VIGILANT® SERIES

INEM

Integrated Network w/Embedded Monitoring

DNEM01N – 120/240VAC, 50/60Hz

DNEM04N – ±48VDC

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- ***DO NOT let any supply cords touch hot surfaces higher than cord ratings.***
- ***DO NOT mount near gas or electric heaters***
- ***Equipment should be mounted in locations and at heights where it will not be subjected to tampering by unauthorized personnel.***
- ***The use of accessory equipment not recommended by the manufacturer may cause unsafe conditions.***
- ***DO NOT use this equipment for other than intended use.***
- ***Before changes to settings are made the user must take screen shots of what the factory setting are.***

SAVE THESE INSTRUCTIONS!!

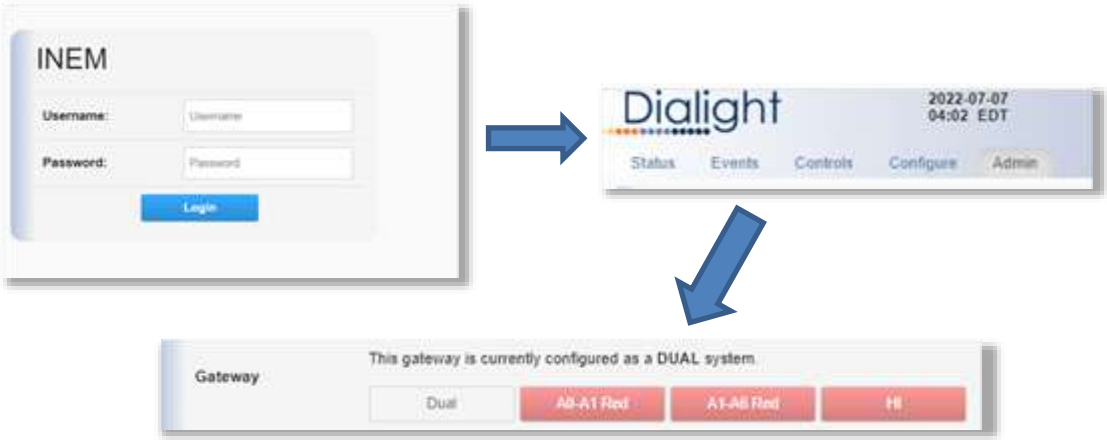
- ***The operation and maintenance must be carried out by authorized personnel.***
- ***Repairs and Installation must only be carried out by a qualified electrician.***
- ***Only genuine Dialight replacement parts must be used when unforeseen repairs are required.***
- ***Observe the national safety rules and regulations during installation!***
- ***Earth Grounding is required throughout the install process. Failure to do so could void all warranties!***
- ***No alterations should be done without the agreement from Dialight Corp. Alterations other than written in this manual will void all warranties.***

NOTE:

The INEM is factory set to work with a Vigilant® DUAL lighting system.

If you have a Red Light (A0-A1 or A1-A6) or High Intensity Controller (D266 or D366), please reset the GATEWAY in the ADMIN section of the Interface GUI (see page 9 for login and page 19 for Gateway).

Username: admin **Password: di@lightINEM1**



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Contents

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Introduction

This manual is for general installation and connection to the Dialight Vigilant® Series of Red, Dual and High Intensity LED lighting controllers. The INEM will not connect to other RS485 controllers or devices. The INEM is available with an input voltage of 120/240VAC 50/60Hz or ±48VDC.

The INEM is setup for directly connecting to:

- Ethernet Port
- Owners supplied Wireless modem for remote monitoring

There are no physical dry contact support within the INEM. All information is viewed by digital representation on the INEM web page. Dry contacts within the Dialight Vigilant controller will be used as a second method for alarming.

The INEM is also available as an integrated system within the Vigilant® Medium Intensity Dual Lighting and High Intensity controllers. The main boards will be assembled within the main controller cabinet, so no additional interconnection will be required by the customer between the INEM and controller.

Part Number	Controller Description
D1CWCTR409N	Medium Intensity White/Dual, IR, 120/277VAC
D1CWCTR449N	Medium Intensity White/Dual, IR, ±48VDC
D1RWCTR409N	Medium Intensity White/Dual, 120/277VAC
D1RWCTR449N	Medium Intensity White/Dual, ±48VDC
D266A57CTRACN	High Intensity GEN II, 120VAC
D366A57CTRACN	High Intensity GEN III, IR, 120VAC

If the INEM is integrated into the controller, please follow instructions in the System Configuration section of this manual starting on Page 9.

Included in this manual:

- Warranty
- Mounting
- System Overview
- General Installation Instructions
- System Configuration Instructions
- User Interface Overview
- Local WiFi Connection

NOT Included with the Dialight INEM:

- 12VDC battery or cables for Backup power
- #6 AWG earth ground cable when required
- Ethernet cable (shielded cable cannot be used for floating DC input powered version)

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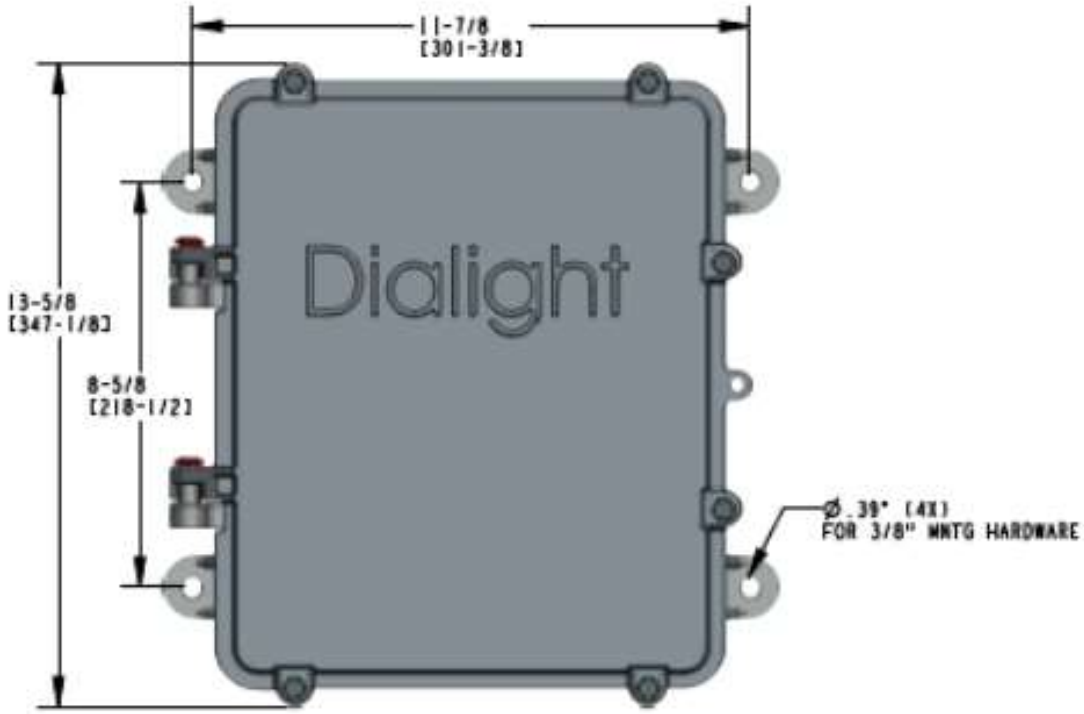
Warranty:

Please visit www.dialight.com/resources/warranties for the latest warranty policy.

