



# Instruction Guide

For

## TAS Auto-Manual Controller (AMC)





## Index

1) Introduction .....	Page 3
2) Specifications .....	Page 3
3) Operation .....	Page 4
4) Auto Mode. ....	Page 4
5) Manual Mode.....	Page 4
6) Discharge Time Delay Setting.....	Page 5
7) Wiring Diagram .....	Page 6
8) Mechanical Dimensions.....	Page 7
9) Contact Us .....	Page 9



## **Introduction:**

TAS Make **Auto-Manual Controller (AMC)** is an Intelligent Electronic Controller designed to allow the User to switch on or off the capacitor bank either automatically (command received from the APFC Controller as Input to the AMC) or manually, from the AMC front panel toggle switches.

TAS APFC Units also have a Manual Mode of Operation, it requires the User to operate the APFC Front Panel Switches and read the LCD Display to select the Capacitor Bank to be turned On or Off in the Manual Mode. However, some Users prefer operation with front-panel using conventional Toggle Switches. So, the AMC will provide them the comfort and ease of operations.

The Auto-Manual Controller (AMC) also provides the facility of User Selectable Capacitor Bank Discharge Time Setting. The AMC prevents the switching ON of Capacitor Bank immediately after the Capacitor Bank was Switched OFF. The AMC adds Discharge/Delay time, as per user setting, between Capacitor Bank OFF to ON Switching.

The Main Purpose of the AMC is for field troubleshooting and diagnostics for the Capacitor Bank Operation. So, after using the AMC for such testing and diagnostics, it should be put back in to “Auto” Mode of operation so that the APFC Unit dynamically control the Capacitor Banks On / Off Operations for close-loop Reactive Power Compensation to automatically maintain the Power Factor (PF) within the desired limits.

It is essential to set a proper Capacitor Bank Discharge Time which is actually a delay for re-connecting the Capacitor Bank of the last Switch-Off Operation. The Human Protection considerations to avoid Electrical Shock Hazards require the appropriate use of proper value of Resistors for discharging the Capacitors to less than 50 Volts from the time of disconnection from the supply.

The Capacitor Bank Discharge Time setting on the AMC would done to keep a safe margin by keeping the Discharge Time (Delay) sufficiently longer than the actual discharge time taken by the Capacitor Bank. Please note that in AMC, the Discharge Time Delay is common for all the Capacitor Banks, up to 8 Banks, irrespective of the Capacitor Bank kVAr Rating.

## **Specifications:**

- 12V DC, 1A External Input DC supply to operate the AMC Unit.
- 8 No.s of Input Command Channels operating at +12V DC Command Signal.
- 8 No.s Single-Pole-Double-Touch (SPDT) Toggle Switches for individual Output Channel Control.
- Local Capacitor Bank ON Green LED Indication on the front panel associated with each manual input.
- Auto-Manual Selection Switch with Green LED indication of “Manual Mode Selected”.
- 8 No.s of Potential-Free, Relay Contact Outputs with a Common, Fast-Blow Fuse Protection.
- Front-Panel User Selection of up to 16 pre-defined Capacitor Bank Discharge Time Setting



**Operation:**

There are two modes of Operation of AMC.

- Auto Mode
- Manual Mode

Auto-Manual Mode Selection Toggle Switch on the front panel allows User to change the operating mode of AMC.

**Auto Mode Operation** – (Knob of Selection Switch is Lower Side & A/M LED is OFF)

In Auto Mode, AMC only Reads (IN1-IN8) Input, & Updates (C1-C8) Output accordingly.

In Auto Mode of Operation, Capacitor Bank Discharge Time Delay is not handled by AMC. It is recommended to set proper Capacitor Bank Discharge Time at APFC Controller Side, according to the Capacitor Bank kVAR Ratings.

