

Installation Manual for CFTDPR4

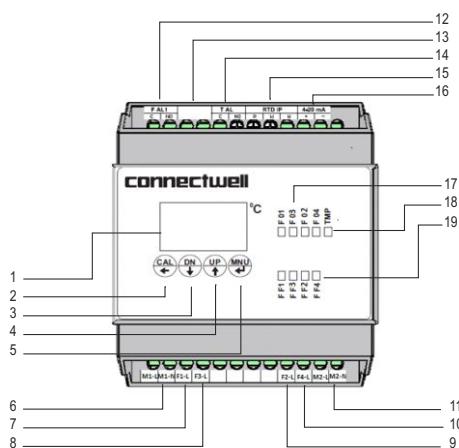
KEYS	DESCRIPTION
1 TEMPERATURE DISPLAY	Shows Temperature and Fan Current read out in 3 digits.(Temp = 0 to 100 deg C & Current = 0 to 750 mA)
2 BACK / CAL	This is multi-function press button switch. It functions as Back or Escape when in Menu Operation. Function as Reset key to come out from fan faulty condition. Function as Calibration key. Long press- to enter fan calibration mode.
3 DOWN	This is dual function press button switch. It functions as DOWN scrolling when in Menu Operation and when not in MENU operation, shows set temperature limit value and further key presses displays fan currents in following sequence. : SET TEMP > FAN1 CURRENT > FAN2 CURRENT > FAN3 CURRENT > FAN4 CURRENT
4 UP	This press button switch functions as UP scrolling when in Menu Operation.
5 MENU/ ENTER	This is dual function press button switch. It displays MENU parameters in Menu Operation and acts as SAVE when any parameter values are changed.
CONNECTIONS	DESCRIPTION
6 M1-L , M1-N	AC Power for FAN1 and FAN3, and Unit. For connecting line and neutral of Single Phase AC Power(100VAC-240VAC).
7 F1-L	For connecting Line of FAN1, Regular fan channel
8 F3-L	For connecting Line of FAN3, Regular fan channel
9 F2-L	For connecting Line of FAN2, Redundant fan channel
10 F4-L	For connecting Line of FAN4, Redundant fan channel
11 M2-L , M2-N	AC Power for FAN2 and FAN4 and Unit. For connecting line and neutral of Single Phase Redundant AC Power(100VAC-240VAC).
12 F1FLT	Fan fault signal relay contact termination. C=Common contact and NO=Normally open contact of the signal relay. Default setting is nC. In healthy condition(fan running current is below the set current) alarm contacts will be closed.
13 NC	NOT APPLICABLE
14 TFLT	Temperature fault signal relay contact termination. C=Common contact and NO=Normally open contact of the signal relay. Default setting is nC. In healthy condition(ambient temp. is below set temp.)alarm contacts will be closed.
15 RTD I/P	3- Wire RTD Sensor Input.
16 4-20mA	Current Source point. For 2 wire configuration connect load between I+ and I-. Ambient Temperature (0-100 degree) proportional DC current (4-20 mA) output.
17 FAN STATUS LEDs	These are dual colour Fan Status LEDs respective to each fan, for details refer below Table 1
18 TEMP STATUS LED	The OFF status of Red LED shows that the ambient Temperature is below SET TEMP and ON status shows ambient Temperature has risen above SET TEMP.
19 FUSE STATUS LEDs	The Red LED "ON" state Indicates fuse is blown of respective fan. It will be OFF for few seconds during Auto restart operation even though fuse is blown.

A	CONNECTIONS
1	Connect 230 VAC Power Line and Neutral at 6
2	Connect 230 VAC Fans FAN1 at 7, FAN3 at 8. Loop Neutral of Fan externally AC Power.
3	Connect 230 VAC Redundant AC Power Line and Neutral at 11
4	Connect 230 VAC Fans FAN2 at 9 , FAN4 at 10. Loop Neutral of Fan externally Redundant AC Power.
5	Connect 3 wire RTD provided with correct polarity at 15
6	Connect 4-20 mA load at 16
7	Make appropriate termination at 12 for Fan Alarm
8	Make appropriate termination at 14 for Temperature Alarm
	Note: IF 2 FAN OPERATION IS SELECTED IN P24, CONNECT FAN1 7 AND FAN 2 9

C	OPERATION LOGIC - FAN REDUNDANCY
1	On every fresh/ first powering ON of the module, RTD Temperature is checked and displayed on 1
2	<p>1) All the fans will be switched ON FAN STATUS LEDs 17 will start blinking for around 15 seconds. After this stage based on the system configuration system update the LED status of the fans as per the Table 1.</p> <p>a) If the Amb Temperature is below SET TEMP then the LEDs of FAN2 and FAN4 will be OFF and LEDs of FAN1 and FAN3 will turn into solid Green and Temperature Alarm, and Fan Fault Alarm Relay contact will be closed position</p> <p>b) If the Amb Temperature is above SET TEMP then the LEDs of FAN2 and FAN4 will be turned ON, LEDs will turn into solid Green. All Fans will be running continuously. The TEMP LED 18 will be ON and Temperature Alarm Relay contacts will become open.</p> <p>2) If any or all Fan(s) are not connected then the LEDs of FAN1, FAN2, FAN3 and FAN4 will turn into solid Red. After every 30 Seconds it will power ON the ports to check if Fan(s) are connected. During this process the status LEDs will start blinking in Green.</p>
4	1) During running if any Fan(s) get overloaded then the respective Fan Status LED(s) will turn into solid Red and after predefined duration respective Fan port will be turned OFF(for FAN2 and FAN3 only) and Fan Alarm Relay contacts will become open. The Alarm Relay position will remain continue till the system finds healthy Fan.
5	Upon failure of MAINS1 6 (FAN1 and FAN3 are connected) the respective Fan Status LEDs of FAN1, FAN3 will turn into solid Red and FAN2 and FAN4(Connected to Redundant AC Power) will be turned ON and Fan Fault Alarm Relay contacts will become open.

