

OPTIM FR P&P

Automatic capacitor banks with detuned filters



Description

The **OPTIM FR P&P** 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 P&P**).

Technical features

Electrical features	Operating voltage	400 V (50 Hz), 230/480 V (60 Hz) (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.	
	Detuned filters tuned at 189 Hz (50 Hz) /227 Hz (60 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).	
Add-ons	Auto-transformer	
	Manual capacitor bank header switch	
	Automatic capacitor bank header switch	
	Automatic switch + Earth leakage protection at the capacitor bank's header	
Insulation level	Forced ventilation unit + thermostat	
	Polycarbonate plate to protect against direct contacts	
Discharge resistance	Polycarbonate plate to protect against direct contacts	
Overload	3 / 15 kV	
Overvoltage	75 V / 3 minutes	
	1.3 times the rated current permanently	
	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
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 (A)	Cable section (mm ²)	Weight (kg)	Dimensions (mm)	Type	Code
440 V	400 V							
			Included					
31,25	26	6,25 + 2 x 12,5	Included	10	82	800 x 1200 x 500	OPTIM FRS-P&P-31,25-440	R54R64
43,75	36	6,25 + 12,5 + 25	Included	25	84	800 x 1200 x 500	OPTIM FRS-P&P-43,75-440	R54R74
62,5	52	12,5 + 2 x 25	Included	35	86	800 x 1200 x 500	OPTIM FRS-P&P-62,5-440	R54R81
90	74	2 x 15 + 2 x 30	Included	70	104	800 x 1200 x 500	OPTIM FRS-P&P-90-440	R54R88
105	87	15 + 3 x 30	Included	70	121	800 x 1200 x 500	OPTIM FRS-P&P-105-440	R54R92
120	99	4 x 30		95	128	800 x 1200 x 500	OPTIM FRS-P&P-120-440	R54R95
150	125	30 + 2 x 60	400	95	355	900 x 1900 x 650	OPTIM FR4-P&P-150-440	R54S24
175	145	25 + 50 + 100	400	120	365	900 x 1900 x 650	OPTIM FR4-P&P-175-440	R54S25
200	165	50 + 50 + 100	400	150	380	900 x 1900 x 650	OPTIM FR4-P&P-200-440	R54S28
250	207	50 + 2 x 100	630	185	390	900 x 1900 x 650	OPTIM FR4-P&P-250-440	R54S29
300	248	50 + 50 + 2 x 100	630	240	410	900 x 1900 x 650	OPTIM FR4-P&P-300-440	R54S30
350	289	50 + 3 x 100	630	2x150	430	900 x 1900 x 650	OPTIM FR4-P&P-350-440	R54S32
400	331	4 x 100	800	2x150	460	900 x 1900 x 650	OPTIM FR4-P&P-400-440	R54S34
400	331	50 + 50 + 3 x 100	800	2x185	550	1200 x 1900 x 650	OPTIM FR6-P&P-400-440	R54T25
450	372	50 + 4 x 100	800	2x185	587	1200 x 1900 x 650	OPTIM FR6-P&P-450-440	R54T30
500	413	5 x 100	1000	2x240	621	1200 x 1900 x 650	OPTIM FR6-P&P-500-440	R54T35
550	455	50 + 5 x 100	1000	2x240	658	1200 x 1900 x 650	OPTIM FR6-P&P-550-440	R54T40
600	496	6 x 100	1250	2x240	685	1200 x 1900 x 650	OPTIM FR6-P&P-600-440	R54T45
600	496	50 + 50 + 5 x 100	1250	2x240	820	1500 x 1900 x 650	OPTIM FR8-P&P-600-440	R54U36
650	537	50 + 6 x 100	1250	3x150	865	1500 x 1900 x 650	OPTIM FR8-P&P-650-440	R54U38
700	579	7 x 100	1250	3x150	910	1500 x 1900 x 650	OPTIM FR8-P&P-700-440	R54U40
750	620	50 + 7 x 100	1600	3x185	955	1500 x 1900 x 650	OPTIM FR8-P&P-750-440	R54U42
800	661	8 x 100	1600	3x185	1000	1500 x 1900 x 650	OPTIM FR8-P&P-800-440	R54U44
800	661	8 x 100	1250 / 400	2x240/ 240	950	2100 x 1900 x 650	OPTIM FR10-P&P-800-440	R54V25
850	702	50 + 8 x 100	1000 / 630	2x240/ 240	987	2100 x 1900 x 650	OPTIM FR10-P&P-850-440	R54V30
900	744	9 x 100	1250 / 630	2x240/ 240	1024	2100 x 1900 x 650	OPTIM FR10-P&P-900-440	R54V35
950	785	50 + 9 x 100	1000 / 800	2x240/ 2x185	1061	2100 x 1900 x 650	OPTIM FR10-P&P-950-440	R54V40
1000	826	10 x 100	1250 / 800	2x240/ 2x185	1098	2100 x 1900 x 650	OPTIM FR10-P&P-1000-440	R54V45
1050	868	50 + 10 x 100	1250 / 800	2x240/ 2x240	1285	2400 x 1900 x 650	OPTIM FR12-P&P-1050-440	R54W50
1100	909	11 x 100	1250 / 1000	2x240/ 2x240	1322	2400 x 1900 x 650	OPTIM FR12-P&P-1100-440	R54W55
1150	950	50 + 11 x 100	2 X 1250	2x240/ 2x240	1359	2400 x 1900 x 650	OPTIM FR12-P&P-1150-440	R54W60
1200	992	12 x 100	2 X 1250	2x240/ 2x240	1389	2400 x 1900 x 650	OPTIM FR12-P&P-1200-440	R54W65

