

TS93 EMR T/PT/TDE

Surface applied door closer

Pull side (T), push side (PT), and double egress track (TDE)
mount closer (with smoke detector)

Installation instructions

08280970 – 03-2020

| EN |

Table of contents

1	Technical specifications	3	6	Wiring	15
1.1	Overview	3	6.1	Electrical specifications	15
1.2	Size selection chart	3	6.2	Power supply 120 VAC, 50/60 HZ	16
1.3	Handing of the door	4	6.3	Power supply 24 V AC/DC	16
1.4	Tools recommended	4	6.4	Power supply 24 V AC/DC with remote detectors	17
1.5	Closer setup	5	6.5	Wire gauge	18
1.6	Closer configurations	6	6.6	SD-2 detector to main solenoid connection	19
2	Installation instructions - pull side (T)	7	6.7	SD-2 detector to auxiliary solenoid connection	19
2.1	Install track	7	6.8	SD-2 detector interconnection	20
2.2	Install detector	7	6.9	SD-2 detector to remote area detector	21
2.3	Install backplate	8	6.10	SD-2 detector audible signal appliance	21
2.4	Installing the closer	8	6.11	SD-2 detector to remote alarm indicator lamp	22
2.5	Installing the main arm to closer	8	6.12	Alarm initiation wiring (4 wire class B & 6 wire class A)	22
2.6	Installing arm to door	8	7	Final set up	24
3	Installation instructions - push side (PT)	9	7.1	Testing	24
3.1	Install track	9	7.2	Install covers	25
3.2	Install detector	9	7.3	Testing (continued)	26
3.3	Install backplate	9			
3.4	Installing the closer	10			
3.5	Installing the main arm to closer	10			
3.6	Installing arm to door	10			
4	Installation instructions - double egress (TDE)	11			
4.1	Install track	11			
4.2	Install detector	11			
4.3	Install backplate	12			
4.4	Installing the closer	12			
4.5	Installing the main arm to closer	12			
4.6	Installing arm to door	12			
5	Adjustments	13			
5.1	Adjust closing speeds: sweep, latch, backcheck, delayed actions	13			
5.2	Adjust spring force	13			
5.3	Adjust hold open	14			

1 Technical specifications

1.1 Overview

-  Drawing is not to scale.
-  Dimensions are in inches/[mm].
-  Hand door – see image note.
-  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.
-  Template is for 4-1/2 x 4-1/2 butt hinges & 3/4" offset pivots
-  Maximum door opening degree is:
T = 145°; PT = 110°; TDE = 130°.
-  Minimum door width is: T = 33"; PT = 32"; TDE = 36".
-  Hold open range with optional hold open kit is:
T = 80°-105°; PT = 80°-95°; TDE = 80°-115°.
-  The appropriate closer body styles are:
T = "B" style; PT = "G" style; TDE = "B" style.
-  Arrows on closer mounting plate point upward.

 **Hold Open Power Requirements:**
24VAC/DC at 165 mA (1 electromagnet), 310 mA (2 electromagnets).

The EMR detector is capable of powering and controlling a non-detected EMR unit; the two electromagnet value above represents an EMR/EMR combination.

 **Detector:**
A built-in rectifier on the integral detector of the EMR converts 24VAC line voltage to DC, allowing all EMR models to accommodate a 24VDC or 24VAC input. When using 12- VAC line voltage, a step down transformer is required to convert the voltage down to 24 VAC/DC input.

 **Detector Contact Ratings:**
Alarm and/or accessory contacts (resistive load): 1.25 A max. at 24VDC, 0.3 A max. at 120VAC.
Trouble contact (resistive load): 0.5 amps max. at 24 VDC. Maximum remote alarm indicator lamp output: 0.3 A at 24 VDC. Provides power to operate remote LED.

1.2 Size selection chart

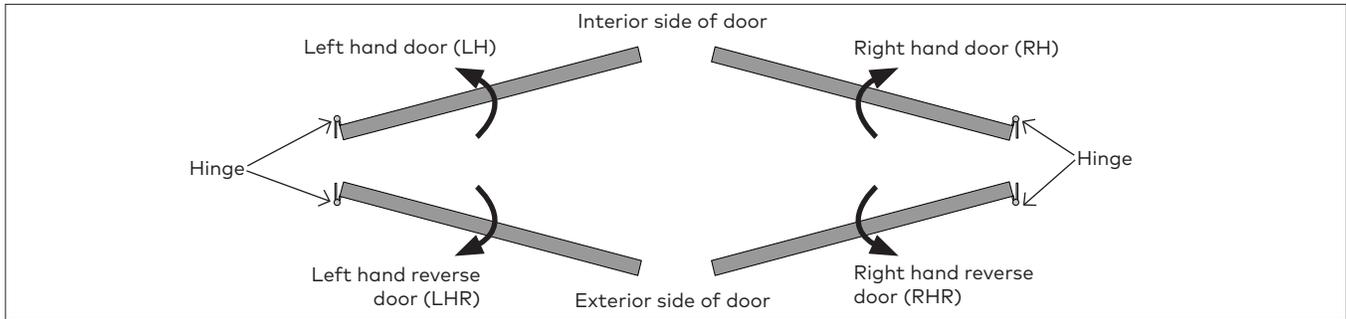
Table 1

TS93 EMR T							
		Door Width					
Closer	Interior/ Exterior	2'-9" min.	3'-0" max.	3'-6" max.	4'-0" max.	4'-6" max.	5'-0" max.
TS9315 EMR T	Interior	•	•	•	•	N/A	N/A
TS9356 EMR T	Interior	N/A	N/A	N/A	•	•	•

TS93 EMR 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 EMR PT	Interior	•	•	•	•	N/A	N/A
TS9356 EMR PT	Interior	N/A	N/A	N/A	•	•	•

TS93 EMR TDE						
		Door Width				
Closer	Interior/ Exterior	3'-0" max.	3'-6" max.	4'-0" max.	4'-6" max.	5'-0" max.
TS9315 EMR TDE	Interior	•	•	•	N/A	N/A
TS9356 EMR TDE	Interior	N/A	N/A	•	•	•

1.3 Handing of the door



1.4 Tools recommended

Table 2

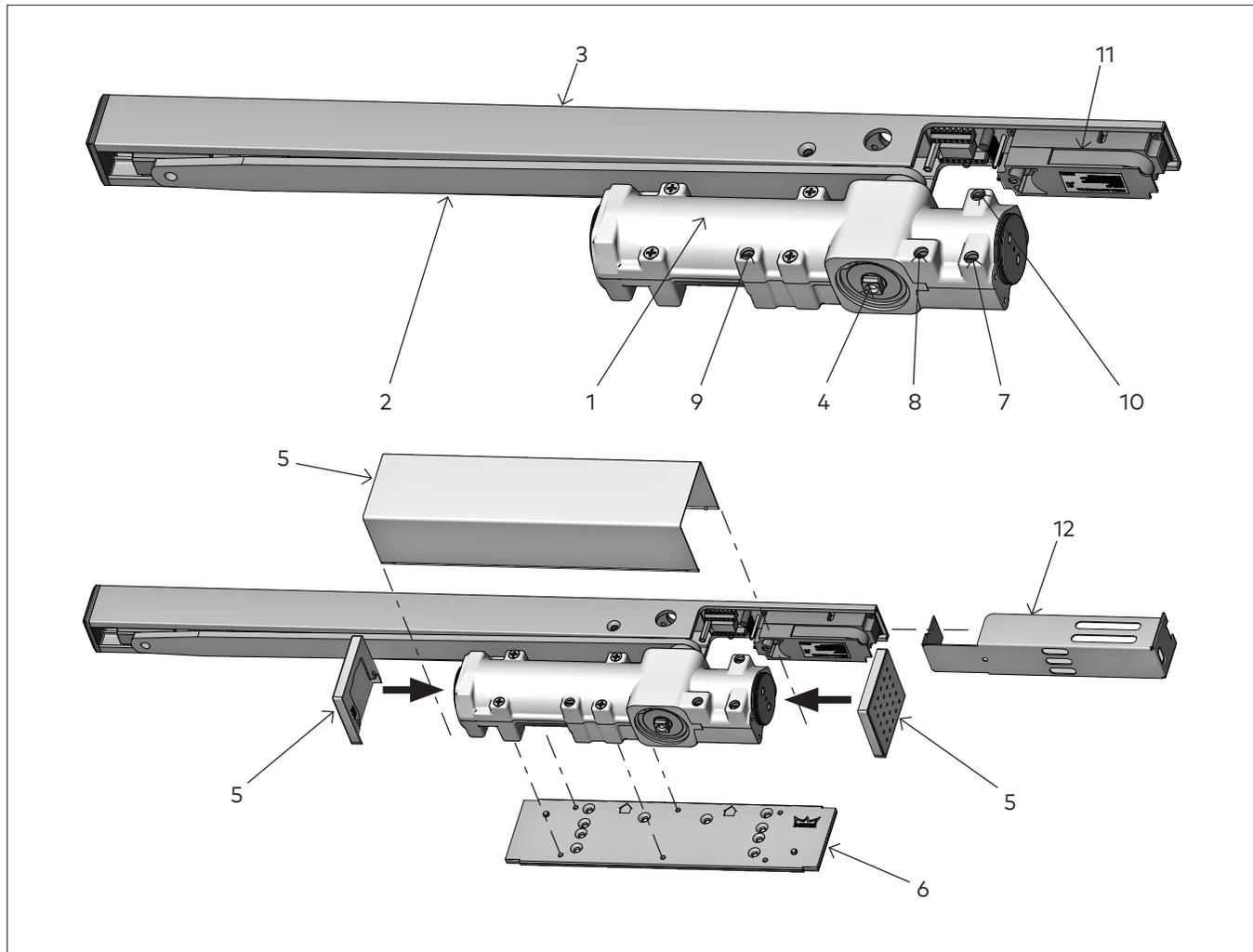
Drill bits:	#2 Phillips screwdriver
Metal: No. 21 & 10-32 tap	3/16" flat head screwdriver
Wood: 9/64"	M5 hex key
Jeweler's flat head screwdriver	#0 Phillips screwdriver

-  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.

