

INSTRUCTIONS FOR 6-BUTTON CONTROL HEAD FOR LIGHTBARS WITH SERIAL COMMUNICATION

SAFETY MESSAGE TO INSTALLERS

▲ WARNING

People's lives depend on your safe installation of our products. It is important to read, understand, and follow all instructions shipped with the products. In addition, listed below are some other important safety instructions and precautions you should follow:

- To properly install the equipment described in these instructions, you must have a good understanding of automotive electrical procedures and systems, along with proficiency in the installation and use of safety warning equipment.
- DO NOT install equipment or route wiring in the deployment path of an airbag.
- Locate the control head so the VEHICLE and CONTROLS can be operated safely under all driving conditions.
- When drilling into a vehicle structure, be sure that both sides of the surface are clear of anything that could get damaged.
- File these instructions in a safe place and refer to them when maintaining and/or re-installing the product.

Failure to follow all safety precautions and instructions may result in property damage, serious injury, or death to you or others.

A. PRODUCT OVERVIEW

The 6-Button Control Head is designed to operate using serial communication with Federal Signal lightbar models in the Arjent®, Legend®, and Raydian® series. It has six illuminating pushbuttons and a slide switch with LED indicators for activating different functions. The commands to the lightbar are sent through a computer cable, using an RS485 serial communication link and a Federal Signal protocol. The 12 Vdc power for the control head comes either

from a power connector next to the computer cable connector, or through the computer cable. The latter case requires a proper jumper on the lightbar control head.

In order to accommodate user preference and available lightbar options, one of six predefined keypad configurations can be selected, after entering the Keypad Selection Mode. Each keypad has between one and three flashing modes, producing distinct flash patterns. The flash patterns associated with each mode can be changed, after entering the Flash Programming Mode. The remaining switches (buttons or slide switch) activate additional lightbar functions, such as front or rear cutoff, takedowns or worklights, alley lights, low power, and directional signals.

- | | |
|----------------------|-------------------|
| 1. Dimensions | |
| Height: | 3.17 in (8.05 cm) |
| Width: | 2.93 in (7.44 cm) |
| Depth of Housing: | 1.08 in (2.74 cm) |
| Depth with Switches: | 2.00 in (5.08 cm) |
| 2. Weight | 0.29 lb (0.13 kg) |

B. UNPACKING THE CONTROL HEAD

After unpacking the control head, inspect it for damage that may occurred in transit. If the unit has been damaged, do not attempt to install or operate it. File a claim immediately with the carrier, stating the extent of the damage. Carefully check all envelopes, shipping labels, and tags before removing or destroying them. Ensure that the parts listed in the KIT CONTENTS LIST are contained in the packing carton.

KIT CONTENTS LIST

Qty.	Description
1	Swivel Mount Kit with Three Screws
2	Mounting Clips
4	Clip Screws
1	Velcro Hook
1	Velcro Loop
1	Sheet of Button Legends
1	12" Power Lead Wire Assy.

C. INSTALLATION

Several methods to mount the control head are available. The control head is supplied with two mounting methods: a Swivel Mount or a Hook-and-Loop Mount. A hinged bracket mount is also available, but not included. The mounting method used will depend on the chosen mounting location, available room, and user preference.

⚠ WARNING

MOUNTING PRECAUTION

Unreliable switch activation and loss of “tactile feedback” will result if the method of mounting the control head allows movement. DO NOT mount the control head on padded surfaces.

Failure to heed this warning could result in driver distraction or driver error while operating the vehicle.

⚠ WARNING

AIRBAG DEPLOYMENT

Do not install equipment or route wiring in the deployment path of an airbag.

Failure to observe this warning will reduce the effectiveness of the airbag, or potentially dislodge the equipment, causing serious injury to you or others.

Choose a location for the control head that allows the vehicle and controls to be operated safely at all times.

1. *Swivel Mounting*

a. Using Figure 1 as a guide, loosely install the mounting clips to the back of the control head housing. When installed properly the beveled edges of the clips will be toward the center on the housing as illustrated. Do not overtighten screws.

b. Slide the swivel mount into place and tighten the clips, making sure that the swivel mount is able to be removed.

c. Remove the swivel mount assembly, and set the control head to the side.

d. Using the swivel mount assembly as a guide, scribe the three drill-position marks at the selected mounting location.

