INSTRUCTION
MANUAL

Smart Trigger Control Kit
1 Input / 1 Output

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Introduction

Thank you for purchasing Laserglow's Smart Trigger Kit product.

This product is a safety-assisting device to give warning signals by detecting the proximity of vehicles and pedestrians at industrial work sites. Laserglow will not be held responsible for any personal injury or property damage caused by improper use. Before using this product, please read this manual carefully.

Table of contents

Section 1: Description of Components

The Laserglow Smart Trigger System is a flexible and modular system designed to be configured in several different ways to meet a variety different installation requirements.

THE SMART TRIGGER SYSTEM CONSISTS OF 5 MAJOR COMPONENTS

Sensors/Inputs: Various types of sensors and inputs are available for the Smart Trigger system. They include motion sensors, beam-break sensors, pushbuttons, and our SPDS (Smart Proximity Detection System) devices. If you wish to use your own sensor or another kind of sensor that is not offered, contact Laserglow for assistance.

Smart Trigger Controller 1 Input / 1 Output: The Smart Trigger is the brain of the Smart Trigger System. It accepts input signals from sensors or other devices, and then energize one or more outputs as per the program. The Smart Trigger is the control unit with one sensor input and one signal output.

Relay Box: The Relay Box is the interface between the Smart Trigger and the devices that are being controlled, such as Virtual Sign/Walkway Projectors, Virtualine LED fixtures, and alignment laser modules. The Relay Box is connected between the light fixture and its power supply, and switches the power to the light fixture on and off in response to a signal provided by the Smart Trigger. Every Relay Box also has a signal output, so many projectors/light sources can be "daisy-chained" together in series, allowing a single Smart Trigger to control all of them simultaneously.
NOTE: Connecting more than 10 fixtures in series may introduce signal degradation issues. Contact Laserglow to discuss your specific application.
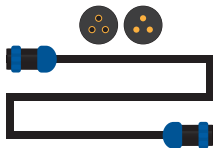
Signal Cables: These cables carry the signal from the Smart Trigger to the Relay Box, and from one Relay Box to the next. They are available in 2m and 5m lengths and can be joined together to extend even further. Custom lengths are available if required.
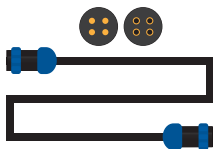
Sensor Cables: All sensors include a fixed length of cable, typically 2 meters. If this is not long enough, sensor extension cables are available in 2m and 5m lengths and can be joined together to extend even further. Custom lengths are available if required.
NOTE: Connecting more than 30 meters of sensor or signal cables together may introduce signal degradation issues. Contact Laserglow to discuss your specific application.

NOTE: Signal and Sensor cables can also be extended by splicing additional cable into the existing cable. The signal and sensor cables carry 12V power and typically less than 100 mA of current. 4 conductor cables are required and Laserglow recommends using 22 AWG cable or larger to avoid signal degradation issues.

