Installation and Operation Manual

IFH-1900-0IR

L-864(L)
Red Obstruction Light

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itl International Tower Lighting, LLC™

Front Matter

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Please send any comments regarding the manual to support_doc@itl-llc.com.

Safety Warning

This equipment uses lethal voltages which can cause serious injury and/or death. Do not attempt to service this equipment with line power applied. Only trained and qualified personnel should install, maintain or troubleshoot this equipment.

The LED lamps used in this equipment produce brilliant flashes of light and infrared (IR) radiation. Temporary or permanent eye damage may result from looking directly at the LED flash head while it is operating.

Do not rely on interlock switches to remove lethal voltages from the system. Measure for voltages using a voltmeter to ensure that power is off and has been completely removed.

Do not wear any jewelry. Gold and silver are excellent conductors of electricity.

This equipment emits near infrared radiation. Avoid direct eye exposure.

Table of Contents

List of Illustrations and Tables

Introduction

Congratulations! You have purchased one of the most advanced red LED/Infrared obstruction lights available today. This product is the result of many years of engineering with extensive input from field service personnel.

Please take the time to read and familiarize yourself with this manual. It contains the information necessary to install, test and troubleshoot the IFH-1900-0IR.

Product Description

The IFH-1900-0R is a medium intensity red LED lighting obstruction light as defined by FAA Advisory Circular AC 150/5345-43 and Transport Canada's Canadian Aviation Regulations (CAR) 621. This obstruction light meets or exceeds the specifications as defined in the advisory circular and CAR when operated as specified. For more information please refer to the FAA or Transport Canada websites.

www.faa.gov/airports/resources/advisory_circulars.
www.Canada.ca

This obstruction light is designed to be flashed at 30 flashes per minute (30 FPM) and 53% duty cycle by an obstruction light controller which is not included. For a complete red obstruction lighting system see part number ILS-1900-0IR.

Figure 1: IFH-1900-0IR Flash Head.

Theory of Operation

IFH-1900-0IR L-864(L) Series flash heads consist of one string of Red Light Emitting Diodes (LEDs) and one string of Infrared Emitters. Infrared Emitters are used for increased conspicuity with night vision systems. A microprocessor controlled current source supplies power to the Red LED string and the Infrared Emitter string. The microprocessor measures the current through each string as well as the voltage of each string to determine if any malfunction requiring shut down exists. Upon detection of a malfunction the microprocessor turns off both the LED and Infrared strings to enter a low power mode allowing the ground-based controller to detect and report an alarm condition.

Specifications

Designed to meet FAA Advisory Circular 150/5345-43 and Transport Canada CAR 621 requirements for L-864(L) and

Environment

Temperature	-40ºC to +55ºC
Humidity	less than 95% relative humidity (non-condensing)

Photometric

Night Intensity	2,000±25% effective candelas, Red 264 mW/sr (min), 800-900nm, Infrared Beam Pattern 360º horizontal, ≥3º vertical

Operation

Flash Rate	30 flashes per minute (FPM)
Duty Cycle	53% (minimum)

Mechanical

Dimensions	Height: 11” (28cm) Diameter: 16.5” (42cm)
Weight	28lbs (13Kg) each

Electrical

Input Power:	120/240 Vac, 50/60Hz,
Flash Head VA:	24 VA (each IFH-1900-0IR flash head)
Suppression:	300 Joule, 275V

Installation

The following section describes how to install the IFH-1900-0IR Obstruction Light. Additional drawings and installation instructions are included with the lighting system and should be reviewed before installation begins.

Broadcast Tower Installations

Installations on AM, Hot AM and FM broadcast towers require additional installation steps that are beyond the scope of this manual. Please request *ITL Broadcast Tower Recommended Practices* (DOC-AMFM-MNL.pdf) via the contacts listed at end of this manual.

Unpacking your IFH-1900-0IR

Please examine the shipping containers and their content thoroughly upon receipt and report any potential shipping damage to the carrier.

Tools for Installation

The following tools are suggested for mounting of the ITL power supply and LED beacon.

- Digital multi-meter capable of reading 600VAC/DC (Fluke 177 or 179)
- Nut Drivers and Sockets
- #2 Phillips Screwdriver
- 5/16 Flat Head screwdriver
- 1/8 Flat Head screwdriver
- Crimp Tool
- Needle Nose Pliers

Quick Installation Guide

The quick start guide shows how to install the LED lighting system.

