3M

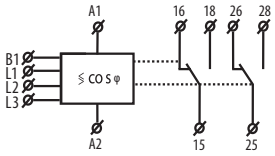
EAN code

COS-1 /230V	8595188120906
COS-1 /110V	8595188120265
COS-1 /400V	8595188120272
COS-1 /24V	8594030338131

- Relay monitors phase shift between current and voltage - cos-φ in 3-phase and also 1-phase mains for monitoring overload/unloading of motors
- Supply set 3x400 V
- Function "MEMORY" - manual reset - button on front panel
- It is possible to connect current transformer in front of the device. This enables increase of current range
- 2 output relays, independent for each level
- Adjustable delay to eliminate short peak overloading
- Adjustable range and bottom level cos-φ, of power factor between 0.1- 0.99
- Adjustable delay to eliminate starting of motor
- Selectable hysteresis 5 or 10%
- Galvanically separated supply AC 230 V, AC 400 V or AC/DC 24 V
- Output contact: 2x changeover/DPDT 16 A / 250 V AC1
- 3-MODULE, DIN rail mounting

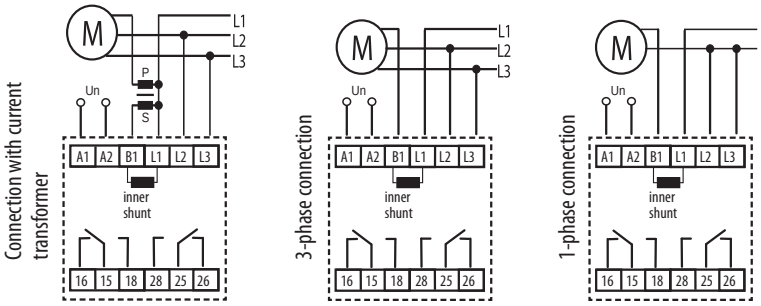
Technical parameters	COS-1
Supply	
Supply terminals:	A1 - A2
Voltage range:	AC 230 V, AC 400 V or AC/DC 24 V (AC/50-60Hz)
Burden:	max. 4.5 VA
Operating range:	-15 %; +10 %
Measuring circuit	
Voltage set:	3x400 V / 50 Hz
Terminals:	L1, L2, L3, B1
Upper level cos-φ:	adjustable 0.1 - 0.99
Bottom level cos-φ:	adjustable 0.1 - 0.99
Max. permanent voltage:	(input L1, L2, L3) AC 3x460 V
Current range:	0.1 - 16 A
Current overloading:	20 A (<3 sec.)
Hysteresis:	adjustable 5% or 10%
Time delay t1:	adjustable 0.5 - 30 s
Time delay t2:	adjustable 0 - 10 s
Accuracy	
Accuracy setting (mechanical):	5 %
Accuracy of repetition:	<1 %
Temperature dependance:	< 0.1 % / °C
Limit values tolerance:	5 %
Output	
Number of contacts:	2x changeover/ DPDT (AgNi / Silver Alloy)
Current rating:	16 A / AC1
Breaking capacity:	4000 VA / AC1, 384 W / DC
Inrush current:	20 A / < 3 s
Switching voltage:	250 V AC1 / 24 V DC
Min. breaking capacity DC:	500 mW
Output indication:	yellow LED
Mechanical life:	$3x10^7$
Electrical life (AC1):	$0.7x10^5$
Other information	
Operating temperature:	-20 °C to +55 °C (-4 °F to 131 °F)
Storage temperature:	-30 °C to +70 °C (-22 °F to 158 °F)
Electrical strength:	4 kV (supply - output)
Operating position:	any
Mounting:	DIN rail EN 60715
Protection degree:	IP 40 from front panel / IP 20 terminals
Overvoltage cathegory:	III.
Pollution degree:	2
Max. cable size (mm^2):	max.1x 2.5, max.2x1.5/ with sleeve max. 1x1.5 (AWG 12)
Dimensions:	90 x 52 x 65 mm (3.5˝ x 2˝ x 2.6˝)
Weight:	240 g (8 oz.)
Standards:	EN 60255-6, EN 61010-1

Symbol

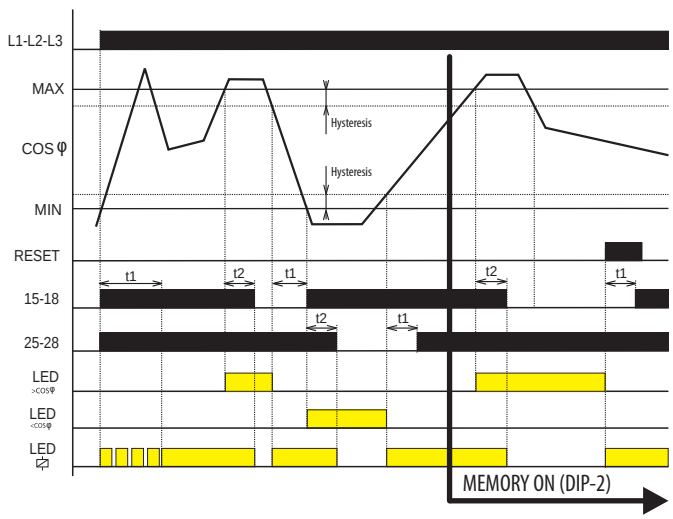


Description

Connection



Function



After the device is switched on, the yellow LED flashes for time t and both relays are switched (state OK). This delay serves to eliminate a faulty state e.g. motor start-up. If the upper limit is exceeded (cosφ - max) red LED shines > cosφ . After a time delay t2 the output relay opens (15-18). Equally, if it falls under bottom limit (cosφ - min) red LED shines < cosφ and after a time delay t2 the output relay opens (25-28). In case the load is disconnected (no current), red LED shines >cosφ (cosφ = 1).