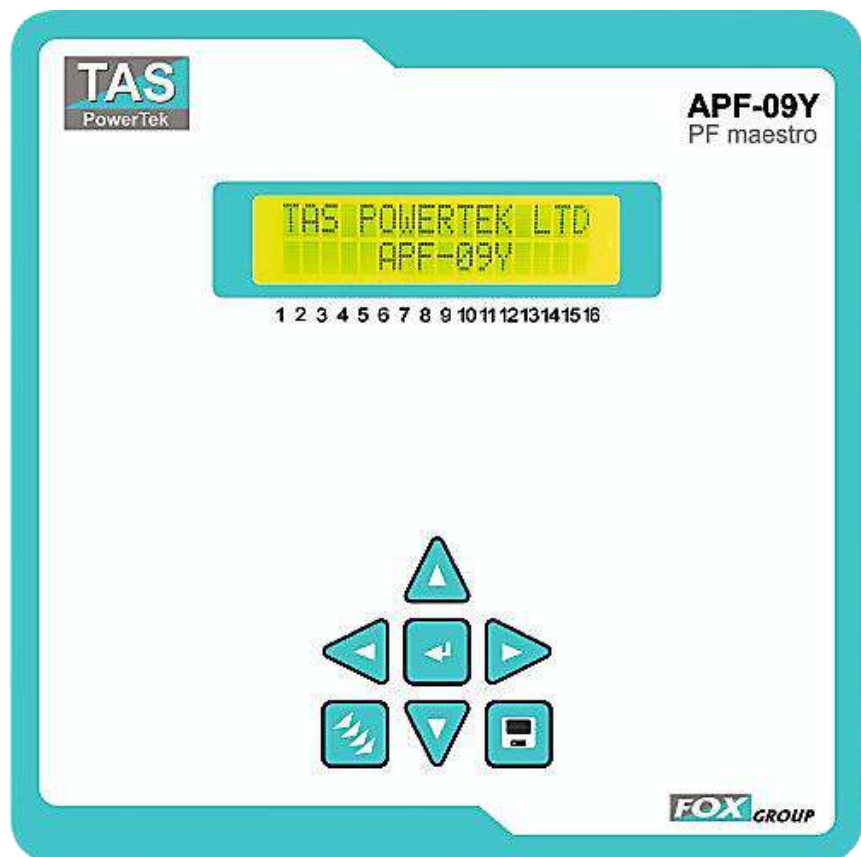




Product Data Sheet

PF maestro – APF-09Y Series Power Factor Controller



PF maestro – APF-09Y Series is a Single CT smart Automatic Power Factor Correction (APFC) Controller built on advanced 32-bit ARM Cortex-M microcontroller technology with integrated Digital Signal Processing (DSP). It offers precise power measurements, real-time monitoring, and intelligent control of capacitor banks to improve power factor in industrial and commercial electrical systems.

PRODUCT FEATURES

➤ **Advanced 32-bit ARM Cortex-M Microcontroller with DSP Logic**

Incorporates a state-of-the-art 32-bit ARM Cortex-M processor with integrated Digital Signal Processing (DSP) capabilities. This enables high-speed, real-time data acquisition and processing for accurate measurement, monitoring, indication, alarming, and automated control of power factor correction functions.

➤ **Standards-Compliant Power Measurement**

Accurately measures Active (P) and Reactive (Q) power in accordance with IEC 62053 Part 21 & 23, Class 3.0, ensuring reliable performance and compliance with international energy metering standards.

➤ **Auto CT Polarity Detection**

Features automatic detection and indication of Current Transformer (CT) polarity, with user-editable settings to simplify installation and ensure measurement accuracy.

➤ **Dedicated Voltage Feedback Inputs**

Provides Phase-to-Phase voltage measurement through independent input terminals, enhancing flexibility and precision in diverse installation setups.

➤ **Single CT Current Feedback Interface**

Supports single CT-based current measurement through a three-terminal side connector located at the rear, allowing for simplified wiring while maintaining accuracy.

➤ **Harmonic Analysis Capability**

Measures supply voltage and current, along with odd harmonic coefficients up to the 15th harmonic, helping users monitor and manage power quality effectively.

➤ **Wide Input Voltage Range Support**

Capable of operating over a broad AC input voltage range, accommodating various system configurations and ensuring adaptability in diverse power environments.

➤ **Multiple Capacitor Switching Modes**

Offers several capacitor bank switching to optimize power factor correction:

- Un-equal Mode – User-defined step sizes for flexible compensation
- C-Series Mode – Predefined standard capacitor bank sequences
- E-Series Mode – Custom-defined, energy-optimized sequences

➤ **Capacitor Bank Step Control**

Supports control of 4, 6, 8, 10, or 12 output capacitor steps, depending on the selected unit model, allowing precise reactive power compensation tailored to load demand.