1.5 Closer setup

Fig.1

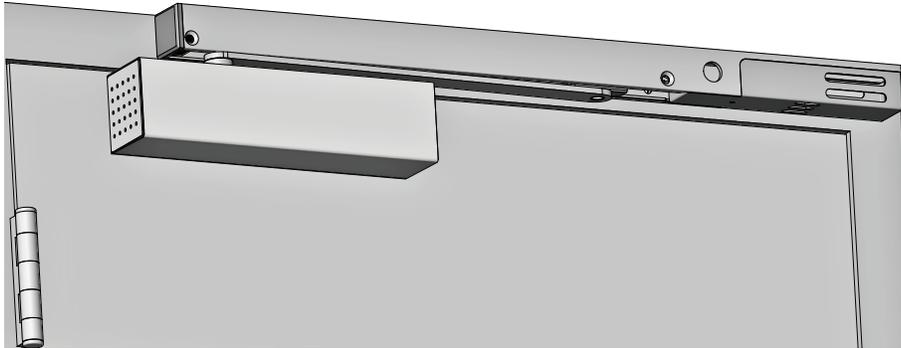


- | | |
|-----------------------|-----------------------------------|
| 1. Closer body | 7. Closing/sweep speed adjustment |
| 2. Main arm | 8. Latch speed adjustment |
| 3. Track assembly | 9. Backcheck adjustment |
| 4. Pinion | 10. Delayed action adjustment |
| 5. Cover and end caps | 11. Smoke detector |
| 6. Back plate | 12. Detector cover |

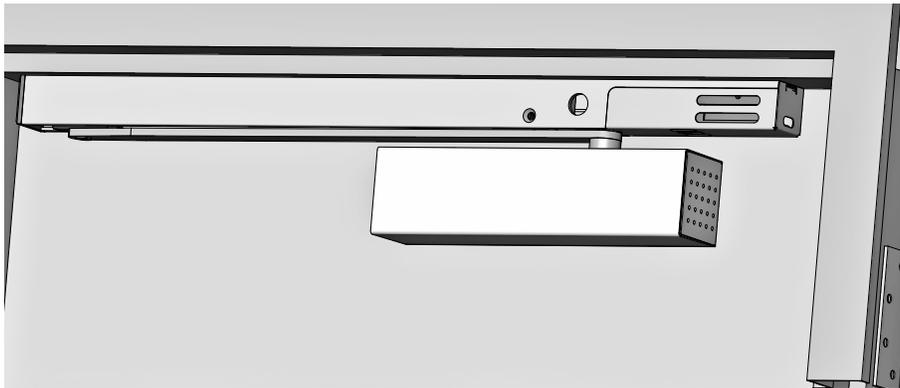
1.6 Closer configurations

Fig.2

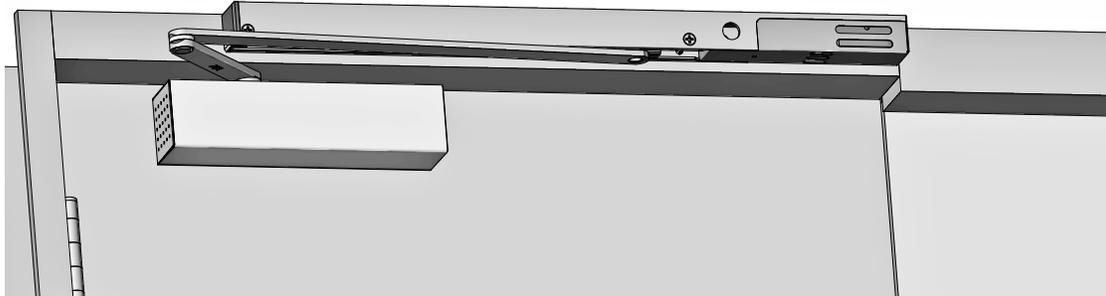
Pull side mount (T): Closer body style "B" (left hand reverse door)



Push side mount (PT): Closer body style "G" (right hand door)



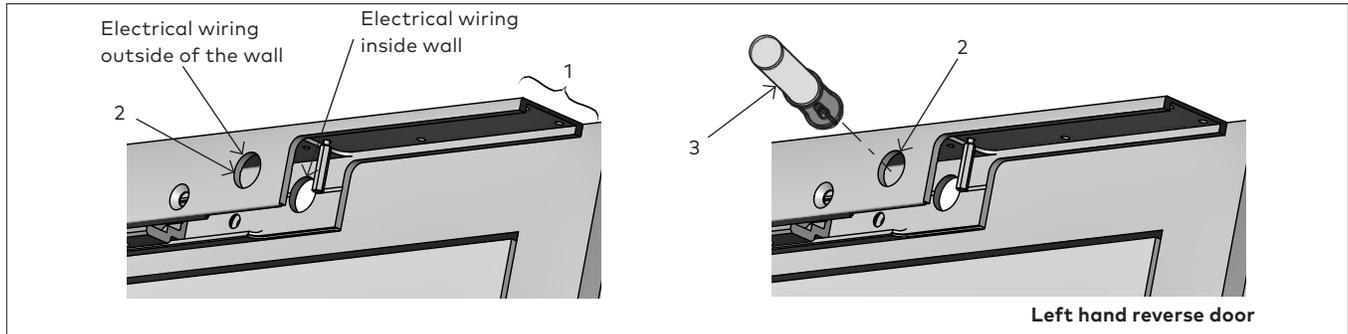
Double egress mount (TDE): Closer body style "B" (left hand reverse door)



2 Installation instructions - pull side (T)

2.1 Install track

Fig.3



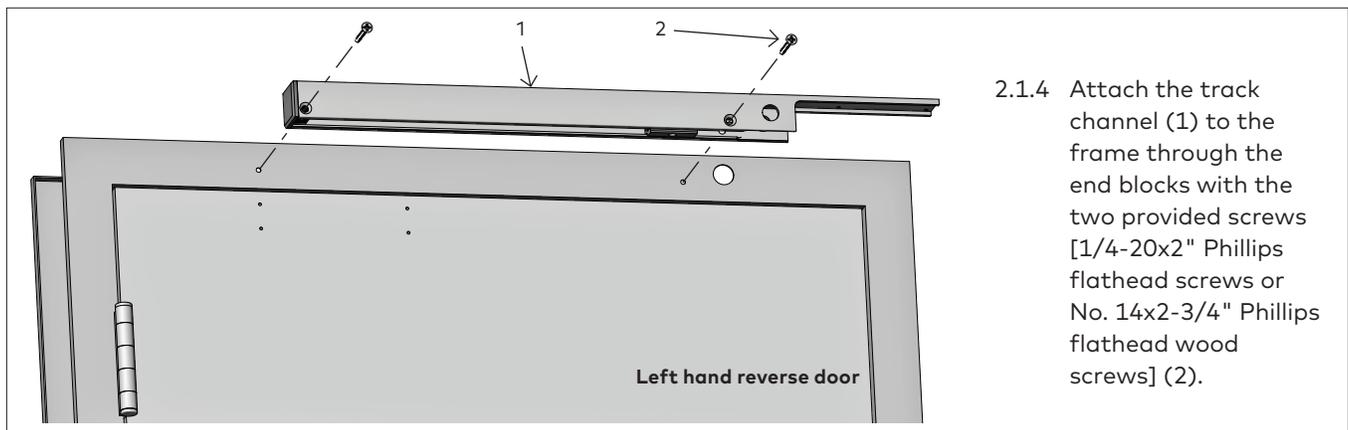
Reference template 08279512

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

- 2.1.1 Orient the detector portion of the track (1) away from the hinge (see step 2 for orientation).
- 2.1.2 Remove the appropriate wire access plug (2) from the track.

- If removing the frame side wire access plug, ensure it aligns with the through hole in the frame.
- 2.1.3 For wiring applications that are outside of the wall, screw a surface conduit (3) into the exterior wire plug hole.

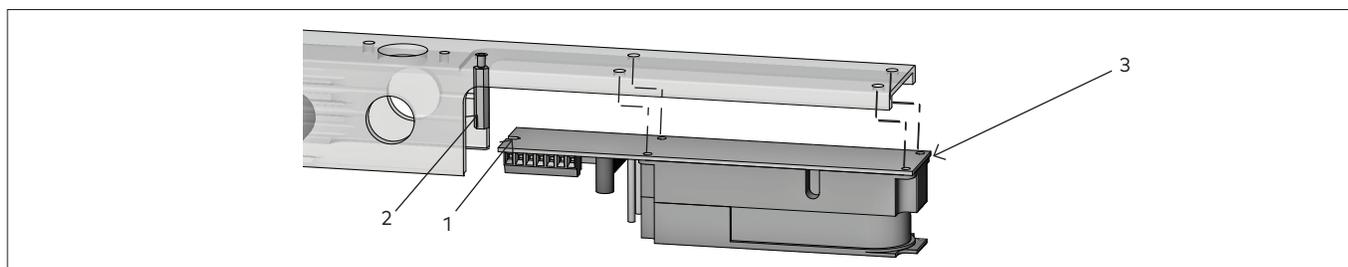
Fig.4



- 2.1.4 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).

2.2 Install detector

Fig.5

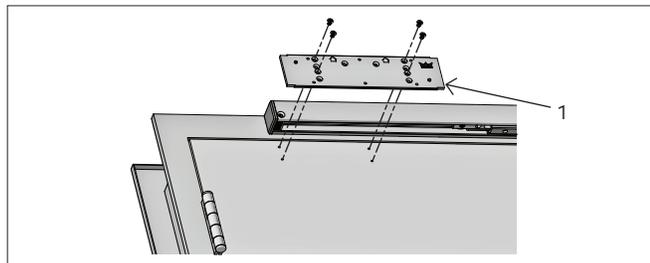


- 2.2.1 Slide the front indent of the detector (1) under the standoff (2), then attach the detector to the track with four screws [4-40x3/16" Phillips pan head screws] (3).

Note: If construction is still being completed near the detector installation, DO NOT install the detector at this time or protect the detector from construction dust contaminants.

2.3 Install backplate

Fig.6



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

2.4 Installing the closer

Fig.7

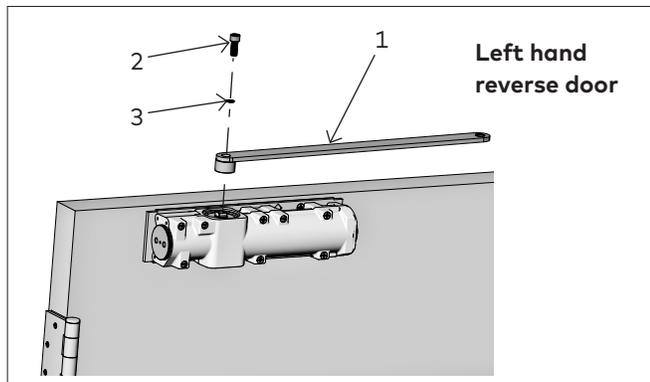


NOTE: Orient pinion (1) closest to hinge.

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

2.5 Installing the main arm to closer

Fig.8



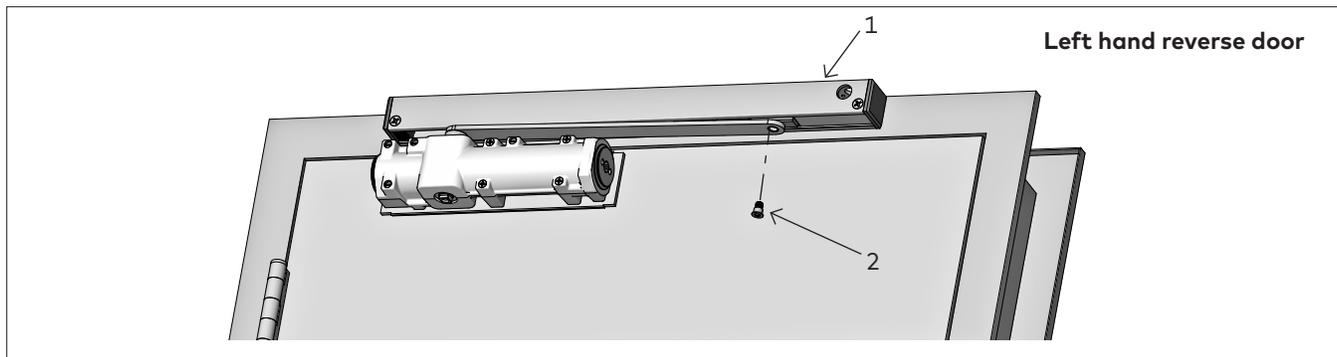
- 2.5.1 Attach the main arm (1) to the top pinion with an M6x20 socket head cap screw (2) and an M8 lock washer (3) using an M5 hex key.



