

Phase imbalance monitoring relays, 300 - 500 V AC, 50/60 Hz

Part no. EMR6-A500-D-1
Catalog No. 184762
Alternate Catalog No. EMR6-A500-D-1
EL-Nummer (Norway) 4101958

Delivery program

Product range			EMR 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
Monitoring of			Phase sequence Phase failure Imbalance
Adjustable threshold values			Imbalance
Supply voltage			300 - 500 V AC, 50/60 Hz
Width		mm	22.5

Technical data

General

Standards			IEC/EN 60255-6, IEC255-6, UL, CE
Lifespan, mechanical	Operations	$\times 10^6$	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 ²	
Solid		mm ²	1 x 0.5-2.5 (1 x 18-14 AWG)
Flexible with ferrule		mm ²	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)			382977 h

Contacts

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

Power supply

Supply voltage			300 - 500 V AC, 50/60 Hz
Voltage tolerance		$\times U_c$	0.85 - 1.2
Power consumption		VA	15
Rated frequency	f	Hz	50 - 60
Duty factor		% DF	100

Timing cycle

Response delay time		s	0.2
Reset delay/Off-delay time		s	Adjustable from 0.1 – 30

Time error within supply voltage	%	0.5
Time error within temperature range	%/°C	0.06

Measuring circuits

Frequency	Hz	50
Switching hysteresis	%	20
Hysteresis	%	
Hysteresis, max.	%	20
Frequency	Hz	50
Temperature error	%/°C	0.06
Error within supply voltage	%	0.5

Status indication

Output relay energized			LED, yellow
Error			LED, red
Status indicator (LED)			Green, solid: Supply voltage Yellow, solid: Relay energized Yellow, flashing: Delay time running Red, solid (F1 & F2): Imbalance Red: F1 solid, F2 flashing: Phase failure Red, flashing (F1 & F2 alternating): Phase sequence fault

Relay output contacts

Rated operational voltage	U _e	V AC	500
Rated operational current	I _e	A	
AC-12 at 230 V	I _e	A	4
AC-15 with 230 V	I _e	A	3
DC-12 at 24 V	I _e	A	4
DC-13 at 24 V	I _e	A	2
Minimum Switching capacity			10 mA / 24 V
Lifespan, electrical (AC-12/230 V/4 A)	Operations	x 10 ⁶	
Lifespan, electrical	Operations	x 10 ⁶	0.3
Short-circuit rating			
max. fuse	Fast/gL	A	10

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

Technical data ETIM 8.0

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@ss10.0.1-27-37-18-03 [AKF097014])			
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 detection			Yes
Function under voltage detection			No

Function over voltage detection		No
Phase imbalance monitoring		Yes
Voltage measuring 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
Max. permitted off-delay time	s	0
Number of contacts as normally closed contact		0
Number of contacts as normally open contact		0
Number of contacts as change-over contact		2
Width	mm	22.5
Height	mm	85.6
Depth	mm	103.7