# circuit board start-up instructions

### Warning

**Compare available power supply voltage to operator nameplate prior to electrical connection. Failure to connect appropriate power supply voltage may cause serious damage to operator.**

### Important

**Read these instructions prior to making any power connections**

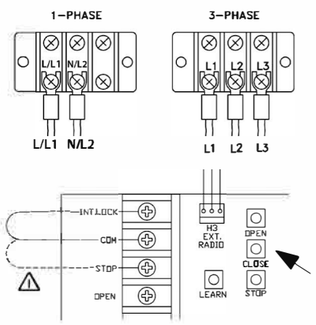
### Note

**The operator is shipped from the factory in the D1 mode setting (constant pressure open and close). The operator should remain in this mode until all connections and limit switch adjustments are completed.**

## Power wiring instructions

Connect primary power supply directly to the seperate power terminal strip supplied using any of the 1-1/8" (2.85 cm) diameter holes provided on control box. Do not connect power supply directly to the circuit board.

1. **Single phase:** Connect single phase power supply to terminals L (line) and N (neutral) on three-pole power terminal strip (110V or 220V 1-phase).
2. **Three-phase:** Connect three phase power supply to terminals L1, L2 and L3 on three-pole power terminal strip (208V, 230V, 380V, 460V or 575V).



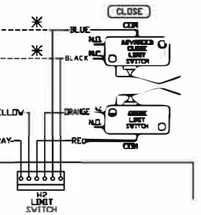

## On board O/C/S PBS instructions

On-board Open, Close and Stop buttons are provided directly on the board for installation and troubleshooting purposes. In order to operate unit by on-board Open,-Close,Stop buttons, the factory installed jumper (#1) between the COM and STOP terminals on the terminal strip must remain connected.

## Motor direction verification

Make sure the mode of operation is selected to D1.
After electrical power connections are made, manually move door to mid-position. Using the onboard buttons press and hold the "Open" button for several seconds and then release. If door did not move in correct direction (or if limit cams not moving in correct direction towards the open limit switch) see below:

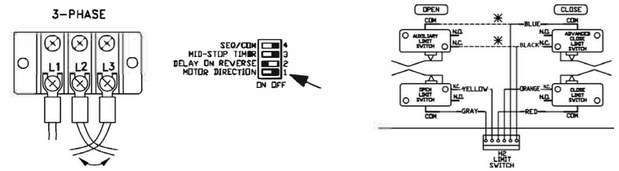
**For single phase operators:** The operators leave the factory with correct motor and limit shaft direction according to standard door installations. However, for special fire door, through wall mounting or other special door applications, the motor direction and limit switch direction may need to be reversed. A dipswitch (Dip #1) is provided to reverse direction of motor and limit switch direction. If motor direction is reversed, the open and close limit switches are automatically reversed. However, the advanced close limit switch needs to be manually changed. Disconnect the 2 wires from the advanced closed limit switch and re-connect to the auxiliary limit switch provided.




**Note:** Ensure that when the on-board open button is depressed and the door moves in the correct open direction that activation of the open limit switch illuminates the "OPEN LIMIT" L.E.D and stops the door.

**For 3-phase operators:** If door moves in wrong direction, turn off incoming power and reverse any two of the three incoming power supply leads to correct rotation. Press the on board open button again. If door is going in the correct open direction, activate the open limit switch to ensure door stops. If door does not stop, turn off incoming power and interchange any two incoming power lines once again and slide dipswitch #1 to reverse motor direction. If motor direction is reversed, the open and close limit switches are automatically reversed. However, the advanced close limit switch needs to be manually changed. To do this, disconnect the 2 wires from the advanced limit switch and re-connect to the auxiliary limit switch provided.

**Note:** Ensure that when the on-board open button is depressed and the door moves in the correct open direction that activation of the open limit switch illuminates the "OPEN LIMIT" L.E.D and stops the door.

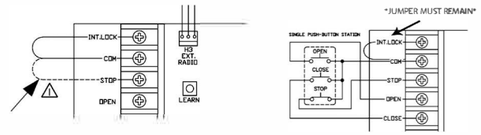



## Limit switch adjustments

Once the motor rotation and limit cam direction have been verified, adjust the limit cam settings. Please note that when each limit switch is activated the corresponding LED will light up. Refer to operator installation manual for complete limit switch adjustment instructions.

## Connection of external O/C/S PBS

Connect O/C/S PBS as shown in diagram.
**Note:** Jumper #1 must be removed after the external O/C/S PBS has been installed.

