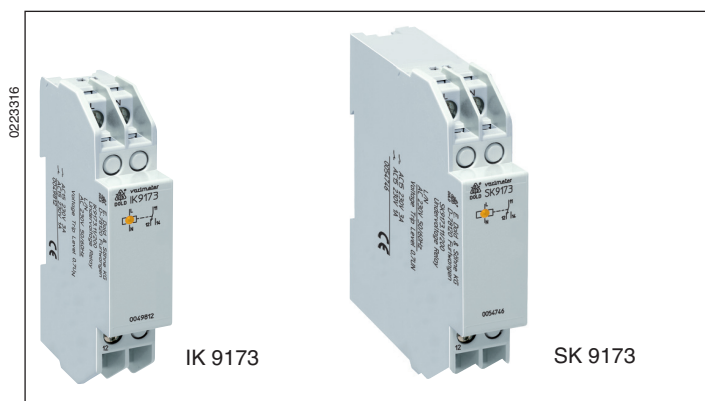


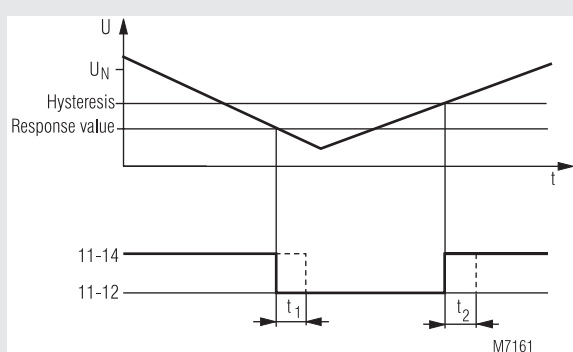
VARIMETER

Undervoltage Relay, Single-Phase
IK 9173, SK 9173



- According to IEC/EN 60 255-1
- Monitoring of undervoltage
- Without auxiliary supply
- Optionally fixed or settable response value
- N.C. circuit operation
- Optionally with off-delay t_1
- Optionally with on-delay t_2
- LED indicator for state of output relay
- 1 changeover contact
- Devices available in 2 enclosure versions:
IK 9173: depth 59 mm, with terminals at the bottom for installation systems and industrial distribution systems according to DIN 43 880
SK 9173: depth 98 mm, with terminals at the top for cabinets with mounting plate and cable duct
- Width 17.5 mm

Function Diagram



Approvals and Markings



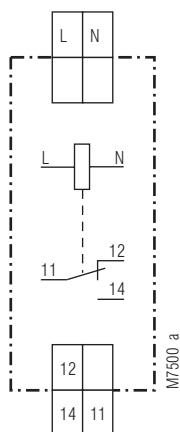
Applications

Monitoring of voltage systems on undervoltage. Automatic switching to emergency supply or of emergency light in the case of phase loss according to DIN VDE 100-710, or DIN VDE 0108.

Variant with t_2 is used in unstable voltage systems, where after phase failure detection the consumers should be energized one after the other. This is done by setting the operate delay of the different relays to different values. This variant is also used where a consumer after only short phase failure should not be started immediately (e.g. compressors).

Suitable for industrial and railway applications.

Circuit Diagram



IK 9173.11, SK 9173.11

Function

The arithmetic mean value of the voltage L-N is measured.

Indication

yellow LED: output contact active (11-14 closed)

Notes

The time delay for the models with delay t_1 is only active as long as the phase voltage L-N is above $0.5 U_N$.

