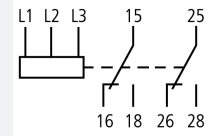




Phase monitoring relay, over- undervoltage, 2W, 400V50/60Hz, tv=0.1-30s

Part no. **EMR5-W400-1**  
 Catalog No. **134229**  
 Eaton Catalog No. **EMR5-W400-1**  
 EL-Nummer **4110389**  
 (Norway)

**Delivery program**

Product range			This item will continue to be available for a limited time only and is being replaced by the following item: 184778, EMR6-W400-M-1
Basic function			EMR Measuring and monitoring relays
Function			Phase monitoring relays
			On- and Off-delayed
			Power supply from the measuring circuit On-delay/off-delay: none = 0 or adjustable between 0.1 - 30 s
Monitoring voltage per phase	$U_N$	V AC	400 V AC, 50/60 Hz
Monitoring of			Phase sequence Phase failure Overvoltage Undervoltage
Threshold value			$U_{max}$ 440 V AC, fixed $U_{min}$ 360 V AC, fixed
Contact sequence			
Supply voltage			400 V AC, 50/60 Hz
Width		mm	22.5

**Technical data**

Technical data in sheet catalogue

Other technical data (sheet catalogue)			Phase monitoring relays
--	--	--	-------------------------

**Design verification as per IEC/EN 61439**

Technical data for design verification			
Rated operational current for specified heat dissipation	$I_n$	A	0
Heat dissipation per pole, current-dependent	$P_{vid}$	W	0
Equipment heat dissipation, current-dependent	$P_{vid}$	W	0
Static heat dissipation, non-current-dependent	$P_{vs}$	W	2
Heat dissipation capacity	$P_{diss}$	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	60
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures			
10.2.3.2 Verification of resistance of insulating materials to normal heat			Meets the product standard's requirements.
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects			Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation			Meets the product standard's requirements.
10.2.5 Lifting			Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact			Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions			Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES			Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances			Meets the product standard's requirements.
10.5 Protection against electric shock			Does not apply, since the entire switchgear needs to be evaluated.

10.6 Incorporation of switching devices and components		Does not apply, since the entire switchgear needs to be evaluated.
10.7 Internal electrical circuits and connections		Is the panel builder's responsibility.
10.8 Connections for external conductors		Is the panel builder's responsibility.
10.9 Insulation properties		
10.9.2 Power-frequency electric strength		Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage		Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material		Is the panel builder's responsibility.
10.10 Temperature rise		The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
10.11 Short-circuit rating		Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.12 Electromagnetic compatibility		Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.13 Mechanical function		The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

