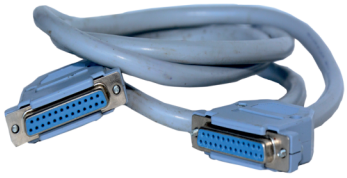
minilec®

MICROCONTROLLER BASED MOTOR PROTECTION RELAY

D3 MPR1

D5 MPR1

D3 DMPR1



D5 DMPR1

F3 MPR1

WARRANTY - AGAINST ALL MANUFACTURING DEFECTS FOR 18 MONTHS FROM DATE OF SUPPLY OR 12 MONTHS FROM INSTALLATION WHICHEVER IS EARLIER

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1. INTRODUCTION :

Thank you for selecting and purchasing minilec make mico-controller based motor protection relay. It uses state of the art digital technology to measure various parameter of the motor and take corresponding corrective actions. The system consists of hardware design to provide high degree of accuracy and reliability. The micro-controller based protection ensures high accuracy and disturbance free operation.

FUNCTIONS :

SR.NO.	PROTECTIONS	SR.NO.	FEATURES
1.	Over load	1.	Password Protection
2.	Current Unbalance	2.	Full load Current settable
3.	Current Single Phasing	3.	Ext. CT selectable
4.	Phase reverse	4.	IDMTL curve selection
5.	Lock Roter / Short circuit / stalling	5.	2 CO potential free contact outputs
6.	Under Current	6.	Protections with bypass facility (if not required)
7.	Over Current	7.	LED indication for power on & trip
8.	Earth Fault	8.	Status mode showing load current
9.	Winding temp. (F3 MPR1)	9.	Parameter setting through LCD & key board
		10.	Operation on wide range auxiliary supply
		11.	Default factory setting or site selectable Parameter
		12.	Fault logging of last 10 faults
		13.	Start up delay settable

ASSUMPTION TO BE CONSIDERED DURING SETTING PARAMETER OR DURING ANY WORKING CYCLE :

1. Default password is 0000. After installation of unit, change the password and keep it in safe hand. Master Password is 8679.
2. Auto exit option is enabled during setting mode, if user not presses any key up to 30 sec, then controller save current setting and exit from setting mode.
3. A n IDMTL characteristic (as per selection) is always enabling during Motor ON.
4. All faults are to be resetted manually by pressing ▼ & **ENTER** key simultaneously.
5. Power ON indication is continuously ON when supply is present. It will be in flashing state if any protection is bypassed .
6. Test function is provided to check healthiness of unit. To enable test parameter press menu & ▲ key simultaneously for 4 sec. It is recommended to use this during motor off condition.

2. OPERATING MODES :

STEPS TO ENTER IN SETTING MODE :-

1. After giving the power supply to the unit message on LCD display is:

MINILEC D5 MPR1	MINILEC D3 MPR1

2. Second message on display (assume that system supply is absent and other healthy conditions) is 3-ph current in scrolling manner.

R-Ph / L1 00.0

3. After the above messages press **MENU** key. You will get message

Set Mode PASSWORD

4 . Press **ENTER** and you will get message on display

ENT PSW XXXX

5. Type the password using Up/Down keys (▲/▼). To shift to second digit press **ENTER** key. After entering correct password, you will go in setting mode.
   Setting mode has following menu. You can see this mode on LCD display by pressing UP (▲) key. You can select particular mode and can set parameters as per requirements.

SET CURRENT	OVER LOAD	START UP DELAY	UNDER CURRENT
OVER CURRENT	UNBALANCE CURRENT	CURRENT SINGLE PHASING	REVERSE PHASING
LOCK ROTOR	EARTH FAULT	NEW PASSWORD	FACTORY SETTING

6. Select any one of the mode by pressing (▲/▼). For entering in particular menu press **ENTER** key. Details are given below.

CURRENT PROTECTION :

1. SET CURRENT :

a. Select the SET CURRENT option from setting parameter by using **ENTER** key.
   After pressing **ENTER** key you will get message

FLC XXX.XX

   Set the full load current by using ▲/▼ & **ENTER** key.

b. By pressing **ENTER** key you will come out of this mode and shows next setting mode.

c. Then press **ENTER** key, you will get message

FLC XXX.XX

Set the full load current by using ▲/▼ & **ENTER** key.

d. By pressing ENTER key you will come out of this mode and shows next setting mode.

2. OVER LOAD :

a. Select over load parameter by pressing **ENTER** key.

b. After pressing **ENTER** key display shows

OVER LOD BYPS = NO

Press ▲/▼ keys to set YES / NO.

c. After pressing **ENTER** key display shows

OVER LOD RST = MAN

Press ▲/▼ keys to select Auto / Manual reset.

d. After pressing **ENTER** key display shows

IDMTL CHAR XX S

You can select IDMTL curve 2 / 5 / 10 / 20 / 30 sec as per requirement by using ▲/▼ keys. Press **ENTER** key to save selected curve.

3. START UP DELAY :

a. After pressing **ENTER** key you will get message

Set Mode STRT DLY

b. After pressing **ENTER** key you will get message

STRT DLY XXX Sec

c. Set delay using ▲/▼ keys. Press **ENTER** key to save setting. You will enter in next mode.

Note: During start up delay, fault condition is ignored for set start up delay time. Hence one has to decide start up delay setting depending on the application. This delay not applicable for single phasing, reverse phasing fault, earth fault.

4. UNDER CURRENT :

a. After pressing **ENTER** key you will get message

Set Mode UND CURT

b. After pressing **ENTER** key you will get message

UND CURT BYPS = NO

Use ▲/▼ keys to set YES / NO.

c. After pressing **ENTER** key you will get message

UND CURT Trp = XXX %

Set trip setting using ▲/▼ keys & press **ENTER** key.

d. Next message on display is

UND CURT RST = MAN

Set Auto / Manual reset type using ▲/▼ keys.

e. Next message on display is

UND CURT Tdly = XX S

Set trip delay using ▲/▼ keys & press **ENTER** key.

5. OVER CURRENT :

Setting procedure is same as **UNDER CURRENT**.

6. UNBALANCE CURRENT :

This is percentage unbalance current calculated as per IEEE std.
Setting procedure is same as **UNDER CURRENT** (Trip delay is fixed 04 sec).

$$\% \text{ UB} = \frac{\text{Max. deviation with ref.to Average current value}}{\text{Average current value}} \times 100$$

7. SINGLE PHASING :

a. Select the SINGLE PHASING Parameter from setting mode by using **ENTER** key. You will get message

Set Mode CURT SP

b. After pressing **ENTER** key you will get message

CURT SP BYPS = NO

Press ▲/▼ keys to select bypass YES / NO.

c. After pressing **ENTER** key you will get message

CURT SP RST = MAN

Set Auto / Manual reset type using ▲/▼ keys.

d. After pressing **ENTER** key you will get message

CURT SP Tdly = 04 sec

Parameter in this mode is fixed. Press **ENTER** key

8. REVERSE PHASING :

a. Select the REVERSE PHASING Parameter from setting mode by using **ENTER** key. You will get message

Set Mode REV PHSE

b. You need to retype password to enter in this mode.

ENT PSW XXXX

c. After entering password, you can enable / disable Reverse Phase Protection feature by selecting YES or NO using ▲/▼ keys.