Section 2: Sensor Details
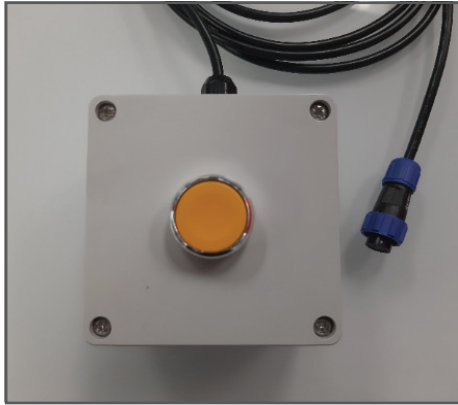
PUSH BUTTON

Introduction: The pushbutton typically comes in a small enclosure that can be easily mounted to a flat surface such as a wall, and typically comes with 2 meters of cable permanently attached with the enclosure. This can be extended using Sensor Extension cables (available in 2m and 5m length) as needed. The pushbutton can be disconnected from the cable if required for installation.
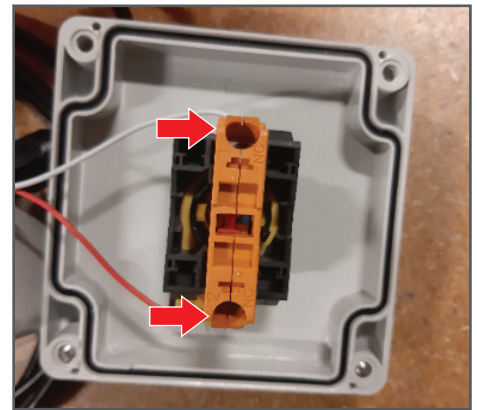
INSTALLATION
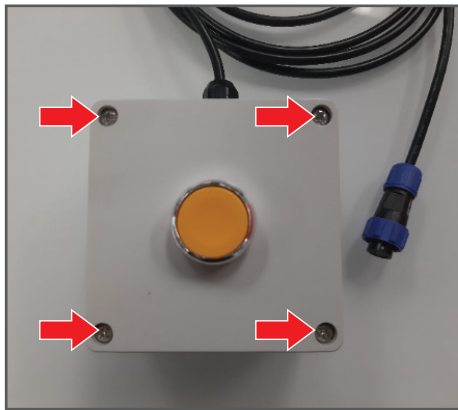
1: Unscrew the four screws.
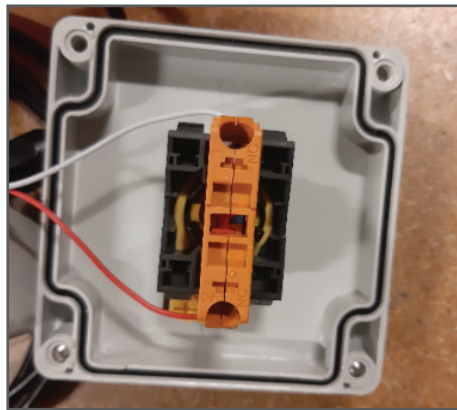
2: Carefully remove the top with button attached. The bottom of the button has the wires connected to the terminal block of the Push Button.

3: Disconnect the wire by unscrewing the two screws.
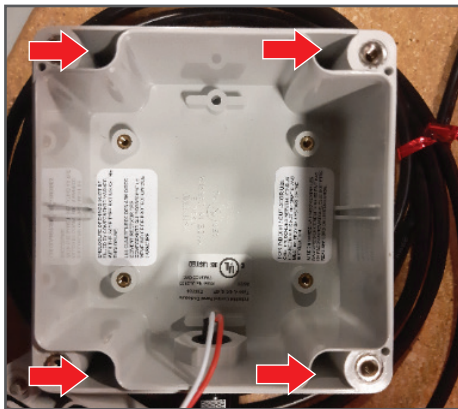
4: Use the holes (inside these channels) to mount the bottom part of the housing on any surface.
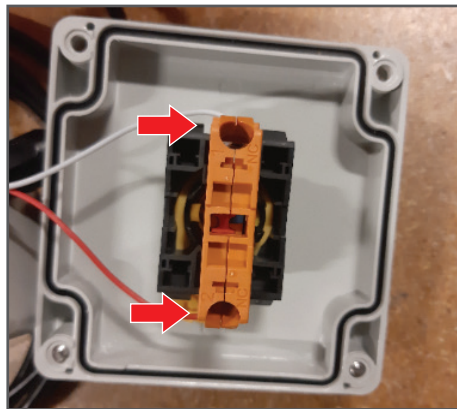
5: Connect the red and white wires to the terminal block of the push button.

6: Close the top part of the housing screwing all 4 screws.

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INDOOR MOTION SENSOR

Introduction: Indoor Motion sensors come with approximately 2 meters of cable already attached. This can be extended using Sensor Extension cables as needed. The motion sensor can be disconnected from the cable if required for installation. To do this, unlock the rear panel by turning the l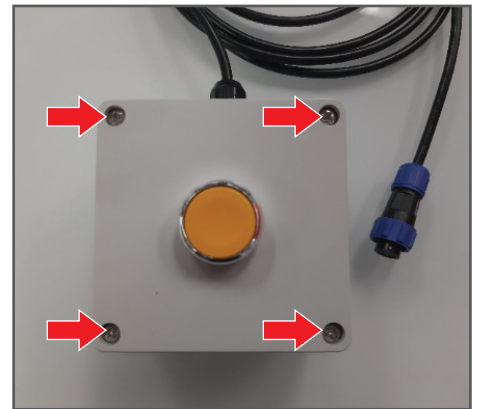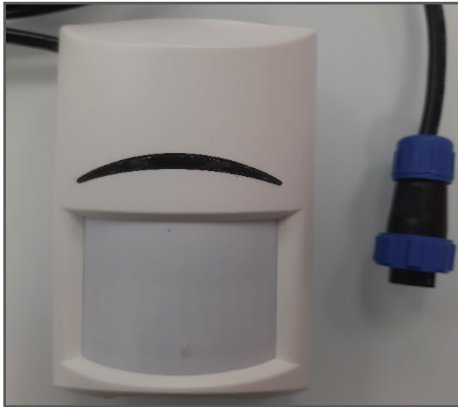ocking screw on the bottom of the sensor, then slide the rear panel off. The wires can be removed by loosening the screws in the terminal block. When reconnecting the wires later, ensure that red is connected to +, black to -, and the white and yellow wires are connected to the two terminals marked with 'NC'. Physically these sensors are typically installed by screwing the rear panel to a flat surface such as a wall, but they can also be zip tied to poles or other irregular fixtures if required.

INSTALLATION

1: Using flat screw driver turn the knob at the bottom of the sensor to the unlock position and remove the top cover.
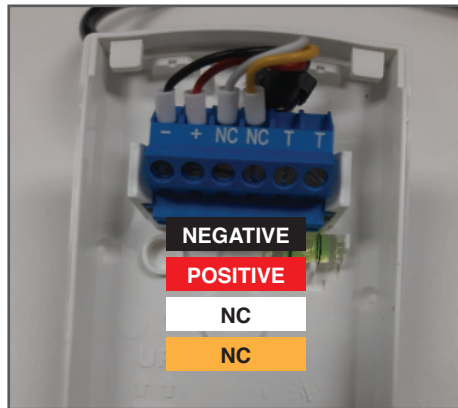
NEGATIVE
POSITIVE
NC
NC

2: Remove the wires.
Ignore this step if the installation space is accessible and wires do not make the installation difficult.
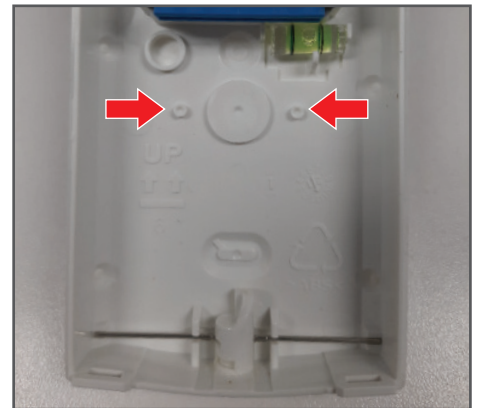
3: Use these marks to pierce holes using a screw, then mount the bottom part of the housing on any surface

NEGATIVE
POSITIVE
NC
NC
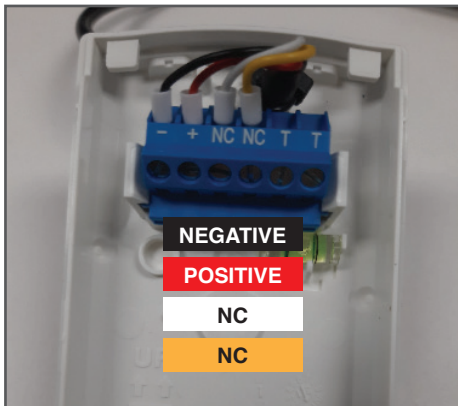
4: Screw in the wires back to the terminal block. Slide in the top cover, and it will lock by itself.

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OUTDOOR MOTION SENSOR

Introduction: Outdoor Motion sensors come with approximately 2 meters of cable already attached. Outdoor motion sensor comes in 2 different version Wide Range and Long Range. This can be extended using Sensor Extension cables as needed (Extension cables available in 2m and 5m length).

Wide range sensor can be ideally mounted at 10ft height and it will give sensing area of approximately 50ft (across) X 40ft (away from sensor).

Long range sensor can be ideally mounted at 10ft height and it will give approximate sensing area of 10ft (across) X 80ft (away from the sensor).

The motion sensor can be disconnected from the cable if required for installation.

To do this, unlock the rear panel by turning the locking screw on the bottom of the sensor, then slide the rear panel off. The wires can be removed by loosening the screws in the terminal block. When reconnecting the wires later, ensure that red is connected to +, black to -, and the white and yellow wires are connected to the two terminals marked with 'NC'. Physically these sensors are typically installed by screwing the rear panel to a flat surface such as a wall, but they can also be zip

INSTALLATION

1: Unscrew the top cover of the sensor by unscrewing the screw

2: Remove the wires.
Ignore this step if the installation space is accessible and wires do not make the installation difficult.

3: Use the holes to mount the bottom part of the housing on any flat surface. Screw in the wires back to the terminal block and slide in the top cover and screw it up with the screw.

RAVEN SENSOR (Microwave Motion Sensor)

Introduction: Raven Sensor detects moving object based on Microwave technology. This sensor can differentiate between vehicles and pedestrians using two different relay output. Raven Sensor can be integrated with Smart Trigger 1 Input / 1 Output controller either to detect pedestrians or vehicles or both. This sensor can be programmed to sense approach-only, depart-only or bi-directional

movement. The other parameters available to configure i.e. sensitivity, responsiveness and relay hold time can either be programmed using Push

INSTALLATION
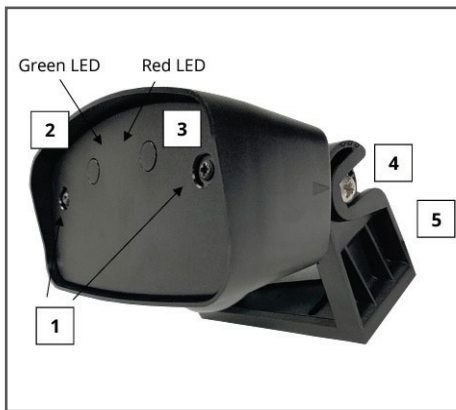
1: Loosen the Hinge screw (1) to remove the mounting bracket from sensor housing. In the desired location, install the mounting bracket at a height of 23ft/7m or lower.
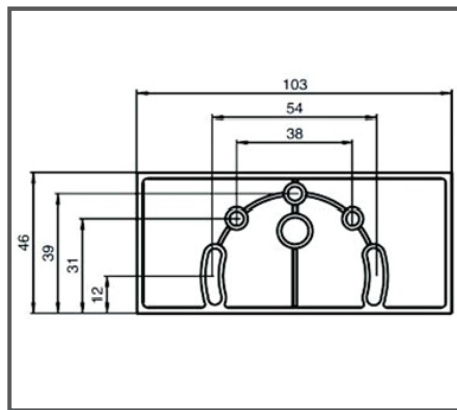
2: Drill mounting holes and attach with the provided screws. The mounting brackets can be installed at an angle (tilted left or right) to shape the detection area.

BEAM BREAK SENSORS

Introduction: The Beam break sensor can be installed in areas where only specific motion is to be detected. The Beam Break sensors comes in 3 different ranges i.e. SENB03KXXX, SENB020HDX and SENB30KXXX. SENB03KXXX and SENB30KXXX are retro-reflective beam break sensor means it has tranceiver and a circular reflector. SENB03KXXX has a sensing range of 3m and SENB30KXXX has sensing range of 30m.

SENB020HDX is 20m range photoelectric receiver/emitter pair. This sensor is a great option for food and beverage application and areas prone to corrosive material contact. This kit requires both emitter and receiver to operate. The emitter can be mounted with the supplied power supply and aimed at receiver. The receiver part of the sensor will be connected with the Smart Trigger 1 Input /

INSTALLATION

All Beam break sensors comes with M18 X 1 thread on it's barrel body. The beam break sensor can be mounted to a bracket or panel using the 18mm hole cutout.

Section 3: Installation Examples

ONE SENSOR CONTROLLING ONE PROJECTOR

Controlling Virtualine or 80W projector or 300W projector using Smart Trigger 1 Input / 1 Output 1IN 1OUT using

Push Button or Raven Sensor or Motion Sensor or Beam Break Sensor
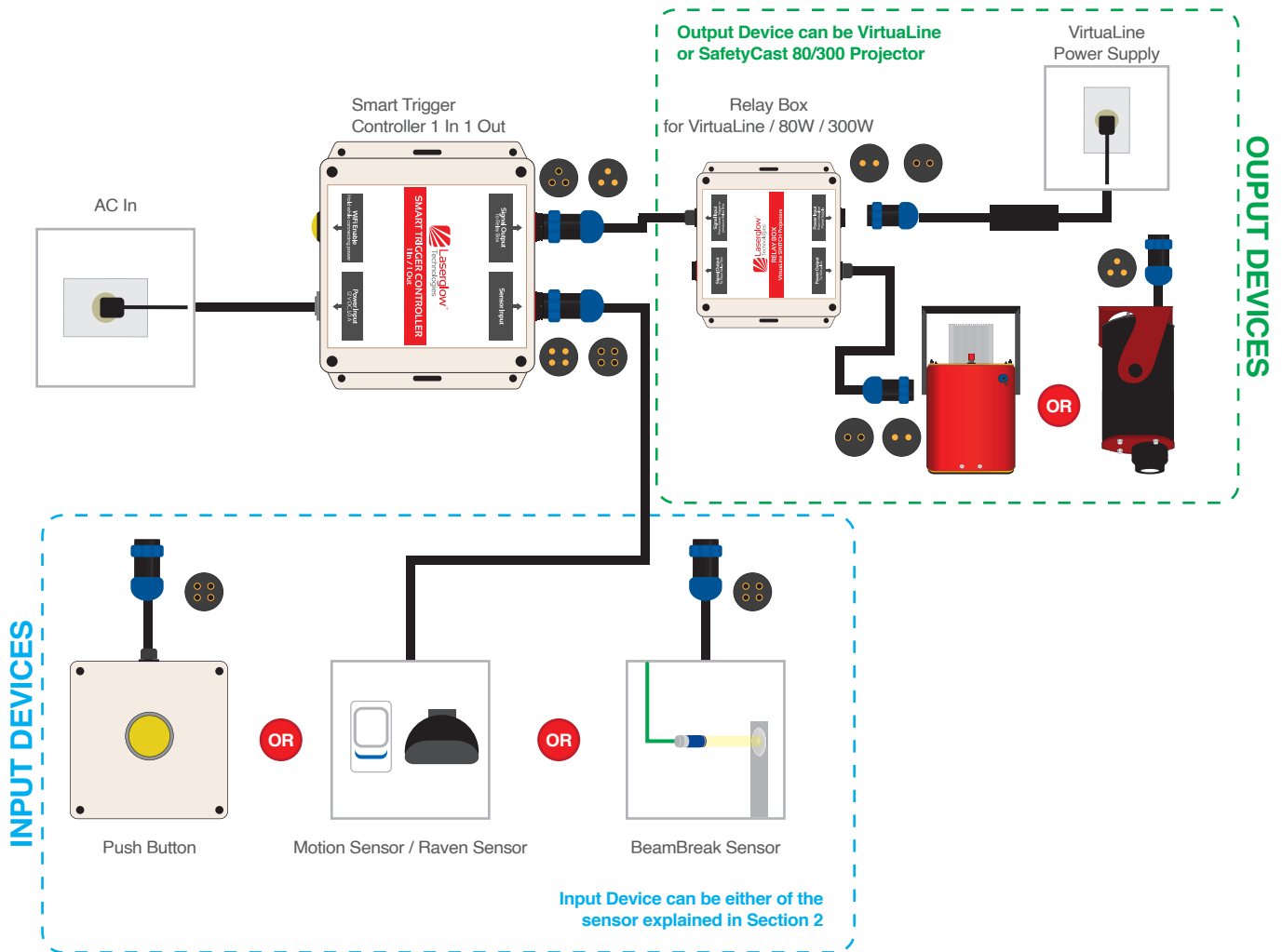
1. Connect the Motion Sensor to the Smart Trigger input.

