

New digital !!! Electronic Over Current Relay (EOCR)

EOCR Samwha EOCR
by Schneider Electric



Digital Electronic Over Current Relays

Model : iFMD-WRDUH

New digital !!! EOCR with Communication

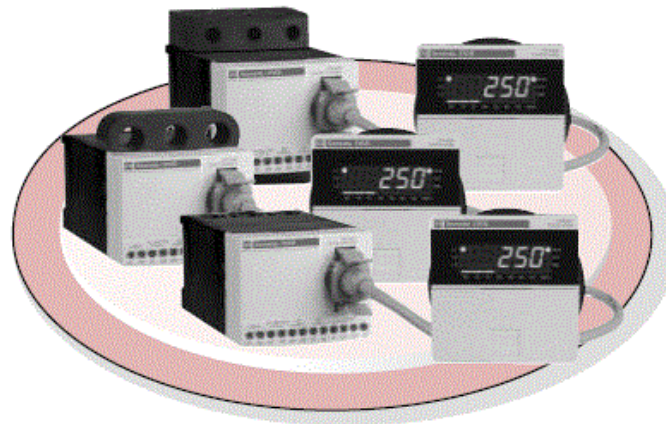
New Digital

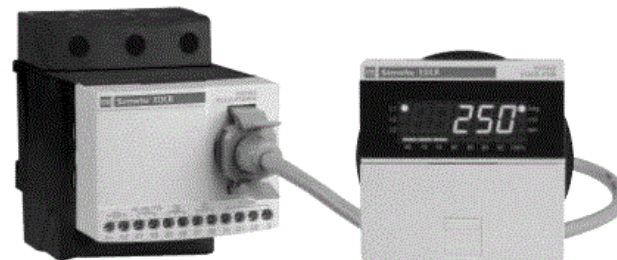
i-Series (i3DM, iFDM)

- Integrated model, Improved functions
- Modbus RS-485 Communication
- RoHS Compliant
- Support thermal inverse protection

DM-Series (3DM2, FDM2)