Mounting Dimensions



- Recommended mounting hardware diameter is 3/8” (10.3mm)
- Three (3) ¾-inch NPT entrance holes provided on bottom side of enclosure

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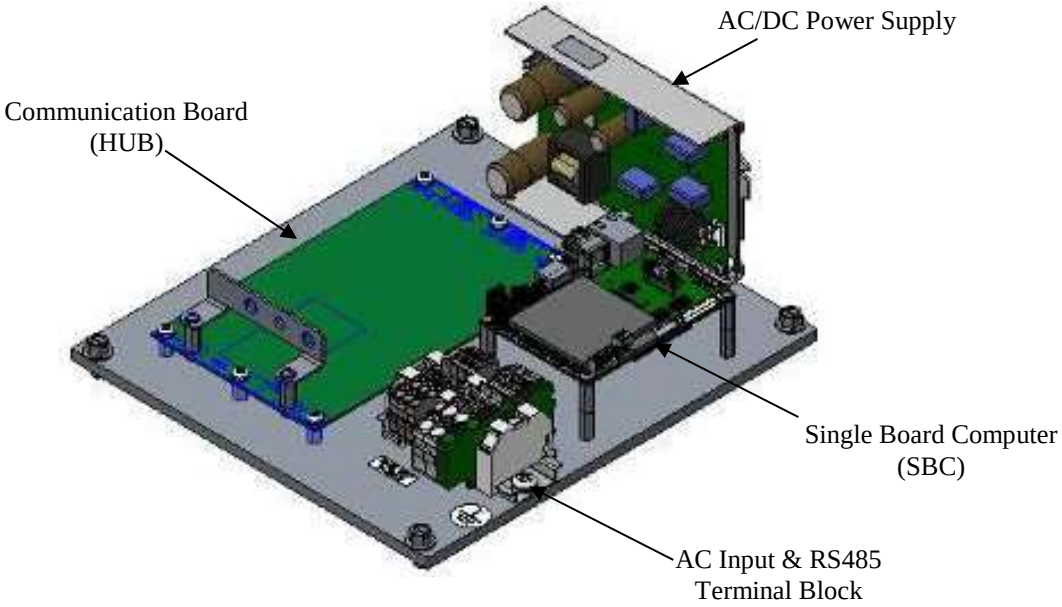
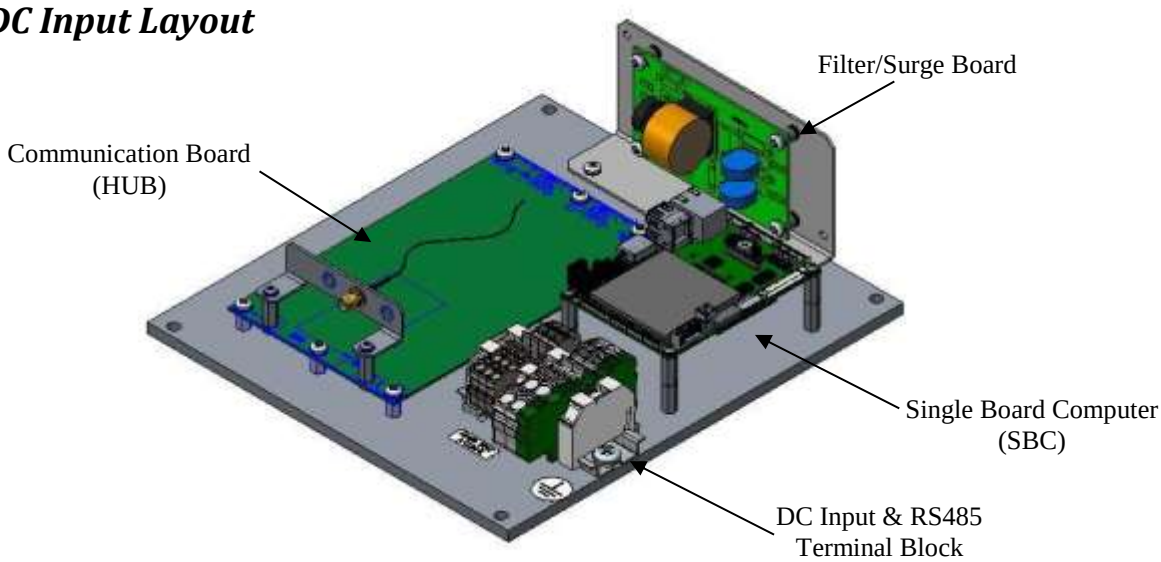
System Overview

AC Input Layout



DC Input Layout



Spare Parts Listing

AC/DC Power Supply	D2669006RA
Filter Surge Board	D7209SUR
Communication HUB Board	8800865610000
Single Board Computer (SBC)	8898000296900

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Electrical Parameters

Input Voltage [VAC]	Voltage Range	Frequency	Wattage
120-230Vac	100-264Vac	50/60 Hz	10 W
+/- 48Vdc (Floating)	40-60Vdc	N/A	5 W

Connection of Input Power:

Input cable or wire NOT supplied with the system.
Input power connected at terminals labeled TB1 (see below).

- The AC connection requires three conductors. Live, Neutral and Earth Ground. Input Voltage is 120/240 VAC 50/60Hz (100-264 VAC range).

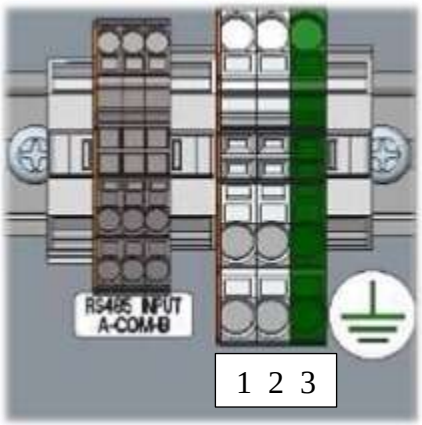
- The DC connection requires three conductors. Positive, Negative and Ground. Input Voltage is ±48VDC (40-60 VDC range).

Individual wires must be fed through seal tight or conduit.
#6 Earth ground connection to housing is required to provide safety and proper operation of the system.

WARNING: Floating Neutrals are not permissible within the wiring of the system and the installer must verify the connections. This will “Void” all warranties and cause system failure during turn on.

WARNING: No more than 264VAC measured from Line to Earth Ground or Line to Neutral on TB1, or 60VDC from Positive to Negative or Positive to Ground. This must be measured before powering up the system.

NOTE: The load and voltage loss of the cable must be quantified before selecting the cable size requirements. See electrical specifications for details.



	AC Input	DC Input
1	Line In	(+)
2	Neutral	(-)
3	Ground	Ground

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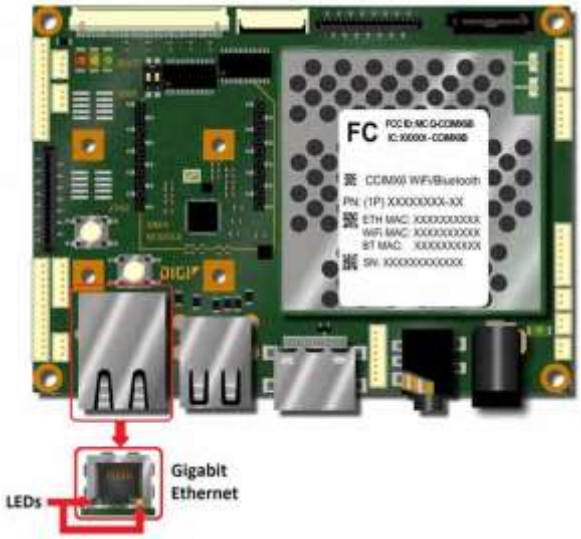
Wiring of Monitoring System to the Main Controller:

1. Run the RS485 cable from the INEM terminal block labeled “RS485 Input A-COM-B” to Dialight Lighting System controller terminal block labeled “From Master” (A-COM-B). Match color code between terminals.

