



The Simpler Solution



Automatic Power Factor Controllers
for Contactor and Thyristor based APFC Panels



Power
factor
correction
– now easier
than ever.

New
**etaULTRA Series -
3 CT Input**

**etaSMART Series -
1 CT Input**

Brought to you by L&T Electrical & Automation – India's largest manufacturer of LT switchgear – the etaSMART & etaULTRA Series automatically corrects the power factor, with the help of contactor & thyristor for the connection and disconnection of capacitor banks.

Packed with a specially formulated optimisation program, the controller ensures accurate power factor control at the set point and hunt free operation.

The E&A Advantage - etaULTRA

- 3- Phase Current and Voltage measurement
- Available upto 16 steps
- Cascading - Master-slave configuration possible to increase contact output up to 64 steps
- Dual PF setting for Mains-DG application
- Individual harmonics measurement up to 31st order
- PF setting - up to 3rd digit after decimal
- Display of voltage angles and current angles for ease of troubleshooting
- Site selectable 2 or 4 quadrant operation for industries with or without Solar plants



The E&A Advantage - etaSMART

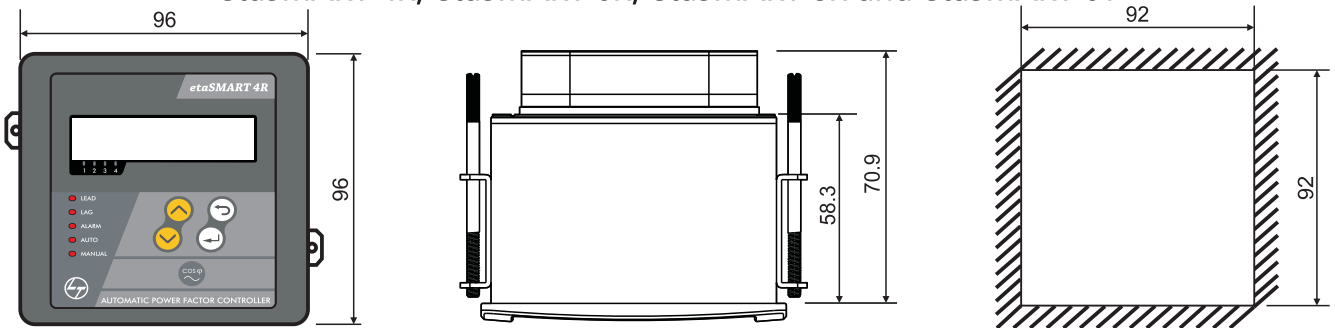
- Available upto 16 steps
- Space-saving. Compact size of 96 x 96 mm for controller upto 8 steps
- CT Secondary 1A/5A
- Automatic detection of CT polarity saves time and effort. etaSMART detects the CT reversal and automatically corrects it
- Option of LIFO, FIFO, and Intelligent control mode
- Site selectable 2 or 4 quadrant operation for industries with or without Solar plants
- Capacitor health check monitoring function ensures that capacitor is declared faulty if its power falls beyond a certain limit
- Last relay output contact can be configured as Step or Alarm. Second-last relay output can be configured as Step or Fan control
- Ambient temperature monitoring via internal sensor

