



Micro100⁺

Constant Current Regulator

Compliant to Latest International Standards*

- ▶ ICAO - Aerodrome design manual, part 5
Electrical systems chapter 7 (solid state CCR's)
- ▶ FAA AC No:150/5345-10H
- ▶ IEC 61822:2009
- ▶ EN IEC 61000-6-2
- ▶ EN IEC 61000-6-4
- ▶ AENA
- ▶ Stannag 3316 (NATO)

Applications

The Micro 100⁺ is specifically designed for the efficient and effective supply of power to airfield ground lighting series circuits.

* As applicable to the application, compliance with other civil aviation and military regulations confirmed on request

† Electrical/Mechanical/Environmental characteristics only

Electrical Performance

Power Factor

At nominal resistive load, nominal output current and nominal input voltage:-

- Up to 0.9 for ratings up to 10 kVA
- Up to 0.95 for 12 kVA and greater

Remote control

Digital 24 or 48 VDC (8 wire and command)

- Analogue
- 3 wire and command
- BCD and command
- Serial communication (optional) RS485 Protocols

Protection devices

- Protection against “Open Circuit” is activated when the output current falls below 1 amp for more than 100ms
- Protection against “Over Current” is activated when:

IEC Settings

- The current reaches 102.5 % of nominal value for more than 5s
- Or the current reaches 125% of nominal value for more than 300ms

FAA Settings

- The current reaches 105% of nominal value for more than 5s
- Or the current reaches 125% of nominal value for more than 1s

Efficiency

At nominal power into resistive load, maximum brilliancy and nominal input voltage:-

- 90% or better

Input voltage ratings

- 220, 230, 240 Volts Single Phase or 2 Phase 50/60 Hz
- 380, 400, 415, Volts 2 Phase, 50/60 Hz
- 480, 480, 500 Volts 2 Phase, 50/60 Hz

Output power ratings

At 208, 220, 240V:

- Outputs of 2.5, 4.0, 5.0, 7.5, 10, 12.5, 15 kVA

At 380, 400, 415V:

- Outputs of 2.5, 4.0, 5.0, 7.5, 10, 12.5, 15, 20, 25, 30 kVA

At 460, 480, 500V:

- Outputs of 2.5, 4.0, 5.0, 7.5, 10, 12.5, 15, 20, 25, 30 kVA

Main Features

- Pre-programmed with default operating parameters suitable for most applications. Where necessary, changes can be made via the front panel rotary encoder and pushbutton. An external PC is not necessary
- Accurate control of RMS output current into all loads from short circuit to full rated output
- Up to 8 Brilliancy levels - fully adjustable between 0-100% brilliancy output plus adjustable anti-condensation 'black heat' current level
- Built-in adjustable current ramp for switch on, enhances lamp life by reducing stress on lamp filaments
- Built in 24/48V supply for control systems
- Multi-tapped output isolation transformer – tapings can be selected to match the load minimising harmonics and increasing the efficiency
- Output circuit isolated from the mains supply
- Minimal cubicle footprint to reduce space requirements
- Air cooled – no fans required
- Low life cycle costs
- Castors for easy manoeuvrability
- Eye bolts for easy lifting
- Contained in Vermin proof powder coated cabinet
- Compatible with circuit selector and lamp switching equipment
- Proven reliability: the Micro 100+ CCR is a development of previous atg airports CCR's used extensively throughout the world
- Microprocessor controlled display allowing extensive CCR monitoring and diagnostic information to be presented to Engineers and Technicians. This can include:
 - - True RMS Output Current Value
 - - Brightness Step
 - - % of Maximum Output
 - - Alarm Text Description
 - - Hours Run Counter
 - - Number of Failed Lamps (optional)
 - - Insulation reading (optional)
 - - Output Voltage (optional)
 - - Power analysis (optional)

Optional Features

- Lamp Failure Detection – displayed as a total or as a percentage. (Included on FAA L-829 – Regulator with monitoring)
- Earth Leakage Resistance Measurement. Continuous measurement of the series circuit resistance to earth at 500V whilst the CCR is operating, or at 1000V during manual testing when the CCR is set to 'Local OFF'. A two stage alarm / trip output is provided; the resistance value can also be displayed
- Internal Lightning Arrestors on the outgoing circuit. (Included on FAA regulators)
- Power analyser module – measures input and output voltage, current, power, power factor, kVA and regulator efficiency
- Series Circuit Cutout Switch with three position plug-in lid. An additional safety device can be fitted that isolates the series circuit from the high voltage output of the CCR and connects the field cables to earth for safe maintenance. It also provides insulation resistance measuring test points
- Serial communication using Profibus, Modbus TCP/IP or J-BUS. Permits remote control of the CCR and / or monitoring of relevant operating parameters.