Terminal Connection

Terminal designation	Signal designation
L, N	Voltage supply / measuring inputs AC/DC
11, 12, 14	Changeover contacts (output relays)

Technical Data	
Input Circuit	
Nominal voltage U_N:	AC 24, 42, 110, 230 V DC 24, 48, 60, 110, 125 V
Max. overload:	1.15 U_N continuously
Nominal consumption:	approx. 6 VA / DC 1 W
Frequency range:	45 ... 65 Hz
Setting Ranges	
Response value:	fixed: 0.7 or 0.85 U_N adjustable: 0.55 ... 1.05 U_N (0.7 ... 1.0 U_N at DC 24 V) approx. 4 % of setting value
Hysteresis:	
Time delay t_1 / t_2:	0.5 ... 20 s
Reaction time of the measuring input at phase failure:	approx. 100 ms
Output	
Contacts	
IK 9173.11, SK 9173.11:	1 changeover contact
Contact material:	AgNi
Measured nominal voltage:	AC 250 V
Thermal current I_{th}:	4 A
Switching capacity 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
Electrical life	IEC/EN 60 947-5-1
at AC 230 V, 1 A ($\cos \varphi = 0.5$): $\geq 3 \times 10^5$ switching cycles	
Short circuit strength	
max. fuse rating:	4 A gL IEC/EN 60 947-5-1
Mechanical life:	$\geq 30 \times 10^6$ switching cycles
General Data	
Operating mode:	Continuous operation
Temperature range	
Operation:	- 20 ... + 60 °C
Storage:	- 25 ... + 60 °C
Relative air humidity:	93 % at 40 °C
Altitude:	< 2,000 m
Clearance and creepage distances	
rated impulse voltage/ pollution degree:	4 kV / 2 IEC 60 664-1
EMC	
Electrostatic discharge:	8 kV (air) IEC/EN 61 000-4-2
HF irradiation	
80 MHz ... 1 GHz:	20 V / m IEC/EN 61 000-4-3
1 GHz ... 2 GHz:	20 V / m IEC/EN 61 000-4-3
2 GHz ... 2.7 GHz:	1 V / m IEC/EN 61 000-4-3
Fast transients:	2 kV IEC/EN 61 000-4-4
Surge voltages 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:	30 V IEC/EN 61 000-4-6
Interference suppression:	Limit value class B EN 55 011
Degree of protection	
Housing:	IP 40 IEC/EN 60 529
Terminals:	IP 20 IEC/EN 60 529
Housing:	Thermoplastic with V0 behaviour according to UL subject 94
Vibration resistance:	Amplitude 0.35 mm, frequency 10 ... 55 Hz, IEC/EN 60 068-2-6
Climate resistance:	20 / 060 / 04 IEC/EN 60 068-1
Terminal designation:	EN 50 005
Wire connection:	2 x 2.5 mm ² solid or 2 x 1.5 mm ² stranded ferruled DIN 46 228-1/-2/-3/-4
Wire fixing:	Flat terminals with self-lifting clamping piece IEC/EN 60 999-1
Fixing torque:	0.8 Nm

Technical Data	
Mounting:	DIN rail mounting (IEC/EN60715) or screw mounting M4, 90 mm hole pattern, with additional clip available as accessory
Weight	
IK 9173:	65 g
SK 9173:	83 g
Dimensions	

Width x height x depth	
IK 9173:	17.5 x 90 x 59 mm
SK 9173:	17.5 x 90 x 98 mm

Classification to DIN EN 50155		
Vibration and shock resistance:	Category 1, Class B	IEC/EN 61 373
Protective coating of the PCB:	No	

Standard Types	
IK 9173.11/200, AC 230 V, 0.7 U_N	
Article number:	0049812
SK 9173.11/200, AC 230 , 0.7 U_N	
Article number:	0054746
- Detection of undervoltage at < 0.7 U_N - Fixed response value - Without time delay	
Output:	1 changeover contact
Nominal voltage U_N :	AC 230 V
Width:	17.5 mm

Variants	
IK 9173.11/000	
0	NC circuit operation
0	without time delay
3	settable time delay t_1
4	settable time delay t_2
0	settable response value
2	fixed response value

Odering example for variants

IK 9173	.11	/	-	-	AC 230 V	50/60 Hz	0.55 ... 1.05 U_N	0.5 ... 20 s
								Time delay t_2
								Response value
								Nominal frequency
								Nominal voltage
								Variant, if required
								Contacts
								Type