Technical Specifications

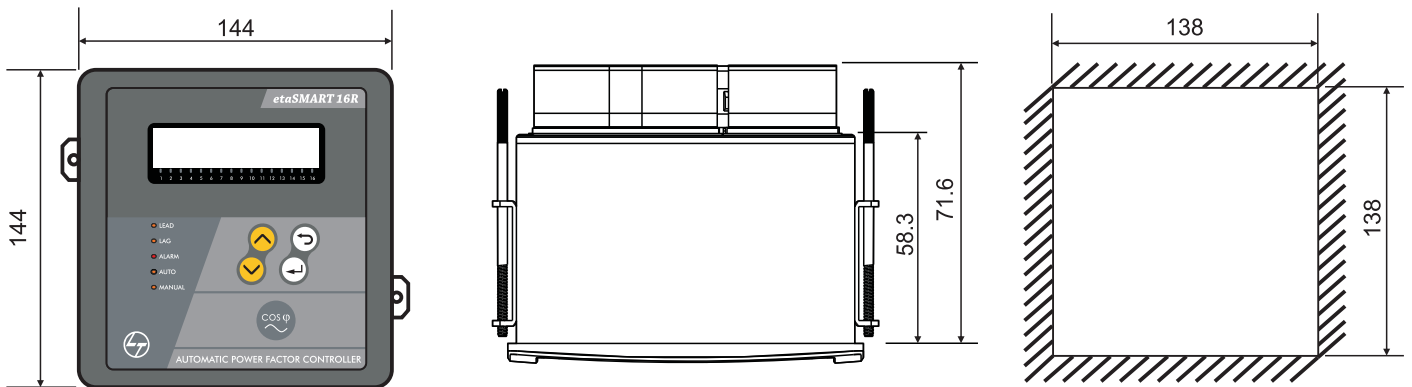
Parameters	etaSMART (1 CT)		etaULTRA (3 CT)	
	etaSMART R (Contactor logic)	etaSMART T (Thyristor logic)	etaULTRA R (Contactor logic)	etaULTRA T (Thyristor + Contactor)
Voltage input (L - L)	415 - 440 VAC		50 - 760 VAC	
Aux. supply	-		85 - 300 VAC/ DC	
Current input	1A / 5A		1A / 5A	
Rated frequency	50 - 60 Hz		50 - 60 Hz	
No of output contact	4, 6, 8, 12, 14, 16 (For Contactor)	6, 8, 12, 15 (For Thyristor)	8, 16 (For Contactor)	8T + 2R, 14T + 2R, 8T + 8R (T for Thyristor switching, R for Contactor switching)
Output contact rating	Relay, 250 VAC @ 5A	Thyristor, 8 - 48 VDC @ 100 mA	Relay, 250 VAC @ 5A	Relay, 250 VAC @ 5A Thyristor, 8 - 48 VDC @ 100 mA
Communication interface	-		Modbus RTU (RS 485)	
Cascading	-		Upto 64 steps in master slave configuration	
Display parameter	PF, V, I, Required KVAR, KVA, KW, KVAR, V-THD, I-THD, Hz, Temperature.		System PF, V, I, Required KVAR, Voltage angles, Current angles, KVA, KW, KVAR, V-THD, I-THD, Hz, Individual harmonics upto 31st order, Temperature	
Control power factor range	0.3 Lag to 0.3 Lead		0.3 Lag to 0.3 Lead	
Dual PF setting	-		Target PF 1 - Default Target PF 2 -Based on Digital input	
Digital input	-		2 Digital Inputs, Programmable Range:65-285	
Alarms	Over / Under compensation, Over / Under voltage, Over / Under Current, High V - THD, High I - THD, Over / Under frequency, Over temperature.		Over / Under compensation, Over / Under voltage, Over / Under Current, High V - THD, High I - THD, Over / Under frequency, Over temperature, Modbus fail alarm, Capacitor faulty alarm.	
Power consumption	7.5 VA		5.0 VA	
Relative humidity	< 90 %		< 90 %	
Mounting	Flush		Flush	
Degree of protection	IP 20 (Front IP 54)		IP 20 (Front IP 54)	
Compliances	EN 61010-1, IEC/EN 61000 - 6 - 2, IEC/EN 61000 - 6 - 4, EN 61326.		EN 61010-1, IEC/EN 61000 - 6 - 2, IEC/EN 61000 - 6 - 4, EN 61326.	

