

# NT DOR-O-MATIC™



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## Astro-Swing Universal Control Box

### Instruction Manual 85420-900 Universal Control Box

<b>Factory Authorized Door Leaf Size &amp; Weight:</b>		
<u>Type</u>	<u>Width per Leaf</u>	<u>Max. Weight per Leaf</u>
Single Door	36" to 48"	200 lb.
Sim. Pair	30" to 48"	200 lb.

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Single Door	36" to 48"	200 lb.
Sim. Pair	30" to 48"	200 lb.

### **NT DOR - O - MATIC™**

7350 W. Wilson Ave.

Harwood Heights, IL 60656

Toll Free: 1-800-543-4635

In Illinois: 708-867-7400

Sales FAX: 708-867-0291

Engineering FAX: 708-867-1177

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## 85420-900 Universal Control Box

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## GENERAL

The **NEW** Astro-Swing Universal Control Box 85420-900 is the replacement for the Astro-Swing Universal Control Box 84580-900. The 85420-900 physically looks exactly the same as the 84580-900, and operates almost identically to the 84580-900. The main differences are as follows:

1. The 85420-900 will work with SWING-12 equipment.
2. The 85420-900 requires a "Special System" program to work with the Dor-O-Matic electric lock.
3. The 85420-900 contains improvements within the hardware for increased reliability and better operation.

## CONVERSION CHART

STANDARD SYSTEM	PREVIOUSLY	CURRENTLY
SWING-12 Safety Slow	not available	85420-900
SWING-12 Safety Stop	not available	85420-900
SWING-12 Delayed Activation	not available	85420-900
SWING-12 Trained Traffic - No Beam	not available	85420-900
Super-Nova Safety Slow	84555-900, 84580-900	85420-900
Super-Nova Safety Stop	84557-900, 84580-900	85420-900
Super-Nova Delayed Activation	not available	85420-900
Sensor Rail Safety Slow	84540-900, 84580-900	85420-900
Sensor Rail Safety Stop	84551-900, 84580-900	85420-900
Alternate Action	84542-900, 84580-900	85420-900
Power-Boost 5 Seconds, then Shut-Off	84556-900, 84580-900	85420-900
Carpets	84540-900, 84580-900	85420-900
Adjustable Latch	8457X-900, 84580-900	85420-900
Automatic Reversing in Closing Cycle	84580-900	85420-900
Limit Switches	81540-900, 84580-900	85420-900
Original Nova Safety Slow	84540-900	84540-900
Original Nova Safety Stop	84551-900	84551-900

SPECIAL SYSTEM	PREVIOUSLY	CURRENTLY
Dor-O-Matic Electric Lock (Note 1)	84541-900, 84580-900	85420-988
Spring Open, Power Close (Note 1)	84543-900, 84580-988	85420-988
Handle Switch Operation (Note 1)	84544-900, 84580-988	85420-988
180 Degree Swing (Note 1)	84547-900, 84580-988	85420-988
All Other Special Operations (Note 1)	84580-988	85420-988

Note 1: Special Systems are available upon request from the factory at no extra charge. See function setting "E Unassigned / Special" on page 6 and the explanation on page 8.

