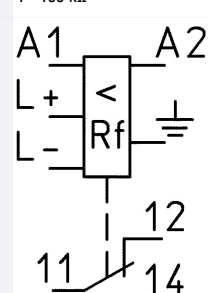




Insulation monitoring relays, 0 - 250 V AC, 0 - 300 V DC, 1 - 100 kΩ

**Part no.** EMR6-R250-A-1  
**Catalog No.** 184772  
**Alternate Catalog No.** EMR6-R250-A-1  
**EL-Nummer (Norway)** 4101968

## Delivery program

Product range			EMR Measuring and monitoring relays
Basic function			Insulation monitoring relays
			Status indication via LEDs Open-circuit principle Test or reset with button on device or with control input Configurable fault memory/memory function Configurable non-volatile fault memory
Monitoring of			Insulation resistance in non-earthed AC supply systems (two-phase, three-phase, four-phase systems) Insulation resistance in non-earthed DC supply systems (two-phase, three-phase systems)
adjustable sensitivity range			1 - 100 kΩ
Contact sequence			
Supply voltage			24 - 240 V AC, 50/60 Hz 24 - 240 V DC
Rated operating voltage for the supply system being monitored			0 - 250 V AC 0 - 300 V DC
Width		mm	22.5

## Technical data

### General

Standards			IEC/EN 60255-6,
Lifespan, mechanical	Operations	x 10 <sup>6</sup>	30
Climatic proofing			Damp heat, cyclical to IEC 60068-2-30: 24 h cycle, 55° C, 93% relative humidity, 96 h
Ambient temperature			
Operation		°C	
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	+ 60
Storage		°C	- 40 - 85
Mounting position			As required
Shock resistance			Class 2
Degree of protection			
Terminals			IP20
Enclosures			IP50
Terminal capacities		mm <sup>2</sup>	
Solid		mm <sup>2</sup>	1 x 0.5-2.5 (1 x 18-14 AWG)
Flexible with ferrule		mm <sup>2</sup>	2 x 0.5-1.5 (2 x 18-16 AWG)
Standard screwdriver		mm	5.5 x 0.8
Tightening torque		Nm	0.5 - 0.8
Fixing			Snap fixing, top-hat rail IEC/EN 60715

MTBF (mean time between failures)			322000 h
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## Contacts

Rated impulse withstand voltage	$U_{imp}$	V AC	4000
Overvoltage category/pollution degree			III/3

## Power supply

Supply voltage			24 - 240 V AC, 50/60 Hz 24 - 240 V DC
Voltage tolerance		$\times U_c$	0.85 - 1.1
Power consumption		VA	3.5
Rated frequency	f	Hz	50 - 60
Duty factor		% DF	100

## Measuring circuits

Hysteresis		%	
Hysteresis, max.		%	25
Cable length for cancellation- and test button		m	10

## Status indication

Supply voltage			LED, green
Fault at L+			LED, red
Fault at L-			LED, red
Status indicator (LED)			Green, solid: Supply voltage Other states depending on fault (see IL): Measured value

## Relay output contacts

Rated operational current	$I_e$	A	
AC-12 at 230 V	$I_e$	A	5
AC-15 with 230 V	$I_e$	A	3
DC-13 at 24 V	$I_e$	A	2.5
Lifespan, electrical (AC-12/230 V/4 A)	Operations	$\times 10^6$	
Lifespan, electrical	Operations	$\times 10^6$	0.1
Short-circuit rating			
max. fuse	Fast/gL	A	5

## Electromagnetic compatibility (EMC)

Electromagnetic compatibility			IEC/EN 60947-6-2
ESD	Air/contact discharge	kV	IEC/EN 61000-4-2 level 3
HF-immunity to radiation			IEC/EN 61000-4-3 level 3
Burst			IEC/EN 61000-4-4 level 3
Surge			IEC/EN 61000-4-5 Level 4
HF-immunity to line-conducted interference			IEC/EN 61000-4-6 level 3

## Design verification as per IEC/EN 61439

Technical data for design verification			
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	60
IEC/EN 61439 design verification			
10.9 Insulation properties			
10.9.4 Testing of enclosures made of insulating material			Is the panel builder's responsibility.

