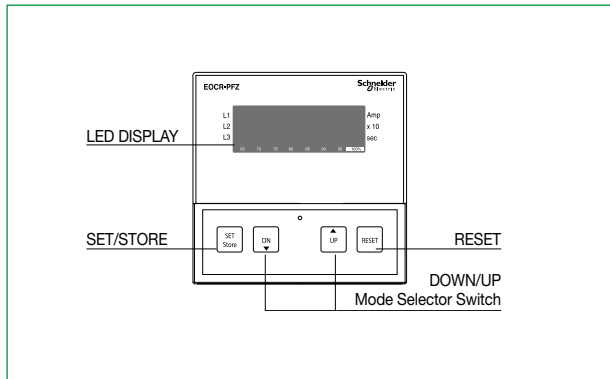
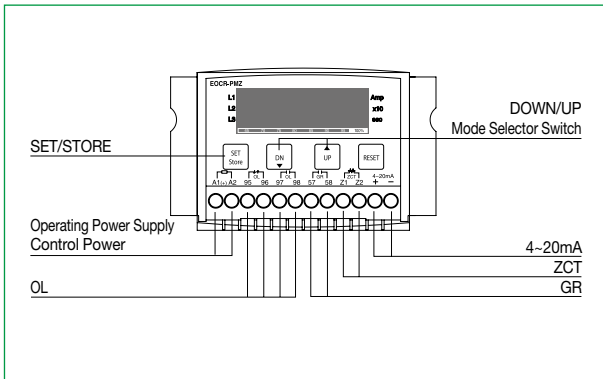


EOCR-PMZ/PFZ

EOCR-PMZ Built-in Panel



EOCR-PFZ Embedded Pa-



Main Features

- Current system function, which automatically displays 3-phase current and leakage current in circulation every 5 seconds
- Can be switched from auto circulation display mode to manual circulation mode with the touch of a button, allowing focused display on a certain element (one specific phase out of 3 phases or leakage current)
- Contains the over current/under current/earth fault/current signal output function in a single EOCR
- Wide range of use: 0.1~3600A - wide range: 0.5~60A; for 5 holes: 0.1~2.0A; with the use of an external CT: 1~3600A
- Easily identifiable characters and numbers displaying trip causes
- The last trip causes remembers up to the 3 most recent trip causes and the current at the time of the trips, and checks the operation even during the recovery of electricity after a power outage
- Includes a timer function for checking total operation time and to provide a reminder of maintenance tasks, such as bearing replacement
- Has a bar graph which helps the manager to set over current conveniently and to check the motor load factor
- Has a transducer function (4~20mA current signal output) for easy and focused management
- For over current operation characteristics, select from Definite, Inverse, and Thermal Inverse
- Earth fault (leakage) current detection: zero-phase current detection method
- For earth fault current operation characteristic, apply either Definite or Inverse
- Over Current Protection Characteristics
 - Thermal Memory Protection ("th"): When Inverse is applied, the cumulative calculation value of the heat generated during the motor's operation is remembered in order to be protected directly by the hot curve instead of the cold curve. (Automatically resets 20 minutes after the motor stop)
 - Non-thermal Memory Protection ("ln"): When Inverse is applied, it is protected by the cold curve if the motor has started, and by the hot curve during normal operation
- Removable EOCR allows its use in the terminal type or the hole type (removable terminal strip)

EOCR-PMZ/PFZ

Protection Function

Protection Function	Operation Condition Characteristics	Operation Time	
Over Current	Can select from Definite/Inverse/Thermal Inverse	Operates based on the set ot	
Under Current	Operates in Definite (can be set from 0.2~30 sec)	Operates based on the set ut	
Phase Loss	Works in PL Mode, ON / oFF selectable	Within 3 sec	
Reverse Phase	Works in RP Mode, ON / oFF selectable	0.1~0.3 sec	
Unbalance	<ul style="list-style-type: none"> Operates if the current deviation exceeds the set % against the max. phase current $[(\text{Max. phase current} - \text{min. phase current}) / \text{max. phase current}] \times 100[\%]$ 	Within 8 sec	
Locked Rotor	1.5~5Times "oc"Setting/Definite operation characteristic	Stall (during operation)	oFF / 0.1~10 sec, Adjustable
	oFF / 2~10Times"oc"Setting / Definite operation characteristic	Lock (during start-up)	Operates within 0.5 sec after dt
Earth fault	<ul style="list-style-type: none"> 0.03~10A: Definite 0.03~1A: Inverse oFF 	Operates based on the set time (Et) (can select between Definite or Inverse)	

