TIMES SQUARE LIGHTING INC.

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SPECTRAC™ INSTALLATION INSTRUCTIONS - SAVE THESE INSTRUCTIONS

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INTRODUCTION

Times Square Lighting SpecTrac™ is an attractive, robust specification grade track that features an integral Control Bus for transmitting DMX, 0-10V or DALI control signals. The track and all of its components are UL and CUL Certified.

IMPORTANT SAFETY INSTRUCTIONS - READ FIRST!
WARNING! NOT FOLLOWING THESE INSTRUCTIONS CAN RESULT IN PERSONAL INJURY!
WARNING! NOT FOLLOWING THESE INSTRUCTIONS CAN RESULT IN AN ELECTRICAL SHOCK HAZZARD, FIRE HAZARD, OR BOTH!

CAUTION: Read and understand these entire instructions before proceeding.

CAUTION: Do not expose the track system to any lubricants, solvents or cleaning solutions, as they may impair the strength of the product. To clean, use a damp cloth only.

CAUTION: Do not slide any track adapter along the track to change its location. The adapter must be properly removed from the track and then re-inserted into its desired location.

CAUTION: The Times Square track system is intended for use only with Times Square approved components and Times Square approved lighting fixtures. To reduce risk of fire, electrical shock or personal injury, do not use other components as part of this track system.

CAUTION: The track system is to be installed by qualified electricians only, and in accordance with the National Electrical Code and all local codes and ordinances.

CAUTION: Do not install the track system in: 1) damp or wet locations, 2) where likely to be subjected to physical damage, 3) in hazardous (classified) locations, 4) where subject to corrosive vapors, 5) in storage battery rooms, 6) where concealed or extended through walls or partitions, or 7) within a zone measured 3ft horizontally and 8ft vertically from the top of a bathtub rim or shower threshold.

CAUTION: Do not install any parts of the track system less than 5 feet above the finished floor without prior approval of the Authority Having Jurisdiction (AHJ).

CAUTION: Do not install any fixtures closer than 6 inches from combustible materials.

CAUTION: Do not use the track system with a power supply cord or convenience receptacle adapter.

CAUTION: Do not install the track system with the track energized. Similarly, disconnect power to track when installing or removing components or changing the layout of the track, excluding track adapters.

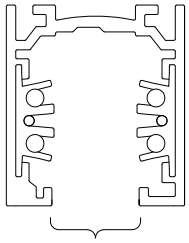
CAUTION: Do not attempt to hang, drape over, or install anything other than Times Square approved components and Times Square approved lighting fixtures to the track. To reduce the risk of fire, electrical shock or personal injury, do not attempt to connect power cords, extension cords, appliances, and the like to the track.

CAUTION: Any track section end must be terminated with a Connector, Current Limiter or Dead End.

CAUTION: Connector ends and Current Limiter ends may never be exposed. A track section must always be attached to a Connector or Current Limiter end.

CAUTION: Use 12 lbf-in (1.4N-m) torque on all 120V and 277V electrical connections.

CAUTION: Never allow paint to reach the inside of the track slot! See diagram, right.
Paint guards for all track types are available. Consult Factory for more details.



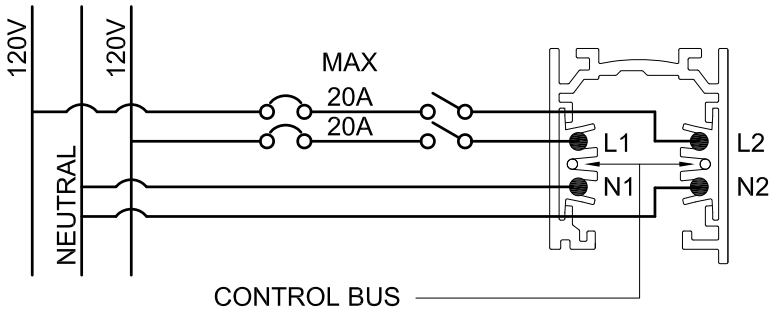
NO PAINT IN HERE!

1) ELECTRICAL POWER CONNECTIONS

Two Circuit 120 Volt Track with Independent Neutrals - Rectangular Profile

NOTE: This track is designed to be fed by two branch circuits rated 120V, 20A max. Each circuit is provided with its own line (hot) and neutral, and care must be taken to keep the two circuits separate.

WIRING ILLUSTRATION



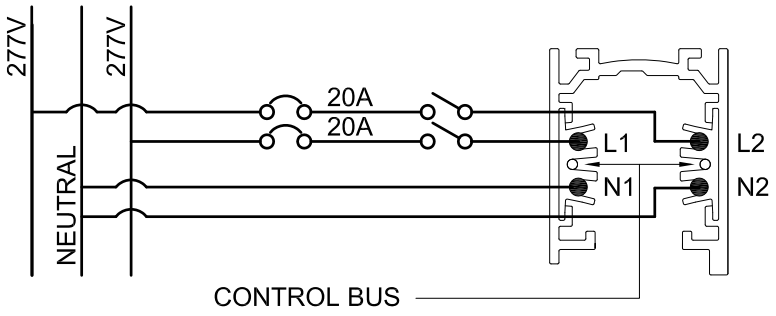
MAXIMUM LOAD: 4800 Watts*
EVENLY DIVIDED BETWEEN CIRCUITS
* Per the NEC, continuous loads must be derated to 80%

NOTE: A common neutral may be used providing the two hot circuits are connected to *different phases*.
CAUTION: When using a common neutral, the two hot circuits MUST be connected to a DOUBLE (2) POLE CIRCUIT BREAKER. Not doing so can result in a shock hazard, fire hazard, or both!
CAUTION: Use 12 lbf-in (1.4N-m) torque on all 120V and 277V electrical connections! Strip wire insulation 7/16-1/2".

Two Circuit 277 Volt Track with Independent Neutrals - Rectangular Profile

NOTE: This track is designed to be fed by two branch circuits rated 277V, 20A max. Each circuit is provided with its own line (hot) and neutral, and care must be taken to keep the two circuits separate.

WIRING ILLUSTRATION



MAXIMUM LOAD: 11,080 Watts*
EVENLY DIVIDED BETWEEN CIRCUITS
* Per the NEC, continuous loads must be derated to 80%

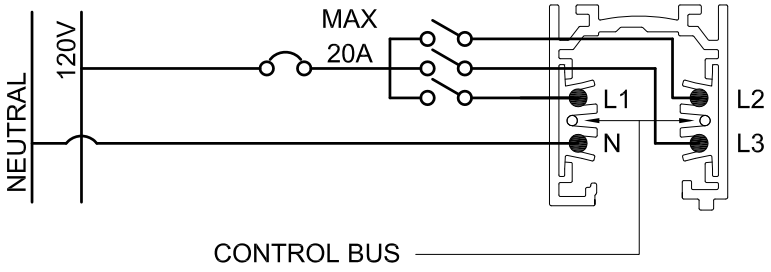
NOTE: A common neutral may be used providing the two hot circuits are connected to *different phases*.
CAUTION: When using a common neutral, the two hot circuits MUST be connected to a DOUBLE (2) POLE CIRCUIT BREAKER. Not doing so can result in a shock hazard, fire hazard, or both!
CAUTION: Use 12 lbf-in (1.4N-m) torque on all 120V and 277V electrical connections! Strip wire insulation 7/16-1/2".

Three Circuit Track with Common Neutral - Rectangular Profiles

NOTE: This track is designed to be fed by up to three branch circuits rated 120V, 20A max. Each circuit shares a common neutral and should be wired as shown below.

CAUTION: This track should not be used with dimmers unless the dimmers are specifically rated to work with circuits that have a common neutral.

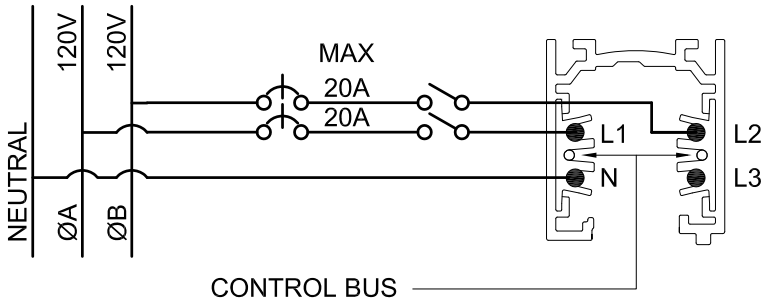
WIRING ILLUSTRATIONS



MAXIMUM LOAD: 2400 Watts*
Caution: Dimmers should not be used unless the dimmers are rated to work with circuits that have a common neutral, or, unless a *single* dimmer is interposed between the circuit breaker and any switches.
* Per the NEC, continuous loads must be derated to 80%

CAUTION: Since a common neutral is used, the two or three hot circuits MUST be connected to *different phases,* and they must be connected to a DOUBLE (2) POLE or TRIPLE (3) POLE CIRCUIT BREAKER respectively. Not doing so can result in a shock hazard, fire hazard, or both!

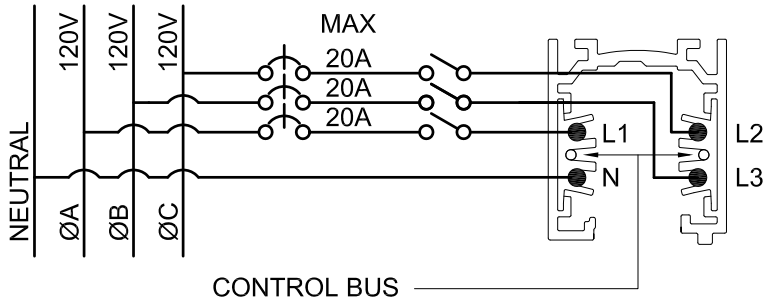
CAUTION: Use 12 lbf-in (1.4N-m) torque on all 120V electrical connections! Strip wire insulation 7/16-1/2".



MAXIMUM LOAD: 4800 Watts*
EVENLY DIVIDED BETWEEN CIRCUITS
Caution: Dimmers should not be used unless the dimmers are rated to work with circuits that have a common neutral.
* Per the NEC, continuous loads must be derated to 80%

CAUTION: Since a common neutral is used, the two or three hot circuits MUST be connected to *different phases,* and they must be connected to a DOUBLE (2) POLE or TRIPLE (3) POLE CIRCUIT BREAKER respectively. Not doing so can result in a shock hazard, fire hazard, or both!

CAUTION: Use 12 lbf-in (1.4N-m) torque on all 120V electrical connections! Strip wire insulation 7/16-1/2".



MAXIMUM LOAD: 7200 Watts*
EVENLY DIVIDED AMONG CIRCUITS
Caution: Dimmers should not be used unless the dimmers are rated to work with circuits that have a common neutral.
* Per the NEC, continuous loads must be derated to 80%

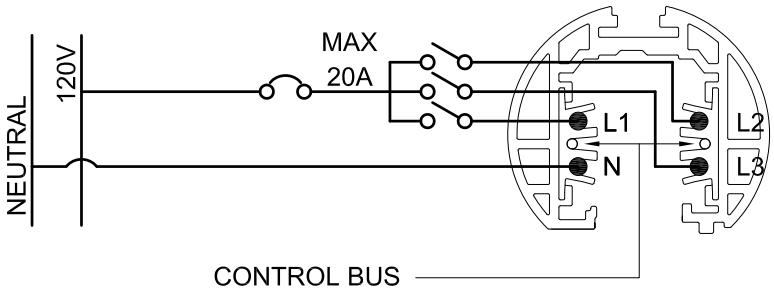
CAUTION: Since a common neutral is used, the two or three hot circuits MUST be connected to *different phases,* and they must be connected to a DOUBLE (2) POLE or TRIPLE (3) POLE CIRCUIT BREAKER respectively. Not doing so can result in a shock hazard, fire hazard, or both!

CAUTION: Use 12 lbf-in (1.4N-m) torque on all 120V electrical connections! Strip wire insulation 7/16-1/2".

Three Circuit Track with Common Neutral - Round Profile Drama Series

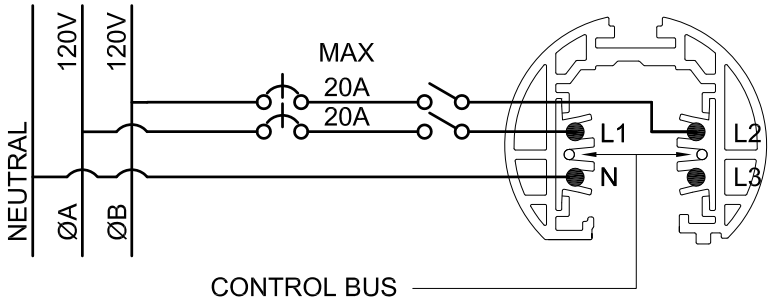
NOTE: This track is designed to be fed by up to three branch circuits rated 120V, 20A max. Each circuit shares a common neutral and should be wired as shown below.
CAUTION: This track should not be used with dimmers unless the dimmers are specifically rated to work with circuits that have a common neutral.

WIRING ILLUSTRATIONS



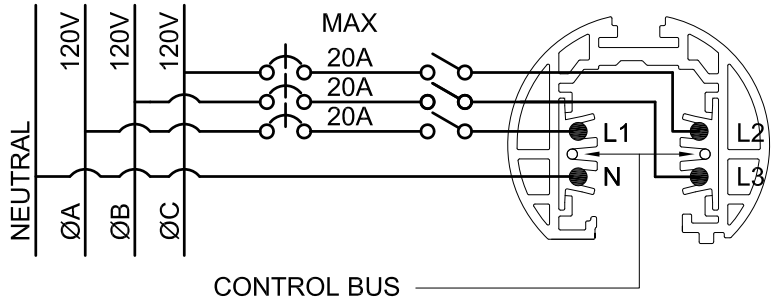
MAXIMUM LOAD: 2400 Watts*
Caution: Dimmers should not be used unless the dimmers are rated to work with circuits that have a common neutral, or, unless a *single* dimmer is interposed between the circuit breaker and any switches.
* Per the NEC, continuous loads must be derated to 80%

CAUTION: Since a common neutral is used, the two or three hot circuits MUST be connected to *different phases,* and they must be connected to a DOUBLE (2) POLE or TRIPLE (3) POLE CIRCUIT BREAKER respectively. Not doing so can result in a shock hazard, fire hazard, or both!
CAUTION: Use 12 lbf-in (1.4N-m) torque on all 120V electrical connections! Strip wire insulation 7/16-1/2".



MAXIMUM LOAD: 4800 Watts*
EVENLY DIVIDED BETWEEN CIRCUITS
Caution: Dimmers should not be used unless the dimmers are rated to work with circuits that have a common neutral.
* Per the NEC, continuous loads must be derated to 80%

CAUTION: Since a common neutral is used, the two or three hot circuits MUST be connected to *different phases,* and they must be connected to a DOUBLE (2) POLE or TRIPLE (3) POLE CIRCUIT BREAKER respectively. Not doing so can result in a shock hazard, fire hazard, or both!
CAUTION: Use 12 lbf-in (1.4N-m) torque on all 120V electrical connections! Strip wire insulation 7/16-1/2".



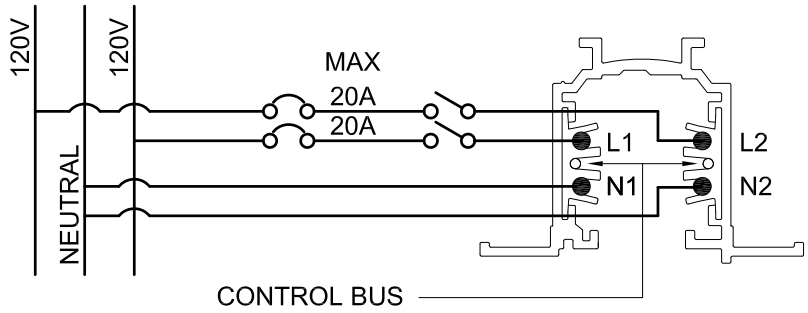
MAXIMUM LOAD: 7200 Watts*
EVENLY DIVIDED AMONG CIRCUITS
Caution: Dimmers should not be used unless the dimmers are rated to work with circuits that have a common neutral.
* Per the NEC, continuous loads must be derated to 80%

CAUTION: Since a common neutral is used, the two or three hot circuits MUST be connected to *different phases,* and they must be connected to a DOUBLE (2) POLE or TRIPLE (3) POLE CIRCUIT BREAKER respectively. Not doing so can result in a shock hazard, fire hazard, or both!
CAUTION: Use 12 lbf-in (1.4N-m) torque on all 120V electrical connections! Strip wire insulation 7/16-1/2".

Two Circuit 120 Volt Track with Independent Neutrals - Recessed Flanged Profile

NOTE: This track is designed to be fed by two branch circuits rated 120V, 20A max. Each circuit is provided with its own line (hot) and neutral, and care must be taken to keep the two circuits separate.

WIRING ILLUSTRATION



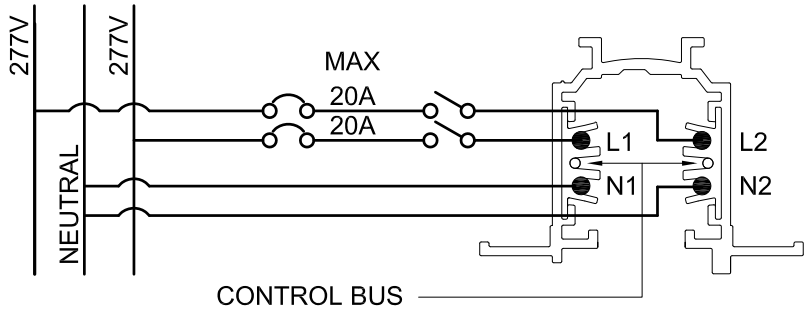
MAXIMUM LOAD: 4800 Watts*
EVENLY DIVIDED BETWEEN CIRCUITS
* Per the NEC, continuous loads must be derated to 80%

NOTE: A common neutral may be used providing the two hot circuits are connected to *different phases*.
CAUTION: When using a common neutral, the two hot circuits MUST be connected to a DOUBLE (2) POLE CIRCUIT BREAKER. Not doing so can result in a shock hazard, fire hazard, or both!
CAUTION: Use 12 lbf-in (1.4N-m) torque on all 120V and 277V electrical connections! Strip wire insulation 7/16-1/2".

Two Circuit 277 Volt Track with Independent Neutrals - Recessed Flanged Profile

NOTE: This track is designed to be fed by two branch circuits rated 277V, 20A max. Each circuit is provided with its own line (hot) and neutral, and care must be taken to keep the two circuits separate.

WIRING ILLUSTRATION



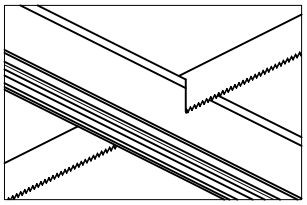
MAXIMUM LOAD: 11,080 Watts*
EVENLY DIVIDED BETWEEN CIRCUITS
* Per the NEC, continuous loads must be derated to 80%

NOTE: A common neutral may be used providing the two hot circuits are connected to *different phases*.
CAUTION: When using a common neutral, the two hot circuits MUST be connected to a DOUBLE (2) POLE CIRCUIT BREAKER. Not doing so can result in a shock hazard, fire hazard, or both!
CAUTION: Use 12 lbf-in (1.4N-m) torque on all 120V and 277V electrical connections! Strip wire insulation 7/16-1/2".

2) FIELD CUTTING THE TRACK AND PREPARING THE CONDUCTOR ENDS

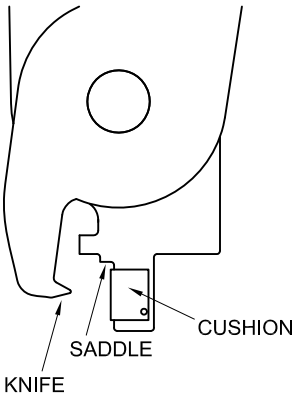
CAUTION: Any track section that is field cut must be done in the exact manner according to these instructions! All conductor ends must be prepared in the exact manner according to these instructions after a section of track has been field cut. Not following these instructions exactly may result in a shock and fire hazard or both!

Cutting the Track

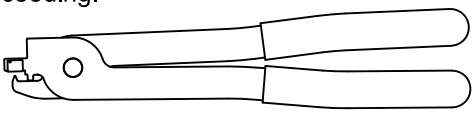


With a mitered hack saw, band saw or chop saw, carefully cut the track to the desired length. Make certain that the cut is clean, straight, deburred and perpendicular to all sides. Use only saw blades that are designed to cut aluminum. See diagram, right.

The standard lengths of track come supplied from the factory with the conductor ends trimmed to allow the proper installation of Connectors, Joiners, Dead Ends and Current Limiters (these items are discussed in detail in later Sections). However, the track can be easily field cut to different lengths with a saw designed for use with aluminum. After cutting, the conductor ends must be trimmed in the field using the DTCT Cutting Tool. Examine the diagram to the right to learn the different components of the tool before proceeding.

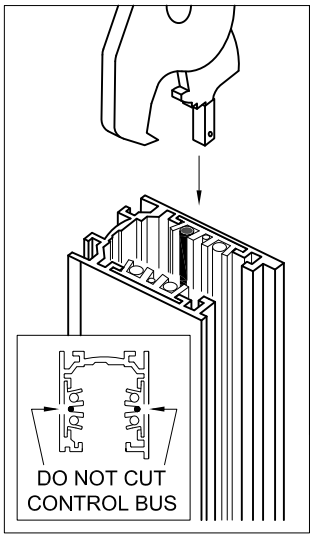


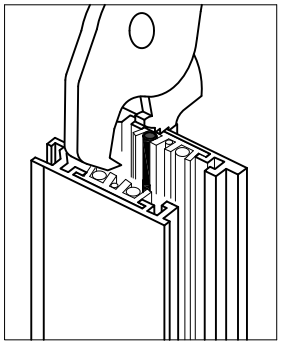
DTCT CUTTING TOOL

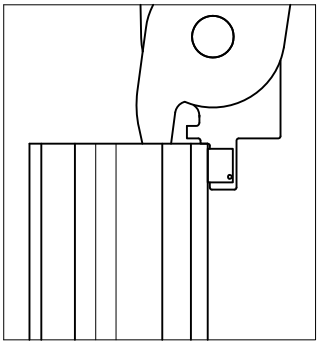


Preparing the Conductor Ends

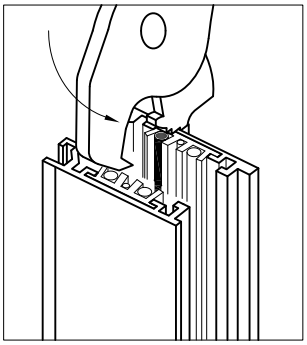
1) Beginning with any of the four conductor ends, insert the Cutting Tool such that the cushion is seated on the outside of the track directly in line with the conductor to be cut. Make certain that the Control Bus IS NOT CUT. Also, the saddle should be in contact with the edge of the track. See diagrams, right.

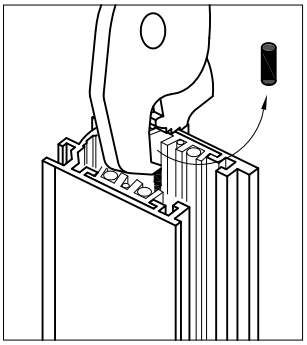


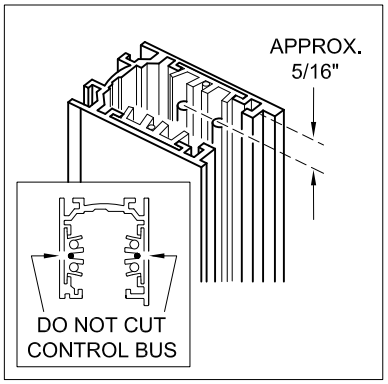




2) Squeeze the tool such that the knife completely sheers off the end of the conductor. Discard the sheered conductor end. See diagrams, right.







3) Repeat for the remaining three conductors. Make certain that the Control Bus IS NOT CUT. When properly sheered, there should be approximately 5/16" of each conductor removed from the end of the track. See diagram, left.

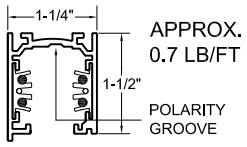
3) FEEDING THE TRACK AND TRACK LAYOUTS

In most cases, track can be fed electrical power via Live End Connectors (sometimes referred to as End Feeds), Current Limiters*, or via X, T, L, or Middle Feed type Connectors (collectively referred to as *Connectors*). The exception is Round Profile Drama Series track, which can be fed only through the Live End Connectors or Current Limiters. When creating layouts with track, it is important to keep the polarity consistent throughout the design. The track has a groove along its length to indicate polarity. The Connectors, Joiners, Dead Ends and Current limiters have screws on their tips that align and engage with the polarity grooves in the track. Dimensions, weights and part numbers are provided below and on the the following pages to assist in layout design. NOTE: The factory made wiring connections within X, T, L, and Middle Feed Connectors as well as Surface/Suspension Mount Current Limiters may be changed in the field to accommodate different layout designs and circuiting schemes. See Guidelines for Layouts further in this section and also see Section 7: Current Limiters for more details. **CAUTION:** To prevent electrical shock or fire hazard, care must be taken to prevent the crossing or combining of phase wires and neutrals!

Track, Connector, Joiner**, Dead End** and Current Limiter* Specifications

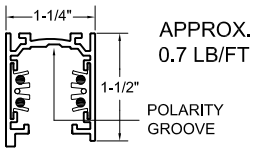
NOTE: ALL DIMENSIONS +/- 1/32" EXCEPT WHERE NOTED, DIAGRAMS ARE NOT TO SCALE.

Dia. #1: Two Circuit 120 Volt Track with Independent Neutrals - Rectangular Profile



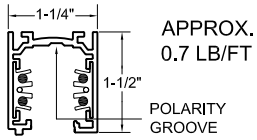
DT4 = 4FT
DT6 = 6FT
DT8 = 8FT
DT12 =12FT

Dia. #2: Two Circuit 277 Volt Track with Independent Neutrals - Rectangular Profile



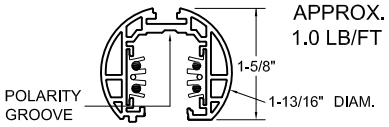
HDT4 = 4FT
HDT6 = 6FT
HDT8 = 8FT
HDT12 =12FT

Dia. #3: Three Circuit 120 Volt Track with Common Neutral - Rectangular Profile



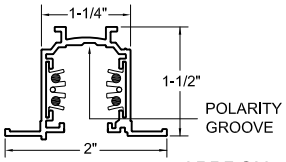
9000-UL4/ST-120 = 4FT
9000-UL6/ST-120= 6FT
9000-UL8/ST-120= 8FT
9000-UL12/ST-120=12FT

Dia. #4: Two Circuit 120 Volt Track with Independent Neutrals - Round Profile Drama Series



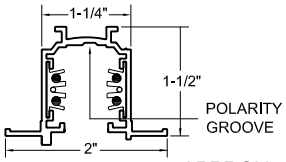
9000-UL4/ST15 = 4FT
9000-UL8/ST15 = 8FT

Dia. #5: Two Circuit 120 Volt Track with Independent Neutrals - Recessed Flanged Profile



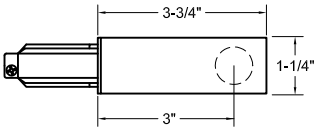
RDT4 = 4FT
RDT8 = 8FT

Dia. #6: Two Circuit 277 Volt Track with Independent Neutrals - Recessed Flanged Profile



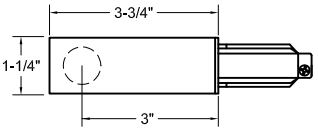
HRDT4 = 4FT
HRDT8 = 8FT

Dia. #7: Live End Connector



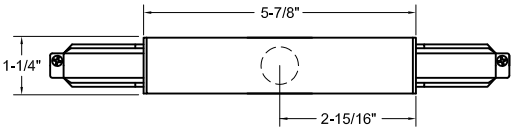
DT11 (AKA 9001-2C),
HDT11 (AKA 9001-2C-277),
9001-3C

Dia. #8: Mirror Live End Connector



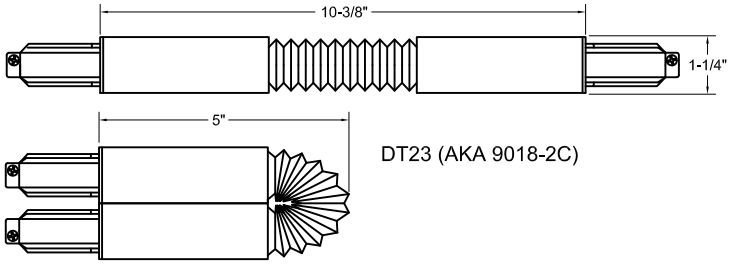
DT13 (AKA 9002-2C),
HDT13 (AKA 9002-2C-277),
9002-3C

Dia. #9: Middle Feed Connector



DT14 (AKA 9010-2C),
HDT14 (AKA 9010-2C-277),
9010-3C

Dia. #10: Adjustable Joiner
(used to connect 2 sections of track together and may be twisted and/or bent to change orientation and/or direction) - NO FEED CAPABILITY

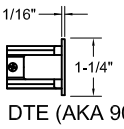


DT23 (AKA 9018-2C)

Dia. #11: Joiner
(used to connect 2 sections of track together - adds nothing dimensionally to a layout) - NO FEED CAPABILITY

DT21 (AKA 9003-2C)

Dia. #12: Dead End
(used to cap off track ends) - NO FEED CAPABILITY



DTE (AKA 9004)

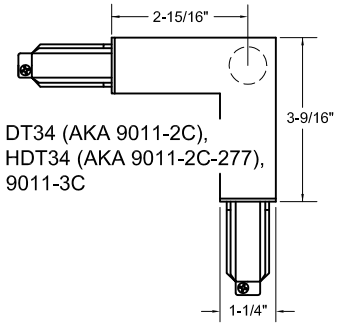
Specifications continued on next page

* Current Limiters are described in more detail in Section 7: CURRENT LIMITERS.

** Joiners and Dead Ends are described in more detail in Section 5: INSTALLING CONNECTORS, JOINERS, & DEAD ENDS TO THE TRACK.

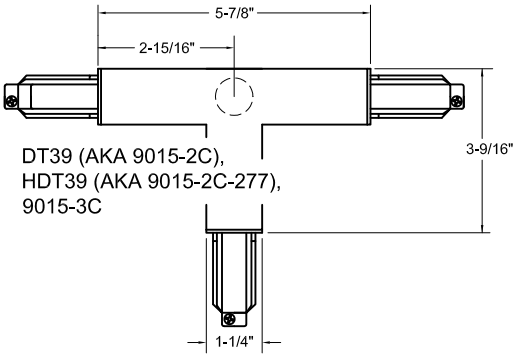
Track, Connector, Joiner, Dead End and Current Limiter Specifications (Continued)

Dia. #13: L Connector



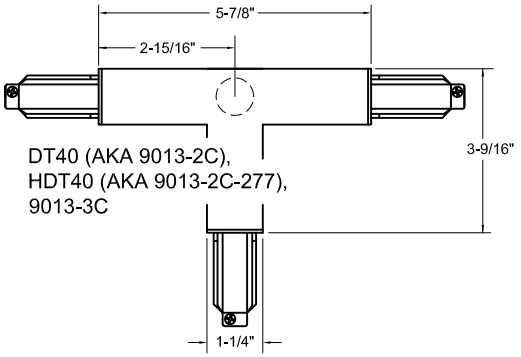
DT34 (AKA 9011-2C),
HDT34 (AKA 9011-2C-277),
9011-3C

Dia. #14: T Connector



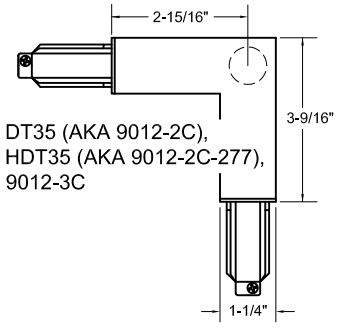
DT39 (AKA 9015-2C),
HDT39 (AKA 9015-2C-277),
9015-3C

Dia. #15: T Connector



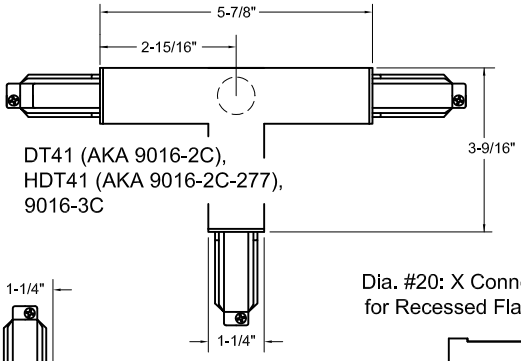
DT40 (AKA 9013-2C),
HDT40 (AKA 9013-2C-277),
9013-3C

Dia. #16: L Connector



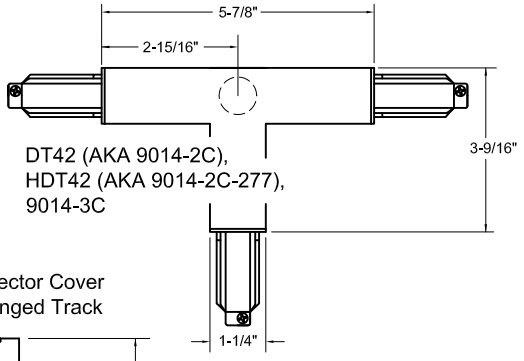
DT35 (AKA 9012-2C),
HDT35 (AKA 9012-2C-277),
9012-3C

Dia. #17: T Connector

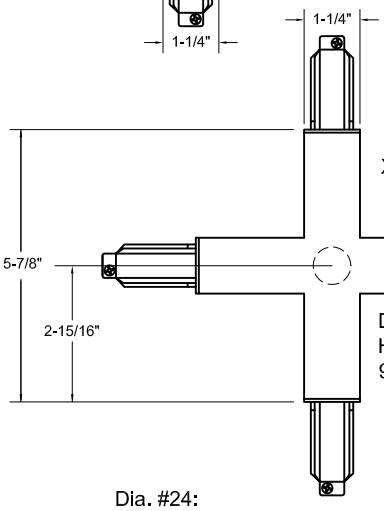


DT41 (AKA 9016-2C),
HDT41 (AKA 9016-2C-277),
9016-3C

Dia. #18: T Connector



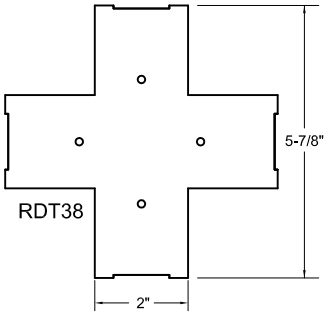
DT42 (AKA 9014-2C),
HDT42 (AKA 9014-2C-277),
9014-3C



Dia. #19:
X Connector

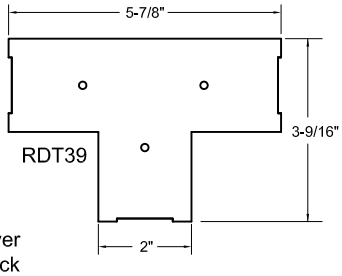
DT38 (AKA 9017-2C),
HDT38 (AKA 9017-2C-277),
9017-3C

Dia. #20: X Connector Cover
for Recessed Flanged Track



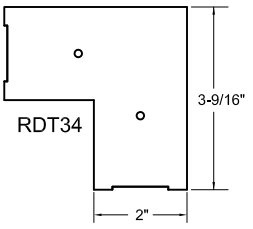
RDT38

Dia. #21: T Connector Cover
for Recessed Flanged Track



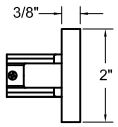
RDT39

Dia. #22: L Connector Cover
for Recessed Flanged Track



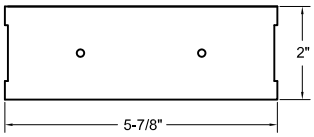
RDT34

Dia. #23: Dead End for
Recessed Flanged Track
(used to cap off track ends)
- NO FEED CAPABILITY



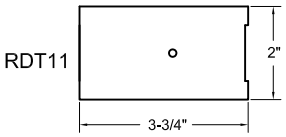
RDTE
(AKA 9004-R)

Dia. #24:
Middle Feed Connector Cover
for Recessed Flanged Track



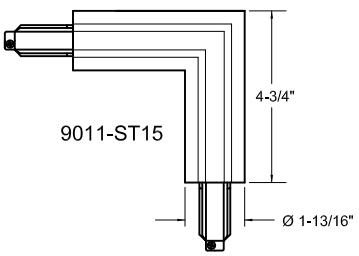
RDT14

Dia. #25: Live End Connector and
Mirror Live End Connector Cover
for Recessed Flanged Track



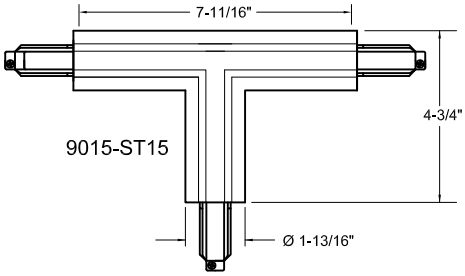
RDT11

Dia. #26: L Connector for Round
Profile Drama Track



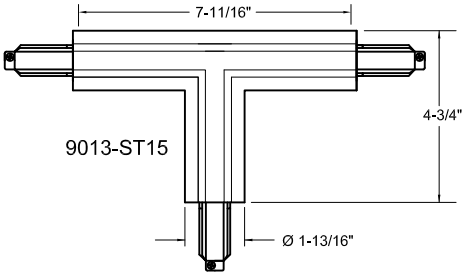
9011-ST15

Dia. #27: T Connector for Round
Profile Drama Track



9015-ST15

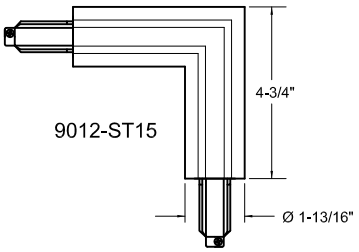
Dia. #28: T Connector for Round
Profile Drama Track



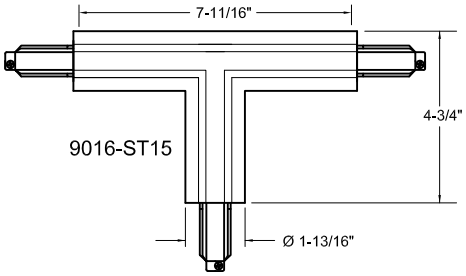
9013-ST15

Track, Connector, Joiner, Dead End and Current Limiter Specifications (Continued)

