400/450 Series Connector Strip Set Up Guide

Be sure to remove ALL protective packaging materials from around wires prior to joining sections together.

1. Position connector strip container near area to be installed. Disassemble container so that connector strip remains in bottom tray without sides. Be sure of power feed location and stage orientation (see below).

   Use the cardboard shipping pylons as stands to support the connector strip for joining sections and attaching brackets.

2. Connect all section with steel section joiners and hardware provided. *Details page 2*

3. Install hanging brackets onto connector strip. *Details page 3*

4. Attach connector strip to rigging or stage electrics pipe.

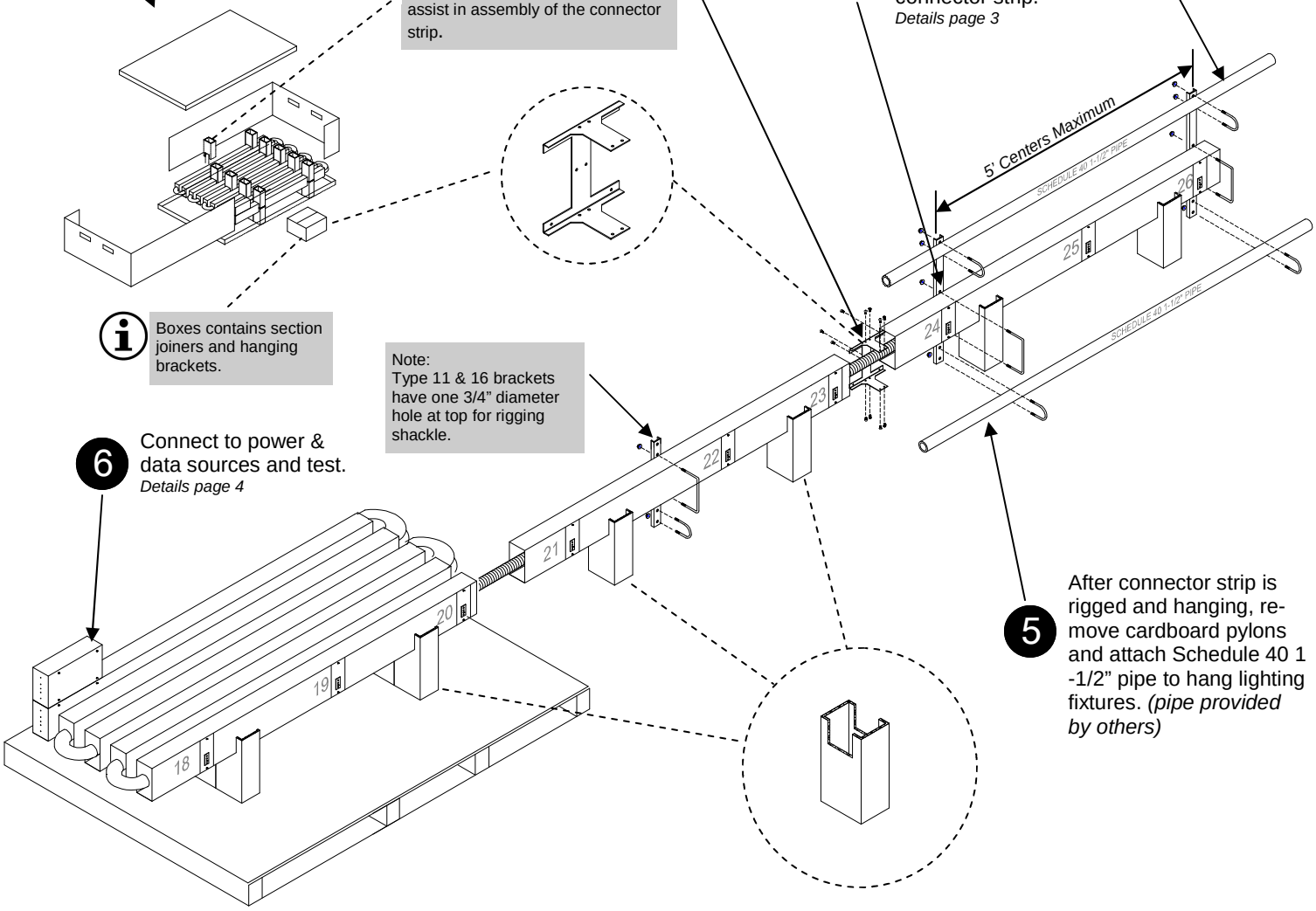
5. After connector strip is rigged and hanging, remove cardboard pylons and attach Schedule 40 1 -1/2" pipe to hang lighting fixtures. *(pipe provided by others)*

6. Connect to power & data sources and test. *Details page 4*

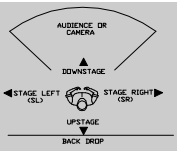
DO NOT DISCARD-Cardboard shipping pylons act as stands to assist in assembly of the connector strip.

