



**Phase imbalance monitoring relay, 2W, 300-500V/50/60Hz, tv=0.1-30s**

**Part no.** EMR5-A400-1  
**Article no.** 134222  
**Catalog No.** EMR5-A400-1

**Delivery programme**

Product range			EMR4+EMR5 measuring and monitoring relays
Basic function			Phase imbalance monitoring relays
			Power supply from the measuring circuit On delay: None = 0 or adjustable from 0.1 to 30 s Imbalance threshold values adjustable 2 - 25 % of mean value of phase voltages
Monitoring voltage per phase	$U_N$	V AC	300 - 500 V AC, 50/60 Hz
Mnitoring of			Phase sequence Phase failure Imbalance
Adjustable threshold values			Imbalance
Contact sequence			
Supply voltage			300 - 500 V AC, 50/60 Hz
Width		mm	22.5

**Technical data**

**Technical data in sheet catalogue**

Other technical data (sheet catalogue)			phase imbalance monitoring relays
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**Design verification as per IEC/EN 61439**

Technical data for design verification			
Heat dissipation capacity	$P_{diss}$	W	0
Operating ambient temperature min.		°C	-20
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			Meets the product standard's requirements.
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 6.0

Relays (EG000019) / Phase monitoring relay (EC001441)

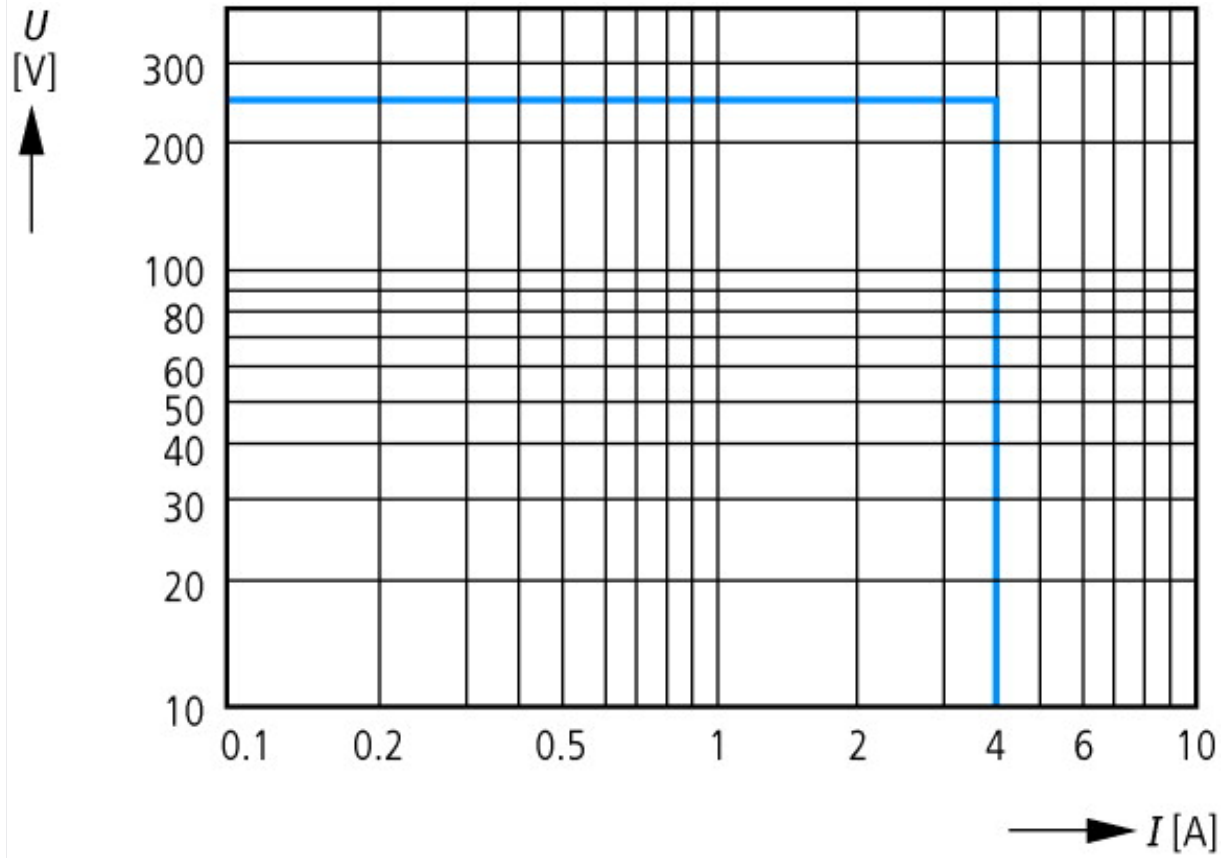
Electric engineering, automation, process control engineering / Low-voltage switch technology / Monitoring equipment (low-voltage switch technology) / Asymmetry monitoring equipment (ecI@ss8.1-27-37-18-03 [AKF097011])