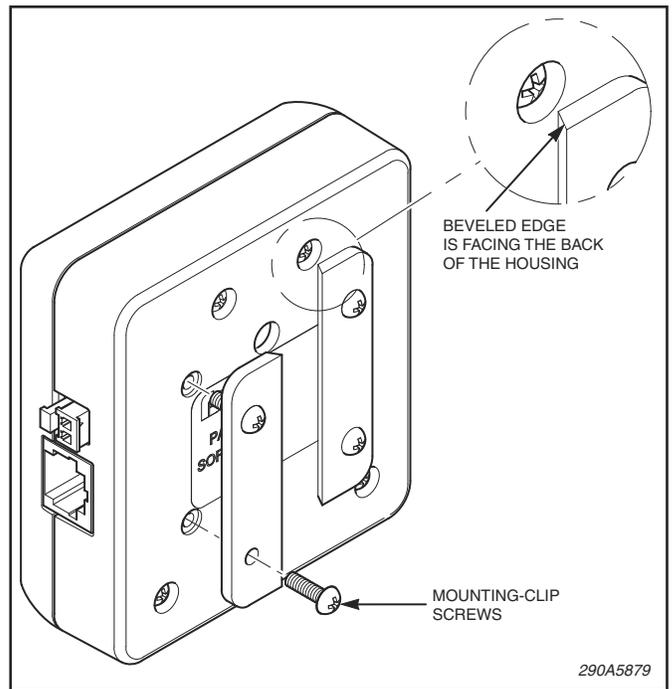


Figure 1.

NOTICE

DRILLING PRECAUTIONS

Before drilling holes, check the area into which you are drilling to be sure you do not damage vehicle components while drilling. All wire routings going through drilled holes should be protected by a grommet or convoluted/split loom tubing.

e. Drill three 1/8 inch mounting holes at the marked positions.

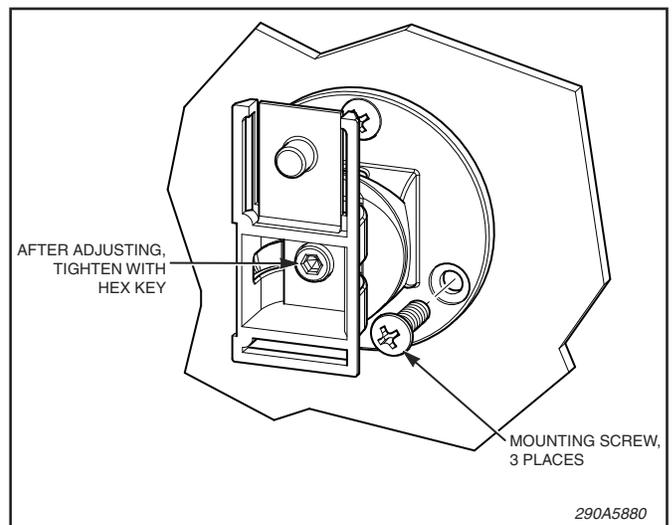


Figure 2.

f. Secure the swivel mount assembly to the mounting surface with the provided screws as shown in Figure 2.

g. Adjust the swivel mount assembly to allow for maximum access to the 6-button control head.

h. Once in desired location, tighten using a 3mm hex key. A 7/64 inch hex key will also work (see Figure 2 on page 2).

i. Slide the control head onto the swivel mount assembly.

2. Hook and Loop Mounting

NOTE

The hook-and-loop mounting method is intended for storing the control head when it is not in use. The hook-and-loop material may not provide sufficient rigidity for proper control head operation.

a. Locate a suitable mounting location for the control head.

NOTE

The hook-and-loop pads' mounting surfaces must be clean and dry for proper adhesion. If necessary, use isopropyl alcohol and water to clean the mounting surfaces.

b. Remove the paper backing from the hook pad and affix it to the back of the control head.

c. Remove the paper backing from the loop pad and affix it to the mounting surface.

d. Place the control head in position by mating the hook and loop surfaces.

