

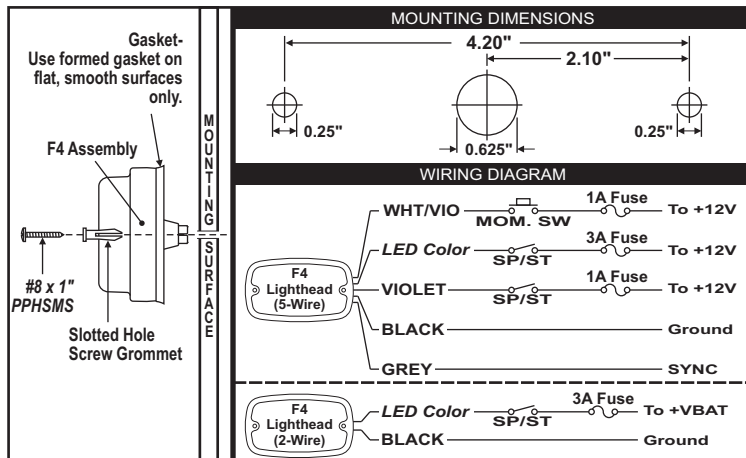
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Safety First: This document provides all the necessary information to allow your Whelen product to be properly and safely installed. Before beginning the installation and/or operation of your new product, the installation technician and operator must read this manual completely. Important information is contained herein that could prevent serious injury or damage.

- Proper installation of this product requires the installer to have a good understanding of automotive electronics, systems and procedures.
- Whelen Engineering requires the use of waterproof butt splices and/or connectors if that connector could be exposed to moisture.
- Any holes, either created or utilized by this product, should be made both air- and watertight using a sealant recommended by your vehicle manufacturer.
- Failure to use specified installation parts and/or hardware will void the product warranty!
- If mounting this product requires drilling holes, the installer **MUST** be sure that no vehicle components or other vital parts could be damaged by the drilling process. Check both sides of the mounting surface before drilling begins. Also de-burr any holes and remove any metal shards or remnants. Install grommets into all wire passage holes.
- Do not install this product or route any wires in the deployment area of your air bag. Equipment mounted or located in the air bag deployment area will damage or reduce the effectiveness of the air bag, or become a projectile that could cause serious personal injury or death. Refer to your vehicle owner's manual for the air bag deployment area. The User/Installer assumes full responsibility to determine proper mounting location, based on providing ultimate safety to all passengers inside the vehicle.
- For this product to operate at optimum efficiency, a good electrical connection to chassis ground must be made. The recommended procedure requires the product ground wire to be connected directly to the **NEGATIVE (-)** battery post.
- If this product uses a remote device to activate or control this product, make sure that this control is located in an area that allows both the vehicle and the control to be operated safely in any driving condition.
- Do not attempt to activate or control this device in a hazardous driving situation.
- This product contains either strobe light(s), halogen light(s), high-intensity LEDs or a combination of these lights. Do not stare directly into these lights. Momentary blindness and/or eye damage could result.
- Use only soap and water to clean the outer lens. Use of other chemicals could result in premature lens cracking (crazing) and discoloration. Lenses in this condition have significantly reduced effectiveness and should be replaced immediately. Inspect and operate this product regularly to confirm its proper operation and mounting condition. Do not use a pressure washer to clean this product.
- **WARNING!** All customer supplied wires that connect to the positive (+) terminal of the battery must be sized to supply at least 125% of the maximum operating current and **FUSED** "at the battery" to carry that load. **DO NOT USE CIRCUIT BREAKERS WITH THIS PRODUCT!**
- **FAILURE TO FOLLOW THESE PRECAUTIONS AND INSTRUCTIONS COULD RESULT IN DAMAGE TO THE PRODUCT OR VEHICLE AND/OR SERIOUS INJURY TO YOU AND YOUR PASSENGERS!**

Mounting

1. Using the dimensions below, mark the mounting and wire hole locations onto the proposed mounting surface. Drill two, .250" diameter mounting holes and a .625" (minimum) wire access hole into the mounting surface.
2. Place the gasket into position on the rear of the F4 assembly. Insert the slotted hole screw grommet through the mounting holes on the F4/Gasket assembly.
3. Feed the F4 wires through the wire access hole in the mounting surface. Press the F4/Gasket/Grommet assembly onto its mounting location so that it is flat against the mounting surface. With the assembly in position and using the hardware provided, tighten the mounting screws until the lighthead assembly is drawn firmly against the mounting surface. **DO NOT OVERTIGHTEN!**
4. Using appropriately sized wires (minimum 18 AWG), extend the F4 wires to their designated connections. Refer to the diagram below for wiring and fusing information.