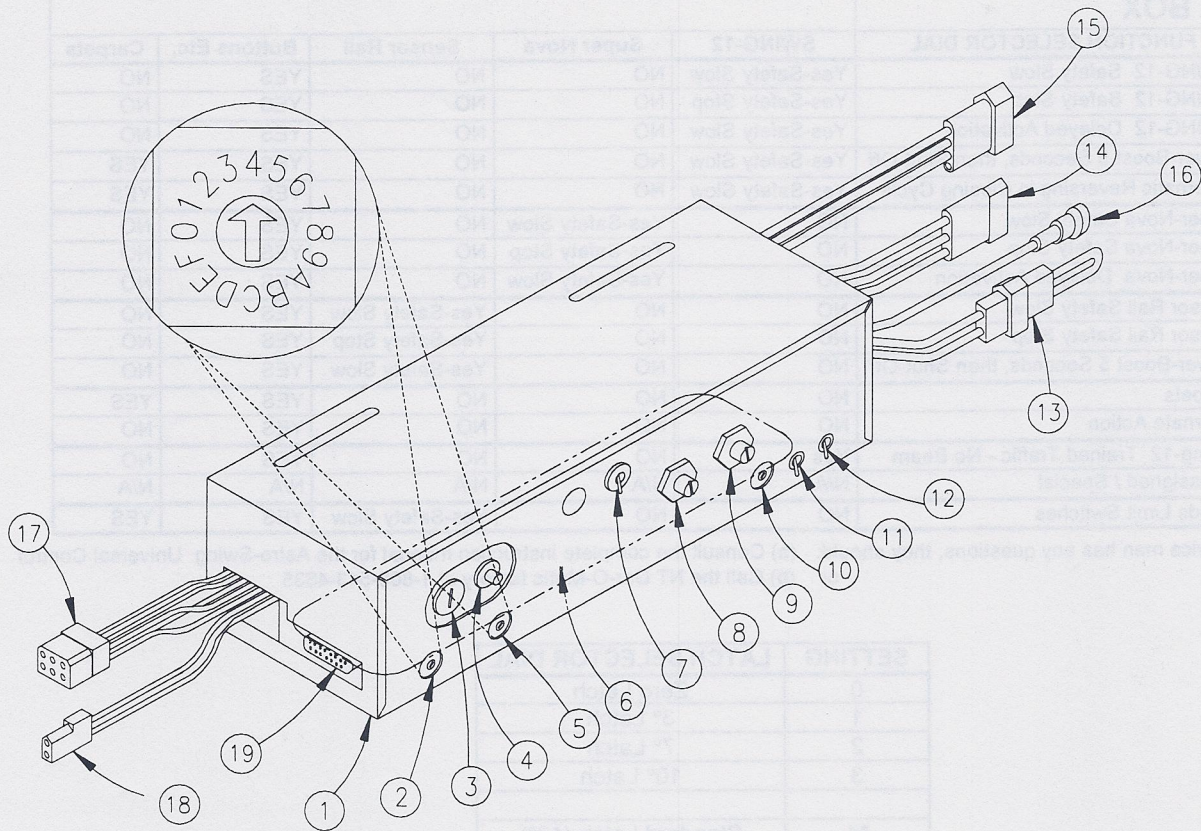
## IMPORTANT INFORMATION

- **Note:** all “Universal” control boxes have 15 pin logic terminals. If you are replacing a box with a 9-pin logic terminal and you have switches or other devices that plug into the 9-pin logic terminal, those switches or devices must also be replaced. Refer to the “DEVICES” section on page 8 for the appropriate switch to use.
- If you require a function which is not listed as a "Standard System" on the previous page, please consult the factory. Depending upon your requirements, a special control box may be made to fulfill your needs (See Note 1 on page 3). Remember that if you order a special control box, it will be more difficult and time-consuming to obtain replacements in the future. In some cases, it may be advisable to order future replacement control boxes at the same time as the original.
- The NEW Astro-Swing Universal Control Box 85420-900 is the *only* Astro-Swing Control Box that can be used with SWING-12 equipment.
- The NEW Astro-Swing Universal Control Box 85420-900 requires a "Special System" program to be used with the Dor-O-Matic electric lock 83001-900. The Dor-O-Matic electric lock was discontinued September 1, 1996, but there are still many in the field. For replacements, order a "Special System" control box 85420-988 to be used with the Dor-O-Matic electric lock 83001-900.

### Automatic Reversing in CLOSING Cycle

Function setting 4 “Automatic Reversing in Closing Cycle” is explained in the “FUNCTIONS” section on page 7.

