

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



Powering Business Worldwide™

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	x 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		x 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	$\times 10^6$
Lifespan, electrical	Operations	$\times 10^6$ 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 (ecl@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	300 - 500
Rated control supply voltage Us at AC 60Hz	V	300 - 500
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		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