

WHELEN[®]

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Installation Guide: M4 Series LED Lighthouse 2- & 5-Wire (12 Volt)

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.**
- **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.**
- **If this manual states that this product may be mounted with suction cups, magnets, tape or Velcro[®], clean the mounting surface with a 50/50 mix of isopropyl alcohol and water and dry thoroughly.**
- **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.**
- **It is recommended that these instructions be stored in a safe place and referred to when performing maintenance and/or reinstallation of this product.**
- **FAILURE TO FOLLOW THESE SAFETY PRECAUTIONS AND INSTRUCTIONS COULD RESULT IN DAMAGE TO THE PRODUCT OR VEHICLE AND/OR SERIOUS INJURY TO YOU AND YOUR PASSENGERS!**

For warranty information regarding this product, visit www.whelen.com/warranty

Installation and Wiring:

External Flasher Models: This product draws significantly less current than a standard incandescent automotive bulb. If your flasher does not operate properly, it may be necessary to replace your flasher module with a Whelen® flasher module. Contact your sales representative for application.

Caution: Permanent mounting of this product will require drilling. It is absolutely necessary to make sure that no other vehicle components could be damaged by this process. Check both sides of the mounting surface before starting. If damage is likely, select a different location.

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!**

NOTE: The color of the Positive Wire is determined by the color of the LED. In this manual, RED is used as a reference color.

- Using the dimensions shown, mark the 2 mounting hole locations and wire access hole location onto the mounting surface.
- Drill the two, 0.25" diameter mounting holes and a 0.625" (minimum) wire access hole into the mounting surface.
- Install the round hole screw grommets (supplied) into these mounting holes. Select the gasket appropriate for your installation; Use the formed gasket when mounting to a smooth, flat surface. Use the adhesive-backed gasket for all other installations. Adhere the gasket onto the lighthead so that it is centered and completely flat against the rear surface of the lighthead.
- Using appropriately sized wires (Minimum wire size: 18 AWG), extend the lighthead wires to their connections. See the illustration below for wiring and fusing information
- Position the lighthead onto the mounting surface and secure to the vehicle using two, #8 sheet metal screws (included).

Operation:

Flash Mode / RED:

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™.

NOTE: Your lighthead will have "either" an ORANGE or a VIOLET wire.

Non Emergency Recognition Mode / ORANGE:

Apply +VBAT to the ORG wire to activate "NERM". "NERM" has 5 intensities. When "NERM" is activated you change intensities by using Scan-Lock™.

NOTE: If the RED wire is also powered up, the lighthead will run in flash mode.

Low Power / VIOLET:

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. (A momentary switch is preferred)

Level Mode: Applying +VBAT to the VIO wire for more than 1 sec. holds the lighthead in low power mode until voltage is removed. (A toggle switch is preferred)

SYNC / GREY

To SYNC two lighthead, configure both lighthead to display the same Phase 1 (Simultaneous) pattern. Turn the power off and connect the GREY wire from each lighthead together. When the lighthead are activated their patterns will be synchronized. To configure two lighthead to alternate their patterns, advance the pattern of either lighthead to Phase 2 (Alternating) of the current pattern.

NOTE: You can also program the 2 banks of LEDs inside the lighthead to flash in different configurations (See M4 Sequencing and Phasing).

Scan-Lock™ / WHT/VIO / Flash Pattern Selection:

This feature allows the user to select from several available flash patterns. The 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 the WHT/VIO wire for over 1 second and release.

TO SET A PATTERN AS DEFAULT: Allow the pattern to run for more than 5 seconds. The lighthead will flicker slightly when the pattern locks in. This flicker may be difficult to see with some patterns. The lighthead will now display this pattern when activated.

TO RESET TO THE FACTORY DEFAULT PATTERN: Turn off power. While applying +VBAT to the WHT/VIO wire, turn power on. This will reset the lighthead to it's factory default flash pattern.

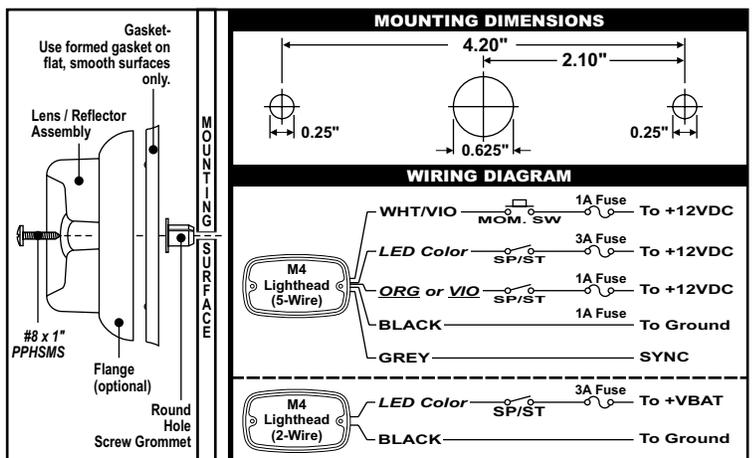
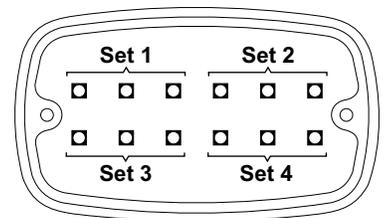
IMPORTANT! It is the responsibility of the installation technician to make sure that the installation and operation of this product will not interfere with or compromise the operation or efficiency of any vehicle equipment!

#	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**

M4 Sequencing & Phasing: The M4 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



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