

CODE 3® Installation and Operation Instructions **SD24 LOW PROFILE LED HEAD**

The SD24 Series provides a compact high intensity LED warning signal. The SD24 Series features 12 or 24 VDC operation, 16 flash patterns, the ability to synchronize with additional units and a waterproof driver module that is in-line with the 9' cable.



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 manufacturer's recommendations may result in property damage, serious bodily/personal injury, and/or death to you and those you are seeking to protect!



Do not install and/or operate this safety product unless you have read and understand 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 you and those you are trying to protect.
2. 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 are 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 s/he can operate the system without losing eye contact with the roadway.
5. It is the responsibility of the vehicle operator to ensure during use 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 a 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, walking 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 warning signal 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:

Input voltage..... 12-24 VDC
Current draw..... 0.67A maximum.
Cable length..... 9 Ft.
LED elements..... 24
Flash patterns..... 16
Synchronized heads..... 64

Contents:

1 X SD24 head with built-in power module and cable
1 X Mounting Gasket
2 X #4 X 3/4" Screws
1 X Bezel

Installation & Mounting:

Before installation, examine the LED heads for transit damage. Do not use damaged or broken parts.

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.

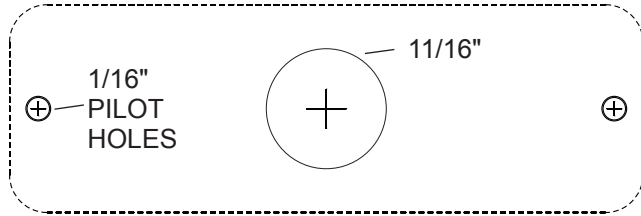


Caution: When drilling into any vehicle surface, make sure that the area is free from any electrical wires, fuel lines, vehicle upholstery, vehicle support members, etc. that could be damaged.

Drill a 11/16" diameter hole in the mounting surface to pass the cable through.

Use the provided #4 mounting screws to attach the SD24™ to the mounting surface. The drilling template below can be used to mark the hole locations. Use silicone sealant around the cable and screw holes to prevent moisture from entering body panels.

Note: There are electronic components in the power module. **Do not drill into the power module. Do not bend the power module.**



FOR REFERENCE ONLY: MEASURE BEFORE DRILLING

FIGURE 1

DO NOT MAKE THE HOLES IN THE LENS LARGER OR USE LARGER HARDWARE THAN WHAT IS PROVIDED! DAMAGE TO SEAL WILL RESULT!

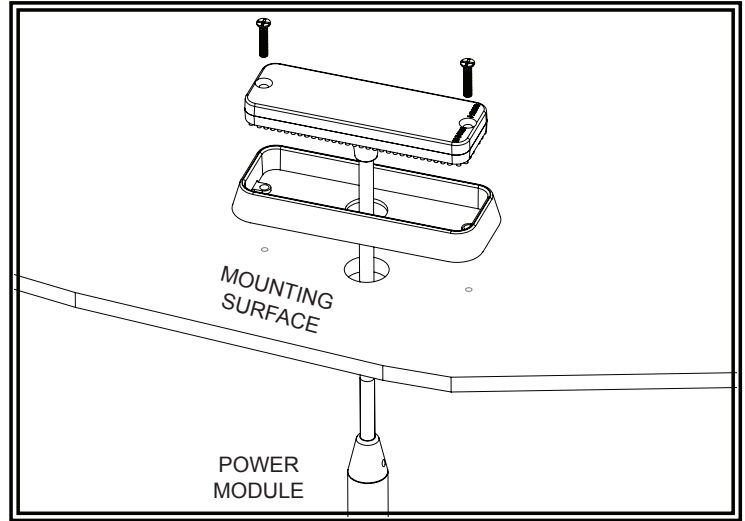


FIGURE 2

Electrical Connections:

The cable on the SD24™ is long enough to run across the front or the rear of a vehicle. Trim the cable shorter if needed. The wiring diagram on page 3 shows a typical install.

RED:

Connect to +V through an ON/OFF switch.

The use of a fuse located close to the voltage source is recommended. Size the fuse according to the number of heads used in the system. 18AWG or larger wire is recommended.

DO NOT CONNECT THIS UNIT TO VOLTAGES HIGHER THAN 32 VOLTS DC!

