

# CONTROL & MONITORING

## BRITE™

### Individual Lamp Control & Monitoring System (III)



BRITE III Master



BRITE III Remote

#### Compliance with Standards

- FAA:** Approved for use with SMGCS systems. This includes both Stop Bar and Runway Guard Light control/monitoring according to AC 150/5340-30 (Current Edition); manufactured to AC 120-57 (Current Edition).
- ICAO:** Complies with CAT I/II/III ICAO lamp supervision requirements. Supports A-SMGCS for enhanced aircraft guidance in all weather conditions to prevent aircraft collisions and runway incursions.

#### Introduction

The BRITE III is a key subsystem in various Airfield Ground Lighting Automation Systems. ADB Safegate's BRITE III system is the latest state-of-the-art individual airfield light control and monitoring system. BRITE III provides a radical leap in performance over prior airfield power line carrier systems. This system is designed to communicate on the existing airfield series circuit power line without requiring separate dedicated cabling. This system has patents pending in many countries around the world.

#### Customer Benefits

- Faster, more robust power line carrier communication method ensures highest reliability even for long airfield circuits that contain large number of lamps.
- Precise control of each airfield lighting segment.
- For Stop Bar or RGL applications, adjacent lamp failure or total lamp failure within a bar exceeded is automatically reported.
- Most economic solution for modernization projects through power line communication on existing circuits. Eliminates high cost of a separately cabled system.
- Future upgrades are quickly and easily added, allowing a phased migration strategy to be implemented.
- Optimized planning of runway and taxiway maintenance downtimes.

#### Uses

- BRITE III provides distributed intelligence in the airfield to control and monitor a variety of airfield lighting devices. It can be used in the following applications:
  - Stop bar control and monitoring
  - Elevated and in-pavement Runway Guard Light (RGL) control and monitoring
  - Interface with aircraft/vehicle presence sensors (option)
  - FAA Runway Status Light (RWSL) systems
  - As a key component in a Surface Movement Guidance Control System (SMGCS)
  - Failed-lamp detection and location identification
  - Selective control and monitoring of various airfield lighting devices
- BRITE III provides relevant information concerning the status of various airfield lighting devices to both maintenance and airport control tower personnel.
- The BRITE III can also be used to:
  - Support optimization of traffic volume, flexibility, and air side safety.
  - Meet stringent command timing requirements while ensuring elimination of interference on FAA RWSL applications
  - Ensure reliable Stop Bar guidance for aircraft on the ground during CAT III conditions, increasing safety and reducing the risk of runway incursions.
  - Automatically detects and reports lamp failure location, decreasing downtime and maintenance costs.

#### BRITE III Technology

- Communicates using a high frequency signal imposed on the high-voltage airfield series circuit cable - no separate communication cable needed.
- Communication quality is automatically optimized for each series circuit.
- New communication principle together with Forward Error Correction drastically reduces signal disturbance caused by impulse and narrow band interference.

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### Features

- Most cost-effective and proven solution for existing ground lighting systems.
- User friendly Human Machine Interface allows easy operation and system status recognition.
- Up to 8 different frequency bands can be used in parallel, and 8 different time slots which allow an increase in the number of independent communication channels up to 64. This results in greatly improved communication rates.
- Fast and predictable switching times through the use of reliable communication methods.
- Advanced Network Management system includes an automatic network configuration function. This outstanding functionality provides for dynamic communication adaptation in all environmental conditions (such as humidity variation). The system dynamically optimizes communication, even when any Remote in the communication path has failed.
- No manual configuration is necessary to implement communication settings.
- Firmware and application software can be downloaded into either the Master or Remotes.
- Less crosstalk due to symmetrical design of coupling components (transmit and receive path) and lower transmission power compared to similar systems in the market.
- Each Remote can be a part of many different groups (blocks), allowing a group of Remotes to be controlled using only one command. This unique feature ensures fast response for complex applications.
- Can be used as a stand-alone monitoring system or integrated with an L-890 ALCMS (Airfield Lighting Control and Monitoring System).
- BRITE III Remotes can be added on separate series circuits even if BRITE II Remotes are present on the airfield.
- Runway Guard Light Remotes can be used to automatically implement pulsing functionality- no Master is needed.
- Fast commissioning. The network management system organizes the communication by itself.
- State-of-the-art diagnostic tools provide a quick overview of communication behavior.
- Special heat dissipating, Remote housing ensures environmental resistance under all operating conditions.
- Remotes can be used on 2.8 A to 6.6 A series circuits.
- Both single and dual Remote versions are available, reducing acquisition costs for some applications.
- Actual status of all lights-returned after issuing block command.
- Status poll provides detailed Remote and lamp parameters.

