

Electronic phase loss and rotation monitoring relays for three-phase applications

- Universal voltage monitoring (U_N from 208 V to 480 V, 50/60 Hz)
- Phase loss monitoring, even under phase regeneration
- Positive safety logic - Make contact opens if the relay detects an error
- 2 versions:
 - 1 CO relay output, 6 A (17.5 mm wide), and
 - 2 CO relay output, 8 A (22.5 mm wide)
- 35 mm rail (EN 60715) mount
- European patent pending for the innovative principle at the root of the 3 phase monitoring and error survey system (70.61)

Screw terminal



70.61



Three-phase (208...480)V
voltage monitoring:

- Phase loss
- Phase rotation

70.62



Three-phase (208...480)V
voltage monitoring:

- Phase loss
- Phase rotation

For outline drawing see page 10

Contact specification

Contact configuration		1 CO (SPDT)	2 CO (DPDT)
Rated current/Maximum peak current	A	6/15	8/15
Rated voltage/ Max. switching voltage	V AC	250/400	250/400
Rated load AC1	VA	1500	2000
Rated load AC15	VA	250	400
Single phase motor rating (230 V AC)	kW	0.185	0.3
Breaking capacity DC1: 30/110/220 V	A	3/0.35/0.2	8/0.3/0.12
Minimum switching load	mW (V/mA)	500 (10/5)	300 (5/5)
Standard contact material		AgSnO ₂	AgNi

Supply specification

Nominal system voltage (U_N)	V AC (50/60 Hz)	208...480	208...480
Rated power	VA (50 Hz)/W	8/1	11/0.8
Operating range	V AC (50/60 Hz)	170...500	170...520

Technical data

Electrical life at rated load AC1	cycles	100 · 10 ³	60 · 10 ³
Switch-off delay time	s	0.5	0.5
Switch-on lock-out time	s	0.5	0.5
Power-on activation time	s	< 2	< 2
Insulation between supply and contacts (1.2/50 µs)	kV	5	5
Dielectric strength between open contacts	V AC	1000	1000
Ambient temperature	°C	-20...+60	-20...+60
Protection category		IP 20	IP 20

Approvals (according to type)



Ordering information

Example: 70 series, three-phase voltage monitoring relay, 1 output, supply voltage 380...415 V AC.

70.31.8.400.2.0.2.2

Series

Type

- 1 = 1 phase AC line monitoring
- 3 = 3 phase AC line monitoring
- 4 = 3 phase + neutral AC line monitoring
- 6 = 3 phase loss and rotation monitoring

No. of poles

- 1 = 1 pole
- 2 = 2 pole

Supply version

- 8 = AC (50/60 Hz)

Supply voltage

- 230 = 220...240 V (70.11)
- 400 = 380...415 V (70.31/41/42)
- 400 = 208...480 V (70.61/62)

D: Fault memory option

- 0 = No fault memory
- 2 = Fault memory function selectable

C: Time delay setting

- 0 = Fixed switch-off delay
- 2 = Adjustable switch-off delay
- 3 = Adjustable switch-off delay and asymmetry

B: Contact circuit

- 0 = CO

A: Detection values

- 0 = Non-adjustable detection values
- 2 = 2 adjustable detection values

Codes

70.11.8.230.2022	70.42.8.400.2032
70.31.8.400.2022	70.61.8.400.0000
70.41.8.400.2030	70.62.8.400.0000

Monitoring and function overview

	70.11	70.31	70.41	70.42	70.61/62
Supply system type	Single phase system	3-phase systems	3-phase systems	3-phase systems	3-phase systems
Nominal voltage 50/60 Hz V	220...240	380...415	380...415	380...415	208...480
Undervoltage with/without memory (selectable)	•	•	—	•	—
Overvoltage with/without memory (selectable)	•	•	—	•	—
Window Mode with/without memory (selectable)	•	•	—	•	—
Window Mode without memory	—	—	•	—	—
Phase loss	—	•	•	•	•
Phase rotation	—	•	•	•	•
Phase asymmetry	—	—	•	•	—
Neutral loss (selectable)	—	—	•	• (fixed)	—

Technical data

Insulation			70.11/31/41/42		70.61/62			
Between supply and contacts	dielectric strength	V AC	2500		3000			
	impulse (1.2/50 μs)	kV	4		5			
Between open contacts	dielectric strength	V AC	1000		1000			
	impulse (1.2/50 μs)	kV	1.5		1.5			
EMC specifications								
Type of test			Reference standard					
Electrostatic discharge	contact discharge		EN 61000-4-2		4 kV			
	air discharge		EN 61000-4-2		8 kV			
Radiated electromagnetic field	80...1000 MHz		EN 61000-4-3		10 V/m			
	1...2.8 GHz		EN 61000-4-3		5 V/m			
Fast transients (burst 5/50 ns, 5 and 100 kHz)	on supply terminals		EN 61000-4-4		4 kV			
Voltage pulses on supply terminals (surge 1.2/50 μs)	common mode		EN 61000-4-5		4 kV			
	differential mode		EN 61000-4-5		4 kV			
Radiofrequency common mode voltage (0.15...230 MHz)	on supply terminals		EN 61000-4-6		10 V			
Voltage dips	70% U _N		EN 61000-4-11		25 cycles			
Short interruptions			EN 61000-4-11		1 cycle			
Radiofrequency conducted emissions	0.15...30 MHz		CISPR 11		class B			
Radiated emissions	30...1000 MHz		CISPR 11		class B			
Terminals			solid cable		stranded cable			
Max. wire size		mm ²	1 x 6 / 2 x 4		1 x 4 / 2 x 2.5			
		AWG	1 x 10 / 2 x 12		1 x 12 / 2 x 14			
 Screw torque		Nm	0.8					
Wire strip length		mm	9					
Other data			70.11		70.31/41		70.42/61/62	
Power lost to the environment	without output current	W	0.8		0.9		1	
	with rated output current	W	2		1.2		1.4	