

## Phase monitoring relays, Multi-functional, 300 - 500 V AC, 50/60 Hz



**Part no.** EMR6-AW500-D-1  
**Catalog No.** 184764  
**Alternate Catalog No.** EMR6-AW500-D-1  
**EL-Nummer (Norway)** 4101960

## Delivery program

Product range			EMR Measuring and monitoring relays
Basic function			Phase monitoring relays
Function			Multi-functional
			Power supply from the measuring circuit On-delay/off-delay: none = 0 or adjustable between 0.1 - 30 s Imbalance threshold values adjustable 2 - 25 % of mean value of phase voltages Three-phase networks
Monitoring voltage per phase	U <sub>N</sub>	V AC	300 - 500 V AC, 50/60 Hz
Monitoring of			Phase sequence (can be deactivated) Phase failure Overvoltage Undervoltage Imbalance
Supply voltage			300 - 500 V AC, 50/60 Hz
Width		mm	22.5

## Technical data

## General

Standards			IEC, UL, CSA, CCC, GL
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	0.6 - 0.8
Fixing			Snap fixing, top-hat rail IEC/EN 60715
MTBF (mean time between failures)			382977 h

## Contacts

Rated impulse withstand voltage	U <sub>imp</sub>	V AC	4000
Overvoltage category/pollution degree			III/3

## Power supply

Supply voltage			300 - 500 V AC, 50/60 Hz
Voltage tolerance		x U <sub>c</sub>	0.85 - 1.1
Power consumption		VA	3
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	50/60 ± 10 %
Hysteresis	%	0 ... 5
Frequency	Hz	50/60 ± 10 %
Measuring cycle	ms	50
Temperature error	%/°C	0.06
Error within supply voltage	%	0.5

Status indication

Supply voltage		LED green: R on
Output relay energized		LED green: R flashes
Overvoltage		LED red: F1 on
Undervoltage		LED red: F2 on
Phase failure		LED red: F1 on, F2 flashes
Phase sequence error		LED red: F1, F2 flashing
Status indicator (LED)		Green, solid: Supply voltage Yellow, solid: Relay energized Yellow, flashing: Delay time running Red, solid (F1 & F2): Imbalance Red, solid (F1): Overvoltage Red, solid (F2): Undervoltage Red: F1 solid, F2 flashing: Phase failure Red, flashing (F1 & F2 alternating): Phase sequence fault

Relay output contacts

Rated operational voltage	U <sub>e</sub>	V AC	250
Rated operational current	I <sub>e</sub>	A	
AC-12 at 230 V	I <sub>e</sub>	A	4
AC-15 with 230 V	I <sub>e</sub>	A	3
DC-12 at 24 V	I <sub>e</sub>	A	4
DC-13 at 24 V	I <sub>e</sub>	A	2
Minimum Switching capacity			10 mA / 24 V
Lifespan, electrical (AC-12/230 V/4 A)	Operations	x 10 <sup>6</sup>	
Lifespan, electrical	Operations	x 10 <sup>6</sup>	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

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		Yes
Function over voltage detection		Yes
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	0.1
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		2
Width	mm	22.5
Height	mm	85.6
Depth	mm	103.7