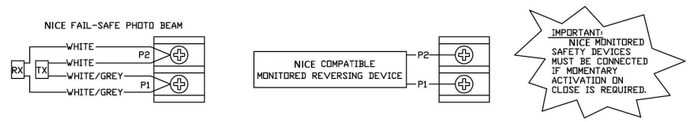



## Failsafe feature

A safety device failsafe feature is built into the logic board. The logic board has provisions to connect one primary monitored safety device as well as 1 or more secondary non-monitored safety device(s).

### Primary monitored safety device

Nice monitored failsafe photo beams or Nice compatible monitored failsafe devices must be connected to terminals P1 and P2 as primary monitored safety device. Primary monitored safety device must be connected if momentary activation on close is required in B2, T and TS modes. If it is not connected in B2, T and Ts modes, door can only be closed by constant pressure on close and if constant pressure is removed before door reaches full close position, door reverses to full open.
**Note:** Only one monitored failsafe device can be connected to terminals P1 and P2.

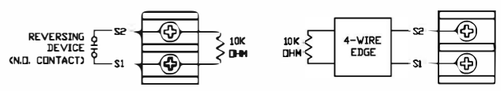



### Secondary non-monitored safety device(s)

A standard 2-wire safety edge, non-monitored photo beams or any other non-monitored reversing devices with a N.O contact can be connected to terminals S1 and S2 as secondary non-monitored safety device.
**Note:** More than one secondary non-monitored safety device can be connected to terminals S1 and S2.
**Important:** Do not remove the resistor that is factory installed across terminals S1 and S2 unless installing a 4-wire electric edge.

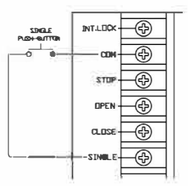
### 4-wire electric edge

A standard 4-wire electric edge can be connected across S1 and S2 terminals as a secondary safety device. Remove the factory installed resistor across terminals S1 and S2 when using a 4-wire electric edge




## Connection Of External Single-Button Device

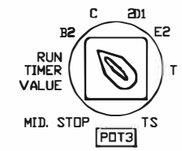
Connect an external single-button as shown in diagram. Please refer to "Modes of operation" for the functionality of single-button.




## Modes of operation

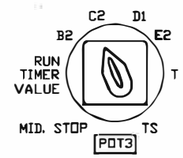
All operators leave the factory in the D1 mode setting; Please read all Modes of Operation and determine which operational mode is desired

**B2: (Momentary on open and close)**



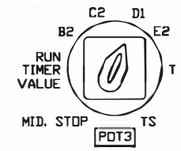

- Open Button: Momentary activation opens the door. When door is closing, momentary activation reverses the door (OPEN OVERRIDE). Momentary contact from mid-stop opens the door to full open position. Constant activation when door is opening, bypass mid-stop if enabled.
- Close button: Momentary on close.
- Stop button: Momentary activation stops the door.
- Single button device and single channel transmitter, 3-channel (1,2,3) transmitter:
  SEQ. FUNCTION: Open/Stop/Close/Reverse.
  COMMERCIAL FUNCTION: Open/Close/Reverse.
- 3-button O/C/S radio transmitter: Same as open, close, stop buttons.
- Safety Devices: When door is closing, momentary activation reverses the door.
- Timer to close: N/A

**C2 (Momentary open, constant pressure close)**



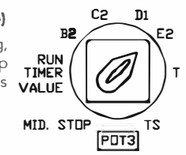

- Open Button: Momentary activation opens the door. When door is closing, momentary activation reverses the door (OPEN OVERRIDE). Momentary contact from mid-stop opens the door to full open position. Constant activation when door is opening, bypass mid-stop if enabled.
- Close button: Constant pressure on close. Door will stop when button is released
- Stop button: Momentary activation stops the door.
- Single button device:
  SEQUENTIAL FUNCTION: Open/Stop/Constant pressure on close/stop.
  COMMERCIAL FUNCTION: Open/Constant pressure on close/stop.
- Single channel transmitter, 3-channel (1,2,3) transmitter and 3-button O/C/S radio transmitter: Momentary activation opens the door. Momentary contact of OPEN button on 3-button (O/C/S) radio transmitter from mid-stop opens the door to full open position. Cannot close the door.
- Safety Devices: When door is closing, momentary activation reverses the door.
- Timer to close: N/A