2. Connect Ethernet cable to Gigabit Ethernet port on SBC board shown below to user network console.



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System Configuration

Connecting using the IP address

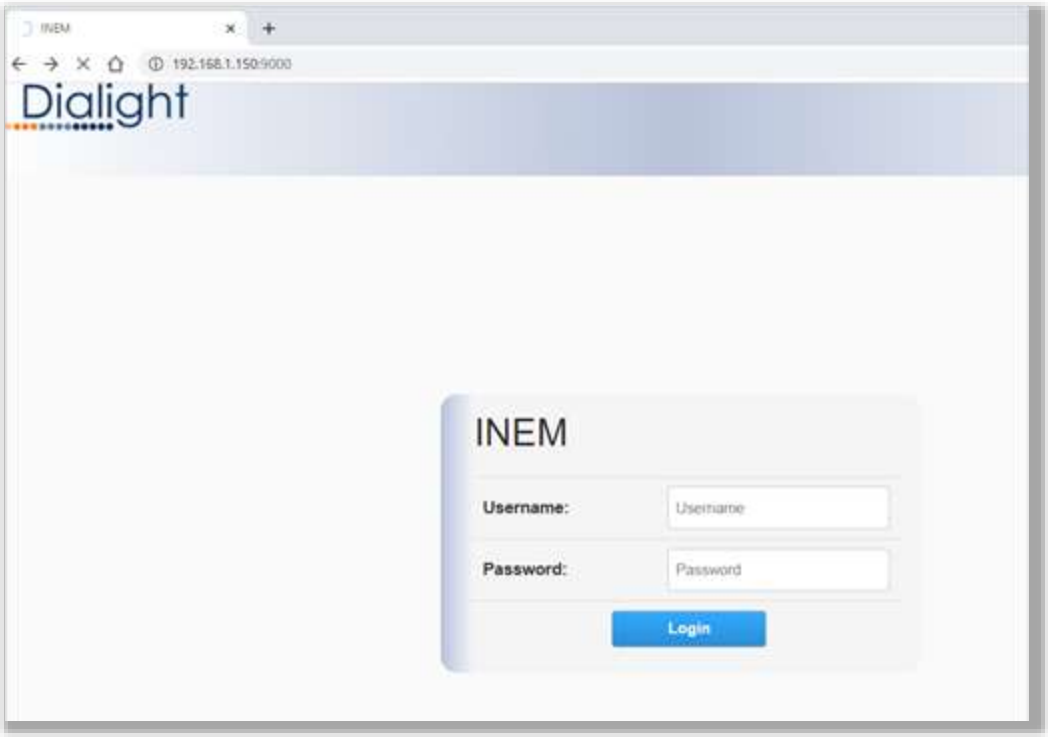
Google Chrome is the preferred web browser along with Firefox or Safari.

The INEM is provided with a static IP address (192.168.1.150:9000).

The network settings are changeable, but recommended to leave them as they are as changing them can disrupt communication.

WARNING: If changes are made, it is highly recommended that screen shots be taken and saved.

INEM Secure Login Page



Username: admin
Default Password: di@lightINEM1

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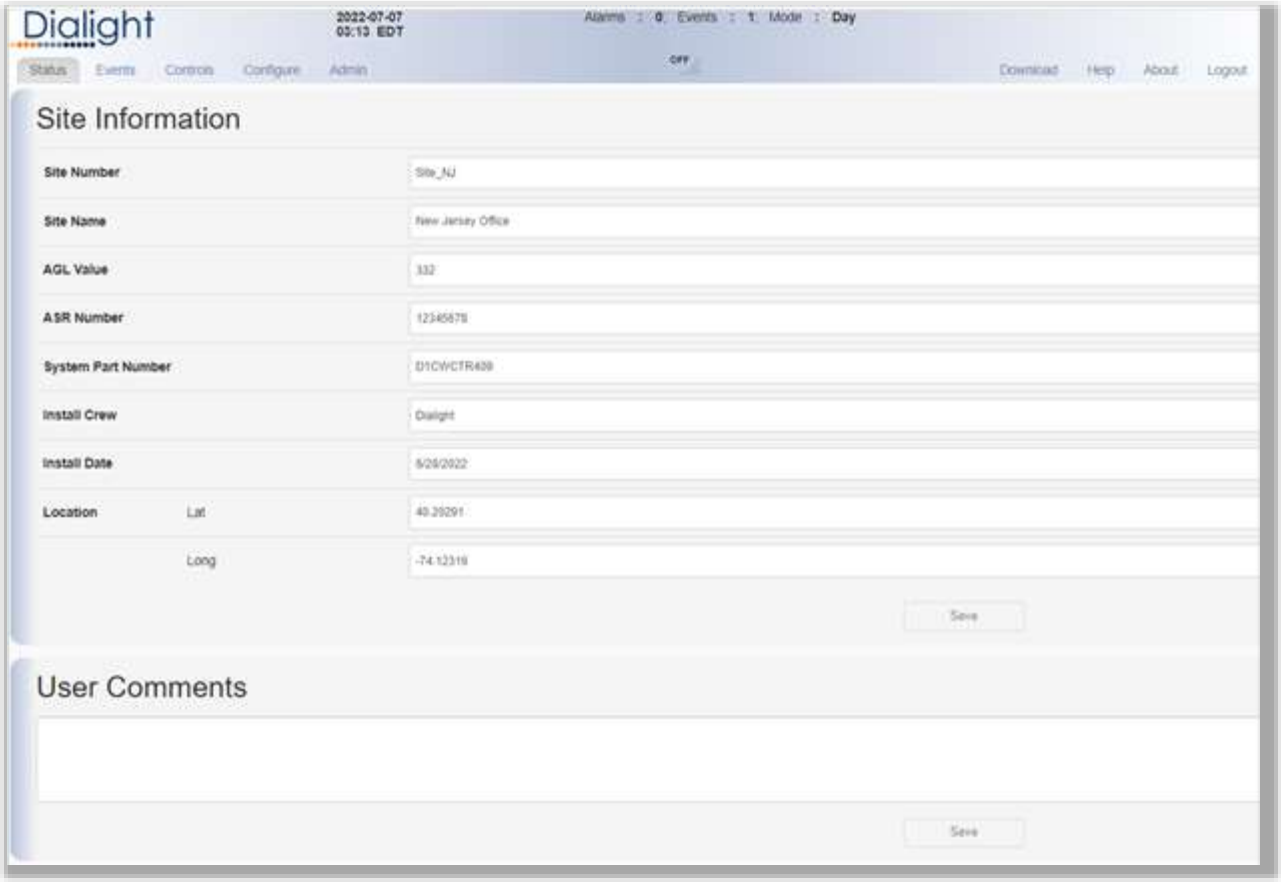
INEM User Interface (GUI)

Status Page

The Status Page consists of the following user input fields and status fields.

Site Information – customer can provide specific information regarding the site
User Comments – customer can add additional comments as required
- Recommend adding flashhead & sidelight serial numbers and installation date

System Statics – Provides an overview of the Dialight Vigilant® lighting system
Beacons – Provides information specific to each beacon within the lighting system
Current Matrix – Monitors current of beacon for 25% LED failure
Dry Contact Alarm – displays real-time status of each dry contact monitor relay incontroller



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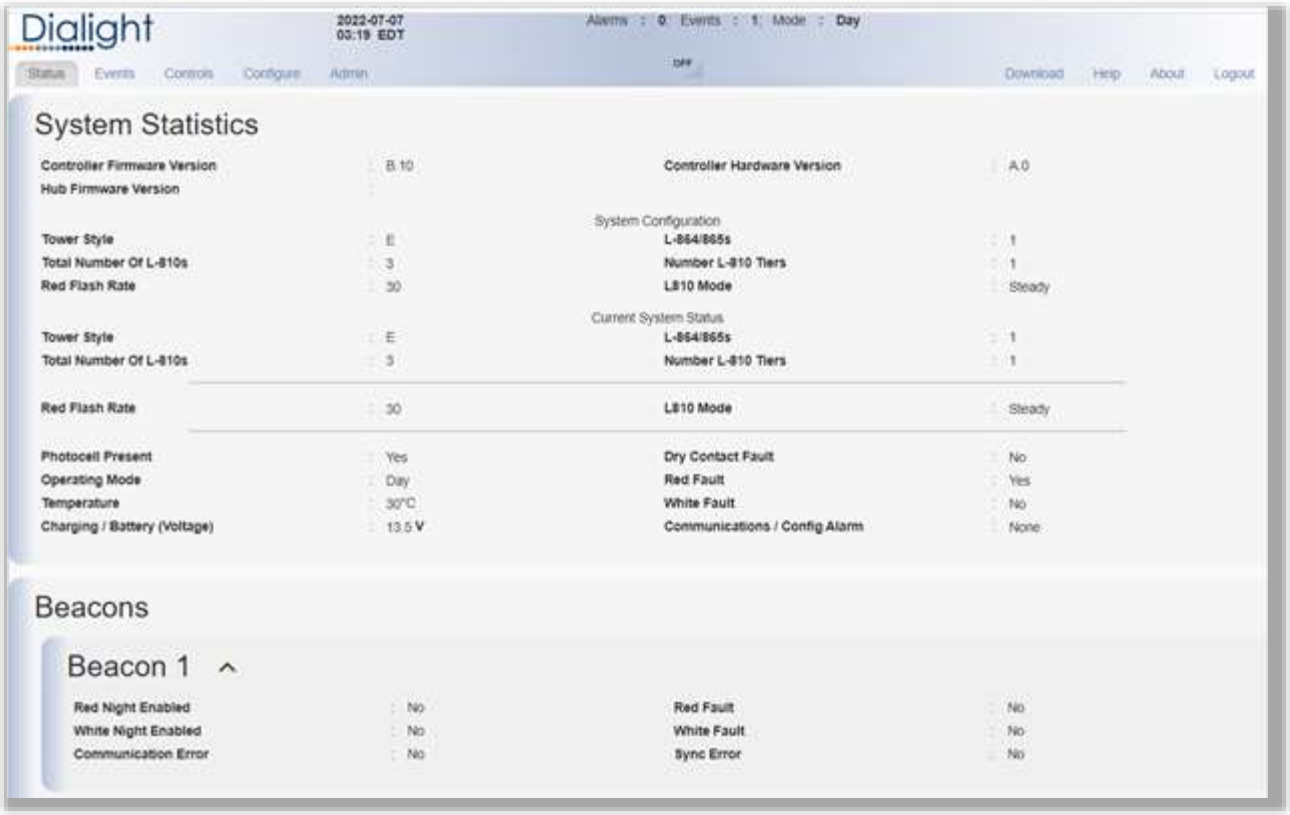
The System Statistics page will display the firmware of the controller, FAA tower type, number of beacons and sidelights installed, photocell, general alarms and other useful information.

