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Code:

Description

The capacitor banks with detuned filters of the **OPTIM FRE** series have been designed for reactive energy correction in networks with fluctuating load levels, high harmonic presence and a risk of resonance.

The power variations are relatively quick (measured in milliseconds), and the operation is thus carried out by thyristors, which are connected to a voltage controller board, so that the connection and disconnection of the capacitor is carried out with zero voltage difference. Transients are prevented between the connection and disconnection of the steps, obtaining an immediate response to the load fluctuations.

Application

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

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Specifications

Electrical characteristics

Losses (W)	< 0,5 W/kvar
Discharge resistance	75 V / 3 min
Surge	10 % 8 h over 24 h 15 % up to 15 min over 24 hours 20 % up to 5 min over 24 hours 30 % up to 1 min over 24 hours
Reinforcement voltage	440 V
Tolerance C	-5% / 10 %
Voltage	400 V (50 Hz) (other voltages on request)

Mechanical characteristics

Size (mm) width x height x depth	2100 x 1900 x 650 (mm)
Envelope	Sheet metal RAL 7035 Grey / RAL 3005 Garnet
Fastening	Vertical / Self-supporting
Ventilation	Natural or forced according to options
Weight (kg)	695

Environmental characteristics

Protection class	IP 21
Relative humidity (without condensation)	80%
Working temperature	Tª class D: Daily average: 45 °C, annual average: 35 °C, maximum: 55 °C, minimum: -50 °C

Current measurement circuit

Permanent overload	1,3 In
Transformation ratio	In / 5A

Standards

Electrical safety, Maximum height (m)	2000 m
Standards	UNE-EN 61921, UNE-EN 61439-1, UNE EN 60831

Features / performance

Components	CLZ capacitor Static switching unit on each stage, made up of static contactors (thyristors) Two-pole circuit breaker protection for capacitor bank and regulator operations. Reactive energy regulator of the Computer MAX-f Built-in thermostat on the heatsink for disconnecting the stage in the case of excessive temperatures (90 °C) Detuned filters tuned to 189 Hz for protection against harmonics present in the network and for preventing resonance with harmonics of the 5th order or higher.
Optional	Manual switch on capacitor bank header Circuit breaker on capacitor bank header Circuit breaker + earth leakage protection on capacitor bank header Forced ventilation unit + thermostat Polycarbonate sheet for protection against direct contacts 400/230 V autotransformer

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Protection

Element	Protection by stage by fuses with high cut-off power (APR). NH-00 series.

OPTIM FRE

Automatic capacitor banks with rejection filters (static contactor), 50 Hz.

CODE	TYPE	kvar (400 V)	kvar (440 V)	Nr steps	Cable section (mm2)
FRES					
R64R88.	OPTIM FRES-90-440	74	90	4	70
FRE4					
R64E24.	OPTIM FRE4-150-440	125	150	3	95
R64E25.	OPTIM FRE4-175-440	145	175	3	120
R64E28.	OPTIM FRE4-200-440	165	200	3	150
R64E29.	OPTIM FRE4-250-440	207	250	3	185
R64E30.	OPTIM FRE4-300-440	248	300	4	240
R64E32.	OPTIM FRE4-350-440	289	350	4	2x150
R64E34.	OPTIM FRE4-400-440	331	400	4	2x185
FRE6					
R64J25.	OPTIM FRE6-400-440	331	400	5	2x185
R64J30.	OPTIM FRE6-450-440	372	450	5	2x185
R64J35.	OPTIM FRE6-500-440	413	500	5	2x240
R64J40.	OPTIM FRE6-550-440	455	550	6	2x240
R64J45.	OPTIM FRE6-600-440	496	600	6	2x240
FRE8					
R64K36.	OPTIM FRE8-600-440	496	600	7	2x240
R64K38.	OPTIM FRE8-650-440	537	650	7	3x150
R64K40.	OPTIM FRE8-700-440	579	700	7	3x150
R64K42.	OPTIM FRE8-750-440	620	750	8	3x185
R64K44.	OPTIM FRE8-800-440	661	800	8	3x185
FRE10					
R64C25.	OPTIM FRE10-800-440	661	800	8	2x240 / 240
R64C30.	OPTIM FRE10-850-440	702	850	9	2x240 / 240
R64C35.	OPTIM FRE10-900-440	744	900	9	2x240 / 240
R64C40.	OPTIM FRE10-950-440	785	950	10	2x240 / 2x185
R64C45.	OPTIM FRE10-1000-440	826	1000	10	2x240 / 2x185
FRE12					
R64L50.	OPTIM FRE12-1050-440	868	1050	11	2x240 / 2x240
R64L55.	OPTIM FRE12-1100-440	909	1100	11	2x240 / 2x240
R64L60.	OPTIM FRE12-1150-440	950	1150	12	2x240 / 2x240
R64L65.	OPTIM FRE12-1200-440	992	1200	12	2x240 / 2x240

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Cable cross-section for installations with Un= 400 V. The installation company must ensure compliance with the low voltage directive at all times, in accordance with the characteristics of each installation and type of cable.

Code:

Dimensions