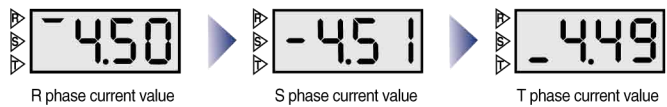
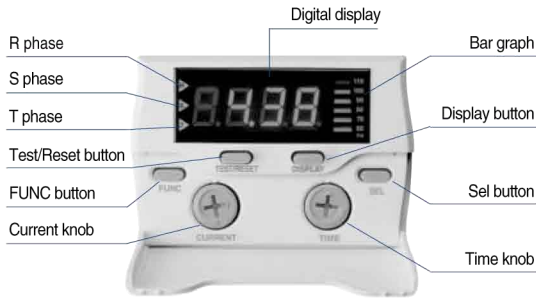


Features

DMP Series

- Digital measuring and displaying
 - Display digital ampere-meter
 - Save the causes of the fault and the value
 - Display motor load rate by graph



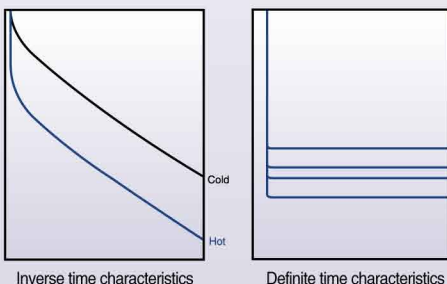
- Convenient structure
 - Install the Unit / Extension type in one body
 - The display part may be separated from the body
 - You can check the values and the causes of the fault without opening the distribution panel door
 - removable terminal block



- Various protection functions

Protection	DMP□-S/Sa	DMP□-SZ/SZa	DMP□-SI	DMP□-T/Ta	DMP□-TZ/TZa	DMP□-TI
Wiring	Screw type			Tunnel type		
Over current	■	■	■	■	■	■
Under current	■	■	■	■	■	■
Stall	■	■	■	■	■	■
Lock	■	■	■	■	■	■
Phase failure	■	■	■	■	■	■
Reverse phase	■	■	■	■	■	■
Phase unbalance	■	■	■	■	■	■
Ground fault		■			■	
Short circuit			■			■

- Trip curve selectable (Inverse/Definite)



- Applicable to inverter control circuit
 - LS DMPR has high performance under the harmonic noise and can be used in the Inverter control circuit (20~200Hz)
- Optional functions (DMP-a type)
 - Storing up the last fault cause
 - Storing up motor operation hours

Specification

DMP/IMP Series

Ratings



Model		DMP□-S/SZ/SI	DMP□-Sa/SZa	DMP□-T/TZ/TI	DMP□-Ta/TZa	IMP-C-NO	IMP-C-A420	IMP-C-M485	
Wiring		Screw type		Tunnel type		Tunnel type			
Panel mount		Unit or Extension ^{Note1)}			Unit or Extension				
Operation time		Inverse/Definite			Thermal Inverse/Inverse/Definite				
Protection	Over current	According to the setting time			According to the setting time				
	Phase failure	3 sec			1.5 sec				
	Reverse phase	Within 0.1 sec			Within 0.1 sec				
	Lock/Stall	Within 0.5 sec			Within 0.5 sec				
	Phase unbalance	5 sec			5 sec				
	Under current	3 sec			3 sec				
	Ground fault	Within 0.05~1 sec. (DMP□-Z/Za Model)			Within 0.05~1 sec ^{Note2)}				
	Short circuit	Within 50ms (DMP□-I Model)			Within 50ms				
Alarm		Variable (60~110% of the setting current)			Variable (60~110% of the setting current)				
Current setting range (A)		6: 0.5~6A, 36: 3~36A, 60: 5~60A			0.5~100				
Time setting (sec)	Definite	D time	0~60 sec			1~200 sec			
		O time	0~30 sec			1~60 sec			
	Inverse time	0~60 sec			1~60 sec				
	A time (Reset)	Manual reset			Manual reset/Automatic				
Tolerance	Current	±5%			±5%				
	Time	±5% (or ±0.5 sec)			±5% (or ±0.5 sec)				
Operating power	Voltage	AC 110V or 220V, 50/60Hz			AC/DC 85~245V, 50/60Hz				
Aux. contact		2a, 2b, 1a1b			OL: 1a1b, AL: 1a				
Insulation resistance		Over DC 500V 100MΩ			Over DC 500V 100MΩ				
Surge impulse voltage (IEC 61000-4-5)		5kV			5kV				
Fast transient burst (IEC 61000-4-4)		2kV			2kV				
Environment	Operation	-25~70°C			-25~70°C				
	Storage	-30~80°C			-30~80°C				
Temperature	Relative humidity	30~90% RH (No freezing)			30~90% RH (No freezing)				
	Display	7-Segment	3 phase current, cause of a fault			3 phase current, cause of a fault			
Display	Bar-Graph	60~110% of real load current			60~110% of real load current				
	Mounting type	35mm Din-rail/Panel			35mm Din-rail/Panel				
Certification		UL, cUL, CE							

