

DIGITAL OVER & UNDER CURRENT RELAY

MODEL : ECR-3DD

(Electronic Over & Under Current Relay with Ammeter, Digital Type)

◆ INTRODUCTION

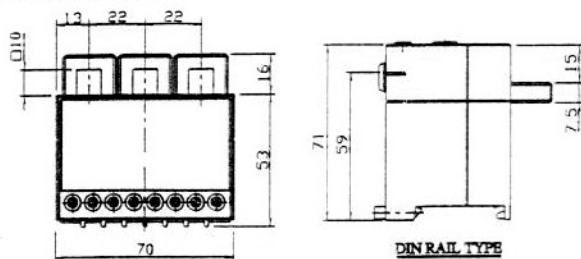
- DIGITAL MULTIFUNCTIONAL PROTECTIVE RELAY BASED ON MICROPROCESSOR. (OVER & UNDER CURRENT, PHASE LOSS, PHASE UNBALANCE, PHASE REVERSE, ALERT, NO VOLT RELEASE, MANUAL RESET & TEST)

1. The real currents of 3 phases are displayed on the screen(FND) in sequence.
2. Adjustment control knob for overcurrent, undercurrent, delay time & operating time.
3. High reliability.
4. Every trip is identified by LED on the screen.
5. Alert at 90% of overcurrent setting value.
6. DIP switches enable Fail-Safe, phase reverse protection, definite/inverse time and U-time.

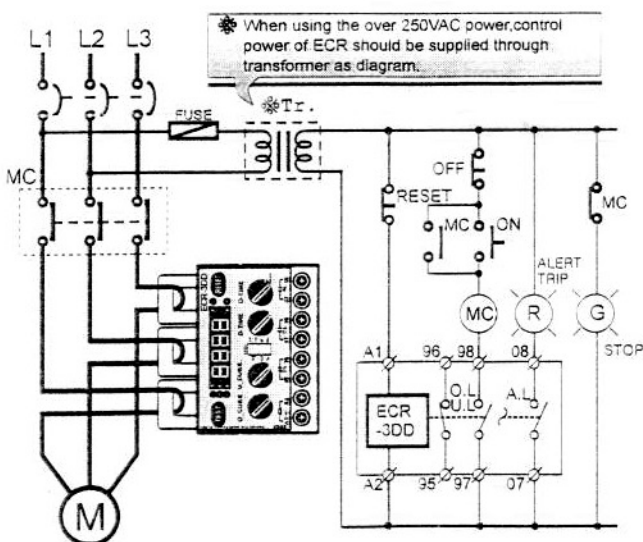
◆ USAGE

Overload and idle running protection of motor.
Undercurrent protection of load.
(Heater disconnection & Cut-off of belt for belt driven load)

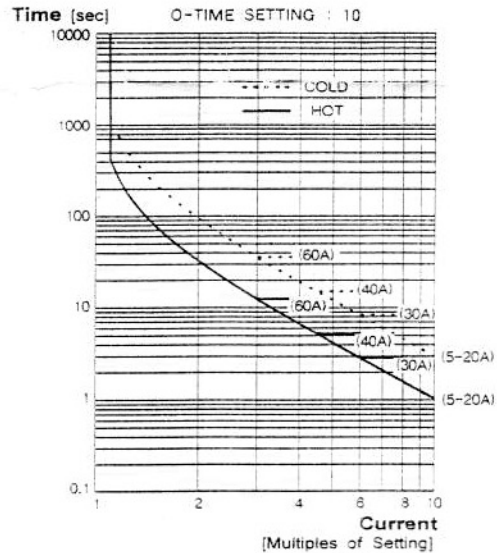
◆ DIMENSION



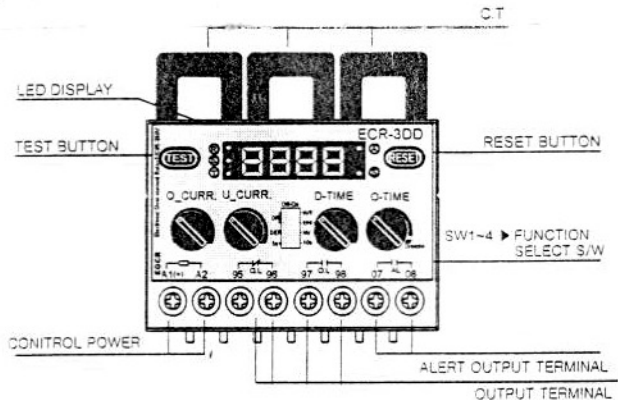
◆ TYPICAL APPLICATION DIAGRAM



◆ INVERSE TIME CURVE



◆ CONSTRUCTION



- S/W1 : NVR(fail safe) select s/w. [On/Off]
- S/W2 : RPR(reverse phase) select s/w. [On/Off]
- S/W3 : O-TIME select s/w. [Definite/Inverse]
- S/W4 : U-time select s/w [5sec/10sec ; s/w3 On]
[O-TIME ; s/w Off]

