Electronic overload relays

Specification

Ratings					
Model		**GMP22-2P**	**GMP22-2P(1a1b) GMP22-3P/3PR**	**GMP22-2S** / **GMP22-3S/3SR**	**GMP22-2T** / **GMP22-3T/3TR**
Type		Pin type		Screw type	Tunnel type
No. of CT		2CT	2CT / 3CT	2CT / 3CT	2CT / 3CT
Protection	**Overcurrent**	●	● / ●	● / ●	● / ●
	Phase failure	● Note1)	● / ●	● / ●	● / ●
	Stall	●	● / ●	● / ●	● / ●
	Asymmetry	—	— / ●	— / ●	— / ●
	Reverse phase	—	— / ● (3PR)	— / ● (3SR)	— / ● (3TR)
Current setting range(A)		0.3~1.5			
		1~5			
		4.4~22			
Operating time characteristics		Inverse time characteristics(GMP22-2PD: Definite time characteristics)			
Time setting (sec)	**Inverse time**	0~30 sec			
	Definite D-time	0.2~60 sec for GMP22-2PD			
	O-time	5sec (Fixed) for GMP22-2PD			
Tolerance	**Current**	±5%			
	Time	±5%(or±0.5sec)			
Control power	**Voltage**	AC 110V/220V(±10%)	AC 100~260V		
	Frequency	50/60Hz			
Aux. contact	**Contact**	1SPDT(1c) Note2)	2SPST(When power applied, 1a1b)		
	Ratings	5A/250VAC Resistive load	3A/250VAC Resistive load		
	Operate	(95 ㅓ 96 Close)	(95 ㅏ 96 Close)	(97 ㅏ 98 Open)	
Insulation resistance		Min 100㏁ at 500Vdc			
Surge endurance(IEC 1000-4-5)		1.2×50㎲ 6kV Apply the standard wave			
Fast transient burst(IEC 1000-4-4)		2.5kV/5min.			
Environment Temperature	**Operation**	-25~70℃			
	Storage	-30~80℃			
	Relative humidity	30~90%RH(No freezing)			
Trip indicator		Red LED	Red/Green LED	Red LED / Red/Green LED	Red LED / Red/Green LED
Dimension(mm)	**W×H×D**	44×71×78	53×77.5×87.5	53×68×87.5	53×38×87.5
Mounting type		Direct mount onto a MC		Separate mount(Screw or Din-rail) Note3)	
Applied MC		GMC-9, GMC-12, GMC-18, GMC-22			
Certification		UL, cUL, CE			

Note1) When it is 2CT model, only two-phase protection is available
Note2) 1a1b Aux. switch is optional in GMP 22-2P model
Note3) The bracket for Din-rail mount is optional

Ratings




Model		GMP40-2P	GMP40-3P/3PR	GMP40-2S	GMP40-3S/3SR	GMP40-2T	GMP40-3T/3TR	GMP80-2S	GMP80-3S/3SR
Type		Pin type		Screw type		Tunnel type		Screw type	
No. of CT		2CT	3CT	2CT	3CT	2CT	3CT	2CT	3CT
Protection	Overcurrent	●	●	●	●	●	●	●	●
	Phase failure	●	●	●	●	●	●	●	●
	Stall	●	●	●	●	●	●	●	●
	Asymmetry	—	●	—	●	—	●	—	●
	Reverse phase	—	● (3PR)	—	● (3SR)	—	● (3TR)	—	● (3SR)
Current setting range(A)		4~20						16~80	
		8~40							
Operating time characteristics		Inverse time characteristics							
Time setting (sec)	Inverse time	0~30 sec							
	Reset time	Manual reset (Prompt)							
		Reset after 1 Min.(Optional)							
Tolerance	Current	±5%							
	Time	±5%(or±0.5sec)							
Control power	Voltage	AC 100~260V							
	Frequency	50/60Hz							
Aux. contact	Contact	2SPST(When power applied, 1a1b)							
	Ratings	3A/250VAC Resistive load							
	Operate	(95 ㅗ96 Close) (97ㅓ 98 Open)							
Insulation resistance		Min 100㏁ at 500Vdc							
Surge endurance(IEC 1000-4-5)		1.2×50㎲ 6kV Apply the standard wave							
Fast transient burst(IEC 1000-4-4)		2.5kV/5min.							
Environment Temperature	Operation	-25~70℃							
	Storage	-30~80℃							
	Relative humidity	30~90%RH((No freezing)							
Trip indicator		Red LED	Red/Green LED	Red LED	Red/Green LED	Red LED	Red/Green LED	Red LED	2Red LEDs
Dimension(mm)	W×H×D	53×77.5×87.5		53×68×87.5		53×38×87.5		89×77.5×97.4	
Mounting type		Direct mount onto a MC		Separate mount(Screw or Din-rail)				Direct/Separate mount (Screw or Din-rail)	
Applied MC		GMC-32, GMC-40						GMC-50, GMC-65, GMC-75, GMC-85	
Certification		UL, cUL, CE							

Electronic overload relays

22A Inverse time characteristics

Description

- Wide and adjustable current range
- Adjustable trip time (trip class 5-10-15-20-30)
- Designed suitable for use with contactors
  Directly mountable on the GM-9, 12, 18, 22 contactors
  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)

Extended protective functions

Number of sensors		2CT	3CT	3CT
Types (GMP22-□)		(-2P, -2T, -2S)	(-3P, -3T, -3S)	(-3PR, -3TR, -3SR)
Functions	Overcurrent	✓	✓	✓
	Phase loss	✓	✓	✓
	Locked rotor	✓	✓	✓
	Phase unbalance		✓	✓
	Phase reversed			✓