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

2.6 Installing arm to door

Fig.9



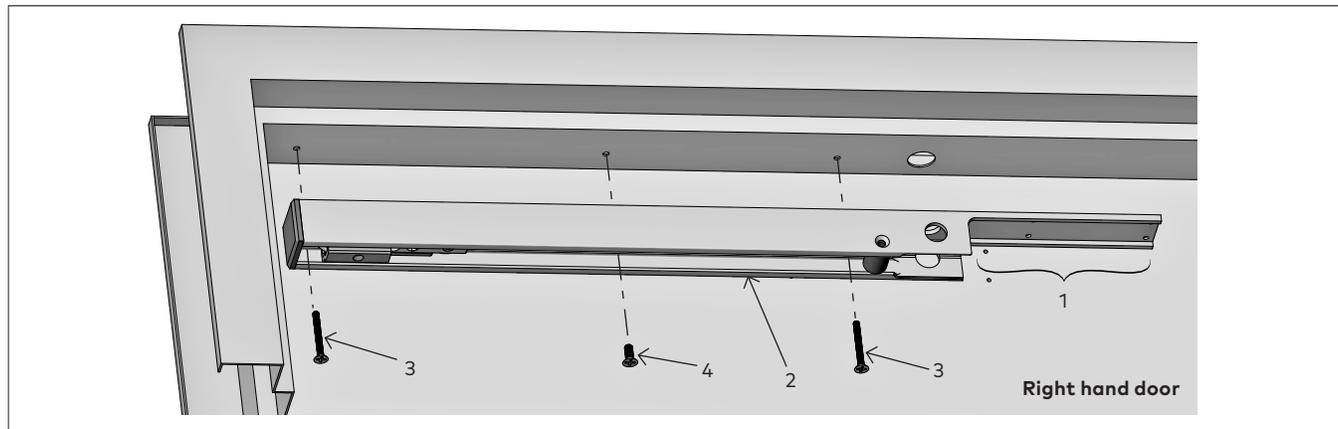
- 2.6.1 Align the arm (1) with the slide shoe of the track channel.

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

3 Installation instructions - push side (PT)

3.1 Install track

Fig.10



Reference template 08279513

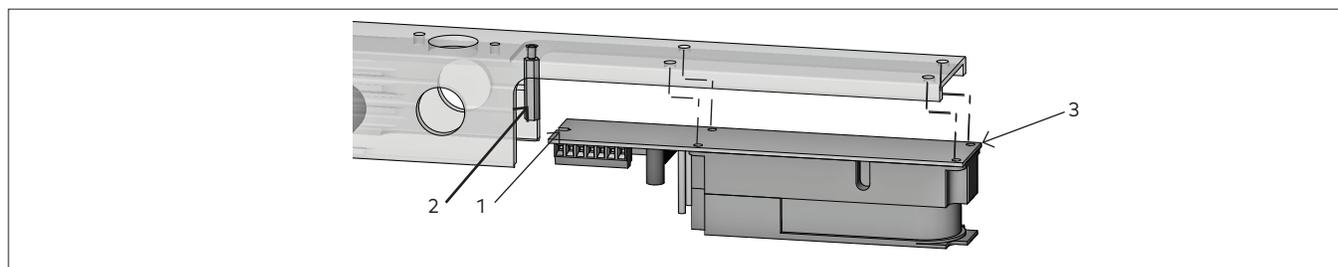
NOTE: For use on soffit mount applications on the push side of the door.

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

3.1.2 Attach the track channel (2) to the soffit with two screws [1/4"x1-1/4" Phillips flathead screw or one No.14x2" Phillips flathead wood screw] (3) and through the track with one screw [1/4"x1-5/8" Phillips flathead screw or No.14 Phillips flathead wood screw] (4).

3.2 Install detector

Fig.11

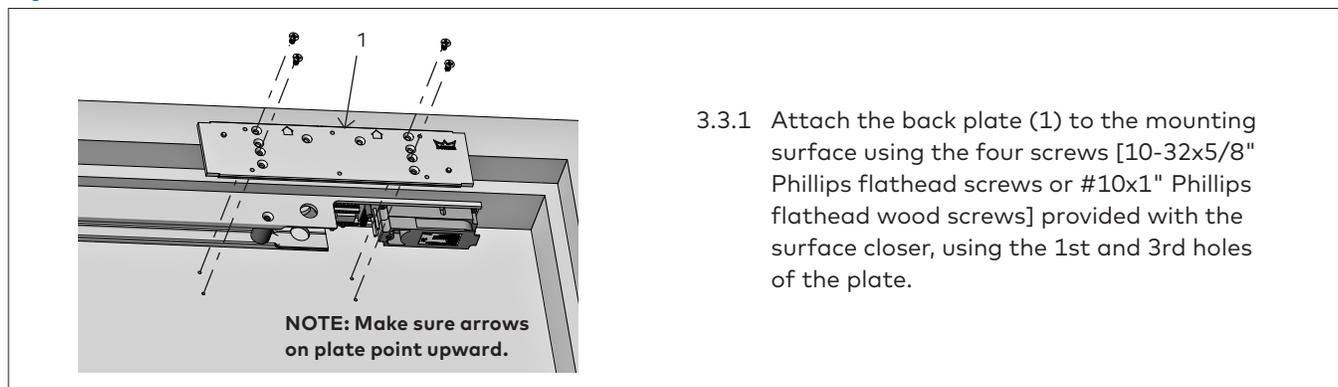


3.2.1 Slide the front indent of the detector (1) under the standoff (2), then attach the detector to the track with four screws [4-40x3/16" Phillips pan head screw] (3).

Note: If construction is still being completed near the detector installation, DO NOT install the detector at this time or protect the detector from construction dust contaminants.

3.3 Install backplate

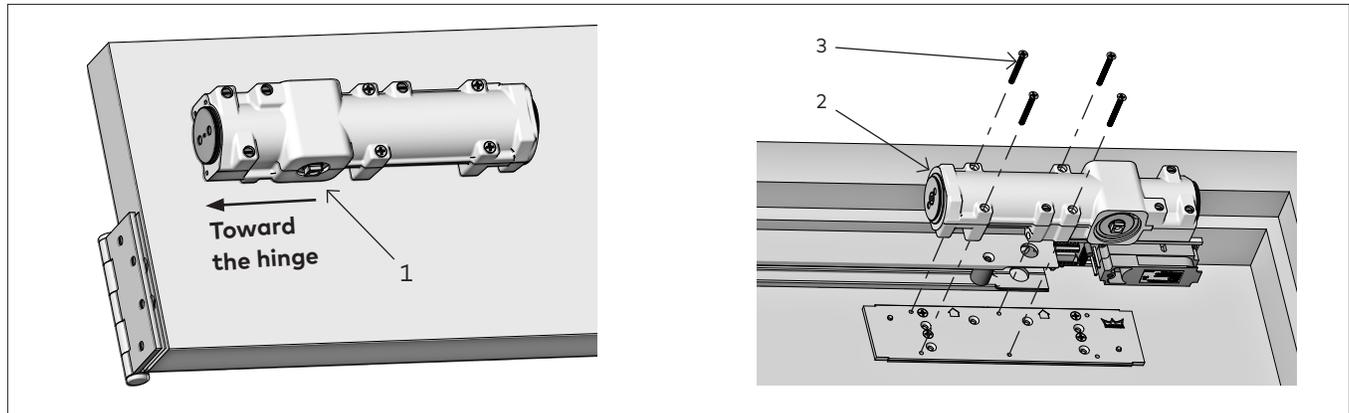
Fig.12



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.

3.4 Installing the closer

Fig.13

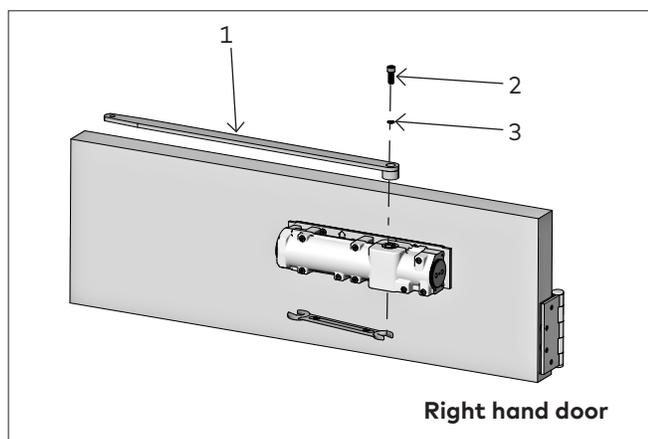


NOTE: Orient pinion (1) closest to hinge.

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

3.5 Installing the main arm to closer

Fig.14



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

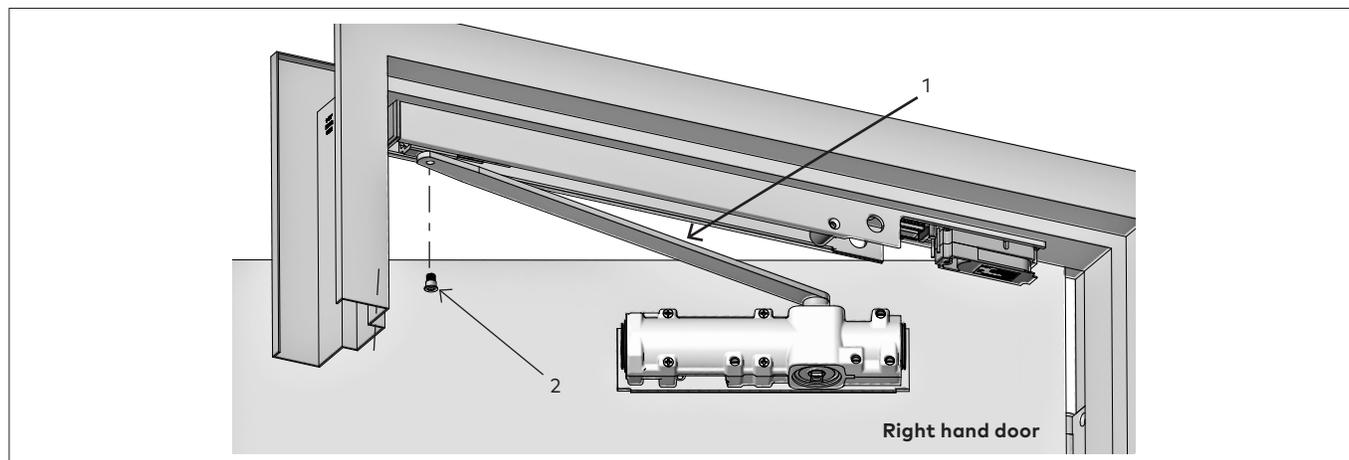
- Left hand door - turn the bottom pinion counter-clockwise 10° - 15°.
- Right hand door - turn the bottom pinion clockwise 10° - 15°.

3.5.2 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.

3.6 Installing arm to door

Fig.15



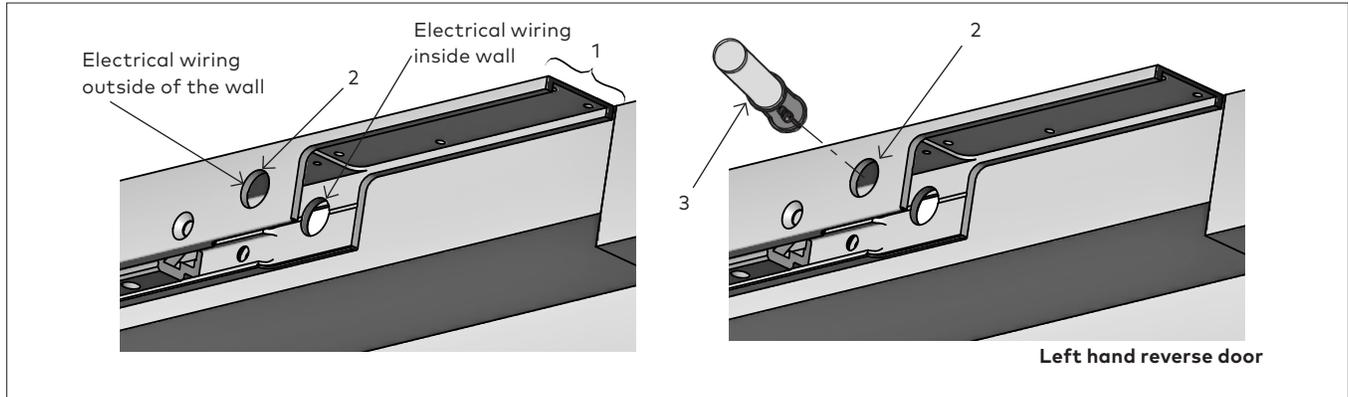
3.6.1 Align the arm (1) with the slide shoe of the track channel.

