



Dor-O-Matic.

**Mid-Swing™
Universal Control Box**

**Instruction Manual
85455-900 Universal Control Box**

Factory Authorized Door Leaf Size & Weight:

<u>Type</u>	<u>Width per Leaf</u>	<u>Max. Weight per Leaf</u>
Single Door	36" to 48"	200 lb.
Simultaneous Pair	30" to 48"	200 lb.

DOR-O-MATIC®

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Mid-Swing

85455-900 Universal Control Box Manual

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GENERAL

The NEW Mid-Swing Universal Control Box 85455-900 is the replacement for the Mid-Swing Universal Control Box 85450-900. The 85455-900 physically looks exactly the same as the 85450-900, and operates almost identically to the 85450-900. The main differences are as follows:

1. The original red and black wires and 2 pin Molex plug for the slave door have been removed.
2. We have added an additional 9 pin Logic plug connector on the input side of the control box for the new #85398-000 slave cable. Note: **DO NOT** connect anything else to this connector.
3. The circuit breaker was removed from the control box and fuse holder/fuse was added to the master and slave (#85398-000) wiring harness to provide motor protection. In case of an overload on either of the motors, the fuse will blow to protect the motor. In order to restore the operation back to normal, the fuse must be replaced with the exact same type and rating.

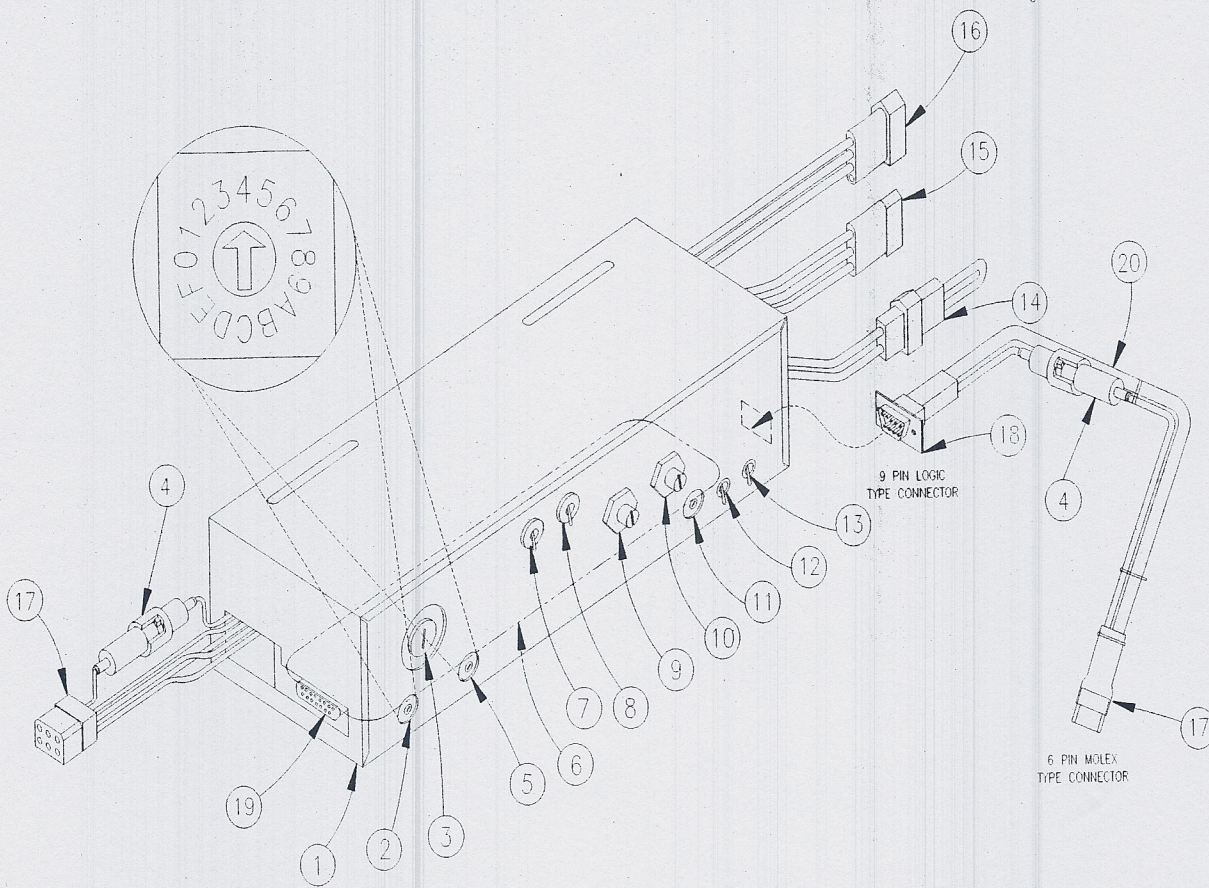
To provide reliable operation of the slave door on simultaneous pairs, the control is now reading the direction and movement of the slave door with the Hall effect counter. Use the new #85398-600 slave cable when replacing existing control boxes on simultaneous pairs of doors.