Secondary Function

Secondary Function	Application		Operation Condition Characteristics
Current Signal Output	4~20mA		The role of transducer ※For current (4~20mA) output cable, a shield cable [2C-1.25mm ² -CVV-SB Cable] must be used.
Total Operation Time	Records the total operation time of the motor since its installation (Displays up to 99999 hours)		After being set to 0 hours at the time of factory shipment, it cannot be modified afterwards Time is accumulated only for the time the motor has operated
Operation Time	Set to oFF, 1~9900 hours (in min. unit of 1 hour)		Time is accumulated only for the time the motor has operated (setting provided)
Reset Function	H-r	Manual Reset	Reset with the Reset Button on the front side
	E-r	Electrical Reset	Reset by the control power cut
	A-r	Auto Reset (0.3 sec reset)	0.3 sec ~ 59 sec ~1 min ~ 20 min (setting available) However, auto reset is not available for phase loss, reverse phase, earth fault, locked rotor, and stall
Fault Cause Save Function	Function to search recently operated info (including test mode operation)		Can search up to 3 operations from the last operation (Last trip) even during operation
Fail Safe	Self-diagnosis function based on operating power supply		Works in FS Mode, ON/oFF selectable

EOCR-PMZ/PFZ

Specifications

Current Setting	Over Current (OC)	Refer to the current setting range table	
	Under Current (UC)	oFF/0.5~over current set value or below	
	Earth Fault Current (EC)	0.03A-10A: Definite, 0.03~1A: Can select from Definite/Inverse, oFF	
Time Setting	Start Delay Time (OT)	oFF~200 sec	
	Over Current Operation Delay Time (OT)	0.2~30 sec (Definite) 1~30 (Inverse)	
	Under Current Operation Delay Time (UT)	0.5~30 sec (Definite), if "Uc" mode is oFF, "Ut" Mode automatically switches to oFF as well	
	Earth Fault Current Operation Delay Time (ET)	Definite/Inverse: 0.05, 0.1~1~10 sec (0.1~1 sec: Changes in increments of 0.1 sec, 1~10 sec: Changes in increments of 1 sec)	
	Earth Fault Operation Delay Time (ED) during start-up	oFF/1~10 sec, applied to Definite operation	
Error Tolerance	Current	1<1A:±0.05A, 1≥1A:±5%	
	Time	t≤3s:±0.2s, t>3s:±5%	
Operating Power Supply	220	AC/DC85V~250V, 50/60Hz	
Output Contact	OL	2-SPST	AC250V / 3A Resistive Load
	OR	1-SPST	AC250V / 3A Resistive Load
Usage Environment	Temperature	Storage	-30~80°C
		Operation	-20~60°C
	Humidity	30~85% RH (with no dew condensation)	
Display Function	7-segment LED	Displays 3-phase current, leakage current, cumulative operation time, trip cause	
	Bar graph	Displays actual load factor	
Insulation Resistance	Between circuit and case	DC500V/10MΩ or more	
Insulation Withstanding Voltage	Between circuit and case	2KV, 50/60Hz for 1 min	
	Between contacts	1.0KV, 60Hz for 1 min	
	Between circuits	2.0KV, 60Hz for 1 min	
Installation Method	35mm Din Rail or Panel		
Electrostatic Discharge	IEC61000-4-2	Level3: Air Discharge: ±8kV, Contact Discharge: ±6kV	
Radiated Discharge	IEC61000-4-3	Level3: 10V/m, 80~1000MHz	
Conducted Disturbance	IEC61000-4-6	Level3: 10V, 0.15~80MHz	
EFT/Burst	IEC61000-4-4	Level3: ±2kV, 1min	
Surge	IEC61000-4-5	Level3: 1.2×50μs, ±2kV(0°, 90°, 180°, 270°)	
1MHz Burst Disturbance	IEC61000-4-12	Level3: 2.5kV, 1MHz	
Emission	IEC60255-25	Class A (Conducted & Radiated)	

