

PLUS FRE f-f

Capacitor banks with detuned filters with thyristors



Description

State-of-the-art intelligent capacitor banks that are capable of measuring the three installation phases and compensating the total power factor consumption of each phase in real time.

The **PLUS FRE f-f** series includes detuned filters tuned at 189 Hz to avoid the resonance phenomena in 5th or higher order harmonics. Units for other harmonics orders are manufactured on demand.

Including **CIRCUTOR's** measurement technology, effectively creating a compensation + measurement unit. As a power quality analyzer, it displays any electrical parameter of the network in real time and records it in its memory, with maximum and minimum values, date and hour.

Application

The most common application is with individual loads or in installations where a quick compensation response is needed (for ex., welding units, motors for lifting units, lifts, etc.) and where there is a high content of harmonics in the network.

Features

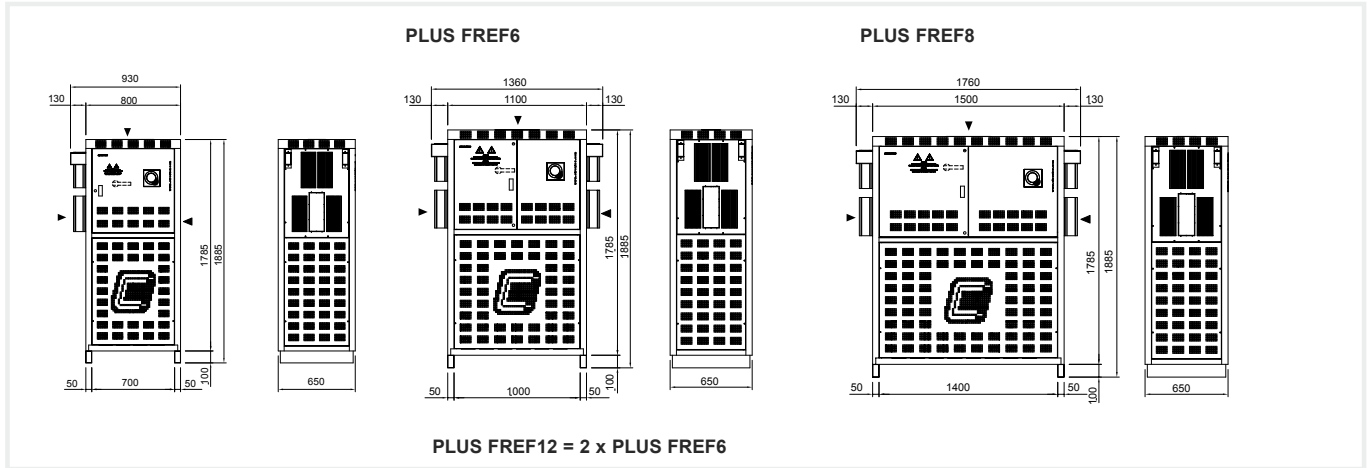
Features		
Operating voltage		230, 400 V (for other voltages, please ask)
Support voltage		440 V
Capacity tolerance		± 10%
Unit composed of		<ul style="list-style-type: none"> • CFB capacitor • Static switching unit on each step, composed of static contactors (thyristors) • Individual protection of each step with fuses with high rupture power (HRP). NH-00 Series. • Two-pole protection circuit-breaker for capacitor bank and regulator operations. • Power factor regulator of the computer Plus-TF series, three-phase measurement and power analyzer functions • Heat removal radiators • Built-in thermostat on the radiator for the disconnection of each step in case of high temperatures (90 °C) • Detuned filters tuned at 189 Hz for the protection against harmonics present in the network and to avoid the problems of resonance with fifth or higher order harmonics.
Add-ons		<ul style="list-style-type: none"> • Manual capacitor bank header switch • Automatic capacitor bank header switch • Automatic switch + Earth leakage protection at the capacitor bank's header • Forced ventilation unit + thermostat • Polycarbonate plate to protect against direct contacts • Auto-transformer 400/230 V
Insulation level		3 / 15 kV
Discharge resistance		75 V / 3 minutes
Overload		1.3 times the rated current permanently
Overvoltage		<ul style="list-style-type: none"> • 10 % 8 over 24 hours • 15 % up to 15 minutes over 24 hours • 20 % up to 5 minutes over 24 hours • 30 % up to 1 minutes over 24 hours
Contacting operating voltage		230 V
Ambient conditions		
Class D temperature	Daily mean	45 °C
	Annual mean	35 °C
	Maximum	50 °C
	Minimum	-25 °C
Humidity		80% RH
Altitude		2,000 m
Construction features		
Degree of protection		IP 21
Colour		RAL 7035 Grey
		RAL 3005 Maroon
Assembly conditions		
Type of assembly		Vertical
Ventilation		Natural or forced, depending on the option
Distance between capacitors		Minimum, 2 cm
Standards		
CEI 60831-1, CEI 70/7, UNE 20827, UNE 20010, BS 1650, VDE 560		

