ESA II

Controller

Commissioning, maintenance
and troubleshooting instructions

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ESA II CONTROLLER COMMISSIONING, MAINTENANCE AND TROUBLESHOOTING INSTRUCTIONS

1 General information

This manual provides information on ESA II Controller wiring, commissioning, maintenance, and troubleshooting.
This document must be kept in a secure place. It must be accessible for reference as required.
If system should be transferred to another facility, insure that this document is transferred as well.

Installation manuals are available for review, download, or printing on the Dorma.com website.

Symbols used in these instructions

⚠	WARNING	This symbol warns of hazards which could result in personal injury or threat to health.
☞	REMARK	A remark draws attention to important information in this document.
✎	NOTE	A note clarifies instructions or other information presented in this document.

Dimensions

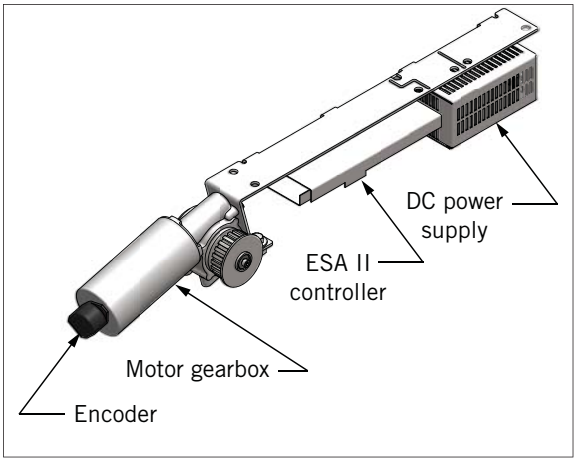
Unless otherwise specified, all dimensions are given in both inches (") and millimeters [mm].

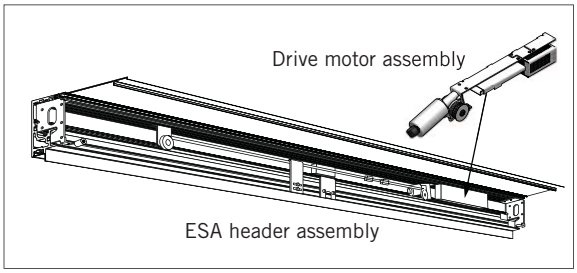
2 Product overview

Intended use

The ESA drive motor assembly core components consist of a gearmotor with encoder, ESA II controller, and DC power suppply. This assembly controls door motion of the ESA series of sliding doors.

ESA drive motor assembly





3 Safety

This document contains important instructions for installation commissioning, and safe operation of the ESA II controller. Review these instructions thorougly prior to installation, and follow them carefully during installation and commissioning, as well as during maintenance and troubleshooting.

Damage to equipment, or incorrect equipment operation, may result from an incorrect installation or commissioning of the ESA II system.

Hazard of electric shock!

Hazard to mechanical processes!

By use of control elements, settings, or procedures not documented in this manual!

Signage

Reference Section 5 – Door signage.

Proper signs and labels shall be applied and maintained on the door per the following ANSI / BHMA standards:

- ANSI/BHMA A156.10-2011: Standard for power operated pedestrian doors, paragraph 11, signage.

Maintenance: If signs have been removed, or cannot be read, request that signs be replaced by contacting local Dorma company.

Building codes and standards

ESA II controller wiring installation: observe applicable national and local building codes.

ESA II controller commissioning: observe following standard and any applicable national or local standards:

- ANSI/BHMA A156.10-2011: Standard for power operated pedestrian doors

Safety

Electric shock hazard while working on ESA II drive motor assembly and incoming 115 VAC power!

Work on electrical equipment and wiring installation must be performed only by qualified electricians!

Metallic doors must be grounded per national and local codes.

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4 Technical data

Power supply	
AC power	120 VAC ± 10%, 50/60 Hz
Fuse	6.6 amp, not replaceable
Power supply external accessories	27 VDC, 2 amperes
Power consumption, max.	250 watt

Door functions
Close
Automatic
Permanent open
Partial open
Exit

Parameters in [brackets] accessible only by Dorma Handheld

Driving parameters

Parameter and description		Units	Default	Min.	Max.
	Maximum opening speed	inches/sec.	**20***	4	22
		cm/sec.	**51***	10	56
	Maximum closing speed	inches/sec.	**12***	4	12
		cm/sec.	**30***	10	30
[Opening accel.]	Maximum distance for acceleration to opening speed.	n/a	**7**	1	9
[Closing accel.]	Maximum distance for acceleration to closing speed.	n/a	**7**	1	9
[Decel. ramp open]	Maximum deceleration ramp at end of door opening cycle.	n/a	**4**	1	9
[Decel. ramp close]	Maximum deceleration ramp at end of door closing cycle.	n/a	**4**	1	9
[Creep speed open]	Maximum creep speed at end of door opening cycle.	inches/sec.	**2**	1	4
		cm/sec.	**5**	2.5	10
[Creep speed close]	Maximum creep speed at end of door closing cycle.	inches/sec.	**2**	1	4
		cm/sec.	**5**	2.5	9
[Creep dist. open]	Maximum distance of creep speed cycle at end of door opening cycle.	inches	**1**	0	12
		cm	**2.5**	0	30
[Creep dist. close]	Maximum distance of creep speed cycle at end of door closing cycle.	inches	**2**	0	12
		cm	**5**	0	30
	Hold open time – **Display value * 0.1**	seconds	**15***	15	1800
	Hold open time, Night/bank – **Display value * 0.1**	seconds	**15***	15	600
[Delayed opening]	Delayed opening after Night / Bank pulse was triggered.	seconds	**0**	0	10
[Partial Open]	Partial opening width after learning cycle. **Display value * 0.1**	inches	**315**	10	3150
[Force limit open]	Force limitation during door opening cycle.	pounds	**30***	11	70
		Newtons	**133***	49	311
[Force limit close]	Force limitation during door closing cycle.	pounds	**20***	11	70
		Newtons	**89***	49	311
[Latching action]	Required force to keep door closed.	n/a	**6**	0	9

* Default may be modified during door learning cycle.

5 Door signage – sliding doors

ESA sliding doors are supplied with door sign decals to alert and instruct pedestrian traffic in operation and function of door. Method of activation determines combination of decals required. Not all decals will be used in every application.
Safety signs are specified in ANSI A156.10, American National Standard for power operated pedestrian doors, paragraph 11.

All swinging, sliding and folding doors

1. AUTOMATIC CAUTION DOOR sign – all sliding doors shall be equipped with signage visible from both sides of door reading "AUTOMATIC CAUTION DOOR", with letters a minimum of 1/2" [12.7 mm] high.

Sliding doors

2. IN EMERGENCY PUSH TO OPEN sign – install with sliding doors with breakout doors and shall be applied to side appropriate for egress. Signs shall have red backgrounds with contrasting letters a minimum of 1" high. Signs shall read horizontally and be located next to lock stile on a centerline 36" minimum and 60" maximum from the floor.

3. STAND CLEAR sign – sliding doors that slide alongside an adjacent sidelight or wall shall be equipped with a sign that instructs users to stand clear of the sliding door travel path. The letters shall be a minimum of 1" high on contrasting background and located from 36" to 60" from floor.

4. ACTIVATE SWITCH TO OPERATE sign – Door shall also have ACTIVATE SWITCH TO OPERATE sign on side of door with knowing act switch. Each sign in 1/2" high minimum letters.

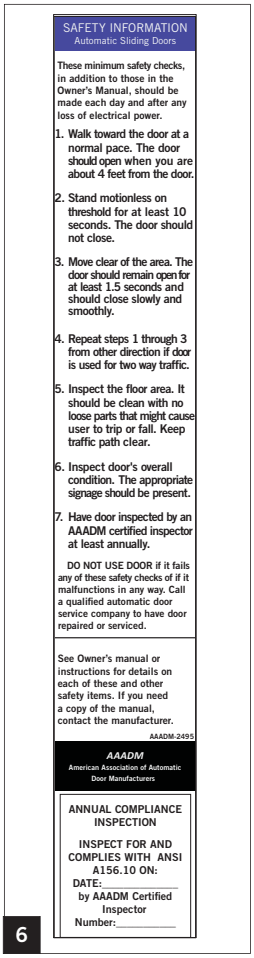
AAADM safety information label

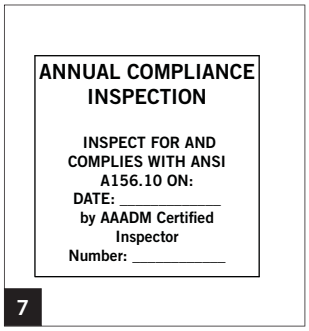
6. This AAADM label outlines safety checks that should be performed daily on automatic sliding door. Place label in a protected, visible location on door frame, near operator power switch if possible.

AAADM annual compliance inspection label

7. Place additional labels directly over "Annual Compliance Inspection" section of Safety Information label.

This label is only placed on doors that comply with ANSI/BHMA A156.10 standard and pass inspection.





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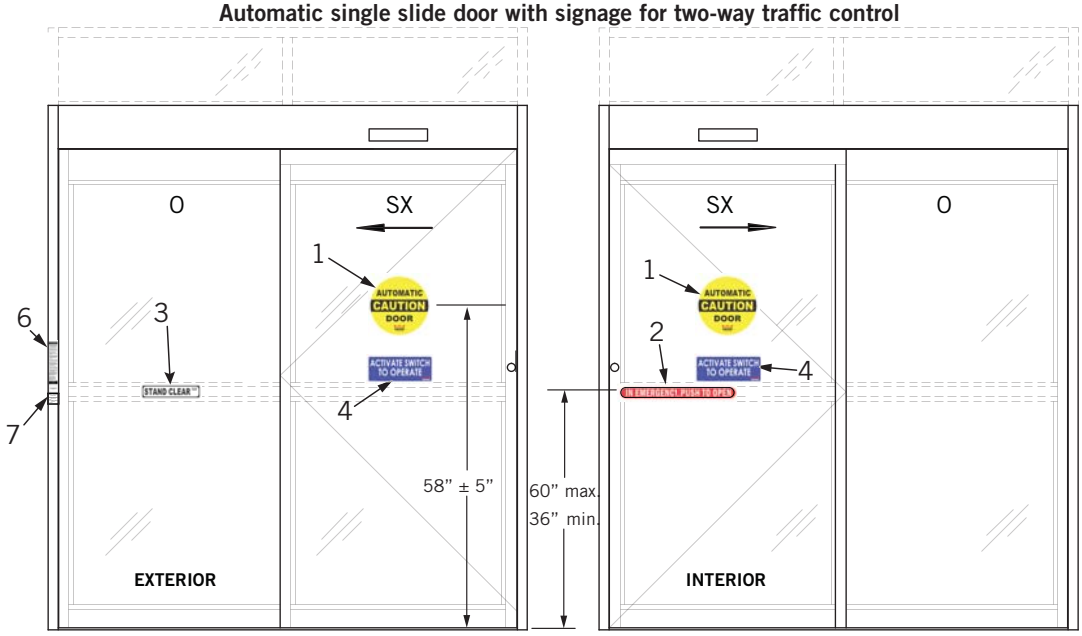
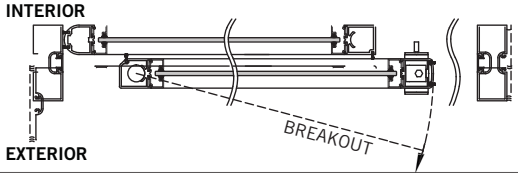
ESA II CONTROLLER COMMISSIONING, MAINTENANCE AND TROUBLESHOOTING INSTRUCTIONS

Automatic single slide door with signage for two-way traffic control

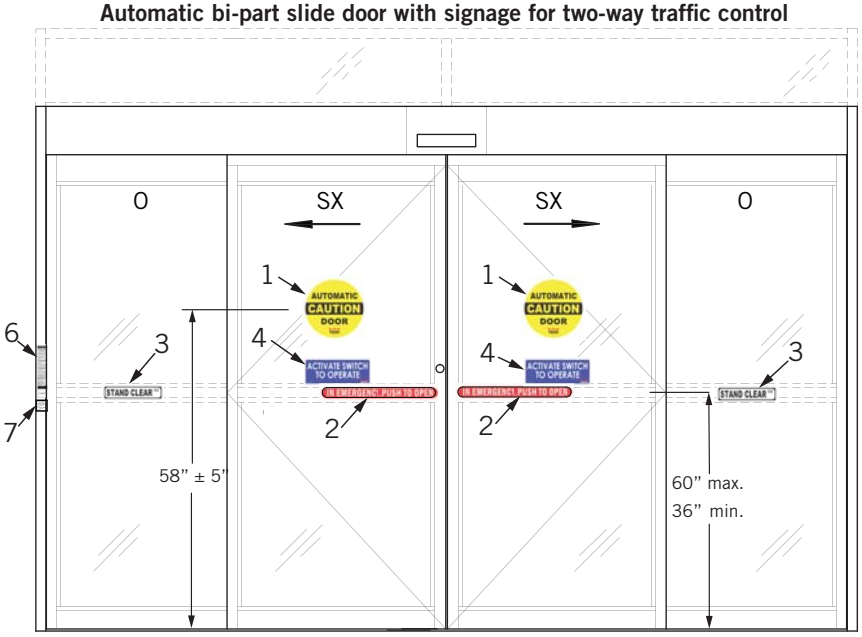


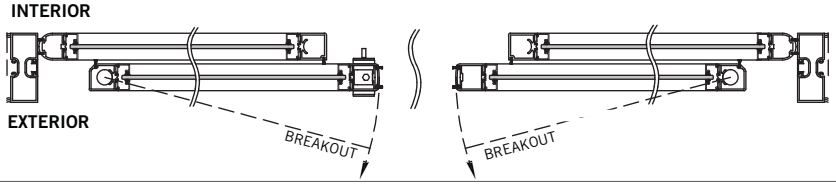


SX Breakaway sliding door

O Fixed sidelight

Automatic bi-part slide door with signage for two-way traffic control





6 Product description

ESA drive motor assembly

1. DC power supply

- Operates from external 115 VAC, 50/60 Hz supply.
- Supplies +35VDC to ESA II controller.
- 6.6 ampere internal fuse (not replaceable)

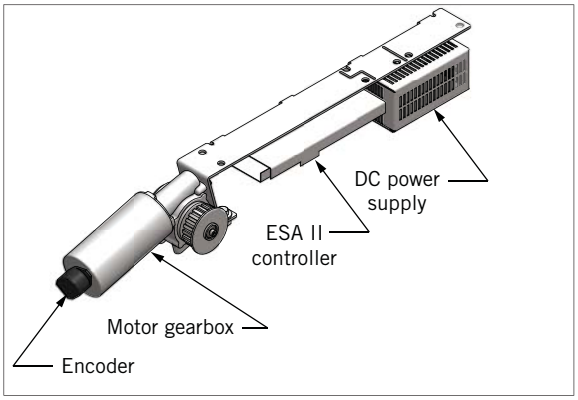
2. ESA II controller

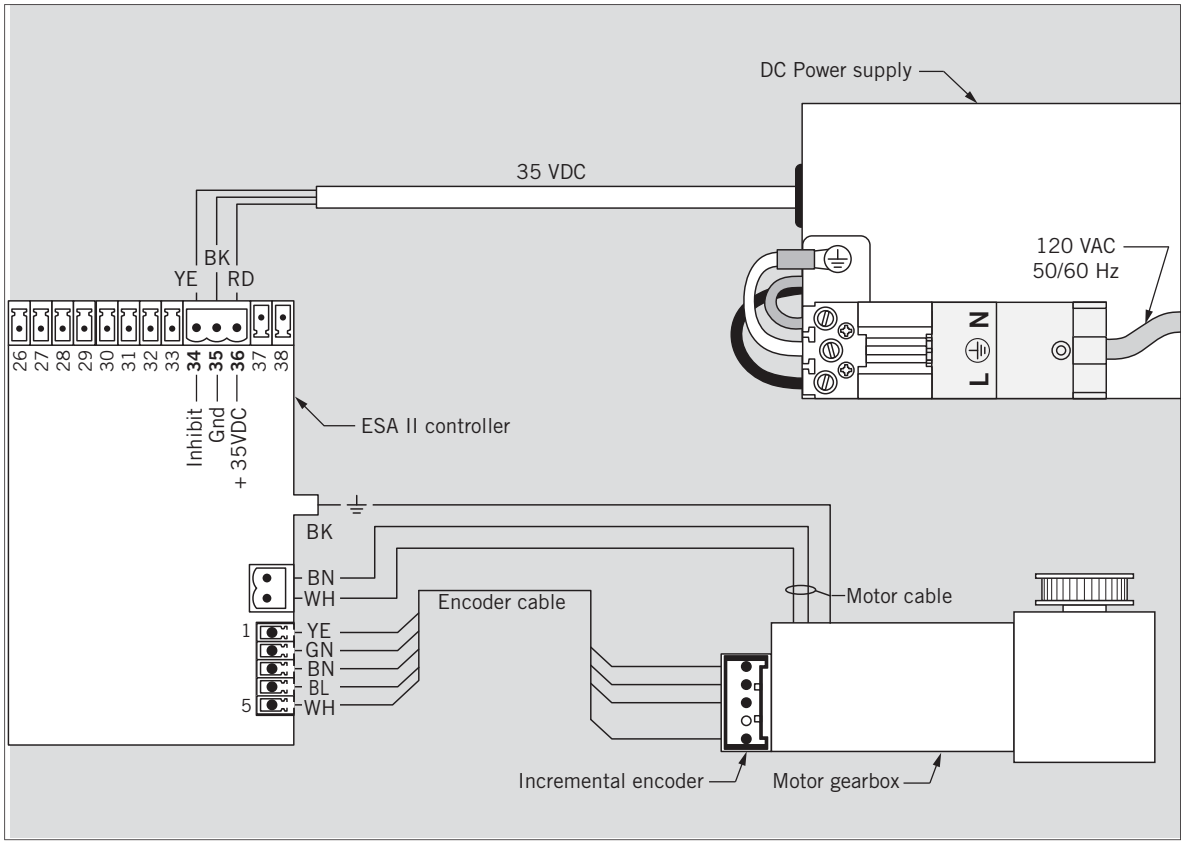
- Controls ESA sliding door motion through motor gearbox with encoder feedback.
- Provides interfaces to sensors and activators.
- Supplies + 27 VDC for external devices.
- Provides interface to separate optional function module with digital inputs and isolated contact outputs.
- Operator interface for setup, status, and parameter adjustments.

3. Motor gearbox with encoder feedback.

- Provides ESA sliding door motion.

ESA drive motor assembly





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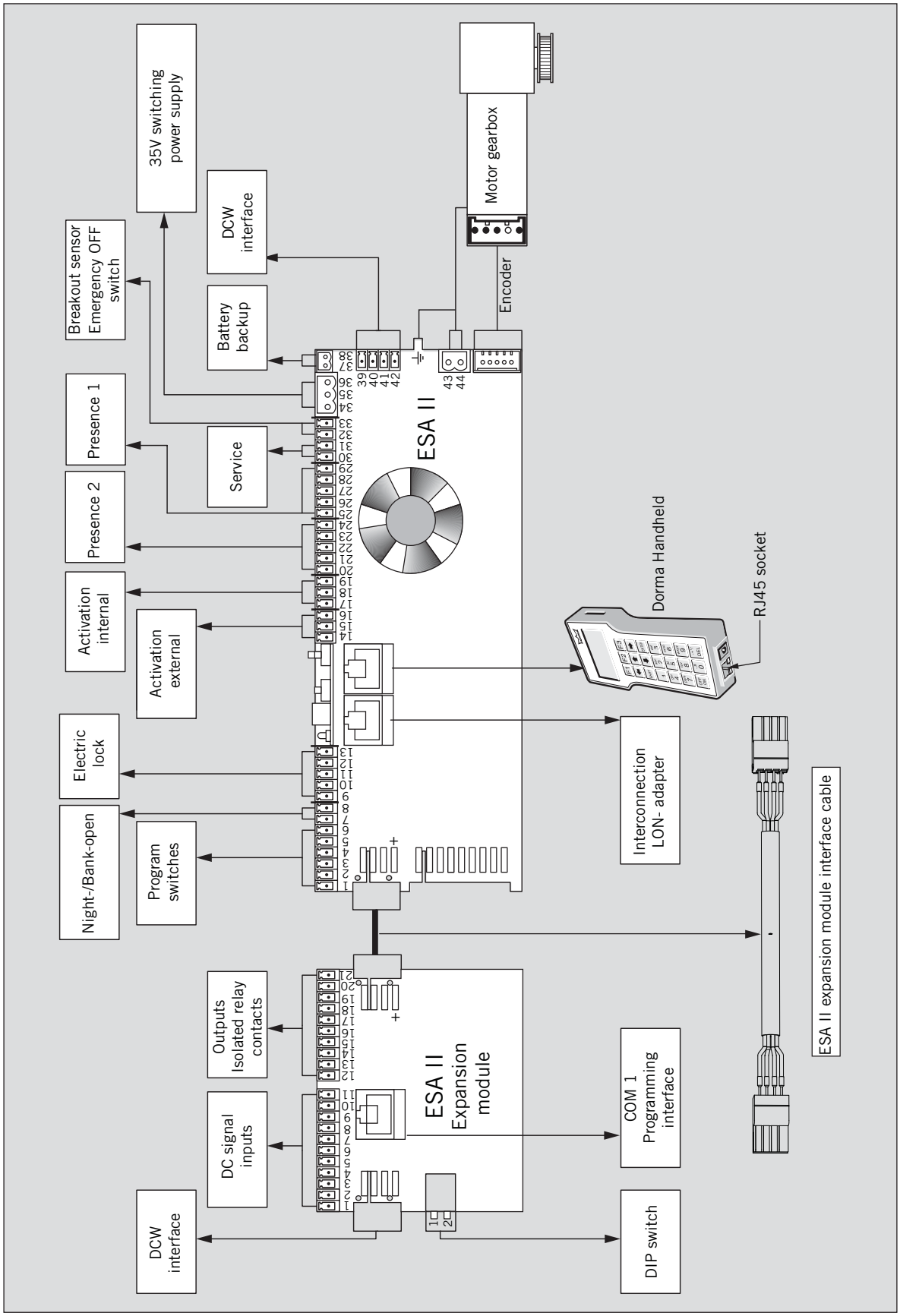
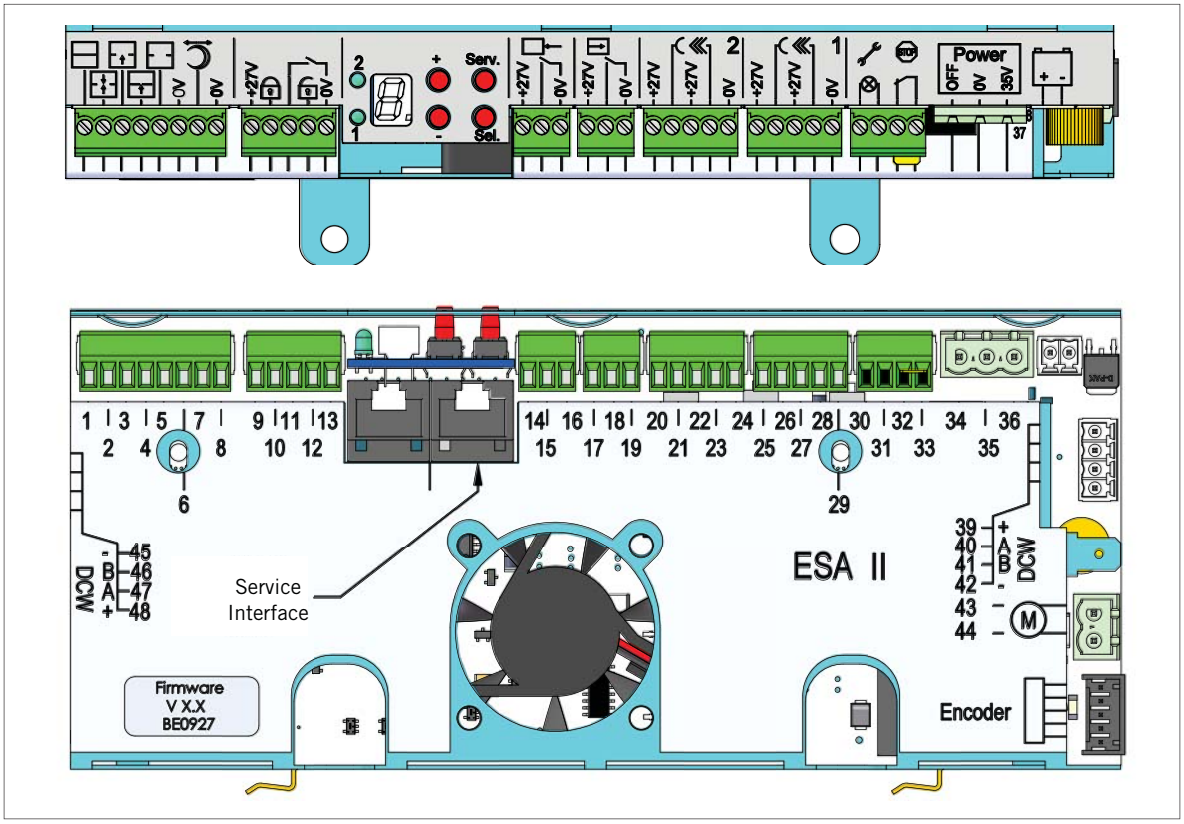
7 ESA II system block diagram

