ECOsine™ Active

Harmonics compensation in real-time –
The compact, fast, and flexible solution
for better Power Quality

sChaffner
energy efficiency and reliability
ECOsine™ Active provides

- **Reliability**: Eliminates all relevant disturbance patterns in the power lines
- **Cost-savings**: Avoids/reduces wear on electrical loads and over-heating of cables and transformers
- **Efficiency**: Prevents losses due to production downtimes
- **Flexibility**: Constantly adapts to the network topology
- **Fast response time**: Compensates disturbances before they can cause damage
- **Economy**: Lowers energy cost through reduced reactive power demand
- **Compact dimensions**: Requires very little space compared to traditional solutions
- **Ruggedness**: Provides protection according to IP20 (IP54 optional)
- **Plug-and-play**: Simple installation and intuitive operation

ECOsine™ Active offers an intelligent solution for many applications

There is a wide range of companies and institutions that can clearly improve the power line quality of manufacturing systems or office facilities using ECOsine™ Active. On the one hand, this filter can be factored-in during the planning and implementation phase of new systems. On the other hand, ECOsine™ Active is also an intelligent solution for existing installations and facilities with power quality problems.

**Applications**:
- Automotive industry
- HVAC installation
- Building automation
- Machines and automation
- Variable-frequency drives
- Data and banking centers
- Tunnel ventilation
- Water/wastewater treatment
- Elevators
- Uninterruptible power supplies (UPSs)
- Light application
- Laboratory automation
- Tunnel ventilation
- Uninterruptible power supplies (UPSs)

ECOsine™ Active – the best harmonic filter money can buy. Most countries already have strict standards and limits for harmonic injection. Companies and facilities that consume energy are forced to monitor their internal power lines and ensure compliance with these limits. In critical cases, the energy provider may cut the power. Using ECOsine™ Active, detected deviations can be reduced and brought back into the tolerance range again. This provides much confidence.

The following standards specify limits for harmonics in networks/units:

- EN 61000-2-2, EN 61000-2-4, EN 61000-3-2, EN 61000-3-12, EN 61000-3-3 as well as EN 50160, TOR D2, IEEE 519-1992, GS/4 and D.A.CH.CZ.

ECOsine™ Active is the easiest way to comply with these standards and limits.
In industrial and commercial applications, in public buildings or data centers a high number of installed loads such as PCs, servers, UPS, AC/DC drives, rectifiers, battery chargers, switch-mode power suppliers, LED lamps, etc. lead to an increased harmonic load on the mains power supply.

These non-linear loads cause non-sinusoidal currents to flow through the electrical infrastructure, generating stress and excessive heating in conductors, fuses, transformers etc. Furthermore, they cause non-sinusoidal voltage drops across system impedances, resulting in voltage distortion and potential reliability problems with sensitive consumers.

With ECOsine™ Active harmonic filters for 200/220V ±10% supply lines it is possible to eliminate these harmonic disturbances directly at the low voltage level.

ECOsine™ Active filters are triple-duty high performance devices for harmonics mitigation, reactive power compensation and load balancing.

With a long term market experience the Schaffner Group presents an effective solution for better Power Quality and electrical system availability to reduce downtime of high performance equipment in all areas of industry and commercial applications.

| FN 3420- . . 3-wire | 3-wire | 30-200-3 | 50A | 60-200-4 | 100A |
| FN 3430- . . 4-wire | 4-wire | 30A / 90A | 60A / 180A |
| Rated comp. current | 16kHz |
| Switching frequency | 75A for 10ms | 125A for 10ms | 150A for 10ms | 250A for 10ms |
| Overload capability | Forced air cooling |
| Cooling type | 0-30°C ² | 0-40°C ² |
| Ambient temperature | 0-30°C ² | 0-40°C ² |
| Pollution degree: 2; Relative humidity: <95%, non-condensing, 3K3; Ambient conditions: (EN 50178) Temperature: Storage -25°C to +55°C, 1K3, 1K4 - Transportation -25°C to +70°C, 2K3 Parallel operation | Up to 5 units |
| Power loss | Modbus (RTU (RS485), Modbus TCP/IP (Ethernet)) |
| Interfaces | 3-wire | 4-wire |
| Cooling air requirement, speed-controlled fan | < 1150W | < 1600W |
| Noise level (1m) | < 400m³/h | < 600m³/h |
| Filter performance | 63dBA | 63dBA |
| Altitude | Up to the 50th order |
| Mains voltage | 1,000m/derating up to 4,000m, 1%/100m |
| Mains frequency | 200 / 240 V(AC) ±10% |
| Response time | 47 to 63 Hz |
| Controller topology | 300µs |
| Current limitation | Digital with FFT analysis |
| Current transformer | Nominal current |
| Dimensions (w x h x d) [mm] | 50:5 to 50,000:5 |
| Weight | 415 x 840 x 300 | 360 x 590 x 290 | 415 x 840 x 300 | 468 x 970 x 412 |
| Weight | 70 kg | 47 kg | 70 kg | 105 kg |
| Protection class | Standard IP 20, optional IP 54 |
| Approval | CE |

1 Peak value 2 Derating up to 55°C, 3%/K 3 Other voltage on request
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