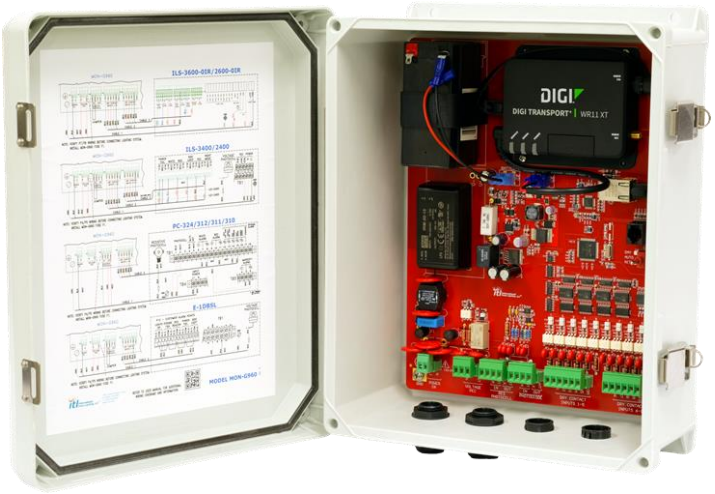
Installation Instruction Manual

MON-G960

Monitoring System



Toll Free: +1 (866) 624-8309 ● www.itl-llc.com

itl International Tower Lighting, LLC™

Front Matter

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Limited Warranty and Disclaimer

ITL, LLC guarantees that every MON-G960 monitoring system is free from physical defects of material and workmanship under normal use for one (1) 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 contents or use of this documentation and all accompanying software, and specifically disclaims its quality, performance, merchantability, or fitness for any particular purpose unless otherwise stated.

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Please send any comments regarding the manual to support@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.

Never rely on just one switch to power down a high voltage supply. Measure for voltages using a voltmeter to ensure that power is off and has been completely removed.

Do not wear any jewelry when servicing this equipment. Gold and silver are excellent conductors of electricity.

Battery Warning and Disposal

There is danger of explosion if the included sealed lead-acid battery is replaced incorrectly. Only replace the battery with the same or equivalent type recommended by the battery manufacturer. Dispose of used batteries according to the battery manufacturer's instructions.

Do not incinerate, disassemble, or puncture the battery.

For questions or details please contact The Battery Council International at (312) 664-6610, or your local waste agency.

Table of Contents

List of Illustrations and Tables

Introduction

Congratulations, and thank you for choosing an ITL monitoring 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 monitoring systems for monitoring tower 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 both the MON-G960-000 hardwired Ethernet based system and wireless monitoring system.

Please take the time to read and familiarize yourself with this manual. It contains the information necessary to install, test and troubleshoot the MON-G960 monitoring system.

Product Description

ITL's MON-G960 systems are designed to provide complete monitoring solutions for all types of tower lighting systems. The monitoring system's rich set of features is directly applicable to monitoring any type of strobe lighting system and red light controller system.

All MON-G960 controllers have built-in web pages to provide a more intuitive human interface and is supported by most web browsers. The web pages include pre-defined templates for the most common tower lighting configurations for quick and reliable installation.

The MON-G960 systems have ten dry-contact inputs for monitoring tower lighting system's alarm and status relays as well as door switches, generators and other equipment suitable for dry-contact monitoring. The tower lighting system's photocell is monitored and may be over-ridden remotely when needed. Resistive, Photodiode and 120VAC powered photocells are supported. The MON-G960 systems are pre-cabled for up to five dry-contact inputs and battery backup is included as a standard feature.

Both, hardwired Ethernet connection and wireless modem communication are supported.

Typical wireless applications include the use of a secure software tunnel provided by a third party for communication between the MON-G960 equipment and the monitoring center for alarm monitoring and remote diagnostics.

Specifications

Environment

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

Mechanical

Enclosure

Dimension	Height:	13.56” (344mm)
	Width:	11.43” (291mm)
	Depth:	5.21” (132mm)
Weight		10 lbs. (4.08Kg) max

Electrical

Model: MON-G960-000

Input Power	120/240VAC at 60Hz, 12VA (max.)
Suppression	45 Joule, 275V, Input Power, Photocell 23 Joule, 275V, Dry Contact Inputs

Model: MON-G960-24V (Option Available Upon Request)

Input Power	24VDC
Suppression	23 Joule, 275V, Dry Contact Inputs

Communication Module

Digi WR11

Installation

The following section describes how to install the MON-G960 series monitoring system. Based on the type of system you are going to install please refer to the appropriate wiring diagram in section *Wiring Diagrams.*

Unpacking your Monitoring 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 monitoring system and satellite.

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

Quick Installation Guide

The quick start guide shows how to install the MON-G960 series monitoring systems. The guide provides only basic instructions to personnel familiar with these types of installations. For more details, refer to this document.