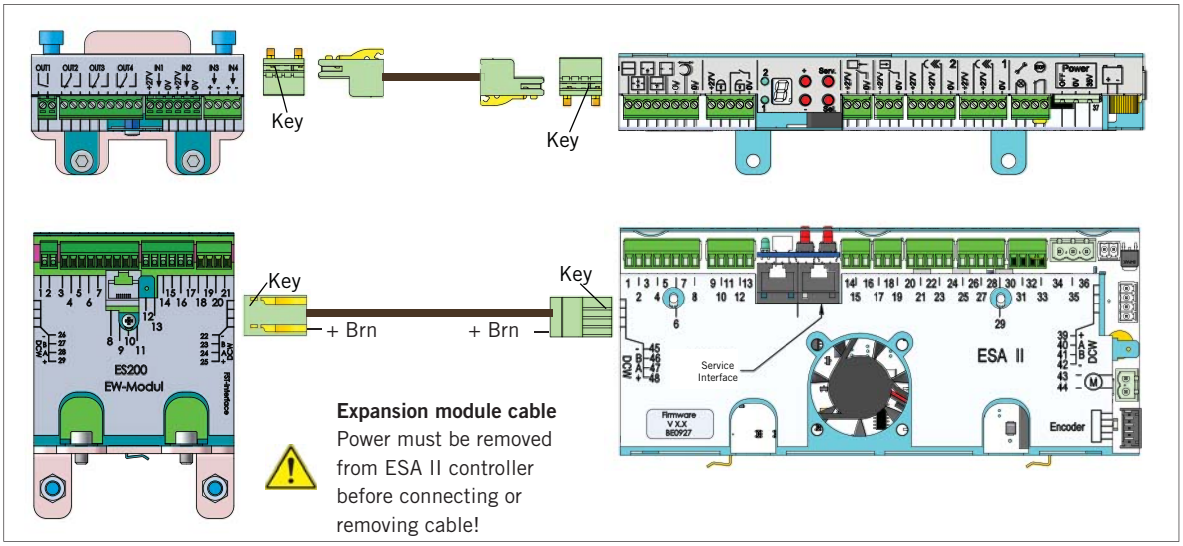


8 ESA II controller and interface to ESA II expansion module

ESA II controller



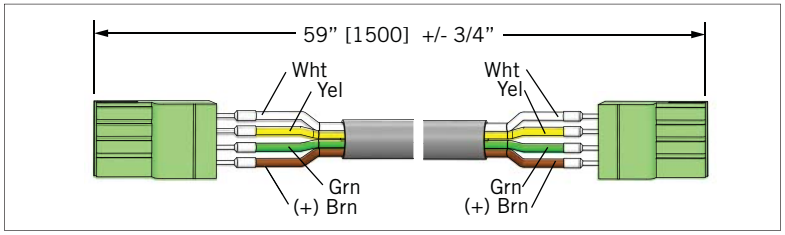
ESA II expansion module to ESA II controller interface cable



Expansion module cable
Power must be removed from ESA II controller before connecting or removing cable!

Terminal blocks
Wire sizes
Solid and stranded:
26 - 16 AWG [0.14 -1.5 mm²]
Stranded wire with ferrule:
24 - 18 AWG [0.25 -1.0 mm²]
Wire strip length: 1/4" [7]
Screw size: M2
Screw head diameter: 5/32" [3.8]
Screw torque: 2.2 in-lb [0.25 Nm]

ESA II Expansion module interconnect cable DX2889-002



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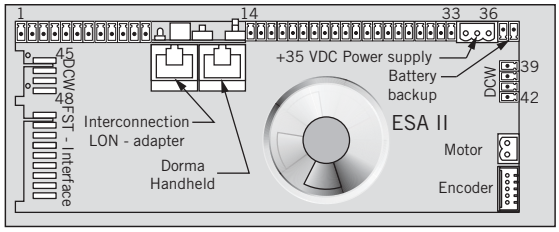
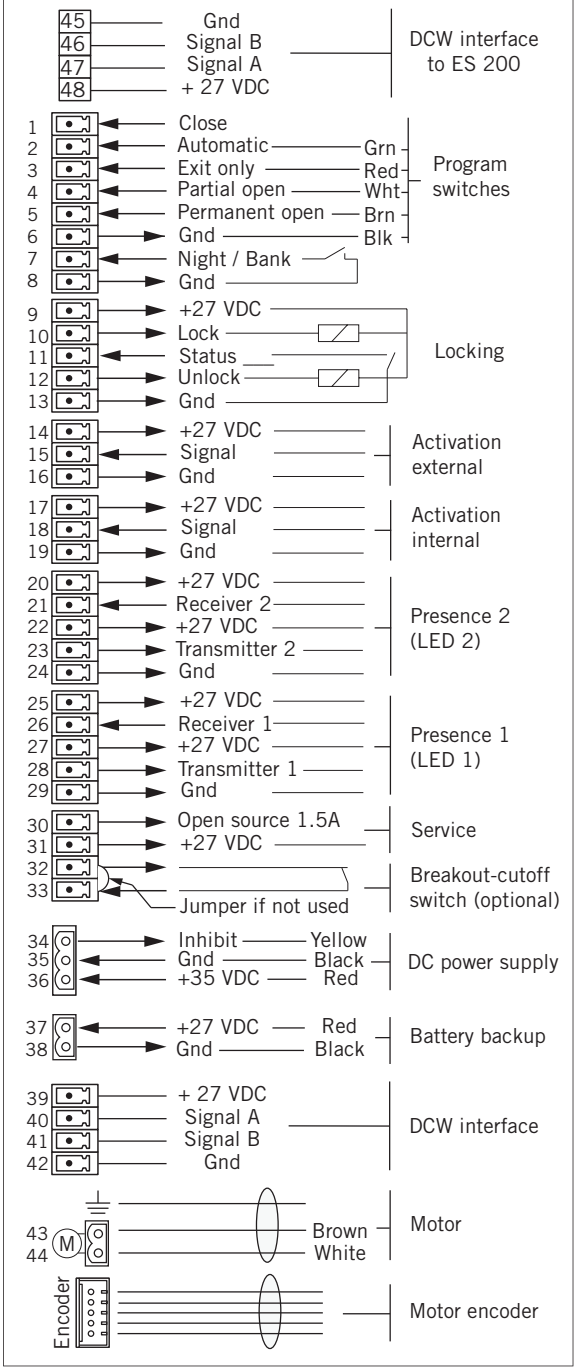
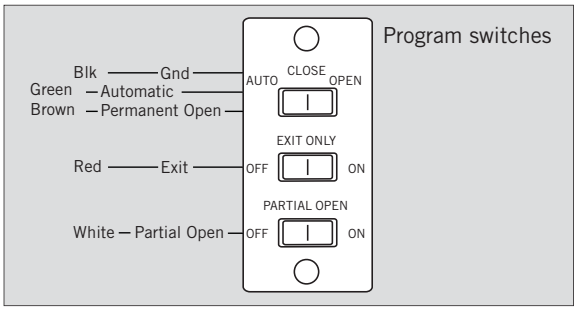
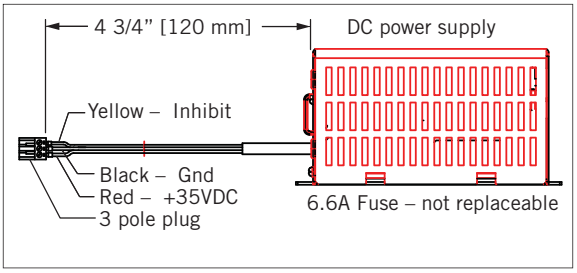
9 ESA II electrical interface diagram

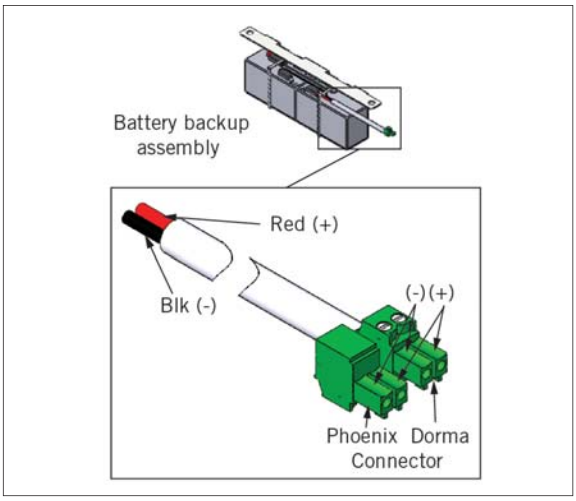


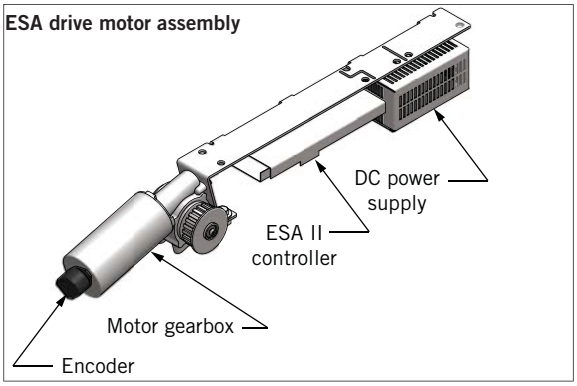
Bottom view



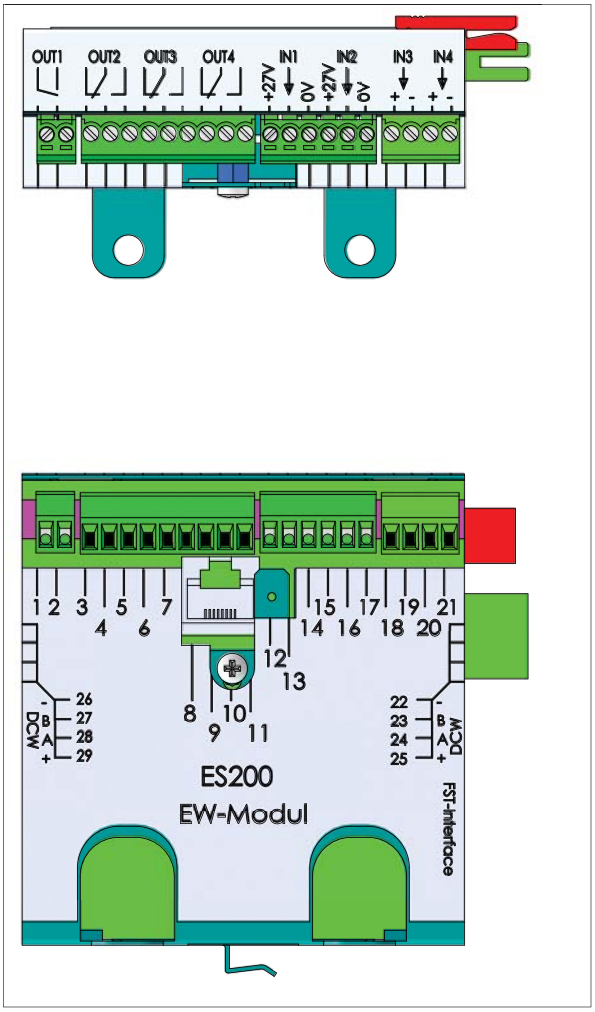








10 ESA II Expansion module

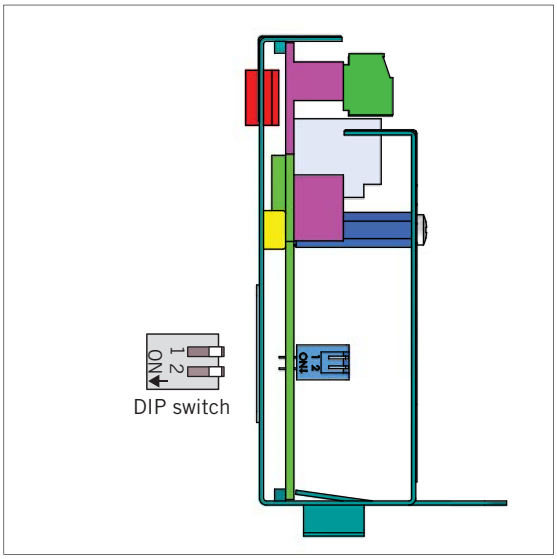


ESA200 header assembly

Mount ESA II expansion module against back wall of header approximately 12" [305] from end of motor gearbox.

Power MUST be removed from ESA II controller before installing module and connecting cable!

Use 3M™ industrial VELCROW® to secure module to header.



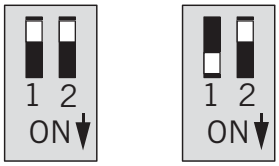
22 GND
23 Signal B
24 Signal A
25 + 27 V DC

DCW Interface to ESA II

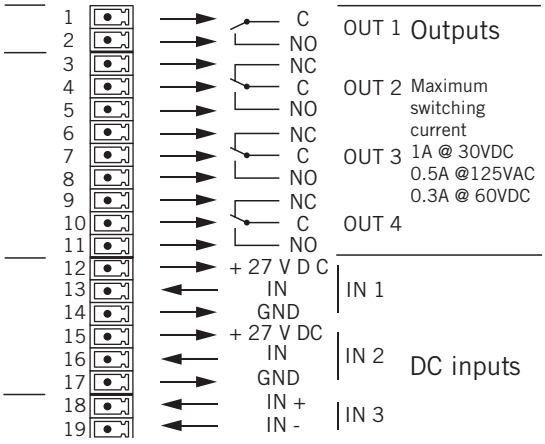
Cable Connections of a DCW device

Check wire terminations before applying power. Interchanged wires (+27 VDC to signal A or B terminals, or a missing GND connection) may permanently damage all connected DCW devices!

DIP switch
DCW address 48 DCW address 49



Power MUST be removed from ESA II controller before changing DIP switch settings!



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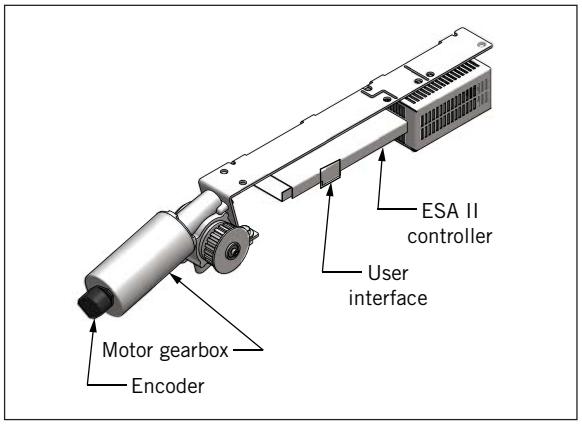
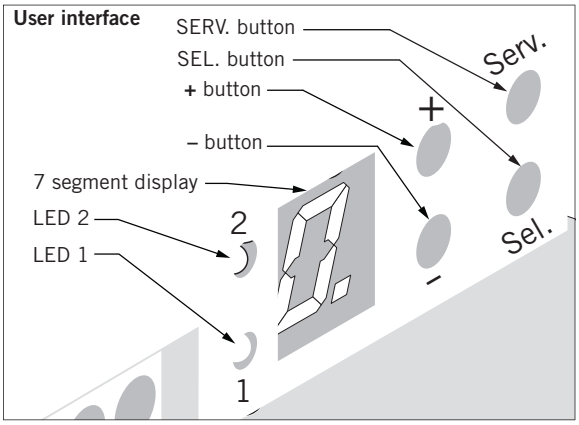
11 ESA II user interface

A Overview



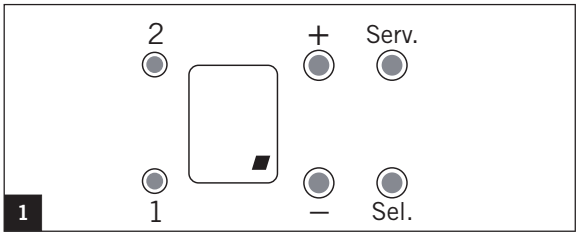


Cable connections of a DCW device
Check wire terminations before applying power. Interchanged wires (+27 VDC to Signal A or B terminals, or a missing GND connection) may permanently damage all connected DCS devices.

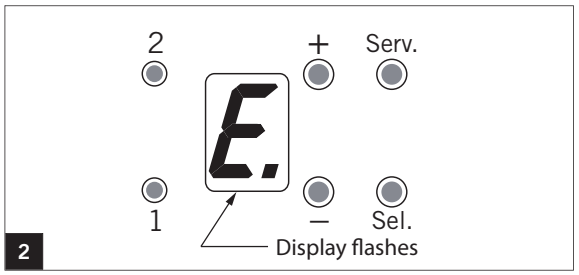
LED 2	Threshold presence sensor input
LED 1	Threshold presence sensor input
7 segment display	Information display: status, error codes, parameters and values
+ button	Increase value Scroll to next parameter or error code
– button	Decrease value Scroll to next parameter
SEL. button	Menu control button
SERV. button	Service button

B. Display operation

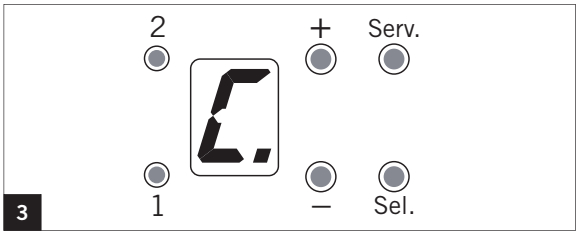
1.1. **Normal operation –** Displays a period in lower right hand corner with controller in normal operation.



2.1. **Error –** Displays a flashing "E" with error present. Error codes can be accessed and acknowledged. See Section 11 - C.



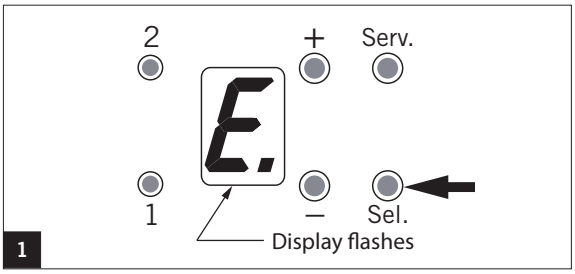
3.1. **Parameter –** Display will show parameter codes as they are scrolled, and will display selected parameter (Parameter "C" is closing speed). See Section 11 - D.



ESA II CONTROLLER COMMISSIONING, MAINTENANCE AND TROUBLESHOOTING INSTRUCTIONS

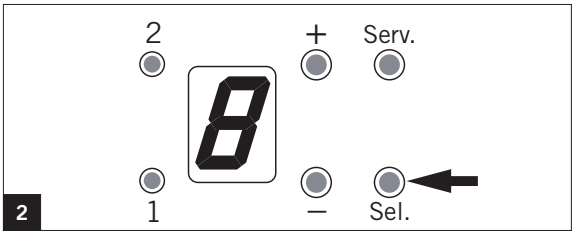
11 **ESA II user interface** – continued

C. Accessing error codes



1.1 Error present. Display will flash E. off and on.

1.2 Press Sel. to display last occcuring error.



2.1 Last occuring error will be displayed (example is 8 "Breakout operated").

2.2 To return to E. press Sel. .

- If error no longer present, display will clear.
- If error still present, error display will continue to flash.
- Fixing error with error display present will remove error display.

After 20 seconds, display will revert to E. .
If error still present, E. will flash.

2.3 To view errrors in error memory:

- Press Sel. to access menu.
  If E. not displayed, use ± button to scroll until it is displayed.
- Press Sel. to display last recurring error.
  Use ± button to scroll up to any additional errors stored in error memory.
- Press Sel. to return to E. menu, or it will revert to this menu after 20 seconds.
- Press Sel. again to exit menu, or it will revert to operation mode display after 20 seconds.

Check controller for error codes before powering off controller.
Power off resets all error codes. No error history will be displayed when controller is powered back on.

Display code	Error description	
0	No error in memory	
1	Obstruction	
2	Lock	
3	Program switch	
4	Safety beam	
5	Incremental encoder	
6	Backup battery test error	
7	System - CPU, RAM, EEPROM, Relay test	Cycle power
8	Breakout operated	
9	Learning cycle parameter error	
A	Motor fault	
b	Battery test error - no battery detected	
c	Force test	
d	Overcurrent at motor > 30 seconds	
F	DCW	

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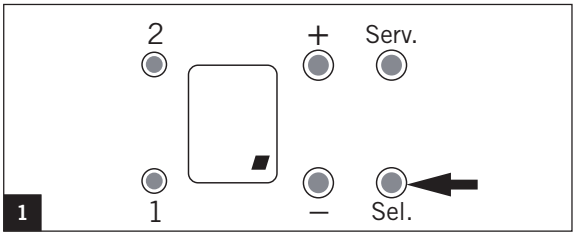
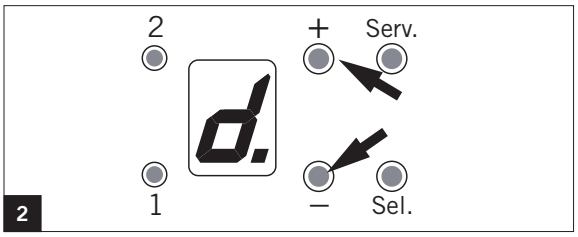
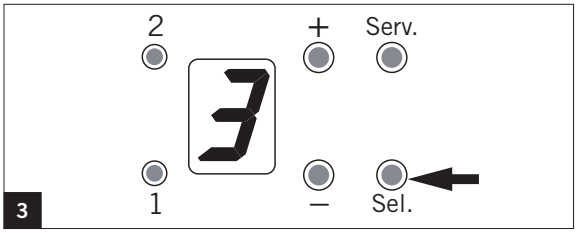
D. Accessing parameters



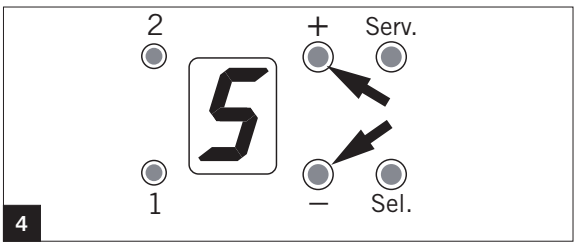
1.1 Press Sel. to access menu.



