



APFC

POWER FACTOR CONTROLLER

Current | Voltage | Frequency | PF | VAR | 6/8/12 stage control

INTELLIGENT DEVICE TO MAINTAIN THE POWER FACTOR IN REQUIRED RANGE!

Features:

- True RMS Measurements
- Simultaneous sampling of voltage and current
- Auto Learn 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
- 4/6/8/10 (APFC640) 10/12/16 (APFC440) 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
- Learns the number of capacitors connected and the value (10% load)
- Capacitance-based power factor correction takes care of variation in voltage and frequency
- Stores the number of switching and On hours of each capacitor
- Displays Basic, Power, Energy and 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

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
- Optional communication of present kVAR value based on voltage and frequency
- Controlling based on VAR parameter
- Control principle – nearest value first
- Minimum sensing current for controlling operation 50mA (1% load)
- RS485 communication (optional)
- 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
 - Star/Delta/3phases or 1 CT option programmable
- Disables the capacitor automatically when the capacitor is deteriorated beyond a certain level
- Improved sensing of switch ON / OFF capacitor within the programmed level and not towards UPF
- Improved Switching's ON / OFF methodology to operate the system very close to the target power factor
- Improved life cycle of the capacitor with less count of switching
- Improved power factor calculation based on reference Voltage and Frequency
- Improved method of Capacitor switching when the alarm occurred Threshold setting Lag to Lag or Lag to Lead

Applications:

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

Technical Specification:

Specification	Description
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, 1current)
Sensing/Masurement:	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
Input 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 (4.0mm2).
Container material:	PC
Display:	Type: Customised 3 row 4 digit LED with % Level indicator. Dimension: 3Row 4Digit 0.56" (14mm) Red. Resolution: 4 digits for instantaneous parameters, 8 digits for integrated parameters. LED Bar Graph: % Load indication with programmable parameters (A, VA, WATT)
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
Mechanical Spec.: (Panel Mount)	APFC440 (144 x 144mm) Panel cutout: 138 x 138mm APFC640 (96 x 96mm) Panel cutout: 90 x 90mm
Weight:	APFC440: 700gms APFC640: 400gms

Note: Additional error of 0.1% of full scale, for meter input current below 500mA



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