- Remove packaging material
- Determine make of existing tower lighting controller and select appropriate installation diagram from this manual
- Connect MON-G960 to tower lighting controller to be monitored using supplied harness
- Apply power to unit
- All input LEDs should be on solid or blinking
- Determine unit's IP number from the label located on the Digi modem, if included
- Use web browser to configure basic network settings

Mounting Enclosure Panel

The MON-G960 should 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 monitoring system's internal components for the purpose of installing and maintaining the equipment. The following diagrams detail the mounting dimensions and clearance for proper access.

Mounting Details for the Enclosure Panel

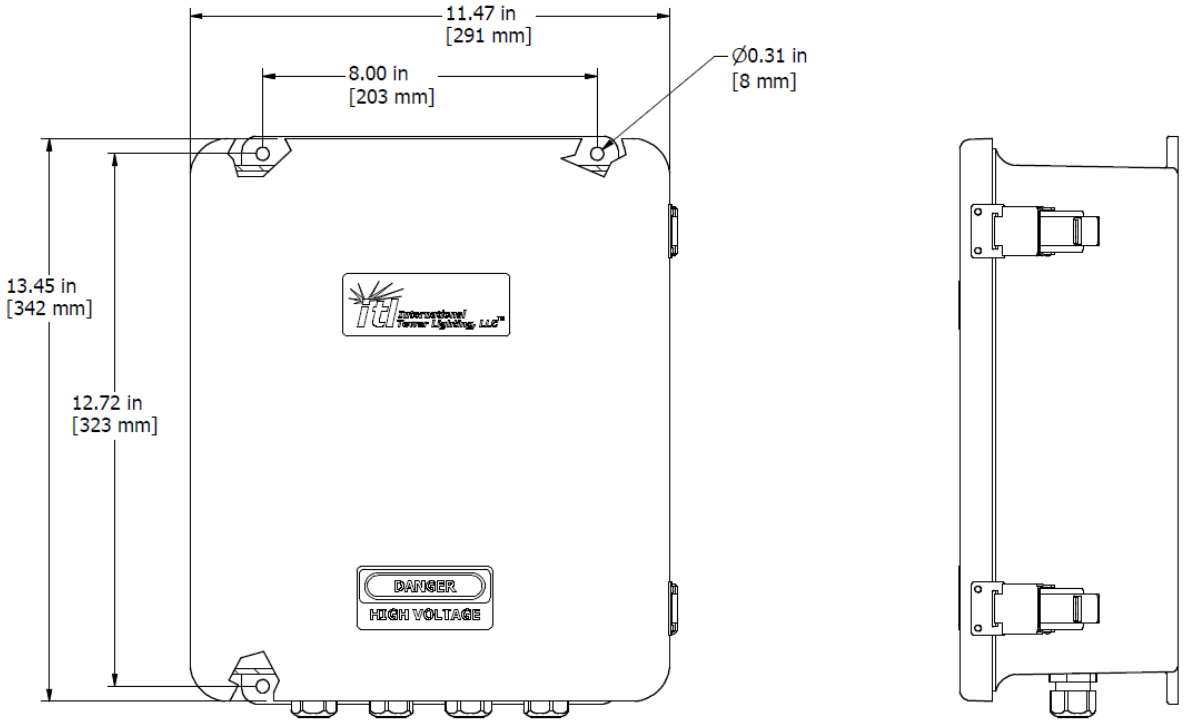


Figure 1: Mounting Details and Dimensions of Enclosure Panel

Circuit Board

The following sections detail the MON-G960 internal circuit board assembly.

1. ITL-G960 Circuit Board Assembly

Figure 2: ITL-G960 Circuit Board

A. Ethernet connection

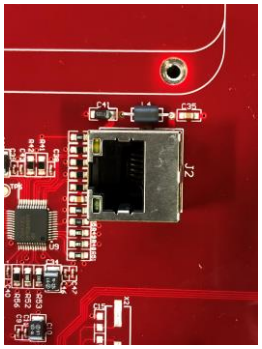


Figure 3: ITL-G960 Ethernet Connection

B. Battery connection

Observe polarity when connecting and disconnecting the battery. Note all battery warnings in the *Safety Warning* section.

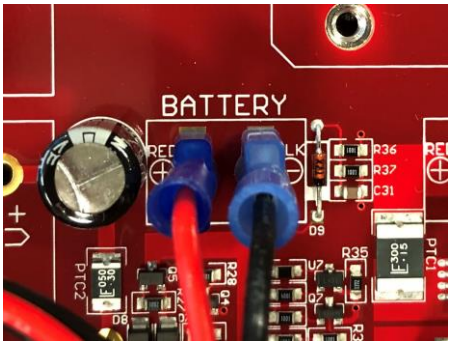


Figure 4: ITL-G960 Battery Connection

C. Digi Modem Connection

Observe polarity when connecting and disconnecting the modem's power cord to the circuit board.