## Technical data ETIM 7.0

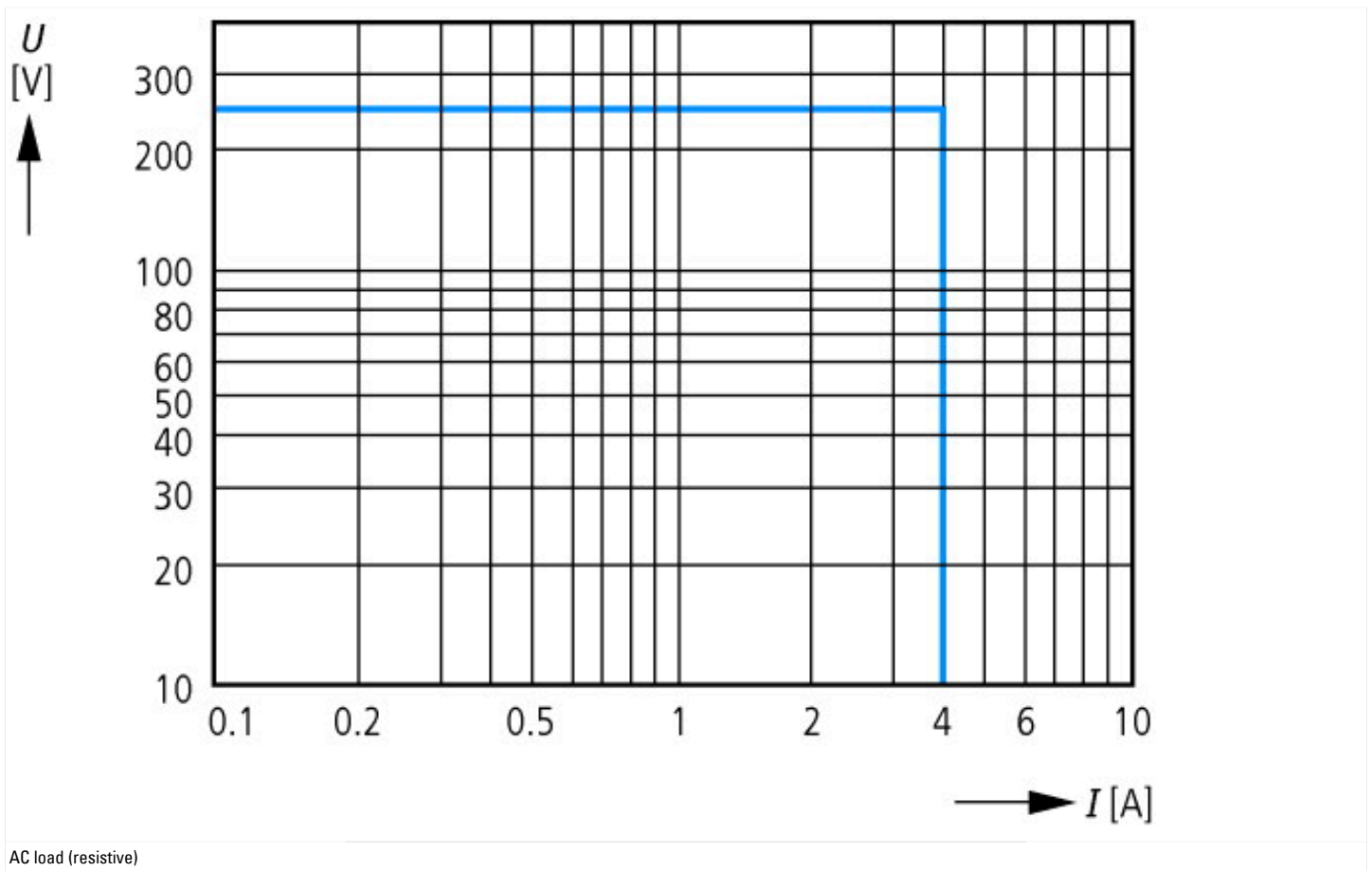
Relays (EG000019) / Insulation and earth fault monitoring relay (EC001444)			
Electric engineering, automation, process control engineering / Low-voltage switch technology / Monitoring equipment (low-voltage switch technology) / Insulation-/earth connection monitoring equipment (ecl@ss10.0.1-27-37-18-07 [AKF101014])			
Type of electric connection			Screw connection
Rated control supply voltage $U_s$ at AC 50HZ		V	24 - 240
Rated control supply voltage $U_s$ at AC 60HZ		V	24 - 240
Rated control supply voltage $U_s$ at DC		V	24 - 240
Voltage type for actuating			AC/DC
With detachable clamps			No

