



TS93 EMF T/PT/TDE



Surface applied door closer

Installation instructions:

Pull side track mount door closer (no smoke detector) (EMF T)

Push side track mount closer (no smoke detector) (EMF PT)

Double egress track mount door closer(no smoke detector) (EMF TDE)

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Technical specifications

Templates

Contents

NOTE: Refer to the included drawings for push side door closer, back plate mounting templating.

NOTE: Refer to the included drawings for pull side door closer, back plate mounting templating.

NOTE: Refer to the included drawings for double egress door closer, back plate mounting templating.

Note

1. Drawing is not to scale.
2. Dimensions are in inches/[mm].
3. Hand door – see image note.
4. Caution: sex nuts are required for attachment of components to unreinforced doors and to wood or plastic faced composite type fire doors, unless an alternative method is identified in the individual door manufacturer's listings.
5. Template is for 4-1/2 x 4-1/2 butt hinges & 3/4" offset pivots
6. Maximum door opening degree is:
T = 170°; PT = 110°; TDE = 130°.
7. Minimum door width is: T = 40"; PT = 44"; TDE = 42".
8. Hold open range with optional hold open kit is:
T = 80°-125°; PT = 80°-95°; TDE = 80°-115°.
9. The appropriate closer body styles are:
T = "B" style; PT = "G" style; TDE = "B" style.
10. Arrows on closer mounting plate point upward.

Size selection charts

TS93 EMF T

		Door Width						
Closer	Interior/ Exterior	2'-4" min.	2'-6" max.	3'-0" max.	3'-6" max.	4'-0" max.	4'-6" max.	5'-0" max.
TS9315 EMF T	Interior	•	•	•	•	•	N/A	N/A
TS9356 EMF T	Interior	N/A	N/A	N/A	N/A	•	•	•

TS93 EMF PT

		Door Width						
Closer	Interior/ Exterior	2'-8" min.	3'-0" max.	3'-6" max.	4'-0" max.	4'-6" max.	5'-0" max.	
TS9315 EMF PT	Interior	•	•	•	•	N/A	N/A	
TS9356 EMF PT	Interior	N/A	N/A	N/A	•	•	•	

TS93 EMF TDE

		Door Width						
Closer	Interior/ Exterior	2'-6" min.	3'-0" max.	3'-6" max.	4'-0" max.	4'-6" max.	5'-0" max.	
TS9315 EMF TDE	Interior	•	•	•	•	N/A	N/A	
TS9356 EMF TDE	Interior	N/A	N/A	N/A	•	•	•	

Electrical specifications

Electrical connection

Apart from the broad range of **DORMA** accessories, other manufacturers offer various activators, locking devices, safety sensors and additional accessories that are compatible with **TS93 EMF** closers.

External activation device minimum requirements

In general external activation devices need to provide a normally closed alarm contact.

Contact ratings

Operating voltage with power supply via operator:

- 24 V DC + 10% -15%
- 24VAC +10% -15%

Maximum input current:

- 24VDC 166mA
- 24VAC 166mA

Dry contact, normally open devices (such as push buttons or overhead sensors):

Minimum requirements

Operating voltage with power supply via operator:

- 24 V DC +/- 10%

Operating voltage with external power supply:

- max. 48 V AC/DC

Current load for relay contact of locking device:

- max. 1 A

Power supply:

- 115 V AC +/- 10%
- 50/60 Hz
- max 6.6 A

Rated for continuous duty: electric strike:

- min. 30%

Rated for continuous duty: motor lock:

- 100 %

Power consumption for accessories:

- The operator will provide a maximum of 1.5 A at 24 V DC for external accessories. Any additional power will require an external power supply in order to avoid malfunctions.

Override Activation Inputs

Note: These inputs bypass the mode switch and are always active.

Dry contact, normally closed devices (frequently used to control systems with smoke and heat evacuation or building management systems):

- Use input terminals 53 and 3 and set parameter "d2" to 1.
- Wet output devices with 8 to 24 volts (such as telephone/intercom systems):
- Use input terminals 57 and 57a.

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Size selection charts

TS93 EMF T

		Door Width						
Closer	Interior/ Exterior	2'-4" min.	2'-6" max.	3'-0" max.	3'-6" max.	4'-0" max.	4'-6" max.	5'-0" max.
TS9315 EMF T	Interior	•	•	•	•	•	N/A	N/A
TS9356 EMF T	Interior	N/A	N/A	N/A	N/A	•	•	•

TS93 EMF PT

		Door Width						
Closer	Interior/ Exterior	2'-8" min.	3'-0" max.	3'-6" max.	4'-0" max.	4'-6" max.	5'-0" max.	
TS9315 EMF PT	Interior	•	•	•	•	N/A	N/A	
TS9356 EMF PT	Interior	N/A	N/A	N/A	•	•	•	

TS93 EMF TDE

		Door Width						
Closer	Interior/ Exterior	2'-6" min.	3'-0" max.	3'-6" max.	4'-0" max.	4'-6" max.	5'-0" max.	
TS9315 EMF TDE	Interior	•	•	•	•	N/A	N/A	
TS9356 EMF TDE	Interior	N/A	N/A	N/A	•	•	•	

