INSTALLATION & OPERATION MANUAL

FULL RANGE SERIES

90



A PUBLIC SAFETY EQUIPMENT COMPANY

MODEL 92XXX 12 JOULE MODEL 95XXX 15 JOULE MODEL 98XXX 8 JOULE MODEL 99XXX 20 JOULE

FULL RANGE STROBE BEACON

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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.

Introduction

The Model 99XXX, 98XXX, 92XXX, and 95XXX Series 90 Strobe Beacons represent the latest advances in state-of-the-art 360 degree strobe warning technology based on years of research and testing. The latest MOSFET technology and advanced design provide more efficient operation, meaning superior performance, reliability and longer life.

The use of this or any warning device does not insure that all drivers can or will observe or react to an emergency 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, responding at a high rate of speed, or walking on or around traffic lanes.

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 insure daily that all features of the device operate correctly. In use, the vehicle operator should insure the projection of the warning signal is not blocked by vehicle components (i.e.: open trunks or compartment doors), people, vehicles, or other obstructions.



WARNING!

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 this warning device 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 warning device should be installed in such a manner as to: A) Not reduce the output performance of the system, B) 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. Incandescent lamps are extremely hot, allow to cool completely before attempting to remove.

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. Never power emergency warning equipment from the same circuit or share the same grounding circuit with radio communication equipment.

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.

Unpacking & Pre-installation

Remove the beacon from the box and examine the unit for transit damage. A battery $(+12/24 \, \text{VDC})$ or battery charger may be used to test the beacon. To test, connect the black wire to the negative (earth) terminal of the battery or battery charger. Touch the red wire to the positive $(+12/24 \, \text{VDC})$ terminal and verify the unit's operation. Reversing the power connections will activate the reverse polarity protection, resulting in no light output.



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. Driver and/or passenger air bags (SRS) will affect the way equipment should be mounted. This device should be mounted by permanent installation and within the zones specified by the vehicle manufacturer, if any. Any device mounted in the deployment area of an air bag will damage or reduce the effectiveness of the air bag and may damage or dislodge the device. Installer must be sure that this device, its mounting hardware and electrical supply wiring does not interfere with the air bag or the SRS wiring or sensors. Front or rear grille/bumper placement must avoid interference with SRS sensors. Mounting the unit inside the vehicle by a method other than the permanen installation is not recommended as unit may become dislodged during swerving, sudden braking, or collision. Failure to follow instructions can result in personal injury.

Installation & Mounting

The Model 99XXX, 98XXX, 92XXX, and 95XXX Strobe Beacons are shipped fully tested and ready for installation. Refer to Figure 1 for attachment points. Connect wiring as shown in Figure 2. Grommets and sealant should be used to keep water out of your vehicle.

New Installation Mounting

Use A, B & C mounting holes. Be sure "Rear" is placed facing the rear of vehicle.

Universal Replacement Mounting (option)

If replacing existing Whelen/TT/Austin strobe products, use A, B & D mounting holes. Remove lens and punch hole "D" using a punch or drill bit. Use CAUTION not to damage the PCB. Be sure "Rear" is placed facing rear of vehicle.



Use optional magnetic mount for temporary mounting of the unit to stationary vehicles.

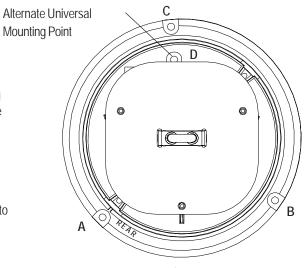


FIGURE 1



WARNING!

- 1) Rust Stains: Magnetic mounting is not intended as permanent mounting for beacons. Long duration usage of any magnet will expose the high iron content of the steel, thereby causing rust. The device should by removed when not used to prevent rust stains. Metallic debris collected by the magnet will also contribute to rust stains. Insure that the magnet is kept clean.
- 2) Surface rust stains can usually be removed with chrome polish, available at most auto part stores.
- 3) As with any magnetically-mounted warning device, its use on the exterior of a moving vehicle is at the sole discretion and responsibility of the user.

