



AFQm-4WF-280C-550, Active multifunctionfilter, 4 wires

Code: R7NF9F. **DESCATALOGADO** 

> System: 4 wires, 400...550 V > Phase current (A): 280 > Peak current (A): 560 > Max.neutral current (A): 840

> Mounting: Floor-mounted

### Description

The floor mounted **AFQm** multilevel active filters are the most complete solution for solving power quality problems in three-phase industrial, commercial or service installations caused by the presence of harmonics and the consumption of reactive power. These following characteristics and functions have been implemented in the cabinet type active filters:

- Filtering capacity per module of 100 A (400 ... 480 Vac) and 70 A (550 ... 690 Vac), capacity per cabinet between 100 ... 400 A (400 ... 480 Vac) and 70 ... 280 A (550 ... 690 Vac).
- o Cabinets expandable with small-sized rack modules.
- o Range for installations with 3 wires (3W model to 690 Vac) or 4 wires (4W model to 550 Vac).
- o Multi-range voltage and dual frequency (50/60 Hz).
- Reduction of harmonic currents up to the fiftieth harmonic (2,500 Hz)
- o Selection of harmonic frequencies to be filtered for maximum filter effectiveness.
- $\circ\;$  Power factor correction both inductive and capacitive .
- Phase current balancing, improvement of consumption in neutral (4W model).
- If higher filtering capabilities are required, the system can be expanded using AFQm racks connected in parallel (all filters/racks must be of the same 3- or 4-wire model).

### **Application**

They are an ideal solution for installations with a large amount of single-phase and three-phase loads generating harmonics, such as computers, UPS units, lights, lifting equipment, air-conditioning systems with variable speed drives, etc. They can also be used in installations that require a good power quality for the purpose of increasing production efficiency and improve supply continuity in the system.







