Electronic motor protection relays

Inverse time characteristics

GMP22/40 Type

Description

- Wide and adjustable current range
- Adjustable trip time (trip class 5-30)
- Designed suitable for use with contactors
  Directly mountable on the Metasol contactors (Pin type)
  Separate mount versions are also available
  Separately mountable on 35mm DIN rail or with screws
- 1NO+1NC trip contacts
- Manual reset as standard (Automatic reset optional)

Front face configuration

Current setting

GMP22 type
0.3 ~ 1.5A
1 ~ 5A
1.1 ~ 22A
GMP40 type
4 ~ 20A
8 ~ 40A

LED indicator

Operation status indication
- Normal operating
- Overload
- Phase unbalance

Trip cause indication
- Overcurrent
- Phase loss
- Reverse phase

Test/Reset button

Trip time setting

- 0 to 30 sec
- Set time is the trip time at 6 x set current

Certificate
CE, ULcUL

Extended protective functions

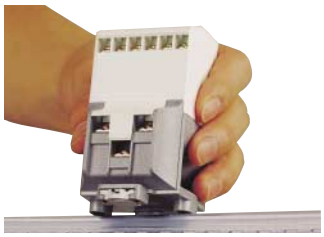
Types (GMP22/40-□)		-2P, -2T, -2S	-3P, -3T, -3S	-3PR, -3TR, -3SR
Number of sensors		2CT	3CT	3CT
Functions	Overcurrent	✓	✓	✓
	Phase failure	✓	✓	✓
	Locked rotor	✓	✓	✓
	Phase unbalance		✓	✓
	Reverse phase			✓

Technical information

Relay control voltage	100 to 260V AC 50/60Hz
Auxiliary contact	3A/250VAC at resistive load
	1NO (97-98) + 1NC (95-96)
Setting tolerance	Current ± 5%
	Time ± 5% (or ± 0.5sec)
Insulation resistance	Min 100㏁ at 500V DC
Impulse withstand voltage	5kV (IEC 61000-4-5)
Fast transient burst	2kV (IEC 61000-4-4)
Ambient temperature	-25 to 70℃ for operation
	-30 to 80℃ for storage
Humidity	30 to 90% RH

Inverse time characteristics

GMP22/40 Type



To mount on 35mm DIN rail

Cable connection part can be modified between screw connection and passing CT hole

Selection (GMP22 Type)

Mount/Connection	Sensor	Setting range	Catalog No.
Directly on a contactor	2-sensor	0.3 - 1.5A	GMP22 - 2P · 1.5
	(2 CT)	1 - 5A	GMP22 - 2P · 5
		4.4 - 22A	GMP22 - 2P · 22
	3-sensor	0.3 - 1.5A	GMP22 - 3P · 1.5
	(3 CT)	1 - 5A	GMP22 - 3P · 5
		4.4 - 22A	GMP22 - 3P · 22
	3-sensor	0.3 - 1.5A	GMP22 - 3PR · 1.5
	Reverse phase	1 - 5A	GMP22 - 3PR · 5
	detection	4.4 - 22A	GMP22 - 3PR · 22
Separate mount	2-sensor	0.3 - 1.5A	GMP22 - 2S · 1.5
	(2 CT)	1 - 5A	GMP22 - 2S · 5
Cable connection		4.4 - 22A	GMP22 - 2S · 22
with a screw	3-sensor	0.3 - 1.5A	GMP22 - 3S · 1.5
	(3 CT)	1 - 5A	GMP22 - 3S · 5
		4.4 - 22A	GMP22 - 3S · 22
	3-sensor	0.3 - 1.5A	GMP22 - 3SR · 1.5
	Reverse phase	1 - 5A	GMP22 - 3SR · 5
	detection	4.4 - 22A	GMP22 - 3SR · 22
Separate mount	2-sensor	0.3 - 1.5A	GMP22 - 2T · 1.5
	(2 CT)	1 - 5A	GMP22 - 2T · 5
Connection		4.4 - 22A	GMP22 - 2T · 22
without a screw	3-sensor	0.3 - 1.5A	GMP22 - 3T · 1.5
- cables pass	(3 CT)	1 - 5A	GMP22 - 3T · 5
through CT holes		4.4 - 22A	GMP22 - 3T · 22
	3-sensor	0.3 - 1.5A	GMP22 - 3TR · 1.5
	Reverse phase	1 - 5A	GMP22 - 3TR · 5
	detection	4.4 - 22A	GMP22 - 3TR · 22

