

POWER EQUIPMENT

ASG 8000i

Constant Current Regulator
Self-contained, Thyristor



Compliance with Standards

	CCR-specific: IEC 61822
IEC/EN	Electrical safety standard: IEC 61204-7 – 62477-1 – 62477-2 EMC: IEC/EN 61000-6-2 – IEC/EN 61000-6-4
ICAO	ICAO Aerodrome Design Manual, Part 5
EASA	CS-ADR-DSN

Uses

Self-contained Thyristor Constant Current Regulator (CCR) designed for 6.6A Airfield Ground Lighting (AGL) systems, featuring high-voltage capabilities for higher power ratings.

Features and Benefits

The ASG 8000i Thyristor CCR represents the next generation in the ADB SAFEGATE CCR lineup, drawing upon the wealth of experience and legacy of its predecessors, notably the IDM8000 and MCR3. These renowned microprocessor-controlled thyristor CCRs have been extensively updated, incorporating the latest generation of components. The ASG 8000i Thyristor CCR conforms to the latest industry standards, ensuring enhanced reliability and performance. From the outset, it comes equipped with all options typically associated with a CCR, including Earth Fault Detection (EFD), Lamp Failure Detection (LFD), and surge arrestors, as part of its initial configuration. To further enhance its utility, the device offers a wide range of remote control interfaces for unparalleled operational flexibility and easy integration into existing systems. Moreover, meticulous attention has been given to the design to facilitate both installation and maintenance, significantly reducing operational downtimes and ensuring a seamless user experience.

Power Converter Topology

- Dry-type output transformer with tapping to adjust the CCR capacity to the actual load.
- Integrated thyristor pair with controller and RC-filter to ensure reliable operation.
- Input and output surge arrestors.
- Input contactor and resettable circuit breaker (fuseless).
- Passive filter to suppress RFI interference.

Output Current Regulation

- State-of-the-art digital regulation ensures stability with both halogen and LED lights or mixed circuit, including typical usage with Integrated Lighting Control and Monitoring Systems (ILCMS).
- Output current achieves startup in less than 500ms, even after a power interruption.

- Up to 8 brightness steps, user adjustable in 10mA resolution.
- Capability to adjust the output current down to 1 A for dark current mode, providing enhanced flexibility.

Connectivity

- Compatible with the LINC 360 communication platform.
- Compatible with the LINC Node gateway.
- Easy LINC 360 commissioning with the "log-off sequence: integrated into the software.

Mechanical Construction

- Robust mechanical construction featuring galvanized steel and a baked epoxy powder coating for durability.
- Space-saving, user- and maintenance-friendly mechanical design includes 4 holes for standard hooks for lifting and moving, and 4 wheels (front swivel, back fixed) for easy positioning.
- Fully naturally cooled.
- Cooling entry from the front, back, bottom and top, not the sides, enables the side-by-side placement of multiple CCR units.
- Separated compartment for low voltage (LV) and high voltage (HV) are accessible through doors with hinges for easy maintenance and inspection.
- Certification for vibration 3M2.

Monitoring

Measurements – available on HMI and webserver for ALCMS refer to the Interface Control Document (ICD):

- Output current and voltage RMS values.
- Input voltage, current, power, and frequency.
- Output power and load power factor.
- Apparent Power and % of full load value.
- Cumulative energy consumption.
- Thyristor element temperature (heatsink).
- Time and date.
- Operating status, alarms/warnings.
- Lamp fault indication.
- Earth leakage resistance.
- Event history and 200 patch fault logs with time and date labels.
- Operating hour counters for all steps.

Earth Fault Value (Insulation Resistance Measurement System)

- Measurement ranges from 1Gohm to 0ohm.
- Isolation resistance display and 2 alarm levels, with adjustable threshold levels and delay times, and remote-control indication.