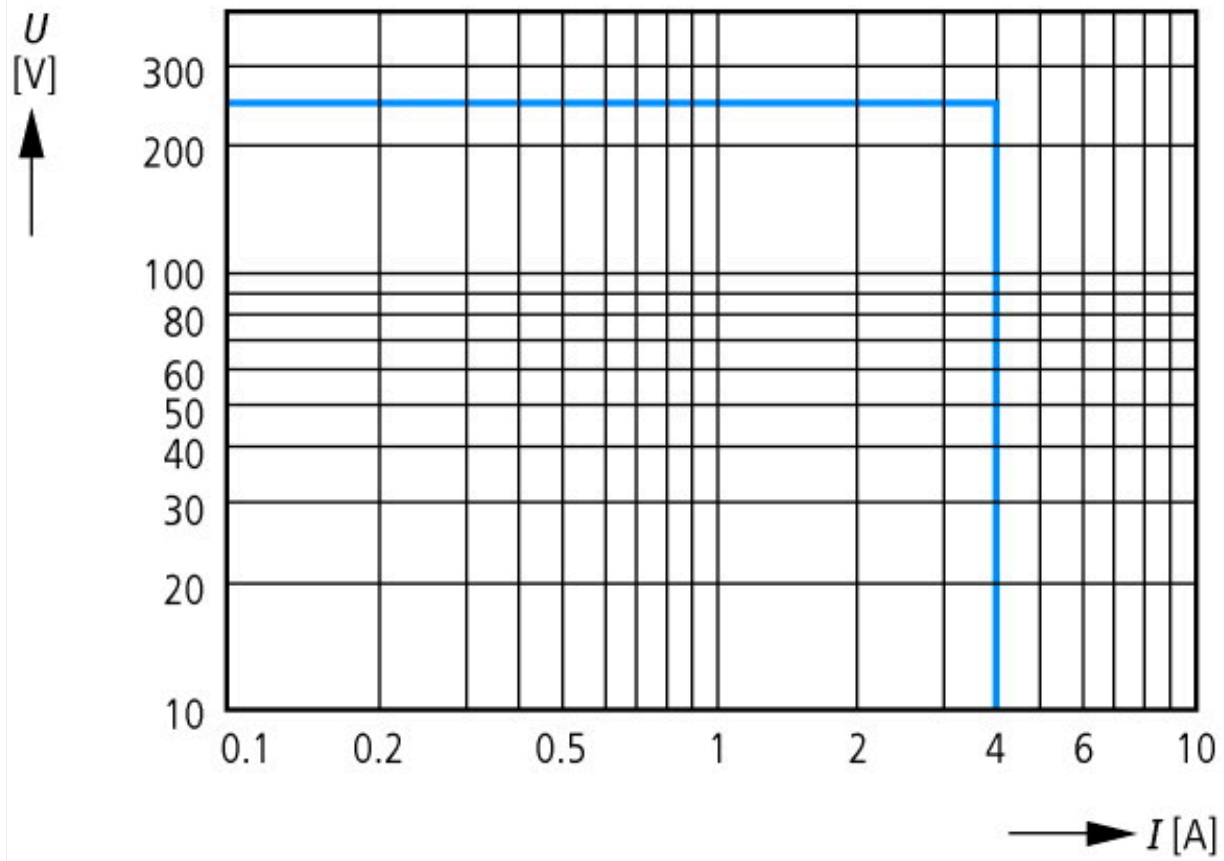
## Technical data ETIM 7.0

Relays (EG000019) / Phase monitoring relay (EC001441)			
Electric engineering, automation, process control engineering / Low-voltage switch technology / Monitoring equipment (low-voltage switch technology) / Asymmetry monitoring equipment (ec@ss10.0.1-27-37-18-03 [AKF097014])			
Type of electric connection			Screw connection
With detachable clamps			No
Rated control supply voltage Us at AC 50HZ		V	400 - 400
Rated control supply voltage Us at AC 60HZ		V	400 - 400
Rated control supply voltage Us at DC		V	0 - 0
Voltage type for actuating			AC
Phase sequence monitoring			Yes
Phase failure detection			Yes
Function under voltage detection			Yes
Function over voltage detection			Yes
Phase imbalance monitoring			No
Voltage measurement range		V	360 - 440
Min. adjustable delay-on energization time		s	0.1
Max. permitted delay-on energization time		s	30
Min. adjustable off-delay time		s	0.1
Max. permitted off-delay time		s	30
Number of contacts as normally closed contact			0
Number of contacts as normally open contact			0
Number of contacts as change-over contact			0
Width		mm	22.5
Height		mm	78
Depth		mm	100

