

INSTRUCTIONS: Low Voltage DuoRail

Caution:

Read all instructions.

Turn off power at main switch before installing or modifying the system.

Do not install the system:

- Within six inches of any curtain or combustible materials

- Less than 5 feet above a floor

- In a damp or wet location

- Concealed, or extended through building walls.

After first 1/2 hour of operation, switch off and check all connections for excessive heat.

Loose connections must be tightened to prevent overheating which can damage the system and pose a potential fire hazard. Do not over tighten.

Intended for installation by a qualified electrician.

Installation should be in accordance with NEC and local codes. Use minimum AWG #10 wire for secondary wiring.

Overview:

Flexible low volt DuoRail is a two circuit rail that can be operated from either 12 or 24-volt power supplies, magnetic or electronic, remote or surface mounted.

DuoRail fixtures include rail mounted heads, quick connect heads, and quick connect cable hung pendants.

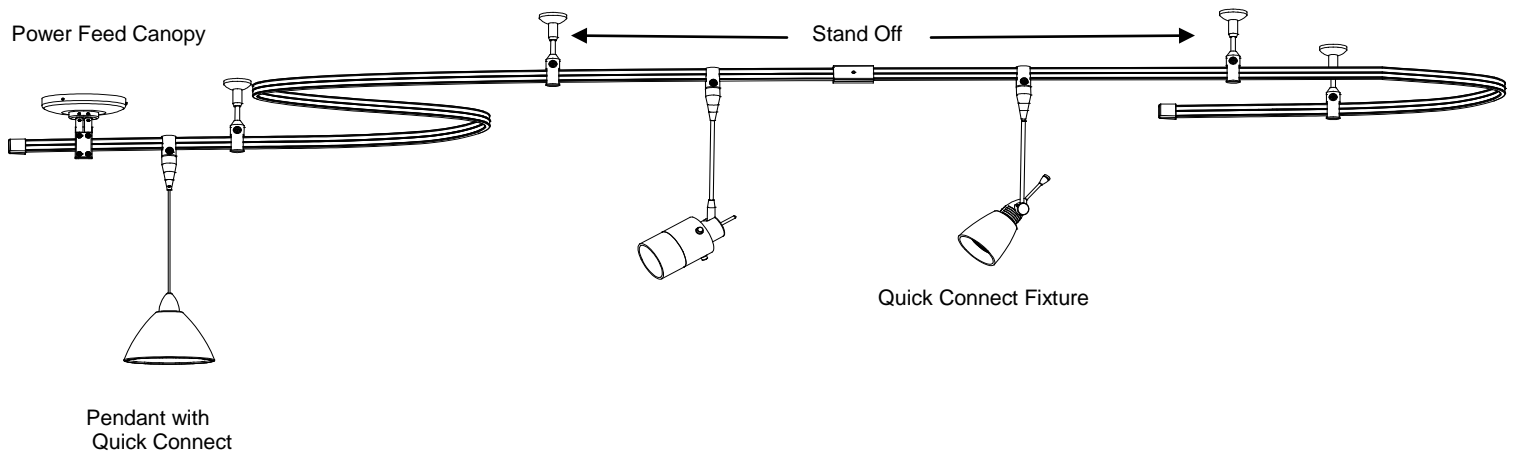
DuoRail mounts to ceilings by use of metal rod stand offs, or cable and may be used on sloped or suspended ceilings.

Design Considerations:

DuoRail is composed of two copper conductors separated by a plastic insulator. It is flexible and bendable.

Rail is supplied in 4 or 8 ft lengths and may be field cut. Stand off's are available in 3 to 6 inch lengths, and longer lengths for high ceiling applications.

DuoRail maximum loads are 300/600 watts at 12/24 volts. Rail is 25 amp rated. Voltage drop is an important consideration in the initial design. The length of a duorail run depends on the distance from the transformer and the wattage load. Wire gauge size is also a factor in how far a remote transformer may be located from the rail. Consult the voltage drop guideline chart.



Transformer Selection Guide:

Either electronic or magnetic transformers can power DuoRail. Electronics are smaller than magnetic. The larger magnetic transformers have greater wattage capacities. There is a lesser degree of voltage drop in a magnetic transformer, making them a more practical choice for longer runs (see voltage drop guidelines). Electronic transformers offer quieter operation than magnetics, making them a more practical choice for quiet settings. Magnetic transformers generally contain less components making them among the most reliable power sources.