2.1 Press + or – to scroll through menu to desired parameter (hold open time shown as example).



3.1 Press Sel. to access setting codes for parameter – current setting will be displayed (example is "3", which is a 5 second hold open time).



4.1 Press + or – to scroll through parameter setting codes to desired setting (example is "5", which is a 10 second hold open time).

5.1 Press Sel. to save setting code. Display then reverts back to menu display.

Menu-code	Menu code description	Error display codes
E.	Error display	0 - F

Menu code	Parameter code description	Parameter setting codes See Section E.
S.	Not available	
r.	Locking in program switch settings	0, 1
L.	Locking mode (Interlock type)	0 - 3
A.	Backup battery operation	0 - 3
o.	Night / Bank hold open time	0 - 9, F
d.	Hold open time	0 - 9, F
n.	Sidelight function	0, 1
O.	Opening speed	0 - 9, A - d
C.	Closing speed	0 - 4

11 **ESA II user interface** – continued

E. Parameter settings – codes

Not available

S.	

r.	0	EXIT ONLY "OFF"
	1	EXIT ONLY "OFF" and "ON"

Locking device type

L.	0	No locking device
	1	Bistable – locking device remains in position it was in when power was removed.
	2	Bistable – locking device remains in position it was in when power was removed. With status signal contact.
	3	Monostable – fail safe. Locking device is locked with power on. With status signal contact.

Battery mode

A.	0	No battery
	1	Emergency closing
	2	Emergency opening
	3	Battery emergency mode

Night / bank hold open time – in seconds

o.	1	1.5	6	15
	2	2.5	7	20
	3	5	8	25
	4	8	9	30
	5	10	F	>30 seconds via Dorma handheld programmer

Hold open time – in seconds

d.	1	1.5	6	15
	2	2.5	7	20
	3	5	8	25
	4	8	9	30
	5	10	F	>30 seconds via Dorma handheld programmer

Sidelight function

n.	0	Stop
	1	Closing cycle

Opening speed – inches / second

O.	0	4	7	18
	1	6	8	20
	2	8	9	22
	3	10	A	24
	4	12	b	26
	5	14	c	28
	6	16	d	30

Closing speed – inches / second

C.	0	4	3	10
	1	6	4	12
	2	8		

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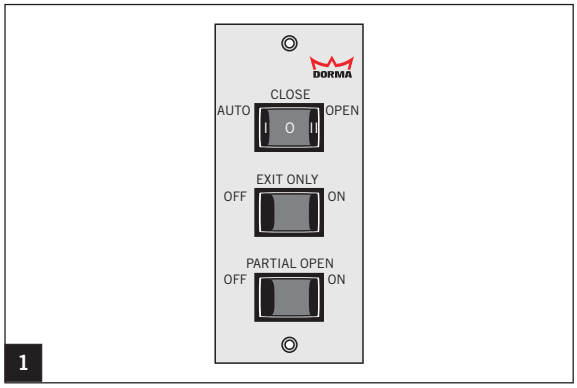
ESA II CONTROLLER COMMISSIONING, MAINTENANCE AND TROUBLESHOOTING INSTRUCTIONS

12 Operating instructions – program switch panel

1.1 Program switch panel is installed in one of the vertical door jams. Panel contains 3 switches with following functions:

Switch	Positions		
Main	Auto	Close	Open
Exit Only	Off	On	
Partial Open	Off	On	



1

Program panel switch setting	Door operation EXIT ONLY – OFF PARTIAL OPEN – OFF
Main switch: AUTO 	When external or internal activation signal is received door will open to full opening width unless Partial Open switch is ON Once door fully open, Hold open time d. is initiated with no activation, presense or safety beam sensors (optional) activated. When hold open time expires door will close.
Main switch: OPEN 	Door will open at creep speed. Door will remain open until main switch set to AUTO or CLOSE.
Main switch: CLOSE 	If open, door will immediately close. If door is in an opening cycle, door will reverse and close. Door will remain closed until main switch set to OPEN or AUTO.

Exit Only switch: OFF 	Internal and external activation sensors both active.
Exit Only switch: ON 	External activation sensor disabled when door is fully closed. Only internal activation sensor will enable door opening.
Partial Open switch: OFF 	Door will open to full opening width.
Partial Open switch: ON 	Door will open to set partial opening width.

13 Operating instructions – setting partial open door width

1.	Door must be closed.
2.	Partial Open switch must be OFF. 
3.	Set main switch to OPEN. 
3.	Door starts to open at creep speed.
4.	Door reaches desired partial open width.
5.	**Simultaneously*** set: Partial Open switch to ON  Main switch to AUTO:  *within 1 sec. of each other
6.	Door stops, then closes.

ESA II controller stores partial open width position when main switch set to AUTO.

7.	Verify new partial open position using automatic activation.
	Set Partial Open switch ON 
	Set main switch to AUTO 

Upon activation, door should open to set partial open width and stop. After hold open time expires, door will close.

When main switch is set to OPEN position and Partial Open switch is ON, partial open position is not recognized – door will move to full open position.

Dorma Handheld can be used:

- For adjustment of partial open width.
- To disable setting partial open width by program switch panel. Partial open width setting can only be made via Dorma Handheld.

See Appendix – Section B.

14 115 VAC power connection at header

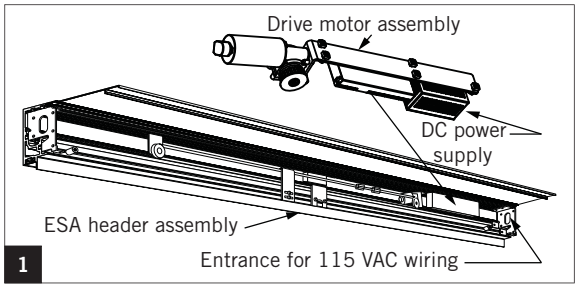
Work on 115 VAC electrical equipment and wiring must be performed only by qualified electricians!

1.1 Customer 115 VAC wiring enters opening on right side of ESA header and terminates in connector at DC power supply (see 5.1).

Maximum wire size: 12 AWG [4 mm^2]. Solid wire recommended.

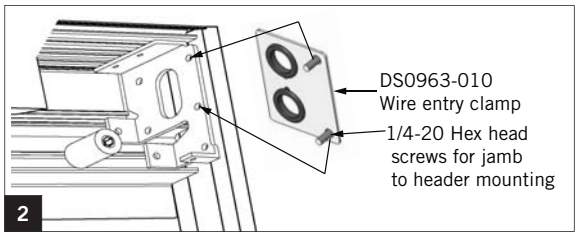
Maximum branch circuit protection: 15 amperes.

Install label with branch circuit protective device panel and protective device identification numbers near, or on ESA header 115 VAC wiring entrance.



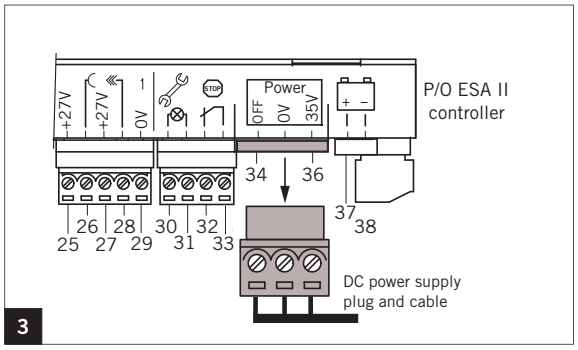
2.1 Wire entry clamp kit is available (part of accessory installation kit).

Clamp plate fastens to header using two of hex head screws used to fasten jamb to header.



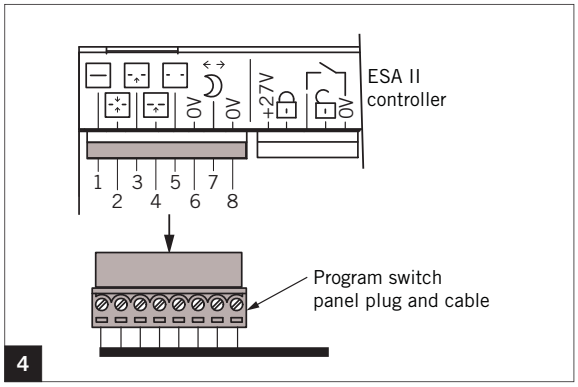
Steps prior to 115 VAC power connection

3.1 Remove DC power supply plug from its socket on ESA II controller.



4.1 Remove program switch plug from its socket on ESA II controller.

Door will be in CLOSE (OFF) position.



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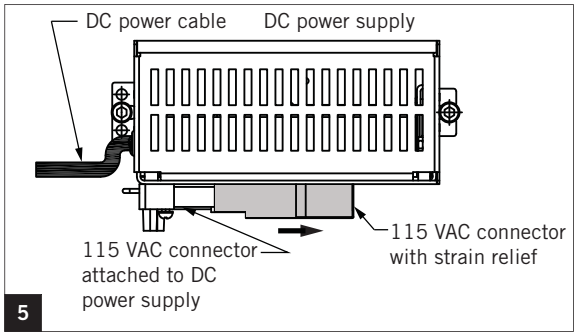
ESA II CONTROLLER COMMISSIONING, MAINTENANCE AND TROUBLESHOOTING INSTRUCTIONS

Electric shock hazard! 115VAC disconnect to branch circuit supplying power to ESA must be OFF prior to start of and during electrical wiring installation!

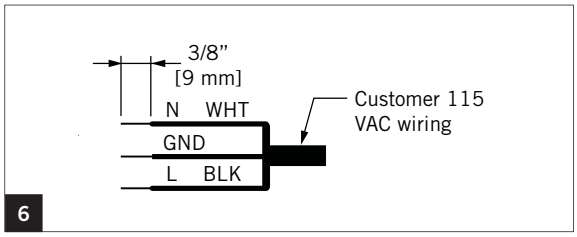
DC power supply plug must be removed from its socket (see step 3.1).
Program switch plug must be removed from its socket (see step 4.1).

5.1 Pull out 115 VAC connector with strain relief from connector attached to DC power supply.

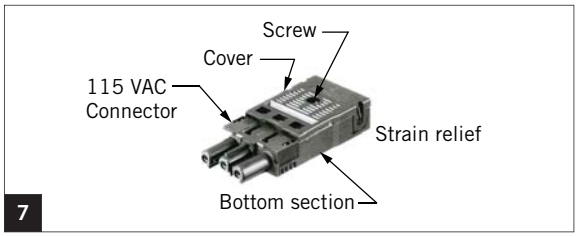


6.1 Cut jacket insulation from customer 115 VAC wiring.

6.2 Strip 3/8" [9 mm] insulation from end of L and N wires.



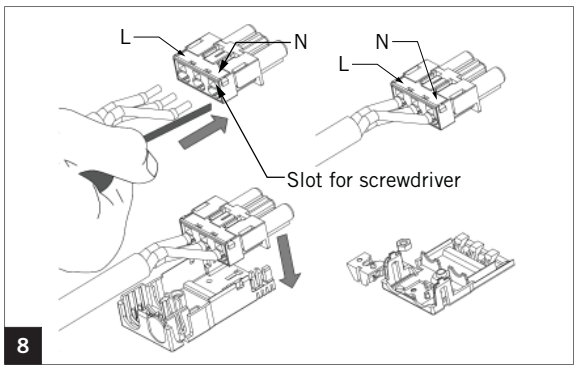
7.1 To gain access to 115VAC connector, remove strain relief cover and bottom section (secured with screw).



8.1 Insert ends of all three wires into their respective L, N and GND terminals (spring loaded connectors) in the 115 VAC connector.

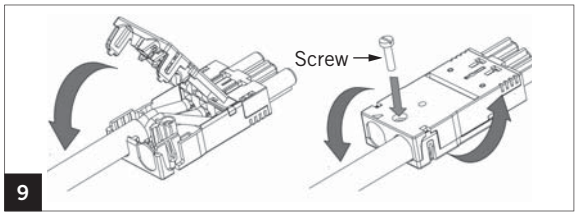
If using stranded wire, insert screwdriver blade into respective slot to separate spring loaded connector.

8.2. Reinstall 115 VAC connector into strain relief bottom section.

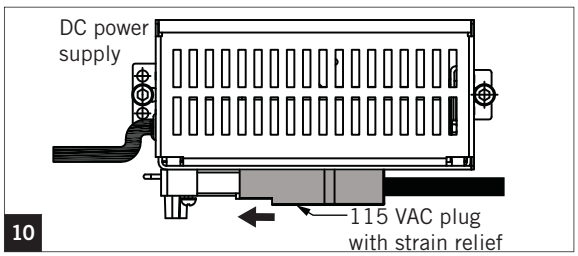


9.1 Reinstall strain relief cover.

9.2 Secure with screw.



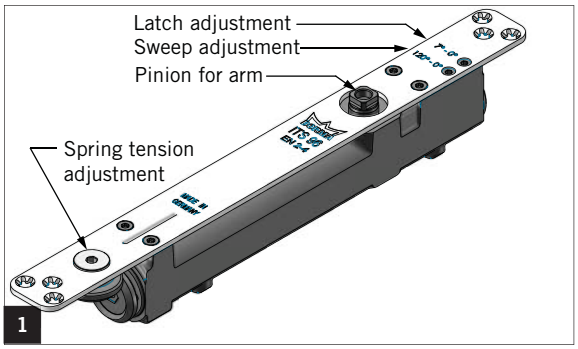
10.1 Reinsert 115 VAC connector with attached strain relief into connector attached to DC power supply.



ESA II CONTROLLER COMMISSIONING, MAINTENANCE AND TROUBLESHOOTING INSTRUCTIONS

15 ITS door closer and deadstop adjustment for breakout

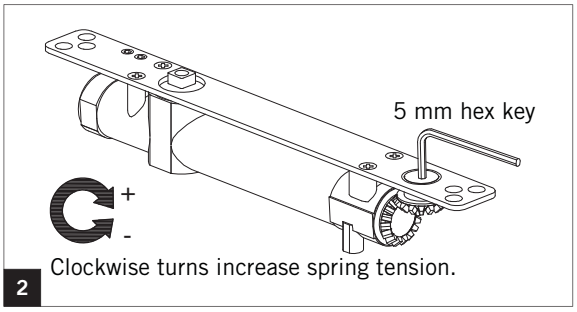
1.1 ITS door closer is used to close ESA door and sidelight (if a bi-part assembly) after a breakout.



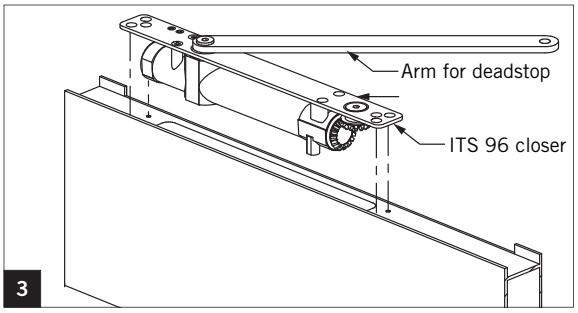
2.1 Adjustment of spring tension required to close and latch breakout assembly:

- Adjust according to chart.
- **Maximum number of turns: 17**

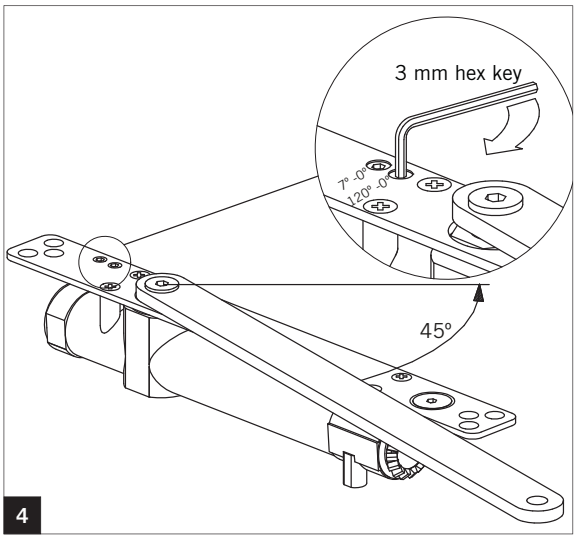
Door width (interior)	Maximum door weight	Full turns of spring adjuster ITS 96	Spring size
2' - 6"	100	8	
3' - 0"	125	15	
3' - 6"	150		
4' - 0"	175		



3.1 Arm is mounted to door closer for deadstop.



4.1 For breakout sweep adjustment, close valve by turning 0° - 120° sweep adjustment completely clockwise.



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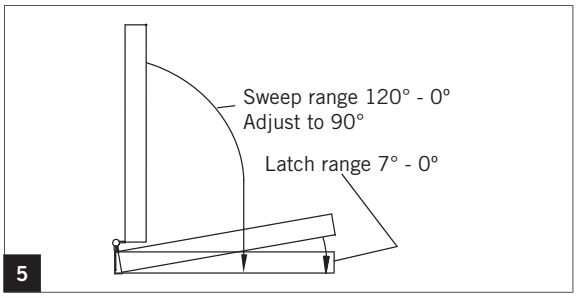
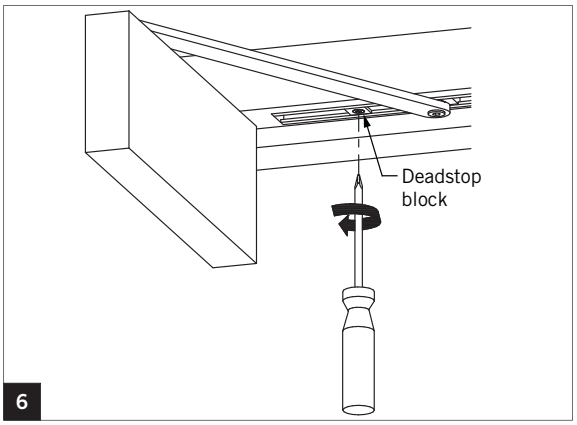
ESA II CONTROLLER COMMISSIONING, MAINTENANCE AND TROUBLESHOOTING INSTRUCTIONS

5.1 Open breakout assembly to 90º.

Deadstop helps to prevent damage to breakout assembly by limiting its travel when breakout is operated.

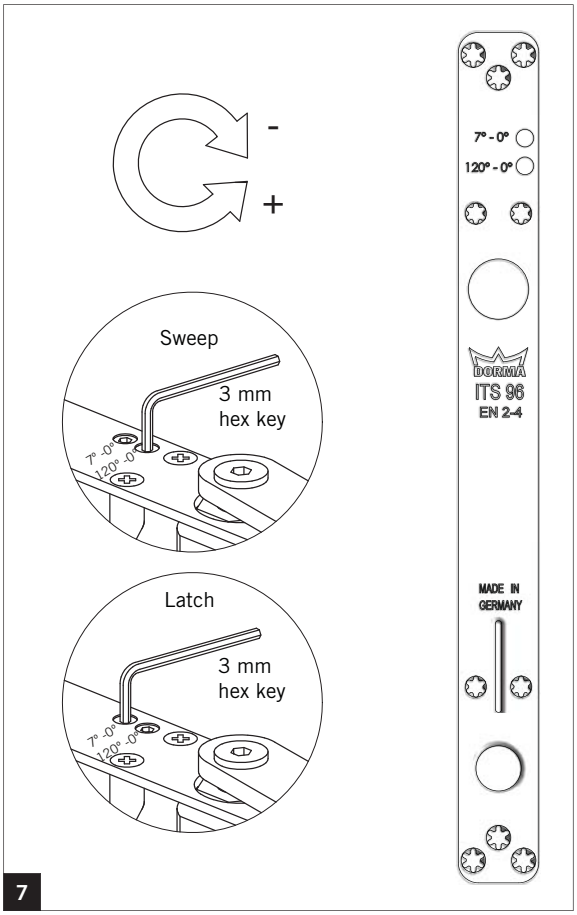


6.1 Adjust and tighten deadstop block so that door cannot open past 90°.



7.1 Adjust sweep valve for closing speed from 90° to latch check (7°).

7.2 Adjust latch valve for closing speed from 7° to 0°.



ESA II CONTROLLER COMMISSIONING, MAINTENANCE AND TROUBLESHOOTING INSTRUCTIONS

16 Installation requirements prior to commissioning

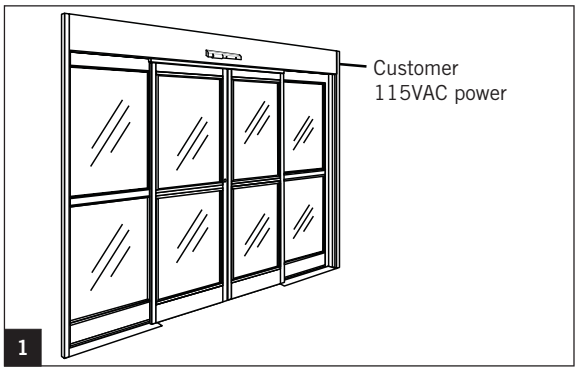
1.1 ESA door system fully installed, including glass.

Reference applicable door installation instruction manual.

1.2 When manually pushed, door runs smoothly.

1.3 Customer 115 VAC power connected to ESA header DC power supply – reference Section 14.

1.4 Breakout door closer and deadstop adjusted and functional – see Section 15.



1

2.1 Review installation and wiring of all components and assemblies.

Additional components or assemblies may be present in installation.

	Components or assemblies	Section
1	Program switch panel	25-A
2	Carriage lock assembly	25-B
3	Carriage lock assembly- fail safe	25-C
4	Activation / presence sensor(s) with or without safety beams	25-H-L
4	Breakout magnetic switches (Full breakout doors)	25-D-E
5	Sidelight breakout beam (optional)	25-F
6	Night / bank device (optional)	
8	Battery backup (optional)	24-H

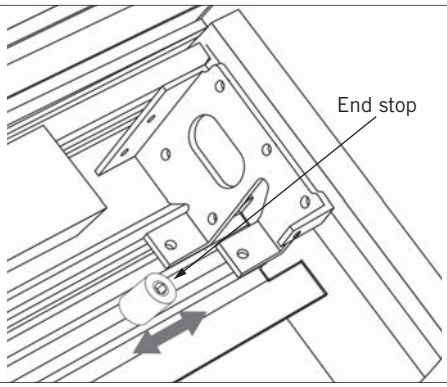
2

3.1 End stop check, double doors:

With belt brackets attached, open doors to their clear door opening width.

Both doors should be contacting their respective end stop.

End stop adjustment procedure can be found in applicable ESA door installation manual.



3

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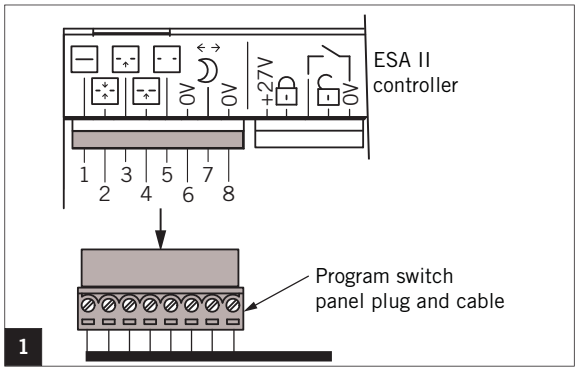
17 First commissioning

Insure areas around door and in door travel path are free of personnel and obstacles!