Product Dimensions

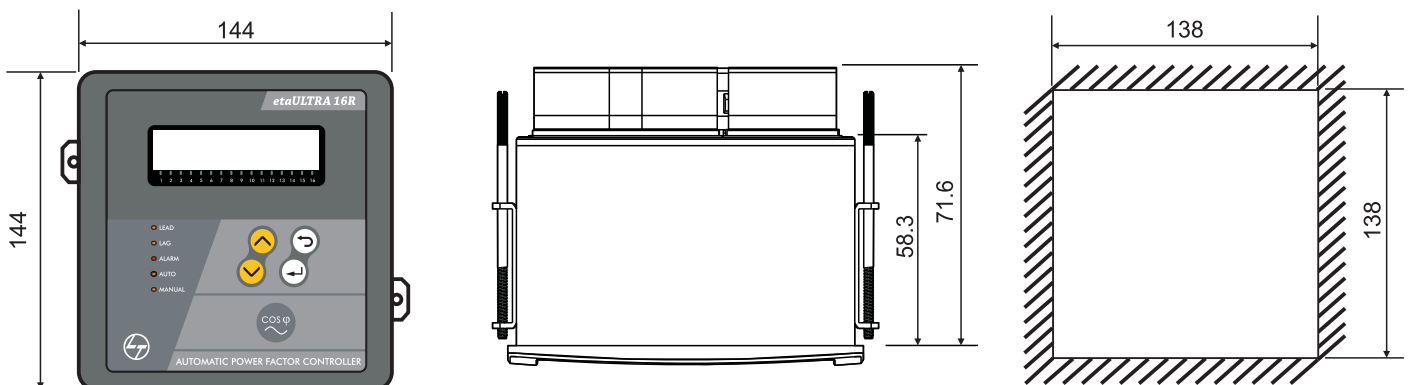
etaSMART 4R, etaSMART 6R, etaSMART 8R and etaSMART 6T



etaSMART 12R, etaSMART 14R etaSMART 16R, etaSMART 8T, etaSMART 12T and etaSMART 15T

