INSTALLATION & OPERATION MANUAL

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BMW R1200RT-P
SIREN/FLASHER

Code 3, Inc., a subsidiary of
Public Safety Equipment, Inc.

CODE 3 INC.
PUBLIC SAFETY EQUIPMENT, INC.

R 1200RT-P BMW SIREN/FLASHER

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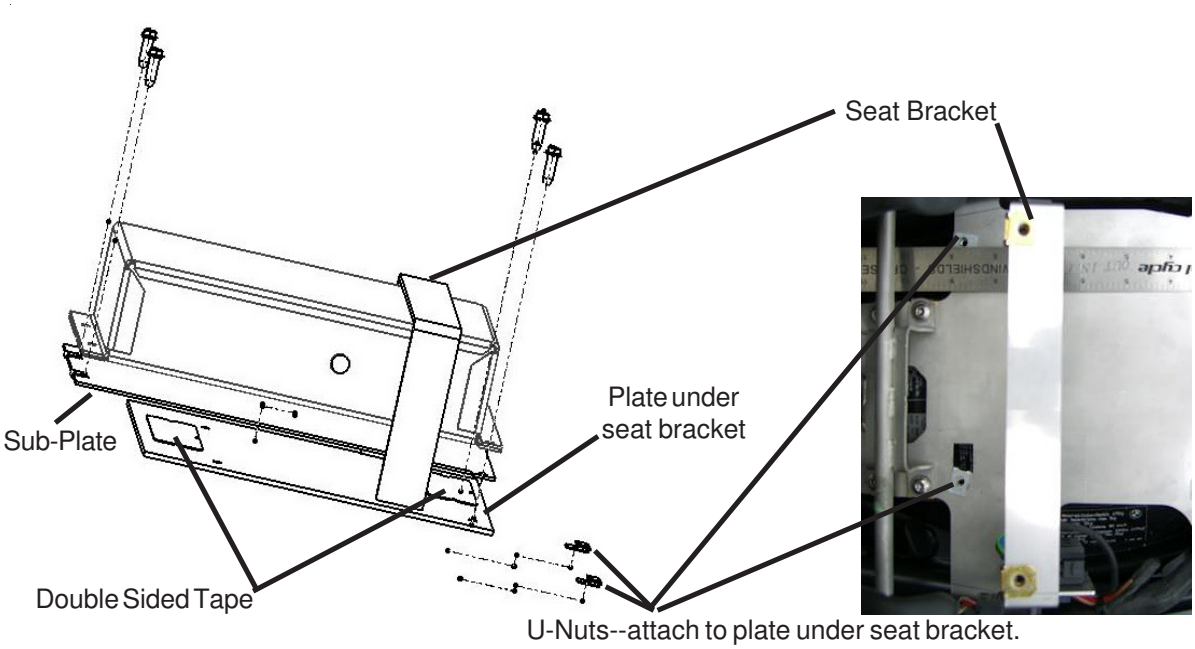
IMPORTANT: *Read all instructions and warnings before installing and using.*
INSTALLER: *This manual must be delivered to the end user of this equipment.*

Installation & Mounting of Siren/Flasher Unit

The siren/flasher is designed to be mounted under the radio box/seat area (see below). There is no provision for an alternate mounting location in this configuration. Remove the radio box and the seat. The siren will mount under the seat bracket. Place two U-Nuts onto the motorcycle, over existing holes in the plate under the seat bracket. Remove the backing of the provided double sided tape and place them on the plate under the seat bracket as shown. The black painted "sub-plate" provided with the siren will mount over the U-nuts and be held in place by the double sided tape. Remove the siren/flasher cover. Plug in the siren connector portion of the wire harness to the siren connector. Plug in the input and output portion of the wire harness to the flasher. Retain the siren harness to the harness retention bracket using the wire tie provided. Place the horse shoe grommet into the slot on the side of the siren/flasher housing. Now would be the best time to set-up the siren and flasher. Instructions for doing this follow later in this manual. After setting up the siren and the flasher, place the siren/flasher cover over the housing, and line up the mounting holes with the sub-plate. Place two #8 screws provided through the cover and housing and into the U-Nuts previously mounted to the motorcycle. Replace the other two #8 screws through the cover and housing and into the U-Nut attached to the sub-plate. Press down on the siren/flasher assembly to assure good adhesion of the double sided tape.



Siren

This siren has been designed to meet the special needs of motorcycle applications. This siren incorporates a rugged steel enclosure along with microprocessor based circuitry and MOSFET technology. Advanced features such as Instant "ON", Scroll, and more, make the siren extremely versatile.

Siren Standard Features

This siren is a highly integrated siren amplifier designed to be operated via user supplied control switches and common microphone interface. The following features are standard :

Siren Tones - Industry standard Wail, Yelp, and HyperYelp tones.

AIR HORN Tone - Electronic AIR HORN sound.

Instant-On- There is no " ON/OFF " switch. Selecting any siren function, or pressing the Push To Talk (PTT) switch on the user supplied common microphone interface will activate the siren in the appropriate mode, assuming the siren is connected to a source of +12V and the vehicle's ignition switch is on.

Scroll - A momentary positive signal applied to this input from a user supplied switch will cause to siren to activate. The siren will scroll to the next tone each time the switch is tapped. **Holding the scroll switch will cause the siren to switch to Standby ("OFF") mode.**

Wail - A continuous positive signal applied to this input from a user supplied switch will cause the siren to activate in wail mode for as long as the switch remains in the on position.

Airhorn - A continuous positive signal applied to this input from a user supplied switch will cause the siren to generate the Airhorn signal for as long as the switch remains in the on position.

Instant Public Address - Public Address override of all siren functions when the motorcycle Push-to-Talk (PTT) key is pressed while the user supplied common microphone interface is set to PA mode.

Radio Rebroadcast - Broadcasts Two-way radio reception over siren speakers. These inputs are transformer coupled to prevent loading of the radio.

InterClear® - This unique feature can be used to activate additional warning lights for 7 seconds, each time the siren mode is changed using either the control switches or the vehicle horn ring, thus allowing an additional level of warning in situations such as intersections without the operator having to take his hands off the wheel or his eyes off the road.

Automatic Short Circuit Protection- The siren will sense a short circuit on the speaker terminals and automatically go to standby until the fault is removed. Once the fault is removed the siren will return to normal operation.

WARNING!

Sirens are an integral part of an effective audio/visual emergency warning system. However, sirens are only short range secondary warning devices. The use of a siren does not insure that all drivers can or will observe or react to an emergency warning signal, particularly at long distances or when either vehicle is traveling at a high rate of speed. Sirens should only be used in a combination with effective warning lights and never relied upon as a sole warning signal. Never take the right of way for granted. It is your responsibility to be sure you can proceed safely before entering an intersection, driving against traffic, or responding at a high rate of speed.

The effectiveness of this warning device is highly dependent upon correct mounting and wiring. Read and follow the manufacturer's instructions before installing or using this device. The vehicle operator should check the equipment daily to insure that all features of the device operate correctly.

To be effective, sirens must produce high sound levels that potentially can inflict hearing damage. Installers should be warned to wear hearing protection, clear bystanders from the area and not to operate the siren indoors during testing. Vehicle operators and occupants should assess their exposure to siren noise and determine what steps, such as consultation with professionals or use of hearing protection should be implemented to protect their hearing.

This equipment is intended for use by authorized personnel only. It is the user's responsibility to understand and obey all laws regarding emergency warning devices. The user should check all applicable city, state and federal laws and regulations.

Public Safety Equipment, Inc., assumes no liability for any loss resulting from the use of this warning device.

Proper installation is vital to the performance of the siren and the safe operation of the emergency vehicle. It is important to recognize that the operator of the emergency vehicle is under psychological and physiological stress caused by the emergency situation. The siren system should be installed in such a manner as to: A) Not reduce the acoustical performance of the system, B) Limit as much as practical the noise level in the passenger compartment of the vehicle, C) Place the controls within convenient reach of the operator so that he can operate the system without losing eye contact with the roadway.

Emergency warning devices often require high electrical voltages and/or currents. Properly protect and use caution around live electrical connections. Grounding or shorting of electrical connections can cause high current arcing, which can cause personal injury and/or severe vehicle damage, including fire.