Boxes contains section joiners and hanging brackets.

Note:
Type 11 & 16 brackets have one 3/4" diameter hole at top for rigging shackle.



Note:
Typical connector strip layouts have the circuit numbering facing the upstage side. Be certain of orientation prior to unfolding and joining sections together. Diagram above shows circuit numbering upstage and power terminals stage Left.



UL LISTED

400/450* Series is UL and cUL listed under File E31501 for Stage and Studio.

Altman Lighting Co. Inc. 57 Alexander Street, Yonkers, NY 10701 1-800-4 ALTMAN
customerservice@altmanlighting.com www.altmanlighting.com

400/450 Series Connector Strip Assembly Instructions

Extended length connector strips (exceeding 6') are shipped partially assembled and folded. All internal wiring is complete and all necessary components are included unless noted. Open each shipping container and check the contents according to your packing slip. The wiring between sections should be undamaged and covered by protective plastic tubing. Metal parts should be free from scratches and dents. Contact your Altman Lighting representative immediately if you discover any problems.

Tools required in assembling connector strip:

- #2 Philips screwdriver to assemble strip sections. (power driver w/torque control recommended)
- 1/8" Straight blade screwdriver to install wire feed into spring 20A circuits. (included in this package)
- 1/2" Hex deep socket & ratchet to assemble hanger brackets.
- Power drill and drill bits.
- Greenlee® or equivalent punch for conduit or metal strain relief. (strain relief not included)
- Large straight blade screwdriver for ground lug and 30A, 50A 60A, and 100A circuits

General assembly information

Fully assembled connector strips can be very long and difficult to move for installation. Assemble the connector strips in an area with good access to the final installation point.

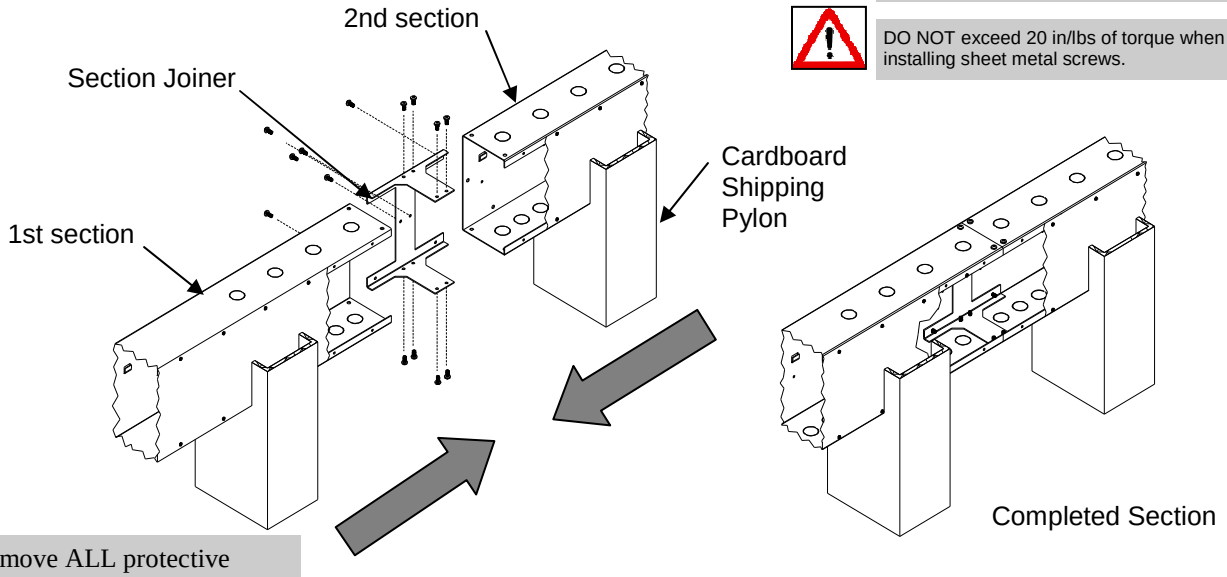
CAUTION: The section joiners are designed to hold the connector strip together for normal operation and not designed for unusual load stresses such as lifting entire length of strip from one end.

