Ablerex ESP 400 Active Power Filters Owner's Manual

Contents

Ablerex ESP 400 Active Power Filters

Product Information

Specifications

- **Model:** ESP Active Power Filters
- **Size (A):** 400 or 600
- **Power Module (A):** 60-80-100
- **Rated Voltage:** 400V +15%, -20%; 480V +10%, -20%
- **Phases:** Three-phase
- **Frequency:** From the 2nd to the 51st harmonic correction
- **Harmonic Correction:** Capacitive and inductive (selectable)
- **Power Factor Correction:** Between two phases and between phase and neutral
- **Load Balancing:** Yes
- **Response Time:** Less than 1 ms

Product Usage Instructions

User Interface
The product features a user-friendly interface with a 7-color touch screen display. This display allows users to set parameters, read event logs, download data to an SD card, view voltage and current waveforms, and observe frequency spectrum bar graphs. **Closed**

Loop Control

The active power filters support closed loop control for precise adjustment and correction of harmonic currents and power factor. The benefits of this control can be easily monitored on the display.

Open Loop Control

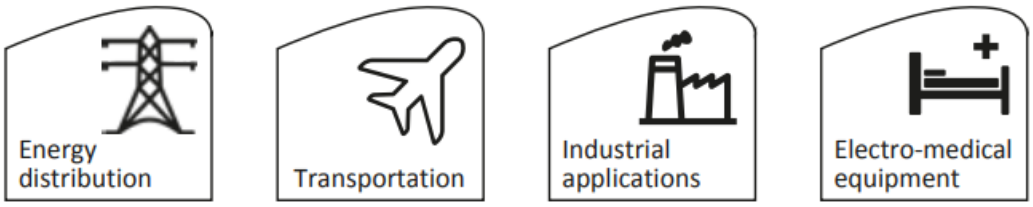
In addition to closed loop control, the product also offers open loop control for certain applications where precise adjustment is not required.

Harmonic and Power Factor Correction
The ESP actively corrects harmonic currents up to the 51st order and enhances inductive or capacitive power factor. These corrections can be verified on the display for monitoring purposes.

Frequently Asked Questions (FAQ)

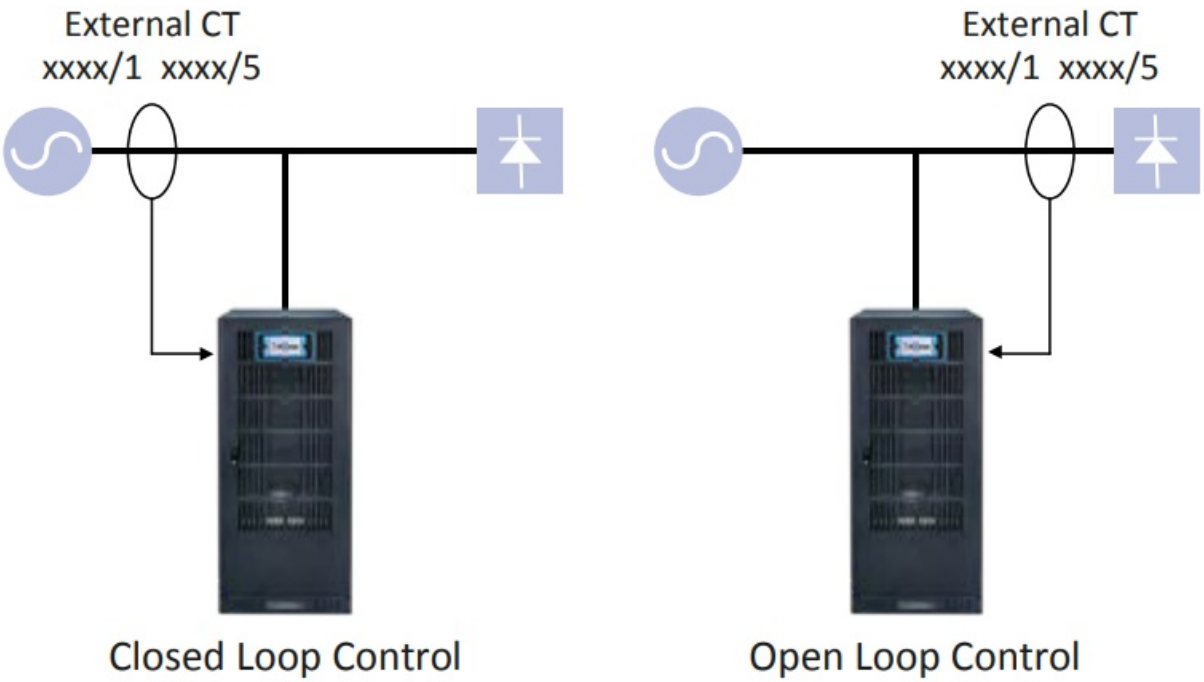
- **Q: How many phases does the ESP Active Power Filters support?**
  A: The ESP Active Power Filters support three-phase operation.
- **Q: What is the response time of the active filters?**
  A: The response time of the active filters is less than 1 ms.

