



# Installation and Operation Instructions CD5051 Series Directional LEDs

**IMPORTANT!** Read all instructions before installing and using. Installer: This manual must be delivered to the end user.



**WARNING!**

Failure to install or use this product according to manufacturers recommendations may result in property damage, serious injury, and/or death to those you are seeking to protect!

 **Do not install and/or operate this safety product unless you have read and understood the safety information contained in this manual.**

1. Proper installation combined with operator training in the use, care, and maintenance of emergency warning devices are essential to ensure the safety of emergency personnel and the public.
2. Emergency warning devices often require high electrical voltages and/or currents. Exercise caution when working with live electrical connections.
3. This product must be properly grounded. Inadequate grounding and/or shorting of electrical connections can cause high current arcing, which can cause personal injury and/or severe vehicle damage, including fire.
4. Proper placement and installation is vital to the performance of this warning device. Install this product so that output performance of the system is maximized and the controls are placed within convenient reach of the operator so that they can operate the system without losing eye contact with the roadway.
5. It is the responsibility of the vehicle operator to ensure daily that all features of this product work correctly. In use, the vehicle operator should ensure the projection of the warning signal is not blocked by vehicle components (i.e., open trunks or compartment doors), people, vehicles or other obstructions.
6. The use of this or any other warning device does not ensure all drivers can or will observe or react to an emergency warning signal. Never take the right-of-way for granted. It is the vehicle operator's responsibility to be sure they can proceed safely before entering an intersection, drive against traffic, respond at a high rate of speed, or walk on or around traffic lanes.
7. This equipment is intended for use by authorized personnel only. The user is responsible for understanding and obeying all laws regarding emergency warning devices. Therefore, the user should check all applicable city, state, and federal laws and regulations. The manufacturer assumes no liability for any loss resulting from the use of this warning device.

## Specifications:

Size	5.4" W x 0.6" H x 1.0" D	Flash Rate	See flash pattern charts
Weight	0.14 lbs	Temperature Range	-30°C (-22°F) to 50°C (122°F)
Input Voltage	12-24 VDC		
Current at 12.8 VDC	0.8 Amps		
Power at 12.8 VDC	9.1 Watts		

## Installation and Mounting:

Carefully remove the unit from its packaging. Examine the unit for transit damage. If damage is found, return the product to your local dealer for warranty replacement. Do not use damaged or broken parts. Determine a mounting location with the least amount of curvature as possible. Also, ensure there is a clear line of sight for oncoming traffic.



**CAUTION!**  
When drilling into any vehicle surface, make sure that the area is free from any electrical wires, fuel lines, vehicle upholstery, etc. that could be damaged.

### Surface Mounting:

Mark and drill two 3.4 mm holes 3.543" or 90 mm apart. Drill a hole for the wire exit as needed. Secure in place with the gasket and supplied hardware as shown in FIGURE 1.

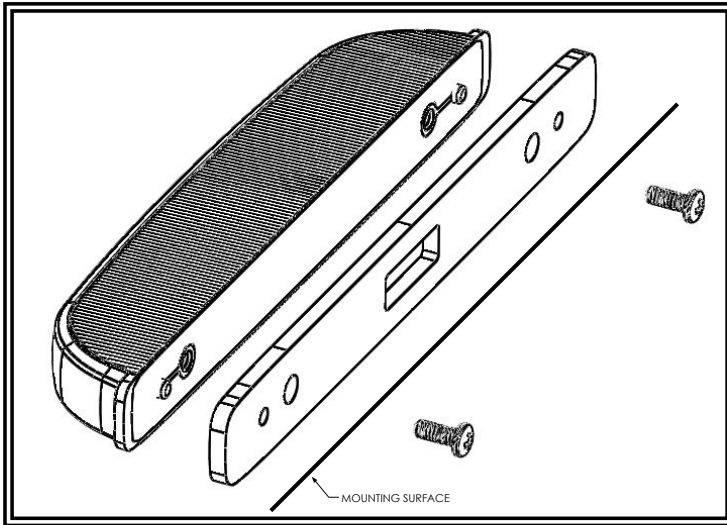


FIGURE 1

### L Bracket Mounting:

Mark and drill two 2.9 mm holes 3.937" or 100 mm apart. Drill a hole for the wire exit as needed. Secure in place with the L brackets, gaskets and supplied hardware as shown in FIGURE 2.