REV PHSE BYPS = NO

d. After pressing **ENTER** key, you will get message

REV PHSE RST = MAN

You can set Auto / Manual using ▲/▼ keys.

9. LOCK ROTOR :

a. Select Lock Rotor parameter from setting mode using **ENTER** key. You will get message.

Set Mode LOCK RTR

b. After pressing **ENTER** key you will get message.

LOCK RTR BYPS = NO

You can set YES / NO using ▲/▼ keys.

c. After pressing **ENTER** key you will get message.

LOCK RTR Trp = XXX %

Select the required % setting using ▲/▼ keys.

d. After pressing **ENTER** key you will get message.

LOCK RTR RST = MAN

Set Auto / Manual using ▲/▼ keys.

e. After pressing **ENTER** key you will get message

LOCK RTR Tdly = 01 Sec

Trip delay is fixed < 2 Sec for this fault. After pressing **ENTER** key you will enter in next mode.

10. EARTH FAULT :

a. Select EARTH FAULT parameter from setting mode by using **ENTER** key. You will get message

Set Mode ERTH FLT

b. After pressing **ENTER** key, you will get message

ERTH FLT BYPS = NO

You can set YES / NO using ▲/▼ keys.

c. After pressing **ENTER** key you will get message

ERTH FLT Trp = XXX%

Select the required % setting using ▲/▼ keys.

d. After pressing **ENTER** key you will get message

ERTH FLT RST = MAN

Set Auto / Manual using ▲/▼ keys.

e. After pressing **ENTER** key you will get message

ERTH FLT Td = XX.X S

Set trip delay using ▲/▼ keys.

f. After pressing **ENTER** key you will get message

ERTH FLT CBCT=X A

Select CBCT 1A / 5A according to application. After pressing **ENTER** key you will enter in next mode.

11. NEW PASSWORD SETTING OPTION :

a. Select this NEW PASSWORD Option from setting mode by using **ENTER** key.

b. After pressing **ENTER**, you will get message on LCD

NEW PSW XXXX

You can set your new password using ▲/▼ keys. To shift to next digit press **ENTER** key.

c. After setting new password press **ENTER** and you will get,

CNFM PSW XXXX

You can confirm your new password using ▲/▼ keys. To shift to next digit press **ENTER** key.

d. After confirmation press **ENTER** key you will get,

Your PSW Changed

After this press **ENTER** key to save new password and to go in next mode.

12. FACTORY SETTING :

a. Select FACTORY SETTING option from setting mode by using **ENTER** key. You will get message

Set Mode Fact Set

b. After pressing **ENTER** key, display will show

Press ENT key

c. To activate FACTORY SETTING, press **ENTER** key, (Still you want to continue with earlier setting wait 30 sec to auto exit) you will get message

Active in Nxt cycle

STATUS MODE :-

a. To see the three-phase current, press ▲ key. You will enter in status mode and message on LCD,

Sts Mode MOTR PAR

b. On pressing ▲ key you will see message

3 Ph Inst CURT VAL

c. By pressing **ENTER** key, you will see message

R-ph / L1 XX.X

Display will be scrolling for R-ph, Y-ph, B-ph and displaying instantaneous values of current.

d. You can escape from this by pressing menu key or go in fault log mode by pressing ▲ key.

FAULT LOG :-

By pressing **ENTER** key you can see logs of faults in LIFO manner. You can also see current values at the time of fault occurred by pressing **ENTER** key. Last 10 number of faults are stored which can be seen with the help of ▲ ▼ **ENTER** keys.
You can escape from this by pressing menu key 2 times.

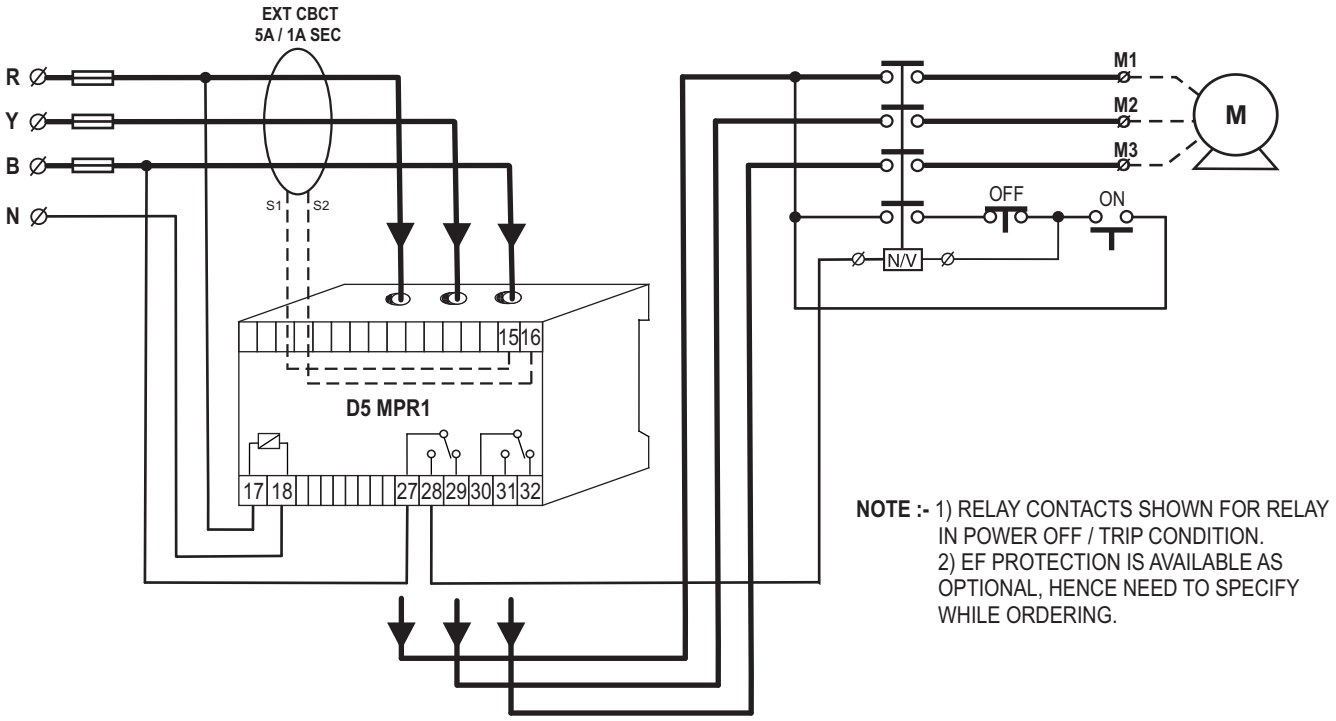
3. TROUBLE SHOOTING :

1. P.ON indication not glowing.
a. Check auxiliary supply as mentioned on the unit.
b. Check all wiring and connections. There should not be any loose connection.
2. Trip LED indication glowing.
a. Current SP / UB fault.
I. Check for phase loss.
II. Check the current unbalance between the phases. Do the setting as per the unbalance or wait till it normalizes.
b. Phase Reverse fault.
I. Check for phase sequence if it is incorrect. Correct the same. Also check the current direction through unit. Current direction should be uniform.
c. Overload fault.
I. Check set current. It should be equal to nominal full load current of Motor.
II. If it is not as per FLC then correct the same through setting parameters.
III. Also check IDMTL curve selection.
d. Lock Rotor fault.
I. Check load current of motor & rotor movement.
II. Set start up delay properly.
e. Under current fault.
I. Check whether motor running on no load.
II. Check Under Current trip setting.
f. Over Current fault.
I. Check FLC setting & Over Current trip setting.
II. Set start up delay properly.
g. Earth fault.
I. Check CBCT current output. If get output after resetting then there must be current leakage in further connection. So repair this and test again.
II. Set trip setting & trip delay properly.
3. Apart from the above mentioned observations if any fault continue after suggested trouble shooting then contact Minilec.