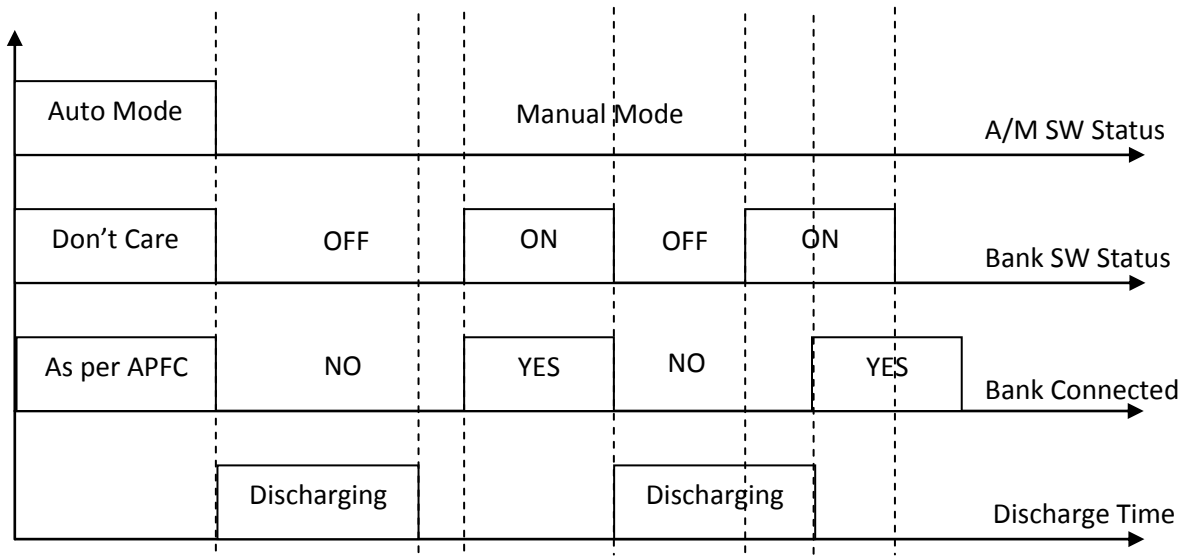
Note that, when Operating Mode of AMC is change from Manual to Auto mode, at this situation, AMC takes discharge time setting as per the Front Panel setting for the Discharge Time Parameter. After that, no Discharge Time is introduced between Capacitor Bank OFF to ON Switching.

**Manual Mode Operation** – (Knob of Selection Switch is Upper Side & Auto/Manual Green LED is ON)

In Manual Mode, AMC only Reads (B1-B8) Input Switches, & Update (C1-C8) Output accordingly.

In Auto Mode of operation, Capacitor Discharge Time is handling by AMC. AMC introduce Discharge Time Delay as per user setting, between OFF to ON Switching of Capacitor Bank.

Note that, Between Discharge Time, AMC ignores Inputs from Switches (B1-B8).





**Discharge Time Delay Setting:**

The AMC allows below options for Discharge Time setting in the field.

Setting	Discharge Time	Setting	Discharge Time
ON OFF 1 2 3 4 	0 Sec (All 4 Switches Set to OFF Position)		60 Sec
	1 Sec		80 Sec
	2 Sec		90 Sec
	5 Sec		100 Sec
	10 Sec		120 Sec
	20 Sec		240 Sec
	30 Sec		10 Min
	45 Sec		20 Min (All 4 Switches Set to ON Position)

- Notes:
- Black Square Portion in the above table Indicates position of DIP Switch knob.
  - Provision for 0 second is to allow AMC is to be used with Thyristor Switches, which do not require Discharge Delay Time.
  - Discharge Time delay of 10 Minute & above are basically for HT version of APFC Units.

The Upper Position of the Switch is marked as "ON" on the 4-Position Rocker Switch, apart from the 4 Positions as 1, 2, 3, and 4.

Factory Default Setting: **120 Second**. Switch Position 1 = ON, Position 2 = ON, Position 3 = OFF, Position 4 = OFF