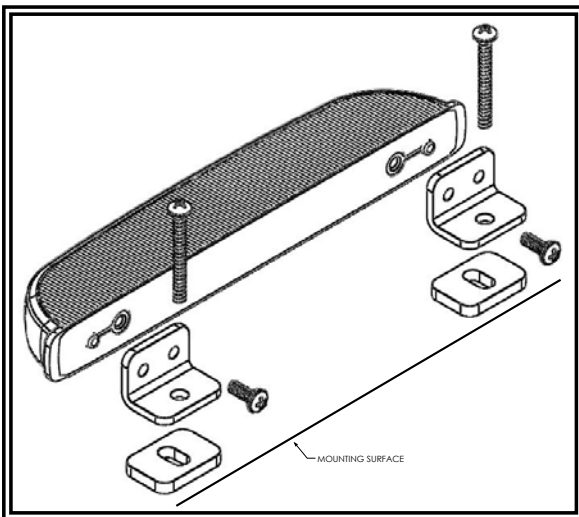


FIGURE 2

### Offset Mounting:

Mark and drill two 2.9 mm holes 5.827" or 148 mm apart. Drill a hole for the wire exit as needed. Secure in place with the offset brackets, gaskets and supplied hardware as shown in FIGURE 3.

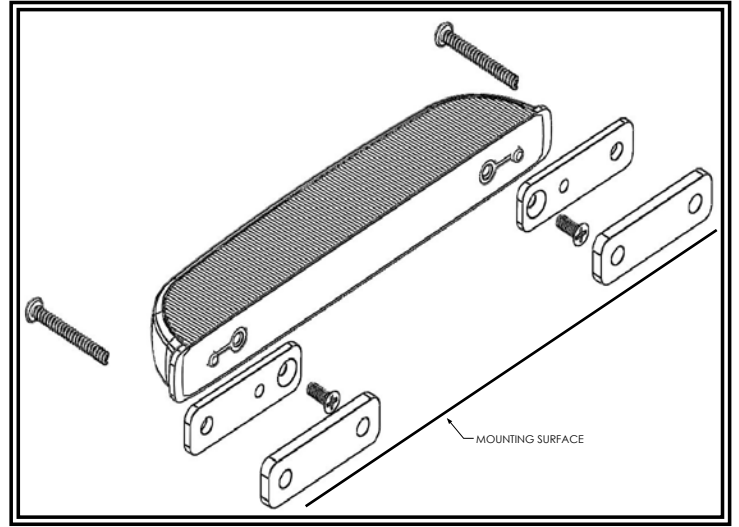


FIGURE 3

### Wiring Instructions:

**IMPORTANT!** This unit is a safety device and it must be connected to its own separate, fused power point to assure its continued operation should any other electrical accessory fail.

The CD5051 Series of directional LED light heads are self flashing. All wiring should be stranded and a minimum of 22 AWG. The positive line must have an in-line 3 Amp slow-blow fuse for each directional as shown in FIGURE 4. Isolate the yellow and blue wires when not in use.

