USERS GUIDE

LO-21S LOCK OUT RELAY

PRODUCT DESCRIPTION

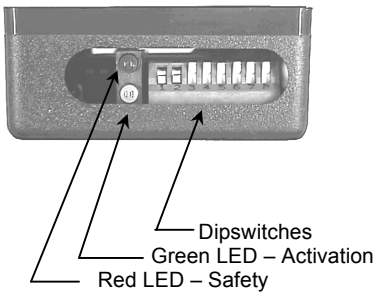
The microprocessed LO-21/S Lockout Relay (PN: 10LO21S) provides a means of interfacing the SuperScan directly with the Sentrex logic control on the Stanley Microprocessor Control Box. When the Sentrex logic control is set to stall logic, the control will not be able to determine if the detection is due to the SuperScan or the DK-12 / Bodyguard. So the LO-21/S has been designed to process the information it is given from the DK-12 / Bodyguard. The LO-21/S has two inputs and two outputs. The two inputs are for the DK-12 / Bodyguard signal and the motor signal. The outputs are for the safety relay and the activation relay. The LO21S is not intended for use with systems requiring lockout safety beams.

TECHNICAL SPECIFICATIONS

DESCRIPTION	SPECIFICATION
Power Supply	12-24 Volts AC / 15-24 Volts DC
Operating Frequency	4 MHz (Microprocessor)
Power Consumption	10 mA at rest, 50 mA Max.
Output	2 x SPST Relays
Max. Voltage - Relay Contact	60V DC, 120V AC
Max. Current - Relay Contacts	2A DC, 0.5A AC

COMPONENT ID



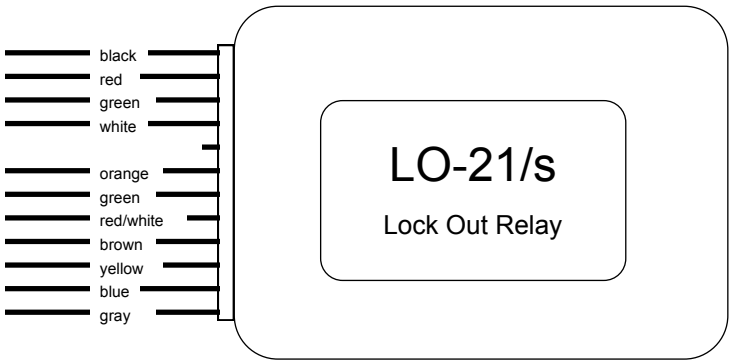


SAFETY PRECAUTIONS



- Shut off all power going to the header before attempting any wiring procedures.
- Maintain a clean & safe environment when working in public areas.
- Constantly be aware of pedestrian traffic around the door area.
- Always stop pedestrian traffic through the doorway when performing tests that may result in unexpected reactions by the door.
- Always check placement of all wiring before powering up to insure that moving door parts will not catch any wires and cause damage to equipment.
- Ensure compliance with all applicable safety standards (i.e. ANSI A156.10) upon completion of installation.