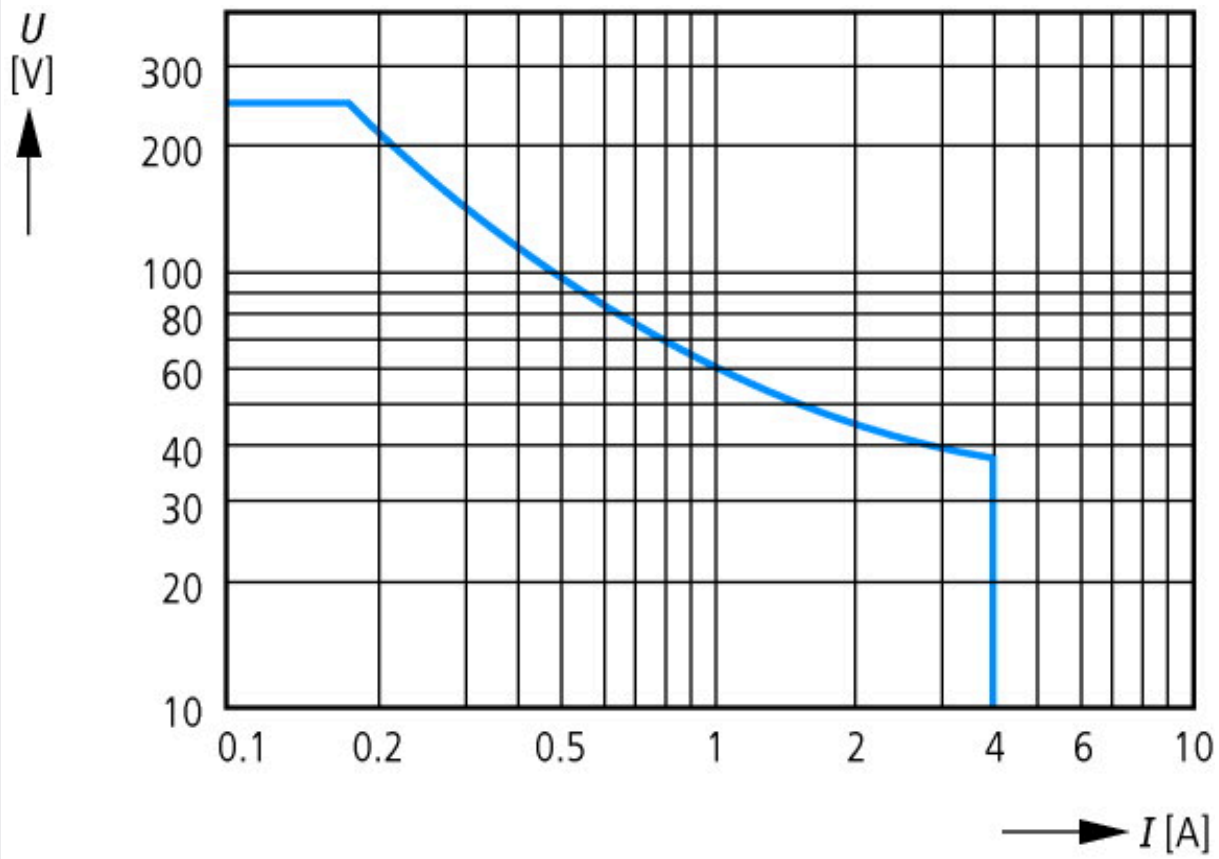
Function		For mixed system
Rated voltage	V	0 - 250
Rated frequency	Hz	15 - 400
Line capacity	$\mu\text{F}$	10
Response value impedance 1	kOhm	1 - 100
Response value impedance 2	kOhm	0 - 0
Indication of insulation value		No
Error registration possible		Yes
Number of contacts as normally closed contact		0
Number of contacts as normally open contact		0
Number of contacts as change-over contact		1
Width	mm	22.5
Height	mm	85.6
Depth	mm	104.6