- Integrated model, Improved functions
- RoHS Compliant





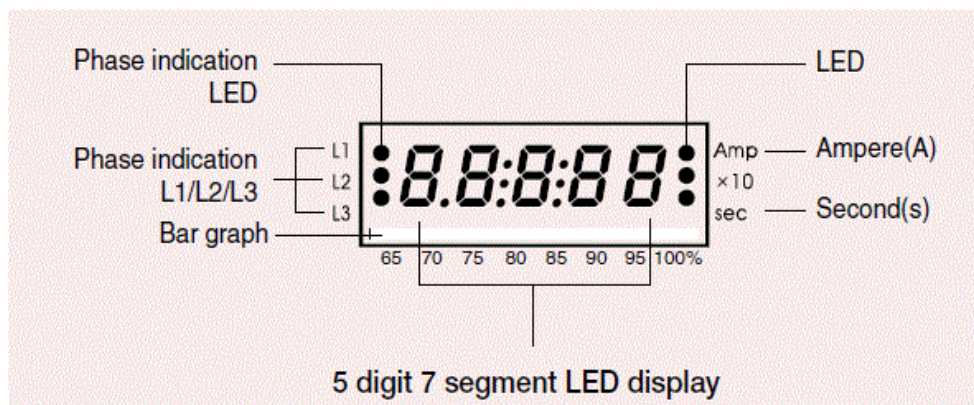
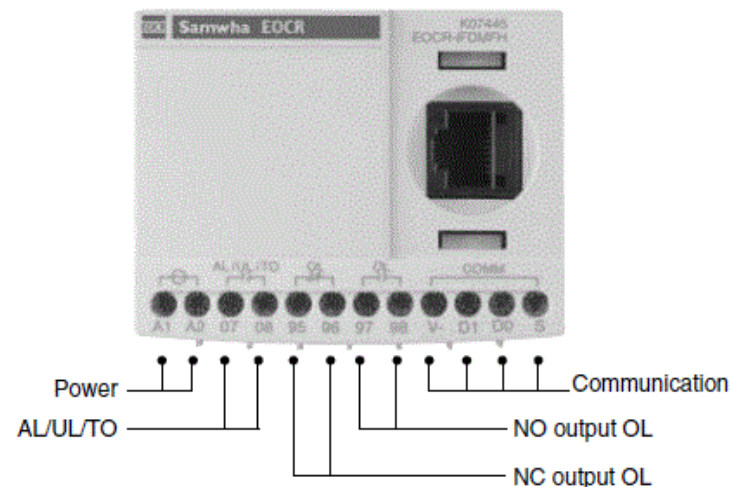
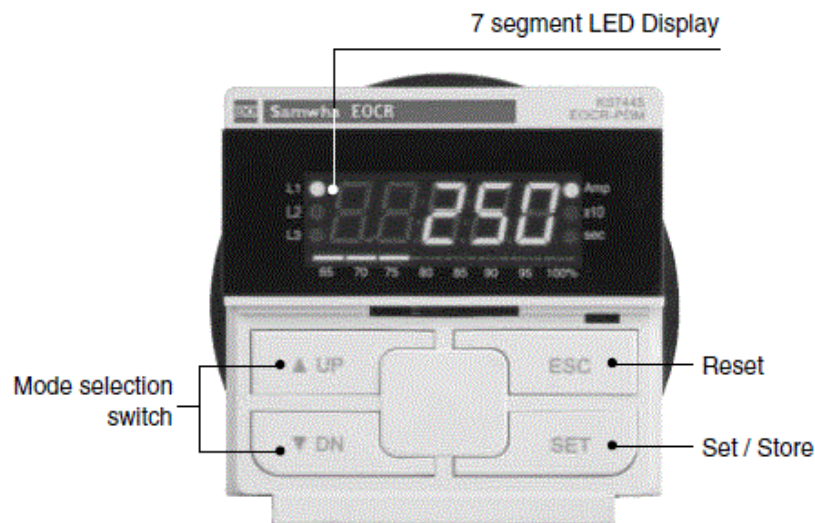
- Micro-Controller Unit based
- Real time processing / High precision
- Protections : Over current, Under current, Phase loss, Phase reversal, Stall, Jam, Current imbalance, Earth fault (i3MZ/iFMZ), Short circuit (i3MS/iFMS)
- Thermal protection / Inverse available up to 32Amps without external CTs.
- Auxiliary functions : Fail safe, Pre-alarm (i3DM/iFDM), Accumulated running hour, 3 fault records & limitation of auto-restart. Analog output (i3M420/iFM420).
- Communication : Modbus / RS-485
- Reinforced monitoring function : Monitoring distance up to 400M, 3 phase current display, Pre-alarm (i3DM/iFDM) & Trip cause indication
- Bar graph indication of a load current to the current setting.
- Available application on single and 3 phase motor
- RoHS Compliance
- For iFDM/iFMZ/iFMS/iFM420, normal protections are guaranteed even if PDM is disconnected.

Protection functions : ป้องกันอะไรได้บ้าง?

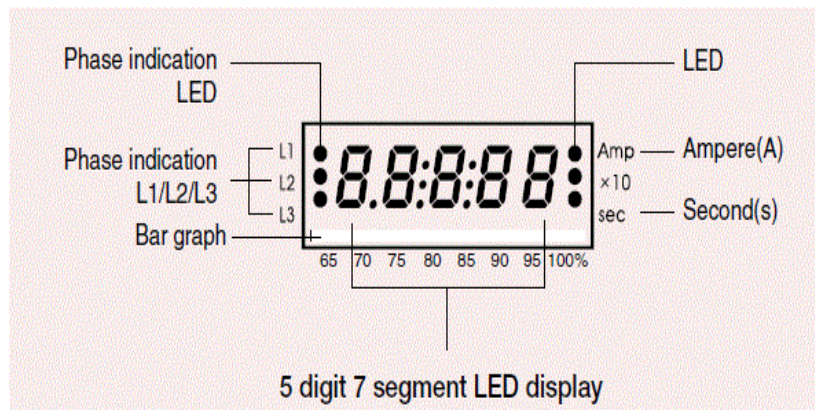
Protection item	Condition & Setting range	Operation time
Over current (oc)	Condition : Load current (In) exceeds setting current (Is) Setting range : 0.5~60A (Def), 0.5~32A (Inv & th)	Definite (Def) : 0.2~30s Adjust. Inverse (Inv) & Thermal (th) : 1~30 class
Under current (uc)	Condition : Load current (In) less than setting current $In \leq uc$ uc should be less than oc setting	oFF, 1~10s Adjustable
Phase loss (PL)	Condition : max imbalance is more than 85% among 3 phase current, Enable or disable : Selectable	oFF, 0.5~5s Adjustable
Reverse phase (RP)	Condition : Reversed phase sequence input on EOCR. Enable or disable : Selectable	Within 0.15s
Stall (Sc)	Condition : $In \geq$ Stall current setting (Sc). Active only in motor starting 0.5~30A : 2~8 times of oc setting ~40A : 2~6 times, ~60A : 2~4 times.	Right after D-time elapsed
Jam (JA)	Condition : $In \geq$ Jam current setting (JA). Active only in motor running 0.5~50A : 1.5~5 times of oc setting ~60A : 1.5~4 times of oc setting	0.2~5s Adjustable
Imbalance (IM)	Condition : Current imbalance $\geq$ Setting imbalance % Setting range : 10~50% of imbalance	1~10s Adjustable
Earth fault (EF)	Condition : EF current (Ie) exceeds setting current (Ies) OFF, 0.03~10A	0.05~5s Adjustable -- i3MZ/iFMZ only --
Short circuit (SH)	Condition : SC current (Is) exceeds setting current (Iss) 0.5~10A : 2~22 times of oc setting, ~20A : 2~11 times of oc setting	0.05sec -- i3MS/iFMS only --