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

4 Installation instructions - double egress (TDE)

4.1 Install track

Fig.16



Reference template 08279514

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

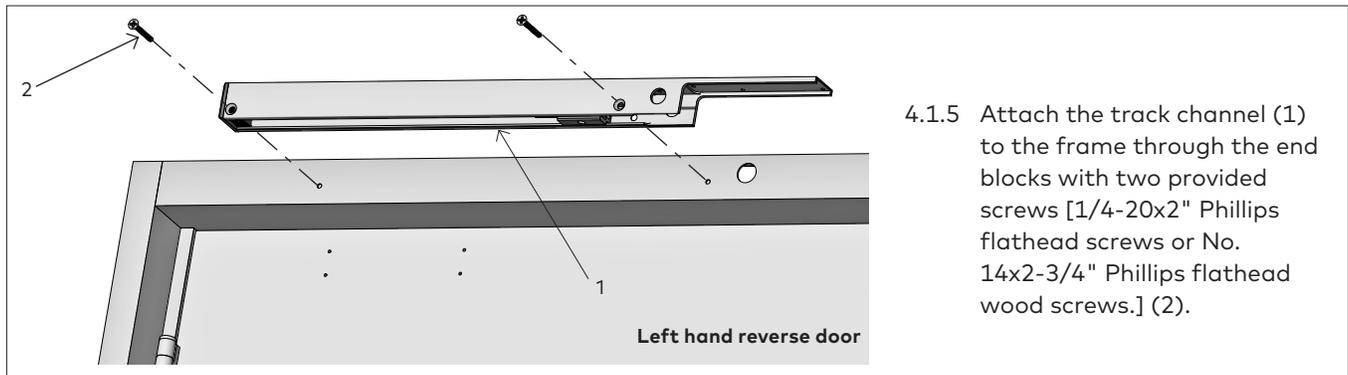
4.1.1 Orient the detector portion of the track (1) away from the hinge.

4.1.2 Remove the appropriate wire access plug (2) from the track.

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

4.1.3 For wiring applications that are outside of the wall, screw a surface conduit (3) into the exterior wire plug hole.

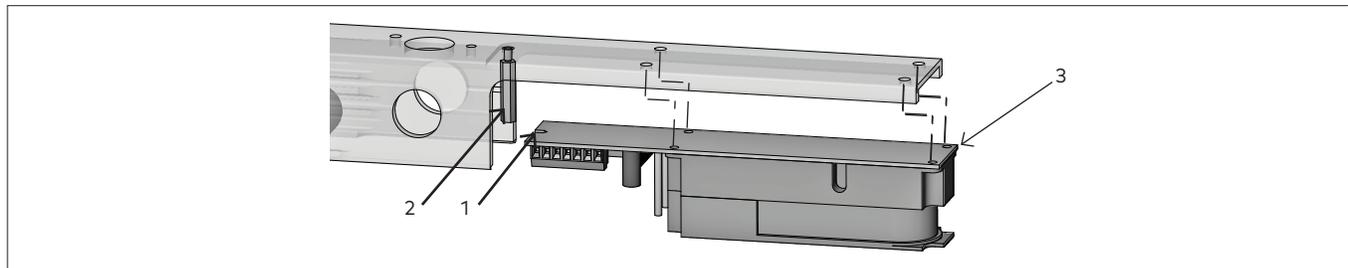
Fig.17



4.1.5 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).

4.2 Install detector

Fig.18

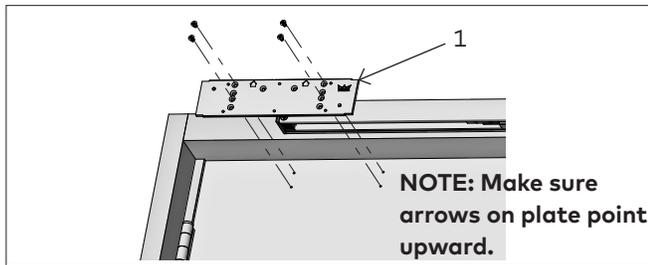


4.2.1 Slide the front indent of the detector (1) under the standoff (2), then attach the detector to the track with four screws] 4-40x3/16" Phillips pan head screws] (3).

Note: If construction is still being completed near the detector installation, DO NOT install the detector at this time or protect the detector from construction dust contaminants.

4.3 Install backplate

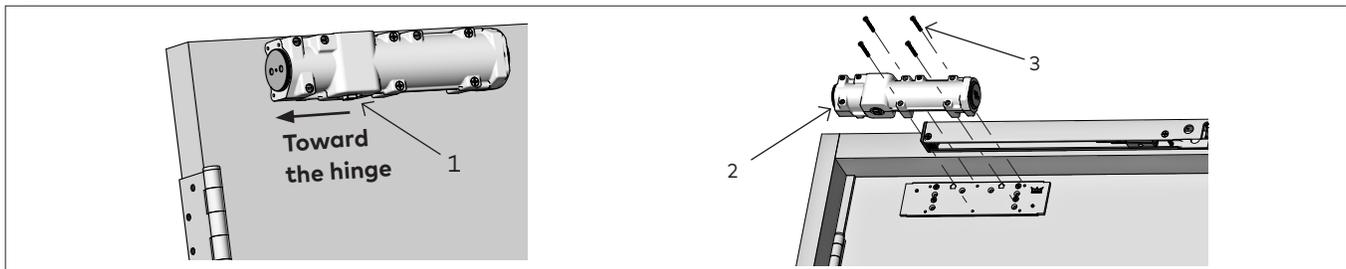
Fig.19



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

4.4 Installing the closer

Fig.20

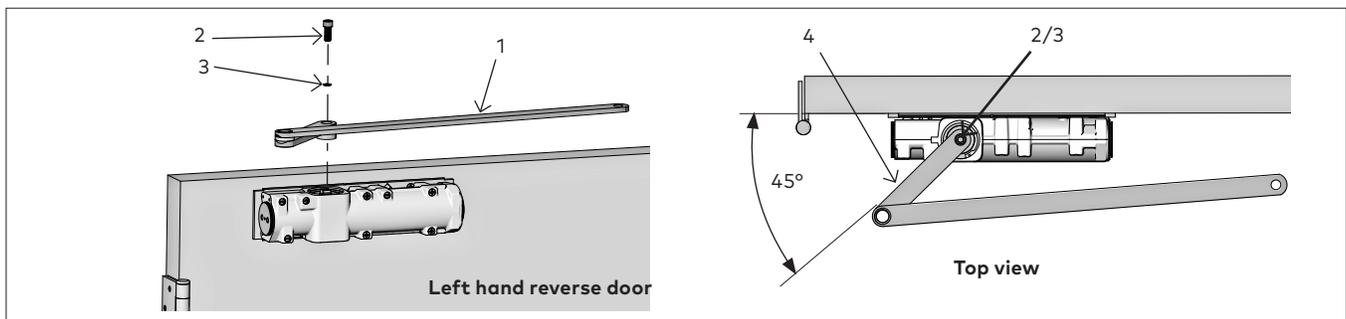


NOTE: Orient pinion (1) closest to hinge.

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

4.5 Installing the main arm to closer

Fig.21

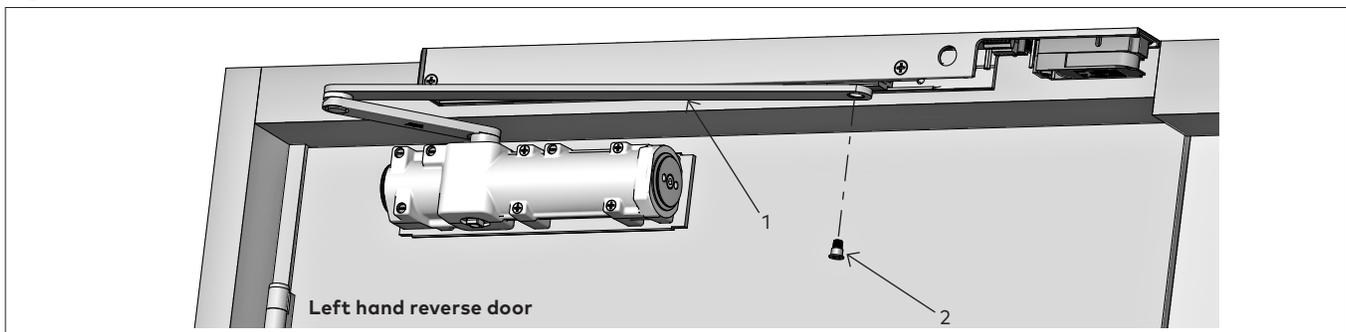


4.5.1 Attach the main arm (1) to the top pinion with an M6x20 socket head cap screw (2) and an M8 lock washer (3) using an M5 hex key.

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

4.6 Installing arm to door

Fig.22



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

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

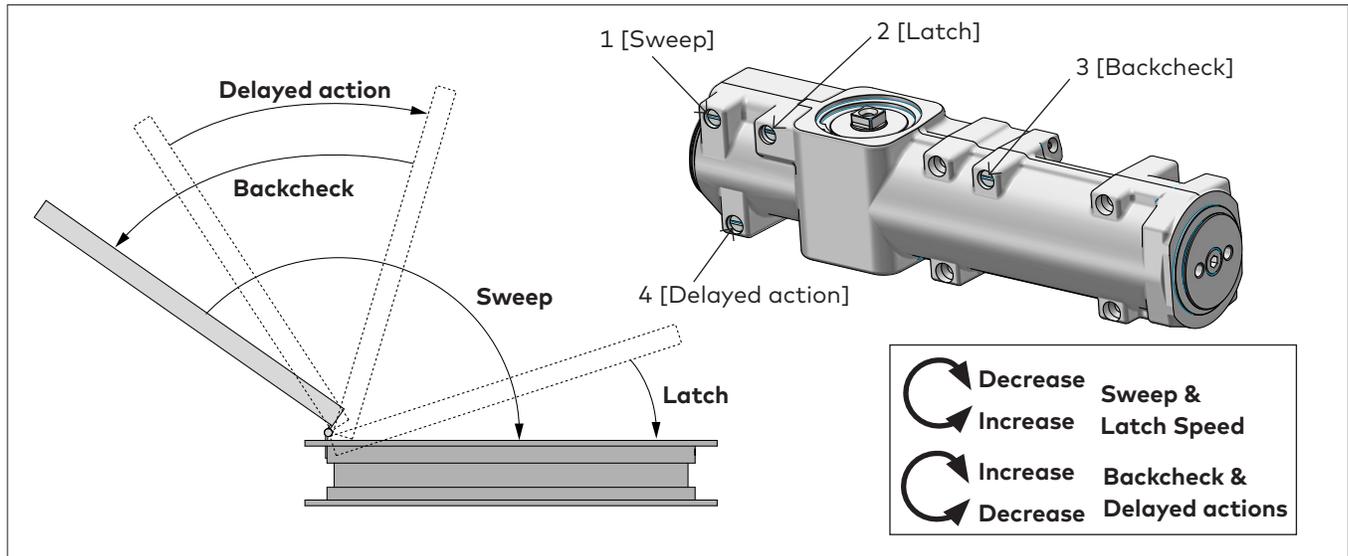
5 Adjustments

-  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 3.
-  Door should close in 3 to 6 seconds from 90°.
-  Do not close valves completely.

