

Installation Instruction Manual

ILS-D1RW-8SP

ILS-D1RW-8SP-E1/E2
Dual LED Lighting Systems

ILS-D1RW-8SP-D1/D2
White LED Lighting Systems

ILS-D1RW-8SP-CAT
Catenary Dual & White LED Lighting
Systems



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Tower Lighting, LLC™

Front Matter

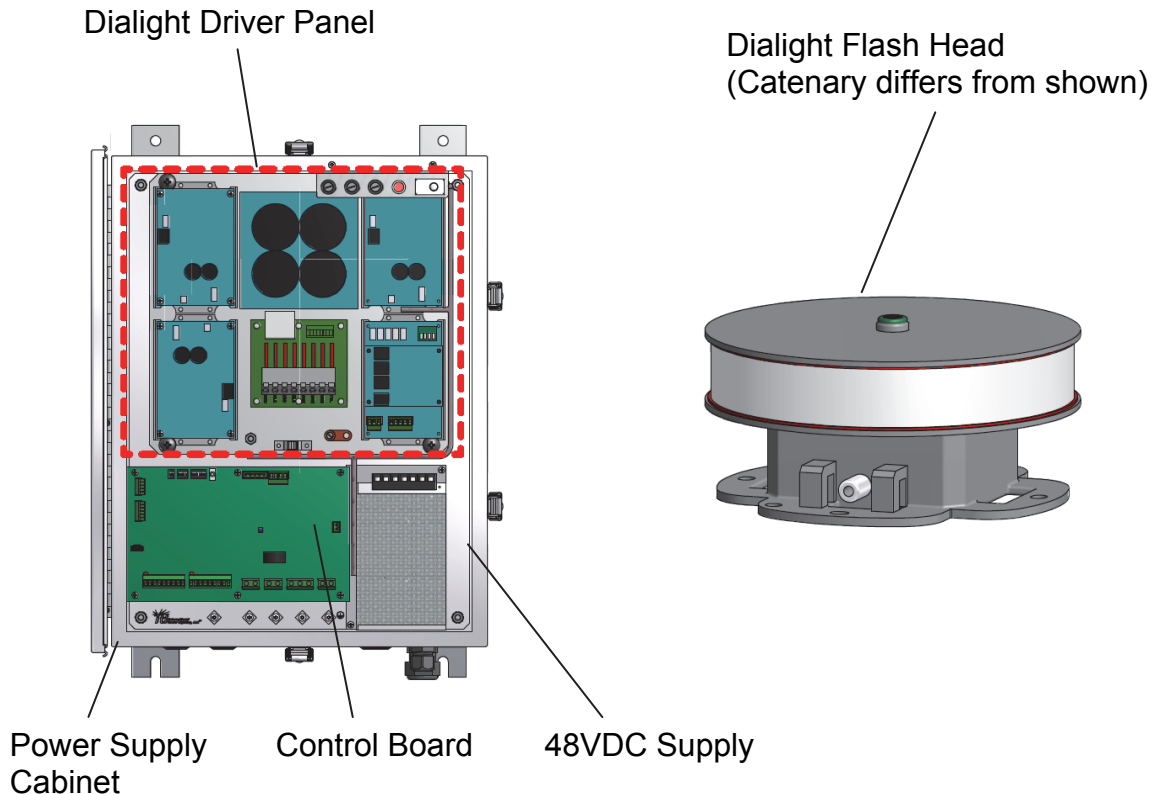
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Limited Warranty and Disclaimer

The ILS-D1RW is based on Dialight's OEM Dual Red Beacon/White Strobe (D1RW-C13-008SP or D1RW-L13-008SP). The Dialight Driver Panel is integrated with ITL control electronics into a stainless steel cabinet and is referred to as the Power Supply. When combined with the Dialight Flash Head, an ITL LED side light kit and Photocell kit this forms a complete medium intensity dual LED lighting system.



The Dialight components, including the Driver Panel and Flash Head, are warranted by Dialight Corporation. The Dialight warranty is provided in a separate document provided with this system and is available online at www.dialight.com.

ITL, LLC guarantees that all components the ILS-D1RW series LED Lighting System except the Dialight Driver Panel and Dialight Flash Head are free from physical defects of material and workmanship under normal use for two (2) year from the date of purchase. If the product proves defective during this warranty period, please contact ITL, LLC in order to obtain a Return Authorization Number, RMA. .

In no event shall ITL, LLC's liability exceed the price paid for the product from direct, indirect, special, incidental, or consequential damages resulting from the use of the product, its accompanying software, or its documentation. ITL, LLC makes no warranty or representation, expressed, implied, or statutory, with respect to its products or the

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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.

The LED lamp used in this equipment produces brilliant flashes of light, which contain ultraviolet radiation. Temporary or permanent eye damage may result if looking directly at the LED lamp while it is operating.

Do not rely on interlock switches or the bleeder circuit to remove lethal voltages from the system. Always discharge all capacitors individually before servicing. 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.

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Introduction

Congratulations, and thank you for choosing an ITL LED lighting system.

We trust that ITL's reputation for technical excellence, experience in product development, commitment to our customers and testing will ensure your complete satisfaction.

You have chosen one of the most technologically innovative LED lighting systems available on the market today. This product is the result of many years of engineering with extensive input from field service personnel.

This manual covers the

- ILS-D1RW-8SP FAA type L-864(L)/865(L) dual LED lighting system with side lights FAA type L-810(L)
- ILS-D1RW-8SP-CAT FAA type L-885(L)/866(L) compliant dual LED Catenary lighting system

Please take the time to read and familiarize yourself with this manual. It contains the information necessary to install, test and troubleshoot the lighting system.

Product Description

The ILS-D1RW is a medium intensity LED lighting system as defined by FAA Advisory Circular AC150-5345-43. This lighting system meets or exceeds the specifications as defined in the advisory circular. For more information on those specifications please refer directly to the FAA website www.faa.gov/airports_airtraffic/airports.

The ILS-D1RW is a complete dual white/red LED lighting system. This system produces 1 medium intensity white flash every 1.5 seconds (40 FPM) in Day Mode and a low intensity red flash every 3 seconds (20 FPM) in Night Mode. See major component block diagram below.

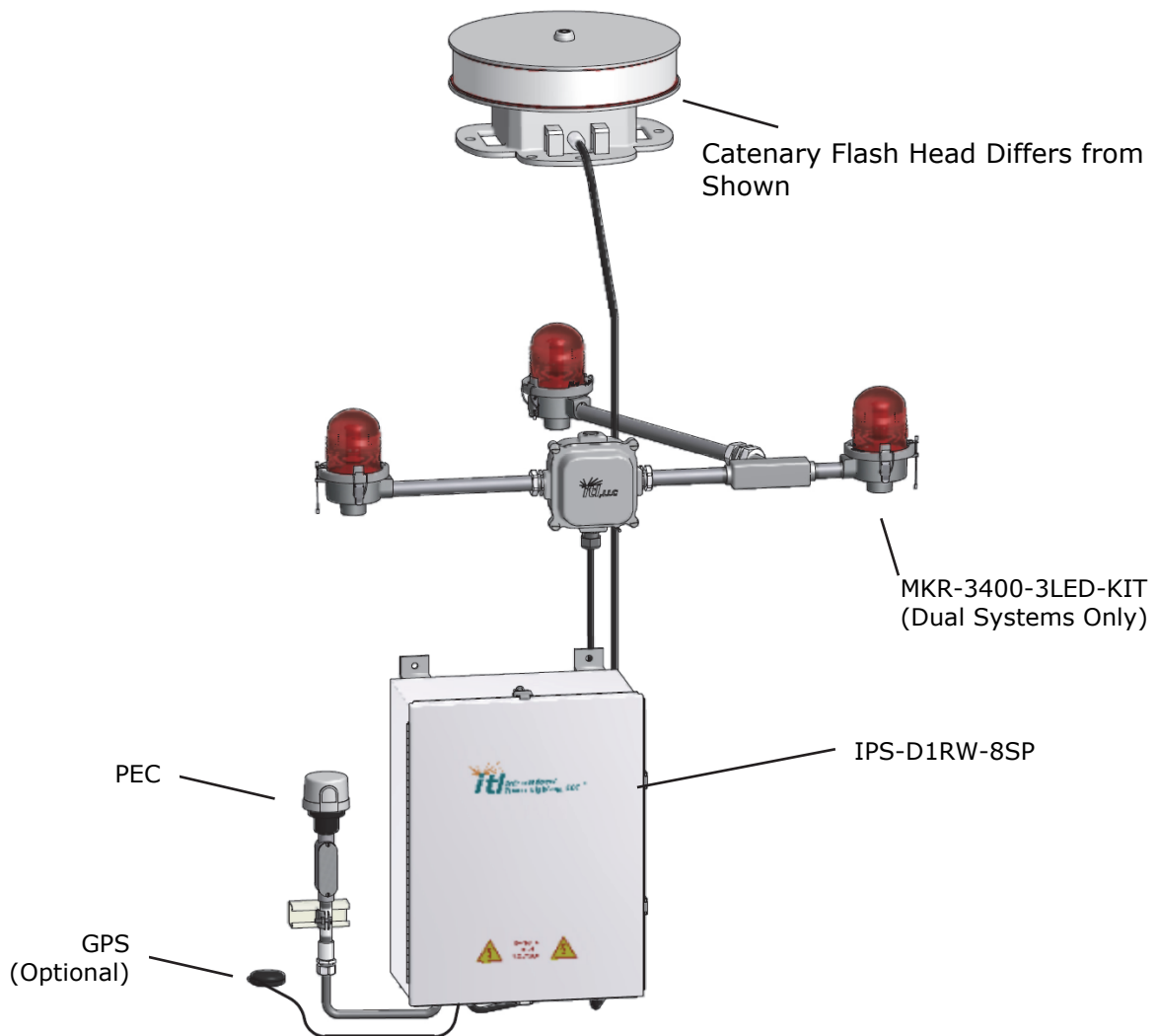


Figure 1: ILS-D1RW Dual LED System

Specifications

ETL Certified AC150/5345-43	Type L-865(L)/L-864(L)
Complies with AC 150/5345-43	Type L-866(L)/L-885(L)

Environment

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

Light Output

Day Intensity	20,000 +/-25% effective candelas
Night Intensity	2,000 +/-25% effective candelas
Beam Pattern	360° horizontal, ≥3° vertical
Day Flash Rate	40 FPM
White Night Flash Rate	40 FPM
Red Night Flash Rate	20 FPM
Side Lights	0 to 4 L-810(L) type LED

Mechanical

IFH-D1RW-8SP

Dimension	Height: 7.28" (18.5cm)
	Diameter: 16" (40.7cm)
Weight	26 lbs (11.7Kg) max

IFH-D1RW-8SP-CAT

Dimension	Height: 7.28" (18.5cm)
	Diameter: 17" (43.2cm)
Weight	28 lbs (12.7Kg) max

IPS-D1RW Power Supply

Dimension	Height: 23.63" (60.02cm)
	Width: 16.57" (42cm)
	Depth: 9.76" (24.8cm)
Weight	40 lbs (18.1Kg) max

Electrical

IPS-D1RW

Input Power	120/240VAC at 50/60Hz
Power Consumption	Day: 100W
	Red Night: 34W
	White Night: 12W

Installation

The following section describes how to install the LED lighting system.