◆ ORDERING METHOD

ECR - 3DD - 05 - 220

- ① Digital Time Type Over & Under Current Relay
- ② Current Adjustment Range
 - ▶ 05 : 0.5~6A/10A
 - ▶ 60 : 5~60A
 - ▶ Over 60A : Fitted with external CT
- ③ Control Voltage
 - ▶ 220 : 85~250VAC/DC 50~60Hz
 - ▶ 24VAC/DC is option

◆ SPECIFICATION

ITEM		TYPE	ECR-3DD	
◆ Protection	FND indication	Operation		
Overcurrent	O-current	O-Time delay	If turn the adjustment control knob or depress test button, setting or preset value will be displayed on the screen(FND indication).	
Undercurrent	U-current	- s/w3 Off : O-TIME - s/w3 On : 5s/10s	- Over current : can select definite or inverse time by the S/W3 - Under current : definite time can select 5s/10s by the s/w4 in case s/w3 On	
Phase Loss	- PL -	4 sec	When phase failure, phase loss operates in case the current of normal phase exceeding 1A(05 type).	
Phase Reverse	- RP -	operate within 0.1sec	Selected by S/W2	
Locked Rotor	L-current	operate just after prese D-Time	In case of actual current more than 300% of overcurrent setting value	
Undercurrent setting	Same as overcurrent setting, but notice that			this function will be operated by lower current than setting current.
Alert	A -	90% of O.C setting (Fixed)	A.L CONTACT 07 — — 08 In case that / When No current flowing detected Current flowing detected Load current exceeds 95% of overcurrent setting Relay trips	[A.L Relay] : OPEN : CLOSE : Output pulses once a second : Output pulses twice a second
Phase Unbalance	U-current	In case of over 50% of current difference between phases, operates after 8 seconds delay	$\frac{\max[A] - \min[A]}{\max[A]} \times 100\% > 50\%$	
NVR No voltage release (Normally energized)	When NVR SW ON, output contact 95 — — 96 opens and 97 — — 98 closes under the normal control voltage and internal circuit condition. It guarantees perfect protection from control voltage failure and even ECR failure. If NVR SW off, this function will be ignored.			
RESET	manual reset	Manual reset by reset button on unit or remote interruption of control power supply.		
TEST	before MOTOR starting	When depressing TEST button, the symbols and numbers are displayed on the screen (FND indication) in sequence like "c"→"u"→"d"→"o"→"TEST". After setting with turning volume knob in sequence, let it alone for 3 seconds at "TEST" mode and O-Time is countdown, and "END" is displayed on the screen and auxiliary relay operates then. It is reset by depressing the reset button on the right side.		
	after MOTOR starting	If currents are detected by CTs, auxiliary relay(A.L) 07 — — 08 is energized. And in case that the load current is equal to or higher than 95% of preset overcurrent value, aux-relay will switch on and off in every 1 second. When device is operated by overload or underload, 07 — — 08 contact will pulses twice a second. When depressing TEST button, the display sequence is same as "before Motor starting", but output relay is not energize.		
◆ Description				
Current Adjustment Range	▶ 05 : 0.5~6A/10A ▶ 60 : 5~60A / ▶ 100 : 10~100/120A ▶ 200 : 20~200/240A ▶ 300 : 30~300/360A ▶ 400 : 40~400/480A		Rated insulation voltage	600VAC
Starting delay (D-Time)	1~120sec(definite) or 0~120sec(inverse) Adjustable "D-Time" should be exactly adjusted for motor run-up time.			
Operating Time	0.3 - 25sec(definite) or 0 - 30sec(inverse) adjustable.			
Control Voltage (Free Voltage)	220 : 85~250VAC/DC ※ 24VAC/DC is option	Output Contacts	Overcurrent Relay(OL) : 2-SPST 250VAC/3A, Resistive (1-NO & 1-NC) Alert Relay(AL) : SPST 250VAC/3A, Resistive	
Accuracy	Current Tolerance	±5%	Time Tolerance	±(5% + 0.5) sec
Environments	Temp.	Running : -20℃ ~ 70℃	Humidity	45~85% RH Non-condensing
		Store : -30℃ ~ 80℃		
Insulation	Between casing & circuit : over 10MΩ DC 500V			
Dielectric Strength	1) Between casing & circuit : AC 2000V, 60Hz, 1min 2) Between open contact : AC 1000V, 60Hz, 1min 3) Between circuit : AC 2000V, 60Hz, 1min		Power Consumption	Less than 2W
			Mounting	35mm DIN rail



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