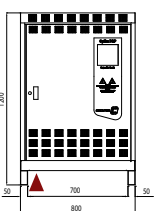
60 Hz

kvar(60 Hz) 230 V	Composition	Switch (A)	Autotransformer aux. power supply	Weight (kg)	Dimensions (mm)	Type	Code
25	2x5+10	3 x 125 A	Not necessary	200	700 x 1000 x 380	OPTIM FRS-25-230-60Hz	R5B500
30	3x10	3 x 125 A	Not necessary	315	800 x 1885 x 650	OPTIM FR4-P&P-30-230-60Hz	R5B501
50	10+2x20	3 x160 A	Not necessary	340	800 x 1885 x 650	OPTIM FR4-P&P-50-230-60Hz	R5B502
70	10+3x20	3 x 250 A	Not necessary	360	800 x 1885 x 650	OPTIM FR4-P&P-70-230-60Hz	R5B503
80	4x20	3 x 400 A	Not necessary	375	800 x 1885 x 650	OPTIM FR4-P&P-80-230-60Hz	R5B504
100	20+2x40	3 x 400 A	Not necessary	407	800 x 1885 x 650	OPTIM FR4-P&P-100-230-60Hz	R5B505
140	20+3x40	3 x 630 A	Not necessary	430	800 x 1885 x 650	OPTIM FR4-P&P-140-230-60Hz	R5B506
160	4x40	3 x 630 A	Not necessary	450	800 x 1885 x 650	OPTIM FR4-P&P-160-230-60Hz	R5B507
180	20+4x40	3 x 630 A	Not necessary	603	1100 x 1885 x 650	OPTIM FR6-P&P-180-230-60Hz	R5B508
200	5x40	3 x 800 A	Not necessary	625	1100 x 1885 x 650	OPTIM FR6-P&P-200-230-60Hz	R5B509
220	20+5x40	3 x800 A	Not necessary	660	1100 x 1885 x 650	OPTIM FR6-P&P-220-230-60Hz	R5B510
240	6x40	3 x 800 A	Not necessary	690	1100 x 1885 x 650	OPTIM FR6-P&P-240-230-60Hz	R5B511
280	7x40	3 x 1000 A	Not necessary	915	1500 x 1885 x 650	OPTIM FR8-P&P-280-230-60Hz	R5B512
320	8x40	3 x 1600 A	Not necessary	1005	1500 x 1885 x 650	OPTIM FR8-P&P-320-230-60Hz	R5B513
360	9x40	3 x 1600 A	Not necessary	1025	1900 x 1885 x 650	OPTIM FR10-P&P-360-230-60Hz	R5B514
400	10x40	3 x 1600 A	Not necessary	1095	1900 x 1885 x 650	OPTIM FR10-P&P-400-230-60Hz	R5B515
440	11x40	3 x 1600 A	Not necessary	1315	2200 x 1885 x 650	OPTIM FR12-P&P-440-230-60Hz	R5B516
480	12x40	3 x 1600 A	Not necessary	1375	2200 x 1885 x 650	OPTIM FR12-P&P-480-230-60Hz	R5B517