Assembling the connector strip sections

1. Identify which end of the connector strip is the terminal access end (Stage Left, Stage Right) and confirm that this end is near the power source to be connected to. The terminal access end is identified by label: **TERMINAL ACCESS,** and an orange sticker. Outlets and numbering typically face upstage.
2. Carefully remove the connector strip from the shipping container and stretch onto the floor with enough room to assemble the entire connector strip. Use the cardboard shipping pylons as stands to assist in assembly of the connector strip.
3. Each section requires fourteen (14) #10 self tapping screws and one steel joiner. (supplied with extra screws)
4. Attach steel joiner to 1st section to be joined with 7 screws and tighten.
5. Carefully slide mating 2nd section onto steel joiner and attach with 7 screws. Make sure electrical wires are not being pinched or distorted in any way.
6. Repeat steps 4-5 above for all remaining sections.

Note:
A powered screw gun with torque control will greatly speed the assembly of the connector strip.

DO NOT exceed 20 in/lbs of torque when installing sheet metal screws.



Be sure to remove ALL protective packaging materials from around wires prior to joining sections together.

Wires and DMX barrier panels not shown for clarity purposes.

Installing Hanging Brackets-All Types

After assembling the connector strip sections, attach the hanging brackets to support it. Connector strips are shipped with enough hangers for installation every five feet, with a hanger at each end. This is the maximum spacing allowed. Hanging brackets may be included in connector strip packaging, or in some cases a separate container. Confirm that all packaging materials are thoroughly inspected prior to disposal. Schedule 40 pipe is *not* provided by Altman.

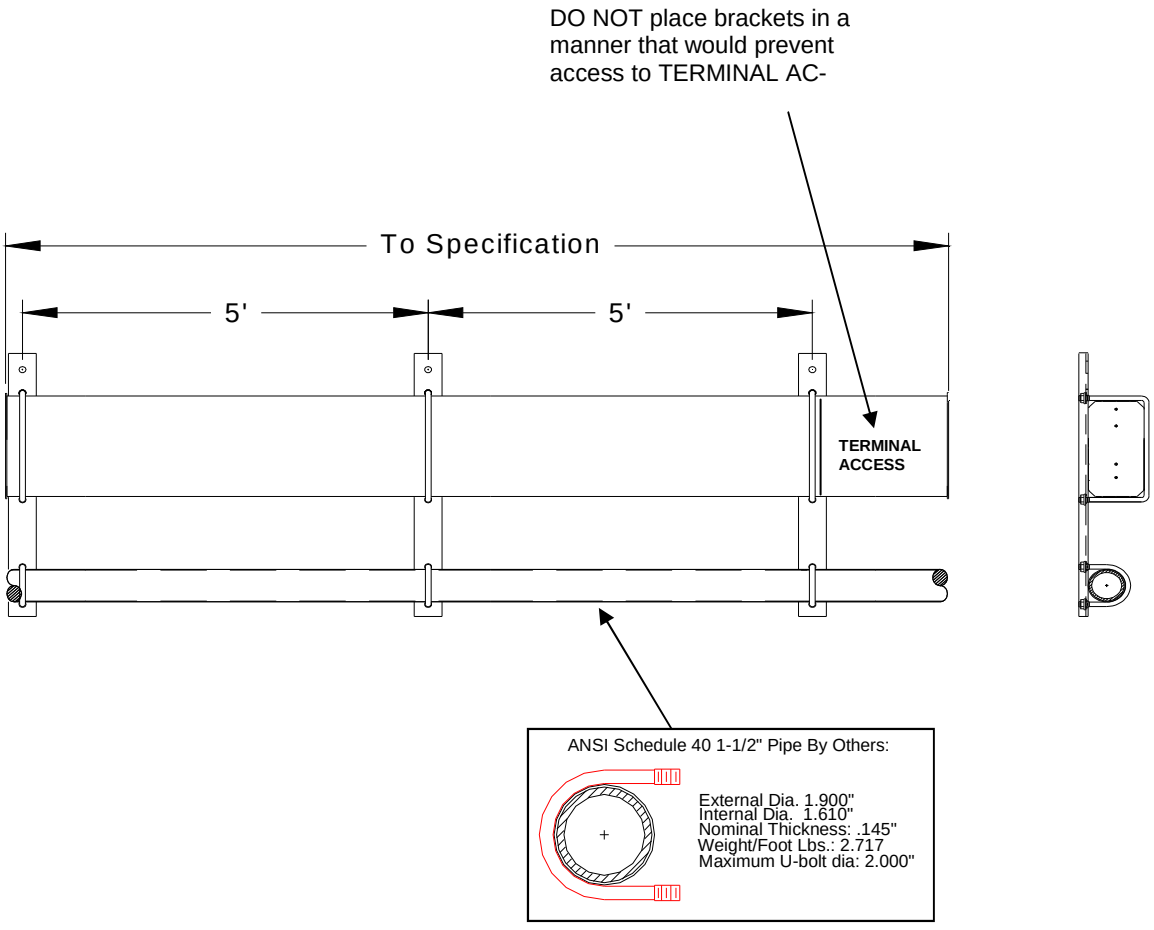
1. Starting at one end, fasten the hanger brackets onto the connector strip at intervals no greater than 5 feet. *DO NOT place brackets in a manner that would prevent access to TERMINAL ACCESS panel!*
2. Use the provided 5/16”-18 fasteners and a 1/2” socket & ratchet to attach the hanging brackets to the con-

