



- ⚡ APFC RELAY
- ⚡ DIGITAL PANEL METERS & CONTROL DEVICES
- ⚡ THYRISTER CONTROL MODULE
- ⚡ ALTERNATOR VOLTAGE REGULATORS (AVR)
- ⚡ POWER FACTOR CORRECTION PANEL FOR UNBALANCED LOAD

ver. 2.45

**PENTACON**  
Microcontroller based 360° Power Factor Sensing

## Company Profile

Established in the year 1995, we Pentacon Electro-Control (India) are the established Instrumentation Company. We are the manufacturer and Supplier of Electronic control devices, Measuring instruments, Compact designed power saving panels and special panels for machine/process automation.

We have a range, of Power Factor Controller (APFC relay) for different type of industries according to their different nature of load.

Apart from this we also have manufacturing range of digital panel meters like voltmeter, ampere meter, multifunction meter with new concept.

Our products are manufactured using optimum quality raw materials at our manufacturing unit, We employ advanced technologies and equipments to manufacture our products, Apart from this, these are widely demanded for their salient features like high performance, low maintenance cost, durable and easy installation.

We are in this field with our own concept, design and manufacturing facilities.

We have a highly qualified team of professionals at our manufacturing unit, which well versed with knowledge related to this respective domain. Further, it is equipped outfitted with all the latest machines and technologies, which are require to deliver a defect-less line of products to the clients. Apart from this, the finished products are dully tested on certain parameters by the quality checkers as per the set industrial standards. For the convenience of the clients.

Under the able guidance our mentor `` **Mr. Sharad Kumar Singh**`, we have gained growth in this domain. His profound experties and relevant experience in this domain have enabled us to cater to the business requirements of our esteemed clients.

### Automatic Power Factor Controller, Model - PEI\_RFCN

#### SALIENT FEATURES :-

- ⚡ Real time Power Factor and other parameters display
- ⚡ Advance and unique algorithm used for Power factor calculation and commands for stage switching.
- ⚡ Hence almost it is not require to setting the dead band and delays in most of the conditions.
- ⚡ Default display is Power Factor, display of other parameters are on selection basis.
- ⚡ Alarm Indication at Low power factor after certain time.
- ⚡ No need to enter in program for setting power factor and dead band, separate keys on front panel.
- ⚡ H/L indication for acknowledge the switching or hold status of the capacitor banks.
- ⚡ KW, KVA, KVAR display led indicator.
- ⚡ Adjustable minimum sensing load in % of CT.
- ⚡ KW, KVA, KVAR display led indicator.
- ⚡ UP and DOWN keys could be used for manually on or off the stages in normal working condition.
- ⚡ No effect or need to enter the CT ratio for normal power factor correction.



Model : RFCN



## Automatic Power Factor Controller Model Microchip

### SALIENT FEATURES :-

- ⚡ Real time display Suitable for Contacterised capacitor switching panel and for SSR (solid state relay) switched panel on demand
- ⚡ No effects of harmonics on performance
- ⚡ Available Sequence FIFO/FILO/STRAIGHT FIFO/BINARY/LIFO
- ⚡ Input sensing through Individual phase with single CT
- ⚡ Wide current input range
- ⚡ Wide working voltage range
- ⚡ Separate button for desired power factor setting
- ⚡ Separate button for desired dead band setting
- ⚡ Separate button for desired switching delay setting
- ⚡ Output relay contacts up to 12 output available
- ⚡ AMP indicator for ct fault or very low current
- ⚡ Slide switch for locking, to avoid pinning
- ⚡ Standard 144 X 144 mm panel flush mounting arrangement  
Max. depth 75 mm



Model : Microchip



## Automatic Power Factor Controller Model Lunar

### SALIENT FEATURES :

- ⚡ Real time power factor and other parameter display
- ⚡ Default display is Power Factor, display of other parameter are on selection basis.
- ⚡ kw, kva, kvar, voltage and ampere. (accuracy of kw, kva and kvar are on balance load, voltage and correct ct ratio basis)
- ⚡ Suitable for Contactorised capacitor switched panel and for SSR (solid state relay) switched panel on demand.
- ⚡ No effects of harmonics on performance.
- ⚡ Available Sequence FIFO/FILO/STRAIGHT FIFO/BINARY/LIFO
- ⚡ Input sensing through Individual phase with a CT.
- ⚡ Wide current input range.
- ⚡ Wide working voltage range.
- ⚡ Adjustable Parameters i) On delay ii) Off delay) Step delay iv) CT ratio v)
- ⚡ Adjustable minimum sensing load current in % of CT ratio
- ⚡ Output relay contacts up to 15 output available.
- ⚡ AMP led for indication of load current, above than minimum set sensing load current in % of ct ratio.
- ⚡ H/LV, high/low voltage than normal voltage indication H/L for indication, switching on, off or hold the stage.



Model : Lunar

## Power Factor Control Relay (TP\_05)

Three CT APFC Relay Size 96 x 96 mm

- ④ Microcontroller based
- ④ Wide working voltage between R-N, 90v to 290v
- ④ Minimum Current sensing 1%
- ④ Straight FIFO switching sequence for bank selection
- ④ Individual phase and average power factor display on selection
- ④ No effect of harmonics on performance
- ④ Standard DPM size 96mm x 96mm x 87mm panel flush mounting
- ④ Average power factor of all three phase
- ④ Power factor of "R" phase
- ④ Power factor of "Y" phase
- ④ Power factor of "B" phase
- ④ Set Power Factor
- ④ Set Dead Band
- ④ Set Step Delay



Model No. TP\_05



Model DSP\_56

## Power Factor Control Relay (DSP\_56)

Single Ct with Improved Function size 96x96

- ④ Available in 4, 6, 8 stages
- ④ Display Power Factor, Voltage and Ampere
- ④ True RMS measurement of Ampere and Voltage
- ④ Adjustable Current Sensing, minimum 1%
- ④ Model, with Ferrite CT is available for very small load users
- ④ No need to enter CT ratio or any parameter for PF controlling
- ④ Reset function on Factory setting is available
- ④ Direct setting of PF and Dead Band is possible by front keys
- ④ Other Settings are as follows
- ④ Step Delay
- ④ ON Delay
- ④ Off Delay
- ④ Ct Ratio (Primary Ct rating)
- ④ Standard DPM size 96mm x 96mm x 87mm panel flush mount

## Maximum Demand Controller

### FEATURES :

- ④ Micro controller based with three trip output
- ④ Wide working voltage between R-N, 150 v to 240 v
- ④ Default display KVA/MVA
- ④ Display of phase Ampere and Voltage of individual phase is on selection.
- ④ Current sensing through up to 5 A / 5000A CT
- ④ Auto range selection 99.9 KVA to 999 KVA to MVA range
- ④ CT ratio selection 5 A, up to 995 and 50A in KA range 1.00 KA
- ④ Auto range selection 99.9 KVA to 999 KVA to MVA range
- ④ 200% over load capacity
- ④ Resolution 0.1 KVA



Model No. MDC\_TP06



## Digital Ampere Meter Single Phase/Three Phase

### FEATURES :

- ⚡ Microcontroller Based
- ⚡ Wide Working Voltage 100 to 400 v
- ⚡ On site 5A to 1000A CT ratio selection
- ⚡ Accuracy Class 1



Model No. DPM\_SP102



Model No. DPM\_SP102

## Digital Volt Meter Single Phase/three Phase

### FEATURES :

- ⚡ Microcontroller Based
- ⚡ Wide Working Voltage 100 to 600 v
- ⚡ Common Terminal for Measurement & Auxiliary Supply
- ⚡ Accuracy Class 1

## Power Factor Indicator

### Features :

- ⚡ Individual phase and average power factor display
- ⚡ Real time power factor indication
- ⚡ Scrolling and hold selection facility by single key
- ⚡ Power factor display range 0.01 lag to 0.01 lead



Power Factor Indicator



**Model - DPM AV-303**

### Digital Voltage Meter

- ⚡ Microcontroller Based
- ⚡ No auxiliary supply needed
- ⚡ Three individual phase measurement
- ⚡ Phase to Phase measurement
- ⚡ Individual phase LED indication
- ⚡ P - N, P - P and scroll selecting option
- ⚡ True RMS measurement
- ⚡ Four digit, seven segment LED display
- ⚡ Least count 0.1 volt
- ⚡ Light weight
- ⚡ Standard Flush mount 96mm x 96mm x 45mm



**Model - DPM AV-303**

### Digital Ampere Meter

- ⚡ Microcontroller Based
- ⚡ Wide supply voltage 100v to 400 volts
- ⚡ CT primary selectable 5A to 10000 Amps
- ⚡ CT secondary default 5 Amps
- ⚡ Three individual phase current measurement
- ⚡ Individual phase LED indication
- ⚡ Individual and scroll selecting option
- ⚡ True RMS measurement
- ⚡ Least count 0.1 volt
- ⚡ Four digit, seven segment LED display
- ⚡ Standard Flush mount 96mm x 96mm x 45mm





**Model - DPM AV-202**

### **Digital Ampere-Voltage Meter**

- ⚡ Microcontroller Based
- ⚡ Wide supply voltage 100v to 500 volts
- ⚡ CT primary selectable 5A to 10000 Amps
- ⚡ CT secondary default 5 Amps
- ⚡ Single phase current and voltage measurement
- ⚡ LED indication for voltage and ampere
- ⚡ Hold on voltage, ampere or scroll selecting option
- ⚡ True RMS measurement
- ⚡ Least count 0.1 volt
- ⚡ Four digit, seven segment LED display
- ⚡ Standard Flush mount 96mm x 96mm x 88mm