Note) 1. In extension type, the digital EMPR is calibrated with combining the display part and main body so, please cautious not to combine the display part and main body with different part No.
2. Zero current sensing by zero sequence CT and Residual circuit.

Electronic motor protection relays

Characteristics DMP Series

DMP-T(a)/TZ(a)/TI Type

- Unit type or extension type is available
 - Extension type: Remotely mounts the display unit on the panel surface
- Ampere meter function: current and setting value by press the display button
- Select the inverse time or definite time
- Display the causes of the fault and the values
- Ground fault protect function is added



Extension type (with cable)

Protect function

Over current	Depend on setting time	Selectable the inverse/definite
Phase failure	Within 3seconds	Over 70% of the rate of unbalance
Phase unbalance	Within 5seconds	Over 50% of the rate of unbalance
Reverse phase	Within 0.1seconds	Function enable
Stall	Within 5seconds	Over 180% of the setting current
Lock	Within 0.5seconds	Setting 200~900% of rated current
Under current	Within 3seconds	Setting 30~70% of rated current
Ground fault ^{Note)}	Selectable 0.05~1.0seconds	Grounded current setting by dip s/w (100~2500mA)

Note) Lock protection is operated after setting D-time in case of definite time type

Function selection

FUNC	Sel	Description
1. CHA	Inv/dEF	Operating characteristics setting (Inverse/definite time type)
2. dEF ^{Note1)}	0~30 (S)	Setting the operating time (In definite type)
3. r.P	oFF/on	Reverse phase enable
4. Und	oFF/30~70 (%)	Under current enable and setting
5. g-F	oFF/0.05~1.0 (S)	Ground fault enable and setting
6. Stl	oFF/on	Stall enable
7. Loc	oFF/200~900 (%)	Lock enable and setting
8. Ct	1~120	CT ratio setting
9. P.F	on/oFF	Phase fault enable
A. gFd ^{Note2)}	oFF/on	Setting delay of ground fault
b. StA	0~120	Operating time setting by month
c. StH	10~730	Operating time setting by hour
d. tAH	A000,000.0	Displaying total operating time (month, hour)
E. rAH	A000,000.0	Displaying operating time (month, hour)
Sto	Sto	Store

Note) 1. [2.dEF] is only displayed when [dEF] is selected in a [1.CHA] mode

2. Functions for b to e are available for only SZa & TZa type.

3. Ground fault sensitive current selection: TZa type

Ratings

Model	DMP□-T/Ta	DMP□-TZ/TZa/TI
Type	Tunnel	
Wiring method	Unit or Extension	
Operating characteristics	Inverse/definite type	
Alerting function	Variable between 60 and 110%	
Current range (A)	06: 0.5~6, 36: 3~36, 60: 5~60	
Setting time	Definite	Delay (D-T) Operating (O-T)
	Inverse	0~60seconds 0~30seconds 0~60seconds
	Reset type	Manual reset
Operating voltage	AC 110V or AC 220V	
Frequency	50/60Hz	
ZCT input (07-08)	200mA/110mV (ZCT) [30 ϕ, 50 ϕ, 65 ϕ, 80 ϕ]	
Aux. contacts (2a, 2b, 1a1b)	OL, GR 2-SPST (95~98) 3A/250Vac resistive load	
Indicate	7-segment	3-phase current value, fault cause
	Bar-LED arrays	Load ratio (60~110%)
Mounting	35mm Din-rail/Panel	

Electronic motor protection relays

Setting method DMP Series

1. Check the operation of the Test/Reset button

- 1) Check the wiring method
- 2) Press the Test/Reset button and then test is displayed on the LED and the DMPR is tripped
- 3) Press the Test/Reset button again and then it is reset

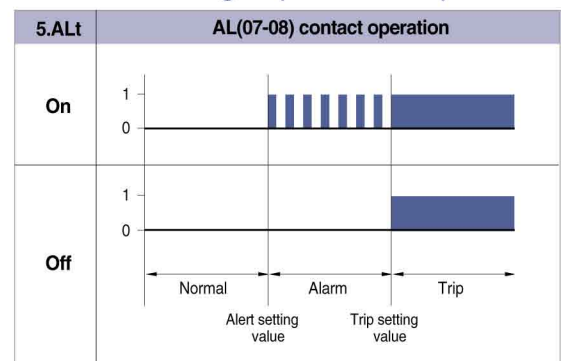
Note) The Test/Reset is not available when a motor is rotating.