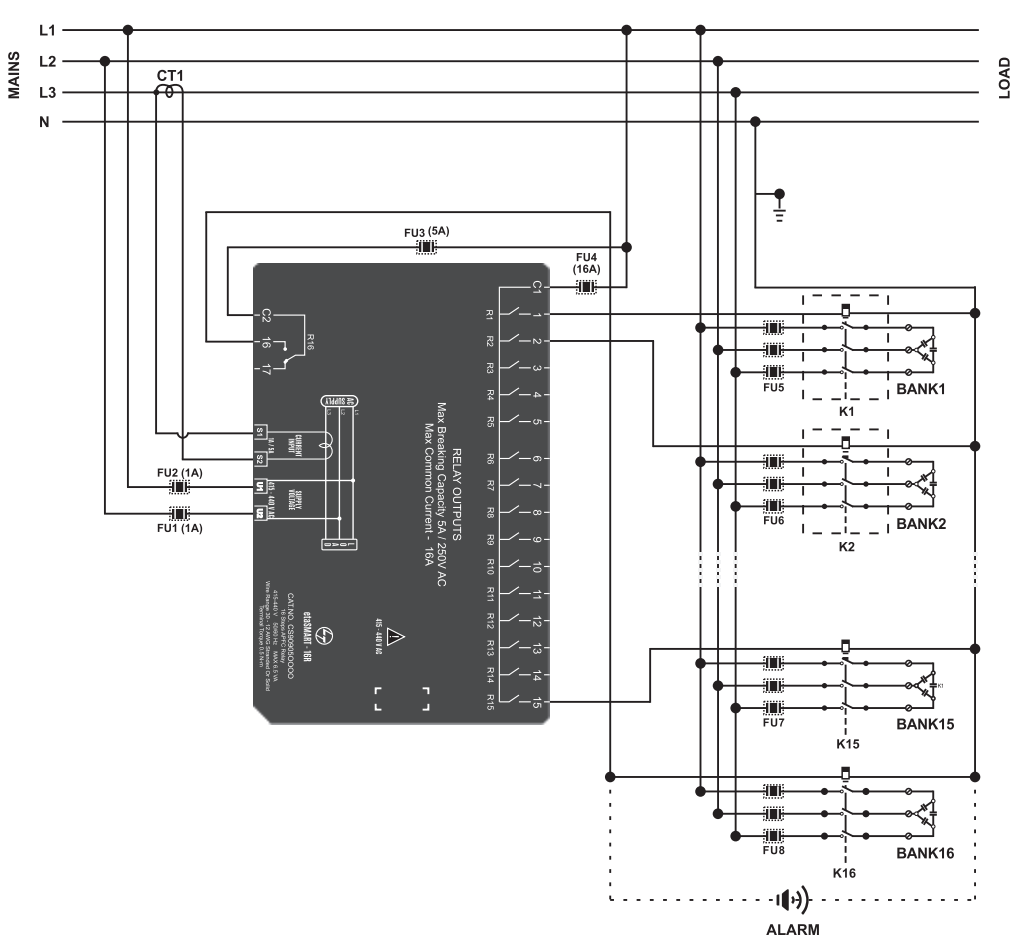
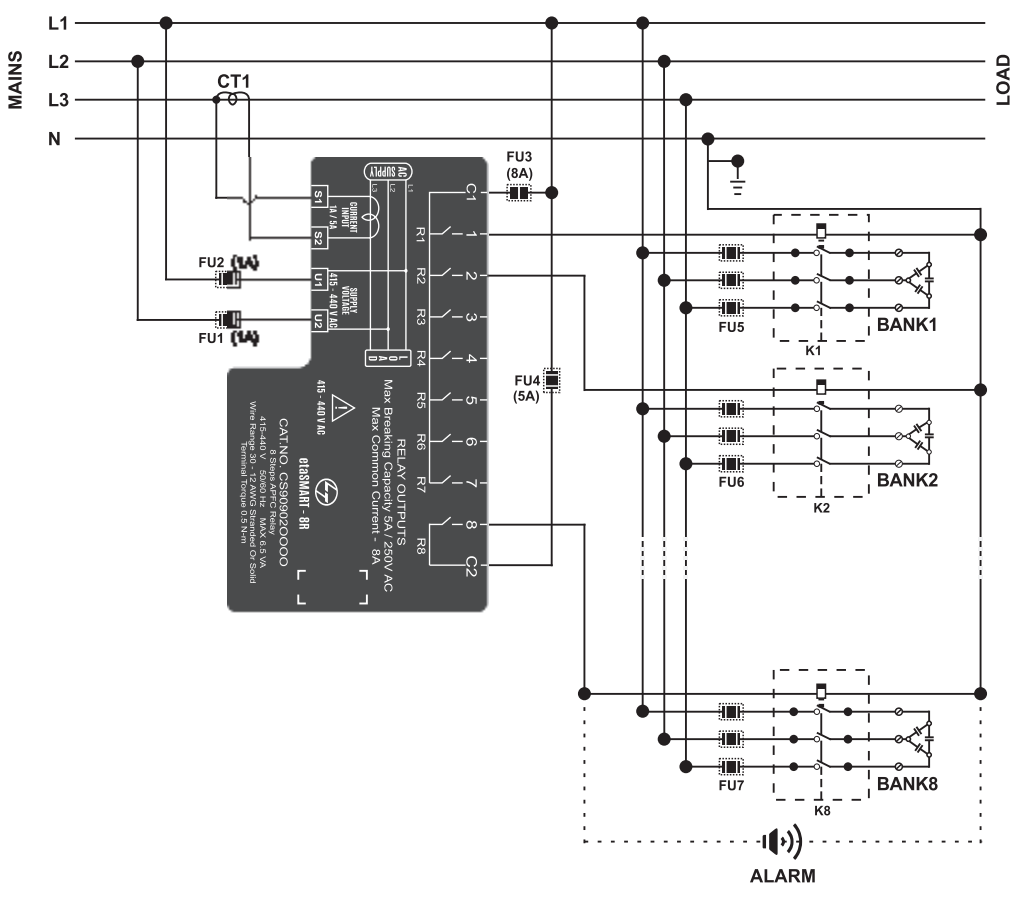