PROPER INSTALLATION COMBINED WITH OPERATOR TRAINING IN THE PROPER USE OF EMERGENCY WARNING DEVICES IS ESSENTIAL TO INSURE THE SAFETY OF EMERGENCY PERSONNEL AND THE PUBLIC.

Siren Set-Up and Adjustment

The only adjustments necessary for the siren are **Maximum P.A. Adjustment** (accessible from the outside of the unit), and **Maximum RRB Adjustment** (accessible only with the cover removed).

Audio Adjustments

Maximum Radio Rebroadcast (RRB) Adjustment - This trimmer (under the siren cover) sets the maximum level that the 2-way radio will reach with the front panel VOLUME control in the fully clockwise position. To adjust properly, set the 2-way radio volume control to produce normal radio volume from the 2-way radio speaker or headset. Set the RRB switch to the on position to enable the RRB function. Next set the siren's front panel VOLUME control knob fully clockwise and adjust the rear panel RRB trimmer to produce the desired volume from the siren speaker.

Maximum P.A. Volume Adjustment - This trimmer sets the maximum level that the P.A. volume will reach with the front panel VOLUME control in the fully clockwise position. To adjust properly, set the front panel volume control fully clockwise. While keying the microphone hold the microphone close to your lips and speak directly into it in a normal voice and adjust the trimmer until the maximum volume out of the speaker is intelligible and produces no feedback. Set the front panel volume control for the desired PA volume and install all screws and fasteners. Jumper J1 allows the PA input sensitivity to be changed from "normal" microphone level to "CHP radio compatible". See board layout on page 9. Default position is "normal" - move the jumper to "CHP radio compatible" if you are using the PA output from the GE S890 radio.

HyperYelp Disable Switch - Switch is shown in the figure following. When switch 2 on DS1 is switched to the ON position, the HyperYelp tone is disabled. Switch 1 is not used.

Siren Operation

SCROLL, Momentary Push-button Switch - Each time the SCROLL button is pressed it causes the siren to scroll up one tone. Starting from the OFF mode, pressing the SCROLL button will cause the siren to start producing the WAIL tone. Pressing the button again will cause the siren to switch to YELP mode. Pressing the button again will cause the siren to switch to HyperYelp mode. Pressing the button a fourth time will cause the siren to switch back to WAIL mode. This process may be repeated as often as desired.

WAIL, Latching Switch - Produces the Wail tone continuously while this switch is in the ON position.
AIR HORN, Momentary Push-button Switch - Produces the Air Horn tone. If the siren is active in any mode, it reverts to that previous mode when the AIR HORN button is released.

RRB Switch - The RRB switch, is used to enable or disable the Radio Rebroadcast (RRB) function. When RRB is enabled, all other siren functions except PA are disabled.

When the switch is on, the 2-way radio audio connected to the RRB input wires is routed through the siren amplifier to the siren speaker. The RRB volume from the siren speaker may be set by adjusting the 2-way radio's volume control. Also refer to Maximum Radio Rebroadcast (RRB) Adjustment under the SET-UP AND ADJUSTMENT section.

PUBLIC ADDRESS (PA) - The PA portion of the siren is activated each time the motorcycle Push-to-Talk (PTT) button is pressed while the user supplied common microphone interface is set to PA mode. While the PTT button is pressed, the PA function overrides any active siren tone and routes the PA audio through the siren speaker. When the PTT button is released, the siren will automatically switch back to the siren tone (if any) that was active when the button was pressed. Also refer to the Maximum P.A. Volume Adjustment procedure under the SET-UP AND ADJUSTMENT section.

INTERCLEAR - The InterClear output provides a timed output from the siren which can be used to activate a special warning light or function. Each time the siren mode is changed by any of the means previously described the InterClear output switches on (+12VDC, 1A Max) for approximately eight (8) seconds. Turning the siren off will also turn the InterClear output off.