5.1 Adjust closing speeds: sweep, latch, backcheck, delayed actions

Fig.23

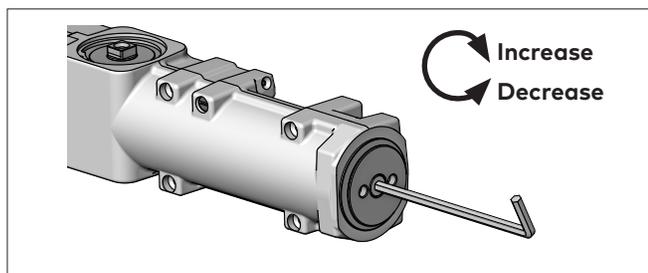


- 5.1.1 Adjust the sweep speed (1) for the area from the maximum open position to 0°. Maximum opening degrees are listed on page 2.
- Increase sweep speed: Turn valve counter-clockwise
 - Decrease sweep speed: Turn valve clockwise.
- 5.1.2 Adjust the latch speed (2) for the area from 7° - 0°.
- Increase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

- 5.1.3 Adjust the backcheck (3) for the area from 70° to the maximum opening.
- Increase resistance: Turn valve clockwise
 - Decrease resistance: Turn valve counter-clockwise.
- 5.1.4 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

5.2 Adjust spring force

Fig.24



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.

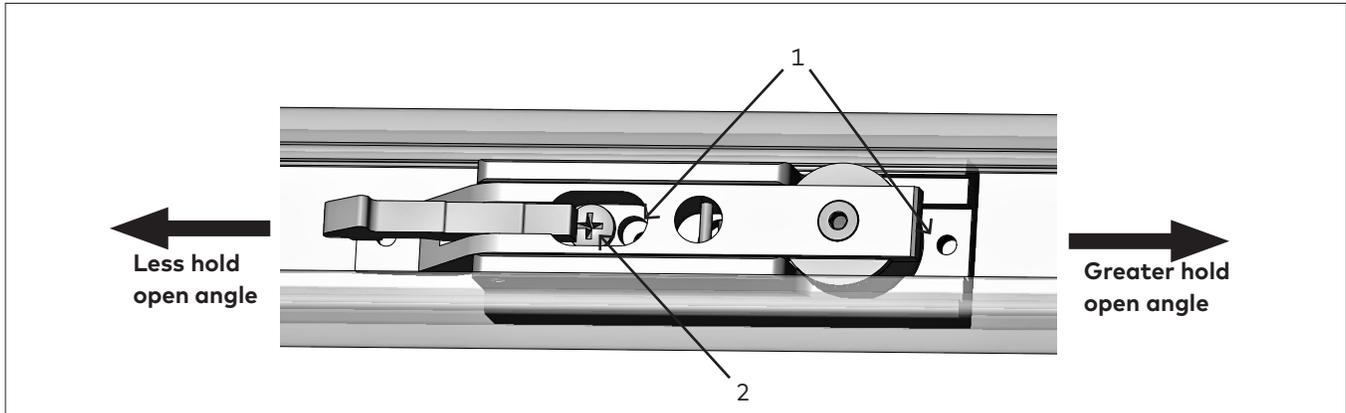
NOTE: DO NOT ADJUST SPRING LOWER THAN SIZE 3

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

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

5.3 Adjust hold open

Fig.25



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

- 5.3.1 Loosen the set screws (1) using a 3/32" hex wrench.
- 5.3.2 Slide the hold open to the desired position.
- 5.3.3 Tighten the screws to desired the position.

- 5.3.4 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.

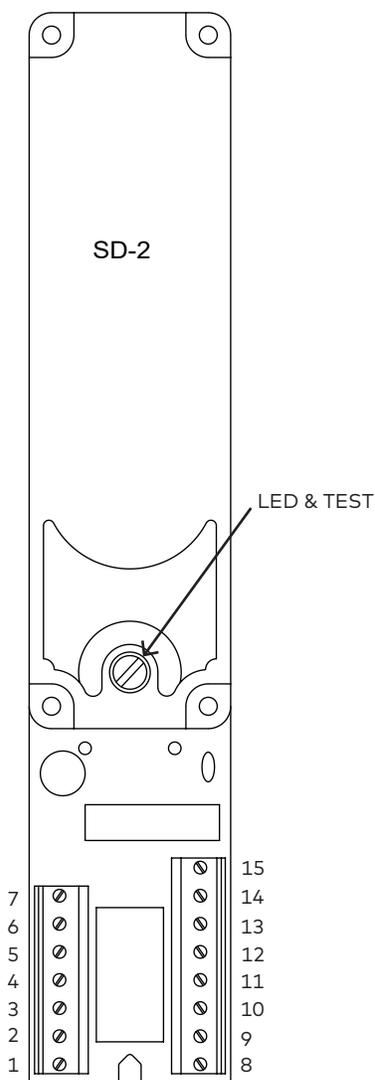
6 Wiring

6.1 Electrical specifications

Fig.26

**WIRE THE UNITS ACCORDING TO BUILDING AND SYSTEM REQUIREMENTS.
OBSERVE ALL APPLICABLE CODES.**

Voltage input	24 VDC +10% - 15% 24 VAC +10% - 15%
	NOTE: 120 volt applications require optional external transformer
Maximum input current	@24 VDC- 161 mA (1 solenoid), 310 mA (2 solenoids) @24 VAC- 161 mA (1 solenoid), 310 mA (2 solenoids)
	NOTE: Excludes accessories
Maximum output to remote alarm indicator lamp	300 mA
Contact ratings	Alarm and or accessory contacts - 1.25 A at 24 VDC or .3 A at 120 VAC resistive, maximum. Trouble contacts - 500 mA at 24 VDC resistive, maximum.

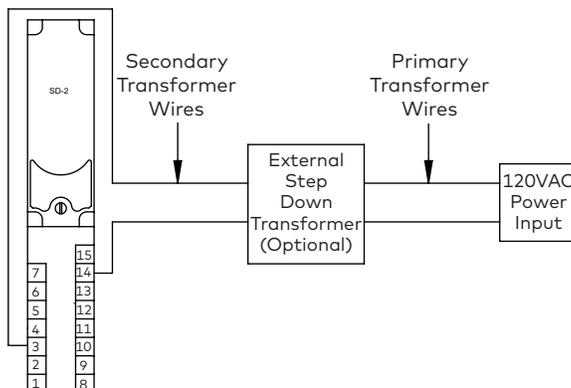


Detector connection list	
Function	Terminal
AC/DC 24V INPUT	3, 14
ALARM CONTACTS (NORMALLY OPEN)	1, 2
ELECTROMAGNET	6, 9
REMOTE ALARM INDICATOR LAMP +	8
REMOTE ALARM INDICATOR LAMP -	7
INTERCONNECT +	15
INTERCONNECT -	4
TROUBLE CONTACTS (NORMALLY CLOSED)	5, 13
24 VDC OUTPUT (UNFILTERED) +	10
IF JUMPER WIRE J11/J12 IS CUT, TERMINALS 8, 9 AND 10 ARE CHANGED TO FORM C RELAY CONTACTS, RAIL OUTPUT IS LOST, AND HOLD OPEN ELECTROMAGNETS MUST BE POWERED FROM A SEPARATE SOURCE. CONSULT FACTORY IF REMOTE DETECTORS ARE USED IN THIS APPLICATION.	COM 10 N.C. 9 N.O. 8

6.2 Power supply 120 VAC, 50/60 HZ

Fig.27

120 VAC, 50/60 HZ: Connect the 120 VAC incoming voltage wires to the primary wires of the transformer. Connect the secondary transformer wires to terminals #3 and #14 of the detector module. This connection is not polarity dependent.

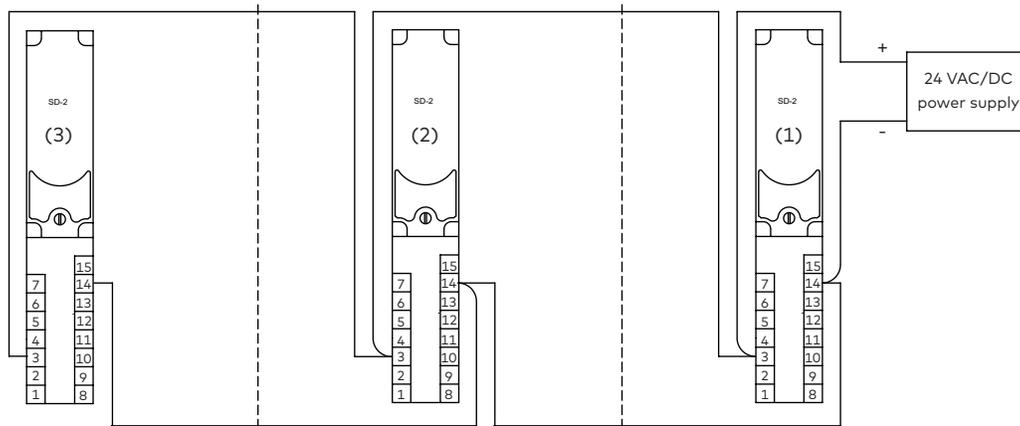


Note: For ULC installation, transformer must install in 4" x 4" electrical box x 3" deep minimum.

6.3 Power supply 24 V AC/DC

Fig.28

24V AC/DC: The step down transformer is not used in this connection. Connect 24V AC/DC power to terminals #3 and #14 on the detectors. These connections are not polarity dependent. If the unit is connected to a second unit, connect terminal #3 of the first unit to terminal #3 of the second unit and connect terminal #14 of the first unit to terminal #14 of the second unit. Continue this process for any subsequent units to be powered from the same power supply.

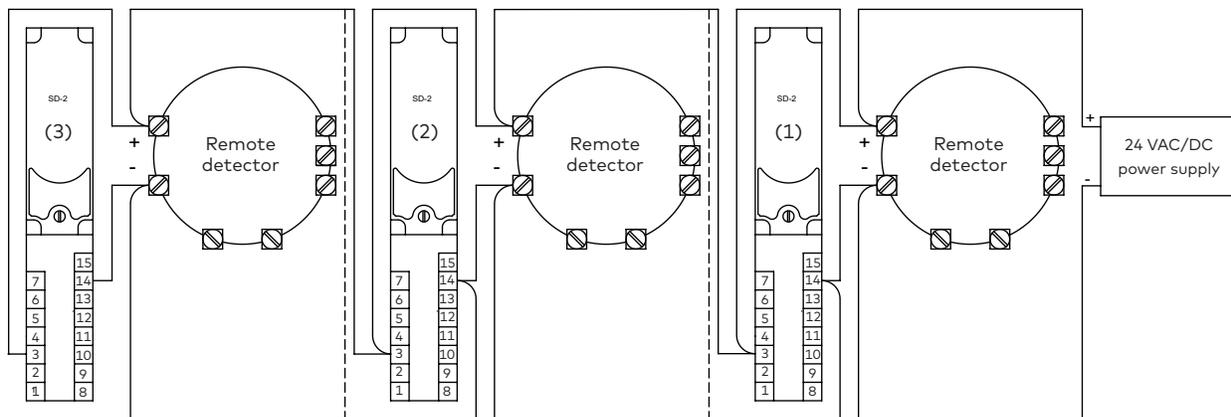


6.4 Power supply 24 V AC/DC with remote detectors

Fig.29

24V AC/DC with remote detectors: The step down transformer is not used in this connection. Perform wiring connections as illustrated below. Additional units are wired in the same manner as unit #2. Installations using a combination of SD-2 modules with and without remote area detectors can be wired accordingly by substituting the wiring diagram section from unit #1, #2, or #3 in step #3 above instead of unit #1, #2, or #3 below with remote detector. The vertical dashed lines indicate where one diagram would be exchanged for another.

