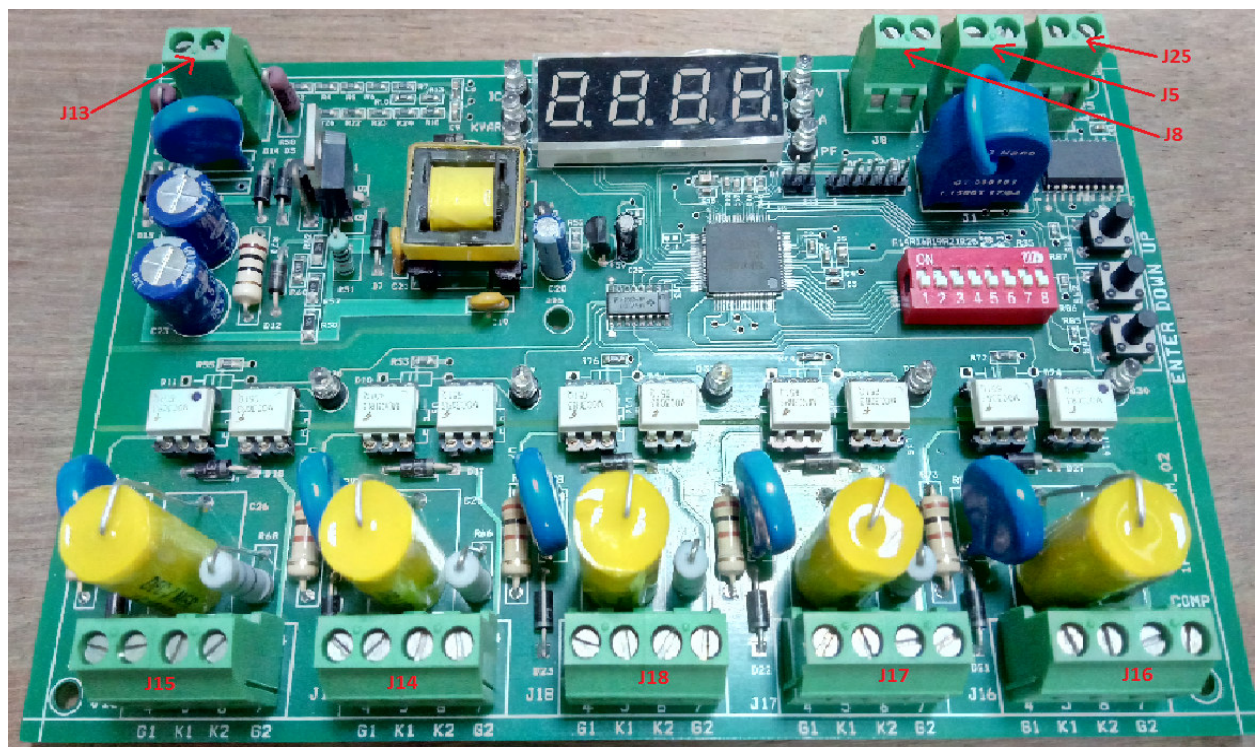


Introduction:

1P2W_PFCM is fast switching single phase power factor correction and module system, which support 1P2W installation. It takes 3 inputs, Voltage, Main Amps & Capacitor Amps. It has 8-way DIP-SWITCH to select Control Action (FIFO, SFIFO, BINARY, VAR) and time interval (0.125, 0.250, 0.500, 1.0 seconds) to take control action. It supports five outputs for thyristor firing at zero crossing level. 1P2W_PFCM measures VOLT, AMPS, CAP. AMPS, PF and display on seven segment with three LED indications. It has three switches UP, Down & Enter.



