# F

# Power Quality

Interactive Catalogue

# Power Quality

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Need help navigating the interactive catalogue?
Scan the QR code for a short tutorial video.

## Automatic mains failure (AMF) gen-set controllers

- Engine protection
- Programmable inputs and outputs / alarm properties
- Automatic starting of generator and load switching to stand-by emergency source in case of mains failure
- Supervision in “open transition” for contactors, motorised circuit breakers and changeover switches

RGK600

| type | digital inputs | digital outputs | description | price |
|---|---|---|---|---|
| **RGK600 series** | | | 144 x 144 mm panel mounting | |
| - Universal supply: 7…33 VDC<br>- Display: Graphic LCD 128 x 80 pixels with backlight<br>- Measurement voltage: 50…576 VAC / Rated voltage: 480 VAC L-L<br>- Current input: 3PH, /5A or /1A<br>- Single, two and three phase voltage control - L1-L2-L3-N<br>- IR programming port on front panel for communication with PC<br>- 3 analog resistance input for oil pressure, engine temperature or fuel level control<br>- Customisable alarm text *(8 alarms)*<br>- Non-volatile memory for event storage<br>- Modbus-RTU and Modbus-ASCII protocols with expansion modules (***RGK610***) | | | | |
| **RGK600** | 4 | 6 | basic AMF gen-set controller<br>*with “W” or magnetic “pickup” for engine speed reading (no CANbus)* | **9 870.00** |
| **RGK601** | 4 | 6 | basic AMF gen-set controller<br>*with CANbus-J1939 (no “W” or magnetic “pickup”)* | **10 500.00** |
| **RGK610*** | 4 | 6 | basic AMF gen-set controller<br>*with “W” or magnetic “pickup” for engine speed reading (no CANbus)* | **10 900.00** |
| * *1 slot to accept plug-in expansion modules **EXP1010/1011/1012,** see controller accessories* | | | | |

RGK750

| | | | | |
|---|---|---|---|---|
| **RGK700 series** | | | 180 x 240 mm panel mounting | |
| *As above **RGK600** but with the following additional features:*<br>- Measurement voltage: 30…600 VAC / Rated voltage: 480 VAC L-L<br>- Rated voltage: RGK700 - 600 VAC L-L / RGK750 - 480 VAC L-L<br>- 1 USB/optical and Wi-Fi on front panel for programming and PC communication<br>- PLC logic for inputs, outputs and internal status<br>- Expansion bus with 2 slots for **EXP...** series expansion modules *(**RGK750** only)*<br>- Calendar-clock (RTC) with backup reserve energy | | | | |
| **RGK700** | 6 | 7 | grey AMF gen-set controller | **11 000.00** |
| **RGK750** | 8 | 10 | black AMF gen-set controller | **12 200.00** |
| **RGK800 series** | | | 180 x 240 mm panel mounting | |
| *As above **RGK750** but with the following additional features:*<br>- RS-485 communication (+ CANBUS)<br>- Neutral current measurement range: 0.050…6A or 1.2A<br>- 400Hz frequency support<br>- 1 programmable analog input<br>- Current leakage control<br>- Expandable with rear plug-in expansion *(up to 3)* modules *(see controller accessories)* | | | | |
| **RGK800** | 8 | 10 | fully featured AMF gen-set controller | **13 900.00** |


RGK750 (2 modules)
RGK800 (3 modules)
RGK900 (4 modules)

## **Paralleling controllers** for *(mains - mains)* and *(generator - generator)*

- Engine protection
- Mains-generator “closed transition” synchronising
- Mains-generator load sharing with source peak demand control
- Generator paralleling supervision *(island mode with load sharing)*

RGK900

| | | | | |
|---|---|---|---|---|
| **RGK900 series** | | | 180 x 240 mm panel mounting | |
| *As above **RGK800** but with the following additional features:*<br>- Voltage measurement range: 50-720 VAC / Rated voltage: 600 VAC L-L<br>- Frequency measurement range: 45…65Hz or 360…440Hz<br>- Display: Graphic LCD 128 x 112 pixels with backlight<br>- Customisable alarm text *(16 alarms)*<br>- Modbus-RTU, Modbus-ASCII and Modbus-TCP communication protocols<br>- 2 analog outputs for engine speed control *(governor)* / voltage regulator (AVR)<br>- Built-in buzzer, multi-level passwords, sleep function | | | | |
| **RGK900SA** | 12 | 10 | full featured stand alone gen-set controller | **44 100.00** |
| **RGK900** | 12 | 10 | mains-generator paralleling control | **44 800.00** |
| Control of mains, automatic transfer switching and paralleling on multiple generators controlled *by RGK900SA* | | | | |
| **RGK900MC** | 13 | 10 | Mains-ATS *(Automatic Transfer Switching)* controller | **34 200.00** |

Sam1 NFC Xpress

## Stand alone gen-set controllers

- Engine protection
- Programmable alarm properties
- Programmable inputs and outputs
- Generator voltage and current control

NFC

RGK400SA

NFC

RGK420SA

RGK600SA

| type | digital inputs | digital outputs | description | price |
|---|---|---|---|---|
| **RGK400SA series** | | | 96 x 96 mm panel mounting | |

**RGK400SA** and **RGK420SA** with NFC technology are suitable for simple applications where only control, motor starting and monitoring of the electrical power alternator *(stand-alone applications, i.e. without the presence of the network)* are required.

- Universal supply: 12 / 24 VDC
- Display: LCD icon display
- Measurement voltage: 5...576 VAC
- Rated voltage: 480 VAC L-L
- Current Input: 1PH, /5A or /1A
- Engine protection: *With "W" or magnetic "pickup" for engine speed reading*
- 1 analog resistance input for oil pressure / engine temperature or fuel level control
- Single, two and three phase voltage control - L1-L2-L3-N
- Customisable alarm text *(2 alarms)*
- IR programming port on front panel for communication with PC ***(CX01,** see controller accessories)*
- NFC technology for parameter setup via smartphone or tablet

| | | | | |
|---|---|---|---|---|
| **RGK400SA** | 5+1 (E/stop) | 5 | stand alone gen-set controller | **4 650.00** |
| **RGK420SA*** | 5+1 (E/stop) | 5 | stand alone gen-set controller | **5 290.00** |

* *Incorporates 3 position key switch (OFF, local start, remote start)*

### RGK400SA accessories

Expansion modules *(rear plug-in)*

| | | |
|---|---|---|
| **EXP1040** | additional - 2 digital / resistance inputs, 2 static outputs | **3 240.00** |
| **EXP1041** | additional - 2 thermocouple inputs, 2 static outputs | **3 390.00** |
| **EXP8005** | housing gasket to increase protection to IP65 | **186.00** |

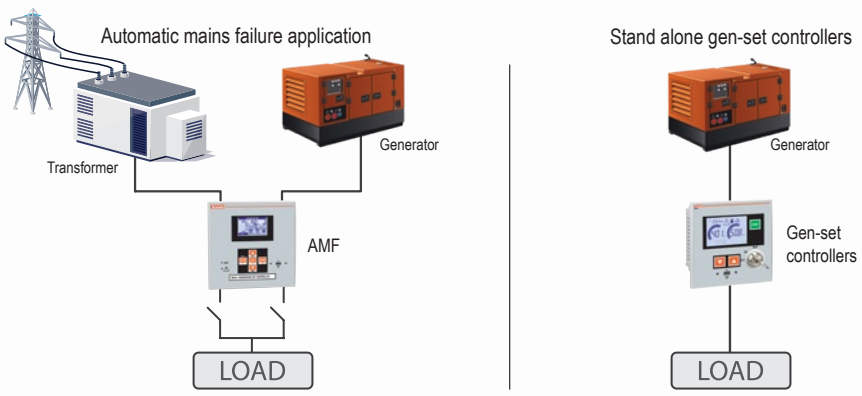
| | | | | |
|---|---|---|---|---|
| **RGK600SA series** | | | 144 x 144 mm panel mounting | |

*As above **RGK400SA** but with following additional features:*

- Universal supply: 12 / 24 VDC
- Display: Graphic LCD 128 x 80 pixels with backlight
- Measurement voltage: 50...576 VAC
- Rated voltage: 480 VAC L-L
- Current Input: 3PH, /5A or /1A
- Operating temperature: -30...+70°C
- 3 analog resistance input for oil pressure, engine temperature or fuel level control
- Customisable alarm text *(8 alarms)*
- No NFC technology
- Non-volatile memory for event storage
- Modbus-RTU and Modbus-ASCII protocols

| | | | | |
|---|---|---|---|---|
| **RGK600SA** | 4 | 6 | stand alone gen-set controller<br>*with "W" or magnetic "pickup" for engine speed reading (no CANbus)* | **9 250.00** |
| **RGK601SA** | 4 | 6 | stand alone gen-set controller<br>*with CANbus-J1939 (no "W" or magnetic "pickup")* | **9 800.00** |

## Engine / Generator controllers



## Automatic Transfer Switch (ATS) controllers

- Tie-breaker management
- Remote control and supervision / Event logging
- Supervision of two or three three-phase power sources
- Automatic non-priority load management (ATL800, ATL900)
- Emergency demand supervision for stand-by generating sets
- Modbus-RTU, Modbus-ASCII and Modbus-TCP communication protocols
- IR programming port on front panel for communication with PC *(NFC on some models)*