Table below: One pair of brackets, plus one additional bracket for each additional 5 feet.

Length	1’- 10’	11’- 15’	16’- 20’	21’- 25’	26’- 30’	31’- 35’	36’- 40’	41’- 45’	46’- 50’	51’- 55’	56’- 60’
Bracket Qty.	2	3	4	5	6	7	8	9	10	11	12

CAUTION: The installer must verify the mounting structure, support, or surface is capable of supporting the connector strip weight, in addition to any other loads hung from it. Always follow applicable building codes when attaching connector strips to structural elements of a building.

WARNING: Attaching hangers more than five feet apart risks structural failure of the connector strip.

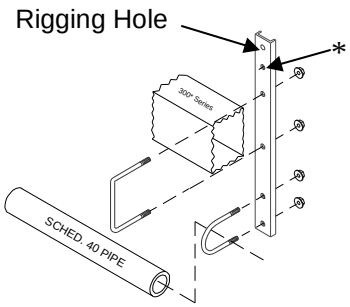


400/450 Series Connector Strip Assembly Instructions

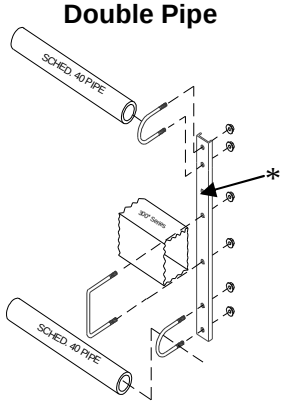
400 Series Brackets

For bracket types 11-13, be certain connector strip is mounted against FLAT SURFACE SIDE of bracket.