D. ELECTRICAL CONNECTIONS

1. Power Connections.

The 12 Vdc power for the control head comes either from a power connector, next to the computer cable connector on the side of the control head, or through the computer cable.

The first case is used when the 12 Vdc power for the lightbar is always connected to the battery, regardless of the ignition switch. The 12 Vdc power after the ignition switch must then be connected to the supplied plug connector, which mates with the terminal on the right side of the control head, next to the computer connector. This case requires that the jumpers JP3 A and B for Arjent and Legend or

JP1 A and B for Raydian on the lightbar control head be in Position "N." This arrangement will cut the lightbar power when ignition is off. (See the lightbar instructions for further details about the jumpers.)

The second case is used when the 12 Vdc power for the lightbar has a relay activated by ignition switch. This case requires that the jumpers JP3 A and B for Arjent and Legend or JP1 A and B for Raydian on the lightbar control head be in Position "Y." (See the lightbar instructions for further details about the jumpers.) The plug connector wire is not used then.

2. Control Head Connection

The connection between the 6-button control head and the lightbar is through a single 20 foot Ethernet-type cable, which is part of the lightbar.

a. Route the cable from the lightbar to the desired control head location. (See the lightbar instructions for further details.) Secure the cable with user-supplied clamps and hold downs as required.

b. Insert the connector into the receptacle on the side of the 6-button control head. Secure it with user-supplied clamps and/or wire ties to provide strain relief.

E. OPERATION THE CONTROL HEAD

The control head is shipped fully programmed with default keypad functions and flash patterns. No further programming is necessary, unless a change from the default configuration is desired (see 1. Keypad Selection below). With proper connections, at power up, the Control Head first lights up the button corresponding to the active keypad number. In addition, the button blinks its proper number. After that, all buttons light up dimly, until pressed.

A press of a button sends a command function to the lightbar, a buzzer beeps, and the button lights up to its full brightness. A second press of a button turns a simple function and its button off. Cyclical functions require multiple presses of the same button to scroll through two or more functions assigned to the button. Some buttons are dependent, which means that they can be turned off by pressing another button. The dependent button functions include Flashing Modes and Directional Signals.

1. Keypad Selection

See Figures 5 through 7 starting on page 6 for the 18 available keypad configurations with the functions of each button and slide switch.

To select one of 18 predefined keypad configurations, enter the Keypad Selection Mode by pressing the top three buttons simultaneously. All of the illuminating buttons will flash three times and the control head will beep three times. All six button LEDs will flash repeatedly during Keypad Selection Mode.

When you press the button corresponding to the desired configuration (buttons correspond to 1 to 6 from upper left to lower right), the button's LED will flash and beep the number of times corresponding to that button. The predefined keypads are numbered 1 to 6 (the original 6 keypads) (Figure 5 on page 6), 1.1 to 6.1 (Figure 6 on page 7), and 1.2 to 6.2 (Figure 7 on page 8). To select any of additional keypads, the slide switch must be moved into Position 1 or 2 before you select one of the six configuration buttons. If the slide switch is off or in Position 3, it has no effect, and the original six keypads 1 to 6 are selectable.

To select a keypad from 1.1 to 6.1, put the slide switch in Position 1 (the Position 1 LED will turn on), and then select a keypad number. If the slide switch is in Position 2, keypads 1.2 to 6.2 will be available for selection. If no selection is made after about 15 seconds, the control head times out of the Keypad Selection Mode returns to the Operation Mode.

2. *Flash Pattern Programming*

Each keypad has between one and three switches assigned to activating the lightbar flashing mode. These switches may be buttons or the slide switch. Nine flash patterns are available for Modes 1 and 2, and eight patterns for Mode 3.