B	FAN CURRENT CALIBRATION (STORE FAN CURRENT INTO THE SYSTEM)
1	After completing the connections as per Connections steps, switch on Both AC Power and AC Redundant Power. And makes sure all the fans are working conditions.
2	To enter into the "FAN CALIBRATION MODE" press and hold "CAL" 2 for 7 seconds.
3	Once system entered in "FAN CALIBRATION MODE" display will shows "Str", and all fans will be powered up for around 1 minute. Once Fans nominal operating currents are stored into the system, system display will show "done" for a few seconds and automatically comes out of "FAN CALIBRATION MODE" mode.

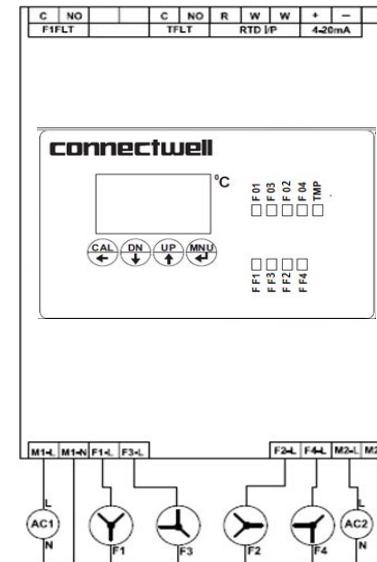
Mode	LEDs	LED Indication	Functions Assigned
Auto	F01,F02, F03,F04	LED Green Fast Blinking	Fan just turned ON, System waiting stage.
		LED Green Solid	Fan are in healthy level, and are monitoring
		LED Red Solid	Fan faulty, fan currents are not monitoring
Manual		LED Green fast Blinking	Fan just turned ON, System waiting stage.
		LED Green Slow Blinking	Fan are in healthy level, and are monitoring
		LED Red Slow Blinking	Fan faulty, fan currents are not monitoring



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MENU FUNCTIONS			
Parameter	Value	Description of function	Factory default
P01	Auto > Manual	mode of operation: Auto: automatically take reference current of the fans by module. Manual: User either have to input reference current for each fans or store from the running fans connected to module by pressing "CAL" button.	Manual
P02	00 > 100	Set the desired Temperature limit (In Degrees Centigrade).	40
P03	1 > 2 > 3	Recover method from fault condition 1: Upon fault condition of the fan, Alarm state will change but power to that fan will not be disconnected. Restart the Device to recheck fan current again. 2: Upon fault condition of the fan, Alarm state will change and power to that fan will be disconnected (NOT APPLICABLE FOR FAN1, FAN3). Press "CAL" key to switch on particular fan and recheck fan current again. 3: Upon fault condition of fan, Alarm state will change and power to that fan will be disconnected (NOT APPLICABLE FOR FAN1, FAN3). After interval of ~30 seconds system recheck the fan condition again by switch on the fan automatically.	2
P04	Individual > All	Reference current setting: ind: Individual fan current entry All: All fan current entry in single parameter	ind
P05	25 > 800	Fan1 / All fan Reference current(I_{R1})	100
P06	25 > 800	Fan3 Reference current(I_{R3})	100
P07	25 > 800	Fan2 Reference current(I_{R2})	100
P08	25 > 800	Fan4 Reference current(I_{R4})	100
P09	03 > 25	Fan1 over current cut off limit hysteresis in percentage / ALL fans(+3% to +25% of I_{R1})	5
P10	03 > 30	Fan1 under current cut off limit hysteresis in percentage / ALL fans(-3% to -30% of I_{R1})	24

Parameter	Value	Description of function	Factory default
P11	03 > 25	Fan3 over current cut off limit hysteresis in percentage (+3% to +25% of I_{R3})	5
P12	03 > 30	Fan3 under current cut off limit hysteresis in percentage (-3% to -30% of I_{R3})	24
P13	03 > 25	Fan2 over current cut off limit hysteresis in percentage(+3% to +25% of I_{R2})	5
P14	03 > 30	Fan2 under current cut off limit hysteresis in percentage(-3% to -30% of I_{R2})	24
P15	03 > 25	Fan4 over current cut off limit hysteresis in percentage(+3% to +25% of I_{R4})	5
P16	03 > 30	Fan4 under current cut off limit hysteresis in percentage(-3% to -30% of I_{R4})	24
P21*	AA > AB > BA > BB	AA=FAL1 is set as alarm for any fault conditions of F1,F2,F3,F4 fans & FAL2 is disabled. AB=FAL1 is set as alarm for any fault conditions of F1,F3 and FAL2 is set as alarm for any failure of F2,F4 AB=FAL1 is set as alarm for any fault conditions of F2,F4 and FAL2 is set as alarm for any failure of F1,F3 BB=FAL2 is set as alarm for any fault conditions of F1,F2,F3,F4 fans & FAL1 is disabled.	AA
P22	04 > 15	Alarm response delay time in seconds while fans currents goes below Lower current limit	5
P23	04 > 15	Alarm response delay time in seconds while fans currents goes above Upper current limit	5
P24	02 > 04	Module configuration:-2: two fan configuration, 4: four fan configuration	4
P25	red > std	Module configuration:- red : AC power redundancy mode operation std : Standard mode operation	red
P26	nC > no	Alarm Relay contact configuration:- nC: In healthy condition alarm contacts will be closed.	nc
P27	rst	reset to Default parameter values	rst



Fan Wiring Diagram

* Note: Since AL2 Alarm contact is not present in the CFTDPR4 model, AL2 Configuration is not applicable.

