Datasheet

Constant Current Regulator (961)

LED AGL

Airfield Ground Lighting

03-71051

V1.7

General

TKH Airport Solutions CCR 961 supplies precision output levels to power series lighting circuits on airport runways and taxiways containing both LED and conventional Halogen lighting fixtures. The CCRs are developed in a modular way and can be customized depending on project requirements.

Key features

General:

- Modular concept, enabling the CCR to be customized depending on project requirements
- Fixed size control unit (independent of the CCR specifications) which can easily be replaced
- High efficiency – low losses – high Mean Time Between Failure (MTBF)
- Full digital regulation circuit, with high output accuracy
- Built-in EMC filters
- Solid-state operation with no relays eliminating mechanical failures
- All CCR configurations stored on memory board, allowing transfer to other regulator modules for easy and fast maintenance
- Hour meters for 100 % intensity and total time
- Lamp fault detection with two alarm levels
- Earth fault detection with two alarm levels
- 7 individually adjustable intensity steps
- Soft start facility during normal switch-on, but output current re-established within 0.5 s for short breaks in power supply

Environmental conditions:

- Designed for continuous indoor operation in an ambient temperature of 0 °C to +50 °C and maximum relative humidity of 95 %

Digital display presenting extensive monitoring and diagnostic information:

- Output current (RMS value)
- Output voltage (RMS value)
- Input voltage
- Time / date through built-in watch
- Power output
- Impedance to earth
- Number of failed lamps
- Hours run counter
- Different languages available (English, Danish, German by default; custom languages to be added on request)

Remote control through:

- Single or redundant Profibus
- RS-485 serial communication
- Parallel interface
- IP interface

Standards

CCR961 has been developed according to the following standards:

- EN IEC 61822
- ICAO Aerodrome Design Manual, Part 5; § 3.2.1.4 to § 3.2.1.6

Specifications

- Input voltage: 208 – 230 – 240 – 400 – 415 V, 50 or 60 Hz
- Nominal Series circuit current: 2.2 – 6.6 – 8.3 – 10 – 13.2 – 20 A
- Nominal Output power: 2.2 – 3.3 – 4 – 5 – 7.5 – 10 – 12.5 – 15 – 20 – 25 – 30 – 35 – 42 kVA

Layouts

The CCR system can be customized in several ways:

- Stand-alone cubicles ('FAA layout') with one complete regulator in one cubicle
- Modular layout with electronics and output transformers in separate cubicles. In this form one cubicle can contain up to 16 regulator modules.

Customized CCR Systems

Module (standard)

The CCRs have a modular setup, enabling the CCR to be customized depending on project requirements.

Unit includes:

- Main board
- Trigger board
- Profibus board
- Memory board
- Thyristor block
- Connector
- Fuses
- Components comply with EMC requirements

Variant 1: Standalone cubicles ('FAA layout')

The standalone version comprises one complete regulator in one cubicle.

Unit includes:

- One CCR Thyristor module for up to 75 A
- Output transformer
- Measuring transformers
- Isolation measuring equipment
- Lighting protection devices

Further specifications

- Built-in circuit breaker system for series circuit with grounding possibility (cut-off device)
- Efficiency:
  - when input voltage 230 V supply 94 – 97 %
  - when input voltage 400 V supply 95 – 98 %
  - Power factor better than 0.9 at full load (resistive load)

Mechanical specifications	Height	Depth	Width	Weight approx.
CCR for 230 V Power rating ≤ 10 kVA	1666 mm	600 mm	390 mm	175-240 kg
CCR for 400 V Power rating ≤ 10 kVA	1666 mm	600 mm	390 mm	175-275 kg
CCR for 230 V Power rating > 10 kVA	1666 mm	600 mm	772 mm	240-325 kg
CCR for 230 V Power rating > 20 kVA	1666 mm	600 mm	772 mm	275-325 kg

Variant 2: Modular layout

Available compositions:

- Electronics and output transformers in separate cubicles. In this form one cubicle can contain up to 16 regulator modules.
- Several complete regulators are built together.