ABBREVIATION USED :

MOTR	- MOTOR	MOTR PAR	- MOTOR PARAMETERS
PSWD / PSW	- PASSWORD	Inst curt val	- INSTANTANEOUS CURRENT VALUE
CURT	- CURRENT	Flt Log	- FAULT LOG
FLC	- FULL LOAD CURRENT	CNFM PSW	- CONFIRM PASSWORD
IDMTL	- INVERSE TIME CHARACTERISTICS	Fact set	- FACTORY SETTING
UB CURT	- UNBALANCE CURRENT	ENT KEY	- ENTER KEY
Tdly	- TRIP DELAY	Nxt cycle	- NEXT CYCLE
CURT SP	- CURRENT SINGLE PHASING	Sts Mode	- STATUS MODE
REV PHSE	- REVERSE PHASING	BYPS	- BYPASS
ENT PSW	- ENTER PASSWORD	LOCK RTR	- LOCK ROTOR
STRT DLY	- START UP DELAY	NEW PSWD	- NEW PASSWORD
OVR CURT	- OVER CURRENT	UND CURT	- UNDER CURRENT
EF	- EARTH FAULT		

EXTERNAL WIRING DIAGRAM :



NOTE :- 1) RELAY CONTACTS SHOWN FOR RELAY IN POWER OFF / TRIP CONDITION.
2) EF PROTECTION IS AVAILABLE AS OPTIONAL, HENCE NEED TO SPECIFY WHILE ORDERING.

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PRODUCT SPECIFICATION :

1. Aux Supply : 90 - 270VAC DC
2. Relay Output : 2 CO
3. Contact Rating : 5A @ 240VAC (Resistive)
4. Life Expectancy : 0.5 X 10^6 operations at 100% rating
5. Setting Parameters :

Sr. No.	Parameters	Range	Resolution	Fact Setting	Trip Delay Range	Fact Setting	Bypass Facility	Reset Type
1	CT Range	35 - 175 Amp	1 Amp	100 Amp	NA	NA	NA	NA
2	Over Load	Above 115% of Set Value	NA	NA	IDMTL class 2, 5, 10, 15, 20, 30 sec	2 sec	Yes	Auto / Manual
3	Start up delay	0 - 60 sec	1 sec	10 sec	NA	NA	NA	NA
4	Under Current	30 - 174 Amp	2 Amp	50 Amp	1 - 60 sec	5 sec	Yes	Auto / Manual
5	Over Current	110 - 350%	5%	200%	1 - 10 sec	2 sec	Yes	Auto / Manual
6	Current Unbalance	20 - 60%	5%	50%	4 sec Fixed (+/- 1 sec)	4 sec	Yes	Auto / Manual
7	Current Single Phasing	Yes	NA	NA	4 sec Fixed (+/- 1 sec)	4 sec	Yes	Auto / Manual
8	Reverse Phase	Yes	NA	NA	Instant (< 2 sec)	NA	Yes (Password Protected)	Auto / Manual
9	Rotor Lock	200 - 800%	50%	700%	Instant (< 2 sec)	NA	Yes	Auto / Manual
10	Earth Fault (Optional)	10 - 100%	10%	30%	0.5 - 10 sec	0.5 sec	Yes	Auto / Manual

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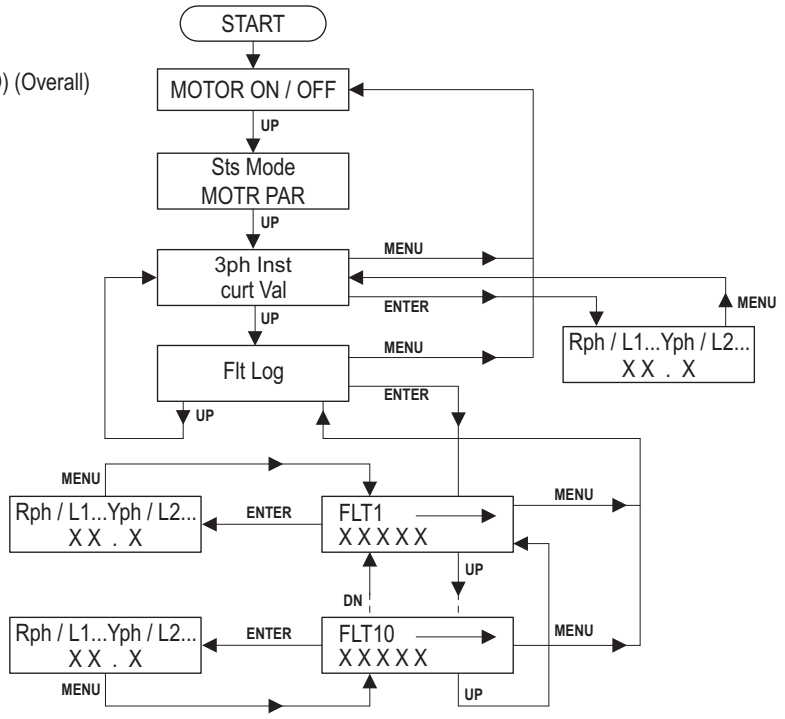
11	Stalling	200 - 800%	50%	700%	Instant	NA	Yes	Auto / Manual
12	Short Circuit	600 - 999%	50%	800%	Instant(<2sec)	NA	Yes	Auto / Manual
1	D3 MPR1 - CT Range	upto 60 amps	1 Amp	100 Amp	NA	NA	NA	NA
1	CT Range	upto 60 amps	1 Amp	100 Amp	NA	NA	NA	NA

6. Default Reset Type : Manual (By front ▼ + ENT keys)
7. Test Mode : Available (By front Menu + ▲ keys)
8. Display : 8 X 2 AN LCD
9. Display Parameters : Rotational display of each phase current (R-L1 / Y-L2 / B-L3)
10. Setting / Display Accuracy : + / - 5% (+ / - 0.1 digit) at rated current
11. CT : Inbuilt through hole 175 Amp (R / Y / B)
12. Fault Log : For last 10 faults
13. Indications : Power On - Green
    Trip - Red
14. Enclosure : ABS (DIN Mounting)
15. Dimensions (mm) : 73 (H) X 150 (L) X 113 (D) (Overall)
16. Unit Weight : 600 gms (Approx)
17. Operating Conditions
    Temperature : -5° C to +60° C
    Humidity : Up to 85% Rh

STATUS MODE FLOWCHART :



WARRANTY - AGAINST ALL MANUFACTURING DEFECTS FOR 18 MONTHS FROM DATE OF SUPPLY OR 12 MONTHS FROM INSTALLATION WHICHEVER IS EARLIER

