

# ENERSINE APF

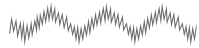
## WALL MOUNTED ACTIVE POWER FILTERS FOR HARMONIC & POWER FACTOR COMPENSATION

Emphasizing on modern compact power electronics technology, the Enersine Wall mount Active Power Filter (APF) offers a cost-effective solution for improving power quality and compensating variable power factor and harmonics where space is at premium and harmonic mitigation is high. With high current ratings from 60A to 100A, these APF are adaptable to any load size for maximum versatility of use.



ESP34W APF

### PERFECT FOR:



LV Switchboard with High polluting loads



Motor drive system



CNC machines



Airports



Industry

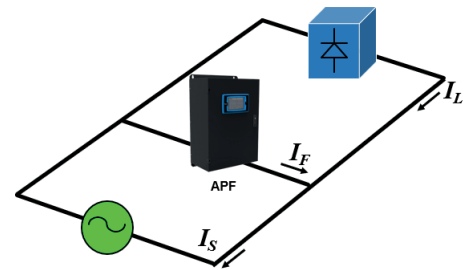


Medical

## FEATURES



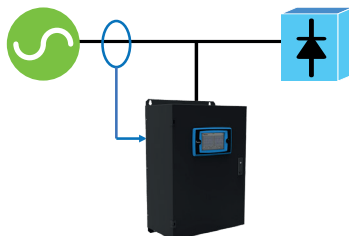
- Real-time compensation from 2nd to 51st order.
- Improved leading and lagging Power Factor.
- Provides load balancing without rewiring of existing loads.
- Significantly reduce the voltage waveform distortion.
- Reduce voltage drop and temperature rise on transformers & cables.
- Universal voltage: 208V/400V/480V (without transformer).
- Harmonic compensation for 3-wire or 4-wire system selectable.
- Close/Open Loop Selectable Control.
- Ultra-fast response to load changes within 1 microseconds.
- Suitable with 1 Amp or 5 Amps CT Secondary Current.
- Same or Different rated current filter system can be wired in Parallel with common coupling CT
- 7inch Touch screen HMI provides power parameters and display data in tables and waveforms.



## OPEN/CLOSE LOOP CONTROL

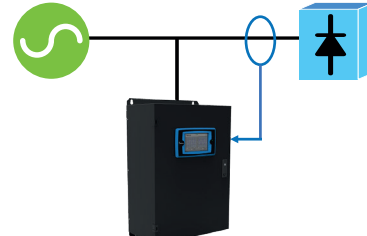
External auxiliary coupling current transformers (CT) are essential components in all active filter applications and depending on the point of coupling, it is generally classified as Closed Loop control or Open Loop control.

Close Loop control (source sensing) require the external auxiliary CT to be coupled at the input supply source common to both the APF and the harmonics generating equipment.



Close Loop Control

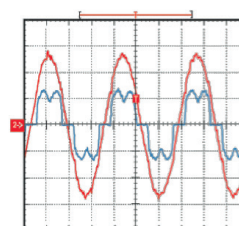
Open Loop control (load sensing) require the external auxiliary CT to be located nearest to the point of common coupling in the direction of the harmonic generating equipment.



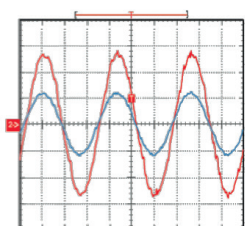
Open Loop Control

## TRUE HARMONIC & POWER FACTOR CORRECTION

The Enersine APF not only compensates harmonic current but also improves leading and lagging power factor. Compensate harmonics up to 25th order in less than 10ms and provides load balancing without rewiring of existing loads.



Before  
THDi=30%, PF=0.81



After  
THDi=4.3%, PF=1.0

# SPECIFICATIONS

MODEL		ESP34W-60	ESP34W-80	ESP34W-100
<b>ELECTRICAL</b>	Maximum Compensating Current Per Phase*	60A <sub>RMS</sub>	80A <sub>RMS</sub>	100A <sub>RMS</sub>
	Maximum Neutral Compensating Current	3 times of Phase Current (400V version only)		
	Parallel up to	4 units in parallel		
	Flexible Power Capacity Combination	Different capacity unit can be parallel. E.g. 60A + 100A		
	Input Voltage Range	(i) 208V +15%, -20% (ii) 400V +15%, -20%; (iii) 480V +10%, -20%		
	Phase/Wires	3 phase 3 wires or 4 wires selectable for 208V and 400V model 3 phase 3 wires for 480V model		
	Nominal Frequency	50/60Hz ± 5% (Auto-sensing)		
	Compensated Harmonic Orders	Global Mode: From 2nd to 51st order, including Even orders Selective Mode: Up to 30 orders simultaneously		
	Power factor correction (Reactive Current)	Power factor correction is programmable from 0.6 lagging to 0.6 leading		
	Load balancing	Both phase to phase and phase to neutral		
	CT Ratio	Programmable Primary Current: 100A-10000A Programmable Secondary: 1A/5A		
	CT Location	CT at Source Side: Closed Loop control CT at Load Side: Open loop control		
	Response Time	Harmonic Compensation <1ms Reactive Current Injection <20ms		
	Inrush Current	Less than rated current		
	Current Limitation	Yes, at full correction		
	Power Electronics	3-level IGBT Technology with DSP Control		
	Compensation Ratio	10:1 typical		
	Maximum Heat Losses	≤ 5% at full capacity		
	Cooling	Forced air cooling with speed-controlled fans		
<b>COMMUNICATION</b>	Display	7inch Colorful LCD Touch Screen		
	Dry contact	3 output dry contacts, 1 input dry contact		
	Communication	USB, Ethernet (TCP/IP), RS-485 (Modbus RTU port), EPO		
<b>PHYSICAL</b>	Type	Wall Mount		
	Dimension (WxDxH, mm)	500 x 286 x 775		
	Weight (kg)	51	58	60
	Protection Index	IP31, other IP options available upon request		
<b>GENERAL</b>	Noise level	< 65dBA		
	Operating temperature	0°C to +40°C without derating		
	Relative humidity	<95%		
	Operating altitude	<1000m without derating		
	Reference harmonic standard	EN61000-3-4, IEEE 519-1992		
	Reference design standard	EN60146		
	Safety standard	EN50178		
	Electromagnetic compatibility	EN55011 Class A1, EN 61000-3, EN 61000-4, EN 61000-6		

Specifications subject to change without notice.

\*the current rating may be derated automatically depending on load conditions for ambient temperature higher than 40 degree celsius.

Designed &  
Engineered by:

