



## OPTIM FRE10-800-440

OPTIM FRE10-800-440, Static detuned capacitor bank

Code: R64C25.

- > Cable section (mm<sup>2</sup>): 2x240 / 240
- > Nr steps: 8
- > kvar (400 V): 661
- > kvar (440 V): 800
- > Optional circuit breaker (A) : 1000+400
- > Optional manual switch (A): 1000+400
- > Composition: 8 x 100
- > Use voltage (V): 440

### 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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Automatic capacitor banks with detuned filters and thyristors

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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 |
| Thermal management               | Natural or forced according to options      |
| Fastening                        | Vertical / Self-supporting                  |
| Weight (kg)                      | 695                                         |

#### Environmental characteristics

|                                          |                                                                                          |
|------------------------------------------|------------------------------------------------------------------------------------------|
| Protection class                         | IP 21                                                                                    |
| Relative humidity (without condensation) | 80%                                                                                      |
| Working temperature                      | T° 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 (mm <sup>2</sup> ) |
|--------------------|----------------------|--------------|--------------|----------|----------------------------------|
| <b>OPTIM FRE4</b>  |                      |              |              |          |                                  |
| 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                            |
| <b>OPTIM FRE6</b>  |                      |              |              |          |                                  |
| 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                            |
| <b>OPTIM FRE8</b>  |                      |              |              |          |                                  |
| 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                            |
| <b>OPTIM FRE10</b> |                      |              |              |          |                                  |
| 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                    |
| <b>OPTIM FRE12</b> |                      |              |              |          |                                  |
| 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                    |

Cable cross-section for installations with  $U_n = 400$  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.



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### Dimensions