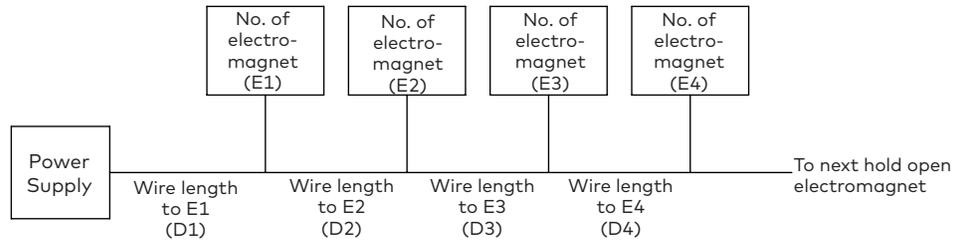
NOTE: Input voltage must match detector voltage.



6.5 Wire gauge

Fig.30

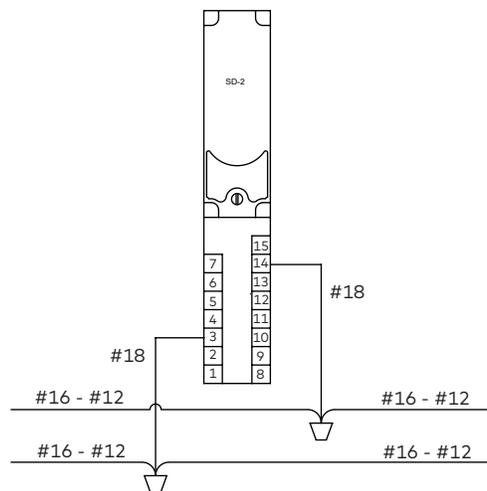
Wire gauge: The maximum wire gauge for wiring the SD-2 detector module is #18 AWG. The method for determining wire gauge is given below. NOTE: A minimum of 20.4 VDC must be supplied to each solenoid in the run.



S1, S2, S3, etc. are the number of solenoids at each subsequent station. D1 is the distance from the power supply to the first solenoid station. D2, D3, D4, etc. are the distances from the previous solenoid station to the next solenoid station in the run. To determine the correct wire gauge multiply E1 times D1. Add that quantity to E2 times D2. Repeat the same procedure for each electromagnet to test the last unit in the run. Compare the quantity calculated to the chart below. The calculated value must be less than or equal to the value corresponding to the appropriate wire gauge.

10 GAUGE-11,788 12 GAUGE-7,407 14 GAUGE-4,669 16 GAUGE-2,997 18-GAUGE-1,843

The procedure described above can be expressed in the following equation: $(E1 \times D1) + (E2 \times D2) + (E3 \times D3) + \dots + (En \times Dn)$. The above values correspond to the wire gauge to be used. If the calculated value is 1,843 #18 AWG wire can be run and connected directly to the detector module. If the calculated value exceeds 1,843 larger wiring will be required. Since the detector will only accept #18 AWG wire, a wiring splice will be necessary as illustrated below.

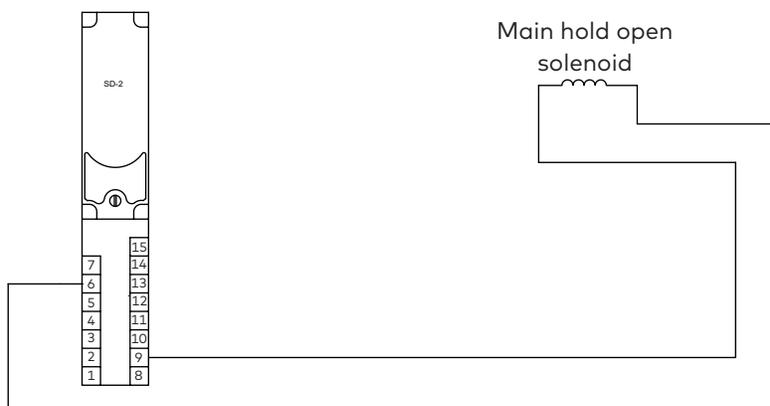


NOTE: For ULC installations, 18 gauge wire is required to detector.

6.6 SD-2 detector to main solenoid connection

Fig.31

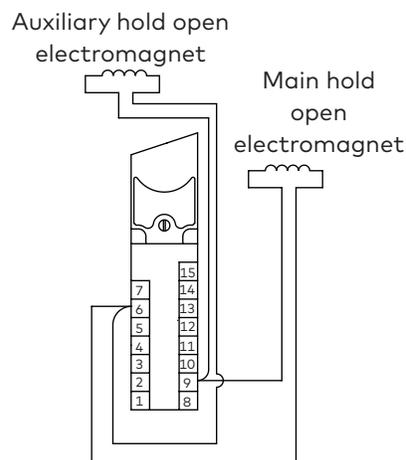
Strip approximately 1/4" of plastic insulation from the end of the two solenoid wires supplied. Connect one end each of the electromagnet wires to terminals 6 & 9 of the SD-2 detector as shown.



6.7 SD-2 detector to auxiliary solenoid connection

Fig.32

NOTE: Make this connection the same time as the main hold open solenoid connection. Strip approximately 1/4" of plastic insulation from the ends of these wires. Connect auxiliary hold open solenoid wires to 9 & 6 of SD-2 detector.

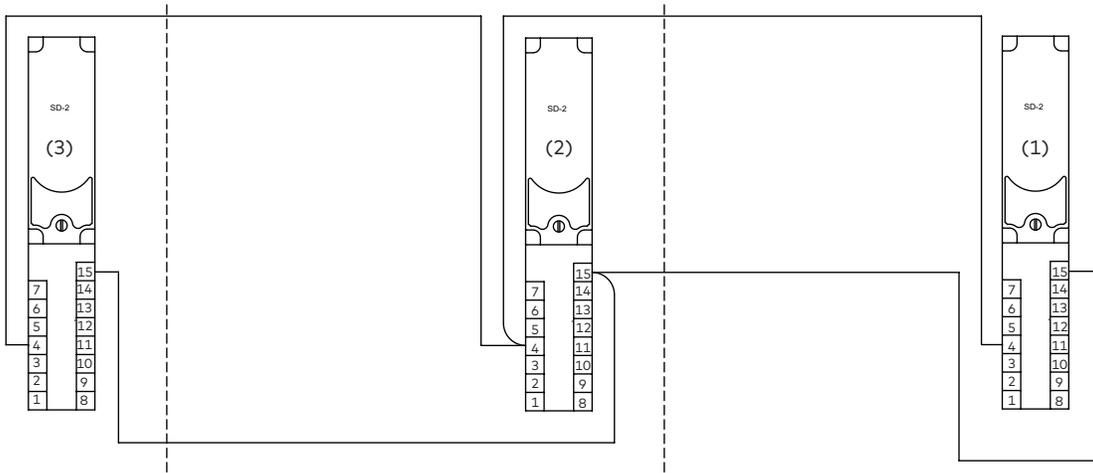


6.8 SD-2 detector interconnection

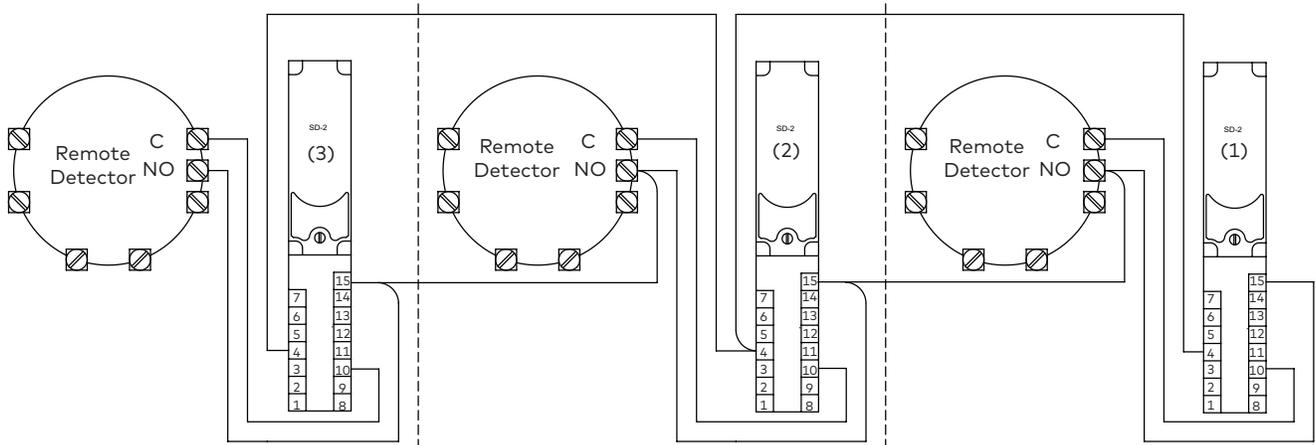
Fig.33

1. Up to (5) SD-2 detectors, with or without connection to an auxiliary unit or remote area detector may be interconnected. This limitation applies only to interconnected units and assumes a power supply large enough to handle this load if the power supply is common to all units interconnected. Separate power supplies may be used for each SD-2 detector while permitting the units to be interconnected.

2a. For units without connection to remote detectors, connect terminal #15 (+) between the units to be interconnected. Connect terminal #4 (-) between the units to provide a common for the interconnection. Additional units are wired in the same manner as unit #2 but no more than five (5) units can be interconnected.