#	Pattern	Seq.	Phase							
1	SignalAlert™	Solid	PH.1	44	LongBurst™	L/R	PH.2	87	ActionFlash™ 150	T/B
2	SignalAlert™	Solid	PH.2	45	LongBurst™	T/B	PH.1	88	ActionFlash™ 150	Diag
3	SignalAlert™	L/R	PH.1	46	LongBurst™	T/B	PH.2	89	ModuFlash™	Solid
4	SignalAlert™	L/R	PH.2	47	LongBurst™	Diag	PH.1	90	ModuFlash™	L/R
5	SignalAlert™	T/B	PH.1	48	LongBurst™	Diag	PH.2	91	ModuFlash™	T/B
6	SignalAlert™	T/B	PH.2	49	PingPong™	Solid	PH.1	92	ModuFlash™	Diag
7	SignalAlert™	Diag	PH.1	50	PingPong™	Solid	PH.2	93	DoubleFlash™ 120	Solid
8	SignalAlert™	Diag	PH.2	51	PingPong™	L/R	PH.1	94	DoubleFlash™ 120	L/R
9	CometFlash@75	Solid	PH.1	52	PingPong™	L/R	PH.2	95	DoubleFlash™ 120	T/B
10	CometFlash@75	Solid	PH.2	53	PingPong™	T/B	PH.1	96	DoubleFlash™ 120	Diag
11	CometFlash@75	L/R	PH.1	54	PingPong™	T/B	PH.2	97	PingPong™ 120	Solid
12	CometFlash@75	L/R	PH.2	55	PingPong™	Diag	PH.1	98	PingPong™ 120	L/R
13	CometFlash@75	T/B	PH.1	56	PingPong™	Diag	PH.2	99	PingPong™ 120	T/B
14	CometFlash@75	T/B	PH.2	57	SingleFlash 60	Solid		100	PingPong™ 120	Diag
15	CometFlash@75	Diag	PH.1	58	SingleFlash 60	L/R		101	TripleFlash™ 75	Solid
16	CometFlash@75	Diag	PH.2	59	SingleFlash 60	T/B		102	TripleFlash™ 75	L/R
17	DoubleFlash 75	Solid	PH.1	60	SingleFlash 60	Diag		103	TripleFlash™ 75	T/B
18	DoubleFlash 75	Solid	PH.2	61	SingleFlash 90	Solid		104	TripleFlash™ 75	Diag
19	DoubleFlash 75	L/R	PH.1	62	SingleFlash 90	L/R		105	TripleFlash™ 120	Solid
20	DoubleFlash 75	L/R	PH.2	63	SingleFlash 90	T/B		106	TripleFlash™ 120	L/R
21	DoubleFlash 75	T/B	PH.1	64	SingleFlash 90	Diag		107	TripleFlash™ 120	T/B
22	DoubleFlash 75	T/B	PH.2	65	SingleFlash 120	Solid		108	TripleFlash™ 120	Diag
23	DoubleFlash 75	Diag	PH.1	66	SingleFlash 120	L/R		109	Action SF 60/120	Solid
24	DoubleFlash 75	Diag	PH.2	67	SingleFlash 120	T/B		110	Action SF 60/120	L/R
25	SingleFlash 75	Solid	PH.1	68	SingleFlash 120	Diag		111	Action SF 60/120	T/B
26	SingleFlash 75	Solid	PH.2	69	SingleFlash 300	Solid		112	Action SF 60/120	Diag
27	SingleFlash 75	L/R	PH.1	70	SingleFlash 300	L/R		113	Action SF 60/TF 120	Solid
28	SingleFlash 75	L/R	PH.2	71	SingleFlash 300	T/B		114	Action SF 60/TF 120	L/R
29	SingleFlash 75	T/B	PH.1	72	SingleFlash 300	Diag		115	Action SF 60/TF 120	T/B
30	SingleFlash 75	T/B	PH.2	73	DoubleFlash 150	Solid		116	Action SF 60/TF 120	Diag
31	SingleFlash 75	Diag	PH.1	74	DoubleFlash 150	L/R		117	PinWheel SLOW	
32	SingleFlash 75	Diag	PH.2	75	DoubleFlash 150	T/B		118	PinWheel MEDIUM	
33	ComAlert™	Solid	PH.1	76	DoubleFlash 150	Diag		119	PinWheel FAST	
34	ComAlert™	Solid	PH.2	77	ComAlert™ 150	Solid		120	PinWheel VARIABLE	
35	ComAlert™	L/R	PH.1	78	ComAlert™ 150	L/R		121	PinWheel MEDIUM w/Solid	
36	ComAlert™	L/R	PH.2	79	ComAlert™ 150	T/B		122	CalScan	
37	ComAlert™	T/B	PH.1	80	ComAlert™ 150	Diag		123	ActionScan™	
38	ComAlert™	T/B	PH.2	81	ActionFlash™ 50	Solid		124	SignalAlert™ Steady	
39	ComAlert™	Diag	PH.1	82	ActionFlash™ 50	L/R		125	Steady	
40	ComAlert™	Diag	PH.2	83	ActionFlash™ 50	T/B				
41	LongBurst™	Solid	PH.1	84	ActionFlash™ 50	Diag				
42	LongBurst™	Solid	PH.2	85	ActionFlash™ 150	Solid				
43	LongBurst™	L/R	PH.1	86	ActionFlash™ 150	L/R				