To assign a flash pattern to a mode button, press the bottom three buttons simultaneously. All of the illuminating buttons will flash three times and the control head will beep three times. The LED indicator(s) corresponding to the mode button(s) will then flash. To change the flash pattern on a mode button, press the button repeatedly and observe the flash pattern on the lightbar. The LED indicator of the button currently being programmed will flash at twice the rate as the other buttons available for programming. When the desired pattern is currently flashing, press another flashing button available for programming or exit the programming mode. Once all available buttons have the desired flash patterns, exit the programming mode by either removing power, or allowing the control head to time out after about 15 seconds.

To change the flash pattern on a slide switch mode position, press the bottom three buttons simultaneously. All of the illuminating buttons will flash three times and the control head will beep three times. Move the slide switch to an active position. The three buttons directly above the slide switch will then become active and the one corresponding to the selected slide switch position will flash at twice the rate as the other two positions. Press this button repeatedly and observe the flash pattern. When the desired pattern is currently flashing, exit the programming mode or move the slide switch to another position. Once all the slide switch positions have the desired flash patterns, exit the programming mode by either removing power, or allowing the unit to time out after about 15 seconds.

SAFETY MESSAGE TO OPERATORS

WARNING

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- Be aware that the use of your visual signaling device does not give you the right to force your way through traffic. Your emergency lights and actions are REQUESTING the right-of-way.
- Although your warning system is operating properly, it may not alert everyone. People may not see or heed your warning signal. You must recognize this fact and continue driving cautiously.
- Situations may occur which obstruct your warning when natural or man-made objects are between your vehicle and others, such as: raising your hood or trunk lid. If these situations occur, be especially careful.
- At the start of your shift, you should ensure that the light system is securely attached to the vehicle and operating properly.

Failure to follow all safety precautions and instructions may result in property damage, serious injury, or death to you or others.

RETAIN AND REFER TO THIS MESSAGE

F. INSPECTION AND FINAL INSTALLATION

1. Perform a visual check of all connections and wiring.
2. Ensure that all wires are protected from any sharp edges which could eventually cut through the insulation on the cables and wires.

⚠ WARNING

DO NOT connect the system to the vehicle battery until ALL electrical connections are made and mounting of all components is completed.

3. Secure all wires and cables with user-supplied clamps and/or wire ties.

G. REPLACEABLE FUNCTION LABELS

See Figure 4. Replaceable function labels identify the switches on the control head. A sheet of applicable function legends is supplied.

To install the function legends, proceed as follows:

Select the labels that correspond to the keypad configuration chosen from the supplied sheet of function legends. Peel the labels from the sheet