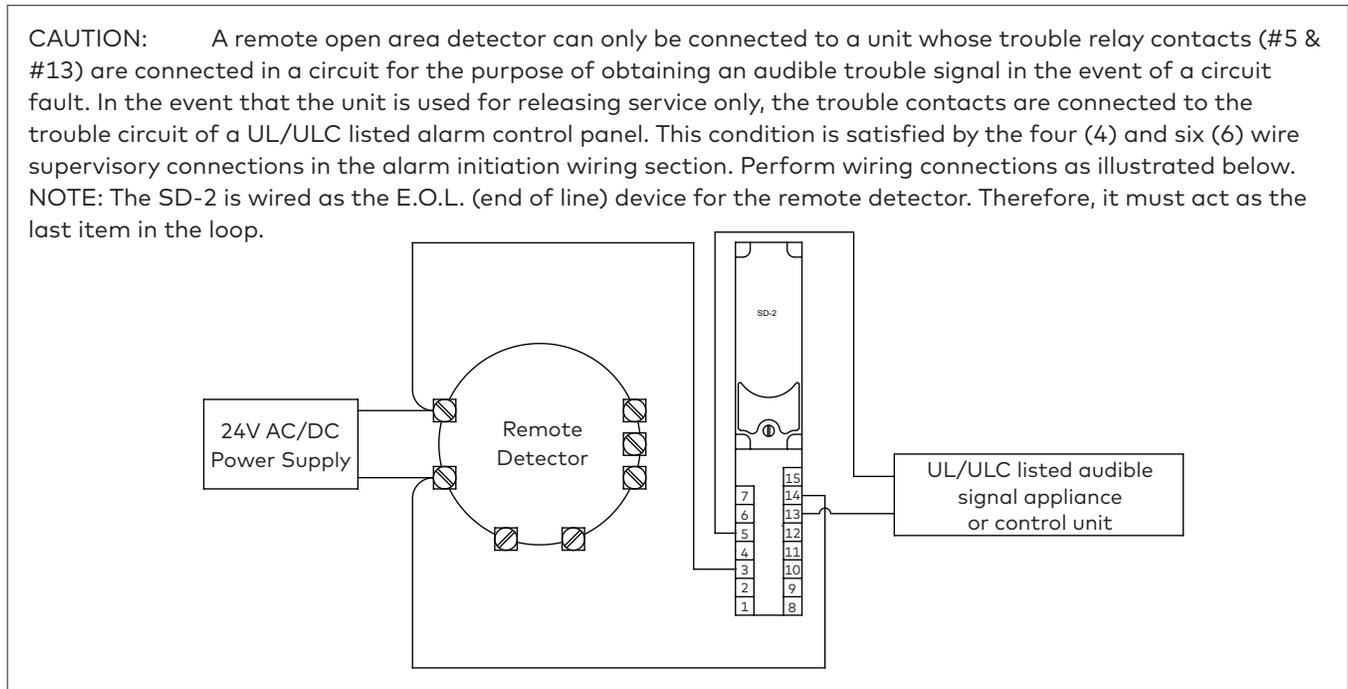


2b. For units used in conjunction with remote area detectors, complete wiring connections as illustrated below. Heed caution note in SD-2 DETECTOR TO REMOTE AREA DETECTOR section of instruction sheet. Additional units are wired in the same manner as unit #2 but no more than five (5) units can be interconnected. Installations using a combination of SD-2 detector modules with or without remote area detectors can be wired accordingly by substituting the wiring diagram from unit 1, 2, or 3 in step 2a. above for unit 1, 2, or 3 below. The vertical dashed lines indicate where one (1) diagram would be exchanged for another.



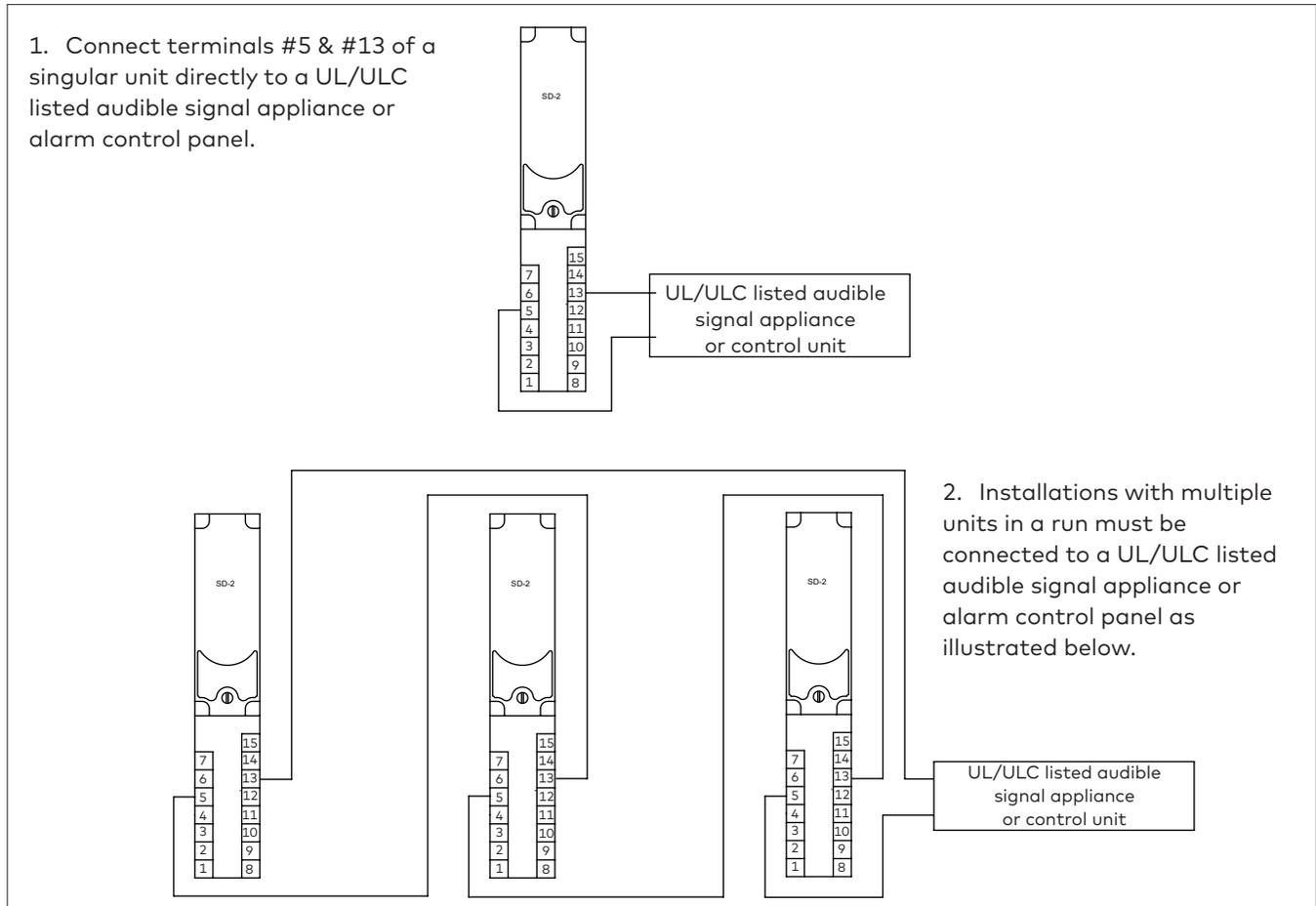
6.9 SD-2 detector to remote area detector

Fig.34



6.10 SD-2 detector audible signal appliance

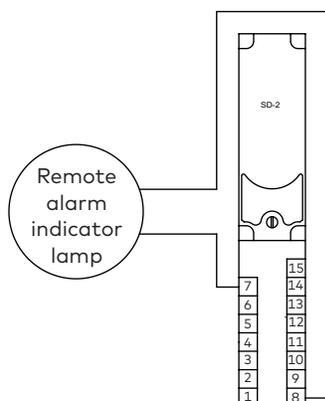
Fig.35



6.11 SD-2 detector to remote alarm indicator lamp

Fig.36

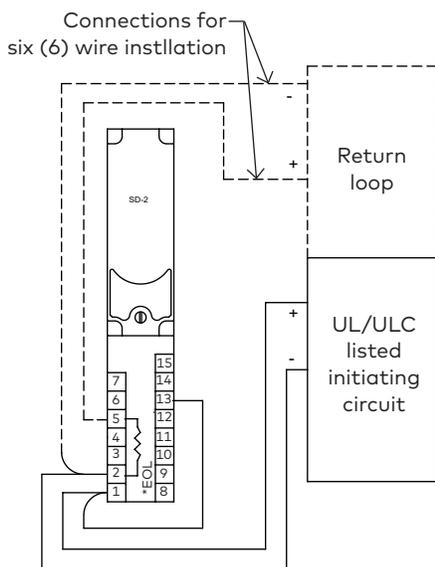
Connect the positive wire of the remote alarm indicator lamp to terminal #8 of the detector module. Connect the negative terminal of the indicator lamp to terminal #7 of the SD-2 detector.



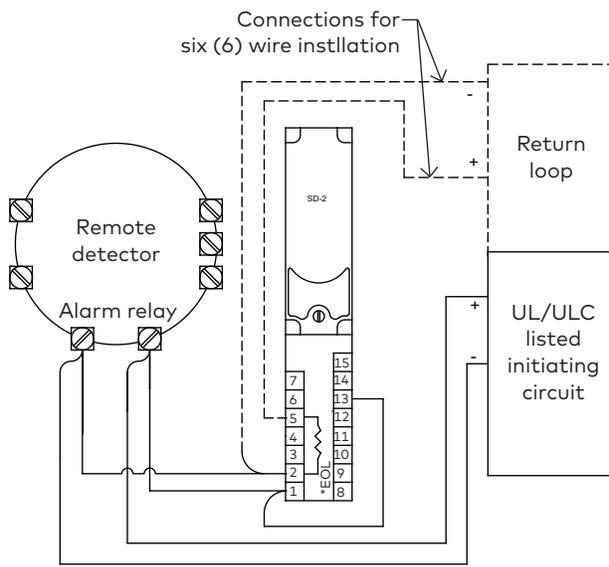
6.12 Alarm initiation wiring (4 wire class B & 6 wire class A)

Fig.37

1. Make all connections as outlined previously for all units required by the job specifications.
2. Make all signal initiating connections as illustrated in the appropriate figure below. Note wiring differences for units with remote detectors vs. units without remote detectors. Dashed lines to return loop represent wires required for six (6) wire applications. These wires are omitted in four (4) wire applications.
3. Connections to only one (1) SD-2 are shown below.



