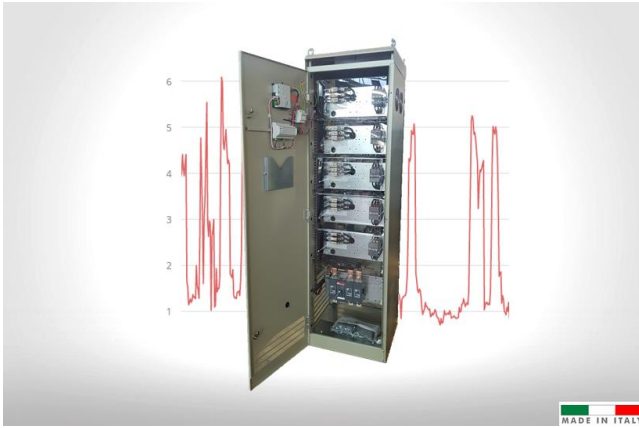


# AAR/138

Automatic P.F.C. equipment with Detuning Reactors



**AAR/138** series equipment are particularly suitable for three-phase networks with **high harmonic distortion** in current with presence of **3° order harmonics**. These equipment guarantee an accurate P.F.C., thanks to a multi-step design that effectively divides the power. In addition, on the G6E and G9E cabinet, all the capacitors banks are assembled on racks, easily removable from the front of the panel, for simple management and maintenance.

## PERFORMANCE DATA

- **Rated voltage** 400 Vac (others on request)
- **Rated frequency** 50 Hz (60 Hz on request)
- **Insulation voltage** 690 Vac
- **auxiliary voltage** 230 Vac (110 Vac on request)
- **Overtoltage** 1,1 Un (rated voltage)
- **Temperature range** -5 / +40 °C
- **Impulse withstand** 8 kV

## HARMONIC CONTENT

- THD(I)max. = 100% on the network
- THD(U)max. = 6% on the network
- p = 14%

## TECHNICAL DATA

|                          |   |
|--------------------------|---|
| <b>Enclosures</b>        | Made of sheet steel, protected against corrosion by phosphating and epoxy powder coating. RAL 7035 colour (others on request). Degree of protection: external panel IP 31 (others on request); internal panel IP 20 at the input of power cables (IP 20 with open doors on request).  |
| <b>Installation</b>      | Indoor installation, in a well ventilated position away from heat sources.  |
| <b>Ventilation</b>       | Forced.   |
| <b>Switch isolator</b>   | Tri-polar off-load disconnecter.  |
| <b>Wiring</b>            | The internal connections are made with flame retardant cables with very low smoke emission (other types of cables on request). On the non-pre-insulated terminals the connection point is covered with a long-life heat-shrinking sheath. The auxiliary voltage are appropriately identified in compliance with current regulations.  |
| <b>3-pole contactors</b> | Each battery is switched on / off by a three-pole contactor (Class AC6-b) to offer high reliability.  |
| <b>Fuses</b>             | Each capacitors bank is protected by fuses. The protection system of both the power circuits (NH-00 curve gG fuses) and the auxiliary ones (isolable fuse holders and 10.3x38 fuses) foresees the use of high breaking power fuses (100kA).   |
| <b>Capacitors</b>        | Single-phase capacitors in self-healing metallized polypropylene (MKP), equipped with an anti-burst device and discharge resistance. They are impregnated in vegetable oil, PCB free. Delta connection. Type of continuous service. <ul style="list-style-type: none"><li>• <b>rated voltage: 550 Vac (maximum voltage 600 Vac)</b></li><li>• overvoltage: 1.1 x A (8h / 24h)</li><li>• current overload: 1.3 x In</li><li>• capacity tolerance: -5% / + 10%</li><li>• losses due to dissipation: ≤0.4 W / kvar</li><li>• temperature category: -25 / D</li></ul> |
| <b>Detuning reactors</b> | <b>Tuning frequency: 138 Hz (p = 14%)</b><br>Power losses: 6,5 W / kvar (AVG)<br>Max. Harmonic distortion of the voltage allowed on the networks is: THDU = 6% (138 Hz). On request: higher THDU values.  |
| <b>Controller</b>        | <ul style="list-style-type: none"><li>• type of measurement: varmetric.</li><li>• amperometric signal: by means of an amperometric transformer with secondary 5A, class 1 - 5VA (by the user)</li><li>• amperometric signal sensitivity: 2.5% for BMR series, 0.3% for HPR series</li><li>• standard capacitors on / off times: 25 "± 30" (others on request)</li></ul>   |

## QUALITY AND TESTING

- Regulations** Capacitors: IEC/EN 60831-1 / 2 certified by IMQ (V1927); Equipment: IEC/EN 61439-1 / 2, IEC/EN 61921.
- European directives** Low voltage: 2014/35/CE; Electromagnetic compatibility: 2014/30/CE.

### Testing

100% of the automatic equipment is subject to visual inspection, insulation test: phase-phase and phase-earth, battery efficiency and ventilation circuit control: the report is included in the documentation. The capacitors are tested in three consecutive stages of the production process: after winding, regeneration and before labeling.


