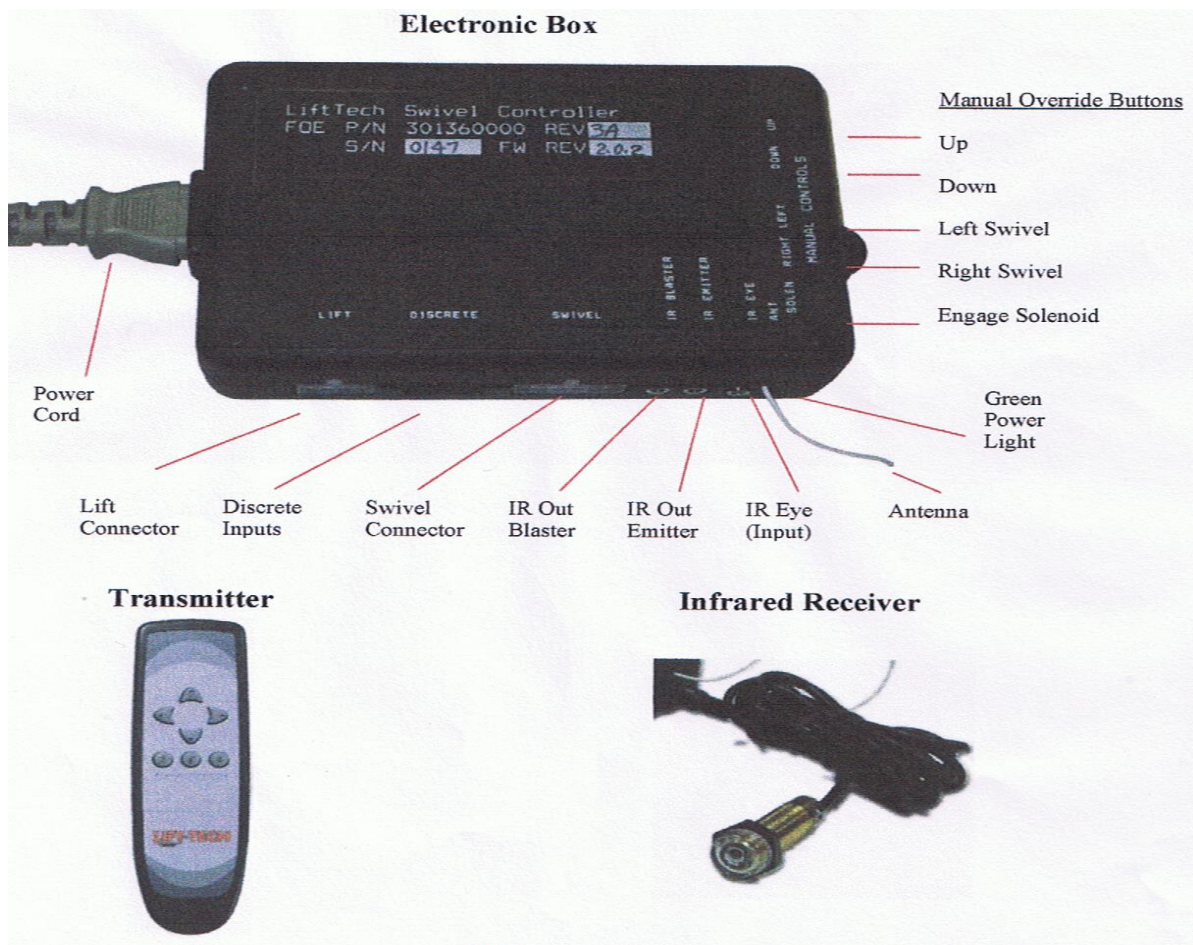




Up/Down and Swivel IR/RF Remote Control

It is critical importance that the installer fully reads and understands these Instructions before installing or operating the lift.

LIFT-TECH's IR/RF remote controller for a motorized up/down and swivel lift is highly sophisticated and utilizes the latest computer chip technology to control the lift's functions. The controller consists of a black electronic box, and IR/RF remote control.





For RF press and hold “Down” and “1” for three seconds. For IR press and hold “Down” and “3” for three seconds.

Operation of the hand-held transmitter is very straightforward. There are seven different buttons on the transmitter; an up arrow, a down arrow, a left arrow, a right arrow, and three preset buttons. The up arrow button commands the lift to raise. The left arrow button commands the left swivel function. The right arrow button commands the right swivel function. The down arrow button commands the lift to lower. If the lift is in a swiveled position when the down button is depressed, the swivel will return to center and then lower. The three preset buttons are labeled 1, 2, and 3. They can be programmed by the operator to any 3 preset positions of their choice. If the lift is lowered and a preset button is pressed, the lift will raise and rotate to the corresponding preset position. If any of the buttons are pressed with the lift raised, the swivel will rotate to the corresponding preset position. Once again, if the lift is in a swiveled position when the down button is depressed, the swivel will return center and then lower. The precision, reliability, and unique operating features of this controller clearly sets it apart from and ahead of any other in the marketplace.