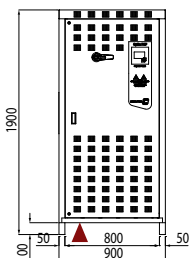
kvar (60 Hz) 480 V	Composition	Switch (A)	Autotransformer aux. power supply	Weight (kg)	Dimensions (mm)	Type	Code
50	2x12,5+25	3 x 125 A	Included	195	700 x 1000 x 380	OPTIM FRS-50-480-60Hz	R5B520
75	3x25	3 x 160 A	Included	300	800 x 1885 x 650	OPTIM FR4-P&P-75-480-60Hz	R5B521
100	2x25+50	3 x200 A	Included	345	800 x 1885 x 650	OPTIM FR4-P&P-100-480-60Hz	R5B522
125	25+2x50	3 x250 A	Included	355	800 x 1885 x 650	OPTIM FR4-P&P-125-480-60Hz	R5B523
150	3x50	3 x 400 A	Included	375	800 x 1885 x 650	OPTIM FR4-P&P-150-480-60Hz	R5B524
175	25+3x50	3 x 400 A	Included	385	800 x 1885 x 650	OPTIM FR4-P&P-175-480-60Hz	R5B525
200	4x50	3 x 400 A	Included	390	800 x 1885 x 650	OPTIM FR4-P&P-200-480-60Hz	R5B526
262,5	37,5+3x75	3 x 630 A	Included	420	800 x 1885 x 650	OPTIM FR4-P&P-262,5-480-60Hz	R5B527
300	4x75	3 x 630 A	Included	445	800 x 1885 x 650	OPTIM FR4-P&P-300-480-60Hz	R5B528
337,5	37,5+4x75	3 x 630 A	Included	590	1100 x 1885 x 650	OPTIM FR6-P&P-337,5-480-60Hz	R5B529
375	5x75	3 x 800 A	Included	625	1100 x 1885 x 650	OPTIM FR6-P&P-375-480-60Hz	R5B530
412,5	37,5+5x75	3 x800 A	Included	660	1100 x 1885 x 650	OPTIM FR6-P&P-412,5-480-60Hz	R5B531
450	6x75	3 x 800 A	Included	690	1100 x 1885 x 650	OPTIM FR6-P&P-450-480-60Hz	R5B532
525	7x75	3 x 1000 A	Included	920	1500 x 1885 x 650	OPTIM FR8-P&P-525-480-60Hz	R5B533
600	8x75	3 x 1600 A	Included	1010	1500 x 1885 x 650	OPTIM FR8-P&P-600-480-60Hz	R5B534
675	9x75	3 x 1600 A	Included	1025	1900 x 1885 x 650	OPTIM FR10-P&P-675-480-60Hz	R5B535
750	10x75	3 x 1600 A	Included	1095	1900 x 1885 x 650	OPTIM FR10-P&P-750-480-60Hz	R5B536
825	11x75	3 x 1600 A	Included	1325	2200 x 1885 x 650	OPTIM FR12-P&P-825-480-60Hz	R5B537
900	12x75	3 x 1600 A	Included	1385	2200 x 1885 x 650	OPTIM FR12-P&P-900-480-60Hz	R5B538

Dimensions

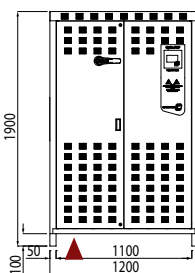
OPTIM FRS P&P



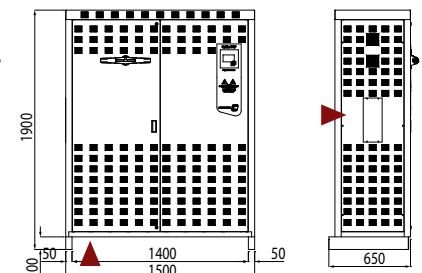
OPTIM FR4 P&P



OPTIM FR6 P&P



OPTIM FR8 P&P



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