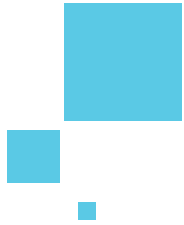
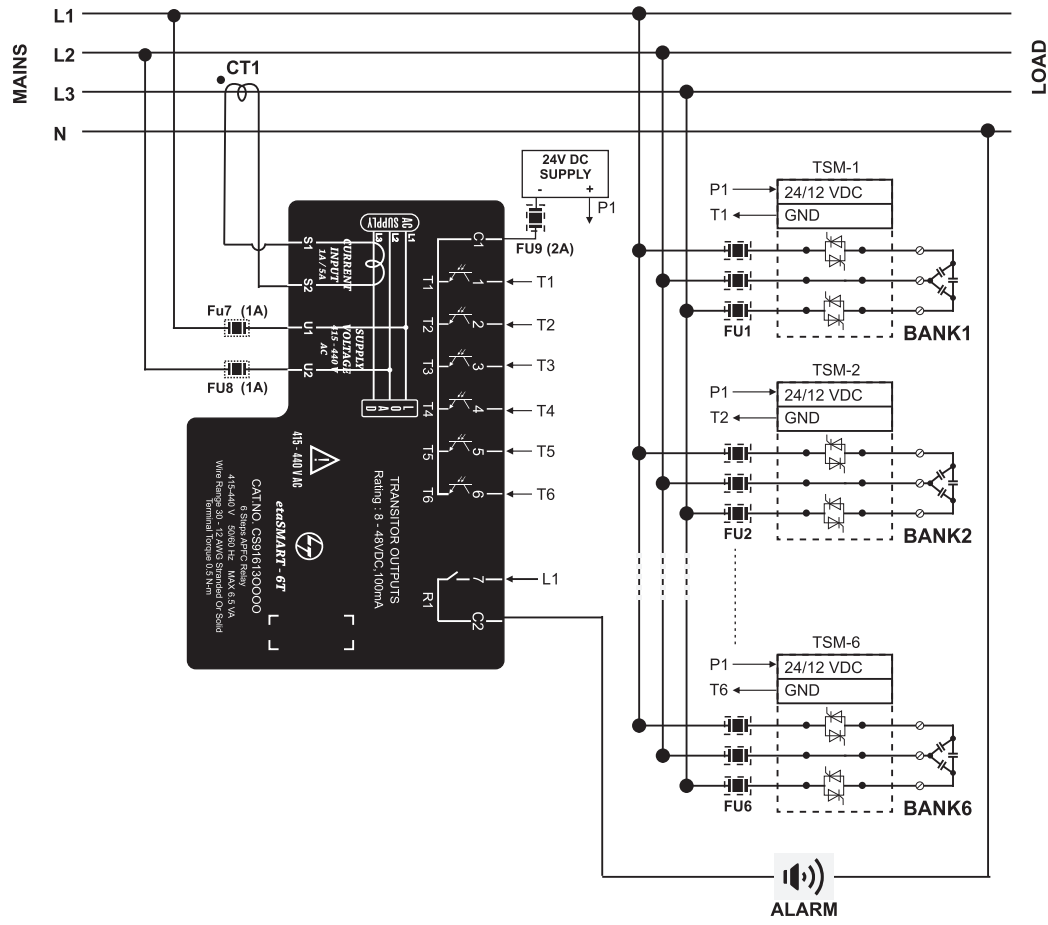