Over Current Operation Time Characteristics Curve

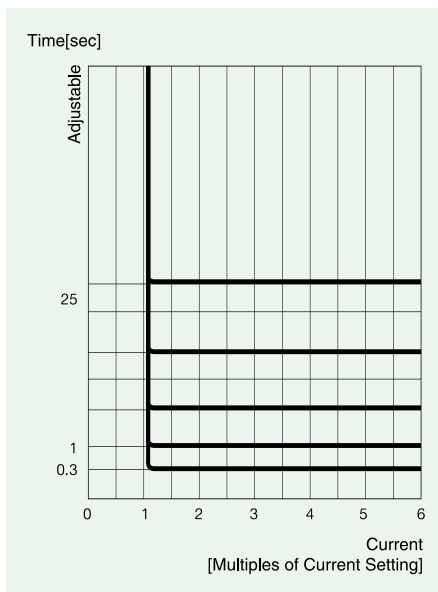


Table 1. Over Current Protection Definite Operation Characteristics Curve

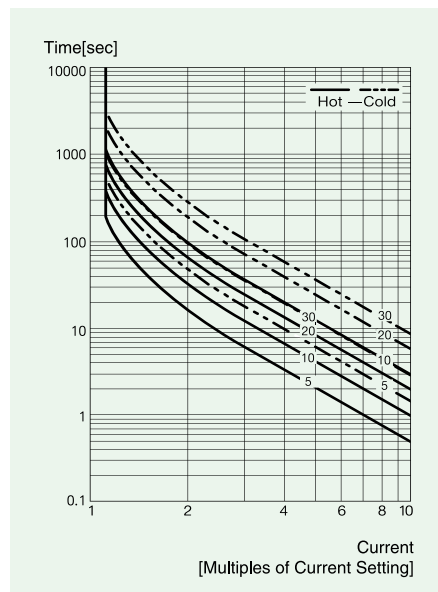


Table 2. Over Current Protection Inverse Operation Characteristics Curve (0.5~10A, external CT combination)

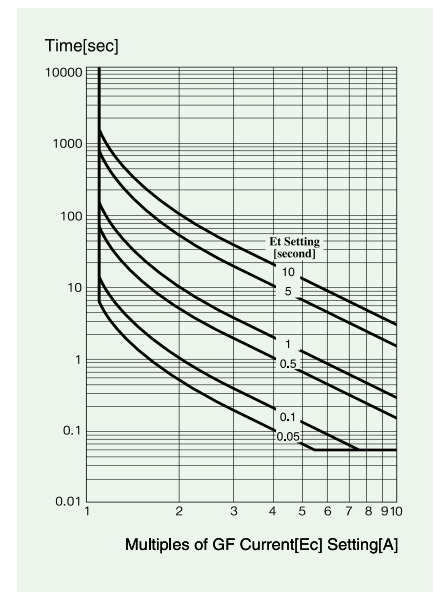


Table 3. Earth Fault Current Protection Inverse Operation Characteristics Curve (current range: 0.03~1A)