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# **Specifications**

Frequency	Installation category	4 kV, CAT III Class 1
Nominal voltage		
Mechanical characteristics  Size (mml) width x height x depth 608 x 1890 x 812 (mm)  Noise < 79 dBA  Connection type Network: M8 ring terminal, Ground: M10 ring terminal, Current: 6-pole connector R5-465: 3-pole connector; Ethernet: RJ-45  Weight (kg) 363  Environmental characteristics  Protection class IP 21 (IP 41 on demand) / IKTI0  Relative humidity (without condensation) 0 95 %  Storage temperature -20+50 °C  Working temperature 10+45 °C  Storage temperature 2.70+45 °C  Conditional short-circuit current (kc) 40 kA  Rated peak current (pk 84 kA  Current crest factor 2.1  Maximum phase current  Maximum phase current 280 A (RMS)  Maximum neutral current  Maximum neutral current  Earthing system TN, TT  Current measurement circuit  Transformation ratio 5 5000 / 5A  Communication Network  Protocol TCP/IP, Modous TCP  Electrical safety, Maximum height (m) 5000  Standards  Electrical safety, Maximum height (m) 5000  Standards  Standards  HEC 61000-6-4, UNE-EN 55011, IEC 61000-6-2, IEC 62477-1, IEC 61439-1		
Size (mm) width x height x depth  Noise <pre></pre>		
Noise < 79 dBA Connection type Network: M8 ring terminal, Ground: M10 ring terminal, Current: 6-pole connector R5-465: 3-pole connector, Ethernet: R7-45 Weight (kg) 363  Environmental characteristics  Protection class IP 21 (IP 41 on demand) / IK10 Relative humidity (without condensation) 095 % Storage temperature -20+50 °C Working temperature -10+45 °C  Electrical characteristics  Conditional short-circuit current (lcc) 40 kA Rated peak current lpk 84 kA Current crest factor 2.1 Maximum phase current 40 kB A A (RMS) Maximum neutral current 840 A (RMS) Rated diversity factor (RDF), simultanelty 1 Earthing system TN, TT  Current measurement circuit Transformation ratio 55000 / 5A  Communication Network  Protocol TCP/IP, Modeus TCP Technology / Type Ethernet  Standards  Electrical safety, Maximum height (m) 5000 Standards  Jest rinterface  Standards  Jest interface  Network M8 ring terminal, Ground: M10 ring terminal, Current: 6-pole connector R5-465: 3-pole connector, Ethernet: R1-45  Maximum final, Ground: M10 ring terminal, Current: 6-pole connector R5-465: 3-pole connector, Ethernet: R1-45  Maximum final, Ground: M10 ring terminal, Current: 6-pole connector. Ethernet: R1-45  Maximum final, Ground: M10 ring terminal, Ground: M10 ring terminal, Ground: R1-45  ### A	Mechanical characteristics	
Network: M8 ring terminal, Ground: M10 ring terminal, Current: 6-pale connector R5-485: 3-pale connector, Ethernet: R1-45  Weight (kg) 363  Environmental characteristics  Protection class   P21 ( P 41 on demand) / IK10  Relative humidity (without condensation) 0 95 %  Storage temperature -20 +50 °C  Working temperature -10 +45 °C  Electrical characteristics  Conditional short-circuit current (Icc) 40 kA  Rated peak current lpk 84 kA  Current crest factor 2:1  Maximum phase current 840 A (RMS)  Maximum neutral current  Badd diversity factor (RDF), simultaneity 1  Earthing system TN, TT  Current measurement circuit  Transformation ratio 5 5000 / 5A  Communication Network  Protocol TCP/IP, Modbus TCP  Technology / Type Ethernet  Standards  Electrical safety, Maximum height (m) 5000  Standards  Standards  Standards  Berinterface  Standards  Line (1000-6-4, UNE-EN 55011, IEC 61000-6-2, IEC 62477-1, IEC 61439-1	Size (mm) width x height x depth	608 x 1890 x 812 (mm)
Re5-485: 3-pole connector, Ethernet: RJ-45 Weight (kg) 363  Environmental characteristics  Protection class IP 21 (IP 41 on demand) / IK10 Protection class IP 21 (IP 41 on de	Noise	
Protection class Protection class Relative humidity (without condensation) 0 95 % Storage temperature 20 +50 °C Working temperature 1-10 +45 °C  Electrical characteristics  Conditional short-circuit current (Icc) 40 kA Rated peak current tpk 84 kA Current crest factor 2.1 Maximum phase current Maximum phase current Maximum phase current Maximum phase current Rated diversity factor (RDF), simultaneity 1 tenthology / TN, TT  Current crest factor  Transformation ratio 5 5000 / 5A  Communication Network  Protocol TcP/IP, Modbus TCP Technology / Type Ethernet  Electrical safety, Maximum height (m) 5000 Standards  Lectrical safety, Maximum height (m) 5.000 Standards  Lectrical safety, Maximum height (m) 5.000 Standards	Connection type	
Protection class IP 21 (IP 41 on demand) / IK10  Relative humidity (without condensation) 0 95 %  Storage temperature -20 +50 °C  Working temperature -10 +45 °C  Electrical characteristics  Conditional short-circuit current (Icc) 40 kA Rated peak current Ipk 84 kA  Current crest factor 2:1  Maximum phase current  280 A (RMS)  Maximum neutral current  840 A (RMS)  Rated diversity factor (RDF), simultaneity 1 TN, TT  Current measurement circuit  Transformation ratio 5 5000 / 5A  Communication Network  Protocol TCP / IP, Modbus TCP Technology / Type Ethernet  Electrical safety, Maximum height (m) 5000  Standards  Electrical safety, Maximum height (m) 5000  Standards  Electrical safety, Maximum height (m) 5000  Standards	Weight (kg)	363
Relative humidity (without condensation)  Storage temperature  -20 +50 °C  Working temperature  -10 +45 °C   Selectrical characteristics  Conditional short-circuit current (Icc)  A0 kA  Rated peak current Ipk  84 kA  Current crest factor  2.1  Maximum phase current  Maximum neutral current  Bated diversity factor (RDF), simultaneity  Earthing system  TN, TT  Current measurement circuit  Current measurement circuit  Transformation ratio  Summunication Network  Frotocol  TcP/IP, Modbus TCP  Technology / Type  Ethernet  Electrical safety, Maximum height (m)  Souo  Standards  Liser interface  Standards  Liser interface  Standards	Environmental characteristics	