Either transformer can be used with dimmer switches. An electronic transformer will work with most standard incandescent dimmers. A magnetic transformer generally requires a low voltage dimmer specifically made for magnetic loads. However some of our remote magnetic transformers have the ability to be dimmed with standard incandescent dimmers. Consult our factory for details.

Because the DuoRail system works with 12 or 24 volts we offer transformers for either voltage. The maximum amperage of the rail is 50 amps (one circuit is 25 amps) . You may run 600 watts on a 24 volt system (25 amps) or 300/600 watts on a 12 volt system (also 25 amps). Our 600 watt transformers are offered in 12 or 24 volts, however the 12 volt version has two outputs with 300 watts available at each.

Transformers are available as surface mounts or remote.

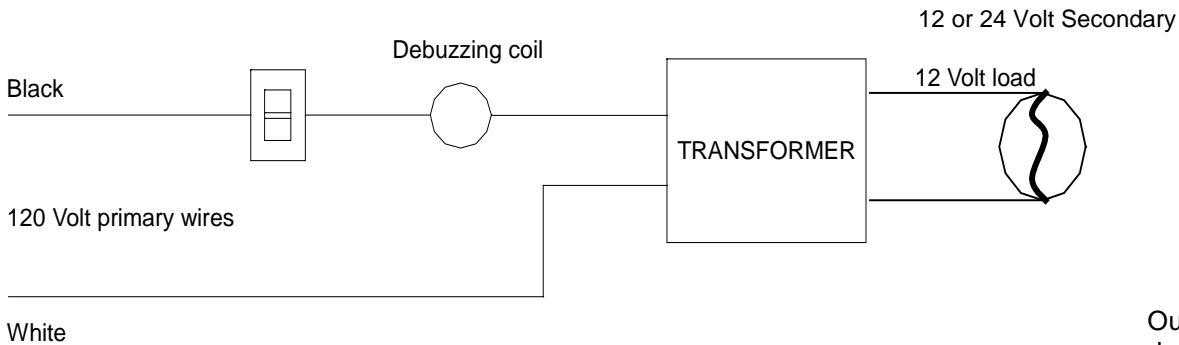
To use see instructions furnished with the transformer.

Transformer Selection Guideline					
Model	Type	Finish	Input	Output	Max Watts
LM2-EN12-300M-BN	Surface mount magnetic	Brush Nickel	120V	12V	300W
LM2-EN12-300M-CH	Surface mount magnetic	Chrome	120V	12V	300W
LM2-EN12-300M-DB	Surface mount magnetic	Dark Bronze	120V	12V	300W
LM2-EN12-500M-BN	Surface mount magnetic	Brush Nickel	120V	12V	500W dual output
LM2-EN12-500M-CH	Surface mount magnetic	Chrome	120V	12V	500W dual output
LM2-EN24-500M-DB	Surface mount magnetic	Dark Bronze	120V	12V	500W dual output
SRT-300M-12V	Remote magnetic	N/A	120V	12V	300W
SRT-600M-12/24V	Remote magnetic	N/A	120V	12V/24	600W (12V dual output)
SRT-600M2-12V	Remote magnetic	N/A	120V	12V	600W dual output

VOLTAGE DROP GUIDELINE										
SURFACE MOUNT TRANSFORMERS										
CAT. NO.	VOLTS	WATTS	TYPE	RAIL RUN LENGTH						
LM2-EN12-300M	12V	(2) 150W	MAGNETIC	40'						
LM2-EN12-500M	12V	(2) 250W	MAGNETIC	(2) 40'						
REMOTE TRANSFORMERS- to power feed point										
CAT.NO.	VOLTS	WATTS	TYPE	WIRE GAUGES/ MAX DISTANCE- FEET						RAIL RUN LENGTH / FT
				10	8	6	4	2	1	
SRT-300M-12V*	12V	300W	MAGNETIC	9'	10'	25'	40'	60'	100'	40'
SRT-600M-12/24V	12V	(2) 300W	MAGNETIC	9'	10'	25'	40'	60'	100'	(2) 40'
SRT-600M-12/24V	24V	(1) 600W	MAGNETIC	9'	10'	25'	40'	60'	100'	40'
SRT-600M2-12	12V	(2) 300W	MAGNETIC	9'	10'	25'	40'	60'	100'	(2) 40'
Remote transformer data based on a full load with 5% max voltage drop. Surface mount data based on full load to end of rail.										