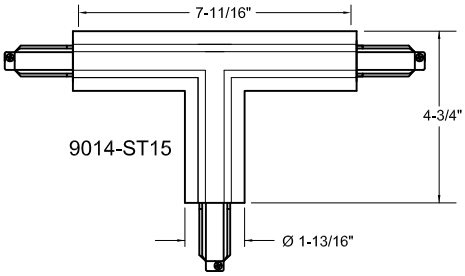
Dia. #29: L Connector for Round Profile Drama Track



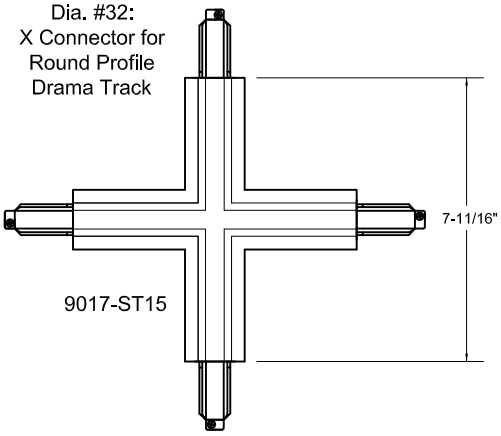
Dia. #30: T Connector for Round Profile Drama Track



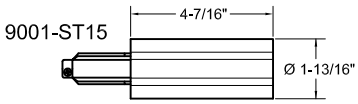
Dia. #31: T Connector for Round Profile Drama Track



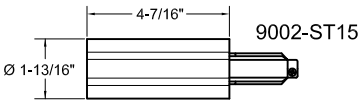
Dia. #32: X Connector for Round Profile Drama Track



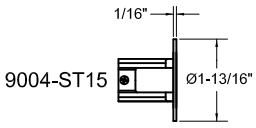
Dia. #33: Live End Connector for Round Profile Drama Track



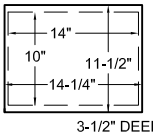
Dia. #34: Mirror Live End Connector for Round Profile Drama Track



Dia. #35: Dead End for Round Profile Drama Track (used to cap off track ends) - NO FEED CAPABILITY

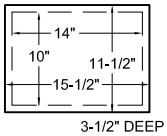


Dia. #36: 16 Circuit Surface Remote Current Limiter Panel



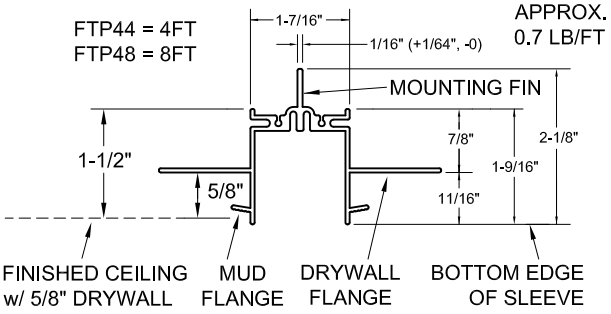
TSCP-16-S

Dia. #37: 16 Circuit Flush Remote Current Limiter Panel

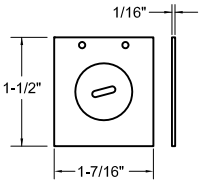


TSCP-16-F

Dia. #38: Recessed Flangeless Track Sleeve (can accommodate all rectangular profile track types)

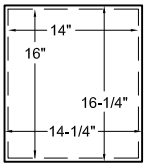


Dia. #39: End Cap for Recessed Recessed Flangeless Track Sleeve (attachment screws provided)



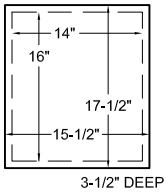
FTPX41

Dia. #40: 32 Circuit Surface Remote Current Limiter Panel



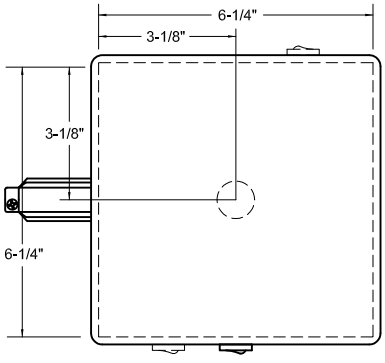
TSCP-32-S

Dia. #41: 32 Circuit Flush Remote Current Limiter Panel



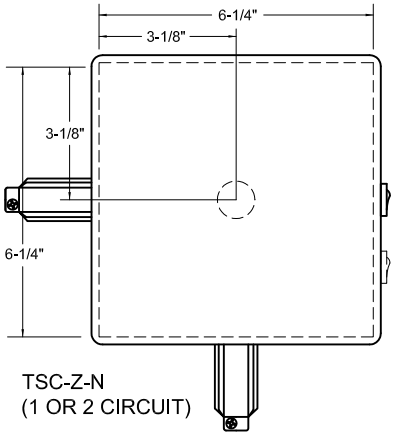
TSCP-32-F

Dia. #42: 120V Surface/Suspension Mount Current Limiter with Live End Connector



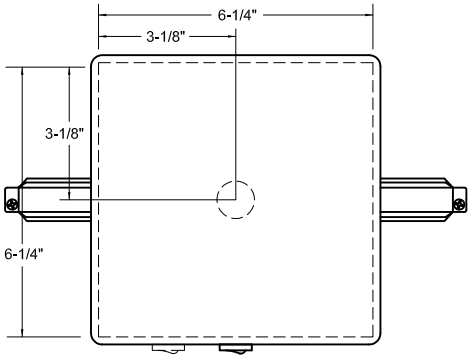
TSC-Z-E (1 OR 2 CIRCUIT),
TSC-Q-E (1 OR 3 CIRCUIT)

Dia. #43: 120V Surface/Suspension Mount Current Limiter with feed through Live End Connectors in a 90° configuration



TSC-Z-N
(1 OR 2 CIRCUIT)

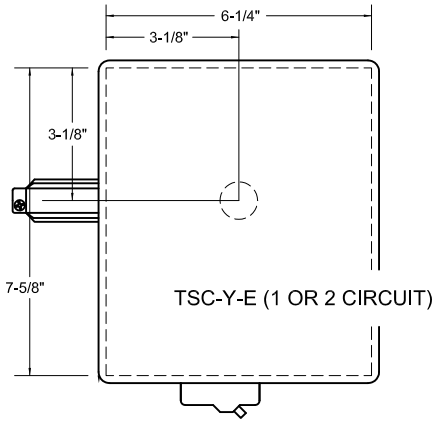
Dia. #44: 120V Surface/Suspension Mount Current Limiter with feed through Live End Connectors



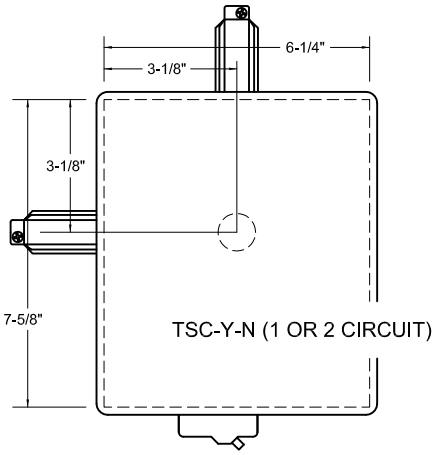
TSC-Z-F (1 OR 2 CIRCUIT)

Track, Connector, Joiner, Dead End and Current Limiter Specifications (Continued)

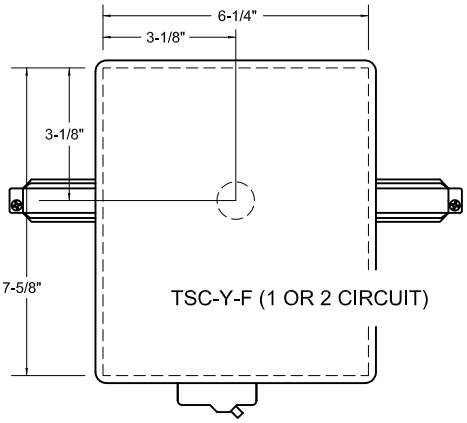
Dia. #45: 277V Surface/Suspension Mount Current Limiter with Live End Connector



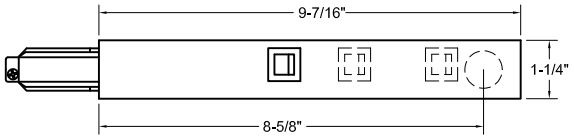
Dia. #46: 277V Surface/Suspension Mount Current Limiter with feed through Live End Connectors in a 90° configuration



Dia. #47: 277V Surface/Suspension Mount Current Limiter with feed through Live End Connectors

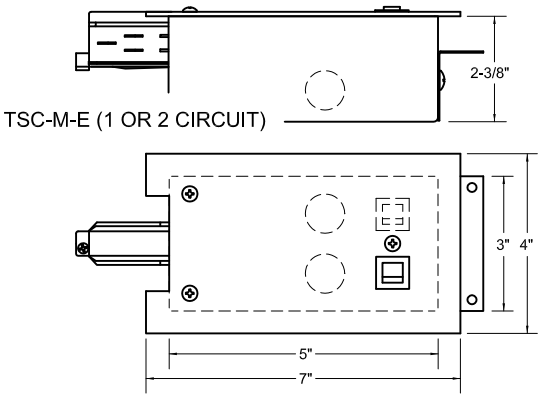


Dia. #48: 120V Surface/Suspension/Track-Sleeve Mount Linear Current Limiter with Live End Connector

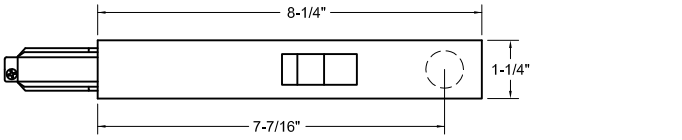


TSC-Q-R (1 OR 3 CIRCUIT),
TSC-Z-R (1 OR 2 CIRCUIT)

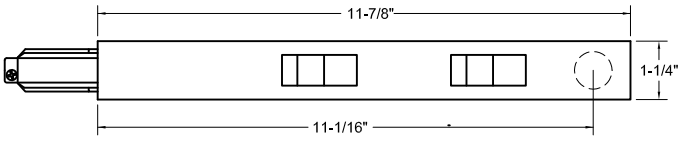
Dia. #49: 120V Linear Current Limiter with Live End Connector for Recessed Flanged Track



Dia. #50: 277V Surface/Suspension/Track-Sleeve Mount Linear Current Limiter with Live End Connector

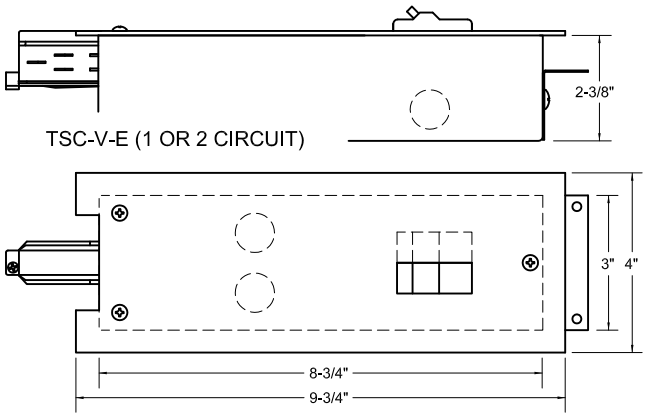


TSC-Y-R (1 CIRCUIT)

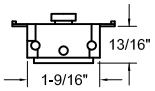


TSC-Y-R (2 CIRCUIT)

Dia. #51: 277V Linear Current Limiter with Live End Connector for Recessed Flanged Track

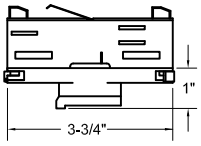


Dia. #52: Mechanical Track Adapter (used for support only, provides no electrical power) - supports 33.7 lb maximum



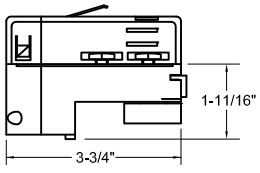
S-9000/M

Dia. #53: 3 Circuit Electrical Track Adapter - supports 22.5 lb maximum



DT3

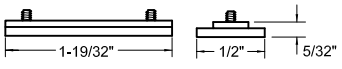
Dia. #54: 2 Circuit Electrical Track Adapter - supports 22.5 lb maximum



DT2,
HDT2

Dia. #55: Reinforcing Bracket (used to reinforce the connection between two Round Profile Drama components (Connectors, Joiners & Track) - adds nothing dimensionally to a layout)

S-9500/314



Track and Track System Component Matrix

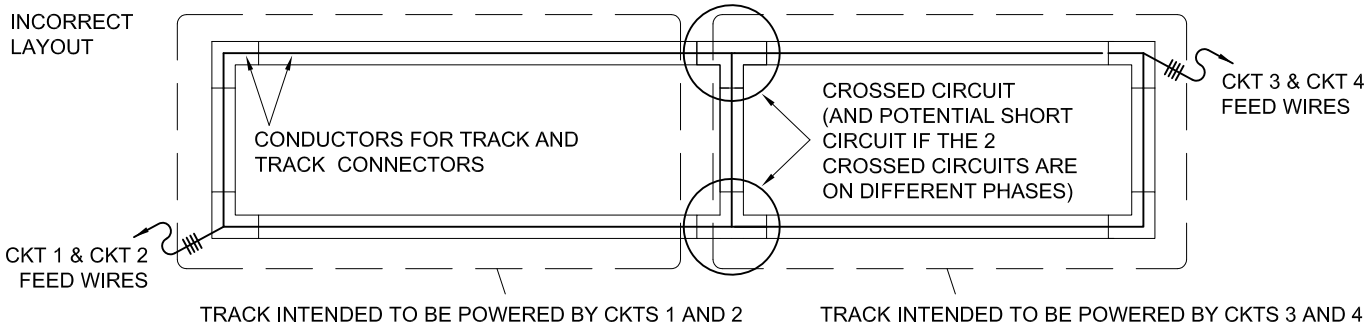
Item	Part Number	Dia. No.	Part Number	Dia. No.	Part Number	Dia. No.
Track Type	DT	1	HDT	2	9000-UL/ST-120	3
Track Voltage / Amperes per Circuit	120VAC / 20A		277VAC / 20A		120VAC / 20A	
Track Circuitry	1 or 2 Circuit		1 or 2 Circuit		1, 2, or 3 Circuit	
Track Neutral(s)	Independant		Independant		Common	
Surface / Ceiling Grid / Cable / Thrd Rod Mounting	Yes		Yes		Yes	
Pendant Mounting	Yes		Yes		Yes	
Recessed Mounting, Flanged	No		No		No	
Recessed Mounting, Flangeless	Yes		Yes		Yes	
Available with Lite Channel ™	Yes		Yes		Yes	
Track Support Distance	4' Maximum		4' Maximum		4' Maximum	
Track Loading	11lb/ft Maximum		11lb/ft Maximum		11lb/ft Maximum	
Track Profile	Rectangular		Rectangular		Rectangular	
Available Track Lengths	4', 6', 8' and 12'		4', 6', 8' and 12'		4', 6', 8' and 12'	
Track Weight	0.7lb/ft		0.7lb/ft		0.7lb/ft	
Available Track Colors	Black, White, Silver		Black, White, Silver		Black, White, Silver	
Live End Connector	DT11 (AKA 9001-2C)	7	HDT11 (AKA 9001-2C-277)	7	9001-3C	7
Mirror Live End Connector	DT13 (AKA 9002-2C)	8	HDT13 ((AKA 9002-2C-277)	8	9002-3C	8
(Mirror) Live End Cover for Recessed Flanged Track	n/a		n/a		n/a	
Middle Feed Connector	DT14 (AKA 9010-2C)	9	HDT14 (AKA 9010-2C-277)	9	9010-3C	9
Middle Feed Cover for Recessed Track	n/a		n/a		n/a	
L Connector, Inside Polarity	DT34 (AKA 9011-2C)	13	HDT34 (AKA 9011-2C-277)	13	9011-3C	13
L Connector, Outside Polarity	DT35 (AKA 9012-2C)	16	HDT35 (AKA 9012-2C-277)	16	9012-3C	16
L Connector Cover for Recessed Track	n/a		n/a		n/a	
T Connector, Inside Polarity	DT39 (AKA 9015-2C)	14	HDT39 (AKA 9015-2C-277)	14	9015-3C	14
T Connector, Outside Polarity	DT40 (AKA 9013-2C)	15	HDT40 (AKA 9013-2C-277)	15	9013-3C	15
T Connector, Inside Polarity, Mirror	DT41 (AKA 9016-2C)	17	HDT41 (AKA 9016-2C-277)	17	9016-3C	17
T Connector, Outside Polarity, Mirror	DT42 (AKA 9014-2C)	18	HDT42 (AKA 9014-2C-277)	18	9014-3C	18
T Connector Cover for Recessed Track	n/a		n/a		n/a	
X Connector	DT38 (AKA 9017-2C)	19	HDT38 (AKA 9017-2C-277)	19	9017-3C	19
X Connector Cover for Recessed Track	n/a		n/a		n/a	
Joiner	DT21 (AKA 9003-2C)	11	DT21 (AKA 9003-2C)	11	DT21 (AKA 9003-2C)	11
Adjustable Joiner	DT23 (AKA 9018-2C)	10	DT23 (AKA 9018-2C)	10	DT23 (AKA 9018-2C)	10
Reinforcing Bracket	n/a		n/a		n/a	
Dead End	DTE (AKA 9004)	12	DTE (AKA 9004)	12	DTE (AKA 9004)	12
Current Limiter, Surface/Suspension Mount, End Feed	TSC-Z-E	42	TSC-Y-E	45	TSC-Q-E	42
Current Limiter, Surface/Suspension Mount, Feed Thru	TSC-Z-F	44	TSC-Y-F	47	n/a	
Current Limiter, Surface/Susp Mount, 90° Feed Thu	TSC-Z-N	43	TSC-Y-N	46	n/a	
Current Limiter, Linear, Surface Mount/Recessed	TSC-Z-R	48	TSC-Y-R	50	TSC-Q-R	48
Remote Current Limiter Panel, 16 Circuit Max, Flush	TSCP-16-F-120	37	TSCP-16-F-277	37	TSCP-16-F-120	37
Remote Current Limiter Panel, 16 Circuit Max, Surface	TSCP-16-S-120	36	TSCP-16-S-277	36	TSCP-16-S-120	36
Remote Current Limiter Panel, 32 Circuit Max, Flush	TSCP-32-F-120	41	TSCP-32-F-277	41	TSCP-32-F-120	41
Remote Current Limiter Panel, 32 Circuit Max, Surface	TSCP-32-S-120	40	TSCP-32-S-277	40	TSCP-32-S-120	40
Track Sleeve	FTP	38	FTP	38	FTP	38
Track Sleeve End Cap	FTPX41	39	FTPX41	39	FTPX41	39
Corresponding Electrical Track Adapter	DT2	54	HDT2	54	DT3	53
Corresponding Mechanical Track Adapter	S-9000/M	52	n/a	52	S-9000/M	52

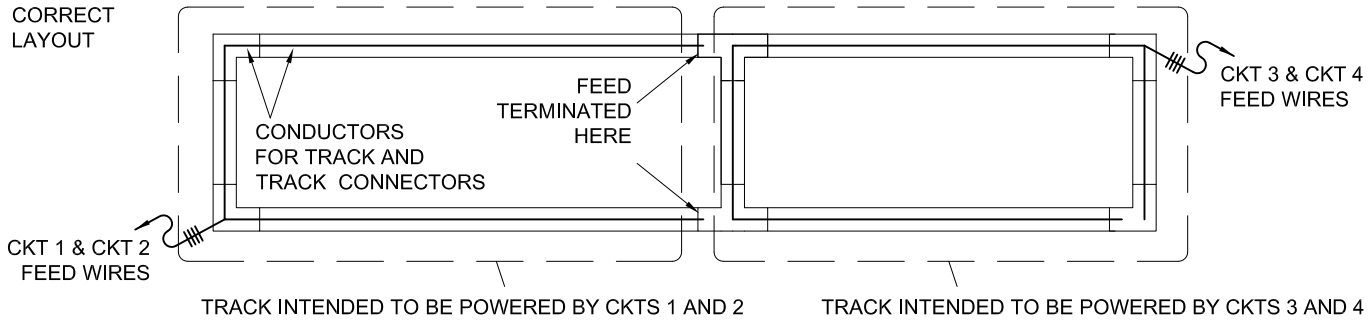
Track and Track System Component Matrix (Continued)

Item	Part Number	Dia. No.	Part Number	Dia. No.	Part Number	Dia. No.
Track Type	9000-UL/ST15	4	RDT	5	HRDT	6
Track Voltage / Amperes per Circuit	120VAC / 20A		120VAC / 20A		277VAC / 20A	
Track Circuitry	1, 2, or 3 Circuit		1 or 2 Circuit		1 or 2 Circuit	
Track Neutral(s)	Common		Independant		Independant	
Surface / Ceiling Grid / Cable / Thrd Rod Mounting	No		No		No	
Pendant Mounting	Yes		No		No	
Recessed Mounting, Flanged	No		Yes		Yes	
Recessed Mounting, Flangeless	No		No		No	
Available with Lite Channel ™	No		No		No	
Track Support Distance	4' Maximum		3' Maximum		3' Maximum	
Track Loading	11lb/ft Maximum		18lb/ft Maximum		18lb/ft Maximum	
Track Profile	Round (Drama Ser.)		Recessed Flanged		Recessed Flanged	
Available Track Lengths	4' and 8'		4' and 8'		4' and 8'	
Track Weight	1.0 lb/ft		0.8lb/ft		0.8lb/ft	
Available Track Colors	Black & White		Black & White		Black & White	
Live End Connector	9001-ST15	33	DT11 (AKA 9001-2C)	7	HDT11 (AKA 9001-2C-277)	7
Mirror Live End Connector	9002-ST15	34	DT13 (AKA 9002-2C)	8	HDT13 ((AKA 9002-2C-277)	8
(Mirror) Live End Cover for Recessed Flanged Track	n/a		RDT11	25	RDT11	25
Middle Feed Connector	n/a		DT14 (AKA 9010-2C)	9	HDT14 (AKA 9010-2C-277)	9
Middle Feed Cover for Recessed Track	n/a		RDT14	24	RDT14	24
L Connector, Inside Polarity	9011-ST15	26	DT34 (AKA 9011-2C)	13	HDT34 (AKA 9011-2C-277)	13
L Connector, Outside Polarity	9012-ST15	29	DT35 (AKA 9012-2C)	16	HDT35 (AKA 9012-2C-277)	16
L Connector Cover for Recessed Track	n/a		RDT34	22	RDT34	22
T Connector, Inside Polarity	9015-ST15	27	DT39 (AKA 9015-2C)	14	HDT39 (AKA 9015-2C-277)	14
T Connector, Outside Polarity	9013-ST15	28	DT40 (AKA 9013-2C)	15	HDT40 (AKA 9013-2C-277)	15
T Connector, Inside Polarity, Mirror	9016-ST15	30	DT41 (AKA 9016-2C)	17	HDT41 (AKA 9016-2C-277)	17
T Connector, Outside Polarity, Mirror	9014-ST15	31	DT42 (AKA 9014-2C)	18	HDT42 (AKA 9014-2C-277)	18
T Connector Cover for Recessed Track	n/a		RDT39	21	RDT39	21
X Connector	9017-ST15	32	DT38 (AKA 9017-2C)	19	HDT38 (AKA 9017-2C-277)	19
X Connector Cover for Recessed Track	n/a		RDT38	20	RDT38	20
Joiner	DT21 (AKA 9003-2C)	11	DT21 (AKA 9003-2C)	11	DT21 (AKA 9003-2C)	11
Adjustable Joiner	n/a		n/a		n/a	
Reinforcing Bracket	S-9500/314	55	n/a		n/a	
Dead End	9004-ST15	35	RDTE (AKA 9004-R)	23	RDTE (AKA 9004-R)	23
Current Limiter, Surface/Suspension Mount, End Feed	TSC-Q-E	42	n/a		n/a	
Current Limiter, Surface/Suspension Mount, Feed Thru	n/a		n/a		n/a	
Current Limiter, Surface/Susp Mount, 90° Feed Thu	na/		n/a		n/a	
Current Limiter, Linear, Surface Mount/Recessed	n/a		TSC-M-E	49	TSC-V-E	51
Remote Current Limiter Panel, 16 Circuit Max, Flush	TSCP-16-F-120	37	TSCP-16-F-120	37	TSCP-16-F-277	37
Remote Current Limiter Panel, 16 Circuit Max, Surface	TSCP-16-S-120	36	TSCP-16-S-120	36	TSCP-16-S-277	36
Remote Current Limiter Panel, 32 Circuit Max, Flush	TSCP-32-F-120	41	TSCP-32-F-120	41	TSCP-32-F-277	41
Remote Current Limiter Panel, 32 Circuit Max, Surface	TSCP-32-S-120	40	TSCP-32-S-120	40	TSCP-32-S-277	40
Track Sleeve	n/a		n/a		n/a	
Track Sleeve End Cap	n/a		n/a		n/a	
Corresponding Electrical Track Adapter	DT3	53	DT2	54	HDT2	54
Corresponding Mechanical Track Adapter	S-9000/M	52	S-9000/M	52	n/a	52

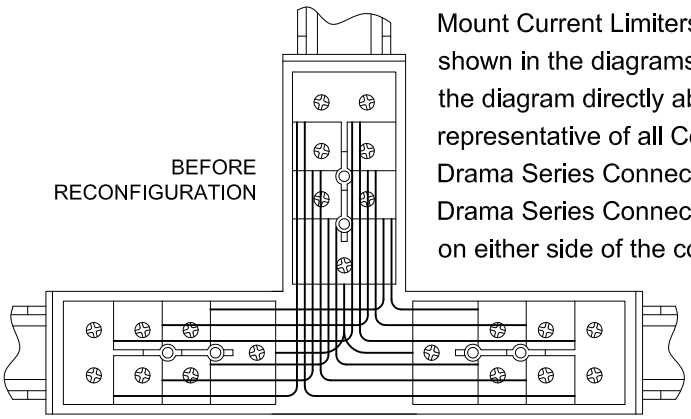
Guidelines for Track System Layouts

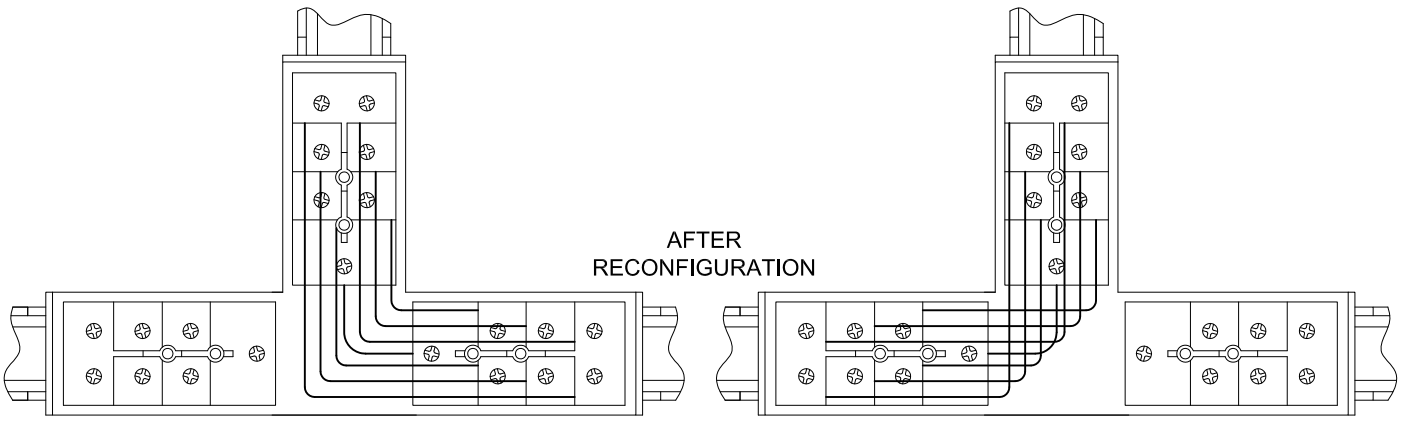
Complex layouts often have more than one feed point, and the potential exists for short or crossed circuits. The first diagram below shows how short or crossed circuits can be created. The second diagram below illustrates how short circuits can be avoided.





As the need arises, all Connector types and all Surface/Suspension Mount Current Limiters can be opened and reconfigured. The Connector shown in the diagrams below would be typical of a T Connector used in the diagram directly above, after it has been reconfigured. It is representative of all Connector types to be used in any layout. All but the Drama Series Connectors can be accessed by removing their covers. Drama Series Connectors can be accessed by removing the two screws on either side of the connector and sliding the Connector out from its housing. NOTE: Ground wires should be left undisturbed for ALL Connector types.





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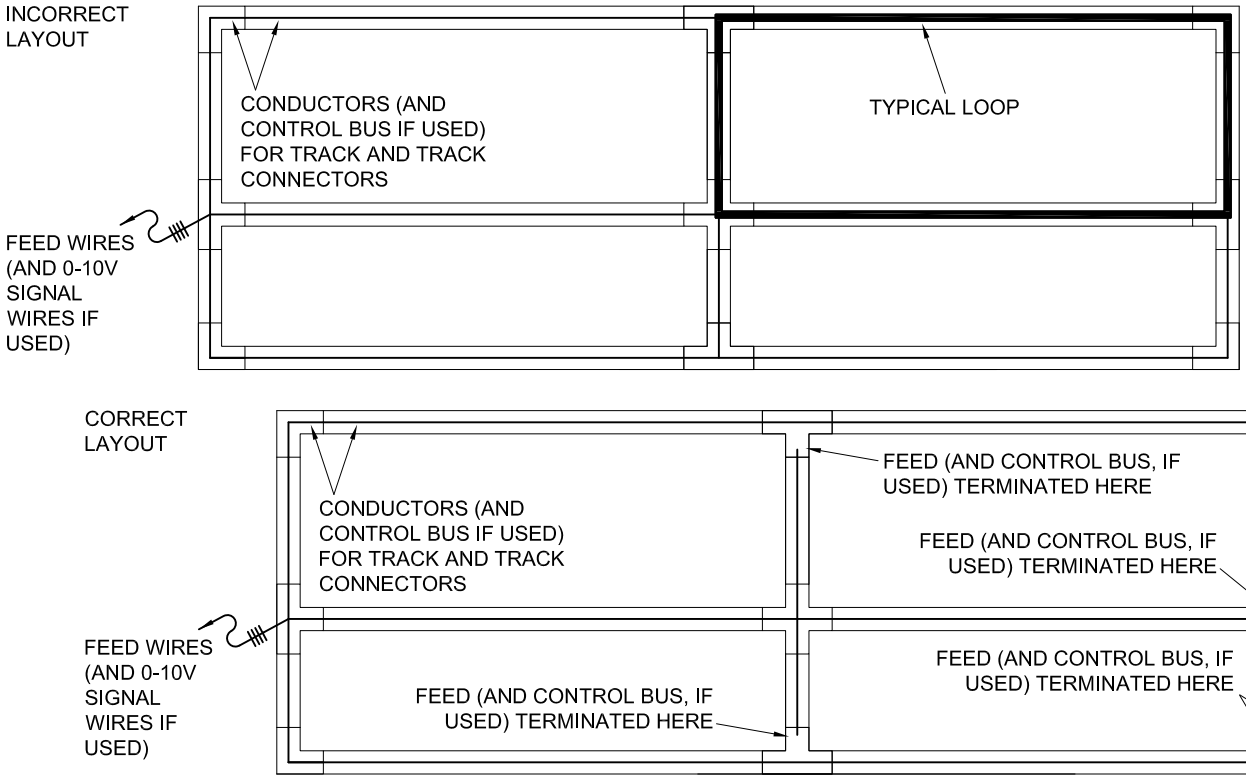
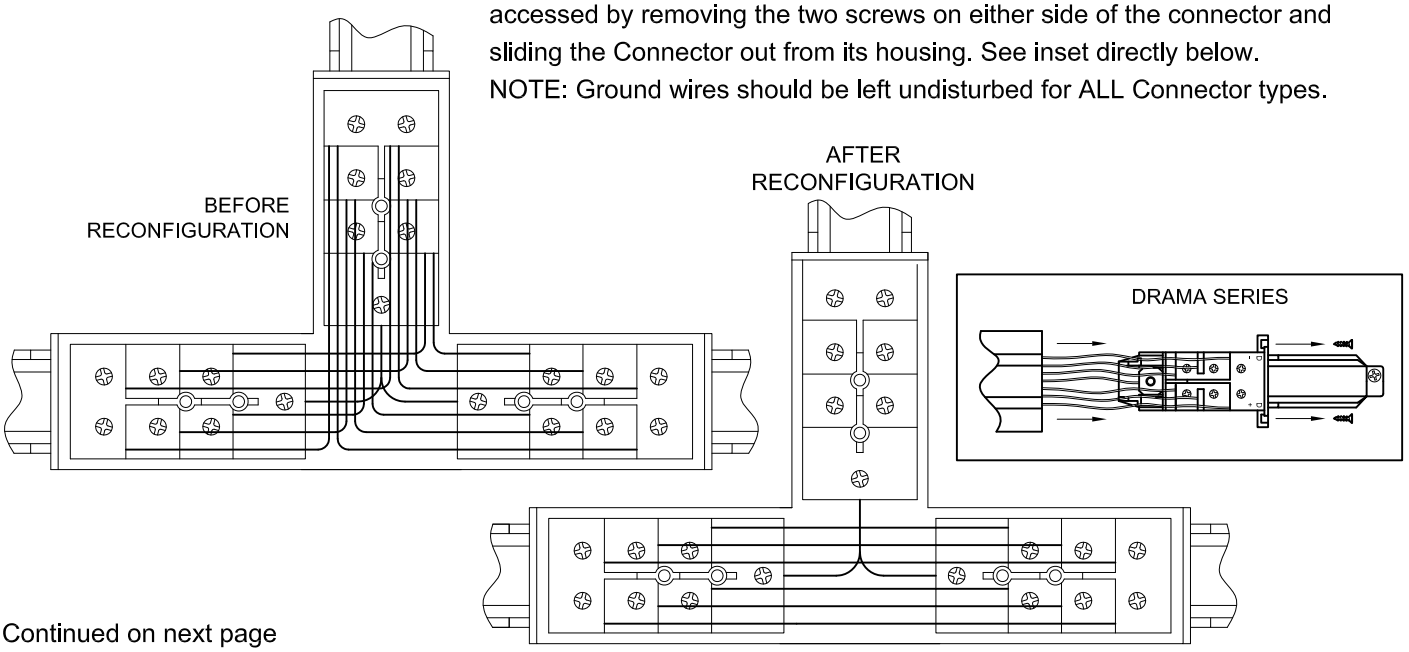
Guidelines for Track System Layouts (Continued)

It is good practice to eliminate wiring loops for power conductors and the control bus conductors on complex layouts . The first diagram below shows how loops are created, with a typical loop highlighted for clarity. The second diagram below illustrates how loops can be avoided. Complex layouts using DMX control wiring will be discussed on the next two pages. Also, see Page 17 for more requirements on Data Track using 0-10V control and DALI.



As previously stated, all Connector types and all Surface/Suspension Mount Current Limiters can be opened and reconfigured. The Connector shown in the diagrams below would be typical of a T Connector used in three places in the diagram directly above, after it has been reconfigured. It is representative of all Connector types to be used in any layout. All but the Drama Series Connectors can be accessed by removing their covers. Drama Series Connectors can be accessed by removing the two screws on either side of the connector and sliding the Connector out from its housing. See inset directly below.
NOTE: Ground wires should be left undisturbed for ALL Connector types.



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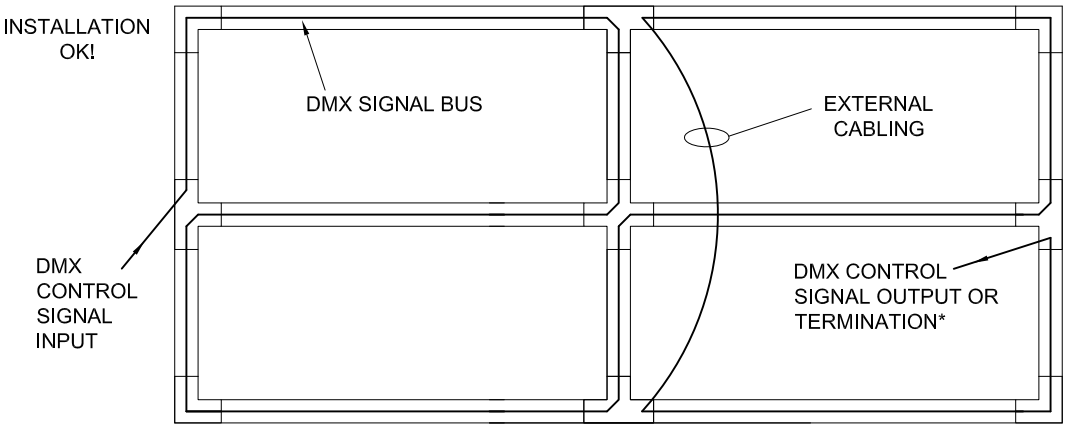
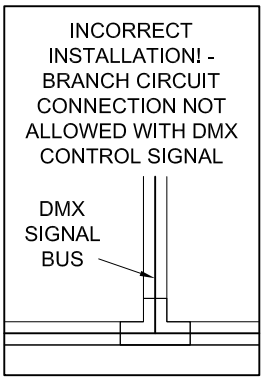
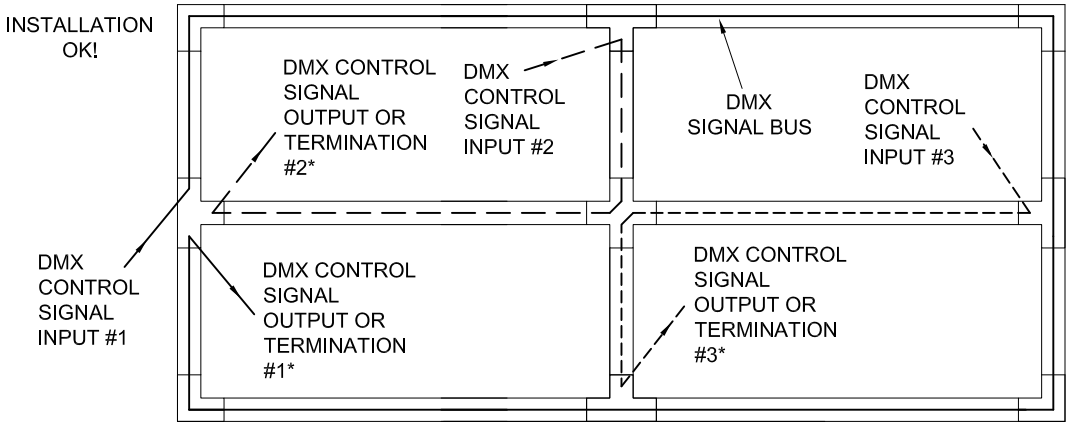
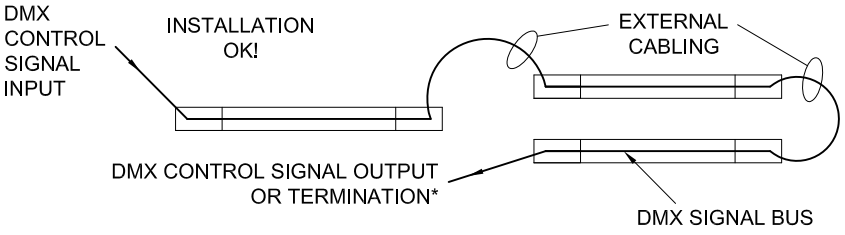
Guidelines for Track System Layouts (Continued)

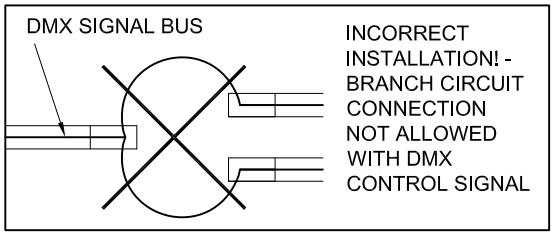
It is imperative that all DMX control wiring on any layout be run in a daisy chain fashion . No loops or branches such as T's or X's are allowed. The layout possibilities are endless, but the diagrams below show the basics of how loops and branch circuits are avoided. See the next page for more requirements on Data Track using DMX control.



