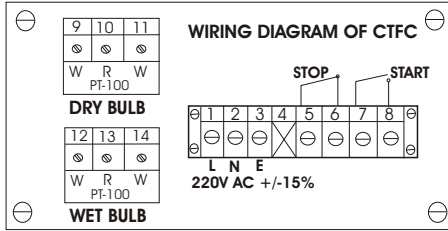
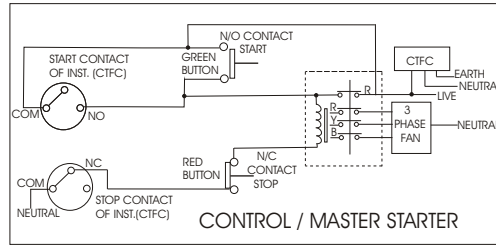


# CTFC COOLING TOWER FAN CONTROLLER



## CONNECTION DIAGRAM FOR THREE PHASE MOTOR



### Features

- 1) Set point adjustment on front by potentiometer.
- 2) Control Master Starter in case of three Phase motor.
- 3) Hours meter is provided to keep watch on how much time the fan was off..
- 4) Spring loaded push switch and one toggle switch are provided to set fan ut-off and restart temp. set point.
- 5) 2 Spring loaded push switch is given to check wet bulb & dry bulb temperature.
- 6) Fan ON condition indication by 3mm green led.
- 7) Fan OFF condition indication by 3mm red led.
- 8) Two relays to control Master starter

### Specifications

- 1) Input sensor :Two Pt-100sensors. One for Process/Tank/Inlet/Outlet temp and one for Wet Bulb
- 2) Differential : 0.1 to 6.0 °C Adjustable
- 3) Range: 25 deg.°C. above lwet bulb.
- 4) Mounting : Panel mounting
- 5) Size : 96(h)x192(w)x150(d)
- 6) Cut-out : 92 x 188 mm
- 7) Resolution : 0.1°C
- 8) Power consumption : 10 VA max.
- 9) Display : 3 digit, 7-seg, red led display.
- 10) Supply : 220 V AC +/- 15% 50 Hz
- 11) Hours Meter Range: 0 to 999.9 Hours
- 12) 5 Amp Relays to control Two nos. Master Starter. Please refer connection diagram

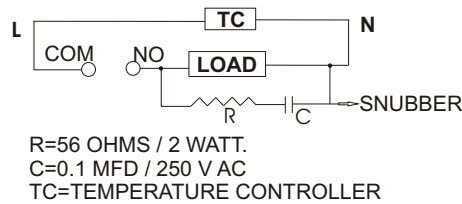
### Terminal Connections

- 1 - Live (supply)
- 2 - Neutral (supply)
- 3 - Earth
- 4 - No connection
- 5 - Common of Stop Relay
- 6 - NC of Stop Relay
- 7 - Common of Start Relay
- 8 - NO of Start Relay
- 9 - White or Black of 3 wire RTD (DRY BULB)
- 10 - Red wire of 3 wire RTD (DRY BULB)
- 11 - White or Green Wire of 3 wire RTD ( DRY BULB )
- 12 - White or Black of 3 wire RTD (WET BULB)
- 13 - Red wire of 3-wire RTD (WET BULB)
- 14 - White or Green Wire of 3 wire RTD - ( WET BULB )

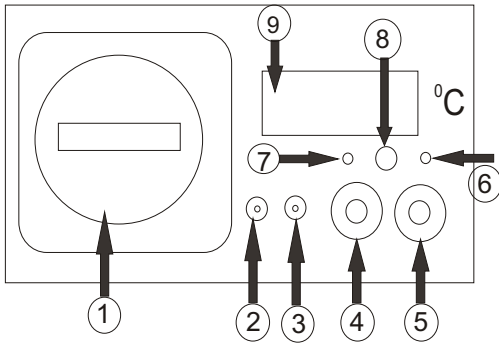
### Trouble Shooting :

- 1) Sensor open indication : Display shows “(-1) or ( 1 )”
- 2) Sensor reverse :If the RTD is not connected according to connection diagram. Then it will show erratic temperature
- 3) Not showing proper temp. : Loose connection on terminal or calibration problem.
- 4) Problem in relay operation - Check connections as per wiring diagram given

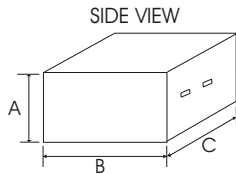
### CONNECTION FOR LOAD



**If load is inductive,  
connect snubber across load**



- 1 : HOURS METER
- 2 : SWITCH TO SEE CUT-IN/OFF TEMP {WET BULB}
- 3 : PUSH SWITCH {FAN SETTING}
- 4 : SET KNOB {FAN ON SET}
- 5 : SET KNOB {FAN OFF SET}
- 6 : RED LED FOR FAN OFF
- 7 : GREEN LED FOR FAN ON
- 8 : TOGGLE SWITCH TO SEE FAN ON/OFF TEMP. SETTING
- 9 : DISPLAY



MODEL	A	B	C
CTFC	96	192	160

## Operating manual CTFC

### Technical details about Cooling Tower fan Controller :

Cooling tower works on evaporation principle. So one can best achieve wet bulb temperature. In majority cases, this cooling fan remains ON due to many reasons, like no temperature control, setting much below the achievable temperature etc. Cooling tower fan consumes heavy electrical power and electricity is becoming costlier every day.

We have two models to control cooling tower fan.

Model One : With wet bulb temperature interlock

Model Two : Without Wet bulb interlock

Model One :

Set point is adjustable from 20 to 49°C for fan cut-in temp and cut-off 1 to 9°C below the cut-in temp setting. Cooling tower fan cuts off if tank water temperature falls below cut-off point. It starts when water temperature rises above the set point + differential (Hysteresis) setting.

If Wet bulb temp rises above the tank water temp or tank water temp falls below Wet bulb (May be due to wrong set point) controller cuts off cooling tower fan. It starts again if Wet bulb falls below or tank water temp rises above wet bulb temp.

**Precaution:** For effective result, the wet bulb sensor has to be kept covered by a wick, that is kept moist all the time. Plastic bottle is provided as a water reservoir for this purpose. Water in this bottle should be topped up regularly.

### Model Two:

There is no wet bulb sensor in this mode. Controller cuts off and restarts fan as per set temperature

In both the models controller controls master starter of fan and it is irrespective of fan HP rating. So, one can manually also control tower fan. Fan OFF time is recorded on hours meter provided on the controller. So one can easily monitor the electricity saving from month/year or any specific interval.

### PROCEDURE

Check all the connections as per the wiring diagram & switch on the mains supply

Wait for WET BULB temperature to settle down. Push "WET BULB" switch to see WET BULB temperature.

Now keep toggle switch to "OFF" position & press PUSH KEY to set fan "OFF" temperature. Set it by fan "OFF" set knob which is indicated with red line with "OFF". {Please refer front plate diagram}

Now keep toggle switch to "ON" position & press "PUSH" key to set fan "ON" temperature, set it by fan ON set knob which is indicated with red line with "ON". {Please refer front plate diagram}

Green led indicates fan "ON" & red led indicates fan "OFF".