2. Connect the Relay Box signal input to the Smart Trigger signal output using a signal cable.

3. Connect the projector power supply to the Relay Box power input.

4. Connect the projector to the relay box power output.

5. Plug in the projector power supply to a 120V AC outlet.

6. Connect the Smart Trigger power supply to the Smart Trigger power input

7. Plug in the Smart Trigger power supply to a 120V AC outlet.

ONE SENSOR CONTROLLING MULTIPLE PROJECTOR (DAISY CHAINING)

Controlling multiple Virtualines or 80W projectors or 300W projectors using Smart Trigger 1 Input / 1 Output 1IN 1OUT using Push Button or Raven Sensor or Motion Sensor or Beam Break Sensor
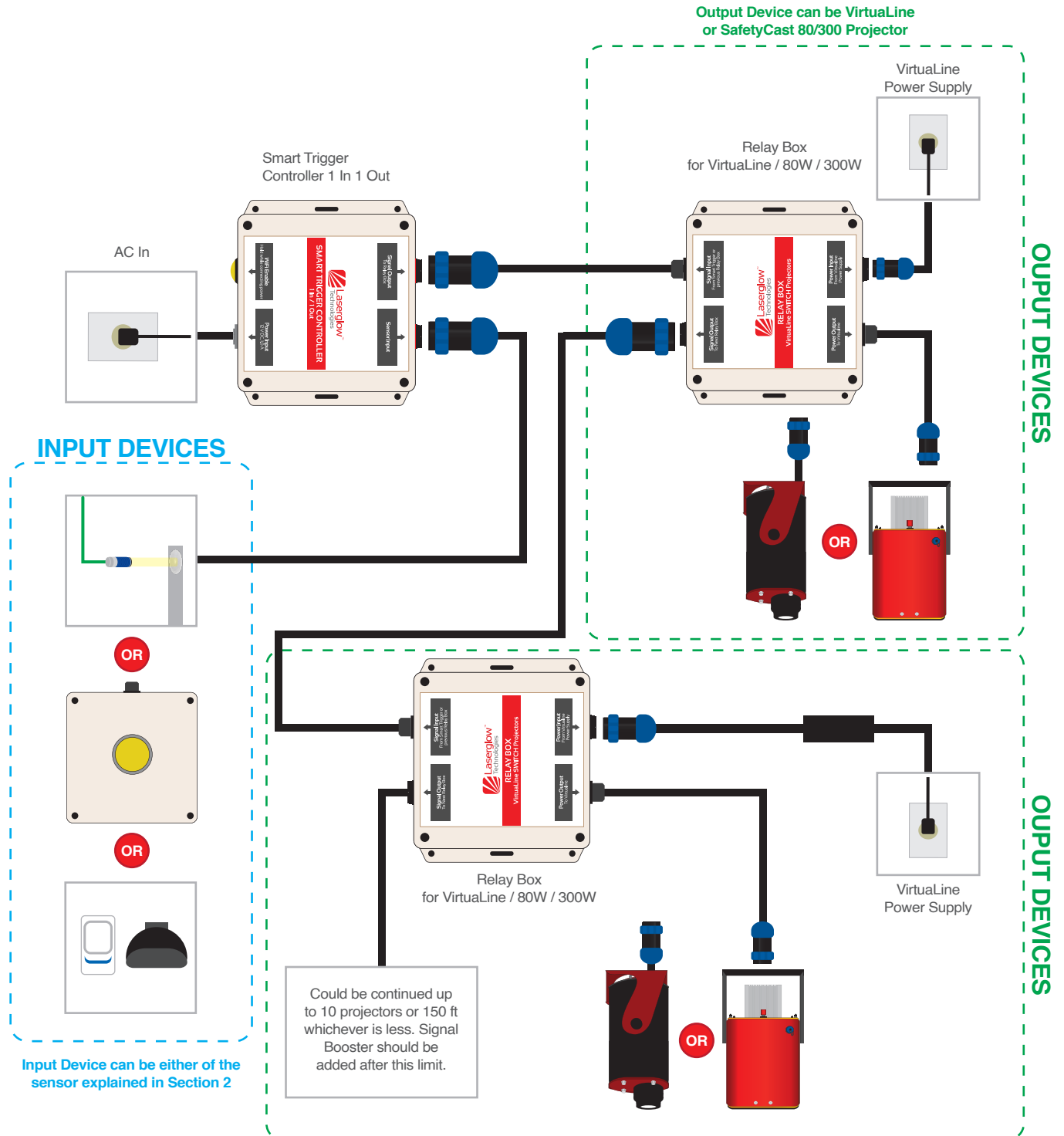
Output Device can be VirtuaLine or SafetyCast 80/300 Projector