Environmental Conditions

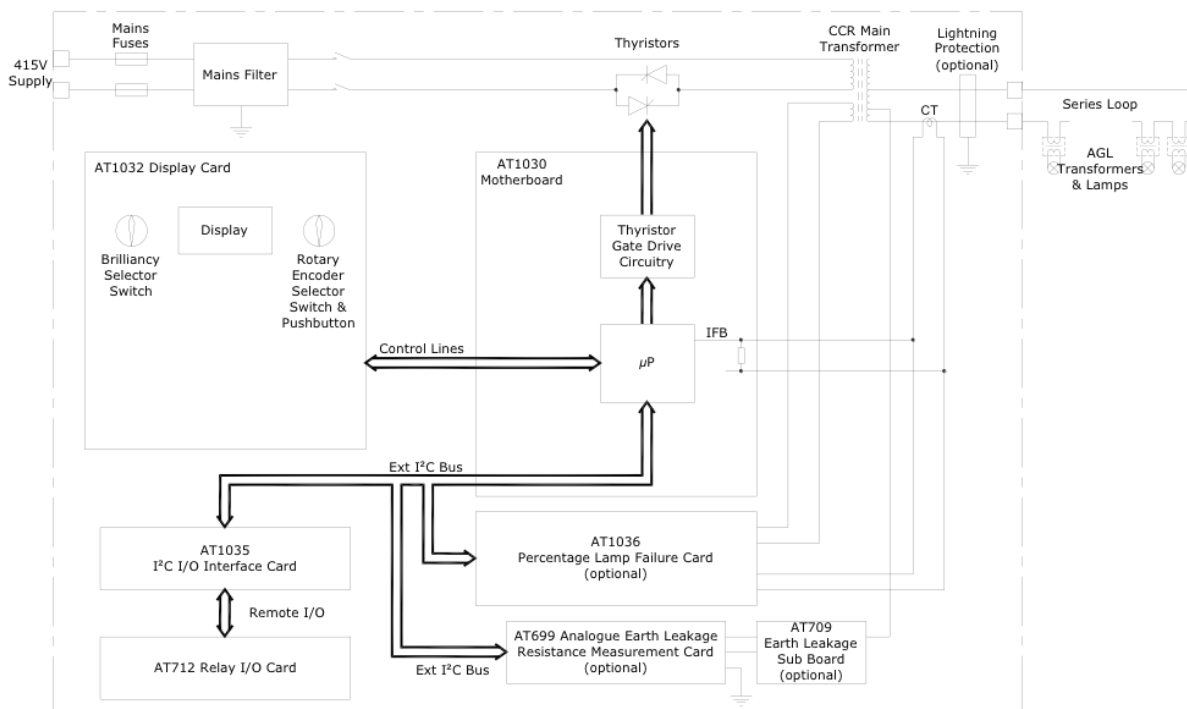
▶ Ambient Temperature	-40 °C to +55°C (-67 °F to +131°F)	▶ Atmospheric Altitude	up to 10,000 feet (2000m)
▶ Storage Temperature	-40°C to +70°C (-67 °F to +158°F)	▶ Relative Humidity	10% to 95%

Standards	
EMC protection	Immunity EN IEC 61000-6-2 Emission EN IEC 61000-6-4
Ingress protection class dust/liquids	IP2x

Operation Principle

Micro 100⁺ CCR is a microprocessor controlled unit, integrating a high speed DSP control loop driving an anti-parallel pair of power thyristors which provide phase angle control to the series circuit. The output current is adjusted dependant on the brilliancy level demanded. The 32 bit microprocessor controls and monitors many aspects of the regulator, but all safety parameters and monitored by hardware functionality.

Optional dedicated PCB's for earth leakage, percentage lamp failure, insulation resistance measurement are all connected to the main control communications bus. All boards are standard across the complete Micro100⁺ range. The block diagram of the Micro 100⁺ is shown below, and includes all optional components.



