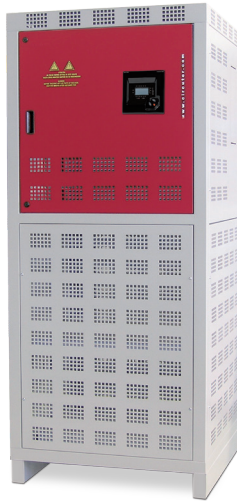


OPTIM FR

Automatic capacitor banks with detuned filters



Description

The **OPTIM FR** Series capacitor banks with detuned filters have been designed for power compensation purposes in networks with fluctuating load levels, a high content of harmonics and where there is a risk of resonance. Power variations are relatively slow (in seconds) so that the switching operations are carried out with contactors.

Applications

Its application is mainly focused on the compensation of installations with different loads, which require a regulated compensation, as a result of the power factor variations and where there is a high content of harmonics in the network.

- Fixed detuned filters. For the compensation of transformers and motors (**OPTIM FRF / FRM**)
- Automatic detuned filters. For the monitoring of variable loads (**OPTIM FR**).

Technical features

Electrical features	Operating voltage	400 V (for other voltages, please ask)	
	Support voltage	440 V (400 V)	
	Capacity tolerance	± 10%	
Unit composed of	CLZ capacitor (460 V)		
	Contactors with pre-insertion block and quick discharge resistor		
	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 Max series.		
Add-ons	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. Built-in thermostat for the disconnection of the step in case of excessive temperatures (90 °C).		
	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	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		
Auxiliary Voltage	230 V		
Ambient conditions	Class D temperature	Daily mean: +45 °C Annual mean: +35 °C Maximum: +50 °C Minimum: -25 °C	
	Humidity	80% HR	
	Altitude	2 000 m	
Construction features	Protection Degree	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	IEC 60831-1, UNE 60831-1, IEC 61921, IEC 60439, IEC 61439		

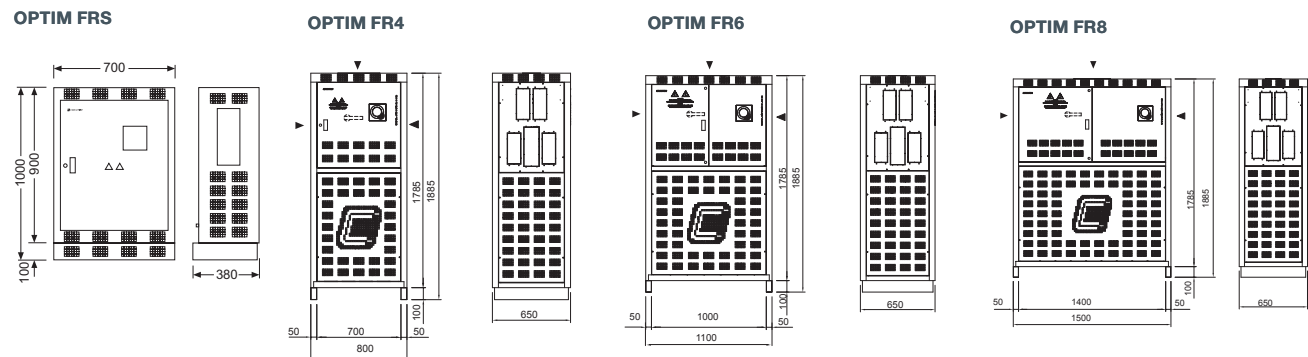
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References

