FIRETECH®
BY HIVIZ LED LIGHTING

VIOLET/UV-C GERMICIDAL LIGHTING SYSTEM INSTRUCTION MANUAL

HV-VIOLET-6KIT

MANUAL VERSION 1.3 (November 19, 2025)

MADE IN USA

ENGINEERED IN THE UNITED STATES
LIFETIME WARRANTY

HiViz Lighting, Inc
Phone: 703-662-3458
Email: firetech@hivizleds.com
PO Box 565, Naples, NC 28760

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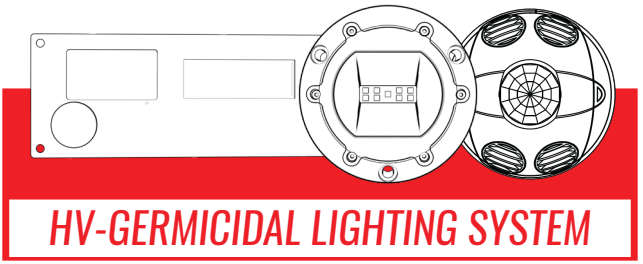

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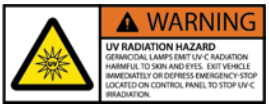
SAFETY NOTICE & WARRANTY

HiViz Lighting's "Violet" Ultraviolet Germicidal Irradiation system utilizes LEDs which produce UV irradiation between 270 and 285 nanometers. These products are intended to be used in ambulances and other automotive applications where germicidal irradiation is desired, secondary to standard pathogenic decontamination regimens. Despite the value these systems bring, you must avoid exposure to UV rays. This system is designed to be installed in occupied spaces but is designed only to emit UV light when the space is unoccupied. Any time visible light is detected from any LEDs on a Violet emitter, the system is irradiating and exposure is possible. Any users of this product must be familiar with safe operation of the system, which requires training.

Warning: Ultraviolet Germicidal Irradiation (UVGI) is hazardous to humans, plants and animals. To protect against injuries, the flowing safety precautions must be observed:



1. **Warning:** Avoid exposure to direct or reflected UV rays. Ultraviolet light rays can cause damage to skin and eyes.
    - Further information about exposure safety can be found here: **https://www.icnirp.org/cms/upload/publications/ICNIRPUV2004.pdf**
2. Any time you must work in an area where exposure to UV rays is possible, precaution should be taken to ensure all exposed skin is covered, and eyes are shielded with Ultraviolet rated glasses.
3. In the event of system malfunction, or suspected system malfunction, immediately depress the emergency stop button. In addition to the emergency stop, the main power fuse must be removed, or power otherwise disconnected from any malfunctioning system and the system should only be re-connected by a qualified technician who can verify proper system operation.
    - **Warning:** The only way to be certain UVGI irradiation has ceased is to remove power to the system. Failure to remove power from a malfunctioning system could result in leakage which is harmful to skin and eyes.
4. Do **NOT** remove or cover any warning, caution, or danger labels affixed to any portion of this system.
5. At no time should any user bypass or attempt to bypass any of the safety features included with the Violet UVGI system. These safety features include:
    - Emergency stop button
    - Occupancy sensor
    - Fuses or Terminal connectors
    - Speaker (audible announcements)
    - (If enabled) door trigger
    - (If enabled) park sensor
    - (If enabled) seatbelt sensor

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SAFETY NOTICE & WARRANTY (CONT.)

6. System administrators and installers should read and understand the instructions prior to making any changes or placing any system in service.
7. The Violet system uses an advanced algorithm to determine if UV-C emitters are functioning as intended. Never connect anything to the power outputs on the Violet User Interface Panel except the Violet emitters. Proper system configuration is critical to safe operation. You must set the number of emitters in the settings to match the number of emitters connected the system!
8. Do **NOT** use system for any purpose other than as intended; UVGI systems are intended for ambulances and other automotive vehicles.
9. UVGI systems do **NOT** prevent the spread of communicable disease in all situations or circumstances. Standard pathogen precautions should be taken, and the user should never assume the UVGI system has rendered an environment safe for entry. Proper precaution should be taken any time you are working in a hazardous environment, and UVGI should be used in conjunction with standard decontamination practices.
10. HiViz Lighting, its dealers, affiliates, and partner companies are not medical doctors. Dose, irradiation time, and other settings must be reviewed and established by a qualified professional. HiViz sets a system default which must be calibrated and adjusted per vehicle.

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SAFETY NOTICE & WARRANTY (CONT.)

WARNING: INSTALLATION MUST BE CONDUCTED BY A QUALIFIED TECHNICIAN. IMPROPER INSTALLATION CAN RESULT IN INJURY OR DEATH.

- Installation must be conducted by a qualified automotive electrician or emergency vehicle technician in accordance with the applicable NFPA standard(s) and procedures (Including but not limited to NFPA 1901, 1906, 1911, 414, 1900)
- All circuits must be fused at 125% of the rated power consumption of the loads on the circuit
- A voltage drop greater than 10% in the power feed to a fixture could be an indicator of an under-sized conductor. Use of improperly sized conductors will, at a minimum, result in poor performance, and at a maximum could result in fire
- Verify input voltage is within fixture range before installation. Voltage range information can be found in this manual or printed on the fixture body
- Allow proper cooling time before handling the fixture if it has been installed & powered to prevent burns
- Any modifications to the fixture will void warranty and are not authorized by the manufacturer
- Always inspect the fixture for any damage prior to installing and DO NOT install if any damage is present

PLEASE READ ALL INSTRUCTIONS BEFORE INSTALLATION

Warranty Information: Full policy available Online at hivizleds.com/warranty

- Proof of purchase may be required to validate warranty. All FireTech products are warranted for the useful service life of the vehicle for which they were first installed
- Improper installation, accident, physical damage, neglect, and normal wear and tear are not covered under warranty
- Lights operated in environments over 150° Fahrenheit are not covered under warranty
- All advance-exchange warranty claims must be validated with HiViz Technical Support prior to issuance of a shipping label. Failure to return defective product will result in an invoice for the full replacement value of the product
- HiViz Lighting will repair or replace defective product at its discretion. Replacement product will be in similar or better cosmetic condition than the defective part.
- Warranties should be handled through the dealer/reseller the product was purchased from; customer is responsible for delivery
- If product is found to have damage not covered under warranty, customer will be responsible for return shipping charges and/or cost of repair
- Non-warranted items can be repaired at the customer's expense of parts and labor, at the discretion of HiViz LED Lighting

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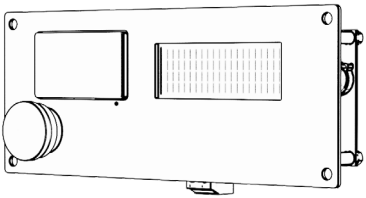
VIOLET LIGHTING SYSTEM ASSEMBLY