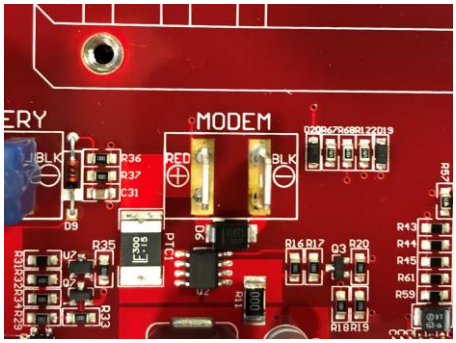


Figure 5: ITL-G960 Digi Modem Connection

2. LED Indicators

A. Mode

The Day/Nite LEDs will indicate the actual operating mode of the MON-G960. Under normal conditions the board will follow the state of the PEC and/or Photocell inputs.

For diagnostics purposes the normal operating mode can be changed manually with the on-board Manual Mode Switch. The board will follow the Manual Mode Switch if it is not in Auto mode and blink the corresponding LEDs, indicating that it is no longer in auto mode. The Manual Mode Switch will automatically time out after 8 hours, the LEDs will stop blinking, and the board will revert to following the PEC, Photodiode or Photocell inputs. The MON-G960's operating mode can also be overridden remotely in which case the LEDs will also blink. This special mode will not time out since it can be changed remotely.

Both special modes will throw an exception, i.e. report alarms to the monitoring center if available.

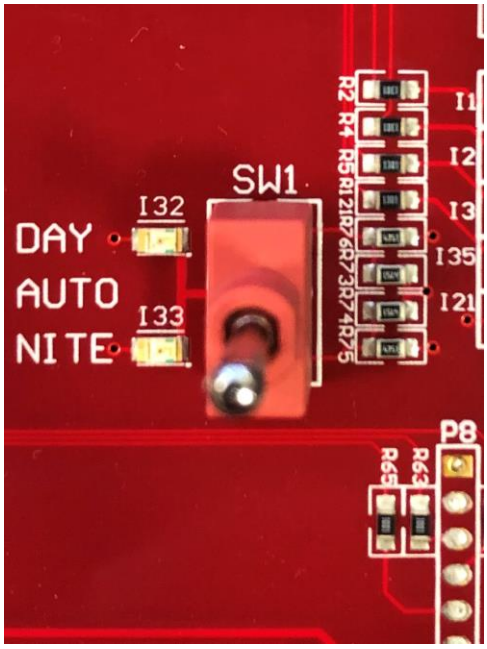


Figure 6: ITL-G960 Mode LEDs

B. Dry Contact Inputs

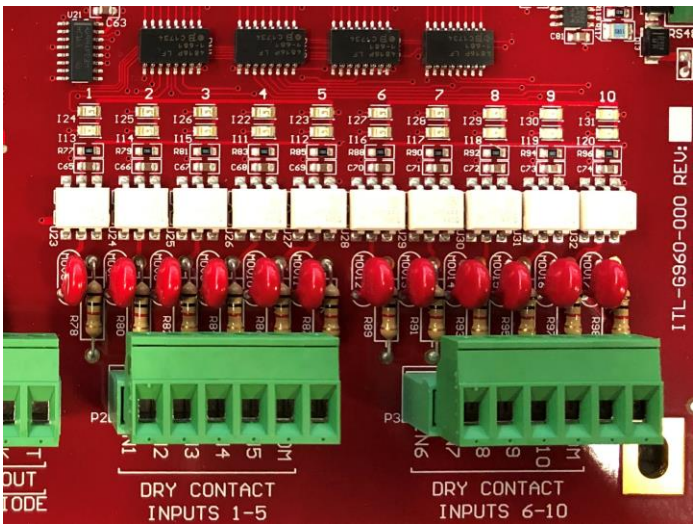


Figure 7: ITL-G960 Dry Contact Input LEDs

C. Indicator Function

Description	Function
INPUTS 1-10	Flashing Red – Alarm Steady Green – No Alarm Off – Disabled
DAY MODE	Steady – Day mode via connected light sensor Flashing – Day mode via remote/manual mode over-ride
NITE MODE	Steady – Night mode via connected light sensor Flashing – Night mode via remote/manual mode over-ride

Input Connections

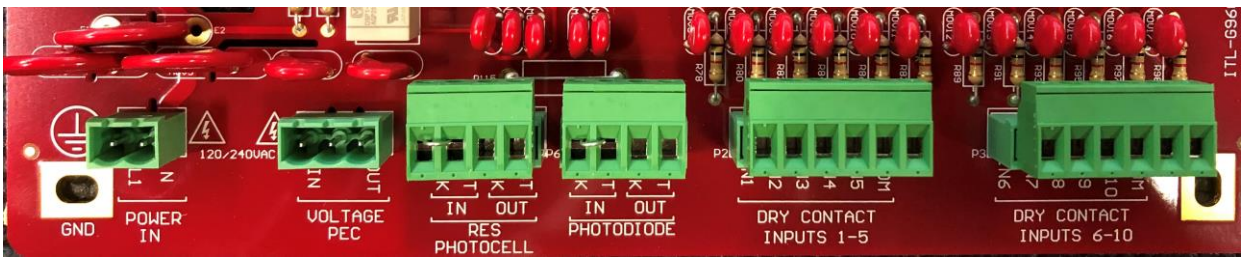


Figure 8: ITL-G960 Connections

Web Pages

The MON-G960 includes a web graphical user interface (GUI). The GUI can be accessed with most web browsers by directly typing in the device's IP address into the browser's address bar. The IP address is indicated on the MON-G960's on-board the LCD display. Suggested browsers include Google Chrome, Mozilla Firefox or other Chromium based browsers. An example on how to access the product via a web browser is shown below:

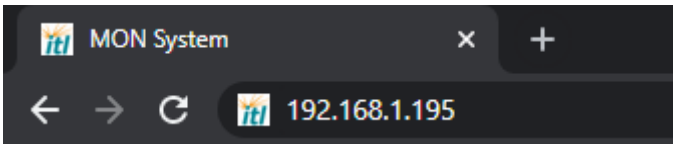


Figure 9: Web Browser Address Bar

Alarm Page

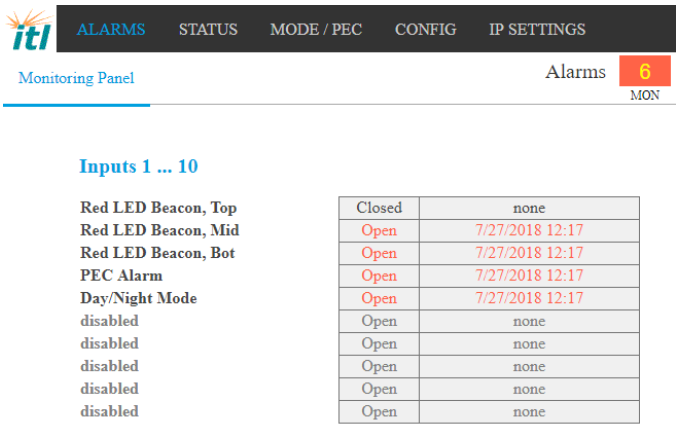


Figure 10: Alarms Page

The alarm page contains status of all input alarms, along with power, battery, remote override and PEC/Photocell/Photodiode status. Each entry will either indicate 'none' if no alarm exists or a timestamp when the alarm occurred. Additionally, an either *Open* or *Closed* state is indicated where applicable.

Alarms can be reset from this page.

The Alarm descriptions match the selections from the Input Configuration page. Table entries which are grayed indicate disabled inputs.

Mode/PEC

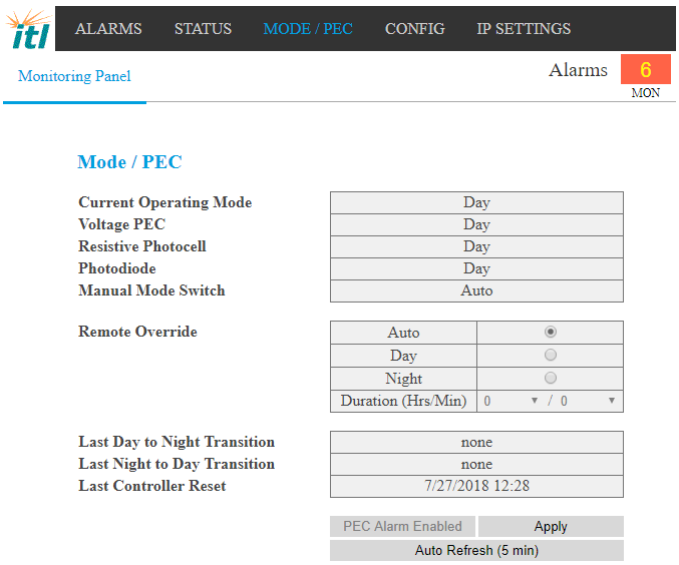


Figure 11: Mode/PEC Page

The Mode/PEC page displays the system's operating mode along with PEC, Photocell, Photodiode, Manual Mode Switch and Remote Override Status. The system's mode can be changed remotely through this page if needed for test purposes or in case of a PEC/Photocell failure.

The page also indicates the last time the system switched from Day to Night Mode, Night to Day Mode and the last time power has been restored to the controller.

Configuration – Monitoring Panel

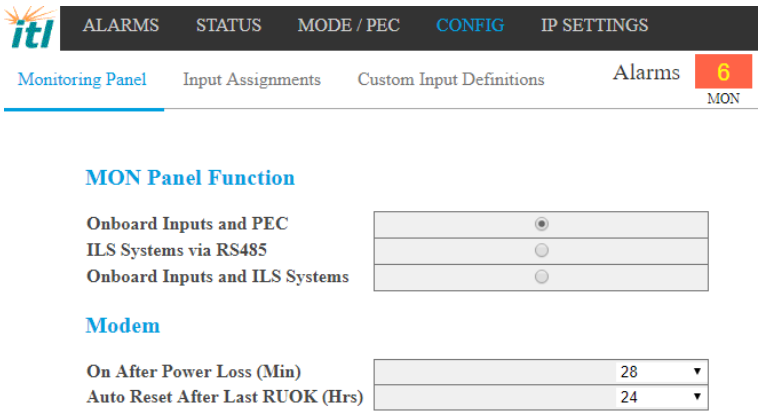


Figure 12: Panel Configuration Page

The Monitoring Panel Configuration allow the change of the panels main function mode, modem timeout and auto reset timer.