- Certain broadcast applications require special installation considerations due to the presence of high RF fields. See ITL document DOC-AMFM-MNL.pdf for further information.
- Mount IFH-1900-0IR flash head(s) using the hardware supplied. Level each IFH-1900-0IR flash head using the procedure described in section *Flash Head Leveling*. Ensure the metal flash head base makes electrical contact with the

tower structure. Remove paint from the tower structure as necessary. The flash head must be mounted in the upright position. Ground the flash head using the lug provided on the flash head base and an AWG 6 or larger copper conductor.

- Connect LED flash head cable (CBL-TC14-03S) from the power supply cabinet to the obstruction light controller following the procedure described in section *Flash Head Cable Termination* in this manual. The flash head cable shield drain wires must be grounded in the Flash Head and in each junction box.
- Connect LED flash head cable (CBL-TC14-03S) to the obstruction light controller (see controller manual for details). The flash head cable shield drain wires must be grounded in the controller.
- Apply power to the obstruction light controller.
- Assuming day time ambient light levels, allow a few minutes for the system to read the photocell and set the operating mode to Day mode.
- Cover PEC and verify that the system switches from Day to Night mode
- Verify that there are no alarms while operating in Night mode.
- Verify that each IFH-1900-0IR flash head produces a red flash 2 seconds.
- In the IFH-1900-0IR flash head, press and hold button PB1 until a red and IR alarm are indicated and the IFH-1900-0IR stops flashing. Verify that the obstruction light controller reports an alarm condition. A short press of PB1 will cause the IFH-1900-0IR to resume normal operation.
- Uncover PEC and verify that the systems switches back to Day mode
- Toggle the obstruction light controller manual mode switch from Day to Night and observe that the unit's operation follows the switch
- Move manual toggle switch back to 'Auto' position
- The IFH-1900-0IR must be mounted in the upright position.

IFH-1900-0IR Flash Head Leveling

The flash head must be leveled properly for correct vertical beam spread. The diagram below details how use a compact "torpedo" level on two axes to ensure that the flash head is mounted level. Use galvanized steel or stainless steel shims as necessary to achieve level mounting of the flash head. Do not compromise grounding of the flash head.

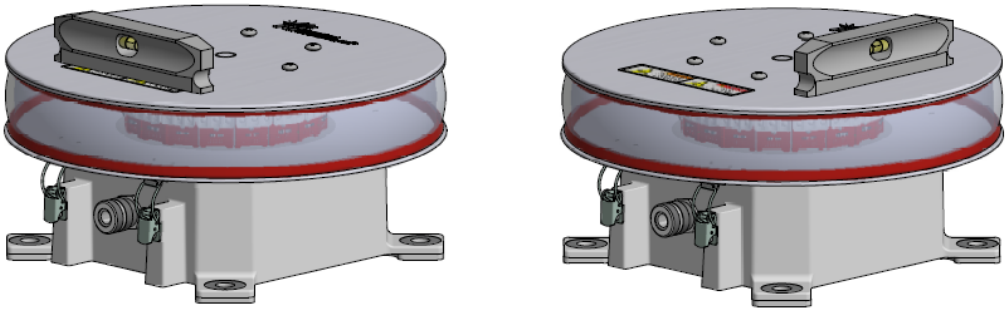
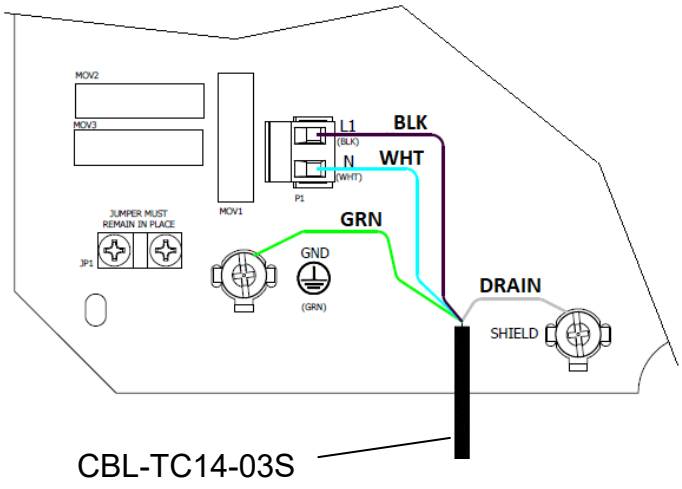


Figure 2: IFH-1900-0IR Flash Head Leveling – Axis 1 and Axis 2

IFH-1900-0IR Flash Head Cable Termination

Use only ITL cable, part number CBL-TC14-03S, for connecting the flash head to the controller. The cable contains three (3) color coded AWG14 conductors surrounded by a foil shield and a bare drain wire. Connect each color coded conductor to the corresponding terminal in the flash head as shown below. Secure all screw terminals firmly. When terminating the flash head cable in the obstruction light controller and in the flash head the drain wire must be grounded. Ground screws are provided in both the flash head and the power supply for grounding the drain wire. The length of the drain wire inside the power supply and flash head should be as short as possible.



