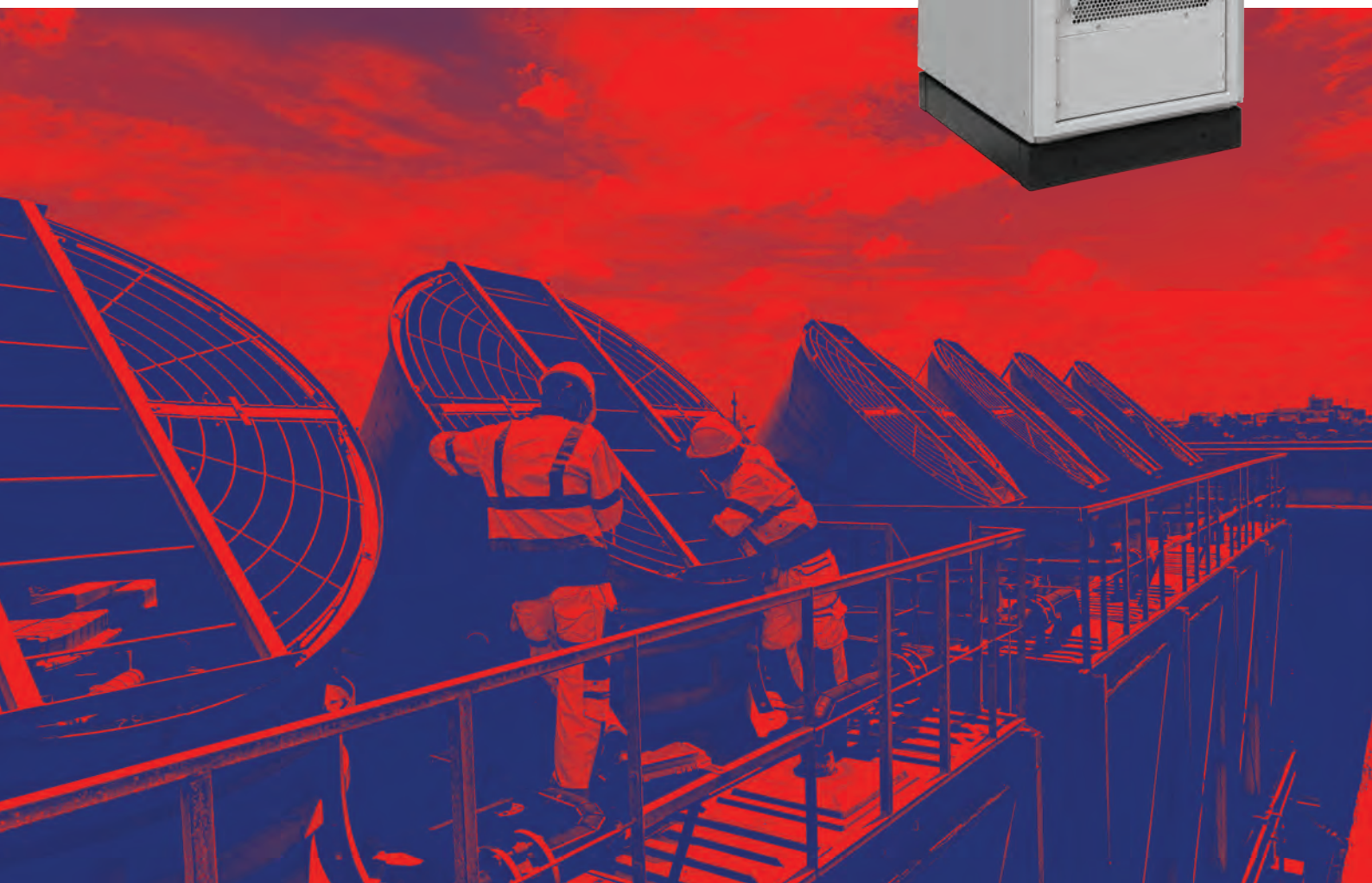
AFQm

MULTIFUNCTION ACTIVE FILTER WITH MULTI-LEVEL TECHNOLOGY







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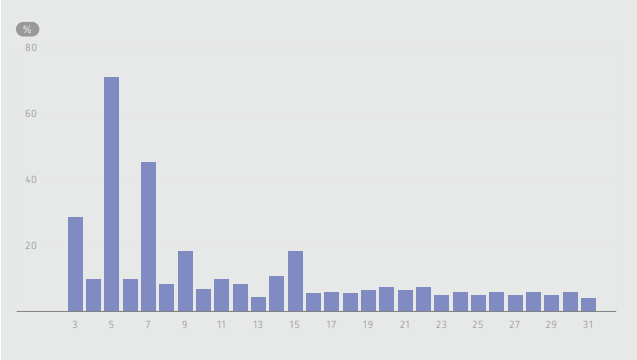
New technologies provide new advantages, but also new problems