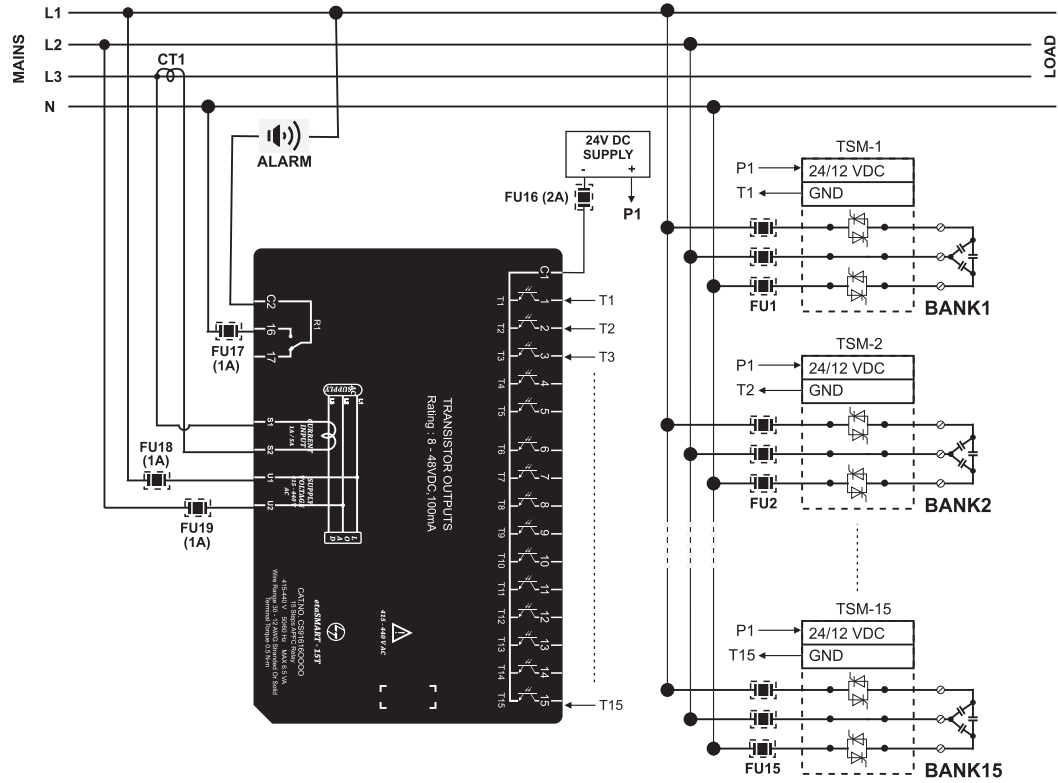
etaULTRA 8R, etaULTRA 16R, etaULTRA 8T+2R, etaULTRA 14T+2R & etaULTRA 8T+8R