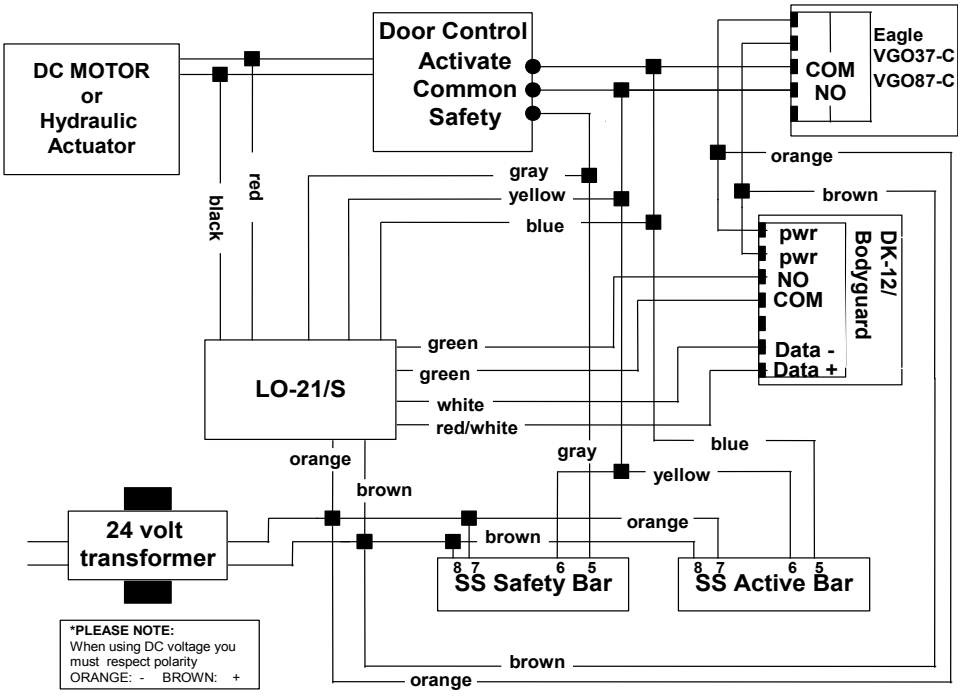
ELECTRICAL INSTALLATION



All LO-21 wiring must be accomplished with the module unplugged. If the red / white striped and white wires (data wires) touch each other when power is applied, damage to the unit will result.

CAUTION

COLOR	DESCRIPTION
Orange	Power input / 12-24 VAC or 15-24 VDC
Brown	Power input / 12-24 VAC or 15-24 VDC
Red	To motor input wire.
Black	To motor input wire.
Green	To NO of DK-12 / Bodyguard
Green	To COM of DK-12 / Bodyguard
Blue	To Active terminal of control box
Yellow	To Common terminal of control box
Gray	To Safety terminal of control box
White	To Data (-) of DK-12 / Bodyguard
Red/White	To Data (+) of DK-12 / Bodyguard



OPERATION

IMPORTANT NOTE:
Dip Switch #1 on the Stanley Control Box determines either stall logic or carpet logic. Be sure to set this switch according to the door function desired. If SuperScan's are used, the switch would normally be set to Timer Logic (Dipswitch #1 OFF) to allow the door to stall upon safety side SuperScan detection. If SuperScans are NOT used, then dipswitch #1 may be in the OFF OR ON position, however if it is ON (Carpet Logic), dipswitch #3 should then also be placed to the ON position, as to prevent a 12 second hold time in the event there is an activation signal, without a safety signal to follow.

Door Closed
When the door is closed there will be no power on the motor leads, therefore the LO-21/S will know that the door is in the closed position and allow the DK-12 / Bodyguard to safety the door if anything interrupts its pattern. If the DK-12 / Bodyguard detects something in its pattern it will send a signal to the LO-21/S via the two green wires. Once the LO-21/S receives this signal, a relay will be activated to short the gray (safety) and yellow (common) wires, sending a safety signal to the door control to prohibit the door from opening as long as something is in the DK-12 / Bodyguard pattern. When the DK-12 / Bodyguard detects something in the door closed position the LO-21/S' RED LED will be on.

Door Opening or Open
When the door is opening or open the LO-21/S receives a voltage from the motor. This voltage enables the LO-21/S to use the activate circuitry to hold the door open if detection by the DK-12 / Bodyguard occurs. If the DK-12 / Bodyguard detects something, it will send the signal to the LO-21/S via the two green wires. Once the LO-21/S receives this signal a relay will be activated to short the blue (activate) and yellow (common) wires, sending an activation signal to the door to hold the door in the open position. When the DK-12 / Bodyguard detects something in the door open position the LO-21/S' GREEN LED will be on.

Door Closing
The DK-12 / Bodyguard will be locked out during the closing cycle of the door. If the DK-12 / Bodyguard is used, the white and red/white wires must be connected to the data terminal of the DK-12 / Bodyguard in order for the DK-12 / Bodyguard to be inhibited during the closing cycle of the door. The lockout time delay must be set by the dip switches on the LO-21/S. During this time anything detected by the DK-12 / Bodyguard will be ignored. See Set-Up for directions on setting the correct lockout time delay.

SET-UP INSTRUCTIONS

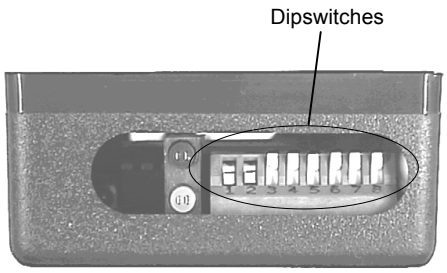
1. The only adjustment required for the LO-21S, is to configure the dipswitches to obtain the necessary lock out time delay. Maximum lockout time possible is 31 seconds. To set the dipswitches(1 through 5) for lock out time, perform the following:

   - ❑ Activate the door to the open position.
   - ❑ Time the overall door closing cycle
   - ❑ Configure the dip switches according to the chart on Page 4 for the lock out time that is required
   - ❑ Activate the door again to the open position
   - ❑ Stand outside of the Bodyguard detection pattern, and while the door is closing, observe the red LED on the Bodyguard
   - ❑ The red LED on the Bodyguard should NOT illuminate during the closing cycle. If it does, it is probably seeing the door at the very last degree or two of door closing, which would indicate that the lock out time needs to be slightly increased.
   - ❑ Reconfigure the dipswitches to add 1 second of lock out time.
   - ❑ When the lock out time is correct. The red LED will not illuminate during the entire closing cycle of the door.
   - ❑ The last test is to insure that the Bodyguard detects an object as soon as the door has stopped closing. Simply allow the doors to begin closing, and step in behind the doors, into the Bodyguards field of detection (be sure to NOT break the path of the lockout safety beams, if so equipped). The red LED shall illuminate and remain on at the Bodyguard, and at the LO-21S, as soon as the door reaches the fully closed position, provided that an object remains in the Bodyguard's detection field.

2. If during the above test, a dual set-up of the sensor can not be achieved, it is possible that the DK-12 / Bodyguard is not receiving the proper data to switch between the door open and door closed positions.

   - ❑ If the Bodyguard learns a "door closed" position, but does not execute a learn for the "open door position", place the door to a hold open position. With a BEA remote control, unlock the Bodyguard, and with the door in the open position, press the Magic Wand key and then the number 2 – the Bodyguard should begin flashing green to signify a set-up. If it does not, this will be a quick indication that the improper data is being sent for the "open door" position. Check to insure that data exists on the data lines leading into the Bodyguard. In the full open position, voltage should be approximately 12 volts DC. If it is not, check the data lines, as well as the LO-21S to Motor wires (red & black). Refer to the Bodyguard User's Guide for further information if necessary.

DIP SWITCH SETTINGS



Set the dipswitches according to the chart below to achieve the desired lock out time delay. The dipswitches are configured to send a binary coded input to the microprocessor to establish the correct lock out time delay.

Dip Switch 1 = 1 second
Dip Switch 2 = 2 seconds
Dip Switch 3 = 4 seconds
Dip Switch 4 = 8 seconds
Dip Switch 5 = 16 seconds
Dip Switch 6 = Not used
Dip Switch 7 = Not used
Dip Switch 8 = Not used

For Example:
Use the chart provided below to configure the time delay for the LO-21S. By default, the unit is set to 7 seconds. Only dipswitches 1 through 5 are used for this function.

TIME DELAY (SEC)	DIP 1 *1 SEC*	DIP 2 *2 SEC*	DIP 3 *4 SEC*	DIP 4 *8 SEC*	DIP 5 *16 SEC*	TIME DELAY (SEC)	DIP 1 *1 SEC*	DIP 2 *2 SEC*	DIP 3 *4 SEC*	DIP 4 *8 SEC*	DIP 5 *16 SEC*
1	on	off	off	off	off	**17**	on	off	off	off	on
2	off	on	off	off	off	**18**	off	on	off	off	on
3	on	on	off	off	off	**19**	on	on	off	off	on
4	off	off	on	off	off	**20**	off	off	on	off	on
5	on	off	on	off	off	**21**	on	off	on	off	on
6	off	on	on	off	off	**22**	off	on	on	off	on
7	on	on	on	off	off	**23**	on	on	on	off	on
8	off	off	off	on	off	**24**	off	off	off	on	on
9	on	off	off	on	off	**25**	on	off	off	on	on
10	off	on	off	on	off	**26**	off	on	off	on	on
11	on	on	off	on	off	**27**	on	on	off	on	on
12	off	off	on	on	off	**28**	off	off	on	on	on
13	on	off	on	on	off	**29**	on	off	on	on	on
14	off	on	on	on	off	**30**	off	on	on	on	on
15	on	on	on	on	off	**31**	on	on	on	on	on
16	off	off	off	off	on						

NOTE: It is important to note that the time delay will also begin counting down if a door with a DC unit is pushed open manually. This means that the door would open upon activation even if someone were to step into the detection field of the DK-12 / Bodyguard.

COMPANY CONTACT

If after troubleshooting a problem, a satisfactory solution cannot be achieved, please call B.E.A., Inc. for further assistance during Eastern Standard Time at **1-800-523-2462 from 7am - 5pm.**
For after-hours, call East Coast: 1-866-836-1863 or 1-800-407-4545 / Mid-West: 1-888-308-8843 / West Coast: 1-909-596-3011. DO NOT leave any problem unresolved. If you must wait for the following workday to call B.E.A., leave the door inoperable until satisfactory repairs can be made.
NEVER sacrifice the safe operation of the automatic door or gate for an incomplete solution.