The #85455-900 is the most diversified control box ever offered, and may be used to replace almost all previous generations of Mid-Swing control boxes.

IMPORTANT INFORMATION

- Note: #85455-900 "Universal" control boxes have a 15-pin logic plug and a 9-pin logic plug. If you are replacing a box with a 9-pin logic plug and you have switches or other devices that plug into the 9-pin logic plug, those switches or devices must also be replaced. Do not plug any accessory switches into the 9-pin slave plug on the 85455-900 control box.

PART IDENTIFICATION



- | | |
|---|--|
| <p>① CONTROL BOX # 85455-900/-400 115 Volt</p> <p>② FUNCTION SELECTOR DIAL</p> <p>③ FUSE, #771018-600 3A</p> <p>④ FUSE HOLDER, WITH FUSE #70626-600 .75A</p> <p>⑤ LATCH SELECTOR DIAL</p> <p>⑥ LABEL FOR FUNCTION & LATCH SELECTOR DIALS (LOCATED ON BOTTOM OF BOX)</p> <p>⑦ PUSH-N-GO ON/OFF SWITCH</p> <p>⑧ POWER BOOST ON/OFF SWITCH</p> <p>⑨ CLOSING SPEED ADJUSTMENT (FOR MASTER UNIT)</p> <p>⑩ CLOSING SPEED ADJUSTMENT (FOR SLAVE UNIT)</p> <p>⑪ TIME DELAY ADJUSTMENT (1 1/2 SEC. TO 30 SEC.)</p> | <p>⑫ OPENING SPEED ADJUSTMENT (#1 FAST, #2 MEDIUM, #3 SLOW)</p> <p>⑬ BACKCHECK SPEED ADJUSTMENT (#1 - ONE DOOR, #2 - TWO DOORS)</p> <p>⑭ 2-PINS FEMALE FOR BREAKAWAY SWITCH</p> <p>⑮ 3-PINS FEMALE, ACTIVATION</p> <p>⑯ 4-PINS MALE, POWER INPUT</p> <p>⑰ 6-PINS FEMALE, TO MASTER OPERATOR</p> <p>⑱ 9-PINS FEMALE, TO SLAVE OPERATOR (NEW)</p> <p>⑲ LOGIC TERMINAL-USED FOR ACCESSORIES (15-PINS)</p> <p>⑳ SLAVE CABLE #85398-000</p> |
|---|--|

Figure 1: Mid-Swing 85455-900 Universal Control Box

CONTROL BOX SETTING AND ADJUSTMENT

1. Operational Check and Adjustments:

- A. Set opening speed switch to position #3, (Slow).
- B. Set back check speed switch to position #1, (One Door).
- C. Adjust time delay potentiometer approximately 1/8 turn up from minimum.
- D. Turn the power on to the operator. After the first activation signal, the door must be allowed to fully open and close one time, after which it is ready for normal operation.
- E. Opening Speed Adjustment:
 - 1. Opening speed is adjusted by a three position toggle switch, marked 1,2,3: #1 Fast; #2 Medium; #3 Slow. These are pre-set speeds, but allow proper adjustment for any normal weight and size door.
 - 2. Cycle the door open and closed several times and observe the opening speed. Select a switch position setting that gives desired opening speed.

NOTE: It is recommended that the door be operated as slow as is practical for the traffic conditions.

F. Back Check Position:

There is no adjustment available on the back check position, because it is set automatically while the door sizes itself.

G. Back Check Speed Adjustment:

- 1. The back check speed is controlled by a two position toggle switch marked #1-One Door and #2-Two Doors.
- 2. For any size single door, the switch should be set to position #1.
- 3. For a simultaneous pair of doors, the switch should be set in position #2.

H. Closing Speed Adjustment:

- 1. Continue to cycle the door open and closed while making adjustments.
- 2. You will notice there are two closing speed adjustment potentiometers, one marked "Master" and one marked "Slave". On simultaneous pairs of doors, each leaf can be adjusted separately, allowing both doors to close fully and simultaneously.
- 3. On a single door, only the Master potentiometer is used to adjust closing speed. The Slave control has no effect.

