



*'Feel
your Airport'*

Primary Cable is the Backbone

CCR by GRP

Stackable Constant Current Regulators

Introduction

Among its range of constant current regulators, GRP has designed a compact version of its sine wave CCR.

This efficient design will allow to spare room in crowded substations, by piling up 2 or 3 CCRs in one column and still benefit the high performances of state of the art IGBT based CCRs.

The CCRs are also maintenance friendly, thanks to removable side panels providing easy access to internal parts.

The stackable CCR design allows installation on shelves as well.



Compliance with Standards

- **ICAO**
Aerodrome Design Manual, Part 5
- **IEC**
61822:2011
- **AENA**
PPT-002 05-13
- **FAA (compliance)**
A/C 150-5345-10H



General description

CCR - GRP is a family of Constant Current Regulators (CCR with a true sine wave output thanks to their power module based on Insulated Gate Bipolar Transistor (IGBT technology).

True sine wave output means that output wave has a very low total harmonic distortion (THD).

IGBTs are driven by latest ARM cortex core M4 microcontroller allowing a very fast response time, which is especially suitable for circuits with non-linear loads like LED lights, Signs and those with Individual Lamp Control and Monitoring Systems (ILCMS).

Two main supply options are available:

- Three-phase: allowing a perfect balance power consumption **MODEL 3F CCR-GRP**.
- Bi-phase: allowing a fast replacing of existing thyristors based CCRs **MODEL 2F CCR-GRP**.

Power range : 2, 5kVA - 4kVA - 5kVA

Features

Human Machine Interface (HMI) is done with a resistive touchscreen especially designed for hard environments like electrical substations and vaults.

Real time clock to log main events and alarms in an SD card for troubleshooting or maintenance statistics. By default, it stores operational hours per brightness step.

Up to 7 brightness steps plus a configurable warm up or black brightness step.

Users can easily get access to any information or configuration menus as per their needs, there is no need of an external app to configure CCR. HMI is controlled by a second ARM cortex core M3 microcontroller, which is also responsible for:

- **Lamp Failure Detection (LFD)** using an accurate signal processing algorithm that calculates failed or burnt out lamps.
- Dual and redundant ethernet interface using **ModBus TCP** protocol.
- Dual and redundant RS485 interface using ModBus RTU or JBus protocol.
- Digital Input/Outputs interface for old fashion Control and Monitoring Systems (CMS).

LFD and digital interfaces (Ethernet and RS485) are always delivered with any CCR configuration. User can easily enable which is primary interface (Ethernet 1 or RS485 1) and secondary interface (Ethernet 2 or RS485 2).

CCR - GRP config tool app provides a simple way of remotely control a CCR by ethernet interface allowing also CCR configuration.



All components among 2F CCR-GRP and 3F CCR-GRP are the same except for:

- EMC filter and Line inductor in Input/Low voltage compartment.
- Line rectifier in Power module.

The above two exceptions come from the fact that input line is bi-phase or three-phase, consequently line inductor and rectifier should be as per input line. Regarding control firmware (FW) in ARM cortex core M4 and in core M3 microcontrollers are the same for both models.