EOCR-PMZ/PFZ

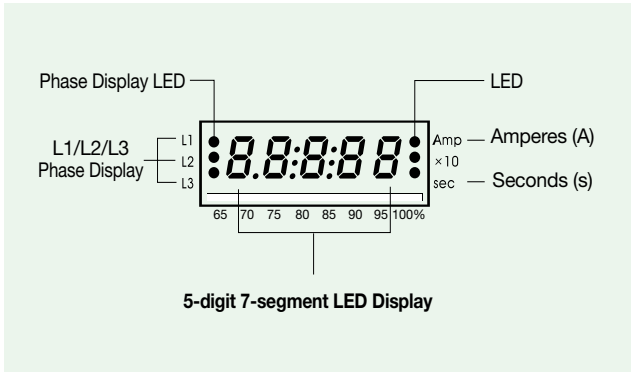
Current Setting Range Table

Setting Range	Number of CT Holes	External CT Current Transformer Ratio	CT Setting	Notes
0.5~60A	1	No CT combination	oFF	Wide range
0.25~5.0A	2 holes	No CT combination	2t	
0.1~2.0A	5 holes	No CT combination	5t	
1~12A	1	10:05	10	
1.5~18A	1	15:05	15	
2.0~24A	1	20:05	20	
2.5~30A	1	25:05:00	25	
3.0~36A	1	30:05:00	30	
4.0~48A	1	40:05:00	40	
5~60A	1	50:05:00	50	
6~72A	1	60:05:00	60	
7.5~90A	1	75:05:00	75	
10~120A	1	100:05:00	100	
12~144A	1	120:05:00	120	
15~180A	1	150:05:00	150	
20~240A	1	200:05:00	200	
25~300A	1	250:05:00	250	
30~360A	1	300:05:00	300	
40~480A	1	400:05:00	400	
50~600A	1	500:05:00	500	
60~720A	1	600:05:00	600	
75~900A	1	750:05:00	750	
80~960A	1	800:05:00	800	
100~1200A	1	1000:05:00	1000	
120~1440A	1	1200:05:00	1200	
150~1800A	1	1500:05:00	1500	
200~2400A	1	2000:05:00	2000	
250~3000A	1	2500:05:00	2500	
300~3600A	1	3000:05:00	3000	

EOCR-PMZ/PFZ

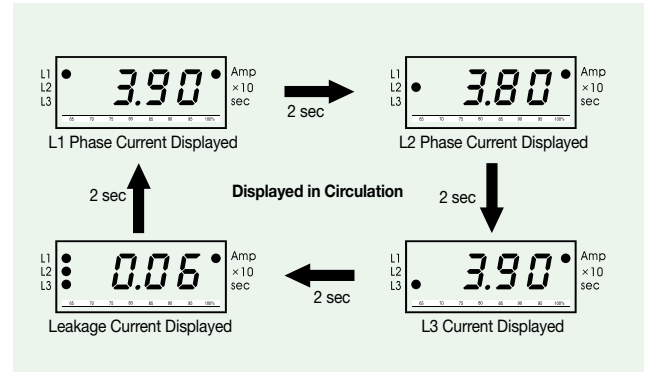
Display Front View

LED Display (Bar Graph Type)



※ A digital 3-phase current system function that automatically displays the 3-phase operating current in circulation on the 5-digit 7-segment digital monitor installed on the front side of EOCR, together with the phase display, at 5-second intervals.

