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Installation Guide: M7 Series LED Lighthead 2- & 5-Wire (12 Volt)

Automotive: Lightheads

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.**
- **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.**
- **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**

Form No.14189F (012913)

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.

1. Using the dimensions shown, mark the 2 mounting hole locations and wire access hole location onto the mounting surface.
2. Drill the two, 0.250" diameter mounting holes and a 0.625" (minimum) wire access hole into the mounting surface.
3. Place the gasket into position on the rear of the M7 assembly. Insert the slotted hole screw grommet through the mounting holes on the M7/Gasket assembly.
4. Feed the M7 wires through the wire access hole in the mounting surface. Press the M7/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!
5. Using appropriately sized wires (minimum 18 AWG), extend the M7 wires to their designated connections. Refer to the diagram below for wiring and fusing information.

Operation:

Flash Mode / RED:

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

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 2 lightheads, configure both to display the same Phase 1 (Simultaneous)pattern. Turn the power off and connect the GREY wire from each lighthead together. When the lightheads are activated their patterns will be synchronized. To configure 2 lightheads 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 M7 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.

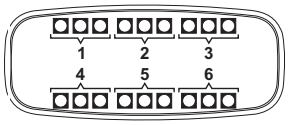
TO RESET TO THE FACTORY DEFAULT PATTERN: Turn off power. While applying +VBAT to the WHT/VIO wire, turn power on. This will reset the lighthead to it's factory default flash pattern.