2. Shift the mode by pressing the FUNC key and then select the values by the Sel key

- 1) First shift to the test mode by press the "Test/Reset" button and then set the functions by press the "FUNC" button
- 2) Each time you press the "FUNC" button, the function mode switches from 1.CHA mode to Sto mode.
When the mode that you want to change is displayed, push the "Sel" button to select the value you want.
After you select the value, press the "FUNC" button to finish the settings and it displays the next mode
- 3) If no button is pressed in the selection mode, it remains in that mode
- 4) If you select the inverse time characteristics it skips the mode 2 (Definite O-time) and go to the mode 3 (Reverse phase)
- 5) Alt is the alert setting mode. It displays the load rate of the current setting value by the bar LED (60~110%)
 - If the current is higher than the setting value, the bar LED is switched on and off and the AL relay (07-08) make close and open in 1sec interval unit the EMPR is tripped (Pre-alarm function)
 - If the 5. Alt mode is set to off, the AL relay make close after the EMPR is tripped (Normal open contact)
- 6) To finish the settings you have to press the "Sel" button in the Sto mode

Alarm signal (Alert function)



Setting Menu

FUNC	Sel	Functions	Note
1.CHA	1 nu/dEF	Inverse or definite time characteristics	Default is inverse time characteristics
2.dEF	0~30	Set the O-time (Definite time only)	For D-time setting, use the time knob
3.rP	oFF/oN	Reverse phases protection	Default is "Off"
4.Und	oFF/30~70 (%)	Under current protection	Default is "Off" ^{Note1)}
5.ALt	oFF/60~110 (%)	Alarm function (With pre-alarm function)	Default is "Off"
59-F	oFF/0.05~1(5EC)	Ground fault and Setting the operating time	Default is "Off" (Z type)
65tL	oFF/oN	Stall function	Default is "Off"
7Loc	oFF/200~900 (%)	Lock function	Default is "Off"
8.Ct	1~120	CT ratio	Default is 1:1 ^{Note2)} (DMP06 Modle)
9P-F	oN/oFF	Phase failure	Default is "On" to store
A9Fd	oFF/oN	Setting delay of Ground Fault	Available for SZa/TZa
B5tR	0~120	Operating time setting (Month)	DMP□-Sa/Ta/SZa/TZa model
C5tH	10~730	Operating time setting (Hour)	
d5tRH	R000,000.0	Displaying total operating time (Month, Hour)	
E5tRH	R000,000.0	Displaying operating time (Month, Hour)	
Sto	Sto	Store	Push the SEL button to store

Note) 1. Set the under current value from above 350mA
2. Do not change the CT ratio in 36, 60 type

Setting method

DMP Series



3. Adjust the operating time by the time knob

● Inverse time characteristics

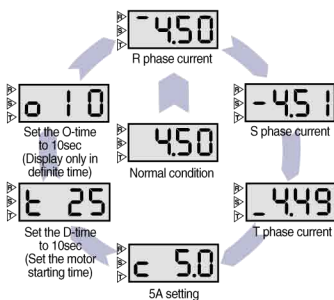
- 1) Select the inverse time in the 1. CHA mode, the default operating time is 600% of the setting current
- 2) The setting range of the operating time is 0~60sec. Set the time by considering the motor start time
- 3) When it is over the setting time, the EMPR operate in accord with the hot characteristics curve

● Definite time characteristics

- 1) Select the definite in the 1. CHA mode, it is operated by the definite time characteristics
- 2) D-time means the time that delays the operating time when the motor is starting
- 3) The setting range of the operating time is 0~60sec. Set the time by considering the motor start time
- 4) Set the O-time at the setting mode 2. dEF and the range is 0~30sec

4. Adjust the operating current by the current knob

- 1) Set the operating current based on the rated current that is described in the name plate. Generally set the 110~115% of the real load current in the normal load condition
- 2) There are 3 types according to the current range (6 / 36 / 60). When you use the external CT you can see the real current by setting the CT ratio
- 3) You can easily set the current value by refer to the load rate which is displayed on the bargraph (Approx. 90% load rate)