## CONFIGURATION

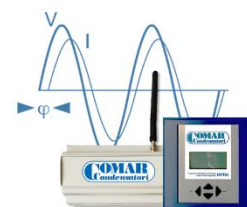
### General notes

- For dimensions, please consult the cabinet drawings, referring to the "Type" column.
- The indication for cable entry (power supply) is as follows: ↑ from the bottom, ↙ side up, ↓ from the top
- The rated power is expressed at 400 V - 50 Hz.

The choice of supply cables depends on the installation conditions, the length of the same and the ambient temperature. For a correct sizing, refer to the IEC 60364-5, CEI 64-8 and the UNEL 35024/01 standards.

### Cloud Control System (CCS)

The symbol  indicates that CCS, the remote monitoring system, is pre-installed on the P.F.C. equipment. For any specific information, and to find out the advantages of the Cloud Control System service, refer to the appropriate brochure available on [www.comarcond.com](http://www.comarcond.com) or directly on request.
























### Table

THD(I)max. = 100%

THD(U)max. = 4%

p = 14%

| Code          | Type      | Qn<br>(kvar) | Cable<br>entry | In<br>(A) | Banks size<br>(kvar) |    |     |     |     | Steps<br>(n) | Switch<br>isolator<br>(A) | Controller<br>(type) | CCS   | Weight<br>(kg) |
|---------------|-----------|--------------|----------------|-----------|----------------------|----|-----|-----|-----|--------------|---------------------------|----------------------|---|----------------|
| 8821403100750 | G6E       | 100          | ↓              | 144       | 25                   | 25 | 50  |     |     | 4            | 200                       | HPR6                 |  | 190            |
| 8821403125700 | G6E       | 125          | ↓              | 180       | 25                   | 50 | 50  |     |     | 5            | 315                       | HPR6                 |  | 200            |
| 8821403150750 | G6E       | 150          | ↓              | 216       | 25                   | 25 | 50  | 50  |     | 6            | 400                       | HPR6                 |  | 220            |
| 8821403175700 | G6E       | 175          | ↓              | 252       | 25                   | 50 | 50  | 50  |     | 7            | 400                       | HPR6                 |  | 250            |
| 8821403200750 | G6E       | 200          | ↑              | 288       | 25                   | 25 | 50  | 50  | 50  | 8            | 500                       | HPR6                 |  | 270            |
| 8821403225750 | G9E       | 225          | ↑              | 324       | 25                   | 50 | 75  | 75  |     | 9            | 500                       | HPR6                 |  | 320            |
| 8821403250750 | G9E       | 250          | ↑              | 360       | 25                   | 25 | 50  | 75  | 75  | 10           | 630                       | HPR6                 |  | 340            |
| 8821403275750 | G9E       | 275          | ↑              | 397       | 25                   | 50 | 50  | 75  | 75  | 11           | 630                       | HPR6                 |  | 370            |
| 8821403300750 | G9E       | 300          | ↑              | 432       | 25                   | 50 | 75  | 75  | 75  | 12           | 800                       | HPR6                 |  | 380            |
| 8821403350750 | G9E       | 350          | ↑              | 504       | 25                   | 25 | 75  | 75  | 75  | 14           | 800                       | HPR6                 |  | 410            |
| 8821403400750 | G9E (II)  | 400          | ↑              | 576       | 50                   | 50 | 75  | 75  | 75  | 14           | 1000                      | HPR6                 |  | 590            |
| 8821403450750 | G9E (II)  | 450          | ↑              | 648       | 25                   | 50 | 75  | 75  | 75  | 18           | 1000                      | HPR12                |  | 640            |
| 8821403500750 | G9E (II)  | 500          | ↑              | 720       | 50                   | 75 | 75  | 75  | 75  | 13           | 1250                      | HPR12                |  | 690            |
| 8821403550750 | G9E (II)  | 550          | ↑              | 792       | 50                   | 50 | 75  | 75  | 75  | 19           | 1250                      | HPR12                |  | 740            |
| 8821403600750 | G9E (II)  | 600          | ↑              | 864       | 75                   | 75 | 75  | 75  | 75  | 8            | 1600                      | HPR12                |  | 790            |
| 8821403650750 | G9E (II)  | 650          | ↑              | 936       | 50                   | 75 | 75  | 75  | 75  | 16           | 800+630                   | HPR12                |  | 840            |
| 8821403750750 | G9E (II)  | 750          | ↑              | 1080      | 75                   | 75 | 75  | 75  | 150 | 10           | 800+800                   | HPR12                |  | 890            |
| 8821403825750 | G9E (III) | 825          | ↑              | 1191      | 75                   | 75 | 75  | 75  | 150 | 11           | 800+1000                  | HPR12                |  | 1060           |
| 8821403900750 | G9E (III) | 900          | ↑              | 1299      | 75                   | 75 | 75  | 150 | 150 | 12           | 800+1250                  | HPR12                |  | 1110           |
| 8821403975750 | G9E (III) | 975          | ↑              | 1407      | 75                   | 75 | 75  | 150 | 150 | 13           | 800+1250                  | HPR12                |  | 1160           |
| 8821404105750 | G9E (III) | 1050         | ↑              | 1516      | 75                   | 75 | 150 | 150 | 150 | 14           | 800+1600                  | HPR12                |  | 1210           |

Other solutions are available on request.