For High Intensity lighting systems – this section will show parameters of each High Intensity Beacon module and power supply. This is arranged in tiers of three complete beacons, each with three individual modules (flash head layers) based on the light levels on the tower.



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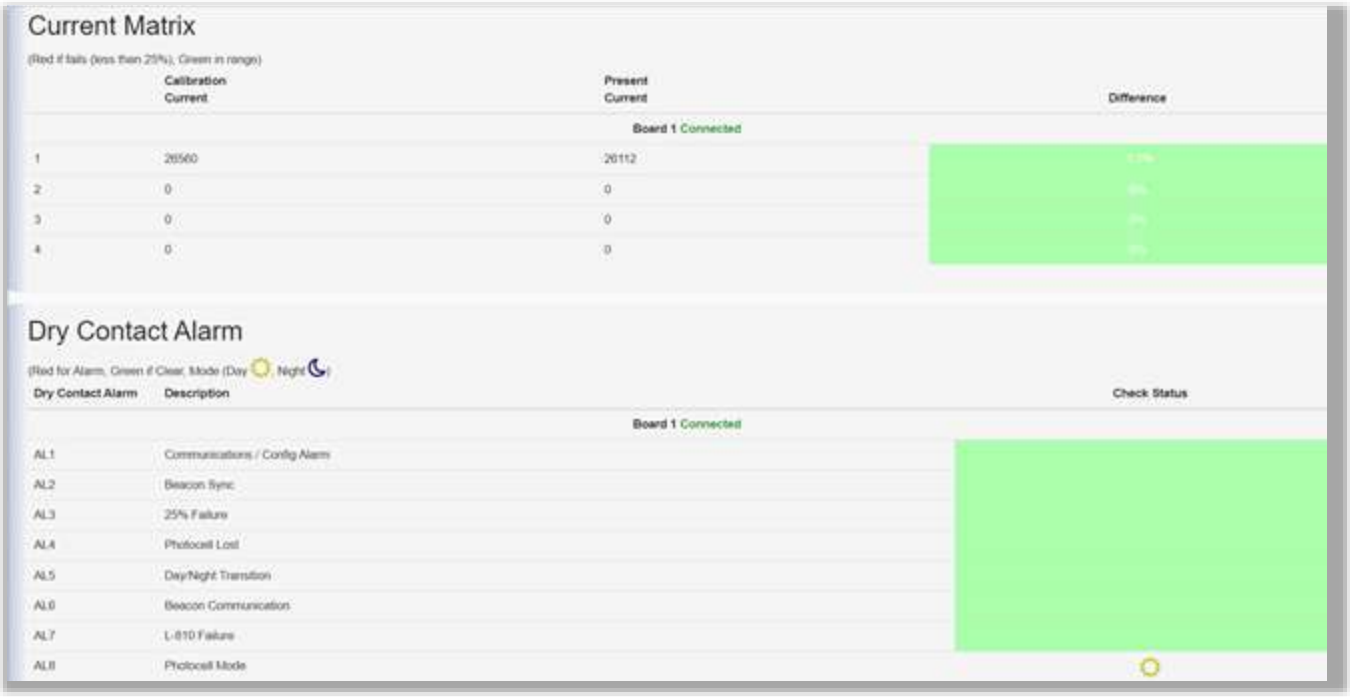
The Current Matrix provides a visual detail of the operational current of the connected beacon. Once the difference is greater than 25%, an alarm will generate for 25% LED failure.

The Dry Contact Alarm provides a visual detail of the contacts within the Vigilant controller and mode of the photocell.



Current Matrix

(Red if fails (less than 25%), Green in range)

	Calibration Current	Present Current	Difference
		Board 1 Connected	
1	26560	26112	
2	0	0	
3	0	0	
4	0	0	

Dry Contact Alarm

(Red for Alarm, Green if Clear, Mode (Day, Night)

Dry Contact Alarm	Description	Check Status
	Board 1 Connected	
AL1	Communications / Config Alarm	
AL2	Beacon Sync	
AL3	25% Failure	
AL4	Photocell Lost	
AL5	Day/Night Transition	
AL6	Beacon Communication	
AL7	L-810 Failure	
AL8	Photocell Mode	

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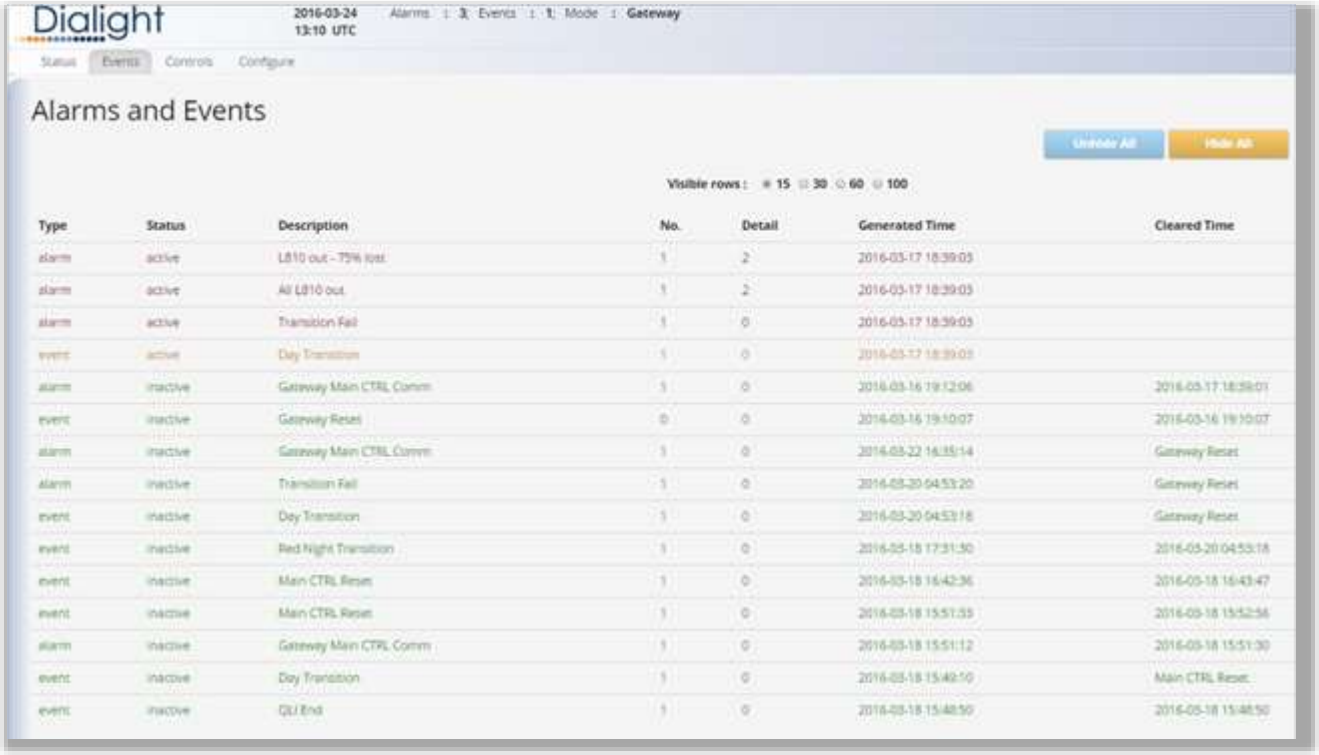
Events Page