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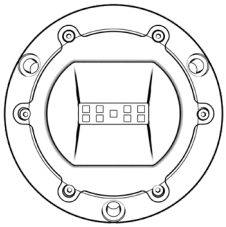

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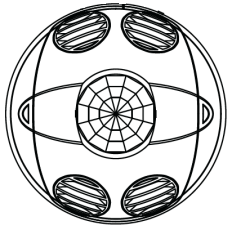

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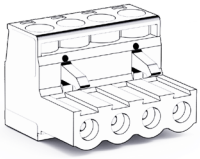

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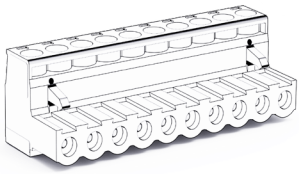

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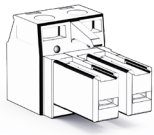

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PIECES INCLUDED

1. **Violet User Interface Panel**
   P/N: HV-VIOLET-UIP
2. **Violet Emitter**
   P/N: HV-VIOLET-AQX
3. **Occupancy Sensor**
   P/N: P-OSC10-MOW
4. **4 Pin Connector (P2)**
   P/N: ACNTBC-P-4P-S-5.08mm
5. **10 Pin Connector (P9)**
   P/N: ACNTBC-P-10P-S-5.08mm
6. **2 Pin Connector (P1)**
   P/N: ACNTBC-P-2P-S-7.62mm

RECOMMENDED TOOLS & HARDWARE (NOT INCLUDED)

- 1/4-20 x 1.5" socket head screws with washers and locknuts (3 screws per emitter)
- (4) #10-24 x .625" screws with washers and locknuts
- Phillips Screwdriver
- Heat-shrink butt connectors
- Wire Strippers
- Saw or other means to cut out holes

NOTE:
Tighten screws by hand/screwdriver. Power-tools can cause damage to isolators and cause an insecure attachment.

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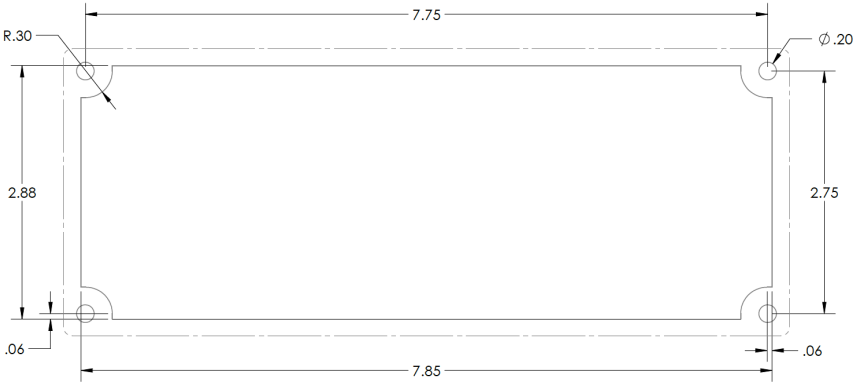
MOUNTING DIMENSIONS

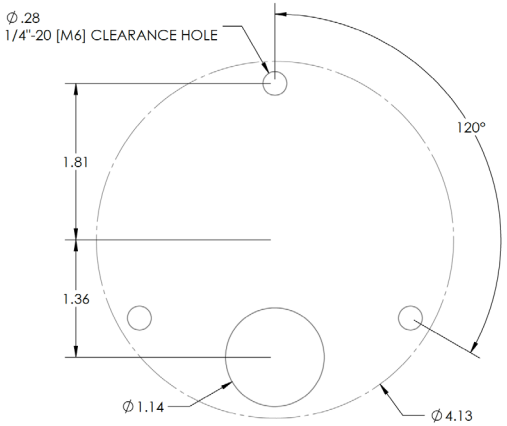
***Please see template on separate full size pieces of paper included in package to use. The template below is NOT to scale.**

1 VIOLET USER INTERFACE PANEL



NOTE: PANEL BOLT HOLES ARE CLEARANCE HOLES FOR #10-24 SCREWS. IT IS UP TO INSTALLERS DISCRETION ON FASTENER CHOICE, HOLE SIZE, AND INSTALLATION METHOD.
THE DOTTED LINE SHOWS THE OUTER PERIPHERY OF THE HV-VIOLET-UIP

2 VIOLET EMITTER



NOTE: EMITTER BOLT HOLES ARE CLEARANCE HOLES FOR 1/4"-20 OR M6 SCREWS. IT IS UP TO INSTALLERS DISCRETION ON FASTENER CHOICE, HOLE SIZE, AND INSTALLATION METHOD.
THE DOTTED LINE SHOWS THE OUTER PERIPHERY OF THE HV-VIOLET-AQX.

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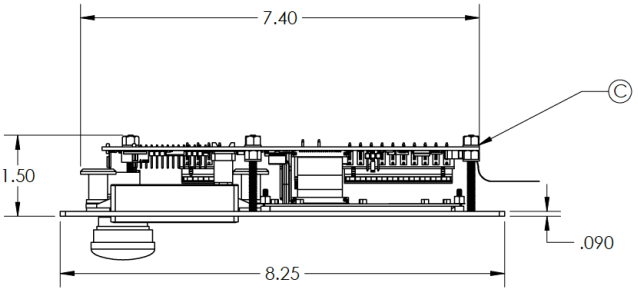
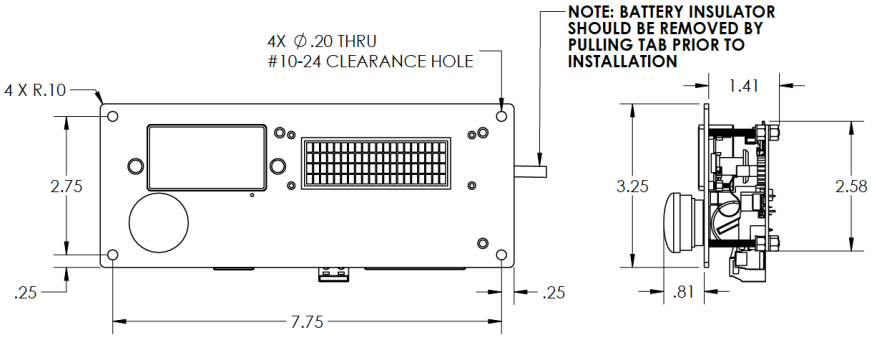
TECHNICAL SPECIFICATIONS

VIOLET USER INTERFACE PANEL

WATTAGE	2.6W
AMP DRAW (@12V)	0.2A
INPUT VOLTAGE	9-16V DC
WEIGHT	0.6 LBS.