BLACK: - GROUND

Connect to - GROUND vehicle chassis. 18AWG or larger wire is recommended.

BLUE: Flash pattern SYNC and SELECTION wire.

If you wish to have all the LED heads synchronize their flash timings and patterns with each other then all the BLUE wires must be connected together (64 Heads Maximum).

The BLUE wire is also used to select the flash pattern.

Touch the BLUE wire to +V to select the next pattern in the FLASH PATTERN LIST. The BLUE wire can also be run to a momentary push-button located on the dashboard to allow the flash pattern to be changed when desired.

Note: Do not connect the BLUE wire to - Ground.

It will disrupt the flash pattern sync signal.

YELLOW: Alternating / Simultaneous selection.

The BLUE wires of all SD24™ heads must be connected together for the alternating /simultaneous function to work.

Connect to either +V or GROUND (GND).

The YELLOW wire makes the head fire AT THE SAME TIME or ALTERNATE with the other heads in the system.

Heads with YELLOW connected to +V fire at the same time.

Heads with YELLOW connected to GND fire at the same time.

Heads with YELLOW connected to +V will ALTERNATE with heads that have YELLOW connected to GND.

The YELLOW wire has no function in STEADY ON mode.

The SD24™ will also synchronize with any BULL LED™ or HIDE-A-LED™ head. The wiring colors and functions are identical.

INSTALLATION OF 4 SD24™ USING PATTERN SELECT SWITCH PANEL(OPTIONAL) ON DASHBOARD.

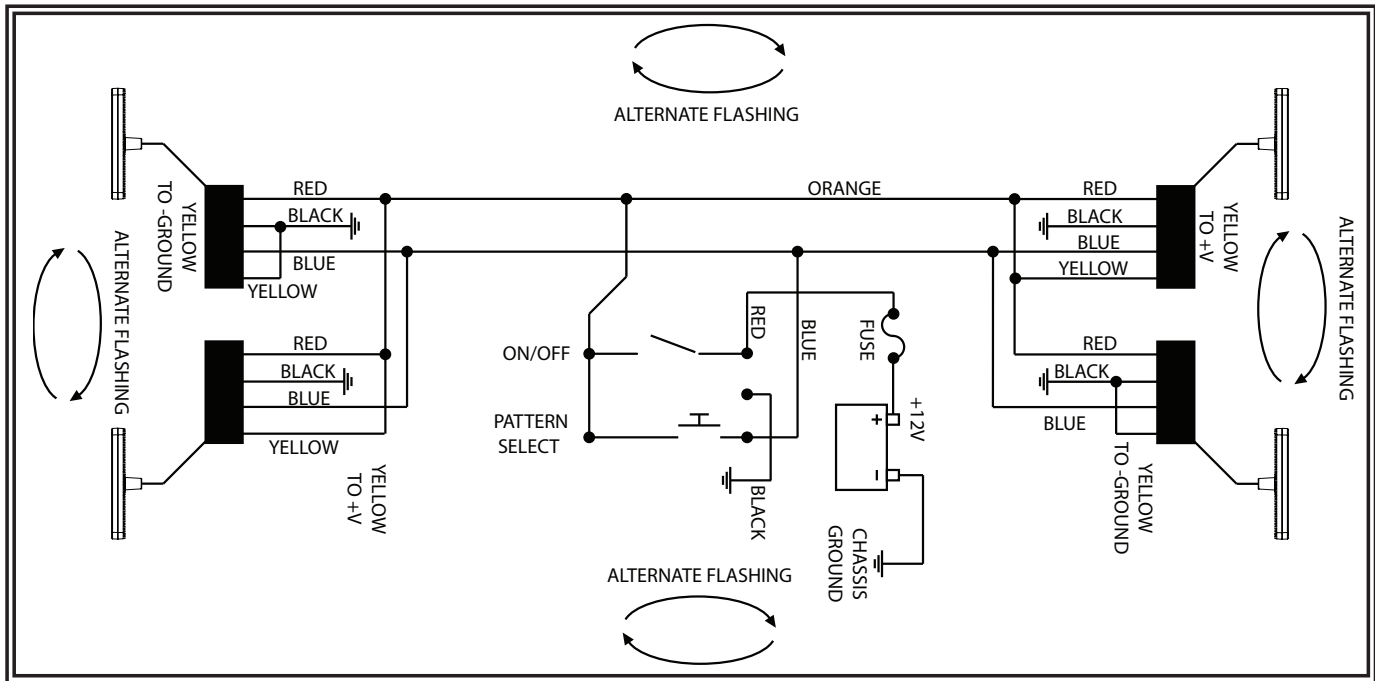


FIGURE 3

Flash Patterns:

POWER-UP RESET:

After installing the system it is best to do a POWER-UP RESET the first time to ensure all heads are in sync.