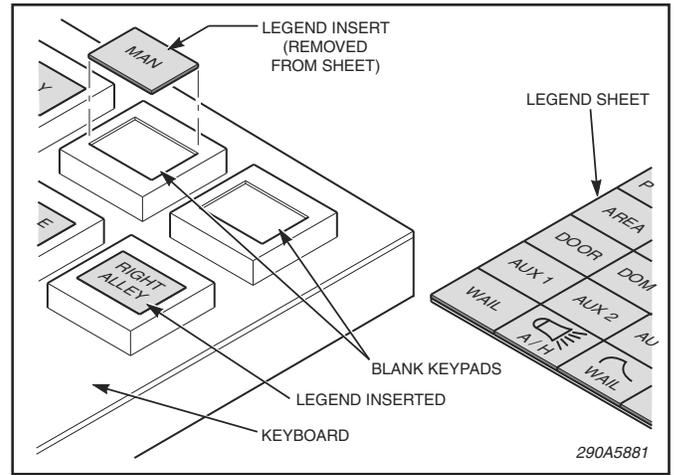


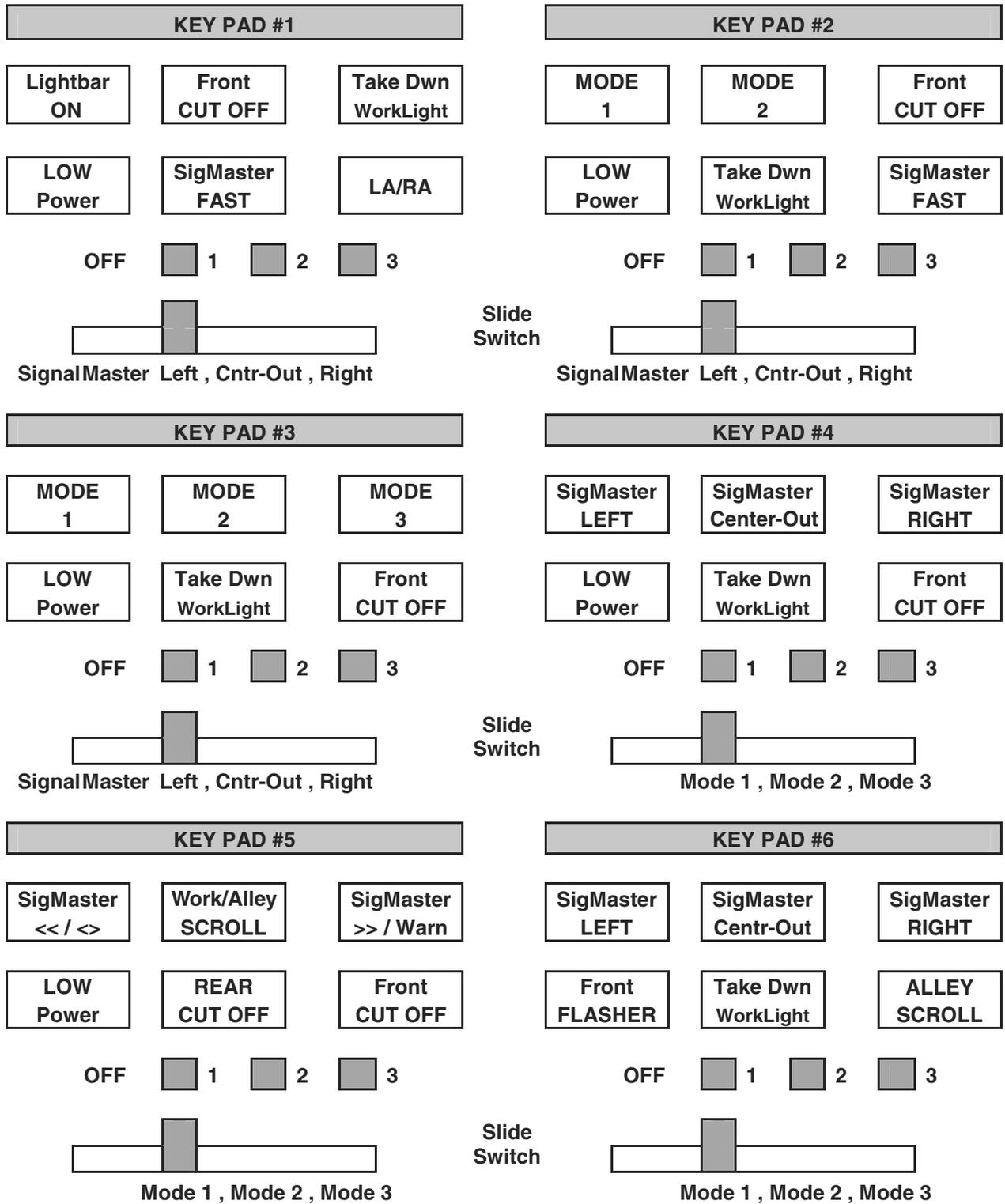
Figure 4.

and apply to the key pad area provided as shown in Figure 4. Verify that the label is properly tucked under the retaining ridge on the pushbutton.

H. TESTING

Before testing, read and understand the safety message to operators. After installation is complete, test all light functions to ensure that all functions and controlled devices operate as intended. Test all vehicle functions, including horn operation and vehicle light systems, to ensure proper operation.