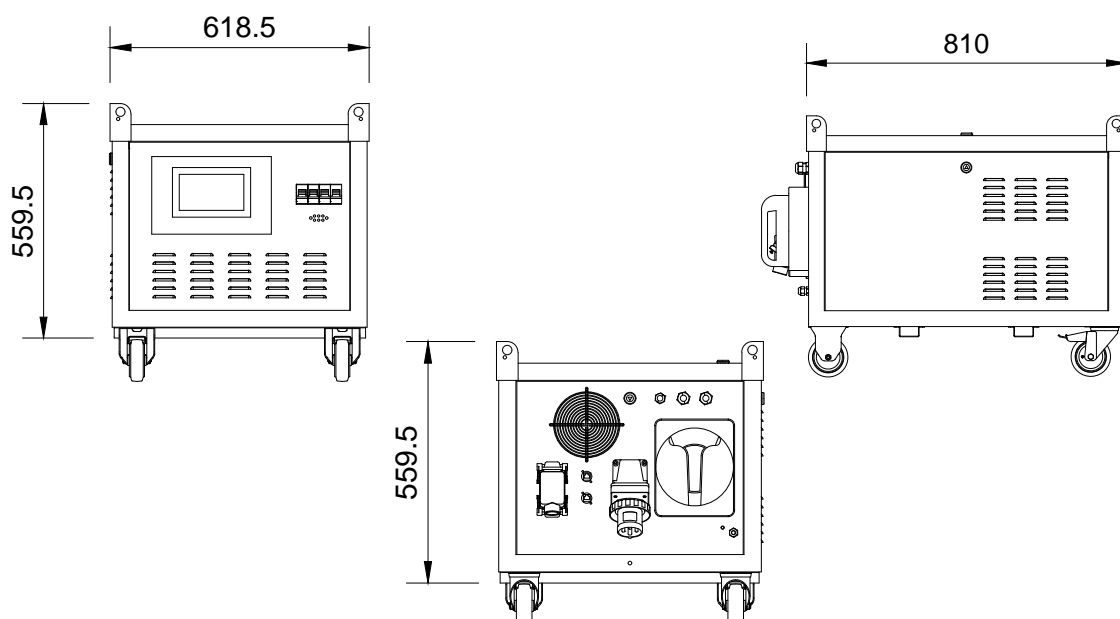
Summarizing, training, maintenance and spare parts for both types are the same and are compatible.

Removable side panel provide easy access for maintenance.

The column can be fitted with or without wheels.