Features



- Hot-swappable power modules that are easy to install make the architecture highly scalable.
- Their modularity, high current rating and the option of connecting them in parallel up to 2400A makes them versatile.
- ESP is available in two versions, 4 or 6 modules for 60A, 80A or 100A, which can also be used in a mixed configuration within the same system.
- Maximum performance with 3-level DSP technology.
- Their compact, high-power-density design optimises space.
- Multi-purpose: one model covers all three-phase systems (3-wire or 4-wire).
- Correction of all harmonics (up to the 51st) with a response time of less than 1 ms.
- No overload effect.
- Selective mode to select the harmonics to be corrected.
- Phase balancing of three-phase loads.
- Open loop or closed loop installation.
- A single control module manages up to 8 power modules.
- All parameters are under control via the 7” colour touch screen display that shows: voltage and current waveforms, frequency spectrum, parameters and events.
- Events and parameters can be downloaded to a removable SD card.
- Advanced communication: dry contacts (3 in and 1 out), USB, RS485 Modbus, RJ45 Ethernet, programmable email alarm.
- Multiple languages can be selected.

Open/closed loop control

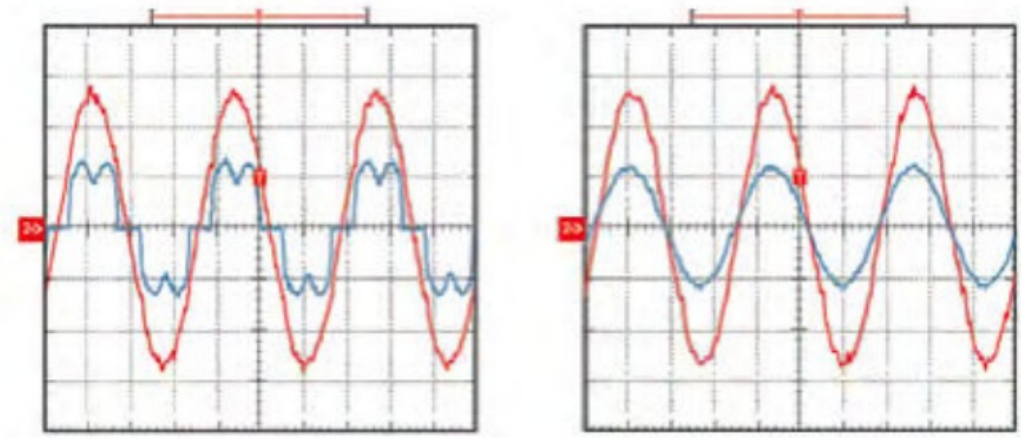


User-friendly user interface

The 7” colour touch screen display can be used to set all parameters, read the event log file and download data to a removable SD card. It can also show the voltage and current waveforms, before and after enabling the ESP, along with a frequency spectrum bar graph.

Harmonic and PF correction that can be verified on the display

ESP not only actively corrects harmonic currents up to the 51st order, but also improves the inductive or capacitive power factor with a response time of less than 1 ms. The benefits can be seen easily on the display.



Specification

MAXIMUM ACTIVE FILTERING IN A MODULAR VERSION

ESP active filters with a modular structure can correct any type of harmonic contamination to protect the system from faults (e.g. on transformers, capacitors, etc.), while also improving the power factor.

MODEL		**ESP 400**	**ESP 600**
SIZE (A)		400	600
POWER MODULE (A)		60-80-100	
ELECTRICAL SPECIFICATIONS	Rated voltage	400 V +15%, -20%; 480V +10%, -20%	
	Phases	Three-phase	
	Frequency	50/60 ±3 Hz	
	Harmonic correction	From the 2nd to the 51st	
	Power factor correction	Capacitive and inductive (selectable)	
	Load balancing	Between two phases and between phase and neutral	
	Response time	25 µs	
ENVIRONMENTAL PARAMETERS	Operating temperature	-10°C to +40°C with no derating	
	Relative humidity	<95%	
	Altitude (a.s.l.)	<1000 m with no derating, >1000 m with 1% derating for every 100 m	
	Audible noise at 1 m.	<63 dBA	
GENERAL	Dimensions (WxDxH) mm	600x900x1500	600x900x1950
	Weight (kg)*	150	196
	Protection class	IP21	
	Connections	4-wire/3-wire	
	Installation	Floor standing	
	Type	Modular	
	Parallel connection up to (A)	2400	
	Max. no. of modules per system (60 or 80 A in a mixed configuration)	Up to 4	Up to 6
	Max. parallel systems	6	4
	TA configuration	Source side TA: closed loop control – load side TA: open loop control	
CONNECTIVITY	Built-in communication ports	USB, RS-485 ModBus RTU, EPO Ethernet port and dry contact relays (1 in/3 out)	
	User interface	7’’ colour LCD touch screen display	

	Software	Data monitoring and storage software
REGULATIONS	Standards	EN61000-3-4, IEEE 519-1992, EN60146, EN50178; UL508, EN61000-6-4, EN55011, CISPR 11, IEC 61000-3-12, IEC 61000-3-11, IEC 61000-6-2, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 62477-1, IEC 61000-4-5, IEC 61000-4-6, EN 61000-4-8, EN61000-4-34
	Marking	CE, UKCA

* Without control module and power module

Documents / Resources

	Ablerex ESP 400 Active Power Filters [pdf] Owner's Manual ESP 400, ESP 600, ESP 400 Active Power Filters, ESP 400, Active Power Filters, Power Filters, Filters

References

- User Manual