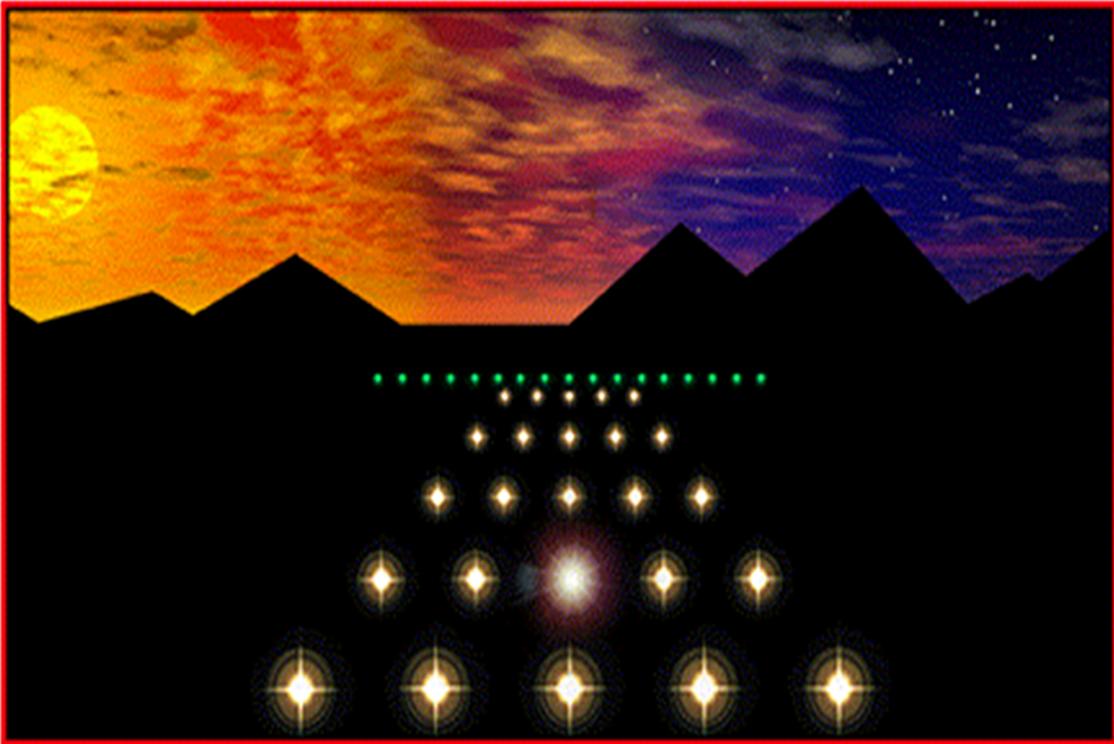


Honeywell



AIRFIELD LIGHTING SYSTEMS

CATALOG



AIRFIELD LIGHTING REMOTE CONTROL SYSTEM OVERVIEW



1.0 INTRODUCTION

With the steady increase in air traffic and congestion, comes an increased dependence upon the reliability and accuracy of all associated airport equipment necessary for safe aircraft guidance, take-off and landing. For Category II and III operation, Advanced Surface Movement and Guidance Control Systems (A-SMGCS) provide the airport the ability to operate safely when the runway visual range (RVR) level is less than 1200 feet.

In addition to A-SMGCS control requirements, Airfield Lighting Control Systems must also be capable of signaling faults when they occur, identifying potential problems before they occur, and determining when preventative maintenance should be carried out. The Honeywell Airfield Lighting Remote Control System (ALRCS) was developed to accomplish the above complex control requirements.

The ALRCS employs the latest programmable controller (PLC) and industrial computer technology, is flexible and expandable, and allows monitoring of the regulators and field circuits for positive proof that the circuits are functioning correctly. Enhanced monitoring and data acquisition provides status, alarm and fault indication to maintenance personnel and detailed statistical information for preventative maintenance programs. For A-SMGCS installations, individual lamp control and monitoring as well as aircraft presence and incursion sensing are provided.

The ALRCS allows unprecedented flexibility in accommodating changes to airfield patterns, interlocking of various facilities, addition of new lighting, re-routing of existing circuits, and system monitoring. The majority of changes and additions can be accomplished via software (program) changes instead of hardware rewiring.

The complete ALRCS is coordinated mechanically and electrically, and is designed to interface directly with the equipment in the Regulator Vault or Field Electrical Centre (FEC). Before shipment to site, the ALRCS elements are completely assembled, wired, programmed and tested as a coordinated system in the factory to assure reliable and correct operation. The ALRCS is then installed on site and completely tested and commissioned as a complete system.

1.1 PHILOSOPHY

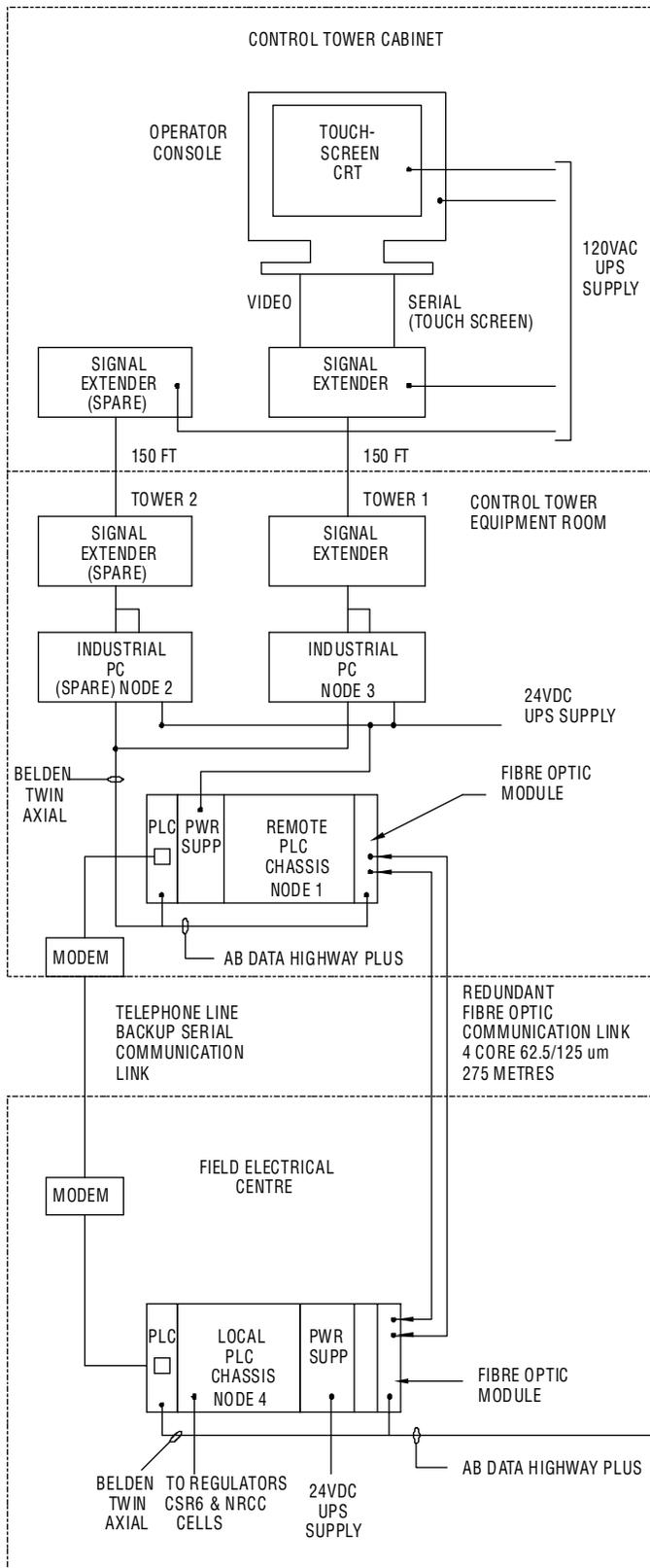
The Honeywell Airfield Lighting Remote Control System is based on the philosophy of using standard, industry proven, off-the-shelf hardware and software rather than proprietary components. All components are industrial grade for increased reliability and operation in a wide range of operating environments. The heart of the system is a programmable controller, which provides all the control logic, monitoring, communication, and interface to the regulators and other airfield lighting equipment. The PLC is programmed using ladder logic, which is widely used and understood by electricians and maintenance personnel. Most



components are available from local distributors. The Human-Machine Interface (HMI) is a touchscreen CRT or TFT LCD display and industrial grade computer running control system graphics software. This software provides the custom graphic displays for the air traffic controllers and maintenance personnel and the ability to control and monitor the airfield lighting circuits.

Although Honeywell would be pleased to make changes and revisions to the system in the future as requirements change, the customer is free to make changes themselves or to contract the changes to other reputable companies. This philosophy is preferred by customers, and is contrary to some manufacturer's product offerings where all hardware and software changes must be done by the original manufacturer. Because the components and software are widely used in industry (eg. process control, automotive, resources, utilities), not just in unique airfield lighting systems, there is a huge installation base, knowledge base and resources for information and technical support.

2.0 BASIC SYSTEM OVERVIEW



The Honeywell Airfield Lighting Remote Control System (ALRCS) is designed to control the airfield lighting constant current regulators and non-regulated control equipment located in the regulator vault, providing remote control of all airfield lighting facilities from the Control Tower. The components shown in the block diagram are typical for a small Category I or II airport with 2 or 3 runways. Section 3.0 describes some enhanced features particularly of interest to larger airports and those that require Category II or III SMGCS operation.

2.1 TOUCHSCREEN INTERFACE

The Airfield Lighting Remote Control System (ALRCS) uses touch-screen technology to provide the operator interface to the system. All commands to control the runway lighting are input simply by touching a touch sensitive push-button on the computer screen. This includes all on/off and brightness control selections of the runway, approach, touchdown zone, centreline, PAPI, taxiway, beacon, ramp and other airfield lighting. A mimic display of the runways, taxiways and approaches displays the current status of the airfield lighting. All feedback signals and alarms are similarly displayed to the operators on the display. No keyboard is required or provided in the control tower.





The touch-screen display is available in compact TFT LCD versions from 14" to 20" and in traditional CRT sizes from 15" to 21" diagonal. The touch-screens are extremely durable and wear resistant, and are available in various technologies including capacitive, resistive and surface acoustic wave. The touchscreen operator interface can be mounted in the existing control console, on top of the control desk, or in a floor standing monitor cabinet with adjustable display angle located underneath the existing control desk.

2.2 TOWER INDUSTRIAL COMPUTER

The touch-screen CRT is connected to an Industrial Computer running an enhanced graphics software package to provide operator input and the airfield mimic and monitoring display. The industrial computer is normally mounted in the Tower PLC Panel located in a telecom equipment room or other suitable location in the tower. A spare Industrial PC can be installed, pre-wired and software pre-loaded, ready to be used as a backup or alternate control station as required.

2.3 SIGNAL EXTENDER

Video and serial extenders are used when necessary to ensure adequate signal strength for the touch-screen and monitor operation. With the signal extender, the touchscreen can be located 250 feet or more from the industrial computer. The transmitter is located next to the computer and the receiver is located behind the touchscreen monitor. A low capacitance multi-conductor shielded cable connects the transmitter and receiver units. A spare extender system can be installed in the tower as a backup for the main extender.

2.4 TOWER PLC PANEL

Besides housing the industrial computers and the signal extender transmitters, the Tower PLC Panel may also contain a PLC (programmable controller) chassis complete with a PLC processor, power supply module, fibre optic module and input and output modules. Additional input / output capacity can be provided, allowing the system to interface with remote monitoring systems or integrated tower workstations, should they be implemented in the future.

The industrial computers and the PLC are powered from a 24VDC gel-cell battery and float charger system to provide continuous operation during power surges or outages. Input power to the battery charger is provided from the tower 120VAC UPS supply. The batteries and charger system are also mounted in the Remote PLC Cabinet.

If the batteries must be disconnected for service or routine testing, they can be removed while the system is on line since the battery charger is capable of supplying the load itself. Conversely, 120 VAC input power to the battery charger can be removed while the system is on line and the battery will supply the load for a minimum of 8 hours.

By operating the processor and computers at +24 VDC from the battery and charger system, a very high level of electrical isolation is achieved from the 120VAC essential supply, thereby protecting the components from any surges, noise or spikes on the AC line. This is particularly important during operations of the automatic transfer and bypass schemes, when switching transients and contact bounce can create severe and potentially damaging line disturbances to computer systems.

2.5 VAULT PLC PANEL

The heart of the control system is the industry proven programmable logic controller or PLC. The vault PLC provides all the control functions and interlocking of field lighting circuits, as well as all the discrete and analog inputs and outputs to control and monitor the constant current regulators and other equipment. A PLC is located at each regulator vault or FEC (Field Electrical Centre). The PLC panel contains a PLC Chassis complete with a power supply module, PLC processor, discrete input and output modules, analog input modules and a fibre optic module. Termination points are provided within the Vault PLC Cell for customer's wiring to the regulators and non-regulated circuits. The discrete output modules supply output signals to the interface relays in the regulators and other controlled circuits. The discrete input modules receive monitoring and status signals from the regulators, non-regulated cells, diesel/generator set and battery charger. The analog input modules receive current and voltage signals from the regulator transducers via shielded cables. The Local PLC panel also includes a 24VDC gel-cell battery and float charger system identical to the one in the Remote PLC Panel.



2.6 EEPROM MEMORY BACKUP

The ladder logic software program is contained in the Random Access Memory (RAM) of the processor. While power is available to the processor, either from the battery charger or from the processor's internal back up battery, the RAM memory remains intact. If the 120VAC supply to the battery charger fails, an alarm displays on the tower and maintenance screens and the battery connected to the charger will continue to provide uninterrupted system operations for a minimum of 8 hours. When the 24VDC battery discharges to 23.5VDC, an alarm will be indicated on the tower and maintenance screens. If the battery discharges below 21VDC which is the minimum required voltage level for reliable PLC operations, or if the battery is disconnected, the processor will no longer function.

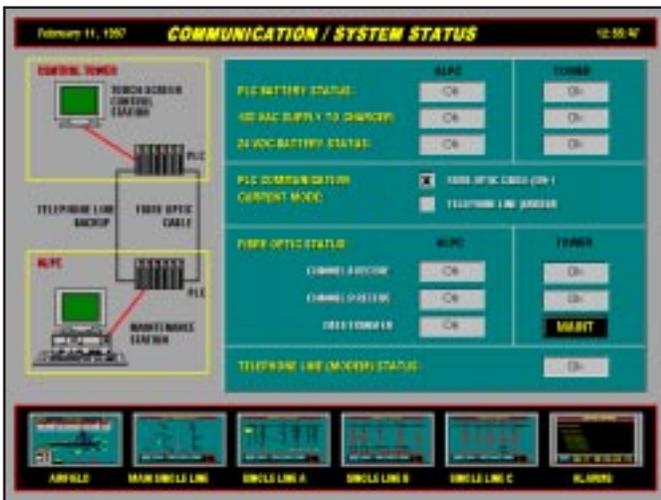
However, even with the power disconnected from the PLC, RAM still remains intact since the processor contains a lithium backup battery. This supplies enough power to the processor to enable it to continue to periodically "refresh" RAM, and retain its memory. The lithium battery will retain RAM for up to one year. When the battery requires replacing, an alarm will be displayed on the tower and maintenance screens. The battery will last in this state for 2 to 6 weeks. In the event that this battery fails or is removed from the processor while the 24VDC source is inoperative, the RAM memory will be lost.

The EEPROM module is a non-volatile (permanent) memory storage device which is plugged into the processor, and contains a permanent copy of the software program. Once power is restored to the processor, the program can be reloaded into RAM by simply toggling the PLC power supply on/off switch once. The EEPROM memory is not affected by this operation. Similarly an externally induced error or glitch in the software can be cleared by toggling the on/off switch once. The EEPROM eliminates the need to have a program loader or PC on site to manually reload the processor memory from disk.

EEPROM's are provided for both the Tower and Vault PLC's. If any changes to the program are required, the changes can be made off-site using spare EEPROM's. The existing EEPROM can then be removed and the updated spare EEPROM can be installed. The old EEPROM can then be updated.

2.7 COMMUNICATION NETWORK

Communication between the Industrial Computers, the tower and vault PLC's and the maintenance computer takes place over an industrial grade PLC communication network. This network is extremely reliable. The industrial computers are connected to the network via a shielded Belden cable physically connected to the PLC located in the tower telecom room. Similarly the maintenance computer in the vault connects directly to the network via the Vault PLC.



The Tower and Vault PLC's also communicate to each other over the network through a fibre optic link. The fiber optic communication link consists of a fiber optic module in each of the local and remote panels and a four strand direct burial fiber optic cable. The fibre optic module has two channels for redundant operation. One fiber connects to the transmit line of Channel A, and another to the receive line on Channel A. Similarly the other two fibres connect to the transmit and receive lines of Channel B. Any one transmit and any one receive line can fail without affecting operation. As long as both transmit lines or both receive lines don't fail, satisfactory communication is maintained. Alarms are displayed at both the tower and maintenance screens if any fibre fails.

In many cases, for economic reasons, the control cables between the tower and the vault are run in the same duct or at least pulled through the same manholes as the 5KV field cables. This practice can create a tremendous potential for disruptions to two wire type communication. The use of fiber optics assures complete electrical isolation, eliminating any possibility of noise or electrical interference and provides extremely reliable remote communication.

The Tower PLC is also connected to the Vault PLC via a telephone communication link. The PLC serial ports are connected to limited distance modems which are in turn connected via a dedicated telephone line. This allows the telephone line to be used as a backup communication means in the event of failure of both channels of the fibre optic link. The failure of the fibre optic communication link will automatically cause all communications to revert to the backup telephone link. This is completely transparent to the controllers with the exception of an alarm display indication on the touchscreen display. When the fibre optic link is repaired, communication automatically reverts back to the fibre optic link. Similarly, failure of the backup telephone line will also be indicated to the controllers. Radio Modems can also be used for backup communications instead of the copper telephone lines. The same automatic operation applies.

2.8 MAINTENANCE STATION

A Maintenance Station running the same software as the tower computer can be installed in the in the regulator vault or field electrical centre. This maintenance station could also be located in the Maintenance Shop or other location if desired. This station can be used as a backup to the tower or could be temporarily installed in the tower as a spare system in the event of a failure of the tower computer.

The maintenance station also is used for monitoring the constant current regulators, non-regulated cells, and field circuits, providing remote status, alarm and fault indication to the maintenance personnel. The statistical information provided on regulator and field circuit performance is useful in preventative maintenance programs, including lamp replacement and regulator maintenance.

The most reliable method of verifying that a particular circuit is operating is to detect the current directly in the field cables. The monitoring system detects the presence of current in the outgoing field cables by means of a current transformer (CT) and current transducer and sends an analogue feedback signal from the current transducer to the PLC. If current is not present in a particular field cable when the circuit has been selected, the mimic display in the control tower will not be illuminated, indicating a malfunction in the circuit.

If a regulator is feeding two or more circuit selector switches, a current operated switch is included on the output of each switch. This provides positive proof that both the regulator and selector are functioning, and current is being delivered to the field circuit. The current operated switch is adjustable and is normally set at minimum (1A) to detect the presence of current.

Each regulator in the vault is monitored to provide the following information to operations and maintenance personnel:

- Output current to field circuit
 - Positive proof that circuit is operating
 - Positive proof that brightness is within tolerance
- Output field circuit voltage
- Input voltage present
- Regulator not in remote position
- Regulator Commanded On
- Regulator Energized
- Regulator failure (overcurrent, overvoltage or door interlock)
- Brightness level indication
- Elapsed time on each of the 5 Brightness steps
- Number of regulator operations
- Lamp outage (L827 Monitoring)
- Insulation Resistance Monitoring (Automatic Meggering)

Each circuit selector switch (L847) is monitored to provide the following information to operations and maintenance personnel:



- Positive proof that each circuit is operating
- Selector not in Remote Position
- Elapsed time on each of the 5 Brightness steps
- Number of operations
- Insulation Resistance Monitoring (Automatic Meggering)

2.9 REMOTE MAINTENANCE ACCESS

A Dial-up modem telephone line is provided to allow access to the Airfield Lighting Remote Control System from a remote location. This can be anywhere in the world where a phone line exists. This feature is extremely valuable for remote monitoring of the regulators and power system as well as for maintenance and troubleshooting. All that is required is a standard PC compatible computer and remote access software. Through the modem, the remote computer can take control of the maintenance computer in the vault, displaying and controlling the screens as if you were physically sitting in front of the maintenance station. Security features are provided to limit remote access to only those who have been given appropriate security clearance. Remote access to the vault maintenance computer allows the user to obtain all the information about the system and its current status.

If desired, dial-up access can be configured to allow emergency control of the airfield lighting circuits. This is a very effective backup procedure in the event of loss of control from the tower.

Through the modem, remote access is also available to the PLC software. This allows remote access to monitor the PLC's and the communication network.

2.10 YEAR 2000 COMPLIANCE

All hardware and software components used in the Airfield Lighting Remote Control System are year 2000 compliant. This means that the control or operation of the system will not be affected by the change in date from December 31, 1999 to January 1, 2000.

3.0 ENHANCED SYSTEM OVERVIEW

Various enhancements to the basic system described in Section 2 can be incorporated into the system design to meet the specific needs and requirements of larger airports or those requiring Category II or III SMGCS operation. Some of these features may be desirable for smaller airports as well. The components shown in the block diagram below are typical for a Category III airport implementing an advanced SMGCS operation.

3.1 MULTIPLE CONTROL LOCATIONS

Additional touch-screen displays can be included to provide multiple control locations. These can be added in the control tower, Flight Service Station, Operations Center or other location as desired. This can be very useful for towers that divide the airport into geographical segments for control (eg. North and South airfields) or for those that divide the airport into Air Control (runways and approach) and Ground Control (taxiways and stop bars). The graphical displays and control capability can be configured to meet the controller's needs (eg. divided control for daytime operation/combined for nighttime, or special requirements for operation in CAT II or III visibility conditions). Additional displays can be incorporated for supervisory and monitoring purposes or for training of new operators. Multiple touch-screen displays also provide the advantage of backup control in the event of failure of one of the control stations.

3.2 MULTIPLE VAULTS

Airfield lighting circuits at larger airports are often controlled from multiple regulator vaults or Field Electrical Centres. By adding additional Vault PLC cabinets and monitoring kits at each vault, complete control and monitoring of all circuits can be achieved. Additional maintenance monitoring stations can also be added at each vault if desired.

3.3 FAULT TOLERANT FIBRE OPTIC NETWORKS

To increase the integrity of the communication network, the best method is to use redundant fibre optic cables in a fault-tolerant counter-rotating ring configuration. This configuration guarantees complete communication integrity even with a complete break in the fibre optic cable in one location. It would be necessary to have two cable breaks in separate locations before any communication is lost. To be completely secure, the fibre optic cables should be run in the ring configuration in separate ducts as far apart from each other as possible. This would limit any damage to the cable during airside construction to only one point. In some cases however, the site may not have the luxury of providing two separate routes between two points.

3.4 FAIL-SAFE RELAY PANEL

The control system can be equipped with a fail-safe interface, to provide fail-safe lighting patterns in the event of failure of the communication networks, PLC or computer components. Each regulator can be configured for one of the following modes of operation:

- The lights will remain in their last valid state (ie. on at the same brightness level or off).
- The lights will be switched on to a pre-selected brightness level.
- The lights will be switched off.

The failsafe interface consists of individual PLC's, one for each regulator. The outputs from the main vault PLC connect to inputs of the Failsafe PLC. The outputs of the Failsafe PLC connect to the regulator interface relays. In normal operation, the Failsafe PLC simply passes the signals received from the control system directly to the regulators. A watchdog timer signal between the PLC's monitors correct operation of the control system. If the watchdog timer signal is lost, indicating a control system failure, the Failsafe internal PLC program sets the regulators to the pre-determined failsafe mode of operation.

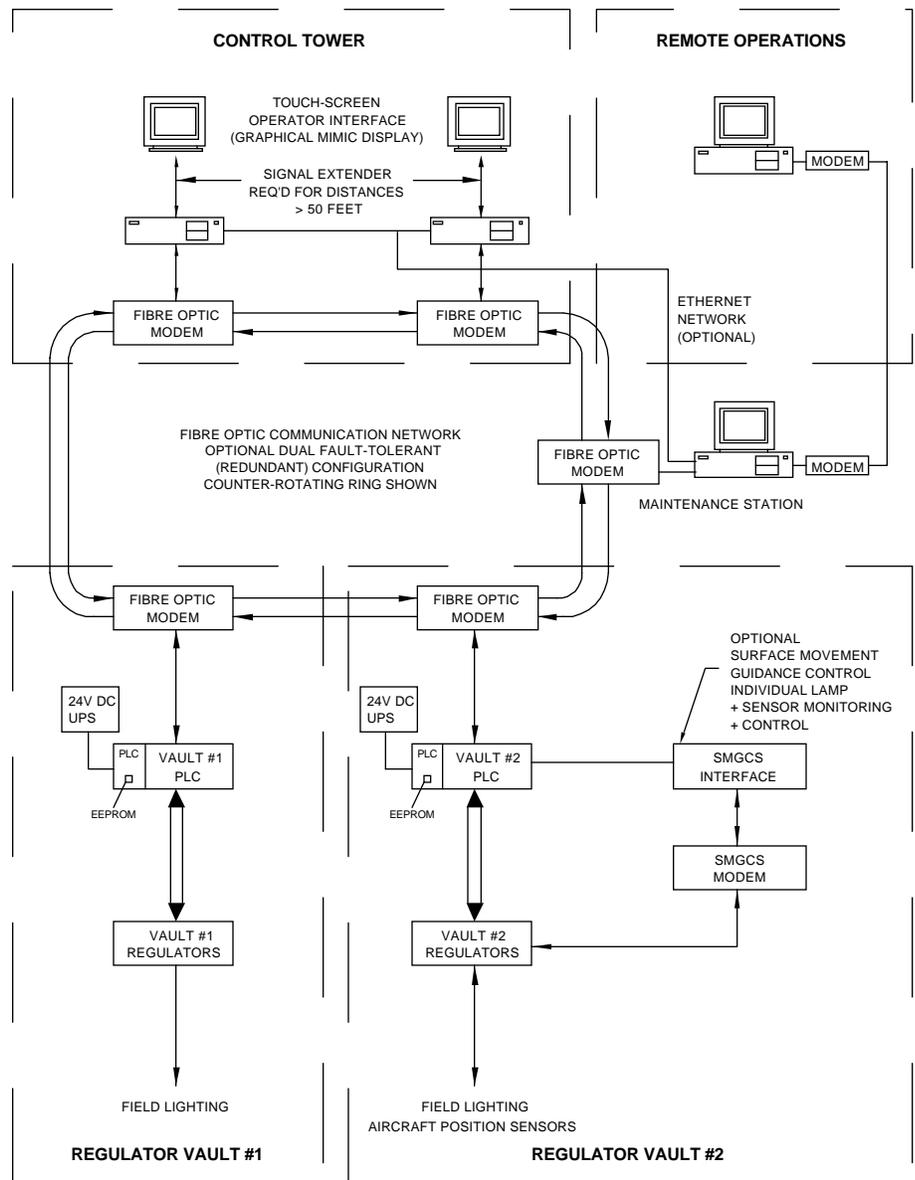
The regulators can also be controlled manually from the regulator vault using rotary switches located on the front door of the Vault PLC panel or monitoring kits. These switches only become operational if the Tower / Vault keyswitch is switched to the Vault position. The maintenance electrician then has full on/off and brightness control of each of the regulators. Indicating lights on the door indicate whether control is currently from the tower (green light) or from the Vault (red light). The tower also receives indication on their display when the vault has control of the lighting circuits.

The local control switches also provide the configuration for the failsafe interface. To configure how each regulator will operate in failsafe mode, leave the Tower / Vault keyswitch in the Tower position (allowing the tower to maintain control). Rotate the control switch for each regulator until the desired failsafe position is selected ie. LAST (last state), Off, B1, B2, B3, B4 or B5. To save the failsafe settings, momentarily move the NORM / SET

keyswitch to the set position. This switch will spring return to the NORM (normal) position. When the local control switches are used to manually control the regulators (ie. TOWER / VAULT keyswitch in Vault position), a green indicating light above the switch will illuminate when the switch is in the failsafe position.

3.5 DISTRIBUTED CONTROL

For some installations, a fully distributed control architecture is desired. Instead of having all the intelligence located in one central location, a microprocessor based control and monitoring interface is added to each regulator or other controlled device. This allows communication to be via 2 wire or other serial interface. The Honeywell distributed ALRCS will accommodate many industry standard communication networks allowing the airport the flexibility in specifying the system to meet their needs.



3.6 ADVANCED SURFACE MOVEMENT & GUIDANCE CONTROL SYSTEMS (A-SMGCS)

In order to enhance taxiing capabilities in low visibility conditions and reduce the potential for runway incursions, a Surface Movement Guidance and Control System (SMGCS) is required for airports which have takeoff or landing operations with less than 1200 feet runway visual range (RVR) visibility conditions.

The Honeywell Airfield Lighting Remote Control System is designed to directly interface to the latest in SMGCS technology control components. Using fibre optic or powerline carrier technology, each individual lamp on the airfield can be monitored and controlled. This flexibility allows complete integration of Category III airfield guidance, monitoring and control to the existing field circuits. Microprocessor based devices in the regulator vault are used to initiate and receive signals from field mounted addressable switches. These switches simply plug in between the isolation transformer and the lamp and are used to decode the signals and operate the lighting fixtures.

The system also provides monitoring of the status of each individual lamp and reporting back to the control system. Sensors are also included as part of the SMGCS system to provide positive confirmation of the aircraft position and automatically control the field located stop bars.

3.6.1 STOP BAR PHILOSOPHY

Stop bars are required at intersections of an illuminated (centreline lighted) taxiway and an active runway for operations less than 600 feet RVR. These lights consist of a row of red unidirectional, in-pavement lights installed across the full width of the taxiway along the holding position marking. Two elevated red lights may be included in the stop bar. When extinguished by the controller, they confirm clearance for the pilot or vehicle operator to enter the runway.

Controlled stop bars operate in conjunction with green centreline lead-on lights, which extend from the stop bar location onto the runway. Section 1 lead-on lights lead from the stop bar toward the runway on the centre line and stop at the point of tangency of the curve onto the runway (150 feet from the stop bar). Section 2 lead-on lights lead from the point of tangency, around the curve to the end of the lead-on lights.

Sensors are used to detect the presence of an aircraft or vehicle in the controlled stop bar zone. In a typical A-SMGCS installation, two or three sensors will be used. The first (presence) sensor is used to detect the presence of the aircraft as it approaches the stop bar. This sensor is optional and not included in all installations. A second (incursion) sensor will be located approximately 150 feet beyond the stop bar to detect that the aircraft has crossed over the stop bar and is about to enter the runway. A third (exit) sensor is located across the runway and is approximately 300 feet beyond the stop bar. This sensor is positioned to detect aircraft on the runway, exiting the stop bar control zone.

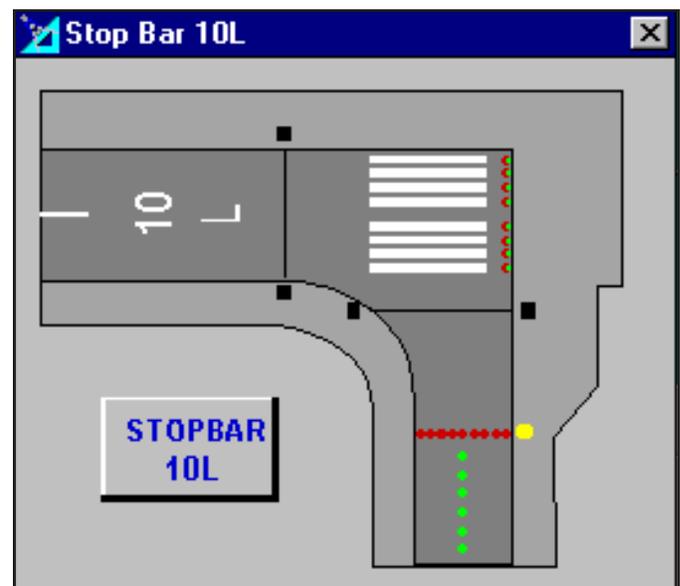
Runway Guard Lights are installed at all taxiways which provide access to an active runway. They consist of alternately flashing yellow lights and can be either elevated or in-pavement lights. These lights are used to denote both the presence of an active runway and identify the location of a runway holding position marking.