Password	For secured setting parameters
Communication	Monitoring currents and trip status by network
Phase selection	For single phase / three phase motor selection
TCC selection	Available three time-current-characteristics (Definite, Inverse, Thermal inverse)
CT ratio	For the current setting more than 60A (20A : i3MS/iFMS) and less than 0.5A
Fail safe selection	Fail safe operation for OL trip output
Pre alarm selection	Pre alarm signaling by the 07-08 output contact -- i3MS/iFDM only --
Total running hour	Total accumulated running hour from the installation which cannot be modified and reset .
Running hour	Display or provied a time-out signal to the 07-08 output contact. -- i3MS/iFDM only --
Reset mode	Manual / Auto / Electrical ; selectable
Trip cause memory	Store the latest 3 trip causes
Restart limitation	The maximum auto-restart number within 30 minutes in auto-reset mode.

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3 phase load currents (I_n) and a leakage current are displayed every 2 seconds in sequence



Bar graph

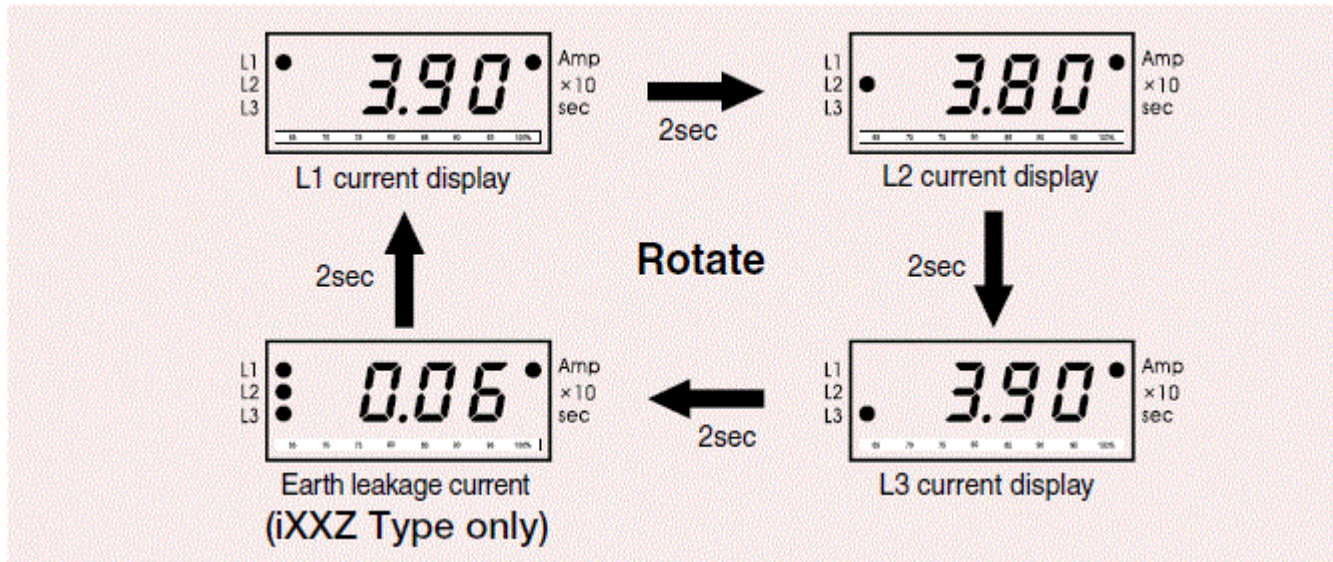
- ❖ it shows the load factor to OC setting value by %
- ❖ $\% \text{ value} = (\text{running current} / \text{setting current}) * 100\%$
- ❖ Min scale is 65%
- ❖ if the setting value is the rated motor current, it shows the load factor of the motor.