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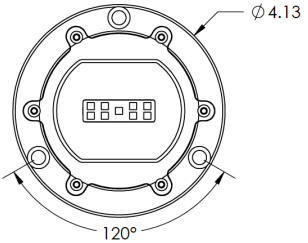
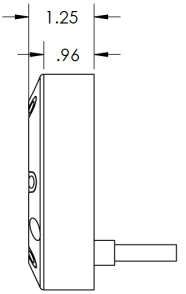
TECHNICAL SPECIFICATIONS CONT.

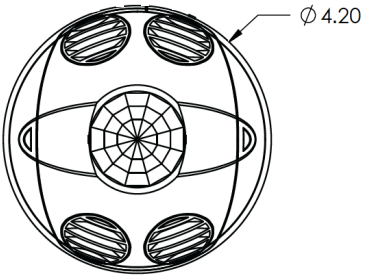
VIOLET EMITTER

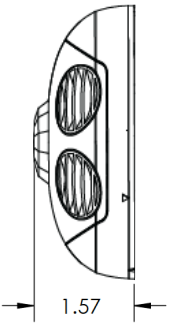
WATTAGE	26.9W
AMP DRAW (@12V)	2.1A
INPUT VOLTAGE	11-32V DC
WEIGHT	1.2 LBS.
TEMP. RATING	-40 ~ 185F
IP RATING	IP68/69K





OCCUPANCY SENSOR





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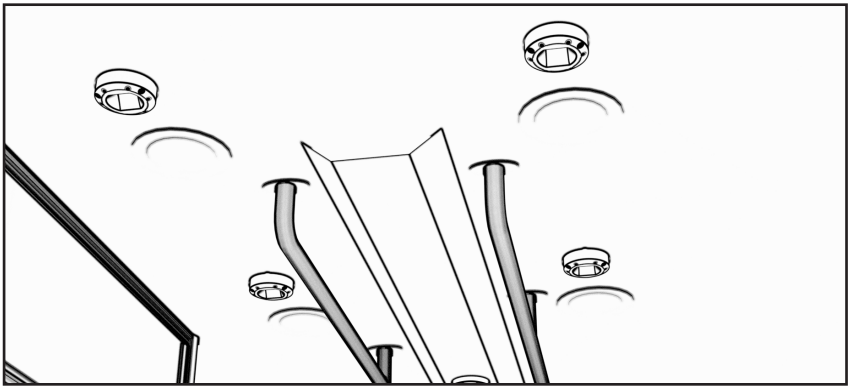
INSTALLATION INSTRUCTIONS

IDENTIFY MOUNTING LOCATIONS

- Identify mounting location for Violet User Interface Panel. Choose a location within arm's reach of the medic or crew in the back of the ambulance. An occupant of the patient module or irradiation compartment must be able to reach the e-stop in the event of a malfunction. Choose a location where the speaker is audible to all occupants of the irradiation area.

PLEASE TAKE CARE NOT TO DAMAGE SD CARD OR SD CARD SLOT DURING INSTALLATION



- Identify a mounting location for all emitters. The emitters should be placed such that they are shining directly on contacted surfaces.
- Identify a mounting location for the occupancy sensor. This sensor should be placed centrally in the patient (or irradiation) compartment, and not obstructed by opening of doors or interior cabinets

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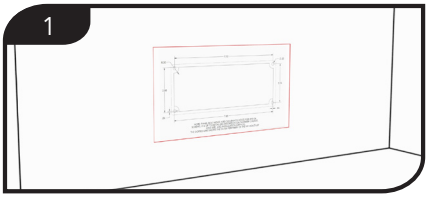
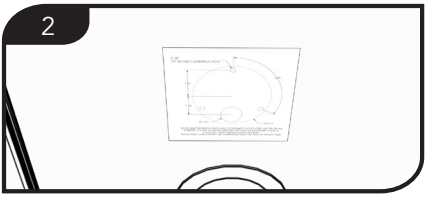
INSTALLATION INSTRUCTIONS CONT.

NOTE: Before next steps, use a multimeter to confirm operation of desired triggers. This step requires familiarity with vehicle electrical system and use of a multimeter tool. You will need to identify the polarity of the input and characterize the operation (normally open, normally closed, or n/a).

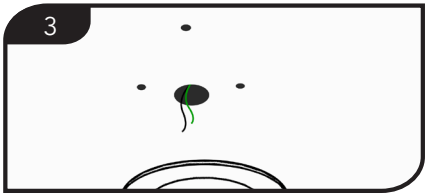
WARNING: TURN OFF POWER BEFORE WIRING



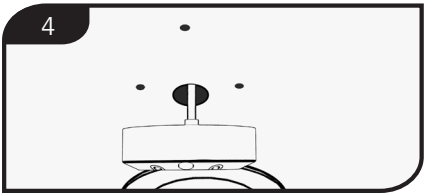
Mark, drill holes, and cut main hole for the user interface panel



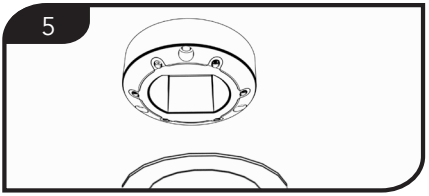
Mark and drill holes for emitters and occupancy sensor



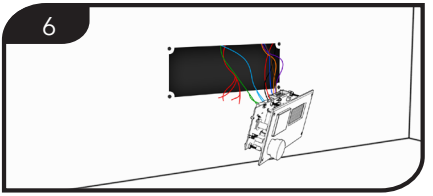
Route wires for emitters and occupancy sensor as shown in electrical diagram on pages 14 and 15



Connect wires to emitters and occupancy sensor



Mount all components in prepared locations



Connect wiring to violet user interface panel, **leaving the power cable OFF the emitter circuit until system is completely configured**

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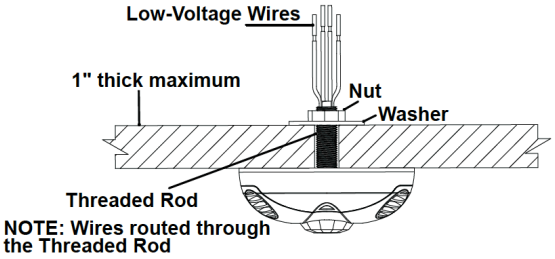
SENSOR INSTALLATION OPTION A

Mounting Option Diagram A
Occupancy Sensor Mounted to Drop Ceiling Using Threaded Rod



1. Select location for mounting of sensor and proper masking for your application.
2. Use the supplied threaded rod or other methods to make a hole (1/2” to 1”) in the ceiling just large enough to pass the body of the threaded rod through.
3. Insert the sensor wires through the flared end of the threaded rod. Position the threaded rod to the base of the sensor.
4. Insert the flared end of the threaded rod into the opening in the bottom of the sensor and twist to lock into place.
5. Push the wires into the hole in the ceiling and insert the threaded rod until the sensor is flush with the ceiling.
6. Insert the wires through the hole in the included washer, then place the included washer over the rod and screw on the included hex nut.
7. Rotate the sensor to the desired orientation. Note that the sensor base and back cover are keyed. To lock the device in place, ensure that the arrows are not aligned.

