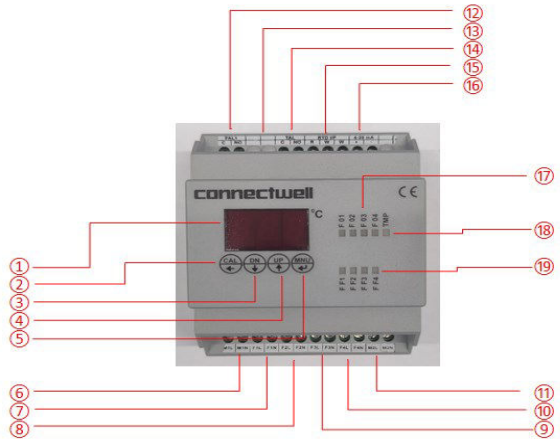
Installation Manual for CFTD4

connectwell
THE RIGHT CONNECTION

Fan Monitor 4 Fan Standard + Temp

	KEYS	DESCRIPTION
①	TEMPERATURE DISPLAY	Shows Temperature and Fan Current read out in 3 digits. (Temp = 0 to 99.9deg 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, this key key presses displays fan currents, set temp and versions in following sequence. : SET TEMP > FAN1 CURRENT > FAN2 CURRENT > FAN3 CURRENT > FAN4 CURRENT > SOFTWARE VERSION.
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 act as save when parameter values are changed.
CONNECTIONS		**DESCRIPTION**
⑥	M1L, M1N	AC Power for FAN1 and FAN2 and Unit. For connecting line and neutral of Single Phase AC Power(100VAC-240VAC).
⑦	F1L, F1N	For connecting Line & Neutral of FAN1 channel
⑧	F2L, F2N	For connecting Line & Neutral of FAN2 channel
⑨	F3L, F3N	For connecting Line & Neutral of FAN3 channel
⑩	F4L, F4N	For connecting Line & Neutral of FAN4 channel
⑪	M2L, M2N	AC Power for FAN3 and FAN4 For connecting line and neutral of Single Phase AC Power(100VAC-240VAC).
⑫	FAL1	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 Used
⑭	TAL	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. 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.

V2.0



A	CONNECTIONS
1	Connect 230 VAC Power Line and Neutral at ⑥
2	Connect 230 VAC Fans FAN1 at ⑦, FAN2 at ⑧
3	Connect 230 VAC Fans FAN3 at ⑨, FAN4 at ⑩
4	Connect 230 VAC Power Line and Neutral at ⑪
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 FAN3 ⑨

B	FAN CURRENT CALIBRATION: Manual mode (STORE FAN CURRENT INTO THE SYSTEM)
1	After completing the connections as per Connections steps, Switch-On AC Power and makes sure all the fans are working conditions.
2	press and hold "MNU" ⑤ for 3 seconds to enter into parameter meun and make sure P25 is set to “std”.
3	To enter into the "FAN CALIBRATION MODE" press and hold "CAL" ② for 7 seconds.
4	Once system entered in "FAN CALIBRATION MODE" display will shows "Str", and all fans will be powered up for around 1minute at this time technician shall make sure 4 fans are running properly. 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.

C	FAN CURRENT CALIBRATION: Auto mode (STORE FAN CURRENT INTO THE SYSTEM)
1	After completing the connections as per Connections steps, switch on AC Power and makes sure all the fans are working conditions.
2	All fans will be powered up for around half minute at this time technician shall make sure both the 4 fans are running properly. During this time unit automatically takes running current of the fans as nominal current. Unit will update this nominal current at regular interval.

***Note:** Make sure that parameter P25 is set to “std” mode.

Table 1

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
Auto / Manual	TMP	Red glow	Ambient temp is above set temperature
		LED Off	Ambient temp is below set temperature
	FF1, FF2 FF3, FF4	Red glow	Channel fuse blown
		LED Off	Channel fuse is ok

Mode	Alarm	Alarm Status	Functions Assigned
Auto / Manual	TAL	contact closed	Indicated as ambient is below the set temperature (P26 = nc)
	FAL1	contact closed	Indicated as healthy fan operation (P26 =nc)

D	OPERATION LOGIC-FAN Configuration
1	On powering ON of the module, RTD Temperature is checked and displayed on ① continuously. Press down key ③ to roll displays >> ambient temperature >> set temperature >> fan 1 current >>fan 2 current >> fan 3 current >> fan 4current >> software version >>. All the fans will be switched ON, FAN STATUS LEDs ⑭ will start blinking for around 15 seconds after this System waiting stage based on the system configuration (P01-P27) and fan currents and ambient temperature system updates Fan status, Temperature status LEDs and Alarm contact FAL1 and TAL status will be as per Table1.
2	**A) Four fan Standard operation mode [P24=4]** Fan1,Fan2, Fan3 and Fan4 will be turned on continuously and will be monitored for fan faults. Faulty fans power will be disconnected or keep connected as per P03 value selected, Fan status, Temperature status LEDs and Alarm contact FAL1 and TAL status will be as per Table1. **B) Two fan Standard operation mode [P24=2]** Fan1 and Fan2 both will be turned on continuously and will be monitored for fan faults. Faulty fans power will be disconnected or keep connected as per P03 value selected, Fan status, Temperature status LEDs and Alarm contact FAL1 and TAL status will be as per Table1.
3	**Recover method from fan fault condition [P03]** **[P03=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. **[P03=2]** Upon fault condition of the fan, Alarm state will change and power to that fan will be disconnected. Press "CAL" key to switch on particular fan and recheck fan current again. **[P03=3]** Upon fault condition of fan, Alarm state will change and power to that fan will be disconnected. After interval of ~30 seconds system recheck the fan condition again by switch on the fan automatically.