Type of electric connection		Screw connection
With detachable clamps		No
Rated control supply voltage $U_s$ at AC 50HZ	V	300 - 500
Rated control supply voltage $U_s$ at AC 60HZ	V	300 - 500
Rated control supply voltage $U_s$ at DC	V	0 - 0
Voltage type for actuating		AC
Phase sequence monitoring		Yes
Phase failure monitoring		Yes
Function under voltage detection		No
Function over voltage detection		No
Phase imbalance monitoring		Yes
Voltage measurement range	V	300 - 500
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

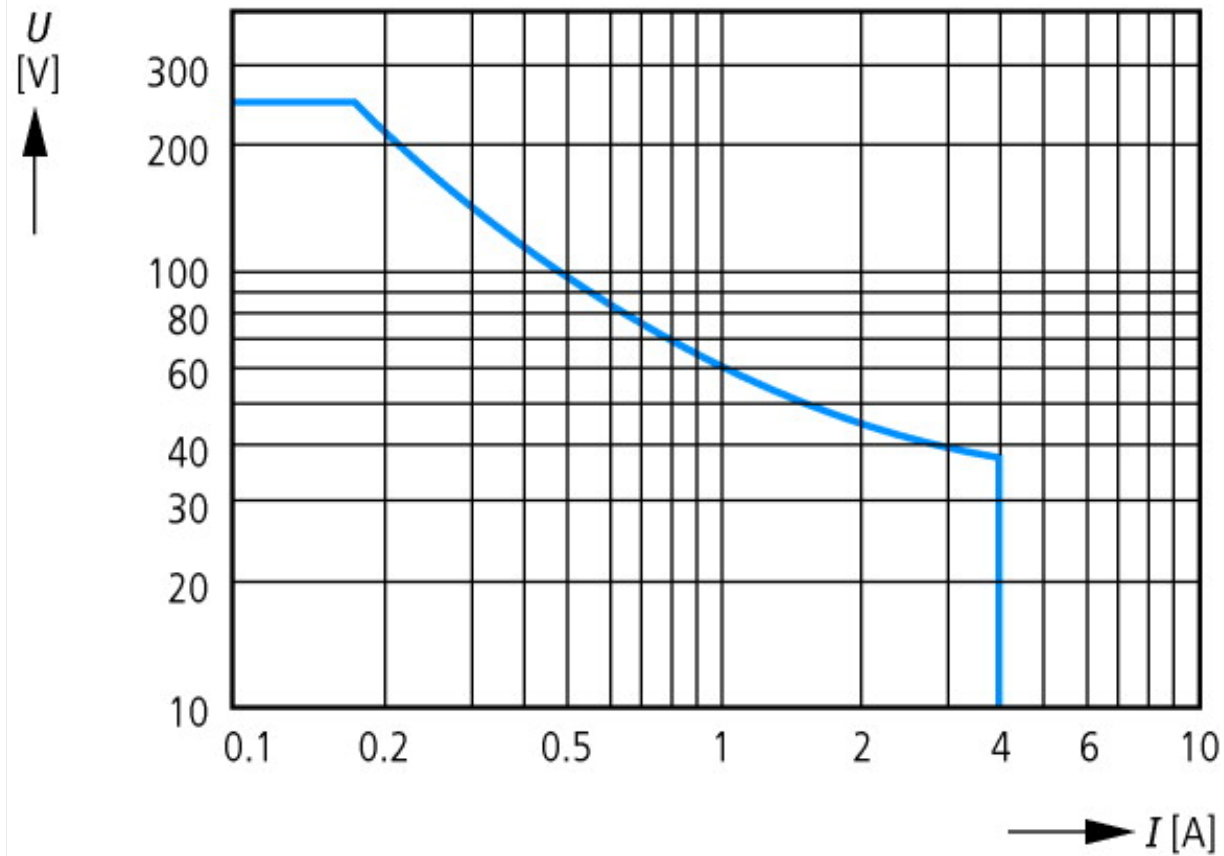
## Approvals

		IEC 255-6; UL 508; CSA-22.2 No. 14-05; CE marking
		E29184
		NKCR, NKCR7
		UL report valid
		3211-03
		UL listed, certified by UL for use in Canada
		IEC: IP20, UL/CSA Type: -

## Characteristics



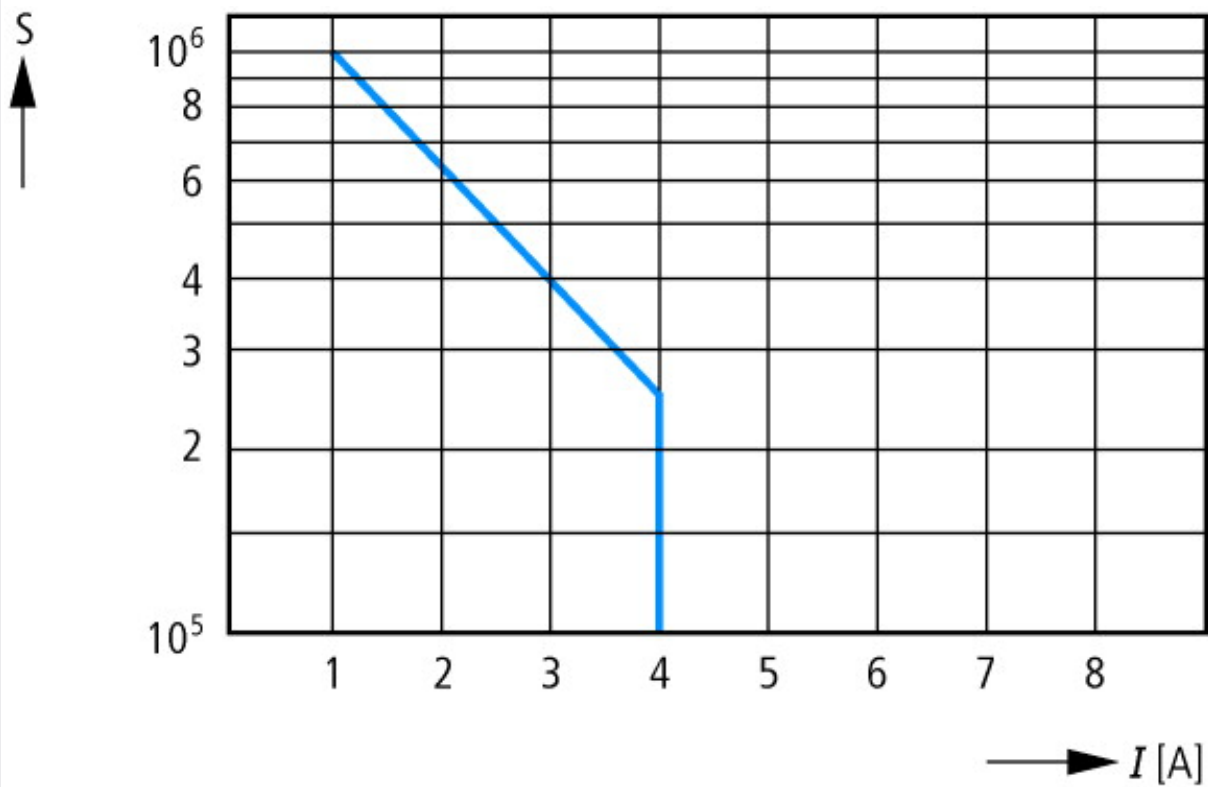
AC load (resistive)



DC load (resistive)