Selection

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

Certificate
CE, ULcUL

Ordering information
Specify catalog number

Front face configuration

Current setting

0.3 ~ 1.5A
1 ~ 5A
4.4 ~ 22A

LED indicator

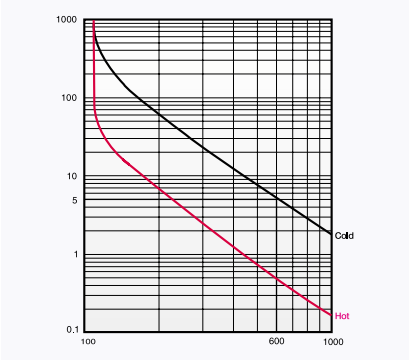
Operation status indication
- Normal operating
- Overload
- Phase unbalance

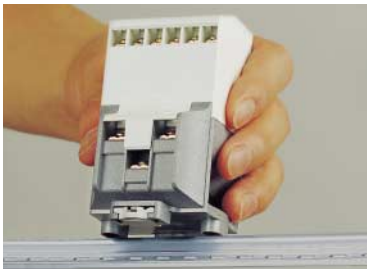
Trip cause indication
- Overcurrent
- Phase loss
- Reverse phase

Test/Reset button

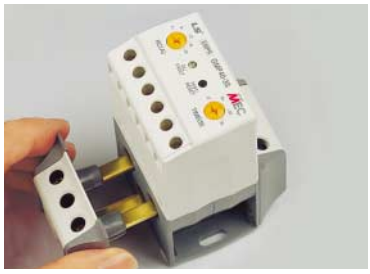
Trip time setting

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





① To mount on 35mm DIN rail



② Cable connection part can be modified between screw connection and passing CT hole

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	1.2x50㎲ 5kV (IEC1000-4-5)
Fast transient burst	2kV/5min (IEC1000-4-4)
Ambient temperature	-25 to 70℃ for operation
	-30 to 80℃ for storage
Humidity	30 to 90% RH

For more information

Drawings ➔ page 207
Connections ➔ page 193
Contactors ➔ page 26
Starters ➔ page 49
Bimetallic overload relay ➔ page 86
Operating curves ➔ page 155

Electronic overload relays

40A Inverse time characteristics

Description

- Wide and adjustable current range
- Adjustable trip time (trip class 5-10-15-20-30)
- Designed suitable for use with contactors
  Directly mountable on the GM-32, 40 contactors
  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)

Extended protective functions

Number of sensors		2CT	3CT	3CT
Types (GMP40-□)		(-2P, -2T, -2S)	(-3P, -3T, -3S)	(-3PR, -3TR, -3SR)
Functions	Overcurrent	✓	✓	✓
	Phase loss	✓	✓	✓
	Locked rotor	✓	✓	✓
	Phase unbalance		✓	✓
	Phase reversed			✓

Selection

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 ①	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 ②	(3 CT)	8 - 40A	GMP40-3S · 40
	3-sensor	4 - 20A	GMP40-3SR · 20
	Reverse phase	8 - 40A	GMP40-3SR · 40
	detection		
Separate mount ①	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 ②	(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		

Certificate
CE, ULcUL

Ordering information
Specify catalog number

Front face configuration

Current setting

4 ~ 20A

8 ~ 40A

LED indicator

Operation status indication

- Normal operating
- Overload
- Phase unbalance

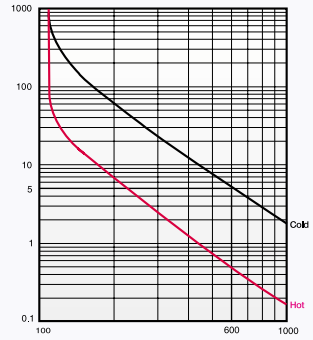
Trip cause indication

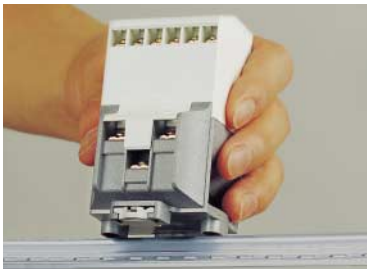
- Overcurrent
- Phase loss
- Reverse phase

Test/Reset button

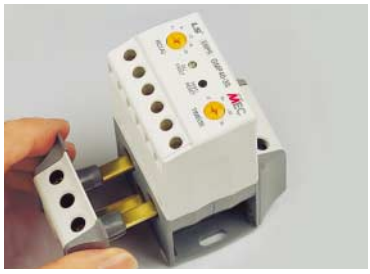
Trip time setting

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





① To mount on 35mm DIN rail



② Cable connection part can be modified between screw connection and passing CT hole

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	1.2x50㎲ 5kV (IEC1000-4-5)
Fast transient burst	2kV/5min (IEC1000-4-4)
Ambient temperature	-25 to 70℃ for operation
	-30 to 80℃ for storage
Humidity	30 to 90% RH

For more information

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Connections ➔ page 193
Contactors ➔ page 28
Starters ➔ page 49
Bimetallic overload relay ➔ page 87
Operating curves ➔ page 155

Electronic overload relays

80A Inverse time characteristics

Description

- Wide and adjustable current range
- Adjustable trip time (trip class 5-10-15-20-30)
- Designed suitable for use with contactors GM-50, 65, 75, 85
  Separately mountable on 35mm DIN rail or with screws
- 1NO+1NC trip contacts
- Manual reset as standard (Automatic reset optional)
- Extended protective functions

