

MaxSine Compact

Active harmonic filter

Alstom power compensation equipment helps customers improve performance with energy savings and better power quality. Our products and solutions save customers money and reduce the environmental impact of their operations.

For active compensation of harmonic currents and reactive power

There is an increasing amount of electrical equipment with non-linear voltage-current characteristics connected to the network. The harmonic currents they produce cause harmonic voltages in network impedances, which add to the fundamental system voltage and result in voltage distortion.

This voltage distortion is experienced by all electrical equipment connected to the network, leading to higher thermal loading of motors, transformers, capacitors, switchgear and cabling. Some of the electrical equipment develops more audible noise when supplied with distorted voltage. Sensitive electronic protection, control and ripple control systems are not likely to operate properly when supplied with distorted voltage.

The most effective way to eliminate harmonics is the MaxSine active harmonic filter.

Main compensation features

- Two compensation modes: fast mode for selectable harmonics (1st-50th) or ultra fast mode for global compensation
- Devices available for 3-wire as well as 3-wire + neutral (4-wire)
- Priority settings for harmonics and/or fundamental reactive compensation
- Total power factor can be forced to 1
- Ability to balance line currents
- Ability to eliminate neutral current
- Adjustable amplitude and phase of individual compensation harmonics currents
- Excellent dynamics: response time < 1ms in ultra fast mode and adjustable from 1 network period to 50 network periods in fast mode
- Multiple CT-circuits (open loop, closed loop, CT-additions, etc.)
- Selectable dual parameter page setting e.g. for emergency generator supply

Why MaxSine Compact?

- Modular construction
- Power adaption by increasing the number of modules
- Improved compensation capacity
- Compact size
- Directly wall-mounted or floor mounted in cubicle
- Basic module 100 A line current and 300 A neutral current
- 208-480 V
- Informative display
- Web browser for device settings and displaying measurements

MaxSine features

- Small size enables customised modular cabinet construction.
- Ethernet connection and web server for monitoring, setting and control
- User interface: PC or optional HMI
- Several languages
- Relay output for run indication
- Standby in case of small load current
- Electronic overload protection
- Auxiliary temperature probe (optional)
- Clock



MaxSine Compact module



Applications

- Office buildings
- Hospitals
- Companies with fast-changing loads (welding machines, lifts)
- Wind farms
- All users with fast variable loads

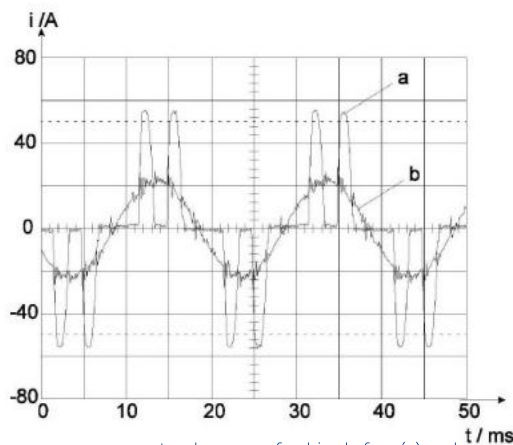
Customer benefits:

- Real time filtering and power compensation
- Compact modular construction
- Improved usability
- Money savings
- Improved power quality

Extended power meter functions

- Network voltages
- Load, network and compensation currents, network-phases and neutral
- RMS, fundamental, harmonic currents and crest factors
- Active, reactive, apparent and harmonics power, cos phi
- THD(u), THD(i), current harmonics spectrum up to 50th harmonics
- Waveforms of currents
- Cabinet temperature
- Uploading of measurements for reporting

ISO 9001, ISO 14001 and OHSAS 18001-certified management programs govern the entire development and production process for power compensation products and ensure a high-quality product.



Load current of a drive before (a) and after (b) compensation with MaxSine

Technical characteristics

Rated output	MaxSine 100AV6C	MaxSine 100AV6CE
Phases:	100 Arms	100 Arms
Neutral:	60 Arms	300 Arms
	All integer multiples of the above values (200 A, 300 A, 400 A etc.)	
Mains voltage:	3*208 VAC (-15% ... +10%) 3*400 VAC (-15% ... +10%) 3*480 VAC (-15% ... +10%) MaxSine 100AV6C	
Frequency:	45-65 Hz	
Switching frequency:	10 kHz nominal	
Overload capability:	1.1 x I RMS (1 min/10 min)	
Response time:	Ultra fast mode: <1 ms Fast mode: 1 – 50 periods, adjustable	
Current measurements:	6 x 100-10000 A/5A CT inputs, class 0.5 6 x 10 V inputs for Rogowski coils or Hall sensors	
Power dissipation:	< 3% of the rated power of the device	
Potential free output contact:	RUN, 24 VDC 1 A	
LED indications:	Errors, Run	
Digital input:	Dual parameter setting Remote ON/OFF	
Communications interface:	Ethernet web server for monitoring, setup and control	
Noise level:	< 80 dB (Value is related to 100 A fundamental reactive current only)	
Ambient temperature:	-10°... +40°C	
Temperature of storage:	-40°... +70°C	
Atmospheric humidity:	0 - 90 % (no dew)	
Elevation of installation:	< 1000 m above sea level (in case of deviation please contact your supplier)	
Degree of protection:	IP20	
Enclosure:	MaxSine 100AV6C	MaxSine 100AV6CE
	241x394x880 mm	241x394x1129 mm
	WxDxH	WxDxH
	57 kg	65 kg
Enclosure material:	1 mm sheet iron, colour RAL 7035	
Cooling:	Forced air cooled	
EMC immunity:	EN 61000-6-2	
EMC emissions:	EN 61000-6-3, EN 55011B	
Electrical safety:	IEC 61800-5-1	

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