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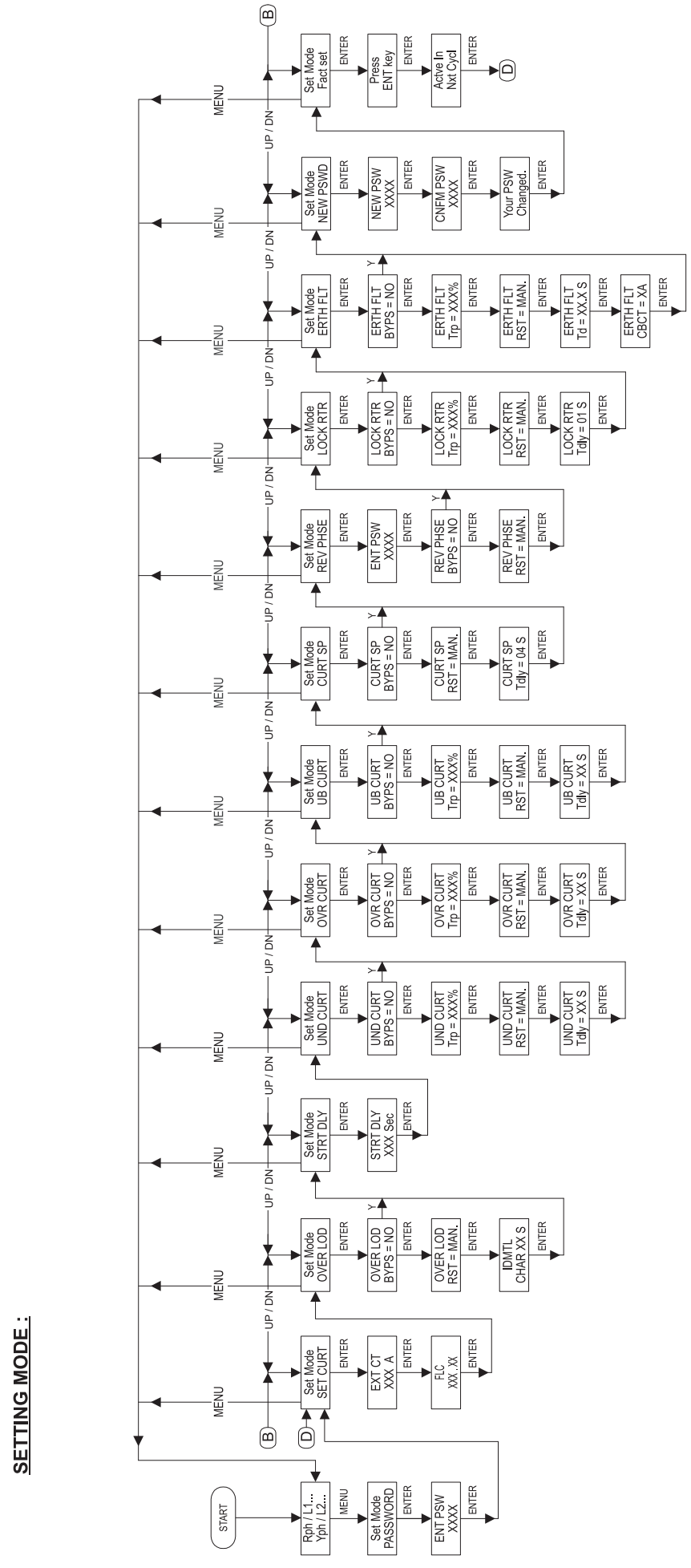
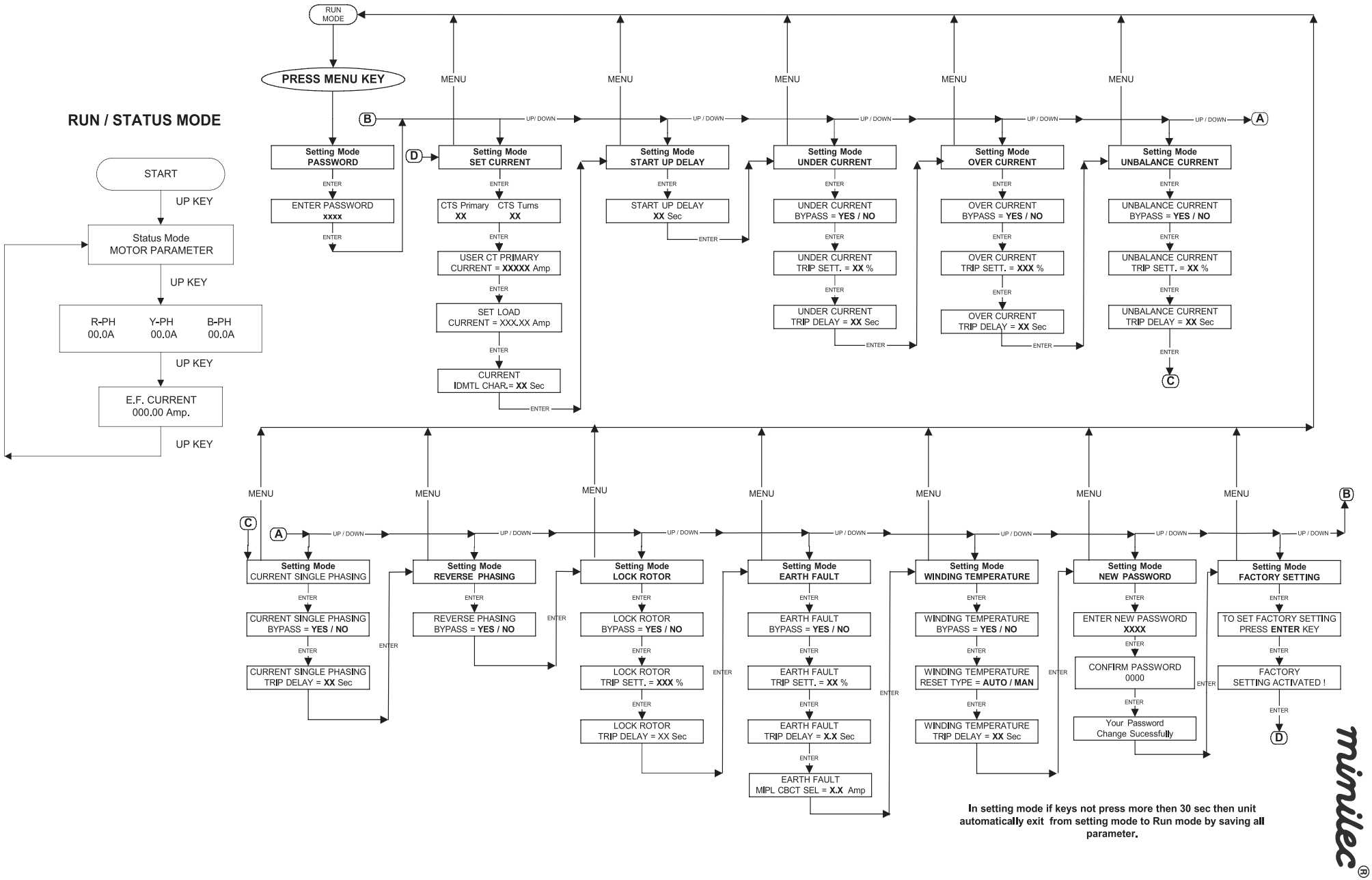
D3 MPR1 / D3 DMPR1 / D5 MPR1 / D5 DMPR1

SETTING MODE :



F3 MPR1

SETTING MODE



RUN / STATUS MODE

In setting mode if keys not press more then 30 sec then unit automatically exit from setting mode to Run mode by saving all parameter.