* EOL used in 4 wire applications only

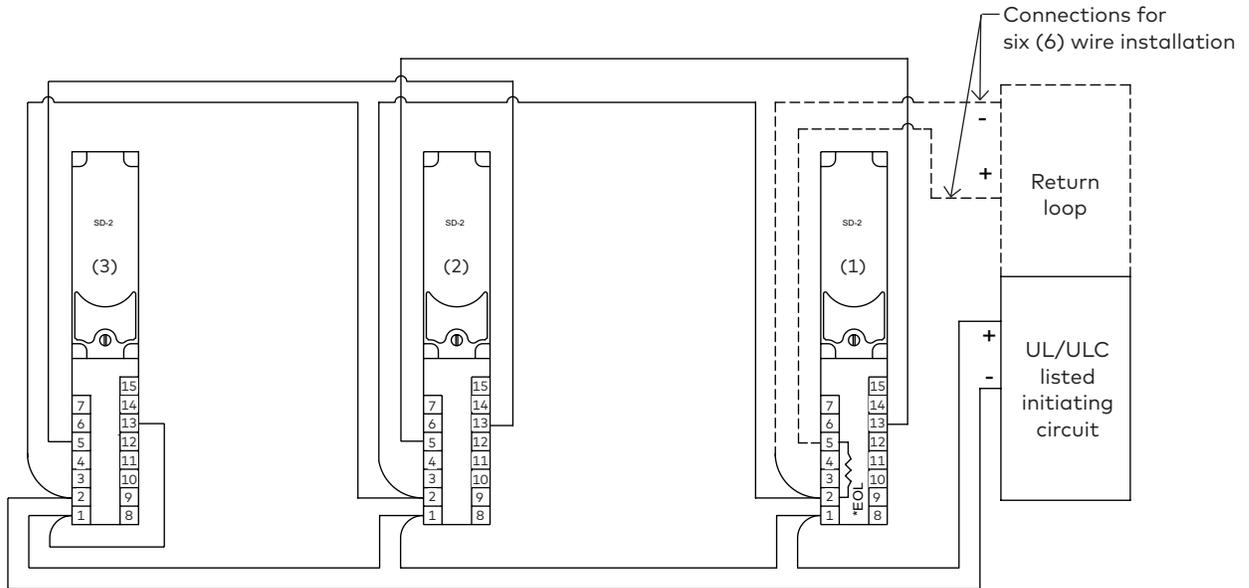


* EOL used in 4 wire applications only

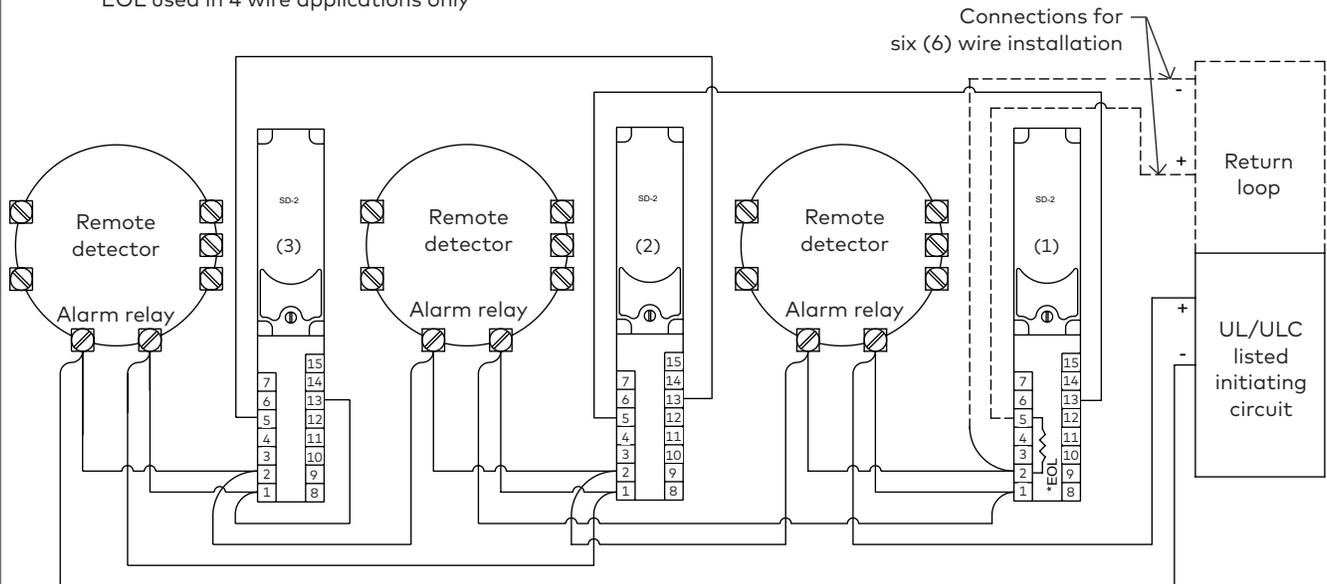
CONTINUED ON NEXT PAGE

Fig.38

4. Connections for two (2) SD-2 detectors would consist of detector (1) in figure below connected to detector (3) in the same manner as it is shown connected to detector (2). Detector (2) would be deleted.
5. More than three (3) SD-2 detectors are connected by inserting additional units with connections as shown for unit 2. The last unit in the run must be connected in the same manner as unit 3.



* EOL used in 4 wire applications only



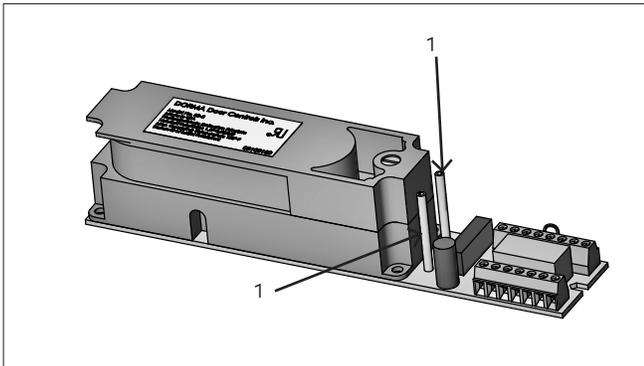
* EOL used in 4 wire applications only

6. In four (4) wire installations, it is the responsibility of the installer to supply and connect the E.O.L. resistor specified by the fire alarm control panel used. The E.O.L. resistor is only installed in the first unit of the run as illustrated.

7 Final set up

7.1 Testing

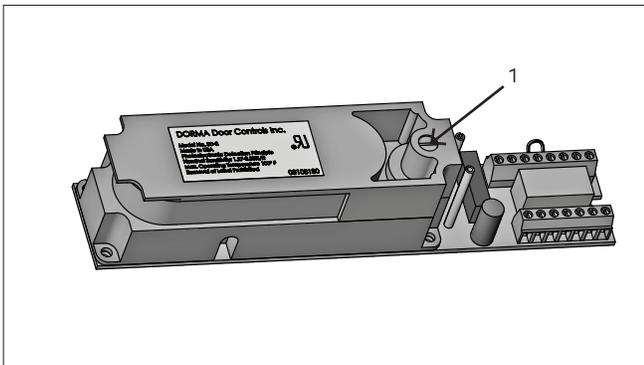
Fig.39



SD-2 Detector sensitivity test (ULC requirement only)

- 7.1.1 Apply power to the detector.
- 7.1.2 Connect a voltage meter to the two test terminals (1).
- 7.1.3 The normal range is between 1.27Vdc - 3.38Vdc.

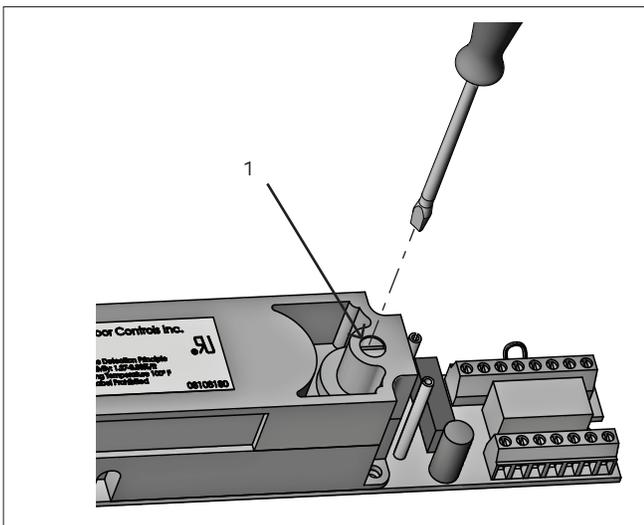
Fig.40



Check all the wiring and connections

- 7.1.4 The LED (1) should blink every 7 - 10 seconds.
- 7.1.5 If not, verify the wiring of the device.

Fig.41



Test the hold open unlatching function

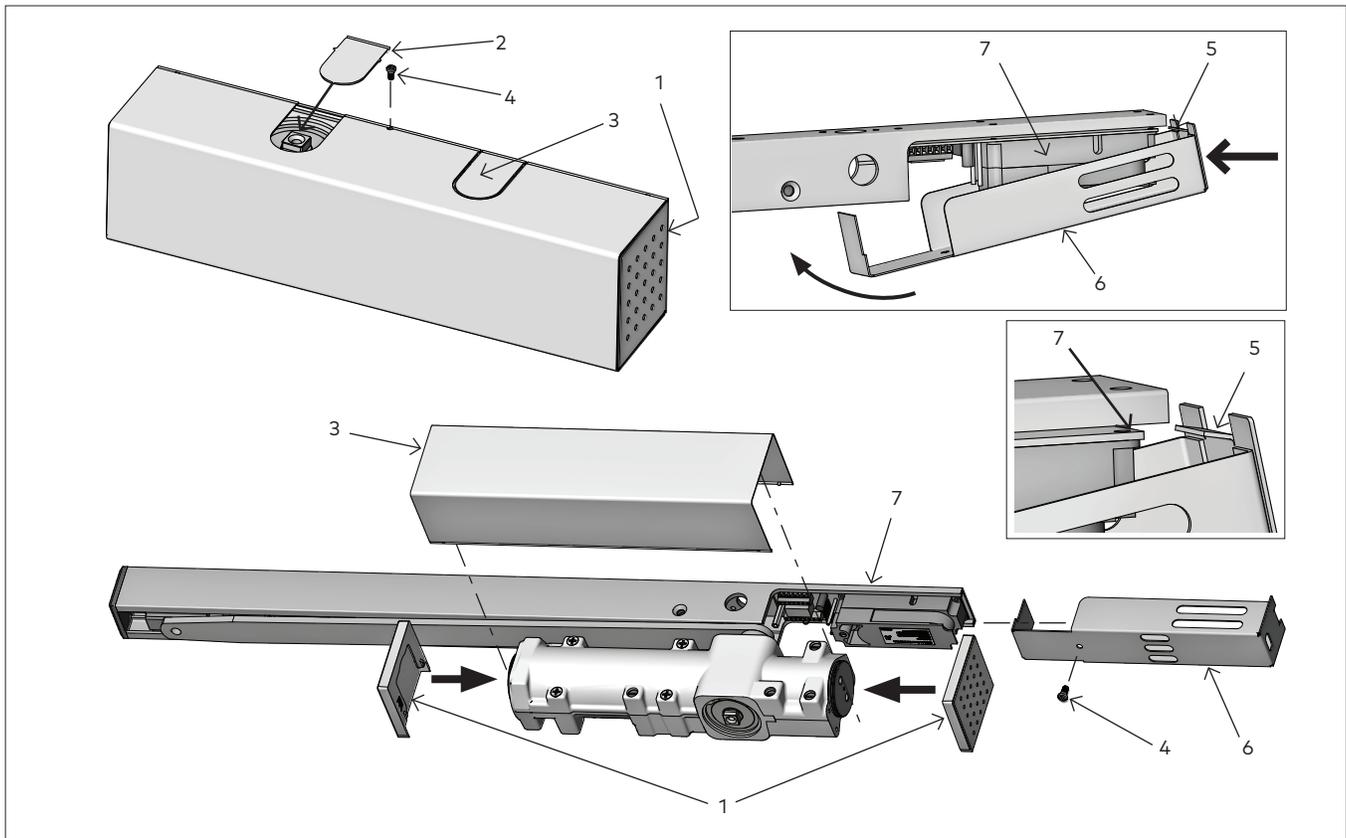
- 7.1.6 Open the door so the slide shoe engages the hold open mechanism.

Test the detector

- 7.1.7 Insert a small screwdriver into the light pipe (1) and turn counter-clockwise. Hold for 10 seconds.
- 7.1.8 The LED will turn red and the door will close.
- 7.1.9 Turn the light pipe clockwise back to the original position to reset the detector.
- 7.1.10 The LED will turn off and then begin to blink as described in step 2.

7.2 Install covers

Fig.42



7.2.1 Snap both end covers (1) into place.

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

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

7.2.4 Slide the tab (5) of the detector cover (6) under the end of the detector (7) and swing it into position.

7.2.5 Secure the detector cover with one 4-40x3/16" Phillips flathead screw.

7.3 Testing (continued)



Aerosol testing is a "go - no go" test and is not an acceptable means to test smoke detector sensitivity.

- 7.3.1 Aim the smoke detector tester tube at the detector and release a burst of aerosol in 1 second bursts.
- 7.3.2 The detector may take up to 20 second to respond.
- 7.3.3 If the detector does not alarm and is in a high air velocity area, spray up to five bursts in 5 to 10 second intervals.
- 7.3.4 If the detector still does not alarm after give repeated aerosol sprays, a higher smoke volume may be needed.

dormakaba accepts the use of the Home Safeguard Smoke Detector Tester (Models 1H and 25S) if, and only if, it is used:

- with the Model 1490 accessory
- with the new formula as identified by a date code, located on the bottom of the can, of 1990 or later.
- in accordance with the instructions stated above.

If the preceding requirements are not met, the use of the smoke detector tester is unacceptable and dormakaba cannot guarantee the proper operation of detectors that have been subject to this product.



If the local air velocities exceed 100 ft/min, the detector may not alarm on the first try.

Other acceptable methods of aerosol or smoke generation:

- Gemini 501 Smoke Generator Machine (set to 4%/ft to 5%/ft obscuration as described in the Gemini 501 Manual).
- Burning paper or fabric in a metal can (useful for application in high air velocity locations).
- Burning cigarettes, punk, or cotton wick (commonly available materials).