VirtuaLine
Power Supply

Smart Trigger
Controller 1 In 1 Out

Relay Box
for VirtuaLine / 80W / 300W

AC In

OUPUT DEVICES

INPUT DEVICES

OR

OR

OR

Input Device can be either of the sensor explained in Section 2

Relay Box
for VirtuaLine / 80W / 300W

Could be continued up to 10 projectors or 150 ft whichever is less. Signal Booster should be added after this limit.

VirtuaLine
Power Supply

OR

OUPUT DEVICES

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Section 4: Smart Trigger 1 Input / 1 Output WiFi

The Smart Trigger 1 Input / 1 Output has the ability to be reprogrammed easily using a mobile device such as a cell phone. Physical access to the Smart Trigger is still required but no tools are necessary. The Smart Trigger 1 Input / 1 Output has two time settings called t1 and t2, as well as multiple modes of operation called functions.

MODES OF OPERATION

Flashing Mode (Function 8): Flashing mode will cause the output to flash on and off continuously for an adjustable duration of time. If the sensor is activated again, the timer will restart from the beginning again In this mode, t1 represents the rate of flashing, and t2 represents the total duration of flashing. t1 should be set to 1 second in most cases except a 300W projector, where it should be set to 1.5 seconds.

OFF Delay Mode (Function 12): Off Delay mode will cause the output to remain on (or off) for an adjustable duration of time.If the sensor is activated again, the timer will restart from the beginning again. In this mode, t1 represents the duration the output will remain on (or off) for, and t2 is not used.

Follow (Function 22): Follow mode will simply follow the input from the sensor. If the sensor is activated then it will energize the output. No input from sensor will de-energize the output. Parameters t1 and t2 are not used with this function.

SETTING ADJUSTMENT PROCEDURE

In order to change the timing of the Smart Trigger 1 Input / 1 Output or to switch from one mode to another, follow the steps below. In this example the procedure was done with an Android cell phone. The procedure will vary slightly with other mobile devices.

NOTE: While making changes to the Smart Trigger 1 Input / 1 Output settings, the Smart Trigger and all connected devices will be inoperable.