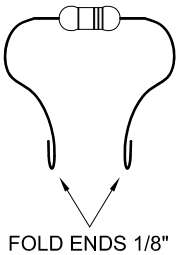


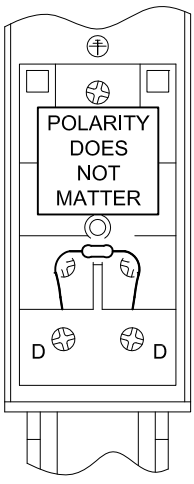






* All DMX control runs must be terminated with a 120 Ω resistor. If the end of the DMX control run is within the track layout, then this can be accomplished in two ways: 1) By adding a track adapter with a terminating resistor pre-installed at the very end of the track, closest to the last connector or the dead end in the run (All track adapter types are available with resistors installed from the factory by adding "-TERM" at the end of the part number), or, 2) By installing the resistor across the D+ and D- screw terminals on the last connector in the run (All Live Ends and Mirror Live Ends types are available with resistors installed from the factory by adding "-TERM" at the end of the part number). See diagrams to right. The polarity of the resistor does not matter.





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Guidelines for Track System Layouts (Continued)

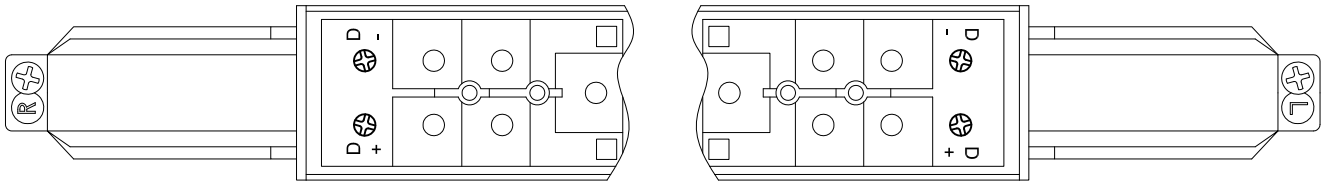
SPECIAL CONSIDERATIONS FOR DMX CONTROL

DMX control runs should be limited to 1000 feet maximum, including track and all intermediate control cabling. There should be no more than 32 fixtures and devices (including splitters) on a single DMX control run. The control bus in the track has a capacitance that can affect signal integrity compared to runs composed of cable only. Therefore, when using fixtures with DMX that have Remote Device Management (RDM) capability, there should be no more than 20 fixtures and devices (including splitters) on a single DMX/RDM control run.

The control bus in the track has only two conductors. Typical DMX systems consist of three conductors: Data +, Data - and Signal Common. If the intermediate control cabling to, from, or between the track consists of shielded twisted pairs, then the shield is Signal Common. The Signal Common when using this track is not used. Make certain that NO portion of the shield or shield wire (aka drain wire) is connected to the track, or bonded to or incidentally in contact with Ground, or anything electrically connected to Ground. If the intermediate control cabling to, from, or between the track consists of unshielded twisted pairs, such as Cat5, Cat5e, Cat6 or Cat6e, then only the Orange / White (Data +) and the Orange (Data -) wires are to be used. See chart below.

Data Track Connector	Shielded Twisted Pair with Standard DMX Connector (XLR)	Unshielded Twisted Pair (Cat5, Cat5e, Cat6 or Cat6e)
D+	Data + [Any Color], Pin 3 on XLR Conn.	Orange / White
D-	Data - [Any Color], Pin 2 on XLR Conn.	Orange
not used	Signal Common (bare drain wire), Pin 1on XLR Conn.	Brown / White

Depending on the polarity of the Connector, D+ and D- are located as shown below:



SPECIAL CONSIDERATIONS FOR 1-10V CONTROL

It is important to remember that although all track has multiple power circuits, there is only one signal bus circuit. For fixtures requiring 0-10V dimming controls, all fixtures connected to the 0-10V bus will receive the same dimming signal regardless of what power circuit they are on. The maximum number of fixtures on a control run depends on the 0-10V control device that is used.

SPECIAL CONSIDERATIONS FOR DALI CONTROL

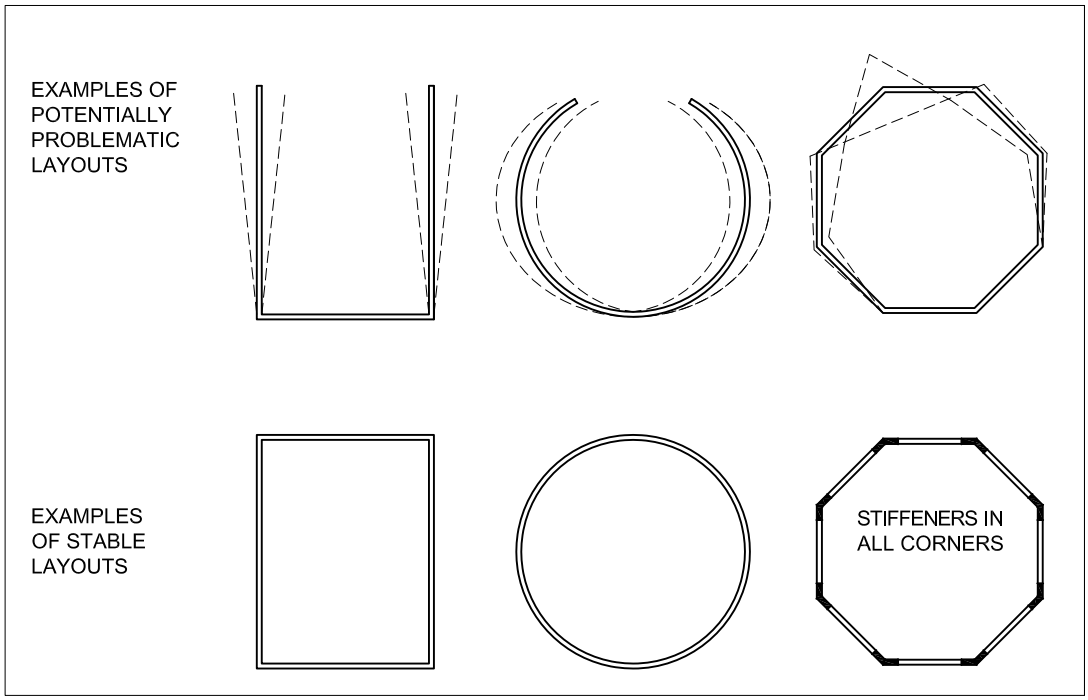
The maximum control run between the first and the last DALI components may not exceed 984 feet. The maximum number of fixtures on a control run depends on the DALI control device that is used. The DALI standard specifies a voltage of 16V DC (typical), 22.5V DC MAX and a current of 250mA. The voltage drop may not exceed 2V. DALI fixtures should have a maximum consumption of 2mA. DALI control wiring on any layout may be run in a daisy chain or a star arrangement or in mixed form. The control signal has no polarity.

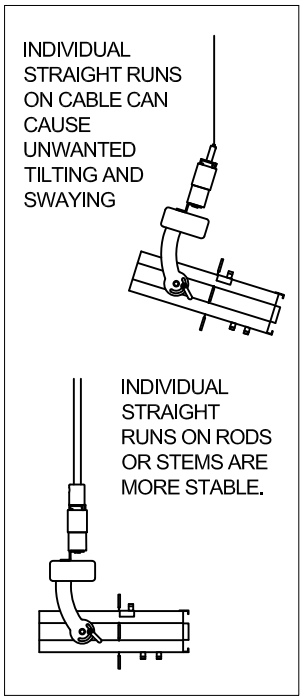
Continued on next page

Guidelines for Track System Layouts (Continued)

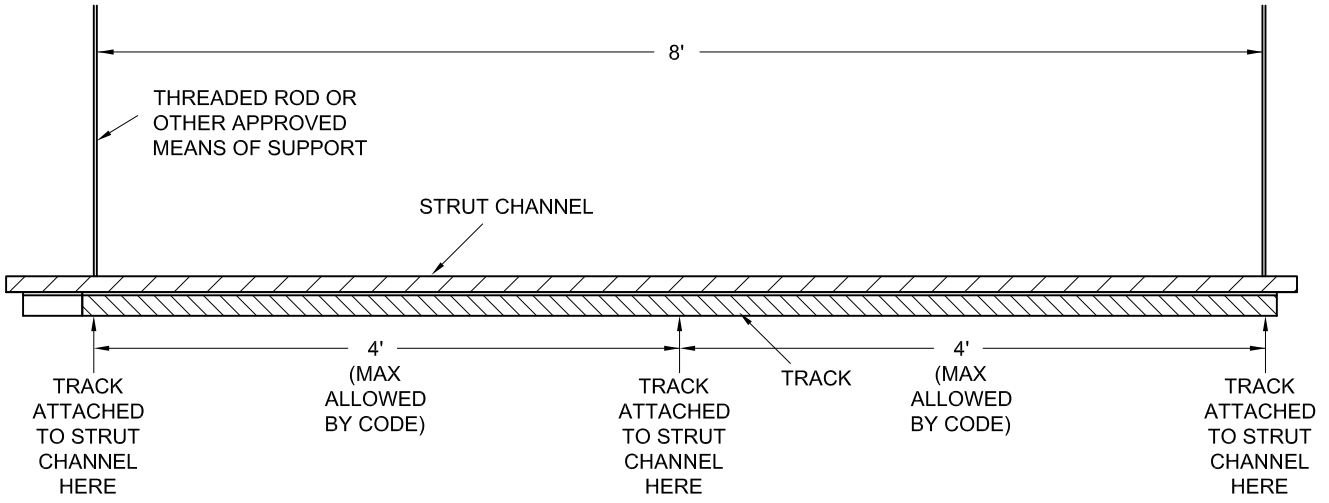
PROBLEMATIC SUSPENDED LAYOUTS

Certain *suspended* track layouts, employing long lengths of Pendants, Wire Cable, or 1/4"-20 Threaded Rod, may deform, twist or splay. This condition sometimes worsens with the additional weight of fixtures. Arcs suspended with Wire Cable being especially problematic. Track layouts of closed loops are more stable, and less apt to deform. Also, layouts using Adjustable Joiners (hexagons, octagons, etc.) may deform without custom stiffeners. Consult factory for guidance.

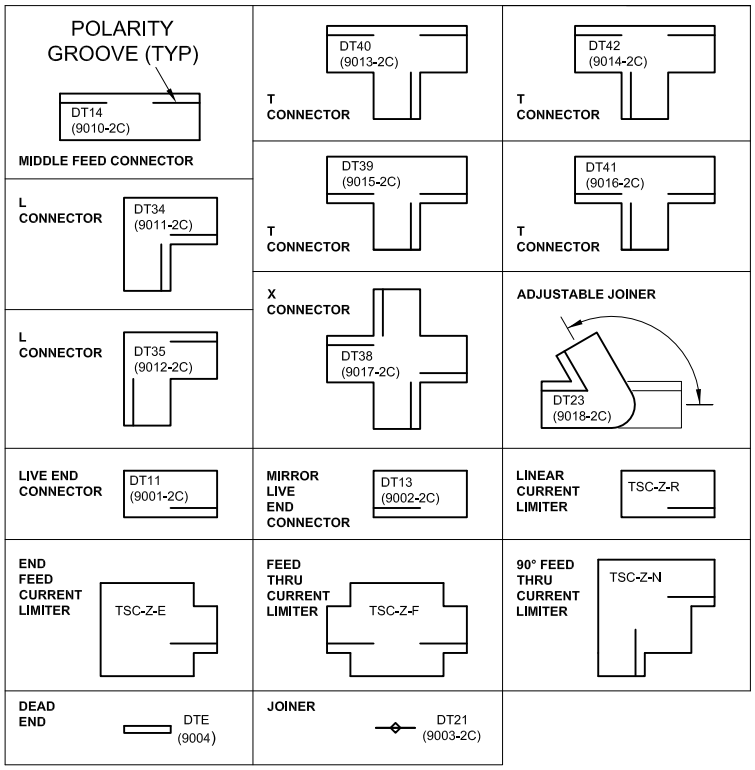


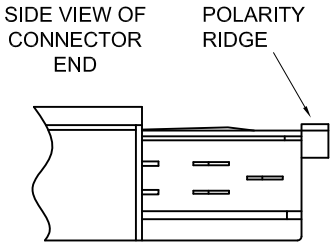


Often there is a need to suspend track using supports that are more than 4 feet apart. Per the NEC, *track* supports, whether they be pendants, threaded rod, etc., must be provided a maximum of every 4 feet along the length of the track section. One solution is to mount the track as code allows directly to low profile strut channel or the like, and then support the channel up to whatever the maximum span would be allowed by the authority having jurisdiction. The diagram below illustrates how an 8' track section can be suspended with two supports only.



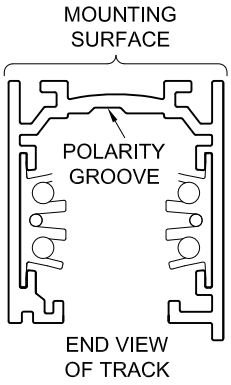
Rectangular Profile Two Circuit 120 Volt Track with Independent Neutrals - Rectangular Profile
POLARITY ILLUSTRATIONS AND SAMPLE LAYOUTS

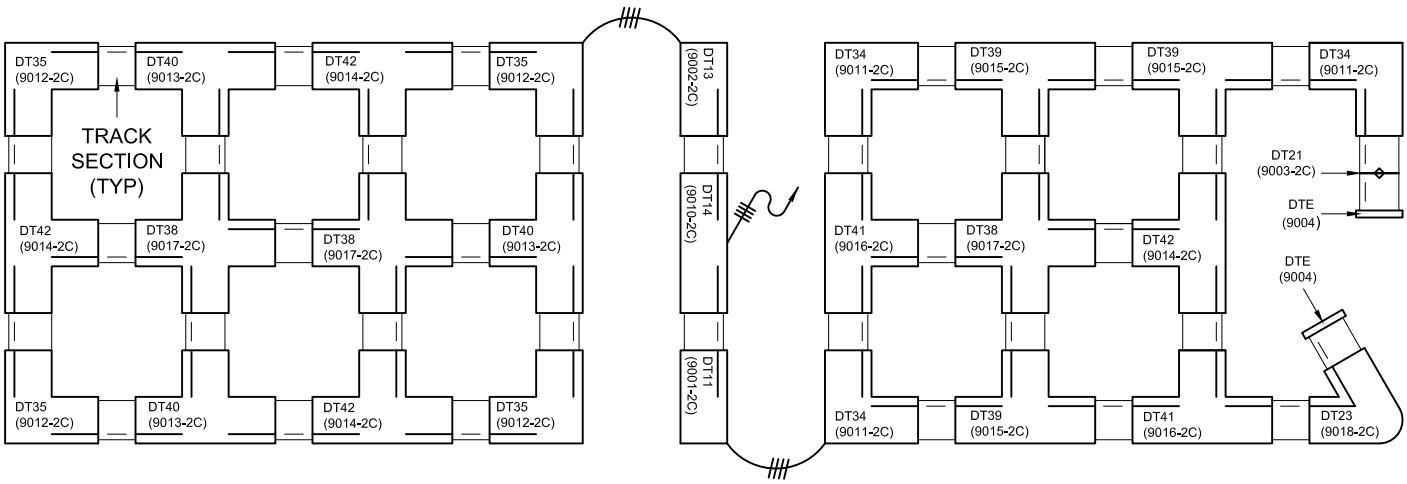


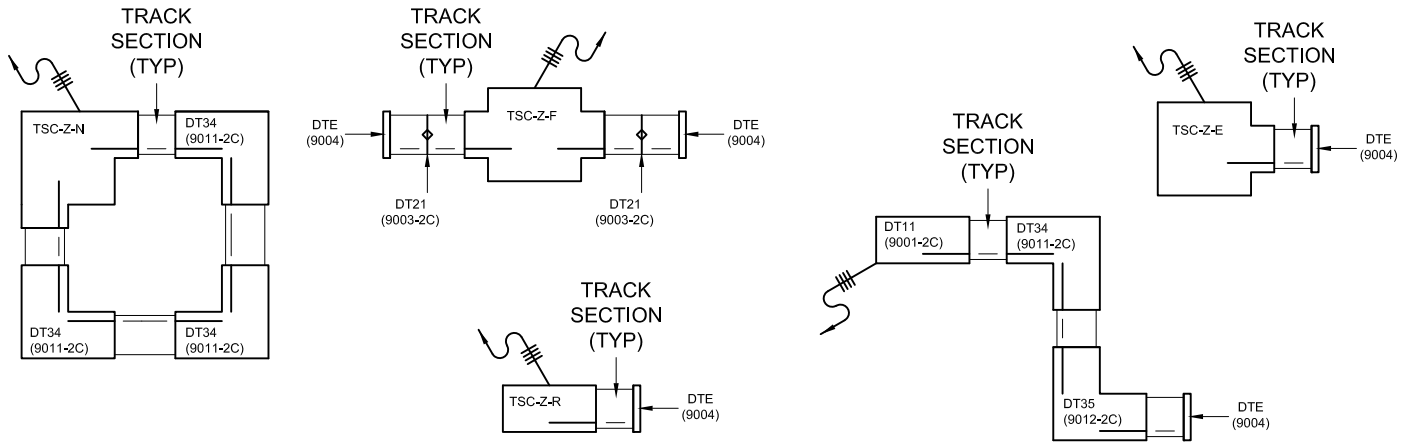


DT4 = 4FT
DT6 = 6FT
DT8 = 8FT
DT12 =12FT

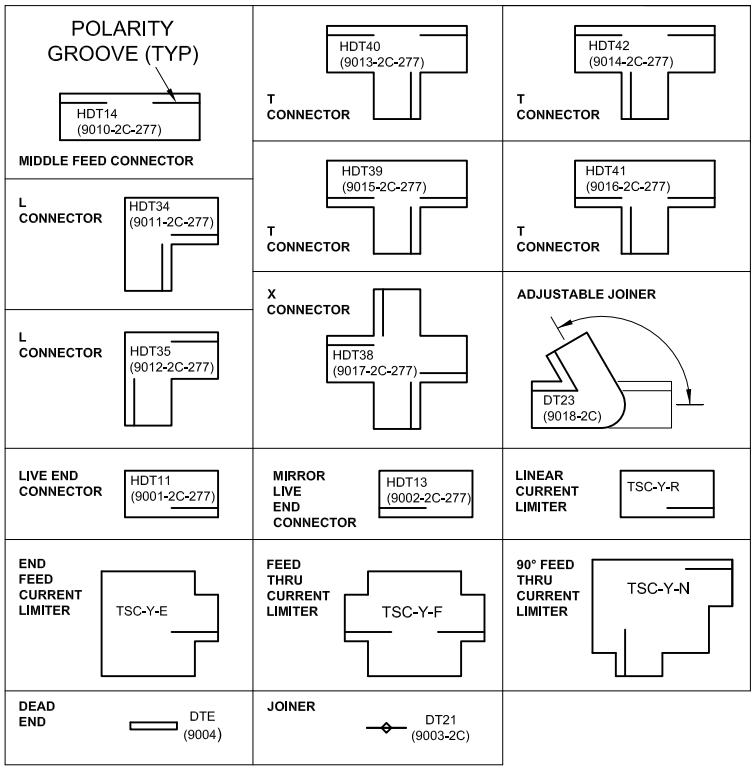
The views to the left and below of the various connectors and track are as if you are looking down onto the mounting surfaces of the system after installation. This is often referred to the "Reflected Ceiling View."

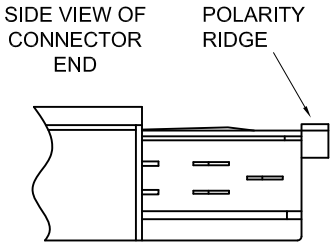




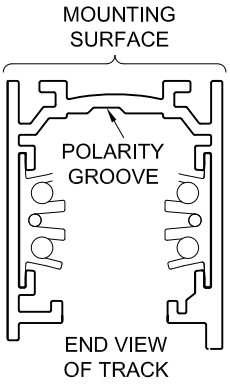


Two Circuit 277 Volt Track with Independent Neutrals - Rectangular Profile
POLARITY ILLUSTRATIONS AND SAMPLE LAYOUTS

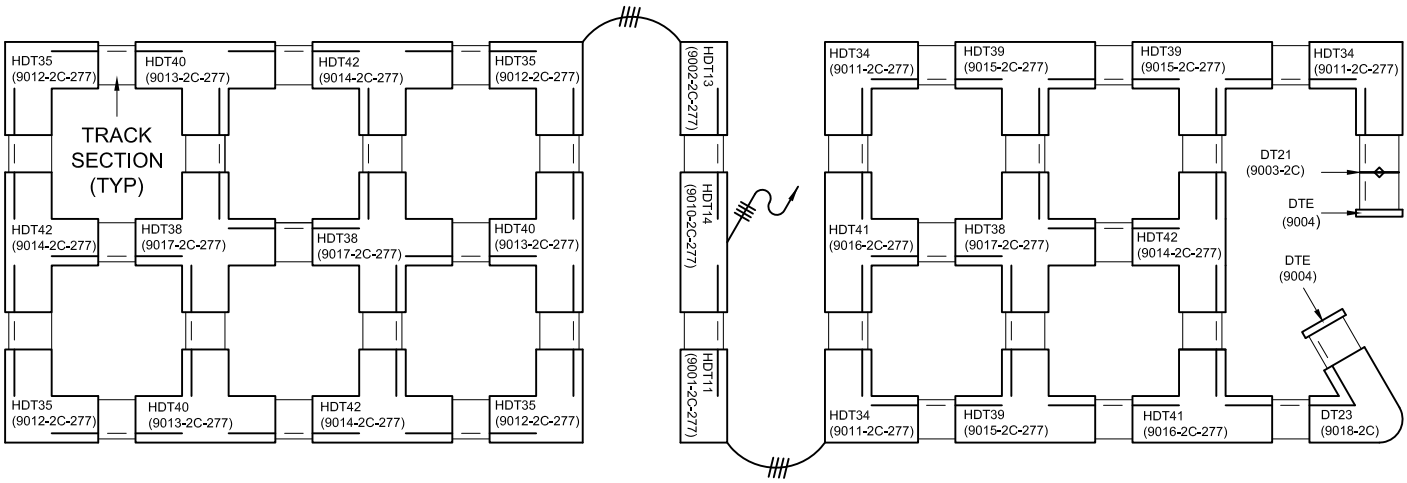


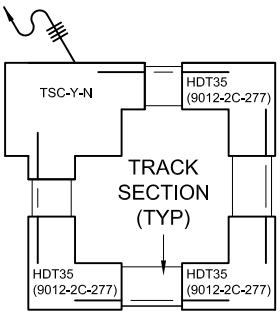


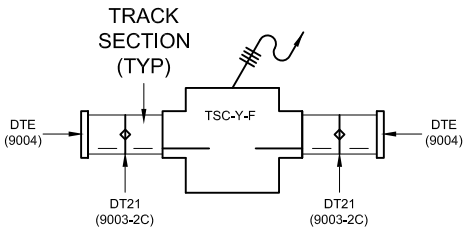
HDT4 = 4FT
HDT6 = 6FT
HDT8 = 8FT
HDT12 =12FT

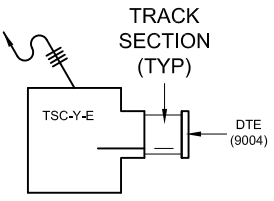


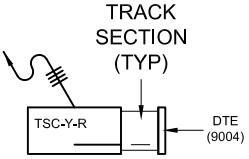
The views to the left and below of the various connectors and track are as if you are looking down onto the mounting surfaces of the system after installation. This is often referred to the "Reflected Ceiling View."

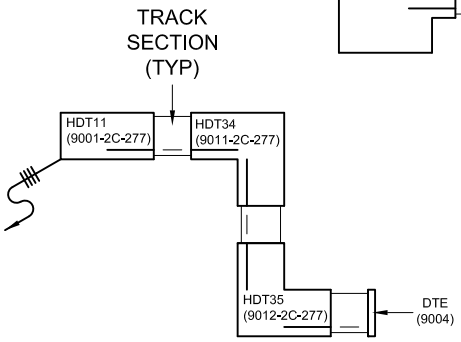




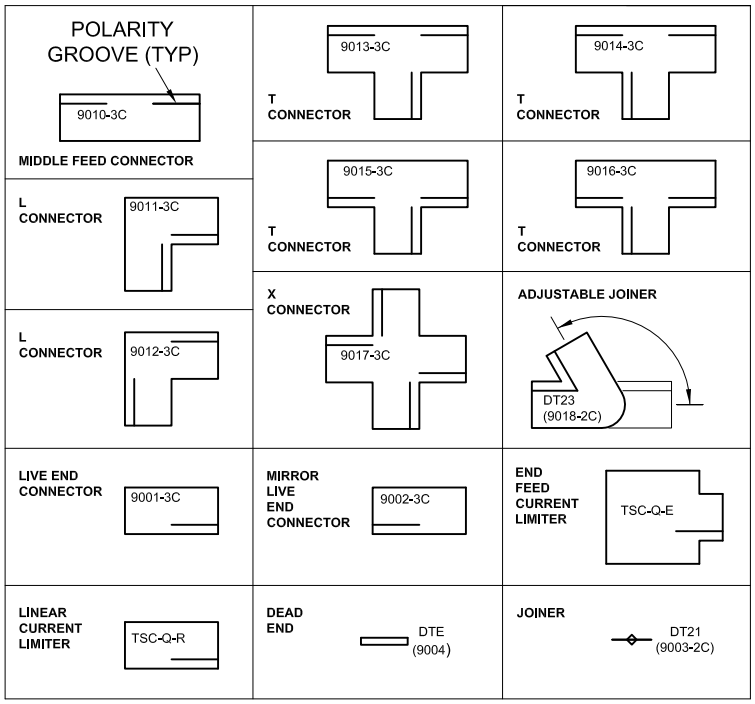


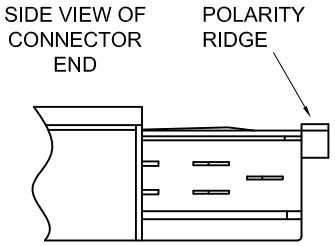






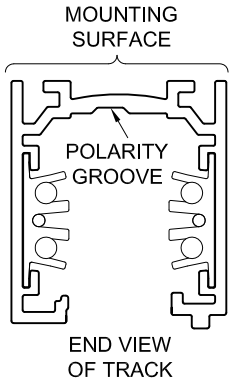
Three Circuit 120 Volt Track with Common Neutral - Rectangular Profile
POLARITY ILLUSTRATIONS AND SAMPLE LAYOUTS

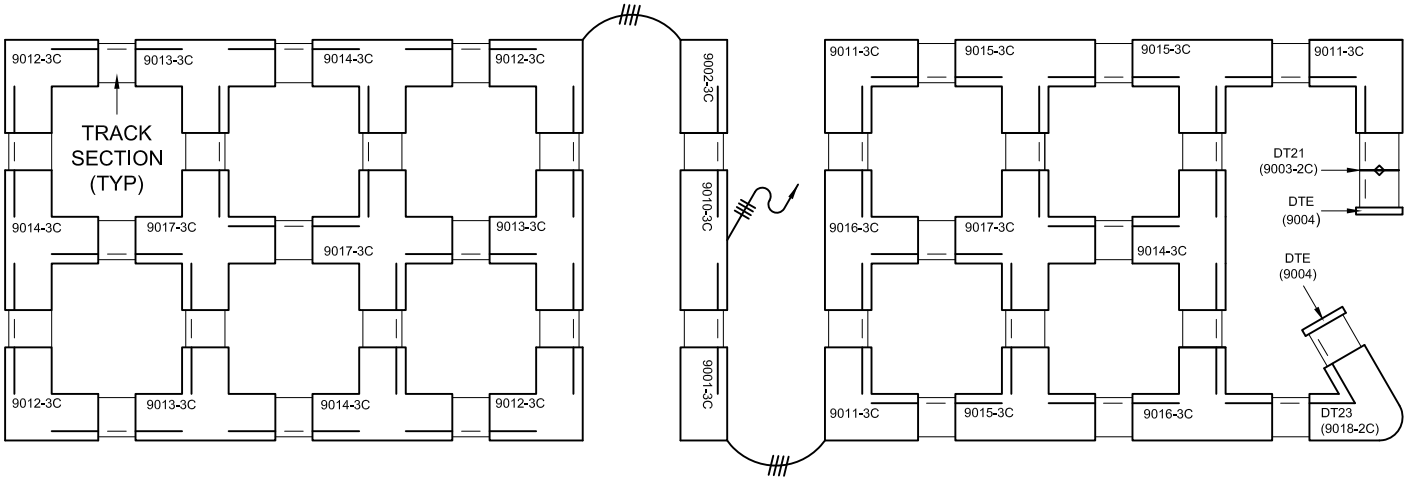


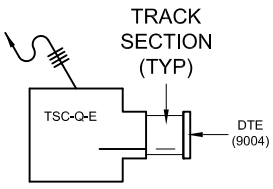


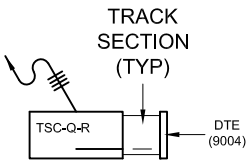
The views to the left and below of the various connectors and track are as if you are looking down onto the mounting surfaces of the system after installation. This is often referred to the "Reflected Ceiling View."

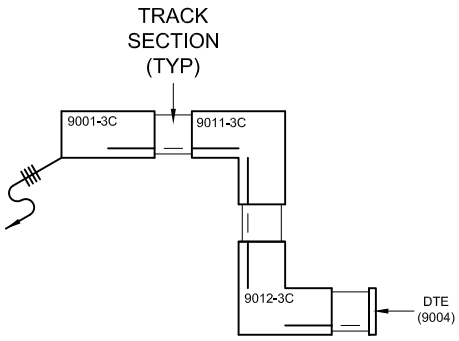
9000-UL4/ST-120 = 4FT
9000-UL6/ST-120= 6FT
9000-UL8/ST-120= 8FT
9000-UL12/ST-120=12FT



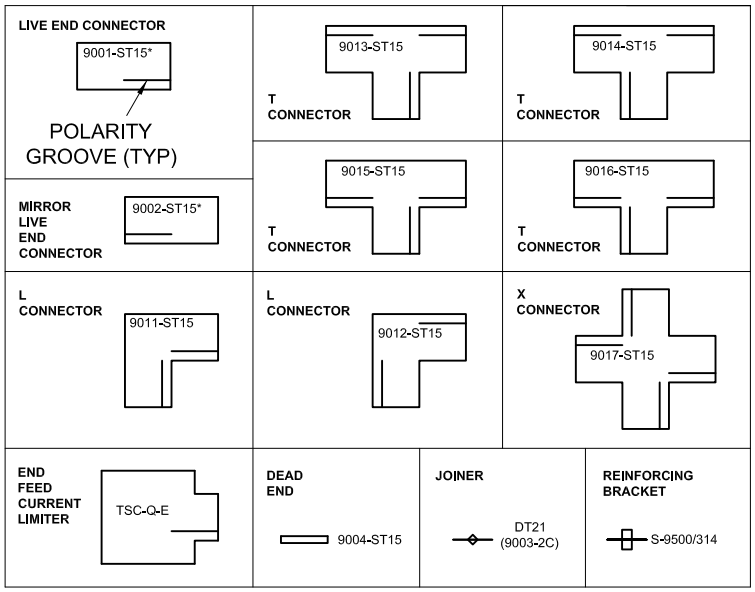


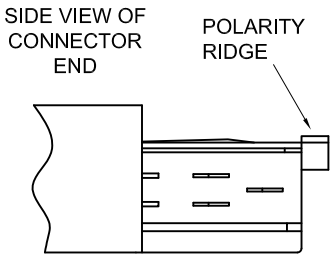




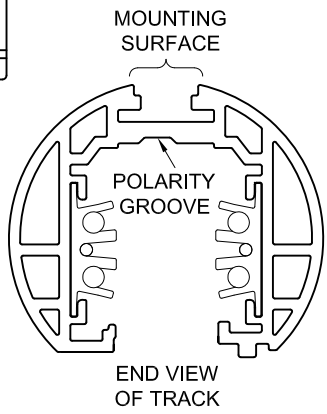


Three Circuit 120 Volt Track with Common Neutral - Round Profile Drama Series
POLARITY ILLUSTRATIONS AND SAMPLE LAYOUTS



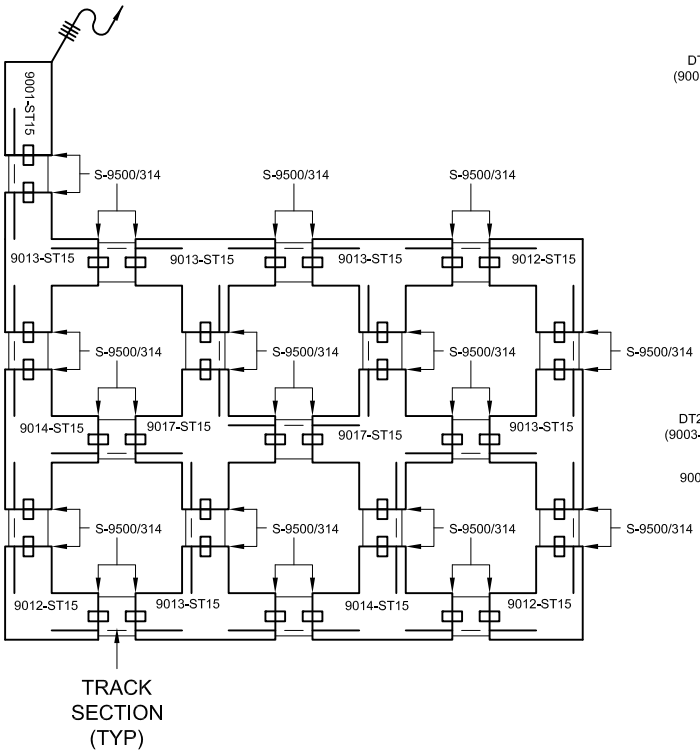


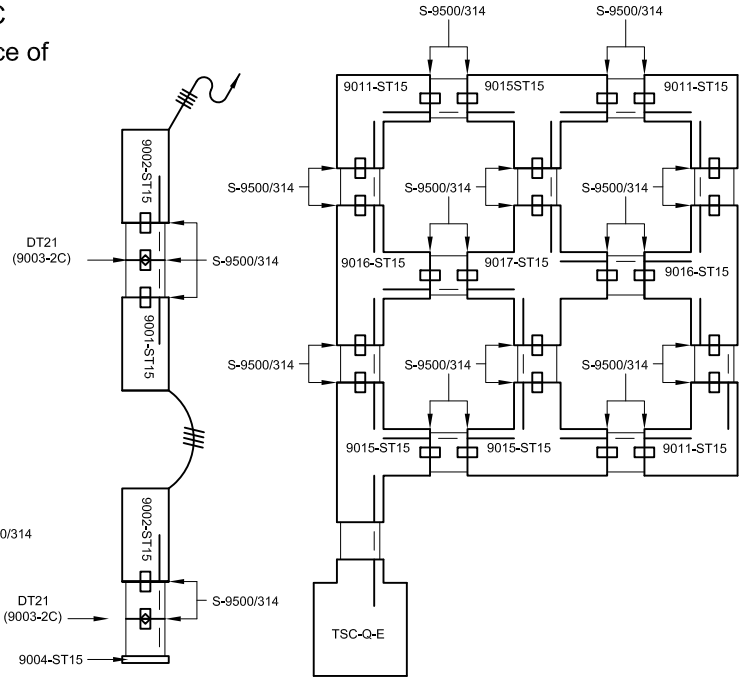
9000-UL4/ST15 = 4FT
9000-UL8/ST15 = 8FT

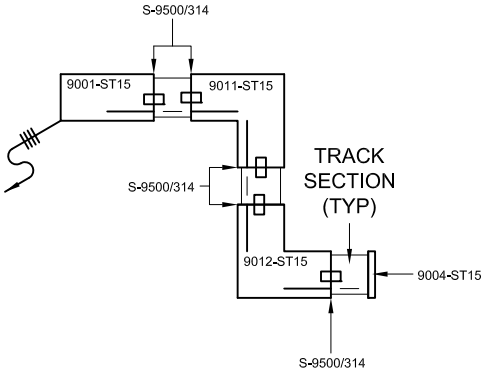


The views to the left and below of the various connectors and track are as if you are looking down onto the mounting surfaces of the system after installation. This is often referred to the "Reflected Ceiling View."

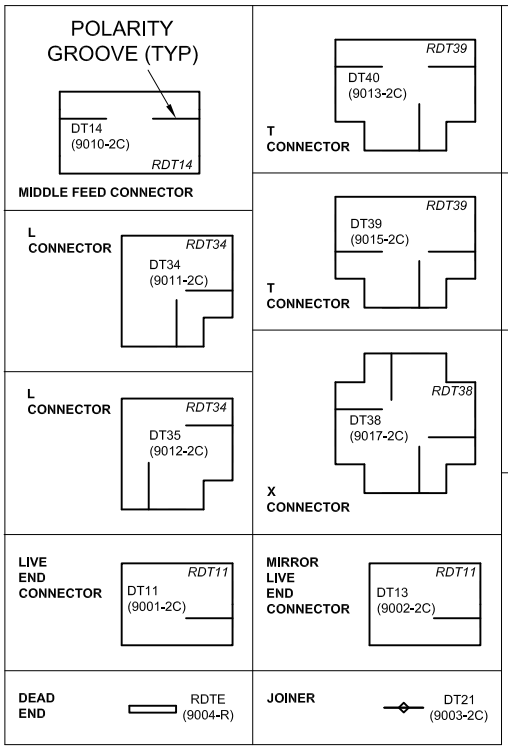
* Drama track connectors are intended to be fed with hard service cords. If another type of feed is to be used, such as conduit or armored cable for example, then 9001-ST15 and 9002-ST15 can be substituted with 9001-3C and 9002-3C respectively. This will however alter the overall appearance of the layout at the feed location(s).