1.1 Verify Program switch plug is disconnected from its receptacle on ESA II controller.

1.2 Verify DC power supply plug is disconnected from its receptacle on ESA II controller.



2.1 Presence 1 and 2 test jumper wiring (may be factory installed):

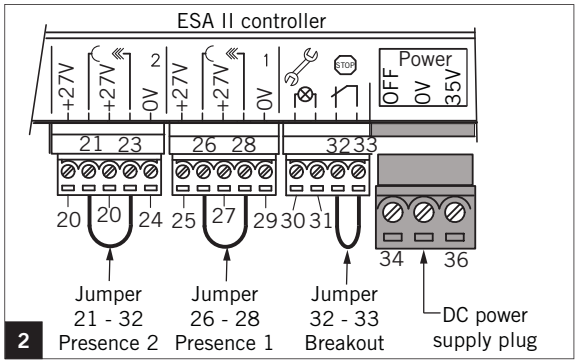
- Presence 2 – jumper at 21 and 23.
- Presence 1 – jumper at 26 and 28.

2.2 Breakout jumper at terminals 32 and 33:

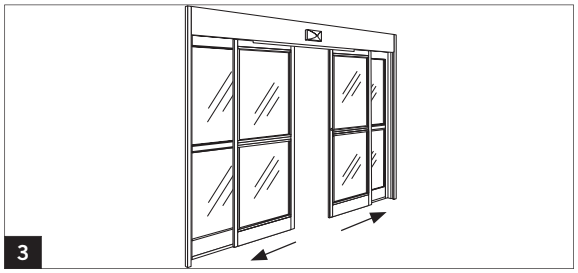
- Doors with fixed sidelights: jumper must be installed.
- Full breakout doors with magnetic switch assemblies: no jumper installed.

Magnetic switch wiring:

- Section 25-E for double door wiring
- Section 25-D for single door wiring



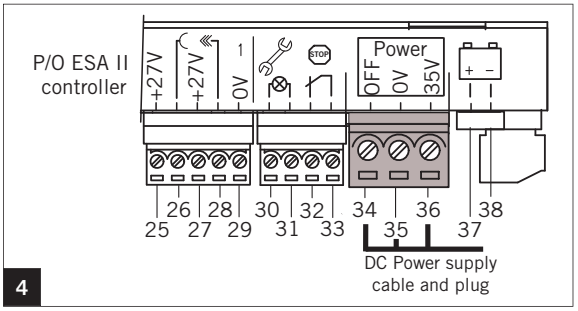
3.1 Manually open sliding door half way.



4.1 **Turn customer 115 VAC power to ESA II ON.**

4.2 Plug DC power supply plug into its receptacle on ESA II controller.

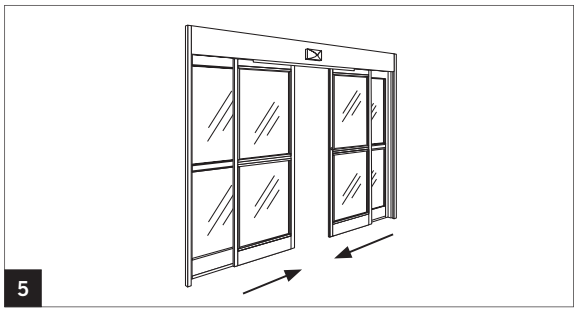
4.2 As soon as DC power supply has been switched on, ESA II controller powers up and security checks are performed.



5.1 Door will then perform a closing cycle at low (creep) speed and fully close.

If door starts to open go to Section 21, Reset controller to factory settings.

5.2 Procede with perform learning cycle (Section 18).



18 Perform learning cycle

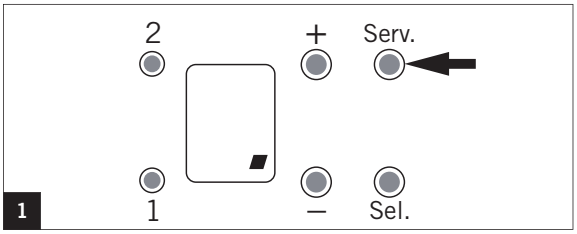
Activation sensors are disabled during learning cycle. **If an interruption or fault should occur, learning cycle is terminated and must be restarted.**

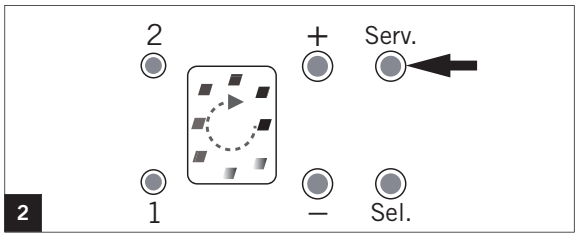
Insure areas around door and in door travel path are free of personnel and obstacles!

Door must be fully closed!

1.1 Press and hold **Serv.** button.

2.1 Release **Serv.** button when rotating segments are displayed.

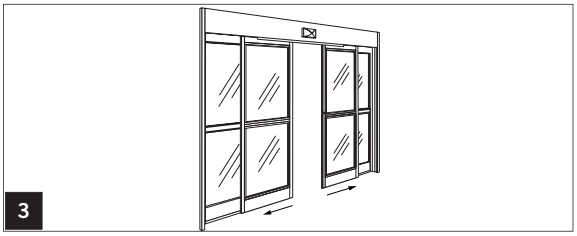




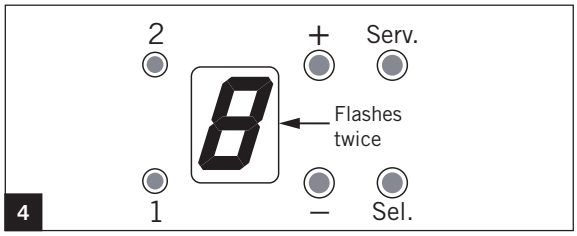
3.1 Door will start an opening cycle:

- Rotating segments will continue to be displayed.
- Door accelerates to determine door weight.
- Door opens at low (creep) speed to determine door width.

3.2 Door will fully open against end stop.

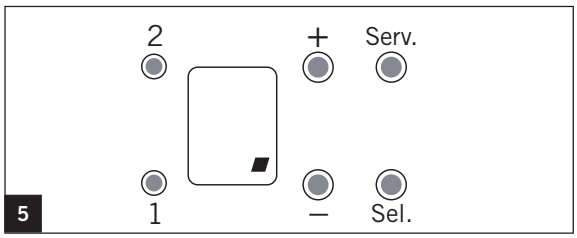


4.1 An "8" flashes twice on display when opening parameters are stored in controller memory.



5.1 Display indicates a "dot" in lower right hand corner.

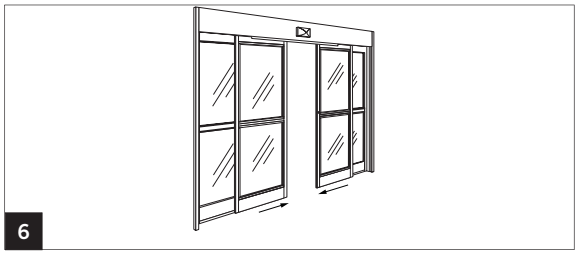
Learning cycle is complete.



6.1 Door will then fully close at set closing speed [C.].

6.2 **Learning cycle verification** – momentarily press Serv. button **(**once only):

- Door will cycle open, then fully close confirming that learning cycle is accurate and complete.



6.3 Activation sensors are re-enabled after learning cycle is completed.

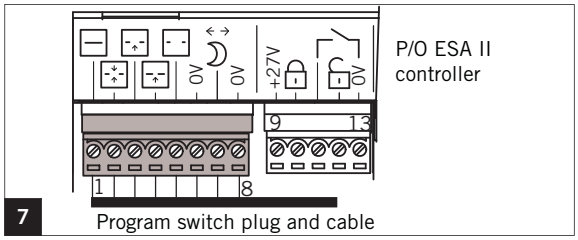
Remove presence 1 and presence 2 jumpers – reference Section 17 – 2.1!

Verify activation and presence sensor wiring using applicable sensor wiring diagrams.

7.1 Reinstall program switch panel plug.

7.2 Set program switch panel main switch to AUTO.

7.3 Go to Section 19, Set door parameters.



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19. Set door parameters

 See Section 11-D for accessing parameters.

Test each parameter setting using Section 20, test of door opening cycle.

1.1 Door opening speed
Set door opening speed parameter 0. .

Factory default 8: 20 inches/sec.

Opening speed – inches/second				
0.	0	4	7	18
	1	6	8	**20**
	2	8	9	22
	3	10	A	24
	4	12	b	26
	5	14	c	28
	6	16	d	30

2.1 Door closing speed
Set door closing speed parameter C. .

Factory default 4:12 inches/sec.

Closing speed – inches/second				
C.	0	4	3	10
	1	6	4	**12**
	2	8		

3.1 Hold open time
Set door hold open time parameter d. .

Factory default 1: 1.5 sec.

Hold open time – in seconds				
d.	1	**1.5**	6	15
	2	2.5	7	20
	3	5	8	25
	4	8	9	30
	5	10	F	>30 seconds via Dorma Handheld

4.1 Night/bank hold open time
Set night/bank hold open time parameter o. , if used.

Factory default 1: 1.5 sec.

Night/bank hold open time – in seconds				
o.	1	**1.5**	6	15
	2	2.5	7	20
	3	5	8	25
	4	8	9	30
	5	10	F	>30 seconds via Dorma Handheld

19. Set door parameters – continued

1.1 Parameter A. backup battery mode

Factory default 0: No backup battery installed.

☞ if backup battery installed set parameter to applicable value.

Backup battery mode		
A.	0	No backup battery installed.
	1	Emergency closing
	2	Emergency opening
	3	Backup battery emergency mode – when a power failure occurs, door will continue to operate normally for **limited number of door cycles** until battery is discharged.

1

2.1 Parameter L. door carriage locking device type, if installed.

Factory default 0: No locking device.

☞ If carriage locking device installed, set parameter to applicable value.

☞ Set parameter to 2 when using a Dorma DS0979-010 carriage lock.

⚠ Locking device type is not automatically learned in learning cycle!

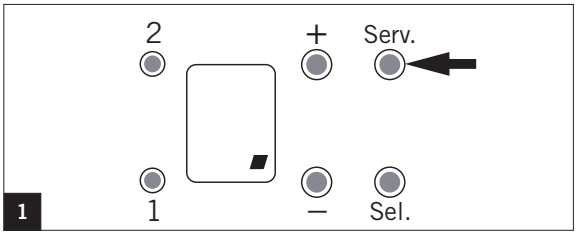
Door carriage locking device type		
L.	0	No locking device
	1	Bistable Locking device remains in its current position when power was removed.
	2	Bistable Locking device remains in its current position when power was removed – with status signal contact.
	3	Monostable – fail safe or fail secure, depending on lock type. Fail safe: Power required to lock locking device. Fail secure: Power is removed, locking device remains locked.

2

20 Test of door opening cycle

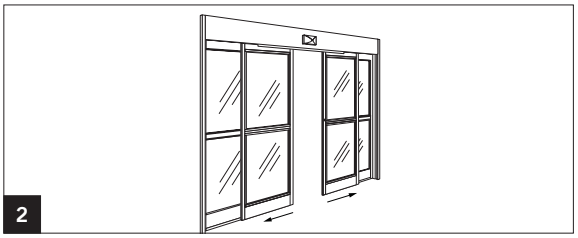
⚠ Insure areas around door and in door travel path are free of personnel and obstacles!

1.1 Momentarily press **Serv.** button.



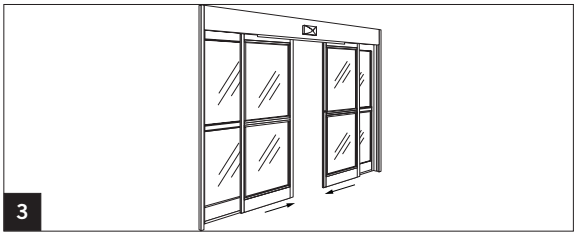
1

2.1 Door performs an opening cycle.



2

3.1 Door closes after hold open time d. expires.



3

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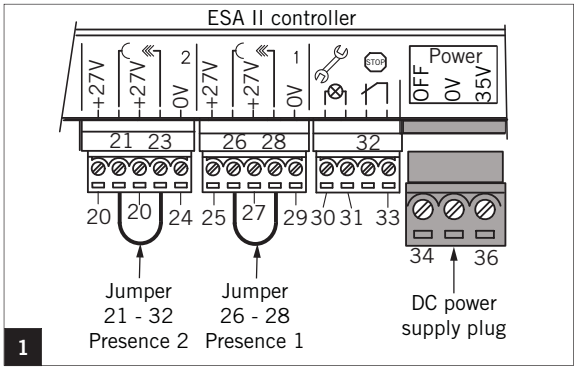
21 Reset controller to factory settings

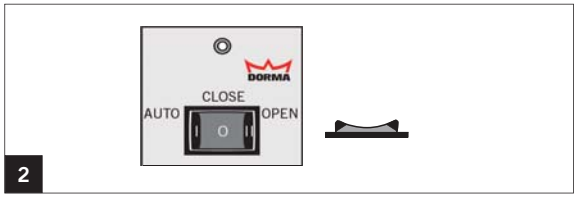
If controller has been commissioned, record parameter settings, including those accessed by Dorma handheld programmer, prior to controller reset!

1.1 Pull out DC power supply plug from ESA II controller socket.

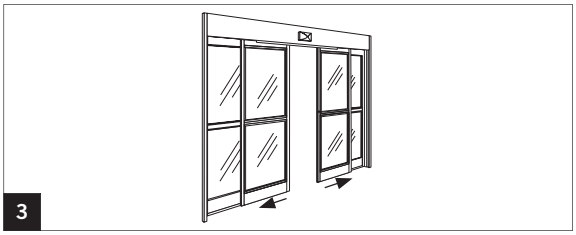
1.2 Install jumpers at presence sensor terminals 21 and 23, and at 26 and 28.



2.1 Set program panel main switch to CLOSE position. Alternative: unplug program switch panel plug from ESA II controller – see Section 17. 1.1.



3.1 Manually open door to half open position.



4.1 Press and hold in Serv. button. While holding in Serv. button, reconnect DC power supply plug.

4.2 Keep pressing Serv. button until door starts to move, then release button.

- Door will move at creep speed in the close direction and fully close.

If door starts to move in the open direction, momentarily press ◉ once. Door should then start to move in the close direction at creep speed.

If door opens against end stops before ◉ can be depressed, restart "Reset controller to factory settings" procedure, step 1.1.

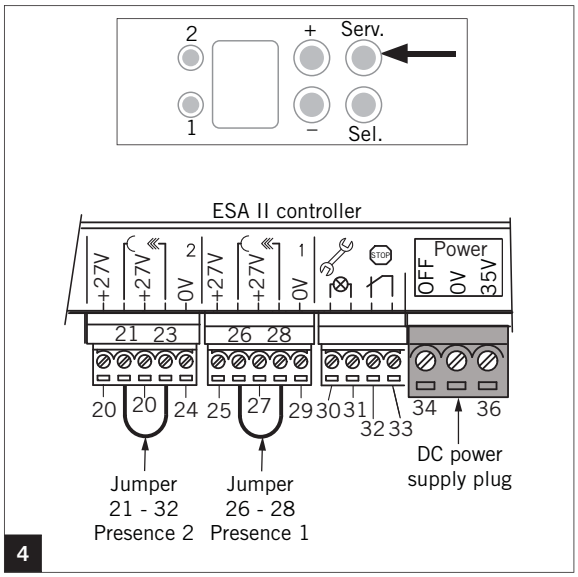
4.3 Parameters: review and change parameter settings as required. Reference Section 11-D–Accessing parameters, and Section 19, Set door parameters.

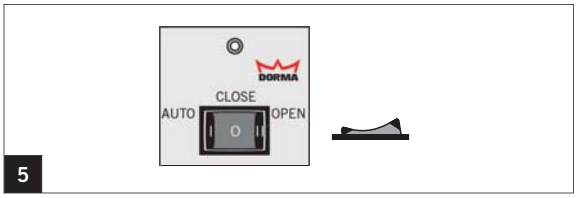
4.4 Perform learning cycle – reference Section 18.

4.5 ⚠ Remove jumpers at terminals 21 and 23, and at 26 and 28 that were installed in step 1.2.

5.1 Set program switch panel main switch to AUTO.

If program switch panel plug was removed in step 2.1, reconnect plug.





22 ESA II expansion module – DCW address 48

Additional functions available with expansion module using DCW address 48:

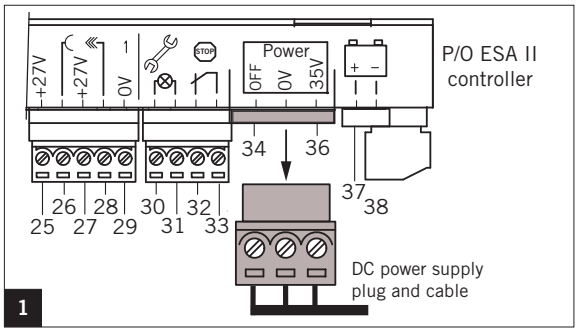
A –Secondary closing edge sensors

B –Panic closing function

C –Door status contacts

System must be disconnected from DC power supply while DCW address of expansion module is set!

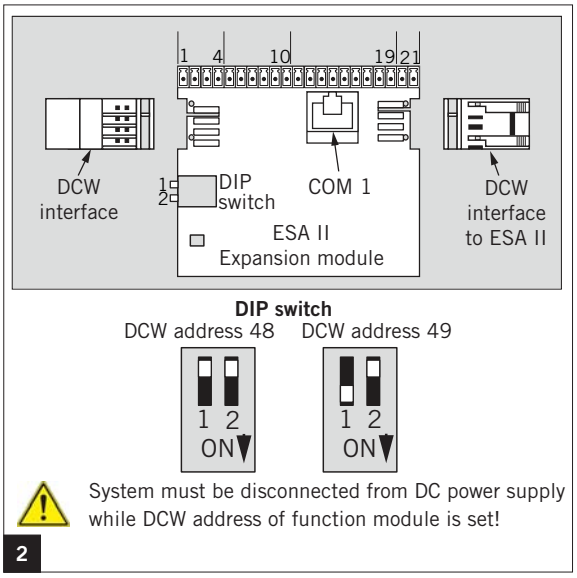
1.1 Remove DC power supply plug and cable from its socket on ESA II controller.



1

2.1 Set expansion module DIP switch to DCW address 48:

- Position both DIP switches to OFF position.



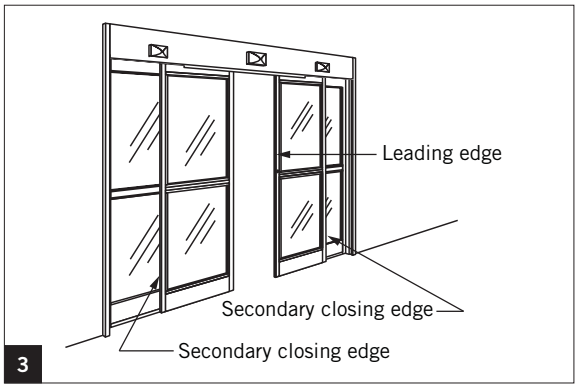
2

A Secondary closing edge sensors

3.1 If a person enters, or an object is placed in detection range of secondary closing edge presence sensor:

1. While door is open: door will remain open until person or object is no longer detected. Once hold open time t_d expires, door will close.

2. Door in process of closing: door will immediately stop and remain stopped until person or object is no longer detected. Door will then immediately continue closing cycle.



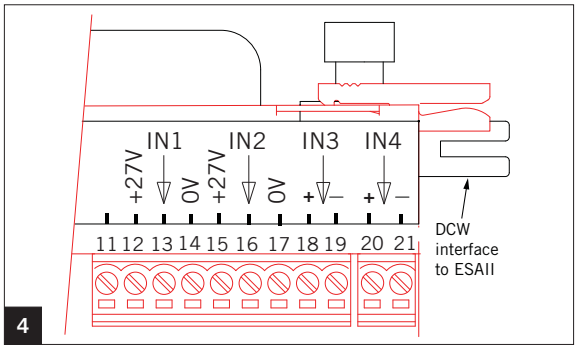
3

4.1 **IN 1** (12 - 14) and **IN 2** (15 - 17) inputs on expansion module are used for connection of secondary closing edge sensors to expansion module.

4.2 **IN 3** (18 - 19) and **IN 4** (20-21) inputs on expansion module are used for main closing edge sensor.

IN functions settings can be changed using Dorma Handheld.
See Appendix – Section B Special Function Parameters.

See Section 25, Wiring diagrams, Para. B Main and Secondary closing edge safety sensors .



4

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B Panic closing function

5.1 Setting panic closing function using **IN 4** input.

Panic closing function must be set via Dorma Handheld. See Appendix – Section B, Special function parameter 7, Panic closing.

Does not meet BHMA / ANSI 156.10.
This function overrides all safety devices.
Door will close if switch is activated.

5.2 Press panic closing switch to close door:

- Door closes immediately (will stop an opening cycle).
- Door locks in closed position.

Safety functions – safety beams, presence sensors, activating sensors – are deactivated.

In panic closing mode, door will not respond to an activation by night-bank device, or internal/external sensors.

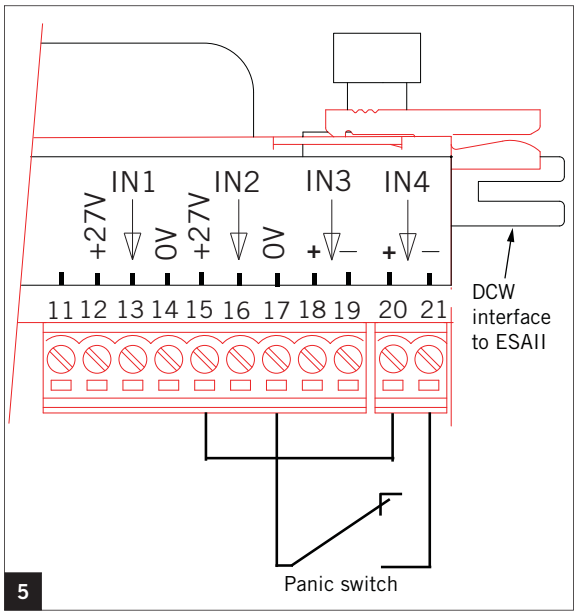
Should door be blocked by a person or obstacle during the closing cycle, door will attempt to close with maximum force.

5.3 Motor overload during door closing procedure:

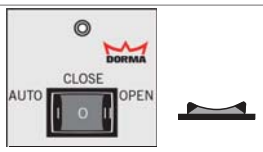
- After 10 seconds of constant operation, door closing is stopped only when motor is overloaded. Motor will then switch off for 10 seconds and after the 10 second off period, the closing action is repeated until door closes and successfully locks.
- If motor overloads, error may be acknowledged by setting program panel main switch to CLOSE. This resets the waiting period in order to enable door operation (6.1).

6.1 Resetting panic closing function

- Set program panel main switch to CLOSE.
- System exits panic closing function.
- Control unit resumes normal operation.



5



6

	Function	Original settings	Digital inputs - IN				Digital outputs - OUT			
			1	2	3	4	1	2	3	4
DCW Address 48	Secondary closing edge Sensor 1		X							
	Secondary closing edge Sensor 2			X						
	Main closing edge				X					
	Panic closing function					X				
	Door status contact 1	"Door open"					X			
	Door status contact 2	"Door closed"						X		
	Door status contact 3	"Operational fault"							X	
	Door status contact 4	Bell contact								X
DCW Address 49	Disable airlock	Entrance (disable door)								
	Panic closing function					X				
	Door status contact 1	Door closed					X			
	Door status contact 2	Disable airlock (exit)						X		
	Door status contact 3	Airlock impulse (exit)							X	
	Door status contact 4	Bell contact								X

22 ESA II Expansion module – DCW address 48 – continued

C Door status contacts

6.1 Door status contact 1 (OUT-1):

- Default is "Door open".