New technological devices that have recently started to be used in electrical installations definitely optimise production processes in competitive terms, but they also pose new problems for electrical networks, whose negative effects must be avoided at all costs. Most of the new devices installed nowadays have embedded electronics which cause unwanted distortion to power lines, affecting the correct functioning of most of the connected equipment.

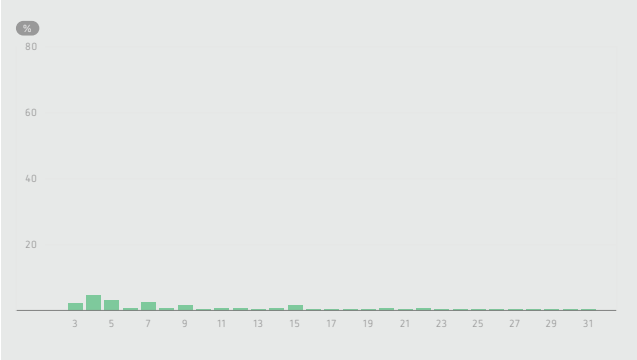


Harmonics without AFQm

More loads and generators

Further pollution through power lines

Problems due to harmonics



Harmonics with AFQm

Types of loads and generators that produce harmonics:

- Air-conditioning systems
- Variable speed drives, converters...
- Cooling chambers
- PLCs
- Electronic light ballasts (LED)
- Personal computers (PC's)
- Pumping stations
- Solar inverters and wind turbine generators.