Warning

- Failure to follow Dialight installation procedures can result in voiding the Dialight warranty on the flash head and driver panel. Read and understand all installation procedures listed below before proceeding with installation.

Installation and Maintenance Manual

For OEM Dual Red Beacon/White Strobe D1RW-C13-8SP: Doc No 9100-127-2131-99

Recommendations for Proper Grounding to Minimize Risk of Lightning Damage: See Manual

- Additional installation instructions are available at www.dialight.com.
- Connecting flash head wires incorrectly can cause damage to the flash head and/or power supply.
- Short circuiting flash head wires to the chassis, ground, or to any other electrical conductor while power is applied can cause damage to the flash head and/or power supply.
- Connecting or disconnecting flash head wires with power applied or before energy storage capacitors are completely discharged, can cause damage to the flash head and/or power supply.
- Operating this unit with any flash head wire disconnected can cause damage to the flash head and/or power supply.
- Damage caused by incorrect installation is not covered by the warranty.

Unpacking your LED Lighting System

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 Flash Head screwdriver
- Crimp Tool

- Needle Nose Pliers

Quick Installation Guide

The quick start guide shows how to install the LED lighting system. The guide provides only basic instructions for more details, refer to this document.

- Remove packaging material from inside power supply and flash head
- Install power supply and flash head
- Ground the power supply cabinet to the site grounding system using an AWG6 copper conductor.
- Install sidelights
- Connect LED cable to both, power supply and flash head following the procedure outlined in section *Flash Head Cable Termination* in this manual.
- Connect PEC
- Attach primary power cable
- Apply power to unit (pull interlock switch)
- 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.
- Verify that there are no alarms while operating in Day mode
- Verify that the flash head produces a bright white flash every 1.5s in 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 the flash head produces a red flash every 3s in Night mode
- Uncover PEC and verify that the systems switches back to Day mode
- Toggle manual mode switch from Day to Night and observe that unit's operation follows switch (PEC Alarm LED will be lit when switch is not in auto mode)
- Move manual toggle switch back to 'Auto' position
- Generate LED and sidelight failure and observe subsequent alarming
- All fixtures, enclosures and junction boxes must be mounted in the upright position.

Leveling

Flash heads need to be leveled properly for correct vertical beam spread. Use the “bull’s-eye” level mounted on the top of the flash head to ensure that the flash head is mounted level. The bubble should be contained within the inner-most circle of the level after the flash head has been fastened down. Use shims as necessary to achieve level mounting of the flash head. Do not compromise grounding of the flash head.

Flash Head Cable Termination

When terminating the flash head cable in the power supply and in the flash head use the procedure described below.

Strip back the flash head cable jacket without damaging the foil shield or bare drain wire. Unwrap the foil shield and drain wire to expose the colored wires. Wrap the foil shield (SILVER SIDE OUT) around the cable as shown. Secure the foil shield to the jacket using electrical tape covering only enough foil to ensure that it is secure. Install the cable into the clip so that the foil shield makes good electrical contact with the clip as shown. Ground the bare drain wire to the grounding lug. Match wire colors to the colors indicated on the terminal block. Strip enough insulation from each colored wire to ensure good electrical contact. Check that each wire is tightly held into each terminal.

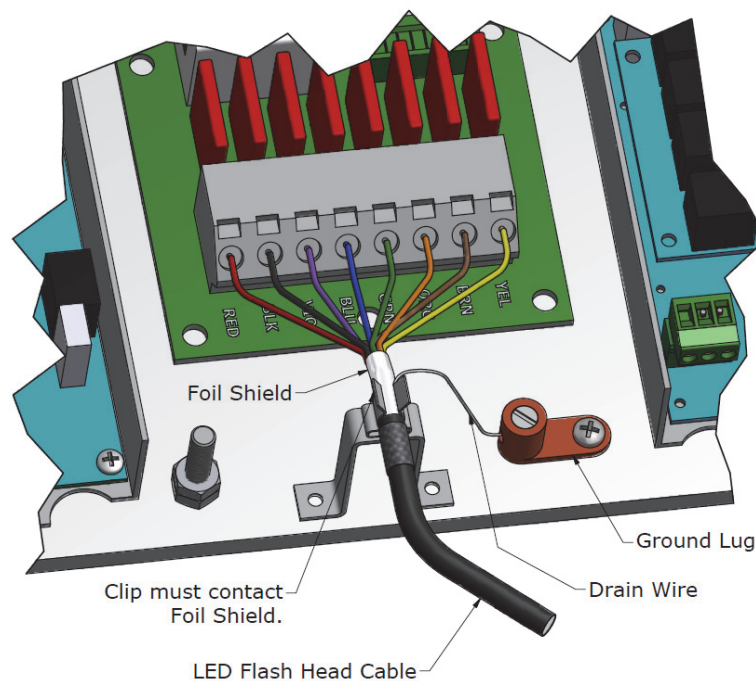


Figure 2: Flash Head Cable Termination

IFH-D1RW-8SP Mounting

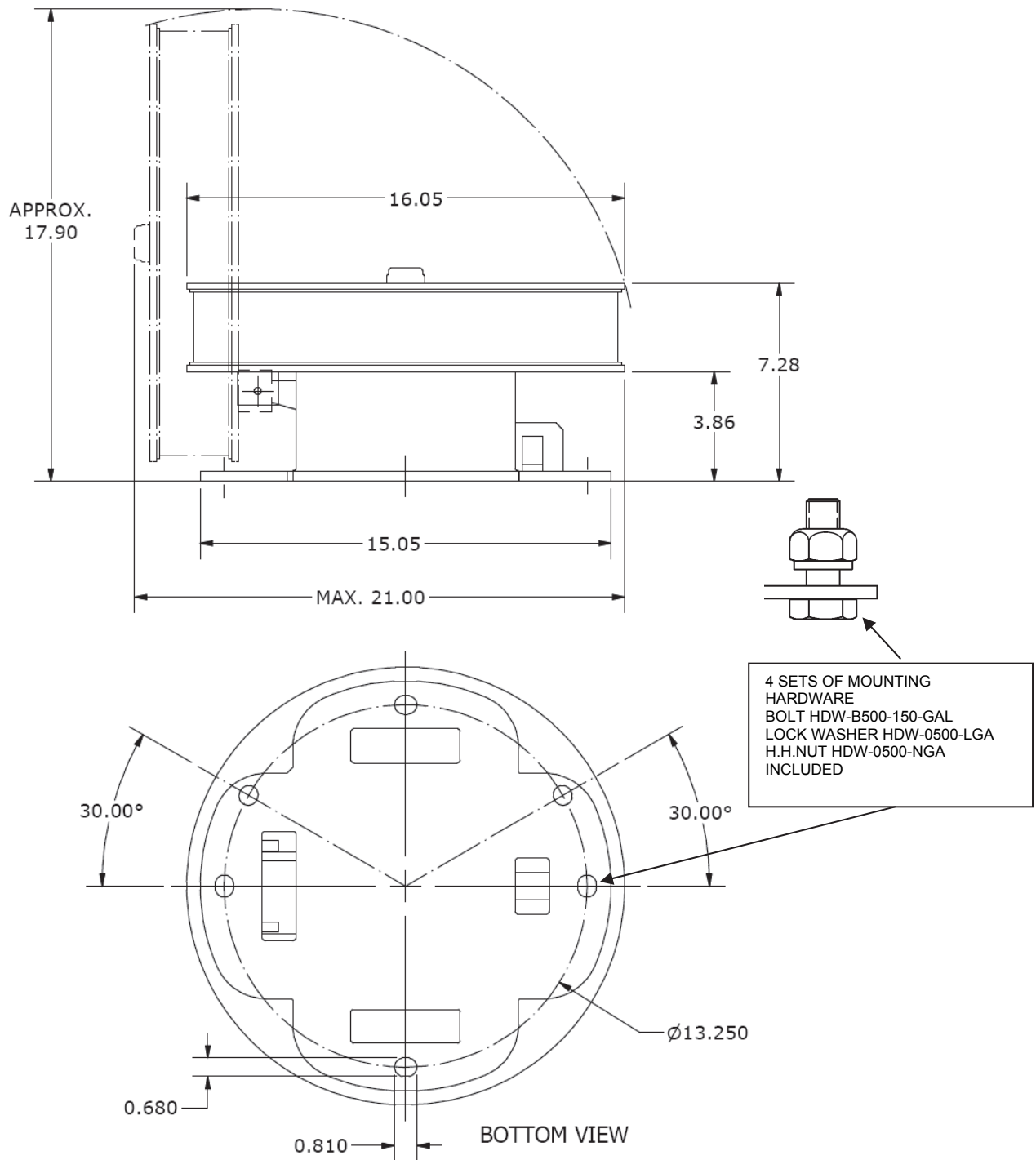


Figure 3: IFH-D1RW-8SP Beacon Dimensions and Mounting Detail

QTY	PART NUMBER	DESCRIPTION
1	IFH-D1RW-8SP	DUAL LED FLASH HEAD

Figure 4: IFH-D1RW-8SP Beacon Parts List Table

Power Supply

The Power Supply needs to be mounted to a properly grounded H-frame or a structure which provides a direct low impedance connection to earth ground.

The mounting cannot obstruct access to the power supply's internal components for the purpose of installing and maintaining the equipment. The following diagrams detail the mounting dimensions and clearance for proper access.

Power Supply Grounding

The power supply enclosure must be bonded to the site ground bus via a low impedance electrical connection. Mounting holes are provided on the bottom center of the enclosure for attachment of a two-hole (5/8" centers) compression lug for bonding to earth ground. AWG 6 copper conductor should be used.