SIREN TROUBLESHOOTING GUIDE

PROBLEM	PROBABLE CAUSE	REMEDY
NO SIREN OUTPUT.	A. SHORTED SPEAKER OR SPEAKER WIRES. SIREN IN OVER CURRENT PROTECTION MODE.	A. CHECK CONNECTIONS.
10A FUSE BLOWS.	A. AMPLIFIER POWER WIRES REVERSED POLARITY.	A. CHECK POLARITY.
NO OUTPUT FROM SPEAKER, TONES HEARD INSIDE AMP. MODULE.	A. SPEAKER NOT CONNECTED/OPEN OR SHORTED SPEAKER WIRING. B. DEFECTIVE SPEAKER (NOTE: SHORTED SPEAKER OR SPEAKER WIRING WILL CAUSE SIREN TO SHUTDOWN.	A. CHECK SPEAKER WIRING. B. DISCONNECT SPEAKER. LISTEN AT SIREN FOR TONES, REPLACE SPEAKER.
SIREN TONES VOLUME TOO LOW/GARBLED	A. LOW VOLTAGE TO SIREN AMPLIFIER. B. HIGH RESISTANCE IN WIRING/ DEFECTIVE SPEAKER.	A. CHECK WIRING FOR BAD CONNECTIONS/ CHECK VEHICLE CHARGING SYSTEM. B. CHECK SPEAKER WIRING/REPLACE SPEAKER.
HIGH RATE OF SPEAKER FAILURE.	A. HIGH VOLTAGE TO SIREN. B. 58 WATT SPEAKER CONNECTED TO 100 WATT TAP. 58 WATT NOT ALLOWED.	A. CHECK VEHICLE CHARGING SYSTEM. B. USE CORRECT SPEAKER.
SIREN CONTINUES UNTIL TONE RAMPS DOWN AFTER MANUAL BUTTON IS RELEASED.	NORMAL OPERATION.	
INTERCLEAR WILL NOT POWER AUXILIARY DEVICES.	A. THERE IS A SHORT IN THE WIRING, OR THE LOAD IS GREATER THAN 1 A.	A. CHECK FOR SHORTS.
P.A. VOLUME LOW OR NO P.A. AT ALL. VOLUME CONTROL FULLY CLOCKWISE.	A. DEFECTIVE MICROPHONE. B. MAXIMUM P.A. VOLUME TRIMMER MISADJUSTED. SEE SET-UP AND ADJUSTMENT SECTION.	A. REPLACE MICROPHONE. B. REFER TO SET-UP AND ADJUSTMENT SECTION.
RRB VOLUME LOW, OR NO RRB AT ALL. VOLUME CONTROL FULLY CLOCKWISE.	A. MAXIMUM RADIO REBROADCAST TRIMMER MIS-ADJUSTED. B. RRB WIRES NOT CONNECTED TO TWO-WAY RADIO EXTERNAL SPEAKER.	A. REFER TO SET-UP AND ADJUSTMENT SECTION. B. CHECK RRB CONNECTIONS.
SIREN SOUNDS BY ITSELF.	A. REMOTE SWITCH (HORN RING) WIRING TO REMOVE INPUT SHORTING TO POSITIVE OR TO GROUND (EARTH).	A. CHECK WIRING FOR ANY SHORTING.
P.A. OPERATES BUT SIREN WILL NOT RUN.	A. VEHICLE IN PARK; THE PARK KILL FEATURE MUTES SIREN WHILE VEHICLE IS IN PART OR NEUTRAL. B. RRB SWITCH IS ON.	A. PUT VEHICLE IN GEAR. B. TURN RRB SWITCH OFF (LEFT).
SIREN RUNS PROPERLY BUT SHUTS DOWN WHILE RUNNING. THEN STARTS RUNNING AGAIN AFTER A FEW MINUTES.	A. VEHICLE CIRCUIT BREAKERS ARE OVERHEATING OR ARE NOT FUNCTIONING PROPERLY.	A. USE A BREAKER WITH 1.25x. THE AMPERAGE RATING FOR THE WATTAGE BEING USED.