Relay contact is closed when door:

- Performs an opening cycle.
- Is in "open position".
- Performs a closing cycle.

6.2 Door status contact 2 (OUT-2):

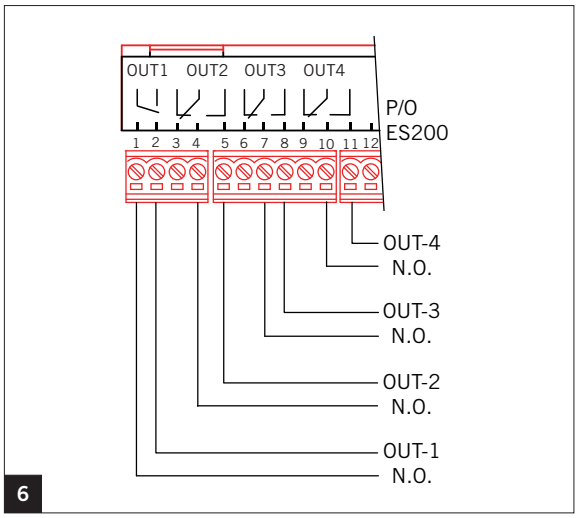
- Default is "Door closed".
- Relay contact is closed when door is in "closed position".

6.3 Door status contact 3 (OUT-3):

- Default is "Malfunction".
- Relay contact is closed in event of a malfunction.

6.4 Door status contact 4 (OUT-4):

- Default is "Bell contact".
- Relay contact is closed when one of both safety beams are interrupted.
- Function is deactivated when door is closed.



OUT function settings, except for OUT-4 "Bell contact". can be changed using Dorma Handheld. See Appendix – Section B Special Function Parameters.

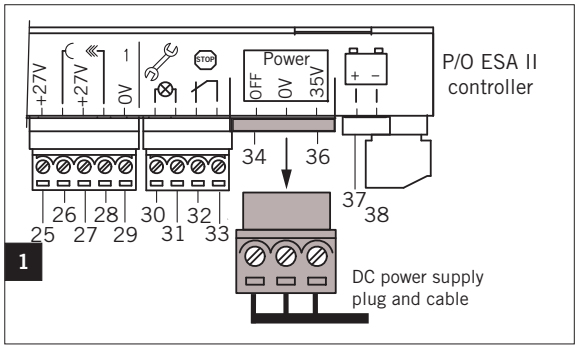
23 ESA II Expansion module – DCW address 49

Additional functions available with expansion module using DCW address 49:

A – Airlock function.

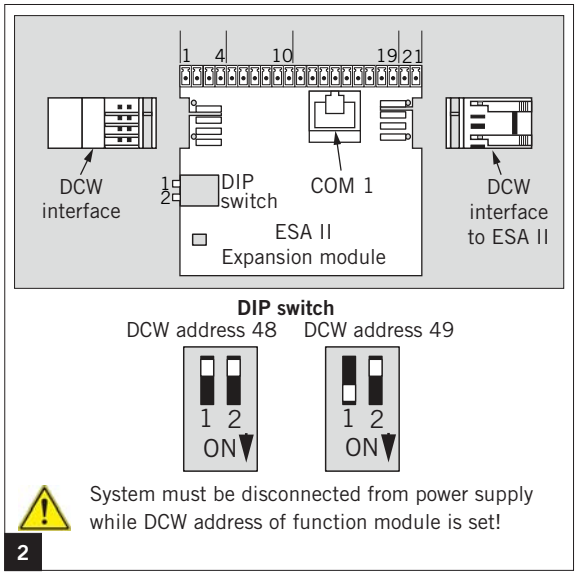
System must be disconnected from power supply while DCW address of function module is set!

1.1 Remove DC power supply plug and cable from its socket on ESA II controller.



2.1 Set expansion module DIP switch to DCW address 49:

- Set DIP switch 1 to ON position.
- Set DIP switch 2 to OFF position.



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23 ESA II Expansion module – DCW address 49 – continued

A Airlock function

3.1 Disabling airlock function (IN-3)

- As soon as airlock function is activated while door is still closed, both internal and external activation sensors are blocked.
- A door opening or closing cycle cannot be interrupted.

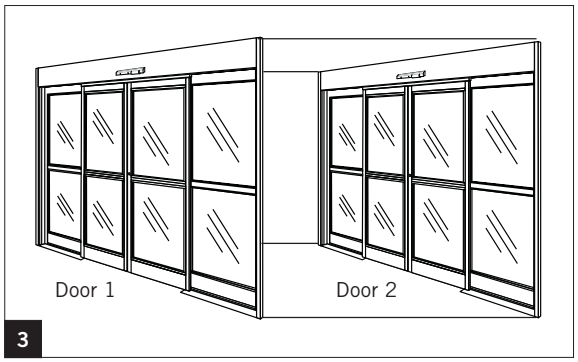
3.2 Airlock door status 1:

- OUT 2 contact closed when door 1 is in "closed" position.
- Contact disables door 2 **(IN 3)** during opening cycle of door 1.
- Internal and external activation sensors are deactivated.
- Locking function is disabled as soon as door is closed.

3.3 Airlock door status 2:

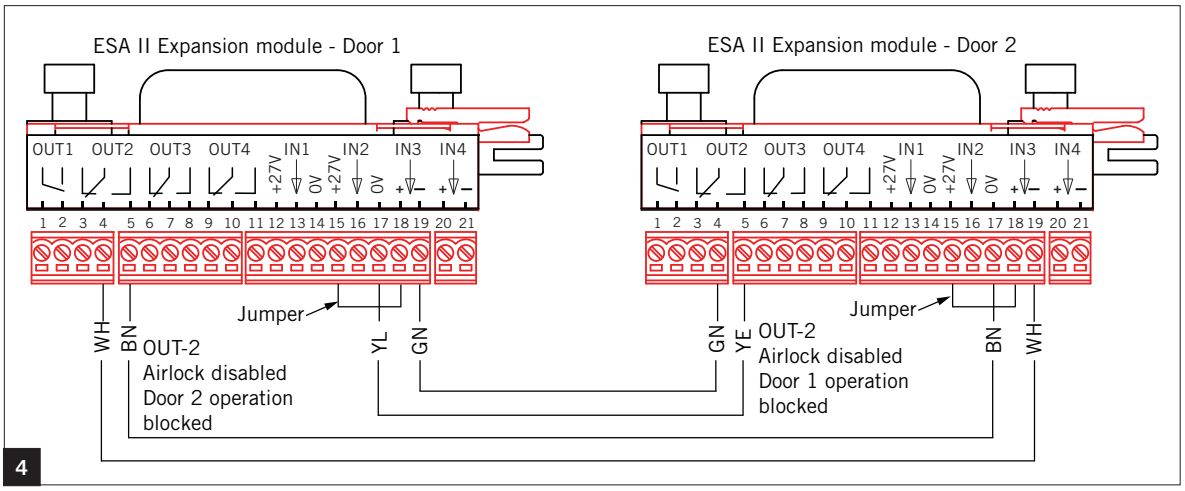
- OUT 2 contact closed when door 2 is in "closed" position.
- Contact disables door 1 **(IN 3)** during opening cycle of door 1.
- Internal and external activation sensors are deactivated.
- Locking function is disabled as soon as door is closed.

4.1 All airlock function connections utilize direct wiring (no bus connection).



3

Airlock door status function settings can be changed using Dorma Handheld.
See Appendix – Section B Special Function Parameters.



4

5.1 Door status contact 2 (OUT-2) – Disable airlock:

- Relay contact closed as soon as door starts an opening cycle.

5.2 Panic closing function using IN-4 input:

- Same function as contact in DCW address 48 – see Section 22, paragraph 5.1.

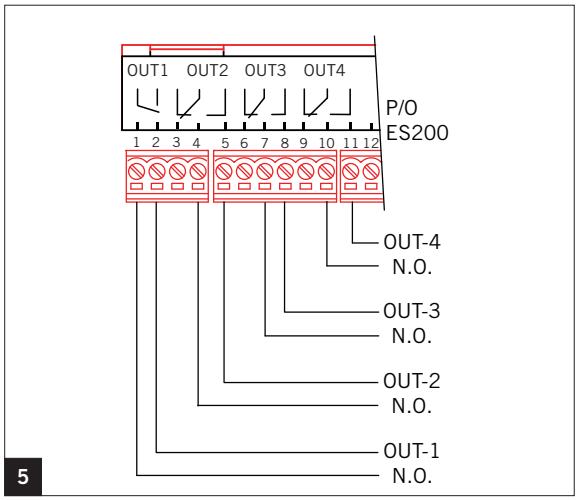
5.3 Door status contact 1 (OUT-1):

- Same function as contact in DCW address 48 – see Section 22, paragraph 6.1.1.

5.4 Door status contact 4 (OUT-4) – "Bell contact":

- Same function as contact in DCW address 48 – see Section 22, paragraph 6.1.4.

OUT function settings can be changed using Dorma Handheld.
See Appendix – Section B Special Function Parameters.



5

24 Functional test

A Activation, presence and safety beam sensors

Reference Appendix, Section A A156.10_sensors – sliding doors.

1.1 Set program panel switches to following positions:

- Main switch – **AUTO**
- Exit only – OFF
- Partial open – OFF
- External and intenal activation and presence sensors have been set up per manufacturer's instructions and are functional.

Test based on "Daily Safety Check" as outlined in AAADM Automatic Sliding Door Owner's manual.

2.1 Check activation sensor.

Walk toward door at a moderate speed. Door should start to open at set opening speed [d] when you are about 4 feet from door, slide open smoothly, and stop at full opening width (or partial opening width if set ON) without impact.

Secondary activating zone:
If door is set up for one way traffic, sensor on side not intended for approach should be active until door is within 6 inches of fully closed. Sensor should reopen the closing door if a person is detected a minimum of 24 inches from the door.

2.2 Check detection pattern width.

Walk parallel to door face and towards center of door opening to check that detection pattern is at least as wide as the clear door opening.
This test should be performed approximately 12 inches and 30 inches from door face.

3.1 Check presence sensor.

Move slowly through door opening (6" /second). Door should remain open.

3.2 Step away from sensor zone.

Door will close at set closing speed [C] after hold open time [d] expires. Door should close smoothly and stop without impact.

3.3 Check safety zone.
Open door. Crouch motionless in threshold for at least 10 seconds to check safety zone. Door should not close.

ANSI 156.10 Para. 8.1.3: Presense sensors shall detect a stationary 28 in. minimum high person within the detection areas described for a minimum of 30 sec..

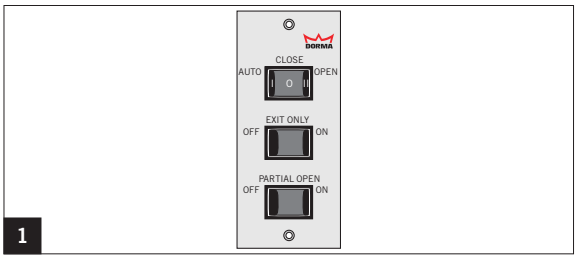
3.4 Safety beams, if installed:

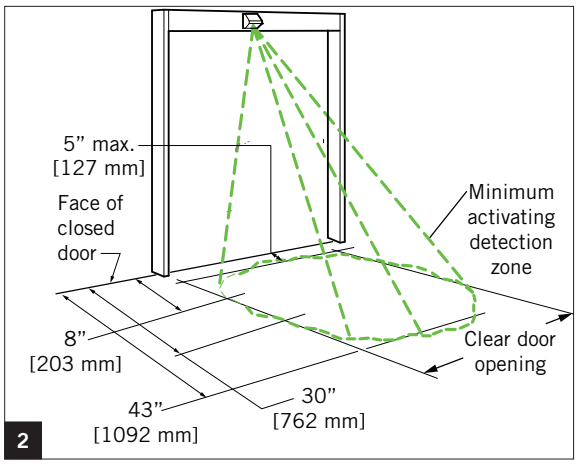
1. Approach within 3" of face of door. Door should open.

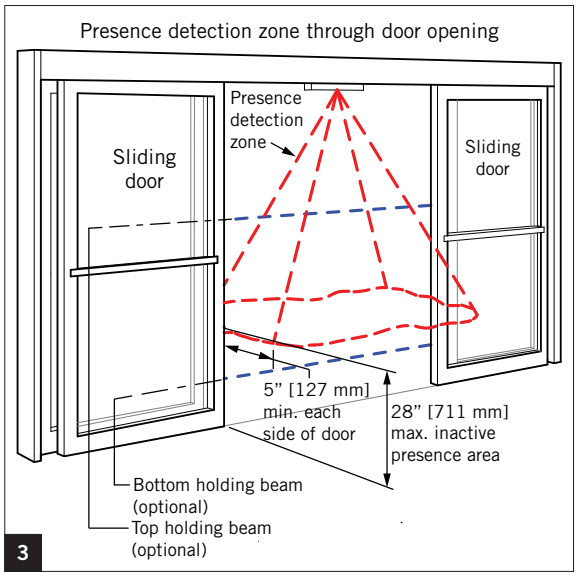
2. Remain in door threshold. Door should remain open.

3. Crouch, or place object in door threshold to simulate a 28" high person. Door should remain open.

4. Leave door threshold area. Door will close at set closing speed [C] after hold open time [d] expires. Door should close smoothly and stop without impact







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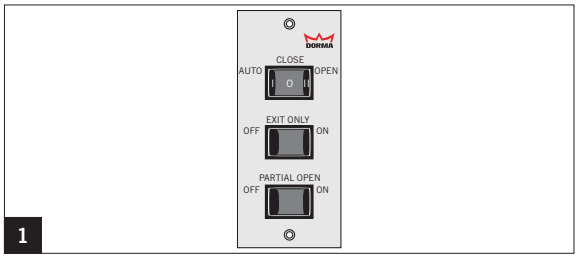
24 **Functional test** – continued

B Door or door and sidelight breakout

Purpose of test: verify door and panel breakout operation.

1.1 Set program panel switches to following positions:

- Main switch – **AUTO**
- Exit only – OFF
- Partial open – OFF



1

2.1 ESA300 with breakout sensors.

1. Walk toward SX door to activate a door opening cycle.

2. Push SX door in breakout direction during opening cycle.

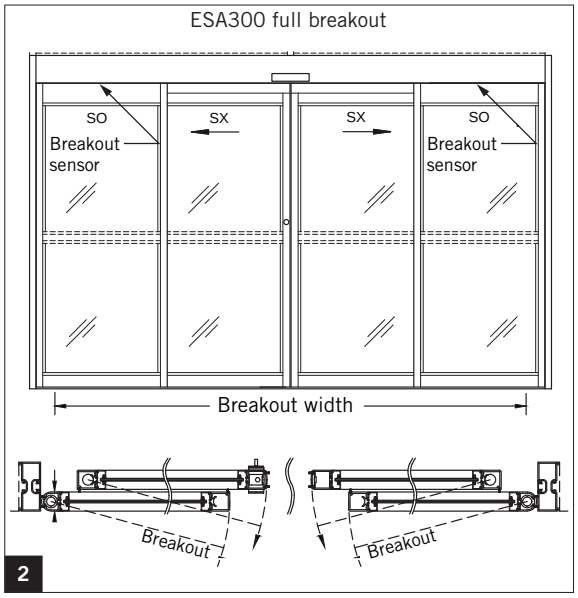
3. Door operation will stop.

4. Push SX door and SO panel back into place:

- SX door will go fully open.
- Once presence sensor zone is cleared, door will fully close.

2.2 Repeat with other SX door.

See Section 25 - D and E for breakout switch wiring diagrams.

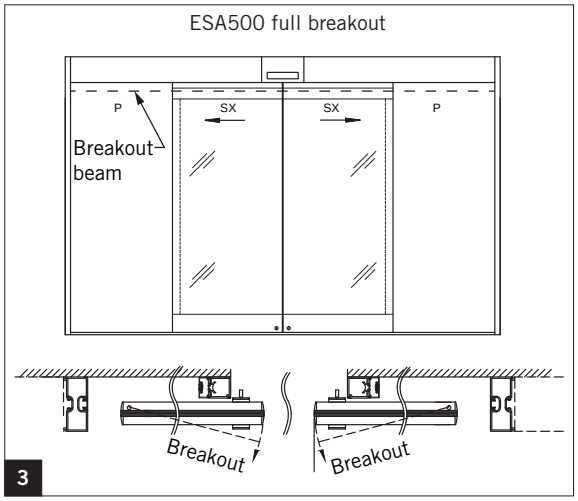


2

3.1 ESA500 with breakout beam.

- Procedure same as in 2.1.

See Section 25 - F for breakout beam wiring diagram.

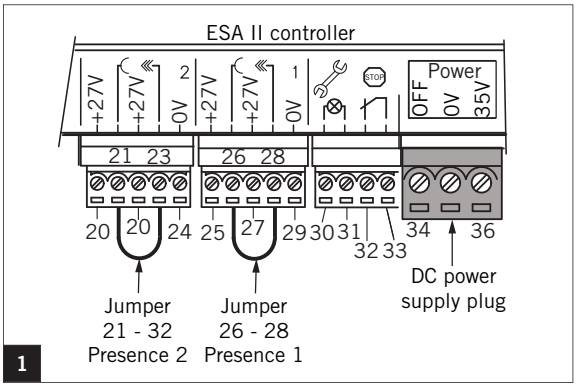


3

C Monitoring of opening and closing forces

For these tests a door pressure gauge is required.

1.1 For these test, bypass presence sensor inputs by installing jumpers at ESA II controller terminals 21 and 23, and at terminals 26 and 28.



1

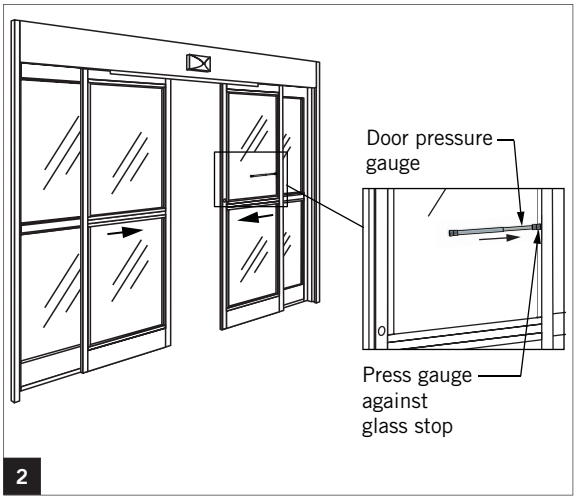
2.1 Door closing force measurement – force limitation during door closing cycle

1. Walk toward door to activate a door opening cycle.
2. When hold open time expires door will start to close.
3. As door is closing, walk next to door leading edge.
4. As door continues to close, place pressure gauge against leading edge.
5. Press gauge in against door leading edge until door reverses into an opening cycle. Read force measured by gauge.

Force measured at door edge should be approximately 20 pounds. See Section 4 – Technical data.

ANSI 156.10: A stopped sliding door shall not require more than 30 lbf [133 N] , measured at the leading edge, to prevent it from closing at any point during the closing cycle

6. Once hold open time expires, door should perform a door closing cycle.



2

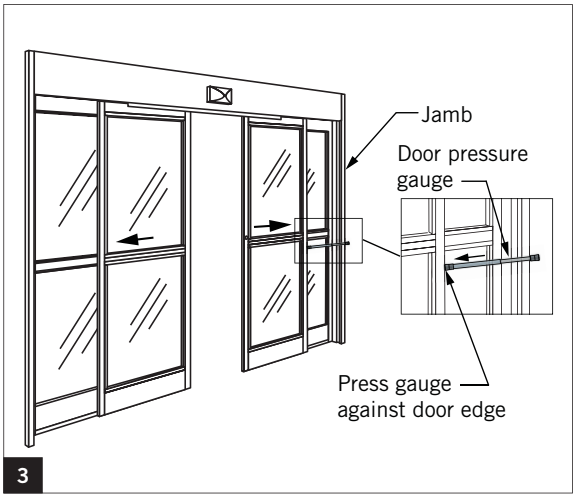
3.1 Door opening force measurement – force limitation during door opening cycle

1. Walk toward door to start a door opening cycle.
2. As door starts to open, walk next to door at door edge facing door jamb.
3. As door continues to open, place pressure gauge against door edge.
4. Press gauge in towards door edge until door stops. Remove gauge and read force measured by gauge.

Force measured should be approximately 30 pounds. Maximum force is 70 pounds.
See Section 4 – Technical data.

5. Door controller has sensed an "obstruction" and will continue to open at creep speed.
6. Door will close after expiration of hold open time.

Remove presence sensor jumpers in Step 1.1 when tests are completed.



3

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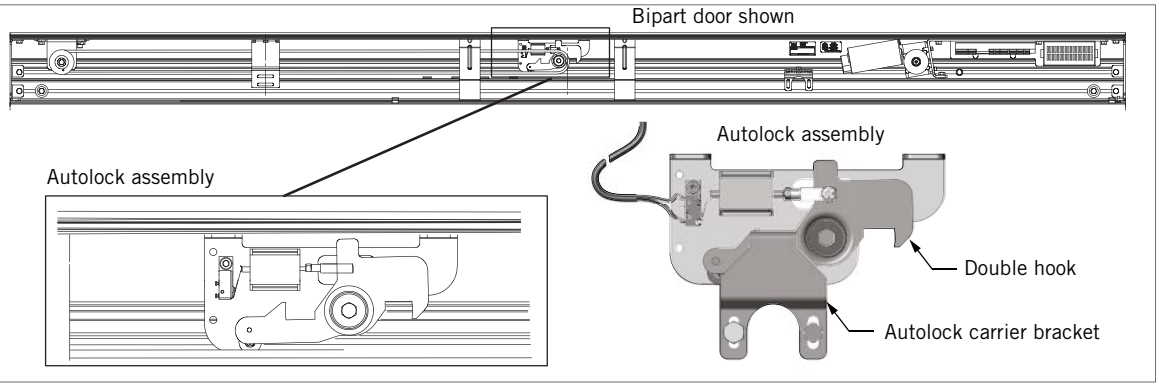
23 **Functional test** – continued

D Autolock assembly



1.1 Locking parameter L. set to 2, bistable with feedback contact.

1.2 Program panel main switch set to AUTO.

2.1 Autolock assembly installed and wired.

Operation:

1. Door is closed. In standby / AUTO mode.

2. Door activation sensor receives signal.

3. A momentary pulse is sent to "unlock" solenoid.

4. Solenoid shifts spool to "unlock" detent position:

- Double hook pivots to unlock position.
- Switch will open.

5. Door will open if switch opens.

If switch does not open, pulse will be re-sent to "unlock" solenoid.
If after 4 attempts status switch still does not open, door reverts to standby / AUTO.

6. After hold open time expires, and there is no sensor detection, door will close to its fully closed postion.

7. Momentary pulse is then sent to "lock" solenoid.

8. Solenoid shifts spool to "lock" detent position:

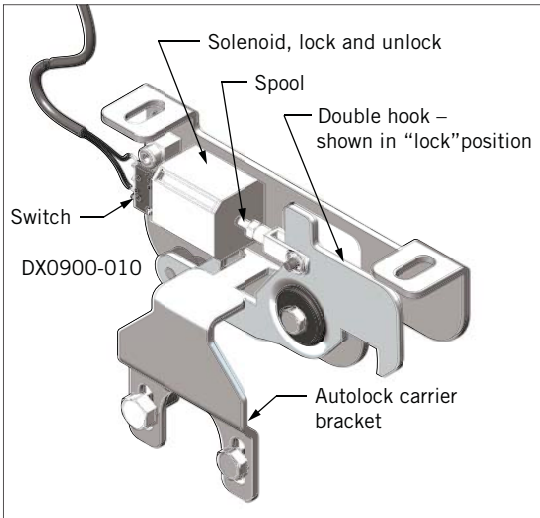
- Double hook pivots to lock position.
- Switch will close.