Type	Status	Description	No.	Detail	Generated Time	Cleared Time
alarm	active	LB10 out - 75% loss	1	2	2016-03-17 18:39:03	
alarm	active	All LB10 out	1	2	2016-03-17 18:39:03	
alarm	active	Transition Fail	1	0	2016-03-17 18:39:03	
event	active	Day Transition	1	0	2016-03-17 18:39:03	
alarm	inactive	Gateway Main CTRL Comm	1	0	2016-03-16 19:12:06	2016-03-17 18:39:01
event	inactive	Gateway Reset	0	0	2016-03-16 19:10:07	2016-03-16 19:10:07
alarm	inactive	Gateway Main CTRL Comm	1	0	2016-03-22 16:35:14	Gateway Reset
alarm	inactive	Transition Fail	1	0	2016-03-20 04:53:20	Gateway Reset
event	inactive	Day Transition	1	0	2016-03-20 04:53:18	Gateway Reset
event	inactive	Red Night Transition	1	0	2016-03-18 17:31:30	2016-03-20 04:53:18
event	inactive	Main CTRL Reset	1	0	2016-03-18 16:42:36	2016-03-18 16:43:47
event	inactive	Main CTRL Reset	1	0	2016-03-18 15:51:33	2016-03-18 15:52:56
alarm	inactive	Gateway Main CTRL Comm	1	0	2016-03-18 15:51:12	2016-03-18 15:51:30
event	inactive	Day Transition	1	0	2016-03-18 15:49:10	Main CTRL Reset
event	inactive	QU End	1	0	2016-03-18 15:48:50	2016-03-18 15:48:50

The events Page shows the alarms and events that has either occurred or has occurred. Time stamps for each event/alarm indicate when the event/alarm occurred and cleared.

Type – Severity of Occurrence: Event or Alarm
Status – Active or Inactive
Description – Indication where event/alarm is/has occurred
No. – Indicates primary location of occurrence
Detail – Indicates secondary location of occurrence
Generated Time – Time when occurrence generated
Cleared Time – Time when occurrence cleared
Hide – Can temporarily hide individual lines

Alarms come up in RED color if active and GREEN when cleared
Events come up in YELLOW color if active and GREEN when cleared

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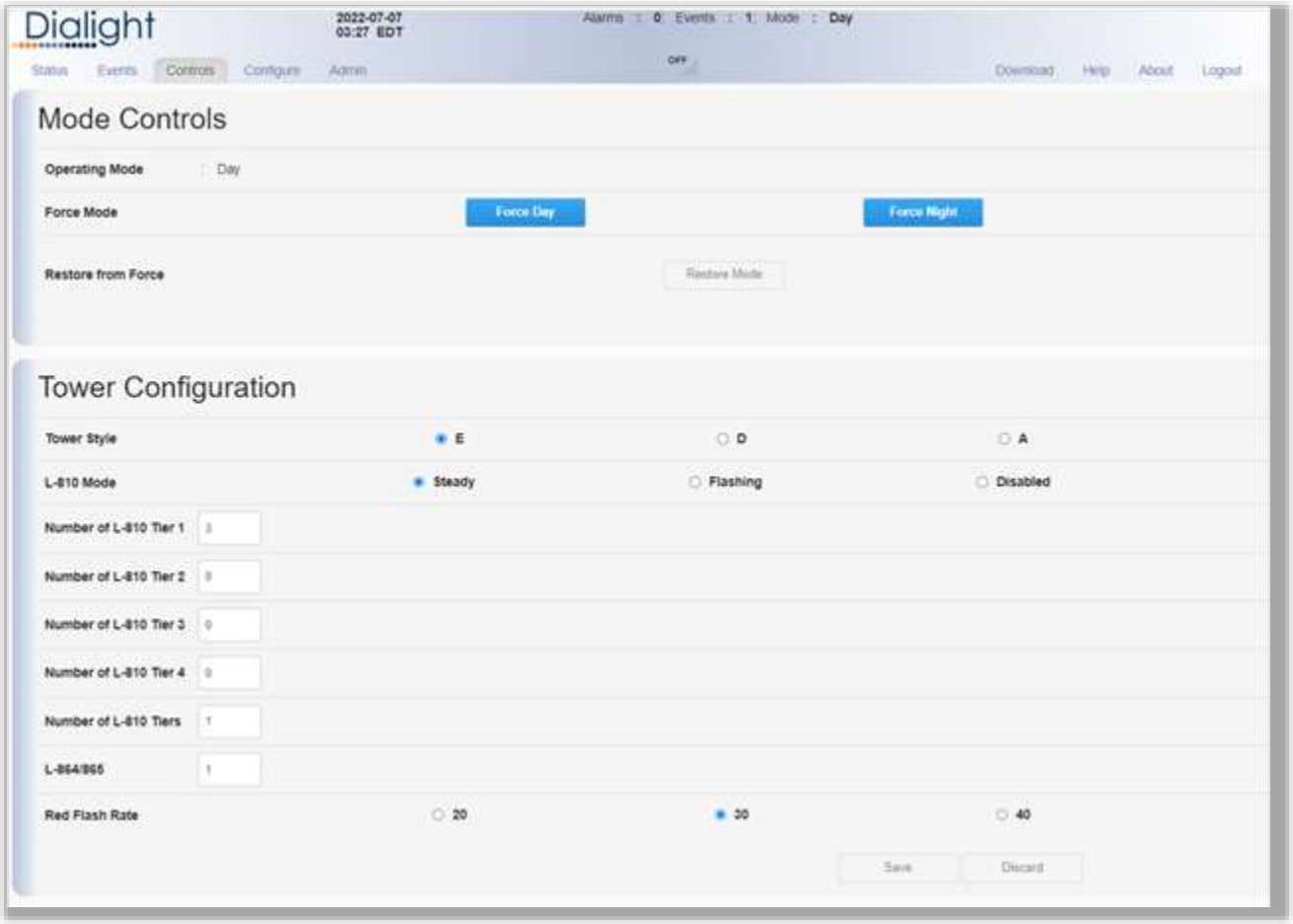
Controls Page



From this page, the user can view the Mode (Day/Night Operation) of the system and manually override into a specific mode. This mode change will be permanent, so user must ensure to click “Restore Mode” prior to leaving site and verifying photocell operation manually.

The user can verify that the INEM has the proper settings based on the tower configuration that was performed during the initial installation of the Vigilant® LED lighting system. Any errors will be reported on the Events page as a system configuration error.

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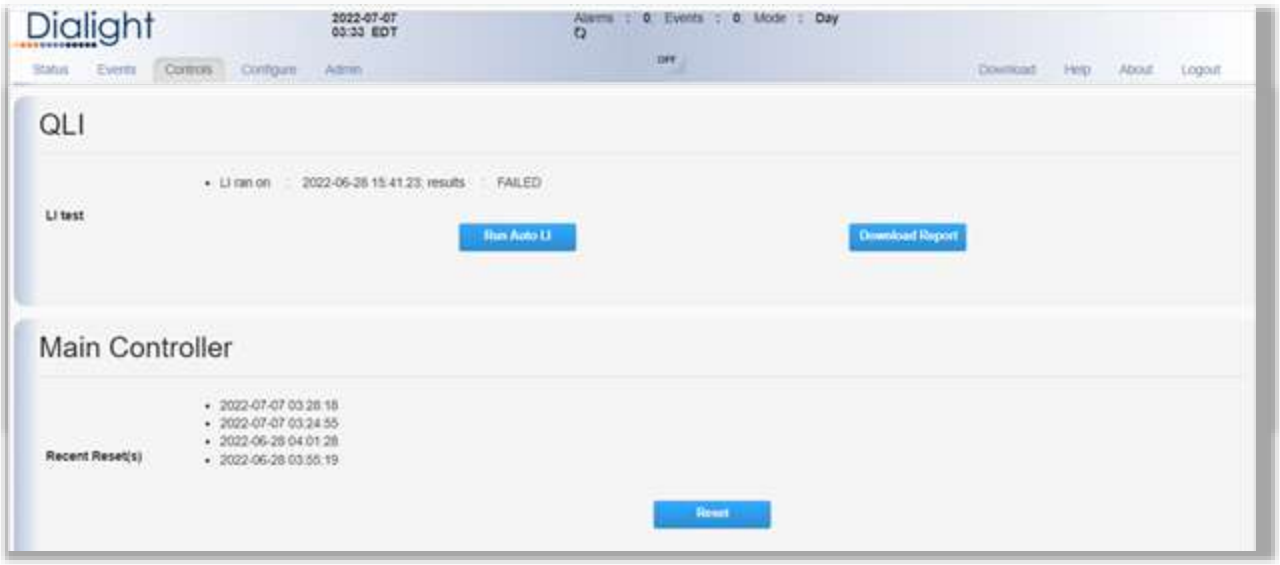
The user can run a QLI (Quarterly Lighting Inspection) or ALI (Automatic Light Inspection) test from this page. The QLI/ALI will test all components within the system and provide a detailed report that can be downloaded in CSV file format. A maximum of four (4) test reports will be saved.