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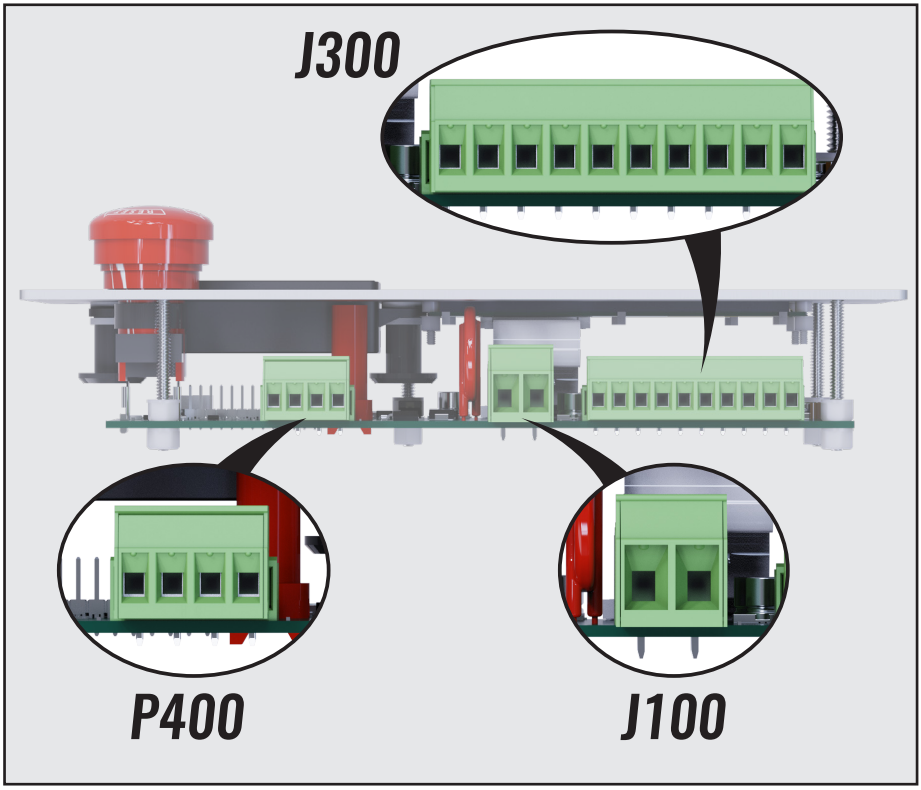
USER INTERFACE PANEL PIN & HEADER LAYOUT



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PIN LAYOUT TABLE - P400 MATE

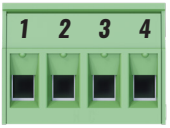
The P400 terminal outputs provide the main power to the Violet Emitters.

There are two output pins for each channel because there is a current limit of 16A for each pin, and a limiting wire size of 12 AWG. The two pins for each channel can be wired together, but both pins should always be wired, regardless of the number of emitters connected per channel.

Violet Emitters should be divided equally among the two channels (or as equally as possible, noting that for odd number Violet Emitters it is not possible to be exactly equal).

The wires coming from these Voltage pins can be spliced together if necessary. The ground wires of the Violet Emitters can be connected to a common chassis ground.

P400



Mating Connector: ACNTBC-P-10P-S-5.08mm (GREEN)			
PIN	**P400 PINOUT**	**DESCRIPTION**	**NOTES**
1	CHANNEL 2	HV-VIOLET-AQX: CHANNEL 2 OUT	Violet emitter grounds to chassis. Verify wire gauge current capacity supports the number of violet emitters on each channel. Do not exceed four emitters per channel. Channel pins can be wired together.
2	CHANNEL 2	HV-VIOLET-AQX: CHANNEL 2 OUT	
3	CHANNEL 1	HV-VIOLET-AQX: CHANNEL 1 OUT	
4	CHANNEL 1	HV-VIOLET-AQX: CHANNEL 1 OUT	

Each Channel should have at least 1 Violet Emitter and a maximum of 4 Violet Emitters.

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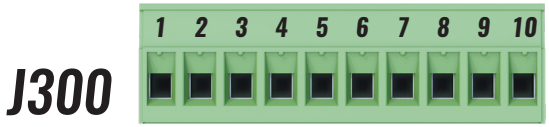
PIN LAYOUT TABLE - J300 MATE

The J300 Sensor Inputs are set up to have a "pull anywhere" polarity, meaning you can give each input a power or a ground signal to activate.

The Occupancy Sensor utilizes pins 8, 9, and 10. Pins 1, 6, and 7 are used for the door sensor(s), parking brake sensor, and seat belt sensor(s), respectively. Pins 2-5 are currently unused. Using the Violet User Interface Panel, the user may configure sensor inputs as normally closed (NC), normally open (NO), or not applicable (NA) if a given sensor is not used.

By default, the door, parking brake, and seat belt triggers are set as NC. Thus, when no door, parking brake, or seat belt sensors are connected, the system will detect an open (active) state on each of these inputs and will behave as if these sensors are triggered, thereby preventing power from being turned on to any connected Violet Emitters. This default behavior is designed to protect the installer from accidental UV light exposure. After installation and before proper operation of the system or decontamination can occur, the installer must configure the normal input state (NC, NO, or NA) for each sensor in the system using the Violet User Interface Panel configuration menus.



Mating Connector: ACNTBP01P1-508-10BE (BLUE)		
PIN	**J300 PINOUT**	**DESCRIPTION**
1	DOOR 1	DOOR INPUT (ALL DOORS)
2	UNUSED	UNUSED / DO NOT CONNECT
3	UNUSED	UNUSED / DO NOT CONNECT
4	UNUSED	UNUSED / DO NOT CONNECT
5	UNUSED	UNUSED / DO NOT CONNECT
6	PARK BRAKE	PARKING BRAKE INPUT
7	SEAT BELT	SEAT BELT INPUT (ALL SEAT BELTS)
8	PIR INPUT	24V ACTIVE HIGH INPUT (BLUE WIRE) - OCCUPANCY SENSOR
9	GND	GROUND (BLACK WIRE) - OCCUPANCY SENSOR
10	24V DC OUT	24V DC OUTPUT (RED WIRE) - OCCUPANCY SENSOR (MAX 200mA)

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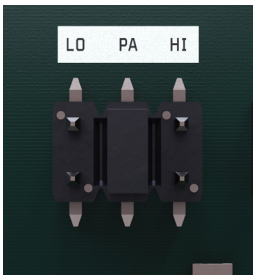
HEADER LAYOUT TABLE - P300

NOTE: If the signal floats or there are problems for some reason with the input functionality, you can manually set positive or negative input with a jumper on the circuit board, but in nearly all applications the "pull anywhere" polarity allows for simple integration to whatever is existing on the truck for each sensor. A thorough system test should be conducted prior to placing the system in service.

The PIR/Ultrasonic Occupancy Sensor that utilizes pins 8-10 of J300 is not a "pull anywhere" style input. This input is strictly an "active high" input which will produce a 24 V signal when triggered or a 0 V signal when not triggered. The user may configure the input polarity of all other sensors in the system by changing the jumper position on header P300, which is located on the upper right of the main UV-C control PCB.



JUMPER LOCATION	FOR INPUT SIGNALS	MODE
PINS 5 & 6	FOR ACTIVE HIGH (POWER "+" TRIGGERS)	HI
PINS 3 & 4	EITHER LOW OR HIGH (EITHER POWER "+" OR GROUND "-" TRIGGERS)	PA
PINS 1 & 2	FOR ACTIVE LOW (GROUND "–" TRIGGERS)	LO

PIN LAYOUT TABLE - J100 MATE

The J100 pins are the main power connections for the Violet User Interface Panel.

NOTE: The ground wire of the Violet User Interface Panel and all Violet Emitters should be connected to the chassis ground (or battery ground). The Violet User Interface Panel does not switch or control the ground plane.

J100

Mating Connector: ACNTBP01P1-508-02BE (BLUE)		
PIN	**J100 PINOUT**	**DESCRIPTION**
1	VIN	POWER 9-16V DC
2	GND	GROUND

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Below, **Blue Sea Systems** has provided a chart documenting proper wire size selections for automotive applications. NFPA 1901 13.2.1.1 allows for up to 10% voltage drop on automotive fire apparatus. Please be sure to reference proper conductor size below. Visit bluesea.com for more information.

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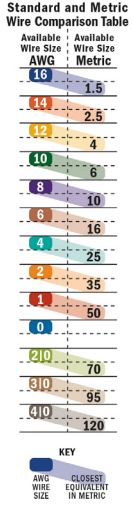


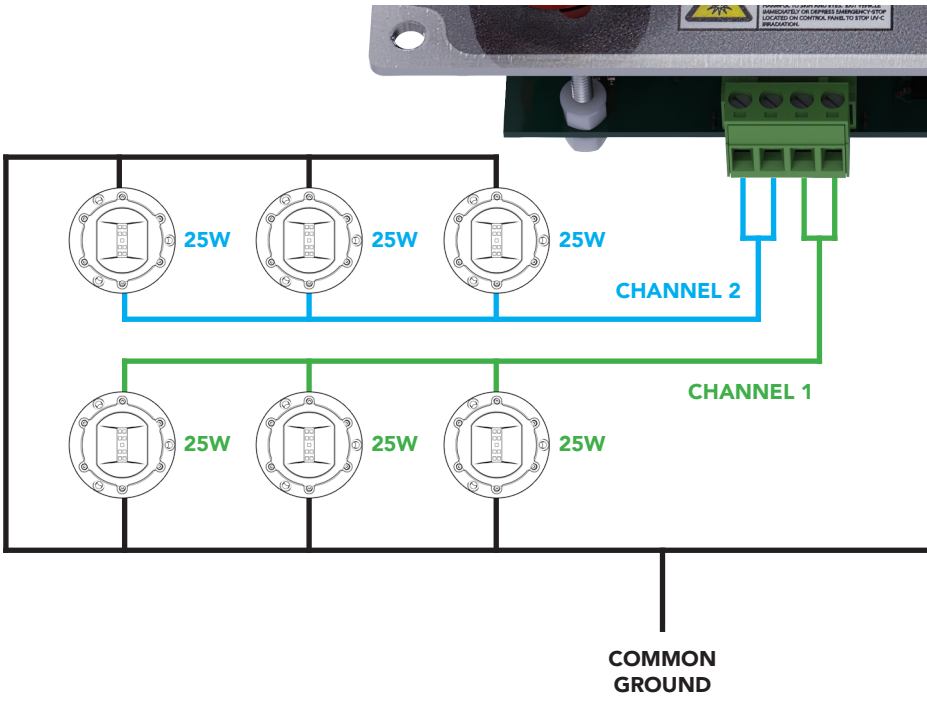
CIRCUIT TYPE					CURRENT FLOW IN AMPS														
	10% VOLTAGE DROP Non Critical		3% VOLTAGE DROP Critical		5A	10A	15A	20A	25A	30A	40A	50A	60A	70A	80A	90A	100A	120A	150A	200A
CIRCUIT LENGTH	0 to 20 ft.	0 to 6.1 M	0 to 6 ft.	0 to 1.8 M	16 AWG	16 AWG	14 AWG	14 AWG	12 AWG	10 AWG	8 AWG	6 AWG	6 AWG	6 AWG	4 AWG	4 AWG	4 AWG	2 AWG	1 AWG	2|0 AWG
	30 ft.	9.1 M	10 ft.	3.0 M	14 AWG	12 AWG	12 AWG	12 AWG	10 AWG	8 AWG	6 AWG	4 AWG	4 AWG	4 AWG	2 AWG	2 AWG	2 AWG	1 AWG	0 AWG	3|0 AWG
	50 ft.	15.2 M	15 ft.	4.6 M	12 AWG	10 AWG	10 AWG	10 AWG	8 AWG	6 AWG	4 AWG	2 AWG	2 AWG	2 AWG	1 AWG	1 AWG	1 AWG	0 AWG	2|0 AWG	4|0 AWG
	65 ft.	19.8 M	20 ft.	6.1 M	10 AWG	8 AWG	8 AWG	8 AWG	6 AWG	4 AWG	2 AWG	1 AWG	1 AWG	1 AWG	0 AWG	0 AWG	0 AWG	2|0 AWG	3|0 AWG	
	80 ft.	24.4 M	25 ft.	7.6 M	8 AWG	6 AWG	6 AWG	6 AWG	4 AWG	2 AWG	1 AWG	0 AWG	0 AWG	0 AWG	2|0 AWG	2|0 AWG	2|0 AWG	3|0 AWG	4|0 AWG	
	100 ft.	30.5 M	30 ft.	9.1 M	6 AWG	4 AWG	4 AWG	4 AWG	2 AWG	1 AWG	0 AWG	2|0 AWG	2|0 AWG	2|0 AWG	3|0 AWG	3|0 AWG	3|0 AWG	4|0 AWG		
	130 ft.	39.6 M	40 ft.	12.2 M	4 AWG	2 AWG	2 AWG	2 AWG	1 AWG	0 AWG	2|0 AWG	3|0 AWG	3|0 AWG	3|0 AWG	4|0 AWG	4|0 AWG	4|0 AWG			
	165 ft.	50.3 M	50 ft.	15.2 M	2 AWG	1 AWG	1 AWG	1 AWG	0 AWG	2|0 AWG	3|0 AWG	4|0 AWG	4|0 AWG	4|0 AWG						
	200 ft.	61.0 M	60 ft.	18.3 M	1 AWG	0 AWG	0 AWG	0 AWG	2|0 AWG	3|0 AWG	4|0 AWG									
			70 ft.	21.3 M	0 AWG	2|0 AWG	2|0 AWG	2|0 AWG	3|0 AWG	4|0 AWG										
			80 ft.	24.4 M	2|0 AWG	3|0 AWG	3|0 AWG	3|0 AWG	4|0 AWG											
			90 ft.	27.4 M	3|0 AWG	4|0 AWG	4|0 AWG	4|0 AWG												
			100 ft.	30.5 M	4|0 AWG															
			110 ft.	33.5 M																
			120 ft.	36.6 M																
			130 ft.	39.6 M																