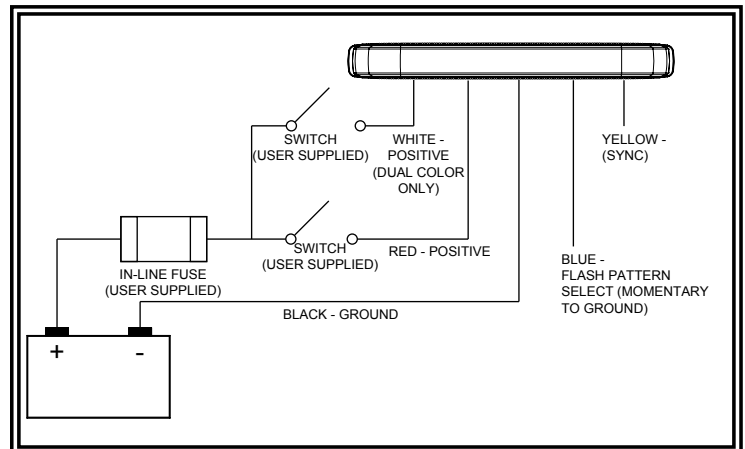


FIGURE 4

**Note:** On dual color units only, apply (+) power to the blue wire for dimming.

**Flash Pattern Selection:**

The CD5051 series directionals can be configured to flash the following patterns by momentarily applying ground to the blue wire. Holding the blue wire to the ground wire for 2-3 seconds will toggle the unit to the previous pattern. The unit must be powered through the power and ground wires to allow pattern selection. The blue wire may be wired to momentarily switch. \*Applies to Amber, Red, Blue and White. \*\*Applies to Amber and Blue.

**Synchronization:**

The CD5051 series directional is capable of syncing with other compatible Code 3 products by following the steps below:

1. Set the desired flash pattern on each unit individually. It is also strongly recommended that the same style of flash pattern be used on all units to produce the most effective warning pattern. NOTE: Phases A and B for each style of flash pattern in the table denote the relative timing between units connected in a synchronizing installation. To operate simultaneously, each unit must be set to the same phase (A + A or B + B); to operate alternately, units must be set to have the opposite phase (A + B or B + A).
2. Connect the yellow sync wires together and check that the units are flashing in a synchronized manner as expected. If a pattern on one unit appears incorrect, the blue pattern select wire can be used to cycle forward or backward on that individual unit until the correct pattern is selected. NOTE: This will only change the pattern in the one unit and will not affect the other units connected to the yellow sync wire.

CD5051X SINGLE COLOR FLASH PATTERN CHART					
Pattern	Description	Phase	FPM	SAE J595*	CA Title 13**
1	Single Flash	A	75	Class 1	Class B
2	Single Flash	B	75	Class 1	Class B
3	Single Flash	A	120	Class 1	
4	Single Flash	B	120	Class 1	
5	Double Flash	A	75	Class 1	Class B
6	Double Flash	B	75	Class 1	Class B
7	Double Flash	A	120	Class 1	
8	Double Flash	B	120	Class 1	
9-Default	Quad Flash	A	75	Class 1	Class B
10	Quad Flash	B	75	Class 1	Class B
11	Quad Flash	A	150	Class 1	
12	Quad Flash	B	150	Class 1	
13	Triple Flash	A	75	Class 1	Class B
14	Triple Flash	B	75	Class 1	Class B
15	Quint Flash	A	150	Class 1	
16	Quint Flash	B	150	Class 1	
17	Steady Burn				
18	Single Flash - Modulation				