Configuration – Input Assignments

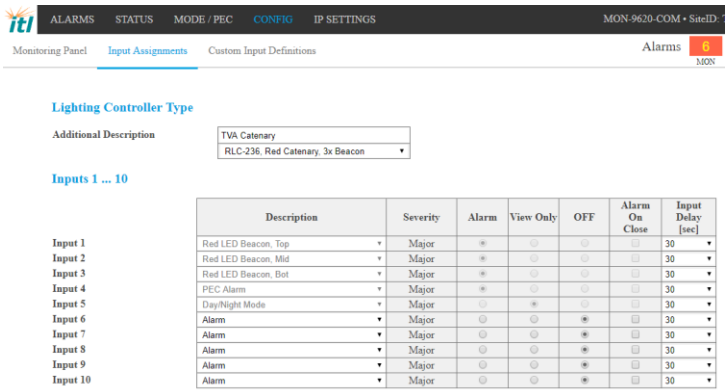


Figure 13: Input Assignment Page

The Input Configuration page provides access to the MON-G960's built-in templates for selecting different manufactures' lighting systems to match this manual's included installation diagrams. Once a template has been selected those inputs cannot be further changed with the exception of the Input Delay. All remaining unused inputs can be disabled or assigned to monitor additional devices' dry contacts.

Custom Input Strings that have been saved will be listed in the top ten spots of the Menus on each input.

Copper Theft alarm will take over the contact for Output 2 giving connections for user supplied external sirens and/or lights.

Configuration - Custom Input Definitions

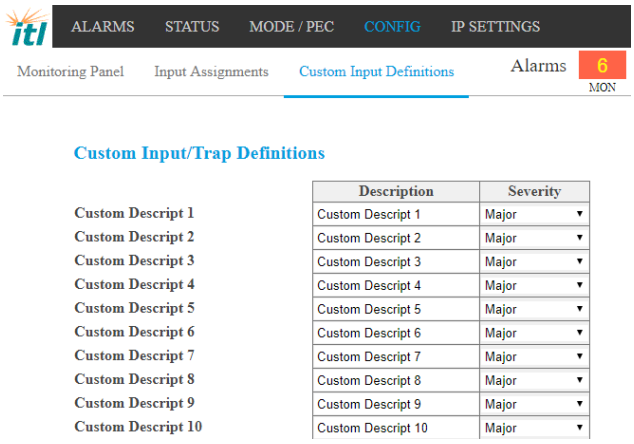


Figure 14: Custom Input Definitions Page

The Custom Input Definitions page provides access to the MON-G960's optional user defined alarm strings. If a Custom input is needed the user can name and set the severity of the input choice. Once a name and severity have been added the user must save and this will allow them to select it on the dropdown menu from the Input Configuration page.

IP Settings – Network

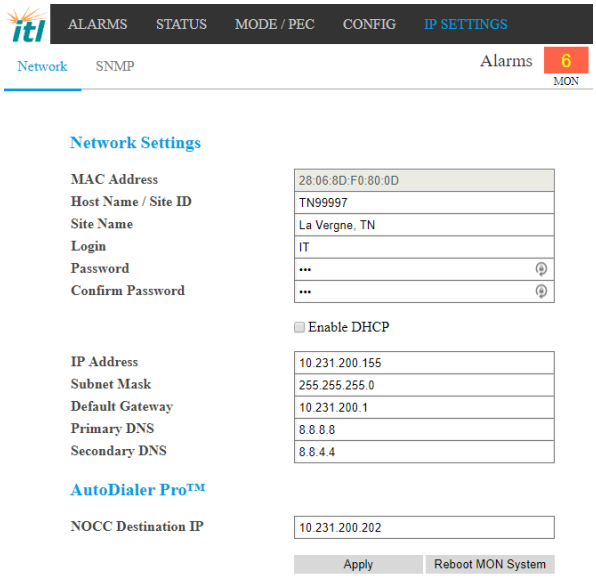


Figure 15: IP Settings – Network Page

This page provides access to the basic network settings. The Default IP Address is 192.168.1.195.

Installation Diagrams

The following section details various installation diagrams for connecting the MON-G960 to a wide variety of existing lighting systems. Please refer to the diagram which matches your lighting system at the tower site.