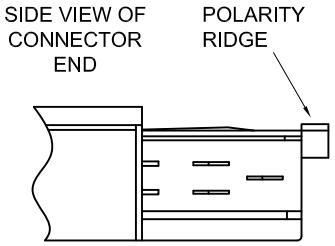




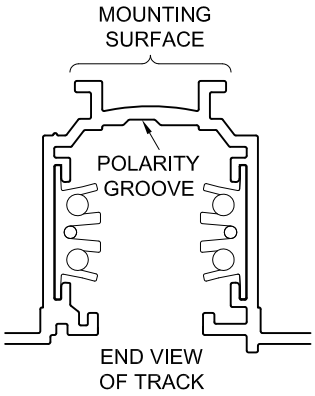


Two Circuit 120 Volt Track with Independent Neutrals - Recessed Flanged Profile
POLARITY ILLUSTRATIONS AND SAMPLE LAYOUTS

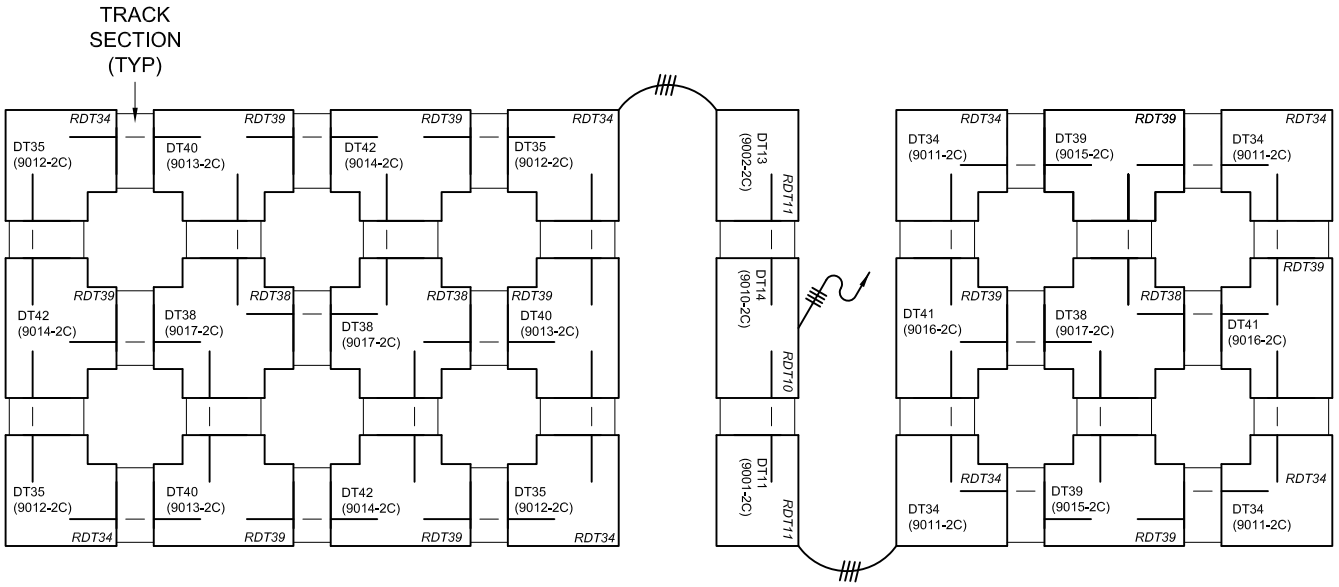


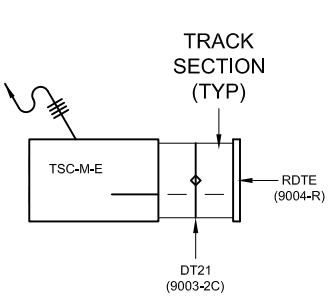


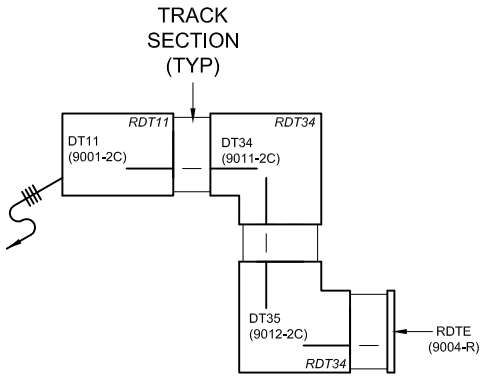
RDT4 = 4FT
RDT8 = 8FT



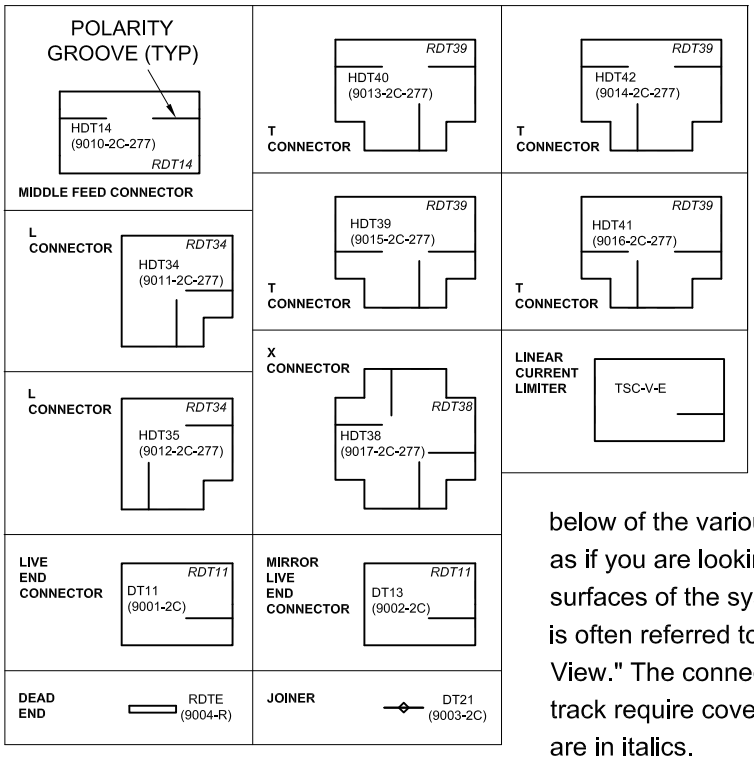
The views to the left and below of the various connectors and track are as if you are looking down onto the mounting surfaces of the system after installation. This is often referred to the "Reflected Ceiling View." The connectors for flanged recessed track require covers. The cover part numbers are in italics.

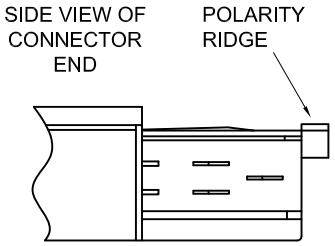




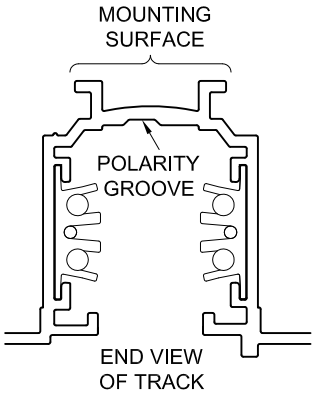


Two Circuit 277 Volt Track with Independent Neutrals - Recessed Flanged Profile
POLARITY ILLUSTRATIONS AND SAMPLE LAYOUTS

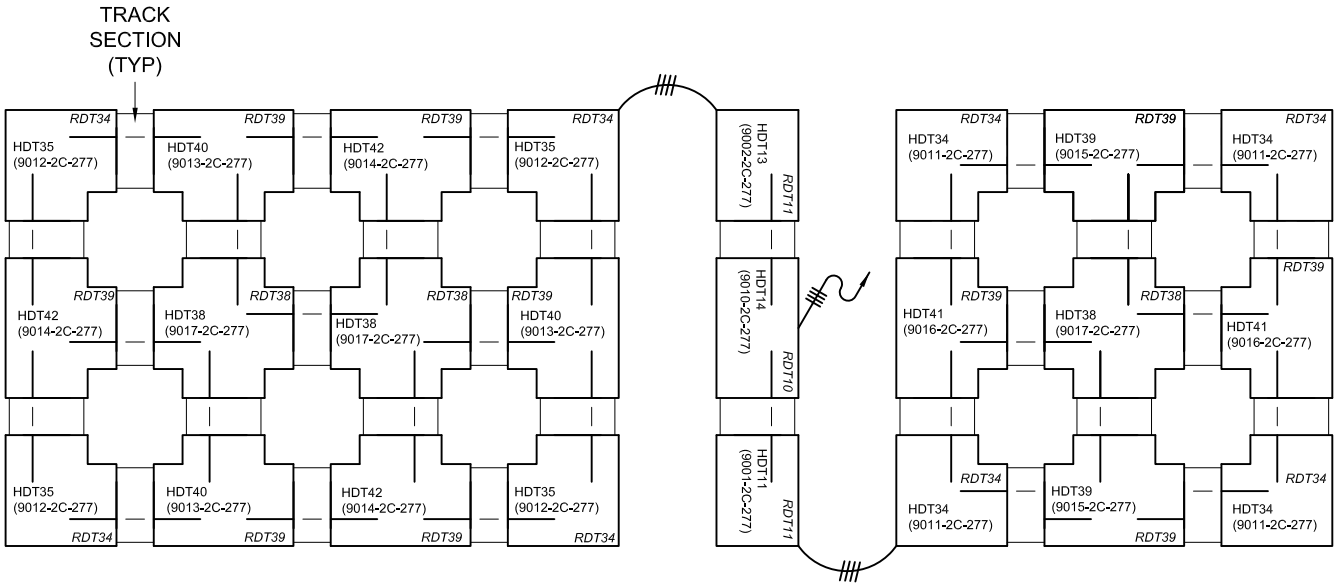


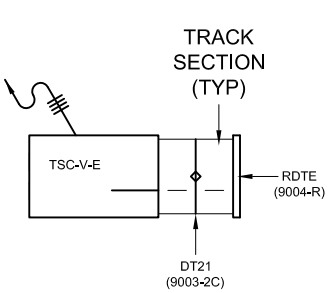


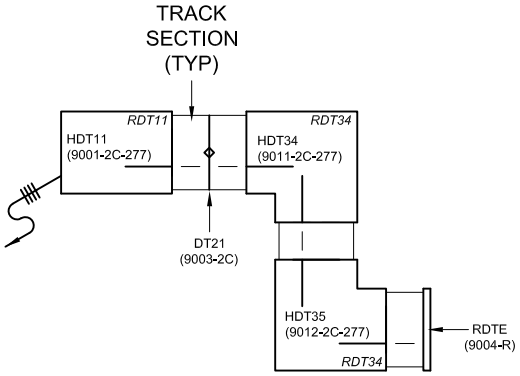
HRDT4 = 4FT
HRDT8 = 8FT



The views to the left and below of the various connectors and track are as if you are looking down onto the mounting surfaces of the system after installation. This is often referred to the "Reflected Ceiling View." The connectors for flanged recessed track require covers. The cover part numbers are in italics.



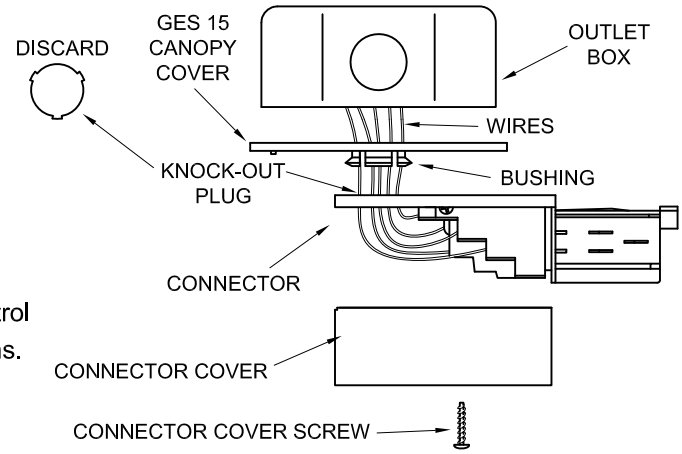




4) INSTALLING WIRES TO CONNECTORS

Outlet Boxes

Follow the steps below and use the diagram to the right to install most Connector types to standard outlet boxes. Note: Drama and Recessed Track Connectors are not intended to be connected directly to outlet boxes. **CAUTION:** Use 12 lbf-in (1.4N-m) torque on all 120V and 277V electrical connections!



1) Remove Connector cover and cover screw(s) and set aside. It should be noted that Connectors may be used to bring a control signal only to the track system, especially with DMX control runs. If this is the case, ignore the instructions for the power feed and follow the instructions for the control signal wiring.

2) Remove the knock-out plug and discard.

3) Pass the wires through the GES 15 Canopy Cover with integral bushing (or standard outlet box cover) and attach Connector to GES Bushing. NOTE: When using a metal outlet box cover in lieu of the GES 15 Canopy Cover , use a proper bushing or nipple-locknut combination to secure Connector to box cover.

4) If power feed wires are present, connect system ground to the screw terminal indicated for ground: ⏚

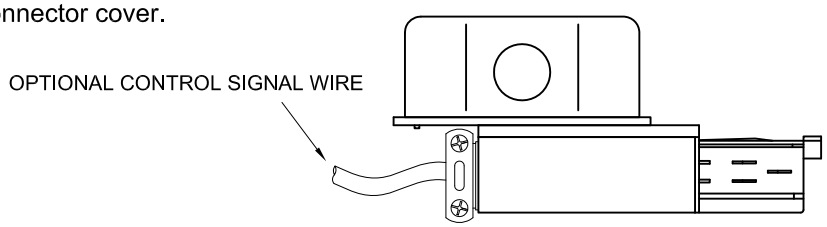
5) For some layouts it may be beneficial to install control signal wiring to a Connector through its cover as shown in the diagram below at the bottom of this page. If so, then remove the knock-out plug in the cover and discard. Attach the appropriate electrical fitting to the Connector cover and pass the control signal wiring through the fitting.

6) If power feed wires are present, connect the hot and neutral feed wires to the L and N screw terminals respectively using the instructions in Section 1: ELECTRICAL POWER CONNECTIONS. Make certain that the electrical feed matches the track type according to those instructions. Also, see the NOTE and CAUTION in the first paragraph of Section 3: FEEDING THE TRACK AND TRACK LAYOUTS. If control signal wires are present, connect them to the D+ and D- screw terminals according to the chart below. If a DMX terminating resistor is to be used, then install it as shown in Section 3: FEEDING THE TRACK AND TRACK LAYOUTS, Guidelines for Layouts.

Data Track Connector	DMX Shielded Twisted Pair	DMX Unshielded Twisted Pair (CAT5 or CAT6)	0-10V	DALI
D+	Data + [Any Color]	Orange/White	Signal + (Violet)	No Polarity [Any Color]
D-	Data - [Any Color]	Orange	Signal - (Pink or Grey*)	No Polarity [Any Color]

* The NEC no longer allows Grey to be used for 0-10V dimming. Grey may still be present in older installations.

7) Reattach the Connector cover.

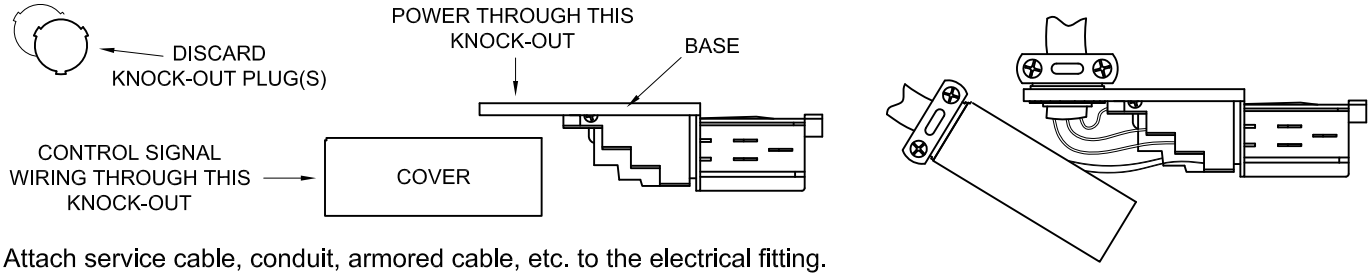


Service Cables, Conduit, Armored Cable, Etc.

Follow the steps below to install all Connector types, (except for the Drama Series Connectors), to service cables, conduit, armored cable, etc. Drama Series Connectors are covered on the next page. **CAUTION:** Use 12 lbf-in (1.4N-m) torque on all 120V and 277V electrical connections!

1) Remove Connector cover, cover screw(s), and set aside.

2) Remove the desired knock-out plug(s) from the base and/or the cover and attach the appropriate electrical fitting(s) to the Connector. As shown in the diagrams below, it may be beneficial for some layouts to install the power through one fitting and the control signal wiring through another, power usually entering the base of the Connector. It should be noted that Connectors may be used to bring a control signal only to the track system, especially with DMX control runs. If this is the case, ignore the instructions for the power feed and only follow the instructions for the control signal wiring.



3) Attach service cable, conduit, armored cable, etc. to the electrical fitting.

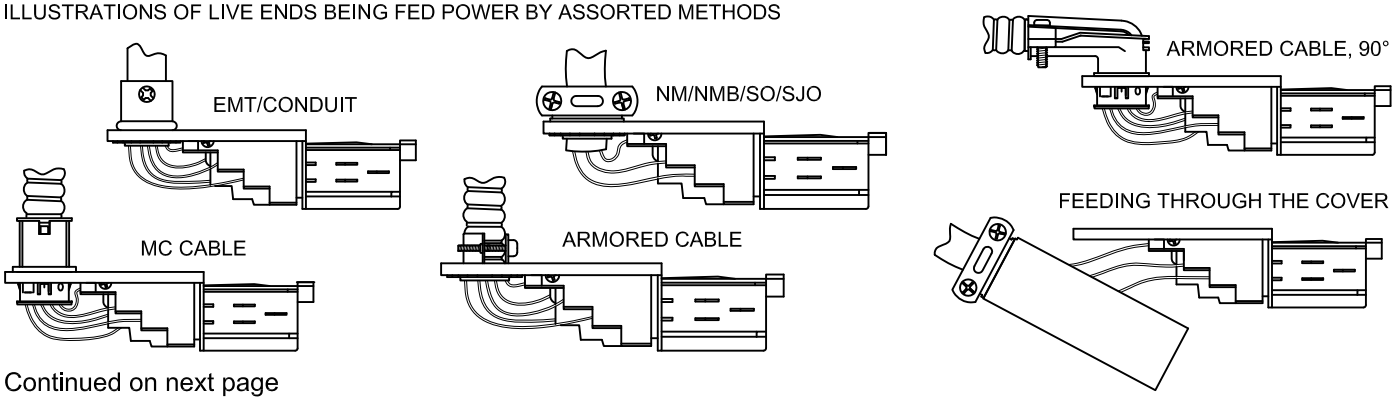
4) If power feed wires are present, connect system ground to the screw terminal indicated for ground: ⏚

5) If power feed wires are present, connect the hot and neutral feed wires to the L and N screw terminals respectively using the instructions in Section 1: ELECTRICAL POWER CONNECTIONS. Make certain that the electrical feed matches the track type according to those instructions. Also, see the NOTE and CAUTION in the first paragraph of Section 3: FEEDING THE TRACK AND TRACK LAYOUTS. If control signal wires are present, connect them to the D+ and D- screw terminals according to the chart below. In some cases, it may be preferable run the control cables into the Connector via a separate knock out other than the one for the electrical feed wires. If a DMX terminating resistor is to be used, then install it as shown in Section 3: FEEDING THE TRACK AND TRACK LAYOUTS, Guidelines for Layouts.

Data Track Connector	DMX Shielded Twisted Pair	DMX Unshielded Twisted Pair (CAT5 or CAT6)	0-10V	DALI
D+	Data + [Any Color]	Orange/White	Signal + (Violet)	No Polarity [Any Color]
D-	Data - [Any Color]	Orange	Signal - (Pink or Grey*)	No Polarity [Any Color]

* The NEC no longer allows Grey to be used for 0-10V dimming. Grey may still be present in older installations.

ILLUSTRATIONS OF LIVE ENDS BEING FED POWER BY ASSORTED METHODS



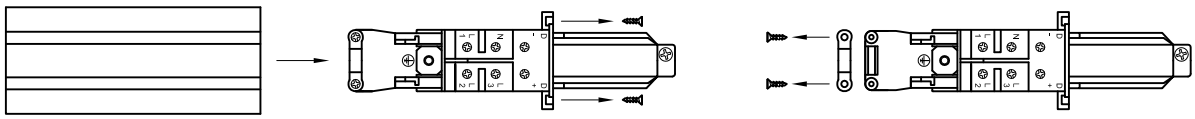
Continued on next page

Service Cables, Conduit, Armored Cable, Etc. (Continued)

Follow the steps below to install all Drama Series Connectors to junior hard service cables with an outside diameter of 0.47" or less, e.g. 12/3SJ, 14/3SJ, 14/4SJ and 14/5SJ. NOTE: These cable types may include the suffix O, OW, OO, or OOW. **CAUTION:** Use 12 lbf-in (1.4N-m) torque on all 120V electrical connections!

Standard electrical fittings are not to be used on Drama Connectors as the Drama Connectors have an integral strain relief for the cord. Where a control signal cable is required, there are two ways to bring that cable into the Drama Connector: 1) Through the provided electrical power cable entry opening in the Connector cover, given that the combined width of the electrical power cable and control signal cable is less than 0.62", or, 2) Through a hole drilled in the rear of the Connector cover and using that hole as an entry for the control signal cable. The hole should be just large enough to accommodate the cable, but no larger than Ø5/16". Make certain that the hole is deburred.

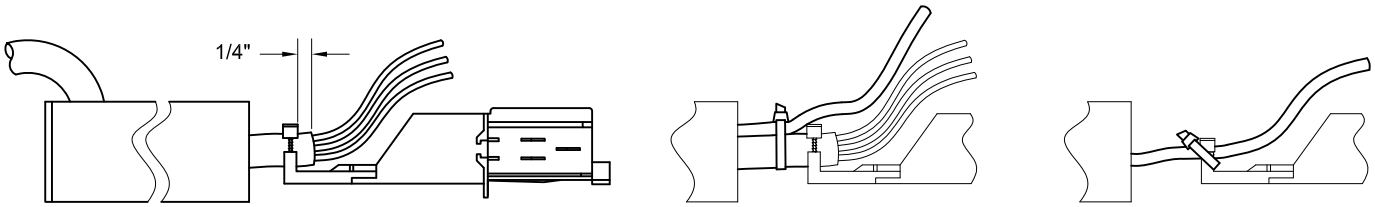
1) Remove the Connector from the Connector cover and set the two screws aside. Remove the cable clamp from the Connector and set the clamp and the two clamp screws aside. It should be noted that Connectors may be used to bring a control signal only to the track system, especially with DMX control runs. If this is the case, ignore the instructions for the power cable feed and follow the instructions for the control signal wiring only.



2) Carefully insert the power cable and/or, if required, the control signal cable into the appropriate opening(s) in the Connector cover.

3) Strip the power cable jacket approximately 2-1/4".

4) Secure the power cable to the connector with the clamp and screws as shown in the diagram below, left. If a control signal cable is used with the power cable, secure it to the power cable with a wire tie (by others) as shown in the diagram below, center. If a control signal cable is used alone without a power cable, secure it to the cable clamp with a wire tie (by others) as shown in the diagram below, right.



5) Trim and strip the system ground wire from the power cable 7/16-1/2" and connect it to the screw terminal indicated for ground: ⏚

6) Trim and strip the hot and neutral feed wires and connect them to the L and N screw terminals respectively using the instructions in Section 1: ELECTRICAL POWER CONNECTIONS. Make certain that the electrical feed matches the track type according to those instructions. Also, see the NOTE and CAUTION in the first paragraph of Section 3: FEEDING THE TRACK AND TRACK LAYOUTS. If control signal wires are present, connect them to the D+ and D- screw terminals according to the chart on the previous page. If a DMX terminating resistor is to be used, then install it as shown in Section 3: FEEDING THE TRACK AND TRACK LAYOUTS, Guidelines for Layouts.

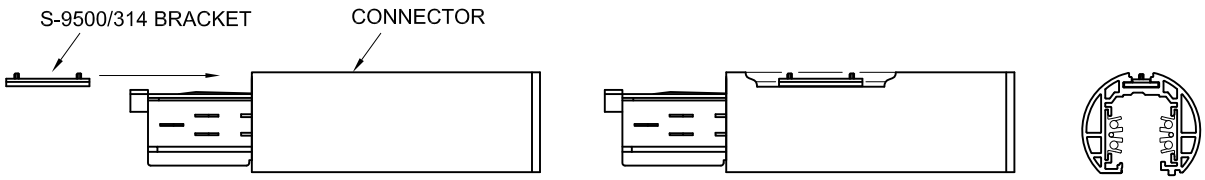
7) Carefully slide the Connector into the cover until it is fully seated, while simultaneously pulling the cables out from the cover. Install the two screws securing the Connector to the cover.

5) INSTALLING CONNECTORS, DEAD ENDS AND JOINERS TO THE TRACK

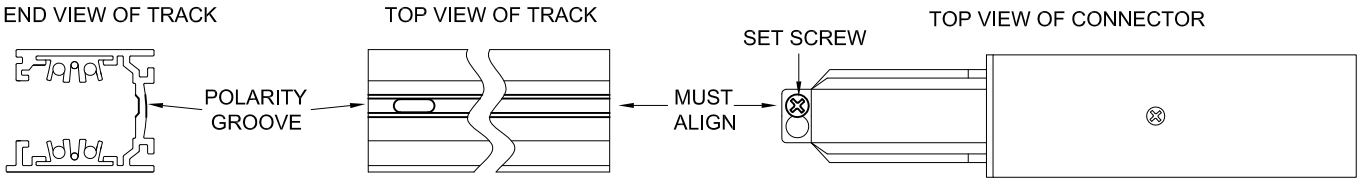
Connectors (Used to create layouts and feed electrical power to the track)

Follow the steps below to install all Connector types to the track. NOTE: Before installing Connectors, make certain that the conductor ends have been properly prepared according to the instructions in Section 2: FIELD CUTTING THE TRACK AND PREPARING THE CONDUCTOR ENDS.

1) This Step is for Drama Series Connectors only, for all other Connector types, begin with the next Step.
Slide one S-9500/314 reinforcing bracket onto the end of the Connector. An L Connector will need two brackets, a T Connector will need three brackets, and an X Connector will require four brackets. NOTE: It is important to coordinate the installation of these brackets with the installation of the S-9000/113-M Pendant Supports discussed later in Section 6. Careful planning is required as to what point in the installation process these components are to be installed.

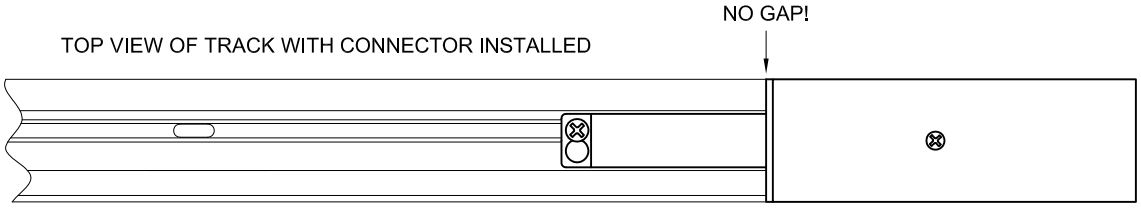


2) Align the set screw of the Connector with the polarity groove on the track.

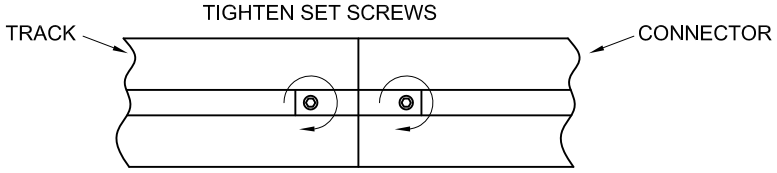


3) Insert the Connector into the end of the track. Make certain that the set screw is aligned the polarity groove in the base of the track. NOTE: If the insertion is too tight, do NOT force it. Loosen the set screw until the Connector slides in easily.

4) Make certain that the Connector is fully inserted and tighten the set screw.

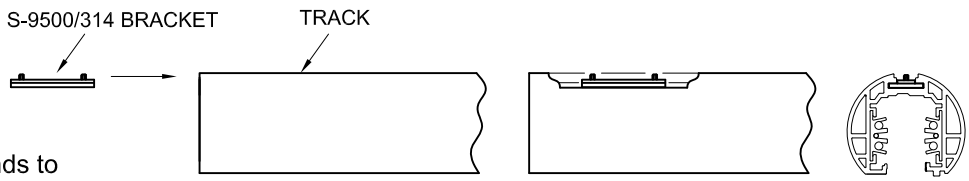


5) Drama Series Connectors only: Position the S-9500/314 reinforcing bracket(s) such that it straddles the seam between the Connector and the track and tighten the two set screws with a 2mm hex wrench.



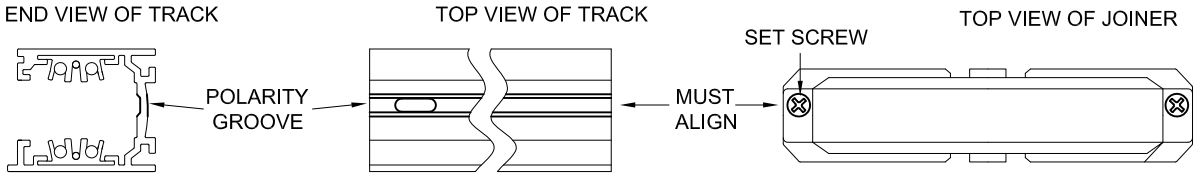
Joiners (Used only to connect track sections together for layouts)

Follow the steps below to install both Joiner types to the track. NOTE: Adjustable Joiners are not compatible with Drama Series Track. NOTE: Before installing Joiners, make certain that the conductor ends have been properly prepared according to the instructions in Section 2: FIELD CUTTING THE TRACK AND PREPARING THE CONDUCTOR ENDS.



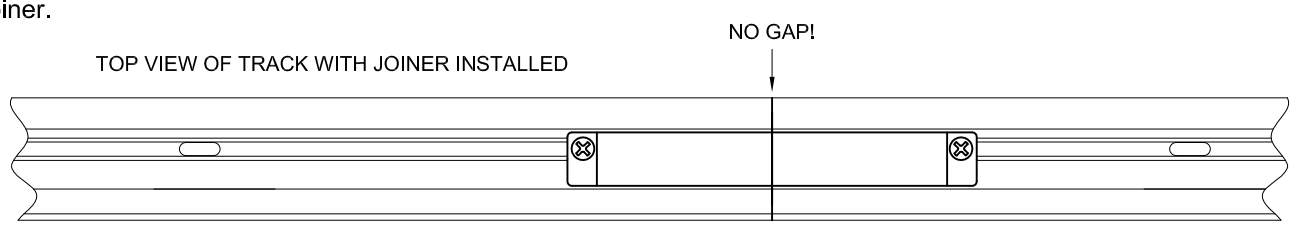
1) This Step is for Drama Series Connectors only. For all other Connector types, begin with the next Step. Slide one reinforcing bracket onto *one* of the two tracks ends to be joined together. NOTE: It is important to coordinate the installation of these brackets with the installation of the S-9000/113-M Pendant Supports discussed later in Section 6. Carefull planning is required as to what point in the installation process these components are to be installed.

2) Align the set screw of the Joiner with the polarity groove on the track.

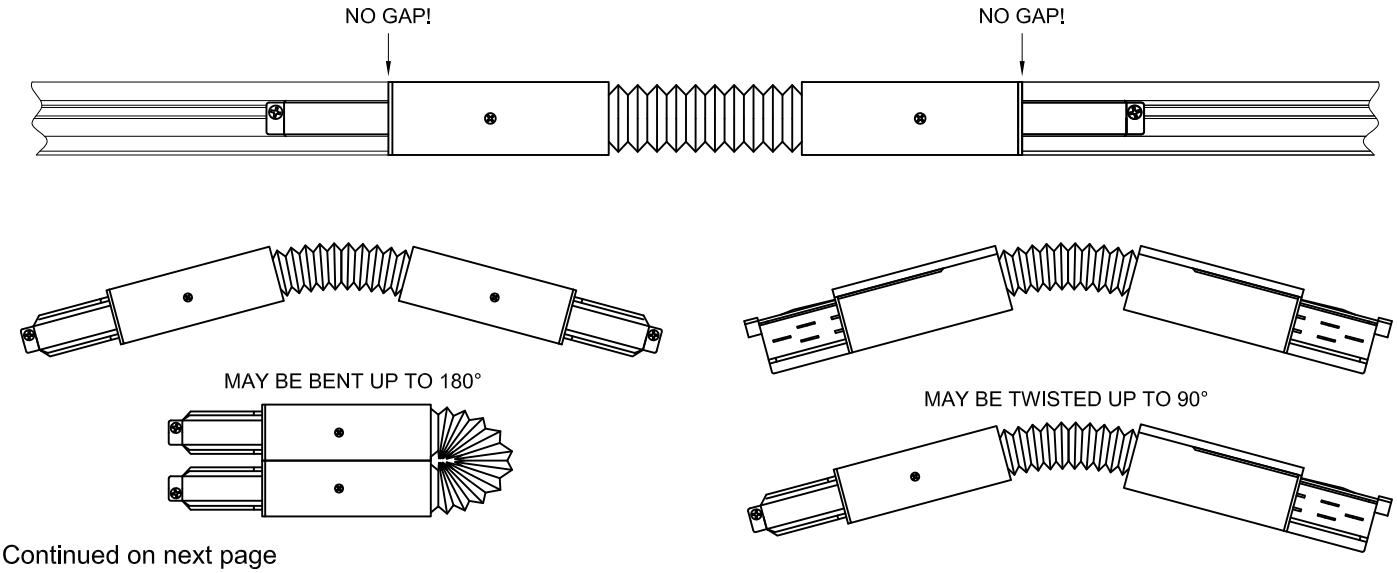


3) Insert the Connector into the end of the track. Make certain that the set screw is aligned the polarity groove in the base of the track. NOTE: If the insertion is too tight, do NOT force it. Loosen the set screw until the Connector slides in easily.

4) Make certain that the Joiner is fully inserted and tighten the set screw. Repeat Steps 2 through 4 for the other side of the Joiner.



NOTE: Adjustable Joiners may be bent and/or twisted to change the orientation and/or the direction of a track run.



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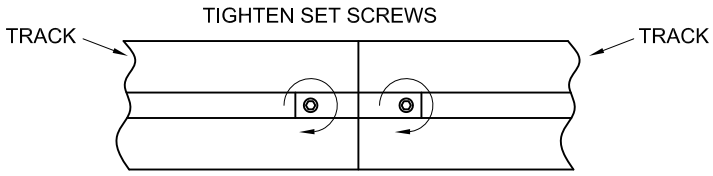
Joiners (Used only to connect track sections together for layouts) (Continued)

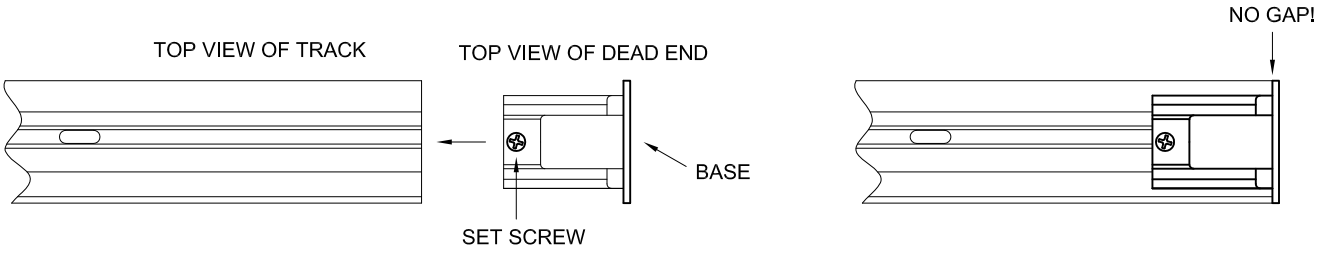
5) Drama Series Joiners only: Position the S-9500/314 reinforcing bracket(s) such that it straddles the seam between the two track sections and and tighten the two set screw with a 2mm hex wrench.



Dead Ends (Used only to cap off track ends without Connectors, Joiners or Current Limiters)

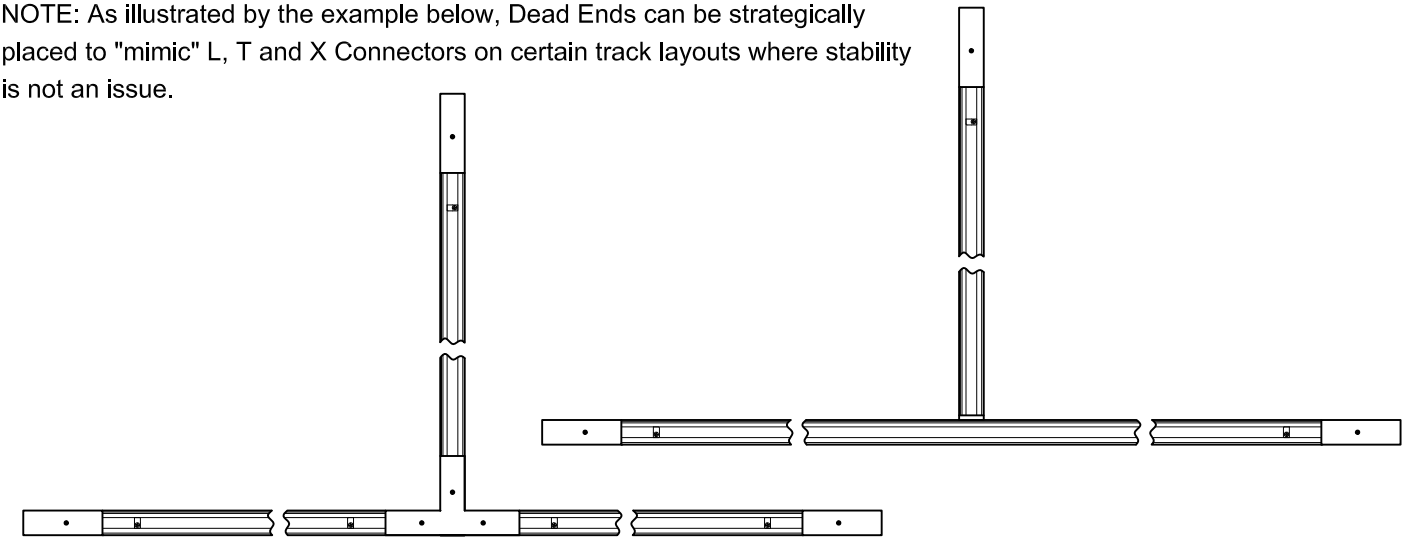
CAUTION: To prevent electrical shock or fire hazard, Dead Ends *must* be used when a track end has no Connector, Joiner or Current Limiter installed. NOTE: Before installing Dead Ends, make certain that the conductor ends have been properly prepared according to the instructions in Section 2: FIELD CUTTING THE TRACK AND PREPARING THE CONDUCTOR ENDS.

To install Dead Ends, insert the Dead End into the end of the track until the base is flush with the end of the track. Tighten the set screw. NOTE: If the insertion is too tight, do NOT force it. Loosen the set screw until the Dead End slides in easily.



NOTE: Dead Ends are rarely used with track layouts requiring DMX control signals. Live Ends and Mirror Live Ends are generally used in combination. This is because: 1) A terminating resistor is required at the opposite end of the layout from where the DMX control signal is introduced, and 2) The DMX control signal must be run in a daisy chain fashion when more than one run of track needs to be interconnected. See Page 16 for more details.

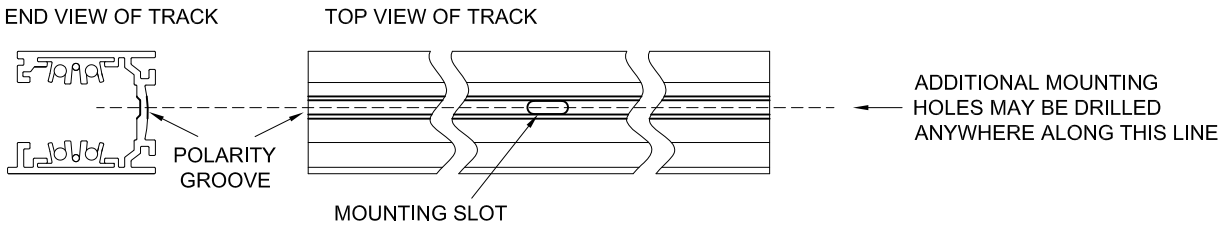
NOTE: As illustrated by the example below, Dead Ends can be strategically placed to "mimic" L, T and X Connectors on certain track layouts where stability is not an issue.



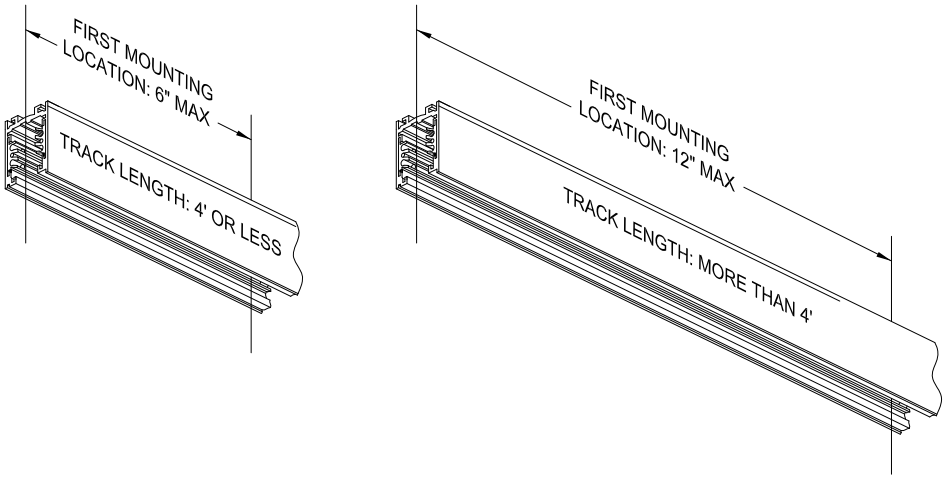
6) INSTALLING THE TRACK

Flush with Flat Mounting Surfaces: Rectangular Profile Track Only

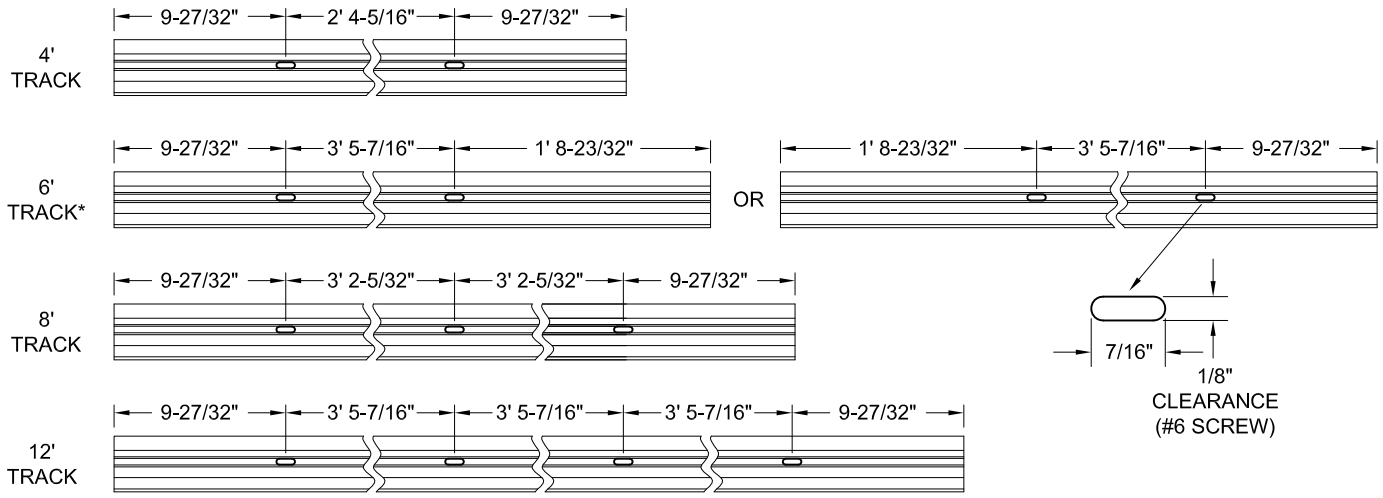
Using the factory provided mounting slots, the track can be mounted directly to the ceiling, strut channel or other allowed flat surface using toggle bolts or appropriate hardware (by others). In most circumstances, however, it will become necessary to drill additional mounting holes. The drill bit should be sized no larger than 3/16". The holes should be centered in the polarity groove in the base of the track. Remove burrs after drilling.



CAUTION: A single track section that is 4 feet or less in length must have one mounting hole spaced a maximum of 6 inches from each end of the track section. A single track section that is greater than 4 feet in length must have one mounting hole spaced a maximum of 12 inches from each end of the track section with additional mounting holes provided a maximum of every 4 feet along the length of the track section.



FACTORY SUPPLIED SLOT PATTERNS



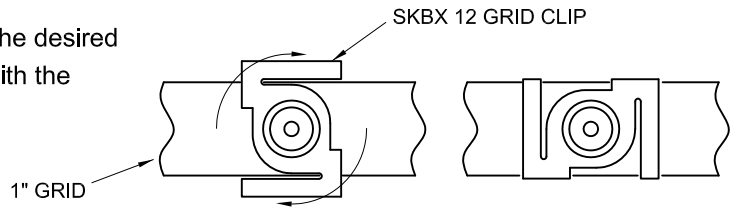
* 6' track sections are 12' sections cut in half at the factory. Because track is polarized, those two cut sections are mirror images of each other. Therefore, 6' sections will match only one of the two diagrams above.

Ceiling Grid Mounting: Rectangular Profile Track Only (Using SKBX 12 Grid Clip Kits)

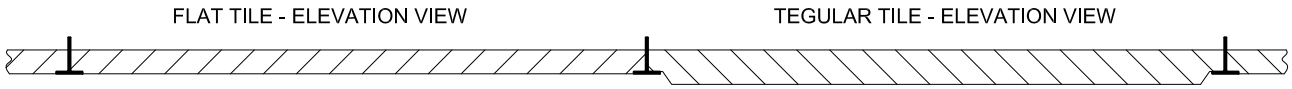
CAUTION: A single track section that is 4 feet or less in length must have one Grid Clip spaced a maximum of 6 inches from each end of the track section. A single track section that is greater than 4 feet in length must have one Grid Clip spaced a maximum of 12 inches from each end of the track section with additional Grid Clips provided a maximum of every 4 feet along the length of the track section. CAUTION: Per the NEC, track may not be supported by the ceiling grid alone. It is recommended that grid wire (not provided) or other approved means be attached to the ceiling grid above each Grid Clip, then to the building support structure above.

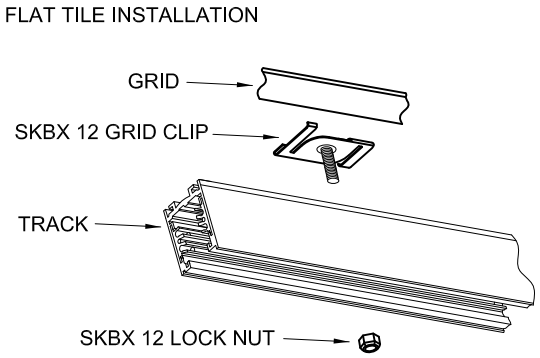
Follow the steps below to install track to standard 1" ceiling grids. NOTE: 3/16" diameter holes will need to be drilled into the track at the appropriate intervals to accept the SKBX Grid Clip studs. Follow the instructions on the first paragraph of the previous page. NOTE: Grid Clips for other than 1" ceiling grids are available. Consult factory for details.

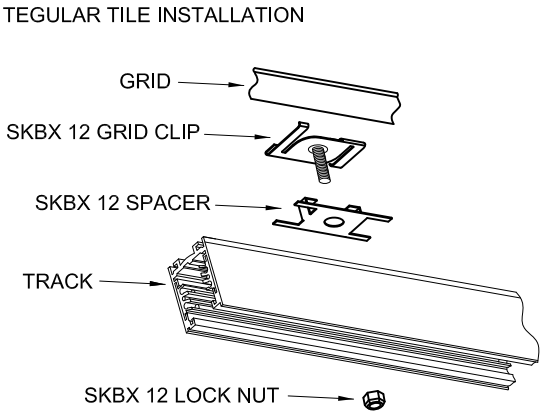
1) Simply twist the SKBX Grid Clips onto the grid at the desired locations. Make certain that they are fully engaged with the ceiling grid.



2) For flush tile, slip the track over the Grid Clip studs. For tegular tile, apply the SKBX 12 Spacer between the track and each Grid Clip stud.





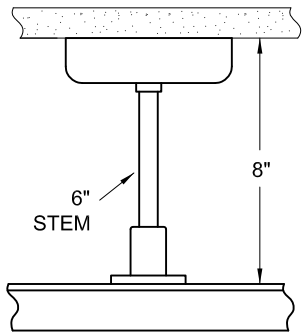


3) With a spin wrench, install the SKBX 12 lock nut to each Grid Clip stud and tighten.

Pendant Mounting: Rectangular Profile Track

Two phases are required to install pendant mounted rectangular profile track. In all cases, pendants use 3/8" NPT stems. The first phase encompasses mounting the pendant suspension hardware, canopies and pendants to the electrical boxes or the building support structure above. The second phase encompasses mounting the track to the pendants using SP Supports. There are two types of SP Supports: One is for adding wiring to the track Connectors while providing mechanical support for the track, and the other to provide mechanical support only. The instructions for both types of Supports are detailed further in this Section.

NOTE: All Suspension components, when installed, will measure approximately 2" plus the length of the stem from the mounting surface to the top of the track. For example, a 6" stem with its associated suspension components would yield 8" total. See diagram, right.



CAUTION: A single track section that is 4 feet or less in length must have one Pendant Support spaced a maximum of 6 inches from each end of the track section. A single track section that is greater than 4 feet in length must have one Pendant Support spaced a maximum of 24 inches from each end of the track section with additional Pendant Supports provided a maximum of every 4 feet along the length of the track section.

Pendant stems are supplied with both ends threaded. In many cases, the stems need to be cut to a specific length, and therefore one end or (both ends in some cases) will end up with the threads removed. SPNF Supports are unthreaded and therefore a hole must be added to the end of the stem. This is also the case for Adjustable SPUS-ADJ suspension canopy kits. The procedure for adding these holes will be discussed for each later in this Section.

For the first phase, there are two methods shown. The first method is for installing pendants to perfectly level surfaces. This method uses SPUS suspension kits and requires stems with threaded ends. The second method is for installing pendants to sloped, i.e., tilted or non-level surfaces, or where the stem may need to swivel. This method uses SPUS-ADJ suspension kits and, as stated above, requires a hole added to the end of the stem. In all cases, it must be determined how long the stems need to be and whether or not threads are required, and if so, which end. Read through and understand the following pages on Pendant Mounting entirely before cutting and/or preparing the stems.

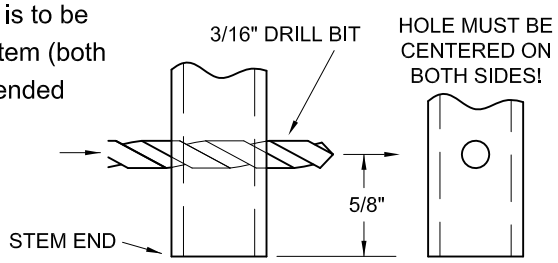
PENDANT SUSPENSION DETAIL (Using SPUS Suspension Kits)
NOTE: These Kits require stems with threaded upper ends

Use the diagrams below and on the next page as a guide along with the instructions below.

1) Using the factory provided mounting holes, secure the SPUS Crossbar directly to the ceiling, standard outlet box, or other allowed flat surface using toggle bolts or appropriate screws (by others). **CAUTION:** When using screws (other than for a standard outlet box), make certain that there is adequate support blocking.

2) If mounting to a standard outlet box, connect the crossbar to system ground using the green screw provided.

3) If the stem is to be used for support only (no wiring), and no other stem is to be coupled to its lower end, drill a 3/16" hole clear through the lower end of stem (both sides) 5/8" from the end. Although not absolutely necessary, it is recommended that a drill press be used for this procedure. NOTE: If a particular layout requires more than one drilled stem to be used for support only, it is recommended that they all be prepared together as a batch.



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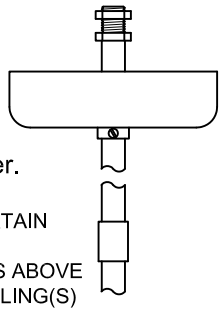
PENDANT SUSPENSION DETAIL (Using SPUS Suspension Kits) (Continued)

4) Attach a stem nut to the stem approximately 1/2" from the upper end.

5) Add a second stem nut to the end of the stem. Do not tighten the nuts together; leave a gap of approximately 3/8".

6) Loosen the set screw on the SPUS Canopy and carefully slide the canopy approximately half way onto the stem. Take care care not to scratch the finished surface of the stem with the canopy. Lightly tighten the set screw to temporarily hold the canopy in place.

7) If more than one stem section is to be coupled together, do so now. Make certain that all threads are fully engaged within the coupling(s). If the coupled stems are to be used for mechanical support only (no wiring), drill a hole to the lower end of the bottom stem using the procedure outlined in Step 3 on the previous page. **CAUTION:** If the stems are to have wires snaked within, remove any sharp edges or burrs, if present, on the inside edges of all stem openings before coupling them together.



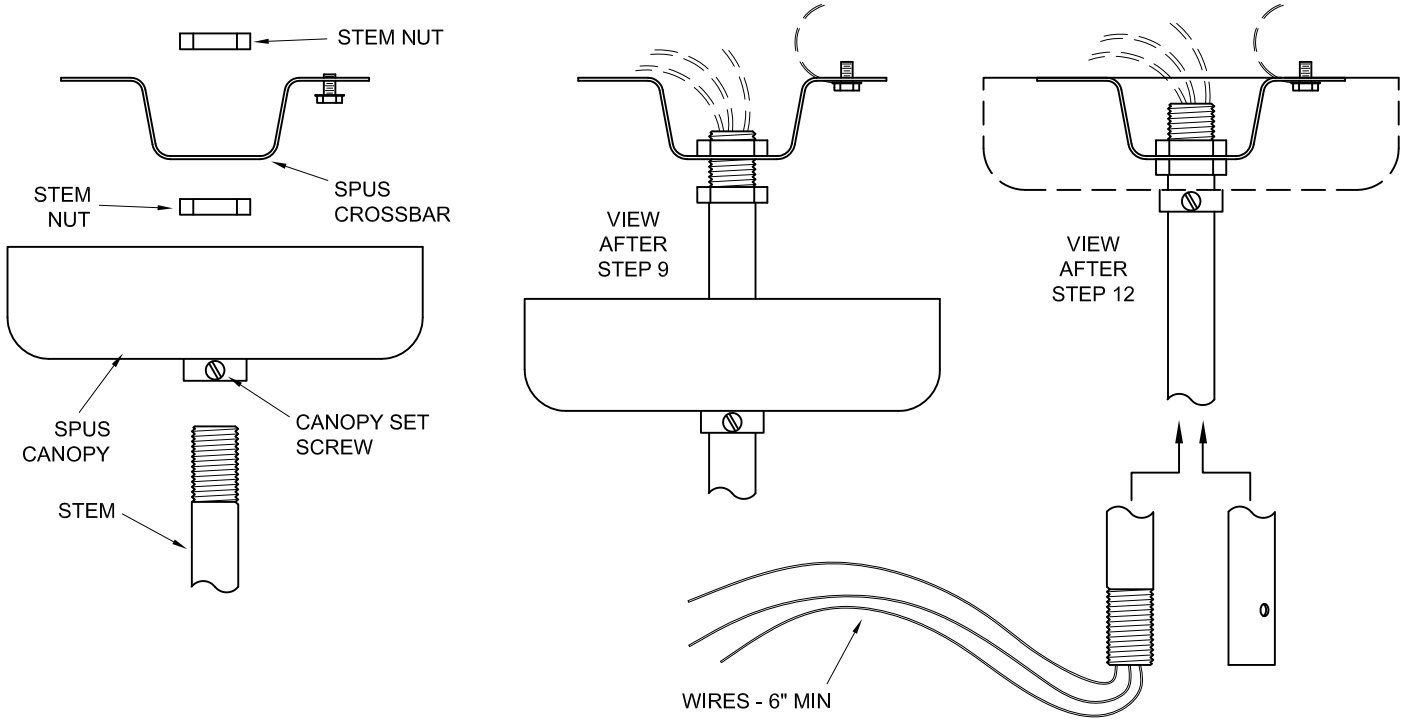
8) If the stem(s) is to have wires snaked within, install the wires now, otherwise skip this step. Leave at least 6" of wire exiting from each end of the stem or stem assembly.

9) Slip the stem(s) onto the SPUS Crossbar such that the upper stem nut sits directly onto the crossbar and is centered within the crossbar. See diagram below, center.

10) Tighten the upper stem nut to the crossbar such that the crossbar is sandwiched tightly between the two nuts. Note: If there are multiple pendant supports on a particular layout, it may be beneficial to skip this and the next two steps until *all* of the track has been hung for that layout.

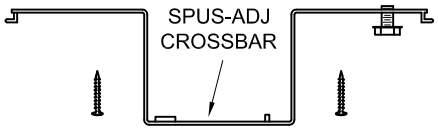
11) If the stem(s) has wires snaked within, make up all electrical connections.

12) Loosen the set screw on the SPUS Canopy and carefully slide the canopy up the stem, taking care not to scratch the finished surface. Tighten the set screw. See diagram below, right.



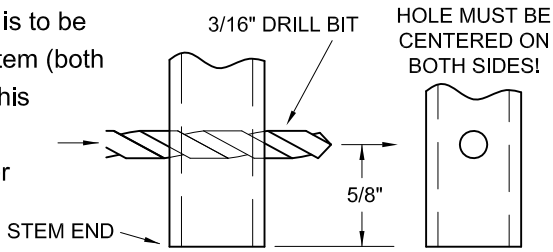
PENDANT SUSPENSION DETAIL (Using Adjustable SPUS-ADJ Suspension Kits)
NOTE: These Kits do NOT require stems with threaded upper ends

1) Using the factory provided mounting holes, secure the SPUS-ADJ Crossbar directly to the ceiling, standard outlet box, or other allowed flat surface using toggle bolts or appropriate screws (by others). **CAUTION:** When using screws (other than for a standard outlet box), make certain that there is adequate support blocking.



2) If mounting to a standard outlet box, connect the crossbar to system ground using the green screw provided.

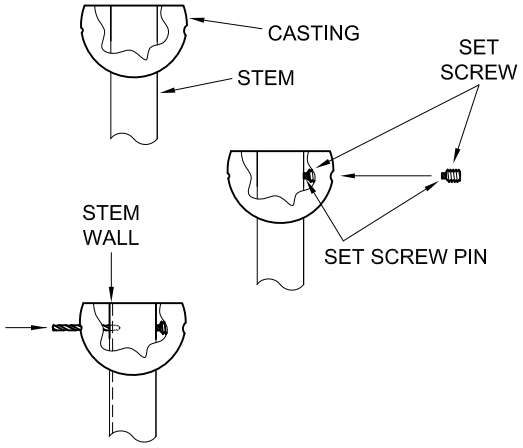
3) If the stem is to be used for support only (no wiring), and no other stem is to be coupled to its lower end, drill a 3/16" hole clear through the lower end of stem (both sides) 5/8" from the end. It is recommended that a drill press be used for this procedure. NOTE: If a particular layout requires more than one stem to be used for support only, it is recommended that they all be prepared together as a batch.



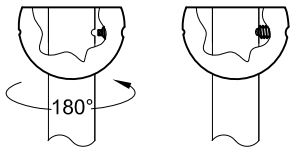
4) Insert the upper end of the stem into the round end of the SPUS-ADJ Casting such that the end of the stem is flush with the flat side of the casting. See diagram, near right.

5) Install the set screw into the SPUS-ADJ Casting such that the pin of the set screw is pressing tightly against the stem, thereby holding the stem in place. See diagram, far right.

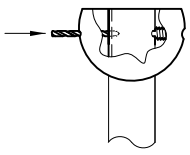
6) Using the hole on the casting opposite the set screw as a guide, drill through the stem wall using a 1/8" drill bit. Make certain that the drill bit stays perpendicular to the stem, and drill through the first stem wall only. See diagram, near right.



7) Loosen the set screw several turns and rotate the stem exactly 180° keeping the end of the stem flush with the flat side of the casting. Retighten the set screw such that the pin of the set screw is now engaged into the hole drilled in the previous step.



8) Using the hole on the casting opposite the set screw as a guide, drill through the stem wall using the same 1/8" drill bit. Make certain that the drill bit stays perpendicular to the stem, and drill through the first stem wall only. NOTE: There should now be two 1/8" holes in the end of the stem opposite one another.



9) Remove and discard the set screw.

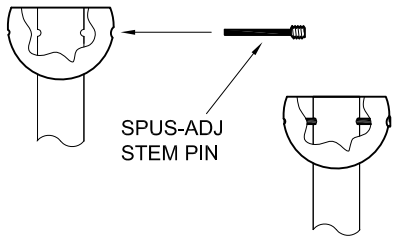
10) Remove the stem from the casting and remove any burrs from the inside of the two drilled holes.

Continued on next page

PENDANT SUSPENSION DETAIL (Using Adjustable SPUS-ADJ Suspension Kits) (Continued)

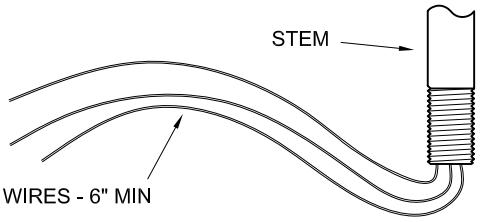
11) Reinsert the stem into the round end of the SPUS-ADJ Casting such that the casting holes and newly drilled stem holes are aligned. See diagram, near right.

12) Install the SPUS-ADJ Stem Pin into the casting such that the end of the pin extends through both holes of the stem and into the opposite side of the casting. See diagram, far right.



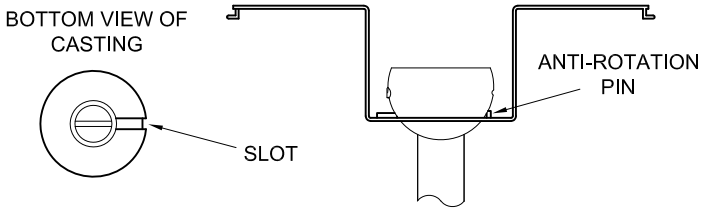
13) If more than one stem section is to be coupled together, do so now. Make certain that all threads are fully engaged within the coupling(s). If the coupled stems are to be used for mechanical support only (no wiring), drill a hole to the lower end of the bottom stem using the procedure outlined in Step 3 on the previous page. **CAUTION:** If the stems are to have wires snaked within, remove any sharp edges or burrs, if present, on the inside edges of all stem openings before coupling them together.

14) If the stem(s) is to have wires snaked within, install the wires now, otherwise skip this step. Leave at least 6" of wire exiting from each end of the stem or stem assembly.

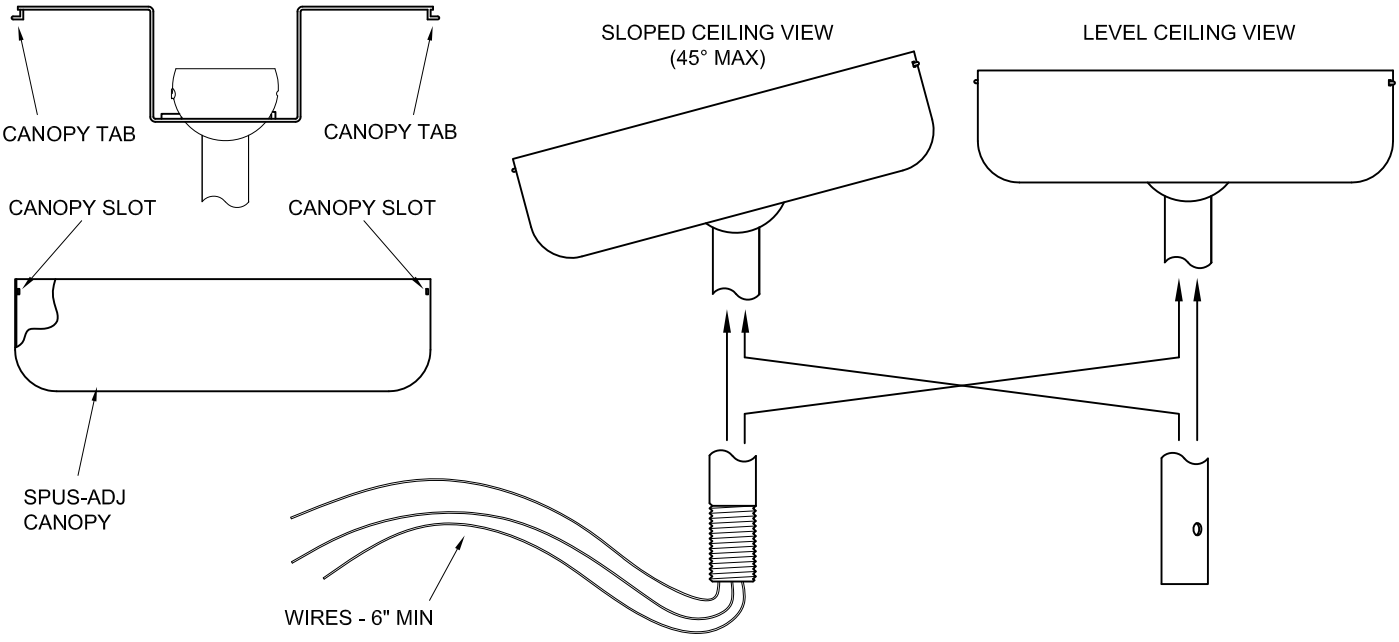


15) Slip the SPUS-ADJ Casting onto the SPUS-ADJ Crossbar such that anti-rotation pin of the crossbar rests within the slot in the casting.

16) If the stem(s) has wires snaked within, make up all electrical connections.



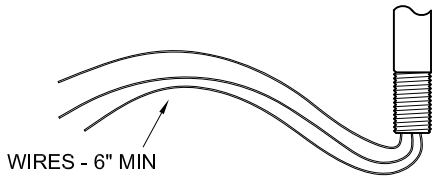
17) Carefully slide the SPUS-ADJ Canopy up the stem, lightly squeeze the canopy between the two tab slots, and snap it in place such that both canopy tabs are fully engaged with the two canopy slots. NOTE: Take care not to scratch the finished surface of the stem with the canopy.



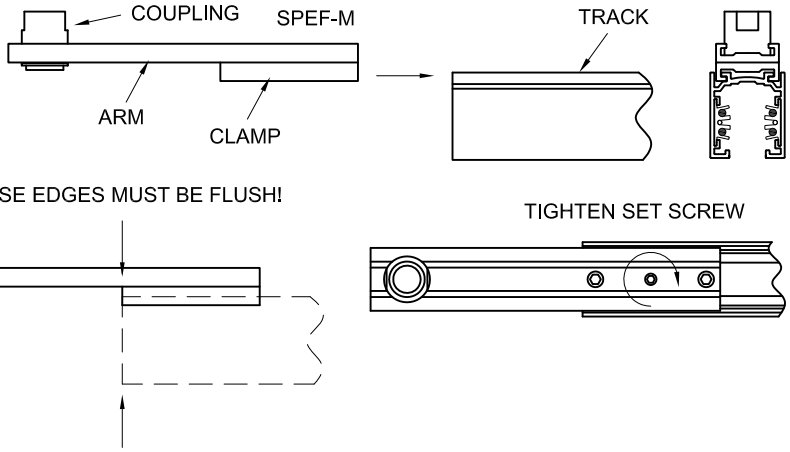
PENDANT WIRING DETAIL (Using SPEF-M, SPCF-M, SPLF-M, SPTF-M, or SPXF-M Pendant Supports)
NOTE: These Supports require stems with threaded lower ends

Pendant supports that double as wireways are available for Live End, Middle Feed, L, T, and X Connectors. They are available by the part numbers SPEF-M, SPCF-M, SPLF-M, SPTF-M and SPXF-M respectively. The instructions below are for the SPEF-M Pendant Support in conjunction with a Live End Connector and are representative of the SPCF-M, SPLF-M, SPTF-M and SPXF-M Pendant Supports. **CAUTION:** Use 12 lbf-in (1.4N-m) torque on all 120V and 277V electrical connections!

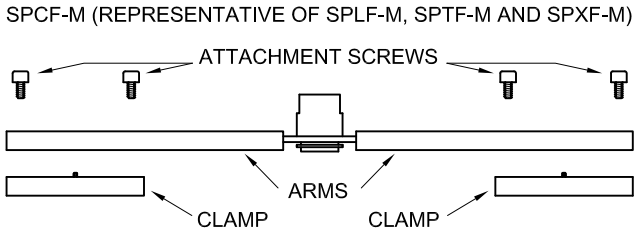
NOTE: If wiring is required then the wires most likely have already been installed in the stem(s). If not, then wires can be pulled through the stem(s) at any time during this procedure. Leave at least 6" of wire exiting from each end the stem(s).



1) Slide the SPEF-M Pendant Support onto the track such that the edge of the clamp is flush with the track as shown, then tighten the set screw with a 2mm hex wrench. See diagrams, right.

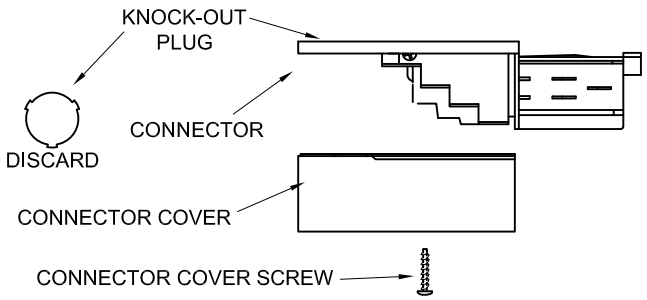


NOTE: For SPCF-M, SPLF-M, SPTF-M and SPXF-M type supports it may be necessary to: 1) Separate the clamps from the arms, 2) Slide the clamps onto their respective track sections, then, 3) Reattach the arms after the Connector has been installed to the track. To do this a 3mm hex wrench will be needed to remove and reinstall the attachment screws. See diagram, right.

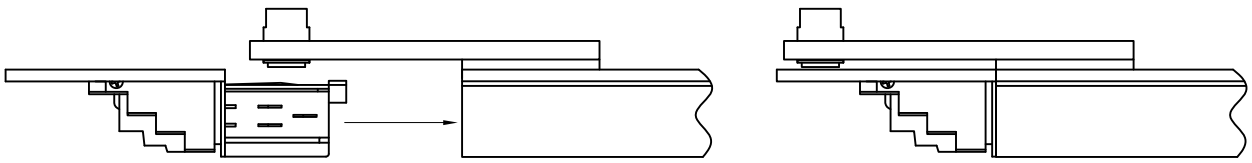


2) Remove Connector cover and cover screw(s) and set aside. It should be noted that Connectors may be used to bring a control signal only to the track system, especially with DMX control runs. If this is the case, ignore the instructions for the power feed and follow the instructions for the control signal wiring.

3) Remove the knock-out plug and discard.



4) Attach the Connector to the track. See diagrams below.



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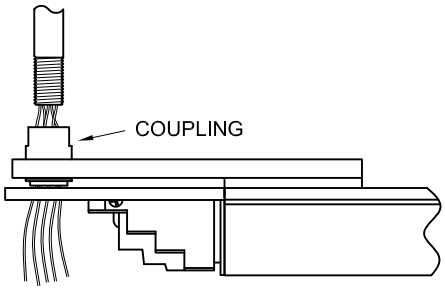
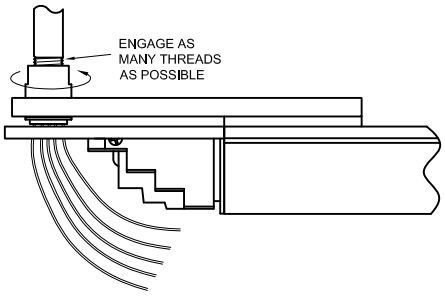
PENDANT WIRING DETAIL (Using SPEF-M, SPCF-M, SPLF-M, SPTF-M, or SPXF-M Pendant Supports) (Continued)

5) If wiring is present, pass the wires through the coupling and into the Connector. See diagram below, left.

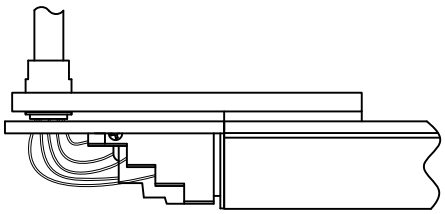
6) Attach the stem to the coupling. Engage as many threads as possible. NOTE: The coupling rotates in place. See diagram below, right.





7) If power feed wires are present, connect system ground to the screw terminal indicated for ground: ⏚

8) If power feed wires are present, connect the hot and neutral feed wires to the L and N screw terminals respectively using the instructions in Section 1: ELECTRICAL POWER CONNECTIONS. Make certain that the electrical feed matches the track type according to those instructions. Also, see the NOTE and CAUTION in the first paragraph of Section 3: FEEDING THE TRACK AND TRACK LAYOUTS, and review Guidelines For Layouts also in Section 3.



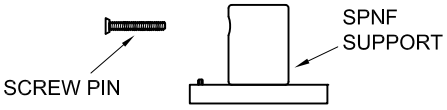
If control signal wires are present, connect them to the D+ and D- screw terminals according to the chart below. If a DMX terminating resistor is to be used, then install it as shown in Section 3: FEEDING THE TRACK AND TRACK LAYOUT, Guidelines for Layouts.

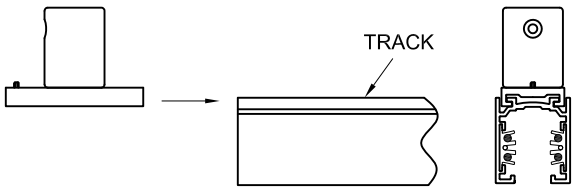
Data Track Connector	DMX Shielded Twisted Pair	DMX Unshielded Twisted Pair (CAT5 or CAT6)	0-10V	DALI
D+ D-	Data + [Any Color] Data - [Any Color]	Orange/White Orange	Signal + (Violet) Signal - (Pink or Grey*)	No Polarity [Any Color] No Polarity [Any Color]

9) Reattach the Connector cover.

PENDANT MECHANICAL SUPPORT DETAIL (Using SPNF Pendant Supports)
NOTE: These Supports do NOT require stems with threaded lower ends

1) Completely remove the screw pin from the support. See diagram, right.



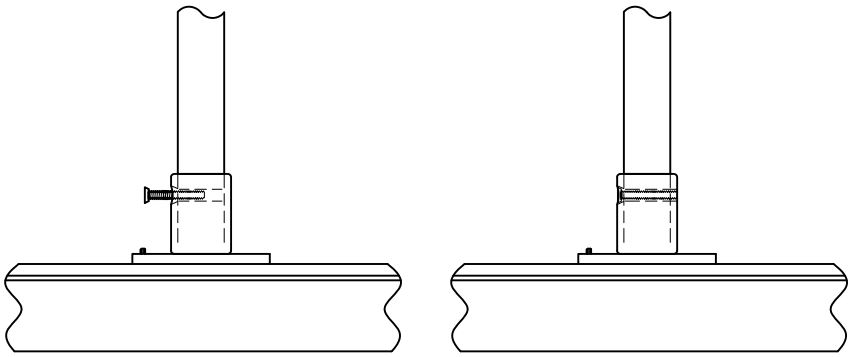


2) Slide the SPNF Pendant Support onto the track and place it as close as possible to its eventual location. See diagrams, left.

Continued on next page

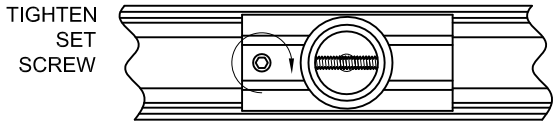
PENDANT MECHANICAL SUPPORT DETAIL (Using SPNF Pendant Supports) (Continued)

3) Carefully lift and insert the corresponding stem into the Support. Rotate the stem such that the pre-drilled holes in the lower end of the stem line up with the holes in the Support and insert the screw pin. See diagram, near right.