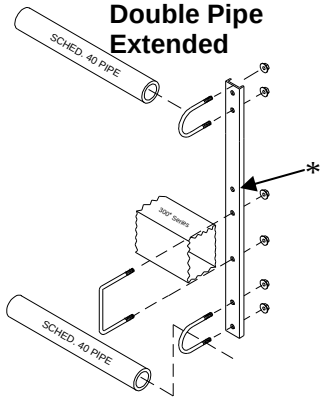
400-TYPE-11
Single Pipe



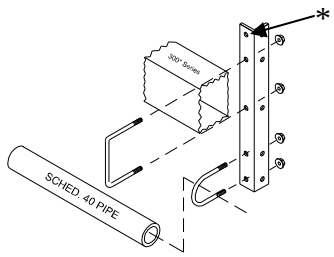
400-TYPE-12
Double Pipe



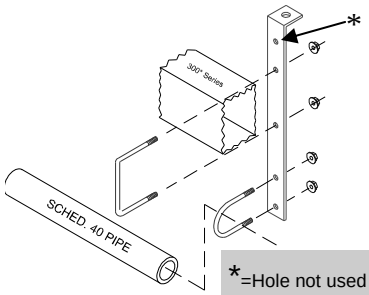
400-TYPE-13
Double Pipe Extended



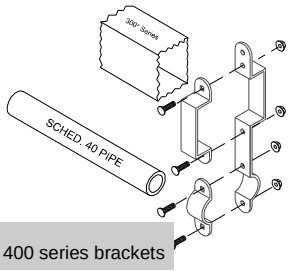
400-TYPE-14
90° Pipe Grid



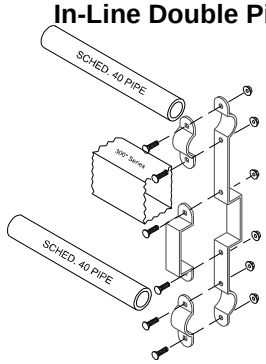
400-TYPE-15
All Thread Bracket



400-TYPE-16
In-Line Single Pipe



400-TYPE-17
In-Line Double Pipe

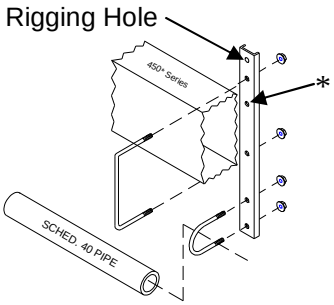


*=Hole not used on 400 series brackets

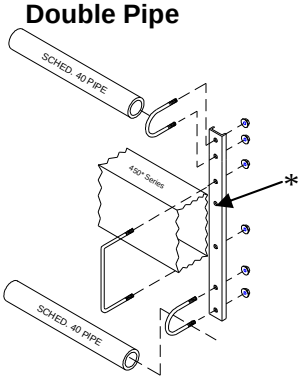
450Series Brackets

For bracket types 11-13, be certain connector strip is mounted against FLAT SURFACE SIDE of bracket.

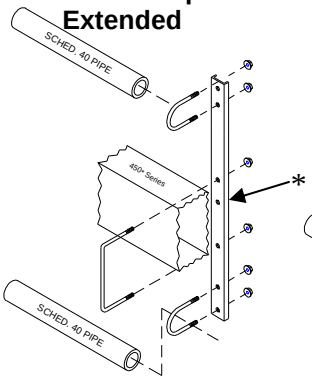
450-TYPE-11
Single Pipe



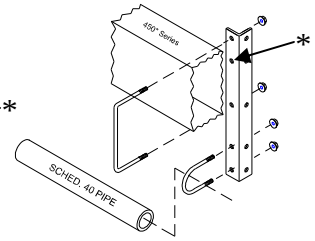
450-TYPE-12
Double Pipe



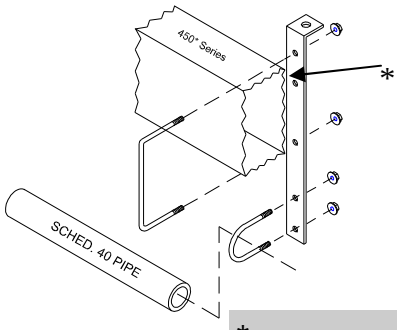
450-TYPE-13
Double Pipe Extended



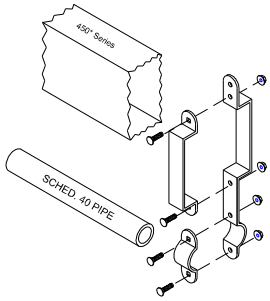
450-TYPE-14
90° Pipe Grid



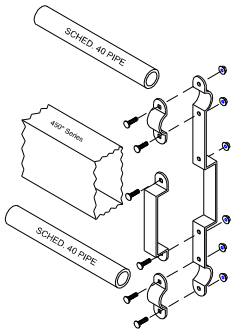
450-TYPE-15
All Thread Bracket



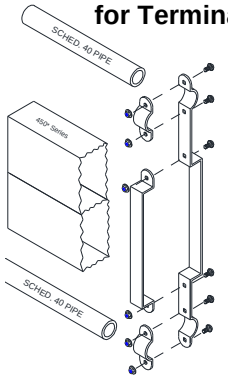
450-TYPE-16
In-Line Single Pipe



450-TYPE-17
In-Line Double Pipe



450-TYPE-17TB
In-Line Double Pipe for Terminal Box



*=Hole not used on 450 series brackets

400/450 Series Connector Strip Assembly Instructions

WARNING: ALL ELECTRICAL WIRING AND CONNECTIONS MUST BE PERFORMED BY A QUALIFIED ELECTRICIAN.

WARNING: This equipment MUST be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.