**D1: (Constant pressure on open and close)**



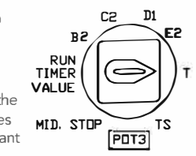

- Open Button: Constant pressure opens the door. Door stops when constant pressure is released. Constant pressure from mid-stop opens the door to full open position.
- Close button: Constant pressure on close. Door will stop when button is released
- Single button device, single channel transmitter, 3-channel (1,2,3) transmitter and 3-button (O/C/S) radio transmitter : N/A
- Safety Devices: When door is closing, momentary activation reverses the door.
- Timer to close: N/A

**E2: (Momentary on open, constant pressure on close with roll-back feature)**




- Open Button: Momentary activation opens the door. When door is closing, momentary activation reverses the door. Momentary contact from mid-stop opens the door to full open position. Constant activation when door is opening, bypass mid-stop if enabled.
- Close button: Constant pressure on close. Door reverses to full open when button is released.
- Single button:
  SEQUENTIAL FUNCTION: Open/Stop/Constant pressure on close/stop.
  COMMERCIAL FUNCTION: Open/Constant pressure on close/stop.
- Single channel device, 3-channel (1,2,3) transmitter and 3-button (O/C/S) radio transmitter: Momentary activation opens the door. Momentary contact of OPEN button on 3-button (open/close/stop) radio transmitter from mid-stop opens the door to full open position. Cannot close the door.
- Safety Devices: When door is closing, momentary activation reverses the door.
- Timer to close: N/A

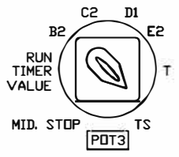
**T: (Momentary on open and close, timer to close, safety activation & stop button disable timer)**




- Open Button: Momentary activation opens the door. When door is closing, momentary activation reverses the door. Momentary contact from mid-stop opens the door to full open position. Momentary contact at full-open refreshes the timer if enabled at full open. Momentary contact at full open position re-activates the timer if timer is disabled previously by stop button or safety device. Constant activation when door is opening, bypass mid-stop if enabled.
- Close button: Momentary on close.
- Stop button: If door is opening or closing, momentary activation stops the door. Momentary

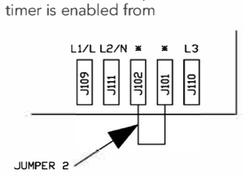
activation while timer is counting at mid-stop or full open de-activates the timer.
- Single button device, single channel and 3-channel (1,2,3) radio transmitter:
  SEQUENTIAL FUNCTION : Open/Stop/Close/Reverse.
  COMMERCIAL FUNCTION: Open/Reverse/Refresh timer.
- 3-button (O/C/S) transmitter: Same as open, close, stop buttons.
- Safety Devices: When door is closing, momentary activation reverses the door to full open AND DISABLES TIMER .
- Timer to close: Closes the door from mid-stop or full open. Momentary activation of stop button will de-activate the timer. When door is closing, momentary activation of safety devices will reverse the door to mid-stop (if enabled) or full open and de-activates the timer. Timer resumes its normal operation upon momentary activation of open push button or once the close cycle is completed. If mid-stop is enabled and "Timer from mid-stop only" dip-switchis ON, timer is enabled only from mid-stop and disabled from full open. If mid-stop is enabled and "Timer from mid-stop only" dip-switch is OFF, timer is enabled from full open and mid-stop.

**TS: (Momentary on open and close, timer to close secure, STOP BUTTON DISABLES TIMER)**




- Open Button: Momentary activation opens the door. When door is closing, momentary activation reverses the door. Momentary contact from mid-stop opens the door to full open position. Momentary contact at full-open refreshes the timer if enabled at full open. Momentary contact at full open position re-activates the timer if timer has been disabled previously by stop button. Constant activation when door is opening, bypass mid-stop if enabled.
- Close button: Momentary on close.
- Stop button: If door is opening or closing, momentary activation stops the door. Momentary activation while timer is counting at mid-stop or full open de-activates the timer.
- Single button device, single channel transmitter and 3-channel(1,2,3) radio transmitter:
  SEQUENTIAL FUNCTION: Open/Stop/Close/Reverse.
  COMMERCIAL FUNCTION: Open/Reverse/Refresh timer.
- 3-button O/C/S radio transmitter: Same as open, close, stop buttons.
- Safety Devices: When door is closing, momentary activation reverses the door. Momentary activation refreshes the timer to close.
- Timer to close: Closes the door from mid-stop or full open. Momentary activation of stop button will de-activate the timer. Timer resumes its normal operation upon momentary activation of open push button or once the close cycle is completed. If mid-stop is enabled and "Timer from mid-stop only" dip-switch is ON, timer is enabled only from mid-stop and disabled from full open. If mid-stop is enabled and "Timer from mid-stop only" dip-switch is OFF, timer is enabled from full open and mid-stop.