IFH-1900-0IR Flash Head Mounting

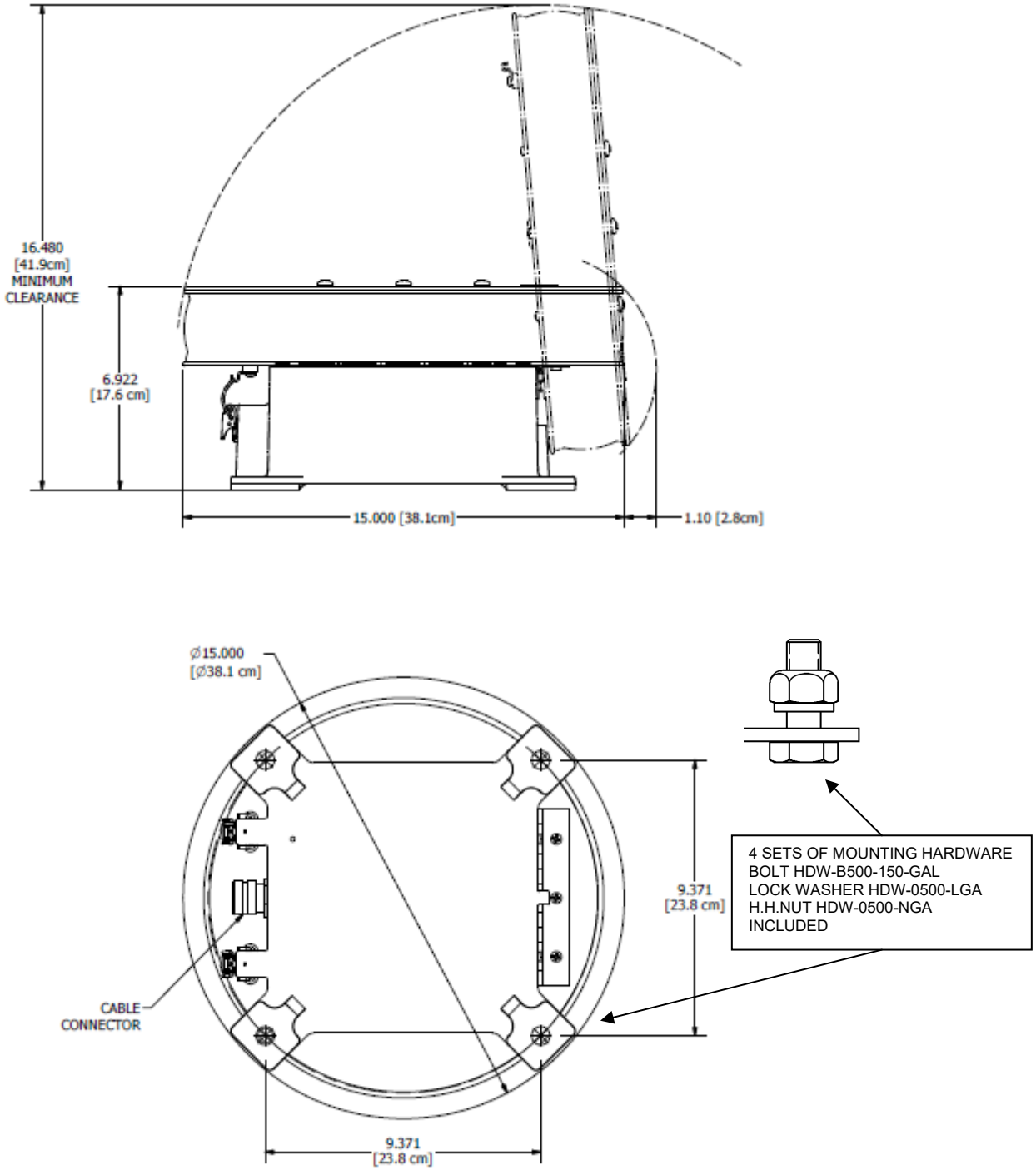


Figure 3: IFH-1900-0IR Flash Head Dimensions and Mounting Detail

IFH-1900-0IR Flash Head Grounding

A lug is provided on the flash head base for grounding as shown below. AWG 6 copper conductor or larger should be used.

