Micro200+

Constant Current Regulator

Compliant to Latest International Standards*

- ICAO - Aerodrome design manual, part 5

  Electrical systems Para 3.2.14 to 3.2.16
- IEC 61820-3-2:2023
- EN IEC 61000-6-2
- EN IEC 61000-6-4
- AENA
- Stannag 3316 (NATO)

Applications

The Micro 200+ Sinewave CCR is specifically designed for the efficient and effective supply of power to airfield ground lighting series circuits. A sinewave CCR is always recommended for LED light fittings.

UK: +44 (0) 1942 68 5555 | USA: +1 (239) 985-9406

www.atgairports.com enquiries@atgairports.com sales-usa@atgairports.com

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

Efficency

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

- 90% or better

Remote control

Digital 24 or 48 VDC (8 wire and command)

- Analogue
- 3 wire and command
- BCD and command
- Serial communication (optional) RS485 Protocols Modbus TCP/IP, Profibus or Modbus RTU (J-BUS)

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

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

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, 15kVA

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 – tappings 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 maneuverability
- 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
- - Insulation reading (optional)
- - Output Voltage (optional)
- - Power analysis (optional)

Optional Features

- 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

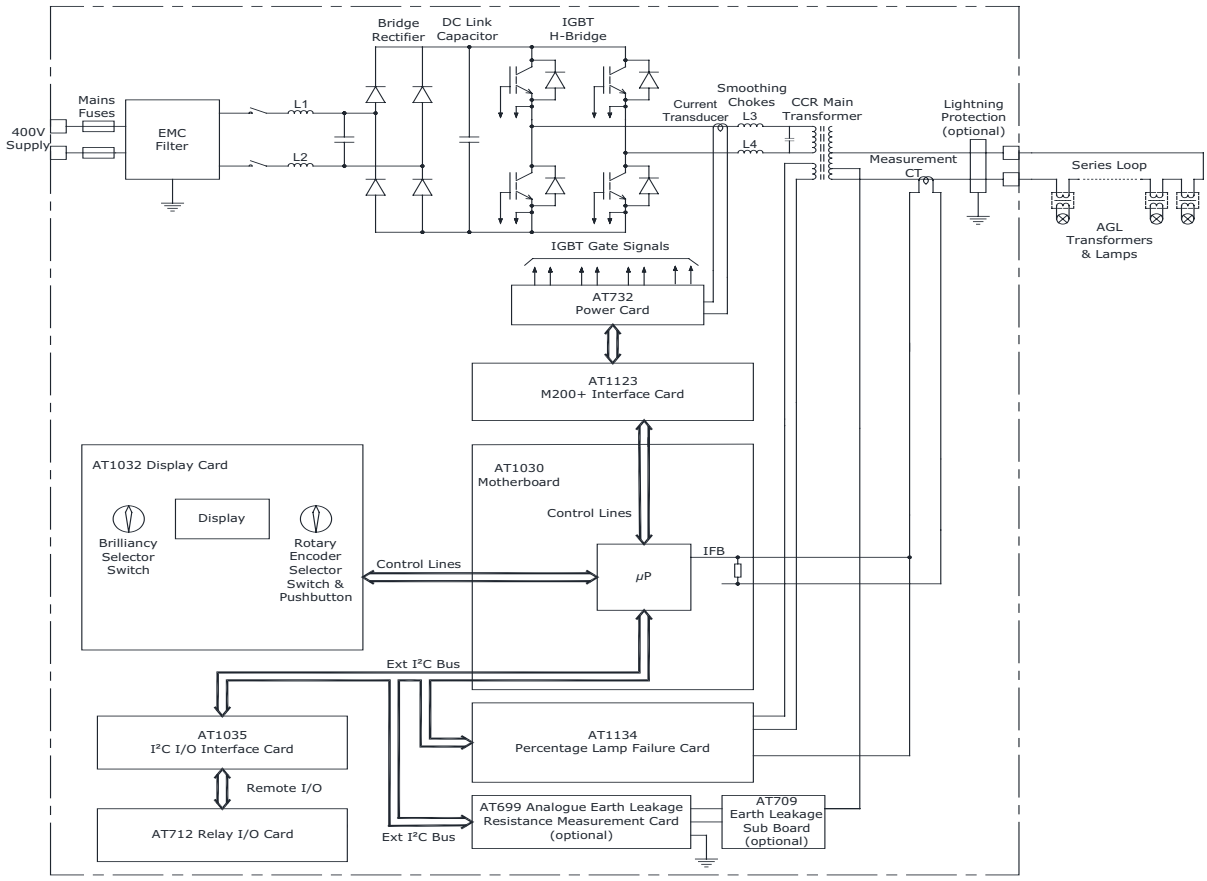
Ambient Temperature	-40 °C to +55°C (-67 °F to +131°F)	Atmospheric Altitude	up to 10,000 feet (2000m)
Storage Temperature	-40°C to +70°C (-67 °F to +158°F)	Relative Humidity	10% to 95%