Storage temperature -20 +50 °C Working temperature -10 +45 °C  Selectrical characteristics  Conditional short-circuit current (lcc) 40 kA Rated peak current lpk 84 kA Current crest factor 2.1 Maximum phase current Maximum phase current 840 A (RMS) Maximum neutral current 840 A (RMS) Rated diversity factor (RDF), simultaneity 1 Earthing system TN, TT  Current measurement circuit  Transformation ratio 5 5000 / 5A  Communication Network  Protocol TCP/IP, Modbus TCP Technology / Type Ethernet  Electrical safety, Maximum height (m) 5000 Standards  User interface  Standards  Lect 61000-6-4, UNE-EN 55011, IEC 61000-6-2, IEC 62477-1, IEC 61439-1	Protection class	IP 21 (IP 41 on demand) / IK10
Working temperature -10 +45 °C  Electrical characteristics  Conditional short-circuit current (icc) 40 kA  Rated peak current lpk 84 kA  Current crest factor 2.1  Maximum phase current 280 A (RMS)  Maximum neutral current 840 A (RMS)  Rated diversity factor (RDF), simultaneity 1  Earthing system TN, TT  Current measurement circuit  Communication Network  Protocol TCP/IP, Modbus TCP  Technology / Type Ethernet  Electrical safety, Maximum height (m) 5000  Standards  Jeer interface	Relative humidity (without condensation)	0 95 %
Conditional short-circuit current (Icc) 40 KA Rated peak current Ipk 84 KA Current crest factor 2:1  Maximum phase current	Storage temperature	-20 +50 °C
Conditional short-circuit current (Icc)  Rated peak current Ipk  84 kA  Current crest factor  2:1  Maximum phase current  840 A (RMS)  Maximum neutral current  840 A (RMS)  Rated diversity factor (RDF), simultaneity  1  Earthing system  TN, TT  Current measurement circuit  Transformation ratio  5 5000 / 5A  Communication Network  Protocol  TCP/IP, Modbus TCP  Technology / Type  Ethernet  Standards  Electrical safety, Maximum height (m)  5000  Standards  JEC 61000-6-4, UNE-EN 55011, IEC 61000-6-2, IEC 62477-1, IEC 61439-1  Jean interface	Working temperature	-10 +45 °C
Rated peak current Ipk 84 KA Current crest factor 2:1  Maximum phase current 880 A (RMS)  Maximum neutral current 840 A (RMS)  Rated diversity factor (RDF), simultaneity 1 Earthing system TN, TT  Current measurement circuit  Transformation ratio 5 5000 / 5A  Communication Network  Protocol TCP/IP, Modbus TCP Technology / Type Ethernet  Standards  Electrical safety, Maximum height (m) 5000 Standards  Jer interface	Electrical characteristics	
Current crest factor 2:1  Maximum phase current 280 A (RMS)  Maximum neutral current 840 A (RMS)  Rated diversity factor (RDF), simultaneity 1 Earthing system TN, TT  Current measurement circuit  Transformation ratio 5 5000 / 5A  Communication Network  Protocol TCP/IP, Modbus TCP Technology / Type Ethernet  Standards  Electrical safety, Maximum height (m) 5000 Standards  Jeer interface	Conditional short-circuit current (Icc)	40 kA
Maximum phase current 840 A (RMS)  Maximum neutral current 840 A (RMS)  Rated diversity factor (RDF), simultaneity 1 Earthing system TN, TT  Current measurement circuit  Transformation ratio 5 5000 / 5A  Communication Network  Protocol TCP/IP, Modbus TCP Technology / Type Ethernet  Standards  Electrical safety, Maximum height (m) 5000 Standards  Jeer interface	Rated peak current lpk	84 kA
Maximum neutral current Rated diversity factor (RDF), simultaneity Earthing system TN, TT  Current measurement circuit  Transformation ratio  5 5000 / 5A  Communication Network  Protocol TCP/IP, Modbus TCP Technology / Type Ethernet  Electrical safety, Maximum height (m) Standards  Electrical safety, Maximum height (m) Standards  Jeer interface	Current crest factor	2:1
Rated diversity factor (RDF), simultaneity  Earthing system  TN, TT  Current measurement circuit  Transformation ratio  Communication Network  Protocol  TCP/IP, Modbus TCP  Technology / Type  Ethernet  Standards  Electrical safety, Maximum height (m)  Standards  Jeer interface	Maximum phase current	280 A (RMS)
Earthing system  TN, TT  Current measurement circuit  Transformation ratio  5 5000 / 5A  Communication Network  Protocol TCP/IP, Modbus TCP Technology / Type Ethernet  Electrical safety, Maximum height (m)  Standards  Electrical safety, Maximum height (m)  Standards  LEC 61000-6-4, UNE-EN 55011, IEC 61000-6-2, IEC 62477-1, IEC 61439-1  User interface	Maximum neutral current	840 A (RMS)
Transformation ratio 5 5000 / 5A  Communication Network  Protocol Tcc/IP, Modbus TCP Technology / Type Ethernet  Electrical safety, Maximum height (m) 5000 Standards IEC 61000-6-4, UNE-EN 55011, IEC 61000-6-2, IEC 62477-1, IEC 61439-1  User interface	Rated diversity factor (RDF), simultaneity	1
Transformation ratio  Communication Network  Protocol TCP/IP, Modbus TCP  Ethernet  Standards  Electrical safety, Maximum height (m) 5000  Standards  LEC 61000-6-4, UNE-EN 55011, IEC 61000-6-2, IEC 62477-1, IEC 61439-1  User interface	Earthing system	TN, TT
Protocol TCP/IP, Modbus TCP Technology / Type Ethernet  Standards  Electrical safety, Maximum height (m) 5000 Standards  IEC 61000-6-4, UNE-EN 55011, IEC 61000-6-2, IEC 62477-1, IEC 61439-1	Current measurement circuit	
Protocol TCP/IP, Modbus TCP Technology / Type Ethernet  Standards  Electrical safety, Maximum height (m) 5000 Standards IEC 61000-6-4, UNE-EN 55011, IEC 61000-6-2, IEC 62477-1, IEC 61439-1  User interface	Transformation ratio	5 5000 / 5A
Technology / Type  Ethernet  Standards  Electrical safety, Maximum height (m)  Standards  IEC 61000-6-4, UNE-EN 55011, IEC 61000-6-2, IEC 62477-1, IEC 61439-1  User interface	Communication Network	
Electrical safety, Maximum height (m)  Standards  Electrical safety, Maximum height (m)  Standards  IEC 61000-6-4, UNE-EN 55011, IEC 61000-6-2, IEC 62477-1, IEC 61439-1  User interface	Protocol	TCP/IP, Modbus TCP
Electrical safety, Maximum height (m) 5000 Standards IEC 61000-6-4, UNE-EN 55011, IEC 61000-6-2, IEC 62477-1, IEC 61439-1  User interface	Technology / Type	Ethernet
Standards IEC 61000-6-4, UNE-EN 55011, IEC 61000-6-2, IEC 62477-1, IEC 61439-1  User interface	Standards	
Jser interface	Electrical safety, Maximum height (m)	5000
	Standards	IEC 61000-6-4, UNE-EN 55011, IEC 61000-6-2, IEC 62477-1, IEC 61439-1
Display type TFT color, 3.5" touchscreen	User interface	
	Display type	TFT color, 3.5" touchscreen