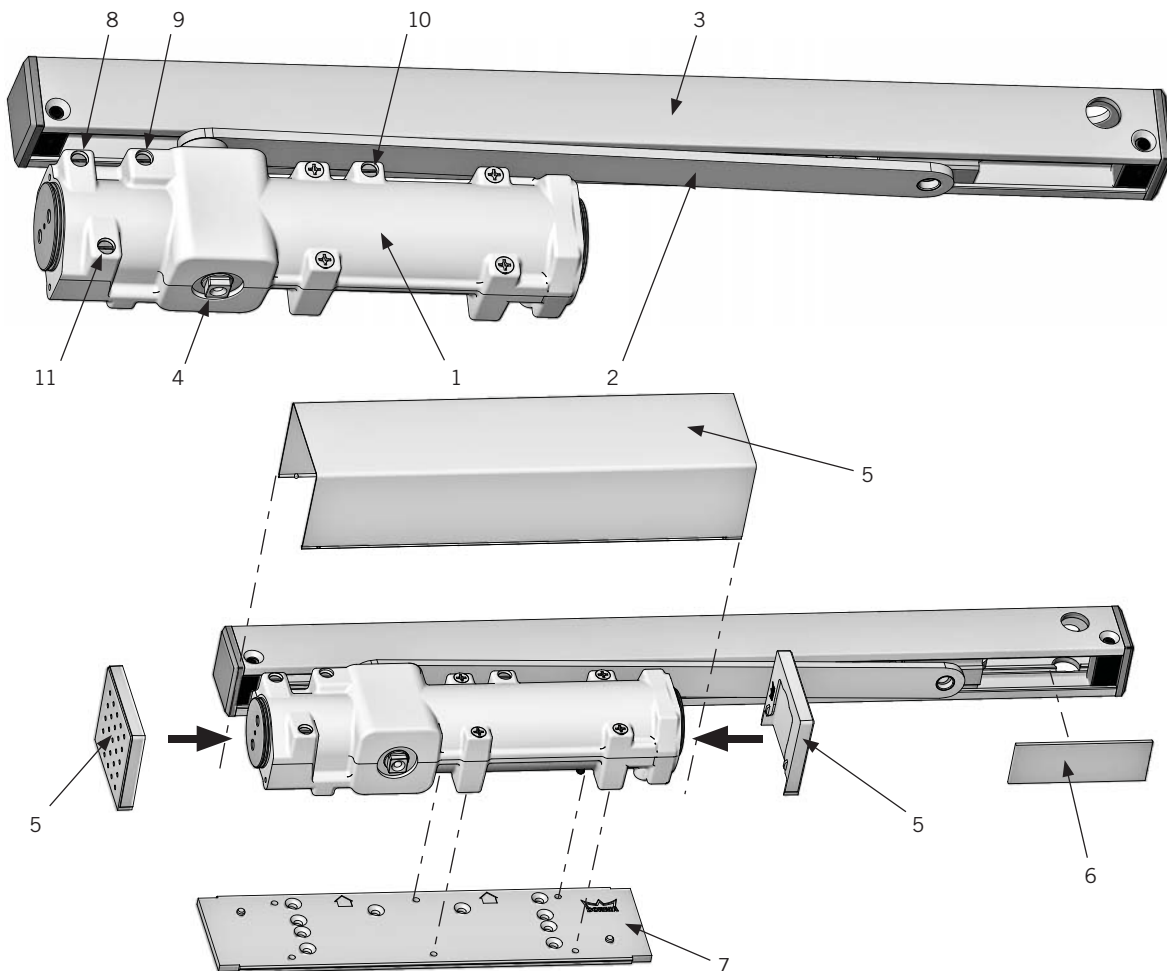
TS93 EMF T/PT/TDE

Closer setup

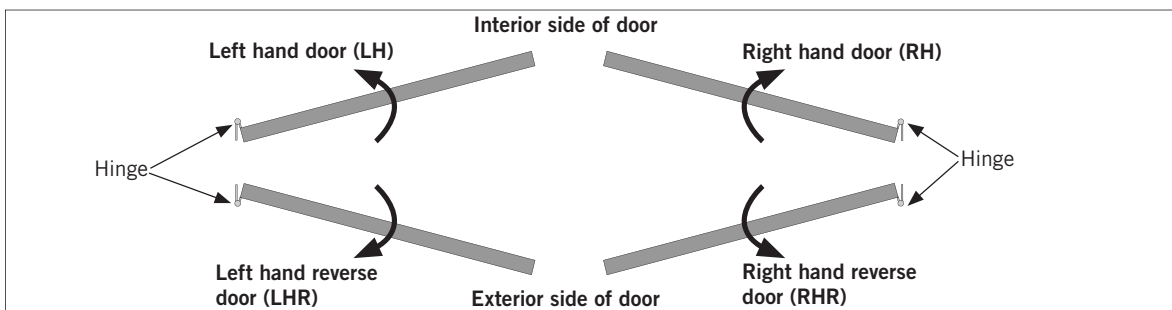
- ⚠ Follow included template to properly prepare door and frame for all accessories of the closer installation.
- ⚠ Know the swing of the door which is being installed prior to installation.
- ⚠ Verify closer spring size prior to installation. See "Size selection chart" on page 3.
- ⚠ Make sure door efficiently operates prior to installing closer.

The surface closer is comprised of the following components.

- | | |
|----------------------------|-----------------------------------|
| 1. Closer body | 7. Back plate |
| 2. Main arm | 8. Closing/sweep speed adjustment |
| 3. Track assembly | 9. Latch speed adjustment |
| 4. Pinion | 10. Backcheck adjustment |
| 5. Cover and end caps | 11. Delayed action adjustment |
| 6. Track channel end cover | |



Handing of the door



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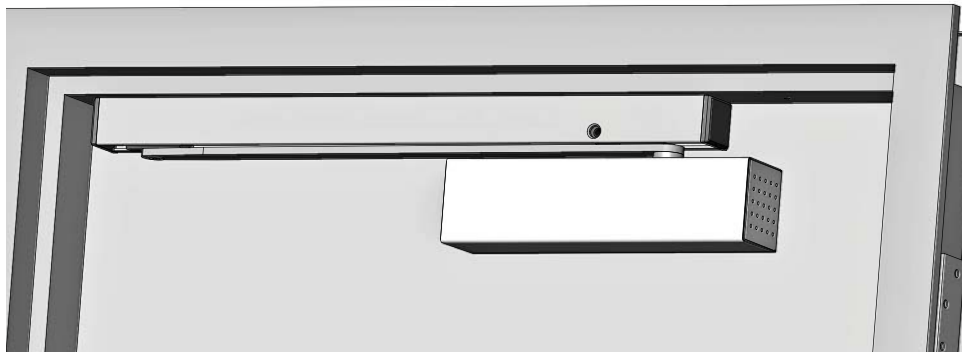
Surface closer configurations

The surface can be assembled in the following configurations.

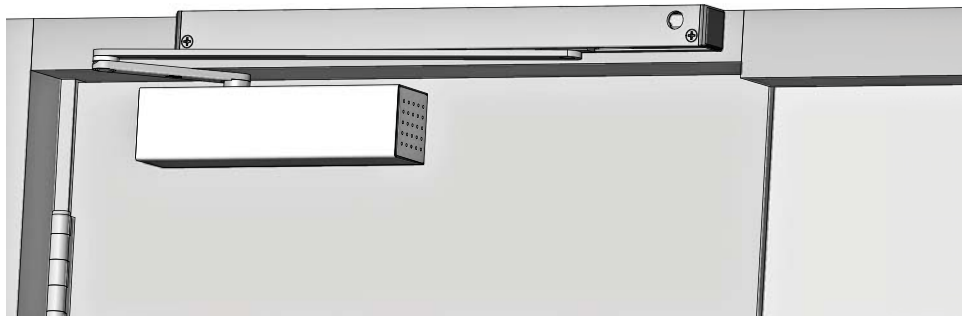
a. Pull side mount configuration (T): Closer body style "B" [left hand reverse door]



b. Push side mount configuration (PT): Closer body style "G" [right hand door]



c. Double egress mount configuration (TDE): Closer body style "B" [left hand reverse door]



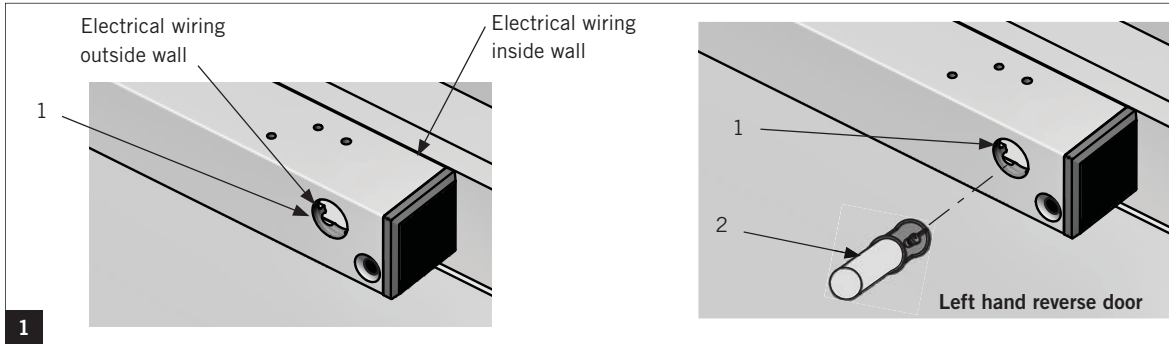
A. Installing the surface closer: Pull side mount (T)