1. If using a cell phone or a computer with a mobile data connection, turn mobile data off.
2. On the Smart Trigger 1 Input / 1 Output, disconnect the power plug and wait 5 seconds.
3. Press and hold the WiFi configuration button while reinserting the power plug Hold the WIFI configuration (Yellow button) for 2 second after power supply is inserted.
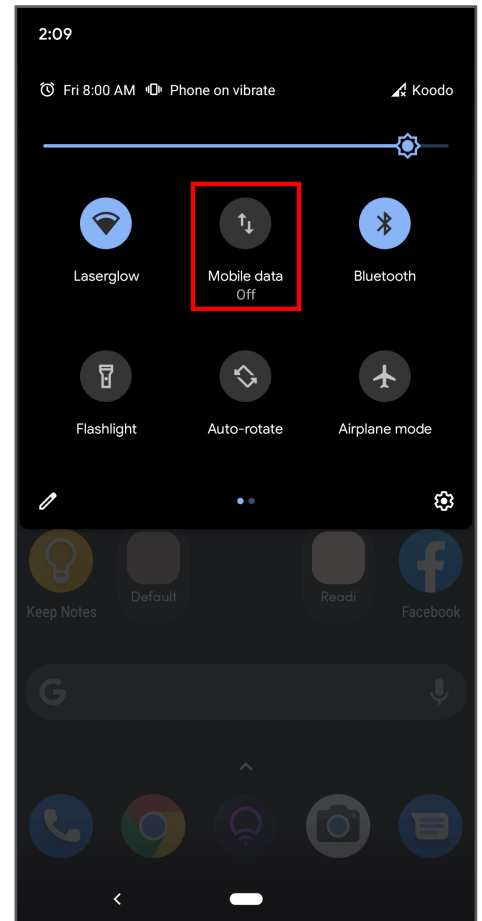
4. On your mobile device, view the available WiFi networks. One should appear with a name similar to 'Timers.shop.wifiXXX' where XXX is a random 3 digit number. This WiFi network is being broadcast by the Smart Trigger 1 Input / 1 Output.
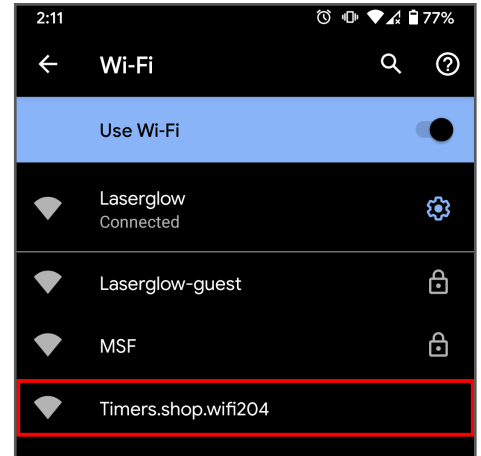
5. Connect to the Smart Trigger 1 Input / 1 Output WiFi network. Your device may warn you that the network does not have an internet connection. You can safely ignore this warning and connect anyway. Some devices will refuse to connect to
a network without internet access, or will disconnect from the network after a short time. If this is happening, consult the internet for instructions on how to disable this function on your particular device.
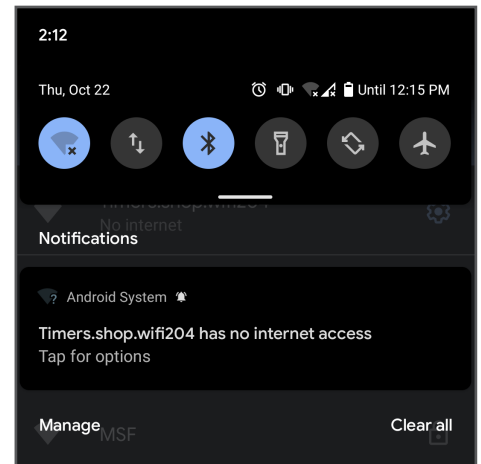
6. Open a web browser and in the address bar enter 192.168.4.1

7. You should see a configuration page as shown. Select *Timer's Configuration*
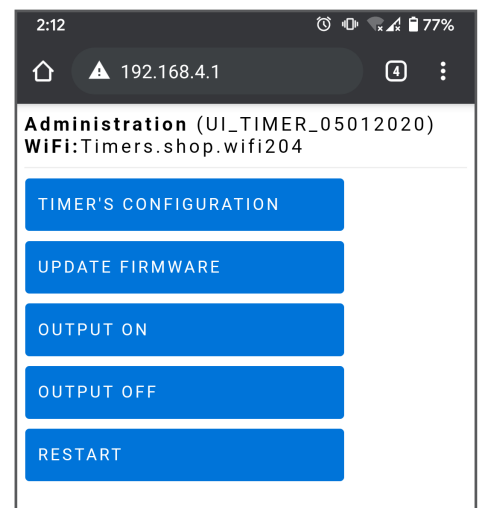
8. Enter new values as required for Time t1 and Time t2. Note that the fields add together. If you set Days to 1 and Hours to 1, the time setting will be 25 hours.

9. If you are changing the function, enter the function number as described in the "Modes" section of this document.

10. The Trigger type and Digital Trg Blue should remain unchanged. The value for this setting will be Digital and 3 respectively

11. If you wish to invert the behaviour of your light fixtures, check the Reversed box. This will flip the output state of the Smart Trigger. For example, if your Smart Trigger was set up with a projector that is normally off and turns on for 20 seconds when the sensor is tripped, checking this box will cause the projector to normally be on and turn off for 20 seconds when the sensor is tripped.