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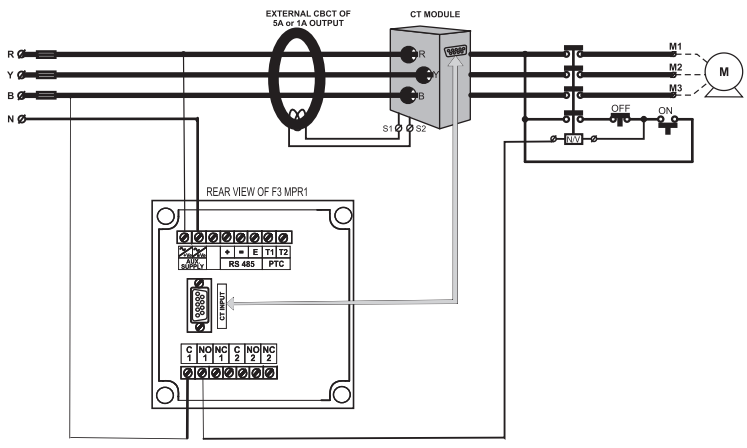
GENERAL SPECIFICATIONS FOR μC BASED F3 MPR1

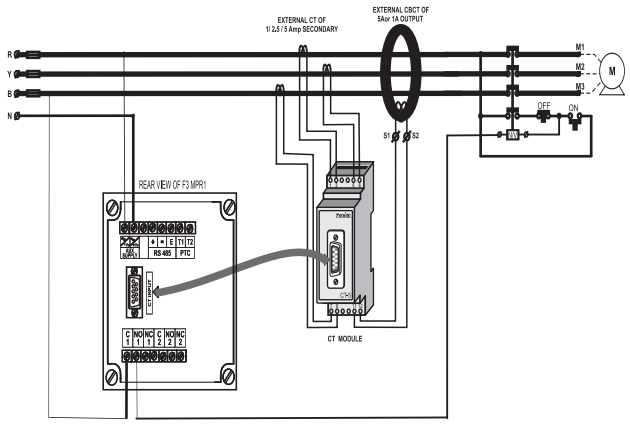
SR. NO.	PARAMETER	DESCRIPTIONS
1	SYSTEM SUPPLY VOLTAGE	220 - 440 VAC ± 20%
2	AUXILARY SUPPLY VOLTAGE	90 - 270 VAC [FREQ.: 45 - 65 Hz] / DC
3	RELAY CONTACT	2 CO
4	OUTPUT CONTACT RATING	5 AMP, 230 VAC (RESTIVE)
5	PTC TEMPERATURE RANGE	70 °C TO 180 °C
6	EXTERNAL CT FOR CURRENT PROTECTION	CT – 1 / 2.5 / 5 / 20 / 50
7	EARTH FAULT CURRENT I/P	10% TO 100% OF 1A / 5A [SELECTABLE]
8	SERIAL COMMUNICATION	PROVISION OF 485 O/P
9	INDICATIONS:	
	1) POWER ON	POWER ON [STEADY ON]
	2) TRIP	TRIP
10	DISPLAY	PROVISION OF (16 X 2) LCD DISPLAY
11	RESETTING	BY FRONT (UP + DOWN) KEYS
12	POWER SAVING MODE	AFTER 5 MINUTES (ONLY WHEN UNIT IS IN RUN MODE)
13	OPERATING CONDITIONS:	
	A) TEMPERATURE	0 °C TO 60 °C
	B) HUMIDITY	UPTO 95% RH
14	ENCLOSURE	F3 SERIES ABS
15	MOUNTING DIMENTIONS:	
	A) OVER ALL (H x W x L)	(96 x 96 x 80) MM
	B) MOUNTING	PANEL MOUNTING
16	WEIGHT APPROX.	400 GMS.

DETAIL SPECIFICATIONS FOR μC BASED F3 MPR1

PROTECTION PARAMETER	TRIP SETTING RANGE				RESET TYPE SETT.		TRIP TIME DELAY		LCD DISPLAY
	RANGE	STEPS	FACT.	SETTING	FACT.	KEYPAD	FACT.	KEYPAD	
START UP DELAY: -	0 - 240 SEC	1S FOR 0 - 60S, 10S FOR 61 - 240S	10 SEC	KEY PAD	N.A.	N.A.	N.A.	N.A.	START UP DELAY
1) CT PRIMARY RATIO	1 / 2.5 / 5 / 20 / 50	1 / 2.5 / 5 / 20 / 50	20 A	KEY PAD	NA	NA	N.A.	N.A.	CT PRIMARY RATIO
2) FULL LOAD CURRENT	40% - 100% OF CT PRIMARY	10%	40%						FULL LOAD CURRENT
3) OVERLOAD TRIP SETTING AS PER IDMTL CHAR. (SEC)	2 / 5 / 10 / 15 / 20 SEC	2 / 5 / 10 / 15 / 20 SEC	2 SEC		MAN	NA	AS PER IDMTL CHAR		OVER LOAD
4) UNBALANCE TRIP SETTING	20% - 60%	10%	50%		Multi Attempt		3 SEC	1-10 SEC	CURRENT UB
5) SINGLE PHASING	N.A.	N.A.	N.A.	N.A.			3 SEC	1-10 SEC	CURRENT S.P.
6] REVERSE PHASING	N.A.				MAN	NA	INSTANT	N.A.	REVERSE PHASING
7] UNDER CURRENT	30% - 90%	5%	50%	KEY PAD	Multi Attempt		5 SEC	1-60 SEC	UNDER CURRENT
8) OVER CURRENT	300% - 800%	100%	500%				2 SEC	2-25 SEC	OVER CURRENT
9) LOCK ROTOR	200% - 800%	100%	600%		MAN	N.A.	2 SEC	1-10 SEC	ROTOR LOCK
10) EARTH FAULT SETTING	10% TO 100%	10%	30%		MAN	N.A.	< 1 SEC	0.5-10 SEC	EARTH FAULT
THERMISTOR: -									
1) PTC TEMP. RANGE	70 °C TO 180 °C								
2) PTC HEALTHY	50 Ω – 4 KΩ	N.A.	N.A.	N.A.	AUTO	AUTO / MAN	10 SEC	1-20 SEC	SENSOR HEALTHY
3) PTC FAULTY A) SHORT B) OPEN	A) BELOW 50 Ω B) ABOVE 5.6KΩ								TEMP SENSOR FAIL
4) PTC TRIP	4.1 KΩ – 5.5 KΩ								TEMPARATURE HIGH
5) RESET A) 1/3 PTC B) 6/9 PTC	A) 1.5 KΩ - 1.8 KΩ B) 2.2 KΩ - 2.8 KΩ								
SET ACCURACY	±5 % OF SET VALUE								
DISPLAY ACCURACY	±2% OF DISPLAY VALUE								



EXTERNAL WIRING DIAGRAM WITH CT - 20 or CT-50 MODULE AND 5 Amp SECONDARY CBCT (PROTECTION CLASS 5P)FOR EARTH FAULT.