The titles can be Pass, Fail or Incomplete. An Incomplete test could be an alarm is present on the system or a disruption has occurred during the test.

The user can also perform a system reset on the main controller remotely. This should not be performed during the QLI/ALI.



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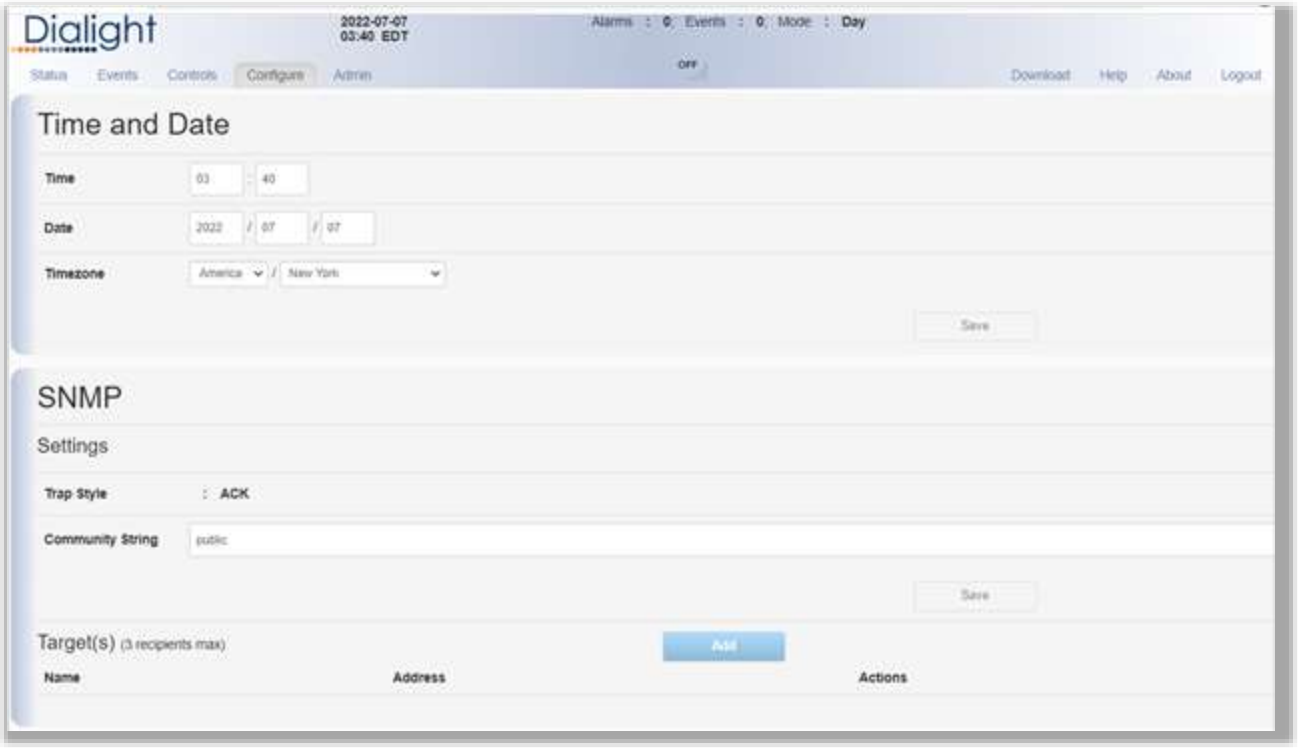
Configure Page

The Configure Page allows the user to set a wide range of parameters on the INEM to match their network settings and requirements.



Time & Date – The time and date can be set through and will automatically update the Controllers LCD board. After the time is set, the INEM device will poll the controller every 2 minutes to update the time.

SNMP – Settings and Targets
SMS – *feature not activated*
User Logo – customer can add company logo to webpage in upper right corner
Network – set system for Static IP or DHCP
Wi-Fi – set connection protocols to connect locally via Wi-Fi
Cellular – settings for optional user supplied cellular modem
Check Connectivity – *feature not activated*
User Authentication Configuration – disables the initial login screen requirements
Change Password – allows user to change password from default Dialight password

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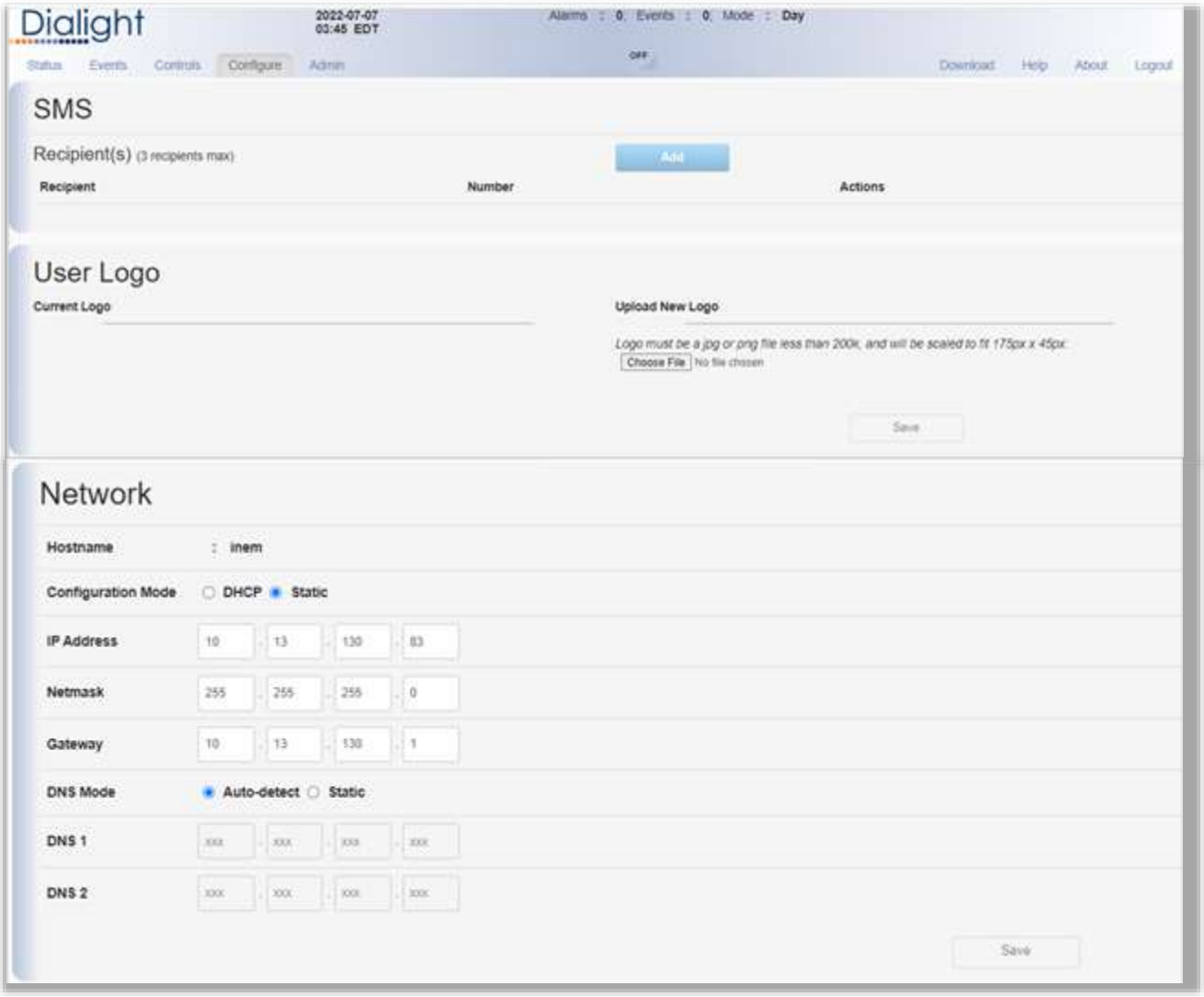