Although this process uses information from ABYC E-11 to recommend wire size and circuit protection, it may not cover all of the unique characteristics that may exist on a boat. If you have specific questions about your installation please consult an ABYC certified installer.

RECOMMENDED WIRING

The following diagram depicts the recommended electrical layout of the occupancy sensor, other sensors, and the recommended electrical circuit layout of the Violet UV-C Decontamination System in a way that should work for most ambulance patient compartments. This recommended circuit layout may not work for all applications, as ambulances and other emergency vehicles are custom by design. Please contact HiViz for any wiring questions!

NOTE: The ground wire of the Violet User Interface Panel and all Violet Emitters should be connected to the chassis ground (or battery ground). The Violet User Interface Panel does not switch or control the ground plane.



PIN	P400 PINOUT	DESCRIPTION
1	CHANNEL 2	HV-VIOLET-AQX: CHANNEL 2 OUT
2	CHANNEL 2	HV-VIOLET-AQX: CHANNEL 2 OUT
3	CHANNEL 1	HV-VIOLET-AQX: CHANNEL 1 OUT
4	CHANNEL 1	HV-VIOLET-AQX: CHANNEL 1 OUT

Each Channel should have at least 1 Violet Emitter and a maximum of 4 Violet Emitters. It is recommended to evenly divide the emitters between each channel to balance the electrical load on the system.

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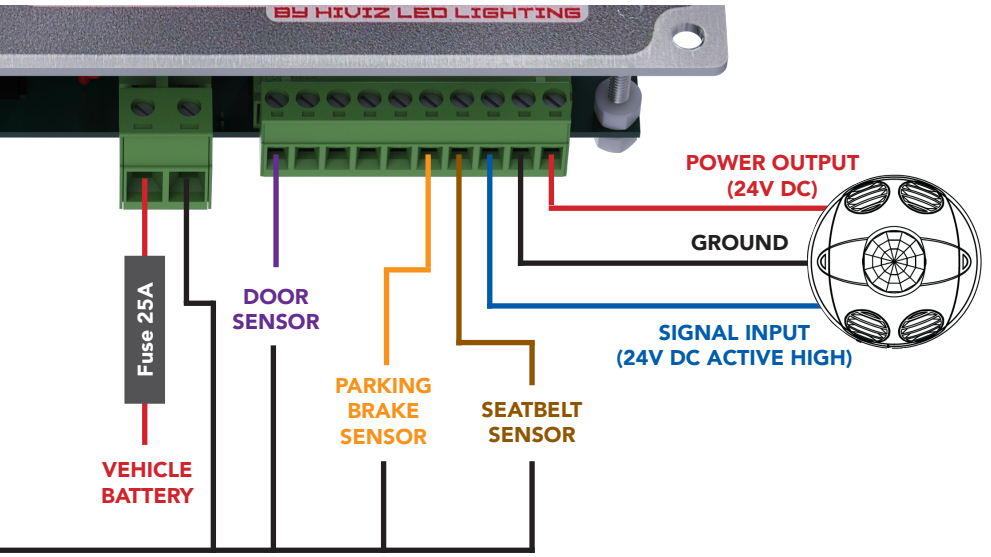
RECOMMENDED WIRING (CONT.)

NOTE: There will be an **unused gray wire** connected to the sensor, we recommend cutting the wire back and wrapping up the cord out of the way when installing the sensor.



PIN	J300 PINOUT	DESCRIPTION
1	DOOR 1	DOOR INPUT (ALL DOORS)
2	UNUSED	UNUSED / DO NOT CONNECT
3	UNUSED	UNUSED / DO NOT CONNECT
4	UNUSED	UNUSED / DO NOT CONNECT
5	UNUSED	UNUSED / DO NOT CONNECT
6	PARK BRAKE	PARKING BRAKE INPUT
7	SEAT BELT	SEAT BELT INPUT (ALL SEAT BELTS)
8	PIR INPUT	24V ACTIVE HIGH INPUT (BLUE WIRE) - OCCUPANCY SENSOR
9	GND	GROUND (BLACK WIRE) - OCCUPANCY SENSOR
10	24V DC OUT	24V DC OUTPUT (RED WIRE) - OCCUPANCY SENSOR (MAX 200mA)

PIN	J100 PINOUT	DESCRIPTION
1	VIN	POWER 9-16V DC
2	GND	GROUND

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OCCUPANCY SENSOR SETUP

The PIR/Ultrasonic Occupancy Sensor is recommended to be installed in the main patient compartment of an ambulance, or in the main area where the system is installed for decontamination in each vehicle. It should include coverage of all areas where a person may be when in proximity of the Violet Emitters.

The PIR/Ultrasonic Occupancy Sensor itself will need to be configured before installation.

To set, take off the front cover of the sensor (as seen in the figure below). There should be a black knob with an arrow on it, and an arrow on the periphery of the knob. Turn the black knob counterclockwise until the arrows are aligned. This will set it to the minimum delay timer (30 seconds) and is HiViz recommended configuration time interval.

All other dials (red, green, and blue), should remain in their "default" state as illustrated in the table below.