Installation and Operating Instructions

If it is of critical importance that the installer fully reads and understands these instructions before installing or operating the lift.

When the lift is shipped from the factory, the swivel will be in center position. The swivel function will not operate with the transmitter when the lift is in the lowered position. The up/down functions will operate only when the swivel is in the center position. If vibration in shipping has caused the swivel to be out of center, **do not rotate the swivel by hand. Use the manual override buttons on the control box to return the unit to center.**

LIFT-TECH utilizes a unique combination of computer chip technology and a solenoid to establish absolute center for the swivel. A potentiometer provides feedback to the controller so that the controller can determine the exact swivel position. This feature is important for a number of reasons:



1. To establish absolute center, so that there is no “play” that might result in damage to the cabinetry when the lift raises and lowers.
2. To establish a maximum range of swivel operation. The Custom Television Lifts swivel will be shipped with a range of 180° in both directions; however, the limits may be readily reprogrammed at any time if less swivel travel is desired. This feature is beneficial for applications in which less travel is desired to avoid hitting a wall or other obstruction when swiveled too far. Once programmed, the controller will retain the swivel limits or “soft stops” until reprogrammed.
3. To set the preset positions: The precise feedback from the potentiometer ensures that the swivel always returns to the programmed preset position.
4. There are no external switches or magnets on the swivel. The use of the potentiometer will provide reliable operation without having to worry about magnet placement or switch adjustments. The controller will actually identify that the swivel is approaching the “soft spot” and will decelerate the swivel motor to ensure a smooth motion when stopping.

IR Receiver Mounting and Connections

The unit is designed to install in a ½” diameter hole and comes with a mounting nut and lens. The lens unscrews to allow the tube to be easily inserted through the back of the ½” hole. Once inserted, replace the lens and moderately tighten the mounting nut. Use caution not to over tighten the nut.

An infrared system such as this requires a line of sight between the receiver and transmitter. Therefore, care should be taken to ensure that the receiver placement allows a line of sight to the infrared transmitter from normal operating position.

The infrared receiver needs to be plugged into the connection on the box labeled IR EYE.



Set Up

1. Plug the connector into the electronic control box. There are three connections to be made. The main lift cable is an eight pin Molex connector. It is plugged into the female connector on the box labeled LIFT. The main lift cable provides power to the up/down motor and supplies power to the duplex receptacle on the lift platform. (For up/down lift only the LIFT connection should be plugged in) The swivel cable has a twelve pin Molex connector. Plug it into the female connector on the box labeled SWIVEL. The swivel cable provides power to the swivel motor and the solenoid. In addition, it returns feedback to the control box from the potentiometers. Mount and connect the receiver as described in the previous section. All connections are to be made prior to providing AC power. **Plug the power cord into a 115V AC receptacle last.**

2. **After powering the unit, wait 15 seconds before using the hand-held transmitter.** During this time, the controller is cycling through a learning mode. This learning mode will be utilized if the lift needs to be reprogrammed; however, it will retain the factory programmed settings in the absence of any input during this cycle.

3. After waiting 15 seconds, the swivel is now in operating mode. If the AC power source is interrupted, the controller will remember absolute center and maximum swivel range as long as no input is made within 15 second cycle when power is restored. If input is accidentally made, the swivel limits are easily reprogrammed. If this occurs, follow the reprogramming instructions in the next section or call LIFT-TECH.

During normal operation, the swivel always returns to the center position from a clockwise position. This allows the proper engagement of the solenoid when returning to absolute center. When the swivel is automatically returning to center from a left swivel position, it will slightly overshoot center, reverse direction, and approach the center (engaging solenoid contact to the physical stop) from the right.



This characteristic will not be seen when the swivel is automatically approaching center from a right swivel position.

Reprogramming the Swivel Limits

Reprogramming the swivel limits accomplishes three different tasks.

1. It associates a transmitter with the control box.
2. It teaches the control box the swivel's home position.
3. It allows swivel limits to be set up to 180 degrees both directions.

In order for the controller to enter into the learning mode, the software requires that the lift platform is lowered and the swivel is centered. Therefore, lower the lift either with the hand-held transmitter or with the manual override button prior to initiating the reprogramming procedure.