Selection (GMP40 Type)

Mount/Connection	Sensor	Setting range	Catalog No.
Directly on a contactor	2-sensor	4 - 20A	GMP40-2P · 20
	(2 CT)	8 - 40A	GMP40-2P · 40
	3-sensor	4 - 20A	GMP40-3P · 20
	(3 CT)	8 - 40A	GMP40-3P · 40
	3-sensor	4 - 20A	GMP40-3PR · 20
	Reverse phase	8 - 40A	GMP40-3PR · 40
	detection		
Separate mount	2-sensor	4 - 20A	GMP40-2S · 20
	(2 CT)	8 - 40A	GMP40-2S · 40
Cable connection	3-sensor	4 - 20A	GMP40-3S · 20
with a screw	(3 CT)	8 - 40A	GMP40-3S · 40
	3-sensor	4 - 20A	GMP40-3SR · 20
	Reverse phase	8 - 40A	GMP40-3SR · 40
	detection		
Separate mount	2-sensor	4 - 20A	GMP40-2T · 20
	(2 CT)	8 - 40A	GMP40-2T · 40
Connection	3-sensor	4 - 20A	GMP40-3T · 20
without a screw	(3 CT)	8 - 40A	GMP40-3T · 40
- cables pass	3-sensor	4 - 20A	GMP40-3TR · 20
through CT holes	Reverse phase	8 - 40A	GMP40-3TR · 40
	detection		

Electronic motor protection relays

Definite time characteristics

GMP60-T(E) Type

Description

- Small size, economical
- Delay time setting in starting and operation
- Over current, phase failure protection
- Definite time characteristics
- Wide current setting range
- Screw or Din-rail mounting

Extended protective functions

Types		GMP60-T	GMP60-TE	GMP60-TA
Number of sensors		2CT	2CT	2CT
Functions	Overcurrent	✓	✓	✓
	Phase failure Note)	✓	✓	✓
	Locked rotor	✓	✓	✓
	Auto reset	-	-	✓

* Only two-phase protection is available.

Large current over 60A can be applied through additional current transformers

Ratings (Tunnel type)

Model		GMP-60T	GMP-60TE	GMP-60TA
Type		Tunnel type		
No. of CT		2		
Current setting range (A)		0.5~6, 3~30, 5~60		
Operating time characteristics		Definite time characteristics		
Time setting (sec)	Starting time	0~30		
	Operating time	0~15	5	5
	Reset time	Manual reset		0~120
Allowable error	Current	±5%		
	Time	±5% (or ±0.5 sec)		
Control power	Voltage	220V (AC 24V/48V/110V/380V(440))Note2), AC 180~480V		
	Frequency	50 / 60Hz		
Aux. s/w	Contact Note3)	1SPDT (1c)		
	Ratings	5A 250Vac, resistive load		
	Operation	95 ㅓㅏ 96close		
Insulation resistance		Min. 50㏁ at 500Vdc		
Surge insurance (IEC 61000-4-5)		5kV		
Fast transient burst (IEC 61000-4-4)		2kV		
Environment Temperature	Operation	-25~70℃		
	Storage	-50~80℃		
Relative humidity		46~85 RH (No freezing)		
Trip indicator		LED		
Dimension (mm) W×H×D		72×63×69		
Mounting type		Separate mount (Screw & Din-rail)		
Certification		UL, cUL, CE		-

Note) 1. Under phase failure condition over current flows. The EMPR tripped if it is over the setting over current
2. ( ) are optional specifications

Tunnel type EMPR protects the current under 0.1A

If we increase the number of times of a wire pass through the CT (Tunnel), the EMPR can detect the lower current

No. of times to pass through	Current setting range
1	0.5~6
2	0.25~3
3	0.17~2
4	0.12~1.5

Ampere meter function

GMP60-TD(a) Type

Description

- Definte time characteristics
- Delay time setting in starting and operation
- Over current, phase failure protection
- Definite time characteristics
- Wide current setting range
- Screw or Din-rail mounting
- Display the causes of the fault and the values

Extended protective functions

Types		GMP60-TD	GMP60-TDa
Number of sensors		2CT	2CT
Functions	Overcurrent	✓	✓
	Phase failure Note1)	✓	✓
	Locked rotor	✓	✓
	Under current	-	✓
	Auto reset	-	✓

* Only two-phase protection is available.