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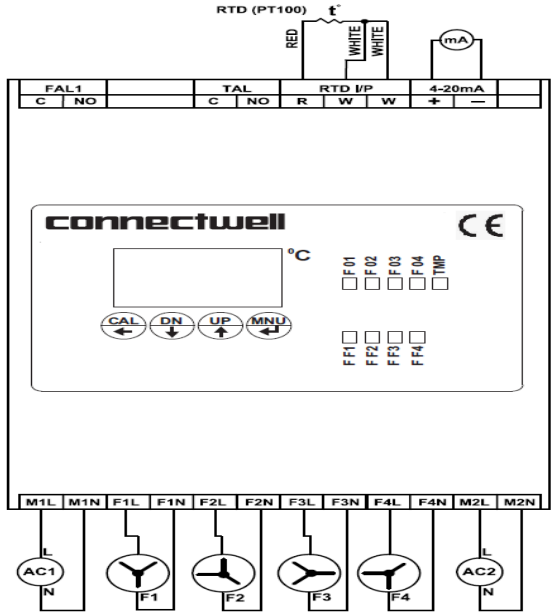
E	MENU FUNCTIONS		
Parameter	**Value**	**Description of function**	**Factory default**
P01	Auto > Manual	**mode of operation:** **Auto:** automatically take reference current of the fans by module at the power on thereafter reference current will be adjusted at regular interval intelligently. **Manual:** User either have to input reference current for each fans manually or store from the running fans connected to module by pressing "CAL" button.	Manual
P02	00 > 99.9	Set the desired Temperature limit (In Degrees Centi-grade).	40.0
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 disconnect-ed. 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. 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. After interval of ~30 seconds system recheck the fan condition again by switch on the fan automati-cally.	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	Fan2 Reference current(I_{R2})	100
P07	25 > 800	Fan3 Reference current(I_{R3})	100
P08	25 > 800	Fan4 Reference current(I_{R4})	100
P09	03 > 25	Fan1 over current cut of limit hysteresis in percent-age / ALL fans(+3% to +25% of I_{R1})	5
P10	03 > 30	Fan1 under current cut of limit hysteresis in percentage / ALL fans(-3% to -30% of I_{R1})	24
P11	03 >25	Fan2 over current cut of limit hysteresis in percentage (+3% to +25% of I_{R2})	5
P12	03 > 30	Fan2 under current cut of limit hysteresis in percent-age (-3% to -30% of I_{R2})	24
P13	03 >25	Fan3 over current cut of limit hysteresis in percentage (+3% to +25% of I_{R3})	5
P14	03 > 30	Fan3 under current cut of limit hysteresis in percent-age (-3% to -30% of I_{R3})	24
P15	03 >25	Fan4 over current cut of limit hysteresis in percentage (+3% to +25% of I_{R4})	5
P16	03 > 30	Fan4 under current cut of limit hysteresis in percent-age (-3% to -30% of I_{R4})	24

Parameter	Value	Description of function	Factory default
P21*	AA > AB > BA > BB	AA=FAL1 is set as alarm for any fault conditions of F1, F2, F3, F4 fans	AA
P22	04 > 50	Alarm response delay time in seconds while fans currents goes below Lower current limit	5
P23	04 > 50	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 : Not applicable for CFTD4 std : Standard mode operation	red
P26	nC > no	Alarm Relay contact configuration:- nC: In healthy condition alarm contacts will be closed. no: In healthy condition alarm contacts will be open.	nc
P27	rst	reset to Default parameter values parameter	rst

*** Note:**
Since FAL2 Alarm contact is not present in the CFTD4 model other than AA configuration is not valid/applicable.
** Factory setting for P25 will be std.



F	Caution Instruction
1	Risk of electrical shock and energy hazard. All failure should be examined by a qualified technician. Please do not remove the case of the fan monitor-ing/current monitoring module by yourself.
2	Risk of electric arcs and electric shock (danger to life). Connecting both the primary and the secondary sides together is not allowed.
3	Risk of fire and short circuit. The openings should be protected from foreign objects or dripping liquids.
4	Do not Exceed Maximum Input/output current 750mA for CFTD4.
5	In the event of internal fault, the unit must be returned to the manufacturer for safety reasons.
6	During Operation: The units when in operation do not modify the installation of primary and secondary side.

G	Maintenance Instruction
1	Disconnect system from other Power supply modules before commencing any installation, maintenance or modification activity. Make sure that inad-vertent connection to the circuit shall be impossible.
2	Improper maintenance / operation may impair safety and may result in operation difficulties or complete failure of the unit.
3	Always allow good ventilation clearances. Keep minimum space of 5cm above and 5cm below of the unit in use to prevent it from overheating. Lateral spacing from other modules is not needed for proper device func-tion.
4	Use in pollution degree 2 environment.
5	Use Input and Output cables of copper having withstanding temperatures of at least 80°C complying with UL 1007.
6	All output lines must be rated for the power supply output current and must be connected with the correct polarity.
7	Sufficient ventilation must be ensured.

H	Environmental condition	
1	Operating temperature	0 to 50 °C
2	Storage temperature	-25 to 70 °C, 95%RH
3	Humidity	20-75%RH
4	Pollution degree	2
5	Installation Category	II
6	Max. Altitude	2000m
7	Use Indoor/Outdoor	Indoor

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