## Approvals

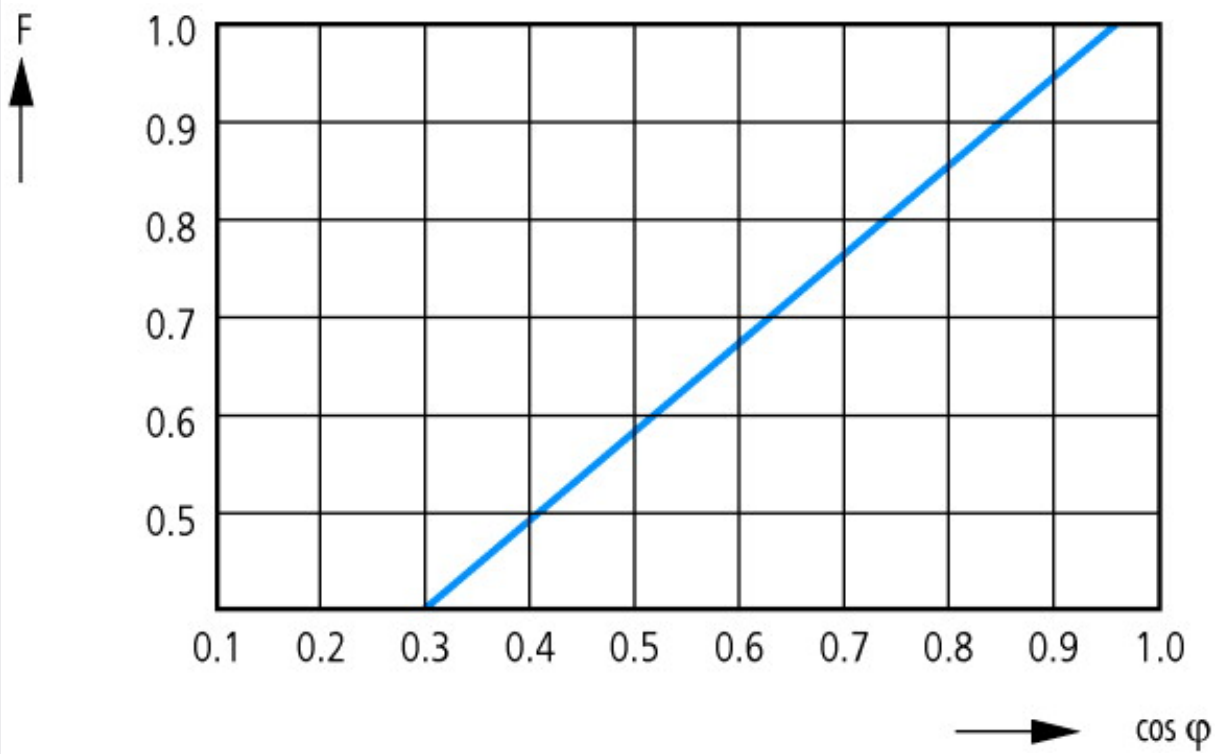
Product Standards		IEC 255-6; UL 508; CSA-22.2 No. 14-05; CE marking
UL File No.		E29184
UL Category Control No.		NKCR, NKCR7
CSA File No.		UL report valid
CSA Class No.		3211-03
North America Certification		UL listed, certified by UL for use in Canada