Current Display

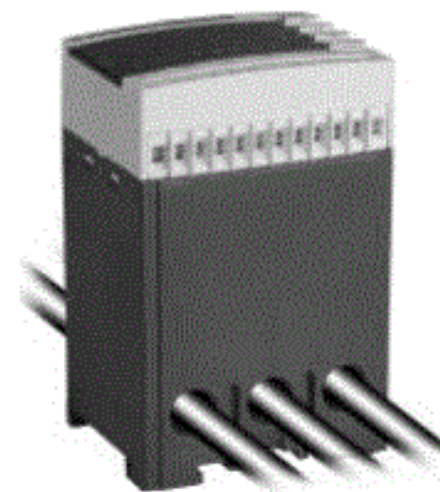
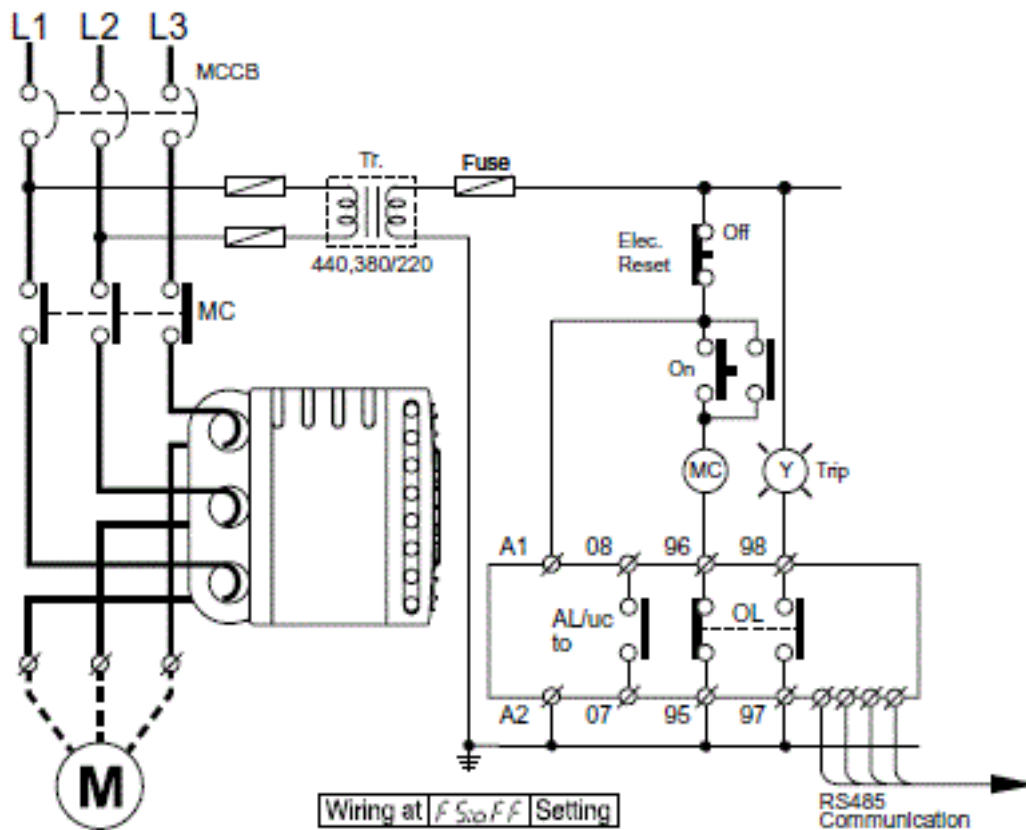
- ❖ Shows the highest current among three phases for OC, Stall, Jam trips.
- ❖ Shows the lowest current among three phases for UC, UB
- ❖ Shows the lost phase for PL.
- ❖ Shows the phase and the current during running.