ILS-1700-CAT Triple Beacon Wiring Diagram

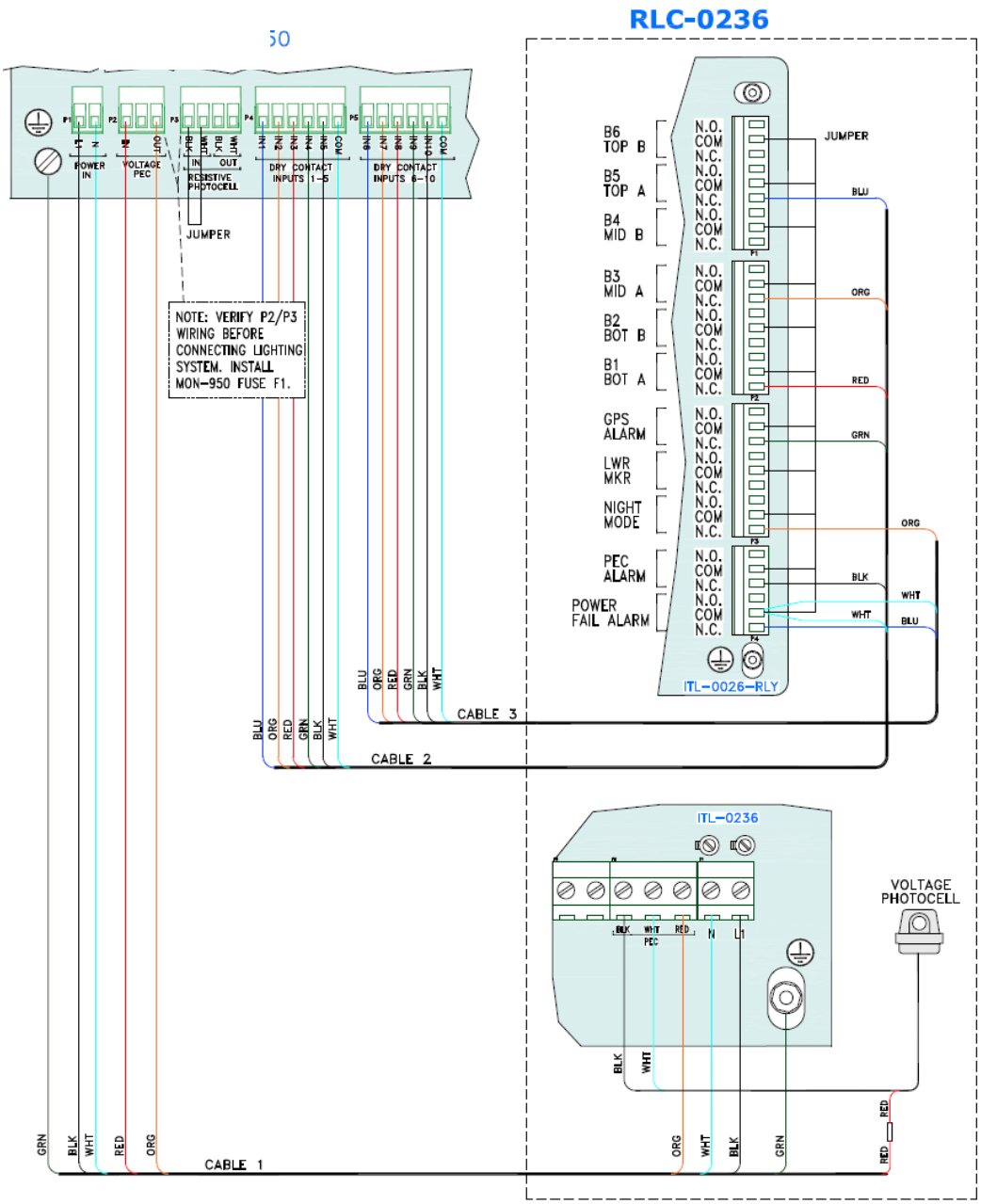


Figure 16: ILS-1700-CAT Triple Beacon Wiring Diagram