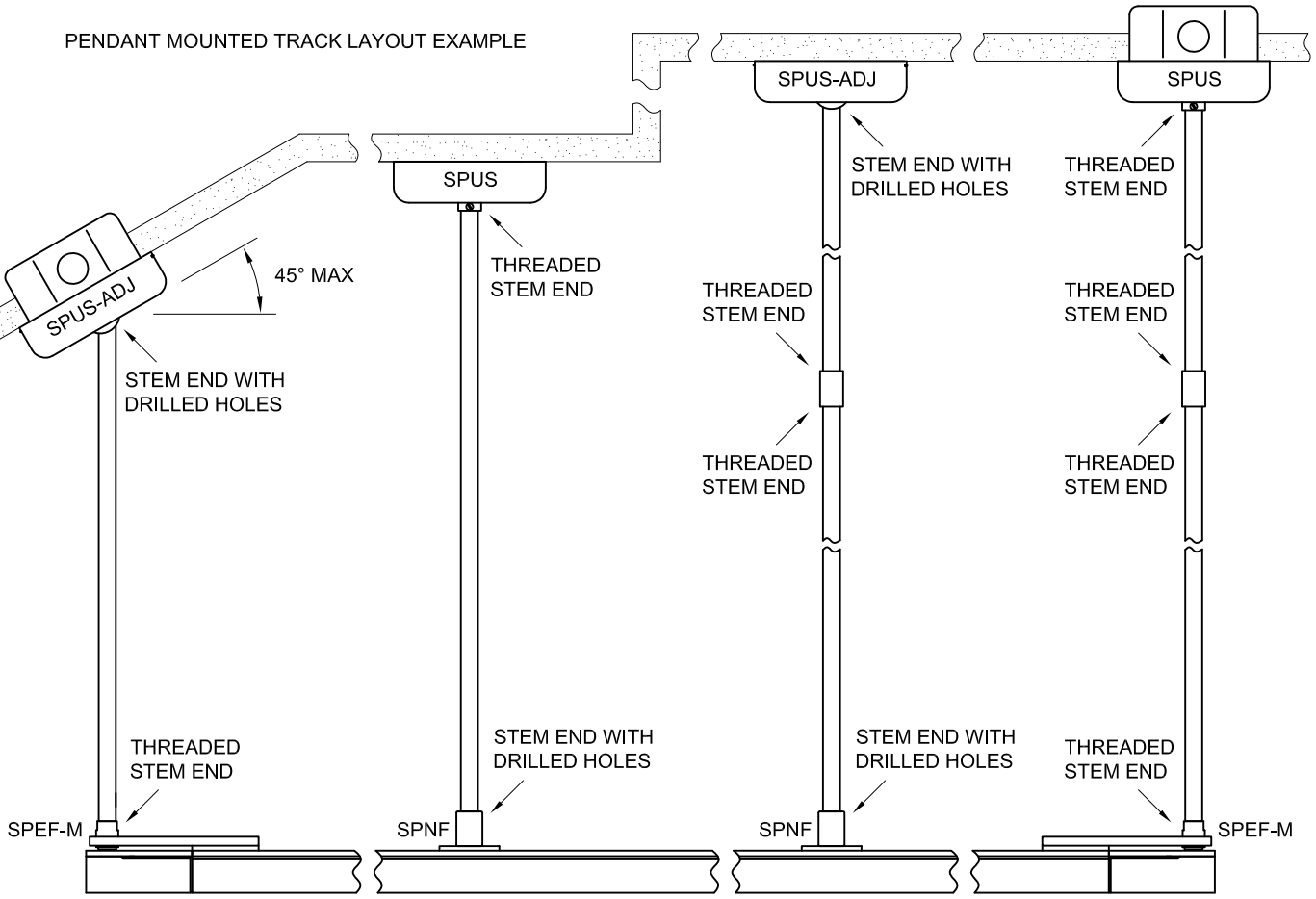


4) With a 2.5mm hex wrench, tighten the screw pin until the head of the screw is flush with the Support. See diagram, far right.

5) Using a level, make certain that the stem is plumb and tighten the set screw on end of the Support with a 2mm hex wrench.



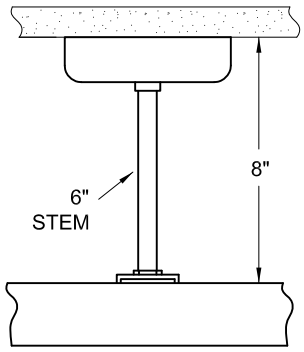
6) If the layout is complete and SPUS Suspension Kits were used, then go to Pendant Suspension Detail (Using SPUS Suspension Kits) on Page 34 and complete Steps 10 through 12 now.



Pendant Mounting: Drama Series Track

Two phases are required to install pendant mounted Drama Series track. In all cases, pendants use 3/8" NPT stems. The first phase encompasses mounting the pendant suspension hardware, canopies and pendants to the electrical boxes or the building support structure above. The second phase encompasses mounting the track to the pendants using S-9000/113-M Supports.

NOTE: All Suspension components, when installed, will measure approximately 2" plus the length of the stem from the mounting surface to the top of the track. For example, a 6" stem with its associated suspension components would yield 8" total. See diagram, right.



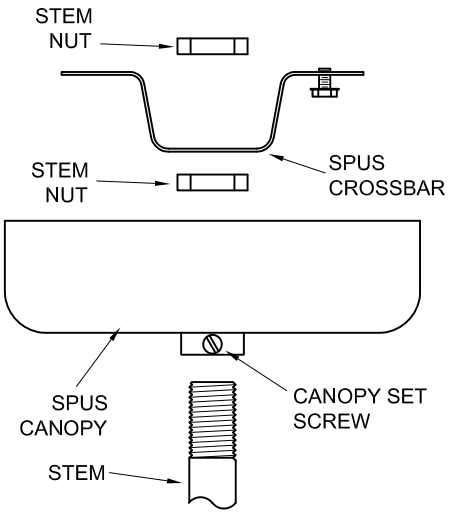
CAUTION: A single track section that is 4 feet or less in length must have one Pendant Support spaced a maximum of 6 inches from each end of the track section. A single track section that is greater than 4 feet in length must have one Pendant Support spaced a maximum of 24 inches from each end of the track section with additional Pendant Supports provided a maximum of every 4 feet along the length of the track section.

Pendant stems are supplied with both ends threaded. In many cases, the stems need to be cut to a specific length, and therefore one end will end up with the threads removed. In all cases, a hole will need to be added to the cut end of such stems. The procedure for adding these holes will be discussed later in this Section.

For the first phase, there are two methods shown. The first method is for installing pendants to perfectly level surfaces. This method uses SPUS suspension kits and requires stems with threaded ends. The second method is for installing pendants to sloped, i.e., tilted or non-level surfaces, or where the stem may need to swivel. This method uses SPUS-ADJ suspension kits which require a hole to be added to the end of the stem. In all cases, it must be determined how long the stems need to be and whether or not threads are required to the upper end of each stem. Read through and understand the following pages on Pendant Mounting entirely before cutting the stems.

PENDANT SUSPENSION DETAIL (Using SPUS Suspension Kits)
NOTE: These Kits require stems with threaded upper ends)

Use the diagram to the right as a guide along with the instructions below.



1) Using the factory provided mounting holes, secure the SPUS Crossbar directly to the ceiling, standard outlet box, or other allowed flat surface using toggle bolts or appropriate screws (by others). **CAUTION:** When using screws (other than for a standard outlet box), make certain that there is adequate support blocking.

2) If mounting to a standard outlet box, connect the crossbar to system ground using the green screw provided.

3) Attach a stem nut to the stem approximately 1/2" from the upper end.

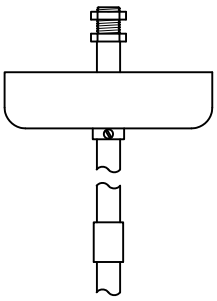
4) Add a second stem nut to the end of the stem. Do not tighten the nuts together, leave a gap of approximately 3/8".

5) Loosen the set screw on the SPUS Canopy and carefully slide the canopy approximately half way onto the stem. Take care care not to scratch the finished surface of the stem with the canopy. Lightly tighten the set screw to temporarily hold the canopy in place.

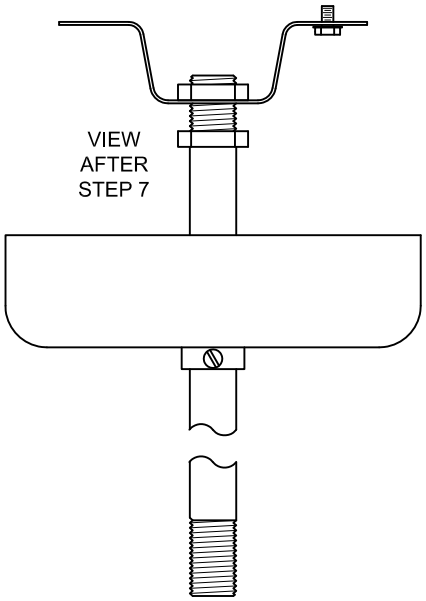
Continued on next page

PENDANT SUSPENSION DETAIL (Using SPUS Suspension Kits) (Continued)

6) If more than one stem section is to be coupled together, do so now. Make certain that all threads are fully engaged within the coupling(s).

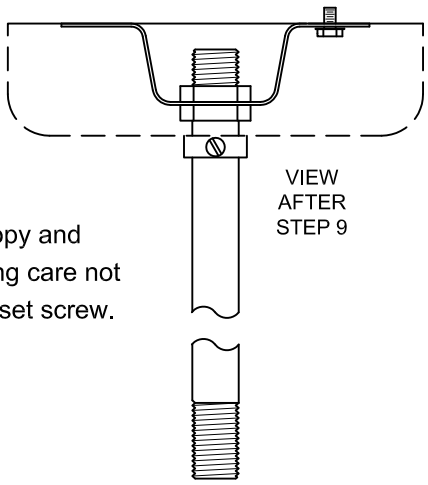


7) Slip the stem(s) onto the SPUS Crossbar such that the upper stem nut sits directly onto the crossbar and is centered within the crossbar. See diagram below, left.



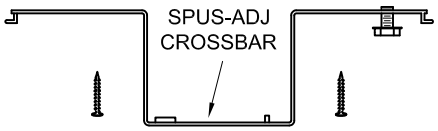
8) Tighten the upper stem nut to the crossbar such that the crossbar is sandwiched tightly between the two nuts. Note: If there are multiple pendant supports on a particular layout, it may be beneficial to skip this and the next step until *all* of the track has been hung for that layout.

9) Loosen the set screw on the SPUS Canopy and carefully slide the canopy up the stem, taking care not to scratch the finished surface. Tighten the set screw. See diagram, right.



PENDANT SUSPENSION DETAIL (Using Adjustable SPUS-ADJ Suspension Kits)
NOTE: These Kits do NOT require stems with threaded upper ends

1) Using the factory provided mounting holes, secure the SPUS-ADJ crossbar directly to the ceiling, standard outlet box, or other allowed flat surface using toggle bolts or appropriate screws (by others). **CAUTION:** When using screws (other than for a standard outlet box), make certain that there is adequate support blocking.

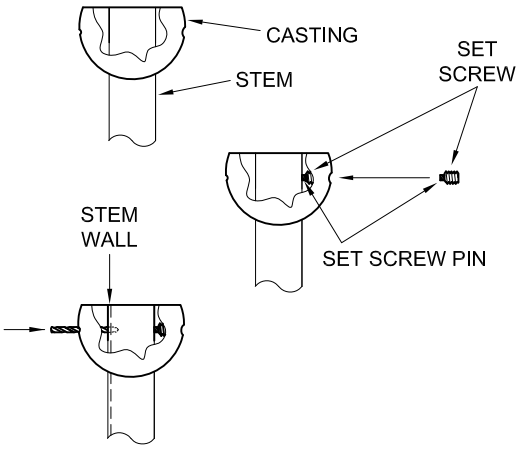


2) If mounting to a standard outlet box, connect the crossbar to system ground using the green screw provided.

3) Insert the upper end of the stem into the round end of the SPUS-ADJ Casting such that the end of the stem is flush with the flat side of the casting. See diagram, near right.

4) Install the set screw into the SPUS-ADJ Casting such that the pin of the set screw is pressing tightly against the stem, thereby holding the stem in place. See diagram, far right.

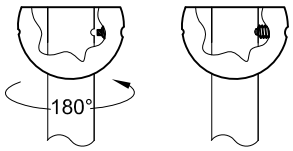
5) Using the hole on the casting opposite the set screw as a guide, drill through the stem wall using a 1/8" drill bit. Make certain that the drill bit stays perpendicular to the stem, and drill through the first stem wall only. See diagram, near right.



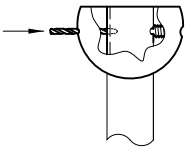
Continued on next page

PENDANT SUSPENSION DETAIL (Using Adjustable SPUS-ADJ Suspension Kits (Continued)

6) Loosen the set screw several turns and rotate the stem exactly 180° keeping the end of the stem flush with the flat side of the casting. Retighten the set screw such that the pin of the set screw is now engaged into the hole drilled in the previous step.



7) Using the hole on the casting opposite the set screw as a guide, drill through the stem wall using the same 1/8" drill bit. Make certain that the drill bit stays perpendicular to the stem, and drill through the first stem wall only. NOTE: There should now be two 1/8" holes in the end of the stem opposite one another.

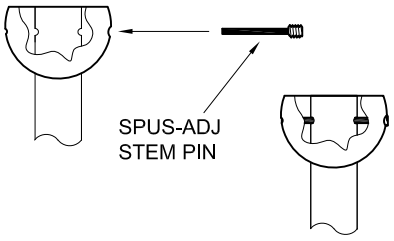


8 Remove and discard the set screw.

9) Remove the stem from the casting and remove any burrs from the inside of the two drilled holes.

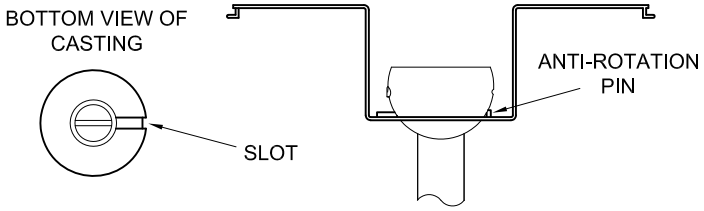
10) Reinsert the stem into the round end of the SPUS-ADJ Casting such that the casting holes and newly drilled stem holes are aligned. See diagram, near right.

11) Install the SPUS-ADJ Stem Pin into the casting such that the end of the pin extends through both holes of the stem and into the opposite side of the casting. See diagram, far right.

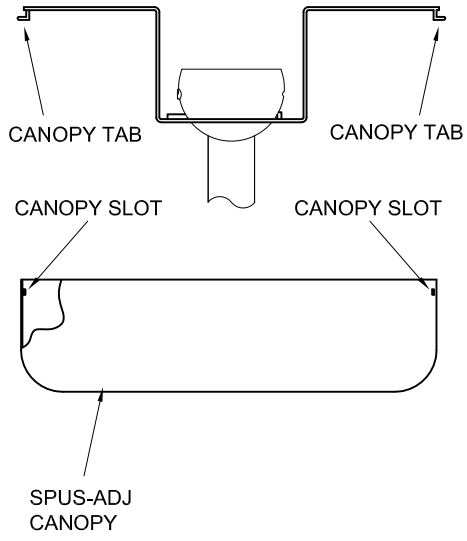


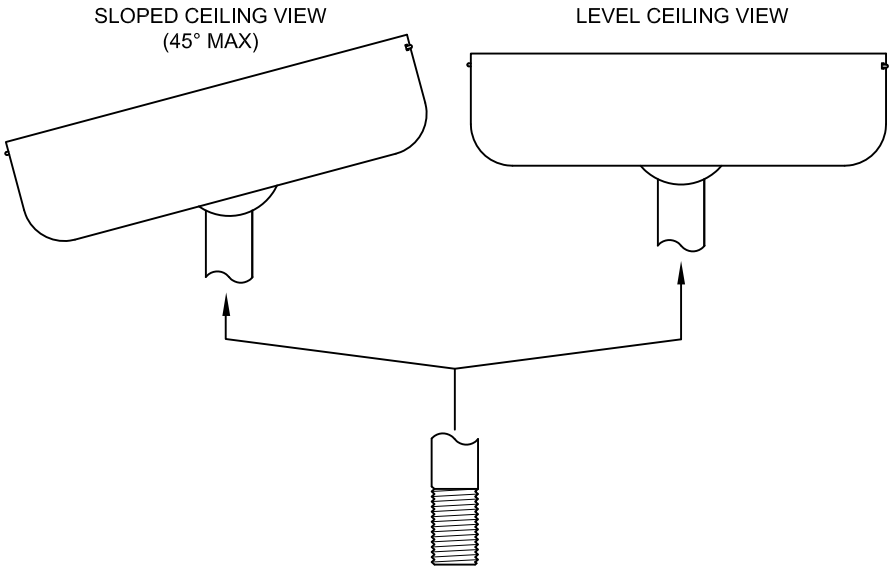
12) If more than one stem section is to be coupled together, do so now. Make certain that all threads are fully engaged within the coupling(s).

13) Slip the SPUS-ADJ Casting onto the SPUS-ADJ Crossbar such that anti-rotation pin of the crossbar rests within the slot in the casting.



14) Carefully slide the SPUS-ADJ Canopy up the stem, lightly squeeze the canopy between the two tab slots, and snap it in place such that both canopy tabs are fully engaged with the two canopy slots. NOTE: Take care not to scratch the finished surface of the stem with the canopy.

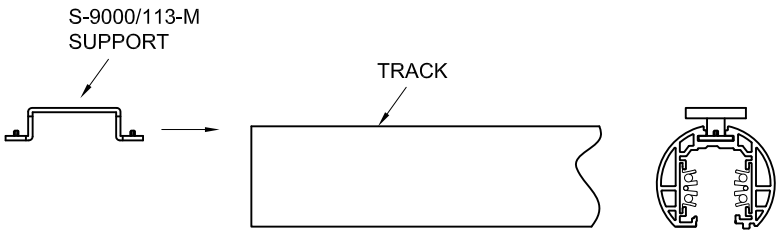




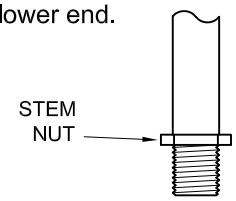
PENDANT MECHANICAL SUPPORT DETAIL (Using S-9000/113-M Pendant Supports)
NOTE: These Supports require stems with threaded lower ends

1) The S-9000/113-M Pendant Support is supplied with two stem nuts. For now, set the two nuts aside.

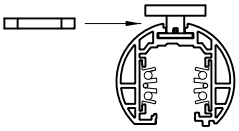
2) Slide the S-9000/113-M Pendant Support onto the track and place it as close as possible to its eventual location.



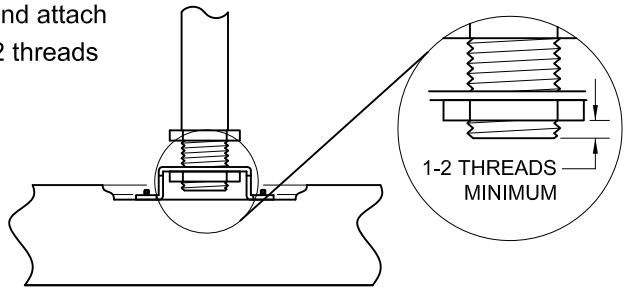
3) Attach a stem nut to the stem approximately 1/2" from the lower end.



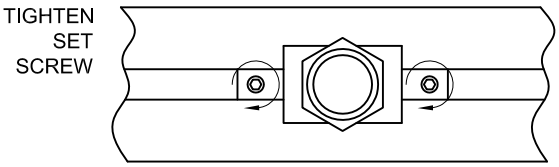
4) Slip the second stem nut into the narrow gap between the Support and the track.



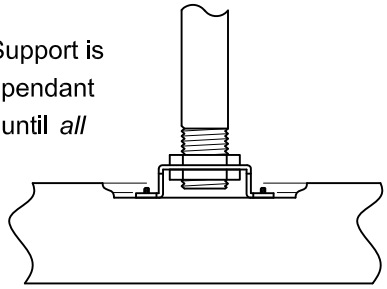
5) Carefully lift and insert the corresponding stem into the Support and attach the second stem nut onto the stem. **CAUTION:** There should be 1-2 threads of the stem extending beyond the second nut.



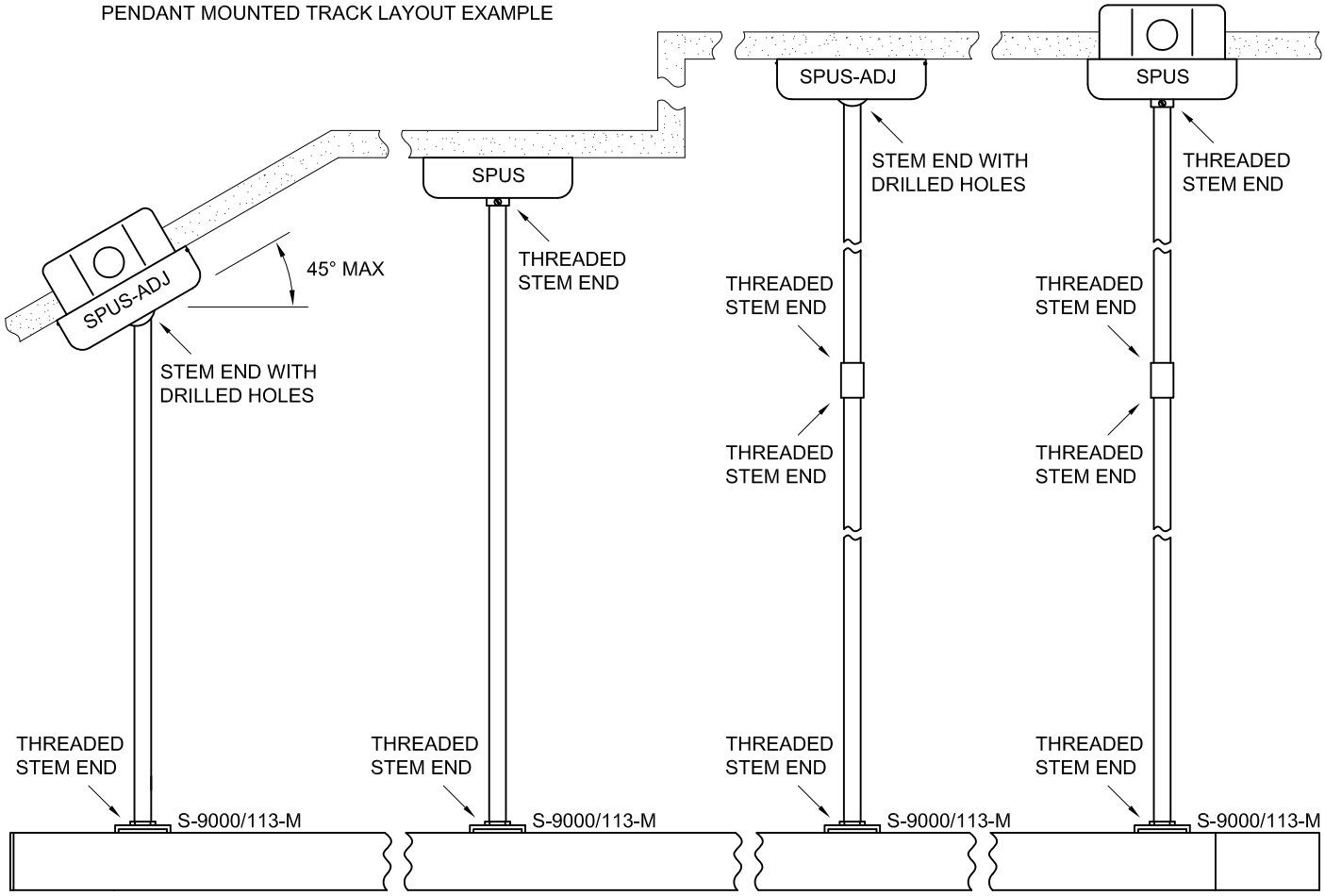
6) Using a level, make certain that the stem is plumb and tighten the two set screws on ends of the Support with a 2mm hex wrench.



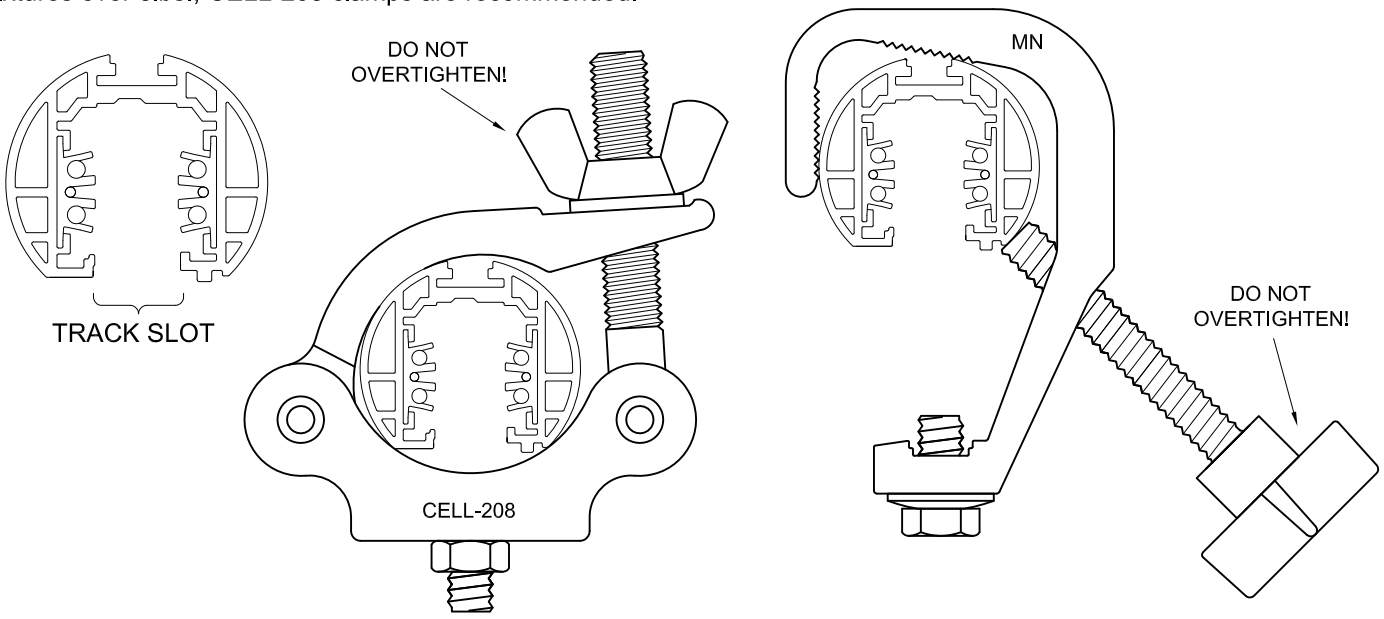
7) Tighten the first stem nut to the top of the Support such that the Support is sandwiched tightly between the two nuts. Note: If there are multiple pendant supports on a particular layout, it may be beneficial to skip this step until *all* of the track has been hung for that layout.



PENDANT MOUNTED TRACK LAYOUT EXAMPLE



CAUTION: Although a typical layout using Drama Series Track has the *appearance* of a truss system, it is not as robust as truss, and should never be used as a truss system. Use only Times Square approved Lighting Fixtures and components (clamps, safety cables, etc.). Never exceed the 11lb/ft Maximum track loading. When installing Times Square approved clamps and safety cables to the outer surface of the track, make certain that no portion of the clamp, bolt, screw, safety cable, power cable or the like encroach into the track slot. See diagram below, left. If a clamp is used, make certain that the clamp or any portion thereof does not deform the track. See diagrams below, center and right. For fixtures over 3lbs., CELL-208 clamps are recommended.



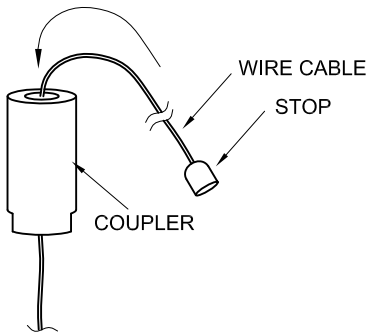
Wire Cable Mounting: Rectangular Profile Track Only (Using CG Series Wire Cable Support Kits with SPBRK2P Clips)

CAUTION: A single track section that is 4 feet or less in length must have one Wire Cable Support spaced a maximum of 6 inches from each end of the track section. A single track section that is greater than 4 feet in length must have one Wire Cable Support spaced a maximum of 24 inches from each end of the track section with additional Wire Cable Supports provided a maximum of every 4 feet along the length of the track section.

1) Using the factory provided mounting holes, secure the crossbar directly to the ceiling, standard outlet box, or other allowed flat surface using toggle bolts or appropriate screws (by others). See diagram below, right. **CAUTION:** When using screws (other than for a standard outlet box), make certain that there is adequate support blocking. NOTE: Other specialty hardware is available in lieu of the crossbar for mounting to specific structures. Consult factory for details.

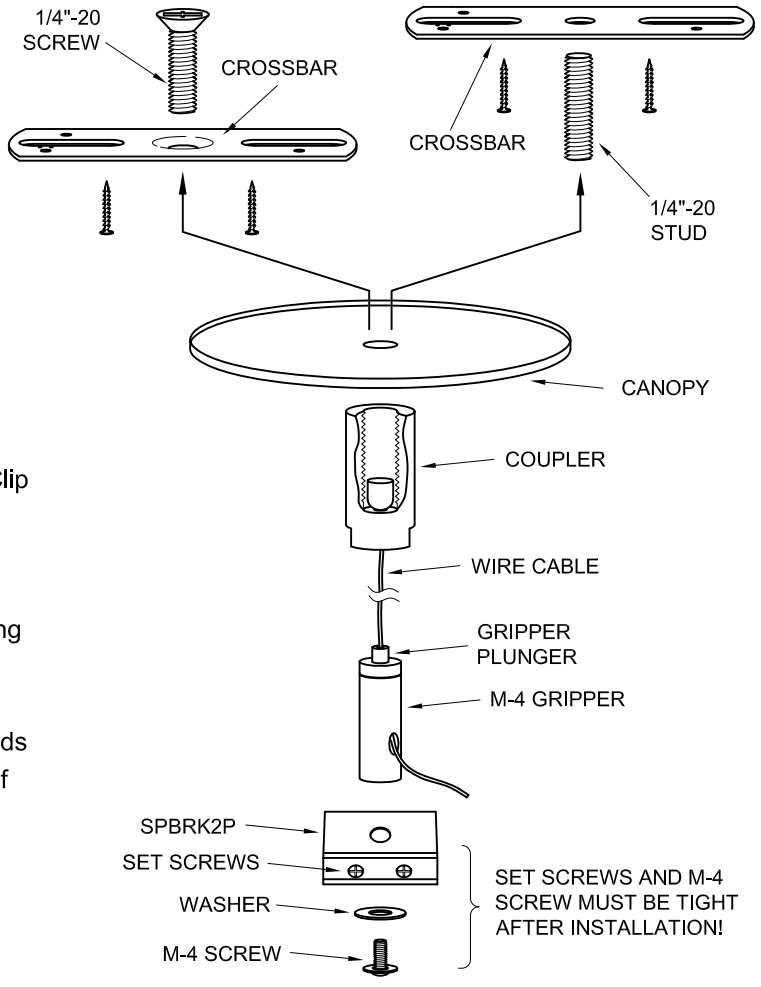
2) If mounting to a standard outlet box, connect the crossbar to system ground using the green screw provided.

3) Attach the 1/4"-20 stud or screw to the crossbar.



4) Thread the free end of the wire cable through the 1/4"-20 coupler until the stop is seated inside the coupler. See diagram, left.

5) Place the canopy over the screw (or stud) and thread the 1/4"-20 coupler onto the screw (or stud) until tight. **CAUTION:** At least three full threads of the stud MUST be inside the crossbar AND the coupler.



6) Attach the M-4 Gripper to the SPBRK2P Clip with the M-4 Screw and Washer provided. The washer MUST be placed between the screw head and the clamp, and the screw MUST be tight.

7) Thread the free end of the wire cable through the M-4 Gripper until approximately one inch of wire cable is extending beyond the side of the gripper.

8) Loosen the set screws on the side of the SPBRK2P Clip and attach it to the track. Fully tighten the set screws.

9) The length of the cable may be further adjusted by carefully depressing the gripper plunger and slowly pulling the wire cable into or out of the gripper.

10) Trim the wire cable such that approximately 1" extends from the side of the gripper. NOTE: The cable is made of hard steel. Use cutters designed for cutting this material.

1/4"-20 Threaded Rod Mounting: Rectangular Profile Track Only

CAUTION: A single track section that is 4 feet or less in length must have one Threaded Rod Support spaced a maximum of 6 inches from each end of the track section. A single track section that is greater than 4 feet in length must have one Threaded Rod Support spaced a maximum of 24 inches from each end of the track section with additional Threaded Rod Supports provided a maximum of every 4 feet along the length of the track section.

Two methods for threaded rod mounting are illustrated in the diagrams on the next page. Method 1 (see diagram on next page, left side) uses SPBRK2P Clips and CG Series Crossbars and Canopies from CG Series Wire Cable Support Kits (threaded rod by others). Method 2 (see diagram on next page, right side) uses SPBRK2P Clips and parts by others. As indicated in the diagrams, various components can be mixed and matched to complete the mounting system. NOTE: Other specialty hardware is available in lieu of the crossbar for mounting to specific structures. Consult factory for details.

Whichever method is chosen, the threaded rods (by others) should be pre-cut to the desired length(s) beforehand if need be, and make certain that the threaded ends will easily accept a nut. It is best to install a nut close the point where the rod is to be cut, then cut the rod. Grind the cut end fairly smooth and remove any burrs. Removing the nut will assist in aligning any threads that may have been disturbed in the cutting process.

Method 1 (Using PBRK2P Clips and CG Series Crossbars and Canopies from CG Series Wire Cable Support Kits)

1) Using the factory provided mounting holes, secure the CG Series crossbar directly to the ceiling, standard outlet box, or other allowed flat surface using toggle bolts or appropriate screws (by others). **CAUTION:** When using screws (other than for a standard outlet box), make certain that there is adequate support blocking.

2) If mounting to a standard outlet box, connect the crossbar to system ground using the green screw provided.

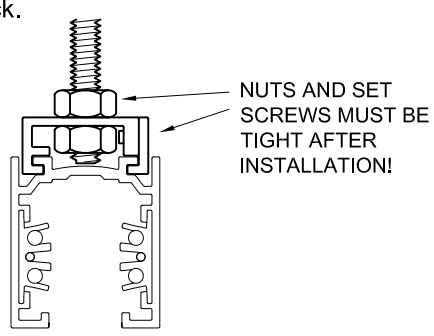
3) Attach a 1/4"-20 nut (by others) to the threaded rod, and attach the threaded rod to the crossbar. Lock the rod into place by tightening the nut to the crossbar.

4) Slip the CG Series canopy onto the rod and use a 1/4"-20 nut (by others) to hold it in place.

NOTE: Read Alternate Rod-to-Track Attachment instructions on Page 48 before proceeding to next Step. If that method of attachment is employed, then the following steps can be ignored.

5) Attach the threaded rod directly to the SPBRK2P Clip by sandwiching the clip between two 1/4"-20 nuts (by others). Make certain that the 1/4"-20 nuts are tight. **CAUTION:** There should be 1-2 threads of the rod extending beyond the bottom nut when finished. See diagram below.

6) Loosen the set screws on the side of the SPBRK2P Clip and attach it to the track. Fully tighten the set screws. See diagram, right.



Continued on next page

1/4"-20 Threaded Rod Mounting (Continued)

Method 2 (Using PBRK2P Clips and Crossbars / Canopies by others)

1) Attach the 1/4"-20 threaded rod to the crossbar (by others) using appropriate hardware (by others).

2) Secure the crossbar directly to the ceiling, standard outlet box, or other allowed flat surface using toggle bolts or appropriate screws (by others). **CAUTION:** When using screws (other than for a standard outlet box), make certain that there is adequate support blocking.

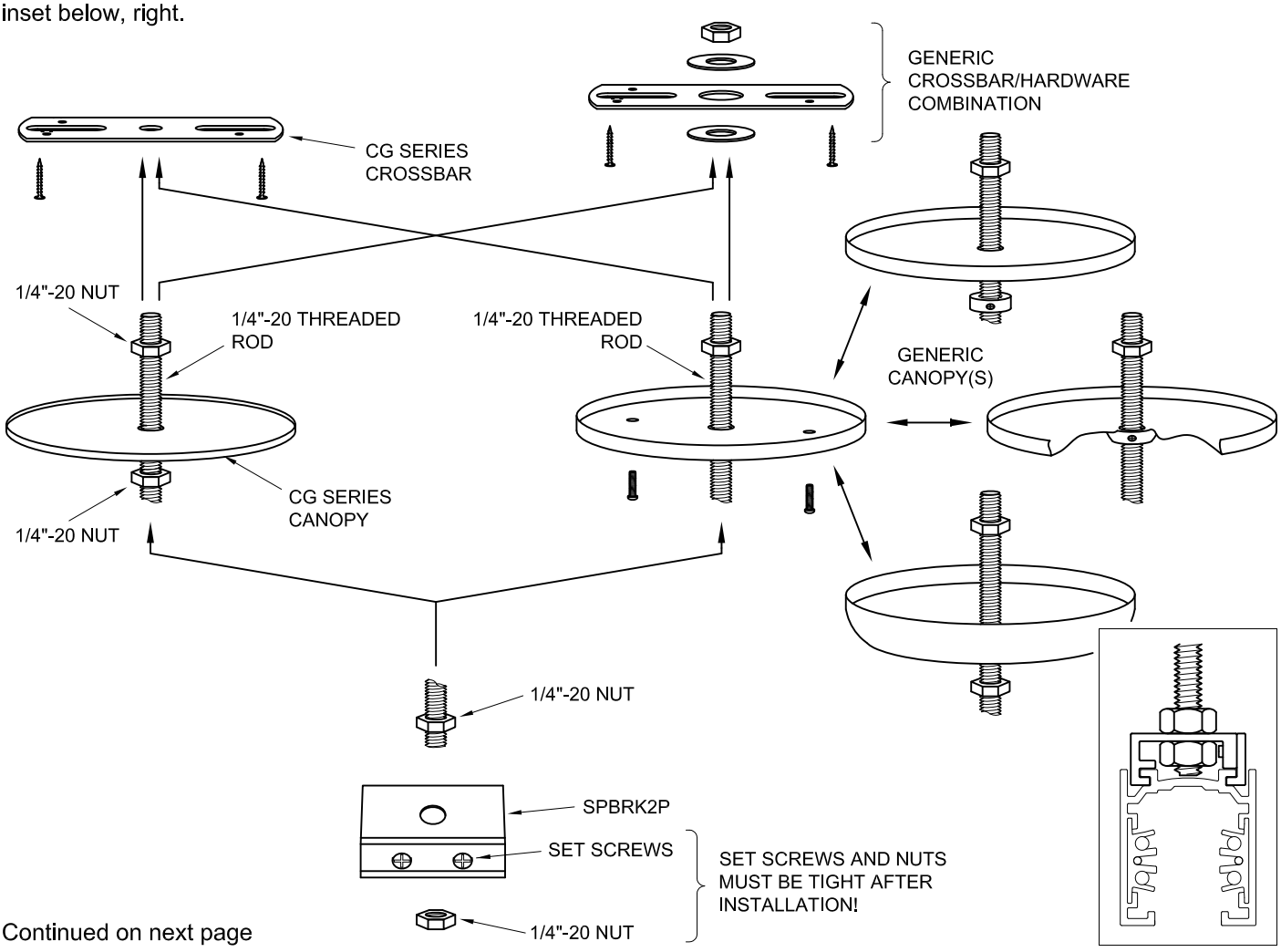
3) If mounting to a standard outlet box, connect the crossbar to system ground using an approved method.