Magnetic mount products provide a secure, temporary installation in most circumstances and is recommended for stationary use only. For maximum warning signal, mount the beacon on the highest possible flat, level surface of the vehicle.

Pipe Mounting

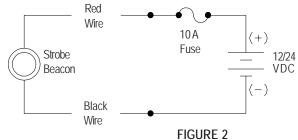
The Strobe base will accept a standard 1" NPT pipe. Hand tighten the beacon base on the pipe thread until the pipe bottoms out inside the unit. **DO NOT OVER-TIGHTEN**. Excessive torque may crack the beacon base. Secure with a locknut to prevent unit from coming loose. Use the appropriate reducer to mount to 3/4" or 1/2" pipe.



Using non-factory specified screws and/or mounting brackets and/or the improper number of screws may result in failure of mounting system and severe damage to vehicle as well as loss of warranty coverage on the equipment.

Wiring Instructions

The Series 90 Strobe Beacons are shipped fully tested and ready for installation. Connect wiring as shown in Figure 2. Use a 10 Amp fuse for circuit protection and #18 gauge or larger wire. Grommets and sealant should be used to keep water out of your vehicle.



Setting Flash Pattern: Vari-Flash (option)

To Select a flash pattern on the unit follow the directions provided below:

- 1. Turn power off and wait 10 minutes before opening the unit.
- 2. Remove lens and select the appropriate flash configuration. Use Figure 3 as a guide
- 3. Reassemble the lens.



FIGURE 3

Flash Patterns

Jumper	Quad Flash	Double Flash	2, 4 Flash	2, 3, 4 Flash
JP1	2-3	2-3	1-2	1-2
JP2	1-2	2-3	2-3	1-2

AutoDim: 99XXX Series Only

Jumper	Jumper AutoDim Enabled AutoD	
JP3	2-3	1-2



Larger wires and tight connections will provide longer service life for components. For high current wires it is highly recommended that terminal blocks or soldered connections be used with shrink tubing to protect the connections. Do not use insulation displacement connectors (e.g. 3M° Scotchlock type connectors). Route wiring using grommets and sealant when passing through compartment walls. Minimize the number of splices to reduce voltage drop. High ambient temperatures (e.g. under hood) will significantly reduce the current carrying capacity of wires, fuses, and circuit breakers. Use "SXL" type wire in engine compartment. All wiring should conform to the minimum wire size and other recommendations of the manufacturer and be protected from moving parts and hot surfaces. Looms, grommets, cable ties, and similar installation hardware should be used to anchor and protect all wiring. Fuses or circuit breakers should be located as close to the power takeoff points as possible and properly sized to protect the wiring and devices. Particular attention should be paid to the location and method of making electrical connections and splices to protect these points from corrosion and loss of conductivity. Ground terminations should only be made to substantial chassis components, preferably directly to the vehicle battery. The user should install a fuse sized to approximately 125% of the maximum Amp capacity in the supply line to protect against short circuits. For example, a 30 Amp fuse should carry a maximum of 24 Amps. DO NOT USE 1/4" DIAMETER GLASS FUSES AS THEY ARE NOT SUITABLE FOR CONTINUOUS DUTY IN SIZES ABOVE 15 AMPS. Circuit breakers are very sensitive to high temperatures and will "false trip" when mounted in hot environments or operated close to their capacity.

Maintenance

The Model 99XXX, 98XXX, 92XXX and 95XXX strobes have a field replaceable Xenon flashtube. (See parts list and exploded view for part numbers) The flashtube snap mounts onto the printed circuit board. Care should be taken to ensure that the tube holder guide pins are inserted into the printed circuit board and that the base of

the tube holder is flush with the printed circuit board. Do not remove the circuit board from the base. Service the unit in dry locations. **CAUTION:** Unit contains high voltages and high temperatures, disconnect from power and wait 10 minutes before servicing.