FLASHER TROUBLESHOOTING GUIDE

PROBLEM	PROBABLE CAUSE	REMEDY
SIDE FACING LIGHT NOT WORKING WITH FRONT OR REAR GROUP AS EXPECTED.	A. DIP SWITCH IN THE WRONG POSITION OR NOT FULLY IN POSITION.	A. CHECK DIP SWITCHES.
LIGHTHEAD DOES NOT ACTIVATE	A. NO POWER TO UNIT.	A. CHECK WIRING FOR LOOSE CONNECTIONS.
	B. DAMAGED OR SHORTED CABLING.	B. CHECK CABLES FOR DAMAGE.
	C. DEFECTIVE LIGHTHEAD.	C. REPLACE LIGHTEHAD MODULE.
	D. GROUND NOT SECURE.	D. CHECK GROUND WIRES. TIGHTEN IF NECESSARY.

NOTE: LIGHTHEADS OPERATE ON 12V DC SYSTEMS. THE LIGHTHEAD CAN BE ATTACHED TO A 12V POWER SOURCE TO DETERMINE IF THE LIGHTHEAD IS WORKING PROPERLY. THE LIGHT HEAD WILL STEADY BURN (TURN ON, BUT NOT FLASH) IF IT IS WORKING CORRECTLY.

WARNING!

CONNECTION OF A 58 WATT SPEAKER TO THE SPKR TERMINAL WILL CAUSE THE SPEAKER TO BURN OUT, AND WILL VOID THE SPEAKER WARRANTY!
The sound projecting opening should be pointed forward, parallel to the ground, and not obstructed or muffled by structural components of the vehicle. Concealed or under-hood mounting in some cases will result in a dramatic reduction in performance. To minimize this reduction, mount the speaker so the sound emitted is projected directly forward and obstruction by vehicle components such as hoses, brackets, grille, etc. is minimized.
Electromechanical sirens and electronic siren speakers should be mounted as far from the occupants as possible using acoustically insulated compartments and isolation mountings to minimize the transmission of sound into the vehicle. It may be helpful to mount the device on the front bumper, engine cowl or fender; heavily insulate the passenger compartment; and operate the siren only with the windows closed.
Each of these approaches may cause significant operational problems, including loss of siren performance from road slush, increased likelihood of damage to the siren in minor collisions, and the inability to hear the sirens on other emergency vehicles.
APPROPRIATE TRAINING OF VEHICLE OPERATORS IS RECOMMENDED TO ALERT THEM TO THESE PROBLEMS AND MINIMIZE THE EFFECT OF THESE PROBLEMS DURING OPERATIONS.

WARNING!

All devices should be mounted in accordance with the manufacturer's instructions and securely fastened to vehicle elements of sufficient strength to withstand the forces applied to the device. Ease of operation and convenience to the operator should be the prime consideration when mounting the siren and controls. Adjust the mounting angle to allow maximum operator visibility. Do not mount the Control Head Module in a location that will obstruct the drivers view. Mount the microphone clip in a convenient location to allow the operator easy access. Devices should be mounted only in locations that conform to their SAE identification code as described in SAE Standard J1849. For example, electronics designed for interior mounting should not be placed underhood, etc.
Controls should be placed within convenient reach* of the driver or if intended for two person operation the driver and/or passenger. In some vehicles, multiple control switches and/or using methods such as "horn ring transfer" which utilizes the vehicle horn switch to toggle between siren tones may be necessary for convenient operation from two positions.
**Convenient reach is defined as the ability of the operator of the siren systems to manipulate the controls from his normal driving/riding position without excessive movement away from the seat back of loss of eve contact with the roadway.*

WARNING!

IMPORTANT WARNINGS TO USERS OF SIRENS: "Wail" and "Yelp" tones are in some cases (such as in the state of California) the only recognized siren tones for calling for the right of way. Ancillary tones such as "Air Horn", "Hi-Lo", "Hyperyelp", and "Hyperlo" in some cases do not provide as high a sound pressure level. It is recommended that these tones be used in a secondary mode to alert motorists to the presence of multiple emergency vehicles or to momentarily shift from the primary tone as an indication of the imminent presence of an emergency vehicle.

WARNING!

Any electronic device may create or be affected by electromagnetic interference. After installation of any electronic device, operate all equipment simultaneously to insure that operation is free of interference.

Flasher Set-Up

Changing flash patterns for the STD (SW2) or Interclear mode (SW3)

The flash pattern can be changed (while the LED lightheads are on) by pressing the designated switch on the PCB and releasing.