ILS-1700-CAT Five Beacon Wiring Diagram

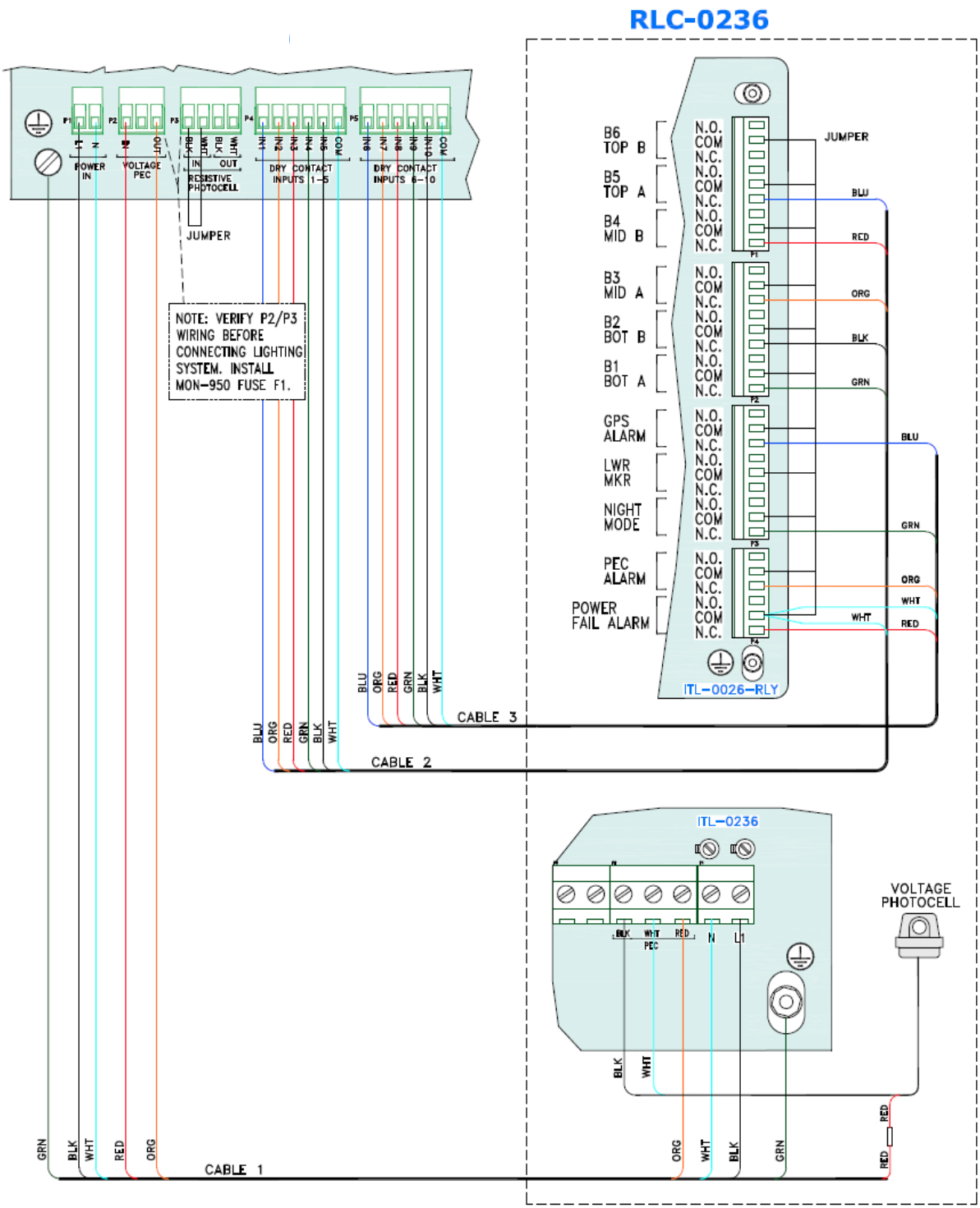
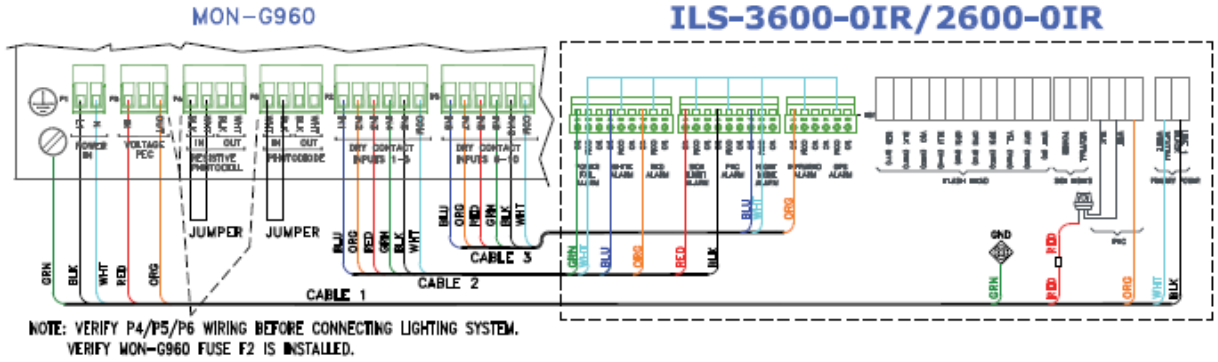
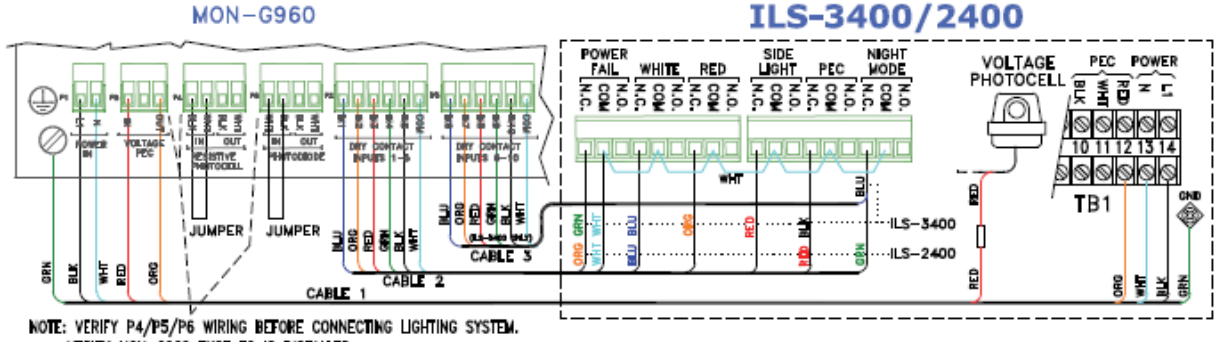