Extended protective functions

Number of sensors		2CT	3CT	3CT
Types (GMP80-□)		(-2S)	(-3S)	(-3SR)
Functions	Overcurrent	✓	✓	✓
	Phase loss	✓	✓	✓
	Locked rotor	✓	✓	✓
	Phase unbalance		✓	✓
	Phase reversed			✓

Selection

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

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	1.2x50㎲ 5kV (IEC1000-4-5)
Fast transient burst	2kV/5min (IEC1000-4-4)
Ambient temperature	-25 to 70°C for operation
	-30 to 80°C for storage
Humidity	30 to 90% RH

For more information

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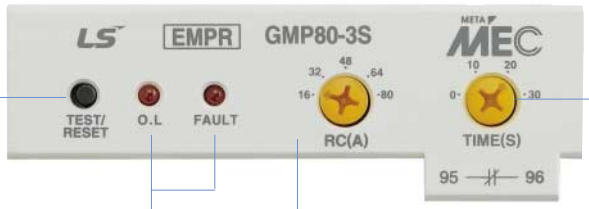
Certificate
CE, ULcUL

Ordering information
Specify catalog number

Front face configuration



Test/Reset button

LED indicator

Operation status indication
- Normal operating
- Overload
- Phase unbalance

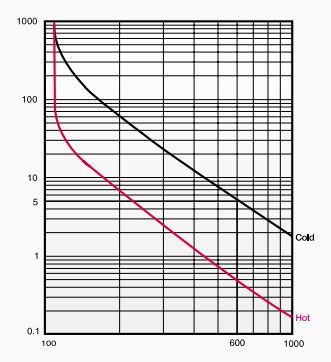
Trip cause indication
- Overcurrent
- Phase loss
- Reverse phase

Current setting

16 ~ 80A

Trip time setting

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



Indicate the cause of the fault by the LEDs

When it is tripped, you can check the causes of the fault by seeing the LED on it and you can troubleshoot the causes in a short time

Condition			Red O.L LED		Green Fault LED		Note
Operation	Normal		Off		Off		
	Over current		On & Off		Off		0.4 second interval
	Over current		On		Off		
Trip	Phase failure (3CT)	R	On		On & Off		1 Times for 3second
		S	On		On & Off		2 Times for 3second
		T	On		On & Off		3 Times for 3second
	Phase failure(2CT)		On & Off		Protect 2phases of 3phases, trips within 3sec.		
	Reverse phase(3CT)		On & Off		On & Off		One after the other

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	1.2x50㎲ 5kV (IEC1000-4-5)
Fast transient burst	2kV/5min (IEC1000-4-4)
Ambient temperature	-25 to 70℃ for operation
	-30 to 80℃ for storage
Humidity	30 to 90% RH

Electronic overload relays

60A Definite time characteristics

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

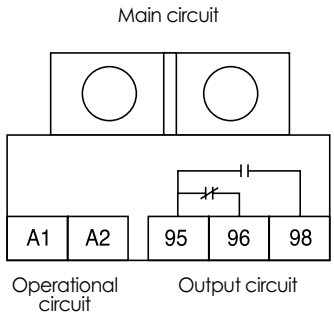
Number of sensors		2CT
Types (GMP-60T)		
Functions	Overcurrent	✓
	Phase loss	✓ △ Note1)
	Locked rotor	✓
	Phase unbalance	
	Phase reversed	

Ratings (Tunnel type)

Model		GMP60T
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	0.2~30
	Operating time	0.2~15
	Reset time	Manual reset
Allowable error	Current	±5%
	Time	±5%(or ±0.5 sec.)
Control power	Voltage	180~260V (110V / 440V) Note2)
	Frequency	50 / 60Hz
Aux. s/w	Contact	1SPDT (1c)
	Ratings	5A 250Vac, resistive load
	Operation	95 ⫫ 96close
Insulation resistance		Min. 50㏁ at 500Vdc
Surge insurance(IEC 1000-4-5)		7kV(6times for 1min. Interval)
Fast transient burst(IEC 1000-4-4)		2.5kV/5min.
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)
Applied MC		GMC-9, 12, 18, 32, 40, 50
Certification		UL, CUL, CE

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

Contact configuration



Tunnel type EMPR protects the current under 0.1A

- The tunnel type EMPR with 0.5~6A nominal current, can detect 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

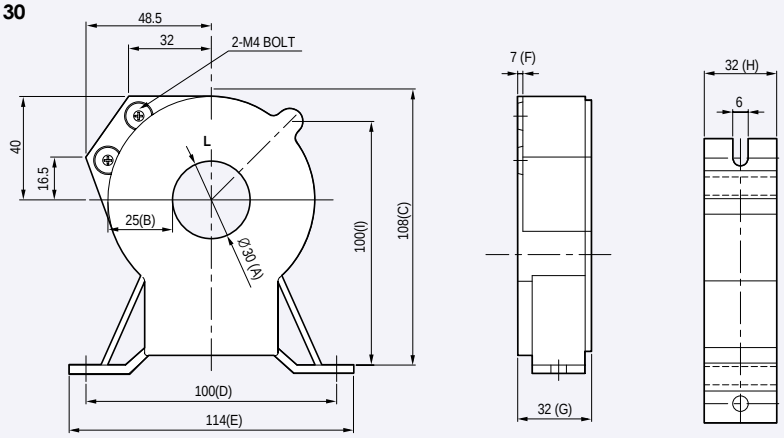
ZCT(Zero-phase Sequence Current Transformer)