Debuzzing coil:

Inherent with all magnetic transformers is an audible buzz, mostly when dimmed. To lessen the noise, our surface mount transformers are supplied with a factory installed debuzzing coil (or choke). The debuzzing coil is an option on remote magnetic transformers. Debuzzing coils are installed between the switch and transformer on the black (hot) primary wire.

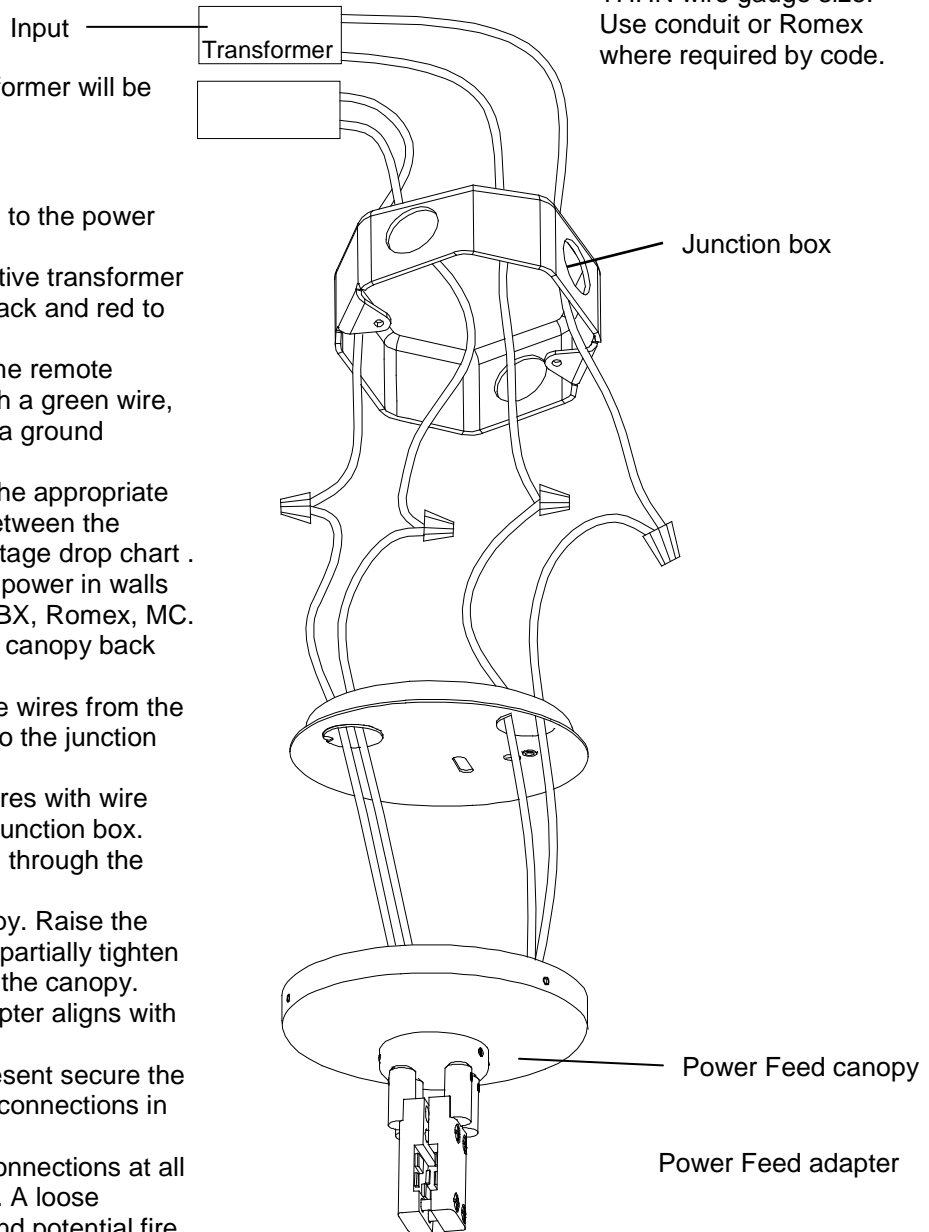


Transformer Installation:

Determine if a remote or surface mount transformer will be used, proceed as indicated below.