Caution: The manual override buttons will cause the lift to raise or lower regardless of the positioning of the swivel. The manual swivel buttons will allow the swivel to rotate regardless of the positioning of the lift platform. If the manual override down command is given when the lift is swiveled, there is potential of damage to the cabinetry. Do not use the manual override down button to lower the lift if the swivel is not in the center position. Extreme caution should be used in activating these buttons.

If the desired swivel limits are 180 degrees both directions, there is a quick programming method described in the first procedure below. If the desired limits are less than 180 degrees either direction, follow the second procedure described below.

Quick Programming: 180 degrees both directions.

- Once the lift is in the lowered position, disconnect the power cord from the 115V AC power source. Leave the all of the connection between the lift and the electronic control box secure.
- Restore power to the control box by plugging the power cord into 115V AC while holding down the left swivel button on the hand-held transmitter until the lift "hiccups". This audible/visual cue should occur almost immediately after restoring power. Release the button after the hiccup.



- Depress the up button on the transmitter to raise the lift platform
- Once the lift is raised completely, press the down button.
- Now *Quick Programming* is complete.

Specified Limits: Limits other than 180 degrees are required.

- Once the lift is in the lowered position, disconnect the power cord from the 115V AC power source. Leave all of the connections between the lift and the electronic control box secure.
- Restore power to the control box by plugging the power cord into 115V AC while holding down the swivel on the hand-held transmitter until the lift “hiccups”. This audible/visual cue should occur almost immediately after restoring power.
- Depress the up button on the transmitter to raise the lift platform.
- Once the lift is raised completely, depress and hold the left swivel button until the swivel achieves the maximum range of motion desired, upon release the left swivel “soft stop” is set.
- From this swiveled position, depress and hold the right swivel button as the swivel rotated past center until the maximum desired range of motion is achieved. Upon release of the right swivel button, the right swivel “soft stop” is set.
- With the swivel remaining in the maximum right swivel position, depress the button.
- Now reprogramming is complete with *Specific Limits*.

Preset Swivel Positions

The three preset buttons are labeled 1, 2, and 3. They can be programmed by the operator to any 3 preset positions of their choice. If the lift is lowered and a preset button is pressed, the lift will raise and rotate to the corresponding preset position. If any of the preset buttons are pressed with the lift raised, the swivel will rotate to the corresponding preset position. If the lift is in a swiveled position when the down button is depressed, the swivel will return to center and then lower.

Preset Programming:

- Swivel unit to desired position.
- Press and hold the up button on the hand-held transmitter.
- Swivel unit will “hiccup” (slight swivel movement back and forth) indicating it’s in the preset programming mode. You may only see slight movement one direction if the preset position is at the swivel limit.
- Press the preset button that you would like to program within 5 seconds.
- Swivel unit will “hiccup” indicating that it has accepted the current position as a preset.
- To preset the other swivel positions, repeat the above steps using the remaining preset buttons.



Manual Override Buttons

There are five manual override buttons on the control box. The purpose of these buttons is to give you the ability to raise, lower or swivel the lift if the hand-held transmitter is lost. **Caution:** the manual override buttons will cause the lift to raise or lower regardless of the positioning of the swivel. The manual swivel buttons will allow the swivel to rotate regardless of the positioning of the lift platform. If the manual override down command is give when the lift is swiveled , there is a potential of damage to the cabinetry. **Do not use the manual override down button to lower the lift if the swivel is not in the center position.** Extreme caution should be used in activating these buttons. If the lift is in a lowered position and the up manual override button is depressed, the lift will raise but not swivel until a swivel command is received.

Additional Important Operation Cautions

- Do not attempt to move the swivel position by hand. This will result in damage to the swivel assembly drive shaft and the swivel function will no longer be operational.
- If utilizing and inner box design rather than a backplate, it is of critical importance that the box positioning is consistent with the absolute center that has been established for the swivel assembly. If the box center is not consistent with the swivel absolute center, the lift will not operate properly and damage the cabinetry and/or lift may result. If there is warping of the inner box causing it to lean, the installer may need to pt shims between the swivel plate and the inner box.
- Use of the manual override buttons within 120 seconds of a normal source of command can cause both directions to be simultaneously activated and should be avoided.



General Control Information

- Depressing the up button on the handheld transmitter when the lift is lowering will reverse the travel.
- Depressing the down button on the hand-held transmitter when the lift is raising will reverse the travel.
- Depressing the up button on the hand-held transmitter when the lift is raising will cause the lift to stop.
- Depressing the down button on the hand-held transmitter when the lift is lowering will cause the lift to stop.