TABLE 3: ADJUSTMENT KNOB SETTINGS

Knob Color	Symbol	Function	Knob Setting	Factory Default Setting
Green		Sets the ultrasonic range	Range setting Full CCW = min. (OFF) Full CW = max.	50%
Red		Sets the infrared range	Range setting Full CCW = min. (OFF) Full CW = max.	75%
Black		Delayed- Off Time	Full CCW = min. (30 sec.) Full CW = max. (30 min.)	min (30 sec)
Blue		Ambient Light Override (Gray wire only)	Full CCW – Lights stay OFF Full CW – Lights always turn ON (NO ambient light override) Range – 100-3000 LUX	100%

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UIP SET-UP/PROGRAMMING

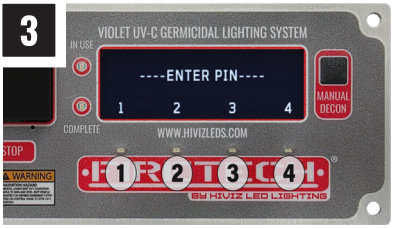
VIOLET USER INTERFACE PANEL - DIAGRAM

1. Button #1 with light indicator
2. Button #2 with light indicator
3. Button #3 with light indicator
4. Button #4 with light indicator
5. Manual decon button
6. Panel info screen
7. Light indicator that decon. system is in use
8. Light indicator that decon. system is complete
9. Emergency stop twist knob

VIOLET USER INTERFACE PANEL - FIRST TIME SETUP

When the Violet UV-C Decontamination System is powered on for the first time out of the box, you should see a variation of this screen

You will then be prompted to set the amount of Violet Emitters that are attached to each channel. To do this press button #4 below the panel to start the set up



Once you have pressed button #4 you should see this screen. A PIN number will then be needed to enter the main menu to initialize or change any existing settings. To enter the main menu, **THE DEFAULT PIN IS 1234 (AS SEEN ABOVE)**

Once you have entered the PIN number, you will be taken to the main menu as seen above

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UIP SET-UP/PROGRAMMING (CONT.)

LIGHT SETTINGS (EMITTERS) - CHANNELS 1 & 2

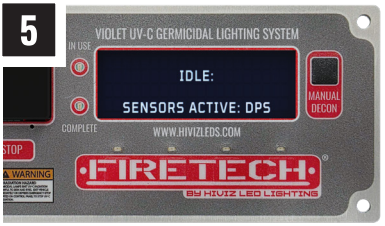
From the main menu, you will use the two first buttons to scroll through your menu. The menu options are: Timers, System, Audio, Lights, and Sensors.

To access the Channel 1 & 2 options scroll to Lights and select ok using button #3 directly below the ok on the screen

After you selected Lights from the main menu, you will see this screen where you can scroll between Channel 1 and Channel 2

Choose Channel 1 by pressing button #3 under ok that is displayed on the first screen. You will now see a screen like below where you will need to use buttons #1 and #2 to scroll through the numbers (you will have options 00-04):

Choose the number of violet emitters you have wired on that channel and then select back to save and return to light menu. Do the same thing for Channel 2. You should have a minimum of 1 light emitter per channel and a maximum of 4 light emitters per channel.



Once you have set the emitters for both Channel 1 and Channel 2, select back until it takes you out of the menu and to an Idle screen (you may see one of a few different screens explained on next page).

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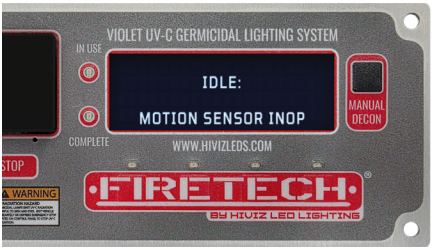
UIP SET-UP/PROGRAMMING (CONT.)

IDLE SCREENS

There are a few different Idle screens that might appear they are explained below:



MOTION SENSOR INOP: If this screen appears it means that the system is not detecting the occupancy sensor. Check that it is installed properly, has power and is configured properly. Once it is the system should recognize the sensor and move to the next screen.

SENSORS ACTIVE DPSO: If this screen appears it means that these sensors are active and preventing the decon from running. Each letter of DPSO stands for a sensor:

D = Door Sensor
P = Park Brake Sensor
S = Seat Belt Sensor
O = Occupancy Sensor

Anytime a sensor is not detected as active and stopping the decon, you will see the letter of that sensor disappear from the screen.

UIP SET-UP/PROGRAMMING (CONT.)

Once no sensors are detected as active, you should see this screen:

SENSOR SETTINGS - DOOR, PARK BRAKE, AND SEAT BELT

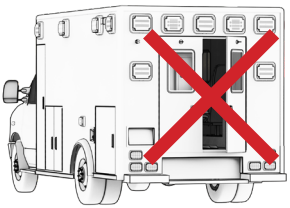
The Violet User Interface Panel has four sensor inputs: door sensor, parking brake sensor, seat belt sensor, and occupancy sensor. We recommend using all sensor inputs available on the vehicle for safety and redundancy purposes.

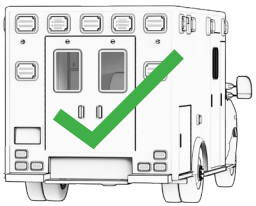
Each of these sensors have configurable settings (except for the occupancy sensor) and come with a default setting.

Sensor setting options:

- **NC** - Normally Closed ***(DEFAULT)***
- **NO** - Normally Open
- **NA** - Sensor not present or not desired to be used

Example: If the door sensors are left in the default state of NC (normally closed) this means that if the doors are closed, the system will run like normal. If the doors are detected to be open then it will disrupt the system and it will not turn on the Violet emitters.

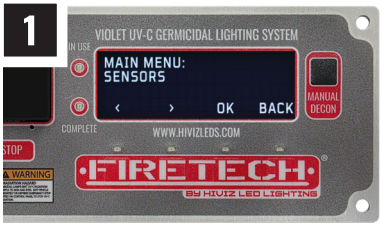




NOTE: You must set any sensors not being used to NA for the system to work. If any of the sensors not wired/not being used are not set to NA, then the system will never arm and activate a decontamination cycle and any manual decon requests will be aborted.

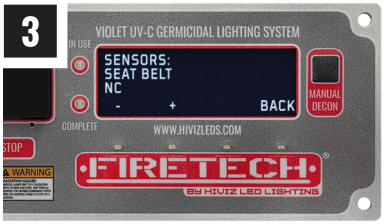
UIP SET-UP/PROGRAMMING (CONT.)

