

## Airfield Lighting Control & Monitoring System (ALCMS)

### System Application

The *Spirit Series™* Airfield Lighting Control and Monitoring System (ALCMS) is a modular, expandable control system designed for General Aviation, VFR and CAT I commercial or military airports. Designed using industrial grade programmable logic controller (PLC) technology, the *Spirit Series™* ALCMS is built for the long run.

Having most of the basic control capabilities of the *Freedom Series™* ALCMS, the *Spirit Series™* provides airports with high-end flexibility without the additional cost and complexity associated with monitoring features that may not be required. System applications include:

- Control and monitoring of runway and approach lighting, taxiway lighting, Land and Hold Short (LAHSO), rotating beacon, wind cone, apron floodlighting.
- Monitoring and control of diesel-generator and automatic transfer systems.

### Standards Compliance

- FAA Advisory Circular 150/5345-56, Spec L-890 L890-X-Y Classification types where:
  - X = A - Control Only
  - B - Basic Monitoring
  - Y = A - Preset Failsafe
- FAA Advisory Circular 150/5340-30, Design and Installation Details for Airport Visual Aids.
- ICAO Annex 14, Volume 1, Aerodrome Design and Operations.
- ICAO Aerodrome Design Manual Doc 9157, Part 5.
- Transport Canada Aerodrome Standards and Recommended Practices, Volume 1, TP-312E.
- Canadian Department of National Defence Standards.

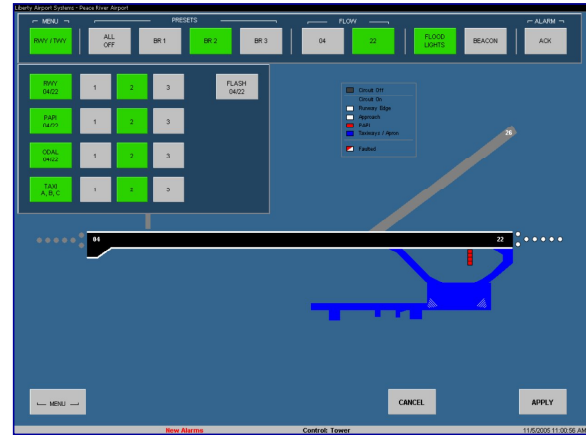


Fig. 1: Spirit Series ALCMS Control Tower Graphics are customized to meet the needs of ATC and maintenance staff.

### Control Capabilities

The *Spirit Series™* ALCMS is provided with enhanced control capabilities that can be modified or enabled as required. This allows the airport to modify the operation of the control system on a regular basis as incremental field changes are completed. Capabilities include:

- Control of multiple regulators, circuit selectors, diesel generators, and other equipment in multiple vaults and locations.
- Independent or simultaneous control from various locations including control tower, maintenance shop, electrical vault, or Flight Service Station (FSS).
- Photocell and air-to-ground control are provided for unattended operation.
- Numerous operational features including site configurable automated control capabilities using RVR settings, full manual on /off / brightness control, runway flash and blackout capability, adjustable soft-start and on-delay.
- A transfer control procedure is provided, allowing control to be transferred from the tower to FSS or vault locations as required.
- Utilities include lock screen, touch-screen calibration, and background dimming.

### Technology Benefits

- Reliability, simplicity and longevity of a PLC based system without the added cost of advanced maintenance monitoring.
- Critical control logic provided by PLCs designed for twenty year life and 24/7 operation.
- Embedded industrial controllers with no hard drives, fans or moving parts provide critical touch-screen operator interface graphics.
- Off-the-shelf hardware and software ensures long-term support is always available. The airport is protected from any unforeseen supplier changes.
- 100MB Ethernet communication network with support for point-to-point fiber, redundant ring fiber, wireless radio, CAT5 cables and DSL capable telephone lines.
- Remote access via high-speed internet or dial-up modem provides the ability to remotely upgrade the system or assist maintenance personnel.

### Maintenance Functions

Monitoring information is gathered by the ALCMS and real-time data and current alarm conditions are displayed. Features include:

- Monitoring presence of output current to ensure power is being supplied to the field circuit.
- Monitoring of ALCMS communications, power sources and batteries.
- User configurable alarm and event displays. Alarms can be independently filtered for display at tower, or maintenance locations.
- Features are provided to allow quick replacement of failed regulators or other equipment on the fly, allowing full control and monitoring capability using spare hardware.
- Circuits, regulators, hardware, and monitoring features can be independently enabled, or configured by maintenance personnel.
- Several security measures are provided including operating system level security, site assignable ALCMS user names and passwords, data encryption on remote access or wireless connections, disabling of system functions.

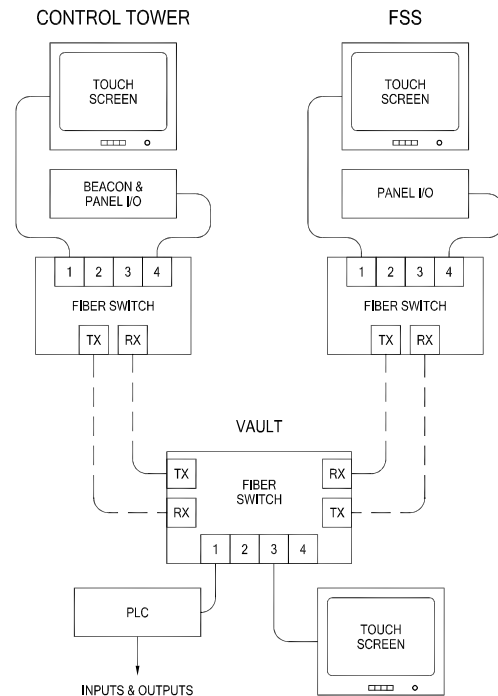


Fig. 2: Spirit Series ALCMS with operator stations at Control Tower, Flight Service Station (FSS) and electrical vault. 100MB Ethernet fiber optic network. Additional locations, touch-screens, monitoring, or equipment can be added as required.



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