Ablerex

Power Abler and Excelsior

Enersine Series
Modular Active Power Filter

- Modular design, easy to extend
- Up to 51st harmonic
- Up to 12 harmonic orders selective individually
- Close/Open Loop Control
- Programmable power factor correction
- Programmable Load balance function
- Full-time DSP Control system
- Easy selection
- Shunt connection, easy for maintenance
- Flexible Up-grading/Redundancy
- Parallel operated in different capacity
- User-friendly control panel

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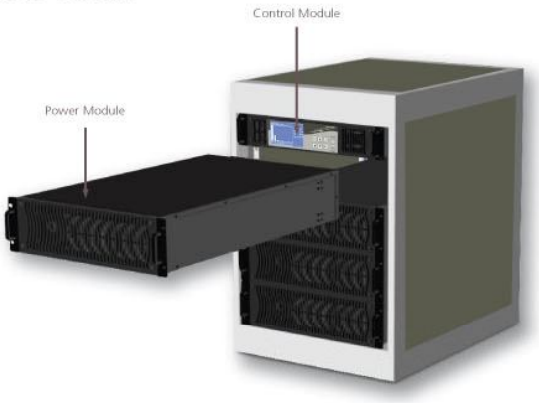
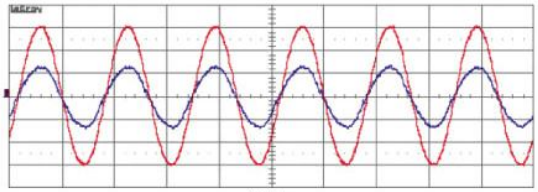
Modular and easy to extend

Designed in standard 19" rack mounting and wall mounting configuration. Composed of one Control Module plus several Power Modules (up to 4 units).



Power Factor Correction

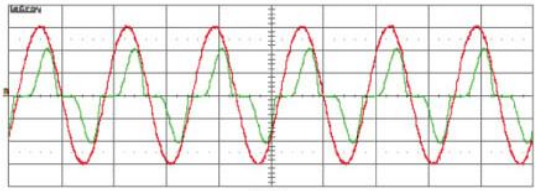
Enersine not only compensate harmonic current but also the reactive power. It is able to correct for either a leading or lagging power factor.



V & I_S

$THDI_S$=4.3% PF=1.0

After compensation



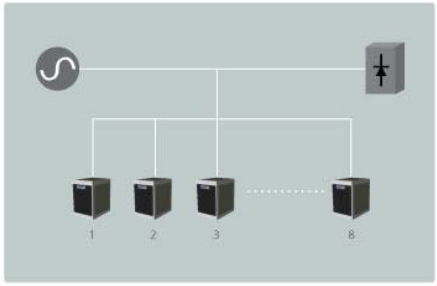
V & I_L

$THDI_L$=51.9% PF=0.77 lagging

Before compensation

Flexible up-grading/redundancy

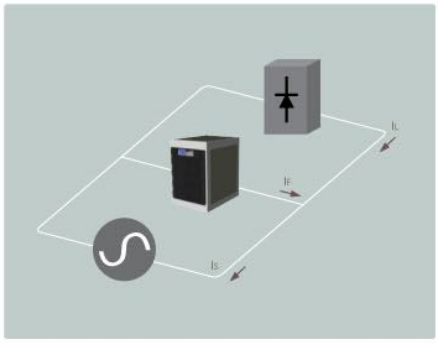
In the event if the real value of the ILh is higher than the estimated one, or the ILh increase due to additional loads being added, there is no overload risk on the existing system which have been selected. Enersine has current limit capability up to its full rating, thus it will not shut down or malfunction but will continue to operate in full compensating mode. Additional It can be added in parallel on site later to meet the increment of the ILh value. The maximum parallel operation configuration is up to 8 control modules and different capacity can be operated in parallel.



Easy Selection

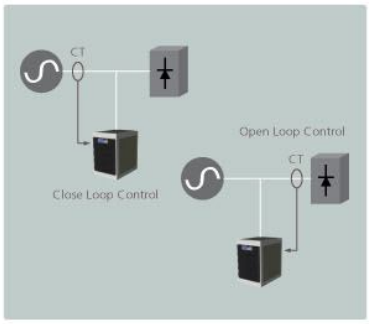
There is no need to measure the impedance of the power system or analyze the load harmonics spectrum and their individual amplitude. The selection is based on the known estimated load harmonics current amplitude (ILh) to be compensated, then select the Enersine model which has the output compensating current rating greater that of the ILh.

Enersine behaves like a harmonics current generator. It will measure the harmonics generated from the non-linear loads and cancel these harmonics with a newly generated, opposite phase shifted harmonics current of the same amplitude.



Close / Open Loop Control

The CT is allowed to install at source or load side for measure the harmonic current from the load. When CT is installed at source side, the close loop control method is used for best accuracy of harmonic current compensation.



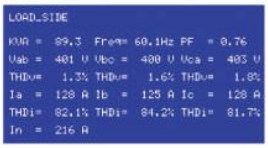
User-Friendly control panel

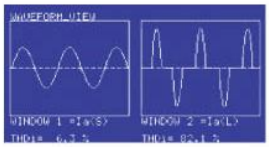
Enersine is equipped with a user friendly control panel. It is simple to turn the unit on or off and features buzzer silence and system status.