Installing a remote transformer:

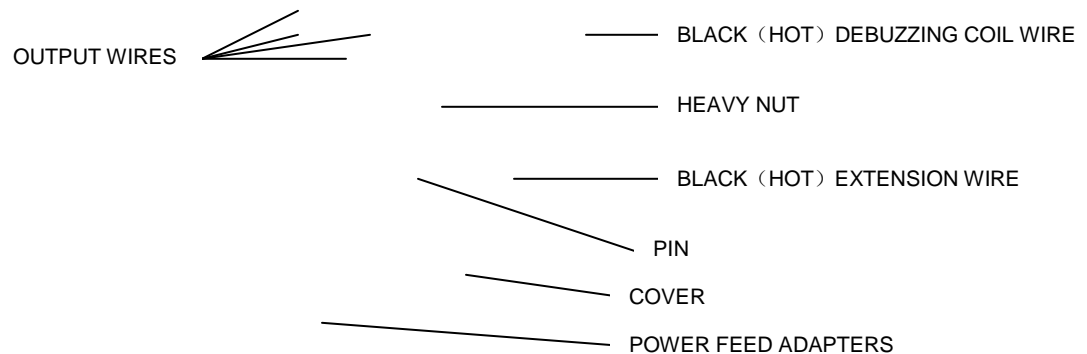
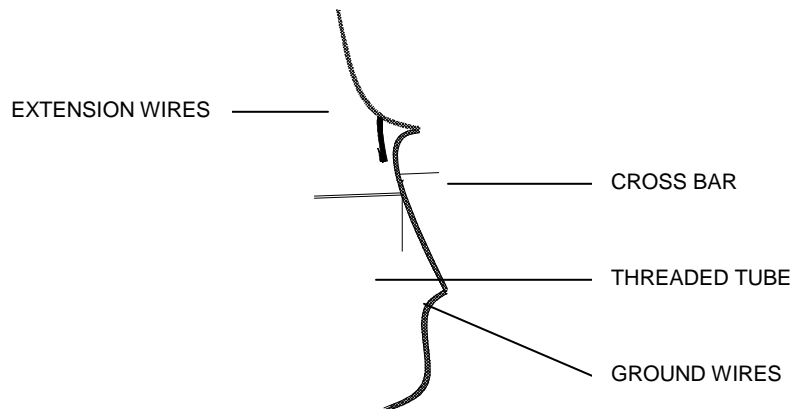
1. Locate the transformer as close as possible to the power feed point to minimize voltage drop.
2. Connect line voltage wires to their respective transformer input wires, (white and grey to white & black and red to black).
3. Make ground wire connection. Note: Some remote transformers have integral enclosures with a green wire, if not, an enclosure is required. Establish a ground connection to the enclosure.
4. To wire secondary wires, first determine the appropriate THHN wire gauge size for the distance between the transformer and the junction box. See voltage drop chart . Run secondary wires from transformer to power in walls and ceilings should be enclosed type ie: BX, Romex, MC.
5. Select a knock out hole in the power feed canopy back plate.
6. Support the power feed canopy, and route wires from the canopy through the the knock out hole into the junction box.
7. Attach canopy wires to the transformer wires with wire nuts (supplied). Tuck wires back into the junction box.
8. Secure the base plate to the junction box, through the slotted holes.
9. Loosen the the three screws on the canopy. Raise the power feed canopy to the base plate and partially tighten screws so that they support the weight of the canopy.
10. Rotate the canopy so the power feed adapter aligns with the rail, then fully tighten screws.
11. For locations where no junction box is present secure the back plate to the surface, and make wire connections in the canopy.
12. Note: Low voltage systems require firm connections at all points, to avoid abnormal heat conditions. A loose connection can lead to system damage and potential fire



hazard. Correct by tightening, but do not over tighten.
 The recheck the hot spot to make certain it's corrected.

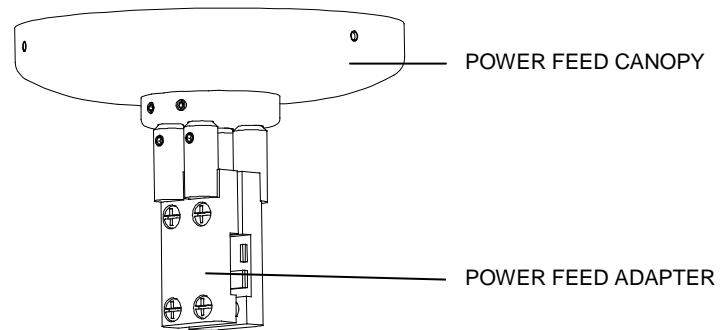
Installing a Surface Mounted Transformer:

1. The junction box will support the entire weight of the transformer, which may weigh up to 30 lbs.; make sure it is adequately braced and supported. It is recommended that two people install the transformer.
2. Extension wires are supplied to connect junction box wires to the transformer input wires. Connect white and grey neutral wire to white wire, and black and red hot wire to black wire with wire nuts. The ground wire may be green or bare copper, connect it to the green extension wire.
3. Pass the open ends of the wires through the center hole of the cross bar/ threaded tube assembly, and mount to cross bar junction box as shown.
4. Open the transformer case by removing the four screws on the perimeter. The cover halves will separate but not detach, allow the lower half to hang temporarily.
5. Raise the transformer assembly on to the threaded tube and pass the ends of the wires through. Attach the heavy nut to the bottom of the tube and tighten so the transformer assembly is close to the ceiling.
6. Insert pin through hole on bottom of treaded tube to secure heavy nut to tube.
7. Connect the extension wires to the transformer input wires, with wire nuts. Follow the previous color code.
8. Position the bottom cover so the power feed adapter is aligned to receive duo rail. Close the bottom cover and secure with the four screws removed earlier.



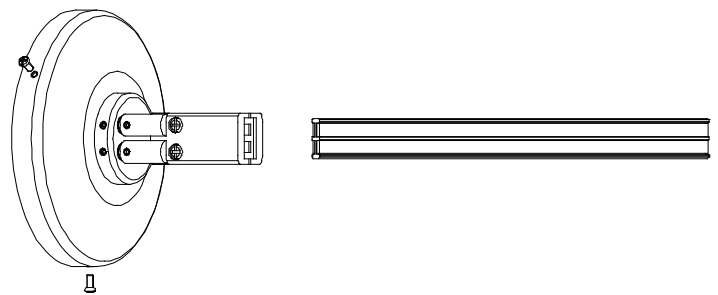
Ceiling Power Feed Connection: "LM2-CPC"

1. Position the transformer or power feed canopy, so the power feed adapters align with the rail.
2. Loosen the set screw in the adapter, so that there is sufficient clearance to slip the duorail between the two halves.
3. Check the fit of the rail, to make sure it fits flat against the adapter channel. Complete contact is necessary for proper performance.
4. After the first ½ hour of operation, switch off and check connections for excessive heat or color distortion. Low voltage systems operate at higher amperage, which requires secure connections. A loose connection can lead to system damage and potential fire hazard. Correct by tightening, but do not over tighten. The recheck the hot spot to make certain it's corrected.



Wall Mount Power Feed: "LM2-WPC"

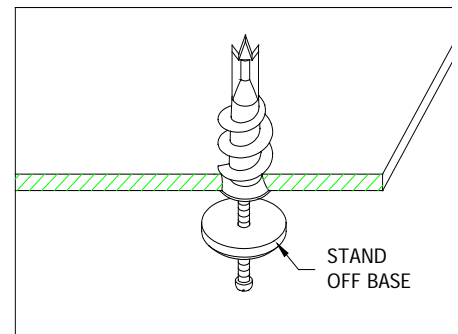
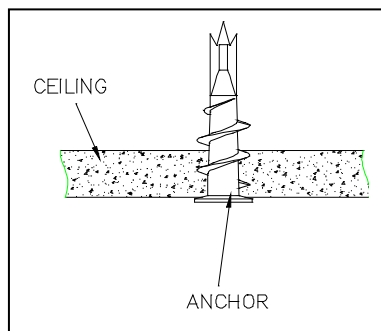
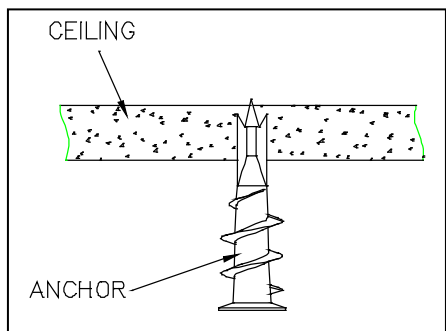
The wall mount power feed installation is the same as ceiling mount. It differs from the ceiling mount in that the power feed adapter is shaped to accept rail from its end.