I. Latch Position:

The latch rotary selector switch, is used to change the position where the latch occurs (0 to 23 degrees from the fully closed position). The latch selector settings are marked 0 through 7 on the rotary dial located on the control box. Adjustments are made using a small screwdriver. Setting zero selects no latch occurring at all, whereas setting 7 selects latch occurring at 23 degrees from the fully closed position. Setting 4 selects the standard latch of 13 degrees from fully closed position. Dial the latch setting to the position required by the environment into which the door was installed.

J. Latching speed:

Latching speed is factory set and has no adjustment.

K. Time Delay Adjustment:

1. to meet ANSI/BHMA A156.19 Standard, the total time delay, including any delay in the activation and safety devices, must be adjusted to hold the door open for a minimum of 5.0 seconds after both activation and safety zones are clear.
2. Increase the time delay period by turning the TIME DELAY knob (potentiometer) clockwise. The total adjustment range on the control box itself is 1 to 30 seconds of time delay.

L. Power boost close and power boost hold features:

1. This is a built-in feature that can be turned on or off with a two position toggle switch.
2. It is used to electronically increase the closing force of the door from 9 lbs. to 18 lbs. in order to close and hold the door closed against high winds or high stack pressure.
3. When the power boost close and hold feature is turned on, the automatic increase in power occurs approximately 7 seconds after the door has closed to the latch position. The power boost feature will not turn on during the closing door travel.
4. Power boost is non-functional on a Mid-Swing control box

2. Operational Walk through Test:

NOTE: It is assumed that during the installation process, any problems would have been found and corrected before this point. However, it is recommended that a complete walk-through test now be performed.

- A. Opening and holding function: Normally walk up to the door and step into the activating area. The door should open smoothly and silently to the backcheck point, where it should slow down rapidly and drift into full 90 degrees open without slamming.
- B. Remain standing in the activating area for a while, making sure that the door does not time out and close while being activated.
- C. If a safety device is installed, walk on through the doorway and into the safety area, remain in the safety area making sure that the door does not close while the safety area is occupied.
- D. Step out of the safety area and when both the activating and the safety areas are clear, the door should time out at the pre-set time delay period. The door should then close quietly and smoothly to the latch point, where it rapidly slows down and slowly drifts into the fully closed position without slamming.
- E. Safety Function with the Door Closed: If a safety device is installed, step back into the safety area, and have someone else step into the activating area. The door must not open.
- F. Step out of the safety area and the door should open fully. Have the other person step out of the activating area. The door should stand open until the end of the time delay cycle, and then close as before.

FUNCTION AND LATCH LABEL

MID-SWING UNIVERSAL CONTROL BOX	
SETTING	FUNCTION SELECTOR DIAL
*0	77700-900 - 1 Second Hold-Open on PUSH-N-GO operation; Variable 2-30 second Hold-Open with remote switch
1	77700-900 - Same Variable 2-30 second Hold-Open on PUSH-N-GO and remote switch
2	77700-900 Delayed Activation w/Setting 0
3	77700-900 Delayed Activation w/Setting 1
4	77700-900 Auto Reversing in Closing Cycle, w/Setting 0
5	Super-Nova Safety Slow
6	Super-Nova Safety Stop
7	77700-900 10th cycle Re-cycle w/Setting 0
8	87500-900 Door Mounted Safety Sensor
9	Unassigned
A	Unassigned
B	Carpets / Mats
C-D	Unassigned
E	Alternate Action
F	Unassigned

SETTING	LATCH SELECTOR DIAL
0	Zero Latch
1	3" Latch
2	7" Latch
3	10" Latch
*4	13" Latch (Standard)
5	17" Latch
6	20" Latch
7	23" Latch
8-9	Unassigned
A-F	Unassigned

* - Boxes shipped with selector switches in these positions.

For any questions: (a) Consult the complete instruction manual for the Mid-Swing Universal Control Box or (b) Call the Dor-O-Matic factory at 1-800-543-4635

4625-600 Rev.F

For any question: Call the Dor-O-Matic factory 1-800-543-4635

Figure 2: Mid-Swing 85455-900 Universal Control Box Label

FUNCTION AND LATCH LABEL DESCRIPTION

A representation of the control box function and latch label can be seen in Figure 2. This label shows how to set up the box to work in various applications. Some of the settings refer to functions while others refer to external devices. Please see complete explanations below. *Remember to disconnect the 115VAC input to the control box before changing the function or latch dials to insure proper operation.* Also note: at power-up a universal style control box will not begin its sizing mode if the main activation wires were sustained (tied together). With the activation cleared, the control will not go into sizing mode until receiving an activation signal. A manual push on the master door will also begin the sizing mode. Some older style boxes begin sizing immediately upon power-up.