Ratings

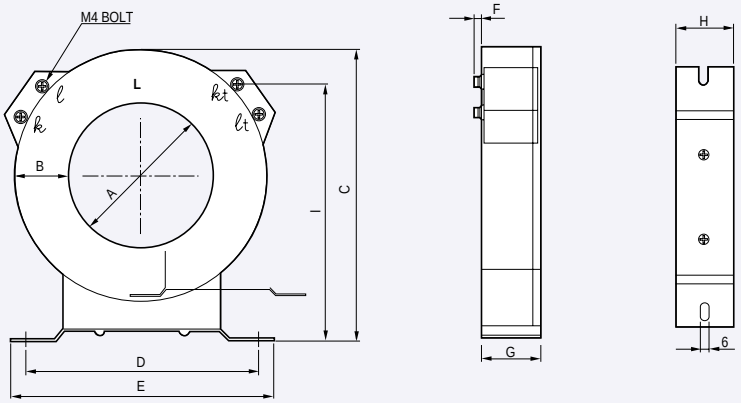
Type	Diameter(A)	Ratio	Weight(kg)	Model
ZCT, D30, DMP-Z	30	200mA/100mV	0.5	LZT-030
ZCT, D50, DMP-Z	50		0.7	LZT-050
ZCT, D65, DMP-Z	65		0.9	LZT-065
ZCT, D80, DMP-Z	80		1.5	LZT-080

Dimension

ZCT 30



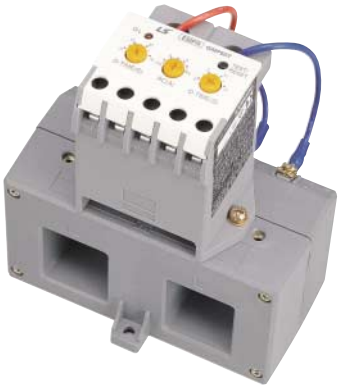
ZCT 50, 65, 80



Unit : m/m

Model	A	B	C	D	E	F	G	H	ϕ
LZT-030	30	25	108	100	114	7	32	32	6
LZT-050	50	25	131	100	122	7	32	36	6
LZT-065	65	26	143	114	133	7	39	37	6
LZT-080	80	34	174	160	180	7	40	40	6

DCT(Current transformer)

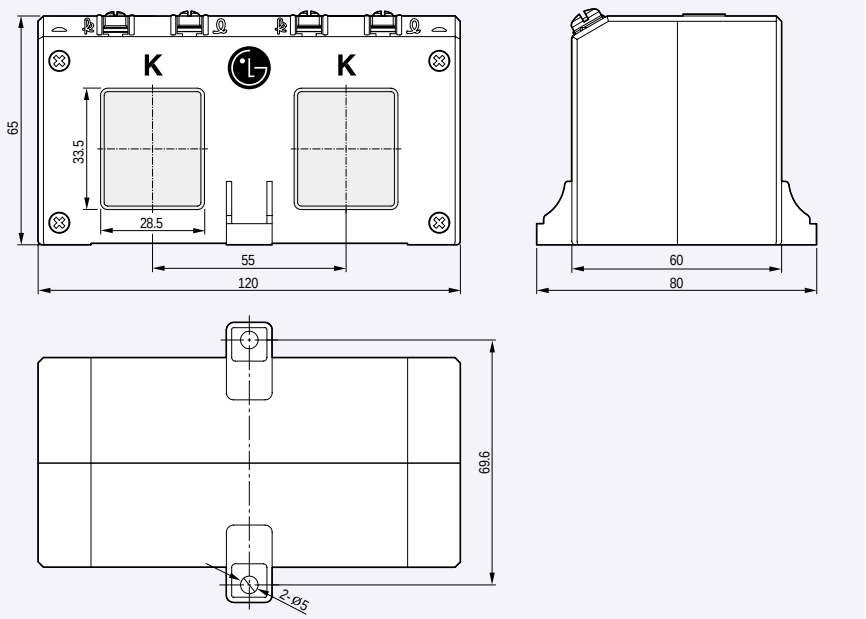


Ratings

Type		2CT	Catalogue No.
CT ratio	DCT-100	100 : 5A	76012116001
	DCT-150	150 : 5A	76012116002
	DCT-200	200 : 5A	76012116003
	DCT-300	300 : 5A	76012116004
	DCT-400	400 : 5A	76012116005
Class		1.0	
Burden		5VA	
Insulation voltage		600VAC	
Insulated impulse voltage		2kV	
Insulation resistance		10㏁ (DC 500V Megger)	
Mounting		Panel	

Note) Please use DCT for LG Electronic Motor Protection Relay only.

Dimension



Accessories

Current transformer

SCT(Current transformer)

1 Current transformer

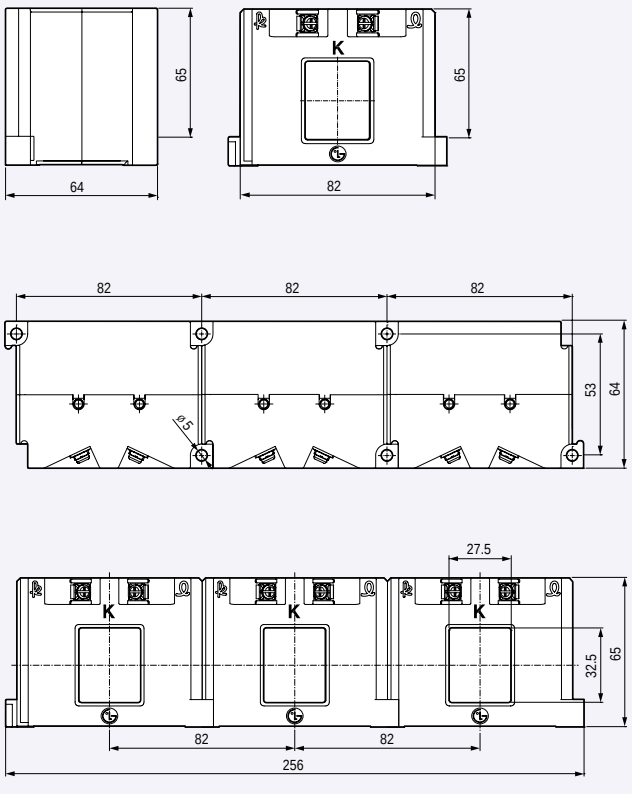
3 Current transformer
(Combination of three current transformer)