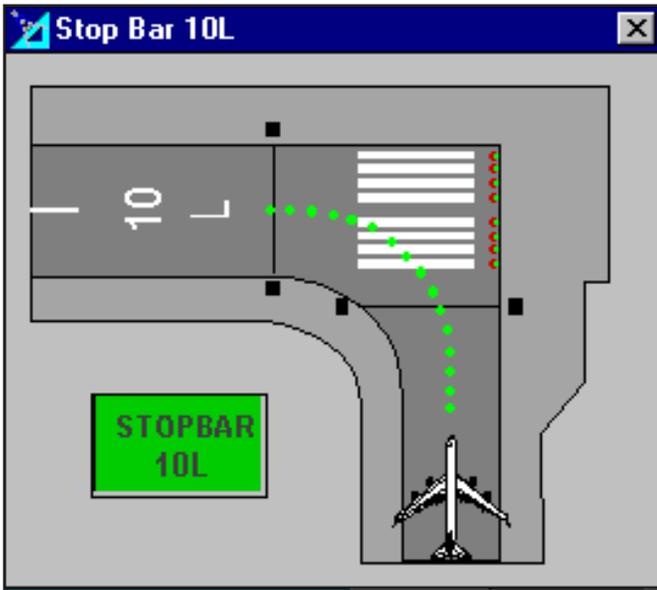
Clearance bar lights consist of three yellow in-pavement lights and are used to denote holding positions for aircraft and vehicles. When they are used for hold points, they are located in the same area as the geographic position markings (pink spots outlined with a black and white circle, designated with a number, a letter or both).

3.6.2 STOP BAR SEQUENCE OF OPERATION

When a stop bar system is active, the stop bar lights are illuminated and the two sections of lead-on lights are off. This setup of lights is the ready position. They provides the “Black Hole” as seen by the pilots and represents the beginning of the stop bar cycle. A departing aircraft is in continuous communications with the air traffic controller in the tower. The aircraft will be directed to proceed to the stop bar location and hold short. As the aircraft approaches the stop bar, it will be detected by the Presence sensor (if installed). The ATC will have an indication on the screen when the Presence sensor has been activated. The ATC will verbally communicate the takeoff clearance to the pilots and will select and acknowledge the corresponding stop bar. This will begin the cycle of the stop bar operation. Note, it is not necessary for the Presence sensor to be activated to begin the stop bar cycle.

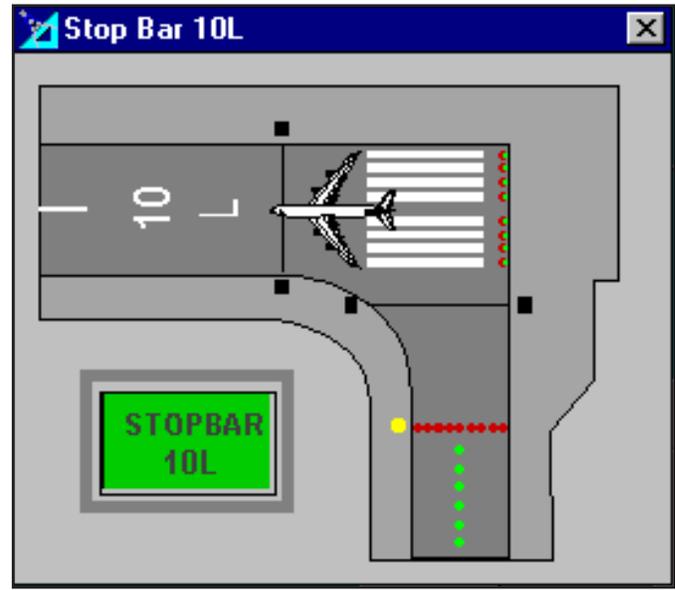
The stop bar cycle begins with extinguishing the red stop bar lights and illuminating both sections 1 and 2 green lead-on lights. A timer is also started when the ATC selects the stop bar, to monitor the travel from Presence to Incursion sensor location. The aircraft will move forward following the centre line lead-on



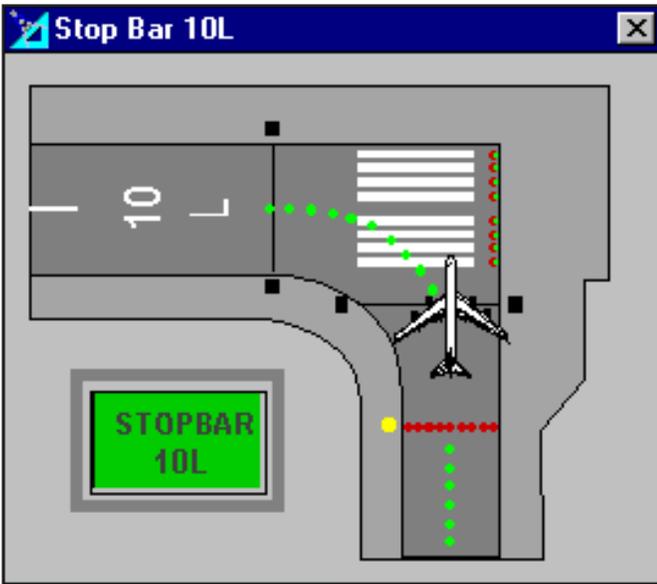


lights. The aircraft will leave the Presence sensor with no change to the lights.

As the aircraft crosses the Incursion sensor, the stop bar lights will be illuminated and the first timer is stopped and reset. The Section 1 lead-on lights will be extinguished and the “Black Hole” effect will be created. This protects the runway against inadvertent entry by a trailing aircraft or vehicle.



The Incursion sensor will detect aircraft crossing the stop bar before the stop bar cycle (as described above) has been initiated. If the aircraft passes the Presence sensor and is detected by the Incursion sensor, the incursion is annunciated in the control tower. The stop bar remains on and the lead-on lights remain off. Response to an incursion is the responsibility of the ATC. The stop bar may be extinguished and lead-on lights illuminated to allow the aircraft to continue.



A second timer is started to monitor travel from Incursion to Exit sensor location. As the aircraft crosses the Exit sensor, the Section 2 Lead-on lights will be extinguished and the second timer will be stopped and reset. This will complete the stop bar cycle. If either sensor is not activated within a specified time limit, the stop bar will automatically reset to on and both sets of lead-on lights will be turned off.

3.6.3 FIELD DEVICE COMMUNICATION SYSTEMS

The field device communication system connects to the vault PLC providing individual control of airfield lighting functions and/or monitoring of their status for operations and maintenance purposes. The system maintains the status of the lamps based upon the last received command and can command them to fall back to their user defined default settings in case of a control system failure. It can also provide for alarm conditions if the criteria for those conditions are met based upon status from the intelligent components in the airfield.

Individual lights can be grouped, even across multiple series-circuits, to provide an airfield lighting function such as a “stop-bar”. Furthermore, the operation of these airfield lighting functions can be logically connected to an action or event such as having a stop-bar turned “OFF” or “ON” as a result of a commanded action or an indication of aircraft presence from a system component in the airfield, respectively.

A specialized microprocessor based communications modem is used to convert the serial communications from the control system into a format that can be interpreted by the intelligent field devices. Status information received from the airfield devices on the series circuit is transmitted back to the modem in the same manner as the commands were transmitted to them.

3.6.4 INDIVIDUAL LAMP CONTROL & MONITORING

For each lamp that requires individual control or monitoring, a field addressable switch is installed between the standard isolation transformer and the light fixture. These field addressable switches are microprocessor based and are programmable and addressable. Upon installation of the device, the attached light is given a unique identity for control and monitoring purposes and can behave independent of other lights on the same series-circuit. The switch is a completely moulded unit designed for use in the same environment as the isolation transformers. It has the following main tasks:

- Receive on/off orders and status request from the field device communication modem
- Switch the lamp to on, off, or flash
- Monitor the lamp status as well as its own status
- Send status message to the field device communication modem
- Shorting of failed lamp

3.6.5 SENSOR INTERFACE UNITS

Sensor interface units provide an interface to the airfield sensors to detect aircraft and vehicles for use in Surface Movement and Guidance Control (SMGC). The sensor interface unit can be used with a variety of sensor types, including microwave and induction loop sensors. It provides power to the sensor and transmits its signals (presence detection, direction of travel, and self testing) to the field device communication modem located in the vault.

3.6.6 SENSORS

The most common and reliable sensors for use in SMGCS applications are microwave barrier detectors and induction loop sensors.

A microwave barrier detector is actually a subsystem composed of two microwave receiver/transmitter units operating as a pair. Together, these components provide the means for presence detection of aircraft and ground vehicles passing between the two units. As the pair operates as two physical sensors, it allows the possibility of simultaneous test and detect for increased operational reliability in critical sensing positions. Each receiver/transmitter unit is interfaced to a sensor interface unit. Each receiver/transmitter pair is set to a matched frequency setting (field-selectable identity) so as not to interfere with other receiver/transmitter pairs in the line-of-sight or nearby. Frequency matching between units is actually done by setting the identity of the receiver to the same identity of the transmitter on the other side of the taxiway or runway. The receiver and transmitter within the same physical unit should have different identities established for proper operation.

The microwave barrier detector operates by detecting an interference of the microwave signal caused by an object such as an aircraft's nose landing gear passing through the beam path.

This interference is indicated as a presence detection from the microwave receiver unit to the sensor interface unit. The presence detection signal is held for a minimum of 10 seconds or the duration of the signal interference, whichever is greater. The detection must be present for a minimum of approximately 100 milliseconds (field-adjustable) to eliminate false triggers from birds or blowing objects.

The following self-checking / testing is provided by the MBD:

- Low level signal at the receiver indicating the microwave power received from the transmitter is below the preset threshold. This may depend on misalignment, something has happened to the transmitter unit, or some obstacle has appeared in between transmitter and receiver.

Induction loop sensors are installed in the concrete across the taxiway or runway in a large loop. A sawcut and sealing operation is required to complete the installation. This technology is well proven, being widely used at roadway traffic signals for many years. The sensor interfaces to a sensor interface unit similar to that described above for the microwave barrier detector.

For further information please contact:



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Airfield Lighting Power Centers



System Application: Advantages:

Honeywell Airfield Lighting Power Centers (ALPC) have been supplying power to airfield lighting systems (entire airports in some cases) for over 25 years. The ALPC, also referred to as a Field Electrical Center (FEC), provides a modular, factory assembled, pre-fabricated steel building complete with diesel generator, fuel tank, automatic transfer panel, constant current regulators and other related witch gear cells, fire alarm and building services. The LPC is designed for outdoor installation adjacent to airport runways. These power centers provide a cost effective alternative to conventional buildings and are custom designed to meet specific site requirements. ALPC's have been supplied in a wide range of sizes and configurations ranging from 8 ft. wide by 8 ft. long suitable for transporting by aircraft to multiple section buildings up to 21 ft. wide by 70 ft. long. The ALPC provides constant current regulated power output for the approach, runway and taxiway lights and other essential circuits. Non-regulated power is also provided for circuits such as low intensity approach lighting, voltage powered strobes and feeders to other airport buildings. The normal power source is a commercial three phase AC power supply. The power center includes a secondary power supply comprising of a diesel generator set with automatic engine start and automatic transfer control for standby or uninterrupted power service. Secondary power supplies are available for Category I, II or III modes of operation. Category I systems will transfer to standby power within fifteen seconds, whereas Category II and III systems provide uninterrupted service or transfer times less than one second.

The ALPC Airfield Lighting Power Center is supplied completely factory-assembled in an outdoor enclosure, providing the following advantages:

- **Custom designed control to suit particular airport requirements.**
- **Wide range of sizes available, up to 21ft. by 70ft. or larger**
- **Wide range of ratings available, suitable for incoming voltages 208 volts to 4160 volts, 50/60 hertz.**
- **Compact design reduces heating, ventilating and maintenance costs.**
- **Low silhouette permits locating the ALPC close to runway reducing cable costs while minimizing obstruction view to pilots.**
- **Self supporting base allows mounting on compact gravel, concrete pad or caissons**
- **Reduced field installation time**
- **Factory assembly provides on schedule delivery (not subject to weather conditions or site delays)**
- **Factory tested to provide high system quality and reliability**
- **Single source responsibility providing integrated design, procurement, fabrication, \ assembly and test.**
- **Lower overall installed costs**
- **Minimal site logistics and coordination**

Compatibility:

The Honeywell ALPC Airfield Lighting Power Center is completely compatible with the full line of Hughey & Phillips Airfield Lighting products, as well as most third party products including:

- **Airfield Lighting Control Centers (ALCC)**
- **Constant Current Regulators**
- **Circuit Selector Switches**
- **Power Distribution Cells**
- **Remote Termination Cells**
- **Airfield Lighting Remote Control Systems (hardwired and PLC / touchscreen interfaces)**
- **Approach Lighting Systems.**
- **Runway and Taxiway Lighting**
- **Guidance Signs**

Honeywell can also offer a full line of ancillary equipment and supplies including cable, isolating transformers, towers etc., to afford a single source responsibility for a complete Airport Lighting System.

Construction Features:

The building is an outdoor modular assembly of interlocking galvanized pre-painted steel wall panel and roof sections, mounted on a self-supporting structural steel base, suitable for installation on a concrete or gravel pad, caissons or wood sleepers. Clevises are provided at intervals around the base for holding during shipment.

The building is thermally insulated with non-combustion-supporting insulation inside on the steel walls, on the suspended ceiling, and in the base under the steel floor. The floor, roof and walls of the building can be thermally insulated for a value of RSI 7.0 (R40) or greater. The insulation on the inside walls and ceiling is covered with embossed white aluminum sheeting over 1/2" plywood for additional protection. The floor is constructed of 1/8" checkerplate. All seams are welded.

Full height standard or fire separation walls can be provided to divide the building into different rooms (eg. diesel, remote radiator, regulator and switchgear rooms). Steel doors provide access between the rooms. Exterior doors incorporate pressed steel frames, with thermal break, non-removable hinge pins and weatherstripping.



Also included are door hold backs to secure the outer door in the fully open position. Outer doors are fitted with lockable handles and panic hardware. A removable insulated panel can be provided around the exhaust outlet of the diesel engine to allow removal of the engine and generator. Main entrance doors are large enough to allow removal or addition of control cells.

Thermostatically controlled heating, cooling and ventilation are provided to ensure reliable operation of the power center equipment under ambient weather conditions, which may vary with humidity up to 100% and temperatures -40° F to 130° F. The building is complete with

interior and exterior lighting, convenience outlets, emergency lighting, and outdoor obstruction lights with photocell control. Fire alarm systems can be provided complete with heat sensors, smoke detectors, local and remote annunciation and CO₂ or other type fire suppression systems. Adequate service aisles and work space is available for routine test, inspection and maintenance.

Operation:

The ALPC is intended for unmanned operation. All systems including standby power, heating, ventilation, and fire alarm are designed for automatic, unattended operation. All airfield lighting equipment is designed for remote operation from the control tower or Flight Service Station.

Partial Users List:

- Toronto Lester B. Pearson I.A.
- CFS Alert, Canada
"The Most Northerly inhabited place on Earth"
- Nassau, Bahamas
- Rock Sound, Bahamas
- Trinidad & Tobago
- Ottawa I.A. Canada
- Elmendorf AFB
- New Castle County Airport

For more information please contact Honeywell Airport Systems at the numbers listed below:



Honeywell

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Switchgear Constant Current Regulators

FAA Type: L828W -LS / L828W-HS

Switchgear - L828 & L829

FAA Approved -AC 150/5345-10:

Honeywell Switchgear regulators have been in use at airports around the world for over 25 years, supplying constant current of high accuracy necessary to power airport runway, taxiway and approach lighting circuits. All Honeywell regulators from 4KW to 70KW are dry type, solid-state, thyristor controlled and convection air-cooled. Honeywell regulators are known for their excellent record of performance, reliability and abundance of features designed with the operations and maintenance personnel in mind. The L828W-LS and L828W-HS Switchgear regulators are designed for airports where vault space is limited and installation time and cost are of major concern. The regulators are provided with many standard features including integral main power bus, field and control cable raceways, main circuit breaker or fuse cradle, brightness and fault lights, test panel and LDT isolator. All regulators are FAA approved in accordance with the latest L828 and L829 specifications and Advisory Circular AC150/5345-10.

L828W-LS/L829W-LS:

The L828W-LS switchgear regulators are packaged in compact, modular, freestanding enclosures each having the same dimensions (24" w x 40" h x 31." d). They are available in ratings from 4 thru 30 KW with input voltages from 208 to 480 VAC and output current of either 6.6 amps or 20 amps. The regulators are front accessible allowing side-by-side, back-to-back or two high mounting. All main regulating and control components are mounted on a removable, interchangeable door for ease of maintenance and troubleshooting. Regulators can be field upgraded to a larger rating should loading requirements change in the future.



L828W-HS / L829W-HS:

The L828W-HS switchgear regulators are similar to the L828W-LS regulators except they are provided in an 80" high enclosure to allow a wider range of KW ratings and input voltages. They are available in ratings from 4 thru 70 KW with input voltages from 208 to 2400 VAC and output current of either 6.6 amps or 20 amps. The regulators are front accessible allowing side-by-side or back-to-back mounting. Regulator doors are removable and interchangeable between L828W-HS and L828W-LS regulators. Existing regulators can be field upgraded to a maximum of 30KW rating should loading requirements change in the future.

Standard Features Soft Start:

Airfield lighting lamps are susceptible to high inrush current. To conserve lamp life, the soft start feature eliminates this transient inrush. The output current gradually increases to the selected value in approximately 45 cycles. This feature further improves lamp life by preventing sudden changes in current when switching from one brightness level to another.

Regulation:

The regulator provides excellent current regulation from no load to full load with up to 30% lamps burnt out. Current regulation is maintained over a wide range of operating conditions (temperatures from -40° to +55° C, relative humidity from 10% to 95%, altitudes from sea level to 6600 feet and input voltages from -5 to +10% of nominal). The regulator is capable of on/off switching under any load with the output current stabilized at the required brightness setting within 1 second and held constant within +0.1A. After a supply power loss, operation resumes at the preset brightness level within 1 second after the input power is restored.

Switching Surge Protection:

Circuit selector switches (L847) permit several circuits to be connected to a single regulator. Switching out one or more of the circuits may cause overcurrents that are detrimental to the lamps in the remaining circuits. To protect the lamps during switching, the regulator overcurrent protection feature limits the overcurrent duration to 1/2 cycle. Should the regulator trip, the automatic reclosure feature reenergizes the circuit with a soft start, eliminating any transient inrush.

Automatic Reclosure:

Airfield lighting circuits should remain operational for as long as possible under all conditions. Both circuit selector switching and faults within the circuits can cause overcurrents which could damage the remaining lamps. To provide optimum protection for the lamps, the regulator trips momentarily and recloses under controlled conditions (soft start). The automatic reclosure feature allows 3 to 6 reclosures before lockout. This eliminates unnecessary lockouts during circuit selector switching and self-clearing faults.

Overcurrent Protection:

The overcurrent trip setting is field adjustable and is normally factory set at approximately 5% above the maximum rated current. Output currents exceeding this setting are eliminated after the first 1/2 cycle and the regulator is tripped. Three to six automatic reclosures are initiated prior to lockout.

Overvoltage Protection:

A constant current regulator will attempt to maintain its output current regardless of field circuit impedance. In the event of a high impedance, such as an open circuit, the regulator output voltage will increase. When the output voltage exceeds the trip setting,

the regulator will trip and lockout immediately. The overvoltage trip setting is field adjustable and is normally factory set at approximately 5% above the maximum rated output voltage.

Efficiency:

The high operating efficiency of the regulators (93% for 10KW or less, 94% for 15KW, 95% for 20KW and 30KW, and 97% for 50KW and 70KW) provides significant energy savings over the life of the regulator and reduces the cooling requirements in the lighting vault.

Input:

A wide range of input voltages from 208V to 2400V are available for 50 or 60 Hz, single phase applications. Input voltage range is -5% to +10% of nominal system voltage. The regulator will withstand input voltage surges of 120% of nominal for 50 milliseconds within one minute intervals.

Output:

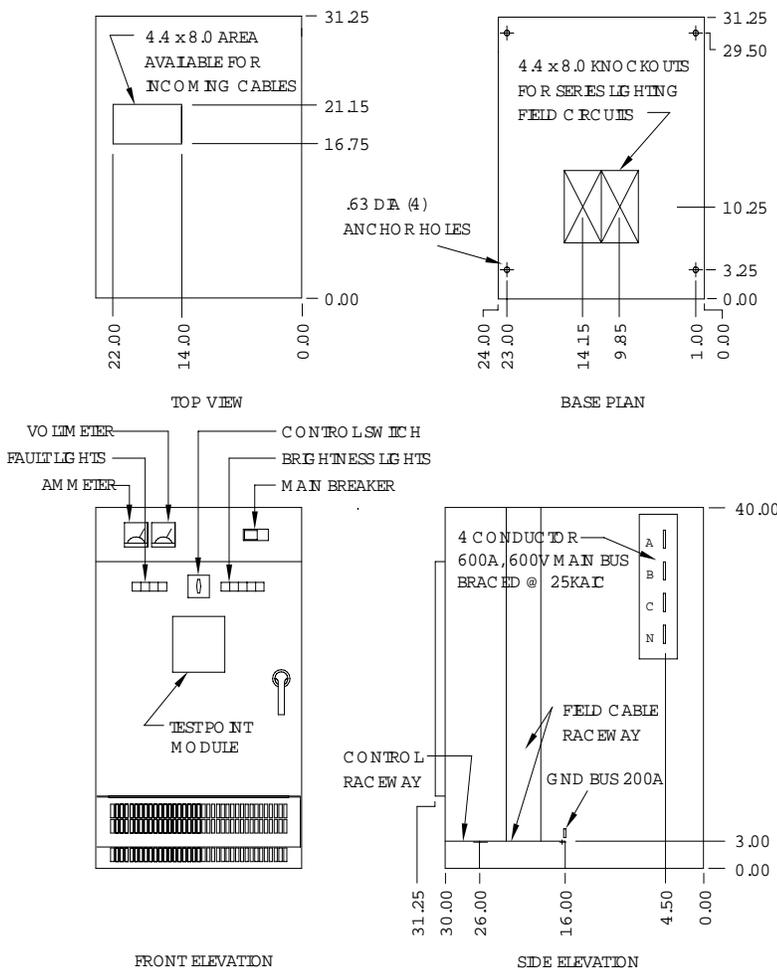
The regulator provides single phase, constant current output of 6.6A for regulators rated 4KW to 30KW. 20A output is available for regulators rated 20KW to 70KW. The regulator output is electrically isolated from the input. Regulators are available in single, three or five brightness step configurations, with each step completely field adjustable over the full range.

Control:

Regulator control can be either by local or remote (tower) control, selected by the regulator control switch. The regulator provides internally supplied control power for regulator operation and local control. Remote control can be 24 VDC, 48 VDC or 120 VAC supplied from internal or external sources. The regulator has remote reset capability and will operate with control circuit lengths over 10,000 feet.

Lightning Protection:

Distribution type lightning arrestors are mounted on the output series circuit to protect the regulator from lightning strikes on the airfield.



TYPE RATING WEIGHT

04L828W-LS	4 KW	350 lbs
07L828W-LS	7.5 KW	400 lbs
10L828W-LS	10 KW	450 lbs
15L828W-LS	15 KW	550 lbs
20L828W-LS	20 KW	600 lbs
25L828W-LS	25 KW	650 lbs
30L828W-LS	30 KW	750 lbs

FIG. 2
Regulator Dimensions

Interference:

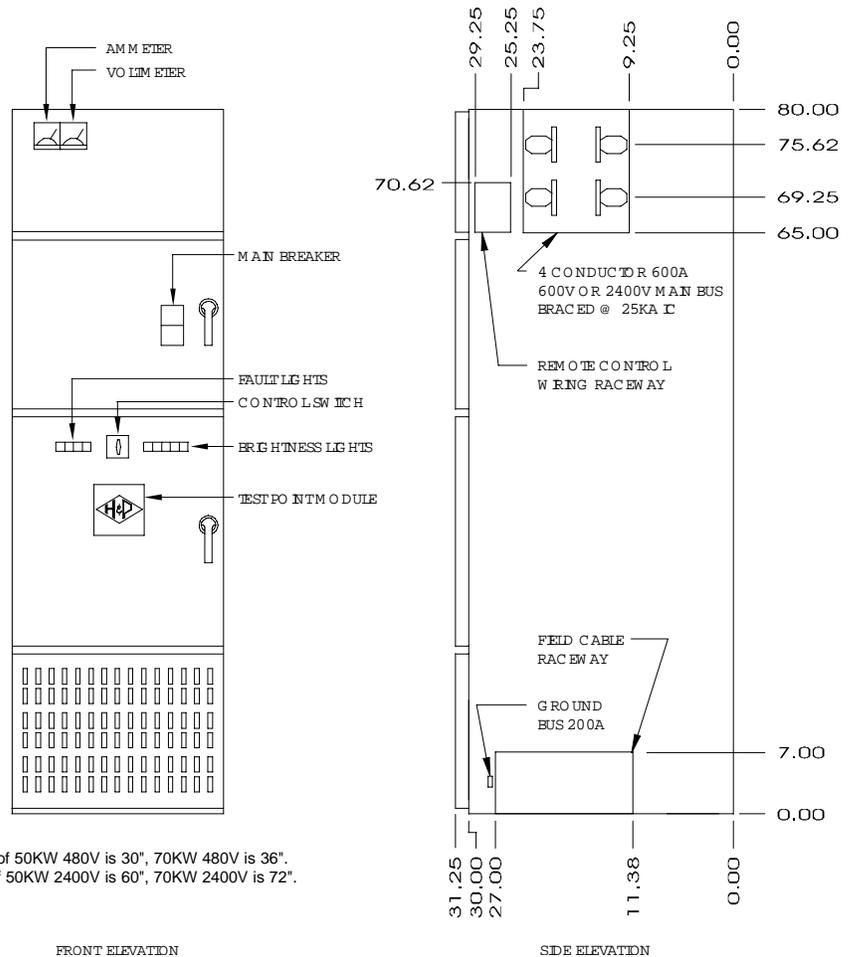
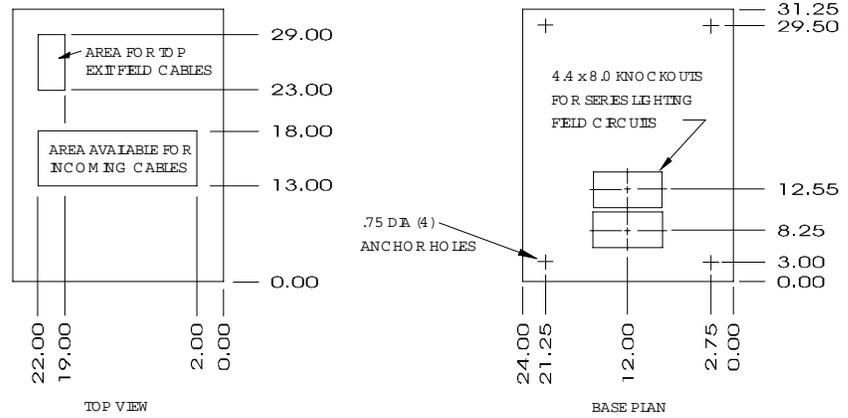
Regulators have been tested on both the power and control lines for electromagnetic interference (EMI) to Method CE01 of MIL-STD-462. Radio Frequency Interference (RFI) testing also shows that radiated and conducted interference is sufficiently low, ensuring that the operation of other airport equipment is not affected. The regulators are not affected by extraneous signals.

Supervision:

For ease of maintenance and testing, the L828W-LS and L828W-HS regulators are provided with an output ammeter, voltmeter, remote / local switch, fault lights, brightness lights, fuse failure light, and door mounted test panel.

Advantages:

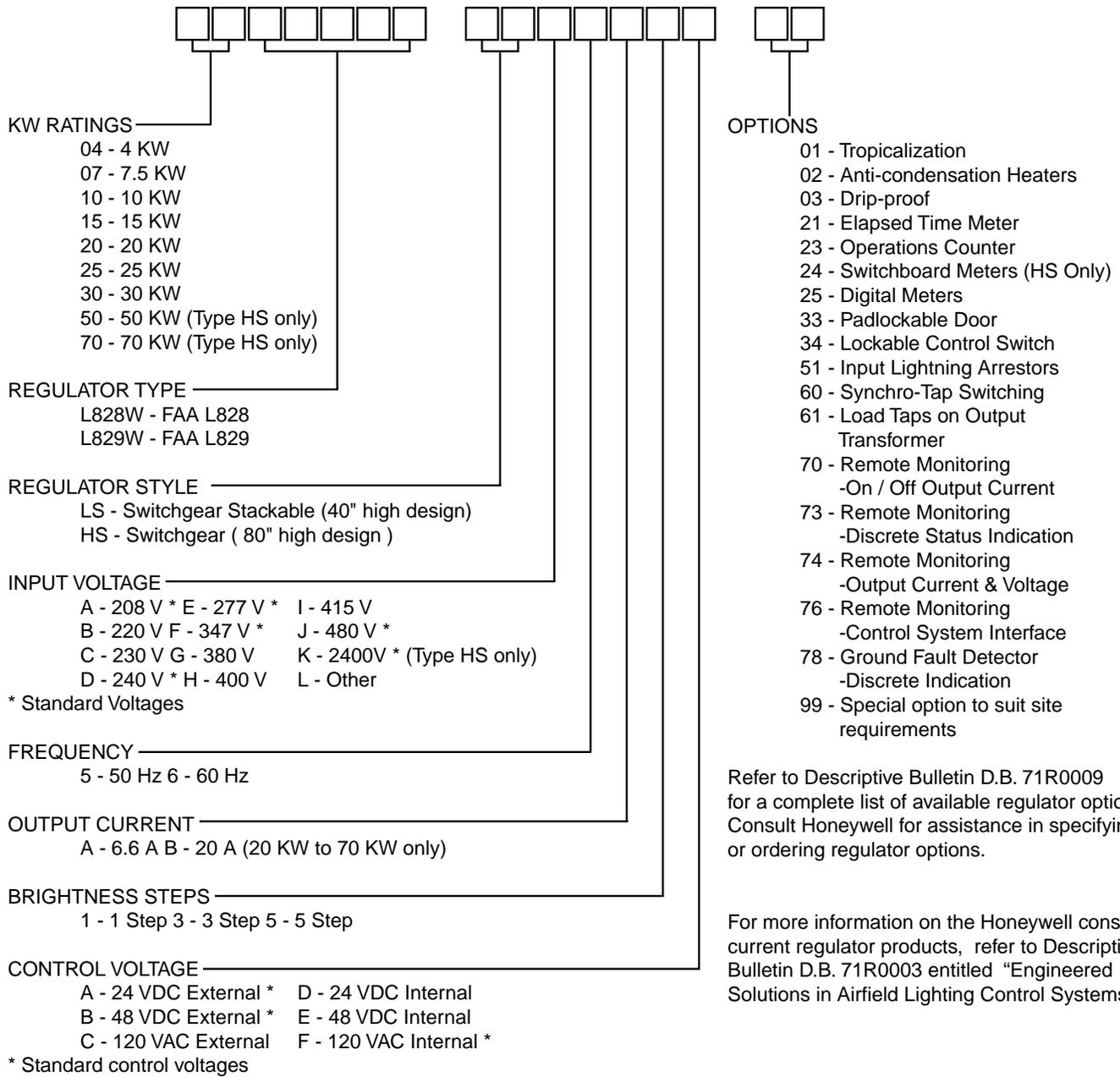
- Dry Type - No Oil
- Convection Air Cooled
- High Reliability
- High Efficiency and Power Factor
- High Accuracy of Current Output
- Compact design saves up to 70% floor space
- Side-by-side, back-to-back and two high (L828W-LS) mounting
- Built-in interconnecting power distribution busway, field cable raceway and control cable raceway
- Incoming main circuit breaker or tilt-out fuse cradle (2400V)
- LDT Field Circuit Isolator eliminates S1 cutout & provides isolation, test & ground search
- Reduced installation cost
- Modular design provides system flexibility and expandability
- All components front accessible
- Lift-off interchangeable door
- Minimal Maintenance
- Upgradable to larger rating
- Soft Start, Conserving Lamp Life
- Automatic Reclosure (3-6 times) on overcurrent
- Output Lighting Arrestors
- Output Ammeter and Voltmeter
- Fault, brightness lights, test panel
- Local and Remote Control
- Compatibility of multiple options
- Options available to interface with PLC/computerized control systems



Width of 50KW 480V is 36", 70KW 480V is 36".
Width of 50KW 2400V is 60", 70KW 2400V is 72".

