	AC 170V	AC 300V
Nominal switch-on value	AC 230V	AC 400V
Tolerance	± 10%	
Delayed switch-off response time	approx. 1 s	

Test conditions	IEC/EN 60255
Rated impulse voltage	4000 V
Overvoltage category	III
Pollution degree	2
Rated insulation voltage Ui	690 V
On-period	100 %

EMC-tests	EN 60255-26 industrial location
Emission	EN 60255-26; CISPR 11 class B
Immunity	EN 60255-26 industrial location
Electrical fast transient/Burst	EN 60255-26 ± 4 kV Pulse 5/50 ns, f = 5 kHz, t = 15 ms, T = 300 ms
SURGE immunity	EN 60255-26 ± 2 kV
Electrostatic discharge	EN 60255-26 ± 6 kV contact discharge, ± 8 kV air discharge

Reliability - failure rate	EN 61709 / SN29500		
Ambient conditions	Local operation in dry rooms		
Operation time 24/7/365	8760 h/a		
Tu = Tref (component not in operation)	Tu = 40 °C	Tu = 60 °C	Tu = 80 °C
Failure rate (FIT)	1056 FIT	2065 FIT	4282 FIT
	100 (108) years	55 years	26 years

Installation conditions		
Permissible ambient temperature	-20 °C ... +55 °C	
Permissible storage temperature	-20 °C ... +85 °C	
Installation height	≤ 2000 m over N.N.	
Climatic conditions	5-85% rel. F, no condensation	
Permissible wiring temperature	-5 °C ... +70 °C	
Vibration resistance EN 60068-2-6	2 ... 13,2 Hz ±1 mm	13,2 ... 100 Hz 1 g
	2…25 Hz ±1,6 mm	25 ... 150 Hz 5 g

Contact termination	Push-In spring-type terminal
Protection class terminals	IP20
Actuation type	Push-Button
Number of levels	1
Solid conductor	1 x 0,14 mm² ... 1,5 mm² / AWG 28 ... 16
Fine-stranded conductor	1 x 0,14 mm² ... 1,5 mm² / AWG 26 ... 14
Fine-stranded with insulated ferrule	1 x 0,25 mm² ... 0,75 mm²
Fine-stranded with uninsulated ferrule	1 x 0,25 mm² ... 1,5 mm²
Strip length	8 ... 9 mm / 0.31 ... 0.35 inches

Housing	Type K
Dimensions (W x H x D)	22,5 x 75 x 115 mm
Width	1 DU
Protection class housing	IP30
IK-Code	IK06 (1 J impact energy)
Mounting	Snap mounting on 35 mm standard rail EN60715 or M4 screws (additional bar not included)
Mounting position	any
Weight	app. 95 g

Subject to technical changes