Ratings

Type		3CT	Catalogue No.
CT ratio	SCT-100	100 : 5A	76012116006
	SCT-150	150 : 5A	76012116007
	SCT-200	200 : 5A	76012116008
	SCT-300	300 : 5A	76012116009
	SCT-400	400 : 5A	76012116010
Class		1.0	
Burden		5VA	
Insulation voltage		600VAC	
Insulated impulse voltage		2kV	
Insulation resistance		10㏁ (DC 500V Megger)	
Mounting		Panel	

Note) Please use SCT for LS Electronic Motor Protection Relay & DMPR only.

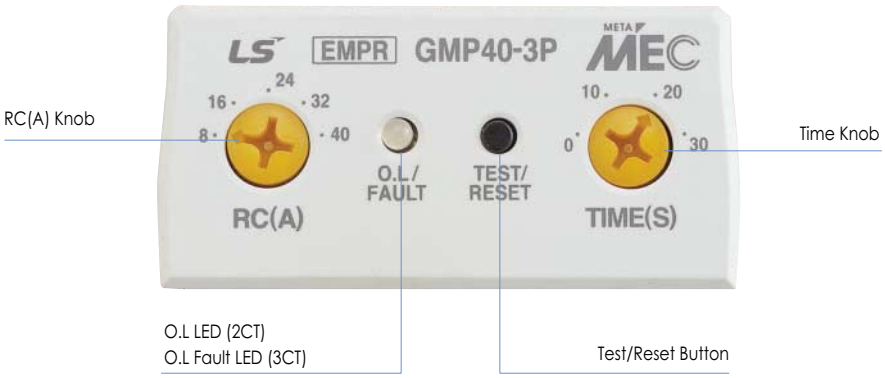
Dimension



Installation with
Electronic Motor Protection Relay

Installation with
Digital Motor Protection Relay

Operating and setting method



1. Check the rated voltage and apply the control power to A1 and A2 terminal

Do not apply 220V to 110V use model

2. Check the TEST/RESET button operation

Check the operation of the output contact

1) Check if the control voltage and wiring method is correct (Refer to the wiring diagram)
2) When you press the 'Test/Reset' button, the O.L LED is turned on and the EMPR is tripped
3) When you press the 'Test/Reset' button under the EMPR is tripped, the O.L LED is turned off and the EMPR is reset
4) Auto reset function: When it is tripped by the over current, it is reset after 1 Min.(Optional)

Caution) For safety, when the motor is operating the 'Test/Reset' button do not work

3. Set the operating time

The operating time is set on the base of 600% of the rated current in the characteristic curve

1) Set the operating time by considering the operating time and start current according to the types of the load
   (Ex.: If the start current is 600% of the normal operation current and the staring is 10sec, set the time knob around 11~12sec. with 10~20%margin)
2) Operating time range is 0~30sec
3) If the time knob is set to 10sec, the EMPR is tripped when the start current (600% of the rated current) is applied for 10sec

Caution) The EMPR with inverse time characteristics can be tripped to protect the motor when the motor is started a few times continuously When a motor is frequently changing the rotating direction (forward and reverse), set the operating time longer For the crane and hoist use, select the EMPR with definite time characteristics

4. Set the operating current

Set the current by considering the rated current of a motor to protect from the over current

1) Check if the rated current of a motor is within the current setting range of an EMPR
2) Set the 'RC' (Rated current) knob to the maximum value and then start a motor
3) Under normal motor operation, rotate the 'RC' knob to the counterclockwise until the 'O.L' LED turned on&off The current at this point in the 100% current rating under real load
4) At this point, rotate the 'RC' knob to the clockwise until the 'O.L' LED turned off. In general case the setting value is around 110~120% of the rated current
   Ex) When the 'O.L' LED flickering at 20A, the setting current will be 22A(=20x1.1)

Note) The brackets for connection is offered standard

Setting method (Inverse time characteristics)

5. Check status of operation by LED

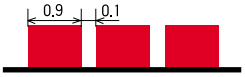
1) In case of overcurrent
If there will be an overcurrent during motor operation, the red color of LED will flicker at 0.4 second intervals. After tripping because of overcurrent, the red color of LED will light up.

2) In case of phase failure
If there will be a phase failure in three phase load, it will be tripped within 3 seconds.
In case of R phase failure, green color of FAULT LED will flicker at 3 second intervals.
In case of S phase failure, at 3 second intervals, green color of FAULT LED will flicker two times.
In case of T phase failure, at 3 second intervals, green color of FAULT LED will flicker two times.
Note) 2CT EMPR can protect motor from R or T phase failure.

3) In case of phase unbalance
- If phase unbalance rate is over 50%, FAULT LED will flicker 0.4 second intervals.