Further specifications:

- Common serial bus for all CCRs integrated in the CCR module cubicle, or divided in more groups.
- The CCR module cubicle can also contain modules for SFL systems and / or RIL systems.
- For cubicles with max. 16 CCR modules rated 40 / 60 A or max. 6 CCR modules rated 110 A, the fuses can be placed in the bottom of the cubicle. For cubicles with more CCRs, the fuses are placed behind each CCR.
- Efficiency:
  - when input voltage 230 V supply approx. 97 – 98 %
  - when input voltage 400 V supply 98 – 99 %
  - Power factor better than 0.96 at full load (resistive load).

Ordering Code

Ordering Code	Description	Output Current	Remote Control
CCR-962.221	CCR 961, 400 V - 50 Hz input, FAA layout	3.3 kVA - 6.6 A	RS485
CCR-962.241	CCR 961, 400 V - 50 Hz input, FAA layout	5 kVA - 6.6 A	RS485
CCR-962.251	CCR 961, 400 V - 50 Hz input, FAA layout	7.5 kVA - 6.6 A	RS485
CCR-962.261	CCR 961, 400 V - 50 Hz input, FAA layout	10 kVA - 6.6 A	RS485
CCR-962.271	CCR 961, 400 V - 50 Hz input, FAA layout	12.5 kVA - 6.6 A	RS485
CCR-962.281	CCR 961, 400 V - 50 Hz input, FAA layout	15 kVA - 6.6 A	RS485
CCR-962.291	CCR 961, 400 V - 50 Hz input, FAA layout	20 kVA - 6.6 A	RS485
CCR-962.301	CCR 961, 400 V - 50 Hz input, FAA layout	25 kVA - 6.6 A	RS485
CCR-962.121	CCR 961, 400 V - 50 Hz input, FAA layout	3.3 kVA - 6.6 A	Profibus
CCR-962.141	CCR 961, 400 V - 50 Hz input, FAA layout	5 kVA - 6.6 A	Profibus
CCR-962.151	CCR 961, 400 V - 50 Hz input, FAA layout	7.5 kVA - 6.6 A	Profibus
CCR-962.161	CCR 961, 400 V - 50 Hz input, FAA layout	10 kVA - 6.6 A	Profibus
CCR-962.171	CCR 961, 400 V - 50 Hz input, FAA layout	12.5 kVA - 6.6 A	Profibus
CCR-962.181	CCR 961, 400 V - 50 Hz input, FAA layout	15 kVA - 6.6 A	Profibus

Ordering Code	Description	Output Current	Remote Control
CCR-962.191	CCR 961, 400 V - 50 Hz input, FAA layout	20 kVA - 6.6 A	Profibus
CCR-962.201	CCR 961, 400 V - 50 Hz input, FAA layout	25 kVA - 6.6 A	Profibus
CCR-962.321	CCR 961, 400 V - 50 Hz input, FAA layout	3.3 kVA - 6.6 A	Parallel
CCR-962.341	CCR 961, 400 V - 50 Hz input, FAA layout	5 kVA - 6.6 A	Parallel
CCR-962.351	CCR 961, 400 V - 50 Hz input, FAA layout	7.5 kVA - 6.6 A	Parallel
CCR-962.361	CCR 961, 400 V - 50 Hz input, FAA layout	10 kVA - 6.6 A	Parallel
CCR-962.371	CCR 961, 400 V - 50 Hz input, FAA layout	12.5 kVA - 6.6 A	Parallel
CCR-962.381	CCR 961, 400 V - 50 Hz input, FAA layout	15 kVA - 6.6 A	Parallel
CCR-962.391	CCR 961, 400 V - 50 Hz input, FAA layout	20 kVA - 6.6 A	Parallel
CCR-962.401	CCR 961, 400 V - 50 Hz input, FAA layout	25 kVA - 6.6 A	Parallel

Other variants available on request:

- input voltage 230 V, 60 Hz
- Remote Control Bus: LAN / Ethernet
- (customized) modular layout
- supplied with wheels
- supplied with lifting lugs (for crane transport)

Document Information

Name : 04_Constant_Current_Regulator_Type_961_03-71051

Version : V1.7

Language : English (Original manual)

For the latest version of this document see *https://www.tkh-airportsolutions.com/airfield-products/* or scan:

Company profile:

TKH Airport Solutions is an innovator in airfield ground lighting, offering a complete range of LED AGL products. We build upon the know-how from a long and successful tradition of pioneering developments in the AGL and connectivity industry. Being part of the TKH Group, our company can build on a history of more than 90 years in smart connectivity, energy distribution and AGL.

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