J13	Single Phase Supply Connector
J5	Main AMPS CT Connector
J8	Capacitor AMPS CT Connector
J14, J15, J16, J17, J18	Thyristor Module Connector

Voltage Connection:

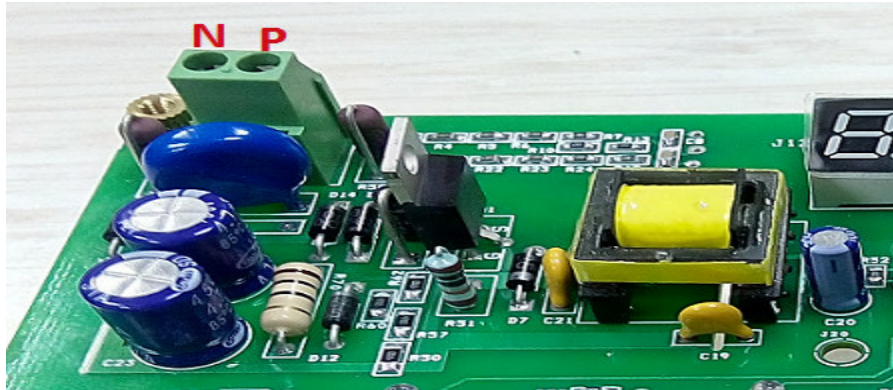


Fig.1

As per PCB, this is a J13 connector. Connect single phase supply with Neutral as show in fig.1.

CT Connection:

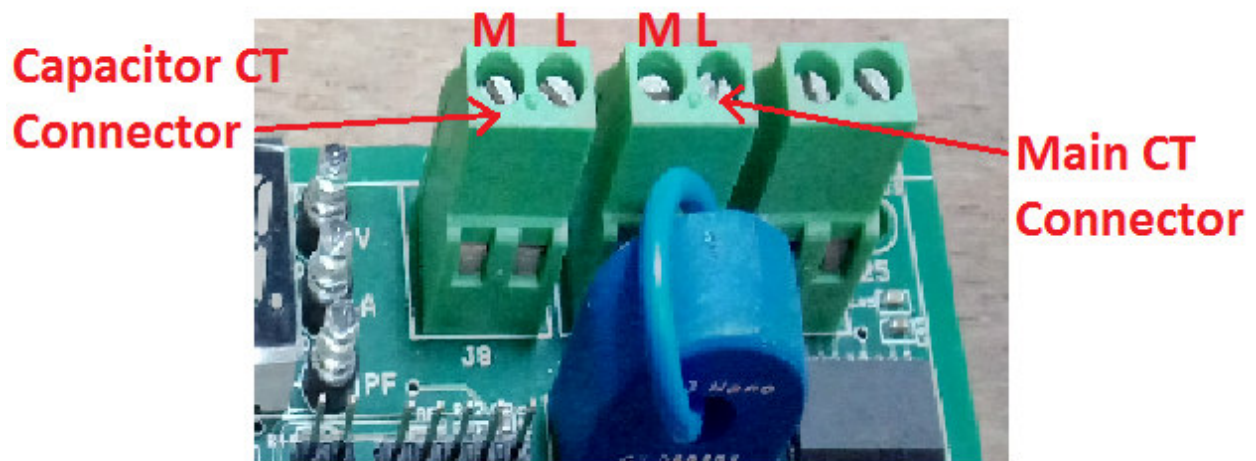


Fig.2

As per PCB, the J5 is main current measurement CT (Current Transformer) connector and J8 is capacitor current measurement CT connector. Connect M & L connection of CTs with respect to M & L terminal as show in fig.2. During connection make ensure that it should not interchange with J5 and J8. CT secondary of Main Amps measurement is fixed /5. Capacitor CT is whole current type CT which is calibrated and supplied along with board.

Thyristor Module Connection:

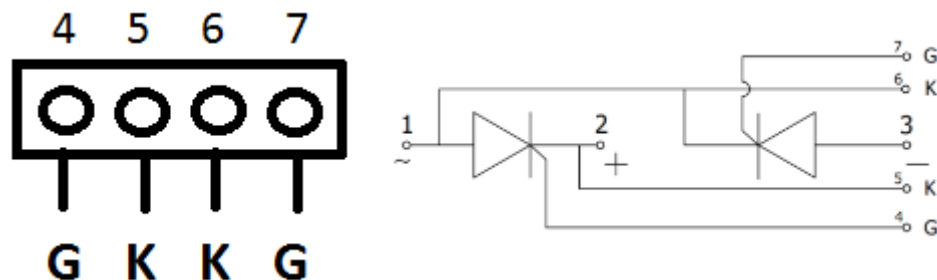
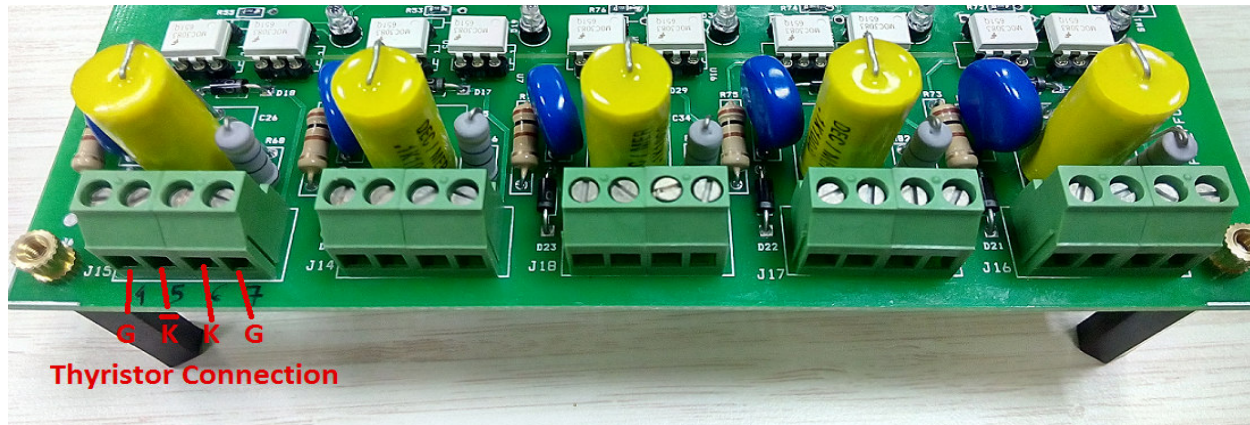


Fig.3

As per PCB, the J14, J15, J16, J17, J18 are thyristor module connector Each J14 to J18 connector has four terminals to connect thyristor module. General drawing for thyristor module is shown in Fig 3, which describes connection of Gate & Cathode with 1P2W_PFCM.

DIP SWITCH Selection:

As we know 1P2W_PFCM system has 8-way DIP-SWITCH to select control action as well as time interval to take action. First four switches are used for control action selection as show in fig.4 and table-1.

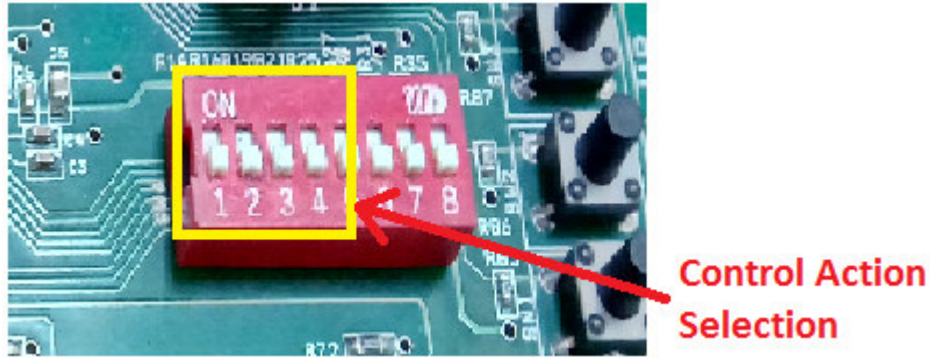


Fig.4

SWITCH				Control Action Mode
1	2	3	4	
OFF	OFF	OFF	OFF	Error – 1
ON	OFF	OFF	OFF	FIFO Mode
OFF	ON	OFF	OFF	SFIFO Mode
OFF	OFF	ON	OFF	Binary Mode
OFF	OFF	OFF	ON	VAR Mode
ON	ON	ON	ON	Error – 1

Table - 1

Note:- 1) More than one switch ON out of 1-4 switches its causes error-1.

2) In case of “Err 1” message, device get restart automatically after 10 seconds.

3) Module sense DIP Switch status at power up only. So, if need to change control action then module needs to restart to sense new status of DIP Switch.

Other four switches (5, 6, 7, 8) are used for time interval selection to take a control action as shown in fig.5 and table-2.