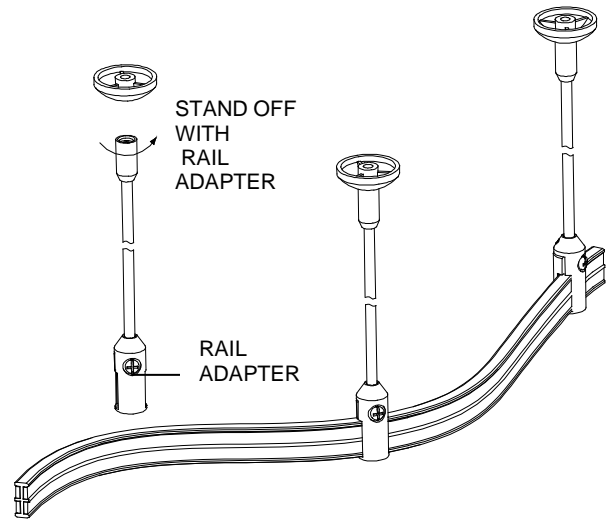
Duorail mounting:

Rail can be installed on a flat surface, a sloped ceiling, or a suspended ceiling.

1. Use a standoff for every 42" of rail. Use additional standoffs to support tightly curved sections .
2. If bending rail, do this at floor level, then raise to ceiling and mark the location of standoff supports.
3. If rail cannot be raised, use a plumb line to mark location of stand offs on the ceiling.
4. For drywall, drill holes and insert ceiling anchors (supplied) through standoff bases and then to ceiling (shown). Tighten until snug.

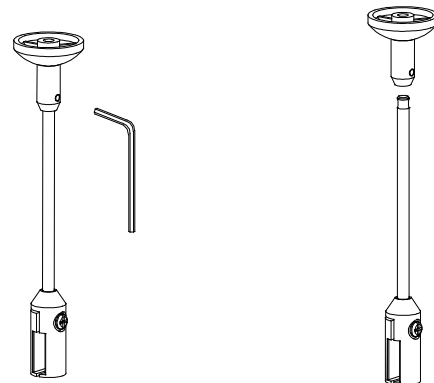


5. For wood surfaces insert wood screws through standoff bases and fully tighten.
6. Install standoff posts with rail adapters. Twist clock wise to tighten.
7. To obtain proper alignment with DuoRail loosen the set screw near the top of the standoff, (using a 1/16" allen wrench) adjust then re- tighten.
8. Loosen the set screw in the rail adapter, so that there is sufficient clearance to slip the rail between the two halves.
9. Raise the rail to ceiling level and support it.
10. Starting from the center of rail, slip track between the two halves of the rail adapter. Tighten the adapter screw (clockwise) until the rail adapter seats firmly against both sides of the rail.
11. Repeat procedure for remaining standoffs.



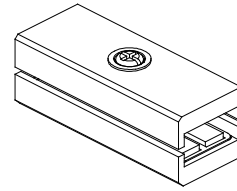
Field Cutting a Standoff:

1. Remove the small setscrew located on the upper fitting and pull the rod free (use a 1/16" allen wrench).
2. Use a tube cutter for the cleanest cut. If using a hacksaw be sure to brush away any metal filings.
3. Cut to size and refit.
4. The procedure for standoffs on the power feed canopy is the same.



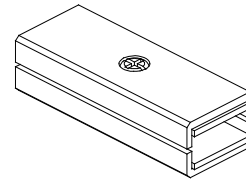
“I”Connector

Connects two sections of rail and allows current flow between the two.



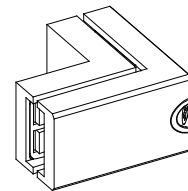
“I”Dead end Connector

Connects two pieces of rail, but is non-conductive and does not allow current to pass to the other section.



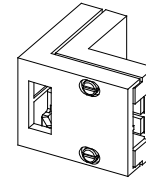
“L”Connector

Used to join two rail sections at a 90° angle.



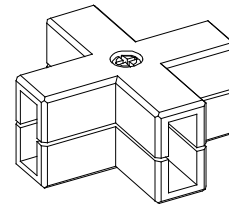
“T”Connector

Joins three rails in a “T” configuration.



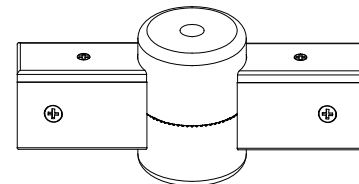
“X”Dead end Connector

Connects four sections of rail, but is non-conductive and does not allow current to pass to the other sections.