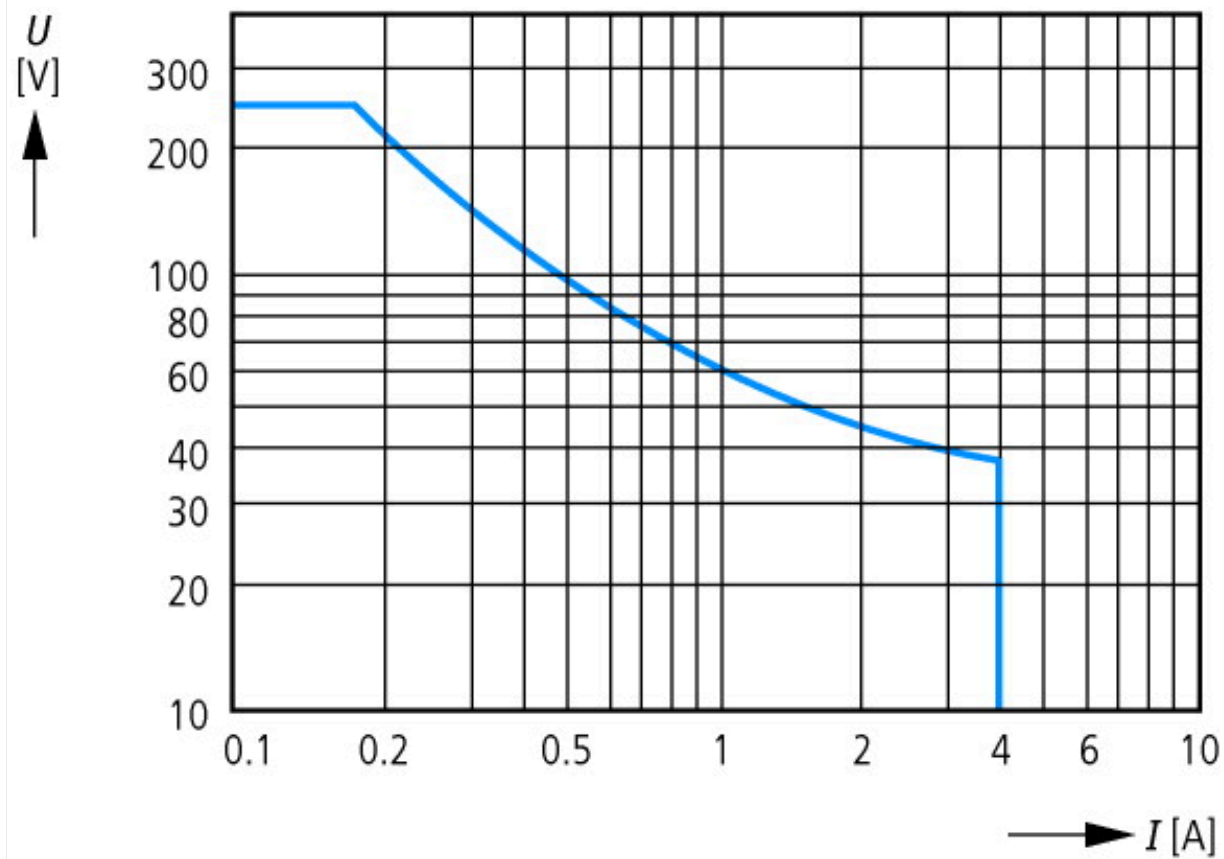
## Approvals

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
Degree of Protection		IEC: IP20, UL/CSA Type: -

## Characteristics



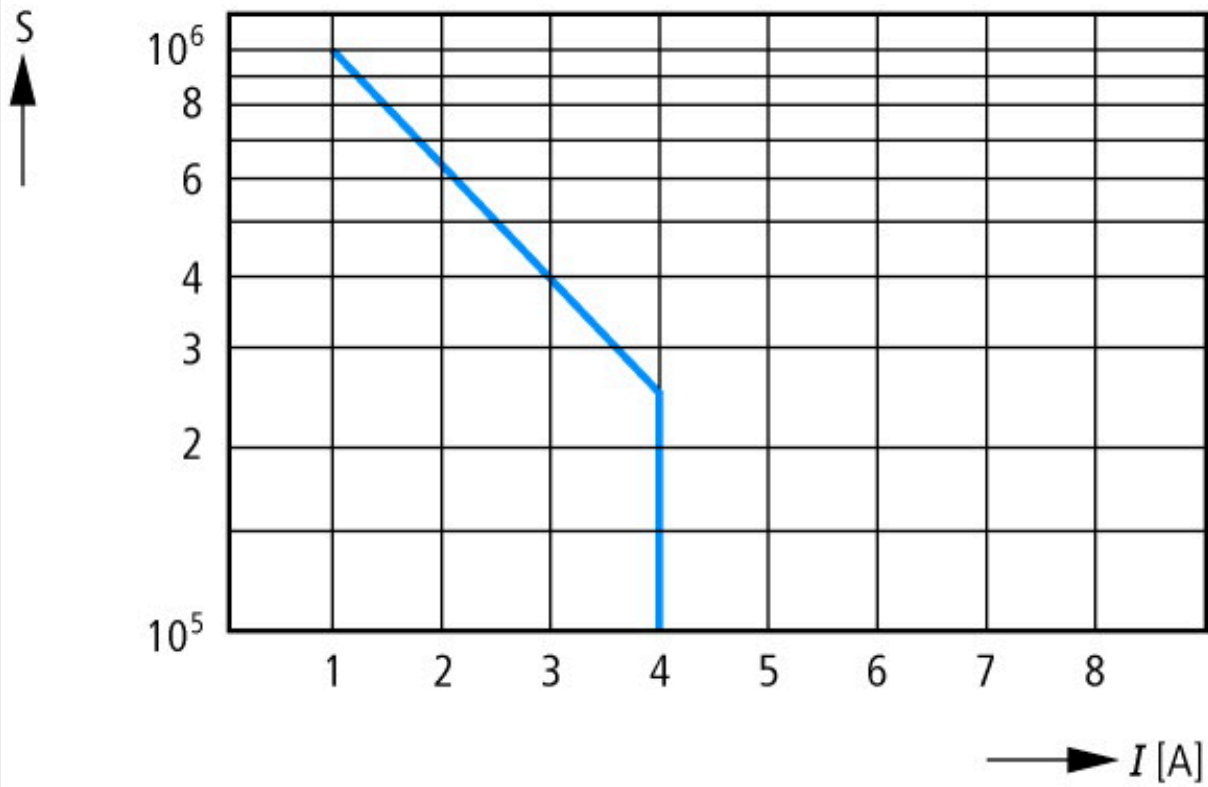
AC load (resistive)