Scan to watch video

ATL100

| type | digital inputs | relay outputs | description | price |
|---|---|---|---|---|
| **ATL100 series (econo)** | | | *(no display)* *54 mm DIN mounting* | |
| **ATL100** with its modular housing is suitable for monitoring two independent power sources and to manage switching between the two sources with single phase control.<br>• Supply voltage: 110...230 VAC • Rated voltage: 110..230 VAC L-L<br>• 2 single phase inputs and outputs L+N<br>• Response thresholds of min and max voltage: 80% and 120% of nominal setting<br>• LED indication: 2 x *(green)* presence of both input voltages, 1 x presence of output voltage<br>1 x *(red)* indicates presence voltage out of limits on inputs | | | | |
| **ATL100** | 2 | 3 | single phase automatic transfer switch controller | **7 000.00** |
| **ATL500 series (econo)** | | | *(no display)* *144 x 144 mm panel mounting* | |
| The ATL500 is an automatic transfer switch that enables load commutation between two different source lines: a main line (LINE 1) and a standby or emergency secondary line (LINE 2).<br>• Supply voltage: Self seeking power supply - 110...240 VAC LN<br>• Measurement inputs: 3-ph+N *(suitable for 1 and 2 phase lines)*<br>• Supported switching devices: Contactors and motorised changeovers<br>• Output relay: 2 NO for contactors / 1 NC to start genset<br>• Parameter setup: Via built-in NFC technology *(smartphone or tablet)*<br>• Monitoring functions: Overvoltage, Undervoltage Phase failure<br>Wrong phase sequence, Asymmetry, Over frequency<br>Under frequency | | | | |
| **ATL500** | 2 | 3 | 3-ph+N automatic transfer switch controller | **7 000.00** |
| **ATL600 series** | | | *(with LCD)* *144 x 144 mm panel mounting* | |
| • AC power supply 110...240 VAC • Rated voltage: 100...480 VAC L-L<br>• Management of two power sources<br>• Measurement inputs for 3-ph+N voltage values *(suitable for 1 and 2-phase lines)*<br>• 128 x 80 pixel backlit graphic LCD to view measurements, events and alarms | | | | |
| **ATL600** | 6 | 7 | automatic transfer switch controller for 2 sources | **13 600.00** |
| **ATL601*** | 6 | 7 | automatic transfer switch controller for 2 sources | **13 600.00** |
| * *With 12/24 VDC supply* | | | | |

ATL601

### ATL610 series

*As above **ATL600** but with following additional features:*

- Real time clock RTC
- Dual power supply *(110...240 VAC line and 12...24 VDC battery supply)*
- Expandable with I/O and communication modules

| | | | | |
|---|---|---|---|---|
| **ATL610*** | 6 | 7 | automatic transfer switch controller for 2 sources | **17 400.00** |

* *2 slot to accept plug-in expansion modules **EXP1010/1011/1012/1013/1014,** see page **F-6***

| | | | | |
|---|---|---|---|---|
| **ATL800 series** | | | *(with backlit LCD)* *180 x 240 mm panel mounting* | |

*As above **ATL610** but with following additional features:*

- Rated voltage: 100...600 VAC L-L
- With backlit graphic LCD display
- Management of 2 energy sources and 1 tie breaker
- Built-in NFC technology for parameter setup via smartphone or tablet
- Built-in RS-485 communication / Built-in programmable PLC logic
- Expandable with up to 3 rear plug-in expansion modules **EXP...** *(see controller accessories)*

| | | | | |
|---|---|---|---|---|
| **ATL800** | 8 | 7 | automatic transfer switch controller for 2 sources | **37 400.00** |
| **ATL900 series** | | | *(with backlit LCD)* *180 x 240 mm panel mounting* | |

*As above **ATL800** but with following additional features:*

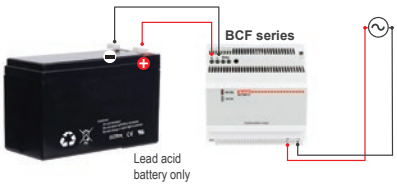
- Management of 3 energy power sources and 2 tie breakers
- 4 current inputs for the three phases and neutral
- 14 preconfigured system layouts
- 128 x 112 backlit graphic LCD to view measurements, events and alarms

| | | | | |
|---|---|---|---|---|
| **ATL900** | 12 | 11 | automatic transfer switch controller for 3 sources | **119 000.00** |

ATL900



Above ZAR prices do not include VAT. E&OE




## Battery chargers

- For lead acid battery
- Switching technology
- Automatic reset at end of alarm conditions
- Charging cycle in accordance with DIN 41773 standards

| type | output voltage | output current | max. power consumption VA | max. power consumption W | description | dimensions (mm) (H) | (W) | (D) | price |
|---|---|---|---|---|---|---|---|---|---|
| **BCF series** | | | **Modular automatic switching battery chargers** | | | | | | |
| • Alarm output relay *(3A 250 VAC)* AC1 duty<br>• Modular DIN-rail mounting *(aligns with standard MCB's)* or chassis mount<br>• Wide auxiliary supply range 100...240 VAC (±10%) 50/60Hz<br>• Protection: - Mains input fuse *(non replaceable)*<br>- Battery output fuse<br>- Electronic lock in case of short circuit on battery terminals, reverse battery polarity and output overload<br>• LED indication of: - Correct output voltage<br>- Reverse battery polarity | | | | | | | | | |
| **BCF025012** | 12V | 2.5A | 80 | 40 | auto battery charger | 96 | 90 | 56 | **2 010.00** |
| **BCF045012** | 12V | 4.5A | 150 | 70 | auto battery charger | 96 | 90 | 56 | **2 490.00** |
| **BCF012524** | 24V | 1.25A | 80 | 39 | auto battery charger | 96 | 90 | 56 | **2 010.00** |
| **BCF025024** | 24V | 2.5A | 150 | 77 | auto battery charger | 96 | 90 | 56 | **2 490.00** |
| **BCG series** | | | **DIN-rail mount switching battery chargers** | | | | | | |
| • High efficiency<br>• Alarm output relay *(5A 30 VDC duty)*<br>• Wide auxiliary supply range 110...240 VAC (±10%) 50/60Hz<br>• DIN-rail or chassis mounting *(can be mounted vertically with adaptor)*<br>• Boost signal controlled by external contact<br>• Hiccup function for battery recharging when its voltage is lower than 50% rated value<br>• Maximum charging current limiting trimmer 20...100% *(adjustable from front)*<br>• Protection: - Mains input fuse<br>- Electronic lock in case of short circuit on battery terminals, reverse battery polarity and output overload<br>• LED indication of: - Power ON<br>- Charging operation I>30% Ic<br>- Overload or short circuit condition<br>- Reverse battery polarity | | | | | | | | | |
| **BCG0612** | 12V | 6A | 230 | 97 | auto battery charger | 150 | 162 | 63 | **3 840.00** |
| **BCG1212** | 12V | 12A | 284 | 190 | auto battery charger | 150 | 213 | 63 | **7 430.00** |
| **BCG0524** | 24V | 5A | 364 | 158 | auto battery charger | 150 | 162 | 63 | **3 840.00** |
| **BCG1024** | 24V | 10A | 630 | 311 | auto battery charger | 150 | 213 | 63 | **7 430.00** |
| **Accessories for above BCG battery chargers** | | | | | | | | | |
| **BCGX00** | vertical side mount adaptor *(for space saving)* for ***BCG0612*** and ***BCG0524*** | | | | | | | | **139.00** |
| **BCE series** | | | **Linear battery chargers** | | | | | | |
| • Linear technology<br>• Auxiliary supply voltage: 220...240 VAC (±10%) 50/60Hz<br>• Charging current: 30 - 100% Ie *(adjustable)*<br>• Protection: - Mains input fuse *(except **BCE2V524** and **BCE0312**)*<br>- Battery output fuse<br>- Electronic lock in case of short circuit on battery terminals, reverse Battery polarity output overload (<0.5 Ue) and disconnected battery<br>• LED indication of: - Power ON<br>- Charge (I>0.2 Ic)<br>- Alarm for protection tripping<br>• Alarm output: Static NPN transistor **BCE2V5** and **BCE03** - others relay *(5A 250 VAC)* | | | | | | | | | |
| **BCE0312** | 12V | 3 | 117 | – | auto battery charger | 93 | 134 | 100 | **5 760.00** |
| **BCE0612** | 12V | 6 | 222 | – | auto battery charger | 130 | 192 | 140 | **9 280.00** |
| **BCE1212** | 12V | 12 | 400 | – | auto battery charger | 230 | 192 | 140 | **13 700.00** |
| **BCE2V524** | 24V | 2.5 | 166 | – | auto battery charger | 93 | 134 | 100 | **6 110.00** |
| **BCE0524** | 24V | 5 | 317 | – | auto battery charger | 130 | 192 | 140 | **9 990.00** |
| **BCE1024** | 24V | 10 | 610 | – | auto battery charger | 230 | 192 | 140 | **15 200.00** |


BCF...


BCG ...


BCE...

DCRL...

**DCRL / DCRG** Power Factor Controllers

DCRL/DCRG controllers incorporate latest technological advanced monitoring to provide accurate measurement and control of network parameters in power factor correction applications, providing total protection of capacitors and systems.

**General features:**

- Suitable for medium voltage systems (with VT's)
- High accuracy (TRMS) measurements with configurable alarms
- Wide voltage measurement range: 50...720 VAC L-L, 50....415 VAC L-N
- Expandable through clip-in expansion modules *(I/Os, Comm ports etc.)*
- Front mounted optic interface port for programming, data download, diagnostics

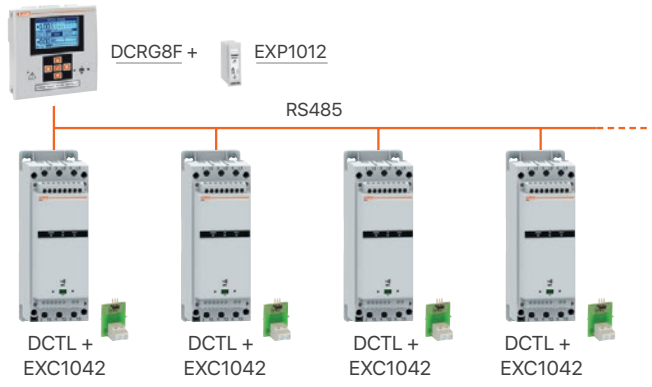
| type | number of steps | expand to: | description | dimensions (mm) (H) | (W) | (D) | price |
|---|---|---|---|---|---|---|---|
| **DCRL controllers 3, 5 and 8 step** | | | *(one CT connection)* | | | | |
| **DCRL** series power factor controllers with advanced functionality in a dedicated ultra compact housing, combine modern front design with ease of mounting and expendability. | | | | | | | |
| - Reactive power measurement per step installed | | | | | | | |
| - 3, 5 or 8 steps *(expandable with expansion module)* | | | | | | | |
| - Voltage and current THD with single harmonic analysis up to 15° order | | | | | | | |
| - Backlit icon LCD display *(alarm codes with scrolling text)* 128 x 80 pixels | | | | | | | |
| **3 and 5 step controllers** | | | *1 expansion slot* | | | | |
| **DCRL 3** | 3 step | 6 step | panel mount power factor controller | 96 | 96 | 65 | **5 120.00** |
| **DCRL 5** | 5 step | 8 step | panel mount power factor controller | 96 | 96 | 65 | **5 920.00** |
| **8 step controllers** | | | *2 expansion slots* | | | | |
| **DCRL 8** | 8 step | 14 step | panel mount power factor controller | 144 | 144 | 44 | **8 550.00** |

DCRG 8

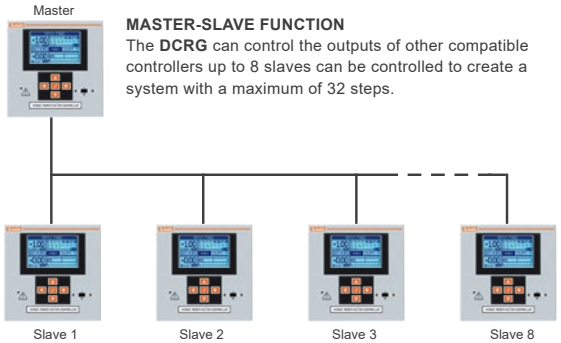
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **DCRG controllers 8 step** | | | *single and three-phase CT connection* | | | | |
| **DCRG** series power factor controllers are designed to satisfy technical characteristics of modern electrical installation requirements in all industries and working conditions, to detect critical operating conditions and offer total protection of power factor systems. | | | | | | | |
| - Recording of number of connections per step | | | | | | | |
| - Capacitor over-current protection on all three phases | | | | | | | |
| - Voltage and current THD with single harmonic analysis up to 31° order | | | | | | | |
| - 8 steps *(expandable by up to another 10 steps with plug-in expansion modules)* | | | | | | | |
| - Backlit graphic LCD display *(permits reading in bar-graph and wave form format)* | | | | | | | |
| - Configurable for fast dynamic *(thyristor)* switching or a combination of static and relay | | | | | | | |
| - Quick CT programming function / Automatic identification of direction of CT current flow | | | | | | | |
| - Calendar-clock (RTC) with backup reserve for event logging: Alarms, setup changes, etc. | | | | | | | |
| - Connection to 1/3 ph lines, 3 ph + N and co-generation systems with 4 quadrant operation | | | | | | | |
| - Three current inputs permit per phase analysis of all electrical parameters in the installation | | | | | | | |
| **8 relay step controller** | | | *4 expansion slots* | | | | |
| **DCRG 8** | 8 step | 18 step | panel mount power factor controller | 144 | 144 | 44 | **11 800.00** |
| **8 thyristor static step controller** *(expandable up to 24 steps with expansion modules)* | | | | | | | |
| **DCRG 8F** | 8 step | 24 step | static step power factor controller | 144 | 144 | 44 | **13 700.00** |
| *For expansion modules options, see* ***F-6*** | | | | | | | |

DCRG 8F

## DCRG - Power factor controllers




The thyristor modules type **DCTL** can be connected to the automatic power factor controller type **DCRG8F** with the RS485 optional port (code **EXC1042**), obtaining a simple and linear wiring.




**MASTER-SLAVE FUNCTION**
The **DCRG** can control the outputs of other compatible controllers up to 8 slaves can be controlled to create a system with a maximum of 32 steps.



Above ZAR prices do not include VAT. E&OE

Sam1 NFC Xpress


EXP...


CX02


CX01

## Expansion modules for PFC controllers

**EXP...** series expansion modules add extra functionality to following panel mount products:

**DMG** 600/7000/8000/9000 - Digital multimeters and power analysers
**DCRL** and **DCRG** - Automatic power factor controllers
**ATL** 610/800/900 - Automatic transfer controllers
**RGK** 400/600/750/800/900 - Generator controllers

| type | inputs | outputs | description | price |
|---|---|---|---|---|
| **EXP expansion modules** | | | *(plug into rear of controller to add more functionality)* | |
| **Inputs/Outputs** | | | | |
| **EXP1006** | – | 2 relay | to increase number of capacitor steps | **1 140.00** |
| **EXP1007** | – | 3 relay | to increase number of capacitor steps | **2 610.00** |
| **EXP1000** | 4 digital | – | opto-isolated digital inputs | **2 310.00** |
| **EXP1001** | – | 4 static | opto isolated to increase static steps | **2 310.00** |
| **EXP1002** | 2 digital | 2 static | opto-isolated digital inputs and static outputs | **2 760.00** |
| **EXP1003** | – | 2 relay | outputs rated 5A 250 VAC | **2 760.00** |
| **EXP1004** | 2 analog | – | opto-isolated PT100, 0/4-20mA, 0-10V, 0…±5V | **8 280.00** |
| **EXP1005** | – | 2 analog | opto-isolated 0/4-20mA or 0-10V or 0…±5V | **8 280.00** |
| **EXP1016** | 3ph (A) | – | + 2 x NTC for capacitor bank protection | **7 450.00** |
| **Communication** | | | | |
| **EXP1010** | USB | – | opto-isolated USB interface | **4 140.00** |
| **EXP1011** | RS-232 | – | opto-isolated RS-232 interface | **4 140.00** |
| **EXP1012** | RS-485 | – | opto-isolated RS-485 interface | **2 090.00** |
| **EXP1013** | Ethernet | – | opto-isolated Ethernet with web server function | **5 130.00** |
| **EXP1014** | Profibus | – | opto-isolated Profibus-DP interface | **17 200.00** |
| **Accessories** | | | | |
| **51C2** | | | PC - DCRL/DCRG connecting cable + **EXP1011** module | **1 260.00** |
| **C9 cable** | | | PC - Analog modem connecting cable | **3 020.00** |
| **CX01** | | | PC - controller USB dongle with connecting cable | **4 160.00** |
| **CX02** | | | PC - Controller Wi-Fi dongle for programming, data download, diagnostics | **10 400.00** |

# Monitor the key aspects of your Power Factor Correction system

POLAR CLOUD

Enhance efficiency and control with advanced Polar Cloud remote monitoring solution for floor-standing power factor correction systems. Instantly access critical data, make quick adjustments, and optimise energy usage without the need for constant on-site supervision. Prevent costly downtimes and address potential issues proactively.

### Polar Cloud allows you to monitor:

- **Power Factor:** View power factor and adjust power factor setpoints
- **Total Harmonic Distortion:** Monitor THDi and THDu levels
- **Voltage and Current:** Gain instant access to voltage and current data
- **Temperature:** Keep your equipment safe by monitoring temperature levels remotely
- **Capacitor Status:** Stay informed about the health of your capacitors

**Monitor what matters most with Polar Cloud - available now on request**

275.525-701400

## MKPg-275 series - Three-phase cylindrical capacitors

MKPg-275 three-phase power capacitors, dry self-healing dielectric, gas filled (N2) protecting windings from environmental influences extending life expectancy, permitting mounting in any position.

- Capacitance tolerance: -5...+10%
- Max. permissible current: 1.5...2 In
- Max. inrush current: 300 x In
- Dielectric losses: <0.25 W/kvar
- Impregnant *(filling):* Inert insulation gas (N2) completely harmless to the environment
- Mounting: M12 base mounted fixing stud *(any position)*
- Protection: Overpressure disconnection facility
- Standards: IEC/EN 60831, VDE 0560-46/47, CSA C22.2 - 190-M1985, UL - 810, GOST 1282-88

275.186-405600

### 400...440V three-phase capacitors *Supplied with discharge resistors*

- Rated voltage: 400...440V, 50 Hz
- Temp category: **-50/D** -50°C to +55°C Max. *(24 hr average 45°C - annual average 35°C)*
- Duty: Continuous *(life expectancy > 100.000 h)*

| type | kvar at: 400V | 440V | 480V | CN µF 3 x | description | dimensions (mm) (H) | Ø | price |
|---|---|---|---|---|---|---|---|---|
| **275.548-408200** | **12.5** | 15 | – | 82 | 3-ph cylindrical capacitor | 245 | 75 | **2 040.00** |
| **275.269-416600** | **25** | 30 | – | 166 | 3-ph cylindrical capacitor | 280 | 95 | **3 060.00** |
| **275.39B-527400*** | **41** | 50 | – | 274 | 3-ph cylindrical capacitor | 295 | 136 | **5 610.00** |
| **275.105-10068*** | discharge resistor module for **275.39B-527400** capacitor | | | | | 3 x 68 kΩ | | **99.00** |

### 400...480V three-phase industrial capacitors

- For PFC equipment in mains with severe operating conditions or substantial voltage fluctuations.
- Temp category: **60** -50°C...+60°C Max. *(24 hr average 50°C - annual average 40°C)*
- Duty: Continuous *(life expectancy > 150,000 h)*
- Supplied with discharge resistors *(except * require separate discharge module)*

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **275.523-502800** | **4.2** | 5 | 6.1 | 33 | 3-ph cylindrical capacitor | 196 | 60 | **1 640.00** |
| **275.545-504000** | **6.2** | 7.5 | 8.7 | 40 | 3-ph cylindrical capacitor | 164 | 75 | **1 900.00** |
| **275.546-505800** | **8.3** | 10 | 12.5 | 58 | 3-ph cylindrical capacitor | 230 | 75 | **1 900.00** |
| **275.546-506800** | **10.0** | 12.5 | 15.0 | 68 | 3-ph cylindrical capacitor | 230 | 75 | **2 070.00** |
| **275.256-508300** | **12.5** | 15.0 | 18.0 | 83 | 3-ph cylindrical capacitor | 230 | 85 | **2 270.00** |
| **275.266-511100** | **16.8** | 20.0 | 24.1 | 111 | 3-ph cylindrical capacitor | 230 | 95 | **2 830.00** |
| **275.278-513700** | **20.0** | 25.0 | 30.0 | 137 | 3-ph cylindrical capacitor | 245 | 100 | **2 850.00** |
| **275.279-516600** | **25.0** | 30.0 | 36.0 | 166 | 3-ph cylindrical capacitor | 280 | 100 | **2 980.00** |
| **275.389-519900*** | **30.0** | 36.0 | 43.0 | 199 | 3-ph cylindrical capacitor | 280 | 116 | **3 620.00** |
| **275.389-522100*** | **33.3** | 40.0 | 48.0 | 221 | 3-ph cylindrical capacitor | 280 | 116 | **4 030.00** |
| **275.100-10120*** | discharge resistor module for **275.389-519900** capacitor | | | | | 3 x 120 kΩ | | **90.00** |
| **275.105-10100*** | discharge resistor module for **275.389-522100** capacitor | | | | | 3 x 100 kΩ | | **105.00** |

275.396-715401

### 525V three-phase capacitors

- Temperature category: **D** -40°C...+55°C (Max: 24 hr average 45°C - annual ave 35°C)
- Duty: Continuous *(life expectancy 480V >150000 h 525V >100000 h)*
- Supplied with discharge resistors *(except * require separate discharge module)*

| type | kvar at: 400V | 480V | **525V** | CN µF 3 x | description | dimensions (mm) (H) | Ø | price |
|---|---|---|---|---|---|---|---|---|
| **275.525-701400** | 2.2 | 3.0 | **3.6** | 14 | 3-ph cylindrical capacitor | 164 | 60 | **1 480.00** |
| **275.535-601900** | 3 | 4.1 | **5** | 19 | 3-ph cylindrical capacitor | 164 | 65 | **1 550.00** |
| **275.546-703800** | 6.2 | 8.3 | **10** | 38 | 3-ph cylindrical capacitor | 230 | 75 | **1 930.00** |
| **275.548-605800** | 9.4 | 12.5 | **15** | 58 | 3-ph cylindrical capacitor | 245 | 75 | **1 980.00** |
| **275.266-607700** | 12.5 | 16.7 | **20** | 77 | 3-ph cylindrical capacitor | 230 | 95 | **2 690.00** |
| **275.269-611500** | 18.6 | 25.0 | **30** | 115 | 3-ph cylindrical capacitor | 280 | 95 | **3 070.00** |
| **275.396-715401*** | 25 | 33.4 | **40** | 154 | 3-ph cylindrical capacitor | 230 | 136 | **4 490.00** |
| **275.105-10100*** | discharge resistor module for 40 kvar 525V capacitor | | | | | 3 x 100 kΩ | | **105.00** |

275.100-10120

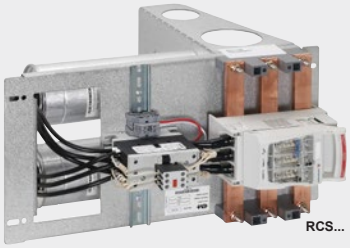
### 690V three-phase capacitors

- Temperature category: **60** -40°C...+60°C *(Max: 24 hr average 50°C - annual ave 40°C)*
- Duty: Continuous *(life expectancy > 150000 h)*

| type | kvar at: 690V | 760V | 400 | CN µF 3 x | description | dimensions (mm) (H) | Ø | price |
|---|---|---|---|---|---|---|---|---|
| **275.185-402800*** | **12.5** | 15 | – | 27.6 | 3-ph cylindrical capacitor | 164 | 116 | **3 100.00** |
| **275.186-405600*** | **25** | 30 | – | 56 | 3-ph cylindrical capacitor | 230 | 116 | **3 650.00** |
| **275.39B-411100*** | **50** | 60 | – | 111 | 3-ph cylindrical capacitor | 295 | 136 | **6 020.00** |
| **275.100-10300*** | discharge resistor module for 12.5/25 kvar 690V capacitor | | | | | 3 x 300 kΩ | | **87.00** |
| **275.105-10180*** | discharge resistor module for 50 kvar 690V capacitor | | | | | 3 x 180 kΩ | | **99.00** |



Above ZAR prices do not include VAT. E&OE


RCS...

## RC series - Power Factor Correction (PFC) rack system

RC series power factor racks *(single and double step versions)* are designed for direct panel mounting onto vertical supports within floor standing electrical panels. The 7% and 14% detuned harmonic reactors are available for networks with high level of harmonics.

**RC series - Rack design incorporates the following:**

- Sheet metal mounting frame for easy panel mounting
- Electronicon heavy duty "gas filled" cylindrical capacitors *(with integrated discharge resistors)*
- Special capacitor switching contactors 400VAC coil *(230V on request)*
- Three-phase busbar mounted fuse disconnector with hinged fuse protection cover
- Suitably rated HRC fuses per phase of each capacitor bank
- Incorporated busbar, supports and inter-connecting busbar links

| type | kvar at: 400V | 440V | 480V | description | dimensions (mm) (H) | (W) | (D) | price |
|---|---|---|---|---|---|---|---|---|
| **RC series - Racks (480V capacitors)** *without harmonic reactors* | | | | | | | | |
| **Single-step racks - 480V capacitors** - fuse protection | | | | | | | | |
| **RCS01204** | **12.5** | 14 | 17 | single step capacitor rack | 270 | 545 | 320 | **9 140.00** |
| **RCS02504** | **25** | 28 | 34 | single step capacitor rack | 270 | 545 | 320 | **11 800.00** |
| **RCS05004** | **50** | 56 | 67 | single step capacitor rack | 270 | 545 | 320 | **16 500.00** |
| **Double-step racks 480V capacitors** - separate fuse protection for each bank | | | | | | | | |
| **RCD02524** | **2 x 12.5** | 2 x 14 | 2 x 17 | double step capacitor rack | 270 | 545 | 320 | **14 200.00** |
| **RCD05024** | **2 x 25** | 2 x 28 | 2 x 34 | double step capacitor rack | 270 | 545 | 320 | **19 600.00** |
| **RCD10024** | **2 x 50** | 2 x 56 | 2 x 68 | double step capacitor rack | 270 | 545 | 320 | **29 100.00** |
| **RCD03734** | **12.5+25** | 14 + 28 | 17 + 34 | double step capacitor rack | 270 | 545 | 320 | **16 900.00** |
| **RCD07534** | **25 + 50** | 28 + 56 | 34 + 68 | double step capacitor rack | 270 | 545 | 320 | **24 400.00** |


RCD...

| type | kvar at: 400V | 525V | **550V** | description | dimensions (mm) (H) | (W) | (D) | price |
|---|---|---|---|---|---|---|---|---|
| **Double-step racks - 690V capacitors** *for use in 400/525/550V networks (230V coil)* | | | | | | | | |
| **RCD64026** | 2 x 17 | 2 x 30 | **2 x 32** | double step capacitor rack | 270 | 545 | 320 | **32 600.00** |

**HR7 series - Racks (480V capacitors)** with 7% detuned reactors

**7% - 189 Hz Detuned reactors** *for networks with a high level of 5th and 7th Harmonics*

| type | kvar at: **400V** | 440V | 480V | description | dimensions (mm) (H) | (W) | (D) | price |
|---|---|---|---|---|---|---|---|---|
| **Single-step racks 480V capacitors** - *fuse protection* | | | | | | | | |
| **HRS013074** | **12.5** | 14 | 17 | capacitor + 7% reactor rack | 310 | 740 | 538 | **16 200.00** |
| **HRS025074** | **25** | 28 | 34 | capacitor + 7% reactor rack | 310 | 740 | 538 | **24 900.00** |
| **HRS050074** | **50** | 56 | 67 | capacitor + 7% reactor rack | 310 | 740 | 538 | **35 300.00** |
| **Double-step racks 480V capacitors** - *separate fuse protection for each bank* | | | | | | | | |
| **HRD025274** | **2 x 12.5** | 2 x 14 | 2 x 17 | capacitor + 7% reactor rack | 310 | 740 | 538 | **26 100.00** |
| **HRD050274** | **2 x 25** | 2 x 28 | 2 x 34 | capacitor + 7% reactor rack | 310 | 740 | 538 | **43 300.00** |
| **HRD100274** | **2 x 50** | 2 x 56 | 2 x 68 | capacitor + 7% reactor rack | 310 | 740 | 538 | **64 400.00** |
| **HRD038374** | **12.5+25** | 14 + 28 | 17 + 34 | capacitor + 7% reactor rack | 310 | 740 | 538 | **34 700.00** |
| **HRD075374** | **25 + 50** | 28 + 56 | 34 + 68 | capacitor + 7% reactor rack | 310 | 740 | 538 | **54 000.00** |

**HR14 series - Racks (525V capacitors)** with 14% detuned reactors

**14% - 134 Hz Detuned reactors** *for networks with a high level of 3rd Harmonics*


HRD...

| type | kvar at: **400V** | 440V | 480V | description | dimensions (mm) (H) | (W) | (D) | price |
|---|---|---|---|---|---|---|---|---|
| **Single-step racks 525V capacitors** - *fuse protection* | | | | | | | | |
| **HRS054144** | **50** | 56 | 68 | capacitor + 14% reactor rack | 310 | 740 | 538 | **44 200.00** |
| **Double-step racks 525V capacitors** - *separate fuse protection for each bank* | | | | | | | | |
| **HRD025144** | **2 x 12.5** | 2 x 14 | 2 x 17 | capacitor + 14% reactor rack | 310 | 740 | 538 | **32 500.00** |
| **HRD050144** | **2 x 25** | 2 x 28 | 2 x 34 | capacitor + 14% reactor rack | 310 | 740 | 538 | **56 100.00** |
| **HRD038144** | **12.5+25** | 14 + 28 | 17 + 34 | capacitor + 14% reactor rack | 310 | 740 | 538 | **44 200.00** |


Scan above to try the PFC Calculator.

**FMS series - Power factor Correction (PFC)** *(automatic)*

For applications with varying capacitor requirements. An automatic reactive controller monitors the network and only switches capacitor banks when required, avoiding potential over or under compensation in a network.

**FMS series - Floor standing systems**

**Complete ready-to-install system comprising following:**

- Suitably ventilated floor standing enclosure *(thermostatically controlled roof mounted exhaust fan)*
- Mains isolator, door interlocking *(with early make/late break auxiliary contact)*
- **DCRG 8** high end reactive control relay *(incorporating digital display of all important network parameters)*
- Bottom cable entry *(top entry available on request)*
- RC series racks with heavy duty capacitors, fusegear, capacitor switching contactors and busbar system

Able to monitor all three phase voltage and current to providing accurate indication of:

- Active, Apparent Power as well as Active, Reactive, Apparent Energy monitoring
- Current and Voltage Harmonics analysis *(up to 31st harmonic)*
- Event logging: alarms, setup changes, events etc. *(internal memory stores last 250 events)*
- Internal panel temperature monitoring
- Expandable with up to 4 expansion modules for:
  Analog Inputs/Outputs, RS-323, RS-485, Ethernet, optional remote monitoring


| type | kvar at: | | steps (kvar) at 400V | | | | Expands | dimensions (mm) | | | price |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **400V** | 440V | 12.5 | 25 | 50 | 100 | to (kvar) | (H) | (W) | (D) | |
| **FMS series - 400V Floor standing complete PFC systems** *(480V capacitors)* | | | | | | | | | | | |
| • *Using 480V heavy duty capacitors with RC racks for use in 400V networks* | | | | | | | | | | | |
| **400V floor standing complete power factor systems** | | | | | | | | | | | |
| **FMS13804** | **138** | 165 | 1 | 1 | 2 | – | 475 | 2180 | 600 | 630 | **96 900.00** |
| **FMS17504** | **175** | 210 | – | 1 | 3 | – | 475 | 2180 | 600 | 630 | **105 000.00** |
| **FMS21304** | **213** | 255 | 1 | 2 | 3 | – | 475 | 2180 | 600 | 630 | **122 000.00** |
| **FMS23804** | **238** | 285 | 1 | 1 | 2 | 1 | 475 | 2180 | 600 | 630 | **126 000.00** |
| **FMS27504** | **275** | 330 | – | 1 | 3 | 1 | 475 | 2180 | 600 | 630 | **134 000.00** |
| **FMS31304** | **313** | 375 | 1 | 2 | 1 | 2 | 475 | 2180 | 600 | 630 | **151 000.00** |
| **FMS33804** | **338** | 390 | 1 | 1 | 2 | 2 | 475 | 2180 | 600 | 630 | **156 000.00** |
| **FMS37504** | **375** | 450 | – | 1 | 3 | 2 | 475 | 2180 | 600 | 630 | **163 000.00** |
| **FMS43804** | **438** | 525 | 1 | 1 | 2 | 3 | 475 | 2180 | 600 | 630 | **185 000.00** |
| **FMS47504** | **475** | 570 | – | 1 | 1 | 4 | – | 2180 | 600 | 630 | **193 000.00** |
| **Double floor standing panels*** | | | | | | | | | | | |
| **FMS57524*** | **575** | 690 | – | 1 | 1 | 5 | 950 | 2180 | 1200 | 630 | **248 000.00** |
| **FMS67524*** | **675** | 810 | – | 1 | 1 | 6 | 950 | 2180 | 1200 | 630 | **290 000.00** |
| **FMS77524*** | **775** | 930 | – | 1 | 1 | 7 | 950 | 2180 | 1200 | 630 | **320 000.00** |
| **FMS87524*** | **875** | 1050 | – | 1 | 1 | 8 | 950 | 2180 | 1200 | 630 | **351 000.00** |

| type | kvar at: | | | step kvar at 550V | | Expands | dimensions (mm) | | | price |
|---|---|---|---|---|---|---|---|---|---|---|
| | 400V | 525V | **550V** | 32 | 64 | to (kvar) | (H) | (W) | (D) | |
| **FMS series - 550V Floor standing complete PFC systems** *(690V capacitors)* | | | | | | | | | | |
| • *Using 690V heavy duty capacitors with RC racks for use in 400/525/550V networks* | | | | | | | | | | |
| **FMS12806** | 68 | 120 | **128** | 2 | 1 | 320 | 2180 | 600 | 630 | **117 000.00** |
| **FMS19206** | 102 | 180 | **192** | 2 | 2 | 320 | 2180 | 600 | 630 | **149 000.00** |
| **FMS25606** | 136 | 240 | **256** | 2 | 3 | 320 | 2180 | 600 | 630 | **182 000.00** |
| **FMS32006** | 170 | 300 | **320** | 2 | 4 | – | 2180 | 600 | 630 | **214 000.00** |
| **FMS38426*** | 204 | 360 | **384** | 2 | 5 | 640 | 2180 | 1200 | 630 | **287 000.00** |
| **FMS44826*** | 238 | 420 | **448** | 2 | 6 | 640 | 2180 | 1200 | 630 | **321 000.00** |
| **FMS51226*** | 272 | 480 | **512** | 2 | 7 | 640 | 2180 | 1200 | 630 | **353 000.00** |
| **FMS57626*** | 306 | 540 | **576** | 2 | 8 | 640 | 2180 | 1200 | 630 | **386 000.00** |
| **FMS64026*** | 340 | 600 | **640** | 2 | 9 | – | 2180 | 1200 | 630 | **420 000.00** |
| **FMS70426**** | 374 | 660 | **704** | 2 | 10 | 960 | 2180 | 1800 | 630 | **491 000.00** |
| **FMS76826**** | 408 | 720 | **768** | 2 | 11 | 960 | 2180 | 1800 | 630 | **523 000.00** |
| **FMS83226**** | 442 | 780 | **832** | 2 | 12 | 960 | 2180 | 1800 | 630 | **556 000.00** |
| **FMS89626**** | 476 | 840 | **896** | 2 | 13 | 960 | 2180 | 1800 | 630 | **588 000.00** |
| **FMS96026**** | 510 | 900 | **960** | 2 | 14 | – | 2180 | 1800 | 630 | **621 000.00** |

*Larger systems are made up with two (*) or three (**) panels each incorporating an individual isolator requiring supply cable to be split between the isolators.*

DCRG 8 (Door mount)

FHS...

**FHS series - Floor standing power factor systems** *(with anti-harmonic detuned reactors)*

- For networks with THDU ≤6% and/or THDI ≤40%

Growing use of power electronic devices such as: variable speed drives, inverters, UPS systems, battery chargers, LED lighting etc. is causing increasing levels of harmonic distortion in electrical networks, often leading to problems with capacitor installations.

Installation of detuned *(reactor-connected)* capacitors designed to force the resonant frequency of the network below the frequency of the lowest harmonic present *(usually the 5th)* thereby ensuring no resonant circuit or amplification of harmonic currents. Such an installation also has a partial filtering effect, reducing the level of voltage distortion on the supply.

Detuned capacitors are safer than non-detuned capacitors and future-proof for conditions of more and more deteriorating power quality in modern mains.

**Complete ready-to-connect floor standing power factor system comprising:**

- Suitably ventilated floor standing enclosure with roof mounted exhaust fan
- Mains isolator, door interlocking *(with early make/late break auxiliary contact)*
- HR heavy duty racks comprising: capacitors, reactors, switchgear, fusegear and busbars
- High end reactive control relay DCRG 8 *(incorporating digital display of all important network parameters)*

  Configurable to monitor three voltage and current phases and provide accurate indication of:
  - Active, Apparent power as well as Active, Reactive, Apparent Energy monitoring
  - Current and Voltage Harmonics analysis *(up to 31st harmonic)*
  - Calendar-clock with backup reserve power
  - Event logging: alarms, setup, changes, etc. *(internal memory stores last 250 events)*
  - Internal panel temperature monitoring
- Expandable with up to 4 expansion modules for:
  - Additional steps, Analog I/O's, RS-323, RS-485, Ethernet, optional - remote monitoring

| type | kvar at: | | steps (kvar) at 400V | | | | Expands | dimensions (mm) | | | price |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **400V** | 440V | 12.5 | 25 | 50 | 100 | to kvar | (H) | (W) | (D) | |
| **Anti-harmonic systems** incorporating 7% detuned reactors *(480V capacitors)* | | | | | | | | | | | |
| • **7% - 189 Hz detuned reactors** *for 400V networks with a high level of 5th and 7th Harmonic* | | | | | | | | | | | |
| **FHS138074** | **138** | 165 | 1 | 1 | 2 | – | 375 | 2280 | 900 | 600 | **164 000.00** |
| **FHS175074** | **175** | 210 | – | 1 | 3 | – | 375 | 2280 | 900 | 600 | **184 000.00** |
| **FHS213074** | **213** | 255 | 1 | 2 | 3 | – | 375 | 2280 | 900 | 600 | **218 000.00** |
| **FHS238074** | **238** | 285 | 1 | 1 | 2 | 1 | 375 | 2280 | 900 | 600 | **229 000.00** |
| **FHS275074** | **275** | 330 | – | 1 | 1 | 2 | 375 | 2280 | 900 | 600 | **248 000.00** |
| **FHS313074** | **313** | 375 | 1 | 2 | 1 | 2 | 375 | 2280 | 900 | 600 | **283 000.00** |
| **FHS338074** | **338** | 405 | 1 | 1 | 2 | 2 | 375 | 2280 | 900 | 600 | **293 000.00** |
| **FHS375074** | **375** | 450 | – | 1 | 1 | 3 | – | 2280 | 900 | 600 | **313 000.00** |
| **FHS438074*** | **438** | 525 | 1 | 1 | 2 | 3 | 775 | 2280 | 1800 | 600 | **411 000.00** |
| **FHS475074*** | **475** | 570 | – | 1 | 1 | 4 | 775 | 2280 | 1800 | 600 | **431 000.00** |
| **FHS538074*** | **538** | 645 | 1 | 1 | 2 | 4 | 775 | 2280 | 1800 | 600 | **476 000.00** |
| **FHS575074*** | **575** | 690 | – | 1 | 1 | 5 | 775 | 2280 | 1800 | 600 | **495 000.00** |
| **FHS638074*** | **638** | 765 | 1 | 1 | 2 | 5 | 775 | 2280 | 1800 | 600 | **540 000.00** |
| **FHS675074*** | **675** | 810 | – | 1 | 1 | 6 | 775 | 2280 | 1800 | 600 | **560 000.00** |
| **FHS738074*** | **738** | 885 | 1 | 1 | 2 | 6 | 775 | 2280 | 1800 | 600 | **605 000.00** |
| **FHS775074*** | **775** | 930 | – | 1 | 1 | 7 | – | 2280 | 1800 | 600 | **625 000.00** |
| **FHS838074**** | **838** | 1005 | 1 | 1 | 2 | 7 | 975 | 2280 | 2700 | 600 | **723 000.00** |
| **FHS875074**** | **875** | 1050 | – | 1 | 1 | 8 | 975 | 2280 | 2700 | 600 | **742 000.00** |
| **FHS975074**** | **975** | 1170 | – | 1 | 1 | 9 | – | 2280 | 2700 | 600 | **807 000.00** |
| **Anti-harmonic systems** incorporating 14% detuned reactors *(525V capacitors)* | | | | | | | | | | | |
| • **14% - 134 Hz detuned reactors** *for 400V networks with a high level of 3rd Harmonic* | | | | | | | | | | | |
| **FHS138144** | **138** | 165 | 1 | 1 | 2 | – | 203 | 2280 | 900 | 600 | **198 000.00** |
| **FHS150144** | **150** | 180 | – | 2 | 2 | – | 203 | 2280 | 900 | 600 | **210 000.00** |
| **FHS200144** | **200** | 240 | – | 2 | 3 | – | – | 2280 | 900 | 600 | **254 000.00** |
| **FHS238144*** | **238** | 285 | 1 | 1 | 4 | – | 432 | 2280 | 1800 | 600 | **339 000.00** |
| **FHS288144*** | **288** | 345 | 1 | 1 | 5 | – | 432 | 2280 | 1800 | 600 | **383 000.00** |
| **FHS300144*** | **300** | 360 | – | 2 | 5 | – | 432 | 2280 | 1800 | 600 | **395 000.00** |
| **FHS350144*** | **350** | 420 | – | 2 | 6 | – | 432 | 2280 | 1800 | 600 | **440 000.00** |
| **FHS400144*** | **400** | 480 | – | 2 | 7 | – | – | 2280 | 1800 | 600 | **485 000.00** |
| **FHS450144**** | **450** | 540 | – | 2 | 8 | – | 648 | 2280 | 2700 | 600 | **529 000.00** |
| **FHS500144**** | **500** | 600 | – | 2 | 9 | – | 648 | 2280 | 2700 | 600 | **626 000.00** |
| **FHS550144**** | **550** | 660 | – | 2 | 10 | – | 648 | 2280 | 2700 | 600 | **670 000.00** |
| **FHS600144**** | **600** | 720 | – | 2 | 11 | – | 648 | 2280 | 2700 | 600 | **714 000.00** |

*Larger systems are made up with two (*) or three (**) panels each incorporating an individual isolator requiring supply cable to be split between the isolators.*

WMS...

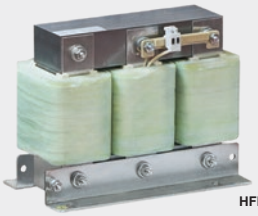
## WMS series - Wall-mount power factor systems *(automatic)* 400/440V

For applications with varying capacitor requirements. An automatic reactive controller monitors the network and only switches capacitor banks when required, avoiding potential over or under compensation in a network.