Tools recommended

- Drill Bits
 - Metal: No. 21 & 10-32 Tap
 - Wood: 9/64"

- #2 Phillips screwdriver
- 3/16" flat head screwdriver
- Jeweler's flat head screwdriver
- M5 Hex key

Installing the track and backplate



1

Reference template 08280592

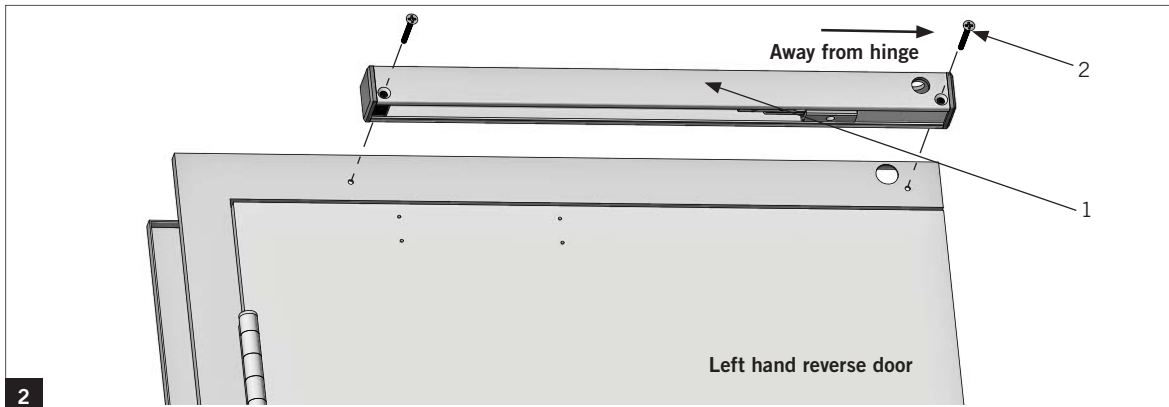
NOTE: For use on regular mount applications on the pull side of the door.

- 1.1 Orient the wire access plugs (1) away from the hinge (see step 2 for orientation).

- 1.2 Remove the appropriate wire access plug from the track.

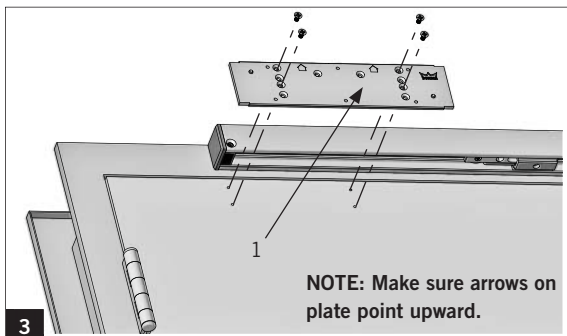
- If removing the frame side wire access plug, ensure it aligns with the through hole in the frame.

- 1.3 For wiring applications that are outside of the wall, screw a surface conduit (2) into the exterior wire plug hole.



2

- 2.1 Attach the track channel (1) to the frame through the end blocks with the two provided screws [1/4-20x2" Phillips flathead screws or No. 14x2-3/4" Phillips flathead wood screws] (2).

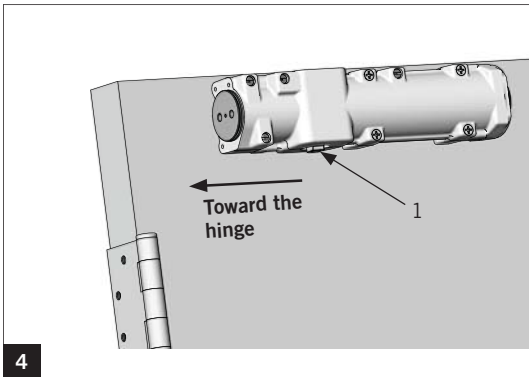


3

- 3.1 Attach the back plate (1) to the mounting surface using the four screws [10-32x5/8" Phillips flathead screws or #10x1" Phillips flathead wood screws] provided with the surface closer, using the 1st and 3rd holes of the plate.

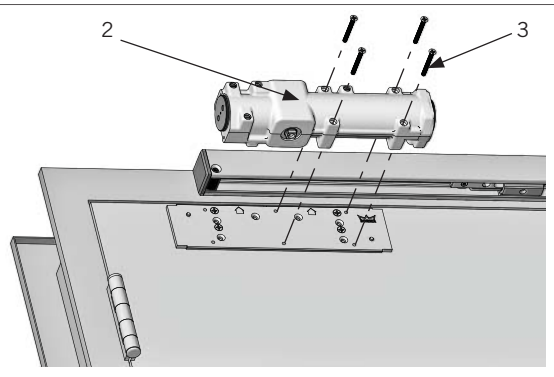
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Installing the surface closer

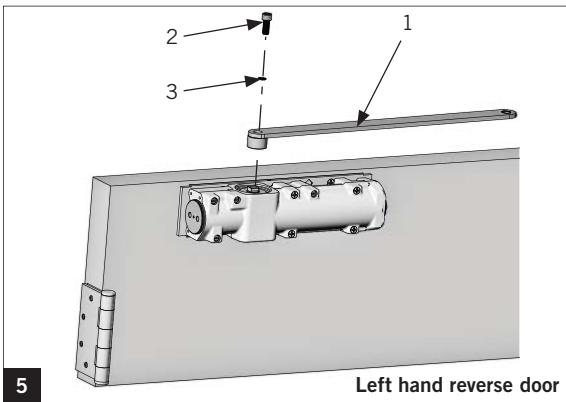


4

NOTE: Orient pinion (1) closest to hinge.



4.1 Attach the closer body (2) to the plate using the four screws [M5x47mm Phillips flathead] (3) provided with the plate itself.

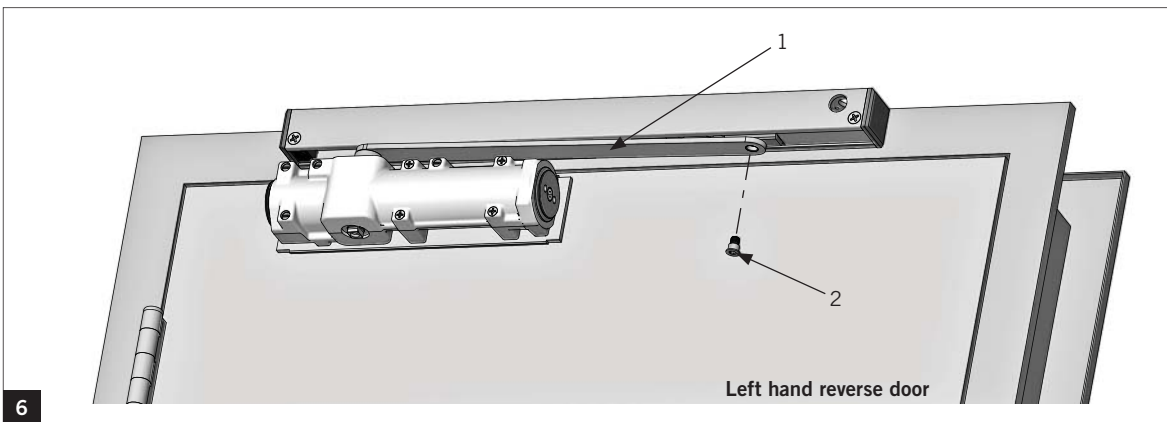


5

Left hand reverse door

5.1 Attach the main arm (1) to the top pinion with an M6x20 socket head cap screw (2) and an M8 lock washer (3) using an M5 hex key.