LIFT TECH Receiver Configuration Switch Matrix

The electronic control box is also capable of being operated by a LIFT-TECH radio transmitter or low voltage discrete inputs. The following section describes DIP switch settings inside the control box that changes the mode of operation.

Low Voltage Discrete Input Operation

There are four modes of operation of the UP and DOWN low voltage discrete inputs as controlled by the two configuration switches SW6, SW5:

- 1) **Pulse UP to go UP, Pulse DOWN to go DOWN, NO STOP(SW6 OFF, SW5 Off)**

UP input cause the lift to move up, removing input has no affect. Subsequent UP inputs have no effect. DOWN inputs cause the lift to move down, removing the input has no affect. Subsequent DOWN inputs has no affect. With no input active, the lift continues to move as it was.



2) Activate UP to go up, Activate DOWN to go down, Remove Inputs to Stop(SW6 OFF, SW5 ON)

UP input causes the lift to move up, removing the input causes the lift to stop.
DOWN input causes the lift to move down, removing the input causes the lift to stop.

3) Pulse UP to up, Pulse UP again to stop, Pulse DOWN to go down, Pulse DOWN again to stop(SW6 ON, SW5 OFF)

Momentary Up input causes the lift to move up, momentary Up input a second time cause the lift to stop. Momentary DOWN input cause the lift to move down, momentary DOWN a second time cause the lift to stop. With no input active, the lift continues to move as it was.

4) Activate UP to go up, Remove Input to go Down(SW6 ON, SW5 ON)

UP input cause the lift to move up, no input cause the lift to move down. DOWN input has no effect.

Discrete Input Connector Pin

(looking into pins on the controller)

12	11	10	9	8	7
6	5	4	3	2	1

<i>Pin</i>	<i>Color</i>	<i>Description</i>
1	Blue	RS-232 Rxin from PC
2	Violet	RS-232 Txout to PC
3	Black	Ground
4	Yellow	PRESET1 discrete in
5	Orange	PRESET2 discrete in
6	Brown	PRESET3 discrete in
7	Green	RIGHT swivel discrete in
8	Gray	LEFT swivel discrete in
9	Red	UP discrete in
10	White	DOWN discrete in
11	Black	Ground
12	Black	Ground



Note: Unit swivel Right of Left only when RIGHT or LEFT input is active and stops swiveling when inputs are removed

Discrete Input Connections

All discrete inputs can be driven from relay contact closures. Valid inputs are recognized as active (On) if they are connected to ground or +12V (relay contacts closed) and recognized as OFF if not connected to either ground or +12V (relay contacts open).

Four low voltage discrete inputs (UP, PRESET1, PRESET2, PRESET3) can also be driven by a +12V trigger source in which +12V is active (ON) and 0V (ground) is OFF. The inputs listed above are configured by SW4, SW3, SW2, and SW1 respectively (the DOWN input is for a relay contact closure only). When an input is driven by a +12V trigger source, the corresponding SW should be in the OFF position when the input is driven by a relay contact closure, the corresponding SW should be in the ON position.

Additional Information

Two additional jacks are provided on the control box. They are for the connection of an IR emitter and/or IR blaster.



- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Limited Warranty

All products sold are warranted by LIFT-TECH against defects in workmanship or material under normal use for three years after date of purchase from LIFT-TECH. Any part or unit which is determined by LIFT-TECH to be defective in material or workmanship and returned to LIFT-TECH, shipping cost prepaid, will be, as exclusive remedy, repaired or replaced, at LIFT-TECH option.

LIMITATION OF LIABILITY

Any liability for consequential and incidental damages is expressly disclaimed. LIFT-TECH liability in all events is limited to, and shall not exceed, the purchase price paid.

RETURNS

All returns must be within 90 days of order. Returned items must be “like new” condition. All returned items must be shipped “freight prepaid” to LIFT-TECH. All returns will be subject to a restocking charge. Custom or modified lifts are not eligible for return.

FCC Information

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions :

- (1) This Device may not cause harmful interface, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for CLASS B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try correct the interference by one or more of the following measures:

- 1.1. Reorient or relocate the receiving antenna.
- 1.2. Increase the separation between the equipment and receiver.
- 1.3. Connect the equipment into an outlet on a circuit different from that to which receiver is connected.
- 1.4. Consult the dealer or experienced radio/TV technician for help.

WARNING

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

"CAUTION : Exposure to Radio Frequency Radiation.

Antenna shall be mounted in such a manner to minimize the potential for human contact during normal operation. The antenna should not be contacted during operation to avoid the possibility of exceeding the FCC radio frequency exposure limit.