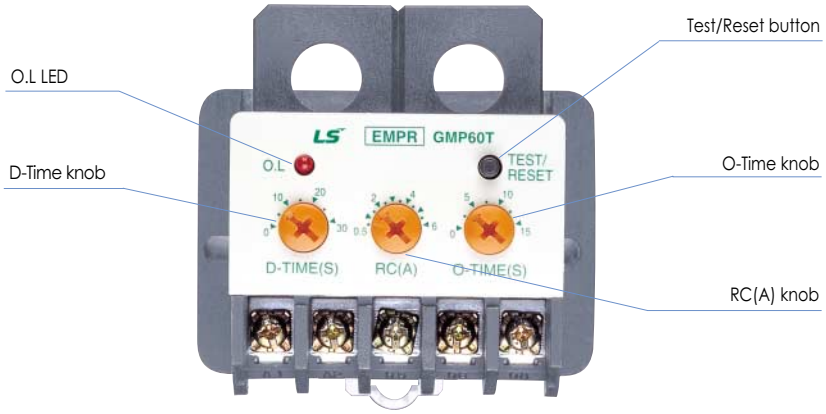
4) In case of Reverse phase
- Red & green color LED will flicker alternately.

5) Status of LED operation

Condition			LED Status	LED Diagram	Remark
Operating status	Normal		LED OFF		
	Overcurrent		0.4 Second intervals		
	Phase unbalance (30~50%)		0.4 Second intervals		In case of GMP 80-3S/3SR model, only red color LED will flicker.
Tripped status	Overcurrent		O.L LED light up		
	Phase failure (3CT)	R	1 time for 3 seconds		In case of GMP 80-3S/3SR model, O.L LED will light up and also FAULT LED will flicker.
		S	2 time for 3 seconds		
		T	3 time for 3 seconds		
	Phase failure (2CT)		Red LED light up for 0.9 sec LED goes off for 0.1 sec		
	Reverse phase (2CT)		Red & Green color LED flicker alternately		

Note) There are two red color LEDs for O.L (Overload) & Fault in the model of GMP 80S/3SR.

Operating and setting method



Tunnel type mounting

1. Check the Test/Reset button operation

Check if the EMPR operate in overcurrent

1) Check if the wiring is correct (Refer to the wiring diagram)
2) Set the 'D-Time' and 'O-Time" knob to the min. ratings
3) When the 'Test' button is pressed under tripped condition, the 'O.L' LED is turned off
4) When you press the 'Test' button again then the lamp turned off and the EMPR reset

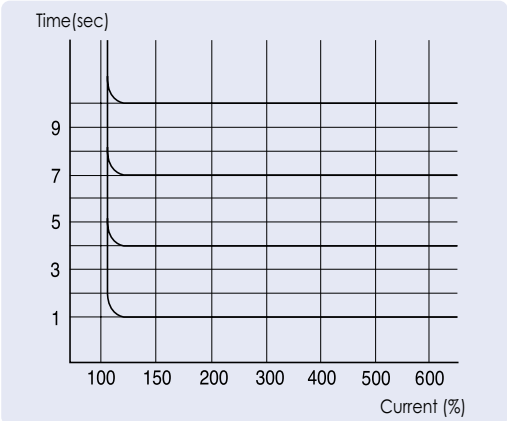
Note) In operation, even though you press the 'Test/Reset' button, the EMPR do not trip

2. Set the operating time (Definite time characteristics)

● **D-time (Delay time) : 0.2~30 sec**

The motor starting current, which flows when the motor is starting, is generally 600~800% of the rated current and the delay time varies according to the load condition. It is the time during which the EMPR do not operated by over-current during the starting time

1) Set the delay time by use of the 'D-time' knob
2) In case you do not know the delay time, start the motor by setting the 'D-time' knob to the max. position and after checking the time during which the staring current become stable, set the D-time (In general pump, the setting time is 3~5 seconds)



Definite time characteristics curve

Note) The time delay is forced time delay type, therefore if you make a mistake to select the time, the motor may be burn

● **The operating time is the time during which the EMPR tripped by the over-current. The EMPR is tripped after the selected operation time**

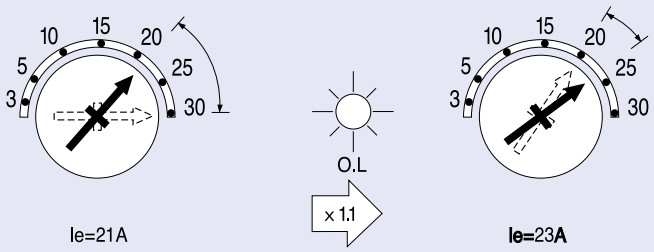
1) Set the operation time by the 'O-time' knob
2) In special case such as for mechanical shock relay, if you set the 'O-time' to the min value, the EMPR is tripped at once

Note) Generally set it to 4~6 seconds

3. Set the operating current (Similar to that of the pin type & screw type)

● **Set the operation current to protect from over current. Set the current by considering the rated current**

1) Start the motor by setting the 'RC' knob to the maximum position
2) Under operating condition, rotate the 'RC' knob to the counterclockwise until the 'O.L' LED turned on & off. The current at this point is the value (100%) under real load condition
3) Rotate the 'RC' knob to the clock-wise until the 'O.L' LED turned off. In general case the setting is 110~120% of the rated current



(ex: When the 'O.L' LED settings at 21A, the setting current will be 23A (=21*1.1))

4. Check the LED condition when operation

1) Over-current
   – The EMPR is not tripped during the D-time under over-current but the O.L LED turned on and off to indicate that the over-current flows
   – If the EMPR is tripped after D-time the O.L LED turned on
2) Phase failure
   – If a motor does not rotate under phase failure, the high current may flows. At this time a motor is protected by the over-current protection function

