



## OPTIM FRS-P&P-43,75-440

OPTIM FRS-P&P-43,75-440, Detuned capacitor bank

Code: R54R74.

- > Cable section (mm<sup>2</sup>): 25
- > Nr steps: 3
- > kvar (400 V): 36
- > kvar (440 V): 43,75
- > Aut.Switch (A): -
- > Man.Switch (A): Included
- > Composition: 6,25 + 12,5 + 25
- > Use voltage (V): 440

### 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.

### Application

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**).



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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 |
| Manoeuvre voltage     | Contactors: 230 V  |
| 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 | 800 x 1200 x 500 (mm)                       |
| Envelope                         | Sheet metal RAL 7035 Grey / RAL 3005 Garnet |
| Fastening                        | Vertical / Self-supporting                  |
| Ventilation                      | Natural or forced according to options      |
| Weight (kg)                      | 108   |

#### Environmental characteristics

|  |  |
|--|--|
| Protection class                         | IP 21  |
| Relative humidity (without condensation) | 80%  |
| Working temperature                      | T <sup>a</sup> 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                             | IEC 60831-1, UNE 60831-1, IEC 61921, IEC 60439, IEC 61439 |

#### Features / performance

|            |   |
|------------|---|
| Components | CLZ capacitor (460 V) Contactors with pre-insertion block and quick discharge resistor 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). Auto-transformer. |
| Optional   | 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   |



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### Protection

|         |  |
|---------|--|
| Element | Individual protection of each step with fuses with high rupture power (HRP). NH-00 Series. |
|---------|--|

### OPTIM FR P&P

Automatic capacitor banks with detuned filters (contactors switching), type P=7% (fres=189 Hz), 50 Hz.

| CODE   | TYPE                    | kvar (400 V) | kvar (440 V) | Nr steps | Cable section (mm <sup>2</sup> ) |
|--|-------------------------|--------------|--------------|----------|----------------------------------|
| <b>OPTIM FRS-P&amp;P, automatic capacitor banks with computer C Wi-Fi regulator</b>  |                         |              |              |          |                                  |
| R54R64.  | OPTIM FRS-P&P-31,25-440 | 26           | 31,25        | 3        | 10                               |
| R54R74.  | OPTIM FRS-P&P-43,75-440 | 36           | 43,75        | 3        | 25                               |
| R54R81.  | OPTIM FRS-P&P-62,5-440  | 52           | 62,5         | 3        | 35                               |
| R54R88.  | OPTIM FRS-P&P-90-440    | 74           | 90           | 4        | 70                               |
| R54R92.  | OPTIM FRS-P&P-105-440   | 87           | 105          | 4        | 70                               |
| R54R95.  | OPTIM FRS-P&P-120-440   | 99           | 120          | 4        | 95                               |
| <b>OPTIM FR4-P&amp;P, automatic capacitor banks with computer C Wi-Fi regulator</b>  |                         |              |              |          |                                  |
| R54S24.  | OPTIM FR4-P&P-150-440   | 125          | 150          | 3        | 95                               |
| R54S25.  | OPTIM FR4-P&P-175-440   | 145          | 175          | 3        | 120                              |
| R54S28.  | OPTIM FR4-P&P-200-440   | 165          | 200          | 3        | 150                              |
| R54S29.  | OPTIM FR4-P&P-250-440   | 207          | 250          | 3        | 185                              |
| R54S30.  | OPTIM FR4-P&P-300-440   | 248          | 300          | 4        | 240                              |
| R54S32.  | OPTIM FR4-P&P-350-440   | 289          | 350          | 4        | 2x150                            |
| R54S34.  | OPTIM FR4-P&P-400-440   | 331          | 400          | 4        | 2x150                            |
| <b>OPTIM FR6-P&amp;P, automatic capacitor banks with computer C Wi-Fi regulator</b>  |                         |              |              |          |                                  |
| R54T25.  | OPTIM FR6-P&P-400-440   | 331          | 400          | 5        | 2x185                            |
| R54T30.  | OPTIM FR6-P&P-450-440   | 372          | 450          | 5        | 2x185                            |
| R54T35.  | OPTIM FR6-P&P-500-440   | 413          | 500          | 5        | 2x240                            |
| R54T40.  | OPTIM FR6-P&P-550-440   | 455          | 550          | 6        | 2x240                            |
| R54T45.  | OPTIM FR6-P&P-600-440   | 496          | 600          | 6        | 2x240                            |
| <b>OPTIM FR8-P&amp;P, automatic capacitor banks with computer C Wi-Fi regulator</b>  |                         |              |              |          |                                  |
| R54U36.  | OPTIM FR8-P&P-600-440   | 496          | 600          | 7        | 2x240                            |
| R54U38.  | OPTIM FR8-P&P-650-440   | 537          | 650          | 7        | 3x150                            |
| R54U40.  | OPTIM FR8-P&P-700-440   | 579          | 700          | 7        | 3x150                            |
| R54U42.  | OPTIM FR8-P&P-750-440   | 620          | 750          | 8        | 3x185                            |
| R54U44.  | OPTIM FR8-P&P-800-440   | 661          | 800          | 8        | 3x185                            |
| <b>OPTIM FR10-P&amp;P, automatic capacitor banks with computer C Wi-Fi regulator</b> |                         |              |              |          |                                  |
| R54V25.  | OPTIM FR10-P&P-800-440  | 661          | 800          | 8        | 2x240/ 240                       |
| R54V30.  | OPTIM FR10-P&P-850-440  | 702          | 850          | 9        | 2x240/ 240                       |
| R54V35.  | OPTIM FR10-P&P-900-440  | 744          | 900          | 9        | 2x240/ 240                       |
| R54V40.  | OPTIM FR10-P&P-950-440  | 785          | 950          | 10       | 2x240/ 2x185                     |



## OPTIM FRS-P&P-43,75-440

Automatic capacitor banks with detuned filters

Code: R54R74.

| CODE   | TYPE                    | kvar (400 V) | kvar (440 V) | Nr steps | Cable section (mm <sup>2</sup> ) |
|--|-------------------------|--------------|--------------|----------|----------------------------------|
| R54V45.  | OPTIM FR10-P&P-1000-440 | 826          | 1000         | 10       | 2x240/ 2x185                     |
| <b>OPTIM FR12-P&amp;P, automatic capacitor banks with computer C Wi-Fi regulator</b> |                         |              |              |          |                                  |
| R54W50.  | OPTIM FR12-P&P-1050-440 | 868          | 1050         | 11       | 2x240/ 2x240                     |
| R54W55.  | OPTIM FR12-P&P-1100-440 | 909          | 1100         | 11       | 2x240/ 2x240                     |
| R54W60.  | OPTIM FR12-P&P-1150-440 | 950          | 1150         | 12       | 2x240/ 2x240                     |
| R54W65.  | OPTIM FR12-P&P-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. All batteries with computer C Wi-Fi regulator come with charge VAR system



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### Dimensions



### Connections