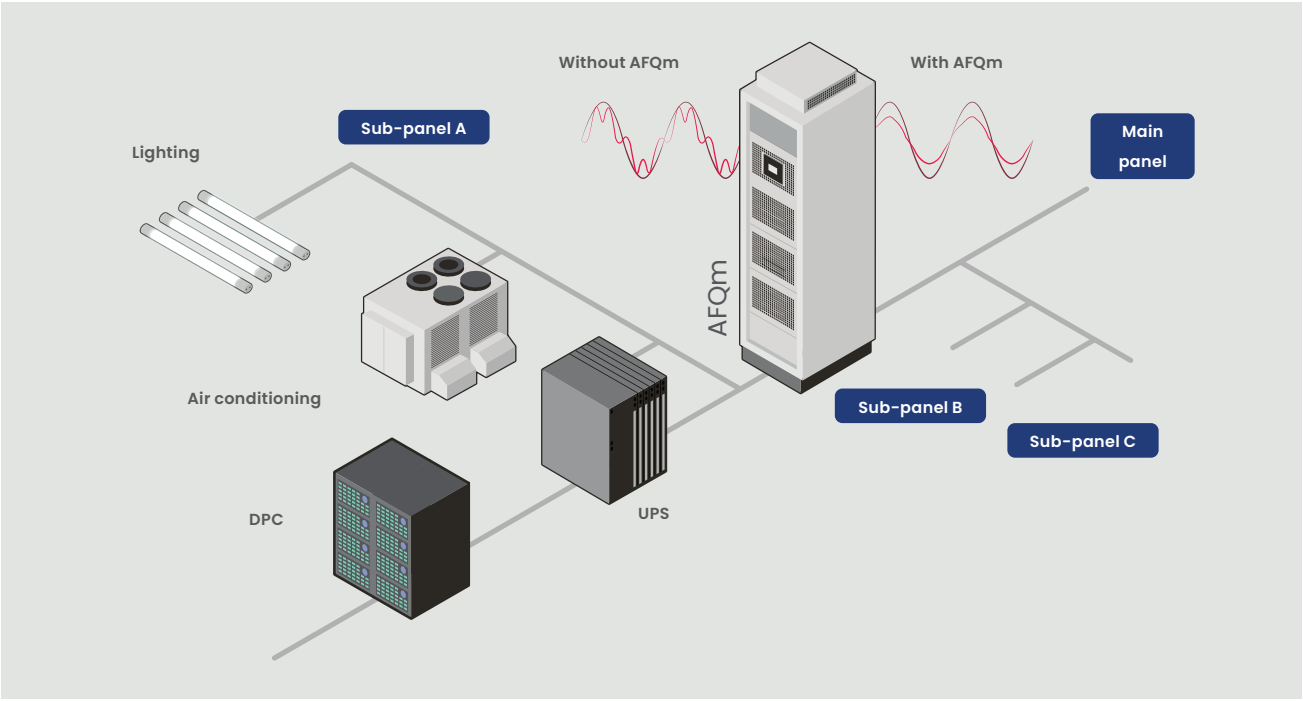




Problems caused by harmonics

CAUSE	EFFECT	PROBLEM
Rise of the total current harmonic distortion rate (THDI %)	Current increase in conductors Temperature increase in conductors Possible insulation loss in conductors Malfunction in PLC	Economic losses due to production downtimes
Unwanted tripping of circuit breakers and residual current devices	Power cuts in production lines	Economic losses due to production downtimes
Increase in transformer temperature	Premature ageing of the transformer	Extra costs in maintenance
Decrease in UPS performance	Need to expand UPS	Installation extra costs and risk of production downtime and data loss
Decrease in motor performance	Premature ageing of motors	Extra costs in maintenance

The solution: AFQm Active Filters



Improve all aspects of your installation

3 functions in 1 → Priority configurable by the user

1. Harmonic filtering

Eliminates harmonics and interharmonics to clean the installations's waveform.

Real-time response for reduction of harmonic currents up to the 50th harmonic (2500 Hz). Individual selection of the harmonic frequencies to be filtered in order to achieve higher efficiency.

2. PF correction

Helps avoid penalties due to reactive power consumption.

Power factor correction, in both consumption and generation of inductive and capacitive currents. 0.7 inductive ... 0.7 capacitive

3. Phase balancing

Reduces the circulation of neutral current, avoiding overheating, insulation loss and unwanted tripping.

Current balancing correction, improving the phase-to-phase consumption of an installation. The 4-wire model reduces the neutral current.

Easy to install

Various formats:

- Wall-mounted devices.
- Enclosure-fitted devices (rack type).
- For 3-wire networks (up to 690 V) or 4-wire networks (up to 550 V).
- 50 or 60 Hz



Integrated communications on the front of the device to facilitate connectivity.

Features handles for an easy and quick installation and removal of each module.

Three-step commissioning

CONNECT **CONFIGURE** **START**



Commissioning
- Local configuration via the touchscreen, saving time during commissioning.

Easier to install
- Allows installing transformers both on the mains side and on the load side.

Self-diagnostic system
- Internal self-diagnostic system during commissioning guaranteeing perfect operation.

Harmonic selection
- Individual selection of harmonics to be filtered to ensure maximum performance.

Connectivity

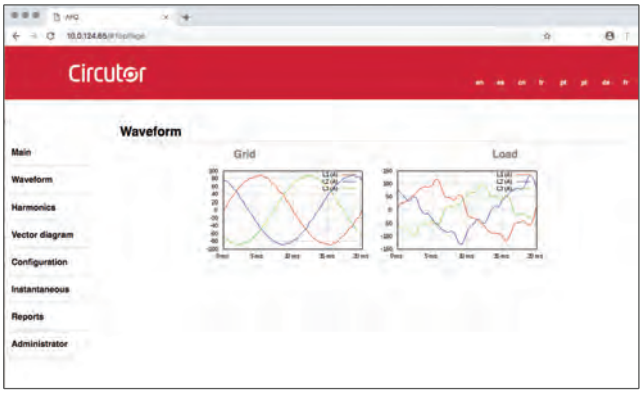
PowerStudio Driver

For Energy Management Systems: monitoring of all electrical parameters, custom screen creation for the Active Filter.



Built-in Web Server

Real-time, online, website monitoring of instantaneous values.
Data download without requiring any software.
Ethernet: TCP/IP, Modbus TCP.
Remote configuration of the device.