Ratings (Tunnel type)

Model		GMP60-TD	GMP60-TDa
Type		Tunnel type	
No. of CT		2	
Current setting range (A)		0.5~60	
Operating time characteristics		Definite time characteristics	
Time setting (sec)	Delay time	1~60	
	Operating time	0.5~30	
	Reset time	Manual reset	1~20min
Allowable error	Current	±5%	
	Time	±5% (or ±0.5 sec)	
Control power	Voltage	AC 110/220V (±10%)	
	Frequency	50 / 60Hz	
Aux. s/w	Contact Note2)	2SPST (1a1b)	
	Ratings	5A 250Vac, resistive load	
	Operation	95 ㅓ 96close 97 ㅏ 98open	
Insulation resistance		Min. 50㏁ at 500Vdc	
Surge insurance (IEC 61000-4-5)		5kV	
Fast transient burst (IEC 61000-4-4)		2kV	
Environment Temperature	Operation	-25~70℃	
	Storage	-50~80℃	
Relative humidity		46~85 RH (No freezing)	
Trip indicator		7-Segment	
Dimension (mm) W×H×D		72×63×69	
Mounting type		Separate mount (Screw & Din-rail)	

Note) 1. Under phase failure condition over current flows. The EMPR tripped if it is over the setting over current
2. When power applied the Aux. contact operate

Tunnel type EMPR protects the current under 0.1A

If we increase the number of times of a wire pass through the CT (Tunnel), the EMPR can detect the lower current

No. of times to pass through	Current setting range	Current Ratio
1	0.5~6	1
2	0.25~3	0.5
4	0.12~1.5	0.25

Electronic motor protection relays

Definite time characteristics with 3CT

GMP60-3T(R) Type

GMP60-3T
GMP60-3TR

Description

- Cable connecting through CT holes (option: with screw)
- Auxiliary contact: 2SPST (1a1b at energization)
- Wide and adjustable current range (0.5~60A)
- D-time: 0.2~60 sec. / O-time: 0.2~15 sec.
- Control voltage: AC100~245V 50/60Hz
- Manual(electrical) reset as standard
- Applicable to inverter at the secondary circuit (except GMP60-3TR)

Terminal Lug

Extended protective functions

Types		GMP60-3T	GMP60-3TR
Number of sensors		3CT	3CT
Protective functions	Overcurrent	✓	✓
	Phase failure	✓	✓
	Locked rotor	✓	✓
	Phase unbalance	✓	✓
	Reverse phase	-	✓
Storing the last fault cause		✓	✓

Large current over 60A can be applied through additional current transformers

Selection

Mount/Connection	Optional function	Setting range	Catalog No.
· Separate mount	None	0.5 - 60A	GMP60-3T
· Cable Connection through CT holes	Reverse phase	0.5 - 60A	GMP60-3TR

Technical information

Mounting	On 35mm rail or panel with screws
Setting tolerance	Current ± 5%
	Time ± 5% (or ±0.5sec)
Frequency	50/60Hz
Auxiliary contact rating	5A/250VAC at resistive load
Insulation resistance	Min 100㏁ at 500V DC
Surge insurance	5kV (IEC 61000-4-5)
Fast transient burst	2kV (IEC 61000-4-4)
Ambient temperature	-25 to 70℃ for operation
	-30 to 80℃ for storage
Humidity	30 to 90% RH
Operating indication	Red/Green 2-color LED, Red LED
Standard	IEC60947-1

For ground fault current protection

GMP60-3TZ(R), 3TN(R) Type

GMP60-3TZ, 3TZR
GMP60-3TN, 3TNR

Terminal Lug

Description

- Cable connecting through CT holes
- Auxiliary contact: 2SPST (1a1b at energization)
- Wide and adjustable current range (0.5~60A)
- Definite time characteristics
  D-time: 0.2~60sec. / O-time: 3sec.
- With 3 sensors (CT)
- Control voltage: AC100~245V (50/60Hz)