4) Install the canopy (by others) using the intended method for that particular canopy.

NOTE: Read Alternate Rod-to-Track Attachment instructions on the next page before proceeding to next Step. If that method of attachment is employed, then the following steps can be ignored.

5) Attach the threaded rod directly to the SPBRK2P Clip by sandwiching the clip between two 1/4"-20 nuts (by others). Make certain that the 1/4"-20 nuts are tight. **CAUTION:** There should be 1-2 threads of the rod extending beyond the bottom nut when finished. See insert below, right.

6) Loosen the set screws on the side of the SPBRK2P Clip and attach it to the track. Fully tighten the set screws. See inset below, right.



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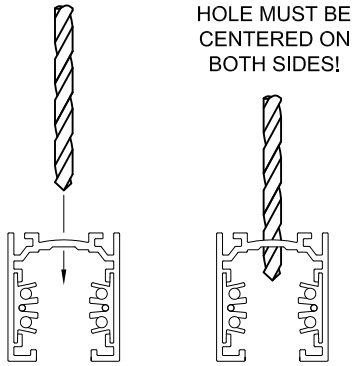
1/4"-20 Threaded Rod Mounting (Continued)

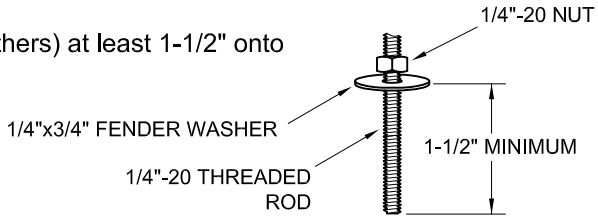
Alternate 1/4"-20 Threaded Rod-to-Track Attachment:

For simpler layouts where: 1) the track runs are relatively short and straight, and 2) where the rods are less than 12" in length, the rod may be attached directly to the track without the use of SBPRK2P Clips. Follow Steps 1 through 4 for Methods 1 or 2 (on the two previous pages) and continue with the instructions below. Read and fully understand the following instructions before installation, and then determine if this approach is better suited for the layout at hand.

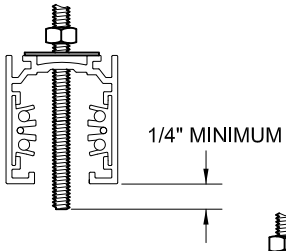
1) Drill through the track using a 17/64" drill bit. The hole(s) should be centered in the base of the track. Make certain that the drill bit stays perpendicular to the base of the track and does NOT come in contact with any other parts of the track while drilling. Although not absolutely necessary, it is recommended that a drill press be used for this procedure. Remove burrs after drilling.



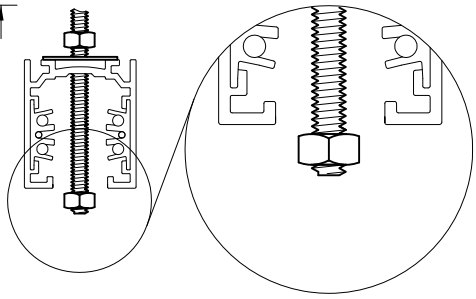
2) Install a first 1/4"-20 nut and a 1/4" x 3/4" fender washer (both by others) at least 1-1/2" onto threaded rod.



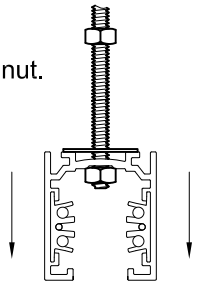
3) Push track up onto threaded rod until at least 1/4" of the rod is exposed below the track.

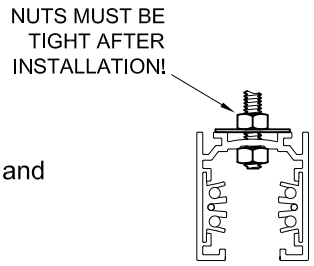


4) Install a second 1/4"-20 nut (by others) . **CAUTION:** There should be 1-2 threads of the rod extending beyond the second nut.



5) Pull the track and fender washer down, onto the second nut.





6) Screw down the first nut, sandwiching the track and fender washer between the first and second nuts. Make certain that the nuts are fully tight.

Recessed Mounting: Flanged Profile Track

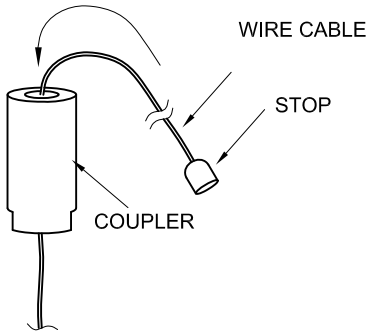
Three methods for installing Recessed Flange Track are illustrated in the diagrams on the next four pages. Method 1 uses SPBRK2P Clips with CG Series Wire Cable Support Kits. Method 2 uses SPBRK2P Clips and suspension parts by others. Method 3 uses Blocking.

Method 1 (Using SPBRK2P Clips and CG Series Crossbars and Canopies from CG Series Wire Cable Support Kits)

CAUTION: When employing Method 1, there must be one Support spaced a maximum of 2 inches from each end of the track section with additional Supports provided every 3 feet maximum along the entire length of that section.

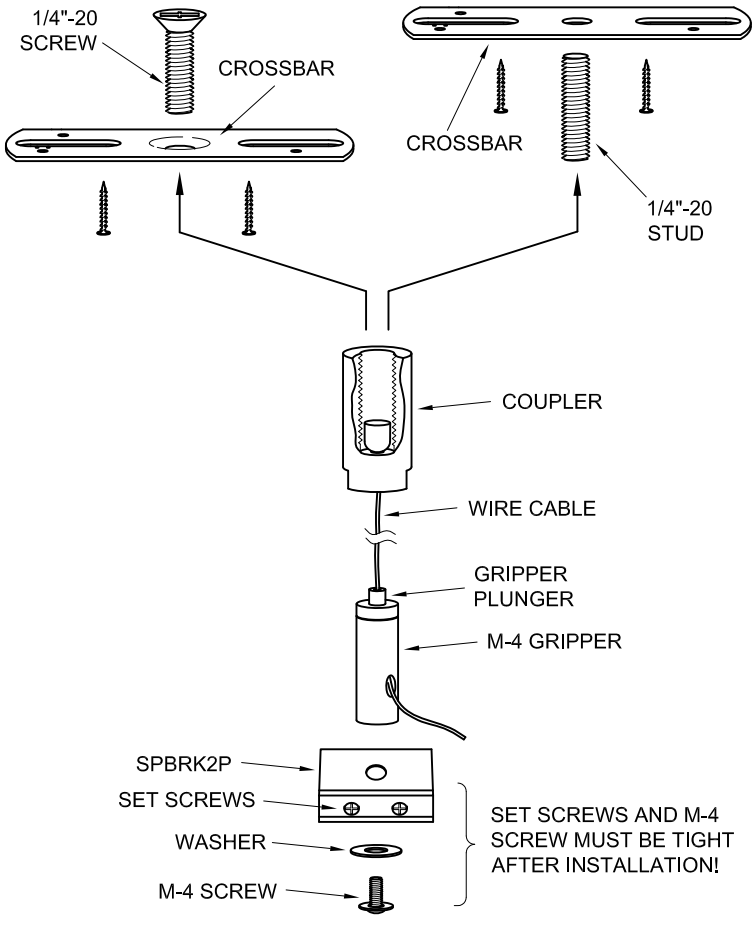
1) Using the factory provided mounting holes, secure the crossbar directly to the ceiling, the building support structure above, or other allowed flat surface using toggle bolts or appropriate screws (by others). **CAUTION:** When using screws make certain that there is adequate support blocking.

2) Attach the 1/4"-20 stud or screw to the crossbar.



3) Thread the free end of the wire cable through the 1/4"-20 coupler until the stop is seated inside the coupler. See diagram, left.

4) Thread the 1/4"-20 coupler onto the screw (or stud) until tight. **CAUTION:** At least three full threads of the stud MUST be inside the crossbar AND the coupler.



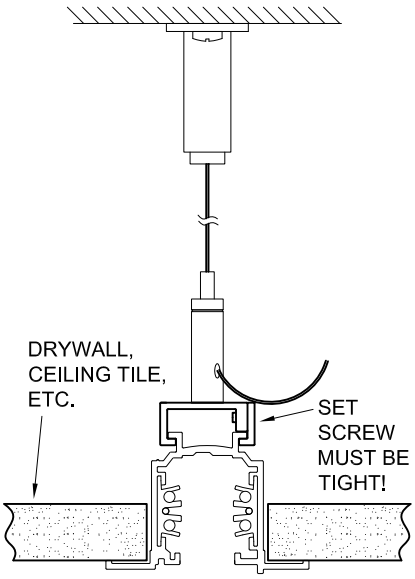
5) Attach the M-4 Gripper to the SPBRK2P Clip with the M-4 Screw and Washer provided. The washer MUST be placed between the screw head and the clamp, and the screw MUST be tight.

6) Thread the free end of the wire cable through the M-4 Gripper until approximately one inch of wire cable is extending beyond the side of the gripper. In some cases it may beneficial to do this step *after* Step 7.

Continued on next page

Recessed Mounting: Flanged Profile Track (Continued)

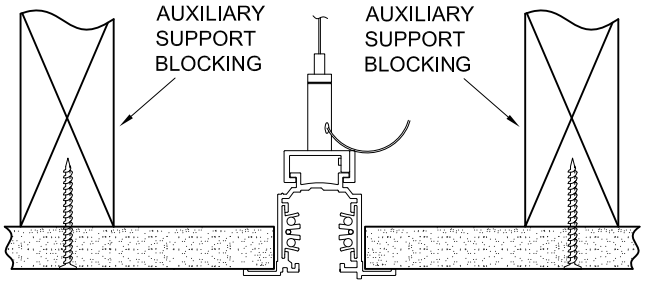
7) Loosen the set screws on the side of the SPBRK2P Clip and attach it to the track. Fully tighten the set screws.



8) Set the track to the correct elevation by carefully depressing the gripper plunger and slowly pulling the wire cable into or out of the gripper. The correct elevation is often referred to as the "Above Finished Floor (AFF)" dimension.

9) Trim the wire cable such that approximately 1" extends from the side of the gripper. NOTE: The cable is made of hard steel. Use cutters designed for cutting this material.

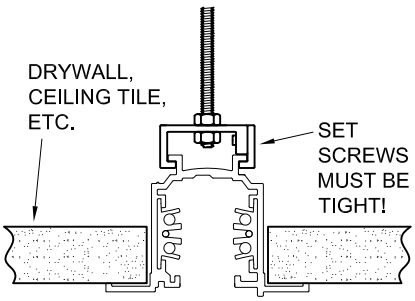
10) Continue with track, Connectors, Dead Ends (if required) and wiring until the layout is complete. Attach the Recessed Flanged Track Connector Covers at any time during installation. If the ceiling is to be painted, the Connector Covers should be masked or attached after painting. Paint masking covers are available for the track itself, consult factory for details. NOTE: For long distances where drywall and the like may lack sufficient support, it may be beneficial to add auxiliary support blocking close to the flange. See diagram below.



Method 2 (Using SPBRK2P Clips and Suspension Parts by Others)

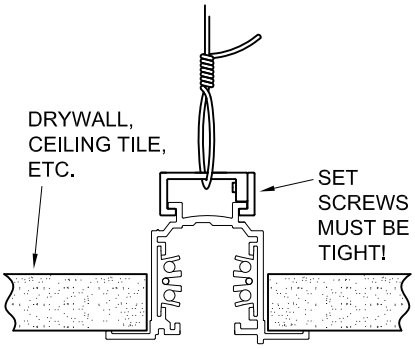
CAUTION: When employing Method 2, there must be one Support spaced a maximum of 2 inches from each end of the track section with additional Supports provided every 3 feet maximum along the entire length of that section.

1) Loosen the set screws on the side of the SPBRK2P Clip and attach it to the track. Fully tighten the set screws.



2) Attach grid wire, 10-32 or M5 rods, or other approved means to the SPBRK2P Clip. The maximum load rating of the track is 18 lb/ft, therefore any support means chosen must meet this rating. Set the track to the correct elevation. The correct elevation is often referred to as the "Above Finished Floor (AFF)" dimension.

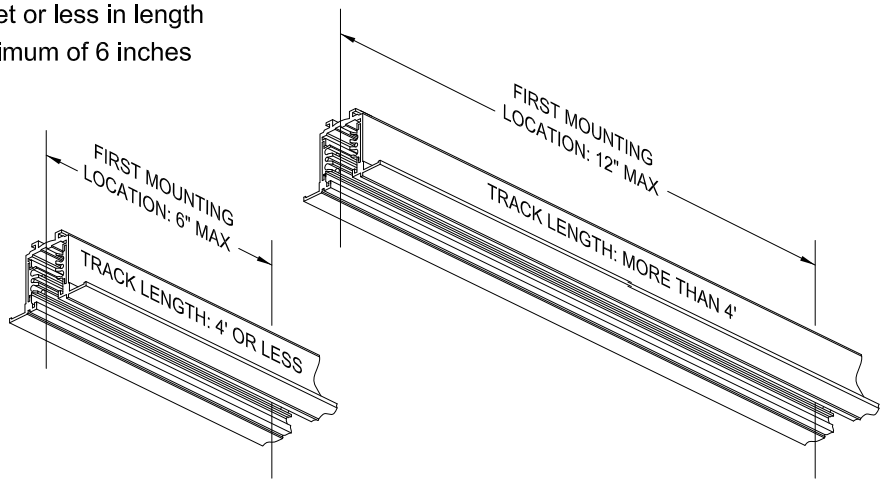
3) Continue with track, Connectors, Dead Ends (if required) and wiring until the layout is complete. Attach the Recessed Flanged Track Connector Covers at any time during installation. If the ceiling is to be painted, the Connector Covers should be masked or attached after painting. Paint masking covers are available for the track itself, consult factory for details. NOTE: For long distances where drywall and the like may lack sufficient support, it may be beneficial to add auxiliary support blocking close to the flange. See diagram directly above.



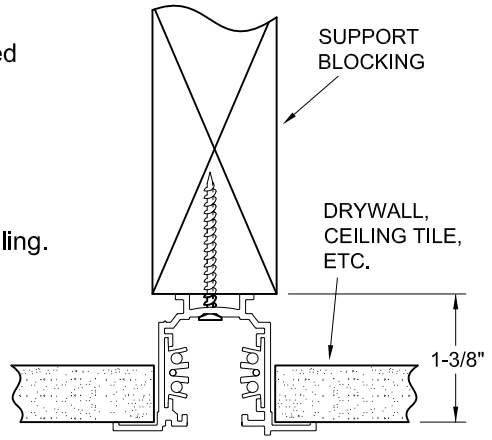
Recessed Mounting: Flanged Profile Track (Continued)

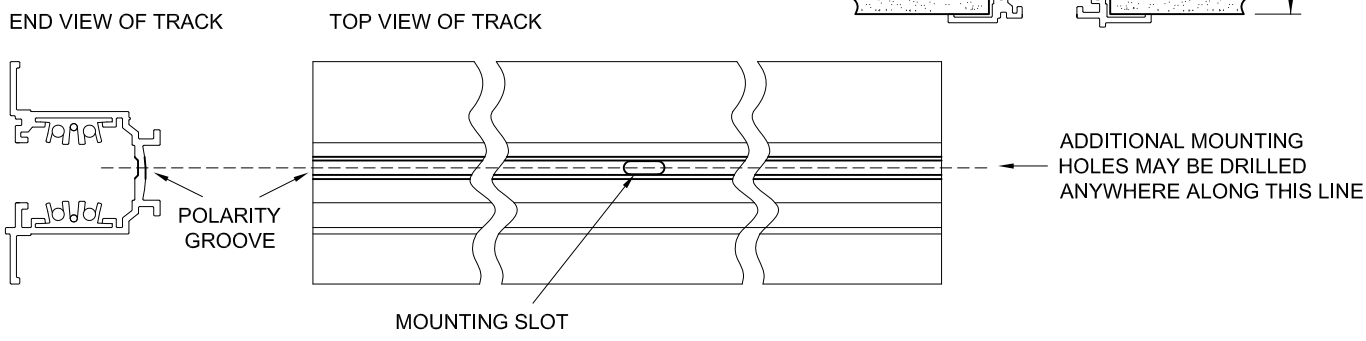
Method 3 (Using Blocking)

CAUTION: A single track section that is 4 feet or less in length must have one mounting hole spaced a maximum of 6 inches from each end of the track section. A single track section that is greater than 4 feet in length must have one mounting hole spaced a maximum of 12 inches from each end of the track section with additional mounting holes provided a maximum of every 4 feet along the length of the track section.

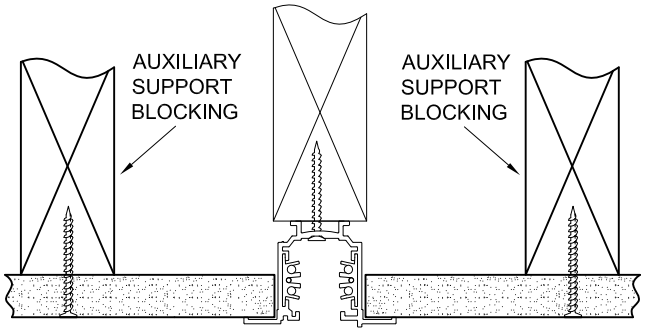


1) Using the factory provided mounting slots (See "Factory Supplied Slot Patterns" at the bottom of page 31 for more detail), the track can be mounted directly to blocking using the appropriate hardware (not provided). See diagram, right. In most circumstances, however, it will become necessary to drill additional mounting holes. The drill bit should be sized no larger than 3/16". The holes should be centered in the polarity groove in the base of the track. See diagram directly below. Remove burrs after drilling.





2) Continue with track, Connectors, Dead Ends (if required) and wiring until the layout is complete. Attach the Recessed Flanged Track Connector Covers at any time during installation. If the ceiling is to be painted, the Connector Covers should be masked or attached after painting. Paint masking covers are available for the track itself, consult factory for details.
NOTE: For long distances where drywall and the like may lack sufficient support, it may be beneficial to add auxiliary support blocking close to the flange.

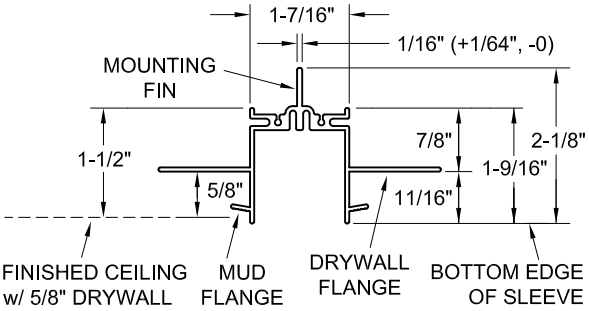


Recessed Mounting - Flangeless (using Rectangular Profile Track and FTPX Series Track Sleeves with 5/8" Maximum Drywall)

Two phases are required to install Flangeless Recessed Track. The first phase encompasses mounting the Track Sleeve to blocking. The second phase encompasses mounting the track and other components into the Track Sleeve. The first phase is usually done in advance of the second phase, especially for complex layouts. For simpler layouts, it may be easier to pre-install the track and other components *before* mounting the Track Sleeve. Read and fully understand the following instructions before installation, and then determine which approach is better suited for the layout at hand.

For the first phase, the Track Sleeve may be supported by one of two methods: Fin Mounting or Drywall Flange Mounting. Both methods will require blocking. Use the diagram to the right to assist in block mounting calculations.

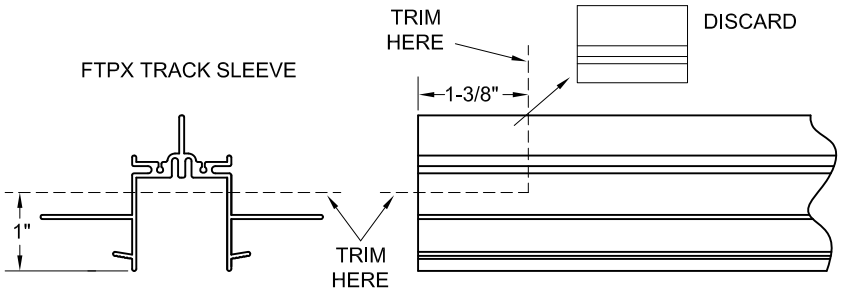
END VIEW OF FTP TRACK SLEEVE
NOTE: ALL DIMENSIONS +/- 1/32"
EXCEPT WHERE NOTED

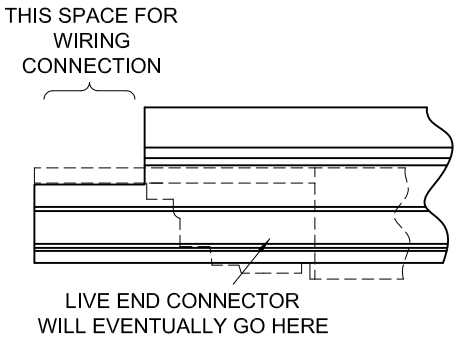


INSTALLING THE TRACK SLEEVE - FIN MOUNTING

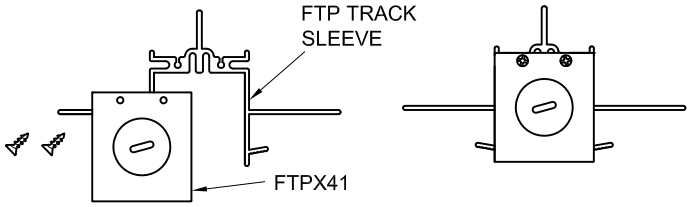
1) Carefully cut the sleeve to the desired length. Make certain that the cut is clean and straight, especially when the layout requires mitered corners. Use only saws that are designed for cutting aluminum. NOTE: Allow for the length of the track as well as any Connector(s) and Dead End(s) that are to be attached to the track.

2) It is necessary to cut away a portion of the Track Sleeve in order to bring wiring into a Live End (or Mirror Live End) Connector. Use only saws that are designed for cutting aluminum. See diagrams directly below.

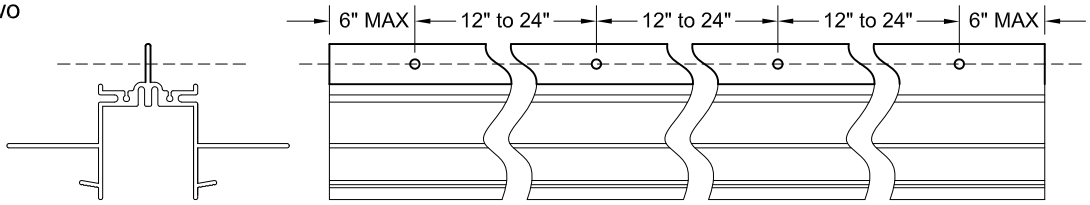




3) Install FTP41 End Cap(s), if needed, using the screws provided.



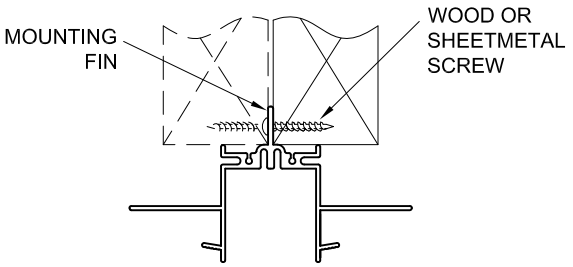
4) Drill 1/4" holes through the vertical center of the mounting fin along its entire length, spaced approximately 12" to 24" apart. **CAUTION:** Track Sleeves with track installed weigh approximately 1.4 pounds/foot. Each sleeve section must have one mounting hole spaced a maximum of 6" from each end, with two holes minimum per section.

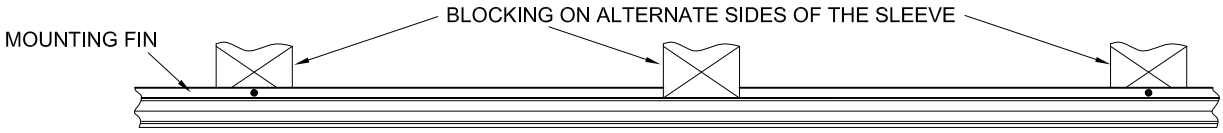


Continued on next page

INSTALLING THE TRACK SLEEVE - FIN MOUNTING (Continued)

5) Attach the Track Sleeve to blocking with screws (by others) through the drilled holes in the mounting fin. NOTE: The support blocking should be snug against the side of the fin and the top of the sleeve. For additional support, block both sides of the mounting fin at even intervals.



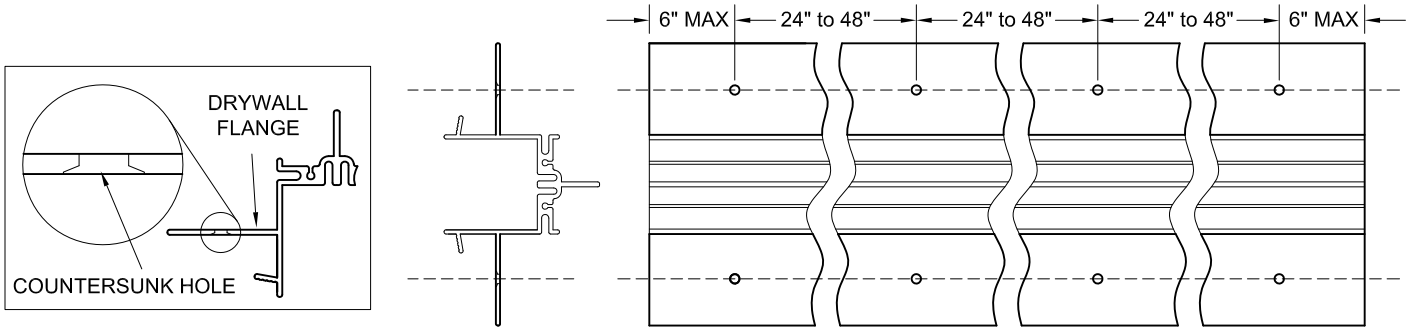


6) Proceed to Wiring Methods on next the page.

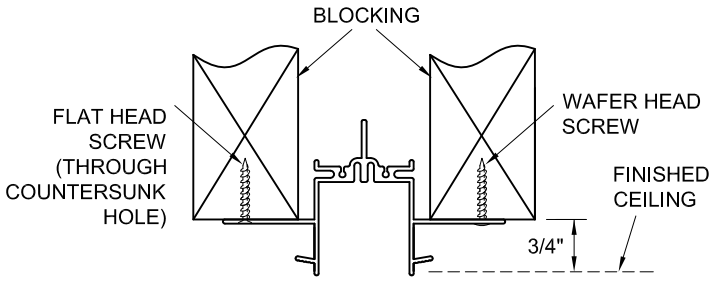
INSTALLING THE TRACK SLEEVE - DRYWALL FLANGE MOUNTING

Follow Steps 1 through 3 for FIN MOUNTING on previous page, then continue beginning with Step 4 below.

4) Drill the appropriately sized holes through each drywall flange spaced approximately 24" to 48" apart. **CAUTION:** Track Sleeves with track installed weigh approximately 1.4 pounds/foot. Each flange must have one mounting hole spaced a maximum of 6 inches from each side of each end, with four holes minimum per section. If wafer head screws are to be used, go to the next step. If flat head screws are to be used, then countersink the holes as shown in the inset below, left.



5) Attach the Track Sleeve to the blocking with the intended screws (by others) through the drilled holes in the drywall flanges. NOTE: Make certain that the appropriate screws are used or the drywall may hang lower than the bottom edge of the sleeve.



6) Proceed to Wiring Methods on the next page.

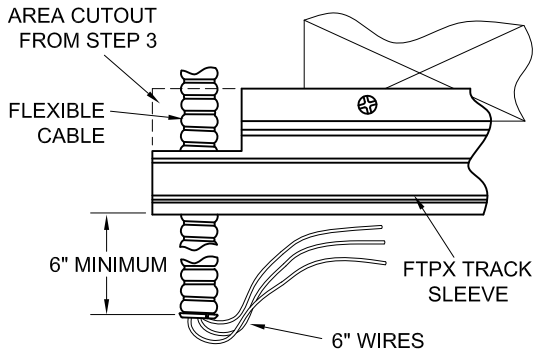
WIRING METHODS

There are two wiring methods for Track Sleeve. Review each method outlined below and use whichever pertains the layout at hand.

Method 1 - Live End Connectors to be wired with a flexible cable (Armored Cable, MC Cable, etc.)

1) Pull the cables through the Track Sleeve opening created in Step 2 on Page 50. Make certain that at least 6" of the jacket hangs below the Track Sleeve, and at least 6" of the wires extend beyond the jacket. NOTE: Electrical fittings can be added to the cable now or later in the installation process.

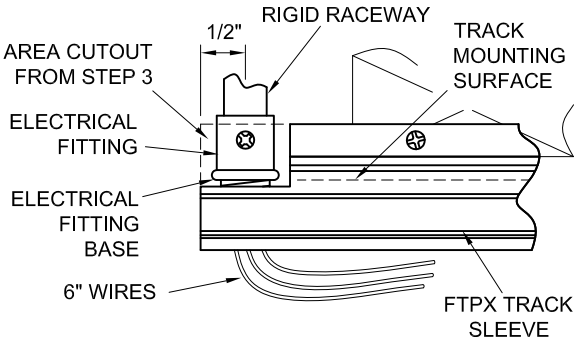
2) Proceed to Drywall Installation below.



Method 2 - Live End Connectors to be wired with a rigid raceway (EMT, Rigid Conduit, etc.)

Set up the base of the electrical fitting even with the track mounting surface of the Track Sleeve, 3/4" from the end and centered. Do this within the Track Sleeve openings created in Step 2 on Page 50. Make certain that at least 6" of the wires extend from the electrical fitting. NOTE: Threaded fittings generally are more suited for this application if the drywall is to be installed *before* the Live End Connector(s).

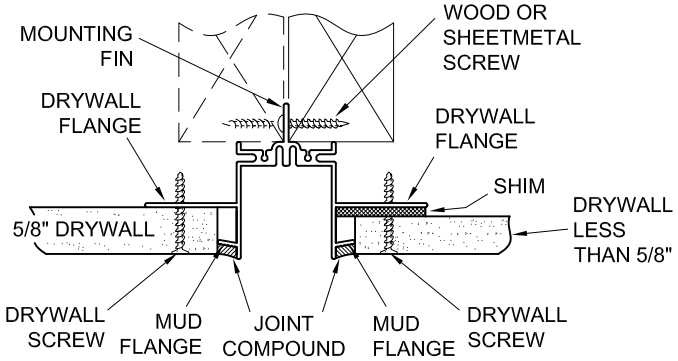
2) Proceed to Drywall Installation below.



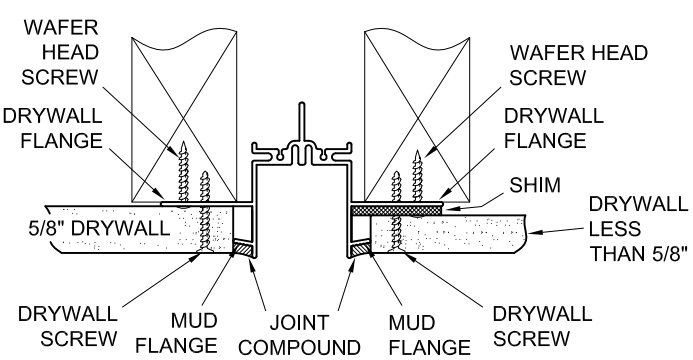
DRYWALL INSTALLATION

Install drywall to the two drywall flanges on the sleeve using self-drilling drywall screws. Add joint compound to the mud flanges. Use shims for drywall less than 5/8".

FIN MOUNTING



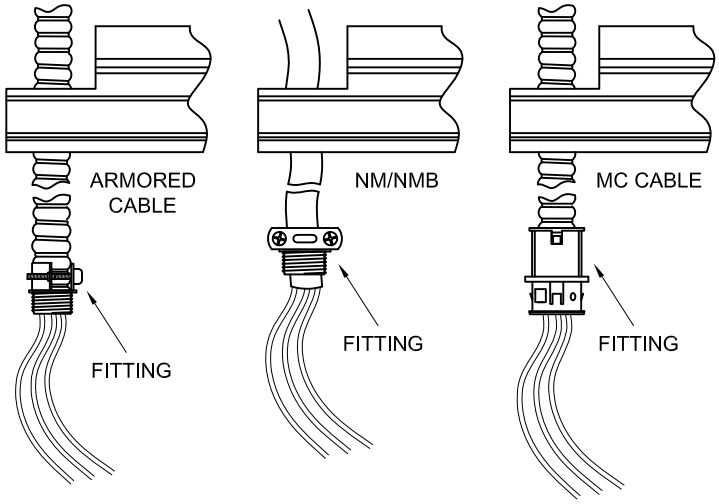
DRYWALL FLANGE MOUNTING



INSTALLING THE TRACK, CONNECTORS, JOINERS & DEAD ENDS INTO THE TRACK SLEEVE

NOTE: If Current Limiters are to be used, see Section 7: CURRENT LIMITERS for those special mounting instructions.

1) Attach the conduit, armored cable, etc. to the electrical fitting to be used (this may have already been done when the Recessed Track Sleeve was installed).

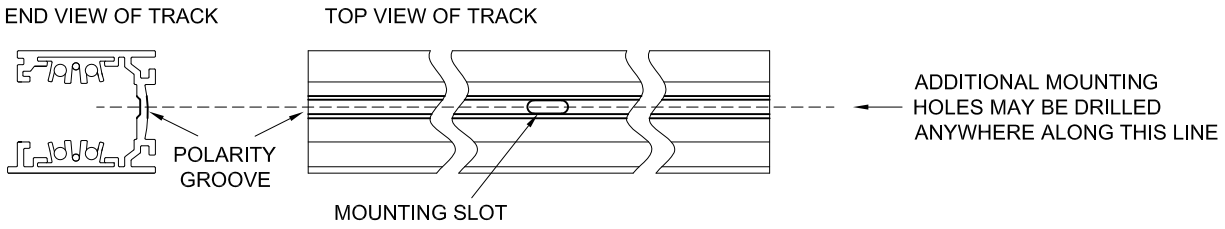


2) Connect the wiring according to the instructions outlined in Section 4: INSTALLING FEED WIRES TO CONNECTORS: Conduit, Armored Cable, Etc.

3) Prepare the track as needed according to the instructions outlined in Section 2: FIELD CUTTING THE TRACK AND PREPARING THE CONDUCTOR ENDS.

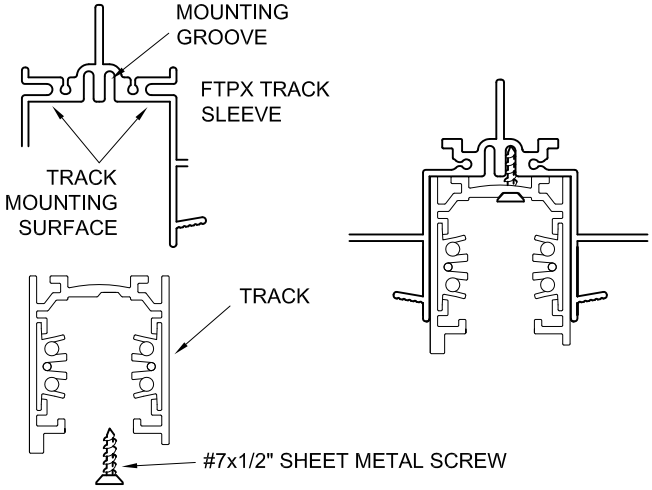
4) Pre-install the various Connectors, Joiners and Dead Ends to the track before installing the track to the sleeve.

5) The track can be mounted to the track sleeve using the factory provided mounting slots and/or holes drilled in the field. The drill bit should be sized for a #7 screw (0.151" OD) but no larger than 3/16". The holes should be centered in the polarity groove in the base of the track. Remove burrs after drilling.