12. Uncheck Low Power mode if it is checked. The amount of power consumed by the Smart Trigger is negligible even when Low Power mode is off, and Low Power mode may cause the Smart Trigger 1 Input / 1 Output to operate unreliably in rare circumstances.

13. Press the Save button to save all the new settings to the Smart Trigger 1 Input / 1 Output. Wait for the page to reload to confirm the settings are saved.

14. To return the Smart Trigger back to normal operating mode, either return to the initial page from step 7 and press the Reboot button, or disconnect the power plug from the Smart Trigger 1 Input / 1 Output for 5 seconds and reconnect.

NOTE: If using the reboot button on the configuration page, it is recommended to close the browser tab afterwards. If the tab is still open next time you are connecting to the WiFi network of a Smart Trigger 1 Input / 1 Output, it may attempt to reload the reboot page, which will cause the Smart Trigger 1 Input / 1 Output to immediately reboot back into normal operating mode and disable WiFi again.

Section 5: Warranty Information

LIMITED PRODUCT WARRANTY

Laserglow Technologies ("Laserglow") warrants that this product is guaranteed to operate within the stated specifications, free from defects in materials and workmanship, for a period of twelve (12) months from the date of delivery. BEFORE RETURNING ANY ITEM FOR SERVICE, PLEASE CONTACT LASERGLOW TO RECEIVE A RETURN AUTHORIZATION (RA) NUMBER. ITEMS RETURNED WITHOUT AN RA NUMBER MAY INCUR DELAYS OR ADDITIONAL FEES.

LASERGLOW'S PLEDGE TO CORRECT PROBLEMS UNDER WARRANTY

At its option, Laserglow will either repair or replace the in-warranty defective unit without charging the customer for costs of repair or replacement. When parts or products are replaced under warranty the replaced items will automatically become property of Laserglow. Once an item has been repaired or replaced under warranty, the repaired or replacement item assumes the remaining period of warranty based on the original date of delivery, plus the period of time during which the laser was out of the customer's possession. Within North America only, and within the first 30 days of the warranty period, Laserglow will cover the cost of shipping the defective item back to Laserglow and the cost of shipping the repaired/replacement item to the customer. After 30 days, or for overseas shipments, the customer will cover the cost of shipping the defective item back to Laserglow and Laserglow will cover the cost of shipping the repaired/replacement item to the customer. Where Laserglow covers the cost of shipping, the carrier and method of shipping will be at Laserglow's discretion. Items returned to Laserglow as warranty issues, which upon inspection are deemed not to have any defect, will incur a diagnosis service charge of $119.

NOT COVERED UNDER THIS WARRANTY

This warranty will become void if any of the following conditions are met:

• The product has been modified or tampered with in any way.

• The product has been dropped or subjected to shock in excess of 100 G.

• The product has been exposed to water, any liquid, or condensing atmospheric humidity.

• The unit was powered from a source other than those which are specified in the instruction manual.

• The unit was operated in an area with ambient temperature outside of the operating temperature range, as stated in the product specifications and instruction manual.

• The serial number or other identifying marks are removed.

• Ownership of the product has changed. (This warranty is not transferable).

• The warranty period has expired.

NEITHER THIS WARRANTY NOR ANY OTHER WARRANTY OR GUARANTY, EXPRESSED OR IMPLIED STATUTORY OR OTHERWISE, INCLUDING ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, SHALL EXTEND BEYOND THE WARRANTY PERIOD. NO RESPONSIBILITY IS ASSUMED FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING, WITHOUT LIMITATION, DAMAGES RESULTING FROM PRODUCT MALFUNCTION, INACCURACY, OR MATHEMATICAL INACCURACY OF THE PRODUCT SPECIFICATIONS. NOTHING IN THIS WARRANTY AFFECTS YOUR STATUTORY RIGHTS.

OTHER BENEFITS (NON-WARRANTY) THAT ARE ACCORDED TO YOU BY LASERGLOW

10% Replacement/Upgrade Credit: At any time, for the lifetime of the product, you may return the product to us in any condition, functional or not, for a trade-in credit equal to 10% of the original purchase price or 10% of the current retail price, whichever is less. The new product which you select must be of equal or greater value than the trade-in product, based on the value used to calculate the 10% credit amount.

Out-of-Warranty Repairs

The cost of any out-of-warranty repair will be $100/hr for labor, plus materials.

Rebuild/Complete Product Refurbishment

The cost of a complete rebuild or refurbishment of an out-of-warranty product will be no more than 60% of the current retail price.