Amp : Ampere. LED is on when a current display. x 10 : Shows the unit changed to 10 times.

Sec : Second. LED is on when a time display.



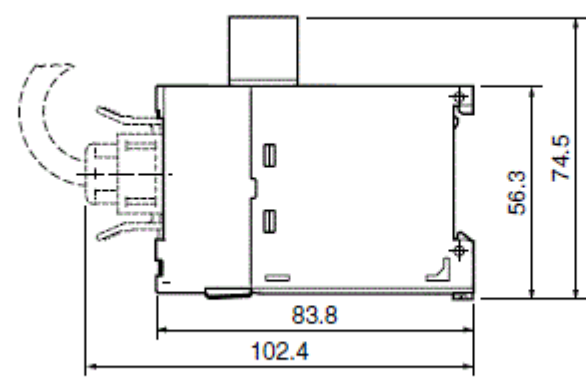
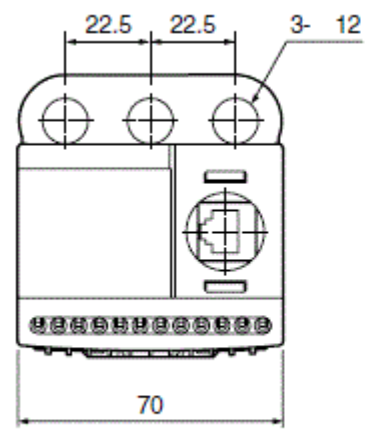
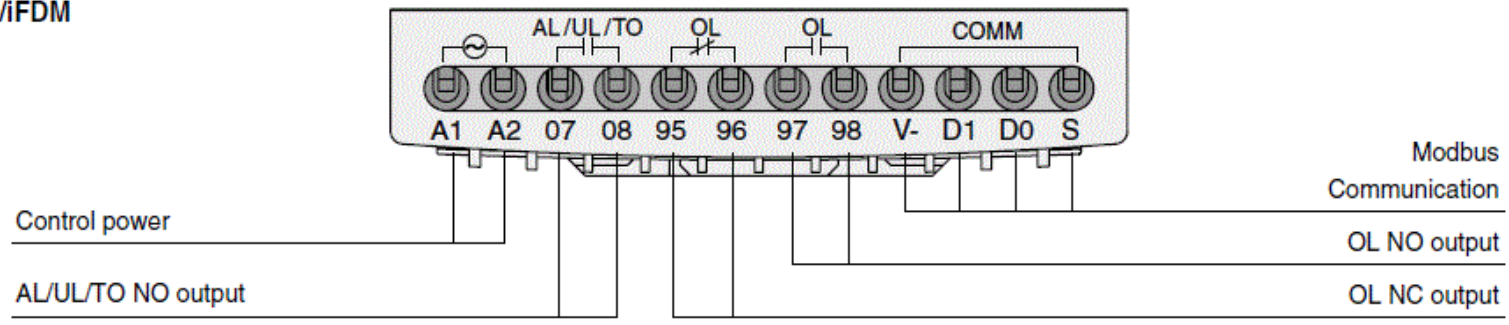
หน้าจอ LED จะแสดงค่ากระแสเมื่อมีกระแสไหลผ่าน โดยจะบอกค่ากระแสมอเตอร์ทั้ง 3 เฟส สลับหมุนวนไปทุกๆ 2 วินาที