# PART IDENTIFICATION



- |  |   |
|--|---|
| ① CONTROL BOX # 85420-900/-400 115 Volt<br>CONTROL BOX # 85420-991/-491 230 Volt | ⑩ TIME DELAY ADJUSTMENT (1 1/2 sec. to 30 sec.)                 |
| ② FUNCTION SELECTOR DIAL   | ⑪ OPENING SPEED ADJUSTMENT<br>(#1 FAST, #2 MEDIUM, #3 SLOW)     |
| ③ FUSE, 6 Amp I.B. for 115 Volt<br>FUSE, 3 Amp I.B. for 230 Volt                 | ⑫ BACKCHECK SPEED ADJUSTMENT<br>(#1 - ONE DOOR, #2 - TWO DOORS) |
| ④ CIRCUIT BREAKER, 2 Amp / 115 Volt<br>.7 Amp / 230 Volt                         | ⑬ 2 PIN FEMALE FOR BREAKAWAY SWITCH                             |
| ⑤ LATCH SELECTOR DIAL  | ⑭ 3 PIN FEMALE, ACTIVATION                                      |
| ⑥ LABEL FOR FUNCTION & LATCH SELECTOR DIALS<br>(LOCATED ON BOTTOM OF BOX)        | ⑮ 4 PIN MALE, POWER INPUT                                       |
| ⑦ POWER BOOST ON/OFF SWITCH  | ⑯ 1 PIN MALE - SAFETY SLOW/STOP                                 |
| ⑧ CLOSING SPEED ADJUSTMENT (FOR MASTER UNIT)                                     | ⑰ 6 PIN FEMALE, TO MASTER OPERATOR                              |
| ⑨ CLOSING SPEED ADJUSTMENT (FOR SLAVE UNIT)                                      | ⑱ 2 PIN FEMALE, TO SLAVE OPERATOR                               |
|  | ⑲ LOGIC TERMINAL - USED FOR ACCESSORIES                         |

Figure 1: Astro-Swing Universal Control Box

# FUNCTION AND LATCH LABEL

## ASTRO-SWING UNIVERSAL CONTROL BOX

Settings 0-F On the Left Work With:

SETTING	FUNCTION SELECTOR DIAL	SWING-12	Super Nova	Sensor Rail	Buttons Etc.	Carpets
*0	SWING-12 Safety Slow	Yes-Safety Slow	NO	NO	YES	NO
1	SWING-12 Safety Stop	Yes-Safety Stop	NO	NO	YES	NO
2	SWING-12 Delayed Activation	Yes-Safety Slow	NO	NO	YES	NO
3	Power-Boost 5 Seconds, then Shut-Off	Yes-Safety Slow	NO	NO	YES	YES
4	Automatic Reversing in Closing Cycle	Yes-Safety Slow	NO	NO	YES	YES
5	Super-Nova Safety Slow	NO	Yes-Safety Slow	NO	YES	NO
6	Super-Nova Safety Stop	NO	Yes-Safety Stop	NO	YES	NO
7	Super-Nova Delayed Activation	NO	Yes-Safety Slow	NO	YES	NO
8	Sensor Rail Safety Slow	NO	NO	Yes-Safety Slow	YES	NO
9	Sensor Rail Safety Stop	NO	NO	Yes-Safety Stop	YES	NO
A	Power-Boost 5 Seconds, then Shut-Off	NO	NO	Yes-Safety Slow	YES	NO
B	Carpets	NO	NO	NO	YES	YES
C	Alternate Action	NO	NO	NO	YES	NO
D	Swing-12 Trained Traffic - No Beam	Yes	NO	NO	YES	NO
E	Unassigned / Special	N/A	N/A	N/A	N/A	N/A
F	Reads Limit Switches	NO	NO	Yes-Safety Slow	YES	YES

If installer or service man has any questions, they should: (a) Consult the complete instruction manual for the Astro-Swing Universal Control or (b) Call the NT Dor-O-Matic factory at 1-800-543-4635

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

\* - Boxes shipped with selector switches in these positions.

Oct. 1996

Figure 2: Astro-Swing 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 on Page 6 of this manual. 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 that at power-up a universal style control box will not begin its sizing mode until receiving an activation signal. Some older style boxes begin sizing immediately upon power-up.

## FUNCTIONS

**SWING-12 Safety Slow (function 0):** This setting is for use with the SWING-12 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. All 85420-900 are shipped with the function switch in this position.

**SWING-12 Safety Stop (function 1):** This setting is similar to function 0 except that the door will stop, hold for a few seconds, then continue opening at safety slow speed.

**SWING-12 Delayed Activation (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.

**Power-Boost 5 Seconds, then Shut-Off (function 3):** This setting is based on function 0. In this setting the duration of the Power Boost is reduced to 5 seconds. Power Boost turns on after the set latch position has been reached. After 5 seconds the Power Boost shuts off. Normally, Power Boost stays on continuously even when the door is closed. This function setting is primarily used with the SWING-12 Safety System.