9. If switch closes, system reverts to standby / AUTO mode.

If switch does not close, pulse will be re-sent to "lock" solenoid.
If after 4 attempts switch still does not close, door reverts to standby / AUTO.

Door locking device type		
L.	0	No locking device
	1	Bistable Power is removed: locking device remains in its current position.
	2	Bistable Power is removed: locking device remains in its current position. With status signal contact.
	3	Monostable – fail safe or fail secure, depending on lock type: ▪ Magnetic lock (by others) ▪ DORMA fail safe electric bolt lock assembly

1



For solenoid and switch wiring, reference Section 25 – Wiring Diagrams, Para.B.

2

24 **Functional test** – continued

E Autolock – fail safe assembly

1.1 Locking parameter L. set to 3, monostable fail safe with feedback contact.

1.2 Program panel main switch set to AUTO.

2.1 Autolock –fail-safe installed and wired.

Operation:

Electric bolt lock requires +27VDC to move bolt to "lock" position.

1. Door is closed. In standby / AUTO mode.

2. Door activation sensor receives signal.

3. +27VDC is removed from lock solenoid.

4. Solenoid deenergizes:

- Bolt lowers to "unlock" position".
- Switch opens (unlock position).

5. Door opens.

If switch does not open, door will not open.

6. After hold open time expires, and there is no sensor detection, door will close to its fully closed position.

7. +27VDC is applied to lock solenoid:

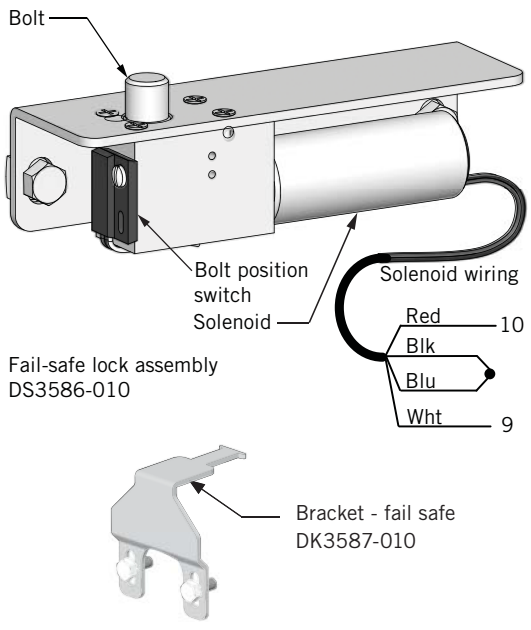
8. Solenoid energizes:

- Bolt extends to "lock" position.
- Switch closes (lock position).

9. System reverts to standby / AUTO mode.

Door carriage locking device type		
L.	0	No locking device
	1	Bistable Power is removed: locking device remains in its current position.
	2	Bistable Power is removed: locking device remains in its current position. With status signal contact.
	3	Monostable – fail safe or fail secure, depending on lock type: ▪ Magnetic lock (by others) ▪ DORMA fail safe electric bolt lock assembly. With status feedback contact.

1



For solenoid and switch wiring, reference Section 25 – Wiring Diagrams, Para. C.

2

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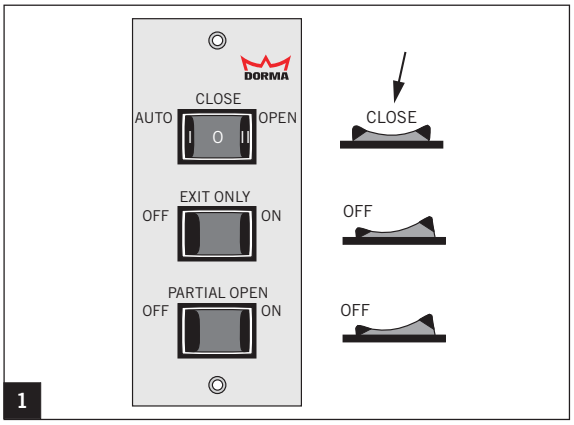
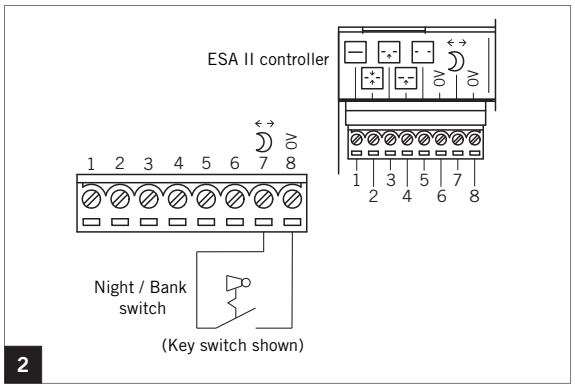
F. Night-bank contact (optional)

1.1 Program panel main switch – set to CLOSE.

If main switch was in OPEN postion, door will immediately close at set closing speed.



2.1 Night-bank N.O. contact must be wired to controller terminals 7 and 8 (pushbutton, key lock switch, keypad).

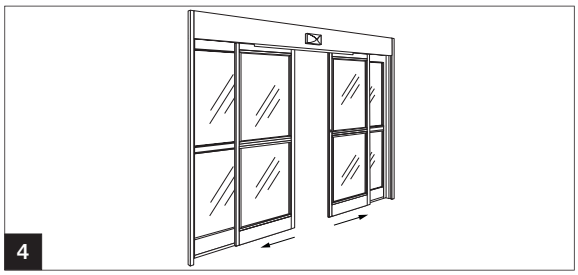


3.1 Actuate Night-bank device to close contact between terminals 7 and 8.

4.1 Door will unlock and open at set opening speed .

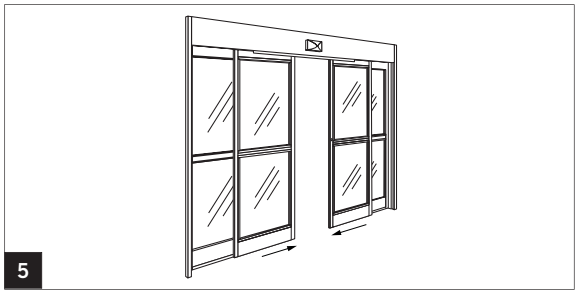
Both interior and exterior presence sensors active.

User must pass through door before set Night - bank hold open time expires.



5.1 Night-bank hold open time expires.

5.2 Door will then close and lock.



24 Functional test – continued

G Battery backup functional test overview

At end of function test, insure Parameter A. is set to setting required for specific door application – see Section 19 – Set door parameters.

1.1 Parameter A has four settings; functional test will verify door operation for a given Parameter A. setting.

If battery backup is provided, Parameter A. must be set to 1, 2, or 3 to prevent damage to door.

1.2 For functional test, Parameter A. will be set to battery mode required for the specific door application – see paragraphs **I** through L.
Remainder of battery mode settings may also be tested.

See Section 19 – Set door parameters for setting of battery backup operation for door.

2.1 Test conditions

Battery backup test should be done after commissioning and door learning cycle have been completed.

- Battery backup must be installed and connected to ESA controller battery receptacle – terminals 37 and 38.
- Battery must have a charge.

Charge can be confirmed by removing DC power supply plug (34-36), then installing battery backup plug (37, 38). ESA II controller should power up normally.

3.1 Simulated loss of 115 VAC power will be accomplished by unplugging DC power supply 115VAC male connector from its mating female connector on the supply.

115 VAC power present in male connector!

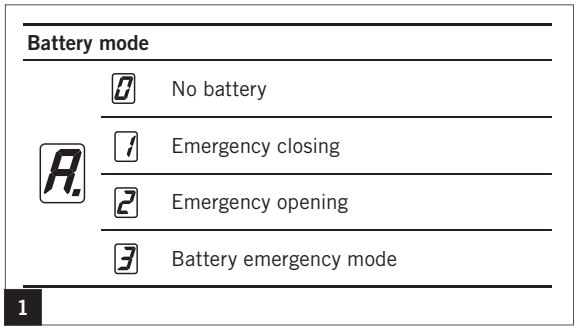
4.1 Following loss of 115 VAC power, the following functions will be monitored:

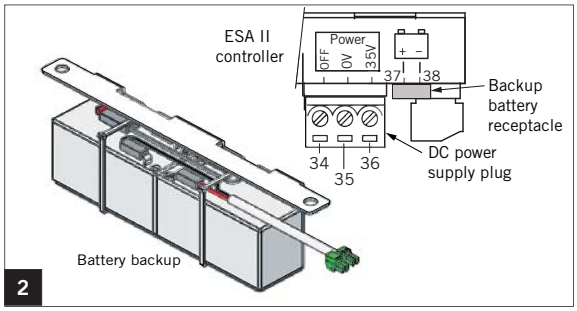
- Door operation.
- Operator interface; display and LEDs 1 and 2.

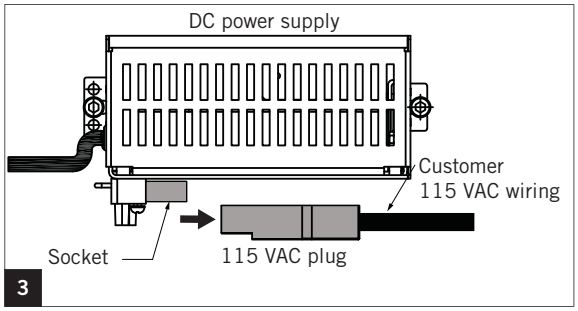
5.1 115 VAC power will be re-established by plugging 115 VAC male connector back into female connector on DC power supply.

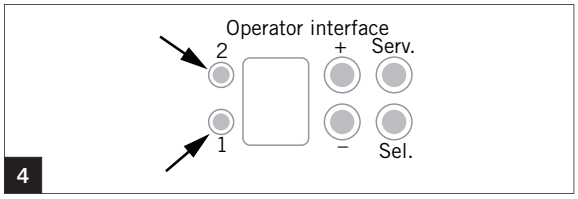
5.2 Following reestablishment of 115 VAC power, the following functions will be monitored:

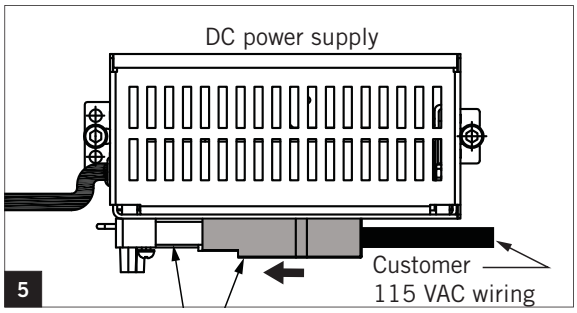
- Door operation.
- Operator interface; display and LEDs 1 and 2.











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H Battery backup functional test – setting 0 No battery

Set parameter A to 0 –No battery. See Section 11-D – accessing parameters.

	Program switch panel settings		Door	Display
Test setup	Main switch	**AUTO or CLOSE**	CLOSED	
	Partial Open	OFF		
	Exit Only	OFF		

	Test procedure	Door status	Display
1.	Disconnect 115 VAC power.	▪ Door remains closed.	
2.	Reconnect 115 VAC power.	▪ Closed, no movement.	
3.	Momentarily press **Serv.** button to test door opening cycle.	▪ Door performs opening cycle at set opening speed. ▪ Set hold open time expires. ▪ Door closes at set closing speed.	

	Program switch panel settings		Door	Display
Test setup	Main switch	**OPEN**	OPEN	
	Partial Open	OFF		
	Exit Only	OFF		

	Test procedure	Door status	Display
1.	Disconnect 115 VAC power.	▪ Door remains open.	
2.	Reconnect 115 VAC power.	▪ Door open, no movement.	

23 Functional test – continued

I Battery backup functional test – setting [1] Emergency closing

Set parameter A to [1] – Emergency closing. See Section 11-D – accessing parameters.

	Program switch panel settings		Door	Display
Test setup	Main switch	**AUTO or CLOSE**	CLOSED	
	Partial Open	OFF		
	Exit Only	OFF		

	Test procedure	Door status	Display
1.	Disconnect 115 VAC power.	▪ Door remains closed.	
2.	Reconnect 115 VAC power.	▪ Door immediately opens to end stop at set opening speed. ▪ Controller performs self tests. ▪ Door then closes at set closing speed.	
3.	Momentarily press **Serv.** button to test door opening cycle.	▪ Door performs opening cycle at set opening speed. ▪ Set hold open time expires. ▪ Door closes at set closing speed.	

	Program switch panel settings		Door	Display
Test setup	Main switch	**OPEN**	OPEN	
	Partial Open	OFF		
	Exit Only	OFF		

	Test procedure	Door status	Display
1.	Disconnect 115 VAC power.	▪ Door closes at creep speed. ▪ Controller shuts down.	
2.	Reconnect 115 VAC power.	▪ Door opens at normal set speed.	

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J Battery backup functional test – setting 7 Emergency opening

Set parameter A to 7 –Emergency opening. See Section 11-D – accessing parameters.

	Program switch panel settings		Door	Display
Test setup	Main switch	**AUTO or CLOSE**	CLOSED	
	Partial Open	OFF		
	Exit Only	OFF		

	Test procedure	Door status	Display
1.	Disconnect 115 VAC power.	▪ Door opens to end stop at creep speed. ▪ Controller shuts down.	
2.	Reconnect 115 VAC power.	▪ Controller performs self tests. ▪ Door then closes at set closing speed.	
3.	Momentarily press **Serv.** button to test door opening cycle.	▪ Door performs opening cycle at set opening speed. ▪ Set hold open time expires. ▪ Door closes at set closing speed.	

	Program switch panel settings		Door	Display
Test setup	Main switch	**OPEN**	OPEN	
	Partial Open	OFF		
	Exit Only	OFF		

	Test procedure	Door status	Display
1.	Disconnect 115 VAC power.	▪ Door remains open. ▪ Controller shuts down.	
2.	Reconnect 115 VAC power.	▪ Door remains open.	

K Battery backup functional test – setting 3 battery emergency mode

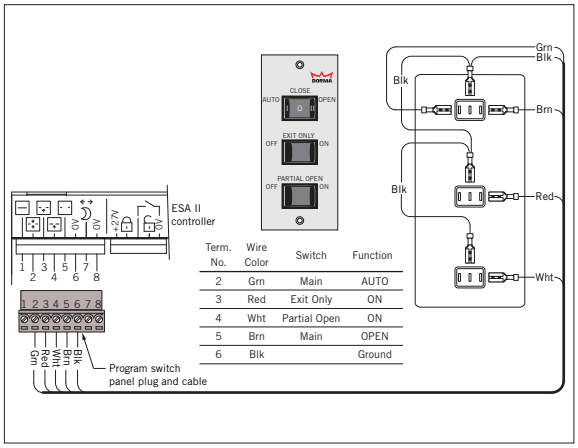
Set parameter A to 3 – Battery emergency mode. See Section 11-D – Accessing Parameters.

	Program switch panel settings		Door	Display
Test setup	Main switch	**AUTO, CLOSE, or OPEN**	N/A	
	Partial Open	OFF		
	Exit Only	OFF		

	Test procedure	Door status	Display
1.	Disconnect 115 VAC power.	Door will continue to operate normally for **limited number of cycles** until backup battery is discharged.	
2.	Reconnect 115 VAC power	Door will operate normally.	

25 Wiring diagrams

A Program switch panel



Term. No.	Wire Color	Switch	Function
2	Grn	Main	AUTO
3	Red	Exit Only	ON
4	Wht	Partial Open	ON
5	Brn	Main	OPEN
6	Blk		Ground

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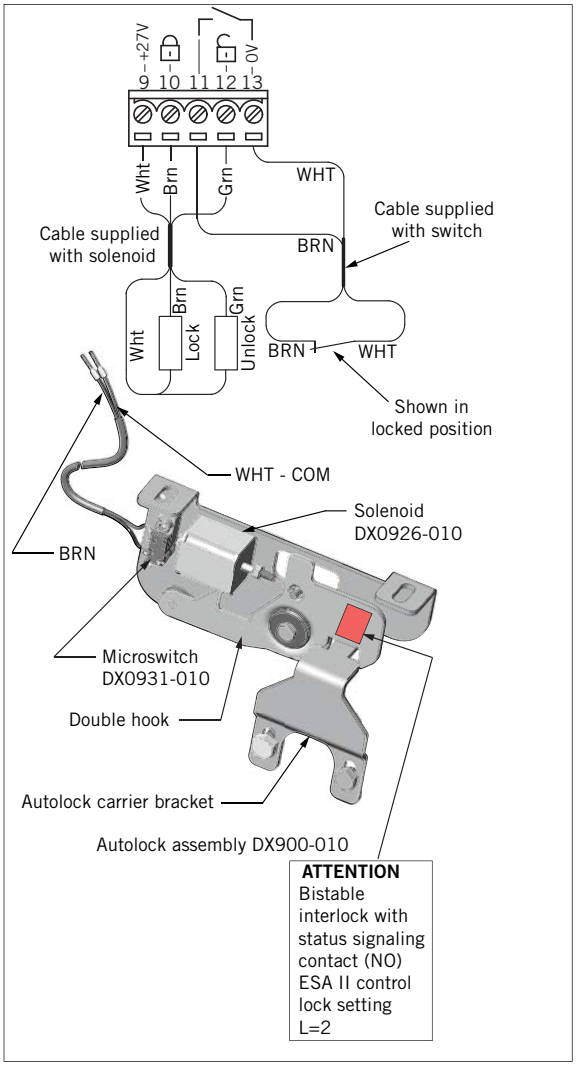
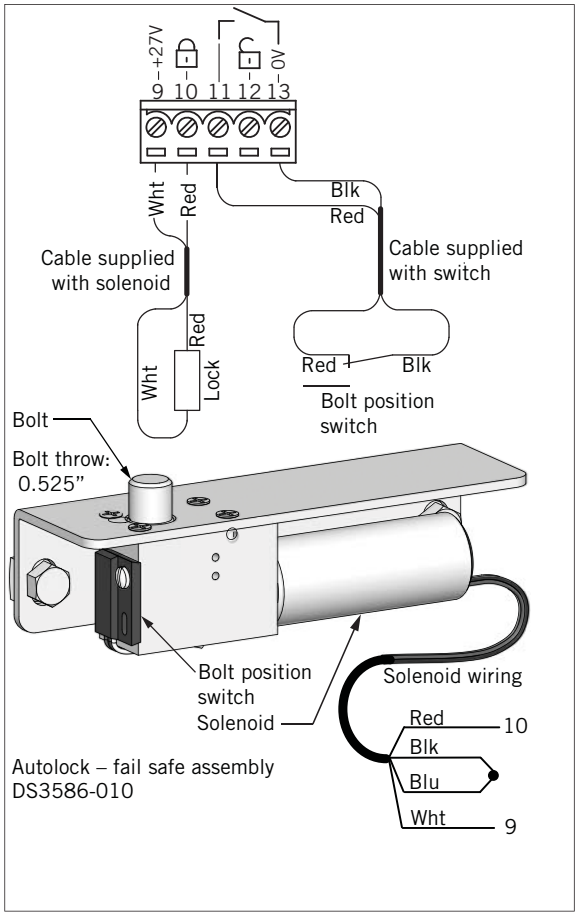
B Autolock assembly

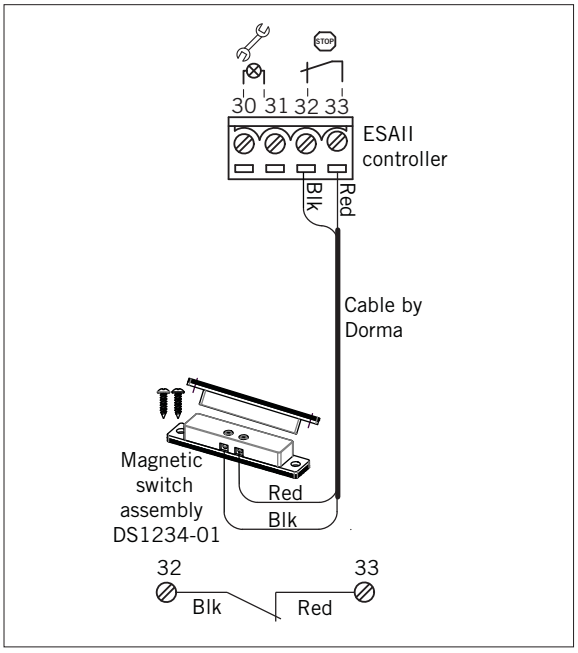


C Autolock – fail safe assembly

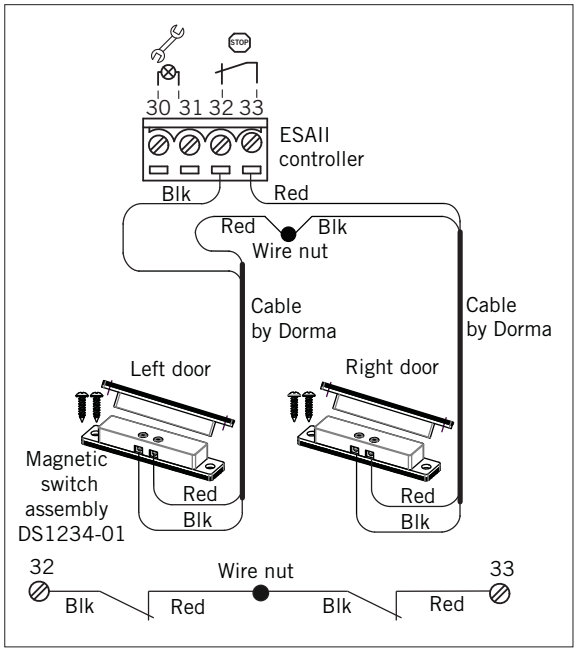


25 Wiring diagrams– continued

D Breakout switch – single door or panel

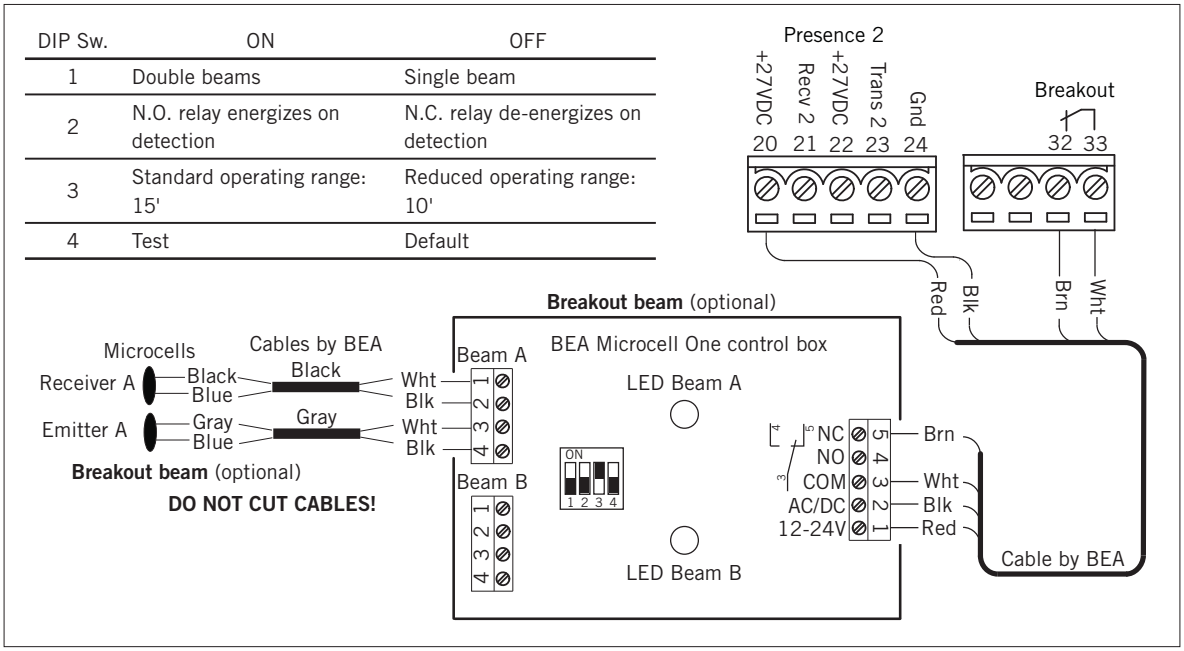


E Breakout switches – double doors or panels



F. Wiring diagram – Breakout beam wiring, BEA Microcell One

DIP Sw.	ON	OFF
1	Double beams	Single beam
2	N.O. relay energizes on detection	N.C. relay de-energizes on detection
3	Standard operating range: 15'	Reduced operating range: 10'
4	Test	Default



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25 **Wiring diagrams** – continued

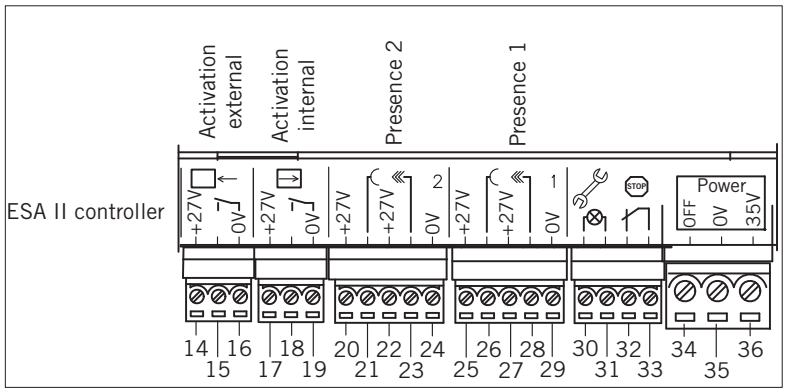
G. Activation / safety sensors – BEA IXIO-DT1

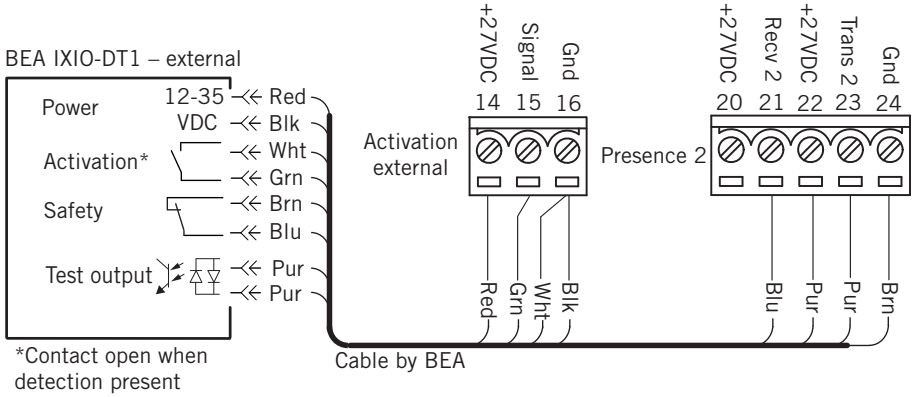
Reference BEA IXIO-DT1 User Guide for sensor settings.

