

# axg Active Harmonic Filter, Power Factor Correction, Phases Unbalance

## 500 A / Tower

The combined systems of the AXG series have a sophisticated power quality control capability.

AXG collects the current trends in real time, sending them to an internal control circuit, via n. 3 CTs installed on the loading side.

Through integrated FPGA technology, the fundamental components of the currents, the harmonic components, the reactive currents and the components responsible for the imbalance are extracted; the needed currents for compensation and the compensation currents emitted by the AXG system are compared, and the difference is calculated.

In order to allow the IGBT inverter to be able to inject the necessary currents into the electrical network, input signals are emitted to the driving circuit, so as to achieve closed-loop control and complete the compensation function, both in terms of filtering and of power factor correction.

The operating modes operate according to the priority principle (selectable), to be chosen between Active Filter (AHF), Power Factor Correction (PFC) and Phase Balancing (UNBALANCE)

### AHF, Active Harmonic Filter mode

AXG is able to filter harmonic currents (THDi) up to the 50th order and significantly reduce the THDv components. Applicable in any condition in both the industrial and civil sectors, they represent the ideal solution for the treatment of non-linear three-phase loads, with or without neutral

### PFC, Power Factor Correction mode

AXG, thanks to its electronic operation, is able to operate where a traditional power factor correction system could not do the same with the appropriate reliability over time.

For example, all applications - mainly in heavy industries - with prohibitive harmonic contents - both current and voltage - also for power factor correction systems with detuning inductors..



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|---|---|
| <b>Code</b>   | <b>AXG3T40500</b>   |
| <b>Rated voltage</b>                                    | 400 – 415 V $\pm$ 10% (3-Ph or 3-Ph +N, to be specified)  |
| <b>Rated frequency</b>                                  | 50/60 Hz $\pm$ 3Hz  |
| <b>Rated Current in AHF mode</b>                        | 500 A   |
| <b>Rated Power in PFC mode</b>                          | 350 kVAr (inductive or capacitive)  |
| <b>Inverter</b>   | 3-level typology, IGBT  |
| <b>Mitigation of harmonic content</b>                   | from 2nd to 50th order (even and odd)   |
| <b>Harmonic residue</b>                                 | < 5 % (with load > 50 %)  |
| <b>Non-linear loads</b>                                 | All 3Ph loads, with or without Neutral  |
| <b>Current transformers</b>                             | n. 3 CTs installed on load side   |
| <b>Display</b>  | Display LCD 7-10"<br>Oscilloscope for monitoring main parameters.<br>Protection for, overvoltage, low voltage, short circuit, inverter protection, overcompensation<br>RS485 Modbus protocol interface, for remote management (Ethernet optional) |
| <b>Internal configuration</b>                           | AXG modular rack, connected with copper busbar system   |
| <b>Protection</b>                                       | 3-pole Switch disconnecter with 100 kA, properly sized<br>Each AXG racks its equipped with internal fuses   |
| <b>Cable entry</b>                                      | From the bottom (from the top on request)   |
| <b>Ventilation</b>                                      | Natural, each AXG rack has its own forced ventilation on board  |
| <b>Parallel redundant mode</b>                          | Up to 8 units, with uniform load distribution   |
| <b>Noise</b>  | < 60 db   |
| <b>Altitude</b>   | < 2000 m (with higher altitude until 4000 m max, derating 1 % every 100 m)  |
| <b>Working temperature and environmental conditions</b> | 10°/+50°C (until 55°C with derating 3% per Celsius)<br>Humidity < 95 % not condensing, degree of dustiness 2<br>Max storage temperature 55°C, Max transport temperature -25°C a 75 °C   |
| <b>Losses</b>   | < 3 %   |
| <b>Color</b>  | RA7035  |
| <b>Dimensions / Weight</b>                              | (W*H*D) 600*2200*600 mm / 300 Kg  |
| <b>Degree of protection</b>                             | IP20  |
| <b>Reference standards</b>                              | IEC 61000-4-2, 4-4, 4-5, 4-6<br>EN 61000-3-11, 3-12, EN 61000-6-2, EN 62477-1, EN 61800-3, EN 50160   |