EXTERNAL WIRING DIAGRAM WITH CT- 1, CT- 2.5, CT-5 MODULE AND 5 or 1 Amp SECONDARY CBCT (PROTECTION CLASS 5P)FOR EARTH FAULT.

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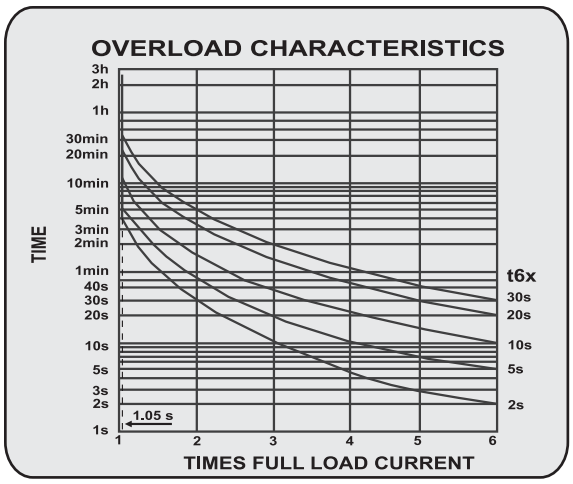
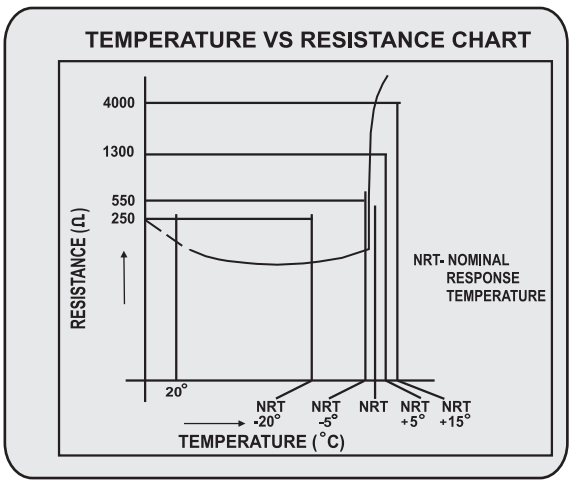
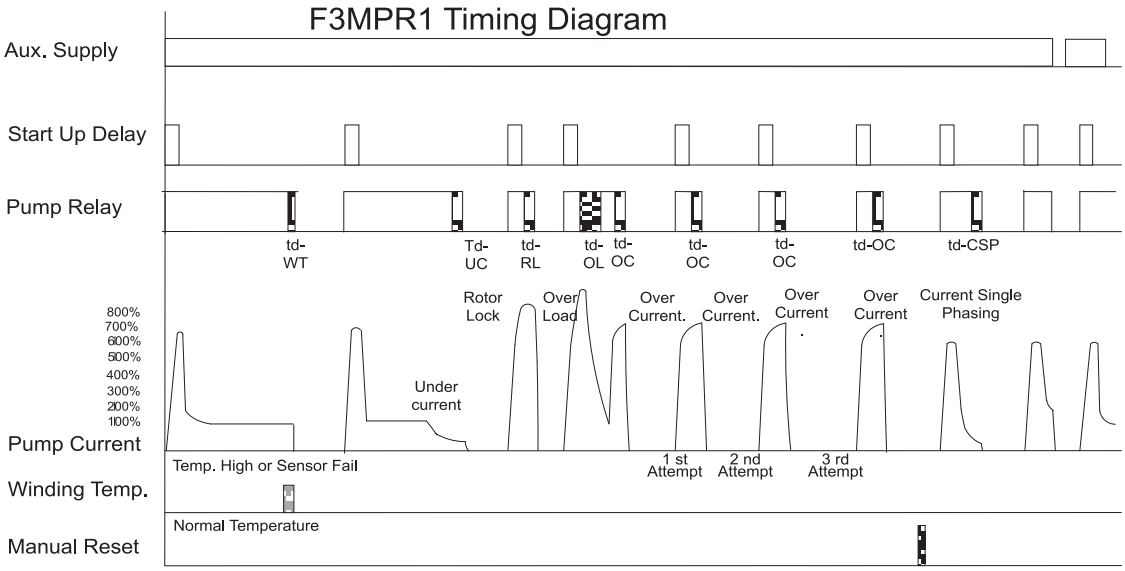
F3 MPR1

OVER LOAD GRAPH



TEMPERATURE VS RESISTANCE GRAPH

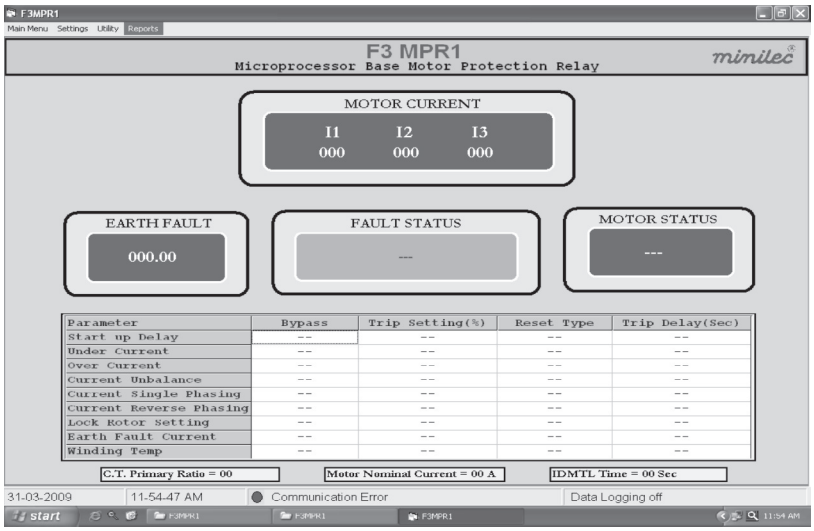




Abbreviations: td - Trip delay, WT - Winding temperature, UC - Under current, CSP - Current single phasing, OC - Over current, OL - Over load as per IDMTL.

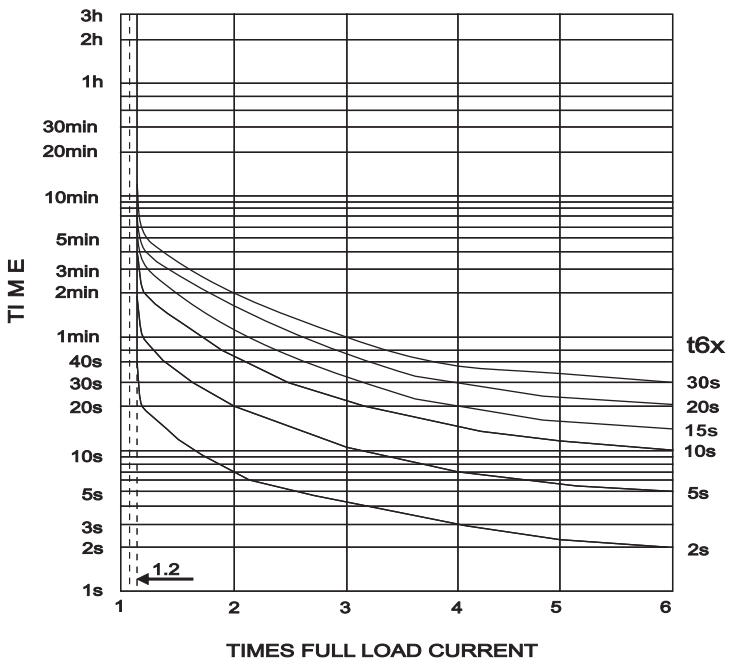
PC CONNECTION - (RS 485):-

Your F3MPR1 comes with RS 485 output port . Just convert to Rs 232 by using serial converter . User can use this output to give signal to their PC with suitable software. Minilec can provide it`s standard software upon request at additional cost .Alternately user can also built their PC side software as per their requirements.