⚠ Be sure the main arm is parallel to the door during application.



6

Left hand reverse door

6.1 Align the arm (1) with the slide shoe of the track channel.

6.2 Attach with one shoulder bolt (2) using an M5 hex key.

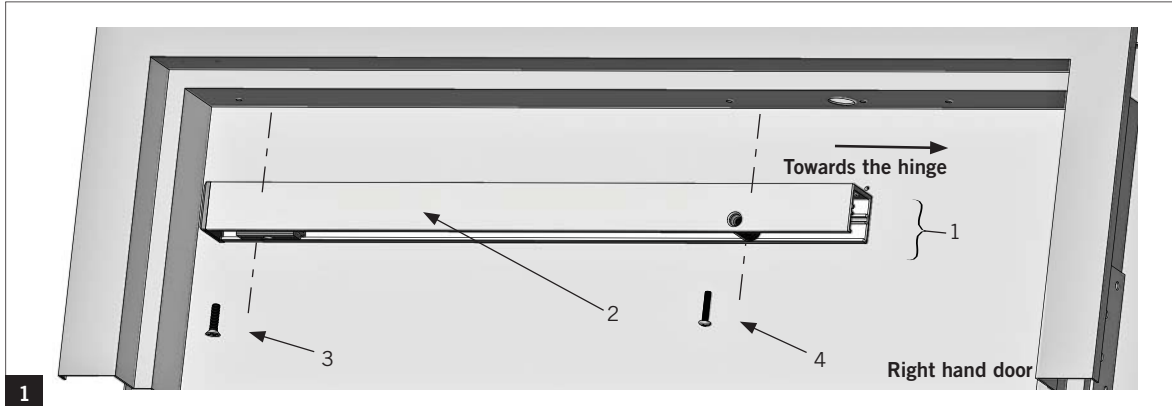
A. Installing the surface closer: Push side mount (PT)

Tools recommended

- Drill Bits
 - Metal: No. 21 & 10-32 Tap
 - Wood: 9/64"

- #2 Phillips screwdriver
- 3/16" flat head screwdriver
- Jeweler's flat head screwdriver
- M5 Hex key
- 1/2" or 13mm box wrench

Installing the track and backplate

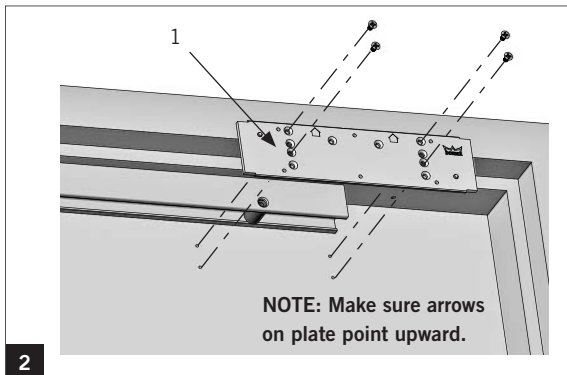


Reference template 08280593

NOTE: For use on soffit mount applications on the push side of the door.

- 1.1 Orient the open end of the track (1) towards the hinge.

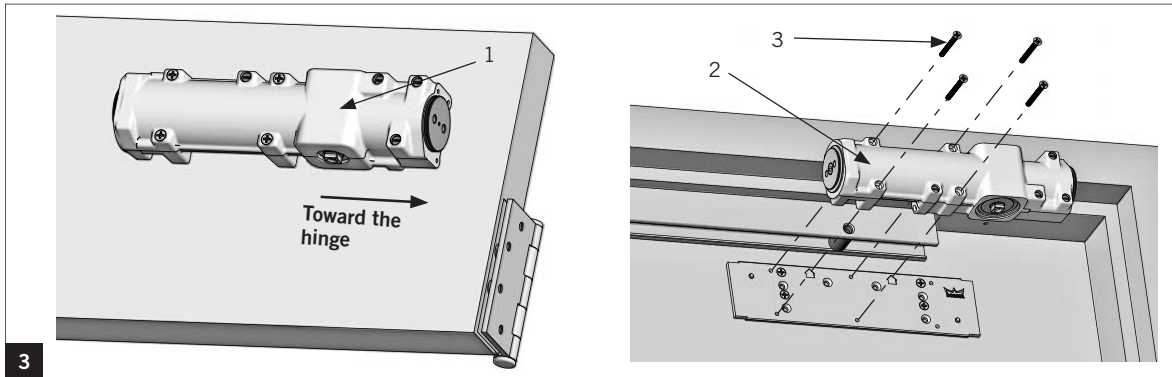
- 1.2 Attach the track channel (2) to the soffit with one provided screw [one 1/4-20x1-1/4" Phillips flathead screw or one #14x1-2" Phillips flathead wood screw] (3) and through the track with one provided screw [one 1/4-20x5/8" Phillips pan head screw or one #14x1" Phillips pan head wood screw] (4).



- 2.1 Attach the back plate (1) to the mounting surface using the four screws [10-32x5/8" Phillips flathead screws or #10x1" Phillips flathead wood screws] provided with the surface closer, using the 1st and 3rd holes of the plate.

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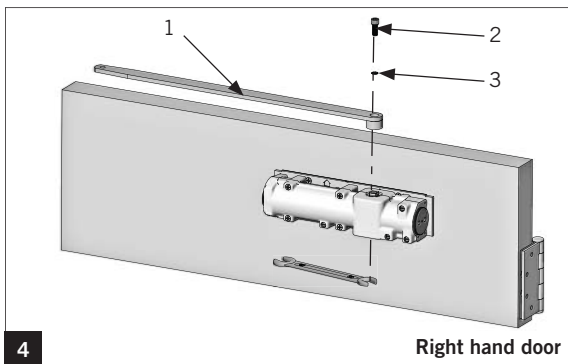
Installing the surface closer



3

NOTE: Orient pinion (1) closest to hinge.

3.1 Attach the closer body (2) to the plate using the four screws [M5x47mm Phillips flathead screws] (3) provided with the plate itself.