Touch **BLUE** wires to +V (**RED** wire) while applying power.

Release **BLUE** wires. All heads will reset to Pattern #2.

If you have installed a pattern select push-button, press and hold pattern select while turning power switch ON.

To select a flash pattern, touch **BLUE** to +V or press pattern select switch to increment the flash pattern. The heads will remember the selected pattern even if power is removed.

STANDARD PATTERNS:

The 3510 ships with sixteen patterns enabled. Standard patterns 1 through 8 are compatible with older BULL LED™ and HIDE-A-LED™ products.

CYCLE PATTERNS:

You may revert to patterns 1 through 8 by following this procedure:

1) Touch **BLUE** wires to +V (**RED** wire) while applying power.

If you have installed a pattern select push-button, press and hold pattern select while turning power switch ON.

2) Hold **BLUE** wires on +V for 5 SECONDS (heads will not be flashing during this time). After 5 SECONDS the heads will flash once or twice to indicate the flash pattern list that has been selected:

ONE FLASH = Standard Patterns only.

TWO FLASHES = Standard + Cycle Patterns.

3) Remove the **BLUE** wires from +V (or release push-button).

You may switch the pattern set at any time as many times as you wish. All heads will remember the pattern set that was selected even when power is removed.

STANDARD PATTERNS					
#	Pattern:	Frequency:	Description:	SAE J 595 Class 1	CA T13 Class B
1	Quad Flash	1.25 Hz	75 Quad Flashes Per Minute	X	X
2	Double Flash	1.25 Hz	75 Double Flashes Per Minute	X	X
3	Triple Flash	1.53 Hz	92.3 Triple Flashes Per Minute	X	X
4	DeciBlast	1.42 Hz	85.5 Deci Flashes Per Minute	X	X
5	Single Flash	1.25 Hz	75 Single Flashes Per Minute	X	X
6	Mega Flash	1.90 Hz	114 Single Flashes Per Minute	X	X
7	Triple+Burst	1.37 Hz	82.5 Triple+Burst Flashes Per Minute	X	X
8	Steady On		Steady on. Split Color = Fast Mega		
CYCLE PATTERNS					
9	Cycle All		Cycle through patterns 1 to 7	X	X
10	Double-Triple+Burst		2 Double, 2 Triple+Burst cycle	X	X
11	Cycle Classic		1 Double, 1 Quad, 4 Mega cycle	X	X
12	Quad-Mega		3 Quad, 5 Mega cycle	X	X
13	Single-Quad		2 Single, 2 Quad cycle	X	X
14	DeciBlast-Quad		2 DeciBlast, 2 Quad cycle	X	X
15	Single-Triple-DeciBlast		2 Single, 2 Triple, 2 DeciBlast cycle	X	X
16	Mega-Triple+Burst		1 Mega, 1 Triple+Burst cycle	X	X

Troubleshooting:

HEAD NOT FLASHING:

Check the RED and BLACK wires for a reversed connection. (Reverse connection will not damage the unit). Check RED and BLACK wires for either a bad splice or a corroded ground connection.

HEADS NOT SYNCHRONIZING:

Check for a short circuit on the BLUE wire to either +V or GROUND. Saltwater on the wire connections will short circuit the sync signal on the BLUE wire. Check for non-functional heads in the system. If any one of the heads has a bad GROUND connection it can cause the sync signal to become corrupted. If any one of the heads has it's RED and BLACK wires reverse connected it will corrupt the sync signal.

FLASH PATTERN CHANGING:

If the flash pattern changes on it's own there may be an intermittent short between the BLUE wire and +V. Check for water in the wiring connections. If any one of the heads in the system has an intermittent GROUND connection it can also cause the flash pattern to change.

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