**Complete ready-to-install system comprising following:**

- Reverse-flow fan ventilated wall-mount enclosure, bottom cable entry *(top entry on request)*
- Mains isolator, door interlocking *(with early make / late break auxiliary)*
- Heavy duty three phase capacitors *(with internal discharge resistors)*
- Reactive control relay DCRL 5 *(digital display of all important electrical network parameters)*
- "Special" capacitor switching contactors incorporating limiting resistors
- HRC fuse protection *(per capacitor bank)*

| type | kvar at: | | steps (kvar) at 415V | | | Expands | dimensions (mm) | | | price |
|---|---|---|---|---|---|---|---|---|---|---|
| | **400V** | 440V | 12.5 | 25 | 50 | to (kvar) | (H) | (W) | (D) | |
| **WM series - Wall-mount complete PFC systems** *(440V capacitors)* | | | | | | | | | | |
| **WMS03804** | **37.5** | 45 | 1 | 1 | – | 87.5 | 950 | 700 | 270 | **34 300.00** |
| **WMS05004** | **50** | 60 | 2 | 1 | – | 87.5 | 950 | 700 | 270 | **38 900.00** |
| **WMS07504** | **75** | 90 | 2 | 2 | – | 87.5 | 950 | 700 | 270 | **47 500.00** |
| **WMS10004** | **100** | 120 | 2 | 1 | 1 | 150 | 950 | 700 | 270 | **54 100.00** |
| **WMS12504** | **125** | 150 | 2 | 2 | 1 | 150 | 950 | 700 | 270 | **58 900.00** |
| **WMS15004** | **150** | 180 | – | 2 | 2 | – | 950 | 700 | 270 | **65 900.00** |



HFRA...

## HFRA series - Detuned anti-harmonic reactors 400V, 50Hz

Detuned reactors protect capacitors against harmonics, avoiding parallel resonance and amplification of harmonics flowing within the network.

- Insulation: F class insulation, 155°C
- Internal protection: Thermal cutout (125°C) incorporated *(on centre phase)*
- Reference standards: IEC/EN 60076-6, 61558-2-20

| type | kvar at: | | % | description | dimensions (mm) | | | price |
|---|---|---|---|---|---|---|---|---|
| | **400V** | 440V | | | (H) | (W) | (D) | |
| **7% - 189 Hz Detuned reactors** | | | *for networks with a high level of 5th and 7th Harmonics* | | | | | |
| **HFRA1207** | **12.5** | 15 | 7% | anti-harmonic reactors | 215 | 210 | 120 | **5 250.00** |
| **HFRA2507** | **25** | 30 | 7% | anti-harmonic reactors | 190 | 240 | 170 | **11 100.00** |
| **HFRA5007** | **50** | 60 | 7% | anti-harmonic reactors | 240 | 300 | 180 | **15 800.00** |
| **14% - 134 Hz Detuned reactors** | | | *for networks with a high level of 3rd Harmonic* | | | | | |
| **HFRA1314** | **12.5** | 15 | 14% | anti-harmonic reactors | 280 | 240 | 150 | **7 900.00** |
| **HFRA2714** | **25** | 30 | 14% | anti-harmonic reactors | 250 | 330 | 220 | **15 400.00** |
| **HFRA5414** | **50** | 60 | 14% | anti-harmonic reactors | 270 | 340 | 220 | **20 000.00** |

EXP1011

## Communication modules for PFC systems

For remote monitoring and control of all electrical network parameters including harmonics, panel internal temperature, alarms, events and all setup parameters.

Communication modules simply plug-in to the controller and are automatically configured to offer various communication protocols.

| | | | |
|---|---|---|---|
| **EXP1011** | opto-isolated | RS-232 plug-in communication | expansion module **4 140.00** |
| **EXP1012** | opto-isolated | RS-485 plug-in communication | expansion module **2 090.00** |
| **EXP1013** | opto-isolated | Ethernet with web server function | expansion module **5 130.00** |
| **EXP1014** | opto-isolated | Profibus-DP plug-in communication | expansion module **17 200.00** |

PM-GW-LTE

## Remote monitoring solutions for PFC systems

Polar Monitoring offers remote monitoring systems that enable (RS-485) devices to be securely viewed from anywhere via its comprehensive cloud platform. This provide an ideal solution to monitor generator controllers and Power Factor Correction systems.

**General features:**

- Remote programming, monitoring, trending
- Alerts and notifications *(SMS and email)*
- Error codes and reporting
- Multiple user access rights
- Device agnostic *(Supports multiple types of devices and applications in one platform)*

| type | supply voltage | network connection | connector type | description |
|---|---|---|---|---|
| **PM-GW-LTE** | 9...36 VDC | 2G/LTE | terminal | LTE - Gateway *(within South Africa)* |

For more information, see **category G**

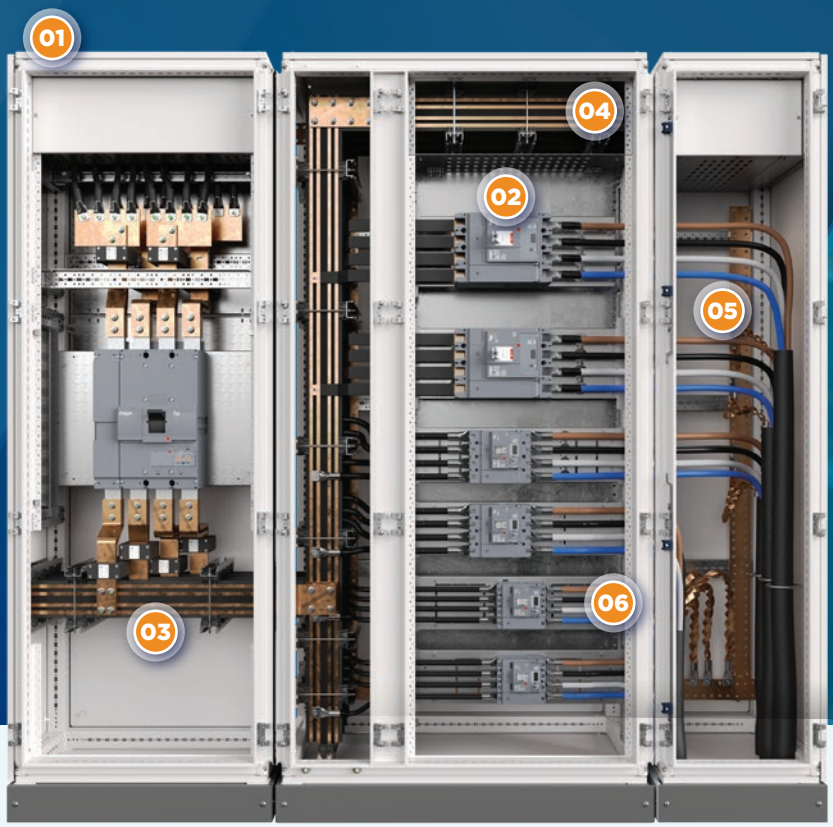
*see **Cat G** for pricing.*

Introducing more possibilities

# quadro evo.

## The New Hager Main Distribution Board

A tested Hager solution, fully compliant with IEC 61439-1&2, up to 4000A, quadro evo now offers 4 safety classes. With segregations 1, 2b, 3b or 4b, there is a solution for projects of any dimension. The new quadro evo is a solution that will meet almost any challenge. Its many improvements make it the base of a main distribution that will endure. Choosing, configuring and building the quadro evo is now easier and more efficient.




01 Outside, the familiar Hager look, inside there's plenty more to see

02 New capabilities and more intelligence

03 New form segregations for up to 4b and new safety features

04 Ready for an all-new power busbar, allowing systems for up to 4000A

05 The new design allows for more space, making wiring and maintenance easier

06 Improved mounting kits, fewer screws and a clear positioning

## hagercad software

**A fully integrated, electrical planning software from Hager, offering maximum simplicity, speed, reliability and flexibility.**

- Automatic power loss and heat calculation feature
- Simply generate your terminal plan
- User-friendly function for device labels
- Quickly generate circuit diagrams
- Easily create and share your project
- Windows 10 & 11 compatible with quick, automatic updates

hager

Scan to learn more about **quadro evo**

Modular Solution | User Friendly HMI | Complete Protection Features | Efficient Heat Dissipation

## Active Power Filter (APF) systems

The increase of non-linear and other challenging loads in electrical grids today present unique power quality challenges. APF (Active Power Filter) provides a cost efficient solution to power quality problems, eliminating resonance problems, preventing amplified harmonic current and voltage, simultaneously compensating reactive power in real-time to maintain power factor at >0.99, enhancing equipment operating life whilst improving overall power system capacity.

### APF systems provide multiple compensation functionality including:

- **Harmonic compensation** *(filtering any order from 2nd to 50th harmonic)*
- **Power Factor compensation** *(compensating in real-time to maintain power factor at >0.99)*
- **Phase Imbalance compensation** *(reducing the peak current demand tariff on electricity bills)*

### Typical applications

Malls, shopping centres, office blocks, hospitals, printing works, processing plants, Data centres, pumping stations and all applications where Harmonic generating equipment such as variable speed drives *(VSDs)* rectifiers, battery charges, UPS's, Power supplies, LED lighting is utilised.