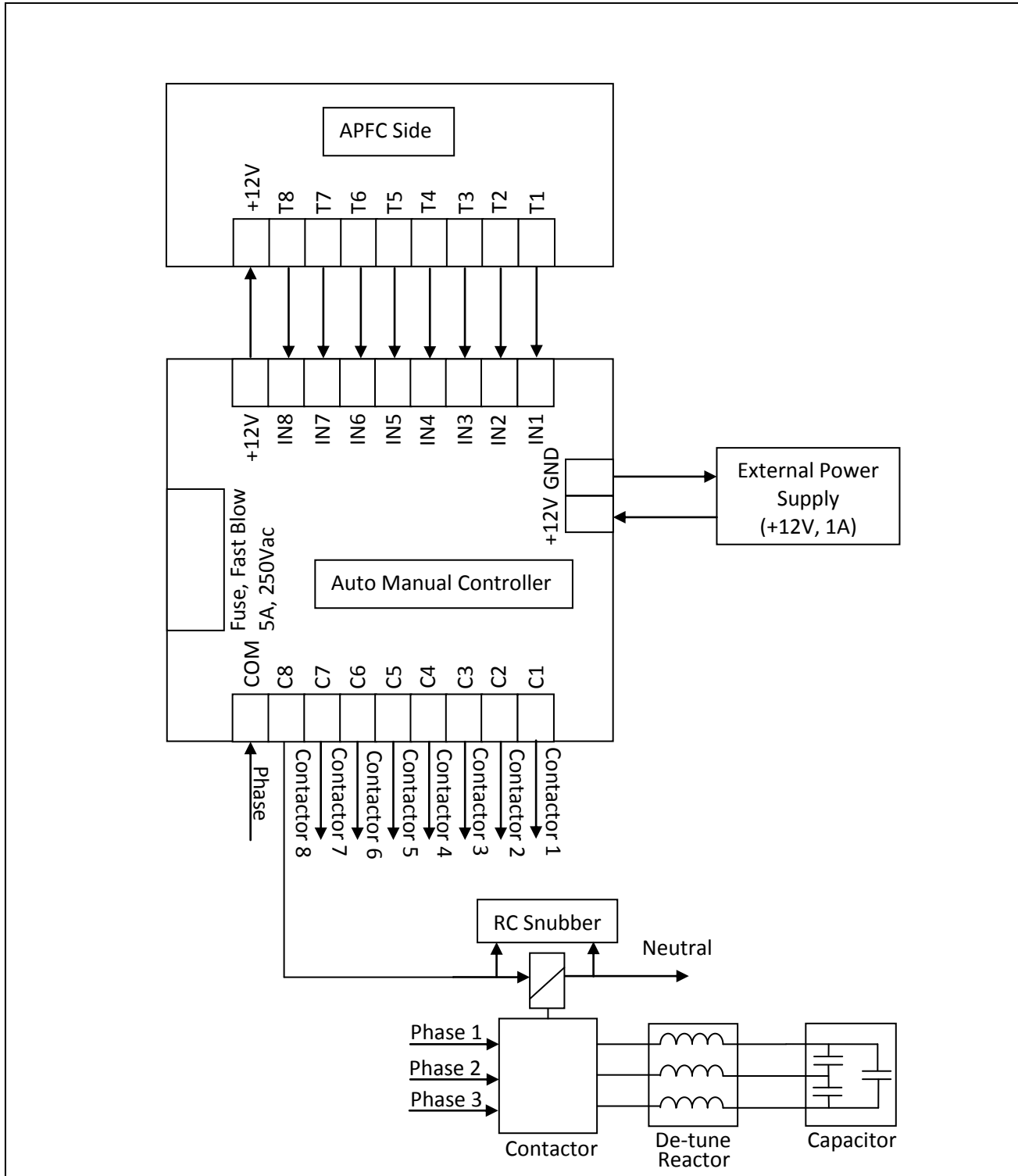
**Precautionary Note:**

To implement a new Setting for the Capacitor Bank Discharge Time Parameter, the User need to first do the Setting of the required time using the 4-Position Rocker Switches and the associated Table of Switch Positions as shown on the AMC Front Panel Label.

The Auto-Manual Operation Mode Selector Switch need to be toggled from it's Current position so that the AMC Unit is able to read and recognize and effectively consider the new setting.