4

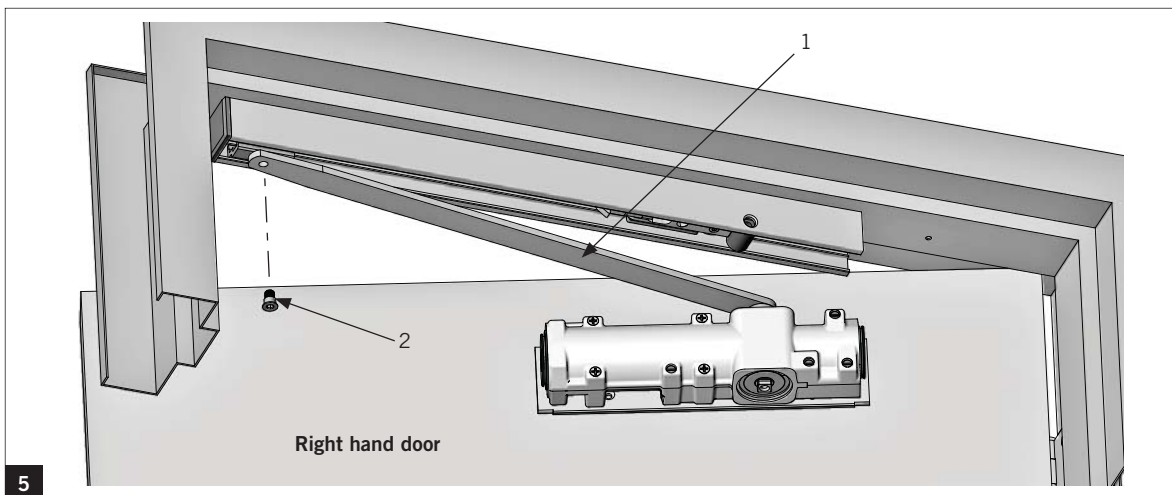
Right hand door

4.1 Using an adjustable wrench (and looking up at the bottom of the closer):

- Left hand door - turn the bottom pinion counter-clockwise 11°.
- Right hand door - turn the bottom pinion clockwise 11°.

4.2 Attach the main arm (1) to the top pinion with an M6x20 socket head cap screw (2) and an M8 lock washer (3) using an M5 hex key..

⚠ Be sure the main arm is parallel to the door during application.



5

Right hand door

5.1 Align the arm (1) with the slide shoe of the track channel.

5.2 Attach with one shoulder bolt (2) using an M5 hex key.

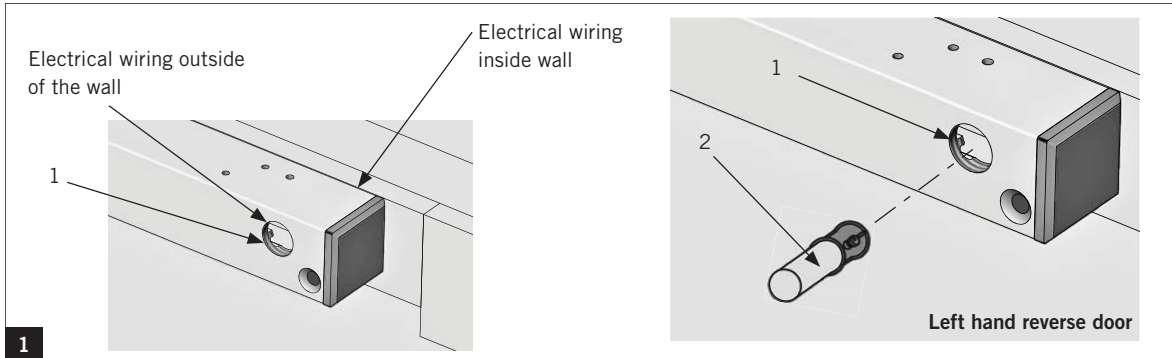
A. Installing the surface closer: Double egress mount (TDE)

Tools recommended

- Drill Bits
 - Metal: No. 21 & 10-32 Tap
 - Wood: 9/64"

- #2 Phillips screwdriver
- 3/16" flat head screwdriver
- Jeweler's flat head screwdriver
- M5 Hex key

Installing the track and backplate

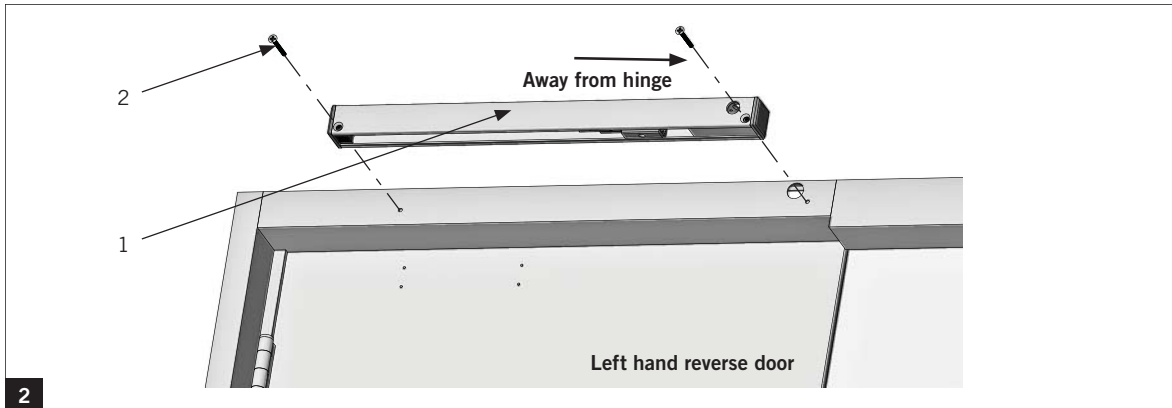


Reference template 08280594

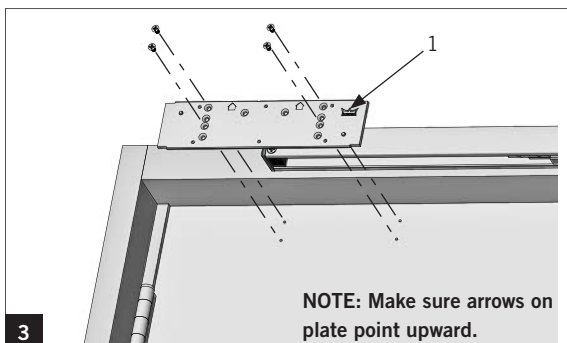
NOTE: For use on regular mount applications on the pull side of the door.

- 1.1 Orient the wire access plugs (1) away from the hinge.
- 1.2 Remove the appropriate wire access plug (1) from the track (see step 2 for orientation).

- If removing the frame side wire access plug, ensure it aligns with the through hole in the frame.
- 1.3 For wiring applications that are outside of the wall, screw a surface conduit (2) into the exterior wire plug hole.



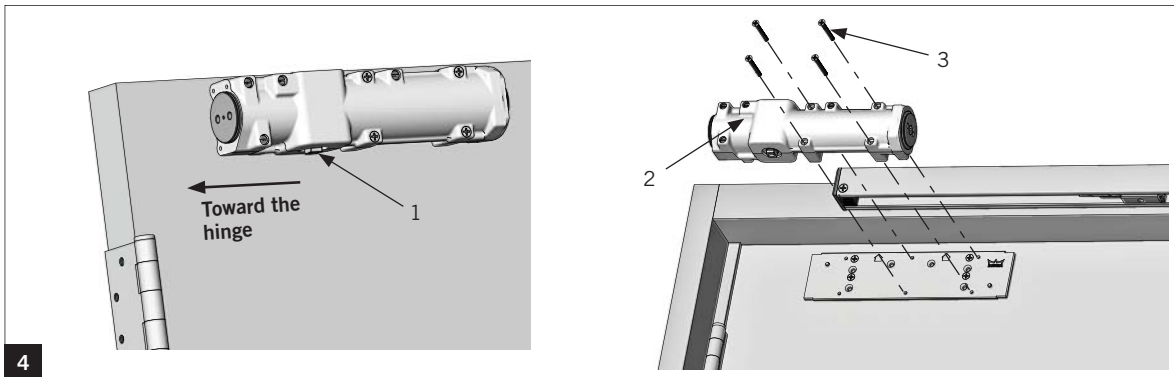
- 2.1 Attach the track channel (1) to the frame through the end blocks with two provided screws [1/4-20x2" Phillips flathead screws or No. 14x2-3/4" Phillips flathead wood screws.] (2).



