

Airfield Lighting Switchgear Regulator Assembly (ALSRA)



Fig. 1 Two 600V Switchgear Line-ups installed in an Airfield Lighting Field Electrical Center (ALFEC).

Westinghouse developed the first switchgear style constant current regulator for airfield lighting applications in 1970. The switchgear concept known as an “Airfield Lighting Control Center (ALCC)” was the heart of Westinghouse’s airfield lighting success. Liberty personnel were involved in the original Westinghouse design and the product evolution through the Hughey and Phillips and Honeywell eras.

Liberty Airport Systems continues the switchgear tradition with the next generation Airfield Lighting Switchgear Regulator Assembly (ALSRA).

System Application

The ALSRA is designed to provide all of the airfield lighting power and control equipment in a compact, integrated switchgear style lineup. This includes constant current regulators, circuit selector switches, non-regulated control cells, incoming and power distribution cells, transformers and feeder cells, S1 cut-out field isolation cells, Control and Monitoring System (ALCMS) interface cells and Surface Movement and Guidance Control (SMGCS) interface cells.

The ALSRA is a cost-effective alternative to conventional electrical vault installations. The ALSRA uses only a fraction of the vault floor space, and provides a professional, uncluttered appearance in a configuration that is easy to maintain. Installation is simplified, minimizing the construction time and risk of disruption to airport operations. Any special site requirements can be accommodated.

Switchgear Features

- Available in two modular configurations based on vault input voltage. 4160/2400V systems use a full height (80”) switchgear cell design. 208V to 600V systems use a half height (40”) design allowing cells to be stacked two-high for twice the density.
- Integral 2, 3, or 4 conductor 600 A power bus with interrupting ratings to 65KA are provided. For systems up to 600V, bus is provided in both the upper and lower cells providing 1200A capacity. A continuous internal ground bus is also provided.
- All high voltage connections are fully guarded for personnel safety. Bus guards are removable from the front for ease of service and inspection.
- Integral circuit breakers eliminate the need to install remote breakers in a separate wall-mounted panelboard.
- Integral horizontal and vertical power and control raceways allow all field and control cables to be routed within the switchgear assembly with no external conduit or cable trays required. Top and bottom cable exit is provided.
- Control and power components are fully isolated for increased safety. A safety interlock ensures power is disconnected when the door is opened.
- Power components are mounted on a roll-out powerpack, for ease of maintenance and replacement.
- Liberty cells are cable raceway and bus work-compatible with existing Westinghouse, Hughey & Phillips and Honeywell switchgear installations. Close-coupling to Siemens and Crouse-Hinds CCR installations is also available.

Benefits

- Compact design uses up to 75% less space in the electrical vault.
- Reduced field installation requirements and time.
- Lower overall installed costs.
- Factory tested to provide high system quality and reliability.
- Single source responsibility provides integrated design, procurement, assembly and testing.

Available Cells

The following cells are examples of functions that can be provided as part of the switchgear line-up. Cells can be provided with digital controls, advanced monitoring and RS485 or Ethernet communications for direct interface to a control system. Cells are available in 24" and 36" widths to accommodate various equipment types and dimensions.

- Ferroresonant CCRs from 1KW to 30KW complete with roll-out powerpacks. 1KW to 10KW are provided in 24" wide x 40" high cells. 15KW to 30KW come in a 36" wide cell. Refer to Brochure LAS-DB-007 for information.
- Thyristor CCRs from 1KW to 30KW complete with roll-out powerpacks. All ratings are provided in 24" wide x 40" high cells. Refer to Brochure LAS-DB-008 for information.
- L-847 circuit selectors using vacuum switch technology are available for 6.6A or 20A CCR output ratings. Up to 6 selectors can be provided in a 24" wide cell or 8 in a 36" wide cell. Refer to Brochure LAS-DB-015 for information.
- Non-regulated control cells are available to control circuits such as approach strobe lights, rotating beacons, and ramp flood lights. Contactors are provided for systems up to 600V while vacuum switches are provided for circuits up to 5KV.
- Transformer Distribution Cells are available in ratings up to 45KVA in either step-up or step-down configurations. These cells are normally used to provide power to the ILS, Glide Slope, field located circuit selector stations, or other buildings.
- Incoming Cells are available to connect the bus to the main incoming power source. Vertical bus can be provided to interconnect the upper and lower bus. Custom transition cells can be provided to connect to 3rd party cells. The cell can be provided with a main disconnect switch or main breaker.
- Cells can be provided to accommodate the Airfield Lighting Control and Monitoring System (ALCMS). Mounting the ALCMS within the lineup eliminates the need for conduit or bus trough to the regulators, greatly simplifying the installation.
- Field Cable Isolation (S1 Cut-out) cells are available providing a convenient location to terminate all field cables. This cell makes it easier to connect a circuit to a spare CCR if necessary.
- Surface Movement and Guidance Control (SMGCS) interface cells are available to house the powerline carrier communication equipment.



Fig. 2 2400V Liberty Digital Switchgear regulators installed next to existing RSS20 CCR. Cell dimensions are 24"w x 80"h x 31.5"d.

Application Engineering

If you have any unique power or control system requirements or applications, please do not hesitate to contact us. Our engineering staff would be pleased to work with you on finding a cost-effective solution using current technology.



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