Specifications

- | | |
|------------------------------|---|
| ▶ Mains supply voltage range | +/-10% of nominal |
| ▶ Mains supply frequency | 46.25 to 64.5 Hz |
| ▶ Control method | Thyristor phase angle control, with control loop closed around output current. |
| ▶ Remote Brilliancy Inputs | 24 / 48V Internal or external supply, polarity insensitive, communications module |
| ▶ Number of Brilliancy steps | 8 |
| ▶ Efficiency | 90% or better |
| ▶ Power factor | 0.90 or better at full load |
| ▶ Cooling | Convection cooled |
| ▶ Degree of Protection | IP2X |
| ▶ HMI language | English / Optional |

Ordering Code



Specification

FAA = 1

IEC = 2

Output Current

6.0A = 60

6.6A = 66

12.0A = 12

20.0A = 20

Output kVA rating

1.0 kVA = 01

2.5 kVA = 02

4.0 kVA = 04

5.0 kVA = 05

7.5 kVA = 07

10.0 kVA = 10

12.5 kVA = 12

15.0 kVA = 15

20.0 kVA = 20*

25.0 kVA = 25*

30.0 kVA = 30*

Supply voltage

208V = 208

220V = 220

240V = 240

380V = 380

400V = 400

415V = 415

460V = 460

480V = 480

Remote control

24VDC = 24

48VDC = 48

Dual Profibus = PB

Jbus = JB

Modbus = MB

Dual TCP/IP = TP

Optional accessories

EF = Earth Fault monitor

LF = Load indicator

LI = Lamp fault indicator

LA = Output lighting arrestors

S1 = Field series S1 switch

DI = Door safety interlocks

Circuit Selector switch

D = Alternate

2W = 2 way

3W = 3 way

4W = 4 way

5W = 5 way

6W = 6 way

FAA specification*

828 = FAA L828

829 = FAA L829

HMI Display language

GB = English

SP = Spanish

FR = French

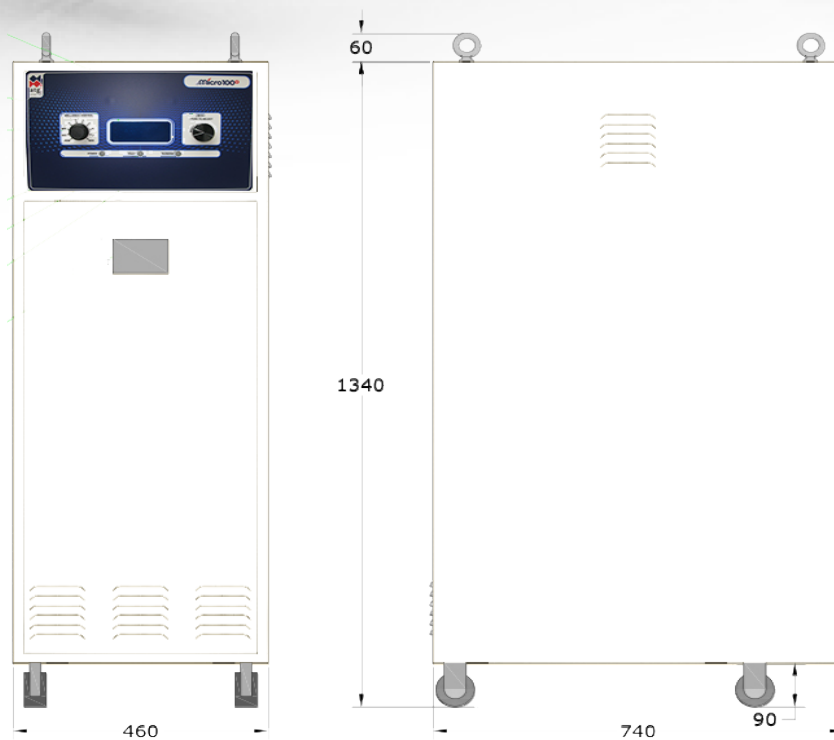
TK = Turkish

*Others may be available on request

*Only available with supply equal to or over 400V

*No requirement to add optional extras if L828 or L829 required

Dimensions



Packaging

Net Weight

Regulator rating	Weight
1.0 kVA	105 kgs
2.5 kVA	110 kgs
4.0 kVA	120 kgs
5.0 kVA	130 kgs
7.5 kVA	170 kgs
10.0 kVA	210 kgs
12.5 kVA	230 kgs
15.0 kVA	245 kgs
20.0 kVA	300 kgs
25.0 kVA	320 kgs
30.0 kVA	350 kgs

► Single packing box size

Box 760mm (L) x 480mm (W) x 1360mm (H)

*Dimensions are nominal



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