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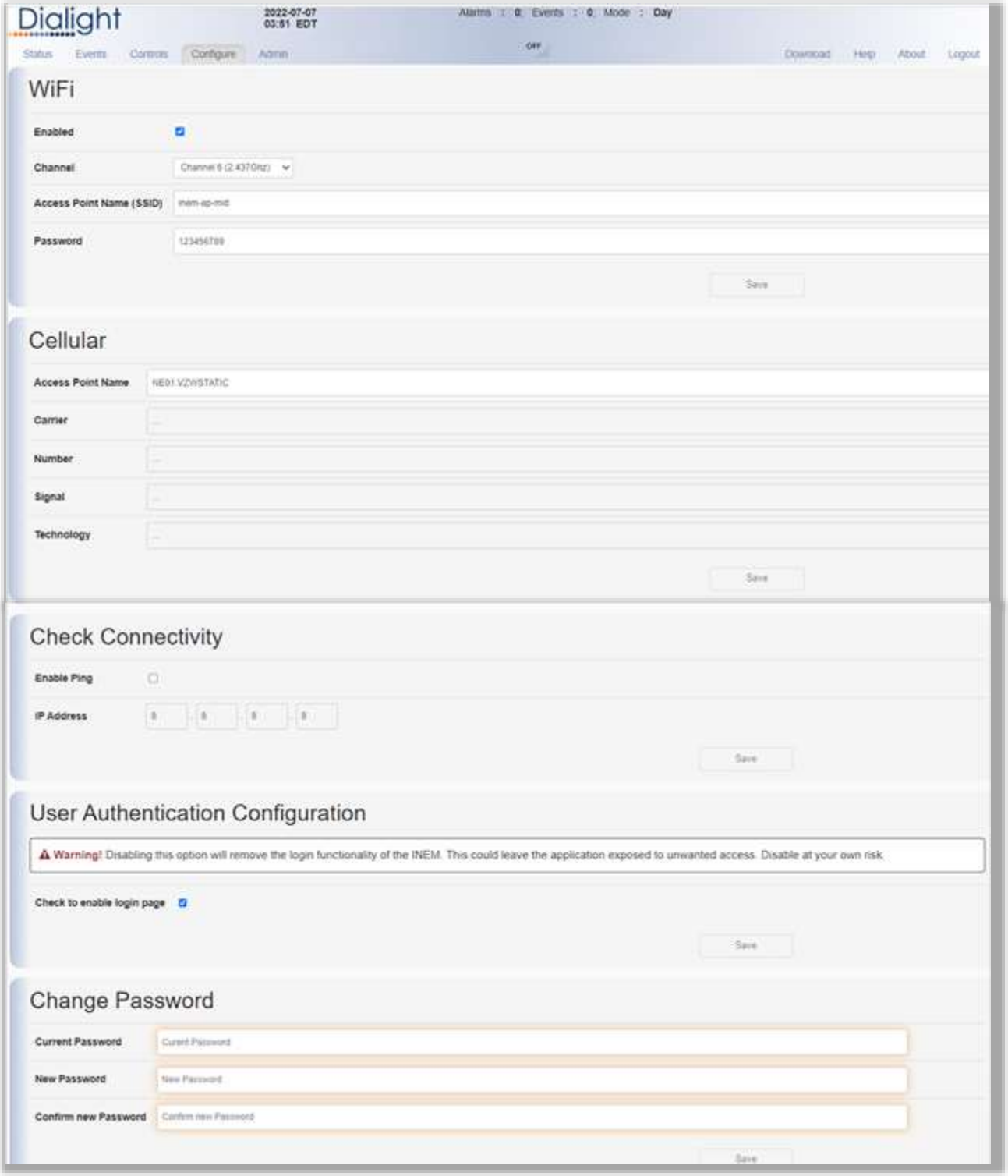

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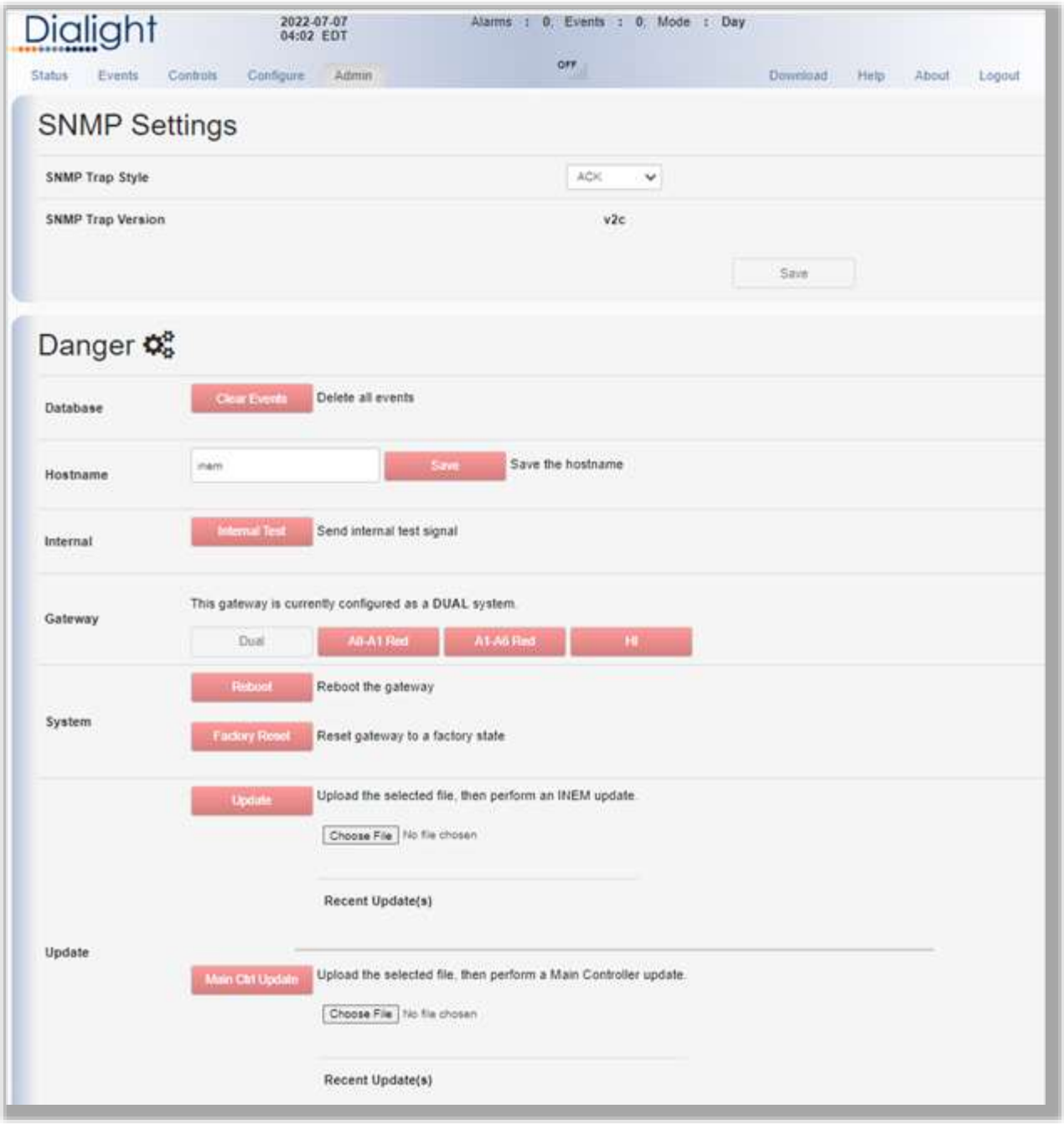
Admin Page

The Admin page allows the user to set the SNMP Trap Style and Version.