TYPE	RATING	WEIGHT 208-480V	WEIGHT 2400V
04L828W-HS	4 KW	650 lbs	750 lbs
07L828W-HS	7.5 KW	700 lbs	850 lbs
10L828W-HS	10 KW	750 lbs	900 lbs
15L828W-HS	15 KW	850 lbs	1050 lbs
20L828W-HS	20 KW	900 lbs	1200 lbs
25L828W-HS	25 KW	950 lbs	1250 lbs
30L828W-HS	30 KW	1050 lbs	1350 lbs
50L828W-HS	50 KW	1200 lbs	1600 lbs
70L828W-HS	70 KW	1350 lbs	1850 lbs

FIG. 3
Regulator Dimensions



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Stand Alone Constant Current Regulators

FAA Type: L828/L829

Certified to: FAA AC 150/5345-10E

Compliant to: ICAO Annex 14

USAF AFMAN 32-1076

Application:

Constant Current Regulators (CCR's) are used to power airfield lighting circuits with a constant current output, allowing for uniform brightness in all light fixtures on the same circuit (assuming the same lamp ratings). CCR's typically operate with multiple current steps, enabling the user to vary lamp brightness depending on meteorological conditions. They can be operated either locally or remotely, and can be ordered with a wide variety of control and monitoring features. Additional Detail may be found in descriptive bulletin 71R0004.



Product Highlights:

- **Input Voltage: 208 to 2400 VAC**
- **Output Power: 4kW to 70kW**
- **Output Current: 6.6A or 20A Max - 1, 3, or 5 current steps**
- **Dry Type - No Oil**
- **Convection Air Cooled**
- **High Reliability**
- **High Efficiency**
- **High Power Factor**
- **High Accuracy of Constant Current Output**
- **Soft Start, Conserving Lamp Life**
- **Automatic Reclosure (3-6 times) on overcurrent**
- **Output Lighting Arrestors**
- **Output Ammeter**
- **Local and Remote Control**
- **Compact and Light Weight**
- **Side-by-side and back-to-back mounting**
- **Two high mounting (L828W-LL)**
- **All components front accessible**
- **Lift-off interchangeable door**
- **Minimal Maintenance**
- **Upgradable to larger rating**
- **Compatibility of multiple options**
- **Options available for interface with PLC / computerized control systems**
- **Wide range of options available**



RATING	Low Boy WEIGHT	High Boy WEIGHT 208-480V	WEIGHT 2400V
4 KW	300 lbs	600 lbs	700 lbs
7.5 KW	350 lbs	650 lbs	800 lbs
10 KW	400 lbs	700 lbs	850 lbs
15 KW	500 lbs	800 lbs	1000 lbs
20 KW	550 lbs	850 lbs	1150 lbs
25 KW	600 lbs	900 lbs	1200 lbs
30 KW	700 lbs	1000 lbs	1300 lbs
50 KW	-	1150 lbs	1550 lbs
70 KW	-	1300 lbs	1800 lbs

Dimensions:

	Size	Volume
Low Boy	40" x 24" x 31.25"	17.5 cuft.
High Boy	80" x 24" x 31.25"	35 cuft.

Width of 50KW 480V is 30", 70KW 480V is 36".

Width of 50KW 2400V is 60", 70KW 2400V is 72".

Order Information

<p>KW RATINGS _____</p> <p>04 - 4 KW 07 - 7.5 KW 10 - 10 KW 15 - 15 KW 20 - 20 KW 25 - 25 KW 30 - 30 KW 50 - 50 KW (Type HL only) 70 - 70 KW (Type HL only)</p> <p>REGULATOR TYPE _____</p> <p>L828W - FAA L828 L829W - FAA L829</p> <p>REGULATOR STYLE _____</p> <p>LL - Low Boy(40") HL - High Boy(80")</p> <p>INPUT VOLTAGE _____</p> <p>A - 208 V * E - 277 V * I - 415 V B - 220 V F - 347 V * J - 480 V * C - 230 V G - 380 V K - 2400V * (Type HL only) D - 240 V * H - 400 V L - Other</p> <p>* Standard Voltages</p> <p>FREQUENCY _____</p> <p>5 - 50 Hz 6 - 60 Hz</p> <p>OUTPUT CURRENT _____</p> <p>A - 6.6 A B - 20 A (20 KW to 70 KW only)</p> <p>BRIGHTNESS STEPS _____</p> <p>1 - 1 Step 3 - 3 Step 5 - 5 Step</p> <p>CONTROL VOLTAGE _____</p> <p>A - 24 VDC External * D - 24 VDC Internal B - 48 VDC External * E - 48 VDC Internal C - 120 VAC External F - 120 VAC Internal *</p> <p>* Standard control voltage</p>	<p>OPTIONS</p> <p>01 - Tropicalization 02 - Anti-condensation Heaters 03 - Drip-proof 10 - Incoming Breaker(208-480V) 20 - Output voltmeter 21 - Elapsed Time Meter/ Operations Counter 25 - Digital Meters 31 - Brightness Lights 32 - Door Test Point Panel 33 - Padlockable Door 34 - Lockable Control Switch 40 - LDT Isolator 51 - Input Lightning Arrestors 60 - Synchro-Tap Switching 70 - Remote Monitoring -On / Off Output Current 73 - Remote Monitoring -Discrete Status Indication 74 - Remote Monitoring -Output Current & Voltage 76 - Remote Monitoring -Control System Interface 78 - Ground Fault Detector -Discrete Indication 99 - Special option to suit site requirements</p>
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For options not listed, or for more information, please contact the factory.

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Control Panel

FAA Type: L-821

Certified to: FAA AC 150/5345-3E

Application:

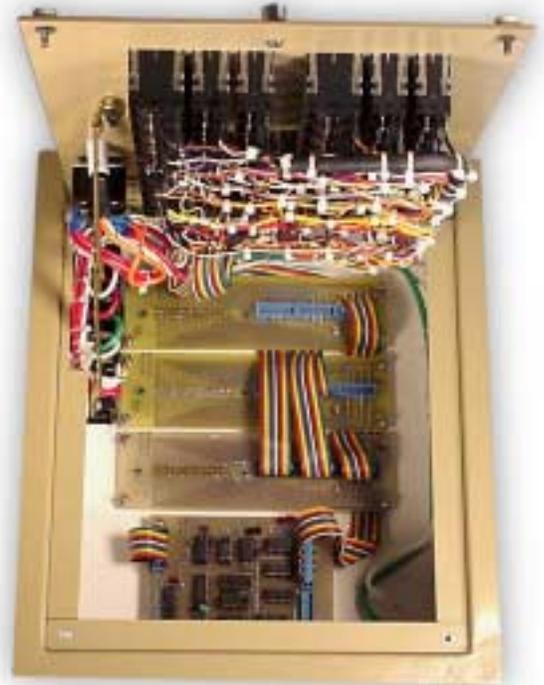
The L-821 Control Panel provides basic control of the Airfield Lighting System, and is usually operated from the Air Traffic Control Tower. Knobs, switches, and pushbuttons provide the ability to both turn systems on and off and vary the intensity of the constant current regulators feeding the lighting circuits. This is the most economical solution to controlling airfield lighting circuits.

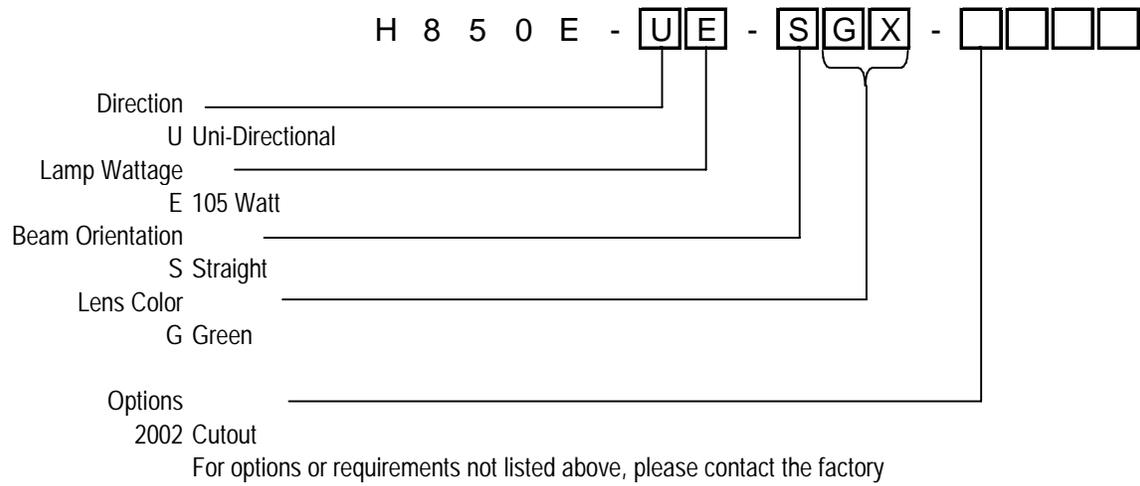
Product Highlights:

- **Custom Built**
 - Each Control Panel is custom made to suit individual site requirements
 - Each panel is pre-wired to a terminal block, requiring only connection to the terminal block for installation
- **Different Styles Available**
 - Honeywell can provide backlit, mimic, and standard panels per site requirement.
 - Programmable logic controller (PLC) based system and computerized system are available (see ALRCS section)

Ordering Information

- Please provide Honeywell with site requirements, and a custom built panel will be made for you!





Isolation Transformer Requirements

Uni-directional - 200W 6.6A

Standard Part Numbers

H850E-UE-SGX Uni-Directional Green 2-105 Watt

Spare Parts and Accessories

40F00105	105 Watt Lamp Harness	40F01105	105 Watt Lamp Harness w/ Cutout
EK54D4D4	Primary Connector Kit #8	EK54D3D3	Primary Connector Kit #6
24F00120-05	Green Filter	1AL33MSPLKIT	Heatshrink Tubing (Qty 1)
ET20066601	200 Watt 6.6/6.6A Isolation Transformer		

Auxiliary Relay Cabinet

FAA Type: L-847

Approved to: AC 150/5345-13

Application:

The Auxillary Relay Cabinet, Model GEA57, is an interface between control switches in an air traffic control tower and various electrical equipment on the airfield. This enables equipment to be controlled from long distances without concern about voltage drop on the control lines. The Auxillary Relay Cabinet provides low voltage (48VDC) sensitive, low burden pilot relay control, which acts as a switch to the higher burden relays that power runway and taxiway regulators, obstruction lights, wind cones, beacons and other electrical circuits in the airport lighting vault. Up to 20 outputs can be controlled by the auxillary relay panel. Terminal Boards for the 20 input connections consist of 40 terminals marked in pairs A-, A+ through T-, T+. The 20 relay contact controlled circuits consist of 80 terminals marked in pairs A1, A2 through +3 and +4. An extra 20 terminals are also provided for the hook up of other non-relay connected circuits.

The Auxillary Cabinet is modular in design. Plug-in relays on an interconnect board eliminate troublesome problems associated with "hard" wired cabinets while lowering overall production costs.

The unit is housed in a NEMA 1 enclosure with conduit knockouts for easy installation. The regulated DC power supply is protected from short circuits and transients. The relay schedule and wiring diagram are mounted on the interior of the cabinet door.

The Auxillary Relay Cabinet can also be furnished to meet the requirements of MIL-P-8945, Type MC-1.



Standard Part Numbers

H850E-UE-SGX	Uni-Directional Green 2-105 Watt
H850E-UE-SGX	Uni-Directional Green 2-105 Watt
H850E-UE-SGX	Uni-Directional Green 2-105 Watt

Dimensions:

Size:	11.95" dia x 4" deep
Weight:	14 lbs.

Shipping Information:

Shipping Volume:	0.7 Cu. Ft.
Shipping Weight:	17 lbs.

Spare Parts and Accessories

H850E-UE-SGX	Uni-Directional Green 2-105 Watt
H850E-UE-SGX	Uni-Directional Green 2-105 Watt
H850E-UE-SGX	Uni-Directional Green 2-105 Watt

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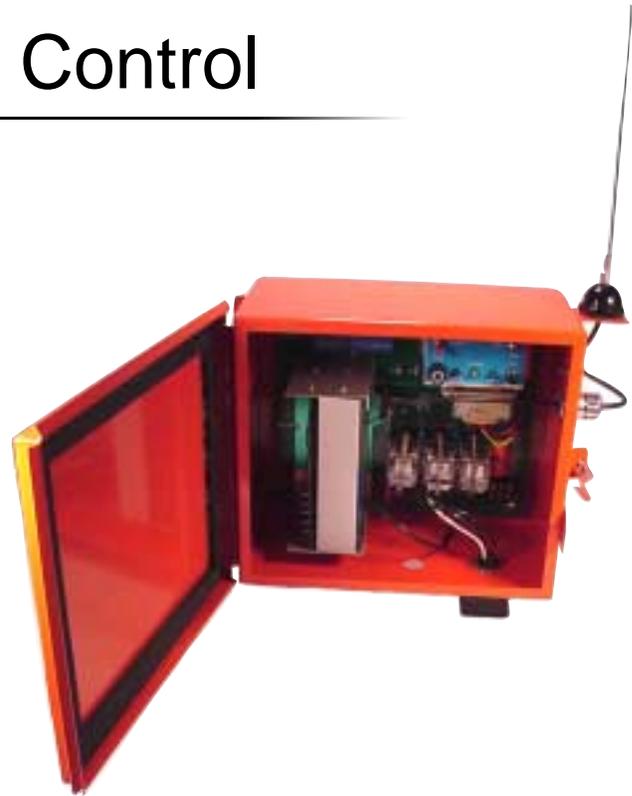
Air to Ground Remote Control

L-854 Type I Style A

Certified to: FAA AC 150/5345-49A

Application:

The Air to Ground Controller allows for approaching pilots to control airfield lighting in the event the control tower is unmanned. Typical for general aviation airports, the Air to Ground Controller features a Radio Frequency (RF) receiver that detects "clicks" from the airport radio, and adjusts the lighting controls to vary the lighting configuration accordingly. Standard systems has the lights turn on the lowest intensity after 3 clicks, the middle intensity after 7 clicks, and the highest intensity after 9 clicks. After being set for 15 minutes, the radio controller clears its memory, and returns the lights to the original configuration (in this case, off). Additional detail may be found in FAA Advisory Circular 150/5345-49A.



Product Highlights:

- Complies with FCC Part 15 Regulations
- International Installation Base
- 120VAC or 240VAC standard input voltage
- Antenna can be mounted either directly to the cabinet or remotely (cable supplied)
- 118 to 136 MHz frequency range (exact frequency required at time of order)
- 122.7, 122.8, 122.9, 123.0 MHz Standard
- 15 minute timer clears memory and returns lighting to original configuration
- Can be configured for both sequential and parallel control of equipment

Specifications:

Input Power	120VAC or 240VAC 50/60Hz Standard
Output Contacts	3 sets of 10A relay contacts
Frequency	118MHz - 136MHz
Operating Temperature	-55°C to +55°C
Antenna Type	Vertical Whip
Antenna Size	Quarter wave (depending on frequency)

Standard Part Numbers

GEA90	120VAC, Cabinet mount antenna
GEA90-1	240VAC, Cabinet mount antenna
GEA90-2	120VAC, Remote mount antenna, 50' cable
GEA90-3	240VAC, Remote mount antenna, 50' cable

Spare Parts and Accessories

GEA90006	Decoder Module
GEA90010-1	Receiver Module (specify frequency)
GEA90002-1	120VAC Interconnect Assembly
GEA90002-2	240VAC Interconnect Assembly
GEPSP189-1	Fuse 3/10A 3AG
KRPA11DG12V	Relay DPDT-12VDC Coil
GEA90030	Cabinet Mount Antenna(specify freq.)
GEA90031	Remote Mount Antenna(specify freq.)
GEA90029	50' Cable

Dimensions:

Size:	12.5" x 10.5" x 6"
Weight:	11 lbs.

Shipping Information:

Volume:	0.7 Cu. Ft.
Weight:	12 lbs.

Honeywell

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 2160 Union Place
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 905.469.1588 fax

Ground to Ground Remote Control

FAA Type: L-854

Certified to: FAA AC 150/5345-49A

Application:

The Ground to Ground Controller allows for control of lighting systems throughout the airport (wind cones, PAPI, REILS, etc...) without having to install cables from the control panel to the devices. The Ground to Ground Controller utilizes Radio Frequencies to send and receive commands to the lighting systems, and can be configured to allow for one location to control multiple devices, or multiple locations to control a single device. As many as 20 devices can be controlled from a single location. Additional detail may be found in FAA advisory circular 150/5345-49A.



Product Highlights:

- Complies with FCC Part 15 and Part 90 regulations
- Meets FAA-E-2723 requirements
- 162 to 174 MHz Frequency range (frequency to be specified prior to order).
- Configurable for site specific requirements
- Can be used to control:
 - Approach lighting systems (ALSF, MALSR, etc.,...)
 - Nav aids (PAPI, REIL, Wind Cones, etc.,...)
 - Taxiway Stop Bars
- Eliminates the need for expensive and time consuming trenching, cabling, and excavation of existing runways and taxiways
- Control Panel can be console mounted
- Can control up to 20 devices with 1 controller (using 5 switch modules)
- Lightning protection for both transmitter and receiver

Specifications

Input Power	120VAC
Transmitter Type	FM Fixed Tuned, Crystal Controlled
Transmitter Frequency	162 to 174 MHz (Customer Specified)
Transmitter Power	1 to 2 Watts
Receiver Type	FM Fixed Tuned, Crystal Controlled
Sensitivity	0.5uV
Relay Contacts	8 x 10A, 120VAC relays

Order Information

GEA92-

└ Switch Module Configuration
(see detail:)

Switch Module Standard Configuration (9 functions)

A	off-on-on-on, off-on, off-on, TEST
B	off-on, off-on-on-on, off-on, TEST
C	off-on, off-on, off-on, off-on, TEST
D	off-on-on-on, off-on-on-on, TEST

Spare Parts and Accessories

GEA92055	Slave Control Panel
GEA92056	Slave Decoder Cabinet
GEA90029	50' Coax Cable for Receiver
GEA90030	Cabinet Mount Antenna (receiver)
GEA92053	Transmitter Antenna
GEA92054	50' Coax Cable for Transmitter
AGC-1	1A Fuse
KUL11D15D124	10A Relay

Dimensions:

Sub-Assembly:	Size:	Weight:
Control Panel	14"x15"x5"	15 lbs.
Receiver	14"x16"x6"	35 lbs.

Shipping Information:

Volume:	10 Cu. Ft.
Weight:	65 lbs.

Approach Lights - Elevated

FAA Type: E-982

Application:

Honeywell Elevated Approach Lights are designed for use for all FAA Approach Lighting Systems. The Par 56 Light is commonly used in High Intensity Approach Lighting Systems (ALSF, SSALR) as well as on the Medium Intensity Approach Lighting System Threshold (MALSR Threshold). The Par 38 Light is used exclusively used in Medium Intensity System Centerline and Wing Bar Lights. Both lights can be mounted in many different ways, including frangible couplings, EMT, or LIR Crossbars.

Product Highlights:

- **Versatile**
 - Fixtures can mount on frangible coupling or approach masts, depending on the application
 - Lamps available in constant current and constant voltage inputs in many different wattages
- **Easy maintenance**
 - No tools required to re-lamp
 - Aiming device (optional) allows for easy, accurate, vertical alignment
 - 2-piece casting; minimal parts
- **Large North American Installation Base**

Dimensions:

Fixture:	Size:	Weight:
Par 56	9.5" x 8" x 6.5" (typical)	2.25 lbs.
Par 38	7" x 3" x 6" (typical)	1.25 lbs.

Shipping Information:

Fixture:	Volume:	Weight:
Par 56	.35 cu. ft	3 lbs.
Par 38	.10cu. ft.	2 lbs.



Elevated Approach Lights Order Information

Lamp Holders

Par 56 Lamp Holder	GEA80
Par 38 Lamp Clip	GEA20074-1

Lamps

Par 38 100W, 120VAC Spot	100PAR/SF
Par 38 120W, 120VAC Wide	120PAR/FLWM
Par 38 150W, 120VAC Spot	150PAR/SF
Par 38 150W, 120VAC Wide	150PAR/WFL
Par 56 300W, 120VAC	300PAR56/NSP
Par 56 500W, 120VAC	Q500PAR56/NSP
Par 56 200W, 6.6A	Q6.6A PAR562
Par 56 300W, 20A	Q20A/PAR56IC
Par 56 500W, 20A	Q20A/PAR56/1

Color Filters (Par 56 only)

Par 56 Green	AP3510G
Par 56 Red	AP3510R

Elevated Approach Lights Spare Parts and Accessories

Par 38 Aiming Device	GEA20117	Par 56 Aiming Device	GEA8008
Par 38 Lamp Socket (screw base)	10045	Par 56 Lamp Socket (plug in)	XLGB3LS0C
Par 38 Head Casting	GEA20459-3	Par 56 Head Casting	GEA80034
Par 38 Slipfitter	GEA20459-4	Par 56 Slipfitter	GEA80039-1
Frangible Coupling	51-3-021	Par 56 Shorting Device	GEA80030
Floor Flange	B1A00095DE3	Par 56 Lamp Clip	GEA80009
Cable Assembly, 6'	GEA20152-18	Par 56 Filter Clip	GEA80007
Isolation Transformer 200W 6.6/6.6A	ET20066601	Primary Connector Kit #6	EK54D3D3
Isolation Transformer 300W 6.6/20A	ET30062601	Primary Connector Kit #8	EK54D4D4
Isolation Transformer 300W 20/20A	ET30022601	Secondary Receptacle #12	EK90RA6
Isolation Transformer 500W 20/20A	ET50022601	Secondary Plug #12	EK90PA6

Honeywell Airport Systems

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 Canada
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 905.469.1588 fax

Inpavement Approach Light

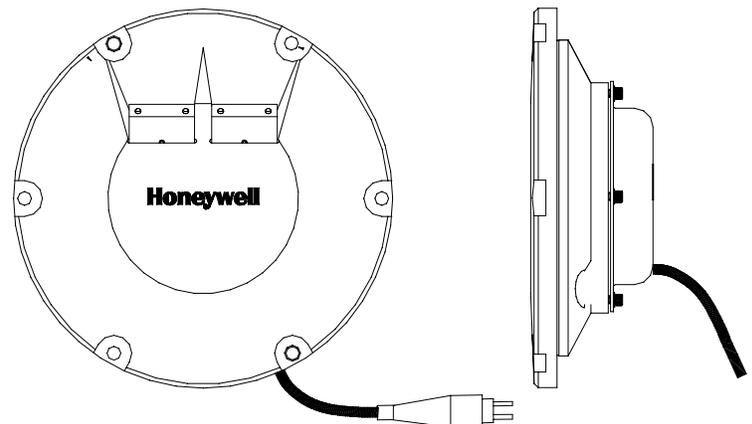
Application:

Honeywell Style 3 Inpavement Approach Lights can be used for all FAA Approach Lighting Systems. The L-850E Style Light can be used in High Intensity Centerline, Side Bar, and Threshold Lights when used in an over-run or displaced threshold situation, and can also be used for the Medium Intensity Approach Threshold. The L-850B Light can be used for Medium Intensity Centerline and Wing Bar Lights in similar situations. Both lights mount on an L-868, 12" diameter Base Can.



Product Highlights:

- **0.250" Maximum Height Above Grade**
 - Lowest Profile Available on the market
 - Low height minimizes damage by snow removal equipment
- **Self Cleaning**
 - Angled lens allows fixture to self-clean during jet blasts
 - Minimal collection area in front of lens does not allow water to "pool" up, thereby providing specified light output in inclement conditions
- **Low lamp wattage reduces power requirements, allowing use of smaller, lower-cost constant current regulators**
- **Light fixture parts common to all Honeywell Inpavement Lights**
 - Minimal parts to stock
- **Light Fixtures mount on standard L-868B Base (11.25" Bolt Circle)**
- **Lightweight aluminum casting makes fixture easy to unpack, carry, and install**
- **Cutout option allows 1 of the lamps to remain lit in the event the other lamp fails**
- **Operate from a 6.6A series circuit**



OUTLINE DRAWING

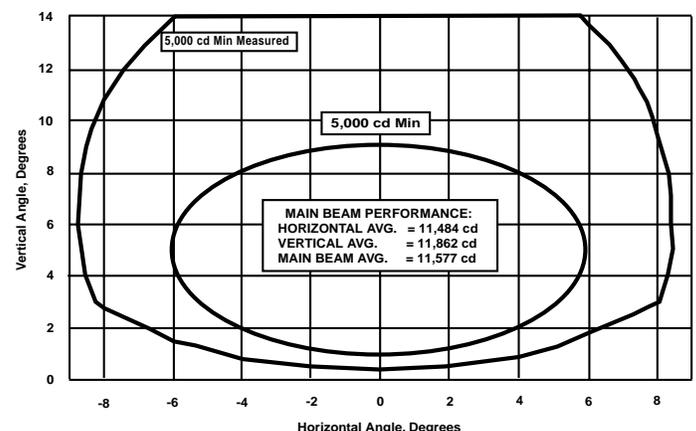
Dimensions:

Size: 11.95" dia x 4" deep
 Weight: 14 lbs.

Shipping Information:

Shipping Volume: 0.7 Cu. Ft.
 Shipping Weight: 17 lbs.

L-850E Isocandela Performance 5,000 CD Green



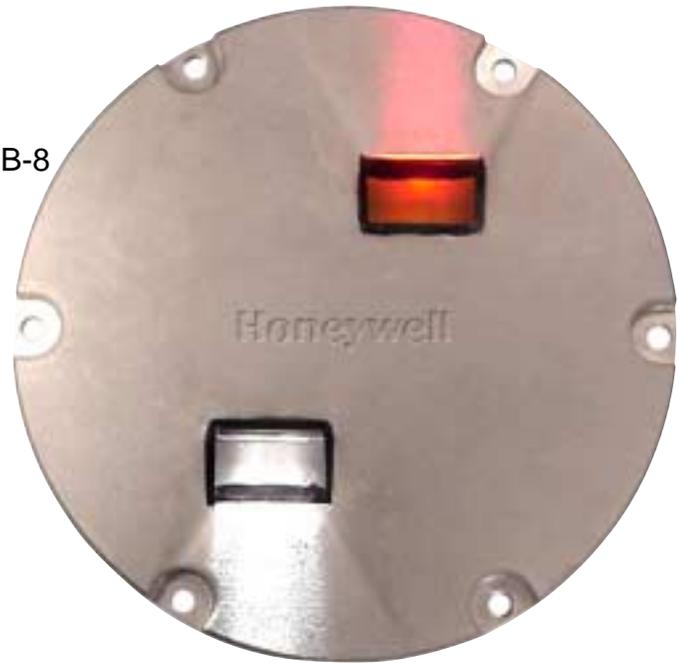
Runway Centerline

FAA Type: L-850A

Certified to: FAA AC 150/5345-46B - Class 2, Style 3
 Compliant to: Transport Canada TP312E - Fig. B-6 through B-8
 ICAO Annex 14 - Fig. 2.6, 2.7
 USAF AFMAN 32-1076 - Fig. 4.9B

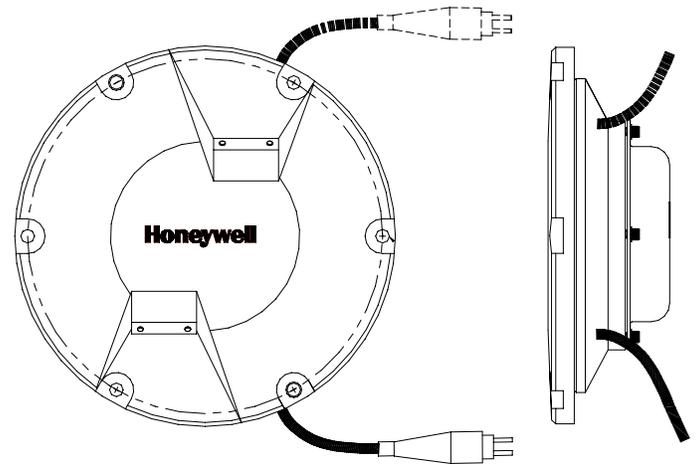
Application:

Runway Centerline Lights are used to light the centerline of the runway and are required by the FAA for all runways operating in Category II and/or Category III conditions. They are also required for Category I airport with landing operations of 2400ft Runway Visual Range (RVR) and/or take off operations of 1800 ft RVR. Additional detail may be found in FAA Advisory Circular 150/5340-4C



Product Highlights:

- **0.220" Maximum Height Above Grade**
 - Lowest Profile Available on the market
 - Low height minimizes damage by snow removal equipment
- **Self Cleaning**
 - Angled lens allows fixture to self-clean during jet blasts
 - Minimal collection area in front of lens does not allow water to "pool" up, thereby providing specified light output in inclement conditions
- **Operates from 6.6A constant current source**
- **Low lamp wattage reduces power requirements, allowing use of smaller, lower-cost constant current regulators**
- **Light fixture parts common to all Honeywell Inpavement Lights**
 - Minimal parts to stock
- **Light Fixtures mount on standard L-868B Base (11.25" Bolt Circle)**
- **Lightweight aluminum casting makes fixture easy to unpack, carry, and install**
- **Two cordset option allows for independent control of each direction of bi-directional fixtures**



OUTLINE DRAWING

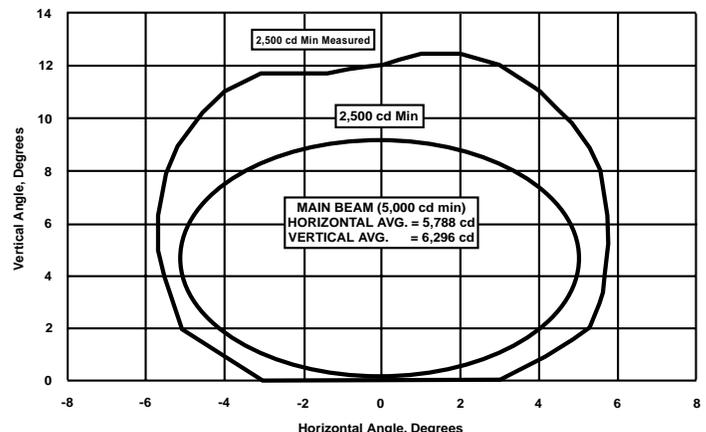
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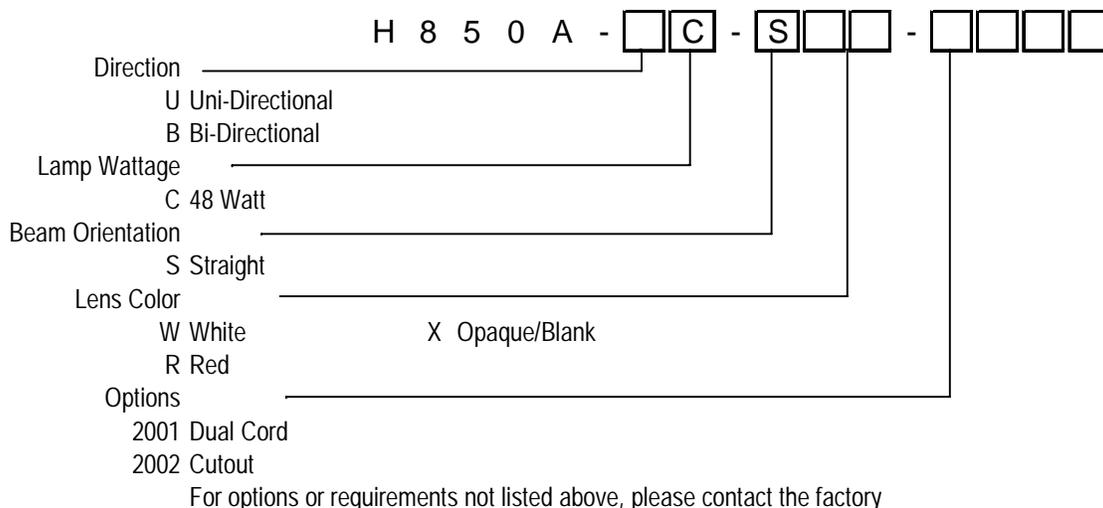
Size: 11.95" dia x 4" deep
 Weight: 14 lbs.