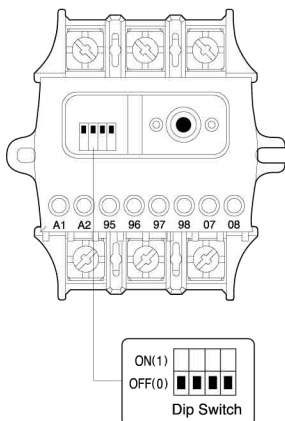
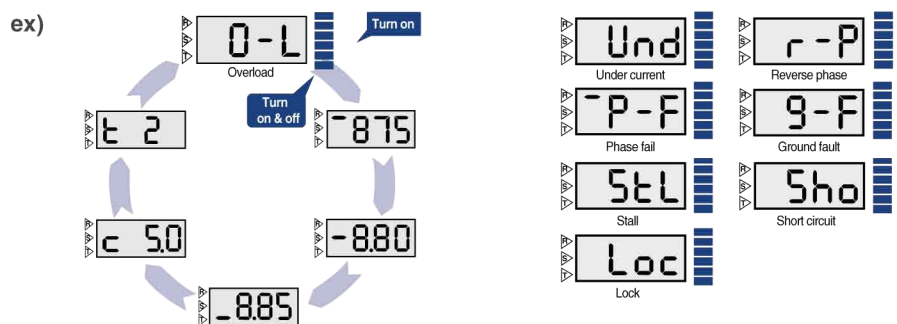


5. Check the setting state by the display key

- 1) In normal condition it display the maximum current among the three phase current
- 2) Each time you press the "Display" button you can see the current and values
- 3) If no button is pressed for 3~4 seconds. It returned to the normal condition

6. Check the causes of the fault by look at the display unit

The causes of the fault is switched on and off for 0.5sec interval. If you press the "Display" button at this time, you can see the values and the causes of the fault



Zero current sensitivity setting

Sensitivity (mA)	DIP S/W			
	1	2	3	4
100	○	○	○	○
200	1	○	○	○
500	○	1	○	○
1000	○	○	1	○
1500	○	○	○	1
2000	○	○	1	1
2500	1	1	1	1

Note) 1. Please use ZCT for LS EMPR.

Dimensions

DMP Series

- DMP□-T
- DMP□-TZ
- DMP□-Ta
- DMP□-TZa

※ Wire size to penetrate a CT :below 22 [mm²]

Mounting dimensions

R/1/L1	S/3/L2	T/5/L3
A1	A2	95
96	97	98
07	08	
U/2/T1	V/4/T2	W/6/T3

0.56kg

- DMP□-T
- DMP□-TZ
- DMP□-Ta
- DMP□-TZa

Mounting dimensions

R/1/L1	S/3/L2	T/5/L3
A1	A2	95
96	97	98
07	08	
U/2/T1	V/4/T2	W/6/T3

0.5kg

Panel mounting

Panel cutting size

Note) 1. In extension type, the digital EMPR is calibrated with combining the display unit and mainbody so, please cautious not to combine the display unit and mainbody with different part No.
 2. The 07-08 contacts are the ZCT input terminal (Digital EMPR with ground fault function)

Accessories

CT, ZCT, Cable and Terminal

● ZCT (Zero Sequence CT)

Ratings

Type	Diameter (A)	Ratio	Weight (kg)	Model
ZCT, D30	30	100mA/40~55mV	0.5	LZT-030
ZCT, D50	50		0.7	LZT-050
ZCT, D65	65	200mA/100mV	0.9	LZT-065
ZCT, D80	80		1.5	LZT-080

Dimension

ZCT 30

Unit (mm)

Model	A	B	C	D	E	F	G	H	I	∅
LZT-030	30	25	108	100	114	7	32	32	110	6

ZCT 50, 65, 80

Unit (mm)

Model	A	B	C	D	E	F	G	H	I	∅
LZT-050	50	25	131	100	122	7	32	36	114	6
LZT-065	65	26	143	114	133	7	39	37	126	6
LZT-080	80	34	174	160	180	7	40	40	151	6

● Other Options

Cable

Applicable Type	DMP, IMP Series
Spec.	1m, 1.5m, 2m, 3m, 4m

* Panel mount: Extension cable

Terminal Block

Applicable Type	DMP Series, GMP60-3T, 3TZ, 3TN
Spec.	60A below