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

Operation Principle

Micro 200+ 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 according to the brilliancy level demanded. The 32 bit microprocessor controls and monitors many aspects of the regulator, but all safety parameters are monitored by hardware functionality.

Optional dedicated PCB's for earth leakage, 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 200+ 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	PWM IGBT H-Bridge. Hysteresis waveshape inner control loop and output current level outer control loop
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

200+ - -- -- --- -- -- --/--/--/--/--/--/--

Specification
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*

Supply voltage
208V = 208
220V = 220
240V = 240
380V = 380
400V = 400
415V = 415

Remote control
24VDC = 24
48VDC = 48
Dual Profibus = PB
Jbus = JB
Modbus = MB
Dual TCP/IP = TP

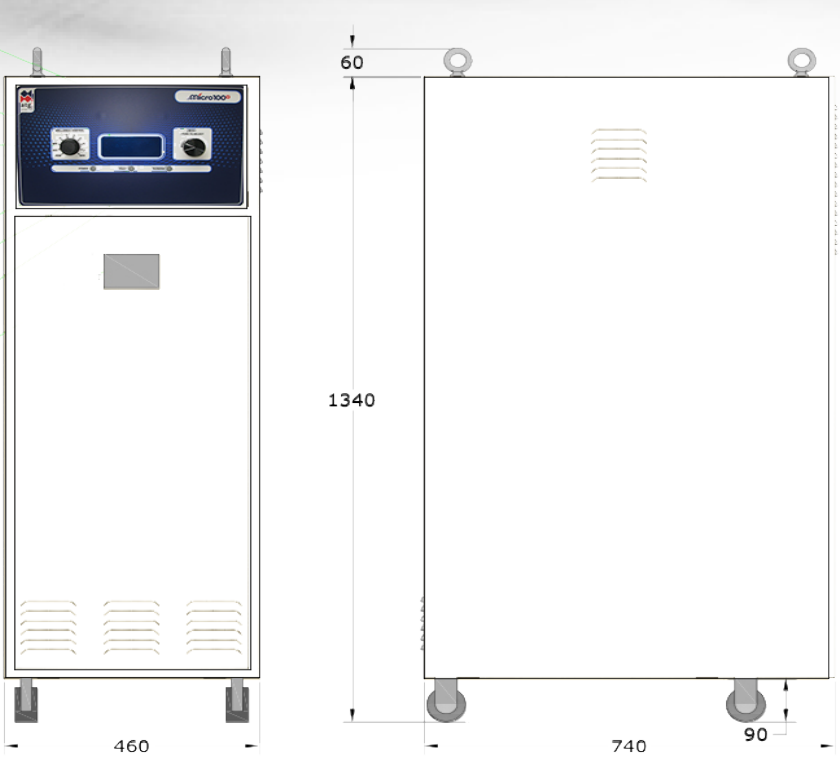
*Only available with supply equal to or over 400V

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

HMI Display language
GB = English
SP = Spanish
FR = French
TK = Turkish
*Others may be available on request

Dimensions



Packaging

Net Weight

Regulator rating	Weight
2.5 kVA	140 kgs
4.0 kVA	150 kgs
5.0 kVA	170 kgs
7.5 kVA	190 kgs
10.0 kVA	245 kgs
12.5 kVA	250 kgs
15.0 kVA	270 kgs

- Single packing box size

  Box 760mm (L) x 480mm (W) x 1360mm (H)
  *Dimensions are nominal

Head Office:
atg airports ltd
Lowton Business Park | Newton Road
Lowton St. Mary's | Warrington
WA3 2AP | United Kingdom