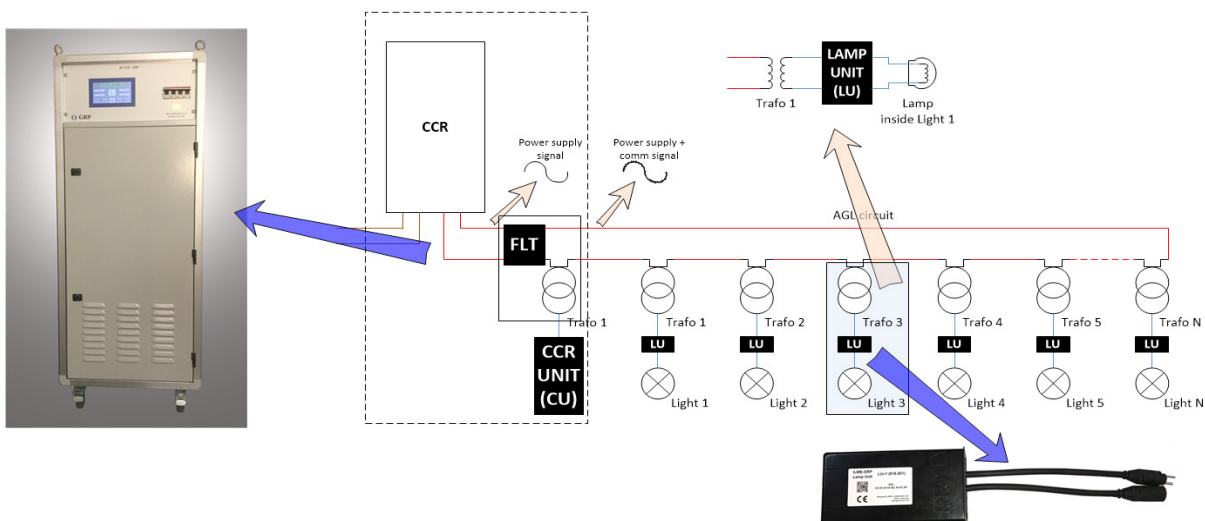
Dimensions



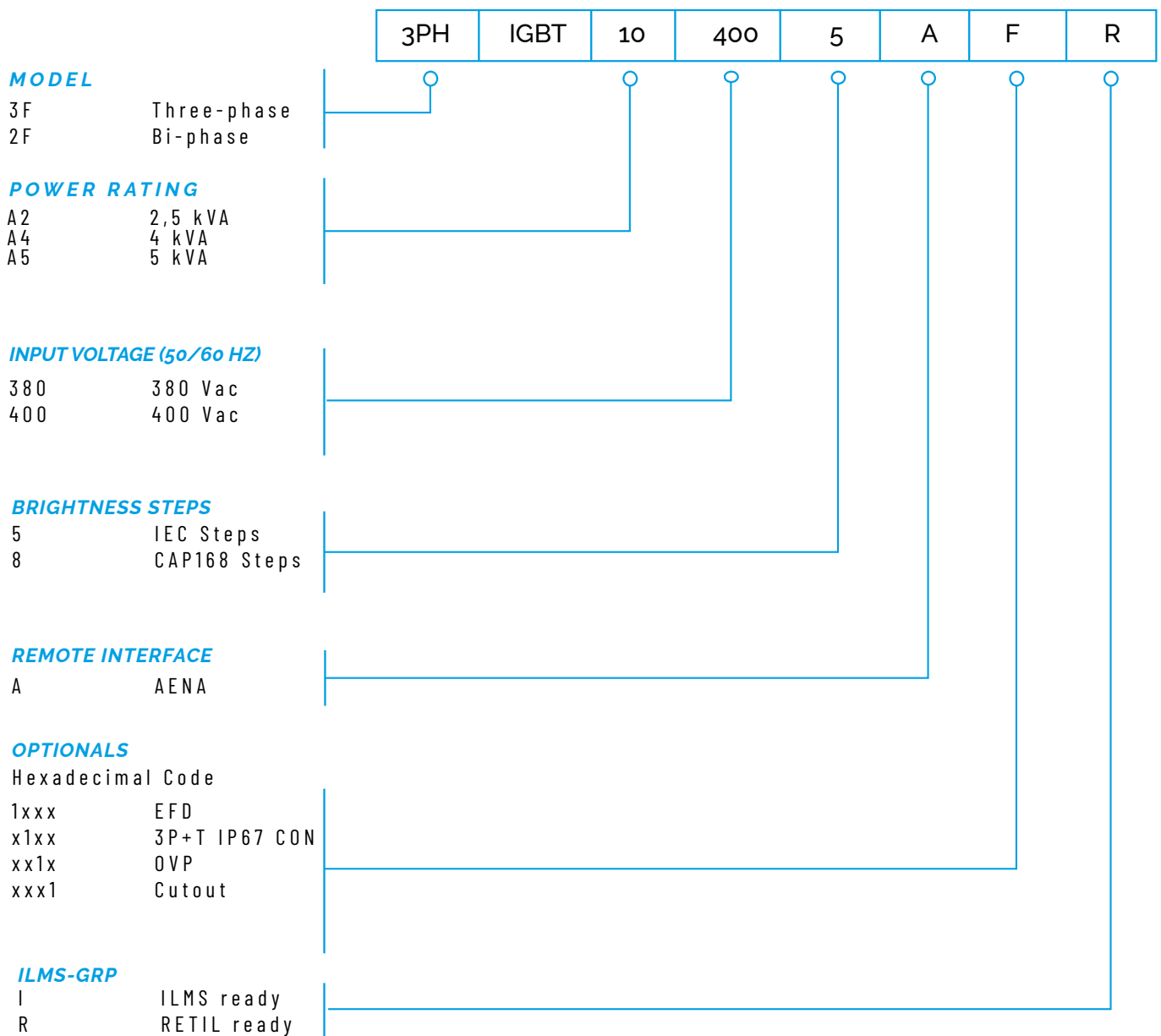
Options and accessories

- Digital Input/Output or multiwire interface through heavy duty 32p connector. It can be configured as primary or secondary interface as any other available interface.
- External four positions cut-out:
 - **Normal:** circuit connected to CCR.
 - **Service:** CCR short-circuited and circuit short-circuited and connected to earth.
 - **Mesure:** CCR short-circuited and both circuit sides available in test points.
 - **Earth:** CCR and circuit connected to earth.
- 3P+T IP67 input power base and connector
- Output overvoltage protection.
- **Earth Fault Detection (EFD):** this will measure the insulation to ground of the primary circuit either while current is rushing or not, according to standard, and in order to provide information to AGL maintenance team.
- **ILMS ready:** GRP proprietary communication technology can be integrated inside the CCR stack for easy installation.

Ask technical department for details.



Ordering code





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GRP

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