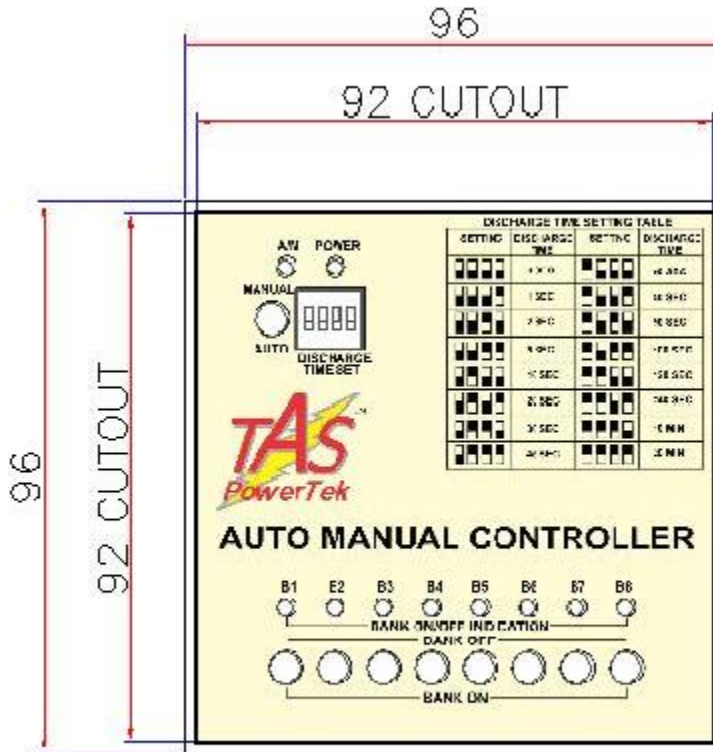


**Wiring Diagram:** APFC Outputs are of Current-Sourcing Types, with Output Current-Limit Protection to 20 mA DC

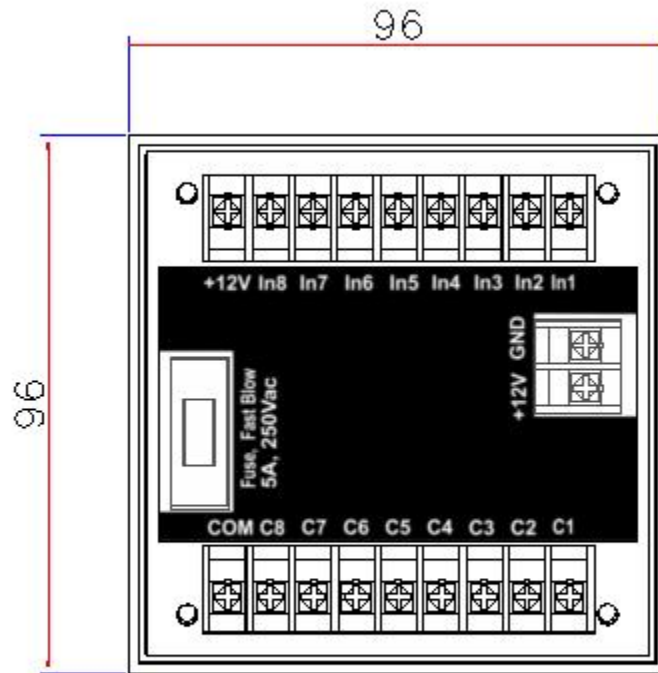




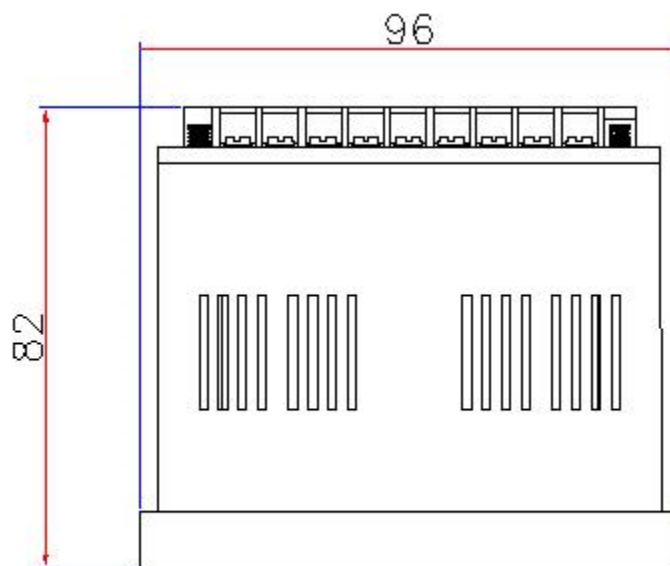
**Mechanical Dimensions :**



FRONT VIEW



BACK VIEW



TOP VIEW





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**This Product is completely Designed, Developed, Manufactured, Assembled, Tested and Calibrated in India by,**

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