3-phase Digital Current System Function

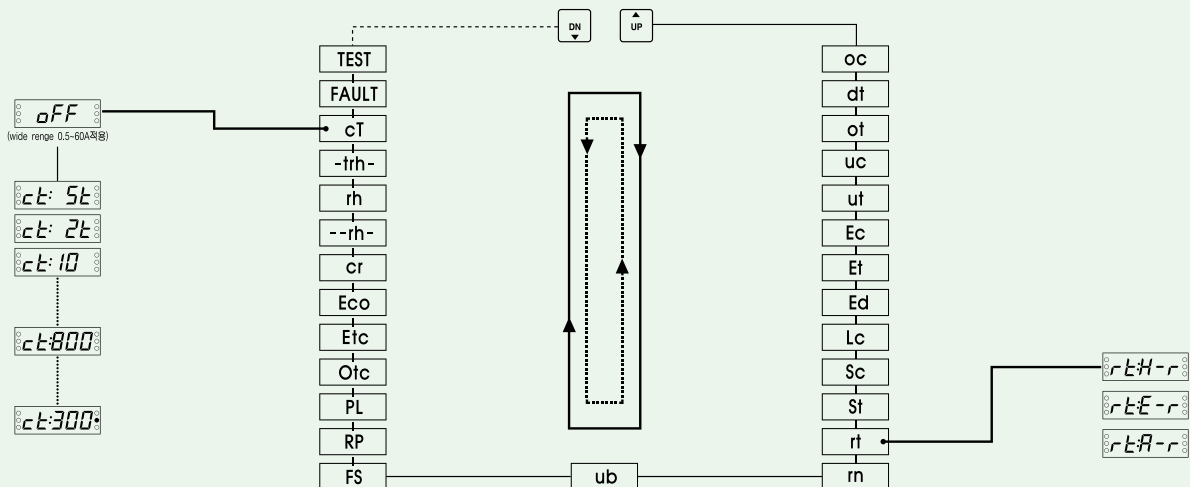


※ Press the SET (store) button once during operation to view manual circulation display instead of auto circulation display. Every time you press the SET (store) button in manual circulation mode, the display rotates in the order specified above, allowing you to lock on a certain element if necessary.

Button Switch Functions and Setting Sequence

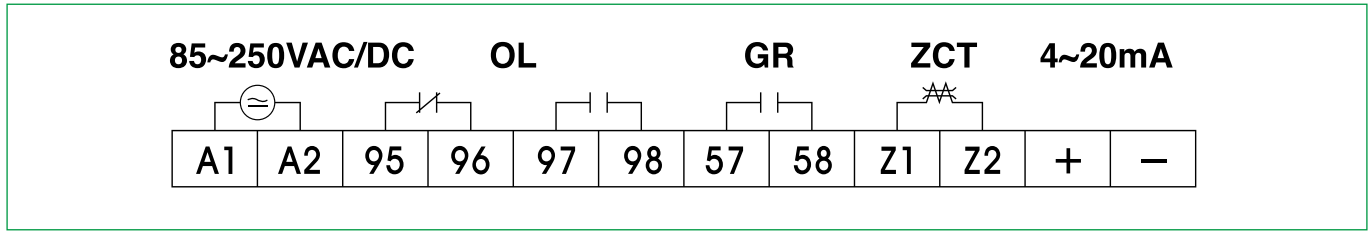
1. Mode		Press the Up/Down switches to find a Mode to set.
2. Set		Press the SET (store) button once, and the mode and value start to flicker.
3. Adjust		Press the Up/Down switches to select the necessary value or characters.
4. Store		Press the SET (store) button once, and the flickering will stop as the selected value or characters are stored.
5. Reset		Once the setting is done, press the Reset button or leave it for 30 seconds to complete the setting.
<p>※ Manual Circulation Display</p>		<p>-When you press the SET (store) button during operation, the 3-phase current will be displayed in auto circulation mode instead of in manual circulation mode.</p> <p>-Once the original L1 phase is displayed, every time you press it, the phase will be displayed in circulation order of L2→L3→Leakage Current→L1 phase. Press Reset to return to auto circulation display status.</p>