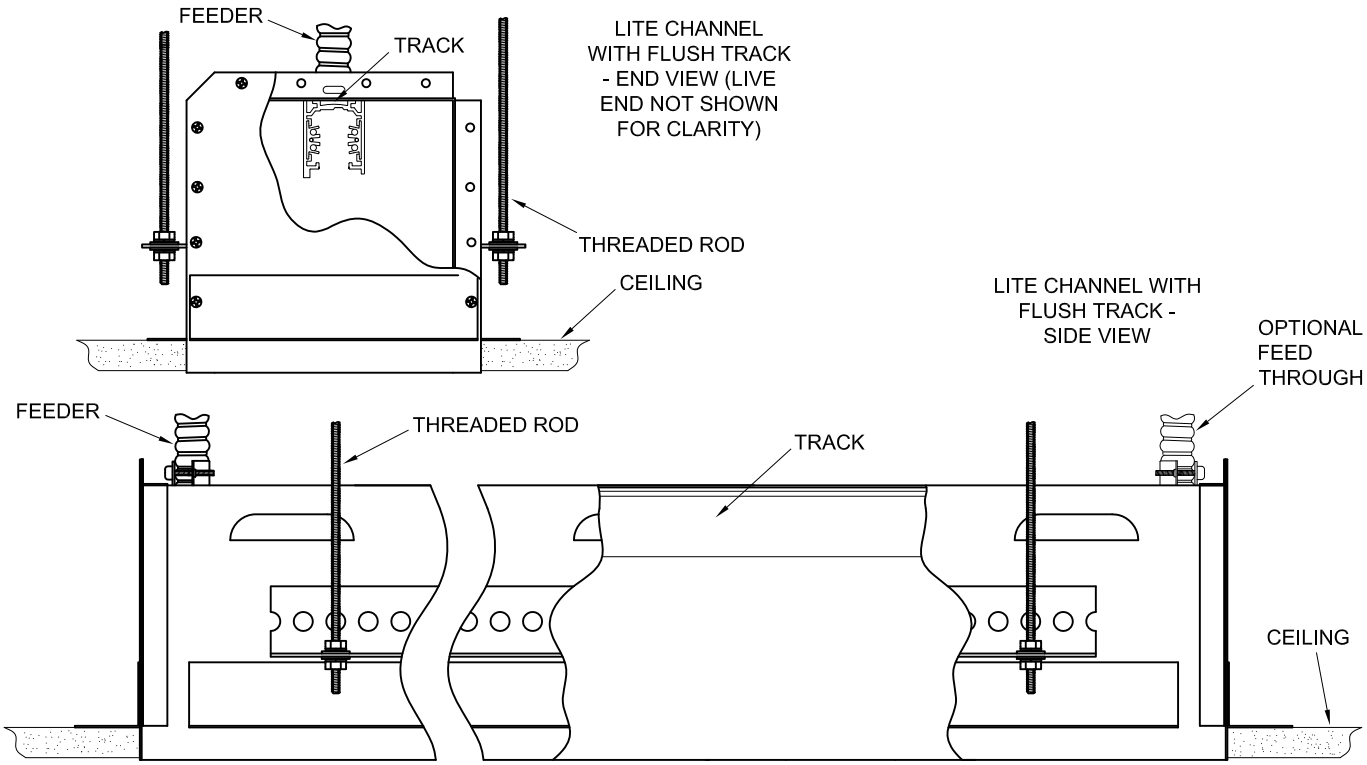
Use #7x1/2" flat head sheet metal screws (by others) to secure the track to the sleeve. The screws should go through the slots (or holes) in the base of the track and thread into the mounting groove located along the track mounting surface of the Track Sleeve. These screws should be fully inserted, but do not overtighten.

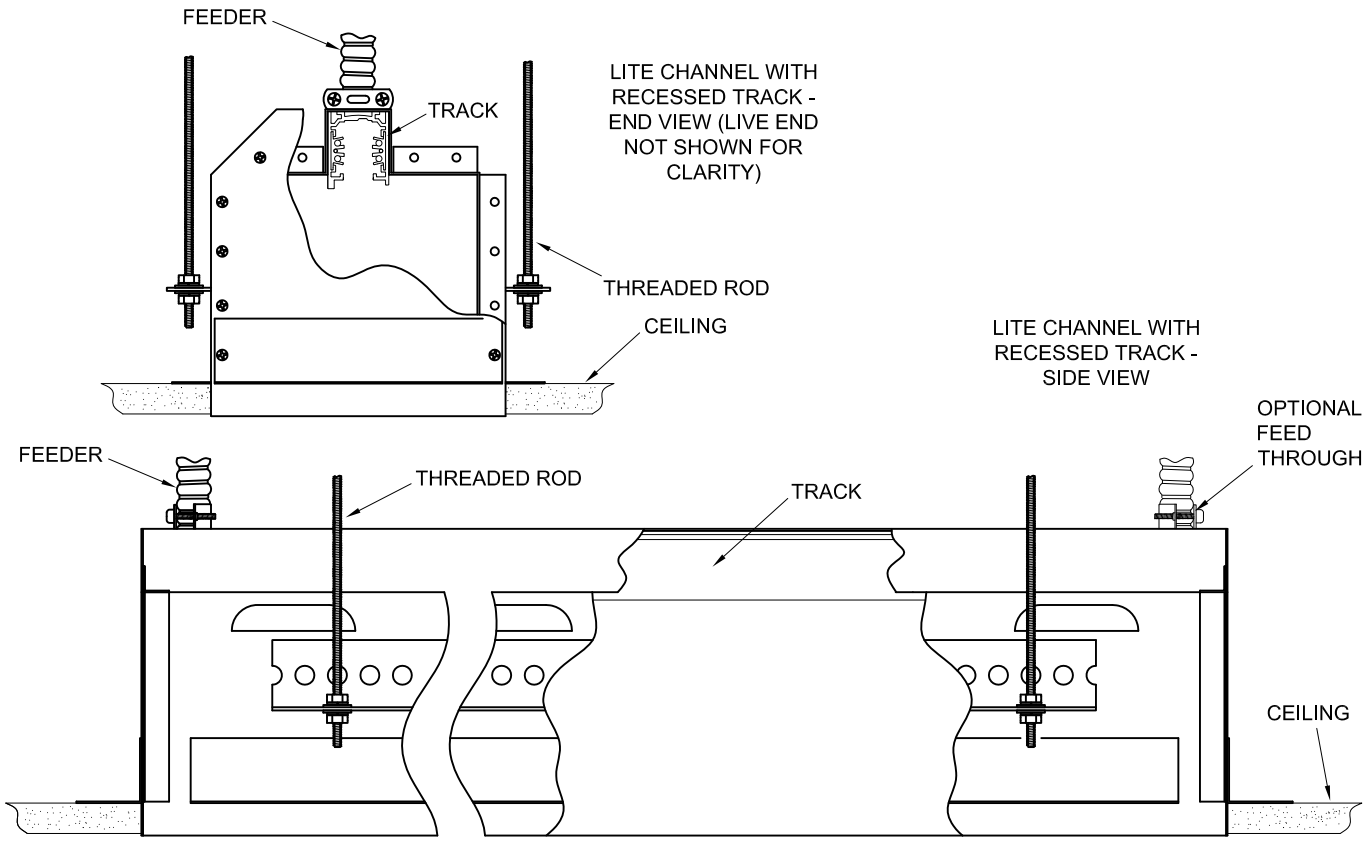
CAUTION: There must be one #7x1/2" support screw placed three inches from each end of the track section with additional screws placed every three feet maximum along the entire length of that section.



Lite Channel™ Mounting (using LC Series Lite Channel™)

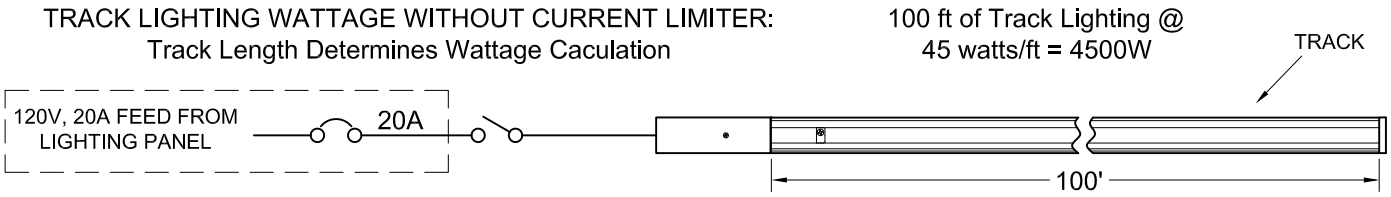
These items are supplied with cips that allow for easy field installation of the track. Also included is the hardware required to attach Lite Channel™ sections together and dedicated instructions for the proper assembly, hanging, and wiring. Threaded rod and threaded rod hardware by others. Consult factory for more details.

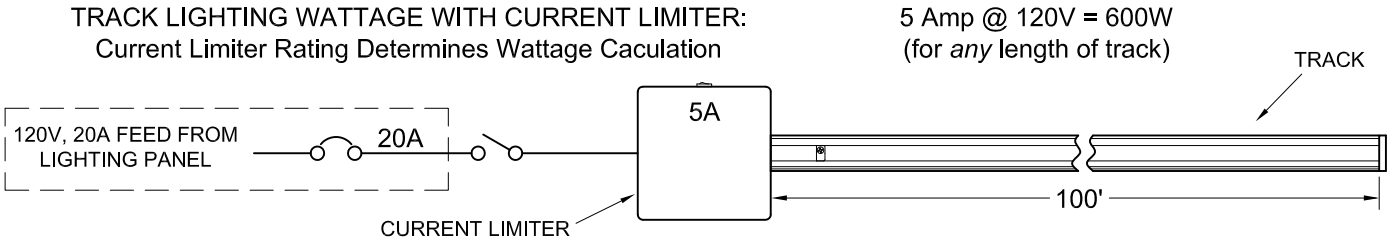




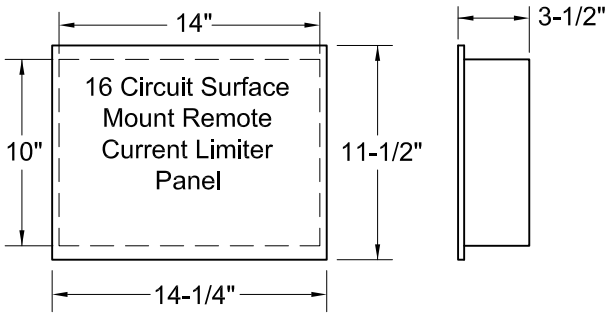
7) CURRENT LIMITERS

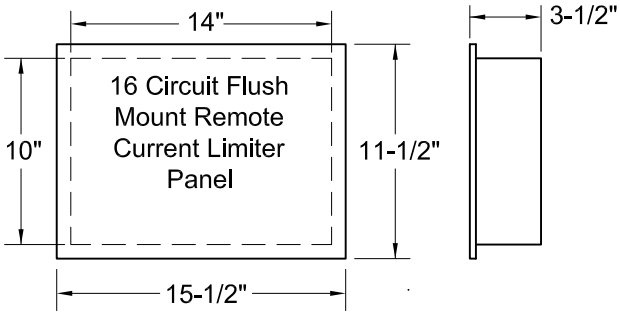
Current Limiters are designed to provide an answer to energy limitations on wattage per foot requirements for track lighting installations. Some newer energy codes set a rating of up to 45 watts per linear foot of track irrespective of the actual wattage that is meant to be used on the track, unless a current limiting device is permanently installed between the track and the branch circuit feeding it. The diagrams below illustrate the difference in wattage calculations based on a hypothetical 100' layout with and without a Current Limiter installed. Note: Neutral conductors not shown for clarity.

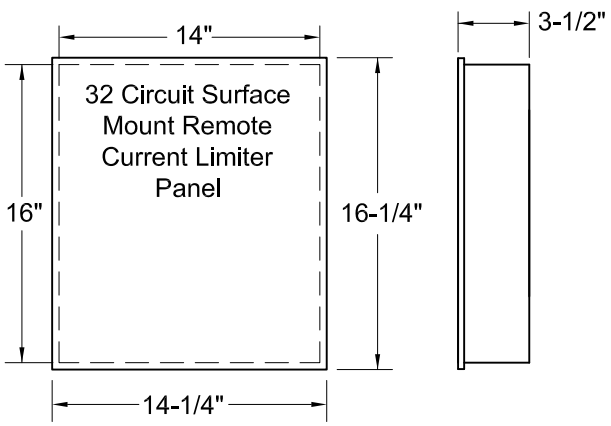


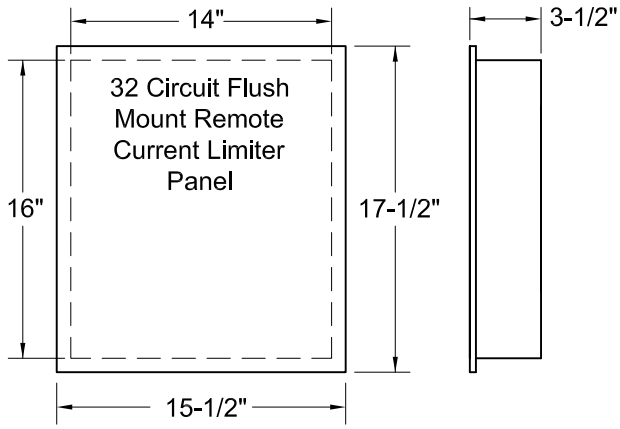


Current Limiters are available in two types: Track and Remote. Track mounted Current Limiters attach to the track the same way Connectors do. Remote Current Limiters are in the form of circuit breaker panels. Each circuit breaker within a panel has its own input and output - there is no common bus on the line side, keeping all circuits discrete. These panels come in two sizes and two mounting styles: Surface and Flush Mount. NOTE: Current Limiter Panels should be installed after the lighting branch circuit panel(s) and before any other lighting control equipment. Current Limiter Panels are generally mounted in close proximity to the lighting branch circuit panel(s). NOTE: All Current Limiter Panels have a plurality of concentric knock-outs on top and bottom surfaces.

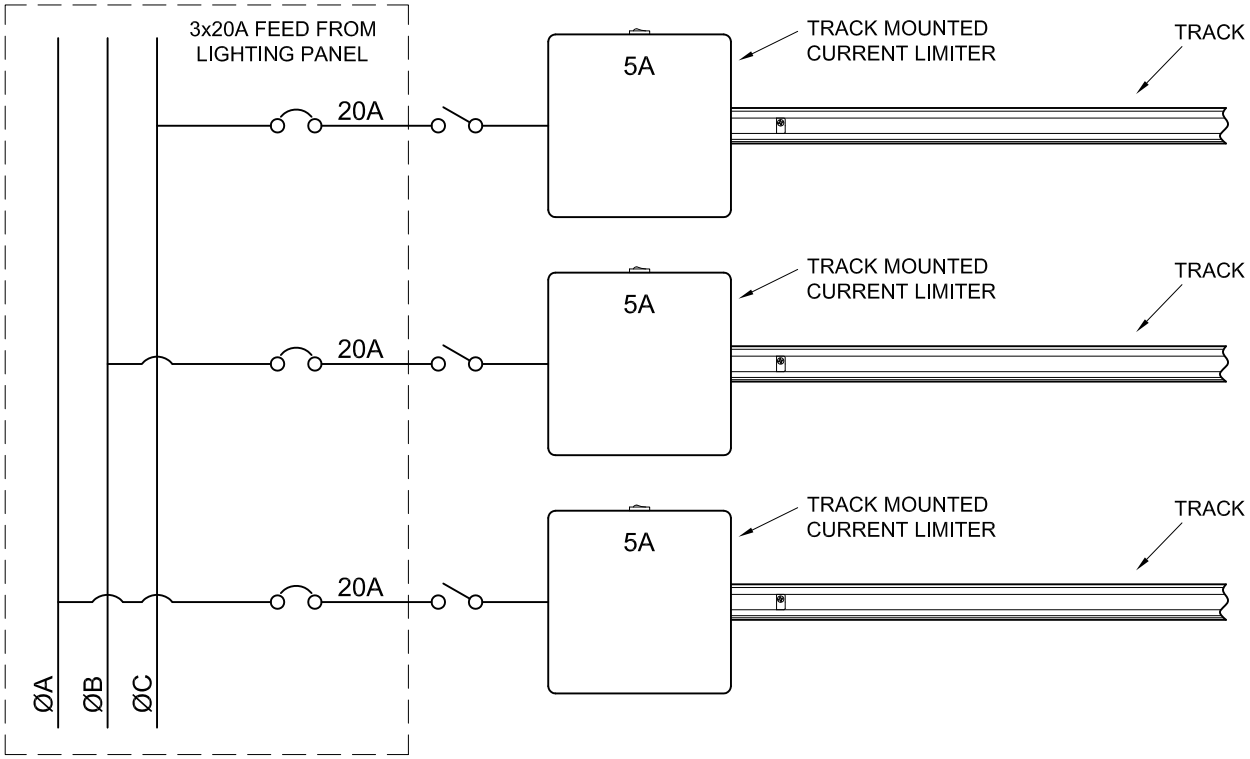


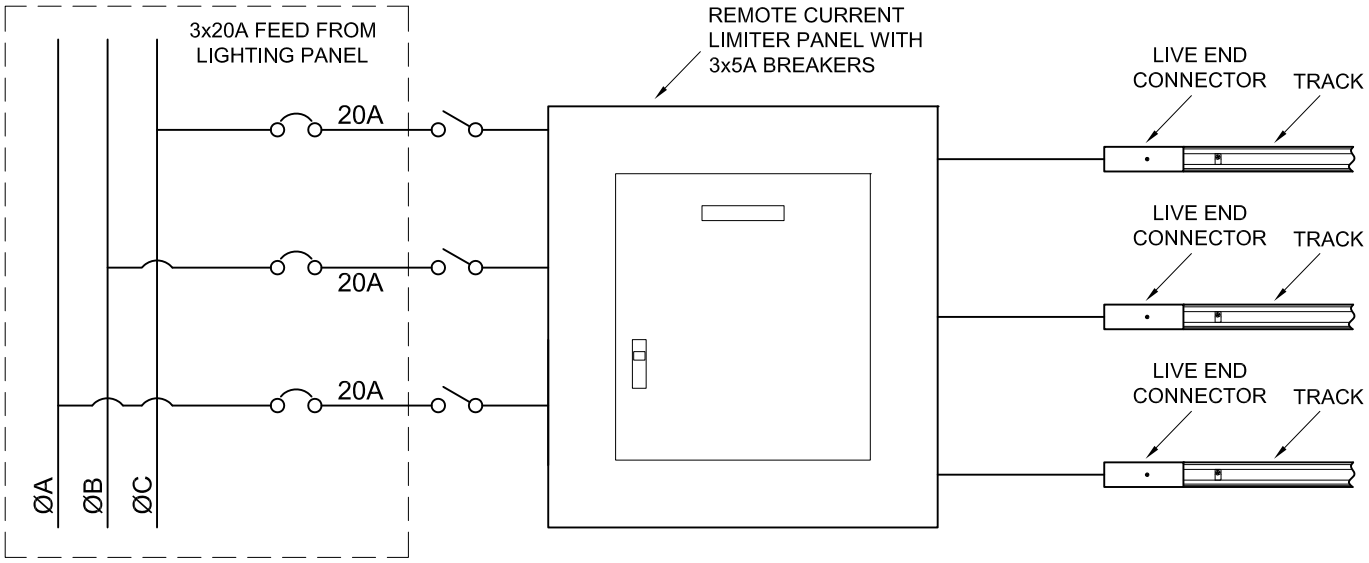




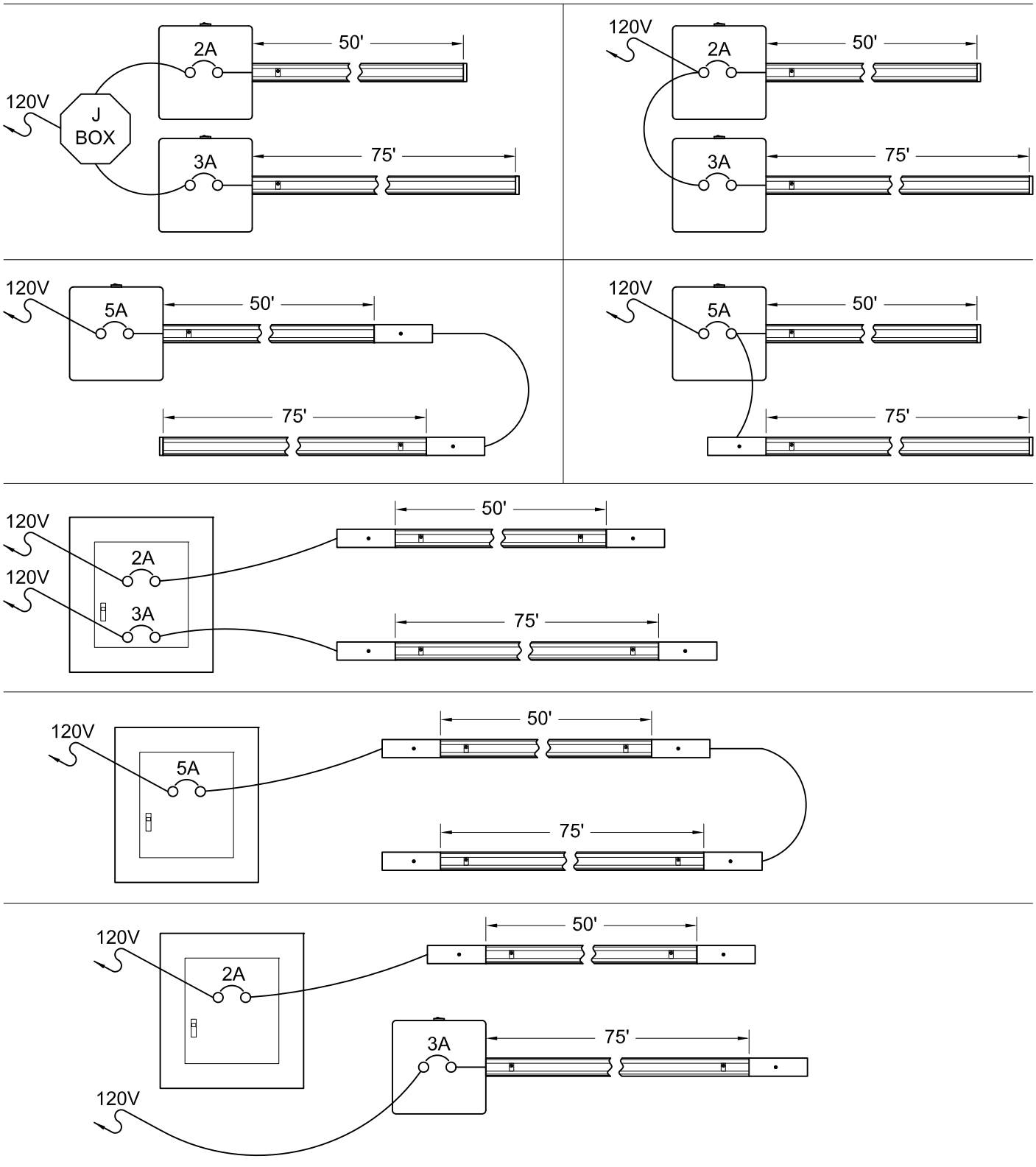


The diagrams below illustrate an example of both Current Limiter types. Each example has 3 track layouts connected to individual 5 Amp current limiters all fed from individual 20A branch circuits. In all cases, the Neutral conductors (not shown for clarity) pass through the Current Limiters. Both types serve the same function, but each has its own particular advantages. The factory can offer some guidance as to which type might be more suited to a particular layout.





The diagrams below illustrate just seven out of *many* ways that a hypothetical 4.8 watts per linear foot can be achieved on a sample layout of two individual track runs of 50' and 75'. In all cases, the Neutral conductors (not shown for clarity) pass through the Current Limiters. Switches, dimmers, and the like are not shown for clarity, but they can be interposed anywhere in the line feeding the track itself. With the exception of Linear Current Limiters, all other types can be rewired in the field to allow for switches, dimmers, and the like to be added as well as having circuits spliced within the Current Limiter housings. **CAUTION:** The integral circuit breakers within the housing are never to be tampered with, replaced with a higher value or bypassed.



CURRENT LIMITER INSTALLATION

Every Current Limiter is supplied with its own unique mounting and power wiring instructions. Make certain that the electrical feed matches the track type according to the instructions in Section 1: ELECTRICAL POWER CONNECTIONS. If control signal wires are present, connect them to the D+ and D- screw terminals according to the chart below. If a DMX terminating resistor is to be used, then install it as shown in Section 3: FEEDING THE TRACK AND TRACK LAYOUTS, Guidelines for Layouts. A Current Limiter that is intended to be used with FTPX Recessed Track Sleeve is provided with a mounting screw.

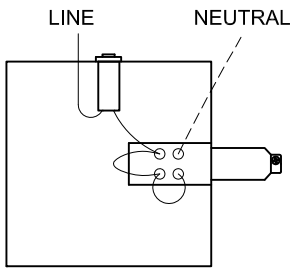
Data Track Connector	DMX Shielded Twisted Pair	DMX Unshielded Twisted Pair (CAT5 or CAT6)	0-10V	DALI
D+	Data + [Any Color]	Orange/White	Signal + (Violet)	No Polarity [Any Color]
D-	Data - [Any Color]	Orange	Signal - (Pink or Grey*)	No Polarity [Any Color]

* The NEC no longer allows Grey to be used for 0-10V dimming. Grey may still be present in older installations.

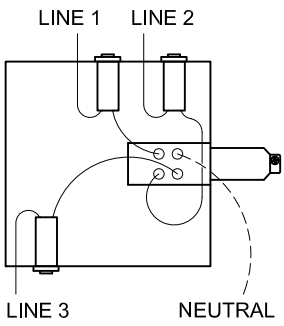
CURRENT LIMITER WIRING ILLUSTRATIONS

3 CIRCUIT ROUND PROFILE TRACK (DRAMA SERIES)

TSC-Q-E (End Feed, 1 Circuit Breaker for All Circuits)

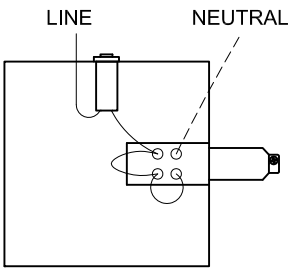


TSC-Q-E (End Feed, 1 Circuit Breaker for Each Circuit)

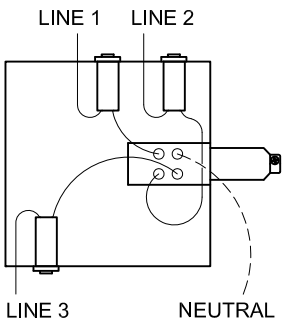


3 CIRCUIT RECTANGULAR PROFILE TRACK

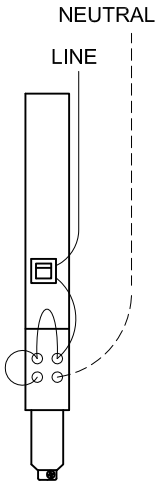
TSC-Q-E (End Feed, 1 Circuit Breaker for All Circuits)



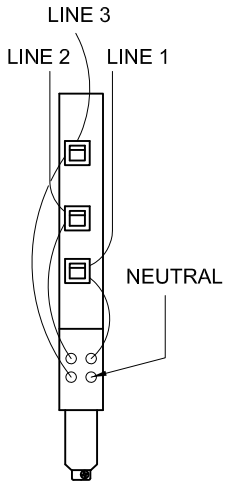
TSC-Q-E (End Feed, 1 Circuit Breaker for Each Circuit)



TSC-Q-R (End Feed, 1 Circuit Breaker for All Circuits)
NOTE: This item can be used in FTPX Track Sleeve.



TSC-Q-R (End Feed, 1 Circuit Breaker for Each Circuit)
NOTE: This item can be used in FTPX Track Sleeve.

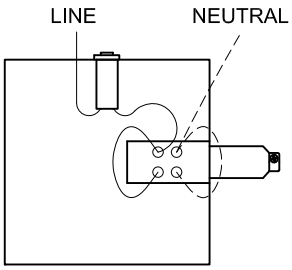


Continued on next page

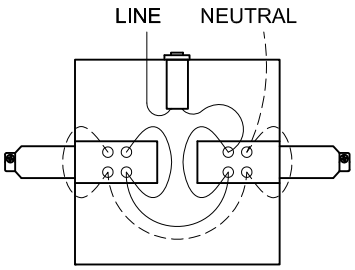
CURRENT LIMITER WIRING ILLUSTRATIONS (Continued)

2 CIRCUIT 120V RECTANGULAR PROFILE TRACK

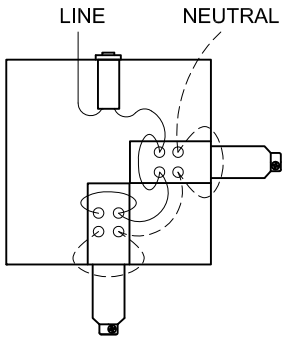
TSC-Z-E (End Feed, 1 Circuit Breaker for All Circuits)



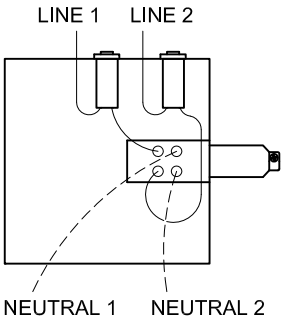
TSC-Z-F (Feed Thru, 1 Circuit Breaker for All Circuits)



TSC-Z-N (90° Feed Thru, 1 Circuit Breaker for All Circuits)

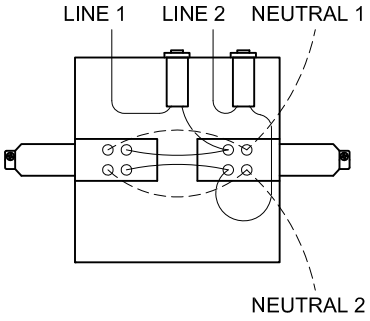


TSC-Z-E (End Feed, 1 Circuit Breaker for Each Circuit)

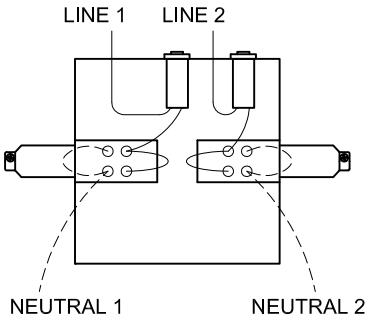


TSC-Z-F (Feed Thru, 1 Circuit Breaker for Each Circuit)
NOTE: This item has two common wiring configurations. The upper diagram is for the Factory wired configuration. The lower diagram illustrates the Field wired configuration.

FACTORY WIRED CONFIGURATION

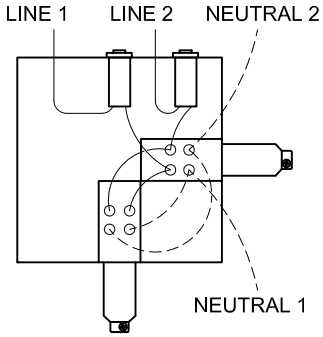


FIELD WIRED CONFIGURATION

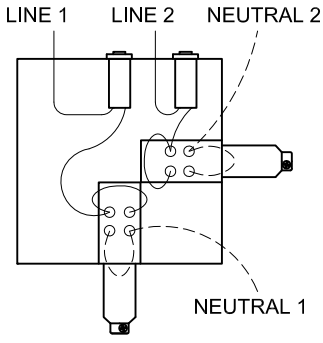


TSC-Z-N (90° Feed Thru, 1 Circuit Breaker for Each Circuit)
NOTE: This item has two common wiring configurations. The upper diagram is for the Factory wired configuration. The lower diagram illustrates the Field wired configuration.

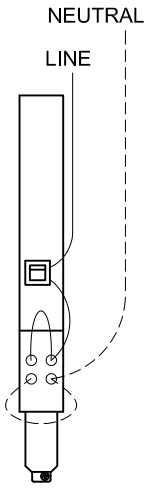
FACTORY WIRED CONFIGURATION



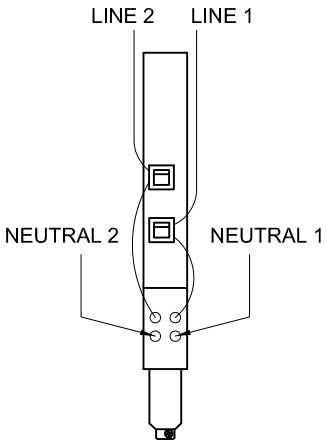
FIELD WIRED CONFIGURATION



TSC-Z-R (End Feed, 1 Circuit Breaker for All Circuits)
NOTE: This item can be used in FTPX Track Sleeve.



TSC-Z-R (End Feed, 1 Circuit Breaker for Each Circuit)
NOTE: This item can be used in FTPX Track Sleeve.



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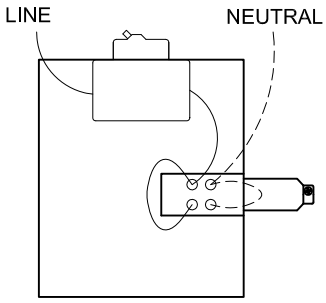
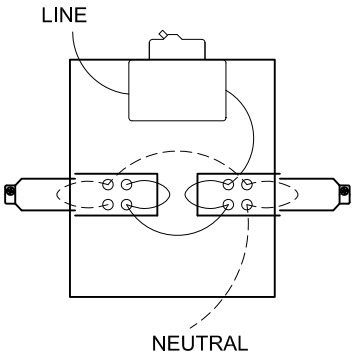
CURRENT LIMITER WIRING ILLUSTRATIONS (Continued)

2 CIRCUIT 277V RECTANGULAR PROFILE TRACK

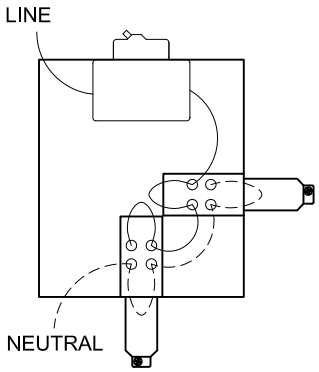
TSC-Y-E (End Feed, 1 Circuit Breaker for All Circuits)



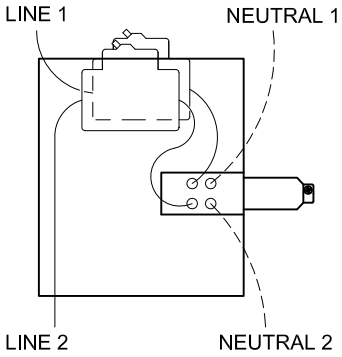
TSC-Y-F (Feed Thru, 1 Circuit Breaker for All Circuits)



TSC-Y-N (90° Feed Thru, 1 Circuit Breaker for All Circuits)

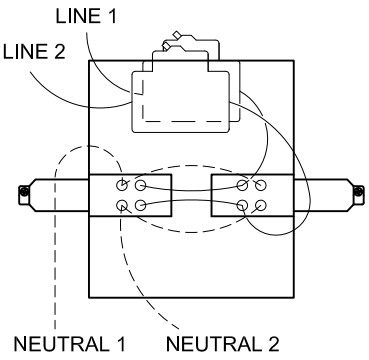


TSC-Y-E (End Feed, 1 Circuit Breaker for Each Circuit)

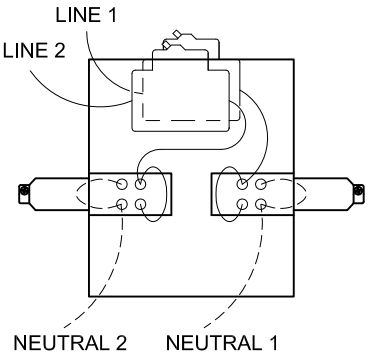


TSC-Y-F (Feed Thru, 1 Circuit Breaker for Each Circuit)
NOTE: This item has two common wiring configurations. The upper diagram is for the Factory wired configuration. The lower diagram illustrates the Field wired configuration.

FACTORY WIRED CONFIGURATION

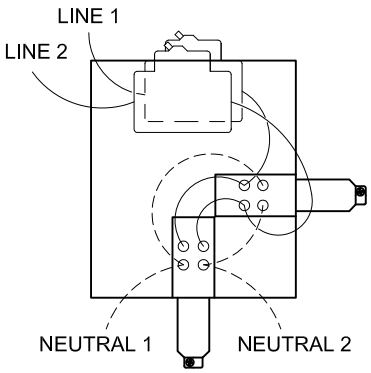


FIELD WIRED CONFIGURATION

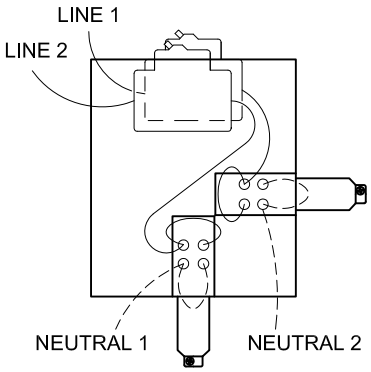


TSC-Y-N (90° Feed Thru, 1 Circuit Breaker for Each Circuit)
NOTE: This item has two common wiring configurations. The upper diagram is for the Factory wired configuration. The lower diagram illustrates the Field wired configuration.

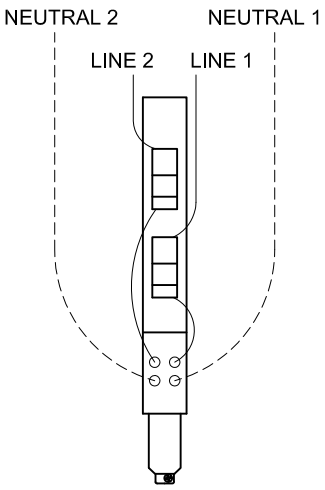
FACTORY WIRED CONFIGURATION



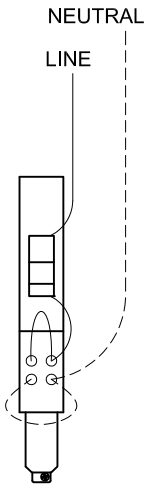
FIELD WIRED CONFIGURATION



TSC-Y-R (End Feed, 1 Circuit Breaker for Each Circuit)
NOTE: This item can be used in FTPX Track Sleeve.



TSC-Y-R (End Feed, 1 Circuit Breaker for All Circuits)
NOTE: This item can be used in FTPX Track Sleeve.

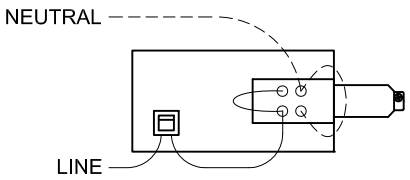


Continued on next page

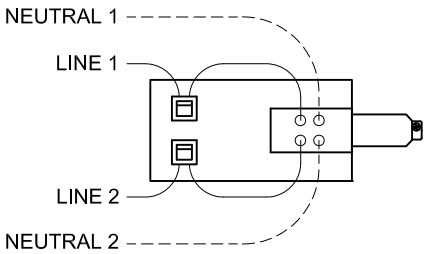
CURRENT LIMITER WIRING ILLUSTRATIONS (Continued)

2 CIRCUIT 120V FLANGED RECESSED TRACK

TSC-M-E (End Feed, 1 Circuit Breaker for Each Circuit)

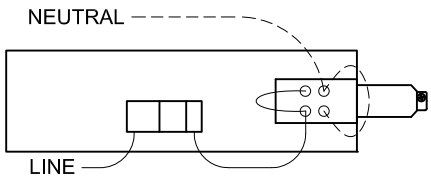


TSC-M-E (End Feed, 1 Circuit Breaker for Each Circuit)



2 CIRCUIT 277V FLANGED RECESSED TRACK

TSC-V-E (End Feed, 1 Circuit Breaker for Each Circuit)



TSC-V-E (End Feed, 1 Circuit Breaker for Each Circuit)