77700-900, 1 Second Hold-Open on PUSH-N-GO operation; Variable 2-30 Second Hold-Open with remote switch (function 0): In this setting, the hold-open time for PUSH-N-GO is fixed at 1 second, and the hold-open time for the remote switch is variable from 2-30 seconds. The 85455-900 is shipped with the function switch in this position, if a 77700-900 sensor is used.

77700-900, Same variable 2-30 second Hold-Open on PUSH-N-GO and remote switch (function 1):

This setting is similar to function 0 except that the hold-open time for PUSH-N-GO is the same as that of the remote switch.

77700-900, Delayed Activation w/Setting 0 (function 2): This setting is based on function 0. When the door is at the fully closed position, there is approximately a 1-second delay between reception of the activation signal and the actual opening of the door. This delayed activation allows most electric strikes, electric panics, or magnetic locks ample time to retract before the door opens.

77700-900, Delayed Activation w/Setting 1 (function 3): This setting is based on function 1. When the door is at the fully closed position, there is approximately a 1-second delay between reception of the activation signal and the actual opening of the door. This delayed activation allows most electric strikes, electric panics, or magnetic locks ample time to retract before the door opens.

77700-900, Automatic Reversing in Closing Cycle, w/Setting 0 (function 4): This setting is based on function 0. In this setting, the door will re-open if it encounters an obstacle during the *closing* cycle.

Super Nova Safety Slow (function 5): This setting is for use with the Super Nova Safety System. Once the door has begun opening, any person or object entering the swing area will cause the door to go into a safety slow speed.

Super Nova Safety Stop (function 6): This setting is similar to function 5 except that the door will stop, hold for a few seconds, then continue opening at a safety slow speed

77700-900, 10th Cycle Re-Cycle with setting 0 (function 7): This setting has a feature that opens the door automatically after the 10th manual opening of the door. This feature refreshes the microprocessor's counter and is only noticed when PUSH-N-GO is turned off and the door is opened manually.

87500-600 Door Mounted Safety Sensor (function 8): This setting is for use with the Door Mounted Safety Sensor System. Once the door has begun opening, any person or object entering the swing area will cause the door to go into a safety slow speed.

Unassigned (function 9-A):

Carpets / Mats (function B): This setting is for swing door systems that use carpets / mats.

Unassigned (function C-D):

Alternate Action (function E): When the door is fully closed (or closing), an activation signal will open (or re-open) the door. Once the door is at the fully open position, it will stay there. When the door is fully open, an activation signal will allow the door to close. Dor-O-Matic recommends using **only push buttons or key switches** in this setting. While some other devices will work, they may cause erratic and unsafe door operation.

Unassigned (function F):

Automatic Reversing

Open Cycle: Functions 0-7 have automatic reversing in the opening cycle. The door will **stop and close** if it encounters an obstacle in the *opening* cycle.

Close Cycle: Function 4 has automatic reversing in the closing cycle. The door will **re-open** if it encounters an obstacle during the *closing* cycle.

LATCH

The latch rotary selector dial allows the latch position to be set at the desired angle. The standard latch position is 13° (setting 4). This is the latch setting that all 85455-900 control boxes are factory shipped in.

DEVICES

DEVICES

Activation: Push buttons are the most basic of activating devices. Actually this can be any normally open dry contact. This can include push buttons, push plates, card readers, keypads, relays, etc. as long as it is a normally open dry contact. ***No external voltage can be applied to the activating wires of the control box!*** These devices are usually momentary contacts although sustained contacts may be used if necessary. The Mid-Swing unit is designed to hold the door open under a sustained activation without damaging itself, note: at power-up the main activation should be cleared until control completes the sizing mode.

77700-900: Function settings 0-4 & 7 are intended for use with the sensor. These sensors should only be used with the rocker switch (84220-900), or keyswitch (84219-900).

Super Nova: Function settings 5 & 6 are intended for use with the Super Nova Safety System. These sensors should only be used with the rocker switch (84220-900), or keyswitch (84219-900).

87500-900: Function setting 8 is intended for use with the 87500-900 Door Mounted Safety Sensor. These sensors should only be used with the rocker switch (84220-900), or keyswitch (84219-900).

Carpets/Mats: Carpets/Mats can be used on the activating and/or safety side. When someone stands on the activating carpet/mat and the safety carpet/mat is unoccupied, the door will open and stay open as long as someone is standing on the activating carpet/mat. When the activating carpet/mat is clear and the safety carpet/mat is unoccupied, the door will time out and close. Standing on a safety carpet /mat will, (1) keep a fully closed door from opening, or (2) keep a fully opened door from closing. There are no safety stop or safety slow features on carpets/mats. The safety carpet/mat always takes precedence over the activating carpet/mat. Carpets/Mats should only be used with the rocker switch (84220-900), or key switch (84219-900), and adapter harness (95168-600).