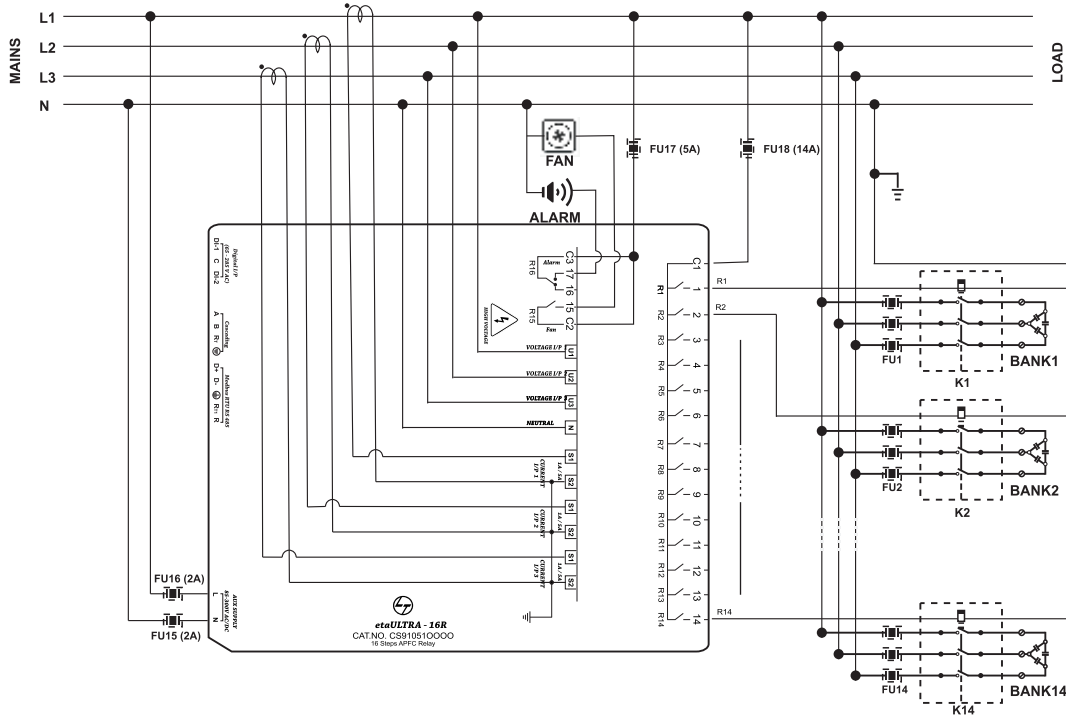


NOTE: All dimensions are in mm

4.2 WIRING DIAGRAM

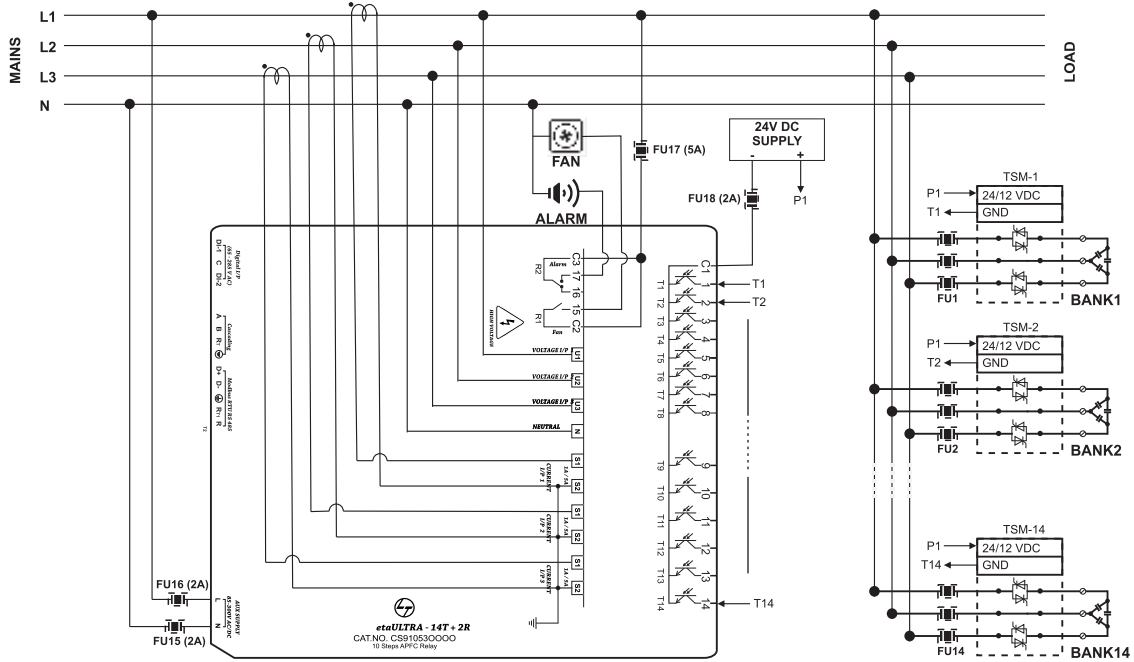






NOTE:

1. Last two relay output contacts can be configured either to switch the capacitor bank or to energise FAN and ALARM respectively as shown in wiring diagram.
2. All relay terminals, Voltage & current input terminals are suitable for wire range 12-30 AWG stranded or Solid copper wire. Modbus and cascading terminals are suitable for 14-30 AWG



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Power Quality Solutions



Reactive Power Management Solutions



Harmonic Filtering Solutions

Optimise Reactive Power Solutions with etaPRO v3.0



- Save time:** Instantly select the right capacitor-reactor and switchgear combo
- Save money:** Calculate monthly payback
- Save effort:** Directly export bills of materials to MS Excel
- Discover more:** Learn improved techniques on RPM

Download from www.LNTEBG.com/etaPRO

(For Windows-based Laptop / desktop)

Product improvement is a continuous process. For the latest information and special applications, please contact any of our offices listed here. Product photographs shown for representative purpose only.



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