

### Airfield Lighting Control & Monitoring System Upgrade Options

*A*irfield Lighting Control and Monitoring Systems (ALCMS) using Programmable Logic Controllers (PLCs) are designed for a 20 year lifespan. As technology changes and new capabilities become available, PLC based systems can be easily upgraded to take advantage of new features and functions as well as adapt to changing airport requirements.

Some of the auxiliary components, such as computers and touchscreens, are not designed for the same longevity and will need replacing sooner. Forced obsolescence of operating systems and spare parts for computers may also necessitate system upgrades.

The Liberty *Eagle*™ ALCMS Upgrade program is designed to provide a logical and cost effective migration path, extending the life of the system by many years. The *Eagle*™ ALCMS Upgrade program is available for systems installed since 1988.



Fig. 1 Computer and Graphics Updates at Tower and vault.

### Upgrade Options

#### Phase I: Computer Replacement

- Replace aging computers and touchscreens with currently available equivalent models.
- Software and hardware installation and complete system testing are provided
- ALCMS computer operating systems and HMI licences are re-used. No changes to graphics or operation of system.



#### Phase II: Network for IT Support

- A dedicated 100MB Ethernet network connects all ALCMS computers. Remote access capability allows software upgrades and support to be provided by Liberty or designated IT group.
- Ethernet switches, fiber or wireless modems, and interface cards are provided. For fiber networks, two spare fibers are required between locations.
- Control networks will continue to use existing legacy network architectures.

#### Phase III: Primary Network Upgrade

- Primary control network is upgraded to 100MB Ethernet. Benefits include increased performance and elimination of legacy proprietary hardware. All components including PLCs communicate over Ethernet.
- Remote access capability allows remote software upgrades and technical support.
- Managed Ethernet fiber switches and network cards for computers and PLCs are provided. Four existing fibers between each location will be reused in a fault-tolerant redundant ring configuration.

#### Phase IV: Secondary Network Upgrade

- Secondary (backup) communication network is provided between critical locations using a 54MB Ethernet radio link.
- Provides a redundant communication path in the event the main fiber network fails.
- Ethernet switches, radio equipment and network cards are provided for computers and PLCs.

## Ordering Information

**Type:**  
 UCMS1 - Eagle ALCMS Upgrade from Win 95 Generation  
 UCMS2 - Eagle ALCMS Upgrade from Win NT Generation  
 UCMS3 - Eagle ALCMS Upgrade from Win 2000 Generation

**Phase I: Computer Replacement Options**  
 A - Not Required      B - Computers Only  
 C - Touchscreens Only    D - Computers and Touchscreens  
 # - Specify Number of Computers

**Phase II: Network for IT Support**  
 A - Not Required      B - Multimode Fiber (up to 2 km)  
 C - Singlemode Fiber    D - Radio Modem (up to 5 km)  
 # - Specify Number of Locations

**Phase III: Primary Network Upgrade**  
 A - Not Required      B - Multimode Fiber (up to 2 km)  
 C - Singlemode Fiber Optic Cable (> 2km)  
 # - Specify Number of Locations  
 # - Specify Number of PLCs

**Phase IV: Secondary Network Upgrade**  
 A - Not Required      B - Radio Modem (up to 5 km)

**Phase V: Vault CCR Network Upgrade**  
 A - Not Required      B - Non Redundant Ethernet  
 C - Redundant Ethernet

**Phase VI: HMI Software Upgrade**  
 A - Not Required      B - Required

**Options (Select as Many as Required):**  
 01 - Laptop Maintenance Computer with truck mounted radio  
 02 - Insulation Resistance Monitoring (Automatic Megger)  
 03 - Replace Battery Charger with Redundant Power  
 04 - Runway Guard Lights via Power Line Technology  
 05 - SMGCS or Stop Bars via Power Line Technology  
 06 - VPN Remote Access

### Phase V: Vault (CCR) Network Upgrade

- Provide an Ethernet interface to the control system for direct communication to the latest Ethernet enabled regulators. Redundant communication options are available.
- Allows Liberty CCRs or Digital Door Upgrades to be connected directly to an older control system using CAT5 cables. Extensive monitoring data now becomes available in the control system.

### Phase VI: Upgrade HMI to L-890 Specs

- Upgrade computer operating systems and HMI graphics to the latest proven standards.
- Addition of features and functions to meet enhanced requirements of the L-890 specification including failsafe and monitoring for CAT II or III.
- Integrated support for new features including IRMS (automatic megger), powerline carrier control and monitoring, Stopbars, Runway Guard Lights.



Liberty Airport Systems Inc.  
 C5 - 3375 North Service Road  
 Burlington ON, Canada L7N 3G2

Tel: 905.631.1597  
 Fax: 905.631.5387  
[info@libertyairportsystems.com](mailto:info@libertyairportsystems.com)