## Characteristics

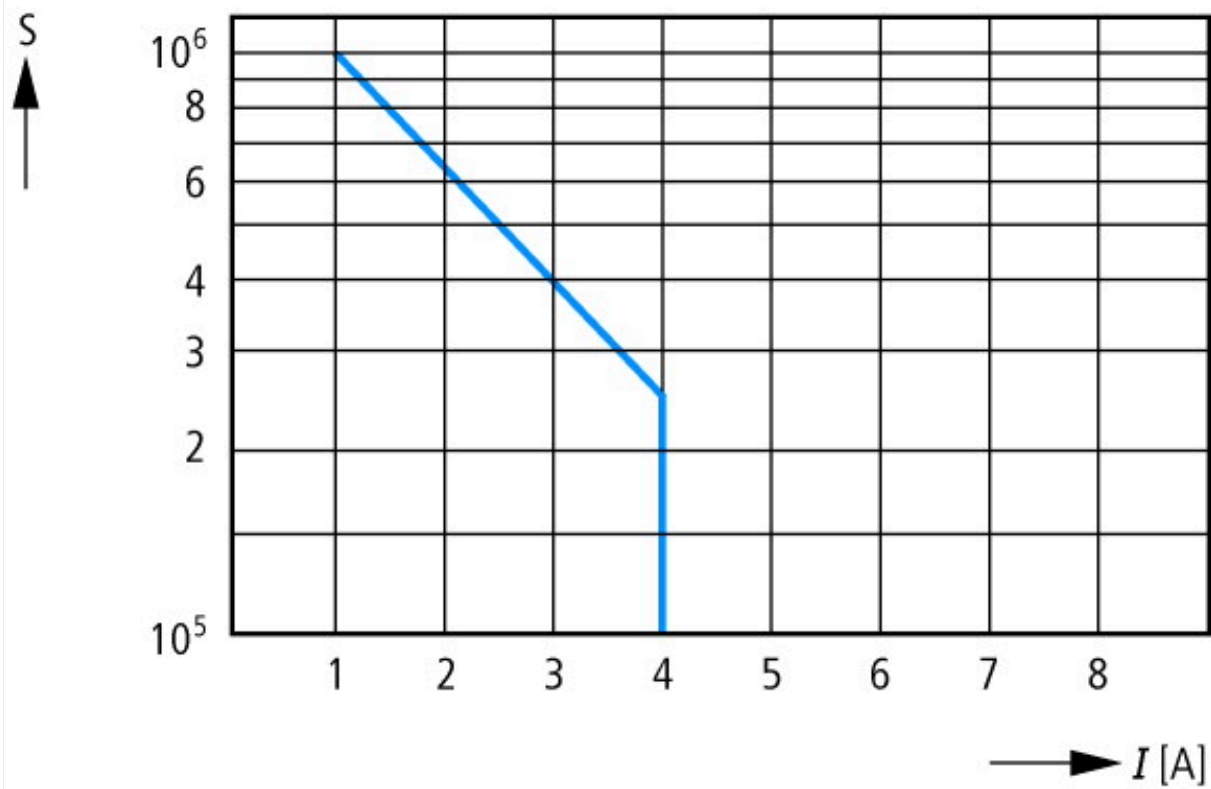




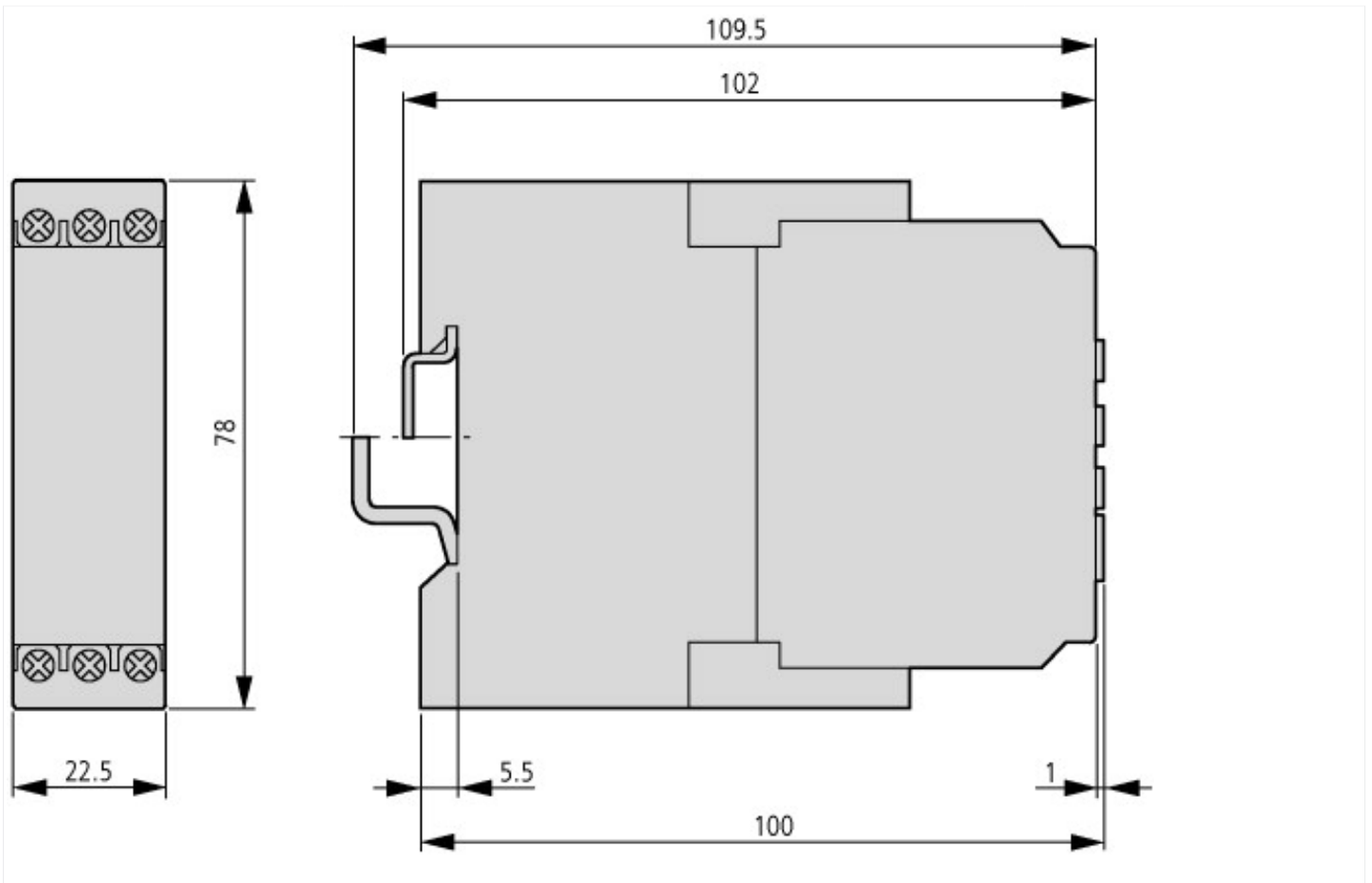
DC load (resistive)



Derating factor  $F$  with inductive AC load



## Dimensions



## Additional product information (links)

### IL121009ZU Insulation monitoring relays

IL121009ZU Insulation monitoring relays

[https://es-assets.eaton.com/DOCUMENTATION/AWA\\_INSTRUCTIONS/IL121009ZU.pdf](https://es-assets.eaton.com/DOCUMENTATION/AWA_INSTRUCTIONS/IL121009ZU.pdf)

IL121009ZU Insulation monitoring relays

[https://es-assets.eaton.com/DOCUMENTATION/AWA\\_INSTRUCTIONS/IL121009ZU2018\\_07.pdf](https://es-assets.eaton.com/DOCUMENTATION/AWA_INSTRUCTIONS/IL121009ZU2018_07.pdf)