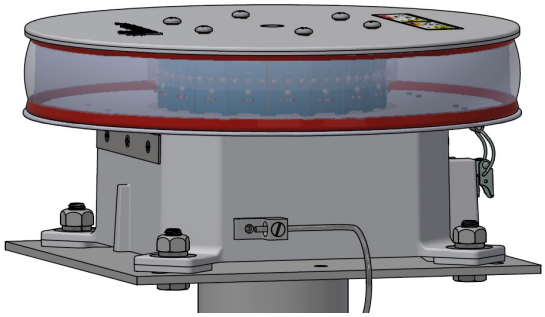


Figure 4: Flash Head Grounding

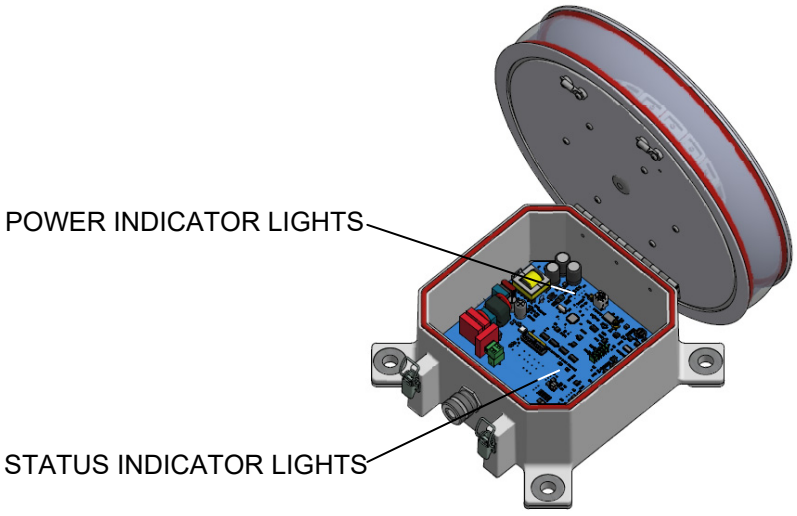
IFH-1900-0IR Operation

The IFH-1900-0IR flash head does not require any configuration. DIP switch SW1 should be left in the factory default positions. The IFH-1900-0IR is designed to be flashed at 30 flashes per minute (30 FPM) and 53% duty cycle by an obstruction light controller which is not included.

IFH-1900-0IR Indicator Lights

The IFH-1900-0IR flash head contains several indicator lights that can be of assistance in determining the cause of a failure. The indicator lights are located on the main control board in the bottom of the flash head.

IFH-1900-0IR Indicator Lights	
Description	**Function**
24V (green)	On – Indicates 24VDC power present.
5V (green)	On – Indicates 5VDC power present.
3.3V (green)	On – Indicates 3.3VDC power present.
FLASH (yellow)	On – Indicates that AC power is applied to the input power connector P1.
CONFIRM (green)	On – Indicates that the correct current is present in both the Red LED string and the Infrared Emitter string.
RED ALARM (red)	On – Indicates a failure of the Red LED string.
IR ALARM (red)	On – Indicates a failure of the Infrared Emitter string.



IFH-1900-0IR Test Button

Pressing and holding push button PB1 labeled “TEST” will cause the IFH-1900-0IR to generate both a red and IR alarm condition. If held long enough the IFH-1900-0IR will stop flashing so that the obstruction light controller alarm reporting can be verified. A short press of PB1 will cause the IFH-1900-0IR to resume normal operation.

Technical Support and Contact Info

Contact Info

For information on the IFH-1900-0IR Obstruction Lighting System's basic functions, refer to this manual. For additional help with the installation or operation of any ITL products, please contact ITL, LLC at one of the following below.

Web and Internet Sites

Corporate home page: http://www.itl-llc.com

Customer Support Technicians

8:00 AM - 5:00 PM Central Time

US and Canada call: +1-615-256-6030

Toll Free: +1-866-624-8309

Email: support@itl-llc.com

RMA

Please contact ITL, LLC before returning equipment for repair and obtain a Return Material Authorization (RMA) number.

evision	Description of Change	Date	Preparer / Approval
0	Initial Release	6/9/2021	Prepared By: Ryan Gregory Approved By: Andy Rudolph