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Dimensions



References

kvar	Composition	Switch (A)	Cable section (mm ²)	Weight (kg)	Dimensions (mm) width x height x depth	Type	Code
440	400						
87,5	72 (12,5 + 25 + 50)	200	50	300	1060 x 1900 x 650	PLUS FREF4-87,5-440	R69000
100	83 (25 + 25 + 50)	250	95	325	1060 x 1900 x 650	PLUS FREF4-100-440	R69001
125	103 (25 + 50 + 50)	400	95	345	1060 x 1900 x 650	PLUS FREF4-125-440	R69002
150	125 (3 x 50)	400	95	355	1060 x 1900 x 650	PLUS FREF4-150-440	R69003
175	145 (25 + 50 + 100)	400	120	365	1060 x 1900 x 650	PLUS FREF4-175-440	R69004
200	165 (50 + 50 + 100)	400	150	380	1060 x 1900 x 650	PLUS FREF4-200-440	R69005
250	207 (50 + 100 + 100)	630	185	390	1060 x 1900 x 650	PLUS FREF4-250-440	R69006
300	248 (3 x 100)	630	240	410	1060 x 1900 x 650	PLUS FREF4-300-440	R69007
300	248 (50 + 50 + (2 x 100))	630	240	430	1360 x 1900 x 650	PLUS FREF6-300-440	R69008
350	289 (50 + (3 x 100))	630	2x150	445	1360 x 1900 x 650	PLUS FREF6-350-440	R69009
400	331 (4 x 100)	800	2x185	460	1360 x 1900 x 650	PLUS FREF6-400-440	R69010
400	331 (50 + 50 + (3 x 100))	800	240	550	1760 x 1900 x 650	PLUS FREF8-400-440	R69011
450	372 (50 + (4 x 100))	1000	2x185	587	1760 x 1900 x 650	PLUS FREF8-450-440	R69012
500	413 (5 x 100)	1000	2x240	621	1760 x 1900 x 650	PLUS FREF8-500-440	R69013
500	413 (50 + 50 + (4 x 100))	1000	2x240	638	1760 x 1900 x 650	PLUS FREF8-500-440	R69014
550	455 (50 + (5 x 100))	1250	2x240	658	1760 x 1900 x 650	PLUS FREF8-550-440	R69015
600	496 (6 x 100)	1250	2x240	685	1760 x 1900 x 650	PLUS FREF8-600-440	R69016
600	496 (50 + 50 + (5 x 100))	800 / 400	240/95	870	2720 x 1900 x 650	PLUS FREF12-600-440	R69017
650	537 (50 + (6 x 100))	630 / 630	2x150/95	907	2720 x 1900 x 650	PLUS FREF12-650-440	R69018
700	579 (7 x 100)	800 / 630	2x185/240	944	2720 x 1900 x 650	PLUS FREF12-700-440	R69019
750	620 (50 + (7 x 100))	800 / 630	2x185/2x150	981	2720 x 1900 x 650	PLUS FREF12-750-440	R69020
800	661 (8 x 100)	2 x 650	2x185/2x185	1016	2720 x 1900 x 650	PLUS FREF12-800-440	R69021