Datalogger

All electrical parameters recorded by the filter (per minute) are stored by the integrated datalogger for up to 7 years.
It also allows the log report to be downloaded in spreadsheet format.

Parameter display

Touchscreen to monitor:

Filter activation status:

› Powers and harmonic distortion before and after the filter.

Instantaneous values:

› Values of voltages and currents; active, reactive and apparent power; THD*U* %, THD*I* % and cos *fi*
› Voltage and current individual harmonics (before and after the filter)
› Phasor diagram
› Waveform (voltage and current).

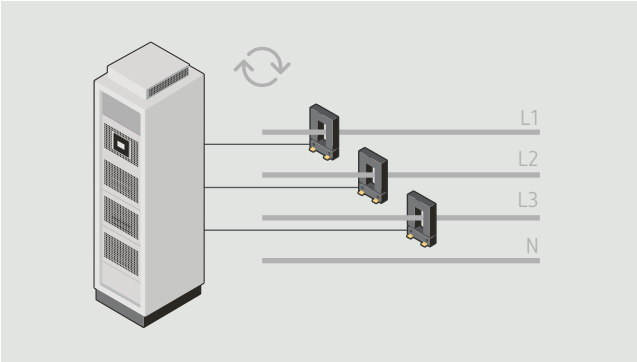


Designed to be safe and intuitive

Easy to set up

Current transformer reversal
Solves current transformers' connection errors using its touchscreen.

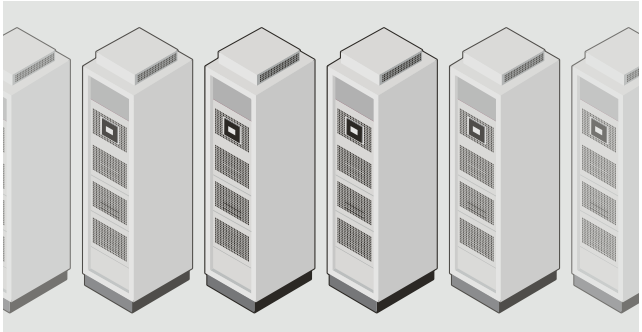
Safe mode
Avoids the filter from connecting automatically by setting a minimum start-up current, preventing injection when not required.



Scalable

Master / Slave system that allows connecting up to 100 filters in parallel managed by a single master.

Save resources by avoiding the installation of current transformers for each slave.



Safe

Safe Mode activation in the event of detecting a fault.

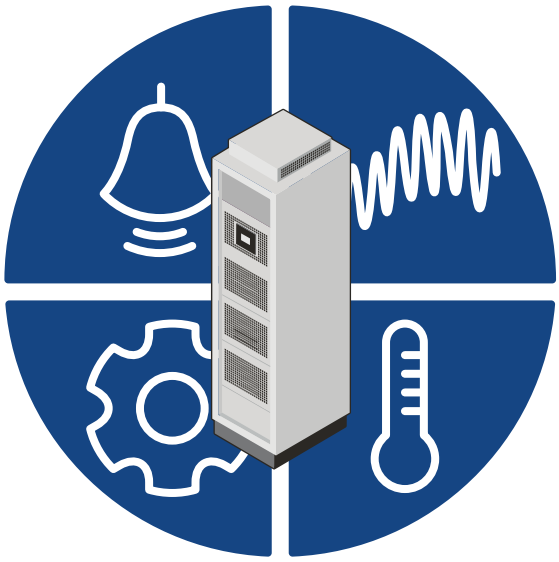
Smart thermal management system:
Adjusts the internal fan speed according to filtering needs.
Adjusts the filtering rating when temperature is above the operating limit to ensure the device's life span.

Alarm identification:
Records the last 5 seconds prior to triggering an alarm with a recording period of 1 second.

Features an internal protection system that avoids start-up in the event of a problem.

Includes an anti-resonance system.
The device avoids operating in resonance frequencies (specific harmonics) and continues operating in the rest of the spectrum without affecting its operation.

Alarm monitoring from the display for easy identification and correction.



Designed according to the IEC- 60730 standard, selfdiagnosing the code and hardware executing it.

Compliant with standard IEC 63497:2026
- Shunt-connected active correction devices (ACD).