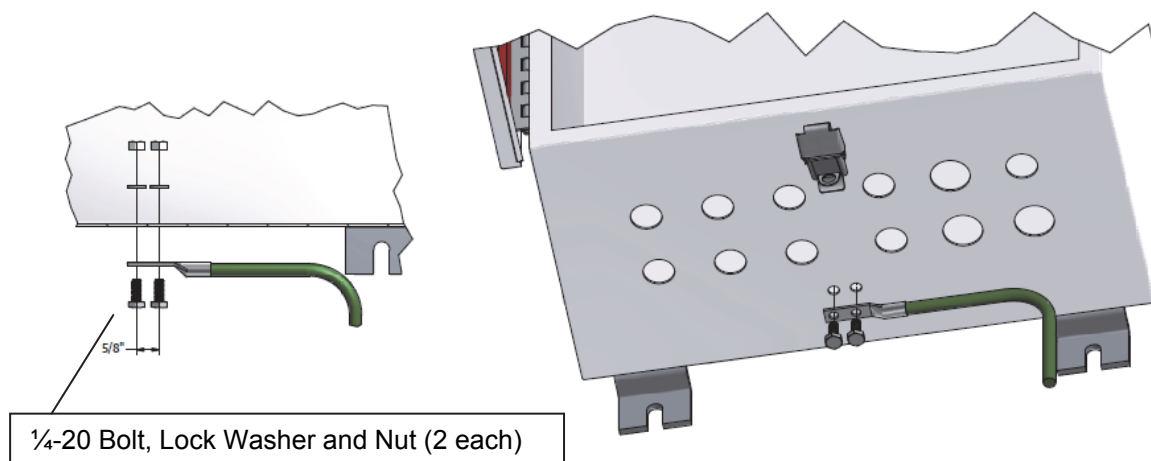


Figure 5: Power Supply Grounding

IPS-D1RW Power Supply Mounting

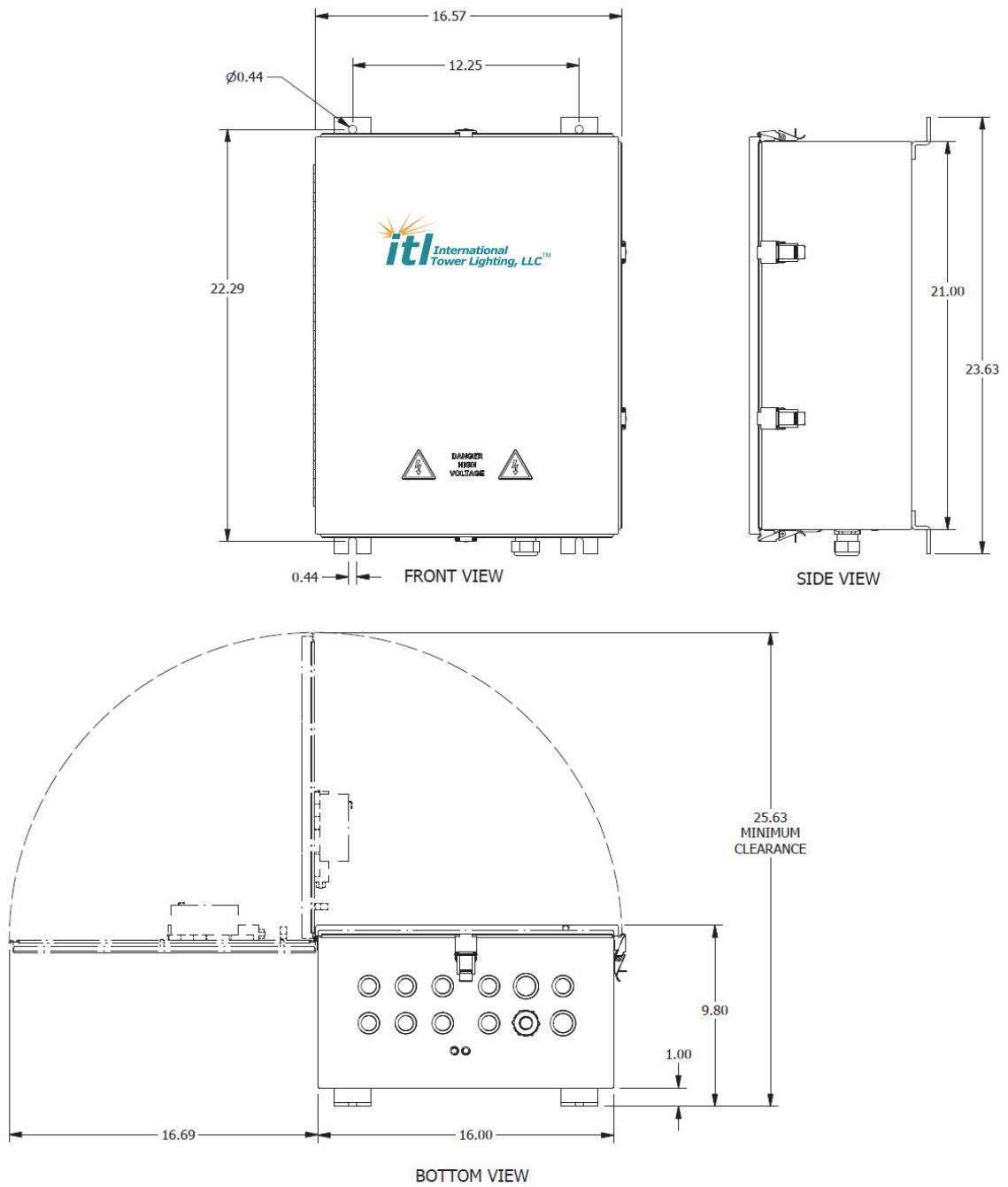


Figure 6: IPS-D1RW Power Supply Dimensions and Mounting Details

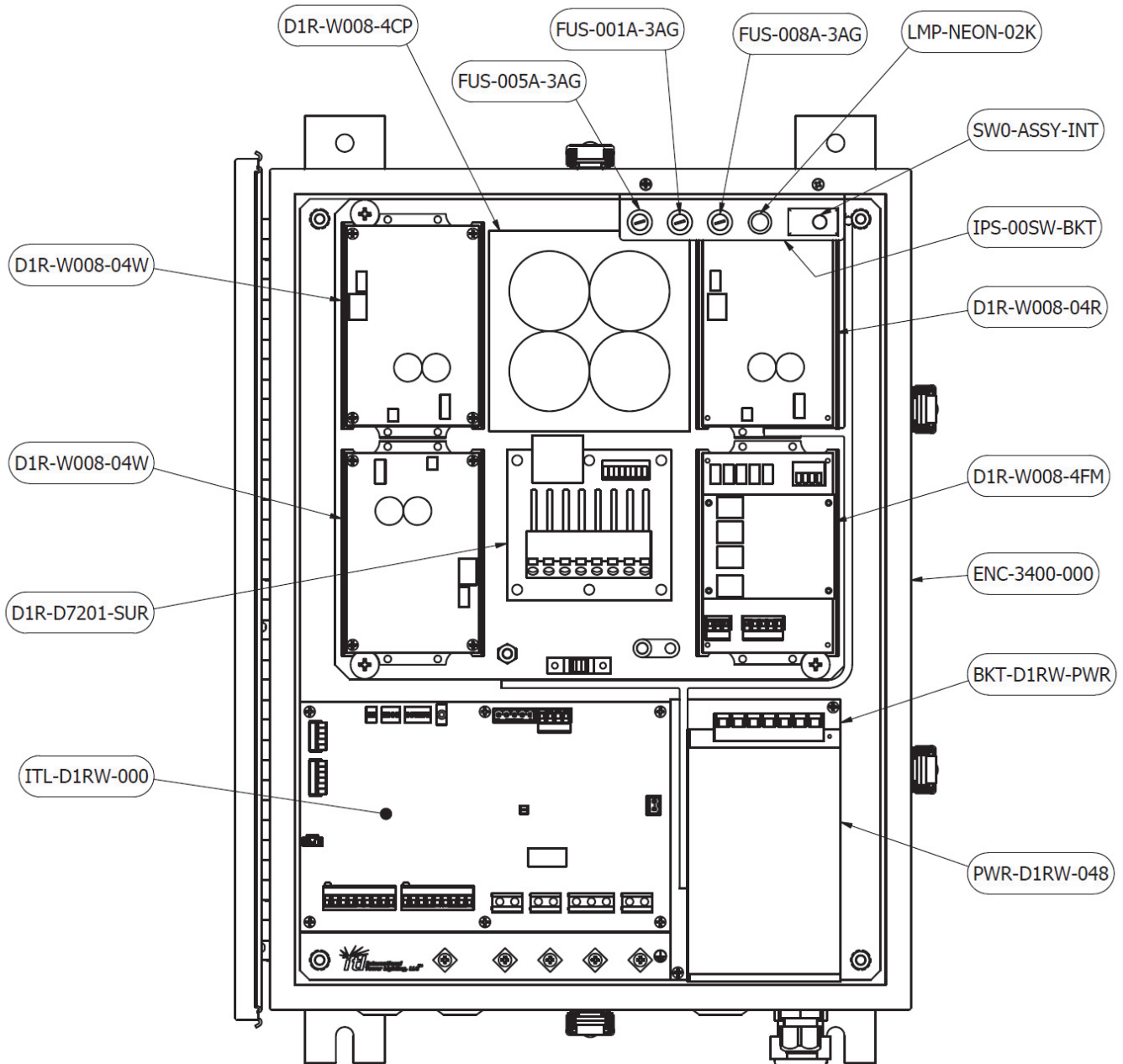


Figure 7: IPS-D1RW Power Supply Overall Component Layout

QTY	PART NUMBER	DESCRIPTION
1	ENC-3400-000	NEMA 4X ENCLOSURE
2	D1R-W008-04W	WHITE DRIVER MODULE
1	D1R-W008-04R	RED DRIVER MODULE
1	D1R-W008-4FM	MICROCONTROLLER/FILTER MODULE
1	D1R-W008-4CP	CAPACITOR MODULE
1	D1R-D7201-SUR	SURGE PROTECTION BOARD
1	ITL-D1RW-000	CONTROL BOARD
1	PWR-D1RW-048	POWER SUPPLY
1	SW0-ASSY-INT	INTERLOCK SWITCH
1	LMP-NEON-02K	NEON LAMP, RED, 120V
1	FUS-001A-3AG	FUSE 1A, 3AG, SLO-BLO
1	FUS-005A-3AG	FUSE 5A, 3AG, SLO-BLO
1	FUS-008A-3AG	FUSE 8A, 3AG, SLO-BLO
1	IPS-00SW-BKT	SWITCH, FUSE AND PILOT LIGHT BRACKET
1	BKT-D1RW-PWR	MOUNTING PLATE FOR POWER SUPPLY