The user can also make administrative changes to the INEM system. Prior to making any changes within the Danger section, it is recommended to contact Dialight technical support to review the system status and functionality.



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SNMP Trap Style

ACK
- Alarms generated every minute from the controller until an acknowledgement from the remote network are received.

NACK
- Alarms generated from the controller are sent once and do not require a response from the remote network.

INFORM
- Generates a INFORM style SNMP trap when any alarm is generated

INFORMv2
- Generates a INFORM style SNMP trap with a static OID

SNMP Version Support - v2c
SNMP INFORM Trap Retry Count - 3

Danger

Database
- Permanently clears all events previously recorded.

Host Name
- Can change the host name of the INEM

Internal Test
- A internal test for the system, typically requested from Dialight's Technical support team

Gateway Mode
- This feature requires the user to select the tower style to match lighting controller.
- Factory set as "DUAL". Must be changed to match system (A0-A1 Red, A1-A6 Red, High Int).

System

ReBoot
- Restarts the INEM system and keeps all parameters

Factory Reset
- The system to factory default setting, including the IP address

Update

Update
- Allows the user to upgrade the INEM on board computer to additional versions. Only available on versions A.17 and above as noted in the "About" page.
- Contact Dialight Technical Support prior to upgrading to ensure that the proper firmware sequence is performed.

Main Controller Upgrade
- Allows the operator to upgrade the main controller LCD board via .hex file

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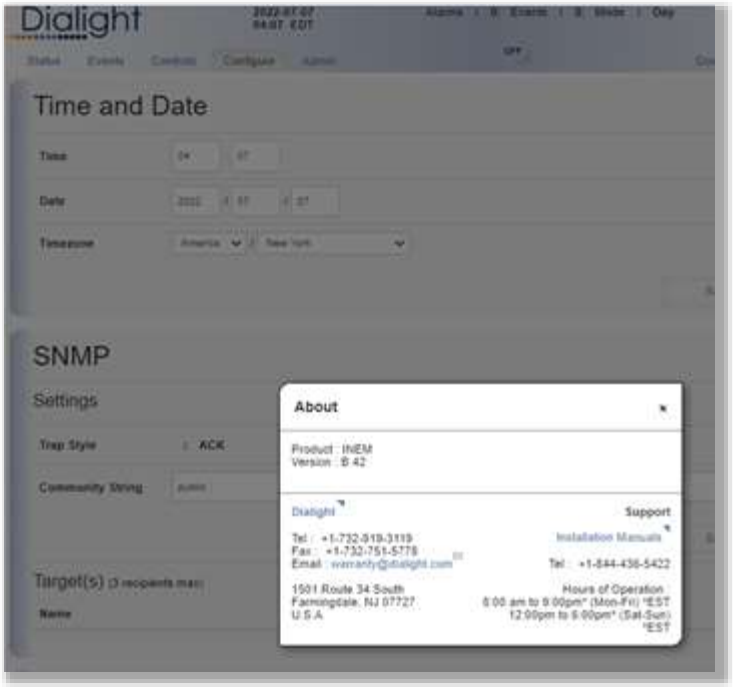
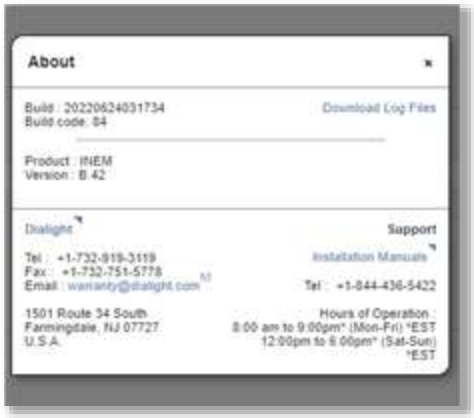
Retrieve the INEM version number

The INEM revision can be obtained from the “About” link on the top right on the pages. A single click on the About tab will provide the general information on the INEM.



Double-Click ‘About’ in display screen and the controller Build Code will be provided.



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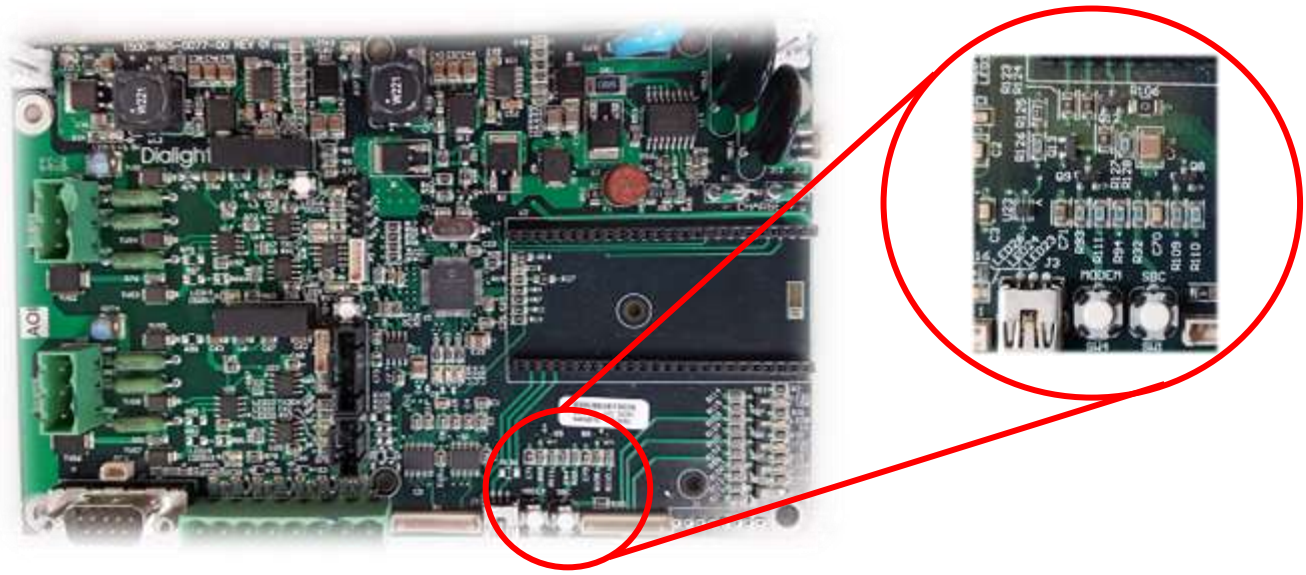
Enable Local Wifi connection

To enable the local WiFi connection, there must be two black interconnection cables between the SBC and Hub boards. These are connected on each side of the Modem/SBC buttons shown below in the white connectors. If the system only has one black cable, please contact Dialight Technical Support for assistance.

Once verified, depress the “SBC” button located on the Hub board.



The local WiFi will start and will display the Access Point Name listed on the Configure/Wifi section.

The default password will be 12345678.

In the Configure section, the user can change both the Access Point Name and Password. Connect to the access point by the Network/Internet settings on your device.

Open a web browser, preferably Google Chrome, and enter the IP 192.168.1.150:9000 to gain access to the Interface GUI page. Log into the INEM using the Login of “admin” and Password of “di@lightINEM1”.

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Download/Help/About/Logout

Download will provide a CSV file format of the information that can displayed based on the current tab (Status/Events/Controls/Configure/Admin) that is being viewed.

Help will provide a popup Help screen based on the tab being viewed.

About will provide general information for the INEM and contact information to Dialight resources.

Logout will allow the user to logout of the INEM and will go to the main login screen.

Firmware Revisions

Original Release (A.11)	April 2016
A13 / A14	July / August 2016
A38	November 2016
B40.1	January 2017
B40.2	October 2018
B41	December 2018
B42	June 2019
B42.66	November 2019
B42.70 C1	January 2021
B42.70 C2	May 2021
B42.78	September 2021
B42.83	June 2022

REVISION HISTORY

REV	ECO No.	DRN	CKD	APP	QA	CM	DATE
A	33921	EK	SA	CV	JP	JN	03/25/16
B	36761	EK	SA	CV	JP	JN	06/30/16
C	40816	SA	CAG	KH	YS	JN	12/9/16
D	67165	NS	AV	AR	YS	JN	4/20/20
E	96249	JAJ	TV	EK	YS	JN	8/23/22

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