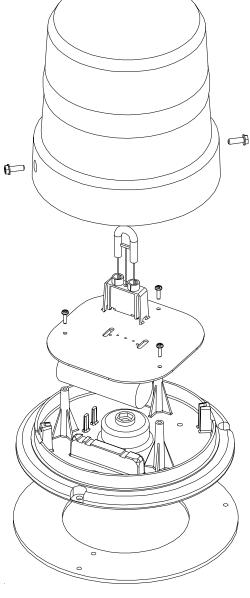
Strobe lamps are extremely hot! Allow to cool completely before attempting to remove. Gloves and eye protection should be worn when handling strobe flashtubes as they are pressurized and accidental breakage can result in flying glass. High voltages and/or temperatures are present inside of strobe units. Disconnect from power and wait 10 minutes prior to servicing.

Troubleshooting

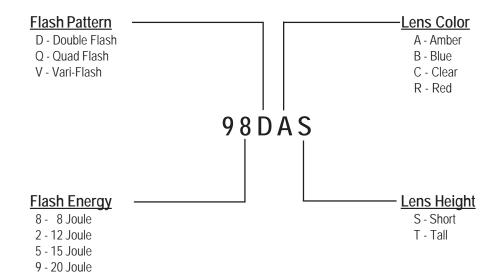
PROBLEM	PROBABLE CAUSE	REMEDY	
No Output	a.) Unit power leads hooked up backwards.	a.) Reverse power leads.	
	b.) Output capacitor shorted.	b.) Return for service.	
	c.) Flashtube worn.	c.) Replace flashtube.	
	d.) Flashtube polarity backwards	d.) Reverse flash tube.	
External Fuse Blows	a.) Fuse not proper ampere rating.	a.) Replace with proper sized fuse.	
	b.) Wiring to unit shorted.	b.) Replace wiring to unit.	
	c.) Power supply failure.	c.) Return for service.	
Improper Flash Pattern	a.) Flashtube worn.	a.) Replace flashtube.	
	b.) Output capacitor worn.	b.) Return unit for service.	
	c.) Jumpers in wrong position (variable flash only).	c.) Reset jumpers (variable flash only).	

Parts List & Exploded View

No. 1	Description Lens - Amber Short Lens - Amber Tall Lens - Red Short Lens - Red Tall Lens - Blue Short Lens - Blue Tall Lens - Clear Short Lens - Clear Tall	P/N T02244 T02234 T02242 T02232 T02243 T02233 T02241 T02231	Oty.	No. 4	Description PCB - 8J Quad PCB - 12J Quad PCB - 15J Quad PCB - 12J Variable PCB - 15J Variable PCB - 8J Double PCB - 12J Double PCB - 15J Double PCB - 20J Variable	 CALL FACTORY	Oty.
2	Strobe Tube Assy - 8 J Strobe Tube Assy - 12/15 J	S25100 S25101	1	5	Lens Screw	T00238	2
	j			6	PCB Screw	T03448	
3	Plastic Base	T07760	1	7	Mounting Screw (Not Shown)	T02933	3
				8	Gasket	T07769	1
				9	Magnetic Mntg Kit (Not Shown)	S25108	1



Product Numbering Scheme



MODEL	FLASH	OPERATING	WATTAGE	AMP
	ENGERY	VOLTAGE		DRAW
98XXX	8 Joules	+10 to +30 VDC	9.3 W	1.25 A
92XXX	12 Joules	+10 to +30 VDC	14 W	1.6 A
95XXX	15 Joules	+10 to +30 VDC	17.5 W	2 A
99XXX	20 Joules	+10 to +30 VDC	23.3 W	2.2A

Notes:

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, Public Safety Equipment guarantees all parts and components except the lamps for a period of 2 year 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.

PSE 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.

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

PRODUCT RETURNS

In order to provide you with faster service, if you are going to return a product for repair or replacement*, please contact our factory to obtain a Return Goods Authorization Number (RGA number) before you ship the product to PSE. Write the RGA number clearly on the package near the mailing label. Be sure you use sufficient packing materials to avoid damage to the product being returned while in transit.

*PSE reserves the right to repair or replace product at its discretion. PSE assumes no responsibility or liability for expenses incurred for the removal and/or reinstallation of products requiring service and/or repair.

PROBLEMS OR QUESTIONS? CALL OUR TECHNICAL ASSISTANCE HOTLINE (314) 996-2800

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