Patterns - (all patterns are alternating):

1. Single Flash (180 FPM) - Default primary pattern
2. Single Flash (120 FPM)*
3. Double Flash (120 FPM)* - Default interclear pattern
4. Triple Flash (120 FPM)*
5. Single Flash (90 FPM)*
6. Double Flash (90 FPM)*
7. Triple Flash (90 FPM)*
8. Single Flash (75 FPM)*
9. Double Flash (75 FPM)*
10. Triple Flash (75 FPM)*
11. Quad Flash (75 FPM)*
12. Cycle Flash (8, 9, 10, 11, Repeat)

* - California Title 13 compliant (as of 11/07)

Dip Switch Setup for Side Lights and Setting Left Forward and Left Angled Light to Steady Burn

Place position 3 of the DIP switch located on the PCB into the “ON” position. This will enable steady burn of the left forward and angled facing lights when the front lights are on.

Sidelights

Placing position 1 of the DIP switch (SW1) into the “ON” position assigns the front side lights LFS and RFS to the Rear group of lights.
Placing position 2 of the DIP switch into the “ON” position assigns the rear side lights to the Front group of lights.

Flasher Position 1 & Position 2 Dipswitch Table		
Pos. 1	**Pos. 2**	**Mode**
OFF	OFF	Default- Front Sided grouped with Front Lights, Rear Sides grouped with Rear Lights.
ON	OFF	Front/Rear Sides grouped with Rear Lights
OFF	ON	Front/Rear Sides grouped with Front Lights
ON	ON	Front Sided grouped with Rear Lights, Rear Sides grouped with Front Lights.

Cruise Input

Placing +12V on the Cruise input will cause the two front facing lights and two rear facing lights to dimly steady burn.

Turn Signal

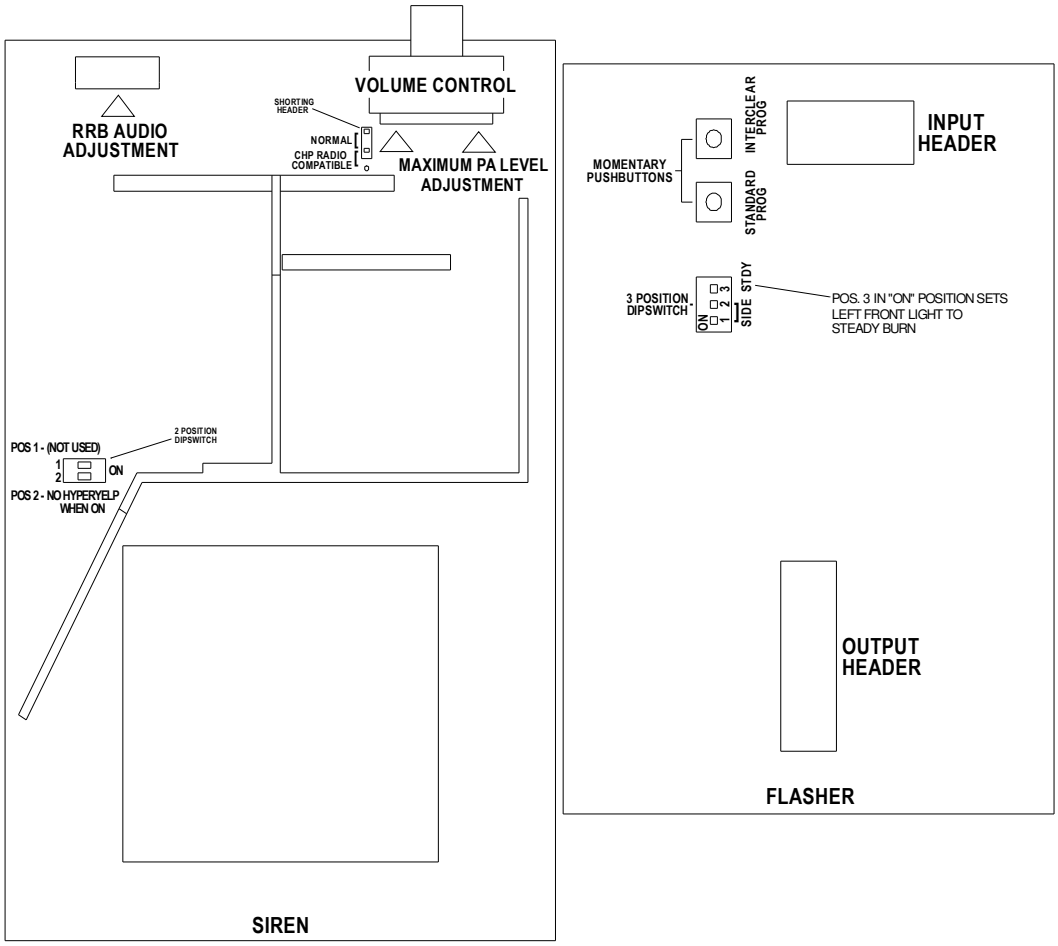
Placing +12V on the Turn Signal input will cause the auxiliary turn signals to function. This function, when attached to the motorcycle harness will repeat the standard motorcycle turn signal.