Shipping Information:

Volume: 0.7 Cu. Ft.
 Weight: 17 lbs.

L-850A Isocandela Performance 2,500 CD White





Isolation Transformer Requirements

Uni-Directional Fixtures: 45 Watt, 6.6A Secondary

Bi-Directional Fixtures: 100 Watt 6.6A Secondary

Standard Part Numbers

H850A-BC-SWW
 H850A-BC-SWR
 H850A-UC-SWX
 H850A-UC-SRX

Bi-Directional, White-White, 2x48-watt lamps
 Bi-Directional, White-Red, 2x48-watt lamps
 Uni-Directional, White, 1x48-watt lamp
 Uni-Directional, Red, 1x48-watt lamp

Spare Parts and Accessories

48 Watt Lamp	40F00048	Red Filter	24F00120-02
48 Watt Lamp w/ Cutout	40F01048	Primary Connector Kit #8	EK54D4D4
Cord and Plug Assembly	MC216SJA19	Primary Connector Kit #6	EK54D3D3
45 watt 6.6/6.6A Transformer	ET04566601	100 watt 6.6/6.6A Transformer	ET10066601
45 watt 20/6.6A Transformer	ET04526601	100 watt 20/6.6A Transformer	ET10026601
Heatshrink Tubing Kit (Qty 1)	1AL33MSPLKIT		

Honeywell Airport Systems

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 Oakville, ON L6L 6M5
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 905.469.1588 fax

TDZ

FAA Type: L-850B

Certified to: FAA AC 150/5345-46B - Class 2, Style 3
 Compliant to: Transport Canada TP312E - Fig. B-5
 ICAO Annex 14 - Fig. 2.5
 USAF AFMAN 32-1076 Fig. 4.11

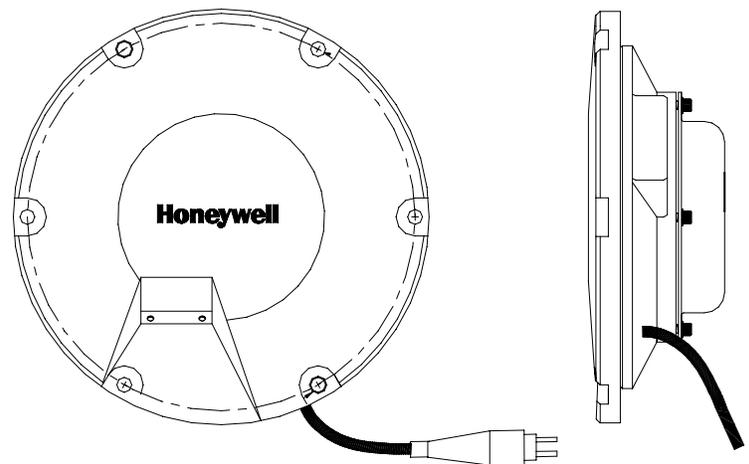
Application:

Touchdown Zone (TDZ) Lights are used to light the first 3000' of runways operating in Category II and/or Category III conditions. They are also required for Category I airport with landing operations of 2400ft Runway Visual Range (RVR). A Typical TDZ has 30 bars on each side of the runway centerline (60 total) with 3 lights per bar. Additional detail may be found in FAA Advisory Circular 150/5340-4C



Product Highlights:

- **0.220" Maximum Height Above Grade**
 - Lowest Profile Available on the market
 - Low height minimizes damage by snow removal equipment
- **Self Cleaning**
 - Angled lens allows fixture to self-clean during jet blasts
 - Minimal collection area in front of lens does not allow water to "pool" up, thereby providing specified light output in inclement conditions
- **Operates from 6.6A constant current source**
- **Low lamp wattage reduces power requirements, allowing use of smaller, lower-cost constant current regulators**
- **Light fixture parts common to all Honeywell Inpavement Lights - Minimal parts to stock**
- **Light Fixtures mount on standard L-868B Base (11.25" Bolt Circle)**
- **Lightweight aluminum casting makes fixture easy to unpack, carry, and install**



OUTLINE DRAWING

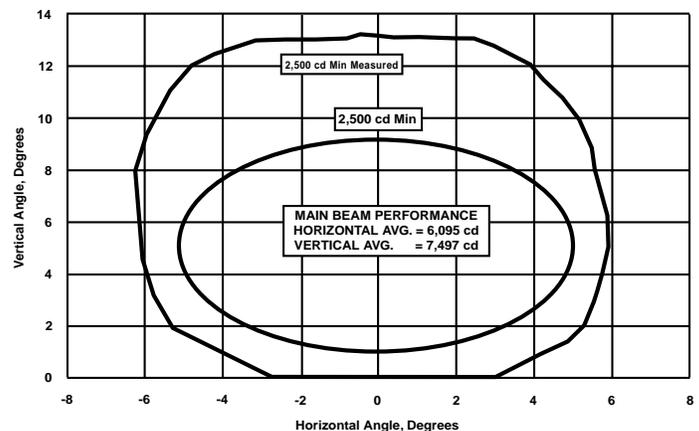
Dimensions:

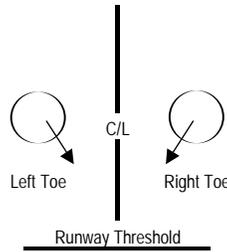
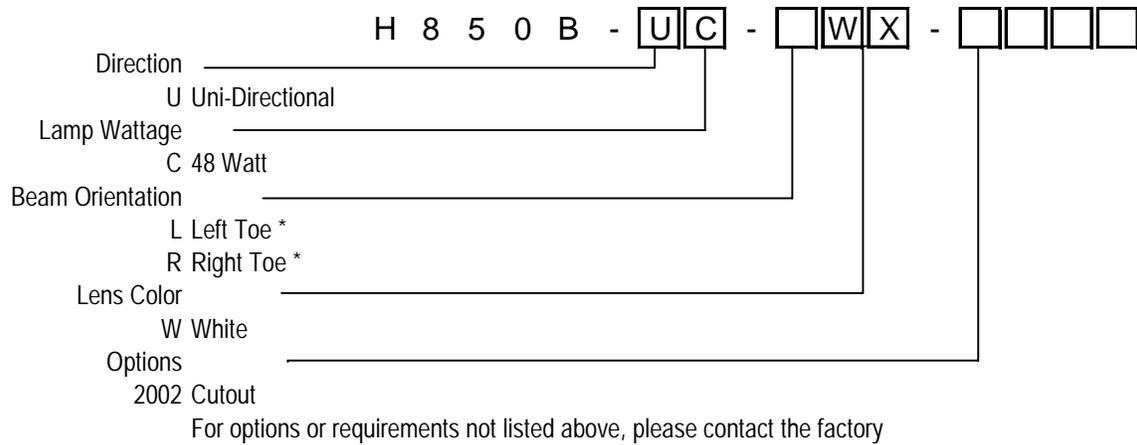
Size: 11.95" dia x 4" deep
 Weight: 14 lbs.

Shipping Information:

Volume: 0.7 Cu. Ft.
 Weight: 17 lbs.

L-850B Isocandela Performance 2,500 CD White





* Definition of Beam Orientation

Isolation Transformer Requirements

Uni-Directional Fixtures: 45 Watt, 6.6A, Secondary

Standard Part Numbers

H850B-UC-LWX

Uni-Directional, Left Toe White, 1x48-watt lamp

H850B-UC-RWX

Uni-Directional, Right Toe White-Red, 1x48-watt lamp

Spare Parts and Accessories

48 Watt Lamp	40F00048	Primary Connector Kit #8	EK54D4D4
48 Watt Lamp w/ Cutout	40F01048	Primary Connector Kit #6	EK54D3D3
Cord and Plug Assembly	MC216SJA19	45 watt 6.6/6.6A Transformer	ET04566601
Heatshrink Tubing Kit (Qty 1)	1AL33MSPLKIT	45 watt 20/6.6A Transformer	ET04526601

Honeywell Airport Systems

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Honeywell Canada Ltd.

25-760 Pacific Road
 Oakville, ON L6L 6M5
 Canada
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 905.469.1588 fax

Runway Edge

FAA Type: L-850C

Certified to: FAA AC 150/5345-46B - Class 2, Style 3
 Compliant to: Transport Canada TP312E - Fig. B-10,
 ICAO Annex 14 - Fig. 2.9
 USAF AFMAN 32-1076 - Fig. 4.2A

Application:

Inpavement Runway Edge Lights are used to define the runway edge, as Elevated Edge Lights would be used, except they are to be used when a light is required at the intersection of the runway with another runway or taxiway. Additional detail may be found in FAA Advisory Circular 150/5340-24

Product Highlights:

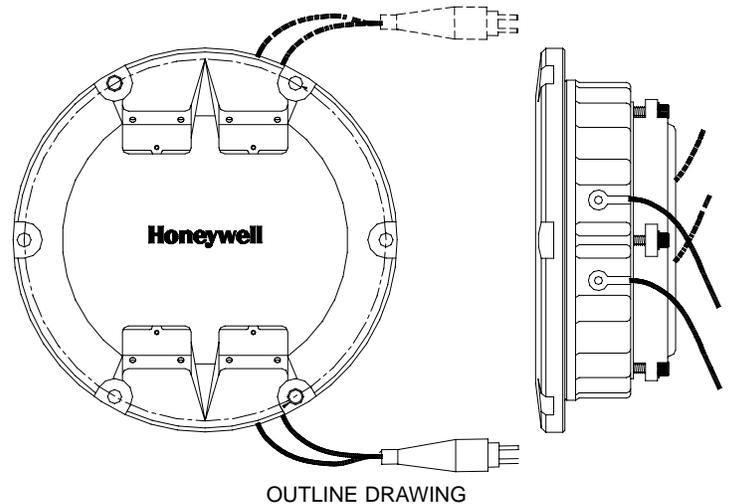
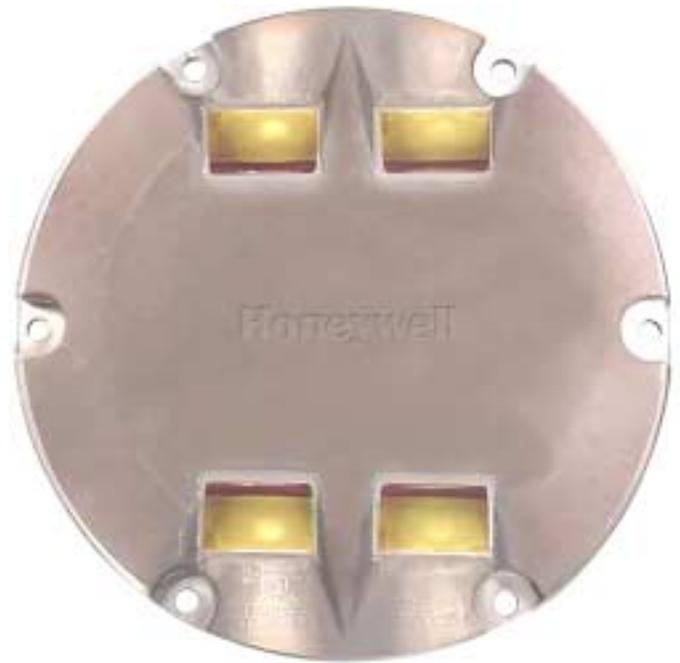
- **0.200" Maximum Height Above Grade**
 - Lowest Profile Available on the market
 - Low height minimizes damage by snow removal equipment
- **Self Cleaning**
 - Angled lens allows fixture to self-clean during jet blasts
 - Minimal collection area in front of lens does not allow water to "pool" up, thereby providing specified light output in inclement conditions
- **Operates from 6.6A constant current source**
- **Low lamp wattage reduces power requirements, allowing use of smaller, lower-cost constant current regulators**
- **Light fixture parts common to all Honeywell Inpavement Lights**
 - Minimal parts to stock
- **Light Fixtures mount on standard L-868B Base (11.25" Bolt Circle)**
- **Lightweight aluminum casting makes fixture easy to unpack, carry, and install**
- **Two cordset option allows for independent control of each direction of bi-directional fixtures**

Dimensions:

Size: 11.95" dia x 4.37" deep
 Weight: 17 lbs.

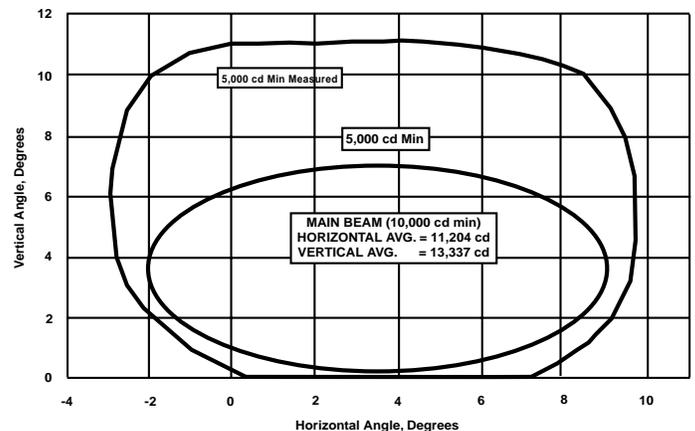
Shipping Information:

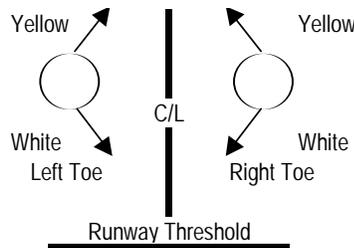
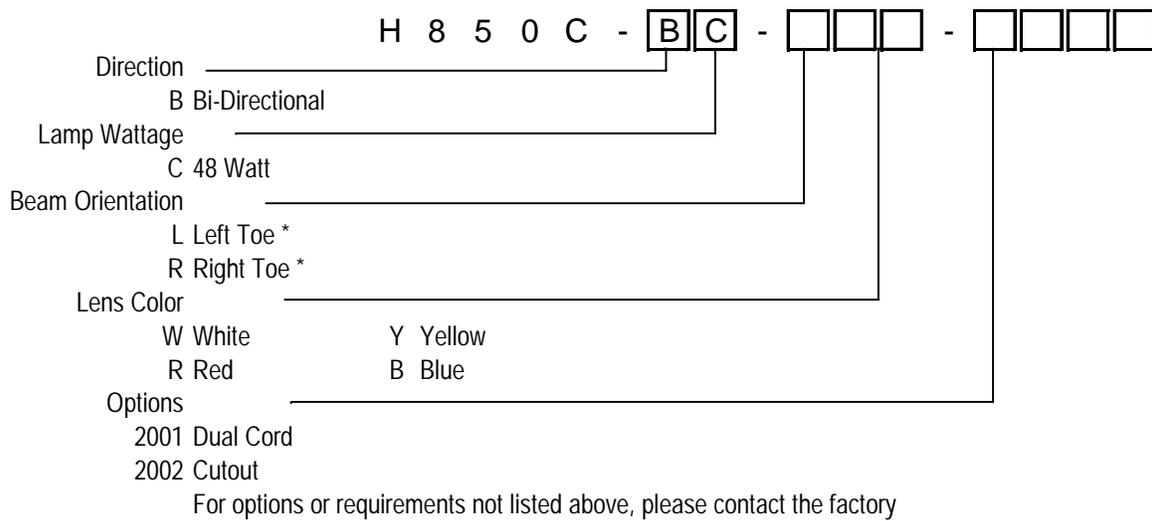
Volume: 0.7 Cu. Ft.
 Weight: 20 lbs.



OUTLINE DRAWING

L-850C Isocandela Performance 5,000 CD White





* Definition of Beam Orientation

Isolation Transformer Requirements

Bi-Directional 200 Watt, 6.6A Secondary

Standard Part Numbers

H850C-BC-RWW	Bi-Directional, White-White, Right/Left Toe, 4x48 Watt Lamps
H850C-BC-RWY	Bi-Directional, White-Red, White, Right Toe, 4x48 Watt Lamps
H850C-BC-LWY	Bi-Directional, White-Red, White, Left Toe, 4x48 Watt Lamps
H850C-BC-RWR	Bi-Directional, White-Yellow, White, Right Toe, 4x48 Watt Lamps
H850C-BC-LWR	Bi-Directional, White-Yellow, White, Left Toe, 4x48 Watt Lamps
H850C-BC-RYR	Bi-Directional, Yellow-Red, Yellow, Right Toe, 4x48 Watt Lamps
H850C-BC-LYR	Bi-Directional, Yellow-Red, Yellow, Left Toe, 4x48 Watt Lamps

Spare Parts and Accessories

48 Watt Lamp Harness	40F00048	200 Watt 6.6/6.6A Isolation Transformer	ET20066601
48 Watt Lamp Harness w/ Cutout	40F01048	Primary Connector Kit #8	EK54D4D4
Red Filter	24F00120-02	Blue Filter	24F00120-06
Yellow Filter	24F00120-04	Heatshrink Tubing (Qty 1)	1AL33MSPLKIT

Runway Threshold

FAA Type: L-850D

Certified to: FAA AC 150/5345-46B - Class 2, Style 3

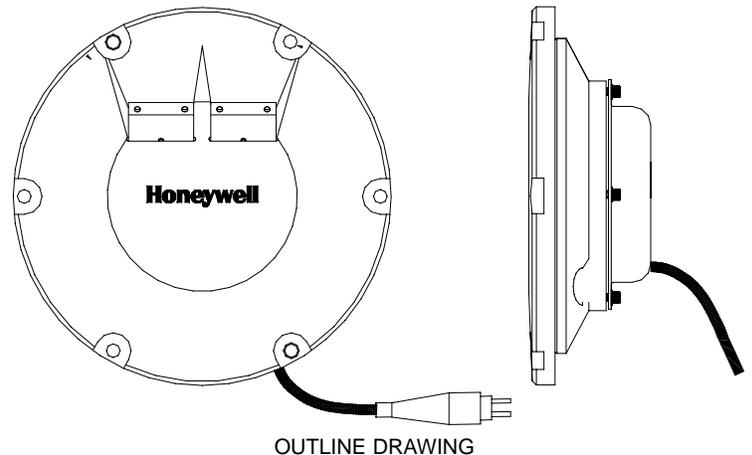
Application:

Inpavement Runway Threshold Lights are used to define the beginning of the runway pavement suitable for aircraft operations. Inpavement lights are typically used with medium and high intensity approach lighting systems utilizing displaced thresholds. Additional detail may be found in FAA Advisory Circular 150/5340-24



Product Highlights:

- **0.250" Maximum Height Above Grade**
 - Lowest Profile Available on the market
 - Low height minimizes damage by snow removal equipment
- **Self Cleaning**
 - Angled lens allows fixture to self-clean during jet blasts
 - Minimal collection area in front of lens does not allow water to "pool" up, thereby providing specified light output in inclement conditions
- **Operates from 6.6A constant current source**
- **Low lamp wattage reduces power requirements, allowing use of smaller, lower-cost constant current regulators**
- **Light fixture parts common to all Honeywell Inpavement Lights**
 - Minimal parts to stock
- **Light Fixtures mount on standard L-868B Base (11.25" Bolt Circle)**
- **Lightweight aluminum casting makes fixture easy to unpack, carry, and install**
- **Cutout option allows one of the lamps to remain lit in the event the other lamp fails**



OUTLINE DRAWING

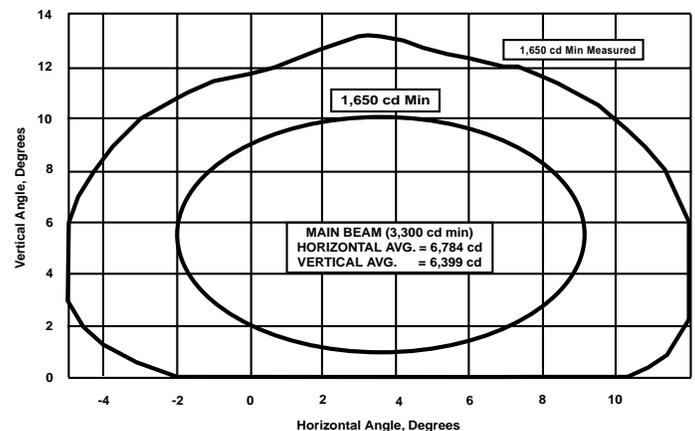
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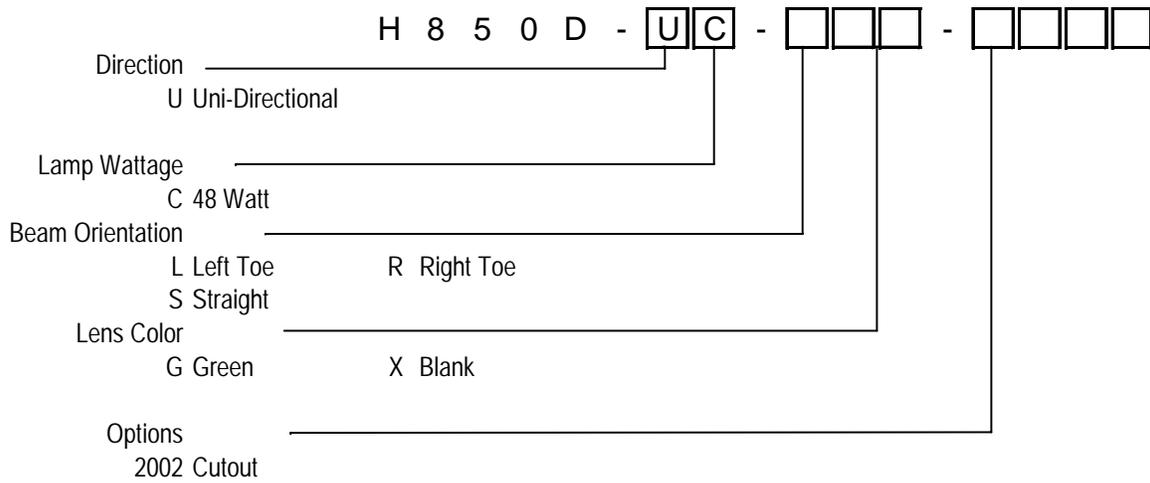
Size: 11.95" dia x 4" deep
 Weight: 14 lbs.

Shipping Information:

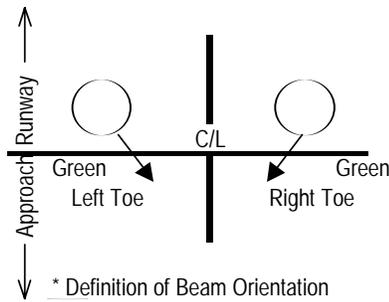
Volume: 0.7 Cu. Ft.
 Weight: 17 lbs.

L-850D Isocandela Performance 1,650 CD Green





For options or requirements not listed above, please contact the factory



Isolation Transformer Requirements

Uni-directional 100W, 6.6A Secondary

Standard Part Numbers

H850D-UC-RGX Uni-Directional, Green, Right Toe, 2x48 Watt Lamps
 H850D-UC-LGX Uni-Directional, Green, Left Toe, 2x48 Watt Lamps

Spare Parts and Accessories

48 Watt Lamp Harness	40F00048	100 Watt 6.6/6.6A Isolation Transformer	ET10066601
48 Watt Lamp Harness w/ Cutout	40F01048	Primary Connector Kit #8	EK54D4D4
Green Filter	24F00120-05	Heatshrink Tubing (Qty 1)	1AL33MSPLKIT

Runway End

FAA Type: L-850D

Certified to: FAA AC 150/5345-46B - Class 2, Style 3

Application:

Inpavement Runway End Lights are used to define the end of the runway pavement suitable for aircraft operations. Inpavement lights are typically used to define runway ends when the runway is utilizing displaced thresholds. Additional detail may be found in FAA Advisory Circular 150/5340-24

Product Highlights:

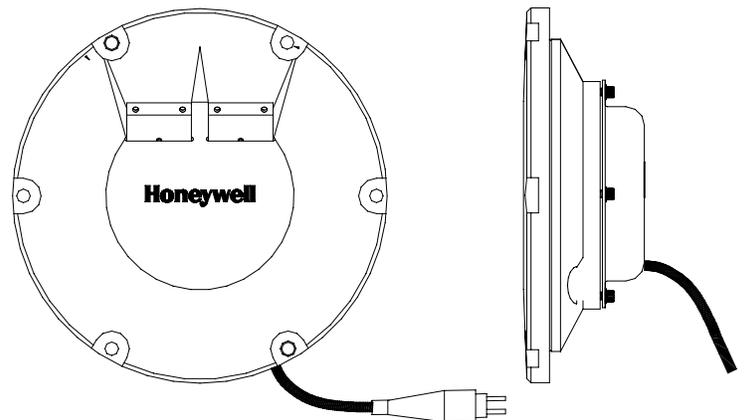
- **0.250" Maximum Height Above Grade**
 - Lowest Profile Available on the market
 - Low height minimizes damage by snow removal equipment
- **Self Cleaning**
 - Angled lens allows fixture to self-clean during jet blasts
 - Minimal collection area in front of lens does not allow water to "pool" up, thereby providing specified light output in inclement conditions
- **Operates from 6.6A constant current source**
- **Low lamp wattage reduces power requirements, allowing use of smaller, lower-cost constant current regulators**
- **Light fixture parts common to all Honeywell Inpavement Lights**
 - Minimal parts to stock
- **Light Fixtures mount on standard L-868B Base (11.25" Bolt Circle)**
- **Lightweight aluminum casting makes fixture easy to unpack, carry, and install**
- **Cutout option allows one of the lamps to remain lit in the event the other lamp fails**

Dimensions:

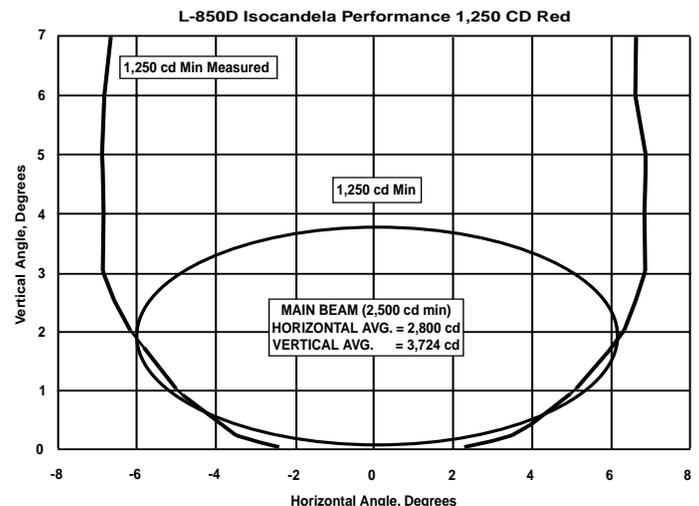
Size: 11.95" dia x 4" deep
 Weight: 14 lbs.

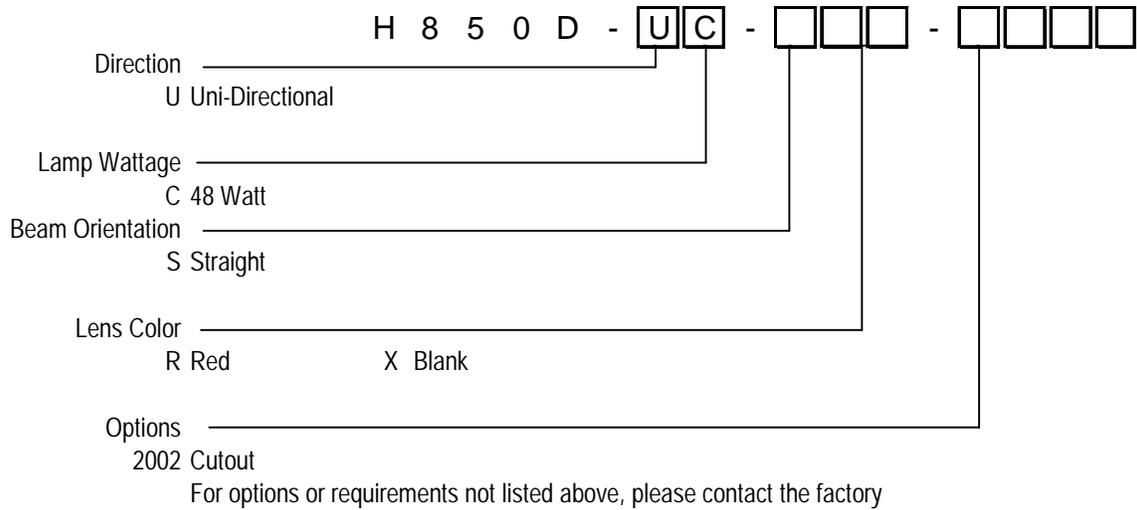
Shipping Information:

Volume: 0.7 Cu. Ft.
 Weight: 17 lbs.