kvar		Composition	Switch	Cable section (mm ²)	Weight (kg)	Dimensions (mm)	Type	Code
440 V	400 V							
17,5	14	(2,5 + 5 + 10)	63 A - Included	6	105	700 x 1000 x 380	OPTIM FRS-17,5-440	R5R450
25	21	(5 + (2 X 10))	63 A - Included	10	120	700 x 1000 x 380	OPTIM FRS-25-440	R5R455
27,5	23	(2,5 + 5 + (2 x 10))	125 A - Included	16	130	700 x 1000 x 380	OPTIM FRS-27,5-440	R5R460
35	29	(5 + (3 X 10))	125 A - Included	16	140	700 x 1000 x 380	OPTIM FRS-35-440	R5R465
37,5	31	(7,5 + (2 X 15))	125 A - Included	25	150	700 x 1000 x 380	OPTIM FRS-37,5-440	R5R470
45	37	(3 x 15)	125 A - Included	25	175	700 x 1000 x 380	OPTIM FRS-45-440	R5R475
60	50	(4 x 15)	200 A - Included	35	200	700 x 1000 x 380	OPTIM FRS-60-440	R5R480
75	62	(4 x 18,75)	200 A - Included	50	215	700 x 1000 x 380	OPTIM FRS-75-440	R5R485
87,5	72	(12,5 + 25 + 50)	200 A	50	300	800 x 1900 x 650	OPTIM FR4-87,5-440	R5S416
100	83	(25 + 25 + 50)	250 A	95	325	800 x 1900 x 650	OPTIM FR4-100-440	R5S420
125	103	(25 + 50 + 50)	400 A	95	345	800 x 1900 x 650	OPTIM FR4-125-440	R5S422
150	125	(25 + 25 + 50 + 50)	400 A	95	355	800 x 1900 x 650	OPTIM FR4-150-440	R5S423
175	145	(25 + 50 + 100)	400 A	120	365	800 x 1900 x 650	OPTIM FR4-175-440	R5S425
200	165	(50 + 50 + 100)	400 A	150	380	800 x 1900 x 650	OPTIM FR4-200-440	R5S428
250	207	(50 + (2 x 100))	630 A	185	390	800 x 1900 x 650	OPTIM FR4-250-440	R5S429
300	248	(50 + 50 + (2 x 100))	630 A	240	410	800 x 1900 x 650	OPTIM FR4-300-440	R5S430
350	289	(50 + (3 x 100))	800 A	2 x 150	430	800 x 1900 x 650	OPTIM FR4-350-440	R5S432
400	331	(4 x 100)	800 A	2 x 150	460	800 x 1900 x 650	OPTIM FR4-400-440	R5S434
400	331	(50 + 50 + (3 x 100))	800 A	2 x 185	550	1100 x 1900 x 650	OPTIM FR6-400-440	R5T425
450	372	(50 + (4 x 100))	1000 A	2 x 185	587	1100 x 1900 x 650	OPTIM FR6-450-440	R5T430
500	413	(5 x 100)	1000 A	2 x 240	621	1100 x 1900 x 650	OPTIM FR6-500-440	R5T435
550	455	(50 + (5 x 100))	1250 A	2 x 240	658	1100 x 1900 x 650	OPTIM FR6-550-440	R5T440
600	496	(6 x 100)	1250 A	2 x 240	685	1100 x 1900 x 650	OPTIM FR6-600-440	R5T445
600	496	(50 + 50 + (5 x 100))	1250 A	2 x 240	820	1500 x 1900 x 650	OPTIM FR8-600-440	R5U436
650	537	(50 + (6 x 100))	1250 A	3 x 150	865	1500 x 1900 x 650	OPTIM FR8-650-440	R5U438
700	579	(7 x 100)	1250 A	3 x 150	910	1500 x 1900 x 650	OPTIM FR8-700-440	R5U440
750	620	(50 + (7 x 100))	1600 A	3 x 185	955	1500 x 1900 x 650	OPTIM FR8-750-440	R5U442
800	661	(8 x 100)	1600 A	3 x 185	1000	1500 x 1900 x 650	OPTIM FR8-800-440	R5U444
800	661	(8 x 100)	1250 / 400 A	2 x 240 / 240	950	1900 x 1900 x 650	OPTIM FR10-800-440	R5V425
850	702	(50 + (8 x 100))	1000 / 630 A	2 x 240 / 240	987	1900 x 1900 x 650	OPTIM FR10-850-440	R5V430
900	744	(9 x 100)	1250 / 630 A	2 x 240 / 240	1024	1900 x 1900 x 650	OPTIM FR10-900-440	R5V435
950	785	(50 + (9 x 100))	1000 / 800 A	2 x 240 / 2 x 185	1061	1900 x 1900 x 650	OPTIM FR10-950-440	R5V440
1000	826	(10 x 100)	1250 / 800 A	2 x 240 / 2 x 185	1098	1900 x 1900 x 650	OPTIM FR10-1000-440	R5V445
1050	868	(50 + (10 x 100))	1250 / 800 A	2 x 240 / 2 x 240	1285	2200 x 1900 x 650	OPTIM FR12-1050-440	R5W450
1100	909	(11 x 100)	1250 / 1000 A	2 x 240 / 2 x 240	1322	2200 x 1900 x 650	OPTIM FR12-1100-440	R5W455
1150	950	(50 + (11 x 100))	2 x 1250 A	2 x 240 / 2 x 240	1359	2200 x 1900 x 650	OPTIM FR12-1150-440	R5W460
1200	992	(12 x 100)	2 x 1250	2 x 240 / 2 x 240	1389	2200 x 1900 x 650	OPTIM FR12-1200-440	R5W465

Dimensions



OPTIM FR10 = OPTIM FR6 + OPTIM FR4 OPTIM FR12 = 2 x OPTIM FR6