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
2	SignalAlert™	Solid	PH.2
3	SignalAlert™	L/R	PH.1
4	SignalAlert™	L/R	PH.2
5	SignalAlert™	T/B	PH.1
6	SignalAlert™	T/B	PH.2
7	SignalAlert™	I/O	PH.1
8	SignalAlert™	I/O	PH.2
9	SignalAlert™	Diag	PH.1
10	SignalAlert™	Diag	PH.2
11	CometFlash®75	Solid	PH.1
12	CometFlash®75	Solid	PH.2
13	CometFlash®75	L/R	PH.1
14	CometFlash®75	L/R	PH.2
15	CometFlash®75	T/B	PH.1
16	CometFlash®75	T/B	PH.2
17	CometFlash®75	I/O	PH.1
18	CometFlash®75	I/O	PH.2
19	CometFlash®75	Diag	PH.1
20	CometFlash®75	Diag	PH.2
21	DoubleFlash 75	Solid	PH.1
22	DoubleFlash 75	Solid	PH.2
23	DoubleFlash 75	L/R	PH.1
24	DoubleFlash 75	L/R	PH.2
25	DoubleFlash 75	T/B	PH.1
26	DoubleFlash 75	T/B	PH.2
27	DoubleFlash 75	I/O	PH.1
28	DoubleFlash 75	I/O	PH.2
29	DoubleFlash 75	Diag	PH.1
30	DoubleFlash 75	Diag	PH.2
31	SingleFlash 75	Solid	PH.1
32	SingleFlash 75	Solid	PH.2
33	SingleFlash 75	L/R	PH.1
34	SingleFlash 75	L/R	PH.2
35	SingleFlash 75	T/B	PH.1
36	SingleFlash 75	T/B	PH.2
37	SingleFlash 75	I/O	PH.1
38	SingleFlash 75	I/O	PH.2
39	SingleFlash 75	Diag	PH.1
40	SingleFlash 75	Diag	PH.2
41	ComAlert™ 75	Solid	PH.1
42	ComAlert™ 75	Solid	PH.2
43	ComAlert™ 75	L/R	PH.1
44	ComAlert™ 75	L/R	PH.2
45	ComAlert™ 75	T/B	PH.1
46	ComAlert™ 75	T/B	PH.2
47	ComAlert™ 75	I/O	PH.1
48	ComAlert™ 75	I/O	PH.2
49	ComAlert™ 75	Diag	PH.1
50	ComAlert™ 75	Diag	PH.2
51	LongBurst™ 75	Solid	PH.1
52	LongBurst™ 75	Solid	PH.2
53	LongBurst™ 75	L/R	PH.1
54	LongBurst™ 75	L/R	PH.2
55	LongBurst™ 75	T/B	PH.1
56	LongBurst™ 75	T/B	PH.2
57	LongBurst™ 75	I/O	PH.1
58	LongBurst™ 75	I/O	PH.2
59	LongBurst™ 75	Diag	PH.1
60	LongBurst™ 75	Diag	PH.2
61	PingPong™ 75	Solid	PH.1
62	PingPong™ 75	Solid	PH.2
63	PingPong™ 75	L/R	PH.1
64	PingPong™ 75	L/R	PH.2
65	PingPong™ 75	T/B	PH.1
66	PingPong™ 75	T/B	PH.2
67	PingPong™ 75	I/O	PH.1
68	PingPong™ 75	I/O	PH.2
69	PingPong™ 75	Diag	PH.1
70	PingPong™ 75	Diag	PH.2
71	SingleFlash 60	Solid	PH.1
72	SingleFlash 60	L/R	PH.1
73	SingleFlash 60	T/B	PH.1
74	SingleFlash 60	I/O	PH.1
75	SingleFlash 60	Diag	PH.1
76	SingleFlash 90	Solid	PH.1
77	SingleFlash 90	L/R	PH.1
78	SingleFlash 90	T/B	PH.1
79	SingleFlash 90	I/O	PH.1
80	SingleFlash 90	Diag	PH.1
81	SingleFlash 120	Solid	PH.1
82	SingleFlash 120	L/R	PH.1
83	SingleFlash 120	T/B	PH.1
84	SingleFlash 120	I/O	PH.1
85	SingleFlash 120	Diag	PH.1
86	SingleFlash 300	Solid	PH.1
87	SingleFlash 300	L/R	PH.1
88	SingleFlash 300	T/B	PH.1
89	SingleFlash 300	I/O	PH.1
90	SingleFlash 300	Diag	PH.1
91	DoubleFlash 150	Solid	PH.1
92	DoubleFlash 150	L/R	PH.1
93	DoubleFlash 150	T/B	PH.1
94	DoubleFlash 150	I/O	PH.1
95	DoubleFlash 150	Diag	PH.1
96	ComAlert™150	Solid	PH.1
97	ComAlert™150	L/R	PH.1
98	ComAlert™150	T/B	PH.1
99	ComAlert™150	I/O	PH.1
100	ComAlert™150	Diag	PH.1
101	ActionFlash™50	Solid	PH.1
102	ActionFlash™50	L/R	PH.1
103	ActionFlash™50	T/B	PH.1
104	ActionFlash™50	I/O	PH.1
105	ActionFlash™50	Diag	PH.1
106	ActionFlash™150	Solid	PH.1
107	ActionFlash™150	L/R	PH.1
108	ActionFlash™150	T/B	PH.1
109	ActionFlash™150	I/O	PH.1
110	ActionFlash™150	Diag	PH.1
111	ModuFlash™	Solid	
112	ModuFlash™	L/R	
113	ModuFlash™	T/B	
114	ModuFlash™	I/O	
115	ModuFlash™	Diag	
116	**DoubleFlash 120**	**Solid**	
117	**DoubleFlash 120**	**L/R**	
118	**DoubleFlash 120**	**T/B**	
119	**DoubleFlash 120**	**I/O**	
120	**DoubleFlash 120**	**Diag**	
121	**PingPong™120**	**Solid**	
122	**PingPong™120**	**L/R**	
123	**PingPong™120**	**T/B**	
124	**PingPong™120**	**I/O**	
125	**PingPong™120**	**Diag**	
126	**TripleFlash™75**	**Solid**	
127	**TripleFlash™75**	**L/R**	
128	**TripleFlash™75**	**T/B**	
129	**TripleFlash™75**	**I/O**	
130	**TripleFlash™75**	**Diag**	
131	**TripleFlash™120**	**Solid**	
132	**TripleFlash™120**	**L/R**	
133	**TripleFlash™120**	**T/B**	
134	**TripleFlash™120**	**I/O**	
135	**TripleFlash™120**	**Diag**	
136	**Action SF 60/120**	**Solid**	
137	**Action SF 60/120**	**L/R**	
138	**Action SF 60/120**	**T/B**	
139	**Action SF 60/120**	**I/O**	
140	**Action SF 60/120**	**Diag**	
141	**Action SF 60/TF 120**	**Solid**	
142	**Action SF 60/TF 120**	**L/R**	
143	**Action SF 60/TF 120**	**T/B**	
144	**Action SF 60/TF 120**	**I/O**	
145	**Action SF 60/TF 120**	**Diag**	
146	Cylon SLOW		
147	Cylon MEDIUM		
148	Cylon FAST		
149	Cylon VARIABLE		
150	Cylon MEDIUM w/SOLID		
151	PinWheel SLOW		
152	PinWheel MEDIUM		
153	PinWheel FAST		
154	PinWheel VARIABLE		
155	PinWheel MEDIUM w/Solid		
156	**CalScan**		
157	ActionScan™		
*158	SignalAlert™ Steady		
***159**	**Steady**		
***No low power for this pattern.**			

BOLD = CA Title XIII compliant
***ITALIC* = SYNC**
L/R = Left/Right
T/B = Top/Bottom I/O = In/Out

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™.



Sequencing & Phasing: The M7 has 6 sets of 3 LEDs which cycle through the 5 sequences shown.

Sequences	Operation of LED sets		
Solid	All On	Alternates with	All Off
Left to Right	1 - 2 - 4	Alternates with	3 - 5 - 6
Top to Bottom	1 - 2 - 3	Alternates with	4 - 5 - 6
In and Out	2 - 5	Alternates with	1 - 3 - 4 - 6
Diagonal	1 - 2 - 6	Alternates with	4 - 5 - 3

IMPORTANT WARNING!

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