**CD5051XX DUAL COLOR FLASH PATTERN CHART**

Pattern			Description	Phase	FPM	SAE J595*	CA T13**
Red Wire	White Wire	Red & White Wires					
1 - Default		1	Single Flash - Color 1	A	75	Class 1	Class B
2		2	Single Flash - Color 1	B	75	Class 1	Class B
		3	Single Flash - Alternating Color 1 & 2	A	150		
		4	Single Flash - Alternating Color 1 & 2	B	150	Class 1	Class B
	1 - Default	5	Single Flash - Color 2	A	75	Class 1	Class B
	2	6	Single Flash - Color 2	B	75		
3	3	7	Single Flash - Alternating Color 1 & 2	A	75		
4	4	8	Single Flash - Alternating Color 1 & 2	B	75		
5	5	9	Single Flash - Alternating Color 1 & 2	A	150		
6		10	Single Flash - Color 1	A	375		
7		11	Single Flash - Color 1	B	375		
		12	Single Flash - Alternating Color 1 & 2	A	750		
		13	Single Flash - Alternating Color 1 & 2	B	750		
	6	14	Single Flash - Color 2	A	375		
	7	15	Single Flash - Color 2	B	375		
8	8	16	Single Flash - Alternating Color 1 & 2	A	375		
9	9	17	Single Flash - Alternating Color 1 & 2	B	375		
10	10	18	Single Flash - Alternating Color 1 & 2	A	750		
11		19	Double Flash - Color 1	A	75	Class 1	Class B
12		20	Double Flash - Color 1	B	75	Class 1	Class B
		21	Double Flash - Alternating Color 1 & 2	A	150		
		22	Double Flash - Alternating Color 1 & 2	B	150		
	11	23	Double Flash - Color 2	A	75	Class 1	Class B
	12	24	Double Flash - Color 2	B	75	Class 1	Class B
13	13	25	Double Flash - Alternating Color 1 & 2	A	75		
14	14	26	Double Flash - Alternating Color 1 & 2	B	75		
15	15	27	Double Flash - Alternating Color 1 & 2	A	150		
16		28	Double Flash - Color 1	A	120	Class 1	
17		29	Double Flash - Color 1	B	120	Class 1	
		30	Double Flash - Alternating Color 1 & 2	A	240		
		31	Double Flash - Alternating Color 1 & 2	B	240		
	16	32	Double Flash - Color 2	A	120	Class 1	
	17	33	Double Flash - Color 2	B	120	Class 1	
18	18	34	Double Flash - Alternating Color 1 & 2	A	120		
19	19	35	Double Flash - Alternating Color 1 & 2	B	120		
20	20	36	Double Flash - Alternating Color 1 & 2	A	240		

**CD5051XX DUAL COLOR FLASH PATTERN CHART (Continued)**

Pattern			Description	Phase	FPM	SAE J595*	CA T13**
Red Wire	White Wire	Red & White Wires					
21		37	Triple Flash - Color 1	A	75	Class 1	Class B
22		38	Triple Flash - Color 1	B	75	Class 1	Class B
		39	Triple Flash - Alternating Color 1 & 2	A	150		
		40	Triple Flash - Alternating Color 1 & 2	B	150		
	21	41	Triple Flash - Color 2	A	75	Class 1	Class B
	22	42	Triple Flash - Color 2	B	75	Class 1	Class B
23	23	43	Triple Flash - Alternating Color 1 & 2	A	75		
24	24	44	Triple Flash - Alternating Color 1 & 2	B	75		
25	25	45	Triple Flash - Alternating Color 1 & 2	A	150		
26		46	Quad Flash - Color 1	A	75	Class 1	Class B
27		47	Quad Flash - Color 1	B	75	Class 1	Class B
		48	Quad Flash - Alternating Color 1 & 2	A	150		
		49	Quad Flash - Alternating Color 1 & 2	B	150		
	26	50	Quad Flash - Color 2	A	75	Class 1	Class B
	27	51	Quad Flash - Color 2	B	75	Class 1	Class B
28	28	52 - Default	Quad Flash - Alternating Color 1 & 2	A	75		
29	29	53	Quad Flash - Alternating Color 1 & 2	B	75		
30	30	54	Quad Flash - Alternating Color 1 & 2	A	150		
31		55	Quad Flash - Color 1	A	120	Class 1	
32		56	Quad Flash - Color 1	B	120	Class 1	
		57	Quad Flash - Alternating Color 1 & 2	A	150		
		58	Quad Flash - Alternating Color 1 & 2	B	150		
	31	59	Quad Flash - Color 2	A	120	Class 1	
	32	60	Quad Flash - Color 2	B	120	Class 1	
33	33	61	Quad Flash - Alternating Color 1 & 2	A	120		
34	34	62	Quad Flash - Alternating Color 1 & 2	B	120		
35	35	63	Quad Flash - Alternating Color 1 & 2	A	240		
		64	Single Flash - Modulation - Alternating Color 1 & 2				
		65	Double & Quad Flash - Alternating Color 1 & 2				
		66	Single & Triple Flash - Alternating Color 1 & 2				
		67	Double, Triple & Quad Flash - Alternating Color 1 & 2				
36		68	Steady Burn - Color 1				
	36	69	Steady Burn - Color 2				

**Notes:**

**Notes:**

**Warranty:**

**Manufacturer Limited Warranty Policy:**

Manufacturer warrants that on the date of purchase this product will conform to Manufacturer's specifications for this product (which are available from the Manufacturer upon request). This Limited Warranty extends for Sixty (60) months from the date of purchase.