BOLD = Cal. Title XIII Compliant *ITALIC* = SYNC L/R=Left/Right T/B=Top/Bottom

WHITE/VIO - Scan-Lock™ Pattern Selection: This feature allows the user to select from several available flash patterns. Lighthead must be switched on for Scan-Lock to work.
TO CYCLE THROUGH ALL PATTERNS: Apply +VBAT to the WHT/ VIO wire for less than 1 second and release. To cycle backward through patterns apply +VBAT to WHT/VIO wire for over 1 second and release.
TO SET A PATTERN AS DEFAULT: Allow pattern to run over 5 seconds to make it the default pattern.
TO RESET TO THE FACTORY DEFAULT PATTERN: Turn off power. While applying +VBAT to the WHT/VIO wire, turn power on. The lighthead will reset to it's default pattern.

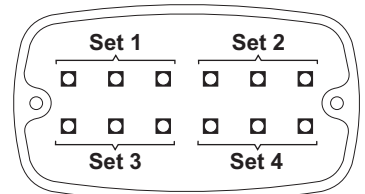
RED - Flash Mode:
Apply +VBAT to the RED wire to activate the lighthead in "flash mode". In flash mode, you may change the flash pattern using Scan-Lock™.

GREY - SYNC: To SYNC 2 lighthead, configure both lighthead to display the same Phase 1 (Simultaneous) pattern. Turn power off and connect the GREY wire from each lighthead into low power. The lighthead and their patterns will be synchronized. To configure 2 lighthead to alternate their patterns, advance either lighthead to Phase 2 (Alternating) of the current pattern.

VIOLET - Low Power:
The type of switch used depends on how the operator wishes the Low Power feature to function:
Latching Mode: By applying +VBAT to the VIO wire for less than 1 sec., the lighthead is "latched" into low power. The unit must be turned off and then back on to restore normal operation (momentary switch).
Level Mode: Applying +VBAT to the VIO wire for more than 1 sec. holds the lighthead in low power mode until voltage is removed (toggle switch). **Note: There are 5 levels of low power intensity.**

F4 Sequencing & Phasing: The F4 lighthead has 4 sets of 3 LEDs. These sets cycle through the 4 sequences shown.

Sequences	Operation of LED sets
Solid	All On Alternates with All Off
Left to Right	1 - 3 Alternates with 2 - 4
Top to Bottom	1 - 2 Alternates with 3 - 4
Diagonal	1 - 4 Alternates with 2 - 3



Waterproof butt splices and/or connectors are required if that connection could be exposed to moisture. Any unused wires must be sealed (waterproofed) to prevent moisture infiltration.

IMPORTANT WARNING!
CAUTION! DO NOT LOOK DIRECTLY AT THESE LEDS WHILE THEY ARE ON. MOMENTARY BLINDNESS AND/OR EYE DAMAGE COULD RESULT!

Warnings to Installers

Whelen's emergency vehicle warning devices must be properly mounted and wired in order to be effective and safe. Read and follow all of Whelen's written instructions when installing or using this device. Emergency vehicles are often operated under high speed stressful conditions which must be accounted for when installing all emergency warning devices. Controls should be placed within convenient reach of the operator so that he can operate the system without taking his eyes off the roadway. Emergency warning devices can 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 vehicle damage, including fire. Many electronic devices used in emergency vehicles can create or be affected by electromagnetic interference. Therefore, after installation of any electronic device it is necessary to test all electronic equipment simultaneously to insure that they operate free of interference from other components within the vehicle. Never power emergency warning equipment from the same circuit or share the same grounding circuit with radio communication equipment. 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. Mounting the unit inside the vehicle by a method other than permanent installation is not recommended as unit may become dislodged during swerving; sudden braking or collision. Failure to follow instructions can result in personal injury. Whelen assumes no liability for any loss resulting from the use of this warning device. **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.**

Warnings to Users

Whelen's emergency vehicle warning devices are intended to alert other operators and pedestrians to the presence and operation of emergency vehicles and personnel. However, the use of this or any other Whelen emergency warning device does not guarantee that you will have the right-of-way or that other drivers and pedestrians will properly heed an emergency warning signal. Never assume you have the right-of-way. It is your responsibility to proceed safely before entering an intersection, driving against traffic, responding at a high rate of speed, or walking on or around traffic lanes. Emergency vehicle warning devices should be tested on a daily basis to ensure that they operate properly. When in actual use, the operator must ensure that both visual and audible warnings are not blocked by vehicle components (i.e.: open trunks or compartment doors), people, vehicles, or other obstructions. It is the user's responsibility to understand and obey all laws regarding emergency warning devices. The user should be familiar with all applicable laws and regulations prior to the use of any emergency vehicle warning device. Whelen's audible warning devices are designed to project sound in a forward direction away from the vehicle occupants. However, because sustained periodic exposure to loud sounds can cause hearing loss, all audible warning devices should be installed and operated in accordance with the standards established by the National Fire Protection Association.