Figure 8: IPS-D1RW Power Supply Parts List Table

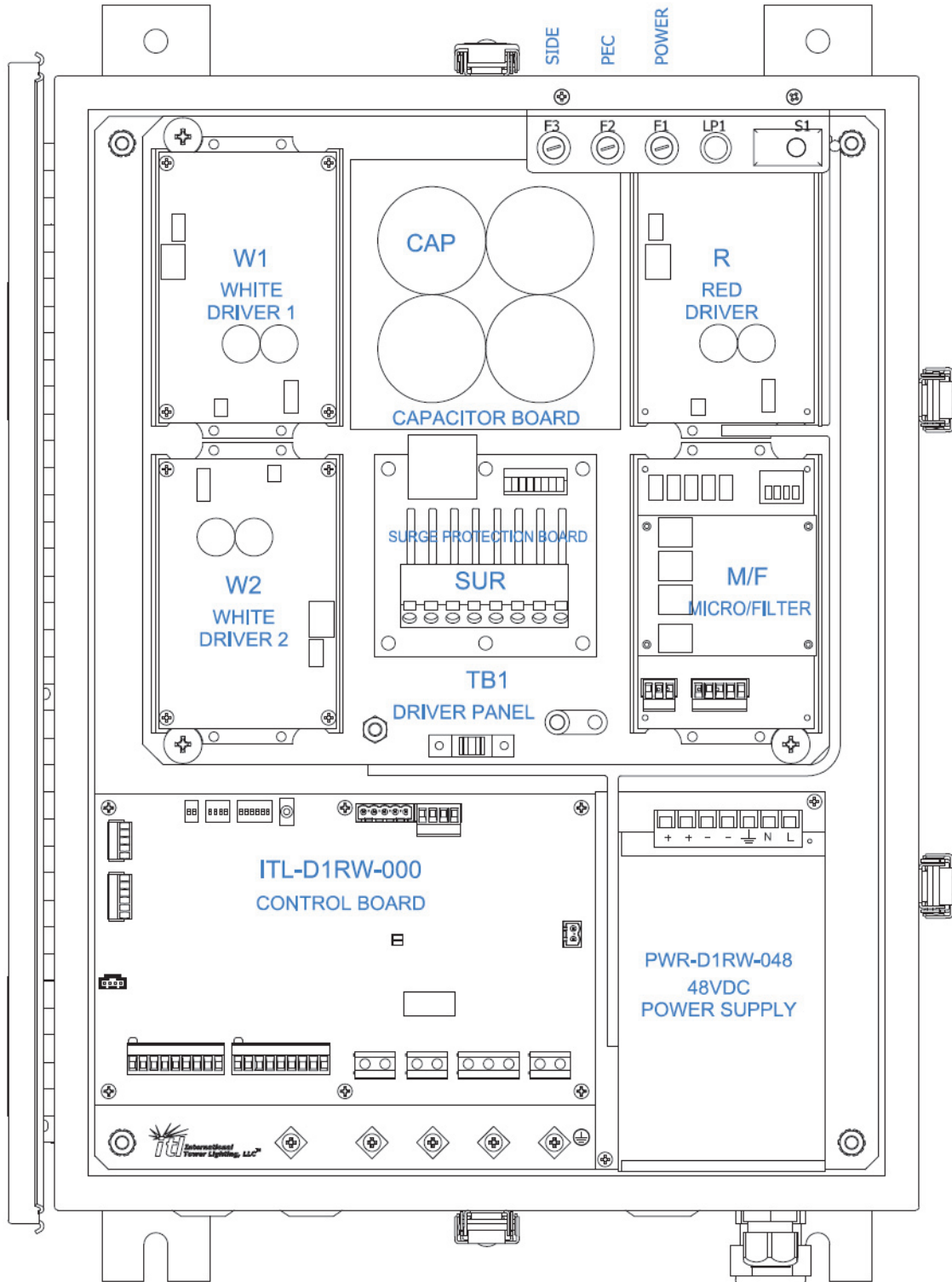


Figure 9: IPS-D1RW Power Supply Panel Component Locator

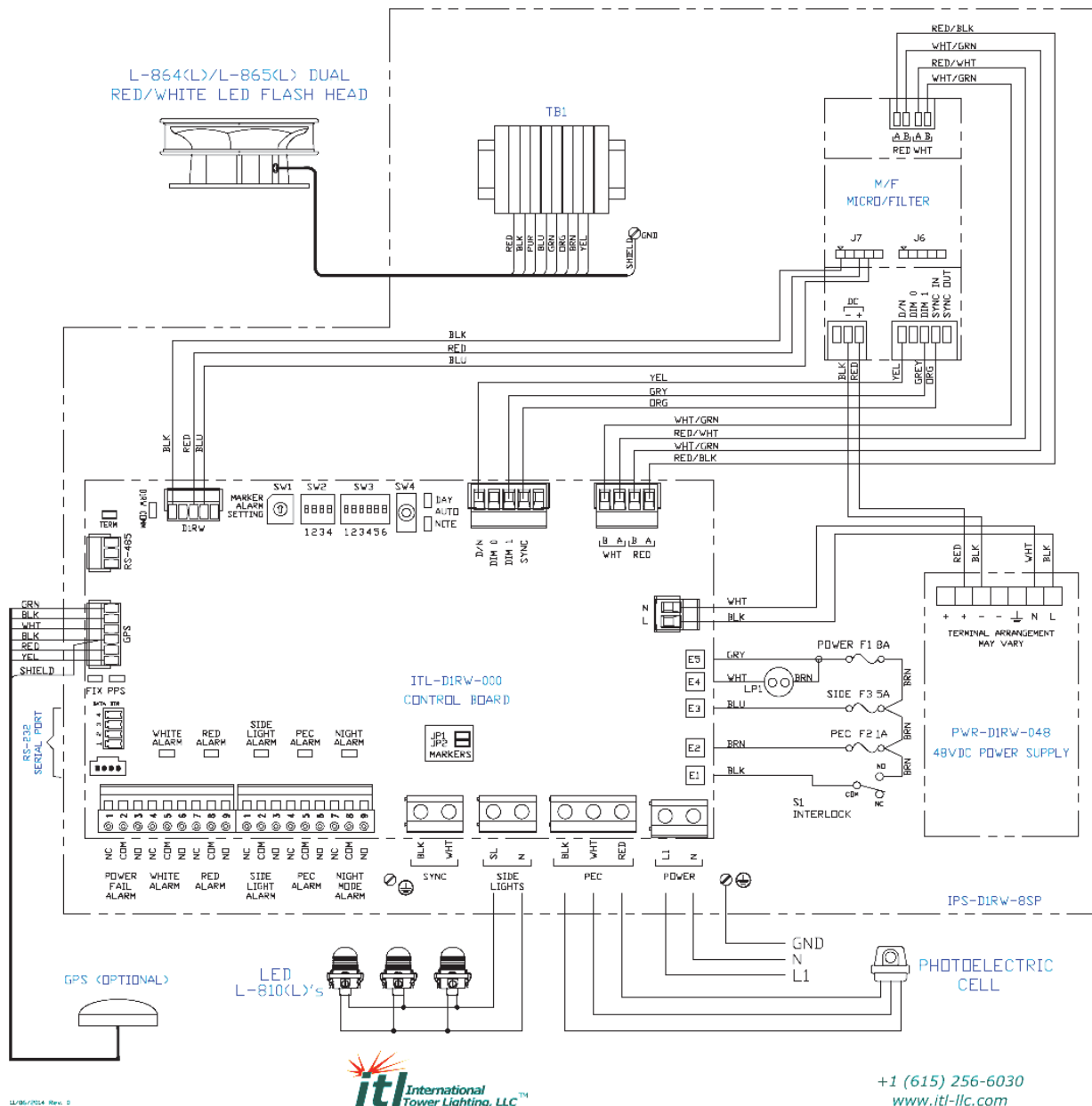
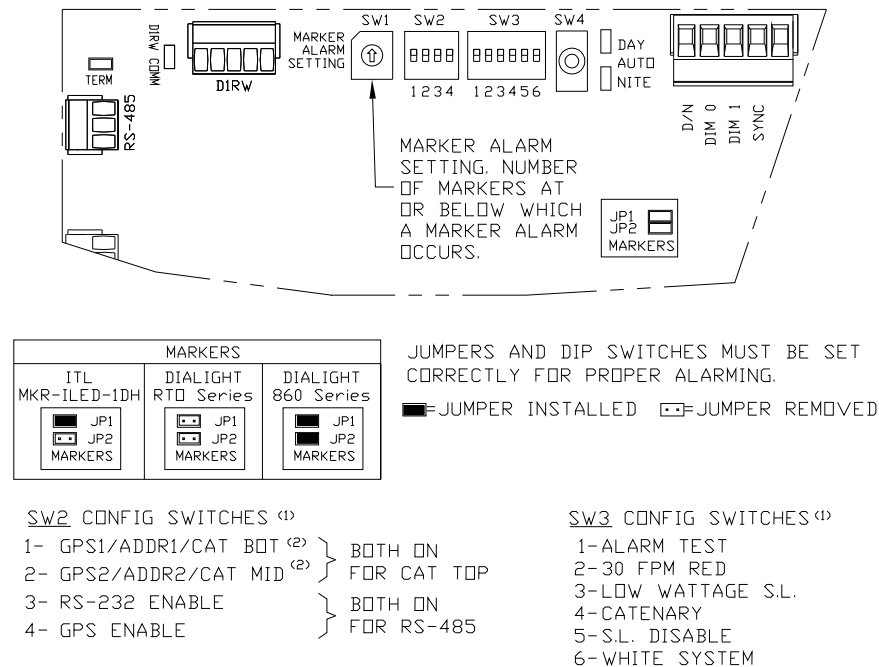


Figure 10: IPS-D1RW Power Supply Wiring Diagram



DANGER HIGH VOLTAGE



- ONLY AUTHORIZED AND TRAINED PERSONNEL SHOULD SERVICE THIS EQUIPMENT.
- DISCONNECT POWER FROM THIS EQUIPMENT AND ALLOW ENERGY STORAGE CAPACITORS TO DISCHARGE BEFORE SERVICING.
- ALWAYS VERIFY THAT ENERGY STORAGE CAPACITORS ARE DISCHARGED BEFORE SERVICING.



WARNING!



- CONNECTING FLASH HEAD WIRES INCORRECTLY CAN CAUSE DAMAGE TO THE FLASH HEAD AND/OR POWER SUPPLY.
- SHORT CIRCUITING FLASH HEAD WIRES TO THE CHASSIS, GROUND, OR TO ANY OTHER ELECTRICAL CONDUCTOR WHILE POWER IS APPLIED CAN CAUSE DAMAGE TO THE FLASH HEAD AND/OR POWER SUPPLY.
- CONNECTING OR DISCONNECTING FLASH HEAD WIRES WITH POWER APPLIED OR BEFORE ENERGY STORAGE CAPACITORS ARE COMPLETELY DISCHARGED CAN CAUSE DAMAGE TO THE FLASH HEAD AND/OR POWER SUPPLY.
- OPERATING THIS UNIT WITH ANY FLASH HEAD WIRE(S) DISCONNECTED CAN CAUSE DAMAGE TO THE FLASH HEAD AND/OR POWER SUPPLY.
- DO NOT OPERATE NON-CATENARY FLASH HEADS IN CATENARY MODE.
- DAMAGE CAUSED BY INCORRECT INSTALLATION IS NOT COVERED BY THE WARRANTY.