**DAMAGE TO PARTS OR PRODUCTS RESULTING FROM TAMPERING, ACCIDENT, ABUSE, MISUSE, NEGLIGENCE, UNAPPROVED MODIFICATIONS, FIRE OR OTHER HAZARD; IMPROPER INSTALLATION OR OPERATION; OR NOT BEING MAINTAINED IN ACCORDANCE WITH THE MAINTENANCE PROCEDURES SET FORTH IN MANUFACTURER'S INSTALLATION AND OPERATING INSTRUCTIONS VOIDS THIS LIMITED WARRANTY.**

**Exclusion of Other Warranties:**

MANUFACTURER MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED. THE IMPLIED WARRANTIES FOR MERCHANTABILITY, QUALITY OR FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, USAGE OR TRADE PRACTICE ARE HEREBY EXCLUDED AND SHALL NOT APPLY TO THE PRODUCT AND ARE HEREBY DISCLAIMED, EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW. ORAL STATEMENTS OR REPRESENTATIONS ABOUT THE PRODUCT DO NOT CONSTITUTE WARRANTIES.

**Remedies and Limitation of Liability:**

MANUFACTURER'S SOLE LIABILITY AND BUYER'S EXCLUSIVE REMEDY IN CONTRACT, TORT (INCLUDING NEGLIGENCE), OR UNDER ANY OTHER THEORY AGAINST MANUFACTURER REGARDING THE PRODUCT AND ITS USE SHALL BE, AT MANUFACTURER'S DISCRETION, THE REPLACEMENT OR REPAIR OF THE PRODUCT, OR THE REFUND OF THE PURCHASE PRICE PAID BY BUYER FOR NON-CONFORMING PRODUCT. IN NO EVENT SHALL MANUFACTURER'S LIABILITY ARISING OUT OF THIS LIMITED WARRANTY OR ANY OTHER CLAIM RELATED TO THE MANUFACTURER'S PRODUCTS EXCEED THE AMOUNT PAID FOR THE PRODUCT BY BUYER AT THE TIME OF THE ORIGINAL PURCHASE. IN NO EVENT SHALL MANUFACTURER BE LIABLE FOR LOST PROFITS, THE COST OF SUBSTITUTE EQUIPMENT OR LABOR, PROPERTY DAMAGE, OR OTHER SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES BASED UPON ANY CLAIM FOR BREACH OF CONTRACT, IMPROPER INSTALLATION, NEGLIGENCE, OR OTHER CLAIM, EVEN IF MANUFACTURER OR A MANUFACTURER'S REPRESENTATIVE HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. MANUFACTURER SHALL HAVE NO FURTHER OBLIGATION OR LIABILITY WITH RESPECT TO THE PRODUCT OR ITS SALE, OPERATION AND USE, AND MANUFACTURER NEITHER ASSUMES NOR AUTHORIZES THE ASSUMPTION OF ANY OTHER OBLIGATION OR LIABILITY IN CONNECTION WITH SUCH PRODUCT.

This Limited Warranty defines specific legal rights. You may have other legal rights which vary from jurisdiction to jurisdiction. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages.

**Product Returns:**

If a product must be returned for repair or replacement\*, please contact our factory to obtain a Return Goods Authorization Number (RGA number) before you ship the product to Code 3®, Inc. 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.

\*Code 3®, Inc. reserves the right to repair or replace at its discretion. Code 3®, Inc. assumes no responsibility or liability for expenses incurred for the removal and /or reinstallation of products requiring service and/or repair.; nor for the packaging, handling, and shipping; nor for the handling of products returned to sender after the service has been rendered.



10986 North Warson Road  
St. Louis, MO 63114

**Technical Service**  
(314) 996-2800

c3\_tech\_support@code3esg.com  
www.code3esg.com

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