OUTLINE DRAWING





Isolation Transformer Requirements

Uni-directional 100W, 6.6A Secondary

Standard Part Numbers

H850D-UC-SRX Uni-Directional, Red, 2x48 Watt Lamps

Spare Parts and Accessories

48 Watt Lamp	40F00048	100 Watt 6.6/6.6A Isolation Transformer	ET10066601
48 Watt Lamp w/ Cutout	40F01048	Primary Connector Kit #8	EK54D4D4
Red Filter	24F00120-02	Primary Connector Kit #6	EK54D3D3
Heatshrink Tubing (Qty 1)	1AL33MSPLKIT		

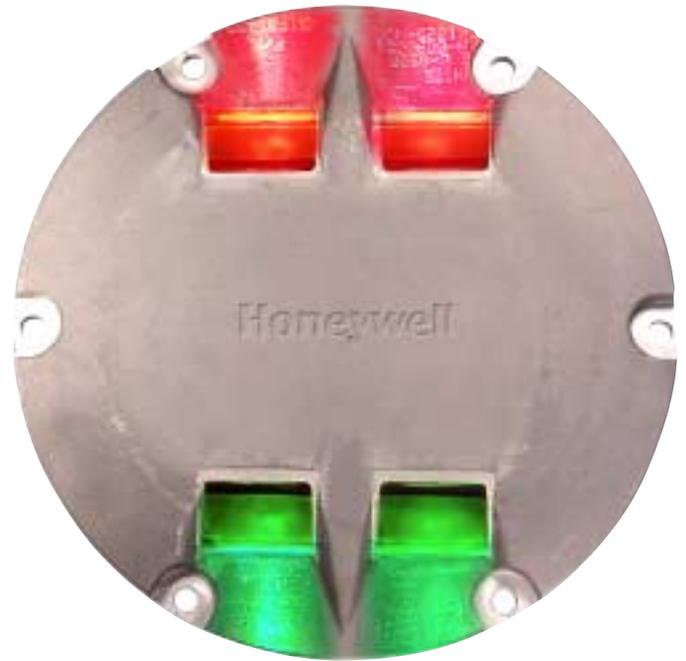
Runway Threshold/End

FAA Type: L-850D

Application:

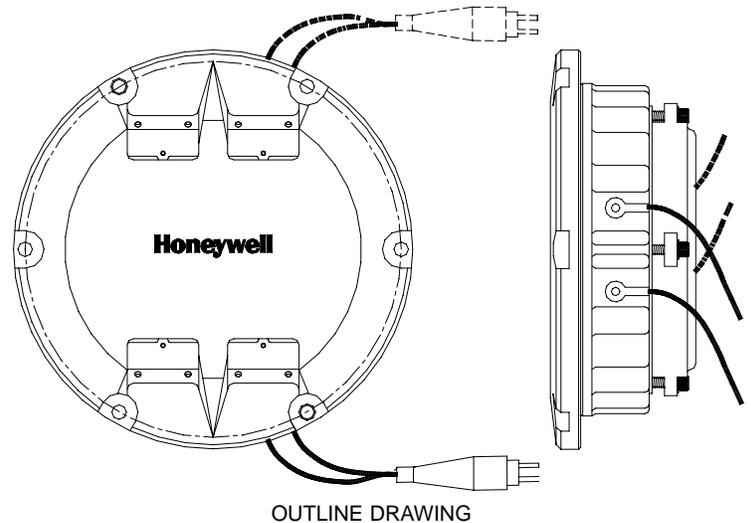
Inpavement Runway Threshold Lights are used to define the beginning of the runway pavement suitable for aircraft operations. Inpavement lights are typically used with medium and high intensity approach lighting systems utilizing displaced thresholds. Additional detail may be found in FAA Advisory Circular 150/5340-24

Inpavement Runway End Lights are used to define the end of the runway pavement suitable for aircraft operations. Inpavement lights are typically used to define runway ends when the runway is utilizing displaced thresholds. Additional detail may be found in FAA Advisory Circular 150/5340-24



Product Highlights:

- **0.200" Maximum Height Above Grade**
 - Lowest Profile Available on the market
 - Low height minimizes damage by snow removal equipment
- **Self Cleaning**
 - Angled lens allows fixture to self-clean during jet blasts
 - Minimal collection area in front of lens does not allow water to "pool" up, thereby providing specified light output in inclement conditions
- **Operates from 6.6A constant current source**
- **Low lamp wattage reduces power requirements, allowing use of smaller, lower-cost constant current regulators**
- **Light fixture parts common to all Honeywell Inpavement Lights**
 - Minimal parts to stock
- **Light Fixtures mount on standard L-868B Base (11.25" Bolt Circle)**
- **Lightweight aluminum casting makes fixture easy to unpack, carry, and install**
- **Cutout option allows one of the lamps to remain lit in the event the other lamp fails**
- **Two cordset option allows for independant control of each direction of bi-directional fixtures**



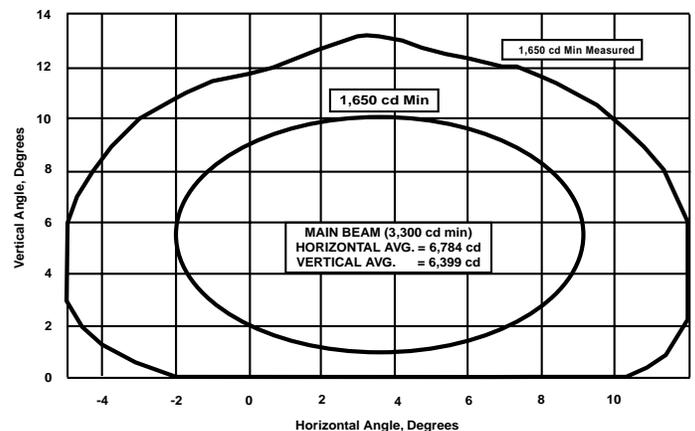
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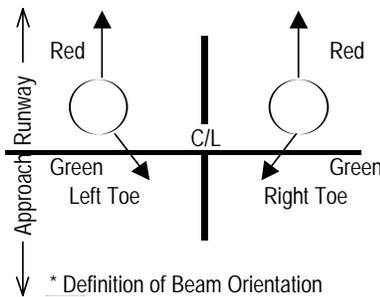
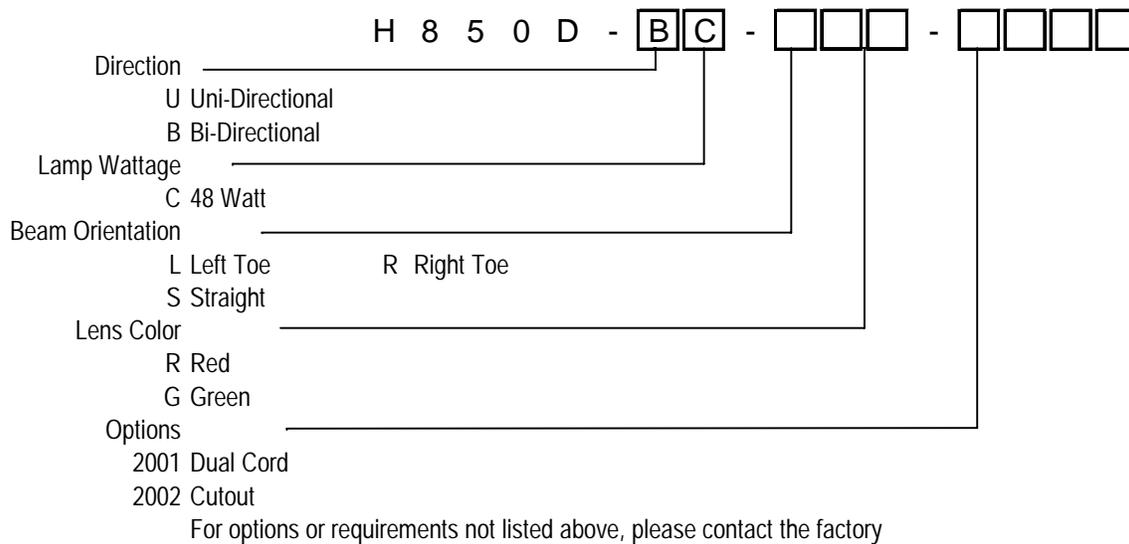
Size: 11.95" dia x 4.37" deep
 Weight: 17 lbs.

Shipping Information:

Volume: 0.7 Cu. Ft.
 Weight: 20 lbs.

L-850D Isocandela Performance 1,650 CD Green





Isolation Transformer Requirements

Bi-Directional 200W, 6.6A Secondary

Standard Part Numbers

H850D-BC-RGR Bi-Directional, Green-Red, Green, Right Toe, 4x48 Watt Lamps

H850D-BC-LGR Bi-Directional, Green-Red, Green, Left Toe, 4x48 Watt Lamps

Spare Parts and Accessories

48 Watt Lamp Harness	40F00048	200 Watt 6.6/6.6A Isolation Transformer	ET20066601
48 Watt Lamp Harness w/ Cutout	40F01048	Primary Connector Kit #8	EK54D4D4
Red Filter	24F00120-02	Green Filter	24F00120-05
Heatshrink Tubing (Qty 1)	1AL33MSPLKIT		

Approach Threshold

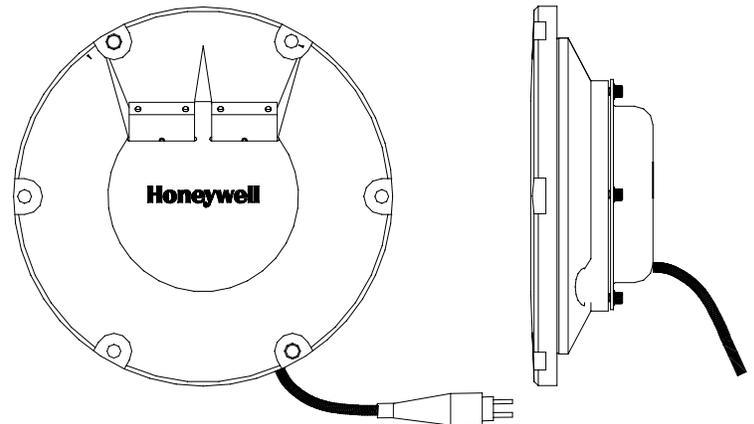
FAA Type: L-850E

Application:

Inpavement Approach Threshold Lights are used to define the beginning of the runway pavement suitable for aircraft operations. This light differs from the Runway Threshold Light in that the higher photometric intensity allows for its use in Medium Intensity Approach Lighting Systems (MALS).

Product Highlights:

- **0.250" Maximum Height Above Grade**
 - Lowest Profile Available on the market
 - Low height minimizes damage by snow removal equipment
- **Self Cleaning**
 - Angled lens allows fixture to self-clean during jet blasts
 - Minimal collection area in front of lens does not allow water to "pool" up, thereby providing specified light output in inclement conditions
- **Low lamp wattage reduces power requirements, allowing use of smaller, lower-cost constant current regulators**
- **Light fixture parts common to all Honeywell Inpavement Lights - Minimal parts to stock**
- **Light Fixtures mount on standard L-868B Base (11.25" Bolt Circle)**
- **Lightweight aluminum casting makes fixture easy to unpack, carry, and install**
- **Cutout option allows 1 of the lamps to remain lit in the event the other lamp fails**
- **Operates from a 6.6A series circuit**



OUTLINE DRAWING

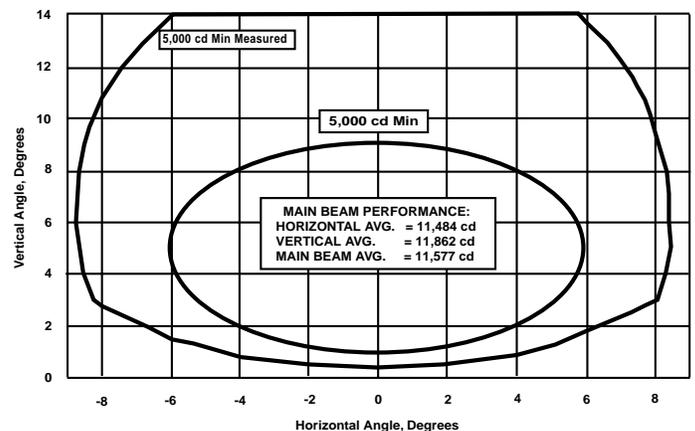
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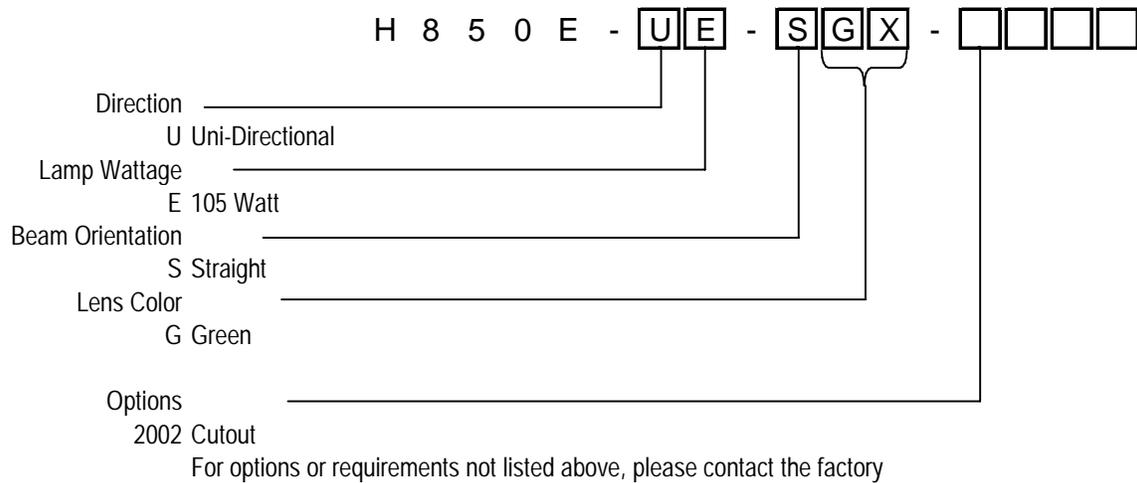
Size: 11.95" dia x 4" deep
 Weight: 14 lbs.

Shipping Information:

Volume: 0.7 Cu. Ft.
 Weight: 17 lbs.

L-850E Isocandela Performance 5,000 CD Green





Isolation Transformer Requirements

Uni-directional - 200W 6.6A

Standard Part Numbers

H850E-UE-SGX Uni-Directional Green 2-105 Watt

Spare Parts and Accessories

105 Watt Lamp Harness	40F00105	105 Watt Lamp Harness w/ Cutout	40F0110
Primary Connector Kit #8	EK54D4D4	Primary Connector Kit #6	EK54D3D3
Green Filter	24F00120-05	Heatshrink Tubing (Qty 1)	1AL33MSPLKIT
200 Watt 6.6/6.6A Isolation Transformer	ET20066601		

Honeywell Airport Systems

2160 Union Place
Simi Valley, CA 93065
U.S.A.
805.581.5591 telephone
805.581.5032 fax

Honeywell Canada Ltd.

25-760 Pacific Road
Oakville, ON L6L 6M5
Canada
905.469.8882 telephone
905.469.1588 fax

Land and Hold Short (LAHSO)

FAA Type: L-850F

Certified to: FAA AC 150/5345-46B
Class 2, Style 3

Application:

Land and Hold Short Operations (LAHSO) occur when two intersecting runways are being used at the same time. The LAHSO System utilizes in pavement lights with redundant lamps in conjunction with an L-884 Flashing Controller to flash the lamps to alert the pilot of the hold position. The Controller ties in with both the runway edge light circuit and the Lighting Control System to allow the Air Traffic Controllers the ability to turn it on and off as required.

Product Highlights:

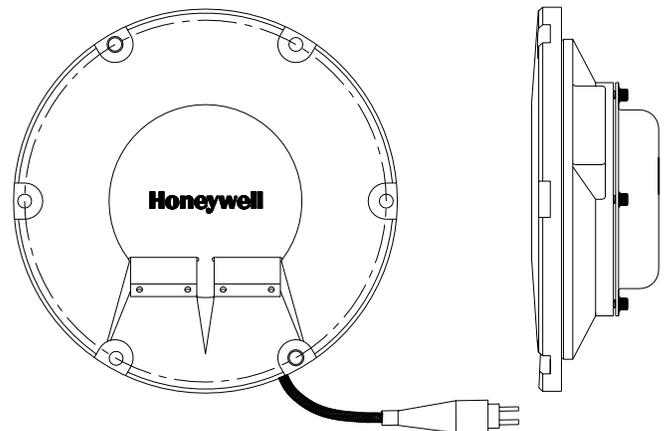
- **0.250" Maximum Height Above Grade**
 - Lowest Profile Available on the market.
 - Low height minimizes damage by snow removal equipment.
- **Self Cleaning**
 - Angled lens allows fixture to self-clean during jet blasts.
 - Minimal collection area in front of lens does not allow water to "pool" up, thereby providing specified light output in inclement conditions.
- **Includes Cutout option to automatically switch to second lamp if first one burns out.**
- **For use with L-884 Controller to flash in accordance with the specifications when activated.**
- **Light fixture parts common to all Honeywell Inpavement Lights**
 - Minimal parts to stock.
- **Light Fixtures mount on standard L-868B Base (11.25" Bolt Circle).**
- **Lightweight Aluminum Casting makes fixture easy to unpack, carry, and install**
- **Operates from 6.6A constant current source**

Dimensions:

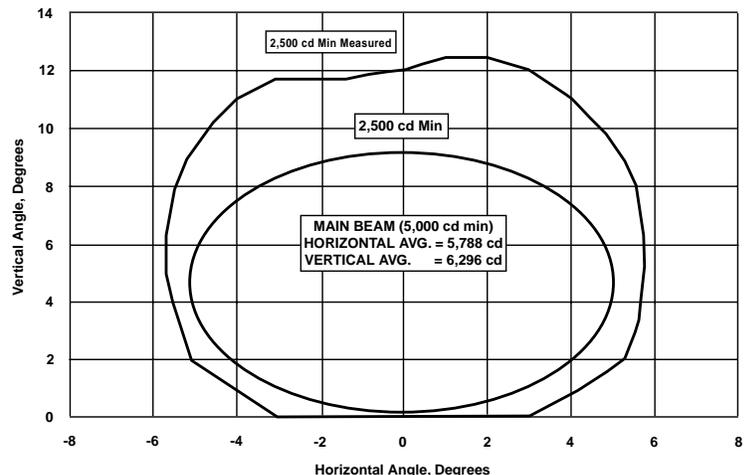
Size: 11.95" dia x 4" deep
Weight: 14 lbs.

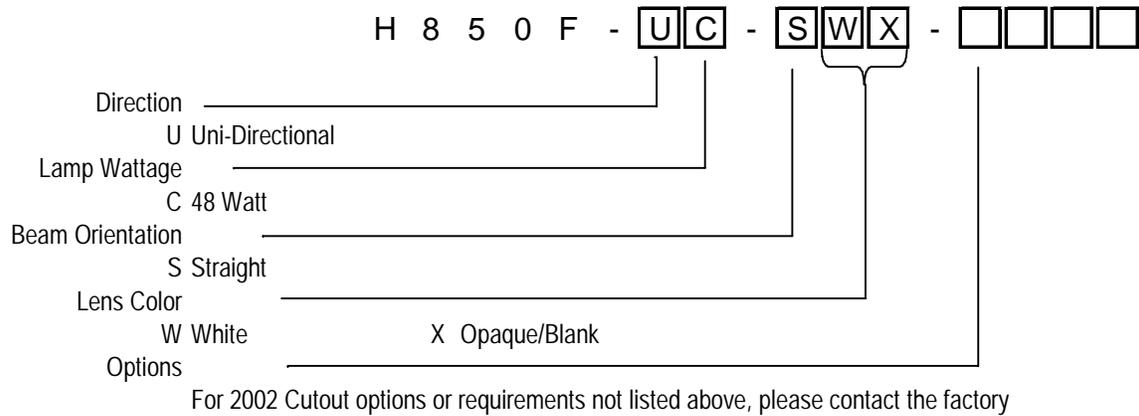
Shipping Information:

Volume: 0.7 Cu. Ft.
Weight: 17 lbs.



L-850F Isocandela Performance 2,500 CD White





Isolation Transformer Requirements

Uni-directional 45W, 6.6A Secondary

Standard Part Numbers

H850F-UC-SWX-2002 Uni-directional, White, 2x48 Watt Lamps, Cutout Option (Lamp Changer)

Spare Parts and Accessories

48 Watt Lamp Harness	40F00048	45 Watt 6.6/6.6A Isolation Transformer	ET04566601
48 Watt Lamp Harness w/ Cutout	40F01048	Primary Connector Kit #8	EK54D4D4
Heatshrink Tubing (Qty 1)	1AL33MSPLKIT		

Taxiway Centerline Straight Section

FAA Types: L-852A-C

Certified to: FAA AC 150/5345-46B

Compliant to: Transport Canada TP312 Fig. B-13, B-14, B-16
 ICAO Annex 14 Fig. 2.12, 2.13, 2.15
 USAF AFMAN 32-1076 Table 5.1

Application:

Taxiway Centerline Straight Section Lights are used to facilitate aircraft guidance between the runway and apron area during low visibility operations. Taxiway Centerline Lights are recommended for use visibility is less than 1200 feet Runway Visual Range (RVR), but may be used under better visibility conditions in apron areas to assist parking operations. Additional detail may be found in FAA Advisory Circular 150/5340-28

Features:

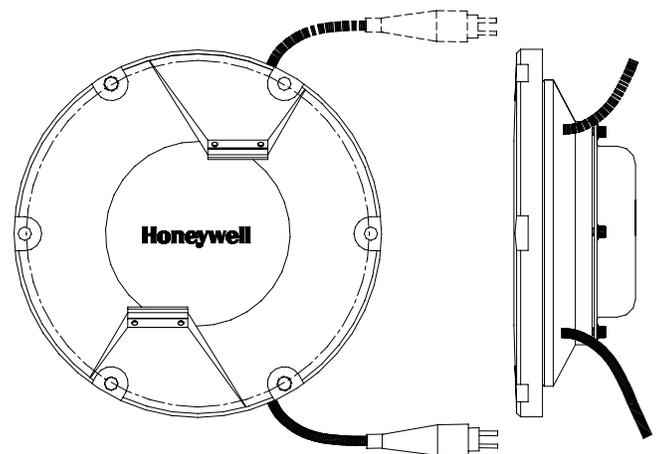
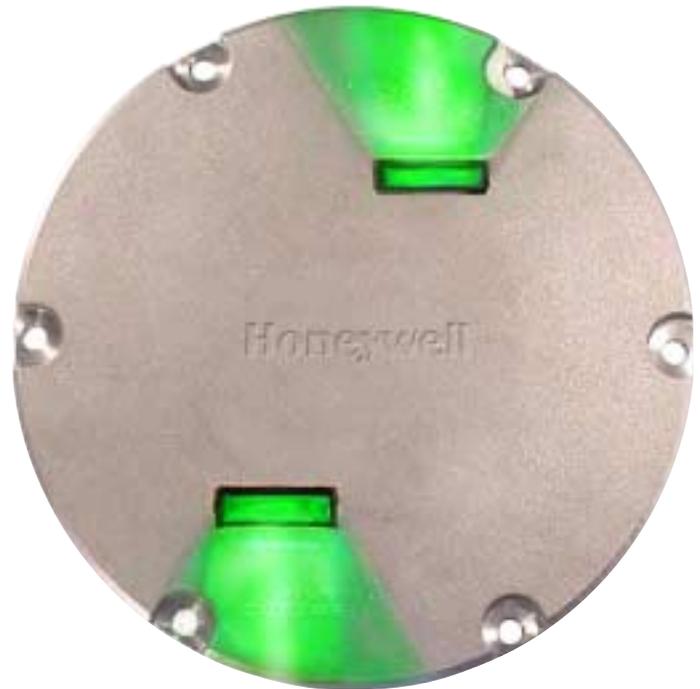
- **0.110" Maximum Height Above Grade**
 - Lowest Profile Available on the market
 - Low height minimizes damage by snow removal equipment
- **Self Cleaning**
 - Angled lens allows fixture to self-clean during jet blasts
 - Minimal collection area in front of lens does not allow water to "pool" up, thereby providing specified light output in inclement conditions
- **Operates from 6.6A constant current source**
- **L-852A complies with FAA specification for RVR > 1200', where the L-852C complies for RVR < 1200' Category II and III Airport Operation**
- **Light fixture parts common to all Honeywell Inpavement Lights**
 Minimal parts to stock
- **Light Fixtures mount on standard L-868B Base**
 (11.25" Bolt Circle)
- **Lightweight Aluminum Casting makes fixture easy to unpack, carry, and install**

Dimensions:

Size: 11.95" dia x 4" deep
 Weight: 14 lbs.

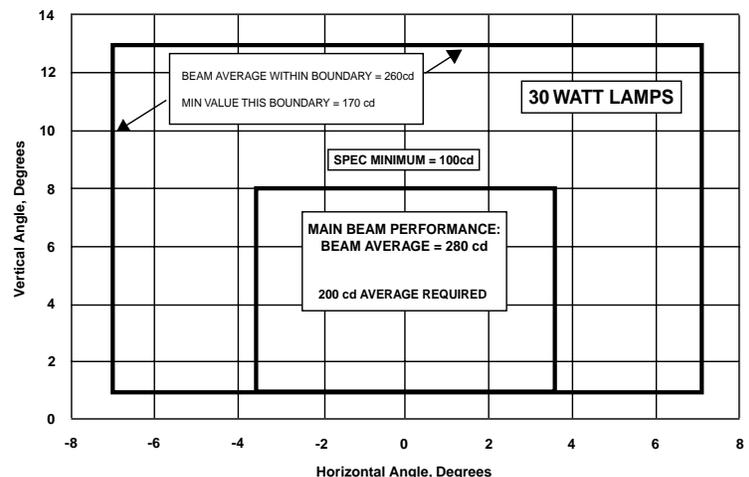
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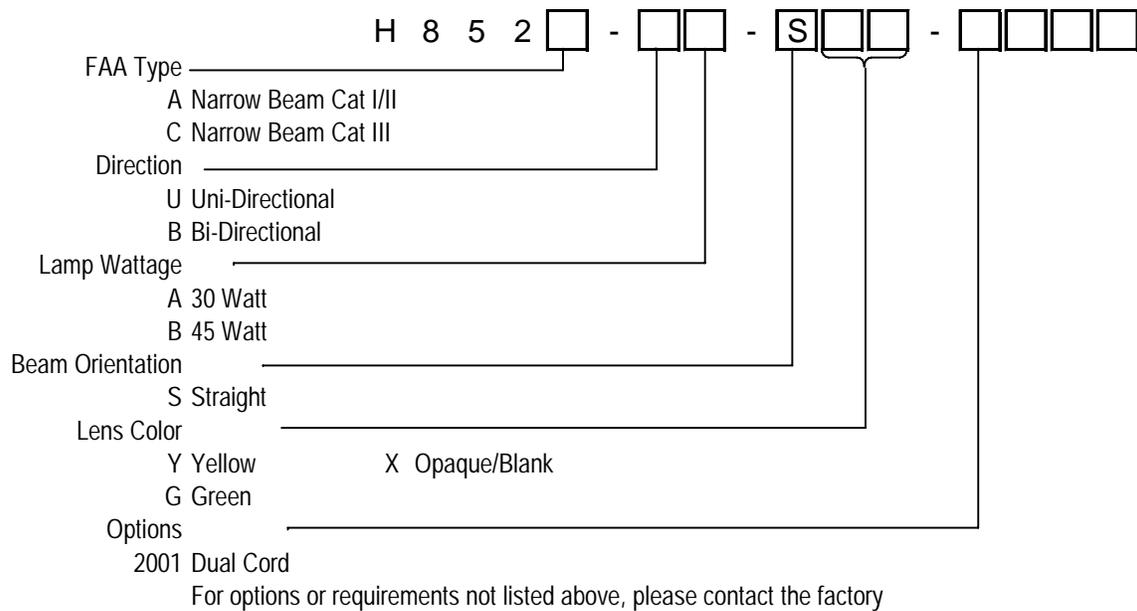
Volume: 0.7 Cu. Ft.
 Weight: 17 lbs.



OUTLINE DRAWING

L-852C Isocandela Performance 200 cd Green/Yellow





Isolation Transformer Requirements

Uni-directional	45W, 6.6A Secondary
Bi-Directional (30 Watt Lamps)	65W, 6.6A Secondary
Bi-Directional (45 Watt Lamps)	100W, 6.6A Secondary

Standard Part Numbers

H852A-BA-SGG	CATI/II Narrow Beam, Bi-Directional Green-Green, 2x30 Watt Lamps
H852A-BA-SGY	CATI/II Narrow Beam, Bi-Directional Green-Yellow, 2x30 Watt Lamps
H852C-BA-SGG	CATIII Narrow Beam, Bi-Directional Green-Green, 2x30 Watt Lamps
H852C-BA-SGY	CATIII Narrow Beam, Bi-Directional Green-Yellow, 2x30 Watt Lamps

Uni-Directional Fixtures and Bi-directional Yellow-Yellow Fixtures are also available in all Fixture Types

Spare Parts and Accessories

45 Watt Lamp Harness	40F00045	100 Watt 6.6/6.6A Isolation Transformer	ET10066601
30 Watt Lamp Harness	40F00030	45 Watt 6.6/6.6A Isolation Transformer	ET04566601
Yellow Filter	24F00120-04	65 Watt 6.6/6.6A Isolation Transformer	ET06566601
Green Filter	24F00120-05	Primary Connector Kit #8	EK54D4D4
Heatshrink Tubing (Qty 1)	1AL33MSPLKIT		

Taxiway Centerline Curved Section

FAA Types: L-852B & D

Certified to: AC 150/5345-46B Class 2, Style 3
 Compliant to: USAF AFMAN 32-1076 (table 5.1)

Application:

Taxiway Centerline Curved Section Lights are used to facilitate aircraft guidance between the runway and apron area during low visibility operations. Curved section lights are also used to identify acute angled exits. Taxiway Centerline Lights are recommended for use visibility is less than 1200 feet Runway Visual Range (RVR), but may be used under better visibility conditions in apron areas to assist parking operations. Additional detail may be found in FAA Advisory Circular 150/5340-28

Product Highlights:

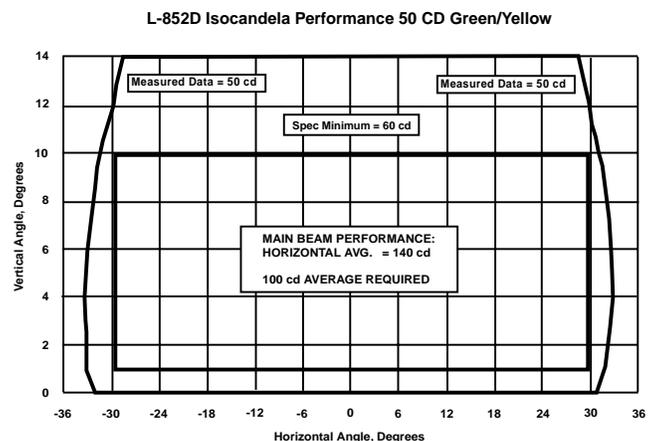
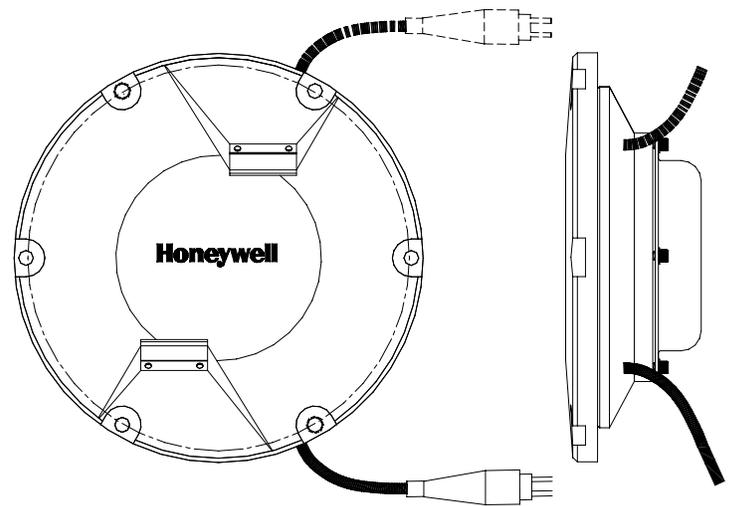
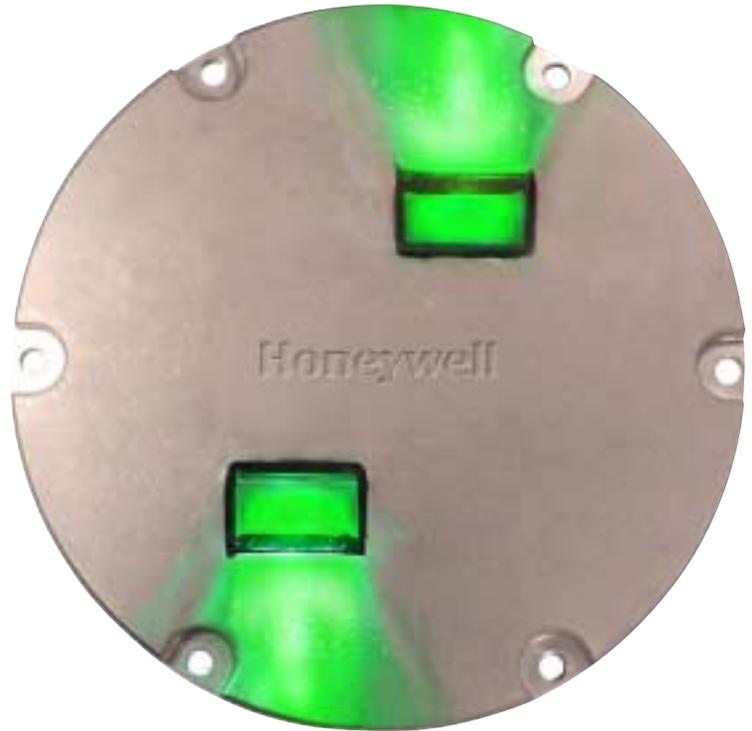
- **0.220" Maximum Height Above Grade**
 - Lowest profile available on the market
 - Low height minimizes damage by snow removal equipment
- **Self Cleaning**
 - STA-KLEEN™ design prevents dirt and debris build up in front of the lens
 - Angled lens eliminates pitting caused by loose sand particles blown by jet blasts
 - Minimal collection area in front of lens does not allow water to "pool" up, thereby providing specified light output in inclement conditions
- **L-852B complies with FAA specification for RVR > 1200', where the L-852D complies for RVR < 1200' Category II and III Airport Operation**
- **Light fixture parts common to all Honeywell Inpavement Lights**
 Minimal parts to stock
- **Light Fixtures mount on standard L-868B Base**
 (11.25" Bolt Circle)
- **Lightweight Aluminum Casting makes fixture easy to unpack, carry, and install**
- **Operates from 6.6A constant current source**

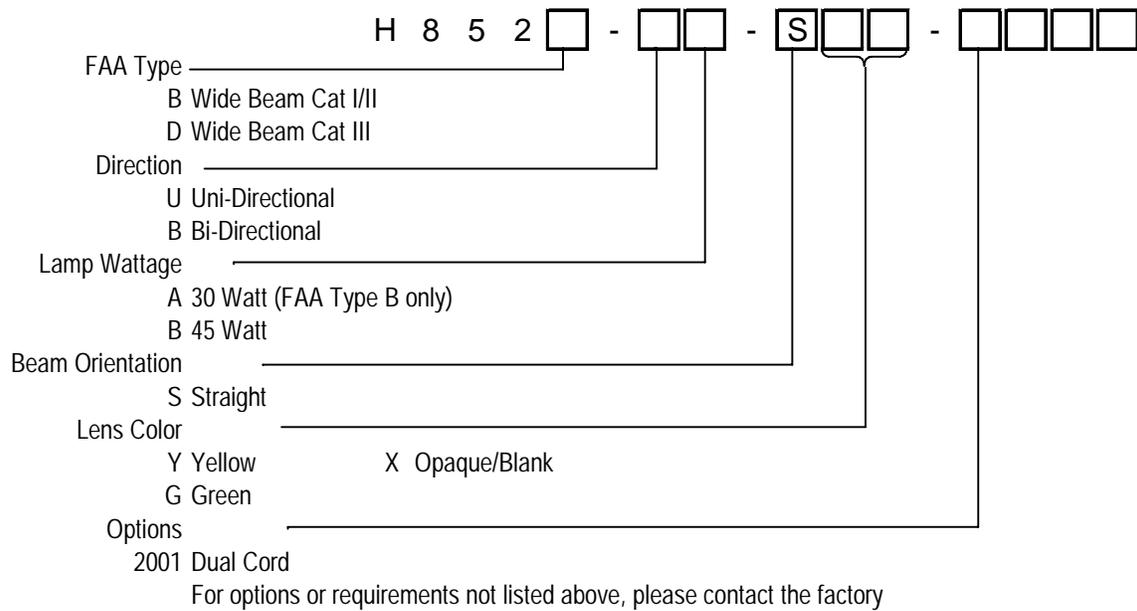
Dimensions:

Size: 11.95" dia x 4" deep
 Weight: 14 lbs

Shipping Information:

Volume: 0.7 cu. feet
 Weight: 17 lbs





Isolation Transformer Requirements

Uni-directional	45W, 6.6A Secondary
Bi-Directional (L-852B)	65W, 6.6A Secondary
Bi-Directional (L-852D)	100W, 6.6A Secondary

Standard Part Numbers

H852B-BA-SGG	CATI/II Wide Beam, Bi-Directional Green-Green, 2x30 Watt Lamps
H852B-BA-SGY	CATI/II Wide Beam, Bi-Directional Green-Yellow, 2x30 Watt Lamps
H852D-BB-SGG	CATIII Wide Beam, Bi-Directional Green-Green, 2x45 Watt Lamps
H852D-BB-SGY	CATIII Wide Beam, Bi-Directional Green-Yellow, 2x45 Watt Lamps

Uni-Directional Fixtures and Bi-directional Yellow-Yellow Fixtures are also available in all Fixture Types

Spare Parts and Accessories

45 Watt Lamp Harness	40F00045	100 Watt 6.6/6.6A Isolation Transformer	ET10066601
30 Watt Lamp Harness	40F00030	45 Watt 6.6/6.6A Isolation Transformer	ET04566601
Red Filter	24F00120-02	65 Watt 6.6/6.6A Isolation Transformer	ET06566601
Yellow Filter	24F00120-04	Primary Connector Kit #8	EK54D4D4
Green Filter	24F00120-05	Heatshrink Tubing (Qty 1)	1AL33MSPLKIT

Runway Guard Light

FAA Type: L-852G

Certified to: FAA AC 150/5345-46B - Class 2, Style 3
 Compliant to: Transport Canada TP312E (fig. B-18)
 ICAO Annex 14 (fig. 2.10)

Application:

Runway Guard Lights are used to identify an intersection of a taxiway with an active runway. Runway Guard Lights are recommended for use when visibility is less than 1200 feet Runway Visual Range (RVR), but may be used under better visibility conditions to enhance visibility of ambiguous hold positions. Additional detail may be found in FAA Advisory Circular 150/5340-28.