- 3.1 Attach the back plate (1) to the mounting surface using the four screws [10-32x5/8" Phillips flathead screws or #10x1" Phillips flathead wood screws] provided with the surface closer, using the 1st and 3rd holes of the plate.

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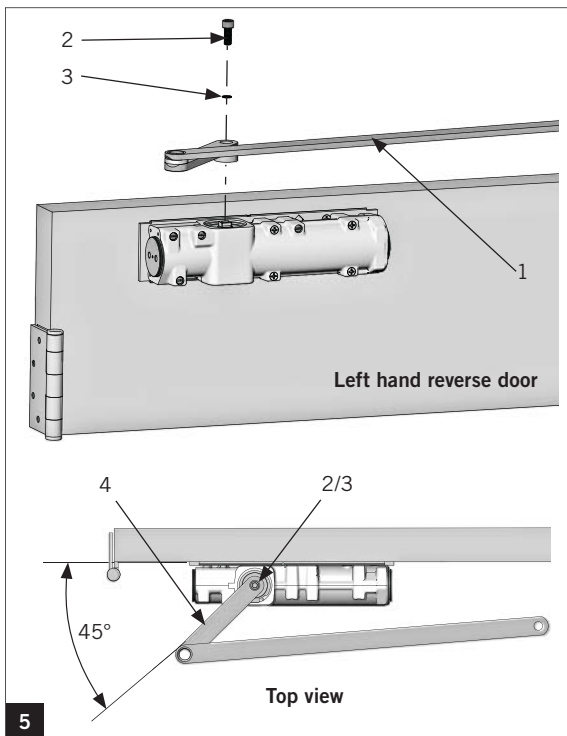
Installing the surface closer



4

NOTE: Orient pinion (1) closest to hinge.

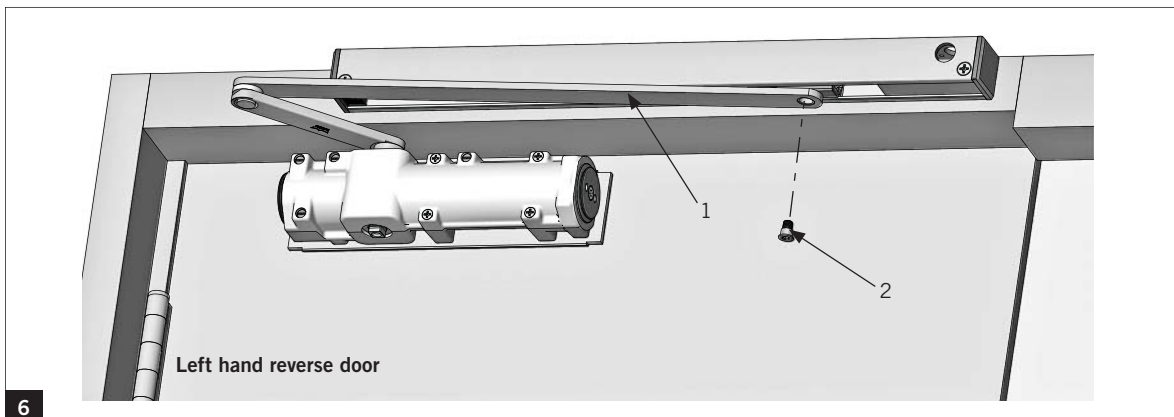
4.1 Attach the closer body (2) to the plate using the four screws [M5x47mm Phillips flathead screw] (3) provided with the plate itself.



5

5.1 Attach the main arm (1) to the top pinion with an M6x20 socket head cap screw (2) and an M8 lock washer (3) using an M5 hex key.

⚠ Be sure the smaller portion (4) of the main arm is angled approximately 45° away from the door during application.



6

6.1 Align the arm (1) with the slide shoe of the track channel.

6.2 Attach with one shoulder bolt (2) using an M5 hex key.

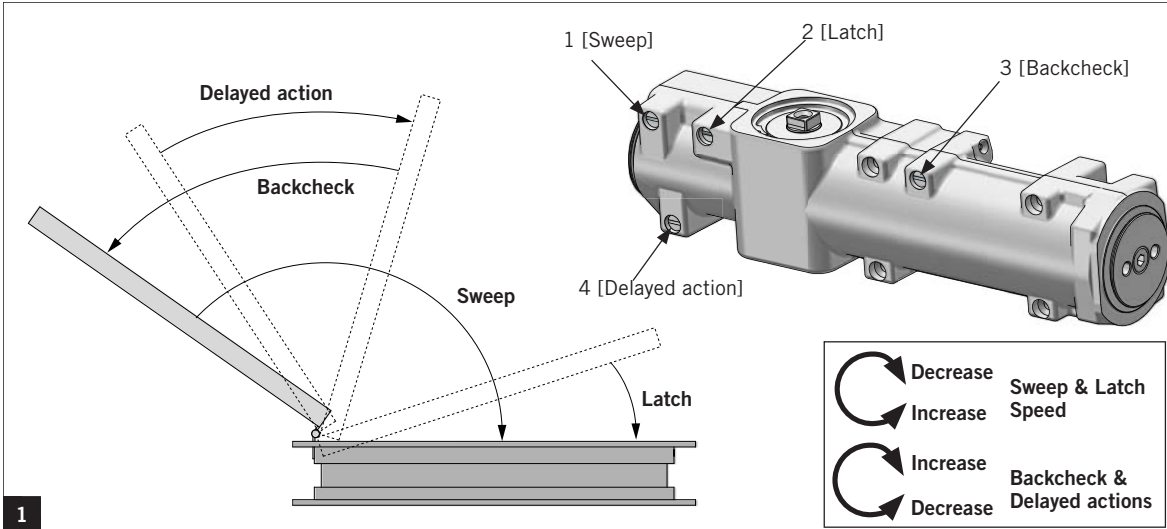
TS93 EMF T/PT/TDE

B. Adjustments

- ⚠ Confirm closer spring size prior to making any closing speed adjustments.
- ⚠ Do not back valves out beyond closer casting.

- ⚠ Maximum opening angles are listed on page 2.
- ⚠ Door should close in 3 to 6 seconds from 90°.
- ⚠ Do not close valves completely.