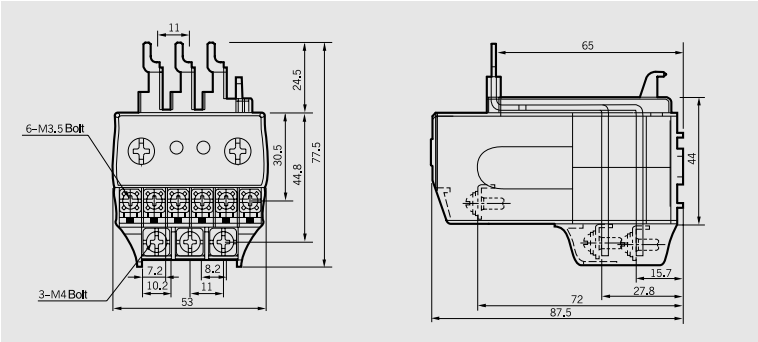
Condition	Red O.L LED		Note
Operation normal	Off		
Overcurrent	On & Off		On & Off under over current
Trip over-current	On		The EMPR is tripped

Motor selection

Nominal current	Current setting range(A)	220~240VAC			440~480VAC		
		3 phase motor ratings kW(Hp)		Full load current (A)	3 phase motor ratings kW(Hp)		Full load current (A)
1.5	0.3-1.5	~0.18	(~0.25)	1.5	0.12~0.55	(~0.75)	1.6
5	1-5	0.18~0.75	(0.25~1)	4.8	0.25~1.5	(0.33~2)	4
22	4.4-22	1.1~4	(1.5~5.5)	18.8	3~11	(4~15)	24
20	4-20	0.75~3.7	(1~5)	17.4	2.2~7.5	(3~10)	17
40	8-40	2.2~7.5	(3~10)	34	4~15	(5.5~20)	32.5
80	16-80	4~18.5	(5.5~25)	79	7.5~37	(10~50)	74
06	0.5-6	0.09~0.75	(0.13~1)	4.8	0.09~22	(0.13~3)	5.5
30	3-30	0.37~5.5	(0.5~7.5)	26	1.1~11	(1.5~15)	24
60	5-60	1.1~11	(1~15)	48	3~22	(4~30)	46.5

Note) The above values are the reference ones by AC3 class standard squirrel cage motor.
The values may be changed according to the class and the manufacturer of a motor.

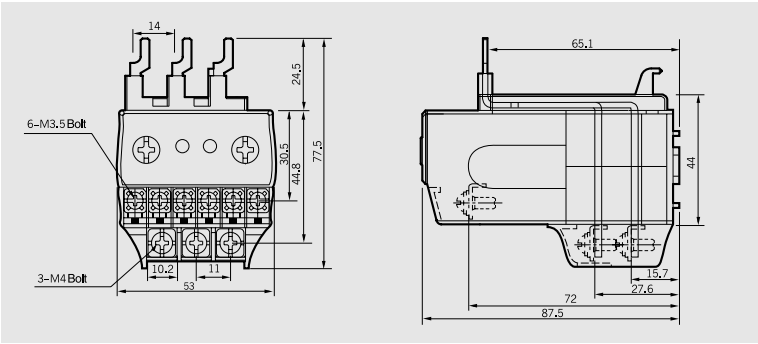
GMP22-2P
GMP22-3P
GMP22-3PR



Terminal configuration : See Fig. 1 on the next page

0.18kg

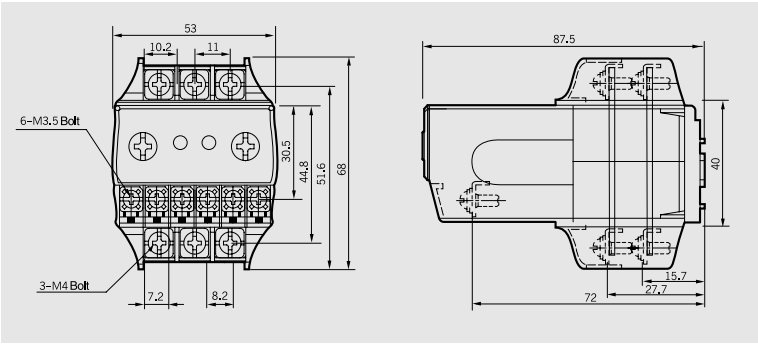
GMP40-2P
GMP40-3P
GMP40-3PR



Terminal configuration : See Fig. 1 on the next page

0.20kg/0.22kg

GMP22-2S
GMP22-3S
GMP22-3SR
GMP40-2S
GMP40-3S
GMP40-3SR

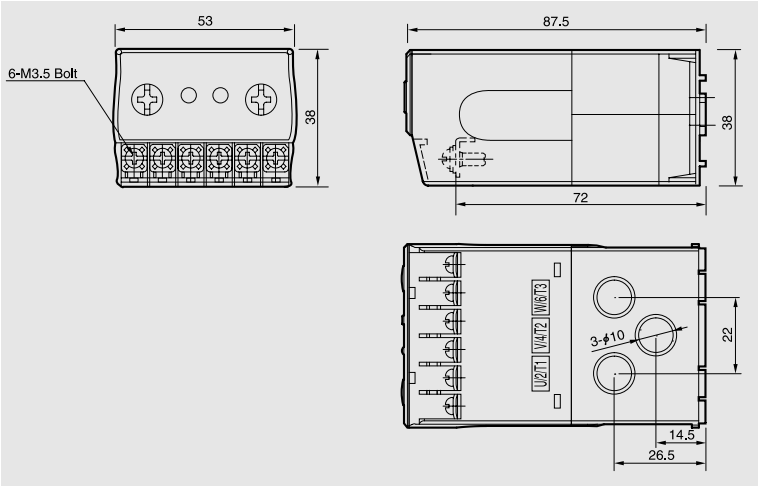


(Mounting adapter)