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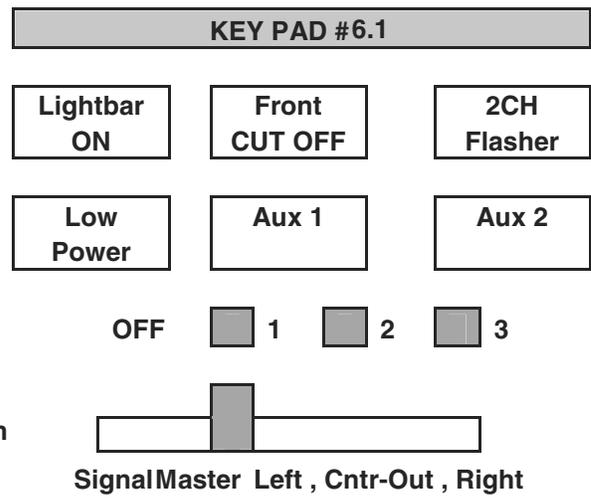
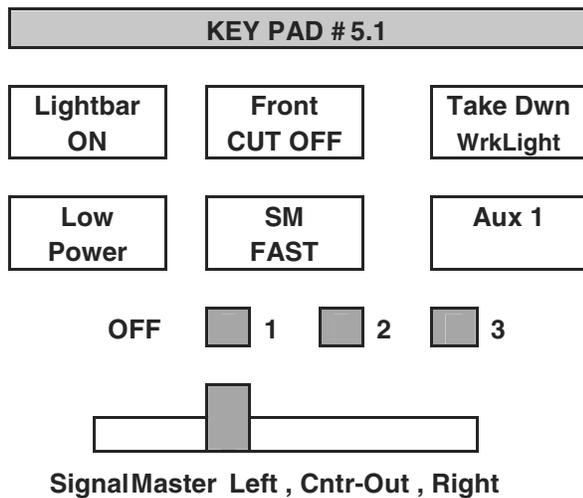
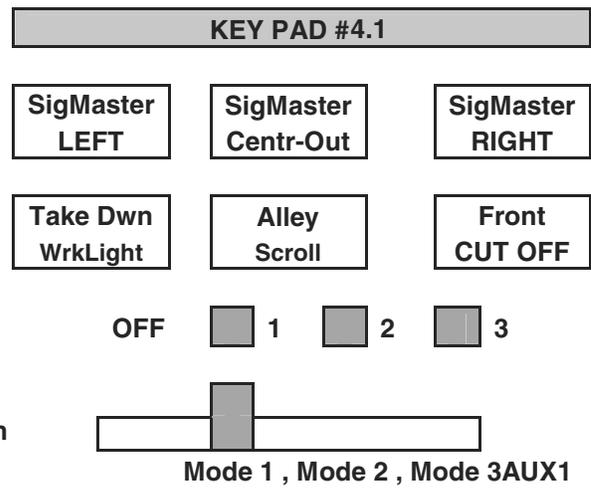
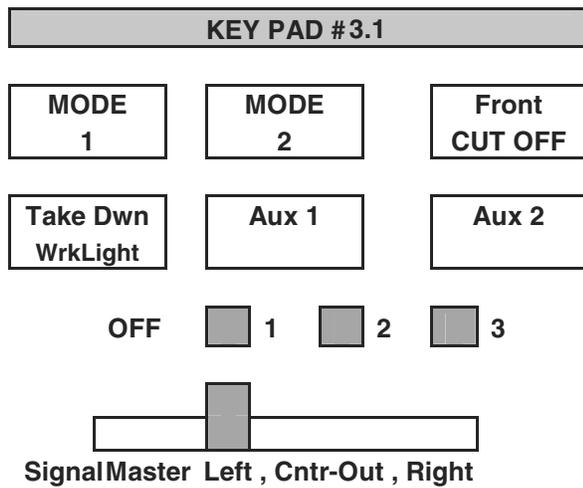
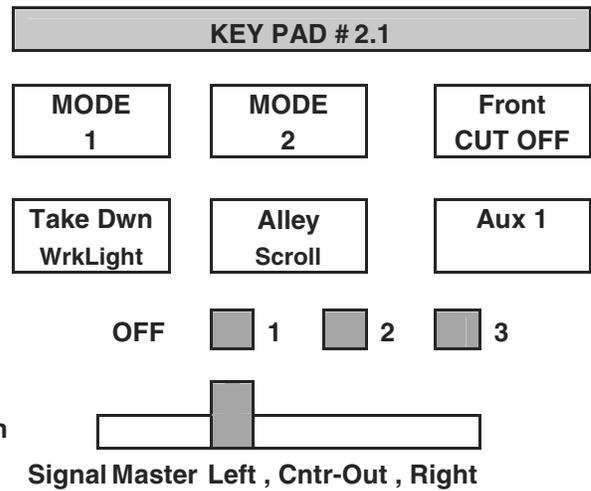
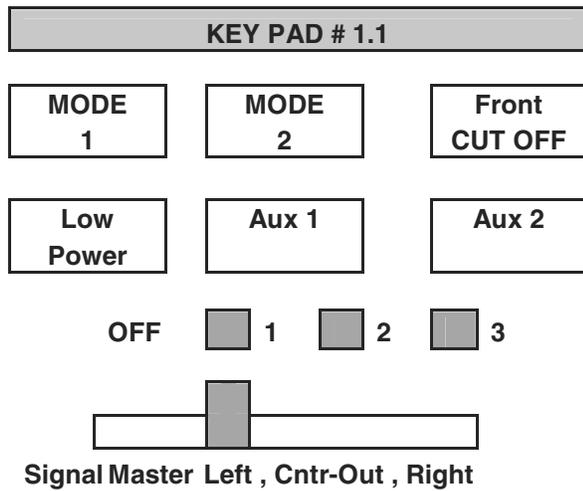