References

Description	Code	System	Phase current (A)	Peak current (A)	Maximum current (A)	Size mm. (W x H x D)
Wall-mounted, 3 wires 480V						
AFQm-3WF-075M-480	R7MMAF.	3 wires, 200...480 V	75	150	-	439 x 745 x 288
AFQm-3WF-100M-480	R7MM2F.	3 wires, 200...480 V	100	200	-	439 x 745 x 288
Wall-mounted, 4 wires 400V						
AFQm-4WF-030M-400	R7RM0F.	4 wires, 200...400 V	30	60	90	430 x 530 x 178
AFQm-4WF-075M-400	R7RMAF.	4 wires, 200...400 V	75	150	225	439 x 745 x 288
AFQm-4WF-100M-400	R7RM2F.	4 wires, 200...400 V	100	200	300	439 x 745 x 288
Floor-mounted (cabinet), 3 wires 480V						
AFQm-3WP-100C-480	R7MF2P.	3 wires, 200...480 V	100	200	-	608 x 1890 x 812
AFQm-3WP-200C-480	R7MF3P.	3 wires, 200...480 V	200	400	-	608 x 1890 x 812
AFQm-3WP-300C-480	R7MF4P.	3 wires, 200...480 V	300	600	-	608 x 1890 x 812
AFQm-3WP-400C-480	R7MF5P.	3 wires, 200...480 V	400	800	-	608 x 1890 x 812
Floor-mounted (cabinet), 4 wires 400V						
AFQm-4WP-100C-400	R7RF2P.	4 wires, 200...400 V	100	200	300	608 x 1890 x 812
AFQm-4WP-200C-400	R7RF3P.	4 wires, 200...400 V	200	400	600	608 x 1890 x 812
AFQm-4WP-300C-400	R7RF4P.	4 wires, 200...400 V	300	600	900	608 x 1890 x 812
AFQm-4WP-400C-400	R7RF5P.	4 wires, 200...400 V	400	800	1200	608 x 1890 x 812
Floor-mounted (cabinet), 3 wires 690V						
AFQm-3WP-070C-690	R7JF6P.	3 wires, 230...690 V	70	140	-	608 x 1890 x 812
AFQm-3WP-140C-690	R7JF7P.	3 wires, 230...690 V	140	280	-	608 x 1890 x 812
AFQm-3WP-210C-690	R7JF8P.	3 wires, 230...690 V	210	420	-	608 x 1890 x 812
AFQm-3WP-280C-690	R7JF9P.	3 wires, 230...690 V	280	560	-	608 x 1890 x 812
Floor-mounted (cabinet), 4 wires 550V						
AFQm-4WP-070C-550	R7NF6P.	4 wires, 230...550 V	70	140	210	608 x 1890 x 812
AFQm-4WP-140C-550	R7NF7P.	4 wires, 230...550 V	140	280	420	608 x 1890 x 812
AFQm-4WP-210C-550	R7NF8P.	4 wires, 230...550 V	210	420	630	608 x 1890 x 812
AFQm-4WP-280C-550	R7NF9P.	4 wires, 230...550 V	280	560	840	608 x 1890 x 812
Rack module for cabinet						
AFQm-4WP-100R-400	R7RR2P.	4 wires, 200...400 V	100	200	300	482.5 x 263 x 714.5
AFQm-3WP-100R-480	R7MR2P.	3 wires, 200...480 V	100	200	-	482.5 x 263 x 714.5
AFQm-4WP-070R-550	R7NR6P.	4 wires, 230...550 V	70	140	210	482.5 x 263 x 714.5
AFQm-3WP-070R-690	R7JR6P.	3 wires, 230...690 V	70	140	-	482.5 x 263 x 714.5

Table of additional features

R Code	7	X	X	X	X	0	0	0	X	X	0	0
									Internal code			
Protection degree									Standard IP-20 (wall mounted) / IP-21 (Cabinet)	0		
									IP-41 (Cabinet)	5		
									IP-54 (Cabinet)	7		
									Top cable entry (cabinet mounted except IP-54)		3	
									Circuit breaker for 100A In= 125A (cabinet mounted except IP-54)		A	
									Circuit breaker for 200A In= 250A (cabinet mounted except IP-54)		B	
									Circuit breaker for 300A In= 400A (cabinet mounted except IP-54)		C	
									Extra busbars for connection of modules for In= 300A		D	
									Extra busbars for connection of modules for In= 400A		E	





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