Figure 17: ILS-1700-CAT Five Beacon Wiring Diagram

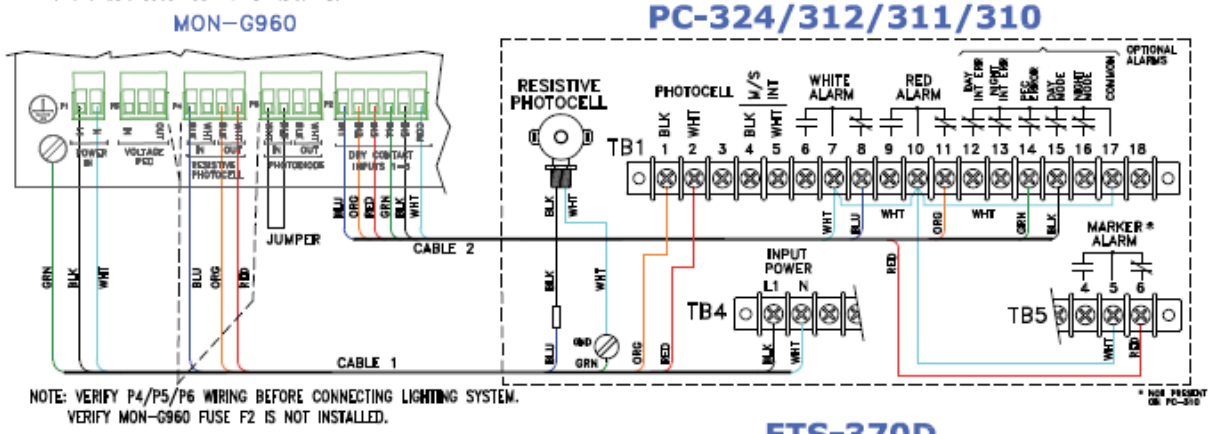
Quick Info Card Wiring Diagram



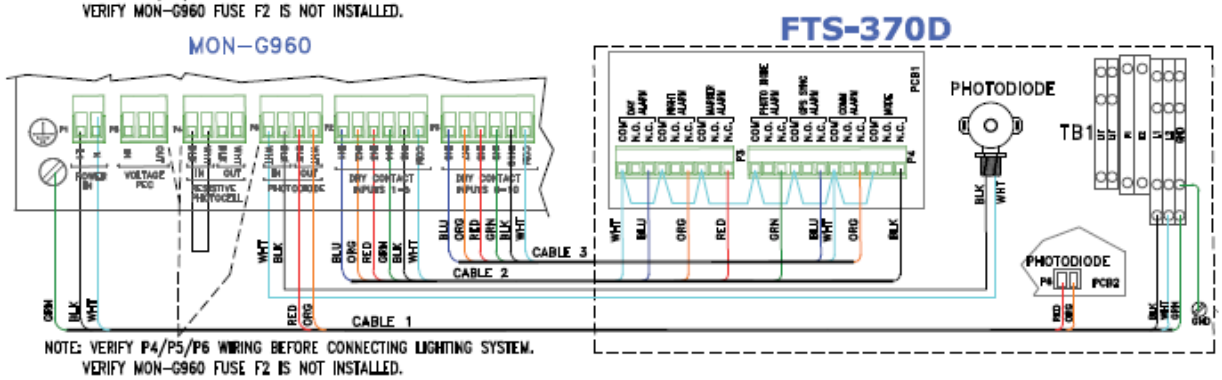
NOTE: VERIFY P4/P5/P6 WIRING BEFORE CONNECTING LIGHTING SYSTEM.
VERIFY MON-G960 FUSE F2 IS INSTALLED.



NOTE: VERIFY P4/P5/P6 WIRING BEFORE CONNECTING LIGHTING SYSTEM.
VERIFY MON-G960 FUSE F2 IS INSTALLED.



NOTE: VERIFY P4/P5/P6 WIRING BEFORE CONNECTING LIGHTING SYSTEM.
VERIFY MON-G960 FUSE F2 IS NOT INSTALLED.



NOTE: VERIFY P4/P5/P6 WIRING BEFORE CONNECTING LIGHTING SYSTEM.
VERIFY MON-G960 FUSE F2 IS NOT INSTALLED.

itl International Tower Lighting, LLC™
1001 Centre Pointe Dr., Ste.A
La Vergne, TN 37086
+1 (615) 256-6020
www.itltc.com

REFER TO USER MANUAL FOR ADDITIONAL WIRING DIAGRAMS AND INFORMATION.

MODEL MON-G960 Rev. 3

Technical Support and Contact Info

Contact Info

For information on the ITL 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

Monitoring System Info: http://www.itl-llc.com/monitoring-systems.html

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 / Reviewer / Approval
0	Created	5/1/2020	Prepared By: AI Reviewed By: RG Approved By: RSS