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* TAKE DOWN and WORK LIGHT are the same command that activates either function available on your lightbar.

**LA/RA and Alley Scroll = Left Alley on the first push of the button and Right Alley on the second push.

Figure 5.

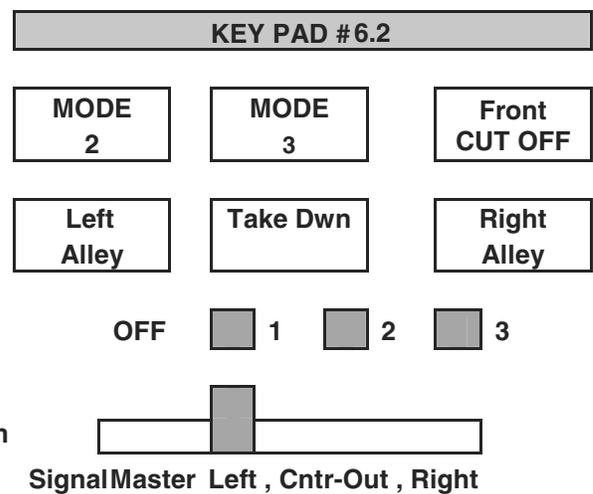
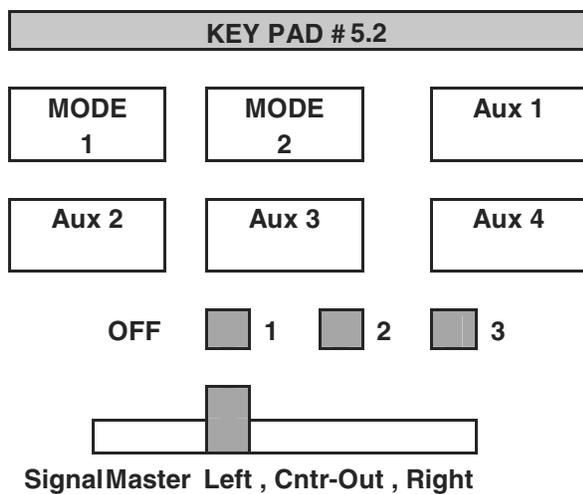
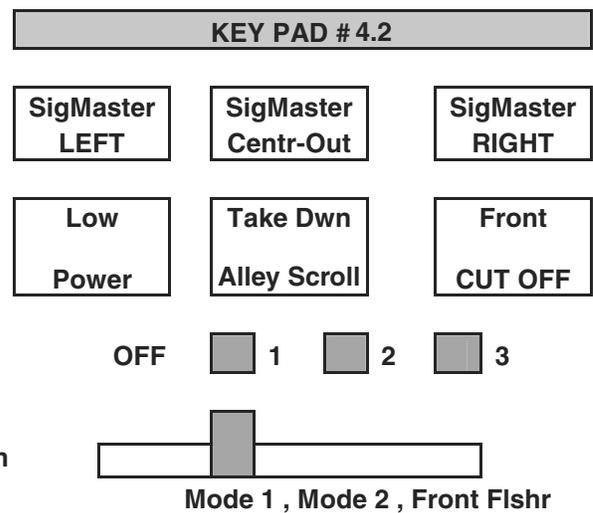
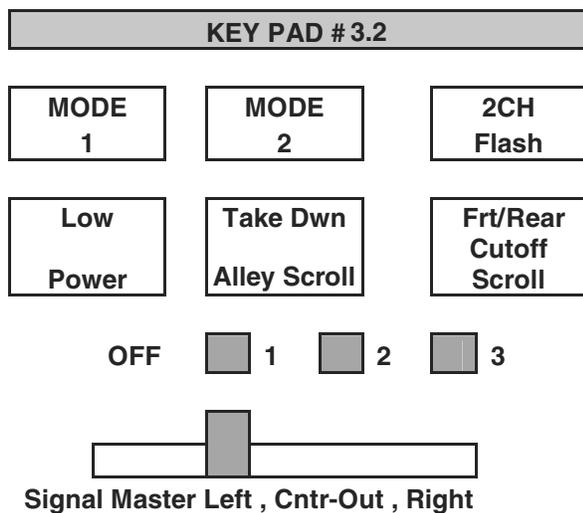
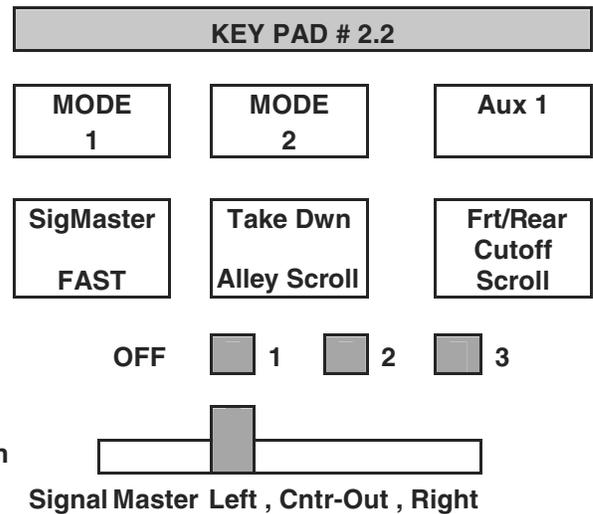
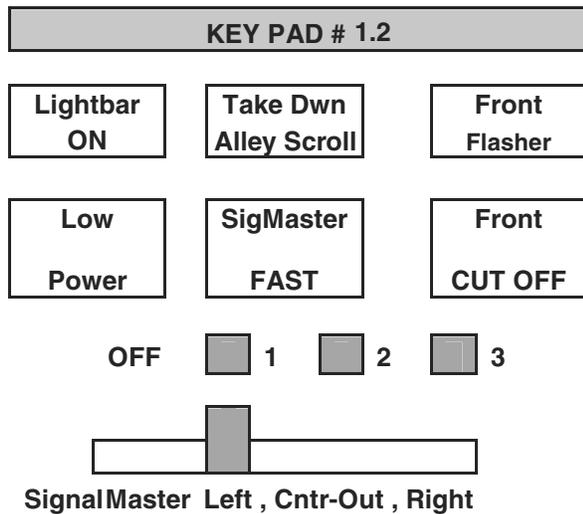


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* TAKE DOWN and WORK LIGHT are the same command that activates either function available on your lightbar.

**LA/RA and Alley Scroll = Left Alley on the first push of the button and Right Alley on the second push.

Figure 6.



* TAKE DOWN and WORK LIGHT are the same command that activates either function available on your lightbar.

**LA/RA and Alley Scroll = Left Alley on the first push of the button and Right Alley on the second push.

***Front/Rear Cutoff Scroll = Front Cutoff on first push of the button and Rear Cutoff on second push.

Figure 7.