➤ **Auxiliary Digital Input & Output**

Includes a 24V DC auxiliary digital input for external triggering or interlocks, and a potential-free Normally Open (N.O.) relay contact output. This output can be used for system interlocks or to control auxiliary equipment such as an APFC panel cooling fan (if enabled).

➤ **User-Friendly Display**

Equipped with a 16-character x 2-line LCD display featuring LED backlighting, ensuring clear visibility of system status, measurements, and alerts even in low-light conditions.

➤ **Rugged and Standardized Enclosure**

Housed in a DIN standard 144mm x 144mm panel-mountable enclosure, made from fire-retardant plastic, designed for secure and safe integration into electrical panels.

➤ **Comprehensive Built-in Protections**

The unit includes user-configurable protections to safeguard system performance and longevity:

- Over and under supply voltage
- Overcurrent or under load (based on kW)
- Over-temperature protection for the APFC unit
- Capacitor bank step health monitoring

TECHNICAL SPECIFICATIONS

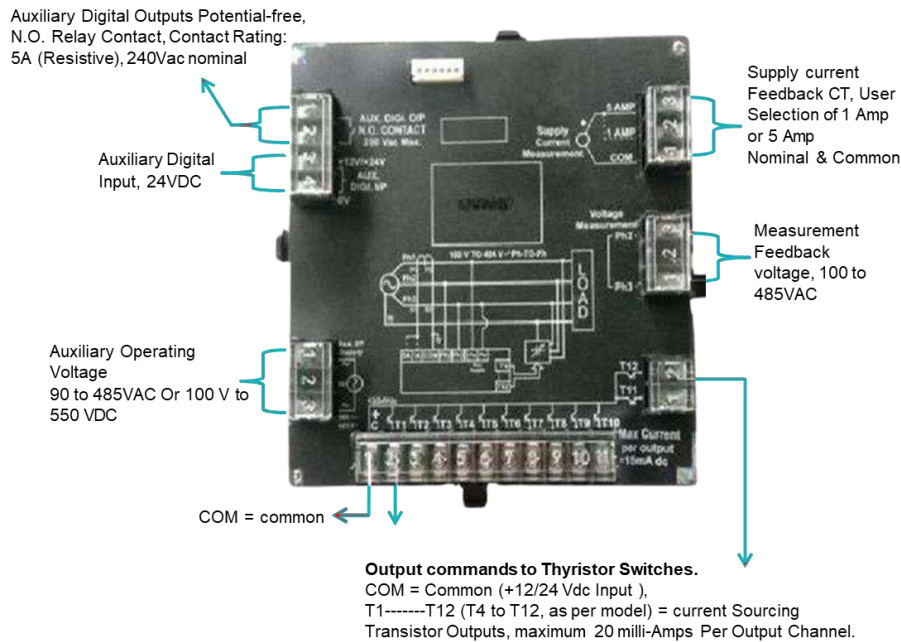
Parameter	Specifications
Feed-back Voltage	2-Ph, 2-wire (Phase-to-Phase), Nominal 415 Volts (User Settable Range: 100 to 480 Vac, in steps of 1 Volt)
Supply Current Feedback (CT) Input	Selectable 5 Amp or 1 Amp
Measurement Accuracy	Class 2 for Voltage & Current
Power Measurement Accuracy	Class 3 (P-Active & Q-Reactive)
Mains AC Supply Frequency Range	47 Hz to 53 Hz (Nominal 50 Hz) or 57 Hz to 63 Hz (Nominal 60 Hz)
Power Factor Correction Cycle Time Range	User Selectable: 1 to 180 Seconds (in steps of 1 Second)
Capacitor Bank Discharge Time Range	User Selectable: 1 to 180 Seconds (in steps of 1 Second)
Output Commands	4 / 6 / 8 / 10 / 12 Relay 'NO' Contacts (Isolated, 5 Amp Resistive / 0.5 Amp Inductive / 250 Vac)
Relay Contact Usage	Suitable for Three-Phase Capacitor-Duty Contactor Coils (Nominal <250 Vac, 50 Hz)
Current-Sourcing transistor contact	Max. 20 milli-Amp Current-Sourcing Transistor Outputs, using external supply of 12Vdc / 24Vdc, Current-Sourcing Transistor Outputs are Short- Circuit Protected
ENVIRONMENTAL	
Operating Temperature Range	-10°C to +60°C
Storage Temperature Range	-10°C to +65°C
STANDARDS COMPLIANCE	
EMC / EMI	IEC 62326 – 1
Environment	IEC 60068 (Temp, Humid, Rust) IP-54 (front), IP-20A (back)
Measurement Accuracy – P & Q	IEC 62053 pt.21,23 table-6 Class-3.0

Product Data Sheet

PF Mastro – APF-09 Series
Power Factor Controller

All specifications are typical and subject to change without notice due to ongoing product development and improvement.

WIRING TERMINALS



MECHANICAL DIMENSIONS