**Warning:** When replacing the logic board in a single-phase operator, make sure th`at Jumper 2 is installed properly before operating the door. Failure to do this will damage the logic board.

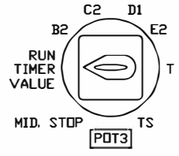



## Programming Instructions

**Note:** all program functions can be initiated by turning the selector swtich to the desired setting at any point during operation except for the mid stop and run timer mode,programming must start from the full closed position.

**Run-Timer Setup**

Run-timer is the maximum amount of time the motor will run upon receiving an open or close command. The factory default value for run-timer is 45 seconds.




***Modify the run-timer from factory default***

1. Close the door to full close position.
2. Set the selector dial to "Run-timer" position. The "Delay On Close Timer" LED should blink.
3. Press open button. Wait until door reaches full open position. The run timer value is set to the time taken for the door to travel from full close position to full open position plus 5 seconds.
4. Set the selector dial to the desired mode of operation.

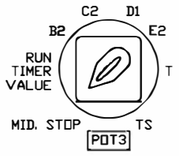
***Modify the run-timer to factory default***

1. Close the door to full close position.
2. Set the selector dial to "Run-timer" position.
3. Press stop button. The run-timer is modified to the factory default value. Then set the selector dial to the desired mode of operation.

**Mid-stop setup**

Mid-stop feature can be used to open the door to a preset point prior to full open position.
To Activate mid-stop:

1. Close the door to full close position. `
2. Set the selector dial to "Mid-stop" position. "Mid-stop" LED starts blinking.



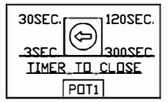

3. Press open push button. Door opens. Once the door reaches the desired mid-stop position, stop the door by activating stop push button.
4. Set the selector dial to the desired mode of operation.

**Note:** When door opens to the programmed mid-stop position, "Mid-Stop" LED will illuminate.
To De-activate the mid-stop position:

1. Close the door to full close position.
2. Set the selector dial to "Mid-stop" position.
3. Press the stop button, Mid-stop is de-activated.
   Modify mid-stop position: To modify the current mid-stop position, follow the same steps to activate mid-stop. The new mid-stop position will override the old mid-stop position.

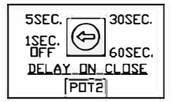
**Timer to close Setup**

Timer to close is enabled only in TS and T modes of operation. To adjust the timer value turn POT1 clockwise to the desired value. The minimum value for timer to close is 3 seconds and the maximum value is 300 seconds.




**Delay on close Setup (only for use with optional apartment board)**

Delay on close timer can be used to delay the closing of the door in B2 and TS modes of operation. This timer is de-activated in C2, D1, E2 and T modes of operation. Delay on close timer is OFF when the "Delay on close" dial is set to OFF position. To adjust this timer, rotate the dial clockwise to the desired value. The minimum value for delay on close timer is 1 second and the maximum value is 60 seconds. It is recommended to use this feature in apartment applications where RED and GREEN traffic lights are used.




**Note:** In TS mode, the "Delay on close" timer starts only once the "Timer to close" has finished counting. Unless a delay on close is required this dial should be rotated to the OFF position.

## On-Board Receiver Programming

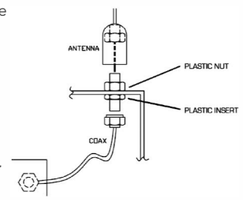
This logic board has an in-built 372 MHz radio receiver and can only be used with Nice single button, 3-button (OPEN/CLOSE/STOP) and 3-channel radio transmitters.

**Installing The Antenna**

Direct Connection: Attach the antenna when supplied with the operator to the F connector on the control box. For best reception, keep antenna wire straight and away from metal objects.
Indirect connection (Mounting the antenna at a remote location):

1. Connect coax extension cable (OPTIONAL) to the F connector on the control box.
2. Route cable inside metal enclosure.
3. Route and secure cable away from moving parts.
4. Mount antenna holder (not provided) outside enclosure.
5. Attach antenna to extension wire.
6. Position antenna wire straight. For best reception, keep antenna away from metal.

**Note:** Do not route coax cable near any moving parts of the operator. If necessary secure coax wire away from any moving parts.