The optional LCD panel with special blue back light offers access to all parameters, waveforms, & spectrum for management of both Enersine and system power quality. The graphic LCD display & control panel gives easy access for load, source:

- Complete with V,I,F,PF,KVA,THD parameters
- Waveform & harmonic spectrum
- settings • Status & alarms • Events log • Multi-language

LED Panel



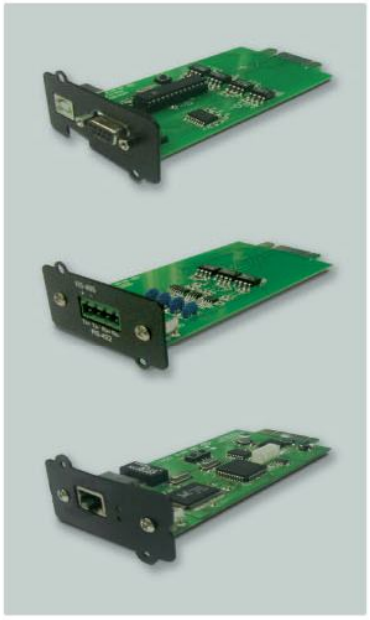


LCD Panel Optional

Communication Capability

Enersine uses J-Bus/MOD Bus protocol and provides 2 communication slots for install below communication cards.

- Standard RS232/USB Card
- Optional RS422/RS485 Card
- Optional Ethernet Card



Dry Contact

5 output dry contacts for easy monitoring.
1 input dry contact for remote control.
EPO switch for emergency shutdown.

Optional Monitoring Software

ESD-Link34 has below functions for remote monitor and control.

- Real Time Monitoring
- Download the Parameter, Waveform, Spectrum and Event logs.
- Recorder for the Parameter
- Dry Contact programming
- Monitor up to 255 Units.

General Characteristics	
Storage Temperature	-20°C ~ +70°C /-4°F to 158°F
Operating Temperature	+ 0°C ~ +40°C/32°F to 104°F
Relative Humidity	< 95%
Operating Altitude	<1000m/3200ft
Reference Harmonic Standard	EN 61000-3-4 , IEEE 519-1992
Reference Design Standard	EN60146

Enersine Series
Modular Active Power Filter

Control Module Specification

Item \ Model Number	ESD34-CX035-400E-X	ESD34-CX030-480A-X
Input Voltage	400V +15%,-20%	480V +15%,-20%
Phase/Wires	3 phase 4 wires/3wires	
Frequency	50/60±3 Hz (Auto Sensing)	
Compensated Harmonic Orders	From 2nd to 51st order. Up to 12 orders actives simultaneously (2nd ~31st). Higher Order Compensation (32nd~51st) Disable/Enable operation.	
Power Factor Correction	Compensate both lagging and leading reactive power.	Compensate leading reactive power.
	Power factor can be programmed from 0.7 lagging to 0.7 leading	
CT Ratio	Can be set. Primary Current: 100A~10000A Secondary Current: 1A(Standard)/5A (Optional)	
CT Location	Source of Load side	
Response Time	< 20 msec	
Number of controllable Power Module	Up to 4 Power Modules.	
Parallel	Up to 8 Control Modules.	
Maximum Heat losses	50 Watt	
Dry Contact (Standard Configuration)	5 Output Dry Contacts , 1 Input Dry Contact & 1 EPO	
Communication Interface	Standard : RS232/USB Optional: RS485/RS422 Ethernet Card	
Programming	Setting by expert service software or LCD control panel.	
Monitoring Software (Optional)	ESD-Link34	
Communication Protocol	J-Bus/MOD Bus Protocol	
Control Panel	Standard : LED Control Panel Optional: Graphic LCD Display	
Color	RAL9011(PANTONE Process Black C)	
Protection Index	IP20	
Dimensions (WxHxD)mm/inch	440 x 710 x 86 / 17.3 x 28.0 x 3.4	
Weight (kgs / lbs)	5 / 11.0	

Power Module Specification

Item \ Model Number	ESD34-PX035-400E	ESD34-PX030-480A
Input Voltage	400V +15%,-20%	480V +15%,-20%
Phase/Wires	3 phase 4 wires/3wires	
Frequency	50/60±3 Hz	
Maximum Compensation Current/Phase	35 Arms	30 Arms
De-rating Compensation Current/Phase (1)	30 Arms	25 Arms
Maximum Compensation Current for Natural	105 Arms	90 Arms
Inrush Current	Less than rated current	
Current Limitation	Yes, at full correcting	
Maximum Heat losses	650 Watt	
Color	RAL9011(PANTONE Process Black C)	
Protection Index	IP20	
Dimensions WxHxD (mm/inch)	440 x710x131 / 17.3 x 28 x 5.2	440 x 710x175 / 17.3 x 28.0 x 6.9
Weight (kgs / lbs)	31.0 / 68.3	42.0 / 92.5

(1) When 2 and above Power Modules work in power scalable configuration, the power module will downgrade automatically from 35A to 30A. It means 60A/90A/120A, while 2/3/4 400v power modules connecting parallel.

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