



APFC

Automatic Power Factor Controller

Power | Frequency | PF | VAR | 8/12/16 stage control

SAVE ENERGY & AVOID PENALTIES

The APFC440 automatic power factor controller has been designed to help you improve the efficiency of your industry by reducing reactive losses, apparent power demand charges and helps you in avoiding penalties.

Features:

- True RMS Measurements.
- Simultaneous sampling of voltage and current.
- Auto Learning of connection type.
- Automatic calculation of C/k ratio.
- High and Low of V, A, PF for last one minute through communication
- Accuracy class: class 1.0 as per standard IEC 62053-21.
- 3Phase measurement.
- 8/12/16 switching relay outputs.
- Auto recognition of the CT phase.
- Two quadrant operations.
- 21 pre-programmed control series of capacitor values required for the compensation network.
- Auto-learning of the number of capacitors connected and their value.
- Capacitance-based power factor correction - takes care of variations in voltage and frequency.
- Records the number of switching and ON hours of each capacitor.

Display Parameters

- Basic
- Power
- Energy
- THD parameters.

Built-in alarms

- Alarm/Fault Detection
- Overcompensation
- Under Compensation
- Over Voltage
- Over Current
- Under Voltage
- Under Current
- Reverse Amps
- Over Harmonics Voltage and Current.

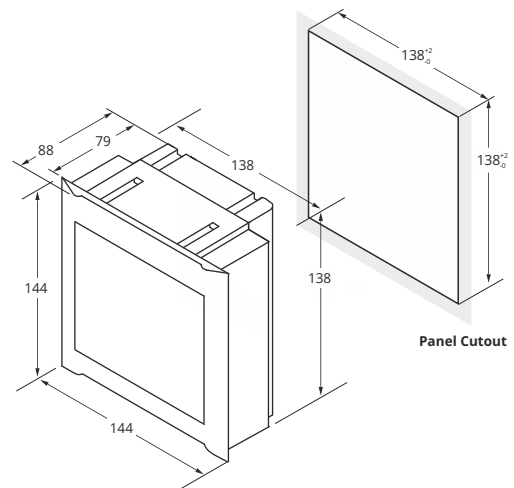
Applications

- Manufacturing industries
- Chemical industry
- Cement plant
- Sugar plant
- Textile
- Hospitals
- Automobile industry, etc.

Control Features

- Intelligent Power Factor Controlling based on the capacitor bank switching's history (Number of operations, ON Time) which improves the capacitor life time
- Communication of the live kVAR value based on voltage & frequency (optional).
- Controlling based on VAR parameter.
- Control principle - nearest value first.
- Minimum sensing current of 500mA for controlling operation.
- Communication via RS485 over Modbus RTU protocol.
- On-site Programmable:
 - Alarm display.
 - Selectable stages
 - Alarm levels based on the comfort level of the user.
 - Password protection
 - CT ratio suitable for any load.
 - 3 phases or 1 CT option.
 - Star/Delta/1Phase programmable.
- Disables the capacitor bank automatically when the capacitor is deteriorated beyond a certain level.
- Additional monitoring of the power level of individual capacitor banks.
- Improved sensing of switch ON / OFF capacitor within the programmed level and not towards UPF.
- Improved methodology in ON/OFF switching.
- Improved life cycle of the capacitor with Lesser count of switching to improve the life cycle of the capacitor bank.
- Improved power factor calculation based on reference Voltage and Frequency.
- Improved method of capacitor switching when the alarm occurs.
- Threshold setting Lag-to-Lag and Lead-to-Lead

Mechanical Specification:



Technical Specification:

Accuracy	Class 1: IEC 62053-21 (Default) Class 0.5: IEC 62053-22 (Optional).
Update Rate	1 sec
Power system type	Programmable: Star (3Phase 4Wire), Delta (3Phase 3Wire), 3U.1A(3 voltages, 1 current)
Sensing / Measurement	True RMS, 1 Sec update time. 2 Quadrant Power & Energy.
Input voltage (Measurement)	4 Voltage inputs (V1, V2, V3, VN) Programmable 110 or 415V LL Nominal Primary Programmable up to 999 kV.
Burden	0.2VA Max. per phase
External Fuse Rating	3 Amps
Frequency	45 Hz - 65Hz
Input Current (Measurement)	Current inputs (A1, A2, A3) 5mA - 6A (Field configurable 1A or 5A) Primary Programmable up to 99 kA
Overload	10A max continuous, 50A max for 3 Sec
Burden	0.2VA Max. per phase
Auxiliary Supply (Control Power)	180 to 300V AC/DC, 40-70Hz
Burden	10VA Max
External Fuse Rating	200mA Slow blow type
CT PT Ratio Max	2000 MVA Programmable
Protection Class	3
Measurement Category	CAT III (As per IEC 61010)
Humidity	5% to 95% non-condensing
Pollution Degree	2 (As per IEC 61010)
Altitude	Below 2000m
Insulation	Double Insulation (As per IEC 61010-1)
Ingress Protection	IP 51 (front facia)
Operating Temperature	-10°C to + 55°C (14°F - 131°F)
Storage Temperature	-25°C to +70°C (-13°F - 158°F)
Wire Gauge (Connecting wires)	26 - 10AWG (4.0mm ²).
Container material	PC
Communication	RS485 serial channel connection Industry standard Modbus. RTU protocol. 2000 volts AC isolation for 1 minute between communication and other circuits.
Baud rate	4800, 9600, 19.20K, 38.40K (Preferred 9600 bps)
Isolation	2000 volts AC isolation for 1 minute between communication and other circuits.
Parity	Even, Odd, No
Device/Meter ID	1 to 247 (Programmable)
Relay contact rating	SPST, 3A@240VAC

Display Specifications

Display Type	Customised 3 row 4 digit LED with % Level indicator
Dimension	3Row 4Digit 0.56" (14mm) Red
Color	Black Face and Red segment
% Bar Graph	% Load indication bar graph with programmable parameters (A, VA, WATT)
Display Resolution	4 digits for instantaneous parameters, 8 digits for integrated parameters.
Keys	4

Mechanical Specifications

Dimension	144mm X 144mm
Mounting	Panel mount
Panel Cut-out Dimension	138mm X 138mm
Weight	Without Packing 600gms, With Packing 700gms