### Equipment Specifications

Operating Temperature:	Remote: -40 °F to +149 °F (-40 °C to +65 °C) Master: +32 °F to +131 °F (0 °C to +55 °C)
Storage Temperature:	Remote: -40 °F to +167 °F (-40 °C to +75 °C) Master: -67 °F to +185 °F (-55 °C to +85 °C)
Altitude:	0 - 6,600 feet above sea level
Humidity:	Remote: 0 - 100% Master: 0 - 90% (non-condensing)
Enclosure Protection Level:	Remote: IP 68 (NEMA 6P) Master: IP 20 (NEMA 1)
EMC (CE Approved):	Compliant to EN-61000-6-4 (EMC emission standard) Compliant to EN-61000-6-2 (EMC immunity standard) Compliant to 60950 (IT equipment standard)
Lightning Protection:	BRITE III system is designed to exceed the lightning test requirements defined in FAA AC 150/5345-10 (Current Edition). Specification: 10 by 20 microsecond current surge of 15 kA with the subsequent power-follow current and a voltage surge of 10 kV per microsecond.

### Weight

Master:	49.16 lb (22.3 kg)
Single Remote:	4.8 lb (2.2 kg)
Dual Remote:	5.07 lb (2.3 kg)

### BRITE III Master

For use on up to 30 kW CCR, 19-inch Rack Mount

44A6898

### BRITE III Remote

44A6899 - XXXX

#### Configuration

- 1100 = Single Channel, no Runway Guard Light
- 1160 = Single Channel with RGL, Initial Flash OFF
- 1161 = Single Channel with RGL, Initial Flash ON
- 1210 = Dual Channel, no Runway Guard Light
- 1241 = Dual Channel with Elevated RGL
- 1270 = Dual Channel with RGL, Initial Flash ON
- 1271 = Dual Channel with RGL, Initial Flash OFF

#### Dimensions

Master (H × W × D)	6.98 × 17.15 × 16.59 in (178 × 436 × 422 mm)
Remote (H × W × D)	3.07 × 8.18 × 5.59 in (78 × 208 × 142 mm)

### System Specifications

BRITE Master Input Voltage:	110-230 VAC, 50/60 Hz (±15 %)
BRITE Master Power Consumption:	Max. 15 W
Series circuit operating voltage:	Max. 5000 VAC (Master)
Series circuit peak voltage:	Max. 15 kV (Master)
Transmit Frequency:	8 different frequency bands between 20 kHz and 150 kHz
Maximum switching power:	6.6 A/360 W for each remote
Power line current:	1.9 up to 6.93 A RMS
LAN connection to redundant network interface:	IEEE 802.3 100 BaseT
Power Up Mode:	On; Off; Flashing; Maintained (last commanded state)
Fail-Safe Mode:	On; Off; Flashing, Maintained (last commanded state)

Number of controlled and monitored lamps per unit:	Remote: 1 or 2 Master: Up to 300 Remotes depending on circuit design
Data transmission rate power line:	Remote: Up to 40 kB/s Master: Up to 40 kB/s
BRITE Remote Power Consumption:	Max. 15 W
Maximum roundtrip series circuit length:	Up to 9.3 miles (15 km)
Lamp failure reaction:	Short is placed across isolation transformer as soon as lamp filament failure detected
Operation State after Power-Off:	Remote does not reset and remains in operation, if circuit power loss <1.5 sec.
Mean-Time-Between Failure:	Master: 100,000 hours Remote: 150,000 hours