Product Highlights:

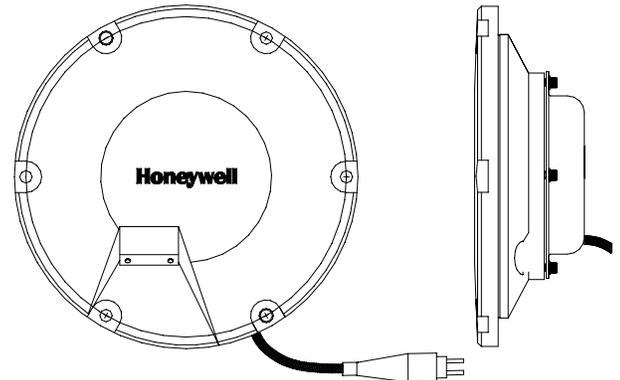
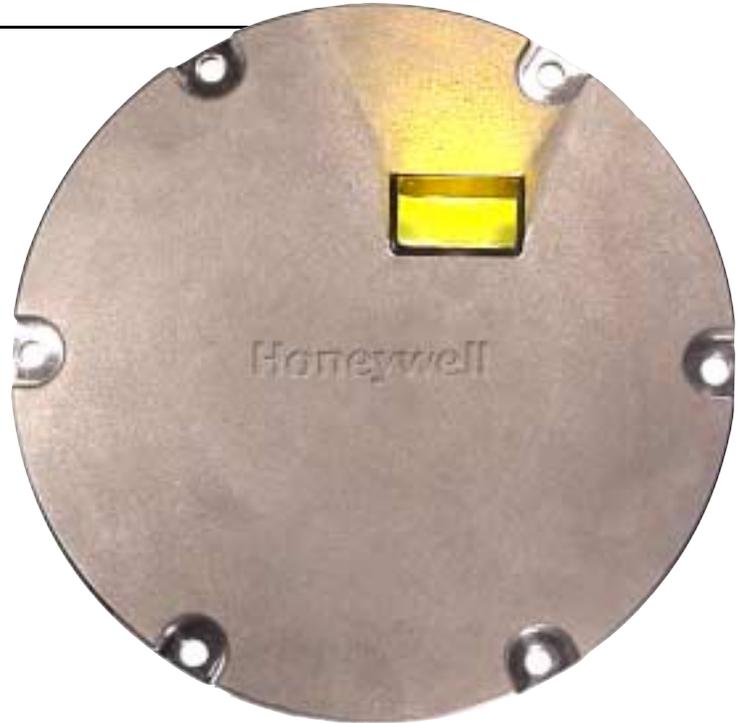
- **0.250" Maximum Height Above Grade**
 - Lowest Profile Available on the market
 - Low height minimizes damage by snow removal equipment
- **Self Cleaning**
 - Angled lens allows fixture to self-clean during jet blasts
 - Minimal collection area in front of lens does not allow water to "pool" up, thereby providing specified light output in inclement conditions
- **Low lamp wattage reduces power requirements, allowing use of smaller, lower-cost constant current regulators**
- **Light fixture parts common to all Honeywell Inpavement Lights**
 - Minimal parts to stock
- **Light Fixtures mount on standard L-868B Base (11.25" Bolt Circle)**
- **Lightweight aluminum casting makes fixture easy to unpack, carry, and install**
- **Compatible with Power Line carrier technology**
- **Optional field mount controller will tie into the runway circuit and flash lights per specification**
- **Operates from 6.6A constant current source**

Dimensions:

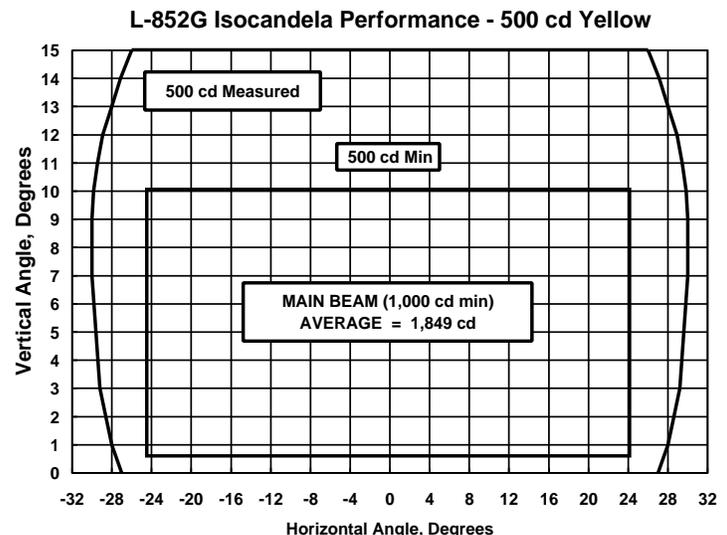
Size: 11.95" dia x 4" deep
 Weight: 14 lbs.

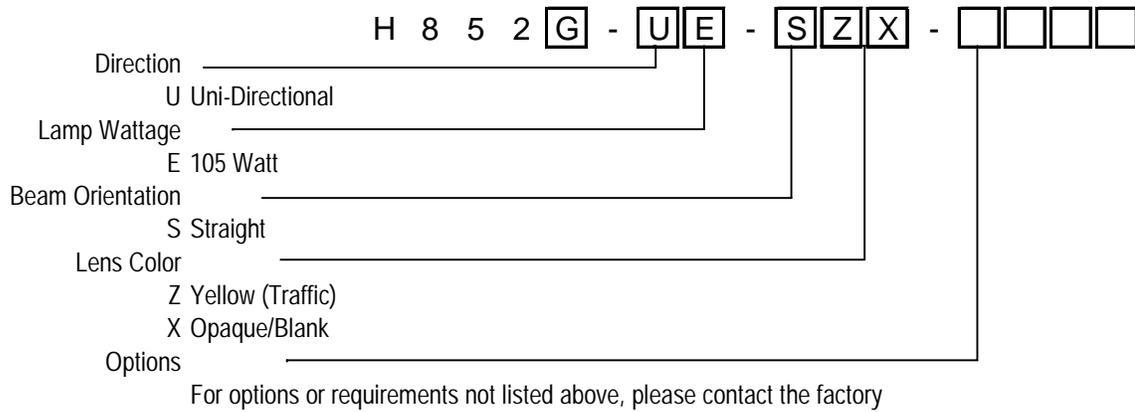
Shipping Information:

Volume: 0.7 Cu. Ft.
 Weight: 17 lbs.



OUTLINE DRAWING





Isolation Transformer Requirements

Uni-Directional 100 Watt, 6.6A Secondary

Standard Part Numbers

H852G-UE-SZX Uni-Directional, Traffic Yellow, 1x105 Watt Lamp

Spare Parts and Accessories

105 Watt Lamp Harness	40F00105	100 Watt 6.6/6.6A Isolation Transformer	ET10066601
Traffic Yellow Filter	24F00120-04T	Primary Connector Kit #8	EK54D4D4
Heatshrink Tubing (Qty 1)	1AL33MSPLKIT		

Runway Stop Bar Light

FAA Type: L-852S

Certified to: FAA AC 150/5345-46B - Class 2, Style 3

Application:

Stop Bar Lights are used to provide a "stop" signal to anyone approaching an active low visibility runway. Stop Bar Lights are required for operations below 600 feet Runway Visual Range (RVR). They can be controlled by the tower to allow access to the runway when it is safe to do so. They can also be used in an uncontrolled application to prevent use of taxiways not part of the designated low visibility route. Additional detail may be found in FAA Advisory Circular 150/5340-28.

Product Highlights:

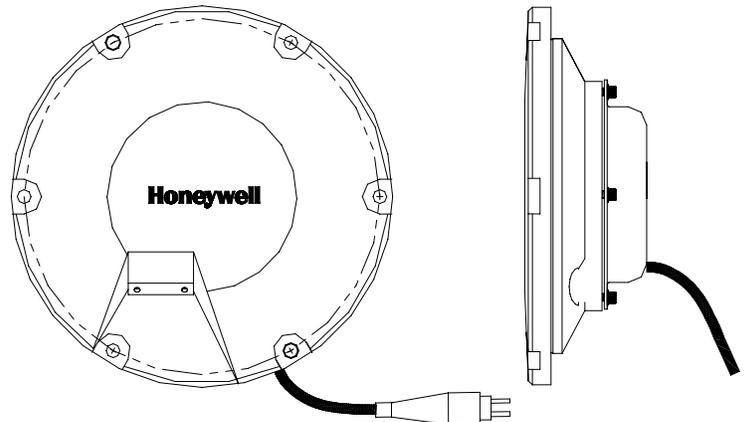
- **0.250" Maximum Height Above Grade**
 - Lowest Profile Available on the market
 - Low height minimizes damage by snow removal equipment
- **Self Cleaning**
 - Angled lens allows fixture to self-clean during jet blasts
 - Minimal collection area in front of lens does not allow water to "pool" up, thereby providing specified light output in inclement conditions
- **Low lamp wattage reduces power requirements, allowing use of smaller, lower-cost constant current regulators**
- **Light fixture parts common to all Honeywell Inpavement Lights**
 - Minimal parts to stock
- **Light Fixtures mount on standard L-868B Base (11.25" Bolt Circle)**
- **Lightweight aluminum casting makes fixture easy to unpack, carry, and install**
- **Compatible with Power Line carrier technology**
- **Operates from 6.6A constant current source**

Dimensions:

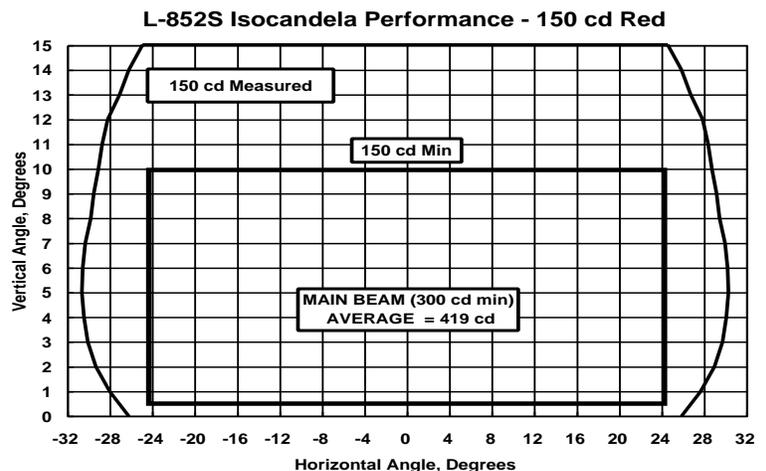
Size: 11.95" dia x 4" deep
 Weight: 14 lbs.

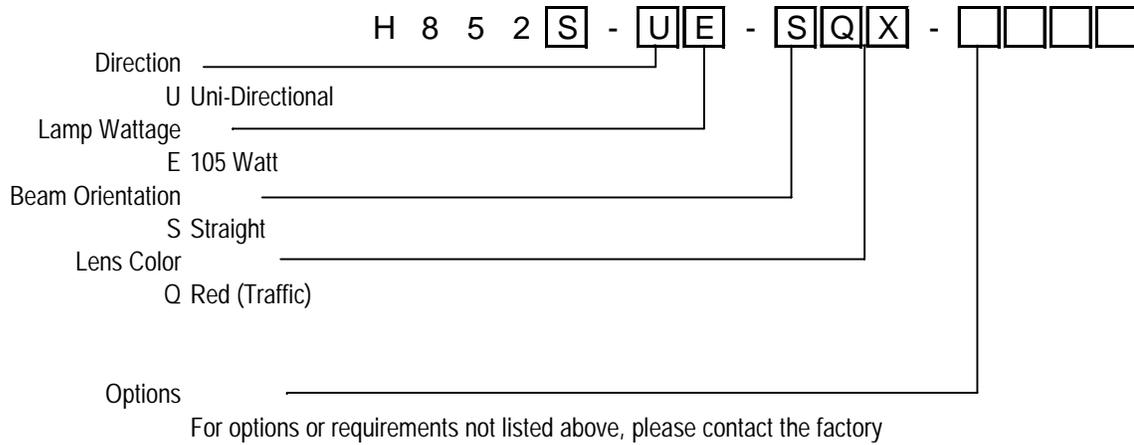
Shipping Information:

Volume: 0.7 Cu. Ft.
 Weight: 17 lbs.



OUTLINE DRAWING





Isolation Transformer Requirements

Uni-Directional 100 Watt, 6.6A Secondary

Standard Part Numbers

H852S-UE-SZX Uni-Directional, Traffic Red, 1x105 Watt Lamp

Spare Parts and Accessories

105 Watt Lamp Harness	40F00105	100 Watt 6.6/6.6A Isolation Transformer	ET10066601
Traffic Red Filter	24F00120-02T	Primary Connector Kit #8	EK54D4D4
Heatshrink Tubing (Qty 1)	1AL33MSPLKIT	Primary Connector Kit #6	EK54D3D3

Dual Runway Guard/Stop Bar Light

FAA Type: L-852GS

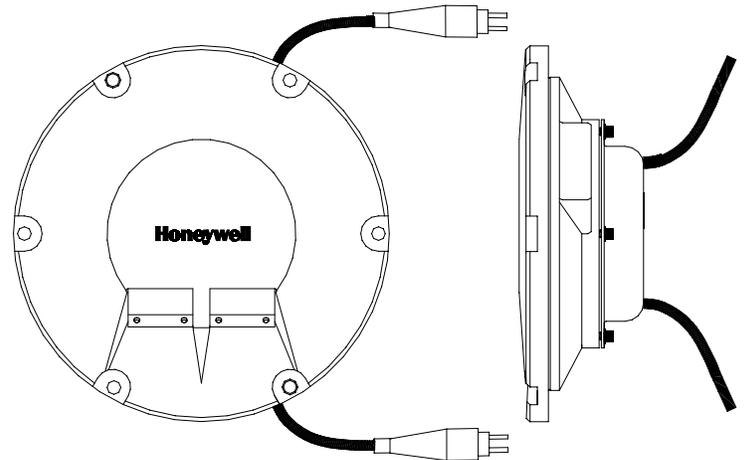
Certified to: FAA AC 150/5345-46B - Class 2, Style 3

Application:

Runway Guard/Stop Bar Lights may be used to combine the Hold and Stop Bar Fixtures into one fixture. This will allow for use of a Hold Bar for operations above 1200 feet Runway Visual Range (RVR), and a Stop Bar for operations below 1200 feet RVR. Additional detail may be found in FAA Advisory Circular 150/5340-28

Product Highlights:

- **0.250" Maximum Height Above Grade**
 - Lowest Profile Available on the market
 - Low height minimizes damage by snow removal equipment
- **Self Cleaning**
 - Angled lens allows fixture to self-clean during jet blasts
 - Minimal collection area in front of lens does not allow water to "pool" up, thereby providing specified light output in inclement conditions
- **Operates from 6.6A constant current source**
- **Low lamp wattage reduces power requirements, allowing use of smaller, lower-cost constant current regulators**
- **Light fixture parts common to all Honeywell Inpavement Lights**
 - Minimal parts to stock
- **Light Fixtures mount on standard L-868B Base (11.25" Bolt Circle)**
- **Lightweight aluminum casting makes fixture easy to unpack, carry, and install**
- **Compatible with Power Line carrier technology**
- **Optional field mount controller will tie into the runway circuit and flash lights per specification**



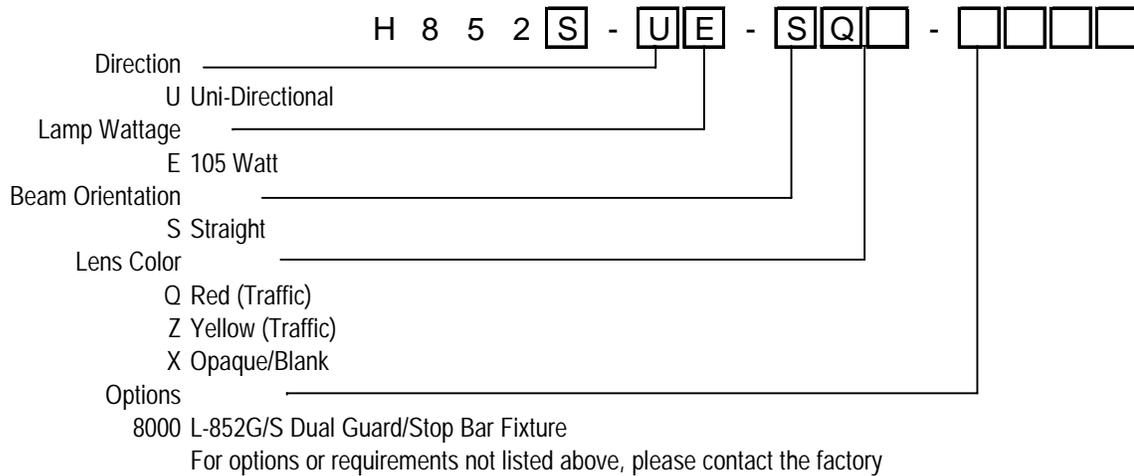
OUTLINE DRAWING

Dimensions:

Size: 11.95" dia x 4" deep
 Weight: 14 lbs.

Shipping Information:

Volume: 0.7 Cu. Ft.
 Weight: 17 lbs.



Isolation Transformer Requirements

Uni-Directional 100 Watt, 6.6A Secondary

Standard Part Numbers

H852S-UE-SZX Uni-Directional Red
 H852S-UE-SZQ-8000 Uni-Directional Yellow/Red Guard/Stop Light

Spare Parts and Accessories

105 Watt Lamp Harness	40F00105	100 Watt 6.6/6.6A Isolation Transformer	ET10066601
Red Filter	24F00120-02T	Primary Connector Kit #8	EK54D4D4
Yellow Filter	24F00120-04T	Heatshrink Tubing (Qty 1)	1AL33MSPLKIT

Taxiway Omni-Directional Light

FAA Type: L-852E, F, T

Application:

Taxiway Omni-Directional Lights are used to identify Taxiway Intersections and/or Taxiway Edges where elevated lights may be susceptible to damage from jet blasts. Taxiway Omni Lights are also commonly used to light up the apron edge between the apron and the usable taxiway.

Product Highlights:

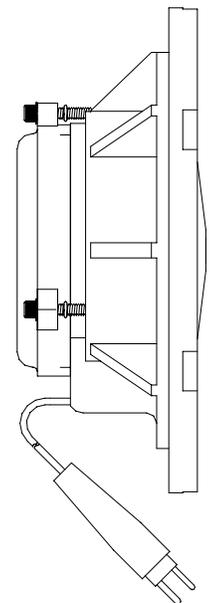
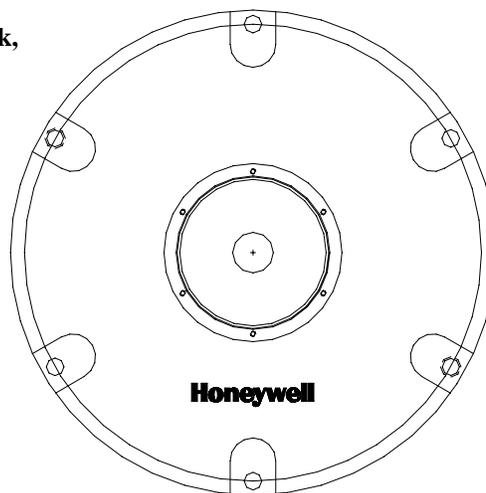
- **0.125" Maximum Height Above Grade**
 - Lowest Profile Available on the market
 - Low height minimizes damage by snow removal equipment
- Operates from 6.6A constant current source
- Light fixture parts common to all Honeywell in pavement lights
 - minimal parts to stock
- Light fixtures mount on L-867B or L-868B base (specify prior to ordering)
- Lightweight aluminum casting makes fixture easy to unpack, carry, and install

Dimensions:

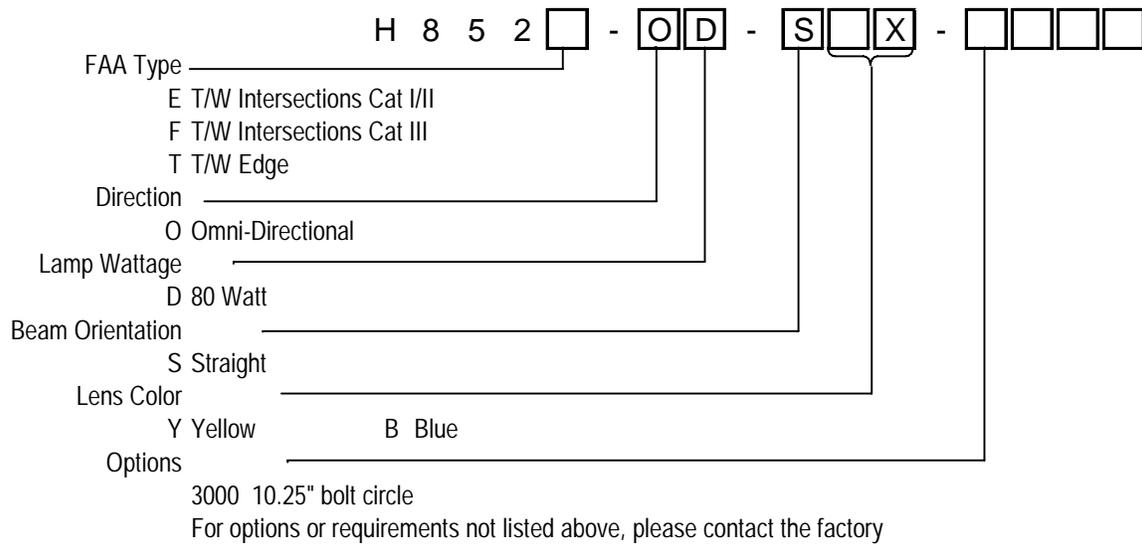
Size: 11.95" dia x 4.5" deep
Weight: 14 lbs.

Shipping Information:

Volume: 0.7 Cu. Ft.
Weight: 17 lbs.



OUTLINE DRAWING



Isolation Transformer Requirements

100 Watt, 6.6A Secondary

Standard Part Numbers

H852E-OD-SYX	CAT I/II, Omni-Directional, Yellow, 1x80 Watt Lamp
H852F-OD-SYX	CAT III, Omni-Directional, Yellow, 1x80 Watt Lamp
H852T-OD-SBX	T/W Edge Omni-Directional, Blue, 1x80 Watt Lamp

Spare Parts and Accessories

80 Watt Lamp Harness	40F00080	100 Watt 6.6/6.6A Isolation Transformer	ET10066601
Yellow Filter	24F00120-04	Primary Connector Kit #8	EK54D4D4
Blue Filter	24F00120-06	Primary Connector Kit #6	EK54D3D3
Heatshrink Tubing (Qty 1)	1AL33MSPLKIT		

Medium Intensity Runway/Taxiway Lights

MI Series FAA Types: L-861, L-861E, L-861T

Certified to: FAA AC 150/5345-46B

Compliant to: ICAO Annex 14

Transport Canada TP312

USAF AFMAN 32-1076

Application:

Medium Intensity Runway Lights (MIRL) are primarily used on VFR runways, or runways with a non-precision approach. Used in conjunction with Medium Intensity Approach Systems, MIRL's allow for precision approaches in up to ½ mile visibility.

Medium Intensity Taxiway Lights (MITL) are used for all taxiways and aprons on airports using either MIRL or High Intensity Runway Lights (HIRL) on the runway.

Features:

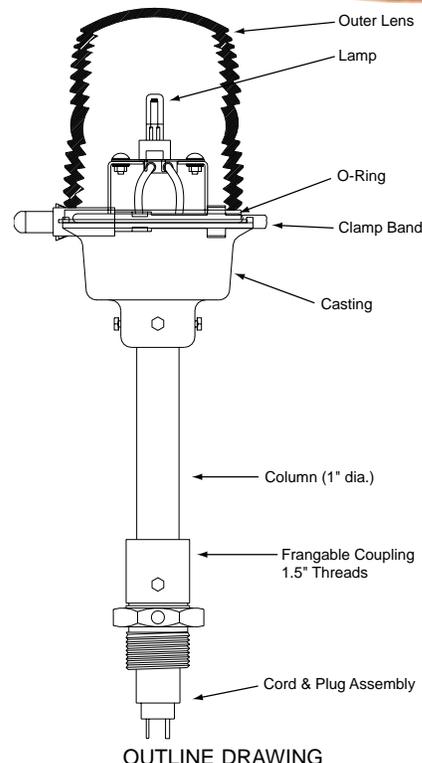
- Clamp band to secure lens
- Operates from 6.6A series circuit
- Quartz bi-pin or incandescent lamps available
- Frangible coupling suitable for base or stake mounting
- Secondary plug & cord assembly included
- Available in heights from 14 inches to 30 inches (2 inch increments)
- All standard airfield lighting colors available
- Lexan plastic globe available on request

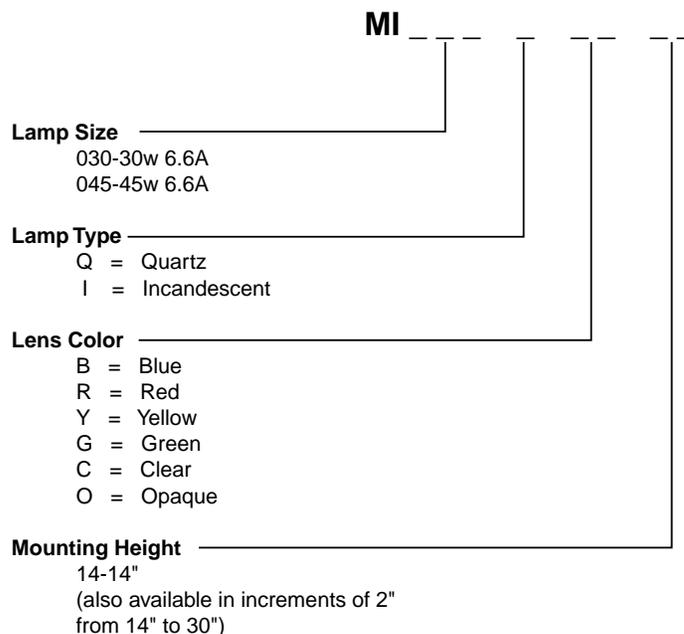
Dimensions:

Size: 4.5" dia x 14" high
 Weight: 3.5 lbs

Shipping Information:

Volume: 0.2 cu. feet
 Weight: 5 lbs.