• Setting sequence




EOCR-PMZ/PFZ

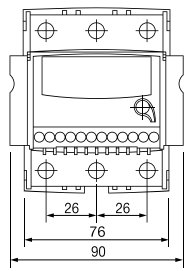
I/O Terminal Configuration

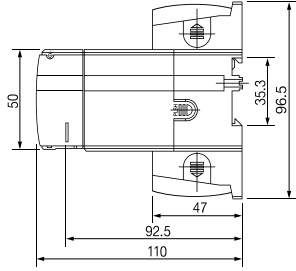


Dimensions Diagram

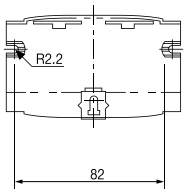


EOCR-PMZ






PANEL & DIN RAIL TYPE

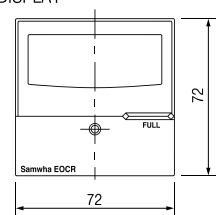


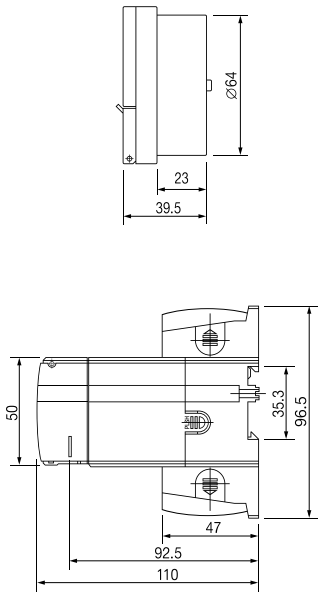
MOUNTING HOLE SIZE



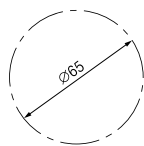
EOCR-PFZ

DISPLAY



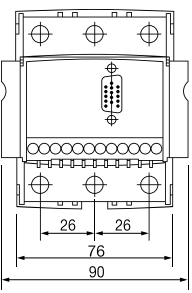


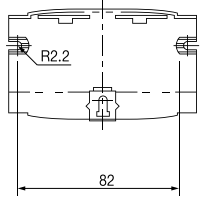
PANEL & DIN RAIL TYPE



MOUNTING HOLE

CONVERTTER







MOUNTING HOLE SIZE

EOCR-PMZ/PFZ

Ordering Specifications

Reference		Current Range [A]	Output contact	Operating Power Supply		Converter	Notes	
				Voltage [V]	Frequency [Hz]			
 EOCR-PMZ	EOCRPMZ	-WRDBW	Wide Range	b-a	DC/AC 24V	-	Window	
		-H1DBW	100:05:00	b-a	DC/AC 24V	-	Window	CT Combination
		-HHDBW	150:05:00	b-a	DC/AC 24V	-	Window	CT Combination
		-H2DBW	200:05:00	b-a	DC/AC 24V	-	Window	CT Combination
		-H3DBW	300:05:00	b-a	DC/AC 24V	-	Window	CT Combination
		-H4DBW	400:05:00	b-a	DC/AC 24V	-	Window	CT Combination
		-WRDZ7W	Wide Range	b-a	DC/AC 85~250V	50/60	Window	-
		-H1DZ7W	100:05:00	b-a	DC/AC 85~250V	50/60	Window	CT Combination
		-HHDZ7W	150:05:00	b-a	DC/AC 85~250V	50/60	Window	CT Combination
		-H2DZ7W	200:05:00	b-a	DC/AC 85~250V	50/60	Window	CT Combination
 EOCR-PFZ	EOCRPFZ	-WRDBT	Wide Range	b-a	DC/AC 24V	-	Terminal	
		-WRDZ7T	Wide Range	b-a	DC/AC 85~250V	50/60	Terminal	-
		-WRDBW	Wide Range	b-a	DC/AC 24V	-	Window	
		-H1DBW	100:05:00	b-a	DC/AC 24V	-	Window	CT Combination
		-HHDBW	150:05:00	b-a	DC/AC 24V	-	Window	CT Combination
		-H2DBW	200:05:00	b-a	DC/AC 24V	-	Window	CT Combination
		-H3DBW	300:05:00	b-a	DC/AC 24V	-	Window	CT Combination
		-H4DBW	400:05:00	b-a	DC/AC 24V	-	Window	CT Combination
		-WRDZ7W	Wide Range	b-a	DC/AC 85~250V	50/60	Window	-
		-H1DZ7W	100:05:00	b-a	DC/AC 85~250V	50/60	Window	CT Combination
		-HHDZ7W	150:05:00	b-a	DC/AC 85~250V	50/60	Window	CT Combination
		-H2DZ7W	200:05:00	b-a	DC/AC 85~250V	50/60	Window	CT Combination
		-H3DZ7W	300:05:00	b-a	DC/AC 85~250V	50/60	Window	CT Combination
		-H4DZ7W	400:05:00	b-a	DC/AC 85~250V	50/60	Window	CT Combination

Accessory 1			
Model	Reference	PIN Type	Length (M)
Cable	CABLE-15-00H	15PIN	0.5
	CABLE-15-001	15PIN	1
	CABLE-15-01H	15PIN	1.5
	CABLE-15-002	15PIN	2
	CABLE-15-003	15PIN	3
	⋮	⋮	⋮
	CABLE-15-010	15PIN	10

Accessory 2		
Model	Reference	Hole Diameter (mm)
ZCT	ZCT-035	35
	ZCT-080	80
	ZCT-120	120