Extended protective functions

Types		GMP60-3TZ, 3TN	GMP60-3TZR, 3TNR
Number of sensors		3CT	3CT
Protective functions	Overcurrent	✓	✓
	Phase failure	✓	✓
	Ground fault	✓	✓
	Locked rotor	✓	✓
	Phase unbalance	✓	✓
	Reverse phase	-	✓
Storing the last fault cause		✓	✓

Selection

Mount/Connection	Ground fault current	Optional function	Setting range	Catalog No.
• Separate mount • Cable Connection through CT holes	Zero phase current (0.1~2.5A) *ZCT required	None	0.5 - 60A	GMP60-3TZ
		Reverse phase	0.5 - 60A	GMP60-3TZR
	Residual current (0.5~6A)	None	0.5 - 60A	GMP60-3TN
		Reverse phase	0.5 - 60A	GMP60-3TNR

Note) Use ZCT for EMPR, 100mA/40 ~ 55mV

Technical information

Mounting	On 35mm rail or panel with screws
Setting tolerance	Current ± 5%
	Time ± 5% (or ±0.5sec)
Frequency	50/60Hz
Auxiliary contact rating	5A/250VAC at resistive load
Insulation resistance	Min 100㏁ at 500V DC
Surge insurance	5kV (IEC 61000-4-5)
Fast transient burst	2kV (IEC 61000-4-4)
Ambient temperature	-25 to 70℃ for operation
	-30 to 80℃ for storage
Humidity	30 to 90% RH
Operating indication	Red/Green 2-color LED, Red LED
Standard	IEC 61000, KEMC 1120

Electronic motor protection relays

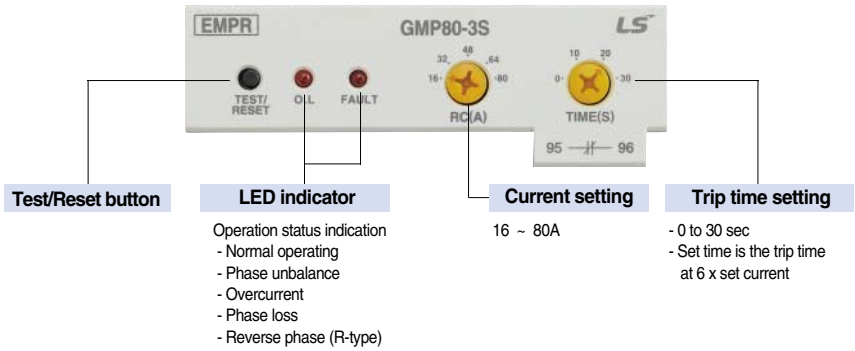
Inverse time characteristics

GMP80 Type

Description

- Wide and adjustable current range
- Adjustable trip time (trip class 5-30)
- Separately mountable on 35mm DIN rail or with screws
- 1NO+1NC trip contacts
- Manual reset as standard (Automatic reset optional: GMP80-2SA)

Front face configuration



Extended protective functions

Types (GMP80-□)		2S	2SA	3S	3SR
Number of sensors		2CT	2CT	3CT	3CT
Functions	Overcurrent	✓	✓	✓	✓
	Phase loss	✓	✓	✓	✓
	Locked rotor	✓	✓	✓	✓
	Phase unbalance	-	-	✓	✓
	Reverse phase	-	-	-	✓
	Auto reset	-	✓	-	-

Selection

Mount/Connection	Sensor	Setting range	Catalog No.
Separate mount	2-sensor (2 CT)	16 - 80A	GMP80-2S
Cable connection with a screw	3-sensor (3 CT)	16 - 80A	GMP80-3S
	3-sensor Reverse phase detection	16 - 80A	GMP80-3SR

Technical information

Relay control voltage	100 to 260V AC 50/60Hz
Auxiliary contact	3A/250VAC at resistive load
	1NO (97-98) + 1NC (95-96) (When power applied)
Setting tolerance	Current ± 5%
	Time ± 5% (or ±0.5sec)
Insulation resistance	Min 100㏁ at 500V DC
Surge insurance	5kV (IEC 61000-4-5)
Fast transient burst	2kV (IEC 61000-4-4)
Ambient temperature	-25 to 70℃ for operation
	-30 to 80℃ for storage
Humidity	30 to 90% RH

Certificate
CE, ULcUL