Figure 11: IPS-D1RW Configuration Quick Info Guide

PEC Mounting and Wiring

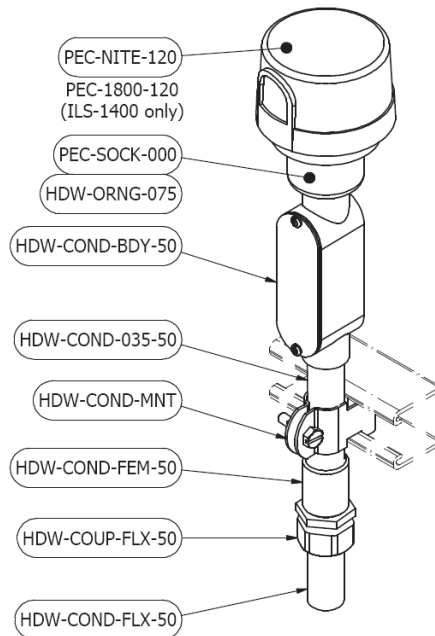


Figure 12: PEC Assembly Drawing

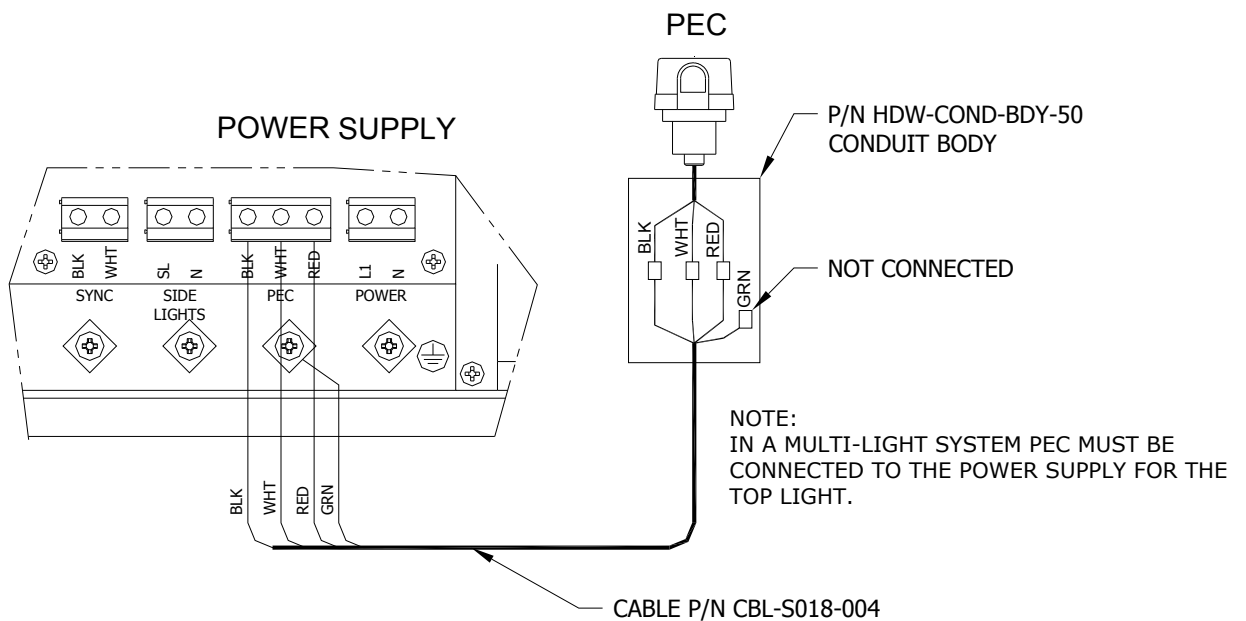
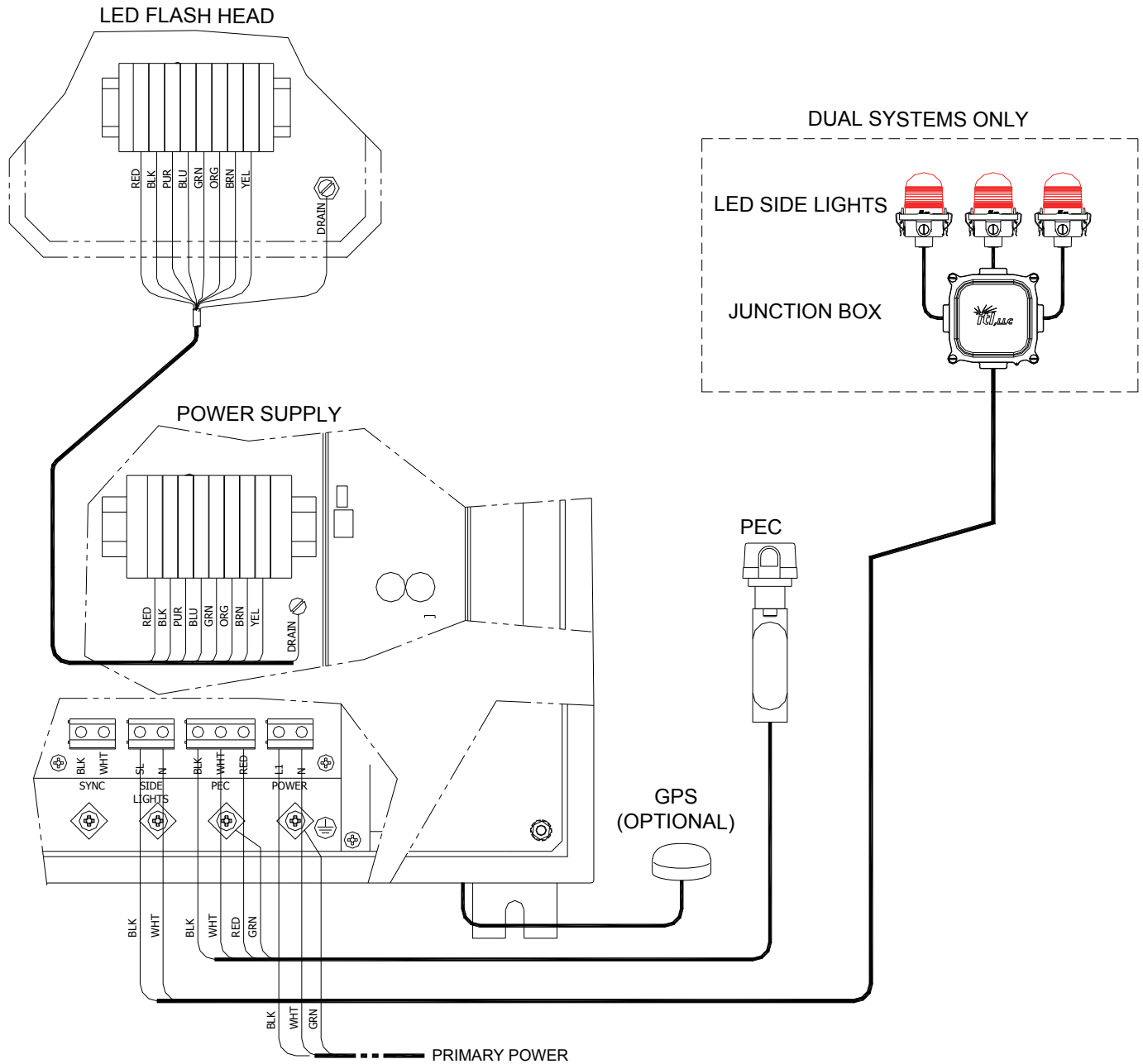


Figure 13: PEC Wiring Diagram

QTY	PART NUMBER	DESCRIPTION
8 ft	CBL-S018-004	SO-Cord, Cable 18 AWG, 4 Wires (BLK, WHT, GRN, RED)
1	HDW-COND-035-50	CONDUIT FITTING 1/2" NPT x 3.5", AL
1	HDW-COND-BDY-50	CONDUIT BODY 1/2"NPT, TYPE C, WITH GASKET & COVER
1	HDW-COND-FEM-50	CONDUIT COUPLING, 1/2" NPT, AL
6 ft	HDW-COND-FLX-50	LIQUID-TIGHT FLEXIBLE METAL CONDUIT 1/2"
1	HDW-COND-MNT	STRUT-MOUNT CLAMP KIT FOR 1/2" CONDUIT
2	HDW-COUP-FLX-50	FITTING FOR FLEX CONDUIT 1/2" WITH 1/2" NPT
1	HDW-ORNG-075	O-RING I.D. 0.75"
1	PEC-NITE-120	PHOTOELECTRIC CELL (PEC)
1	PEC-1800-120	PHOTOELECTRIC CELL (PEC) ONLY
1	PEC-SOCK-000	SOCKET FOR PHOTOELECTRIC CELL

Figure 14: PEC Assembly Parts List Table



NOTES:

1. USE A CONTINUOUS CABLE FROM THE POWER SUPPLY TO THE FLASH HEAD WITHOUT TERMINAL STRIPS OR SPLICES.
2. SUPPLY LIGHTNING PROTECTION FOR THE TOP FLASH HEAD.

