

## Sine Wave Output Constant Current Regulator CCR 2100S-Compact



### Features

- True sinusoidal **WAVE** output, low harmonic output.
- High regulation precision and response dynamic thanks to high frequency PWM – IGBT technology.
- DSP and ARM microprocessor embedded processing control.
- Fully digitalized high precision control and regulation, via parameters processed in a numerical way to overcome affection by temperature, voltage or other physical parameters.
- Natural air cooling for all ratings
- Remote network control, monitoring and diagnostic functionality.
- integrated menu driven human machine interface (HMI) allowing full configuration on-site without any additional equipment.
- Single phase power supply.
- Standard built-in lamp fault detection.

### Compliance

- ICAO-Aerodrome Design Manual, Part 5, Para 3.2.1.4 to 3.2.1.6
- IEC: 61822
- FAA: AC 150/5345-10 (current edition)

### Concept

This model is the compact version of the original CCR-2100S. It uses the same components and technology.

The innovative design principle adopted for CCR-2100S family is based on transferring most of the power control tasks from the hardware circuits into the software processing of control algorithms.

An IGBT H-bridge transfers the input signal into a PWM (Pulse Width Modulation) output sine wave. The switching timing is controlled directly by a very fast DSP (Digital Signal Processor) loaded with a dedicated software.

An A/D converter at the secondary side of the output transformer measures the output signal. The high speed DSP allows for real time control and decreases the regulation dynamics to one tenth compared with traditional thyristor type CCRs.

The same microprocessor also detects the lamp and earth faults and manages any other useful status information for local or remote control and monitoring which is achieved via multi-wire, or serial bus via single or dual CAN-bus connection.. Power quality filters protect the main against harmonic pollution on the mains.

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## Specification

### Environmental conditions

Under IEC 61822 environmental conditions

Ambient Temperature: -25°C~+55°C

Altitude: 0~5000m

### Cooling

Natural air cooling for all ratings

### Enclosure

The CCR-2100S-Compact type CCRs are stand-alone units housing the complete regulator in one enclosure.

Baked epoxy powder coating color RAL 7035

### Ratings

2.5, 5, 7.5, 10kVA.

### Input voltage ratings

220/240V ac or 380/400Vac  $\pm 10\%$  50/60Hz Single phase

### Remote control

Multi-wire: 24 or 48 V DC

Multiplex: Single or Dual CAN-Bus protocol, Single or Dual J-Bus protocol over RS485

### Brightness control

Up to 6 brightness steps.

Within  $\pm 1\%$  for all the brightness steps, under either IEC or FAA standard conditions.

### Regulation response time

The regulation time is less than 0.5 seconds for any operational condition.

### Open circuit output voltage

Less than 1.2 times the nominal output voltage (RMS)

### Efficiency

92 to 94% depending on the CCR size, under nominal resistive load, nominal output current and nominal input voltage

### Power factor at the output

Power factor at the output exceeds IEC and FAA requirements.

The power factor at rated load is close to 1 and is kept at high level for any possible operational conditions.

The power factor at over of the rated load is greater than 0.9 and is kept at all level for any possible operational conditions.

### Total Harmonic Distortion

The input and output current total harmonic distortions not exceeding 5%.

### Noise

Less than 35 dB