Brake Tail

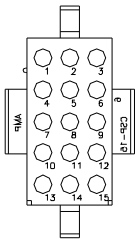
A modulated DC input will cause the tail light to function. A steady +12V input will cause the brake light to function. This function, when attached to the motorcycle harness, will repeat the standard motorcycle tail or brake function. The light will flash quickly three times and remain on during the brake function.

Photocell Input

Connect the Photocell Input connector of the wiring harness to the photocell assembly. The photocell will turn off the auxilary light output with low ambient light. In case a photocell option is not desired, attach the jumper wire included with the rear LED mounting plate in place of the photocell.



Siren Amplifier Plug Pin & Function Table								
Pin	**Color**	**Function**	**Pin**	**Color**	**Function**	**Pin**	**Color**	**Function**
1	OR	Speaker Out	2	OR	Speaker Out	3	RED	Switched Power
4	RED	Constant Power	5	BLK	Ground	6	YEL	Siren Scroll Input
7	GRN	Interclear	8	GRAY	Air Horn Input	9	BLU	RRB Audio
10	BLU	RRB Audio	11	TAN	Wail Input	12	VIO	RRB Input
13	WHT	Mic Hi	14	BLK	Mic Lo	15	BRWN	PA PTT



Flasher Input/Output Table

Inputs			
Function	Pin		Function
Left Alley	6	12	Right Alley
Photocell	5	11	Brake/Tail
Interclear	4	10	Cruise
LED Activation	3	9	Not Used
Right Turn	2	8	Left Turn
Power (+12VDC)	1	7	Ground

Outputs			
Function	Pin		Function
Tail	9	18	Brake
Front 'ON' LED Indicator	8	17	Right Hand TD trigger
Left Hand TD trigger	7	16	Rear 'ON' LED Indicator
Left Turn	6	15	Right Turn
Left Hand Rear Aux.	5	14	Right Hand Rear Aux.
Left Hand Rear	4	13	Right Hand Rear
Left Hand Rear Side	3	12	Right Hand Rear Side
Left Hand Front Side	2	11	Right Hand Front Side
Left Hand Front	1	10	Right Hand Front

NOTE: NO MORE THAN 16 LIGHTHEADS MAY BE CONNECTED TO THE FLASHER

WARRANTY

This product was tested and found to be operational at the time of manufacture. Provided this product is installed and operated in accordance with the manufacturer's recommendations, manufacturer guarantees all parts and components except the lamps for a period of 5 years from the date of purchase or delivery, whichever is later. Units demonstrated to be defective within the warranty period will be repaired or replaced at the factory service center at no cost.

Use of a lamp or other electrical load of a wattage higher than installed or recommended by the factory, or use of inappropriate or inadequate wiring or circuit protection causes this warranty to become void. Failure or destruction of the product resulting from abuse or unusual use and/or accidents is not covered by this warranty.

Manufacturer shall in no way be liable for other damages including consequential, indirect or special damages whether loss is due to negligence or breach of warranty.

MANUFACTURER MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY INCLUDING, WITHOUT LIMITATION, WARRANTIES OF FITNESS OR MERCHANTABILITY, WITH RESPECT TO THIS PRODUCT.

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