Figure 15: ILS-D1RW Installation Wiring Diagram

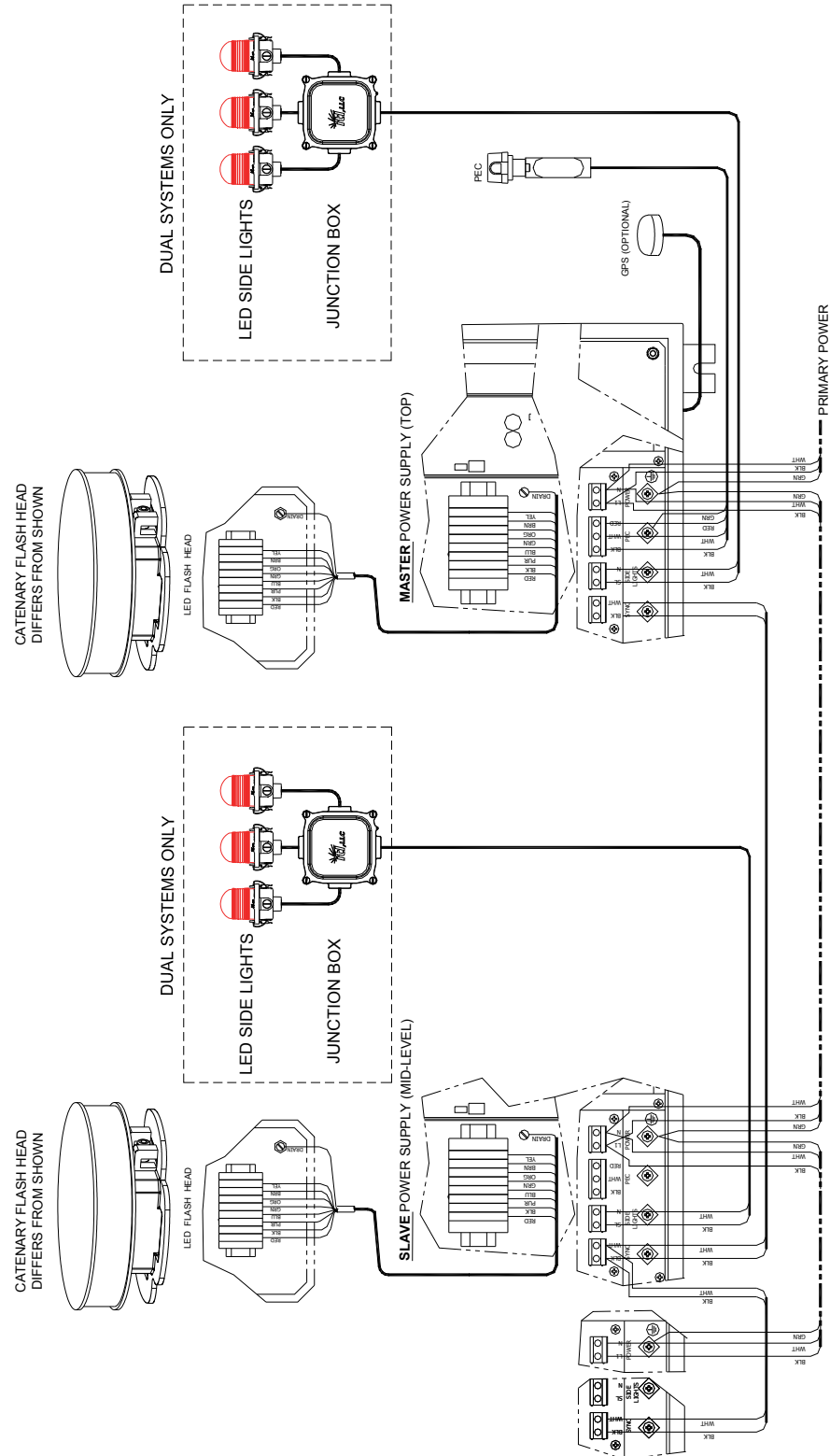


Figure 16: ILS-D1RW Multi-Light System Installation w/Sync

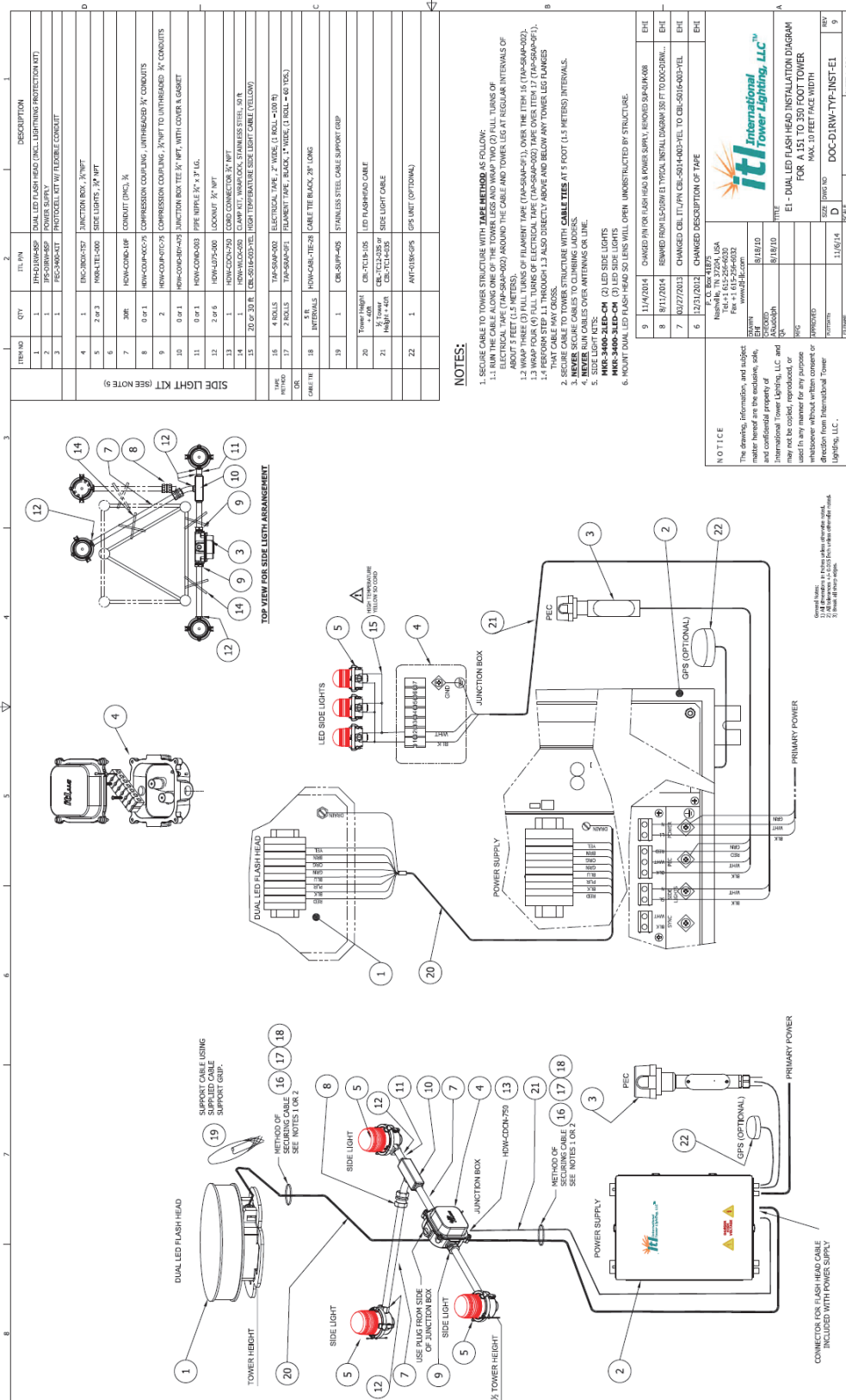


Figure 17: Single System Typical Installation Diagram – 350'

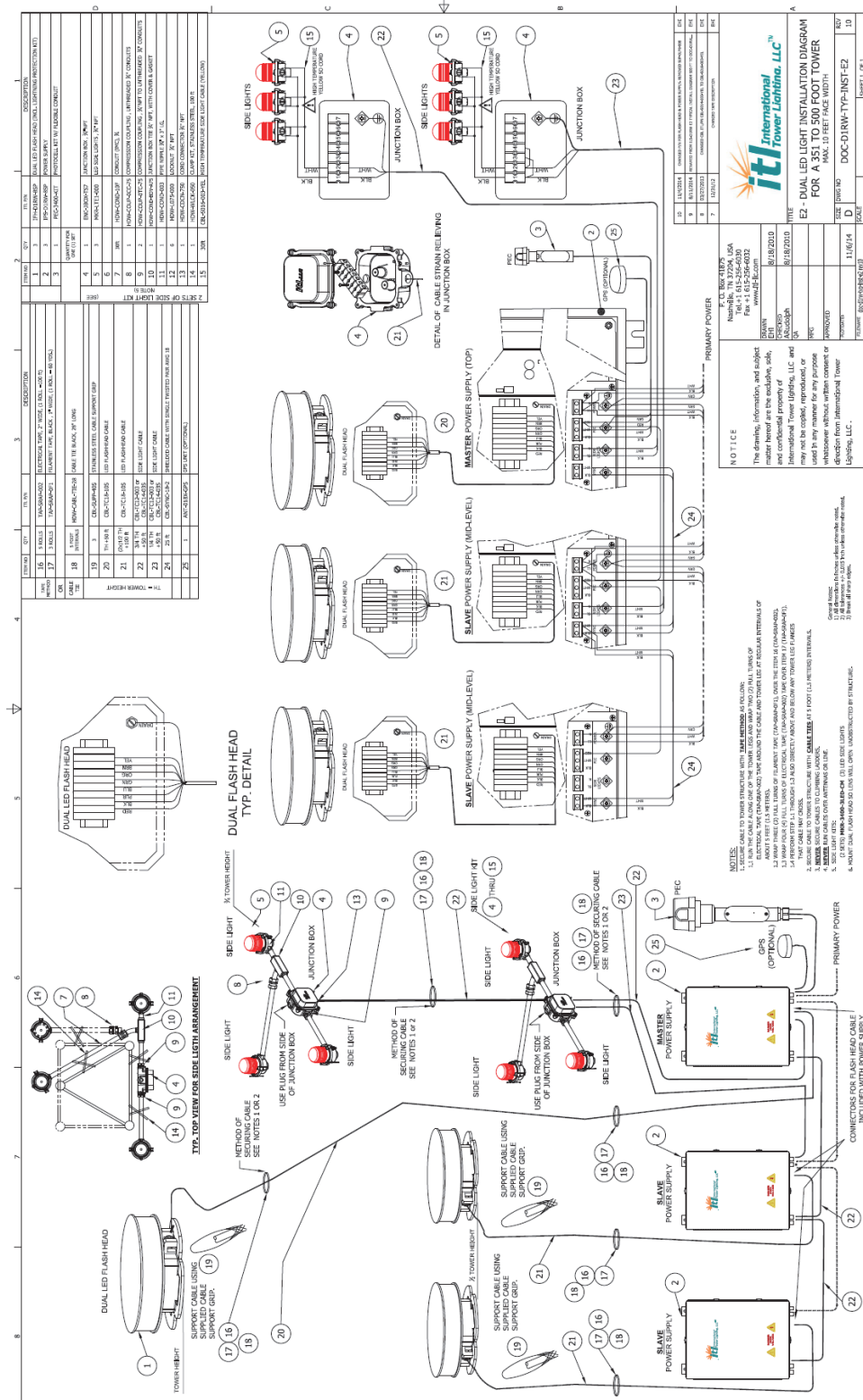


Figure 18: Triple System Typical Installation Diagram – 500'