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- Selectable maintenance mode provides extended protection by tripping the CCR on a level 2 earth fault alarm.
- Accuracy: 5% between 100Kohm and 1Gohm. 15% between 100Kohm and 5Kohm

Lamp Fault Monitoring

- Accuracy: ± 1 lamp for up to 10 faults and ± 3 lamps for up to 30 lamps across all brilliancy steps, with loads ranging from 50% to full CCR rating.
- Number or percentage of fault lamps displayed.
- Two alarm levels with adjustable threshold and delay levels, and remote-control indication.

Input and Output Monitoring

- VA Drop function monitors the apparent output power against recorded full load values, with a selectable tripping option.
- Output Open circuit, Overcurrent, and VA drop protection feature adjustable threshold and delay levels, selectable reset mode, and remote control indication.
- Input voltage, frequency, and CCR temperature protection include two levels: the first for pre-warning and the second for the actual tripping function.

Local Control Interface

- Operation rotary switch options: Remote / Off / Local.
- All display, monitoring, and protective functions are easily accessed via a graphical multi-function display and soft keys.
- Extensive on-site configuration possible without any additional equipment.
- Configuration settings are password protected.

Commissioning and Maintenance

- Modular electrical design with reduced spare part diversity.
- Front access to all critical electronic boards.
- Monitoring of the PCB Low Voltage LED status, allowing CCR operation with the LV door open (for accredited maintenance personnel).
- Limited screws for side panel fixation ensure easy dismantling and perfect accessibility.

- Event history stored on an SD card, remaining available even after a complete restart.
- Software upgrades straightforward using an SD card through the HMI menu Software upgrades straightforward using an SD card through the HMI menu.

Remote Control interface

Parallel Control ("Multiwire")

- Selectable control mode: Dec/Bin and static/impulse.
- Selectable voltage: 24/48/60VDC.
- Selectable fail step for static controls.
- 24 potential free back indication controls.
- Optional built-in DC-source.

Serial Control

- Profibus single or dual.
- Modbus RTU and TCP/IP single or dual.

General Features

- Combination of Parallel Control and Modbus is possible when separate control from monitoring is needed.
- No loss of network connection for power drops below 1 second.
- Possible arbiters with redundant bus. (see manual for details).
- Front connection and bottom cable entry possible.
- Supports a wide range of communication protocols, including MCR3, IDM8000, and others.

Series Cut-Out (Option)

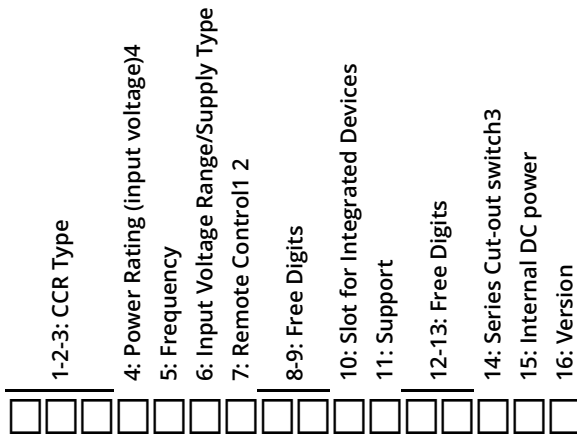
Built-in with a dedicated lock key and 3 positions (operation, maintenance and test).

Circuit Selector and Direction Changer (Options)

- Direction changer to feed 2 alternative directions, controllable via the local control interface.
- Built-in circuit selector for up to 6 circuits, with low current when switching off circuits to ensure maximum lamp life and minimal flickering of lights. For specific configurations please check the [Note](#) following the Ordering Code table.

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Ordering Code



1-2-3: CCR Type

TH0 = Thyristor self-contained ICAO

4: Power Rating (input voltage)⁴

A = 2.5 kVA (230V)
C = 4 kVA (230V)
D = 5 kVA (230V & 400V)
E = 7.5 kVA (400V)
F = 10 kVA (230V & 400V)
H = 15 kVA (230V & 400V)
J = 20 kVA (400V)
K = 25 kVA (400V)
L = 30 kVA (400V)