**Automatic Reversing in Closing Cycle (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 safety slow speed.

**Super-Nova Delayed Activation (function 7):** This setting is similar to function 2 except that it is for the Super-Nova Safety System, not the SWING-12 Safety System.

**Sensor Rail Safety Slow (function 8):** This setting is for use with the Sensor Rail 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.

**Sensor Rail Safety Stop (function 9):** This setting is similar to function 8 except that the door will stop, hold for a few seconds, then continue opening at safety slow speed.

**Power-Boost 5 Seconds, then Shut-Off (function A):** This setting is similar to function 3 except that it is for the Sensor Rail Safety System, not the SWING-12 Safety System.

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

**Alternate Action (function C):** 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. NT Dor-O-Matic recommends using **only push-buttons or keyswitches** in this setting. While some other devices will work, they may cause erratic and unsafe door operation.

**SWING-12 Trained Traffic - No Beam (function D):** This setting is for use on trained traffic installations where the safety logic beam component of the SWING-12 Safety System is not used. *When the door is given an activation signal during the closing cycle, the door will re-open at safety slow speed.*

**Unassigned / Special (function E):** On a standard 85420-900 control box, this position is empty. On a specially requested 85420-988 control box, this position is where the special system program will be placed. (See Note 1 on page 3.)

**Reads Limit Switches (function F):** This setting is mostly for replacing existing swing door systems that used limit switch operators.

## **DEVICES**

**SWING-12:** Function settings 0-4 & D are intended for use with the NT Dor-O-Matic SWING-12 Safety System. SWING-12 Systems should only be used with the toggle switch (87385-900), rocker switch (87390-900), or keyswitch (87395-900).

**Super Nova:** Function settings 5-7 are intended for use with the NT Dor-O-Matic Super Nova Safety System. The Super Nova Safety System consists of presence sensors mounted on both sides of the door. Super Nova Systems should only be used with the toggle switch (87385-900), rocker switch (87390-900), or keyswitch (87395-900).



**Sensor Rail:** Function settings 8, 9, & A are intended for use with the NT Dor-O-Matic Sensor Rail Safety System. The Sensor Rail Safety System consists of infra-red beams mounted in the guide rails. Sensor Rail Systems should only be used with the toggle switch (83185-900), rocker switch (83190-900), or keyswitch (83195-900).

**Buttons Etc.:** 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 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 Astro-Swing unit is designed to hold the door open under a sustained activation without damaging itself.

**Carpets:** Carpets (or mats) can be used on the activating and/or safety side. When someone stands on the activating carpet and the safety mat is unoccupied, the door will open and stay open as long as someone is standing on the activating carpet. When the activating carpet is clear and the safety mat is unoccupied, the door will time out and close. Someone on a safety mat will (1) Keep a fully closed door from opening, or (2) Keep a fully open door from closing. There are no safety stop or safety slow features on a carpet. The safety carpet always takes precedence over the activating carpet.

## **LATCH**

The latch selector dial allows the latch point to be set at the desired angle. The standard latch position is 13° (setting 4). This is the latch setting that all 85420-900 control boxes are shipped in.

**Sensor Fall:** Function settings 5, 6, & A are intended for use with the HT Or-O-Matic Sensor Fall Safety System. The Sensor Fall Safety System consists of infrared beams mounted in the guide rails. Sensor Fall Systems should only be used with the toggle switch (83185-900), rocker switch (83180-900), or keyswitch (83182-900).

**Buttons Etc.:** Push buttons are the most basic of activating devices. Actually this can be any normally open dry contact. This can include push buttons, push plate, card readers, keypads, relays, etc. as long as it is a normally open dry contact. No 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 Astro-Swing unit is designed to hold the door open under a sustained activation without damaging itself.

**Carpet:** Carpets (or mats) can be used on the activating end/or safety side. When someone stands on the activating carpet and the safety mat is unoccupied, the door will open and stay open as long as someone is standing on the activating carpet. When the activating carpet is clear and the safety mat is unoccupied, the door will time out and close. Someone on a safety mat will (T) Keep a fully closed door from opening, or (S) Keep a fully open door from closing. There are no safety stop or safety slow features on a carpet. The safety carpet always takes precedence over the activating carpet.

## LATCH

The latch selector dial allows the latch point to be set at the desired angle. The standard latch position is 13° (setting 4). This is the latch setting that all 83420-900 control boxes are shipped in.