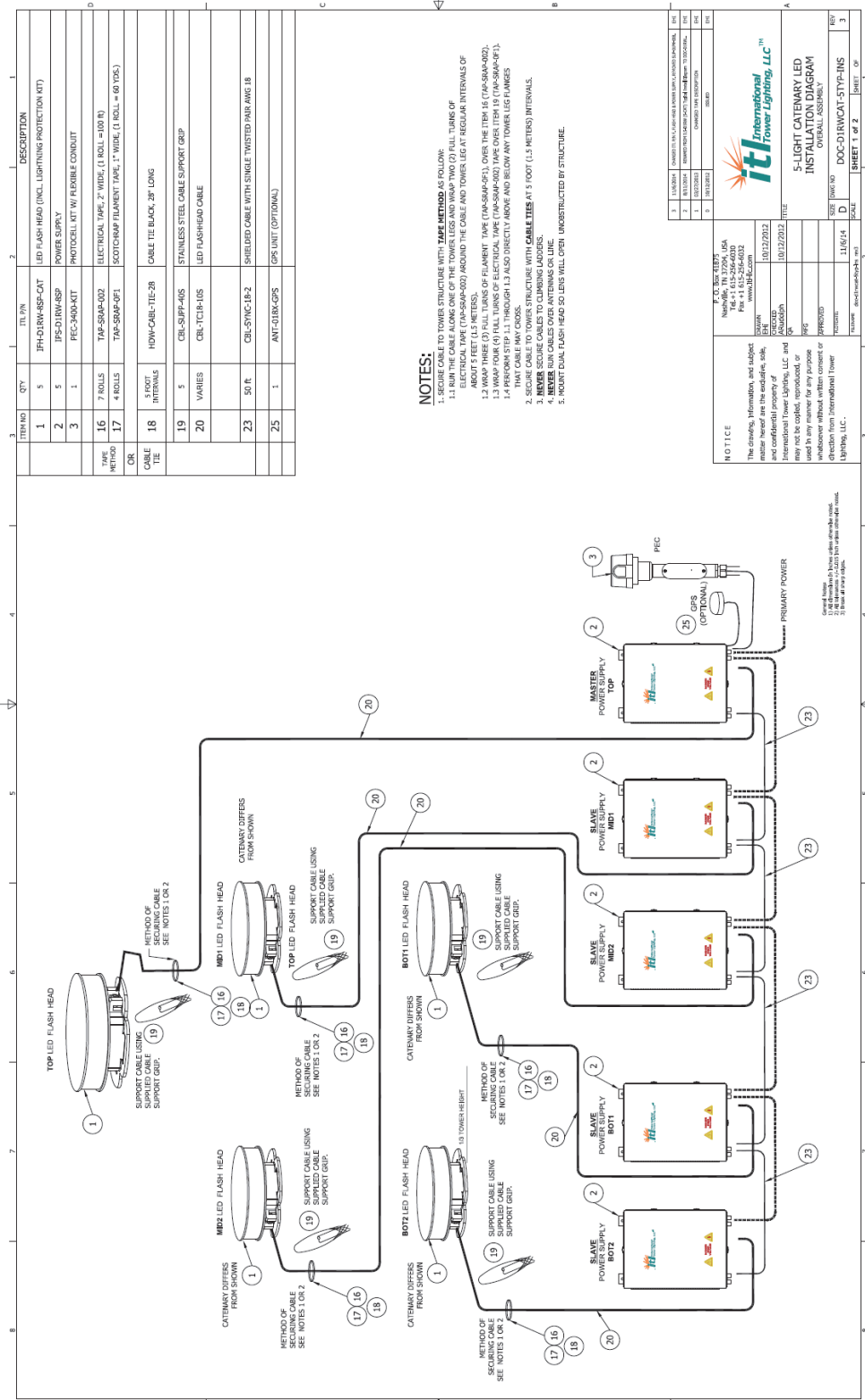


Figure 19: 5-LED Catenary System Typical Installation Diagram

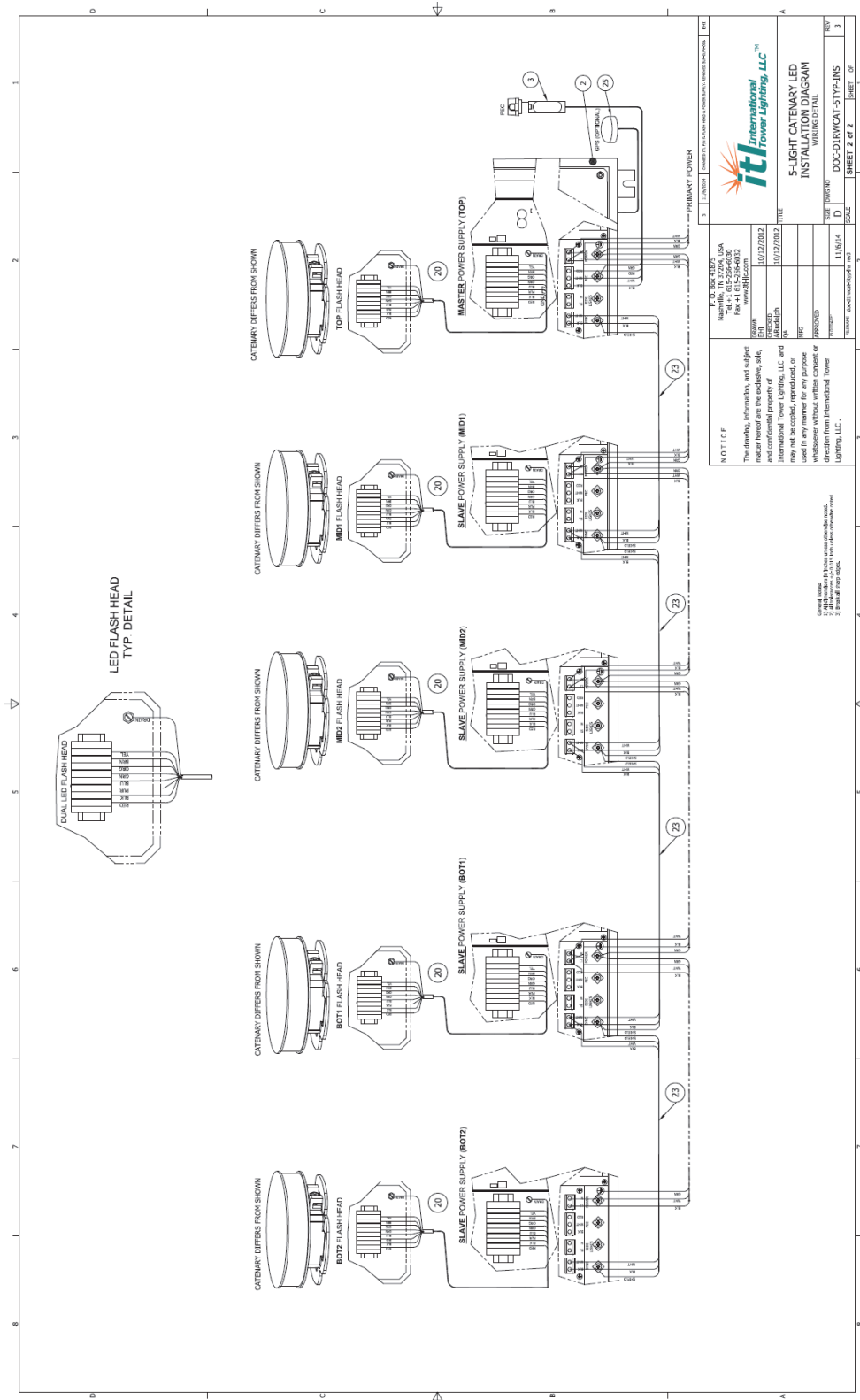


Figure 20: 5-LED Catenary System Typical Installation Diagram Wiring Detail

Circuit Boards

The following section describes all of circuit boards.

1. ITL-D1RW-000 Control Board

The ITL-D1RW-000 is the power supply's main board. This microprocessor controlled circuit board controls and monitors all functions relating to the lighting system.

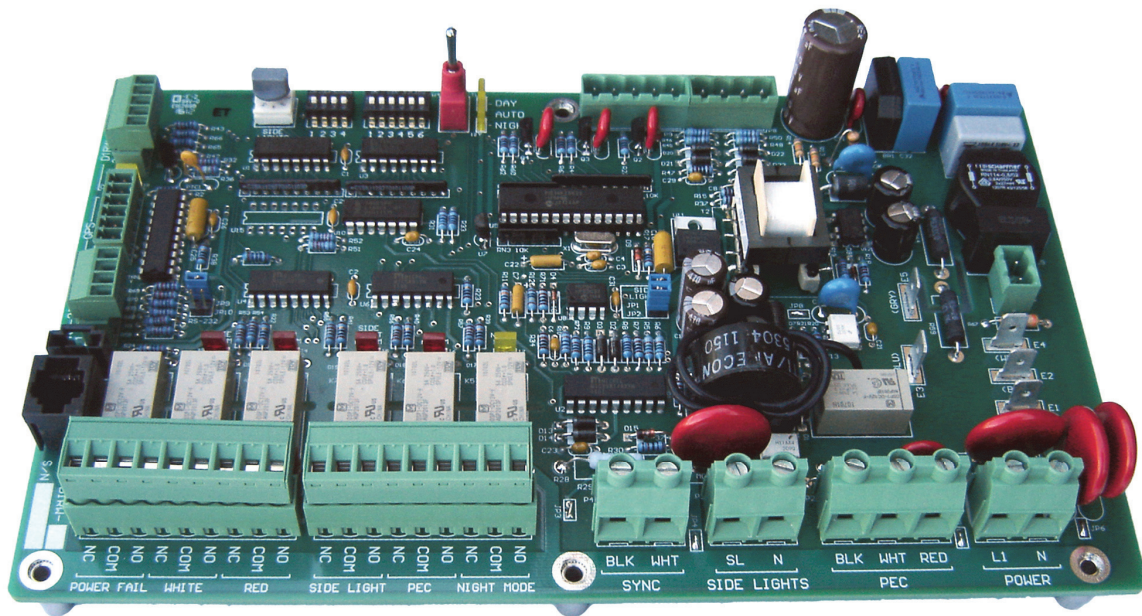


Figure 21: ITL-D1RW-000 Control Board Picture

A. LEDs

An array of LEDs provides visual feedback relating to the boards current function and alarm status. Red LEDs are utilized for alarm functions only. Any red LED which is lit indicates an active alarm condition. Green and yellow LEDs indicate status conditions.

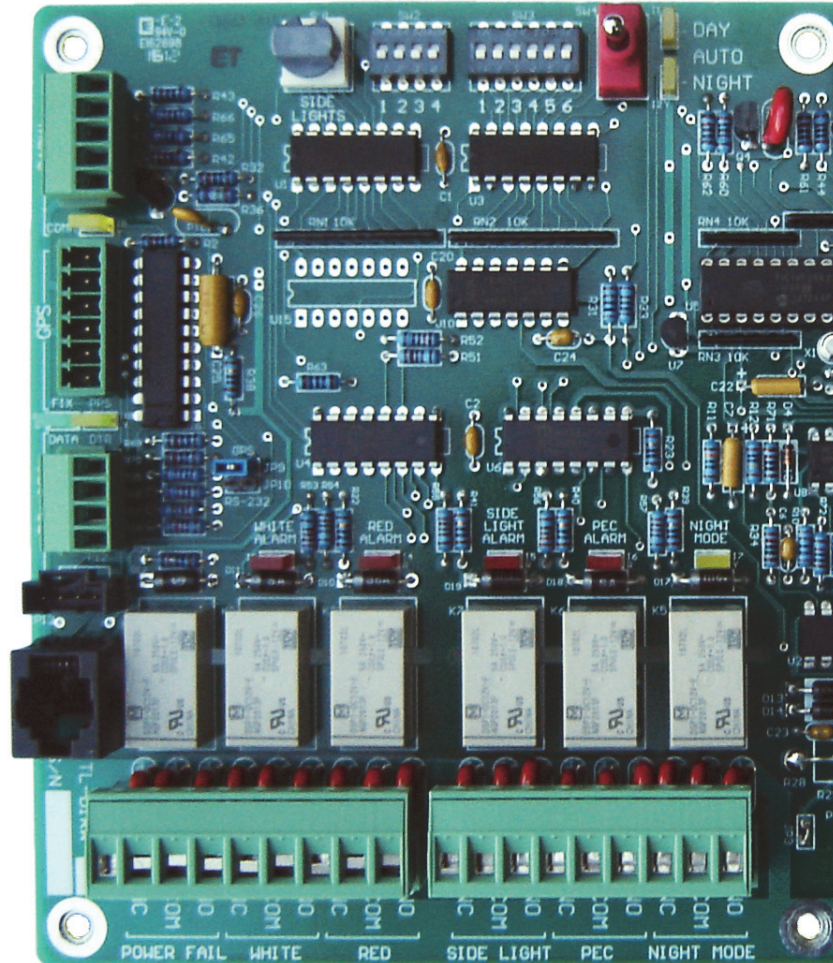


Figure 22: ITL-D1RW-000 LED Location Detail

LED	Color	Function
DAY MODE	Green	ON if board is operating in Day Mode. BLINKING if manual override mode.
NIGHT MODE	Green	ON if board is operating in Night Mode. BLINKING if manual override mode.
COMM	Yellow	ON when serial communication messages exchanged.
FIX	Green	ON when GPS has achieved a satellite fix. BLINKS while waiting for GPS fix. OFF indicates GPS not communicating or disabled.
PPS	Yellow	Pulse Per Second signal from GPS.
WHITE ALARM	Red	ON indicates a White Alarm condition in Day Mode or White Night Mode.
RED ALARM	Red	ON indicates an alarm condition has occurred in Red Night Mode.
SIDE LIGHT ALARM	Red	ON if board is in Night Mode and Sidelights are enabled (see SW1 for configuration).
PEC ALARM	Red	ON in manual override mode or if the PEC fails to transition during a 24 hour time period.
NIGHT MODE	Yellow	ON indicates the system is operating in Night Mode.

Figure 23: ITL-D1RW-000 LEDs Table

B. Switches

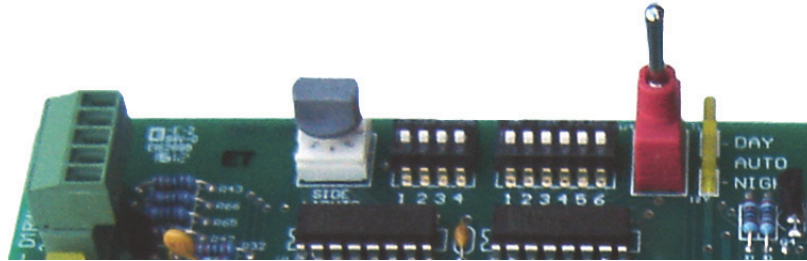


Figure 24: ITL-D1RW-000 Switch Location Detail

The Side Light Alarm Setting switch, SW1, sets the number of marker lamps at which a marker alarm will be generated. The switch is adjustable from zero to eight lamps. The factory default setting is one, meaning that a marker alarm will be generated when one or less marker lamps are burning.

The ITL-D1RW Control Board has two configuration DIP switches, SW2 and SW3. SW2 is used for configuration of the GPS synchronization and Serial Communications options (if installed). SW3 is used for all other configuration settings.

A toggle switch, SW4, allows on-site personnel to override the PEC function by forcing the lighting system to operate either in day or night mode based on the switch position. The corresponding Day Mode or White Night or Red Night LED will blink indicating that override mode is in effect. SW4 has an 8-hour timeout and will return to automatic PEC operation after eight hours in override. To ensure that this switch is not accidentally left in the wrong position the ITL-D1RW will automatically generate a PEC alarm if SW4 is not in the "AUTO" position.

SW3	Description	
1	ALARM TEST	ON = Light output dims & generates alarm OFF = normal operation
2	30FPM RED	ON = 30 FPM Red flash rate OFF = 20 FPM Red Flash rate
3	LOW WATT.	ON = Low power side lights OFF = Standard side lights
4*	CATENARY	ON = Catenary Lighting System OFF = Standard Lighting System
5	S.L. DISABLE	ON = Side Lights Disabled OFF = Side Lights Enabled
6	WHITE SYSTEM	ON = White Day / White Night system (White System) OFF = White Day / Red Night System (Dual System)
*Note	Catenary Systems require a special Flash Head. Do not attempt to operate a standard Flash Head in catenary mode.	

Figure 25: ITL-D1RW Configuration DIP Switch SW3 Table

SW2	Description	Installed Bulbs
1*	GPS1/ADDR1/CAT_BOT	GPS1 – Selects GPS flashing phase 1 ADDR1 – Selects RS-485 Address 1 CAT_BOT – Selects Catenary Bottom
2*	GPS2/ADDR2/CAT_MID	GPS2 – Selects GPS flashing phase 2 ADDR2 – Selects RS-485 Address 2 CAT_MID – Selects Catenary Middle
3**	SERIAL ENABLE	ON = Serial Communication Interface Enabled OFF = Serial Communication Interface Disabled
4**	GPS ENABLE	ON = GPS Synchronization enabled OFF = GPS Synchronization disabled
*Note	The Function of Switches 1&2 depends on which features are enabled. For RS-485 Switches 1&2 both OFF is Address 0 (zero), Both ON is Address 3. For Catenary Systems Switches 1&2 both ON indicates Catenary Top.	
**Note	When only Switch 3 is ON the interface is RS-232. When both Switch 3 & 4 are ON the interface is RS-485. The RS-485 option is not present on all control boards. GPS and Serial Communication are not available at the same time.	

Figure 26: GPS & Serial Configuration Switch SW2 Table

C. Sync Line

The ILS-D1RW can be combined with other ILS-D1RW systems to form an E2 type lighting system for use on towers greater than 350 feet AGL. Additionally, catenary lighting systems can utilize up to 5 lights on a single catenary support structure. Flash synchronization and mode change are achieved by connecting together the Sync Terminals located on the Control Board, P4. This connection should be made with a twisted pair shielded cable provided with the system.

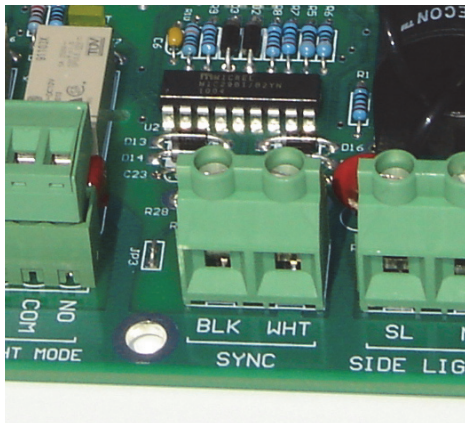
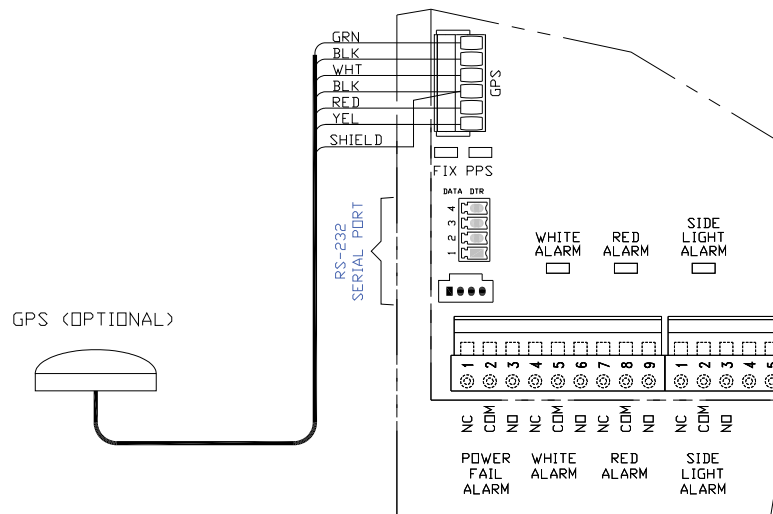


Figure 27: ITL-D1RW SYNC Connector

D. GPS

In wind farm, catenary and other applications where multiple lighting systems spread across a large area are required to flash in sync a GPS may be used. The GPS (ITL P/N ANT-018X-GPS) should be connected as shown. For multi-light systems only the master system (the unit with the photocell) must have a GPS installed.



E. Connectors

Connectors P7 through P10 and E1 through E5 connect the ITL-D1RW circuit board to the Driver Panel, 48VDC Supply, and fuses via the internal harness. For specific information please consult the *IPS-D1RW Power Supply Wiring Diagram*.

Connectors P5 and P6 connect to the alarm relays which provide Form-C dry contact for indication of alarm conditions as well as the operating mode of the lighting.

Each relay, except the Power Fail alarm relay, has a corresponding LED indicating the state of the relay. In the alarm state a relay is disengaged, i.e. no power, and the corresponding red LED is lit. The yellow night mode LED is lit when the unit is operating in night mode.

For connection detail please refer to the *IPS-D1RW Power Supply Wiring Diagram*.

Maintenance / Trouble-Shooting



Please read section *Safety Warning* in this manual before servicing this equipment.

The trouble-shooting section is divided into two parts and explains how to trouble shoot the LED lighting systems. The first section contains helpful background information while the second section contains a flowchart with specific trouble shooting guidelines. If you are familiar with this or similar lighting systems you may want to proceed directly to the section *Troubleshooting Flowchart*.

Recommended Tools

The following is a list of recommended electrical equipment for troubleshooting the LED lighting systems.

- Digital multi-meter capable of reading 600VAC/DC and capacitance (Fluke 177 or 179)
- Clamp-on type AC Current Meter (Fluke 322 or equivalent)
- #2 Phillips Screwdriver
- 5/16 Flat Head screwdriver
- Crimp Tool
- Needle Nose Pliers

Maintenance

The maintenance outlined below should be performed at least once annually.

- Verify that the fixture is functional in all operating modes with no indication of an alarm condition on alarm indicator lights, alarm dry contacts, or digital monitoring interfaces.

- Verify that the photoelectric control operates the system in the correction operating mode (day/night), light color (white/red) and intensity (day/night intensity) when exposed to light and dark ambient lighting conditions.
- Inspect the fixture for any type of obstruction that could block light output at any point along the 360 degree horizontal output of the fixture. Note that multiple fixtures may be used to achieve 360 degree coverage.
- Inspect lenses and transparent covers for damage.
- Clean the fixture lens or transparent cover using a mild detergent and soft nonabrasive cloth.
- Inspect all electrical wiring connections for corrosion, arcing, damage, insulation degradation or loosening of the connection. Correct, replace or secure as needed.
- Inspect all interconnecting cables and power supply cables and conduits for damage.
- Verify the all cables are fastened securely at appropriate intervals to prevent damage.
- Inspect all electrical components for evidence of damage caused by lightning or power line induced electrical surges. Replace any components showing evidence of damage.
- Inspect fixtures and enclosures for water infiltration and insect infiltration. Replace any damaged gaskets or seals. Install plugs to close any unused conduit ports that may allow insect infiltration.
- Verify that all breathers and drain holes are clear of blockages.

Spare Parts & Replacement Parts

For parts regarding the ILS lighting systems please see the following sections and tables

- *IPS-D1RW Power Supply Parts List Table, Page 19*
- *IFH-D1RW-8SP Beacon Parts List Table, Page15*
- *PEC Assembly Parts List Table. Page, 24*

Technical Support and Contact Info

Contact Info

For information on the ITL LED lighting systems' basic functions, refer to this manual and the accompanying drawings. 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.

Revision	Description of Change	Date	Preparer / Approval
10	Changed p/n from ILS-D1RW-008 to ILS-D1RW-8SP. Gen. p/n changed to ...-8SP. Updated spare part list.	8/29/2014	Prepared By: Elke Hinson Approved By: Andy Rudolph
9	Added installation note "All fixtures, enclosures and junction boxes ...", Added maintenance outline.	8/29/2014	Prepared By: Elke Hinson Approved By: Andy Rudolph
8	Added note & details for Power Supply Grounding	7/18/2014	Prepared By: Elke Hinson Approved By: Andy Rudolph
7	Update IPS-D1RW Overall Component Layout and Power Supply Parts List Table.	12/16/2013	Prepared By: Elke Hinson Approved By: Andy Rudolph
6a	Update power supply wiring diagram.	11/28/2012	Prepared By: Elke Hinson Approved By: Andy Rudolph
6	Updated DIP Switch descriptions with enhanced serial communication options and catenary.	10/15/2012	Prepared By: Elke Hinson Approved By: Andy Rudolph
5	Updated installation diagram details	9/07/2012	Prepared By: Elke Hinson Approved By: Andy Rudolph
4b	Updated cover sheet, updated FAA type from L-864/L-865 to L-864(L)/L-865(L), Updated Power Supply Wiring Diagram	5/31/2012	Prepared By: Elke Hinson Approved By: Andy Rudolph

Reference

Glossary

Capacitor

A component that stores electrical charge. Capacitance is measured in Farads. Used to store energy to be discharged into the flash tube.

Choke / Inductor

A device consisting of a coil of wire. An inductor opposes the flow of AC and variations in the flow of DC current. Used to protect flash tube.

Fuse

A protective device for electric circuits containing a wire designed to melt and open the circuit under abnormally high electric loads. Used for incoming power, sidelights and PEC.

MOV

Metal Oxide Varistor. A device used to protect sensitive components from voltage transients. Used throughout the equipment.

Relay

An electrically controlled mechanical device that opens and closes electrical contacts when a voltage (or current) is applied to a coil. A relay provides isolation of control signals from switched signals. Used to switch from day to night mode, discharge capacitors, control transformer and provide alarm contacts.

Resistor

An electronic component that opposes the flow of electrical current. Resistance is measured in Ohms. Used in night circuit.

Terminal Block

An insulating base with binding posts to make connections where sets of terminals are mounted. Use to connect flash head cable, power, sidelights and PEC.

Transformer

A device used to increase or decrease electricity's voltage and current. Used to step-up incoming voltage to 1000VAC before rectification.

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