**Benefits include: Reduced maintenance, a considerably longer lifespan**

- Complete power quality improvement solution including real-time elimination of harmonics and flicker mitigation
- Provides dynamic step-less compensation instantaneously in real-time to each phase individually
- Only injects the kVAr required in that moment with no possibility of over or under-compensation
- Voltage fluctuations *(flicker)* mitigation and reduction of voltage *(sag and swell)* variations
- Correcting phase imbalance *(reducing the peak current reducing peak demand tariff on electricity bills)*
- Maintenance free *(with no electromechanical components)*
- Expandable by paralleling up to 8 modules *(unnecessary to over-dimension capacity to cater for future needs)*
- Output current is unaffected by mains voltage fluctuations providing stable support for mains voltage

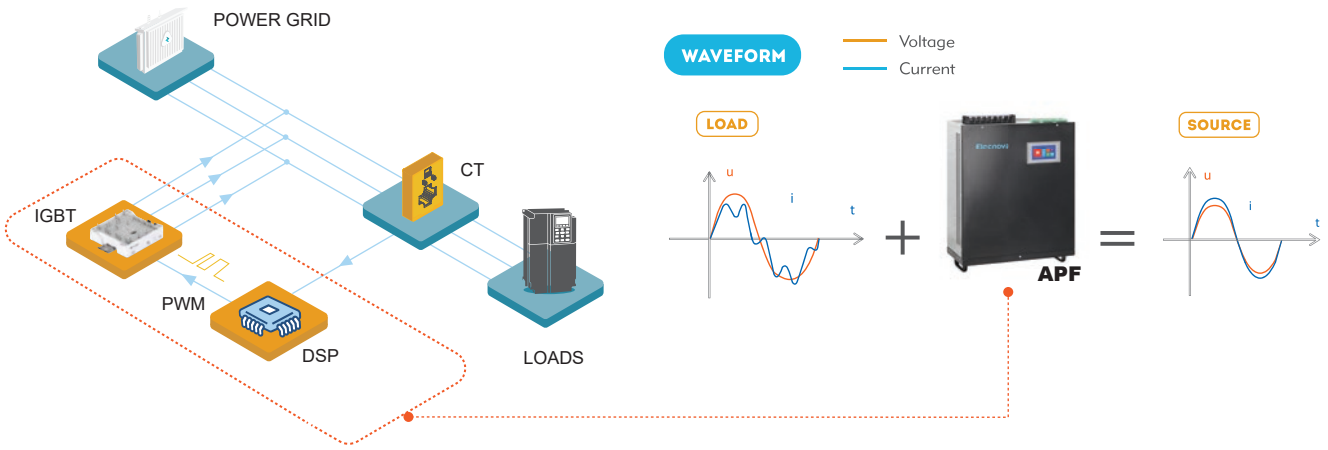
SFR-APF4...

- Harmonic compensation: 2nd to 51st order
- Response time: <5ms
- Efficiency: ≥97%
- Communication port: RS-485 - Modbus-RTU protocol
- Display interface: 4.3" LCD
- Operating temp: -20°C...45°C
- Cooling: Forced air cooling *(fan cooling)*
- Protection class: IP20

| type | rated current | description | rated input (V) | dimensions (mm) (H) | (W) | (D) | price |
|---|---|---|---|---|---|---|---|
| **Active Power Filters (APF) - Wall-mount system** *(3-phase 4 wire) 400V* | | | | | | | |
| **SFR-APF4-30/0.4B** | 30A | Active Power Filter (APF) | 400V ±15% | 641 | 440 | 149 | **88 500.00** |
| **SFR-APF4-50/0.4B** | 50A | Active Power Filter (APF) | 400V ±15% | 641 | 440 | 149 | **112 000.00** |
| **SFR-APF4-75/0.4B** | 75A | Active Power Filter (APF) | 400V ±15% | 641 | 440 | 149 | **135 000.00** |
| **SFR-APF4-100/0.4B** | 100A | Active Power Filter (APF) | 400V ±15% | 753 | 520 | 230 | **158 000.00** |
| **SFR-APF4-150/0.4B** | 150A | Active Power Filter (APF) | 400V ±15% | 753 | 520 | 230 | **216 000.00** |

*Larger sizes can be made up by paralleling up to 8 wall-mount systems.*
*External protection (a circuit breaker is required)*

## Active Power Filter






Above ZAR prices do not include VAT. E&OE

Modular Solution | User Friendly HMI | Complete Protection Features | Efficient Heat Dissipation

## Static Var Generator (SVG) systems

The increase of non-linear and other challenging loads in electrical grids today present unique power quality challenges. **SVG** (Static Var Generator) provides a cost effective, extremely fast solution to power quality problems, enhancing equipment operating life whilst improving overall power system capacity.

The **SVG** operates by detecting the load current, analysing the reactive content and then injecting the exact reverse reactive compensating current on an instantaneous real-time basis enabling perfect compensation on each phase for both inductive and capacitive loads.

**Typical applications:**

- Highly dynamic loads requiring rapid reactive power compensation, e.g: electric arc furnaces, or in big steps like cranes, sawmill machinery, etc.
- Electrical welding systems
- Renewable power generation *(e.g. photovoltaics and wind turbines)*
- Plastic industry machinery *(e.g. extruders, injection moulders)*
- Loads with low power factor: Motors, cables, lightly loaded transformers, lighting, etc.

**SVG an IGBT based compensation device with the following advantages:**

- Is a controllable current source, avoiding harmonic amplification which may be present
- Can dynamically and continuously compensate power factor according to the change of load. The module exports reactive power and can absorb reactive power, completely eliminating reactive power reverse transmission.
- With response time of ≤ 5ms, and the conversion from conductive reactive power to inductive reactive power can be accomplished almost instantaneously and can be fully utilised for fast switching loads

**Benefits include: Reduced maintenance, a considerably longer lifespan, compact size**

- Complete power quality improvement solution including real-time elimination of harmonics and flicker mitigation
- Provides dynamic step-less compensation instantaneously in real-time to each phase individually
- Only injects the kVAr required in that moment with no possibility of over or under-compensation
- Can maintain a PF of 0.99 lagging or unity *(if required)* for both inductive and capacitive loads
- Voltage fluctuations *(flicker)* mitigation and reduction of voltage *(sag and swell)* variations
- Correcting phase imbalance *(reducing the peak current which reduces the peak demand tariff on electricity bills)*
- Immune to harmonics, resonance and voltage level and is maintenance free *(with no electromechanical components)*
- Expandable by paralleling up to 8 modules *(unnecessary to over-dimension capacity to cater for future needs)*
- Output current is unaffected by mains voltage fluctuations providing stable support for mains voltage

- Overall efficiency: ≥97%
- Overload capability: 120%
- Response time: ≥5ms
- Communication port: RS-485 - Modbus-RTU protocol
- Display interface: 4.3" LCD
- Operating temp: -20°C...45°C
- Cooling: Forced air cooling *(fan cooling)*

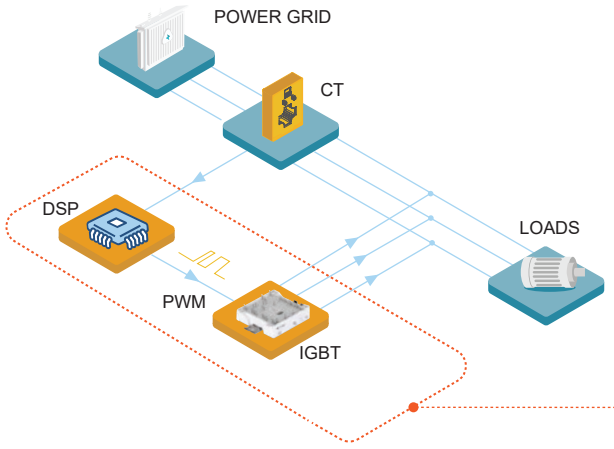
SFR-SVG4...

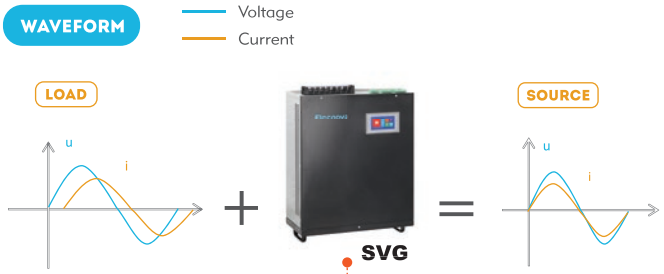
| type | kvar | description | rated input (V) | dimensions (mm) (H) | (W) | (D) | price |
|---|---|---|---|---|---|---|---|
| **Static Var Generator (SVG) - Wall-mount system** | | | *(3-phase 4 wire) 400V* | | | | |
| **SFR-SVG4-30/0.4B** | 30 kvar | Static Var Generator (SVG) | 400V ± 15% | 641 | 440 | 149 | **101 000.00** |
| **SFR-SVG4-50/0.4B** | 50 kvar | Static Var Generator (SVG) | 400V ± 15% | 641 | 440 | 149 | **129 000.00** |
| **SFR-SVG4-75/0.4B** | 75 kvar | Static Var Generator (SVG) | 400V ± 15% | 753 | 520 | 230 | **158 000.00** |
| **SFR-SVG4-100/0.4B** | 100 kvar | Static Var Generator (SVG) | 400V ± 15% | 753 | 520 | 230 | **191 000.00** |

*Larger sizes can be made up by paralleling up to 8 wall-mount systems.*

*External protection (a circuit breaker is required)*

## Static Var Generator




ALARM
RESET
PWR1
PWR2
DI1
DI2
GE8
GE9
LINK ACT
16AM
+24DC
0VDC
W123
W124
W128
MODEL:
POWER INPUT :
S/N:
MAC Address:
LISTED
70HF
IND. CONT. EQ.
Made in China