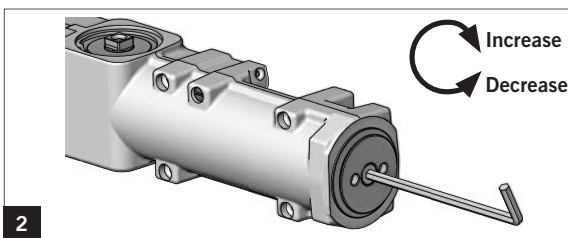
Adjusting the closing speeds: sweep, latch or backcheck and delayed actions



- 1.1** Adjust the **sweep speed** (1) for the area from the maximum open position to 0°. Maximum opening degrees are listed on page 2.
- Increase sweep speed: Turn valve counter-clockwise
 - Decrease sweep speed: Turn valve clockwise.
- 1.2** Adjust the **latch speed** (2) for the area from 7° - 0°.
- Increase latch speed: Turn valve counter-clockwise.

- 1.3** Adjust the **backcheck** (3) for the area from 70° to the maximum opening.
- Increase resistance: Turn valve clockwise
 - Decrease resistance: Turn valve counter-clockwise.
- 1.4** Adjust the **delayed action** (4) for the area from 120° to 70°.
- Increase delayed action: Turn valve clockwise
 - Decrease delayed action: Turn valve counter-clockwise

Adjusting the spring force



CLOSER TYPE	MAX DOOR WEIGHT (LBS)	SPRING SIZE	FULL TURNS OF SPRING ADJUSTER
TS9315	125	3	+3
	150	4	+9
	200	5	+12
TS9356	250	6	0

TS9315

NOTE: Supplied with a size 3 spring setting.

- Adjust according to chart.

TS9356

NOTE: Supplied with a size 6 spring setting.

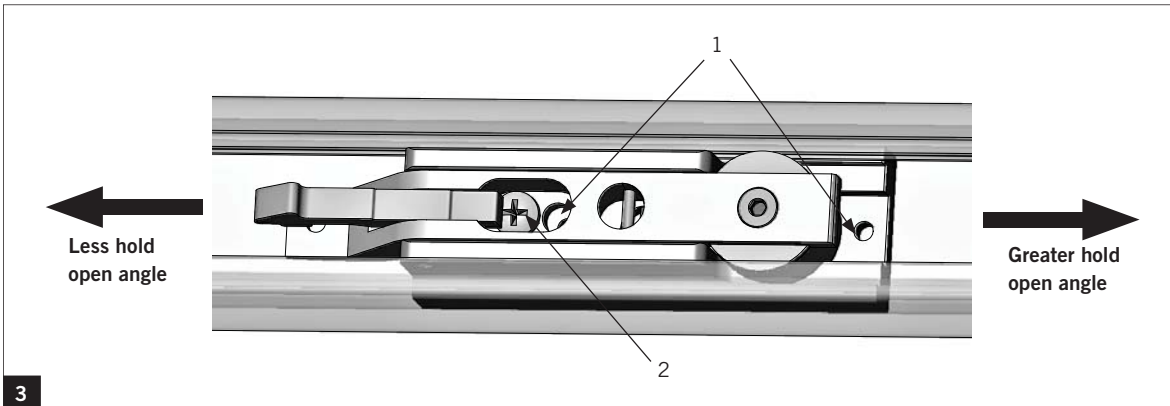
- Adjust only if more spring tension is required to positively close and latch door.

DOOR WIDTH		FULL TURNS OF SPRING ADJUSTER	CLOSER SIZE
INT.	EXT.		
3'	2'6"	+3	3
3'6"	3'	+9	4
4'	3'6"	+12	5

NOTE: DO NOT ADJUST SPRING LOWER THAN SIZE 3

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Adjusting the hold open



NOTE: Hold open position is preset at approximately 90°.

- 3.1 Loosen the set screws (1) using a 3/32" hex wrench.
- 3.2 Slide the hold open to the desired position.
- 3.3 Tighten the screws to desired the position.
- 3.4 Turn the screw (2) with a screw driver to set the force needed to manually disengage the hold open:
 - Clockwise = increase force
 - Counter clockwise = decrease force

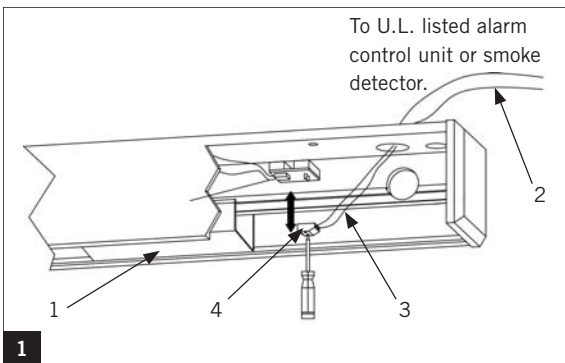
Note: An auxiliary door stop must be installed to limit the maximum degree of door swing. Failure to do so may result in damage to the unit.

C. Electrical installation

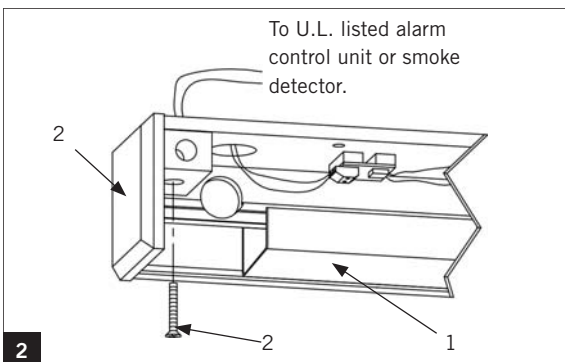
- ⚠ Incoming power supply and unit voltage type: 24VAC/DC.
CAUTION: DO NOT CONNECT UNIT TO 120 VAC.
- ⚠ Improper voltage to unit will result in damage to the unit and will void the warranty.

⚠ All wiring must comply with national, state, and local electrical codes.

Wiring the electromagnet



- 1.1 Slide the track channel end cover (1) to allow access to the wire connectors (2).
- 1.2 Connect the power supply (3) to the terminal block (4).
Note: Terminal block may be removed for easier access.
Note: The connection is not polarity dependent.
- 1.3 Return track channel end cover to the closed position.

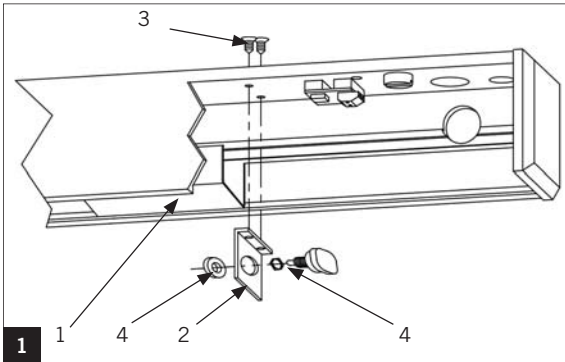


For the TS93 EMF TP only.

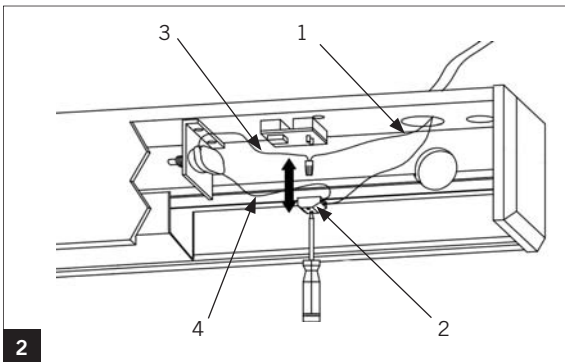
- 2.1 Slide the track channel end cover (1) into the track.
- 2.2 Insert the end cap (2) into the end of the track.
- 2.3 Secure the end cap with one screw [one #14x1-2" Phillips flathead wood screw or one 1/4-20x1-1/4" Phillips flathead screw] (3).
- 2.4 Return track channel end cover to the closed position.