5: Frequency

1 = 50/60 Hz

6: Input Voltage Range/Supply Type

1 = 230V / 1 phase
2 = 400V / 1 phase

7: Remote Control^{1 2}

C = Single Profibus
F = Dual Modbus RTU & Dual Modbus TCP/IP⁵
E = Dual Profibus
H = Dual Modbus RTU & Dual Modbus TCP/IP and Multiwire

8-9: Free Digits

00 = Free Digits

10: Slot for Integrated Devices

0 = No Device
1 = Prepared for external circuit selector
2 = Circuit Selector for 2 circuits
4 = Circuit Selector for 4 circuits
6 = Circuit Selector for 6 circuits

11: Support

0 = Wheels (Wheels are included in the standard design)

12-13: Free Digits

00 = Free Digits

14: Series Cut-out switch³

0 = No
1 = Yes

15: Internal DC power

0 = None
1 = 24 V
2 = 48 V

16: Version

1 = Version V1

Ordering Code Notes

1. For single Modbus RTU or TCP/IP functionality, order the dual version and configure it for single Modbus operation.
2. If digit 7 is C, E or F, then digit 15 must be 0.
3. If digit 10 is 4 or 6 and digit 4 is J, K, L, then digit 14 must be 0: A series cut-out switch cannot be fitted in high power CCRs (20 to 30 kVA) equipped with more than a 2-way circuit selector.
4. If digit 4 is E, J, K or L, then digit 6 must be 2. If digit 4 is A or C, then digit 6 must be 1.
5. This configuration is also compatible with the one previously called "Jbus" on earlier ADB SAFEGATE CCR models.

Note: Low power CCRs (2.5 to 15kVA) with 2 or 4 circuits will be delivered in the standard narrow low-power cabinet. Low-power CCRs (2.5 to 15kVA) with 6 circuits without a Series Cut-Out switch will also be delivered in the standard narrow low power cabinet, while the models with 6 circuits with a Series Cut-Out switch will be delivered in the wider high-power cabinet. For the high -power version (20 to 30 kVA) with 6 circuits please contact your ADB SAFEGATE sales representative.

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Technical Data

Table 1: Electrical and mechanical characteristics

Power supply	230 V, 220 V ¹ , 400 V and 380 V ¹ ±10%
Power rating	2.5, 4, 5, 7.5, 10, 15, 20, 25, 30 kVA
Max. nominal output current	6.6A
Remote control	Modbus RTU & TCP/IP / Profibus / Multiwire ²
Brilliance control	Up to 8 brightness steps
Efficiency	Better than 90% at full load
Primary Power Factor	Better than 0.9 at full load / Load PF=1 / $U_{in} \leq U_{in_nominal}$
Outline dimension (HxWxD, mm)	<ul style="list-style-type: none">Up to 15 kVA: 1500*420*650From 20 kVA: 1500*510*650 (with wheels and without hooks)
Enclosure protection	IP2X (according to IEC60529 and required by IEC61822) ³ Object falling protection: Protected from objects falling vertically or at up to 5° from vertical (per IEC 62477-1)

Table 2: Environmental

Operation temperature range	From 0 °C to +50 °C ¹
Storage temperature range	From -40 °C to +70 °C. Long term 15 °C to 30 °C
Altitude	Max. 2000m
Humidity	Max 95%

Technical Data Notes

1. This product is certified and guaranteed to operate within a temperature range of 0°C to 50°C and voltage rating of 230V & 400V, as defined by IEC 61822:2009, IEC 62477-1, and IEC 61477-2. The product can also function within the temperature range of -20°C to +55°C and voltage rating of 380V, ensuring that its core functionalities and behavior remain consistent with the ICAO Manual 5 requirements.
2. This interface is compatible with legacy "JBus" installations used with previous products, when configured with the appropriate protocol.
3. The product is available with various IP ratings in addition to the standard IP2X, designed to suit diverse operational needs. Please note that certain options may affect the outline dimensions of the product. For more information or to discuss specific requirements, please contact your ADB SAFEGATE sales representative. Custom solutions are available upon request.

For more information about the product, including manuals and certifications, please see our Product Center on the ADB SAFEGATE website: www.adbsafegate.com.