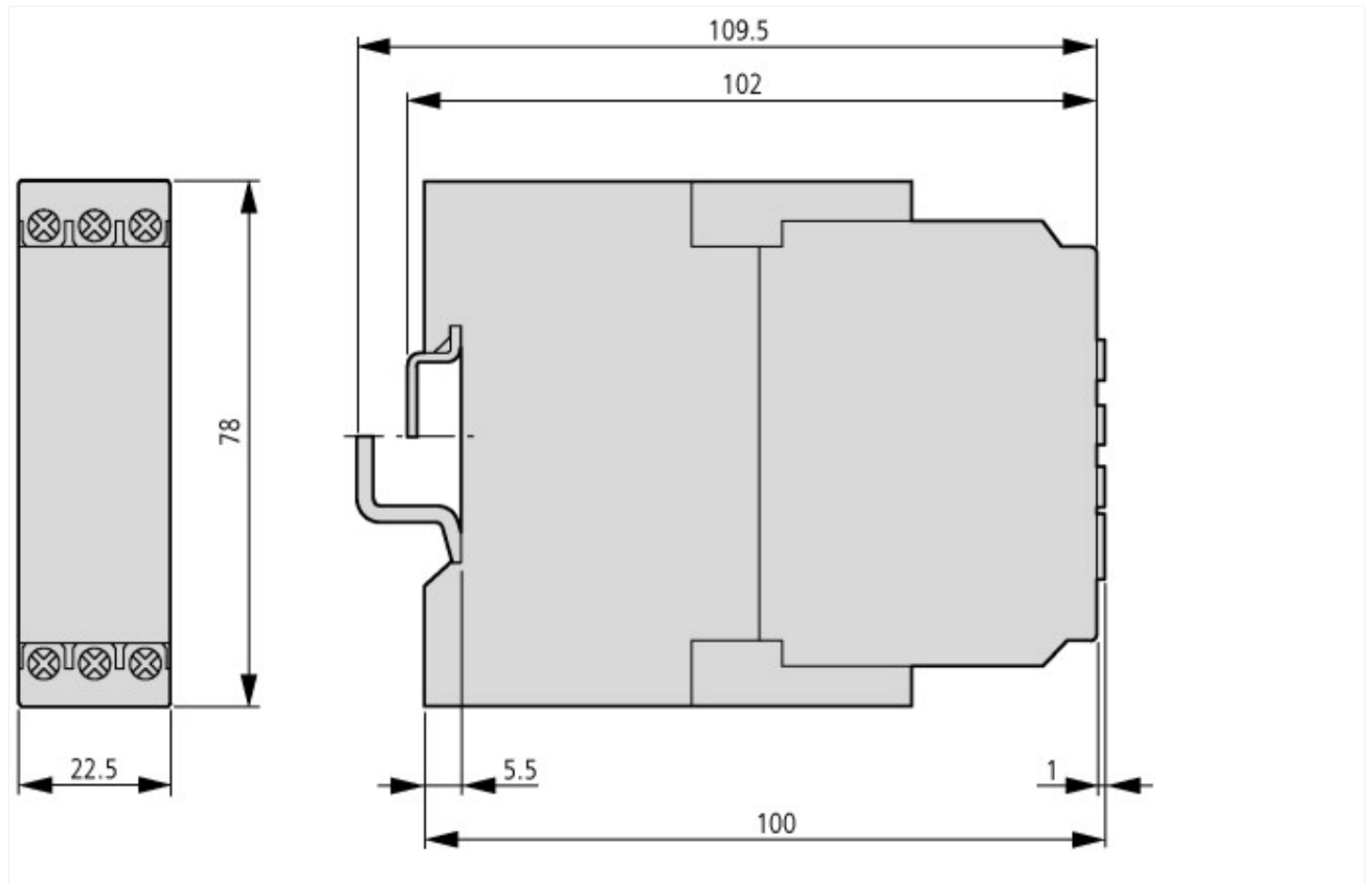


Derating factor  $F$  with inductive AC load



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

## Dimensions



## Additional product information (links)

phase imbalance monitoring relays

<http://ecat.moeller.net/flip-cat/?edition=HPLEN&startpage=11.26>