400/450* Series is UL and cUL listed under File E31501 for Stage and Studio.

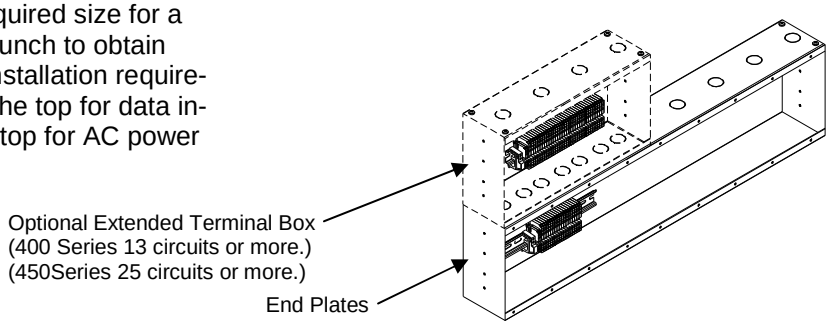
Electrical Connections

-From End Plates Each end plate has (4) .125" diameter pilot holes. These pilot holes act as centers for optimal positioning of holes up to 2.5" in diameter for attaching wiring strain relief devices into connector strips. Use the pilot hole to drill the required size for a Greenlee® or equivalent punch to obtain proper hole size for your installation requirements. Use 1st hole from the top for data input, and 3rd hole from the top for AC power connection.

-From Top The top surface at each end of the connector strip has .875" knockouts. **Note: Minimal top clearance with double pipe type brackets.**

Strain Relief Sizes

Trade Size	Hole Diameter Required
1/2	.875
3/4	1.125
1"	1.375
1-1/4"	1.750"
1-1/2"	2.000"
2"	2.500"

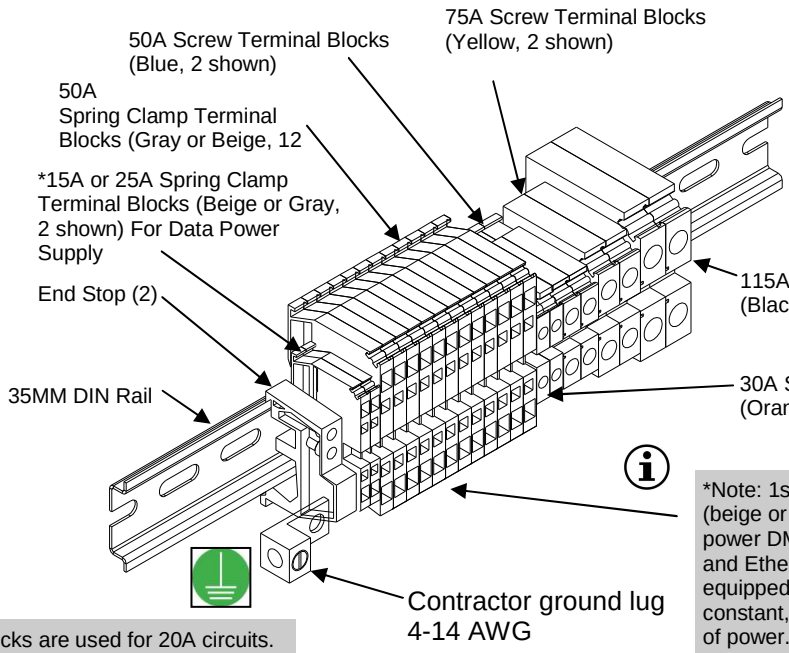


DIN Rail Terminal Block System
The connector strip uses a 35MM DIN rail modular terminal block system. Terminal blocks range from 15 amps to 115 amps depending on product configuration when ordered.

Terminal Block Sizes

Note: Not all terminal blocks listed in chart below may be present in connector strip.

	Color	Amps	Wire Size	Strip Length
Spring Clamp	Beige*	15A	14 AWG	1/2"
	Beige**	50A	8 AWG	1/2"
	Gray**	50A	8 AWG**	1/2"
Screw Terminal	Orange	35A	10 AWG	3/8"
	Blue	50A	8 AWG	1/2"
	Yellow	65A	6 AWG	1/2"
	Black	115A	2 AWG	3/4"

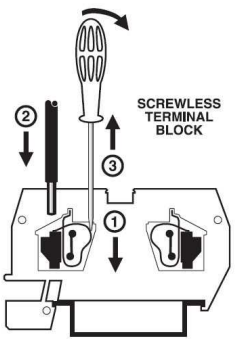


**Note: 50A spring clamp terminal blocks are used for 20A circuits. The upsizing allows for contactors to use #10AWG or #8 AWG line feed wire. All load side components are rated at 20A.