“VA”Connector

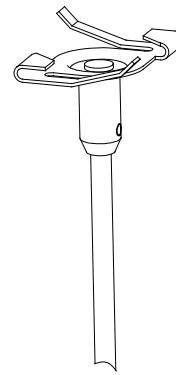
Used to join two rail sections at freewill angle.



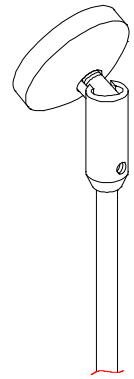
T-Bar Ceilings:

Note: Rail stand offs are required to be mounted to structural members. Do not mount only to acoustical panels.

1. Follow steps 1 through 3 for rail mounting above.
2. Place T-bar clip standoff against the ceiling T-bar, and turn clockwise to engage.
3. Proceed from step 5 above.



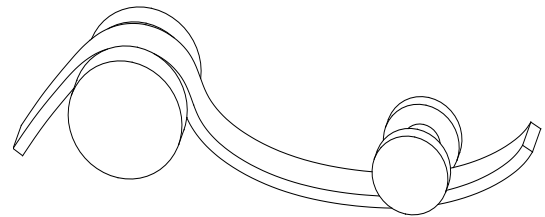
T BAR



SLOPED CEILING

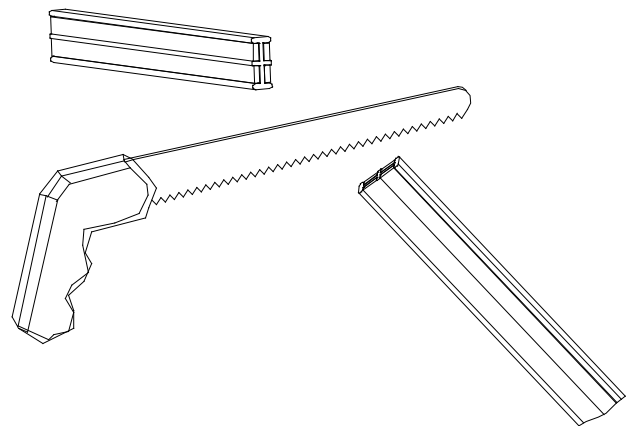
Bending Duo Rail:

1. Rail is best formed, by bending over a round object.
2. Start with a broader radius and form over progressively smaller diameters.
3. We recommend a minimum radius of 28".
4. Broad curves can be accomplished by gradual hand bending.
5. Once formed, the ends of the rail will be unequal. If connecting with another connector, snip the rail end to make even, other wise just apply an end cap.
6. Pre-stress track to shape while at floor level. Do not stress between ceiling standoffs to form shapes.



Field Cutting Rail:

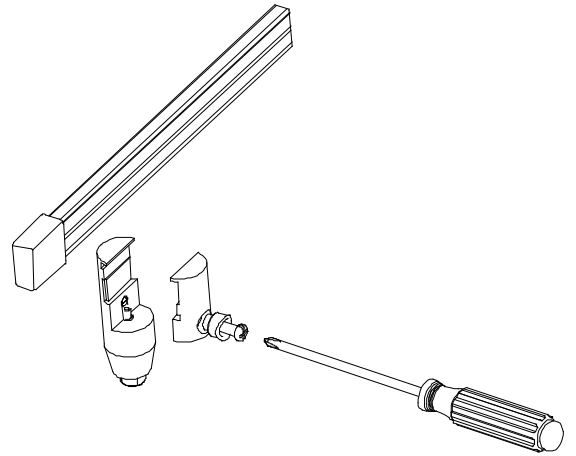
1. Rail may cut to length in field.
2. Use fine-toothed hacksaw or heavy-duty bolt cutter.
3. Thoroughly clear away all cutting debris.
4. Inspect end to insure the insulator has not been damaged and there are no sharp edges.
5. Re-install track end cap.



Installing Fixtures:

Note: Fixtures attach to the rail with a two-piece adapter. It is important that the setscrews of the adapter all face the same way. This reduces the possibility of an electrical short.

1. Loosen the adapter screw enough to allow adapter halves to slip over duo rail.
2. Seat the adapter notches to the rail and tighten the screw.
3. Inspect the rail to see that the adapters are firm against it.
4. If the adapter is the quick connect type, thread the quick connect adapter by screwing clockwise until snug.
5. **Important:** Set-screws on adapters should all face the same direction on one circuit.



Important: observe polarity, the quantity which install rail adapters with screws facing the same side of the rail couldn't exceed the capacity of one circuit.