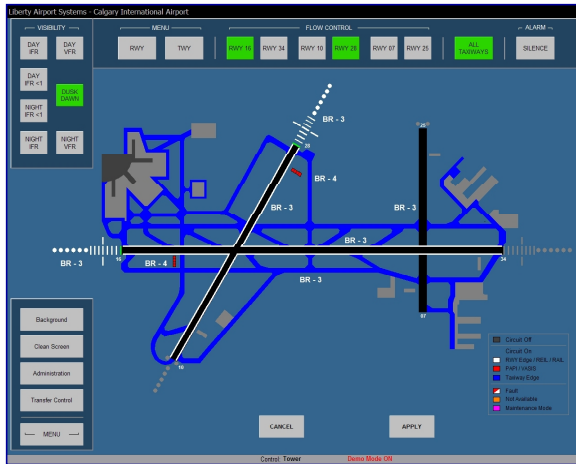


Airfield Lighting Control & Monitoring System (ALCMS)



Liberty Airport Systems *Spirit SE Series™* is a “Special Edition” of our highly successful *Spirit Series™* ALCMS. The *SE* model is designed to integrate directly with our *Freedom Series™* and *Spirit Series™* constant current regulators providing the following significant advantages:

- Ethernet connectivity directly to the regulator simplifies field installation reducing costs.
- L-890 Level C (Advanced Monitoring) capability.
- L-890 Failsafe Level B (Latching) capability.
- Extensive monitoring and diagnostic information from the regulators is now instantly available.

Because the *Spirit SE Series™* has advanced features normally not available on an economical control system, the *SE* Model is capable and ideally suited to CAT II airports.

System Application

The *Spirit SE Series™* ALCMS is a modular, expandable system designed for General Aviation, VFR, CAT I and II commercial or military airports. System applications include:

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

Technology Benefits

- Reliability, simplicity and longevity of a PLC based system with full monitoring and control capability.
- 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.
- Legacy regulators can gradually be replaced as funds are available. When new CCRs are installed, a CAT5 cable is simply connected and the new CCR is enabled using the maintenance graphics.

Standards Compliance

- FAA Advisory Circular 150/5345-56, Spec L-890 L890-X-Y Classification types where:
 - X = A - Control Only
 - B - Basic Monitoring
 - C - Advanced Monitoring
 - Y = A - Preset Failsafe
 - B - Last State (Latching)
- 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, Doc 9157, Part 5.
- Transport Canada Aerodrome Standards and Recommended Practices, Volume 1, TP-312E.
- Canadian Dep’t of National Defence Standards.

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.

- 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, 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.



Maintenance Functions

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

- Monitoring of analog and digital data, status and alarm information provided by the CCRs. Refer to LAS-DB-004 for a list of available information.
- 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.

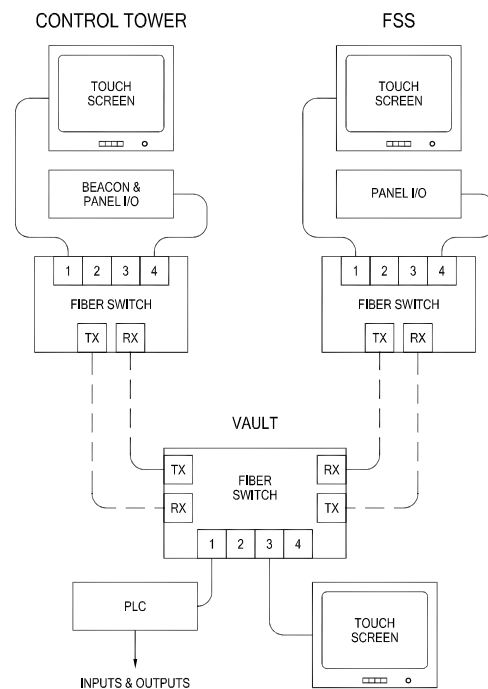


Fig. 1: Spirit Series ALCMS with operator stations at Control Tower, Flight Service Station (FSS) and electrical vault. 100MB Ethernet fiber optic network. Additional locations, touch-screens, monitoring, or equipment can be added as required.



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