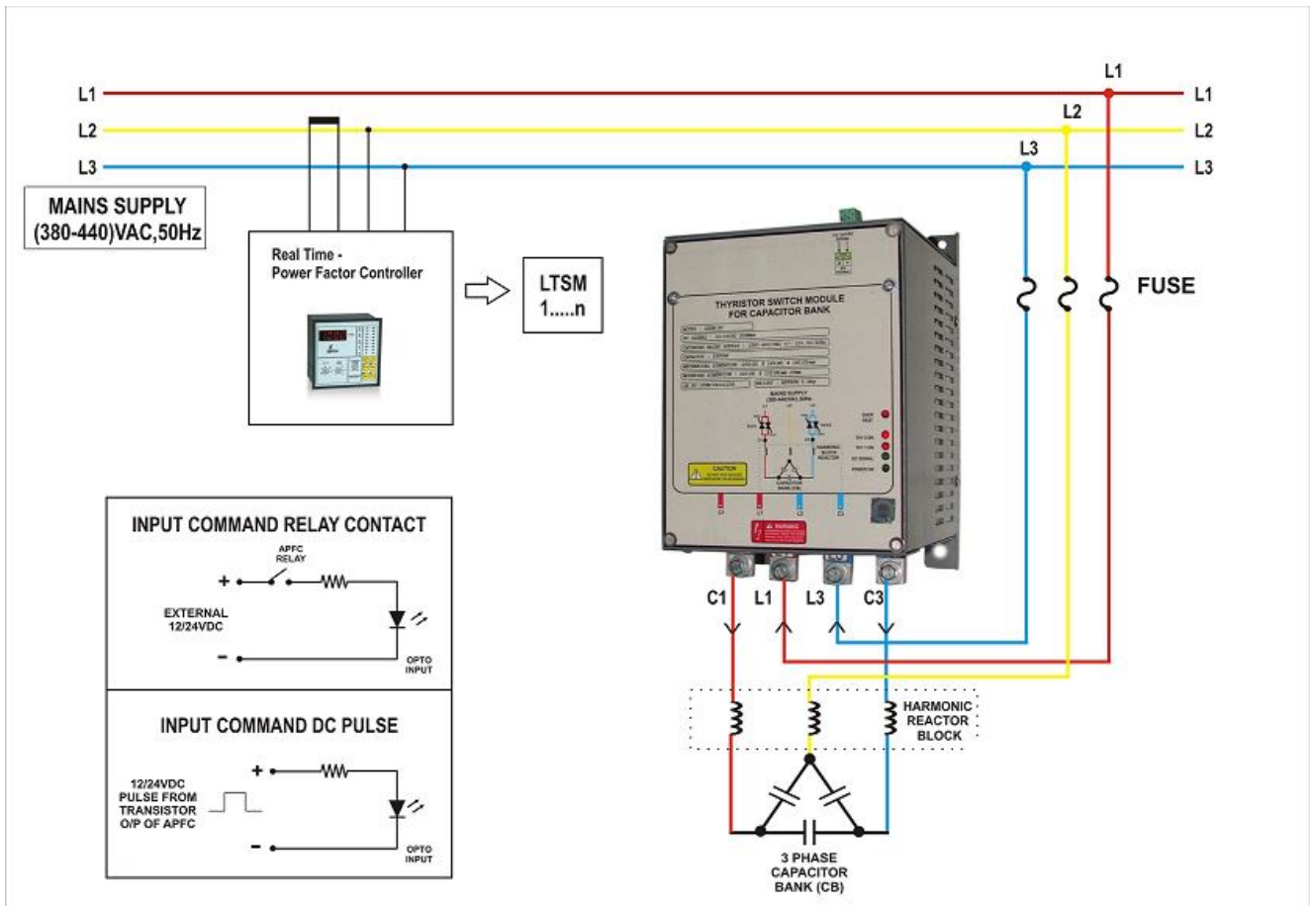


# VRAJ LINK

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## Thyristor Switch Module (VTSM) for Capacitor Bank



**Description:** Vraj Link offers Thyristor Switch Module, specially designed for Real Time Automatic Power Factor Correction (APFC) applications. In APFC the capacitor banks of suitably rated KVAR are sequentially selected, based on the command from the automatic power factor relay module to maintain the desired power factor (Ratio of KW: KVA). In conventional method, the number capacitor banks are selected by switching the contactors connected in series with each capacitor bank. This VTSM module allows the selection of such capacitor banks using thyristors (i.e. Solid state switch). Thyristors being solid state switch, offers many advantages compared to electromechanical contactors.

VTSM modules are available to switch single or 3 phase capacitor banks rated for 5, 10, 15, 25, 50 and 100 KVAR. Zero cross over switching technique is used to turn on and turn off the thyristors connected in series with these capacitor banks. VTSM accepts direct potential free contact command and does not require external 12 or 24 VDC auxiliary power supply for switching the capacitor banks. VTSM modules are optionally available with internal power supply.

Generally, each of the real time power factor correction (RPFC – relay module) gives 4 to 12 relay outputs, to select that many capacitor banks to maintain desired power factor and hence it will be required to use that many numbers of VTSM modules of required KVAR ratings.

**For example, against the requirement of 280KVAR APFC and with 8 steps selection using 8 channel APFC relay module, one can opt for 8 nos. of VTSM (100+50+50+25+25+15+10+5) KVAR.**

**Advantages of Thyristor switch module over conventional electro-mechanical contactor:**

- a) In Thyristor since there are no mechanical movements of contacts involved, no arcing and sparking takes place and no audible switching noise is produced.
- b) Due to zero cross over switching techniques, voltage transients can be controlled within the safe limits.
- c) Using VTSM it is possible to switch the capacitors faster than 1000mS rate, Whereas, contactors cannot be switched that fast.  
Note: Discharge circuit on capacitor bank should be suitable for fast switching through Thyristor.
- d) There are no limitations in number of switching operations for thyristor compared to contactor.
- e) These VTSM modules are safe to operate under the environment of maximum 70°C @ 90% RH – non-condensing.

These switching modules VTSM are easy to install and comes with built in indications for normal function and faults, along with built in protection circuits for fail safe operations.

**STANDARD THYRISTOR SWITCH MODULE**

Sr.No.	Model No.	KVAR of 3 phase Capacitor bank	Size (h x w x d) mm.
1.	<b>VTSM-5</b>	<b>5 KVAR</b>	250 x 160 x 130
2.	<b>VTSM-10</b>	<b>10 KVAR</b>	250 x 160 x 130
3.	<b>VTSM-15</b>	<b>15 KVAR</b>	250 x 160 x 130
4.	<b>VTSM-25</b>	<b>25 KVAR</b>	250 x 160 x 180
5.	<b>VTSM-50</b>	<b>50 KVAR</b>	250 x 160 x 180
6.	<b>VTSM-100</b>	<b>100 KVAR</b>	315 x 180 x 240

Note: Sizes are subject to change

**ACTUAL PICTURE**