DC load (resistive)

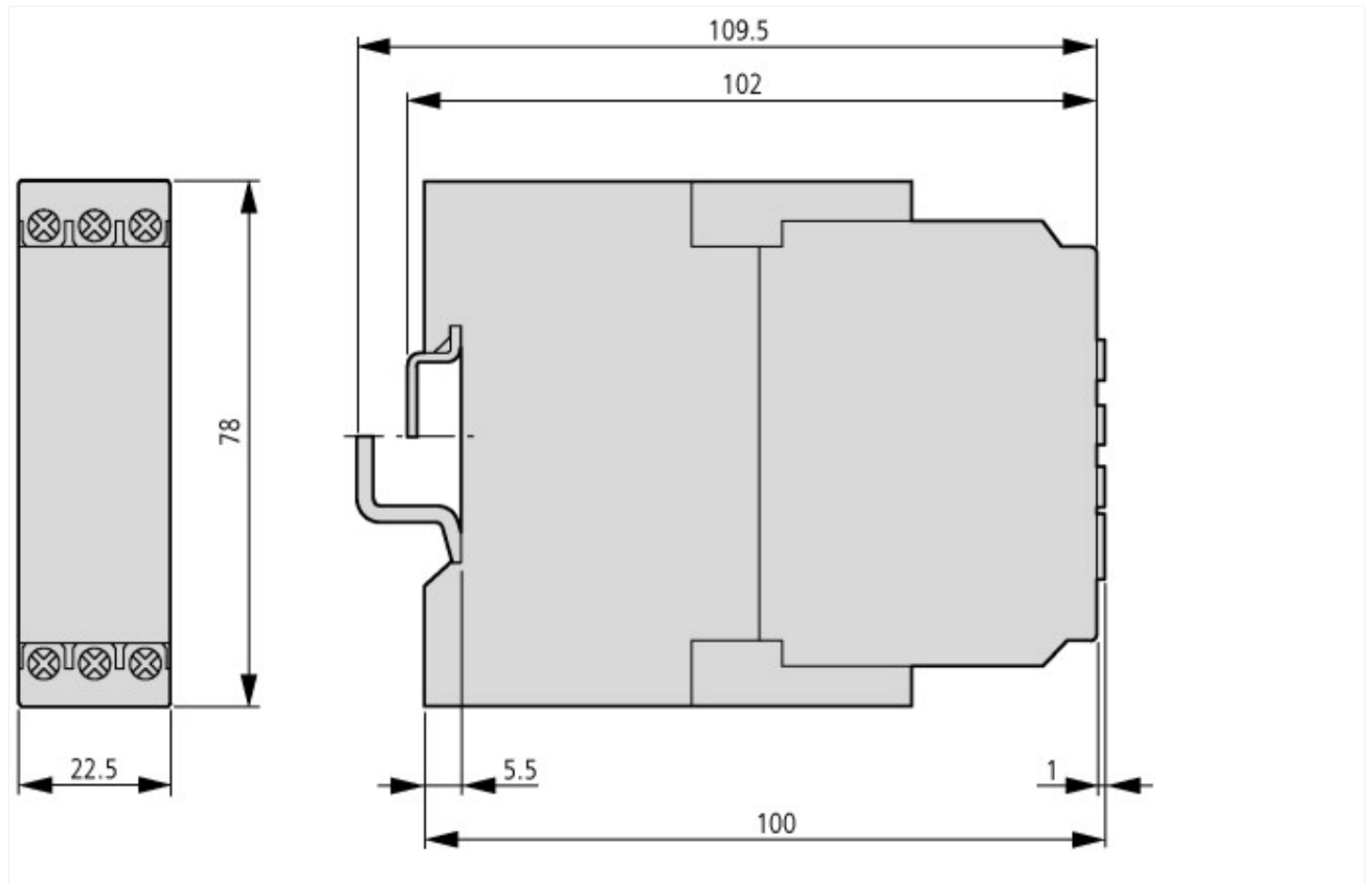


Derating factor  $F$  with inductive AC load



Contact life  
 S operations  
 220 V 50 Hz AC-1  
 360 operations/h

## Dimensions



## Additional product information (links)

**IL04914003Z (AWA2431-2694) Single-function three-phase monitoring relays**

IL04914003Z (AWA2431-2694) Single-function three-phase monitoring relays [ftp://ftp.moeller.net/DOCUMENTATION/AWA\\_INSTRUCTIONS/IL04914003Z2018\\_07.pdf](ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL04914003Z2018_07.pdf)

Phase monitoring relays <http://ecat.moeller.net/flip-cat/?edition=HPLEN&startpage=11.37>