Code: R7NF9F.

## Measurement accuracy

Voltage harmonics (THD)	25 % (max)
Features / performance	
Reactive power compensation (Kvar)	selectable
Filtering / Response time	$2^{\circ}$ $50^{\circ}$ harmonic (selectable) / < $100~\mu s$
Parallel assembly/installation	Up to 100 units, with different gauges. CTs connection only to the "master" unit Advanced management algorithm: Maximizes the life of the devices (alternate operation of devices). Maximises operational efficiency (Only the necessary filters are activated). Allows redundancy (system operation in the event of device malfunction).
Priority scheduling	selectable
Power supply output	
Power	266800 VA
Serial communication	
Protocol	Modbus/RTU
Technology / Type	RS-485

### AFQm-C

Active multifunction filter

CODE	TYPE	System	Phase current (A)	Peak current (A)	Max.neutral current (A)
3 wires 480	V, Floor-mounted cabinet				
R7MF2F.	AFQm-3WF-100C-480	3 wires, 230480 V	100	200	
R7MF3F.	AFQm-3WF-200C-480	3 wires, 230480 V	200	400	
R7MF4F.	AFQm-3WF-300C-480	3 wires, 230480 V	300	600	
R7MF5F.	AFQm-3WF-400C-480	3 wires, 230480 V	400	800	
3 wires 690	V, Floor-mounted cabinet				
R7JF6F.	AFQm-3WF-070C-690	3 wires, 400690 V	70	140	
R7JF7F.	AFQm-3WF-140C-690	3 wires, 400690 V	140	280	
R7JF8F.	AFQm-3WF-210C-690	3 wires, 400690 V	210	420	
R7JF9F.	AFQm-3WF-280C-690	3 wires, 400690 V	280	560	
4 wires 400	V, Floor-mounted cabinet				
R7RF2F.	AFQm-4WF-100C-400	4 wires, 230400 V	100	200	300
R7RF3F.	AFQm-4WF-200C-400	4 wires, 230400 V	200	400	600
R7RF4F.	AFQm-4WF-300C-400	4 wires, 230400 V	300	600	900
R7RF5F.	AFQm-4WF-400C-400	4 wires, 230400 V	400	800	1200
4 wires 550	V, Floor-mounted cabinet				
R7NF6F.	AFQm-4WF-070C-550	4 wires, 400550 V	70	140	210
R7NF7F.	AFQm-4WF-140C-550	4 wires, 400550 V	140	280	420









Active multifunction filter

Code: R7NF9F.

CODE	TYPE	System	Phase current (A)	Peak current (A)	Max.neutral current (A)
R7NF8F.	AFQm-4WF-210C-550	4 wires, 400550 V	210	420	630

Please contact our technical department for networks with high THD(V) levels.

All equipment has built-in EMI filters







Code: R7NF9F.

### Dimensions

### Connections