MI Series Standard Part Numbers

MI-045-Q-CC-14	Runway Edge Light	1.5" Frangible Column	45 Watt Lamp	Clear/Clear
MI-045-Q-CY-14	Runway Edge Light	1.5" Frangible Column	45 Watt Lamp	Clear/Yellow
MI-045-Q-RG-14	Threshold/End Light	1.5" Frangible Column	45 Watt Lamp	Red/Green
MI-045-Q-RR-14	Threshold/End Light	1.5" Frangible Column	45 Watt Lamp	Red/Red
MI-030-Q-BB-14	Taxiway Edge Light	1.5" Frangible Column	30 Watt Lamp	Blue

For other product numbers refer to the Ordering Information Section

MI Series Spare Parts and Accessories

Omni-Clear Lens	FL0CB02810	30 Watt Lamp	LA30C66Q4J
Omni-Red Lens	FL02B02810	30 Watt Quartz Lamp	EXL
Omni-Blue Lens	FL06B02861T	30 Watt Incandescent Lamp	6.6A/T10/1P
Clear/Yellow Lens	FLC4B02861	45 Watt Quartz Lamp	LA45C66QT4J
Yellow/Red Lens	FL24B02861	45 Watt Incandescent Lamp	6.6A/T10P
Green/Red Lens	FL28B02861	Primary Connector Kit #8	EK54D4D4
Clamp Band	54-6-006	Primary Connector Kit #6	EK54D3D3
O-Ring	910009-1	Heatshrink Kit	1AL33MSPLKIT
L-861 Baseplate, 12" diam.	BU0127B015	Frangible Coupling 1.5"	B1A0002AE2
Stake & Hub Assembly	BU0155MH30	30/45 Watt, 6.6/6.6A Isolation Transformer	ET04566601

Medium Intensity Runway Lights

MQ Series FAA Type: L-861

Certified to: FAA AC 150/5345-46B

Compliant to: ICAO Annex 14

Transport Canada TP312

USAF AFMAN 32-1076

Application:

Medium Intensity Runway Lights (MIRL) are primarily used on VFR runways, or runways with a non-precision approach. Used in conjunction with Medium Intensity Approach Systems, MIRL's allow for precision approaches in up to ½ mile visibility.

Medium Intensity Taxiway Lights (MITL) are used for all taxiways and aprons on airports using either MIRL or High Intensity Runway Lights (HIRL) on the runway.

Features:

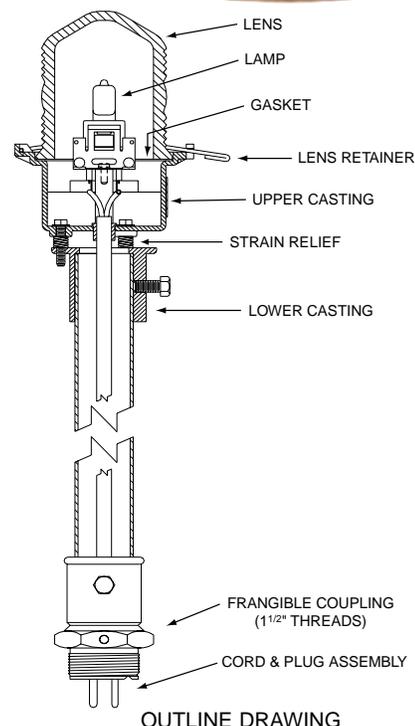
- Wire Lens Retainer
- Operates from 6.6A series circuit
- Frangible coupling suitable for base or stake mounting
- Quartz Bi-Pin Lamp
- Available in heights from 14 inches to 30 inches (2 inch increments)
- Secondary plug & cord assembly included
- All standard airfield lighting colors available

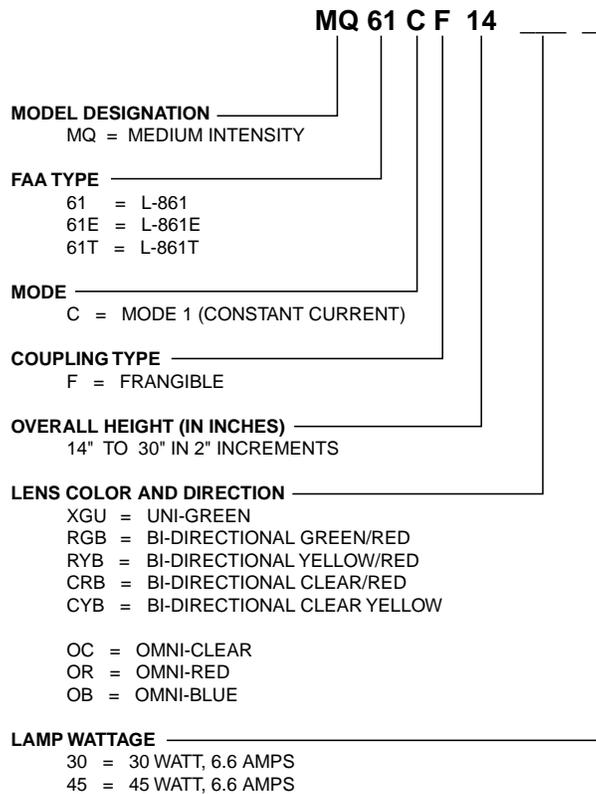
Dimensions:

Size: 3" dia x 14" high
Weight: 3.5 lbs

Shipping Information:

Volume: 0.2 cu. feet
Weight: 4 lbs.





MQ Series Standard Part Numbers

MQ61CF14CCB30	Runway Edge Light	1.5" Frangible Column	30 Watt Lamp	Clear/Clear
MQ61CF14CYB30	Runway Edge Light	1.5" Frangible Column	30 Watt Lamp	Clear/Yellow
MQ61ECF14RGB45	Threshold/End Light	1.5" Frangible Column	45 Watt Lamp	Red/Green
MQ61ECF14RRB45	Threshold/End Light	1.5" Frangible Column	45 Watt Lamp	Red/Red
MQ61TCF14OB30	Taxiway Edge Light	1.5" Frangible Column	30 Watt Lamp	Blue

For other product numbers refer to the Ordering Information Section

MQ Series Spare Parts and Accessories

Omni-Clear Lens	FL0CB02840	30 Watt Lamp	LA30C66QT4J
Omni-Red Lens	FL02B02840	45 Watt Lamp	LA45C66QT4J
Omni-Blue Lens	FL06B02840	Primary Connector Kit #8	EK54D4D4
Clear/Yellow Lens	FLC4B02840	Primary Connector Kit #6	EK54D3D3
Clear/Red Lens	FLC2B02840	Heatshrink Kit	1AL33MSPLKIT
Yellow/Red Lens	FL24B02840	Frangible Coupling 1.5"	B1A0002AE2
Green/Red Lens	FL28B02840	Gasket	22A00000
Uni-Green Lens	FL8BB02840	30/45 Watt, 6.6/6.6A Isolation Transformer	ET04566601
L867 Baseplate, 12"diam.	BV0127B015	Stake and Hub Assembly	BV015SMH30

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High Intensity Runway Lights

HQ Series FAA Type: L-862

Certified to: FAA AC 150/5345-46B

Compliant to: ICAO Annex 14

Transport Canada TP312

USAF AFMAN 32-1076

Application:

High Intensity Runway Lights (HIRL) are used on runways utilizing instrument flight rule (IFR) as well as runways suitable for category I, II, or III land operations.

Features:

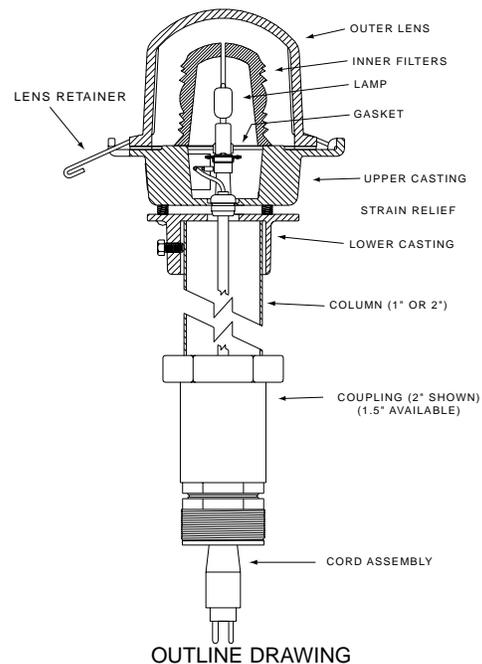
- Wire Lens Retainer
- Operate from 6.6A series circuit
- 1" or 2" Column
- Frangible coupling for standard baseplate mounting
- Quartz Bi-Pin Lamp
- Available in heights from 14 inches to 30 inches (2 inch increments)
- All standard airfield lighting colors are available
- Inner filter and outer lens to provide required colors and beam orientation
- Secondary cord & plug assembly included

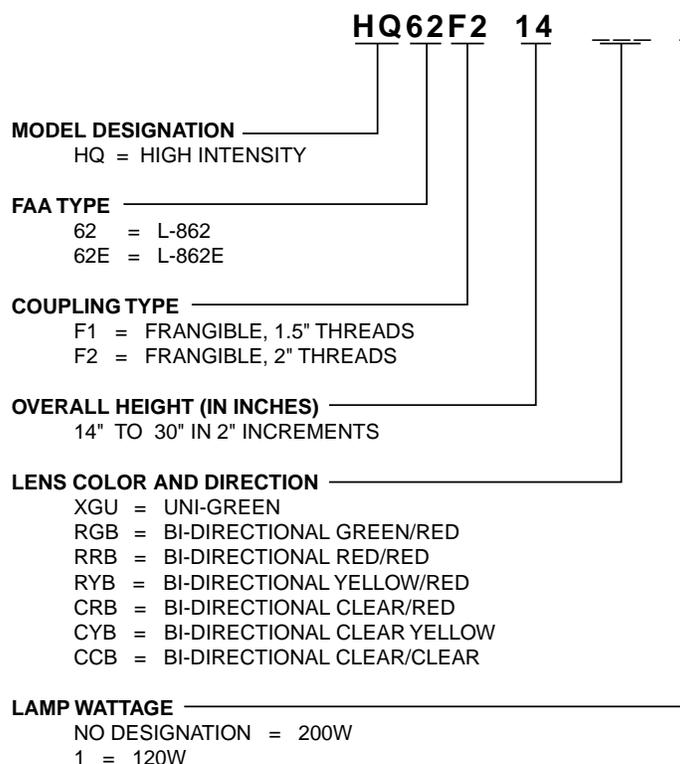
Dimensions:

Size: 6" dia x 14" high
Weight: 5 lbs

Shipping Information:

Volume: 0.25 cu. feet
Weight: 6 lbs.





HQ Series Standard Part Numbers

HQ62F114CCB	Runway Edge Light,	1.5" Frangible Column	200 Watt Lamp	Clear/Clear
HQ62F114CYB	Runway Edge Light	1.5" Frangible Column	200 Watt Lamp	Clear/Yellow
HQ62EF114RGB	Threshold/End Light	1.5" Frangible Column	200 Watt Lamp	Red/Green
HQ62EF114RRB	Threshold/End Light	1.5" Frangible Column	200 Watt Lamp	Red/Red

For other product numbers refer to the Ordering Information Section

HQ Series Spare Parts and Accessories

Clear Outer Lens	FL0CG028620Q	120 Watt Lamp	LA120C66QT4J
180° Red Filter	FL02G08862Q	200 Watt Lamp	LA200C66QT4J
180° Yellow Filter	FL04G08862Q	Primary Connector Kit #8	EK54D4D4
180° Green Filter	FL05G08862Q	Primary Connector Kit #6	EK54D3D3
180° Clear Filter	FL0CG08862Q	Heatshrink Kit	1AL33MSPLKIT
180° Blank Filter	FL0BG08862Q	Frangible Coupling 1.5"	B1A0002AE2
Gasket	22A00103	Frangible Coupling 2"	FB7BAY
Wire Lens Retainer	20A00103	200 Watt, 6.6/6.6A Isolation Transformer	ET20066601
L867 Baseplate, 12"diam., 2"	BV0127B02	100 Watt, 6.6/6.6A Isolation Transformer	ET10066601
L867 Baseplate, 12"diam., 1.5"	BV0127B015		

High Intensity Runway Lights

HI Series FAA Types: L-862, L-862E

Certified to: FAA AC 150/5345-46B
Compliant to: ICAO Annex 14
Transport Canada TP312
USAF AFMAN 32-1076

Application:

High Intensity Runway Lights (HIRL) are used on runways utilizing Instrument Flight Rule (IFR) as well as runways suitable for category I, II, or III land operations.

Features:

- **Clamp Band to Secure Lens**
- **Operates from 6.6A series circuit**
- **2" Frangible Column**
- **Quartz Bi-Pin Lamp**
- **Available in heights from 14 to 30 inches (2 inch increments)**
- **All standard airfield lighting colors available**
- **Inner filter and outer lens to provide required colors and beam patterns**
- **Secondary plug & cord assembly included**

Dimensions:

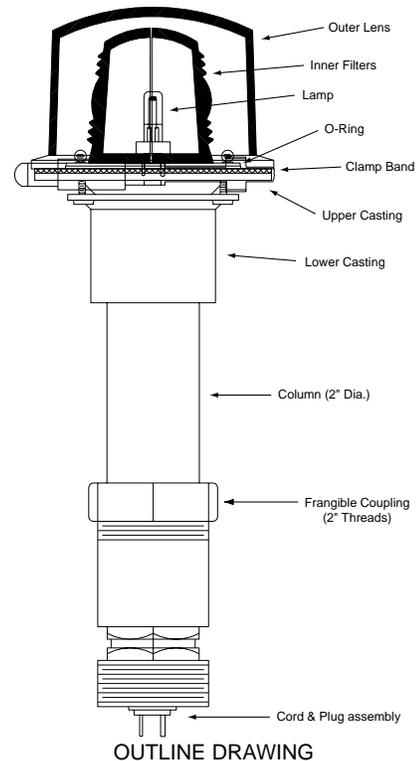
Size: 6" dia x 14" high
Weight: 5 lbs

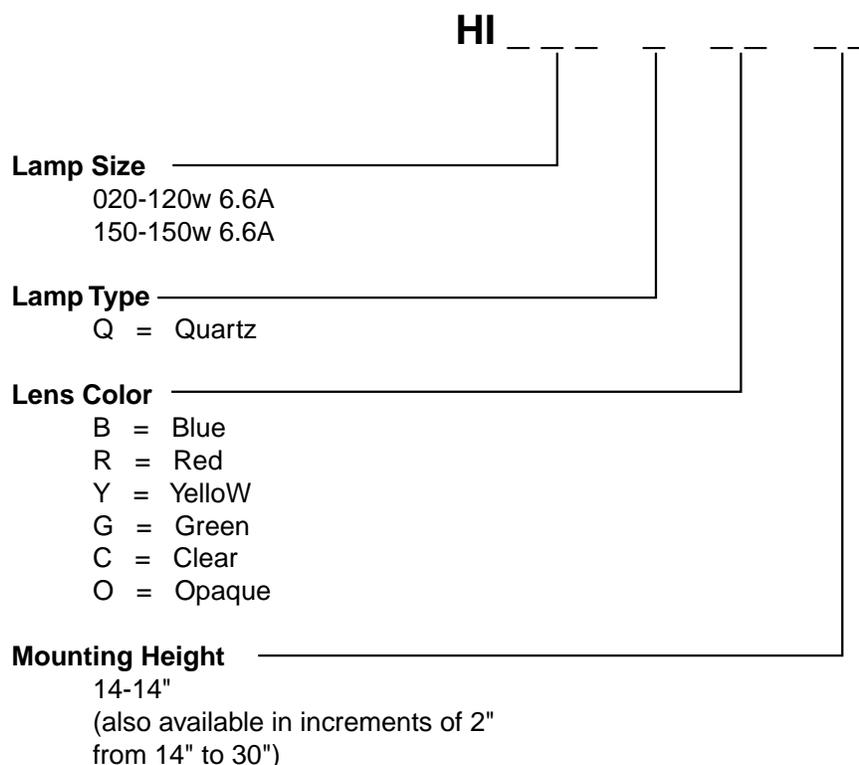
Shipping Information:

Volume: 0.25 cu. feet
Weight: 6 lbs.



(Baseplate NOT included)





HI Series Standard Part Numbers

HI-120-Q-CC-14	Runway Edge Light	2" Frangible Column	120 Watt Lamp	Clear/Clear
HI-120-Q-CY-14	Runway Edge Light	2" Frangible Column	120 Watt Lamp	Clear/Yellow
HI-150-Q-GR-14	Threshold/End Light	2" Frangible Column	150 Watt Lamp	Red/Green
HI-150-Q-RR-14	Threshold/End Light	2" Frangible Column	150 Watt Lamp	Red/Red

For other product numbers refer to the Ordering Information Section

HI Series Spare Parts and Accessories

Clear Outer Lens	FL0CG028620Q	120 Watt Lamp	EVV
180° Red Filter	FL02G08862Q	150 Watt Lamp	EWR
180° Yellow Filter	FL04G08862Q	Primary Connector Kit #8	EK54D4D4
180° Green Filter	FL05G08862Q	Primary Connector Kit #6	EK54D3D3
180° Clear Filter	FL0CG08862Q	Heatshrink Kit	1AL33MSPLKIT
180° Blank Filter	FL0BG08862Q	O-Ring	910012-1
Clamp Band	54-4-007	100 Watt, 6.6/6.6A Isolation Transformer	ET10066601
2" Frangible Coupling	FB7BAY	150 Watt, 6.6/6.6A Isolation Transformer	ET15066601
L-867 Baseplate, 12"diam.	BU01271302	200 Watt, 6.6/6.6A Isolation Transformer	ET20066601

Medium Intensity Elevated Lights

MS Series FAA Type: L-861

Application:

The MS Series of medium intensity lights can be used to light the edges of runways and taxiways utilizing Visual Flight Rule (VFR) or a non-precision approach. These lights may also be used to light the edges of helipads as necessary. Refer to AC 150/5390-2A for more information on Heliport Lighting.

Features:

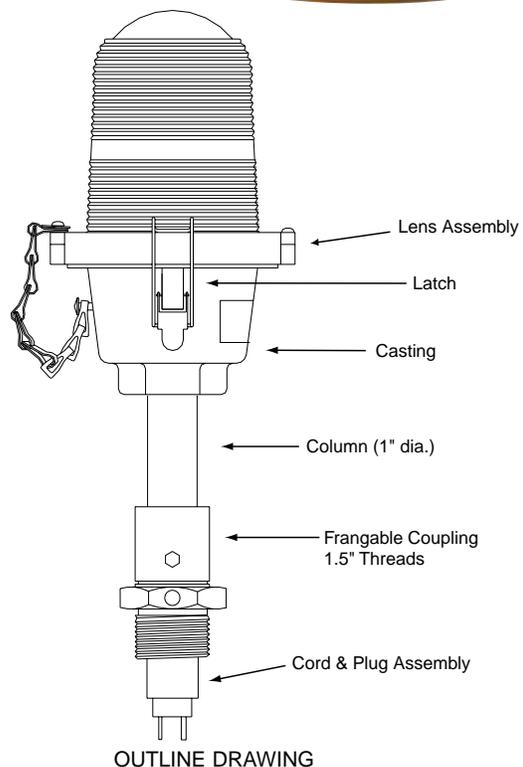
- 2 latch springs to secure lens
- Can operate from 6.6A or 120v power source
- Utilize medium prefocus lamps 30-45 Watts
- Mounted on frangible couplings
- Secondary plug & cord assembly included
- Available in heights from 14 inches to 30 inches (2 inch increments)
- All standard airfield lighting colors available
- Lexan plastic globe available on request

Dimensions:

Size: 4.5" dia x 14" high
Weight: 3.5 lbs

Shipping Information:

Volume: 0.2 cu. feet
Weight: 5 lbs.



MS Ordering Info

Assemblies (Do not include lamp or lens)

MS6118PEC	Fixture, 1.5" Frangible Coupling	Column(14"OAH)
MS6124PEC	Fixture, 1.5" Frangible Coupling	Column(20"OAH)
MS6130PEC	Fixture, 1.5" Frangible Coupling	Column(20"OAH)

Lenses

FL02B02810	Omni Red	FL0CB02810	Omni Clear
FL04B02810	Omni Yellow	FL28B02861	180° Red / 180° Green
FL06B02861T	Omni Blue	FLC4B02861	180° Clear / 180° Yellow

Lamps

LA300C66T10A	30 Watt, 6.6A Medium Prefocus
LA450C66T10A	45 Watt, 6.6A Medium Prefocus
LA400121T10A	40 Watt, 120 Volt

Mounting Options

BV015SMH30	Stake & Hub Assembly
BV0127CG24-2B	L-867B Basecan 12" dia. x 24" deep
BV0127B015	L867B Baseplate
VBJ7609	L869 Junction Box 6" dia. x 5" deep

MS Series Spare Parts and Accessories

Socket, Medium, Prefocus	XLDA5s081	Cord & Plug Assembly 18"	MC216SJA18F
Latch Spring	A6A0008AJ	Cord & Plug Assembly 24"	MC216SJA24F
Latch Clip	A6A0008AD	Cord & Plug Assembly 30"	MC216SJA30F
Latch Pin	PS07501002	Secondary Cord & Receptacle Assembly 36"	MC214SOC360
Lens Holder Ring Assembly	B1A00025A1	Secondary Cord & Receptacle Assembly 72"	MC214SOC720
1" dia. Column for 14" OAH	A1A0002AG	Secondary Receptacle #14	EK91RA8
1" dia. Column for 20" OAH	A1A0002AJ	Secondary Plug #14	EK91PA8
1" dia. Column for 26" OAH	A1A0002AK	Secondary Receptacle #8	EK91RC4
1.5" Pop-Out Coupling	L107	Secondary Plug #8	EK91PC4
1.5" Frangible Coupling	B1A0002AE2	Primary Connector Kit #8	EK54D4D4
30/45 Watt, 6.6A Isolation Transformer	ET04566601		

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Runway Guard Light

FAA Type: L-804

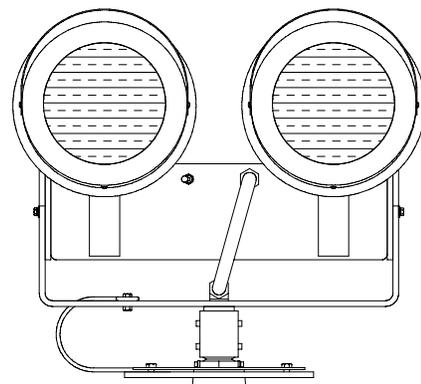
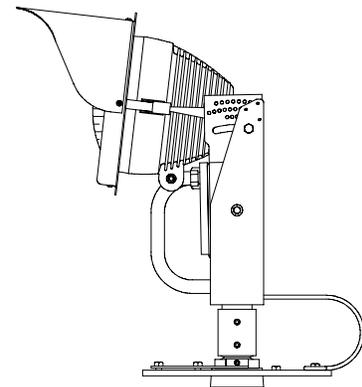
Certified to: FAA AC 150/5345-46B
Type L-804

Application:

Runway Guard Lights are used at taxiway hold positions to increase safety by enhancing the visibility of the hold position, especially during inclement weather conditions. Two fixtures are mounted at the hold position one on either side of the taxiway.

Features:

- High Strength Aluminum Housing and Frame
- Mounts on standard L-867B base via heavy duty baseplate (supplied)
- Failsafe technology illuminates both lamps in the event of a failure in the flashing or internal monitoring circuitry
- No realignment necessary after lens/lamp replacement
- No special tools required to replace lamps or internal circuitry
- External ON/OFF switch allows for maintenance without removing power from the rest of the circuit
- 24" minimum overall height (2" increments to 32")
- Dry contact monitoring system on current driven systems use special multi-pin connector (mate supplied)
- 2 x 100 Watt 6.6A Tungsten Halogen Lamps (PK30d)
- Light Beam Adjustment: 0° to 20° Vertical, +/- 20° Horizontal
- Removeable front ring assembly allows for easy lens/lamp replacement
- Supplied with tether and anti-rotation locking plate



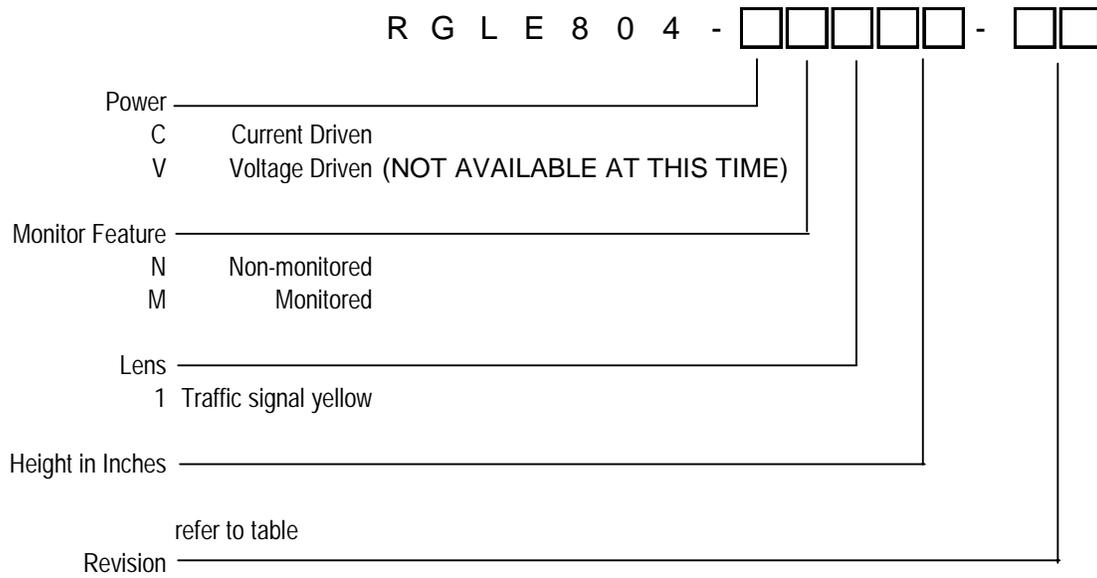
OUTLINE DRAWING

Dimensions:

Size: 27" w X 16.5" deep X (see table for height)
Weight: Approx. 45 lbs

Shipping Information:

3 Boxes 1 @ 31"x31"x14"
2 @ 16"x16"x16"



Mounting Height Table		
Dash Number	Minimum height from ground to bottom of light source @ 0 degree elevation	Overall fixture height
-14	14.00 in.	24.15 in.
-16	16.00 in.	26.15 in.
-18	18.00 in.	28.15 in.
-20	20.00 in.	30.15 in.
-22	22.00 in.	32.15 in.

Isolation Transformer Requirements

200W 6.6A

Standard Part Numbers

RGLE804-CM114-1B

Current driven, Aviation Yellow Lens, monitored

Spare Parts and Accessories

100 Watt Pk-30d Lamp	LA000006	Front Ring Assembly	01A01040
5-Pole receptacle	11A01050	200 Watt 6.6/6.6A Isolation Transformer	ET20066601
Traffic Yellow Lens	FL000005	Primary Connector Kit #8	EK54D4D4
Lens Gasket	08A01000-3	Primary Connector Kit #6	EK54D3D3
Lens Clip	08A01000-4	Heatshrink Tubing (Qty 1)	1AL33MSPLKIT

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Medium Intensity Airport Rotating Beacon

FAA Type: L-801

Conforms to: FAA AC 150/5345-12C
ICAO Annex 14

Application:

Honeywell offers a Medium Intensity Rotating Beacon used to identify airports, heliports and seaplane bases. The Medium Intensity Rotating Beacon is commonly used at general aviation airports and can be equipped with a photocell for automatic on / off switching. Additional detail may be found in FAA Advisory Circular 150/5345-12C.

Product Highlights:

- **Easy Installation**
 - Equipped with leveling legs and leveling device
 - Installs on a 12" x 6" platform
- **Minimum Maintenance**
 - 4000 hour quartz lamps
 - Minimal parts to maintain
- **Photocell option for day/night on-off control (good for unattended airports)**
- **Heater option allows use to -55°C**
- **4 light beacon with lamp changer and indicator light visually notify maintenance personnel a lamp is out, but continues to operate per specification**
- **Beacon poles and L802 High Intensity Beacons are available (Contact factory)**



Order Information

GEA30-2	2 Light Beacon
GEA30-3	3 Light Beacon(Heliport)
GEA30-4	4 Light Beacon with Lamp Changer
-H	Internal Heater
-P	Photocell Option

Spare Parts and Accessories

Q1000PAR64NSP	1000 Watt 120V Lamp
AP3510G	Green Filter
AP3510Y	Yellow Filter
GEA80012	Bi-Pin Lamp Socket with cords
GEA30039	Filter Clip
GEA30041	Motor Assembly
GEA30019-1	Shaft
SR-22	Slip Ring
GEA30043	Heater Assembly
GEA30046-1	Photocell Assembly

Dimensions:

Size:	26" x 26" x 24"
Weight:	44 lbs.

Shipping Information:

Volume:	11.25 Cu. Ft.
Weight:	100 lbs.

Specifications

Input Power	120VAC 60Hz (220VAC 50Hz available)
Lamp Type	1000W Quartz Halogen
Lamp Output	200,000 Candela
Lamp Heads	Cast Aluminum
Housing Color	International Orange
Drive Unit	Heavy Duty Geared Drive
Slip Rings	Heavy Duty

REIL Runway End Identifier Lights

FAA Type: L-849

Certification Pending

Application:

Runway End Identifier Lights (REIL) are used to alert approaching pilots of the beginning of the runway. REIL systems feature flashing lights that flash 60-120 times each minute, are typically located at the outer limits of the runway threshold, and are angled 10-15 degrees away from the approach centerline so as to not interfere with the sight of the pilots while on approach. The flashers are typically omni-directional, but in some Visual Flight Rule (VFR) circumstances, the flashers may be uni-directional. REIL Systems are available in High Intensity (Style A), Low Intensity (Style C), or Three Intensity (Style E). Additional detail may be found in advisory circular 150/5345-51.



System Specification:

Item	Style A System	Style C System	Style E System
Input Power			
Voltage	114/228 to 126/252 60 Hz, Single Phase, 3-Wire		
Current	4 Amps		
Photometric Output			
Low Intensity	N/A	350 - 1050 Candela	150 to 450 Candela
Medium Intensity	N/A	N/A	750 to 2250 Candela
High Intensity	7,500 - 22,500 Candela	N/A	7,500 - 22,500 Candela
Flash Timing			
Flash Rate	60 - 120 Flashes Per Minute		
Flash Duration	250 - 400 Microseconds		
Mode of Operation	Local or Auto Control	Local or Auto Control	Radio, Local, or Auto
Environmental			
Temperature	-55C to +55 C (-67F to +131F)		
Humidity	Up to 100%		
Elevation	10,000 Ft.		

Master Control Cabinet (style E only)

Theory of Operation:

The control cabinet contains the operating control circuits, power switching and timer required to operate the flasher power supply. All of the components are mounted on the component panel and control panel. The major subassemblies and parts are: master timer (PWA); control panel; current sensors (optional); lightning arrestor (PWA); power transformer; and intensity control relays.

Dimensions:

Size: 28" x 23" x 8.5"

Weight: 80 lbs



Flasher Power Supply (Master and Slave)

Theory of Operation:

The master power supply (Style A and C only) contains the operating control circuits, power switching and timer required to operate as a flasher power supply and control the other flasher power supply (slave). The slave power supply is identical to the master except it does not generate its own timing signal or have an optional current sensor. All of the components are mounted on the component panel and control panel. The major subassemblies and parts are: master timer (PWA); control panel; current sensors (optional); lightning arrestor (PWA); power transformer; and intensity control relays.

Dimensions:

Size: 18" x 16.5" x 8.5"

Weight: 80 lbs

Flasher Light Head

Theory of Operation:

The flasher light head contains the flash tube which, when ionized by a high voltage trigger pulse, offers a low resistance path for the 2k Vdc charged on the flash capacitors. The discharge current results in a short duration flash of light. The flash head mounts separate from the power supplies, to allow for remote mounting and easy maintenance of the power supply

Dimensions:

Size: 18" x 16.5" x 8.5"

Weight: 80 lbs



Ordering Information

Note: All REIL Systems are supplied with Floor Flanges and Frangible Couplings

Model Number	Description
GEA20-0508A	High Intensity REIL System
GEA20-0508ACS	High Intensity REIL System with Current Sensing Relay
GE20-0712A	Low Intensity REIL System
GEA20-0712ACS	Low Intensity REIL System with Current Sensing Relay
GE3836-0003	Three Intensity REIL System
GE3836-0003CS	Three Intensity REIL System with Current Sensing Relay

Optional Equipment

Model Number	Description
GEA21010	Series Power Adapter, 6.6A Input
GEA21020	Series Power Adapter, 20A Input
GEA80008	Aiming Device
GEA20362	Flasher Tester, 120 VAC Input

For a complete listing of spare parts and accessories please contact the factor

Honeywell Airport Systems

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PAPI Precision Approach Path Indicators

FAA Type: L880/L881

Certified to: FAA AC 150/5345-28D
 Compliant to: Transport Canada TP312
 ICAO Annex 14
 USAF AFMAN 32-1076

Application:

Precision Approach Path Indicators are used to give visual indications of glide slope to pilots approaching a runway. A typical system consists of a master control box and 2 or 4 Light Housing Assemblies (LHA) that are aimed into the approach. The LHAs are designed to shine either red or white light, depending on the viewer's angle of the LHA. In a properly aligned 4 LHA system, a pilot will see two white lights and two red lights when on the correct glide slope. An indication of 4 white lights warns the pilot that the airplane is too high, while an indication of 4 red lights signifies the airplane is too low.