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Installing the optional bypass switch, TS93 EMF T

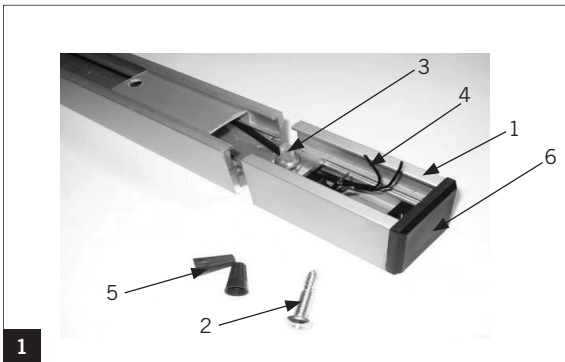


- 1.1 Slide the track channel end cover (1) to allow access to the track interior.
- 1.2 Attach the bracket (2) to the track with two screws (3).
- 1.3 Assemble the bypass switch (4).

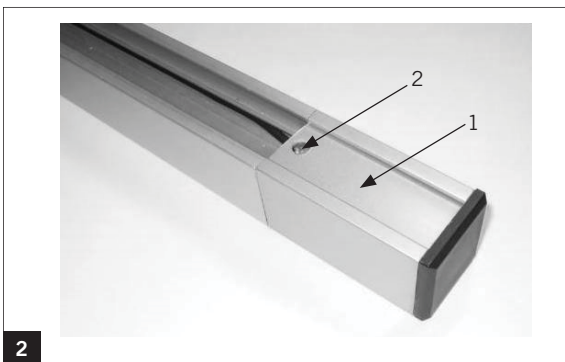


- 2.1 Disconnect one power supply wire (1) from the terminal block (2).
- 2.2 Connect the disconnected power supply wire to one of the bypass switch wires (3).
- 2.3 Connect the other bypass switch wire (4) into the empty connector of the terminal block.
- 2.4 Return track channel end cover to the closed position.

Installing the optional bypass switch, TS93 EMF PT



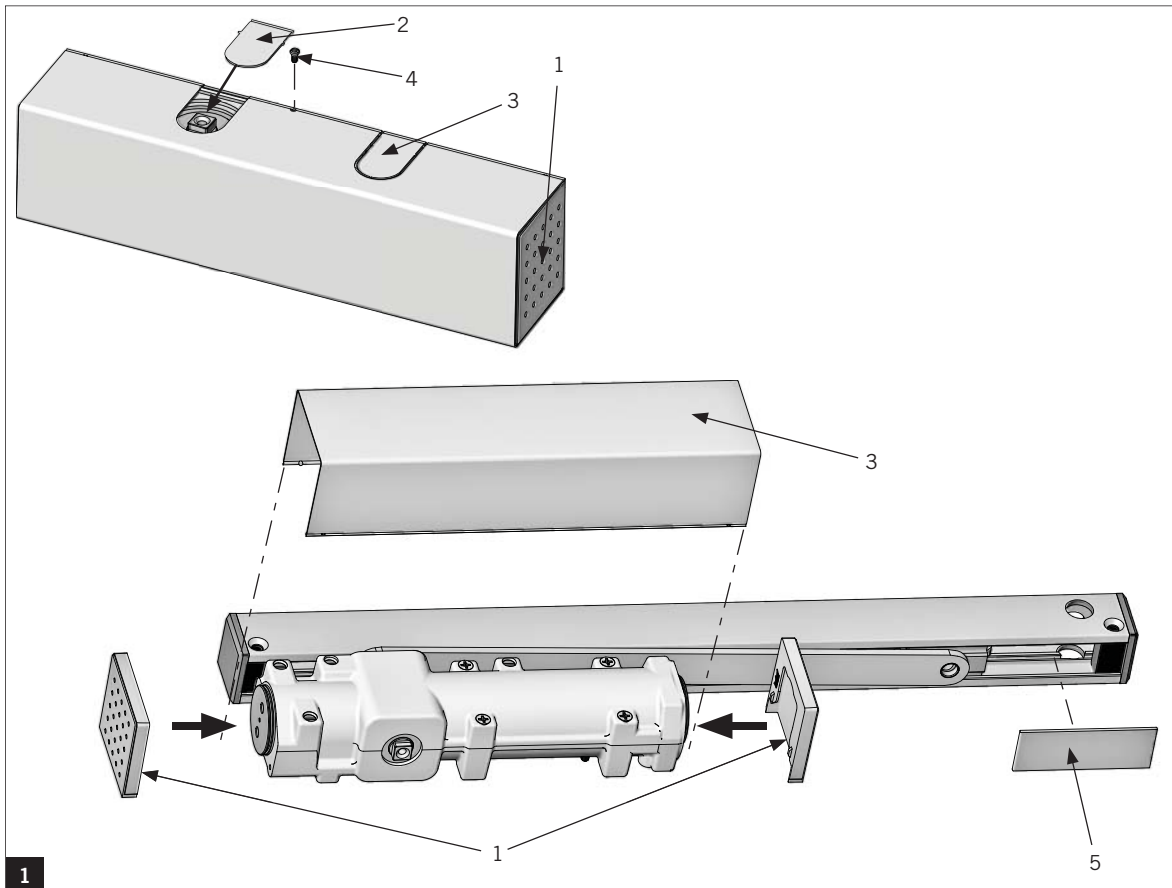
- 1.1 Fasten the extension piece (1) into the track with the provided cap head combo screw (2).
- 1.2 Connect the switch (3) to the power supply wires (4) using wire nuts (5).
- 1.3 Place the end cap (6) into the extension piece and fasten to the frame with the provided flat head screw.



- 2.1 Slide the track channel end cover (1) into place over the bypass switch (2).

D. Final set up

Installing the covers



1.1 Snap both end covers (1) into place.

1.2 Remove the un-needed tab (2), and snap the closer body cover (3) into place.

1.3 Attach with a 4-40 Phillips pan head screw (4) .

1.4 Slide the track channel end cover (5) away from the closer until it comes up against the end of the track.

Final testing



The unit must be tested after installation by the end user.



The unit must be periodically tested in conjuncture with the testing of the entire fire alarm system.



The end user is responsible for the adjustment and maintenance of the unit to retain the system in working order.

1.1 After the installation is completed, recheck all the connection.

1.2 Apply power to the units.

1.3 Open the door so the slide shoe engages with the hold open mechanism.

1.4 Advise fire officials prior to testing the unit.

1.5 Activate the system. Confirm the functioning of the solenoids.

Note: If the closer is used in conjunction with a detected unit, trip the test switch on the main closer detector as explained in the test procedure for that unit. After a short delay time, the hold open solenoid of both units will release and the doors will close. Resetting the test switch will allow the units to return to standby.



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