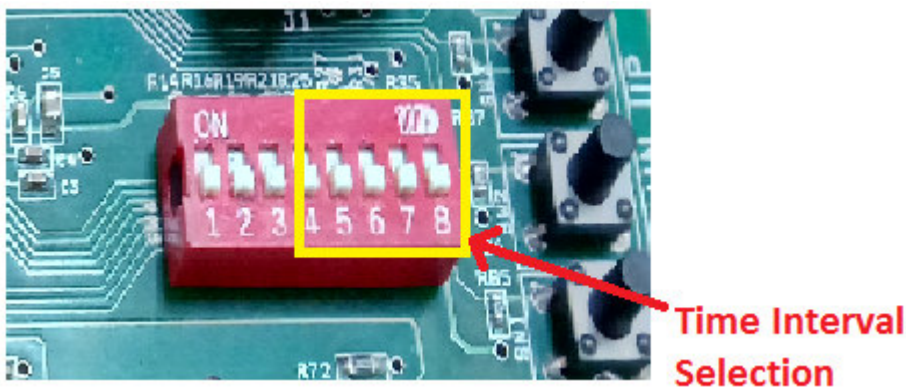


Fig.5

SWITCH				Time Interval To Take Control Action In Seconds
5	6	7	8	
OFF	OFF	OFF	OFF	Error – 2
ON	OFF	OFF	OFF	1.00 sec.
OFF	ON	OFF	OFF	0.500 sec.
OFF	OFF	ON	OFF	0.250 sec.
OFF	OFF	OFF	ON	0.125 sec
ON	ON	ON	ON	Error – 2

Table - 2

Note:- 1) More than one switch ON out of 5-8 switches its causes error-2.

2) In case of “Err 2” message, device get restart automatically after 10 seconds.

2) Module sense DIP Switch status at power up only. So, if need to change control action interval then module needs to restart to sense new status of DIP Switch.

Display Functions:



1P2W_PFCM system has seven segments Display with Five LED indications. At every power up it shows configured parameter like selected control action, selected time interval, and programmed CT primary, each for 5 seconds at that time all LED remain off. After power up parameter it shows measurement parameter VOLT, AMPS, CAP_

AMPS, KVAR & PF value in a sequence. By default display is in auto scroll mode. At every 5 second display pages will be change. LED1 On is indication of VOLT display page. LED2 On is indication of AMPS display page. LED4 On is indication of CAP_AMPS display page. LED3 On is indication of PF display page. LED5 On is indication of KVAR display page. We can freeze display page by pressing ENTER key and vice-versa. When display in freeze mode we can change display pages by pressing UP or DOWN key. Freeze mode indicated by LED blinking.

KEY Functions:



1P2W_PFCM system has three SW1, SW2, and SW3 w.r.t. UP, DOWN and ENTER key. UP and DOWN key is used for change the display pages as well as increment and decrement the value. ENTER key is used for Freeze display, enter in to programming mode, enter purpose.

Programming Mode and Parameter:

CT primary, SET PF, Bank Size & Auto Sense are four programmable parameters of 1P2W_PFCM system. CT primary, SET PF, Bank Size & Auto Sense programmable parameters are available only for VAR control action mode. In others (FIFO, SFIFO & Binary) control action mode only CT primary programmable parameter is available.

To enter in to programming mode press ENTER key for 5 seconds and you can see “CtP” on display and all LED will off. “CtP” is for CT Primary. Press UP key one by one you can see programmable parameters pages “StPF”, “bnS”, “Id” & “AUts” on display. “StPF” is for SET PF, “bnS” is for Bank Size, and “AUts” is for Auto Sense. If you want to change CT Primary parameter value than go to “CtP” page and press ENTER key. You can see some value on display. By pressing UP & DOWN key set CT Primary value. You can set CT primary value 5 to 5000. Than press ENTER key to store the set

value & come back. Same way you can program SET PF and Bank Size. You can set PF value LAG & LEAD side form 0.800 to 1.000. Bank Size value can set 75% or 100%. If Press ENTER key on "AUtS" page then 1P2W_PFCM system start auto sensing of CAPASITOR BANK value and display one by one CAPASITOR BANK value. LED2 & LED3 On indicates Auto Sense mode. In Auto Sensing mode, key does not work. After auto sense completion system get restart automatically.