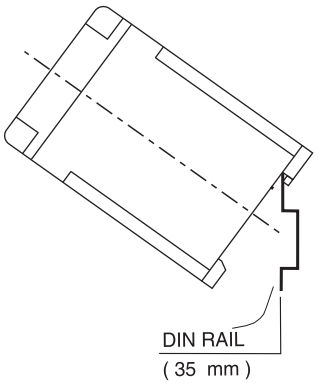


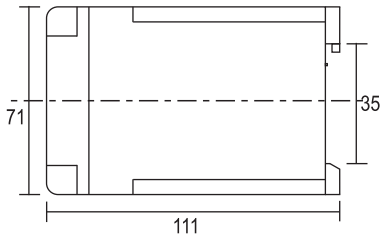
WARRANTY - AGAINST ALL MANUFACTURING DEFECTS FOR 18 MONTHS FROM DATE OF SUPPLY OR 12 MONTHS FROM INSTALLATION WHICHEVER IS EARLIER

OVERLOAD (IDMTL) CHARACTERISTICS:



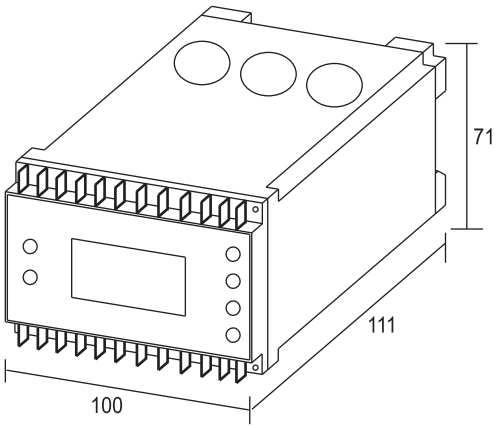
DIN RAIL MOUNTING:





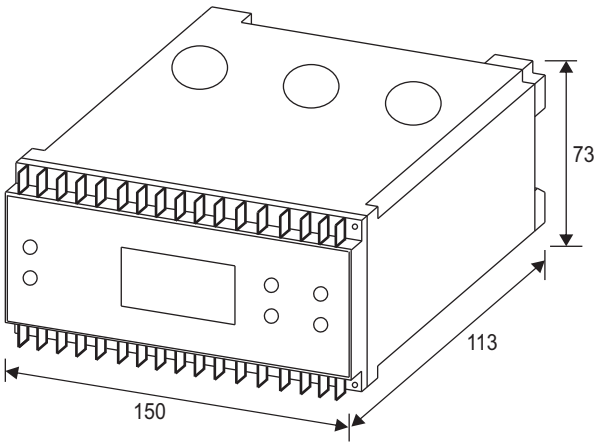
D3 MPR1 / D3 DMPR1

OVERALL DIMENSION:

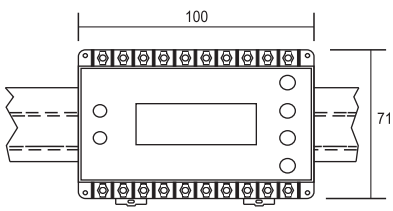


D5 MPR1

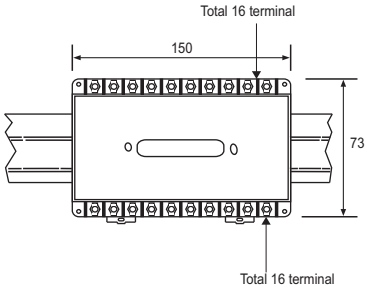
OVERALL DIMENSION:



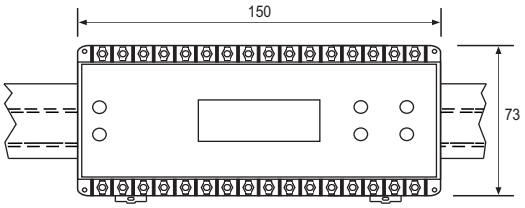
D3 MPR1 / D3 DMPR1

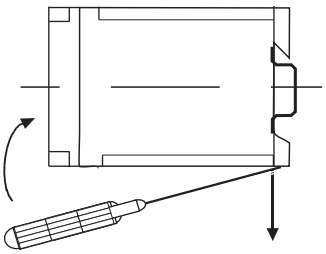


D5 DMPR1



D5 MPR1





USE SCREW DRIVER NO. 936
OR EQUIVALENTTO PUSHTHROUGH
THE SLOTAS SHOWN

minilec®

INSTALLATION INSTRUCTIONS FOR D3 MPR3

INTRODUCTION

Thank you for selecting and purchasing **MINILEC** make Motor Protection Relay.

The following installation instruction would guide you in installing your D3 MPR3 making the best use of it.

This unit offers protection against-

* OVERLOAD.
* PHASE LOSS.
* CURRENT UNBALANCE.

This is an auxiliary relay and it should be used along with starter only. The effective working of the unit will depend on efficient working of the starter. Before installing your unit check whether the starter is operating perfectly by starting with the "ON" push button and switching off by "OFF" push button. If the operation of START and STOP are imperfect the starter needs to be serviced. Do not install your unit with faulty starter.

CAUTION ⚠

1. Ensure that the above relay is-

* Not installed near any heat sources like Burner, Sunlight, Electric arc etc.
* Not subjected to abnormal vibrations.
* Installed as near to starter as possible.

* Not subjected to Direct heat, sunlight, rain, stormy wind and Dust.

2. Working of the product is affected by the frequency variation and harmonic distortion in applications like Genset Supply or UPS Supply. Care should be taken to ensure that the net resultant unbalance Supply is not beyond the unbalance trip limits of your unit.

3. If the product is not installed as per guideline given by Minilec, Our company will not be responsible for any wrong connection, damage, Injury, accident etc.

ELECTRICAL CONNECTION

See Fig. 1 for installation of the unit in the power and control wiring.

Connect Auxiliary supply voltage at terminal 11 &12 as marked on side cover plate of the unit. Connect 3Ø current input (R-Y-B) as per shown in wiring diagram.

The output relay contacts 15 & 16 are to be connected in series with the no volt coil of the contactor.

Remote Reset facility is provided at terminal 13 & 14

MOUNTING

This model is suitable for Din Rail or Panel mounting.

