Zelio Control - measurement and control relays

Motor load control relays (Cos φ), model RM 84 873

- *Self-powered*
- *Control of motor overload and underload*
- *Measurement of phase displacement between voltage and current (Cos φ).*
- *Independent adjustment of minimum and maximum thresholds, from 0.1 to 0.99.*
- *Power-on inhibit time adjustable from 0.5 to 20 seconds.*
- *Default time delay adjustable from 0.3 to 3 seconds.*
- *2 output relays (one per threshold).*
- *Power on and output relay state indication LEDs.*

Operating principle

The control relay is used for motor protection. The variation in the power factor (voltage/current phase displacement or Cos j) is related to the variation in the mechanical load of the motor. The control relay monitors the power factor, and therefore the mechanical load, and checks that it is between two defined and adjustable limits.

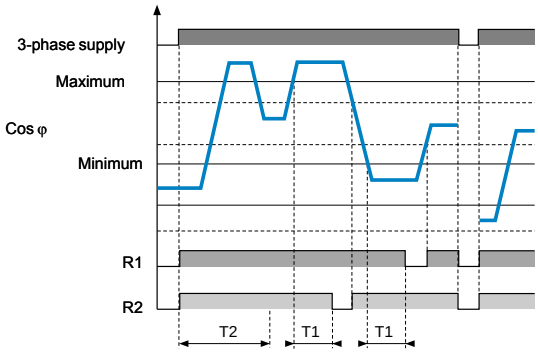
A green LED indicates that the power supply is ON.
Two yellow LEDs indicate the state of the output relays.

On power-up, the two output relays are closed for the duration of the inhibit time (T2 adjustable from 0.5 to 20 seconds). If the power factor value is between the two threshold settings, both relays are closed.

If the power factor exceeds the maximum value set by the user, the high threshold relay is de-energised after a time delay T1 (adjustable from 0.3 to 3 seconds). During this time delay, the green LED flashes (1 Hz). The relay closes again as soon as the value measured drops below the threshold, less the hysteresis.

If the power factor drops below the minimum value set by the user, the low threshold relay is de-energised after a time delay T1 (adjustable from 0.3 to 3 seconds). During this time delay, the green LED flashes. The relay closes again as soon as the value measured has risen above the threshold, plus the hysteresis.

If the value of the high threshold is set as less than or equal to the low threshold value, the green LED flashes rapidly (2 Hz).



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References

RM 84 873 400

Motor load control relays (Cos φ)

Power supply/control	Reference	Weight kg
∼ 3 x 230 V	**RM 84 873 400**	0.360
∼ 3 x 400 V	**RM 84 873 401**	0.360

Supply characteristics

Supply voltage Un		**V**	∼ 230, 400, self-powered via L1 and L2
Operating range			0.85…1.15 Un
Power	Rated	**VA**	2 at Un
	Maximum	**VA**	3 at Un + 15 %
Immunity to microbreaks		**ms**	10
Creepage distance and clearance	Conforming to IEC 60664-1	**kV**	4kV/3

Control input circuit characteristics

Threshold display			0.1…0.99
Voltage circuit input resistance		**kΩ**	About 2 (Un)
Current measurement			By internal link via 2 terminals
Current range		**A**	0.5…10
Input resistance		**mΩ**	20
Maximum continuous current		**A**	14 (at 20 °C)
Peak overload		**A**	50 (< 1 second) (at 20 °C)
Time delays	On energisation (t2)	**s**	0.5…20 ± 20 % of the full scale value
	On crossing the threshold (t1)	**s**	0.3…3 ± 20 % of the full scale value
Frequency		**Hz**	50…60
Hysteresis	Cos φ ≥ 0.4		10 % fixed
	Cos φ < 0.4		10 % <Hysteresis < 30 %
Setting accuracy			± 10 % of the full scale value
Repeat accuracy			± 0.08 % with constant parameters
Temperature drift			± 0.05 % / °C

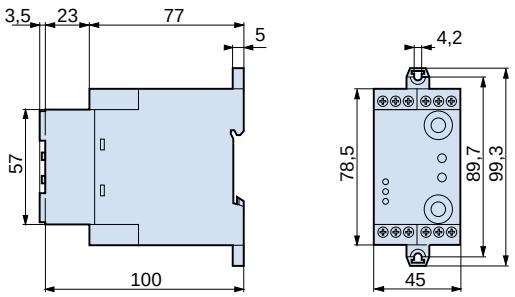
Output circuit characteristics

Output			2 C/O contacts, AgCdO
Breaking capacity			2000 VA, 80 W
Maximum breaking current		**A**	∼ 8, ⎓ 8
Minimum breaking current		**mA**	∼ 100, ⎓ 100
Maximum switching voltage		**V**	∼ 250, ⎓ 250
Mechanical life			30 x 10^6 operating cycles
Electrical life	AC-12		2000 VA - 10^5 operating cycles
	AC-15		Cos φ = 0.3 - 6000 operating cycles
	DC-13		L/R = 300 ms - 6000 operating cycles

Other characteristics

Enclosure material			Self-extinguishing Pc
Terminal capacity		**mm²**	With cable end: 2 x 1.5, Without cable end: 2 x 2.5
Temperature limits		**°C**	Operation: - 20…+ 60 (to IEC 68-1-14), storage: - 30…+ 70 (to IEC 68-1-1/2)
Relative humidity			93 % without condensation
Product certifications			c UL us, CSA

Dimensions



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