Terminal configuration : See Fig. 2 on the next page

0.19kg/0.21kg

GMP22-2T
GMP22-3T
GMP22-3TR
GMP40-2T
GMP40-3T
GMP40-3TR



(Mounting adapter)

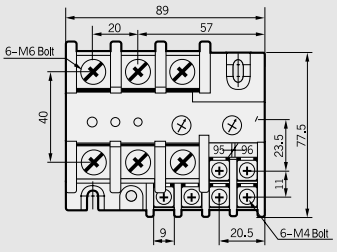
Terminal configuration : See Fig. 3 on the next page

0.14kg/0.16kg

Dimensions

Electronic overload relays

GMP80-2S
GMP80-3S
GMP80-3SR



Terminal configuration : See Fig. 2

0.42kg/0.46kg

Terminal configuration

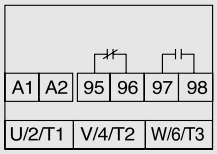


Fig. 1

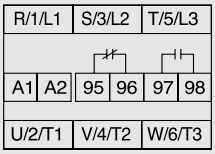


Fig. 2

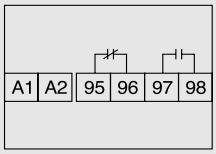
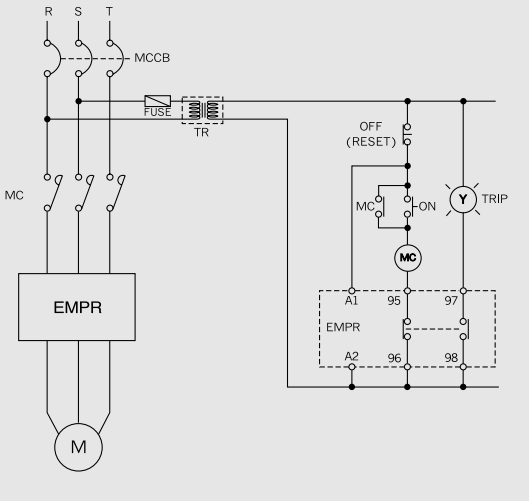
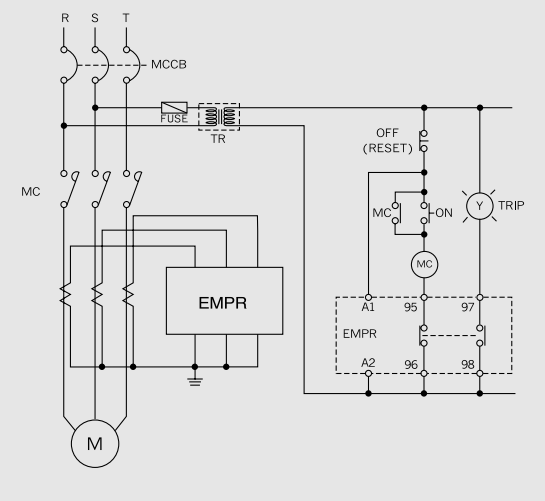


Fig. 3

Circuit diagram

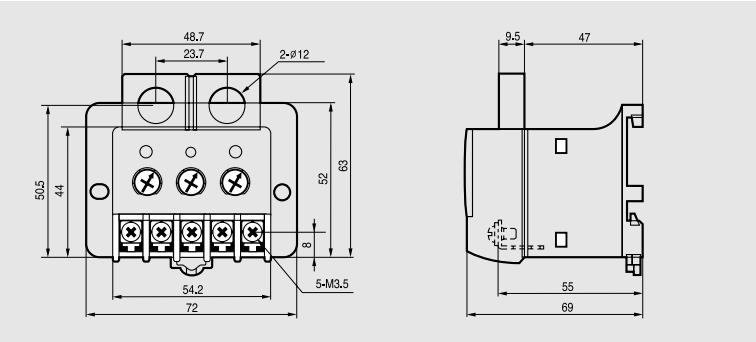


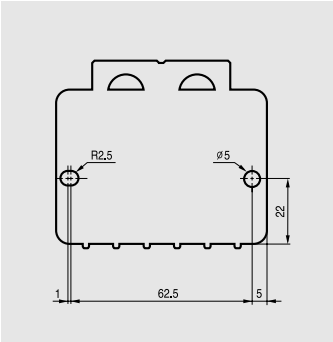
Without additional CTs



In case of using additional CTs

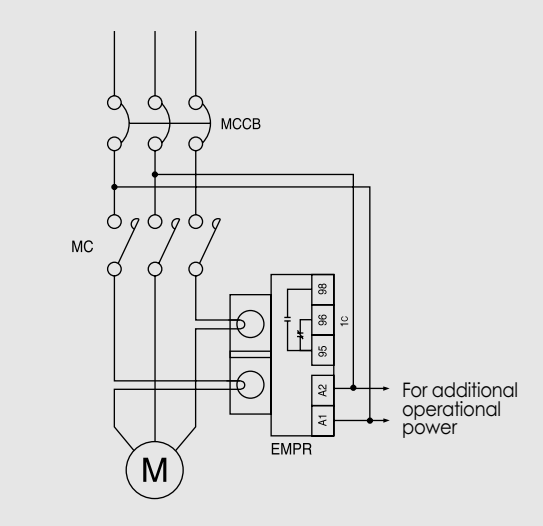
GMP 60T





0.42kg/0.46kg

Circuit diagram



Terminal configuration