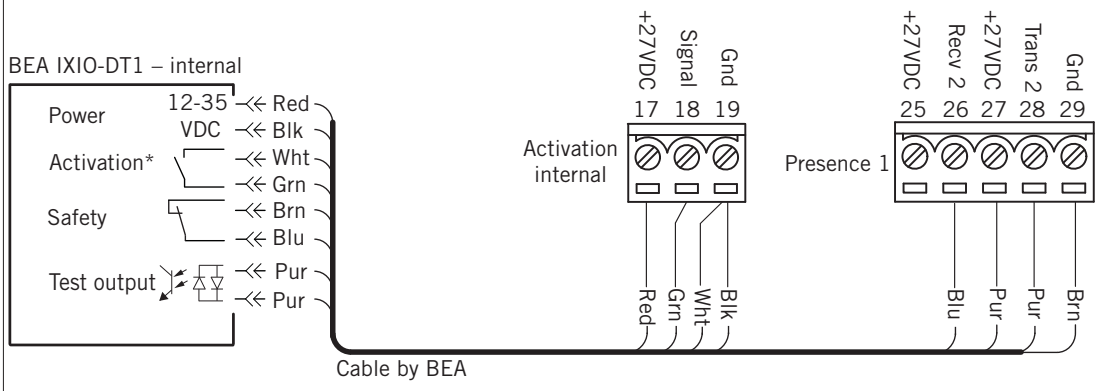
The following changes must be made to sensor settings:

Safety contact (IR output): Energ/NC

Test output: ON







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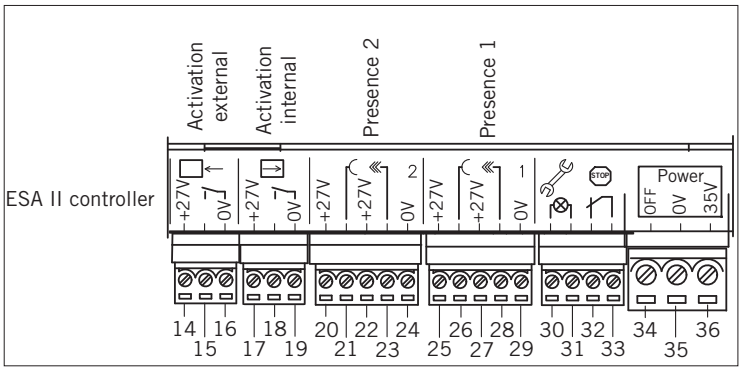
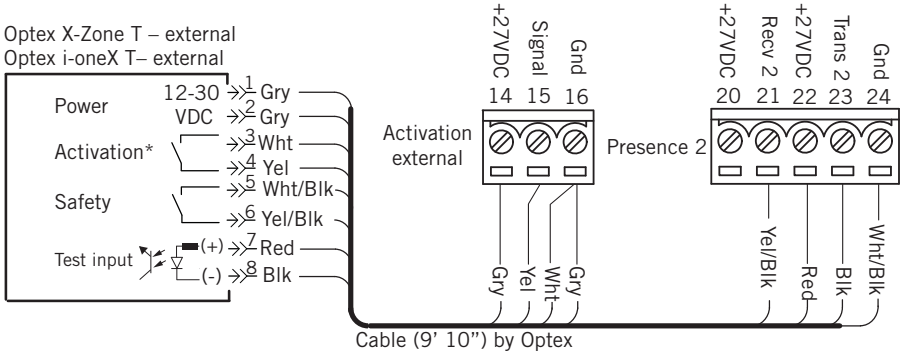
25 Wiring diagrams – continued

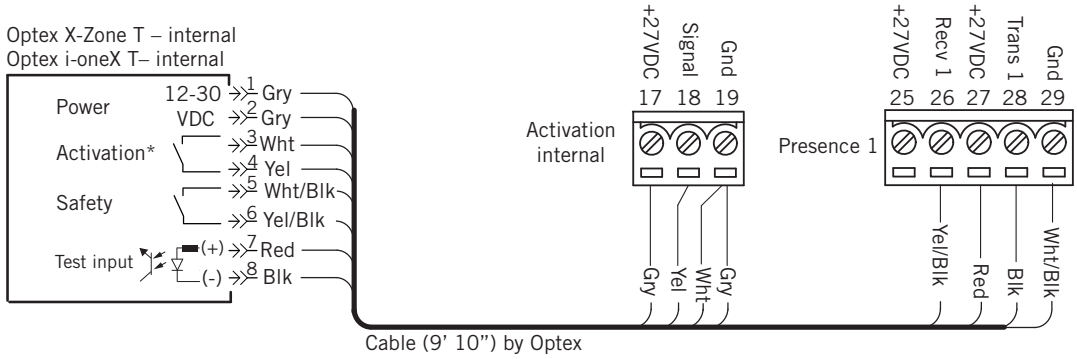
I. Activation / safety sensors – Optex X-Zone T and i-oneX T

Reference Optex X-Zone T installation manual for DIP switch settings and sensor setup.

Reference Optex i-oneX T installlation manual for DIP switch settings and sensor setup.







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ESA II CONTROLLER COMMISSIONING, MAINTENANCE AND TROUBLESHOOTING INSTRUCTIONS

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26 Maintenance

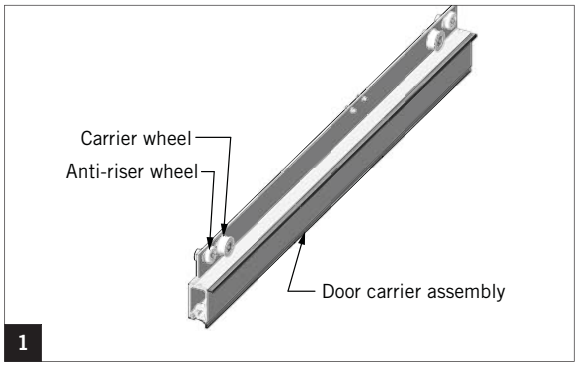
Startup and yearly system checks

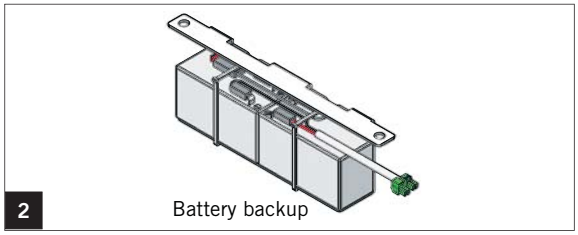
ESA door system must be checked, and if necessary serviced before it is commissioned for the first time and thereafter as required, but at a minimum once a year by a Dorma AAADM certified technician.

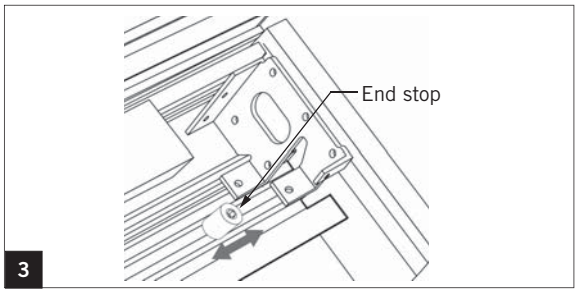
Wear parts

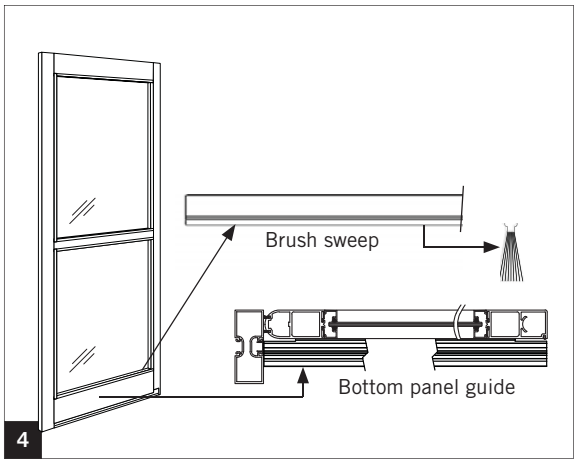
Wear parts must be inspected at regular intervals as outlined below and replaced if required to insure smooth operation of the door system.

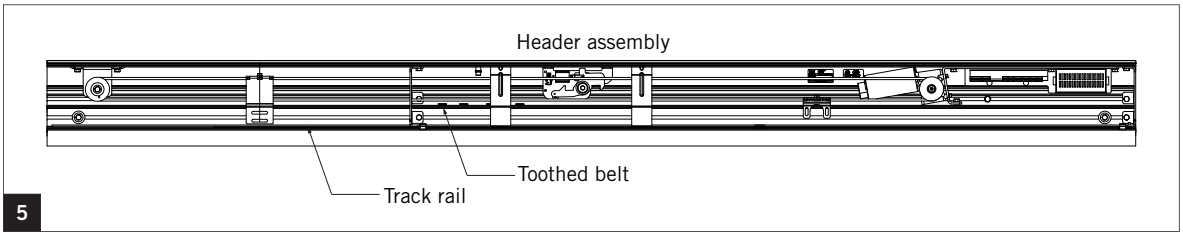
	Wear part	Inspection frequency
1	Door carrier and anti-riser wheels, check for: ▪ Cracks ▪ Wheels turn freely ▪ Wear	At every service check
2	Battery backup: ▪ Check charge level: Dorma Handheld- Diagnosis- Battery Operating Hrs	Every three years
3	Header end stops: ▪ Check location and functionality (door contacts both end stops at same time)	At every service check
4	Bottom panel guides, check: ▪ Cleanliness ▪ Wear ▪ Check door rollers	At every service check
4	Brush sweep, check: ▪ Cleanliness ▪ Wear	At every service check
5	Header track rail, check: ▪ Cleanliness ▪ Wear ▪ Pivot pin	At every service check
5	Header toothed belt: ▪ Check for wear, missing teeth	At every service check











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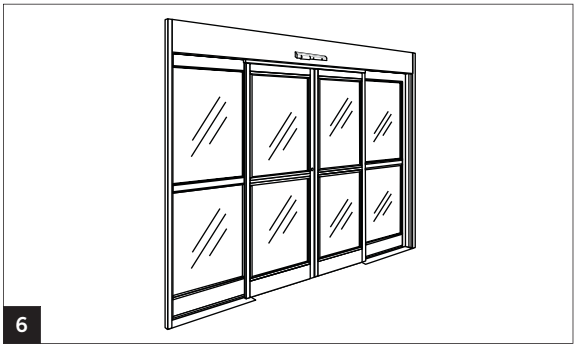
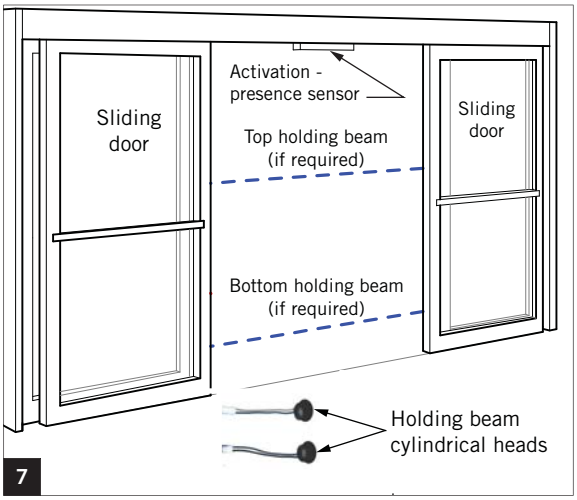
Cleaning – program switch panel setting

Program panel main switch must be set to CLOSE or OPEN to prevent inadvertent movement of door during cleaning.

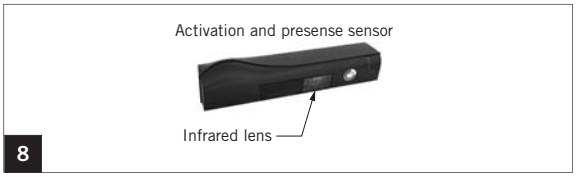
	Cleaning	Frequency
5	Track rail: Clean debris from rail with a dry cloth.	As required
6	Complete sliding door (aluminum, glass, covers): Clean with a damp cloth and non-abrasive commercial detergents.	As required
7	Holding beam (optional) emitter and receiver cylindrical heads: Clean with a dry cloth.	As required
8	Presence sensor infrared lenses: Clean with a dry cloth when dust is observed on lense.	As required





Maintenance intervals – can be adjusted with Dorma Handheld. Reference: Appendix, Section B.

- Diagnosis parameter 22 (Maintenance interval.):
- Enter a time interval in months until next scheduled maintenance.
- Diagnosis parameter 27 (Maintenance cycle):
  Enter number of opening cycles until next schedule maintenance.



User interface display operation

Depending on maintenance interval selected, display will blink as follows:

Maximum number of selected door opening cycles reached:

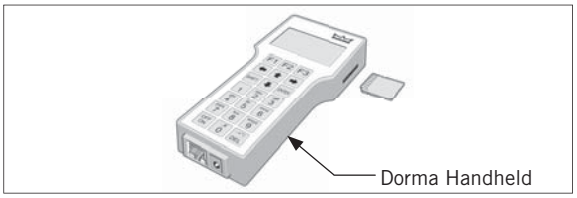
- Display illuminates permanently.

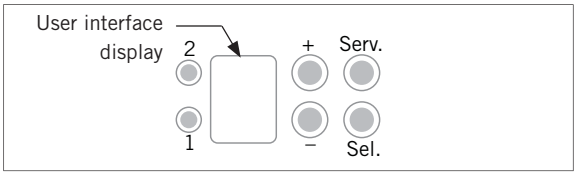
Selected time interval expired:

- Display blinks every 1/2 second.

Maximum number of selected door opening / closing cycles and selected time interval reached:

- Display illuminates permanently for 10 seconds, then blinks for 10 seconds.





27 Troubleshooting

Prior to performing any maintenance, disconnect the DC Power supply plug and the Backup battery plug from ESA II controller.

Fault	Possible causes	Remedy
Controller will not power up.	▪ 115 VAC power to controller is off.	▪ Check circuit breaker supplying power to DC power supply. If OFF, turn ON.
	▪ Defective DC power supply (internal fuse may be blown).	▪ Remove DC power supply plug to controller and check for 35VDC. ▪ If power not present, fuse may be blown (not interchangeable) or power supply is defective. ▪ Replace DC power supply.
	▪ Male connector (with 115 VAC power wiring) to DC power supply not firmly mated to female connector on supply. ▪ 115 VAC wiring in connector loose.	▪ Check 115 VAC connector installation. ▪ Check 115 VAC connector wiring.
	▪ Defective controller	▪ 35VDC is present to controller but controller will not power up. ▪ Replace controller.
Door remains open, will not close.	▪ Main program switch set to OPEN.	▪ Set switch to AUTO or CLOSE.
	▪ Presence detection from sensor.	▪ Adjust sensor pattern away from face of door.
	▪ Door breakout.	▪ Close the door/panel to operating position.
	▪ Breakout switch wiring.	▪ Check breakout magnet and reed switch on door and header.
	▪ Presence sensor not set to N.C.	▪ Adjust sensor settings.
Door goes into latch but does not close completely.	▪ Interlocks may be catching.	▪ Adjust interlocks.
Door will not open when approached.	▪ Main program switch set to CLOSE.	▪ Set switch to AUTO.
Door will not open when approached with main program switch set to AUTO.	▪ Activation sensors not working or setup properly.	▪ Adjust angle, adjust sensitivity, change radar field from wide to narrow.
	▪ Sensors not wired properly.	▪ Check wiring diagrams in Section 25.
	▪ Carriage lock not releasing	▪ Refer to Section 24, D and E
	▪ Faulty sensor.	▪ Replace sensor.
	▪ Faulty motor gearbox	▪ Replace motor gearbox.
Door starts to open then goes closed.	▪ Bottom guide rubbing in track (ESA-200).	▪ Raise door.
	▪ Bottom guide pin rubbing inside track (ESA-300).	▪ Adjust guide pin.
	▪ Bottom of door rubbing on threshold.	▪ Raise door.
	▪ Sweeps mounted too low.	▪ Adjust sweeps.
	▪ Anti-riser not adjusted properly.	▪ Adjust anti-riser.
Door recycles, will not close.	▪ Presense sensor angled too close to face of door.	▪ Adjust presence sensor pattern away from face of door.
	▪ Activation sensor angled too close to face of door.	▪ Adjust activation sensor pattern away from face of door.
	▪ Obstruction	▪ Remove obstruction
EXIT only mode does not work.	▪ EXIT program switch not set to ON.	▪ Set EXIT switch to ON
	▪ Activation sensor wiring is reversed to controller.	▪ Rewire sensors to controller.
	▪ EXIT program switch not wired correctly to controller.	▪ Refer to Section 15, Wiring.

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ESA II CONTROLLER COMMISSIONING, MAINTENANCE AND TROUBLESHOOTING INSTRUCTIONS

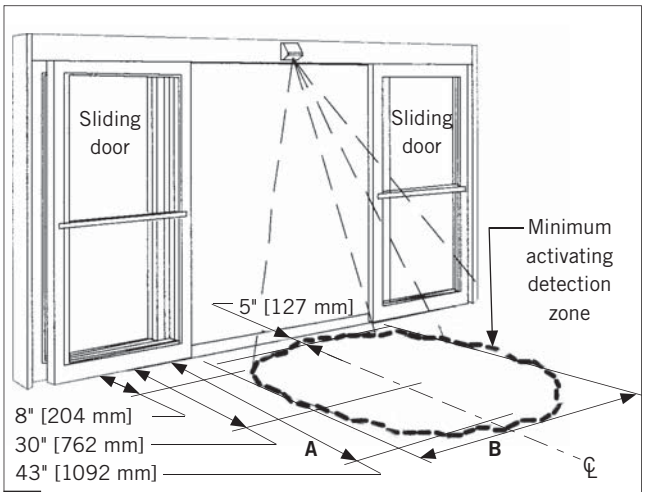
Fault	Possible causes	Remedy
Door will not lock (carriage lock).	▪ Carriage lock parameter is not set correctly.	▪ See Section 23, Functional tests.
	▪ Carriage lock wired incorrectly.	▪ See Section 25, Wiring diagrams.
	▪ Carriage lock, after going in locked position, will not stay in locked position.	▪ Replace carriage lock.
Door remains open after cyclic self check (every 4 hours).	▪ Backup battery is not fully recharged or is completely discharged.	▪ Check battery voltage. ▪ Check backup battery connection to ESA II controller. ▪ Replace backup battery.
ESA II controller module indicates error [!] obstruction during commissioning.	▪ Learning cycle has not been performed (Section 18) – door weight has not been determined.	▪ Perform learning cycle.
	▪ Obstruction detection is too sensitive for door set (door weight).	▪ Adjust obstruction detection by force open and close limitation parameters (see Section 4 – Technical data) with Dorma handheld programmer.
Door makes operating noises when in motion.	▪ Track rollers	▪ Clean track, check rollers.
Door runs with jerking motions and out of control.	▪ Incremental encoder cable is defective.	▪ Replace encoder cable.
	▪ Incremental encoder cable connector is not connected properly or is defective.	▪ Reinsert encoder cable plug into its connector. ▪ Replace encoder cable.
	▪ Belt showing wear, or defective, or rubber belt.	▪ Replace belt.

APPENDIX

A A156.10_sensors – sliding doors

Content references portions of ANSI / BHMA A156.10. Refer to this standard, available through BHMA, for additional information. Reference numbers in brackets () are paragraph numbers from the standard. Standard material reprinted with BHMA permission.

(Reference 2.2) **Activating zone** – an area created by a sensor or control mat such that the door will open when the area is entered by a person (s).



1 Reference Fig. A-13

1.0 (Reference 8.1) Activating zone

	A156.10 subject and / or requirement		Measurement
1.1	Minimum width	Equal to width of clear opening "B"	▪ At 8" perpendicular from face of closed door(s). ▪ At 30" perpendicular from face of closed door(s).
1.2	Minimum length "A"	43" 30" **	▪ At center of clear opening.
1.3	Effective detection length from face of door	5"	▪ At center of clear opening.
1.4	Motion sensor detection	28" high person in motion	▪ Moving at a rate of 6" / second toward center of door within the detection areas described.
1.5	Presence sensor detection	28" high stationary person	▪ Within the detection area described for a minimum of 30 seconds.

** If 43" activating zone length is not practical due to physical or environmental conditions, it shall be permissable to be reduced to 30", along with an additional sign, visible from side the zone has been reduced on, stating "AUTOMATIC CAUTION DOOR". See Section 5.