## Alternator Voltage Regulator for Jyoti Alternator (Replacement for CT Choke)

### SPECIFICATIONS :

- ⚡ **Input voltage :** up to 475 ac, two phase & neutral at U, V & N
- ⚡ **Input frequency :** 50 Hz & 60 Hz , adjustable through trim-pot
- ⚡ **Output voltage :** up to 110v DC at terminal F+ & F-
- ⚡ **Output current :** 55 amps continuous/ 110 amps transient for 10 sees.
- ⚡ **Regulation :** +/- 1%
- ⚡ **AVR response :** 20 ms
- ⚡ **Build-up voltage :** 5 volts at AVR terminals
- ⚡ **Under Frequency Protection :** 47 Hz (resettable) at factory setting
- ⚡ **Protection fuse :** 25 amps fast blowing HRC fuse



## Alternator Voltage Regulator for Brushless Type Alternator



**Model : DP-201**

### SPECIFICATION :

- ⚡ **Input Voltage :** up to 475 ac, two phase & neutral at U, V & N
- ⚡ **Input Frequency :** 50 hz & 60 hz, adjustable through trim-pot
- ⚡ **Output Voltage :** up to 110 v DC at terminals F+ & F-
- ⚡ **Output Current :** 8 amps continuous/12 amps transient for 10 sees.
- ⚡ **Regulation :** +/-1%
- ⚡ **AVR response :** 20ms
- ⚡ **Build-up Voltage :** 5 volts at AVR terminals
- ⚡ **Under Frequency Production :** 47 hz (resettable) at factor setting
- ⚡ **Protection Fuse :** 4 amps fast blowing glass fuse 19mm x 5 mm

## Alternator Voltage Regulator for Brushed Type Alternator

### SPECIFICATION :

- ⚡ **Input Voltage :** up to 475 ac, two phase & neutral at U, V & N
- ⚡ **Input Frequency :** 50 hz & 60 hz, adjustable through trim-pot
- ⚡ **Output Voltage :** up to 400 v DC at terminals F+ & F-
- ⚡ **Output Current :** 16 amps continuous/25 amps transient for 10 sees.
- ⚡ **Regulation :** +/-1%
- ⚡ **AVR response :** 20ms
- ⚡ **Build-up Voltage :** 5 volts at AVR terminals
- ⚡ **Under Frequency Production :** 47 hz (resettable) at factor setting
- ⚡ **Protection Fuse :** 6 amps fast blowing glass fuse 19 mm x 5 mm



**Model : DP-203**



## Thyristor Switching Module

### SPECIFICATIONS :

- ⚡ No transient penetration in power supply during switching
- ⚡ Faster response time (5ms)
- ⚡ Suitable for power factor correction in Welding set load
- ⚡ Automatic Thermal cut-off
- ⚡ No auxiliary power supply needed
- ⚡ Module available for switching 5 kvar to 50 kvar capacitor



## Power Factor Control Panel for Unbalance Load (Power Saver)

Power Rating - 10Kw to 25 Kw  
(Any other rating on request)  
Load Type - Three Phase Unbalanced  
Rated Voltage - 415v/440v AC  
Full Load Current - 22.4 Amp



Pentacon Power Saver is designed for power factor correction in 3 phase unbalanced load system. The Panel is equipped with three single phase power factor correction system in single unit. LCD display has been used for display the following parameters

- Power factor of each phase
- Phase current of each phase
- capacitor bank switching status of each phase

Ferrite core ct is used for sensing purpose, which is more accurate and calibrated with the control unit, hence no need to setting the targeted power factor accept in special case. Power saver control unit is detachable on site for maintenance purpose

### Applications :

- \* Residential - Banglow, Kothi, Farm Houses etc with the three phase power supply
- \* Commercial - Restaurants, Hotels, Motels, Offices, Shopping Malls etc.

Size : 580mm x 420mm x 220mm    Weight :

## Power Factor Control Panel for Single phase Load



Power rating - **Up to 11KW load** (any ratings on demand)

Load Type - **Single Phase Inductive**

Rated Voltage - **Up to 250V AC**

Full Load Current - **43.8 Amps, at 250 Volts AC**

### Features:

1. Compact Design
2. PF, Ampere and Voltage display
3. Two pole contactors used for capacitor switching
4. Zero Crossing Voltage (ZCV) Switching tropology used
5. Hence no or very less starting inrush current in capacitor
6. Long life of contactors and capacitors due to (ZCV)
7. Modified APFC used with ferrite core CT
8. High accuracy at low load due to Ferrite Core CT
9. Wall mounting through two fastener bolt
10. Size 420mm x 260mm x 165mm



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