**Programming The On-Board Radio Receiver**

**Warning:** During programming, door operator will activate.
Keep people and objects away from door.

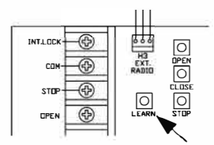
1. Connect power to door operator.
2. Press and release the learn button once. The receiver's LED will turn on.
3. To program a single button transmitter, press the button on the transmitter. The receiver's LED will blink twice indicating a successful programming.
4. Press the button on the transmitter once more to confirm operation of the door operator.
5. To program a 3-channel (1,2,3) transmitter, press any of the 3 buttons on the transmitter. The receiver's LED will blink twice indicating a successful programming. Press the same button on the transmitter to confirm operation of the door operator. This button is now associated with that particular receiver. You can repeat the programming process for the other two buttons to control two other receivers.
6. To program a 3-button (O/C/S) transmitter, press OPEN button on the transmitter. The receiver's LED will blink twice indicating a successful programming. Press the OPEN button on the transmitter to confirm operation of the door operator. OPEN, CLOSE and STOP buttons on the transmitter can be used to open, close and stop the operator respectively.
7. Test range of transmitter. Repositioning antenna may provide greater range.
8. Repeat transmitter programming steps for additional transmitters.

**Operation:**

1. Press and release the button on Nice transmitter.
2. Receiver LED will light momentarily and door will cycle.

**To Erase All Learned Transmitters**

1. Press and hold down the LEARN button.
2. After 5 seconds, the LED will blink for 5 seconds.




3. Release the LEARN button during the time LED is blinking.
4. After you released the button, the LED will blink 5 times indicating all transmitters are erased from the receiver's memory.

**Replacing Remote Control Batteries**

The batteries (lithium, 3V) should produce power for up to 5 years. To replace the battery, open the transmitter by removing the screws on the back of the transmitter. Match the positive and negative terminals of the battery to the positive and negative terminals of the transmitter.
**Note:** The receiver and transmitter comply with part 15 of the FCC rules with RSS-210 of industry Canada. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
**Note:** If an external radio-receiver (Nice or other) is used instead of the built-in radio receiver, it is highly recommended to disconnect the co-axial cable from the logic board. **Note:** When using any external receiver, the Nice on-board receiver should not be used.

## Dip switch set up

| Dip-switch | ON | OFF | NOTE |
|---|---|---|---|
| SEQ/COM | Single button and radio in SEQ mode | Single button and radio in COM mode | |
| Mid-stop timer | Timer is enabled from mid-stop only | Timer is enabled from both mid-stop and full open | T or TS mode must be selected to enable a timer for mid-stop |
| Delay on reverse | Delay on reverse is 1.5 seconds | Delay on reverse is 0.5 seconds | Nice recommends 1.5 sec delay on reverse for all applications |
| Motor direction | Reverse motor direction | Standard motor direction | See Note** below |

** **Note:** If motor direction is reversed, the open and close limit switches are automatically reversed. However, the advanced close limit switch needs to be manually changed. To do this, disconnect the 2 wires from the advanced closed limit switch and re-connect to the auxiliary limit switch provided.

## Status LED

| LED | Status | Cause |
|---|---|---|
| Fault | ON | - Primary safety devices not connected to P1 & P2 or not functioning properly<br>- Safety devices are activated<br>- 10K Ohm resistors (between S1 and S2) removed or faulty |
| Fault | Blinking | - Interlock is activated<br>- interlock jumper is not connected |
| Run-out timer | ON | - Run-out timer has elapsed |
| Delay on close timer | Blinking | - Delay on close timer is counting<br>- Selector dial is set to Run-timer |
| Timer to close | Blinking | Timer to close is counting |
| Safety/Photo | ON | - Primary safety devices not connected to P1 & P2 or not functioning properly<br>- Safety devices are activated<br>- 10K Ohm resistor (between S1 and S2) removed or faulty. |
| Mid. Stop | ON | Door is at Mid-stop position |
| Close Limit | ON | Close limit switch is activated |
| Open Limit | ON | Open limit switch is activated |
| Stop PB | ON<br>OFF | - Stop button connected and functioning<br>- Stop push button is activated (or stop circuit is open) |
| Close Relay | Blinking | - Door is closing<br>- Close relay is activated |
| Open Relay | Blinking | - Door is opening<br>- Open relay is activated |
| Power | ON | 24 VAC power to logic board is ON |