One-way traffic – (Reference 8.3.3)

2.1 Sliding doors used for one-way traffic

Shall be provided with a secondary activating zone on side not intended for approach.

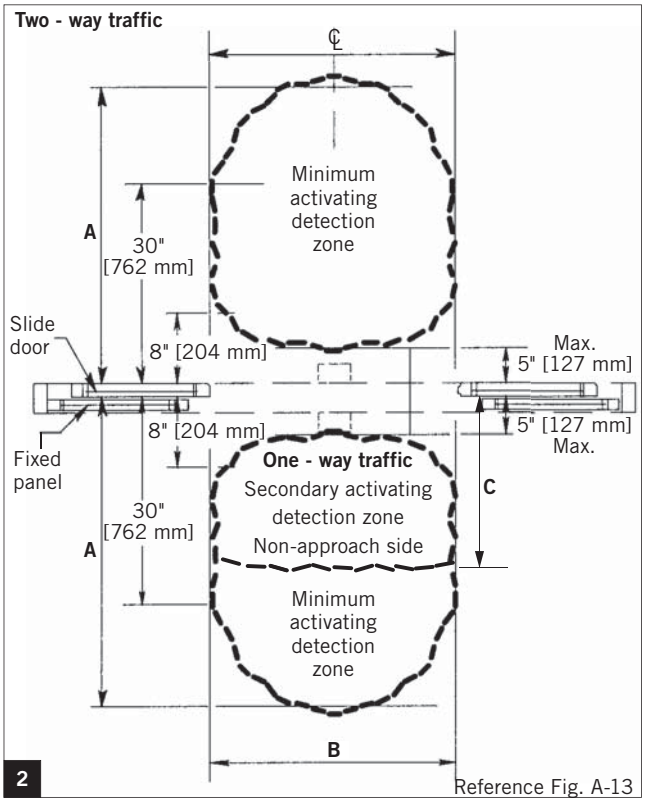
2.2 Secondary activating zone minimum width "B"

Equal to width of clear opening "B" measured at 8" perpendicular from face of closed door(s).

2.3 Secondary activating zone minimum length "C"

Shall extend a minimum of 24" from face of door and be effective to within 5" from face of door measured at center of door opening.

2.4 Sensor shall be deactivated when door(s) are within 6" of fully closed position.



2 Reference Fig. A-13

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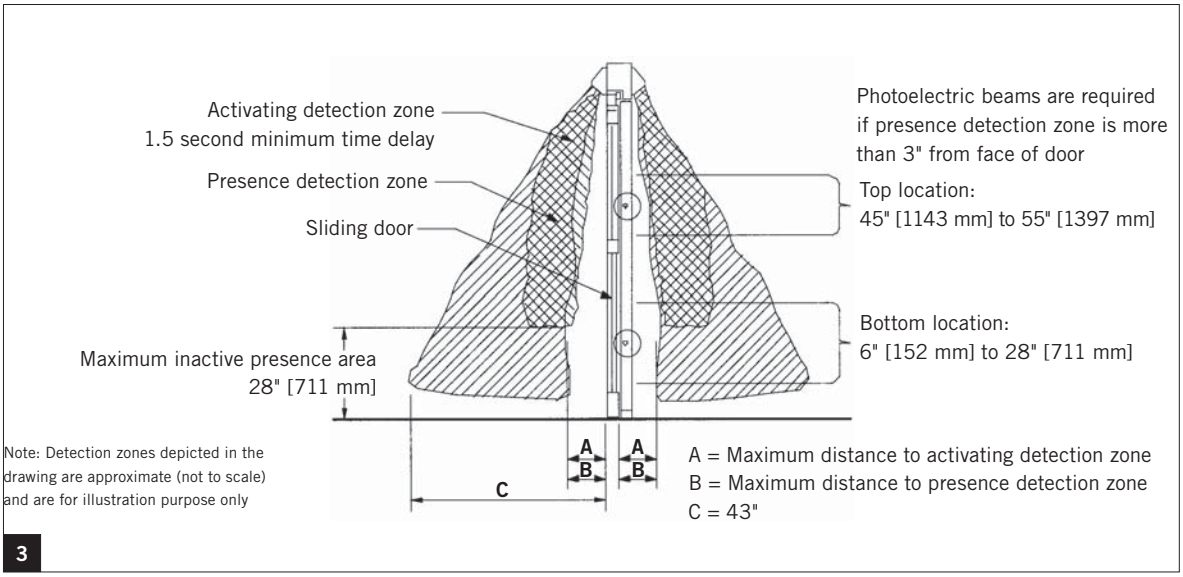
3.0 (Reference 8.3.2.3) Overhead presence sensors installed on each side of sliding door opening



3

(Reference Fig. A-18C) Vertical section –slide door showing activating and presence detection zone on each side of door

	A156.10 subject and / or requirement	Measurement
3.1	Minimum presence detection zone width "B".	▪ Shall not have an inactive area greater than 5" extending out from face of sliding door. ▪ If inactive area exceeds 3" from face of door, it shall have a minimum of two photoelectric beams** on one side of door.
3.2	Active detection zone within door opening– includes presence sensors and photobeams.	▪ From door fully open to within 6" of closed.
3.3	**Photobeam installation requirements.	▪ Top beam installed from 45 to 55" from floor. ▪ Bottom beam installed from 6 to 28" from floor. ▪ Beams shall be installed within 3" from centerline of slide door.
3.4	Door motion after loss of detection – from overhead presence detection or photobeam detection.	▪ Door(s) shall remain fully open for a minimum of 1.5 seconds.

APPENDIX
B Parameters – Dorma Handheld

Parameter detail can be found on subsequent pages.
Also refer to DORMA Handheld manual.

Configuration parameters	
Ref. No.	**Description**
1	Locking device
2	# door panels
3	Door weight
4	PGS type

Driving parameters	
Ref. No.	**Description**
1	Opening accel.
2	Opening speed
3	Decel. ramp open
4	Creep dist. open
5	Creep speed open
6	Force limit open
7	PARTIAL OPEN
8	PARTIAL OPEN HH
9	Hold-open time

Driving parameters	
Ref. No.	**Description**
10	Closing accel.
11	Closing speed
12	Decel. ramp close
13	Creep dist. close
14	Creep speed close
15	Force limit close
16	Latching action
17	Hold-open time NB
18	Delayed opening

Special functions	
Ref. No.	**Description**
1	Door status 1
2	Door status 2
3	Door status 3
4	Rech. batt. mode
5	Airl. door status 1
6	Airl. door status 2
7	Panic closing
8	Locking mode
9	Selfreg. PARTIAL
10	Ext. det. EXIT
11	Sensor test
12	Sensor test level
13	SST door status 1
14	NSK function

Parameter descriptions are listed as shown on the Handheld display

Diagnosis parameters	
Ref. No.	**Description**
1	Current error
2	Error log 1 to 9
3	Delete errors
4	DCW reset
5	DCW list
6	Rech. batt. voltage
7	LON adapter
8	Test cycle
9	Test values
10	Test threshold
11	Cur. door speed
12	Cur. door position
13	Opening width
14	PARTIAL OPEN
15	Operating hours
16	Batt. operating hrs.

Diagnosis parameters	
Ref. No.	**Description**
17	# openings
18	System no.
19	DORMA prod-No.
20	Installation date
21	Last maintenance
22	Maintenance int.
23	SID no.
24	Building
25	Contact person
26	Service contract
27	Mainten. cycle
28	# cycles service
29	ID-code Service
30	Production no.
31	Order conf. no.
32	Service module

Diagnosis parameters	
Ref. No.	**Description**
33	Original settings
34	Learning cycle
35	Bootl. vers. FST
36	Service Key vers.
37	External detector
38	Internal detector
39	OFF
40	AUTOMATIC
41	EXIT ONLY
42	PARTIAL OPEN
43	PERMANENT OPEN
44	Key switch NB
45	Light barrier 1
46	Light barrier 2
47	Emergency Stop
48	Sec. closing edge 1

Diagnosis parameters	
Ref. No.	**Description**
49	Sec. closing edge 2
50	Main closing edge
51	Panic closing 1
52	Panic closing 2
53	Panic closing 3
54	Pharmacy Function
55	Airl. pulse input
56	Disable airl. input
57	Status out (1-4)
58	Airlock out (1-4)
59	SST-Out 1
60	Error 4 diagnosis
61	Error message
62	Program BM
63	Ambient temp.
64	Motor temp.

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Configuration parameters

Ref-No.	Description	Settings & **default**
1	**Installed locking device:** -No locking device -Bistable locking device -Bistable locking device with feedback contact (N.O.) -Monostable locking device, fail safe design	-none **-bistable** -bistable N.O. contact -monostable
2	Number of doors -Single door -Double door	-single door -**double door**
3	Door weight in pounds determined during learning cycle	(.....)
4	Program switch (PGS) type	-mech. **-ESA-PGS**

Driving parameters

Ref. No.	Description	Setting range	Def.
1	**Opening acceleration** Max. distance for acceleration to opening speed	1 - 9	**7**
2	**Opening speed** Max. opening speed	4 - 22 in./sec.	**20**
3	**Decleration ramp open** Max. deceleration ramp at end of opening cycle	1 - 9	**4**
4	**Creep distance open** Max. distance of Creep speed cycle at end of opening cycle	0 - 12 in.	**1**
5	**Creep speed open** Max. creep speed at end of opening cycle	1 - 4 in./sec. 2.5 - 10 cm/s.	**2** **5**
6	**Force limit open** Force limitation during opening cycle	11 - 70 lb 49 - 311 N	**30** **133**
7	**Partial open** Partial open (width) after learning cycle	(10 - 3150 in.)* 0.1	**315** *0.1
8	**Partial open hand held** Adjustment of Partial open only via HH (handheld)	yes or no	**no**
9	**Hold open time** Hold open time may be retriggered	(15 - 1800 sec.) *0.1	**15** *0.1

Driving parameters

Ref. No.	Description	Setting range	Def.
10	**Closing acceleration** Max. distance for acceleration to closing speed	1 - 9	**7**
11	**Closing speed** Max. closing speed	4 - 12 in./sec.	**12**
12	**Deceration ramp close** Max. deceleration ramp at end of closing cycle	1 - 9	**4**
13	**Creep distance close** Max. distance of creep speed cycle at end of closing cycle	0 - 12 in.	**2**
14	**Creep speed close** Max. creep speed at end of closing cycle	1 - 4 in./sec 2.5 - 10 cm/s.	**2** **5**
15	**Force limit close** Force limitation during closing cycle	11 - 70 lb 49 - 311 N	**20** **89**
16	**Latching action** Required force to keep door closed	0 - 9	**6**
17	**Hold open time NB** Hold open time for Night-bank function	(15 - 600 sec.)* 0.1	**15** *0.1
18	**Delayed opening** Delayed opening after Night-bank pulse was triggered	0 - 10 sec.	**0**

APPENDIX
B Parameters – Dorma Handheld – continued

Special function parameters

Ref. No.	Description	Setting
1	**Door status 1** Potential-free contact **OUT 1** at ESA II expansion module (addr. 48): Closes when door leaves "open" position (defaut setting).	-off **-door open** -door closed -malfunction -closed & -locked -door locked signal
2	**Door status 2** Potential-free contact **OUT 2** at ESA II expansion module (addr. 48): Closes when door leaves "closed" position (default setting).	-off -door open **-door closed** -malfunction -closed & -locked -door locked signal
3	**Door status 3** Potential-free contact **OUT 3** at ESA II expansion module (addr. 48): Closes in the event of a malfunction (error >0) (default setting).	**-**off -door open -door closed **-malfunction** -closed & -locked -door locked signal
4	**Rech. batt. mode** Configuration of rechargable battery mode for basic module. *Function not available for FST-2D and FFT-2D)	-**no rech. battery** -emergency closing* -emergency opening* -emergency mode*
5	**Airl. door status 1** Potential-free contact **OUT 2** at ESA II expansion module (addr. 49): Closed when door is in "closed" position (original setting). Contact disables door 2 (IN3) so that door does not open.	-off -door open **-door closed** -malfunction -closed & -locked -door locked signal

Special function parameters

Ref. No.	Description	Setting
6	**Airl. door status 2** Potential-free contact **OUT 3** at ESA II expansion module (addr. 49): Sends an opening pulse to door 2 (IN1) at end of closing cycle (pulse relaying).	-off -door open -door closed -malfunction -closed & -locked -door locked signal -**disable airlock**
7	**Panic closing** Adjustment of panic closing function. Door closes immediately following signal. Detectors, light barriers and blocking recognition are switched off. Door locks in "closed" position.	**-off** -on
8	**Locking mode** Which Exit Only program switch mode locks the door via the basic module when door is in "closed" position.	**-OFF** -OFF / EXIT ONLY*
9	**Selfreg. PARTIAL** When PARTIAL OPEN function is activated, door opens to adjusted partial open width as soon as one of the activators is triggered. If one or several opening pulses are triggered for more than 7 seconds, door will open to full opening width.	**-off** -on
10	**External det. Exit** When program switch is in Exit Only mode, external activation is activated only during closing cycles.	**-deactivated** -activated

Diagnosis

Ref. No.	Description	Setting
1	**Current error** System indicates current error.	Error messages 0 - 31
2	**Error log 1 to error log 9** Displays errors that have occurred. Select "ERROR" to go to error description. Select "HELP" to go to help display.	(....)
3	**Delete errors** Press "ENTER" to delete error log.	Command ->
4	**DCW reset** Press "ENTER" to delete DCW list in order to delete former DCW components.	Command ->

Diagnosis

Ref. No.	Description	Setting
5	**DCW list** "ENTER" displays first DCW component (e.g. 2.48). 2= FST module (escape route sliding door) 48 = ESA II expansion module with address 00 49 = ESA II expansion module with address 01	LIST ->
6	**Rech. batt. voltage** Measures voltage of rechargeable battery pack (basic module)	(...) * 0.1V
7	**LON adapter r/o** This interface is used for data transfer to PC via LON.	-off -on

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Diagnosis

Ref. No.	Description	Setting
8	**Test cycle** Press "ENTER" to start test cycle. ▪ Test cycle is designed to detect malfunctions in the door's driving phase. ▪ The door moves at continuous speed. The system indicates the current speed, which decreases in the event of a malfunction. ▪ The handheld creates a table and lists areas where the door moved at reduced speed. ▪ Set program switch to OFF and move door manually to indicated position in order to check it (See handheld display "Cur door position"). ▪ The test level is individually adjustable.	Command ->
9	**Test values** "ENTER" indicates position of door door reduced speed (indicated in inch).	List ->
10	**Test threshold** Displays threshold value for reduced speed.	0 - 100%
11	**Current door speed** Displays current door speed.	(..) inch/ sec
12	**Current door position** Displays current door position.	(..) *0.1 inch
13	**Current door opening width** Displys current door opening width.	(..) *0.1 inch
14	**PARTIAL OPEN** Display current Partial Open width setting.	(..) *0.1 inch
15	**Operating hours** Displays operating hours of basic module. System stores respective data every 24 hours in EEPROM.	(...) h
16	**Battery operating hrs** Displays operating hours of rechargeable battery pack. System stores respective data every 24 hours in EEPROM.	(...) h
17	**# openings** Indicates number of opening and reversing actions. System stores respective data every 24 hours in EEPROM.	(...)
18	**System no.** Displays system number.	(...)
19	**DORMA prod-No.** DORMA production number	(...)

Diagnosis

Ref. No.	Description	Setting
20	**Installation date** Date of installation (month year)	mmyy (1110 = Nov. 2010)
21	**Last maintenance** Last maintenance date	mmyy (1110 = Nov. 2010)
22	**Maintenance int.** Adjustment of time interval until next maintenance: ▪ Installation date is required ▪ Enter maintenance interval ▪ Enter maintenance date after service under menu item **"Last maintenance"** in order to reset display.	(0 ... 60) mon (mon = months)
23	**SID no**. Number is used to identify the respective system and installation location.	(...)
24	**Building** An individual text can be entered.	(...)
25	**Contact person** An individual text can be entered.	(...)
26	**Service contract** Service contract taken out?	no yes
27	**Mainten. cycle** Adjustment of number of opening cycles until next maintenance: 1. Installation date is required. 2. Enter number of opening cycles. 3. Enter maintenance date after service under menu item **"Last maintenance"** in order to reset service display.	(0 .. 1,000,000)
28	**# cycles service display** Number of opening cycles since last service interval.	(...)
29	**ID-code Service** ID-code of service technician.	(...)
30	**Production no.** Indicates production number.	(...)
31	**Order confirmation number** Read out of system data including glazing, etc.	(...)

APPENDIX
B Parameters – Dorma Handheld – continued

Diagnosis

Ref. No.	Description	Setting
☞	*Functions referenced in 32 through 36 not used in ESA II version.	
32*	**Service module** Enabling/disabling of service module at basic module. **-To enable service module:** 1. Adjust "enable" 2. Perform upload 3. Remove service tool 4. Wait for 30 seconds The service module is now enabled. **-To disable service module:** 1. Adjust "disable" 2. Perform upload 3. Remove service tool 4. Wait for 30 seconds The service module is now disabled. System now only indicates error list.	enable disable
33*	**Original settings** ⚠ Only when program switch is set to CLOSE and when door is in "closed" position. Press "ENTER" to reset system to original settings. The procedure has been completed when 8 on basic module display blinks twice. Check parameters **P, A, r.** and **L.** at basic module.	Command ->
34*	**Learning cycle** ⚠ Only when program switch is set to CLOSE and when door is in "closed" position. Press "ENTER" to start learning cycle. The procedure has been completed when 8 on basic module display blinks twice.	Command ->
35*	**Bootl. vers FST** Bootloader version of FST module. (FST = escape route sliding door).	xx.yy (01.00 = version 1.00)
*36	**Service Key vers.** Displays Service key version.	xx.yy (01.00 = version 1.00)
37	**External detector** Displays status of external detector.	deactivated activated
38	**Internal detector** Displays status of external detector.	deactivated activated
39	**OFF** (CLOSE) Displays input status of main program switch while set to CLOSE mode.	deactivated activated

Diagnosis

Ref. No.	Description	Setting
40	**AUTOMATIC** Displays input status of main program switch while set to AUTOMATIC mode.	deactivated activated
41	**EXIT ONLY** Displays input status of EXIT ONLY program switch while set to ON mode.	deactivated activated
42	**PARTIAL OPEN** Displays input status of PARTIAL OPEN program switch while set to ON mode.	deactivated activated
43	**PERMANENT OPEN** Displays input status of main program switch while set to OPEN mode.	deactivated activated
44	**Key switch NB** Displays status of key switch for Night / Bank function	deactivated activated
45	**Light barrier 1** Displays status of light barrier 1	deactivated activated
46	**Light barrier 2** Displays status of light barrier 2	deactivated activated
47	**Emergency Stop** Displays status of Emergency Stop pushbutton	deactivated activated
48	**Sec. closing edge 1** Secondary closing edge 1, indicates status at ESA II expansion module.	deactivated activated
49	**Sec. closing edge 2** Secondary closing edge 2, indicates status at ESA II expansion module.	deactivated activated
50	**Main closing edge** Main closing edge, indicates status at ESA II expansion module.	deactivated activated
51	**Panic closing 1** Displays status of panic closing input at ESA II expansion module (addr. 48).	deactivated activated
52	**Panic closing 2** Displays status of panic closing input at ESA II expansion module (addr. 49).	deactivated activated
53	**Panic closing 2** Displays status of panic closing input at DIN 18650 function module.	deactivated activated
54	**Pharmacy function** Displays activator status for Pharmacy function at ESA II expansion module (addr. 49).	deactivated activated
55	**Airl. pulse input** Displays input status of airlock pulse at ESA II expansion module (addr. 49).	deactivated activated

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Diagnosis		
Ref. No.	**Description**	**Setting**
56	**Disable Airl.inp.** Displays input status to disalbe the airlock at ESA II expansion module (addr. 49).	deactivated activated
57	**Status out (1 - 4)** Displays status of respective output at ESA II expansion module (addr. 48).	deactivated activated
58	**Airlock out (1 -4)** Displays status of airlock output at ESA II expansion module (addr. 49).	deactivated activated
59	**SST-Out 1** Displays status of relay output for breakout sliding door (SST) at DIN 18650 function module.	deactivated activated
60	**Error 4 diagnosis** Displays error message 4 in detail. (NSK = secondary closing edge, HSK = main closing edge, LS = light barrier)	no error HSK error NSK 1 error NSK 2 error LS 1 error LS 2 error
61	**Error message** Displays error message (status, airlock, or DIN 18650 function module).	deactivated activated
62	**Prog. BM** Displays current processor adjustment for basic module.	not OK OK
63	**Ambient temp.** Displays ambient temperature.	(..) °F
64	**Motor temp.** Displays motor temperature.	(..) °F

APPENDIX
C BEA Microcell One

1.1 Set operation of safety beams with DIP switches in control box:

- When using a single set of beams, connect beams to Beam A connector and set DIP sw. 1 to "OFF".
- If Microcell is connected to a safety circuit of an automatic door, it is recommended to place DIP sw. 2 to "OFF" position, and use the normally closed circuit (terminals 3 and 5).

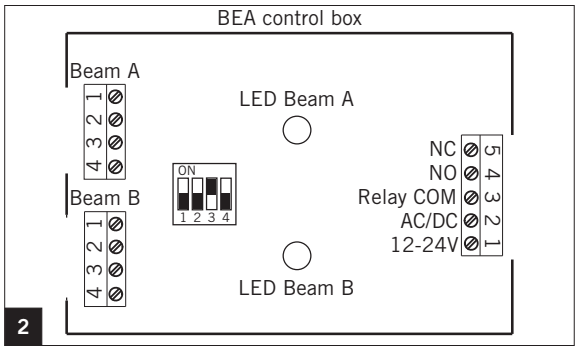
BEA control box DIP switch settings		
DIP Sw.	ON	OFF
1	Double beams	Single beams
2	N.O. Energize on detection	N.C. De-energize on detection
3	Standard operating range 15'	Reduced operating range 10'
4	Test	Default

1

2.1 Control box LEDs

Control box contains two LEDs for troubleshooting purposes:

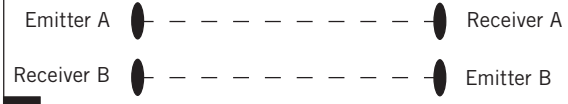
- Two LEDs are OFF: beams are uninterrupted.
- One or both LEDs are ON: corresponding beam (s) is interrupted.
- Neither LED illuminated: there is a power problem.



2

3.1 Using LEDs to align heads for troubleshooting

Symptom	Probable cause	Corrective action
LED A is continuously ON	▪ Improper wiring	▪ Verify connection of emitter and receiver. ▪ Verify that DIP switch 1 is in OFF position if using a single beam.
LED A and/or LED B is on continuously	▪ Improper wiring ▪ Poor alignment ▪ Incorrect power supply	▪ Verify connection of emitter and receiver. ▪ Verify positions of DIP switches. ▪ Verify power supply with voltmeter. ▪ Verify alignment of emitter and receiver – maximum 8" misalignment. ▪ Check distance of beam separation between emitter and receiver – maximum distance is 15 feet. ▪ For dual-beam applications insure that there is at least one foot separation between upper and lower beams. ▪ For dual-beam applications insure that emitter and receiver sets alternate in pattern – see diagram below. ▪ For dual beam applications insure that wiring for emitter A corresponds to receiver A, and likewise for set B.
LEDs function, but door does not respond	▪ Improper wiring of output relay	▪ Verify wiring of output relay. ▪ Verify DIP switch 2 is properly set.



When installing dual beam system, receivers should never be placed on same side. Each side must have an emitter and a receiver..

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ESA II CONTROLLER COMMISSIONING, MAINTENANCE AND TROUBLESHOOTING INSTRUCTIONS

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