*Note: 1st two terminal blocks (beige or gray) are used to power DMX/RDM Opto-Isolators and Ethernet modules if so equipped. This circuit requires a constant, non dimmable source of power.

Attaching Wires to Spring Clamp Type Terminal Blocks. (15A-50A Circuits Only)
20 Amp circuits are gray in color with white marking labels that accept up to maximum 8 AWG wire.

Step 1. Insert 1/8" wide flat blade screwdriver (supplied) into the square slot and push all the way down so that screwdriver bottoms out.
Step 2. Insert the stripped wire into the oblong shaped hole.
Step 3. Remove screw driver to release spring clamp.
Step 4. Repeat steps 1-3 for all remaining connections.



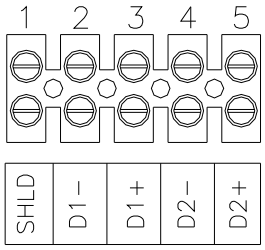
400/450 Series Connector Strip Assembly Instructions

DMX512-A Wiring Guide (450 Series Only)

ANSI E1.27-2: STANDARD WIRING PRACTICE FOR PERMANENTLY INSTALLED CONTROL CABLES FOR USE WITH ANSI E1.11 DMX512-A

Caution: All 5 data terminations are fully wired throughout the connector strip. Great care must be taken to prevent the accidental connection of DMX equipment to non-DMX equipment.

DMX IN TERMINAL BLOCK STYLE
Passive DMX



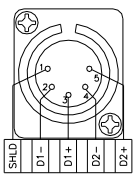
Standard RS422/485 Conductor (ie Belden, Proplex, etc)	
XLR Pin	Wire Color Product/Manufacturer Specific
Pin 1	Shield
Pin 2	Data – (pair 1 complement)
Pin 3	Data + (pair 1 true)
Pin 4	Optional Data – (pair 2 complement)
Pin 5	Optional Data + (pair 2 true)

Cat5, Cat5e and Cat6 Wiring Pin outs (see notes)		
Wire Color and #	Function	XLR Pin Number
White/orange (1)	Data + (pair 1 true)	3
Orange (2)	Data – (pair 1 complement)	2
White/green (3)	Optional Data + (pair 2 true)	5
Green (6)	Optional Data – (pair 2 complement)	4
Blue (4)	Unused/unconnected	
White/blue (5)	Unused/unconnected	
White/brown (7)	Data signal common	1
Brown (8)	Data signal common	1

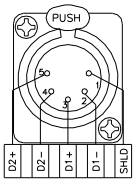
Note: Terminal block style is fully insulated and not required to be mounted. One terminal block used for each passive universe.

DMX IN/OUT XLR 5 PIN STYLE

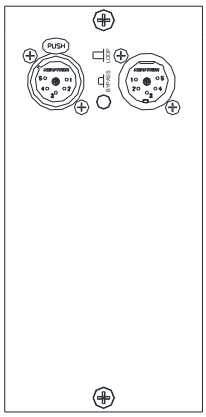
DMX IN 5 PIN MALE



DMX IN 5 PIN FEMALE



DMX By Pass Switch Usage



If the DMX outputs are not being used, the position of the red switch should be pushed in to IN position (bypass).

If the DMX outputs ARE being used, the red switch should be in OUT position (loop). Data cables should come out of the female connector, into the DMX device, and then out of the DMX device, and into the male connector. Not using the return will disable all DMX downstream.

Note on Category Wire Chart
This chart is intended for DMX512 cabling only - **NOT** DMX-over-Ethernet cabling. Great care must be taken to prevent the accidental connection of DMX equipment to non-DMX equipment. The connection of DMX equipment to non-DMX equipment such as Ethernet switches or telephone equipment may result in serious equipment damage and/or personal injury, as pins 4 and 5 may carry voltages of up to 48VDC or greater. Category wire is not recommended for loose or temporary cabling. The use of RJ45 connectors for DMX equipment should be restricted to patch bays in access controlled rooms and should not be used for the direct connection of portable equipment.

Please be aware that some non-standard pin-outs are also in use (i.e. Color Kinetics).