WARRANTY

AGAINST ALL MANUFACTURING DEFECTS FOR 18 MONTHS FROM DATE OF SUPPLY OR 12 MONTHS FROM DATE OF INSTALLATION WHICHEVER IS EARLIER

MANUFACTURED BY:

minilec®

www.minilecgroup.com

S. NO. 1073/ 1-2-3, AT POST : PIRANGUT, TAL: MULSHI, DIST: PUNE (INDIA) PIN : 412 111

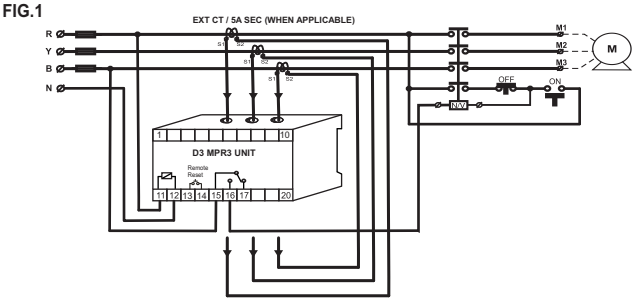
VERSION 01 (13/ 01/ 19)

INSTALLATION INSTRUCTION MANUAL FOR MOTOR PROTECTION RELAY

D3 MPR3

ELECTRICAL CONNECTION IN POWER & CONTROL WIRING FOR D3 MPR3

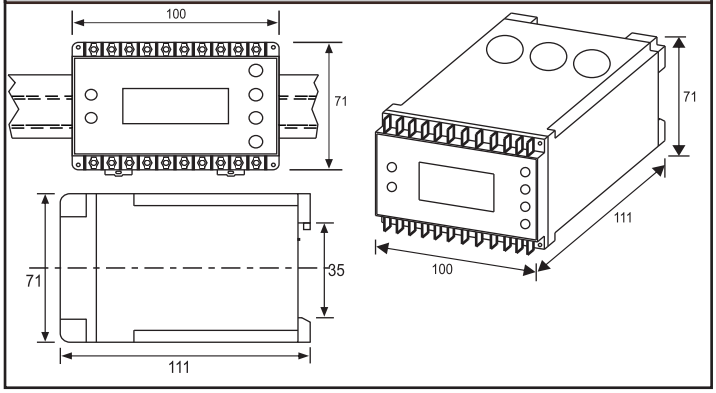
FIG.1



NOTE :- 1) EXTERNAL CT OF SEC 5A TO BE CONNECTED IN POWER WIRING WHEN RATED CURRENT > 100A
2) RELAY CONTACTS SHOWN FOR UNIT IN POWER OFF / TRIP CONDITION.

SR. NO.	PARAMETERS	D3 MPR3
1.	SYSTEM SUPPLY VOLTAGE	415 VAC ± 20%
2.	AUX. SUPPLY	110 / 240VAC ± 20%
3.	FREQUENCY	50 Hz / 60 Hz ± 3%
4.	OUTPUT RELAY CONTACTS	1CO
5.	OUTPUT CONTACT RATING	5 Amp, 240VAC [RESISTIVE]
6.	RATED I/P CURRENT	5A / 20A / 50A / 100A (OPTIONAL)
7.	FLC SETTING	20% TO 110% of Rated Current
8.	CURRENT UB TRIP SETTING	50% of FLC ± 10% (fixed)
9.	OVERLOAD TRIP SETTING	As per Inverse Time Charc' 10Sec fixed
10.	TRIP TIME DELAY PHASE LOSS (SP),UNBALANCE(UB) OVERLOAD	4 SEC ± 1 SEC. AS PER IDMTL CHARC' - 10SEC
11.	INDICATIONS 1) ON (RUN MODE) 2) SP / UB 3) OL	 GREEN (STEADY ON) RED (STEADY ON / FLASHING) RED (STEADY ON)
12.	TEST / RESET	MANUAL (PUSH BUTTON ON UNIT), REMOTE RESET
13.	ENCLOSURE	D3 - ABS ENCLOSURE
14.	DIMENSIONS(L X W X D)(mm)	71 x 100 x 111
15.	MOUNTING	35mm DIN RAIL MOUNTING
16.	WEIGHT (APPROX.)	350 gms.
17.	OPERATING CONDITIONS	TEMPERATURE = -5 °C TO +60 °C HUMIDITY = UPTO 95% Rh.

MOUNTING DIMENSIONS

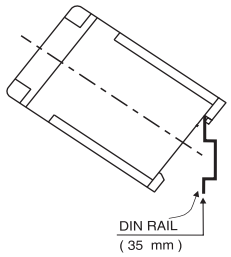


TESTING PROCEDURE

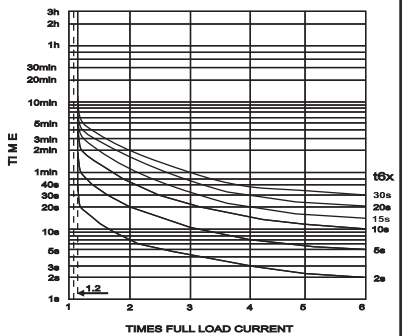
If you need to test the functioning of D3 MPR3 without connecting it in the control circuit of the motor starter. Provide Auxiliary supply 110 / 240 VAC at terminals 11 & 12 of the unit. Check the output relay contacts at 15 & 16. Indication 'P.ON' (Green LED) should be ON. Press TEST push button on the front plate of the unit. Wait for 4-7 sec, check discontinuity at terminals 15 & 16 of the unit.Also LED indication SP/UB and OL should be ON. Reset your D3 MPR3 by either pressing RESET push button on Front plate of the unit OR by shorting terminals 13 & 14 of the unit.

If these operations are perfect, connect your D3 MPR3 in the Motor Circuit. Consult MINILEC if you find any irregularities in the above mentioned operations.

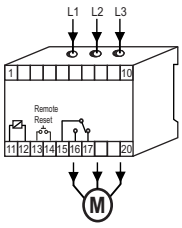
MOUNTING ON DIN RAIL



OVERLOAD (IDMTL) CHARACTERISTICS



CONNECTION DIAGRAM



AUX. SUPPLY : 90 - 270VAC / DC

NOTES :-

- RELAY CONTACTS SHOWN IN POWER OFF CONDITION
- TERMINAL DETAILS:
  11-12 : AUX.SUPPLY
  13-14 : REMOTE RESET
  15-16-17 : C1-NO1-NC1
- EXT. CT OF SEC. 5A TO BE CONNECTED IN POWER WIRING WHEN RATED CURRENT > 100 Amp

INDICATIONS :

P. ON - POWER ON
SP/UB - SP (STEADY ON) / UB (FLASHING)
OL - OVER LOAD TRIP

RATED CURRENT	5 Amp
	20 Amp
	50 Amp
	100 Amp

Instructions for Screw Gun torque adjustment –

- Torque should be 1 Nm max.
- Max 2.5 sq. mm size wire can be used.

WEEE (Waste Electrical & Electronic Equipment) Regulations: After end of equipment life, recycle or disposal needs to ne done as per guidelines or handover it to Ewaste processing authorized agencies. For more details contact us.

WARRANTY - AGAINST ALL MANUFACTURING DEFECTS FOR 18 MONTHS FROM DATE OF SUPPLY OR 12 MONTHS FROM INSTALLATION WHICHEVER IS EARLIER

www.minilecgroup.com

Minilec (India) Pvt. Ltd.

Factory & Head Office: S. No. 1073/1-2-3, At Post: Pirangoot, Pune 412 111, India