SENSOR SETTINGS - CONTINUED



To change any of the sensors from their default settings, navigate to the main menu and scroll until you reach sensors and select ok

This will take you to the sensors menu where you can use button #1 and #2 to scroll through the options. Choose the sensor you want to change the default setting for by scrolling to the choice and selecting ok



Here you will see the sensor options we mentioned before: NC, NO, and NA. Choose the option you want to have set by using the - and + buttons and then select back to save that option and return

Repeat this process for all of the sensors if you want to change their default state **OR** need to set any unused sensors to NA

NOTE: The PIR/Ultrasonic Occupancy Sensor that is included with the system cannot be set to NA (disabled), as it is required to be the minimum level of sensor input for safe functionality of the system.

UIP SET-UP/PROGRAMMING (CONT.)

TIMER SETTINGS - ACTIVE DECON & AUTO DECON

In the Timers menu you are able to change the duration of Auto Decon and Active Decon:

- **Auto Decon** - The amount of time the system waits to start the automatic decontamination cycle after a "safe" state is detected **(DEFAULT IS 3 MINUTES)**
- **Active Decon** - Duration the decontamination cycle runs for **(DEFAULT IS 15 MINUTES)**

To change any of the timers from their default settings, navigate to the main menu and scroll until you reach timers and select ok

Here you will select active or auto decon to change the timer

Using the - or + buttons you are able to change the timers amount. Select back to save that option and return to the timer menu

Repeat this process for each of the timers if you want to change their default time

NOTE: Regardless of auto-decon and active-decon timer settings the system is designed not to run back-to-back decontaminations if it is not needed. After completing a successful decon, the system will sit in an inactive state until occupancy is detected, at which point the auto-decon timers will automatically reset.

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UIP SET-UP/PROGRAMMING (CONT.)

AUDIO SETTINGS - VOICE & VOLUME

In the Audio menu you are able to modify two settings:

- **Voice** - Change the voice of the panel to be male or female **(DEFAULT IS MALE)**
- **Volume** - Set the volume of the panel from 0 (muted) to 10 (loudest setting) **(DEFAULT IS 3)**

To change the voice or volume from the default settings, navigate to the main menu and scroll until you reach audio and select ok

Here you will select voice or volume from the menu using buttons #1 and #2

If you choose voice: use the - or + to select male of female

If you choose volume: use the - or + to change the volume to be 0-10
NOTE: When changing the volume setting a tone will sound for each volume level; this tone must finish sounding before the level can be changed again

Select back to save your selection and return to the menu

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UIP SET-UP/PROGRAMMING (CONT.)

SYSTEM SETTINGS - FACTORY RESET

In the System menu you are able to modify four settings:

- **System Reset** - Load default settings
- **PIN Number** - Set new four digit PIN number **(DEFAULT IS 1234)**
- **Set Date** - Set current date
- **Set Time** - Set current time

To reset the system settings scroll until you reach system and select ok

Here you use buttons #1 and #2 to scroll through the options until you find system reset and select ok

Here you will be asked if you want to factory reset, select ok to reset the system or back to return to the menu

If you choose to reset the system you will see this screen and then you will need to re-setup the system

Note: if you cannot get into your system and need to factory reset it, press a paper clip into the small hole on the front of the panel. This will rest the password back to 1234.

UIP SET-UP/PROGRAMMING (CONT.)

SYSTEM SETTINGS - PIN NUMBER

To reset the PIN number, navigate to the main menu and scroll until you reach system and select ok

Scroll through the options until you find PIN Number and select ok

Here you will be asked to enter a new four digit PIN

Once you have entered the PIN you will see this screen confirming that your PIN has been updated

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UIP SET-UP/PROGRAMMING (CONT.)

SYSTEM SETTINGS - DATE AND TIME

To change the date or time, navigate to the main menu and scroll until you reach system and select ok

Here you will select set date or set time from the menu

If you choose set date: use the - or + to change the highlighted number, use nxt to move to the next field

If you choose set time: use the - or + to change the highlighted number, use nxt to move to the next field

Select back to save your selection and return to the menu

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FINAL CHECKS

- Configure system menus (number of emitters, safety interlocks, and desired runtime) per instructions on pages 23-32.
- Manually initiate system while still occupying the compartment (emitters must not be connected). System should make a voice announcement: "Manual decontamination requested, please exit patient module now", decontamination should count down and return to idle state **WITHOUT** commencing.
- Run system and open each door to the compartment. System should stop and display error and make a voice announcement.
- It is critical that every system be tested by being armed and interrupted for every use case before deploying the system to active service. Test the door sensors, park brake, seat belt, and occupancy sensor to ensure that they disrupt the system properly.
- ONLY after confirming system operation is safe should you connect emitters. **A final system test should be performed once emitters are connected.**

OPERATING WARNINGS & ERRORS

The Violet User Interface Panel has the ability to measure the current consumed by the Violet Emitters. This allows the system to detect if one or more of the Violet Emitters is not functioning properly.

When the number of Violet Emitters is set in the Violet User Interface Panel settings, the system will expect a certain current draw.

If one of the Violet Emitters becomes non-functional during its service life, the system will identify the failure and notify the user. The error will read "ERR:CH1" or "ERR:CH2" in the event of an under draw (emitter out scenario), **which could impact the effectiveness of the system and should be investigated by a technician.**

In the event an over draw is detected (rather than under draw), the system will notify the user with the message "WRN:CH1" or "WRN:CH2", which should also be investigated by a technician.

The error and warning messages each designate which channel is encountering the problem to allow for troubleshooting. Note that the warning messages may occur if there is a large amount of voltage drop in the system. This will cause the current needed to power the emitters to increase and trigger this warning. If this warning occurs, first look at the number of emitters set in each channel in the user interface panel settings and ensure that each channel has the correct number of emitters. If this is accurate, then attempt to measure the voltage at the light head to see if any voltage drop is occurring.

TROUBLESHOOTING

- If one of the Violet Emitters becomes non-functional during its service life, the system will identify the failure and notify the user. The error will read "**ERR:CH1**" or "**ERR:CH2**" in the event of an under draw (emitter out scenario), which could impact the effectiveness of the system and should be investigated by a technician.

- In the event an over draw is detected (rather than under draw), the system will notify the user with the message "**WRN:CH1**" or "**WRN:CH2**", which should also be investigated by a technician.

- If there is no audio first check that the volume is not set to zero. Then check to ensure that the memory card is properly seated. If both of those do not resolve the issue, contact HiViz on reformatting the memory card.

- If system does not enter decon, ensure that the E-stop is not pressed, then ensure that all sensors are properly connected or disabled. Validate functionality of each input that is configured using a multimeter to confirm proper operation.

- If Violet emitters do not cut off, press E stop, exit patient compartment, remove fuse from system and contact HiViz. **Improper operation of violet emitters in the presence of an occupant could present a safety hazard.**