Product Highlights:

- 3 Lamp system will meet photometric specifications with one lamp out, allowing the runway to remain active
- Tilt switch assembly automatically shuts down Light Housing Assembly if aiming angle is knocked out of tolerance
- Flange on outside of unit allows leveling without removing cover
- Three leg mounting system provides stability and easier leveling
- Both Style A (120/240 VAC) and Style B (6.6A) available in 2 or 4 box systems
- Photocell/Remote control option standard
- Current Sensing control optional

Dimensions:

Sub-Assembly:	Size:	Weight:
Power/Control Unit (Style A only)	16"x16"x8"	50 lbs
Light Housing Assembly	9"x22"x33"	100 lbs.
Aiming Device	6.5"x11.5"x3.5"	2.5 lbs.

Signal

Message

L880:

	Way Too High
	Too High
	Just Right
	Too Low
	Way Too Low

L881:

	Too High
	Just Right
	Too Low

Standard Part Numbers

TT35000	L880 Style A, 1 Power Control Unit, 4 Light Housing Assembly (3 Lamps each)
TT35050	L881 Style A, 1 Power Control Unit, 2 Light Housing Assembly, (3 Lamps each)
TT35150	L880 Style B, 1 Master Light Housing Assembly, 3 SlaveLight Housing Assembly, (3 Lamps each)
TT35155	L881 Style B, 1 Master Light Housing Assembly, 1 Slave Light Housing Assembly, (3 Lamps each)

Spare Parts and Accessories

GEX0044	200 Watt, 6.6A Lamp
TT35024-1	Red Filter Assembly
GE35100	Aiming Instrument
TT142	T1 Transformer (Style A only)
TT35018-2	Tilt Switch Assembly Left
TT35018-1	Tilt Switch Assembly Right
B1A0009SDE3	Base Flange
TT35022-1	Mounting Leg
51-3-021	Frangible Coupling, 2"
TT144	Transformer (Style B only)
TT143	Transformer (Style A only)
GE35002-1	Reflector Assembly

Additional Items Required for Style B Systems

Qty.(L881)	Part Number	Description
4(2)	BV0167CC24	L867D Basecan
4(2)	BV0167B382-3	L867D Baseplate, 3/8" Thick
2(6)	ET20066601	L830 Isolation Transformer, 200W, 6.6/6.6A
4(2)	EK54D4D4	L823 Primary Connector Kit #8
12(6)	EK90PA6	L823 Secondary Connector Plug #12
8(4)	1AL33MSPLKIT	Heatshrinkable Tube (16" long)

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Wind Cones Lighted/Unlighted

FAA Type: L-807

Application:

Wind Cones provide indication of wind velocity and direction to approaching aircraft. Both lighted and unlighted wind cones are available with both Frangible and Rigid Supports. Lighted wind cones are also available both internally and externally lit. Additional details may be found in FAA Advisory Circular 150/5345-27C.



(Unlighted Wind Cone)

Product Highlights:

- Lamps are vibration free and protected from the elements
- 100% lamp light to sock at all times
- Uses no brushes; Doesn't get twisted
- Virtually maintenance free
- Extended wind cone frame mounted on double bearings, indicates wind direction with even the slightest breeze
- Socks made of durable bright orange nylon, extra grommets, and is secured to the frame with nylon straps
- Conversion kits are available for 18" and 36" cones
- 18" model uses 2-75W all weather flood lamps
- 36" model uses 2-150W all weather flood lamps

Dimensions:

Size: 11.95" dia x 4" deep
Weight: 14 lbs.

Shipping Information:

Volume: 0.7 Cu. Ft.
Weight: 17 lbs.

Wind Cone Assemblies

LGW308	18" x 8" Internally Lit Wind Cone Size I
LGW312	36" x 12" Internally Lit Wind Cone Size II
LGW510	8' Hinged Pole
LGW516	16' Hinged Pole
GEA40-180	18" x 8" Unlit Wind Cone Size I w/OB Light
GEA40-360	36" x 12" Unlit Wind Cone Size II w/OB Light

Spare Parts and Accessories

LGW 418	Conversion Kit Size I Cone
LGW 436	Conversion Kit Size II Cone
LGW 450	Rotor Assembly
L208	18" x 8" Size I Nylon Sock
L212	36" x 12" Size II Nylon Sock
OB20A31	L-810 Obstruction Light
LH116120GE	116W, 120VAC OB Lamp
LA075120P38	Par 38, 75W, 120VAC Lamp for Size I Cone
LA151131P38	Par 38, 150W, 130VAC Lamp for Size II Cone

Retroreflective Taxiway Markers

FAA Type: L-853

Certified to: FAA AC 150/5345-39B - Type II

Application:

Honeywell Retroreflective Taxiway Markers can be used to either augment the effects of taxiway edge lights, or serve as the sole means of outlining the taxiway areas. When used to supplement edge lights, the markers can be used to help identify curves and other areas, when closer spacing of lights is required. Taxiway Markers should only be used as a sole means of outlining taxiways for low activity, general aviation airports that do not get enough traffic to warrant the expense of operating a taxiway circuit. Additional details may be found in FAA Advisory Circular 150/5345-39B.

Product Highlights:

- **Pop-out coupling eliminates collision damage** - If struck by any object, marker releases from the anchor, using patented pop-out coupling. Nothing to break; Simply insert marker back into the coupling with no damage done to either the vehicle or the marker
- **Brilliantly reflects light from aircraft or other vehicles.**
- **Made to desired height, from 14" to 30"**
- **The reflective surface is available in blue, red, silver, yellow, or a combination of reflective colors.**
- **No tools needed** - hand-screw pop-out coupling into anchor
- **Easy installation** - Drive steel anchor in flush with surface

Dimensions:

Marker

Size: 3" dia x 14" to 30" length
Weight: 1 to 2.5 lbs.

Stake

Size: 3" x 18"
Weight: 2.75 lbs.

Anchor Stake



(Baseplate NOT included)

Part Number	Description
L111	Retroreflective Markers 14" to 30" complete with 18" anchor and 2" pop-out coupling
L111B	Blue
L111Y	Yellow
L111R	Red
L111S	Silver

To order use: L111 X X	
Color	↗
Length	↘

Lighted Airfield Signs

Certified to: FAA AC 150/5345-44F

Compliant to: ICAO Annex 14
 Transport Canada TP312E
 USAF AFMAN 32-1076



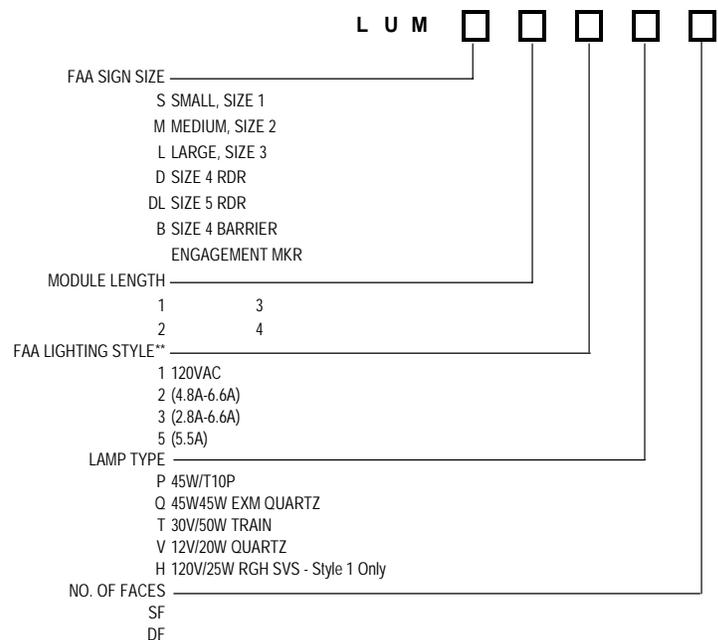
Application:

Honeywell Airport Systems supplies Lumacurve signs, as manufactured by Standard Signs. Lighted Airfield Signs provide guidance, location information, and mandatory instructions to aircraft maneuvering through the sometimes confusing maze of runways and taxiways. The signs are available in different sizes and lengths, and maintain constant brightness regardless of the style of circuit the sign is on. Unlighted signs are available, and are reflective in nature. These, however, are most commonly used on general aviation or private airstrips.

Product Highlights:

- **Lighted Signs available in Style 1(120VAC), Style 2(4.8-6.6A), Style 3(2.8-6.6A), and Style 5(5.5A)**
- **Low VA Sign available with power factor >.85 for all signs.**
- **Modular design allows easy panel changes**
- **Single and Double Face signs available**
- **No special tools required to re-lamp**
- **Power cord comes up through the leg; no external wires needed**
- **Optimal external switch allows for local control (maintenance friendly)**
- **Legends included with all signs**
- **Unlighted Signs (Style 4) available in sizes 1, 2, and 3(contact factory)**
- **For assistance with sign length sizing please contact the factory**
- **Contact factory for Isolation transformer requirements**

Order Information



Shipping Information: (per module)

Size	Volume	Weight
1	6 cu.ft.	50 lbs.
2	10 cu.ft.	70 lbs.
3	15 cu.ft.	85 lbs.
4	22 cu.ft.	157 lbs.

Portable Traffic Signal

FAA Type: E-2214A

Application:

A Portable Traffic Signal (PTS) is used by the airport controller to give visual instructions to landing aircraft, providing a choice of aviation red, aviation green, or clear high intensity light signal (150,000 candelas; clear beam) for signalling.

In use, the PTS is aimed at the target aircraft using gunbarrel type sights, and the appropriate color is signalled.

The FAA requires two PTS's in each control tower. The units are normally mounted from the ceiling with retractable power and suspension reels, with 12 feet of cable on each. This saves space and allows the PTS to be used quickly and easily in emergency situations. The reel assemblies are adjustable to most height requirements.

The PTS is available with either a 120V 60Hz or 220V 50Hz to 14VAC stepdown transformer, and a 3 foot power cable for connecting to the input power source. When the PTS is ceiling mounted, the power transformer should be mounted next to the power and suspension reels. When the PTS is not ceiling mounted an optional Auxillary 20 foot power cable assembly, Model GEA108 may be used.



Shipping Information:

Volume: 21" x 16.5" x 16.5"
Weight: 21 lbs.

Order Information

GEA104 Portable Traffic Signal
with 220VAC 50Hz Transformer
GEA105 Portable Traffic Signal w/120VAC Transformer

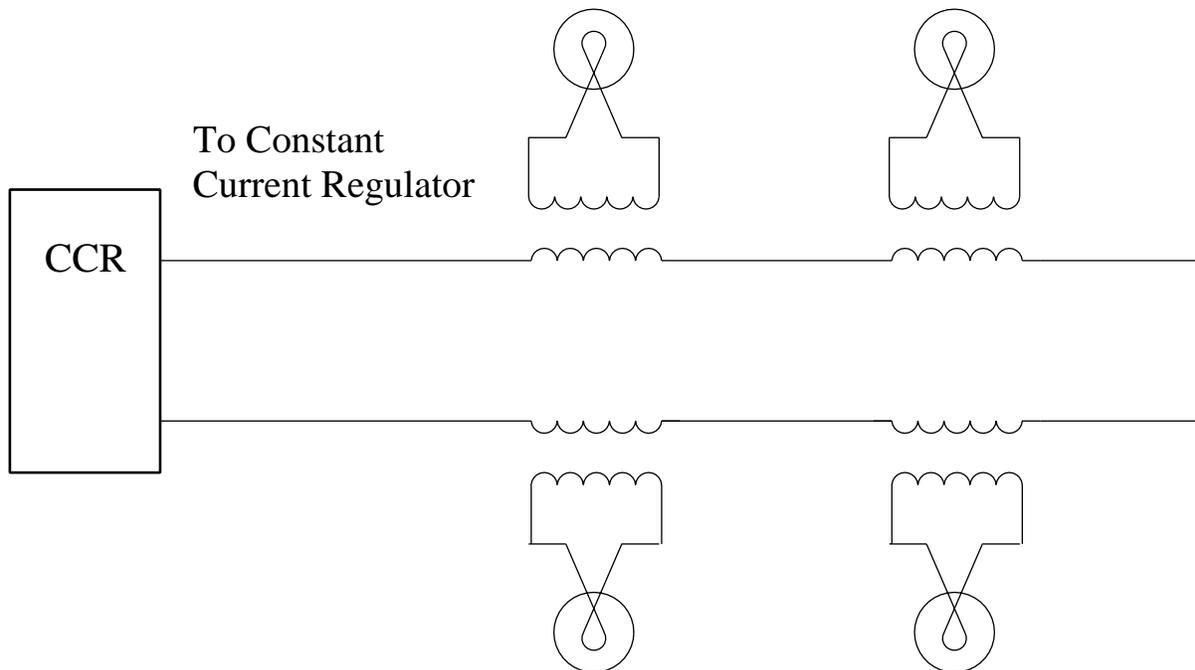
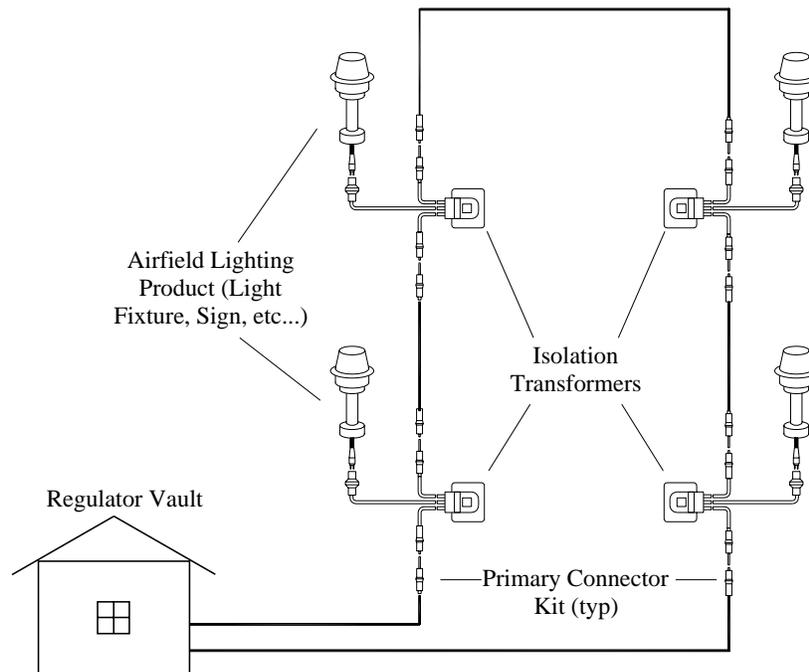
Spare Parts and Accessories

GEA105-1	Light Gun, Portable Signal
GEA106	Power and Suspension Reels
GEA107	120V, 60Hz Transformer
GEA111	220V, 50Hz Transformer
GEA108	Auxillary 20' Power Cable Assembly
FL6345A	Lamp, Prefocus
FL6435	Lens, Aviation Red
FL6436	Lens, Aviation Green
FL6347	Reflector
FL6348	Lens, Flat Clear

Specifications

Input Power	120VAC, 50/60Hz; Option: 220VAC 50HZ
Lamp Rating	35 Watts
Lamp Type Prefocus	FL6345, 26.6VDC, 1.33A
Transformer Type	Stepdown to 120VAC to 14VAC
Signal Colors	Aviation Red, Aviation Green, Clear

Typical Series Lighting Circuit



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Series Isolation Transformers

I. Application

Honeywell Airport Systems supplies Amerace Ltd. Series Isolation Transformers for use in Airfield Lighting Circuits. The transformers isolate constant current lamps from the high operating voltages typically found in the series circuit. The transformers also isolate the lamps from the other lamps, so in the event of a lamp failure, the rest of the lamps in the circuit will remain lit.



II. Design Features

- Certified to FAA AC 150/53455-47
- Rubber Encapsulated / Completely Waterproof
- Two Primary Leads (24" long*) rated at 5000 Volts with FAA Style 2 Plug and Style 9 Receptacle
- Secondary Lead (48" long*) rated at 600 Volts with FAA Style 8 Receptacle
- Available for both 50 Hz and 60 Hz applications
- For use in either 6.6A or 20A circuits
- Full Load Power Factor > 0.97 for all transformer sizes

* different length leads available on request

III. Ordering Information

FAA Designation	Honeywell Part Number	Rated Wattage	Primary Amps	Secondary Amps	Shipping Weight (lbs.)
L-830-1	ET04566601	30/45	6.6	6.6	5.2
L-830-2	ET04526601	30/45	20	6.6	5.2
L-830-3	ET06566601	65	6.6	6.6	7.7
L-830-4	ET10066601	100	6.6	6.6	7.7
L-830-5	ET10026601	100	20	6.6	8.0
L-830-6	ET20066601	200	6.6	6.6	10.8
L-830-7	ET20026601	200	20	6.6	10.8
L-830-8	ET30062601	300	6.6	20	15.1
L-830-9	ET30022601	300	20	20	17.0
L-830-10	ET30066601	300	6.6	6.6	15.8
L-830-11	ET30026601	300	20	6.6	17.5
L-830-12	ET50062601	500	6.6	20	17.6
L-830-13	ET50022601	500	20	20	18.5
N/A	ET50066601	500	6.6	6.6	18.0
N/A	ET50026601	500	20	6.6	18.5

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Primary Connector Kits

I. Application

Honeywell Airport Systems supplies Amerace Ltd. Primary Connector Kits for use in Airfield Lighting Circuits. These connector kits can be used to make waterproof connections from the primary lighting cable to the series isolation transformer.

II. Design Features

- Certified to FAA AC 150/5345-26
- Each Kit includes:
 - L-823 Style 3 Male Pin
 - L-823 Style 3 Male Housing
 - L-823 Style 10 Female Pin
 - L-823 Style 10 Female Housing
 - Instruction Sheet
- Housings are molded in synthetic rubber for watertight connections
- Can be used with screened or unscreened cable
- Can be used with stranded or solid cable
- For use with various sizes of conductors and outer jackets



III. Ordering Information

FAA Designation	Honeywell Part Number	Conductor Size (stranded)	Conductor Size (solid)	Min. Insulation Outer Dia.	Max. Insulation Outer Dia.
L-823	EK54C4C4	8 AWG	6 AWG	0.250"	0.330"
L-823	EK54D4D4	8 AWG	6 AWG	0.320"	0.430"
L-823	EK54E4E4	8 AWG	6 AWG	0.420"	0.585"
L-823	EK54D3D3	6 AWG	4 AWG	0.320"	0.430"
L-823	EK54E3E3	6 AWG	4 AWG	0.420"	0.585"
L-823	EK54F3F3	6 AWG	4 AWG	0.575"	0.785"

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Secondary Connector Kits

I. Application

Honeywell Airport Systems supplies Amerace Ltd. Secondary Connector Kits for use in Airfield Lighting Circuits. They can be used to assemble secondary extension cords, terminate fixture leads, or connect to the secondary lead of a transformer



EK90PA6



II. Design Features

- Certified to FAA AC 150/5345-26
- Available for use with two separate conductors (EK90 Series) or with a two conductor cable (EK91 Series)
- Each Kit includes:
 - Male or Female insert
 - Connector housings
 - Silicone Lubricant
 - Instruction Sheet
- Can be used with stranded or solid cable
- For use with various sizes of conductors and outer jackets



EK90RA6



III. Ordering Information

FAA Designation	Honeywell Part Number	Conductor Size (stranded)	Conductor Size (solid)	Min. Insulation Outer Dia.	Max. Insulation Outer Dia.
L-823 Style 4	EK90RS6	10-12 AWG	12-14 AWG	0.120"	0.160"
L-823 Style 4	EK90RA6	10-12 AWG	12-14 AWG	0.155"	0.205"
L-823 Style 11	EK90PS6	10-12 AWG	12-14 AWG	0.120"	0.160"
L-823 Style 11	EK54PA6	10-12 AWG	12-14 AWG	0.155"	0.205"
L-823 Style 5	EK91RD6	10-12 AWG	12-14 AWG	0.320"	0.430"
L-823 Style 5	EK91RE6	10-12 AWG	12-14 AWG	0.420"	0.585"
L-823 Style 12	EK91PD6	10-12 AWG	12-14 AWG	0.320"	0.430"
L-823 Style 12	EK91PE6	10-12 AWG	12-14 AWG	0.420"	0.585"

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Heat Shrinkable Tubing Kit

I. Application

Honeywell Airport Systems supplies 3M Heatshrinkable Airport Lighting Kits for use with Airfield Lighting Circuits. These kits are typically used at connector interfaces between the primary series cable and the series isolation transformer to ensure water tightness at the joint.

II. Kit Contents

- The kit contains:
 - 16" Heatshrink Tube
 - Cleaning Pad
 - Instruction Sheet

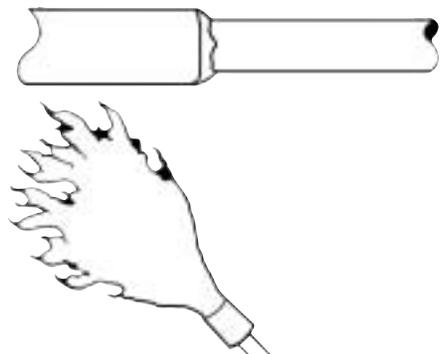


III. Instructions

- Prepare Cable
- Wipe loose dirt from cable
- Slide heatshrink tubing over cable before making electrical connection
- Make electrical connection
- Clean cable using provided cleaning pad
- Apply Heatshrinkable Tubing
- Center tubing between the connectors
- Apply heat beginning at center and working towards both ends of the connection (Fig. A)
 - A torch that produces a long, broad flame will shrink the tubing quickly. Avoid using small flames
 - Heat guns may be used, so long as the minimum shrink temperature of 275°F is attained
- Continue heating until there is a smooth, tight fit and melted adhesive squeezed from the ends (Fig. B)



(Fig. A)



(Fig. B)

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Airfield Lighting Base Cans and Accessories

I. Application

Honeywell Airport Systems supplies Base Cans and Accessories approved to FAA AC 150 5345-42C as manufactured by Olson Industries. The base cans and accessories are used to mount elevated or in pavement light fixtures and for use as junction boxes for cable splice joints. Typically, the isolation transformer is housed within the base can, and the series cable is brought in and out of the can through conduit openings at the bottom. Light fixtures are mounted on either flange rings (in pavement lights), or covers with conduit hubs (elevated lights).

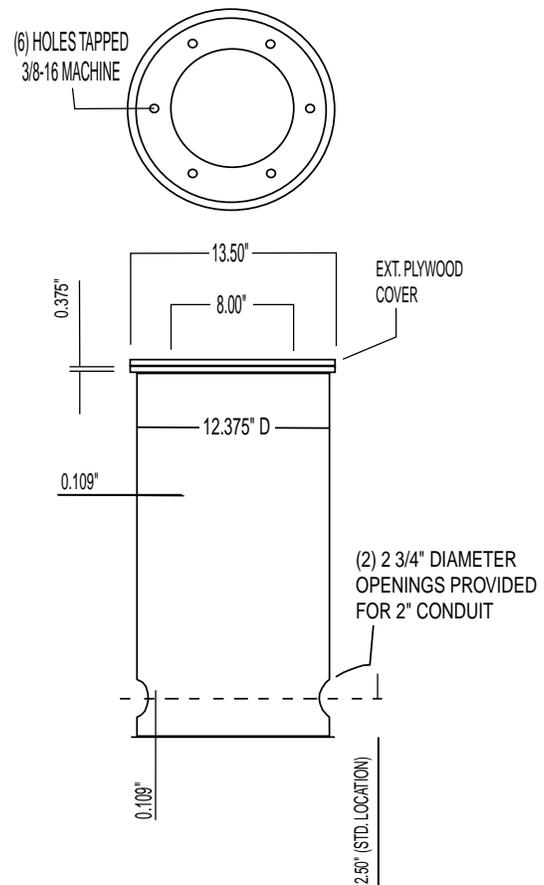


II. Types of Base Cans

- L-867 - Non Load Bearing
- Typically used with elevated lights, signs, and cable splices
- L-868 - Load Bearing
- Typically used with in pavement lights and cable splices where higher strength cans are required
- L-869 - Junction Box
- Typically used for splice connections only

III. Accessories

- Steel Covers and Gaskets
- Used to either mount lights (when conduit hub is attached) or to cover cans used only as transformer housings or junction boxes
- Spacer Rings and Extensions
- Available from 1/16" to 8" to bring the can mounting surface to the proper height
- Flange Rings
- Similar to spacer rings, but include an o-ring groove to assist in water tightness of the base can
- Adapter Rings
- Used to adapt light fixtures to either larger base cans or different types (ex. L-868B to L-867B)



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Series Circuit Power Adapters

I. Application

Honeywell Airport Systems offers 4 styles of power adapters used in airfield lighting circuits. These power adapters convert constant current to constant voltage to power items not designed for use with a constant current source. Power adapters are typically used for Wind Cones, Runway End Identifier Lights (REIL), weather equipment, and even tools such as drills and soldering irons. For permanent applications, they mount in either an L-867B (SA-series) or L-867D (GEA-series) Standard Light Base.



II. Design Features

- Approved to FAA Specification FAA-E-2159
- Can be used with a 50 or 60 cycle power source
- Power adapters yield constant voltage (+/- 10%) over full range of the constant current regulators
- Up to 700 Watt, 120/240 VAC load available
- Supplied with Molded L-823 Connectors

III. Ordering Information

Honeywell Part Number	Product Description	Regulator Style	Maximum Power Output	Typical Applications	Shipping Weight
SA06D120275S	Power Adapter, 6.6A/120 VAC with internal isolation xfmr	3 Step	150 Watts	Small Wind Cones w 2x75W Lamps, Small Electric Tools	23 lbs.
		5 Step	100 Watts	Small Electric Tools	23 lbs.
SA06T120250S	Power Adapter, 6.6A/120 VAC	3 Step	266 Watts w/ 300 Watt xfmr	Small Wind Cone w/ 2x75W Lamps w/ Obstruction Light	23 lbs.
-	-	3 Step	416 Watts w/ 500 Watt xfmr	Large Wind Cone w/ 2x150W Lamps w/ Obstruction Lamp	23 lbs.
-	-	5 Step	300 Watts w/ 500 Watt xfmr	Small Wind Cone w/ 2x75W Lamps w/ OB Light, or Large Wind Cone w/ 2x150W Lamps	23 lbs.
GEA21010	Power Adapter, 6.6A/120/240 VAC with internal isolation xfmr	3 or 5 Step	700 Watts	REIL Systems	105 lbs.
GEA21020	Power Adapter, 20A/120/240 VAC with internal isolation xfmr	3 or 5 Step	700 Watts	REIL Systems	105 lbs.

For additional information and technical data, please contact us.

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Single Obstruction Lights

Certified to: FAA AC 150/5345-43E
 Compliant to: Transport Canada TP312E
 ICAO Annex 14
 USAF AFMAN 32-1076

Application:

Honeywell obstruction lights are designed for the lighting of television, radio, communications, microwave, transmission line towers, and other obstructions to aerial navigation as specified by the FAA, FCC, ICAO, DGAC of Mexico and Transport Canada. They are also used with wind cones and other elevated airfield lighting products.

The OB20 and OB21 single obstruction lights are equipped with a screw base lamp receptacle. The fixtures are cast aluminum and utilize flange type Red Fresnel lenses. The fixtures are available with either side entrance (OB20) or bottom entrance (OB21) for 3/4" or 1" conduit fittings. The fixtures are suitable for use with either 120 or 230 VAC lamps.

Photometric Specifications:

Beam Spread: 360° Horizontal
 3° Minimum Vertical
Effective Intensity: ≥ 32 Candela

Mechanical Specifications:

Base Material: Cast aluminum with aviation orange, powdercoat paint finish.
Lens: Heat resistant glass, red.

Environmental Specifications:

Temperature: -55°C to +55°C (-67°F to 130°F)
Humidity: 95% Relative Humidity
Misc: Will withstand exposure to wind-blown rain from any direction.
 Will withstand exposure to salt-laden atmosphere.
 Will withstand windspeed of 240 kph (150 mph).



Models

OB20A31	3/4" bottom conduit entrance
OB20A41	1" bottom conduit entrance
OB21A31	3/4" side conduit entrance
OB21A41	1" side conduit entrance

Spare Parts and Accessories

LH116120GE	GE 120 VAC, 116 Watts
LH116120DHL	Durotest 120 VAC, 116 Watts
LH116230DT	Durotest 230 VAC, 116 Watts
FL02B02810	Red Fresnel Lens
XLCB4S200	Lamp Receptacle
A6A0008AG	Neoprene Gasket

Dimensions:

Size: 9" H x 5.5" W x 5.5" L
Weight: 4 lbs.

Shipping Information:

Volume: 0.2 cu. feet
Weight: 5 lbs.

Double Obstruction Lights

FAA Type: L-810

Certified to: FAA AC 150/5345-43E

Compliant to: Transport Canada TP312E

ICAO Annex 14

USAF AFMAN 32-1076

Application:

Honeywell obstruction lights are designed for the lighting of television, radio, communications, microwave, transmission line towers, and other obstructions to aerial navigation as specified by the FAA, FCC, ICAO, DGAC of Mexico and Transport Canada. They are also used with wind cones and other elevated airfield lighting products.

The OB22 and OB24 double obstruction lights are equipped with two screw base lamp receptacles. The fixtures are cast aluminum and utilize flange type Red Fresnel lenses. The fixtures are available with either side entrance (OB22) or bottom entrance (OB24) for 3/4" or 1" conduit fittings. The fixtures are suitable for use with either 120 or 230 VAC lamps.

In many circumstances it is highly desirable, or required, to employ a lamp transfer relay with a double obstruction light. Upon failure of the first lamp, the relay will transfer power to the second, or standby lamp. The relay is mounted within the fixture base. This relay is of the single pole, single throw, normally closed type. Only one lamp in the double obstruction light is energized when a transfer relay is used.

Photometric Specifications:

Beam Spread: 360° Horizontal
3° Minimum Vertical

Effective Intensity: ≥ 32 Candela

Mechanical Specifications:

Base Material: Cast aluminum with aviation orange, powdercoat paint finish.

Lens: Heat resistant glass, red.

Environmental Specifications:

Temperature: -55°C to +55°C (-67°F to 130°F)

Humidity: 95% Relative Humidity

Misc: Will withstand exposure to wind-blown rain from any direction.
Will withstand exposure to salt-laden atmosphere.
Will withstand windspeed of 240 kph (150 mph).



Models Numbers

OB22A31	3/4" bottom conduit entrance
OB22A41	1" bottom conduit entrance
OB24A31	3/4" side conduit entrance
OB24A41	1" side conduit entrance
OB22A31TM1	3/4" bottom conduit entrance, 120VAC
OB22A41TM1	1" bottom conduit entrance, 120VAC
OB24A31TM1	3/4" side conduit entrance, 120VAC
OB24A41TM1	1" side conduit entrance, 120VAC
OB22A31TM2	3/4" bottom conduit entrance, 230VAC
OB22A41TM2	1" bottom conduit entrance, 230VAC
OB24A31TM2	3/4" side conduit entrance, 230VAC
OB24A41TM2	1" side conduit entrance, 230VAC

Spare Parts and Accessories

LH116120GE	GE 120 VAC, 116 Watts
LH116120DHL	Durotest 120 VAC, 116 Watts
LH116230DT	Durotest 230 VAC, 116 Watts
FL02B02810	Red Fresnel Lens
XLCB4S200	Lamp Receptacle
A6A0008AG	Neoprene Gasket

Dimensions:

Size: 9.25" H x 5.5" W x 11.5" L

Weight: 8.25 lbs.

Shipping Information:

Volume: 0.4 cu. feet

Weight: 9 lbs.