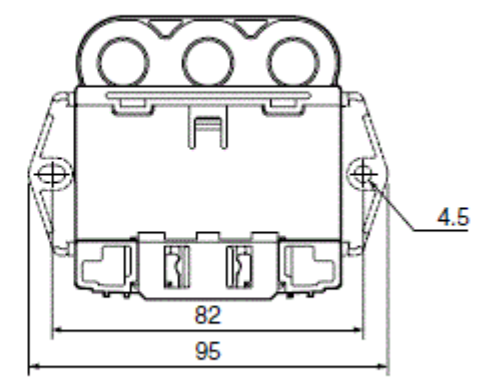
Bottomhole type

Terminal ขั้วต่อสาย และ ขนาด

EOCR-i3DM/iFDM



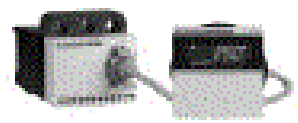
PANEL & DIN RAIL TYPE



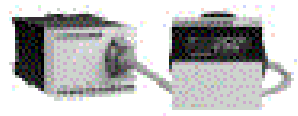
MOUNTING HOLE SIZE

รหัสอักษรแต่ละตัวหมายถึงอะไร?

EOCR-IFXX



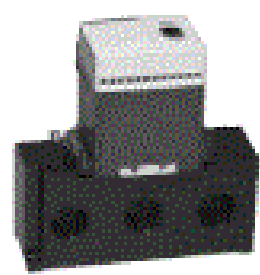
Window CT



Bottom CT



Terminal



External CT combination type

IFDM - WR D U W Q

① ② ③ ④ ⑤ ⑥

①	Model name	iFDM	Basic model
		iFMZ	GF model
		iFM420	4~20mA output model
		iFMS	SC model
②	Current Range	WR	0.5~60A
			0.5~20A (iFMS)
		H1	100:5 3CT combination type
		HH	150:5 3CT combination type
		H2	200:5 3CT combination type
		H3	300:5 3CT combination type
③	Output contact type	iFMZ	A a(97-98) :OC, a(57-58) : GR
			C b(95-96), a(97-98) : OC.GR common
			D b(95-96) :OC, a(57-58) : GR
		D	b(95-96), a(97-98)
④	Control voltage	B	24VAC/DC
		U	100~240VAC/DC
⑤	CT type	W	Window type
		H	Bottom hole type
		T	Terminal type
⑥	Export code	Q	

Order code :

EOCR-iFDM-WRDUH+ Cable RJ45-003

EOCR-iFDM → Basic model

WR → Current range 0.5-60A

D → Contact type b(95-96), a(97-98)

U → Control voltage 100-240 VAC/DC

H → CT Type Bottom hole type

Cable RJ45-003 → Cable 3 m.

รหัสการสั่งซื้อ :

EOCR-iFDM-WRDUH+ Cable RJ45-003

EOCR-iFM420 → ชนิด มี Analog 4~20mA

WR → ย่านพิสัยการใช้งานกระแส 0.5..60 A

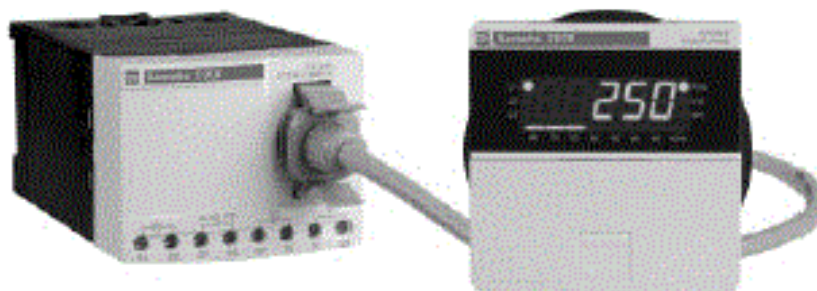
D → รูปแบบหน้ารีเลย์ b(95-96), a(97-98)

U → แรงดันไฟเลี้ยง 100-240 VAC/DC

H → CT เป็นชนิดมีรูร้อยสายอยู่ด้านใต้

Cable RJ45-003 → สาย RJ45 ยาว 3 เมตร

EOCR-FDM2 Bottom hole type



Option

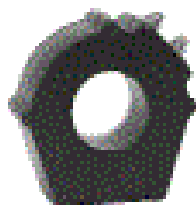
Cable connector



CABLE - **RJ45** - **001**

①	Connector type	RJ45	
②	Cable length	00H	0.5 m
		001	1 m
		01H	1.5 m
		002	2 m
		003	3 m
		Others	Custom made

ZCT



ZCT - **035**

①	Inner-diameter	035	35mm
		080	80mm
		120	120mm