



STRAIN RELIEF USER MANUAL

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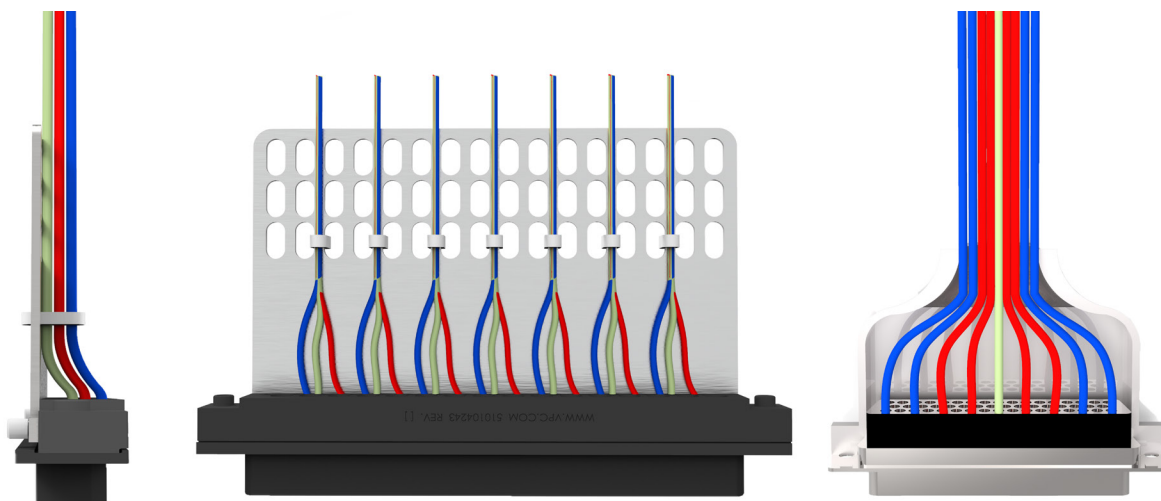
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TECH TIP: WIRE SLACK

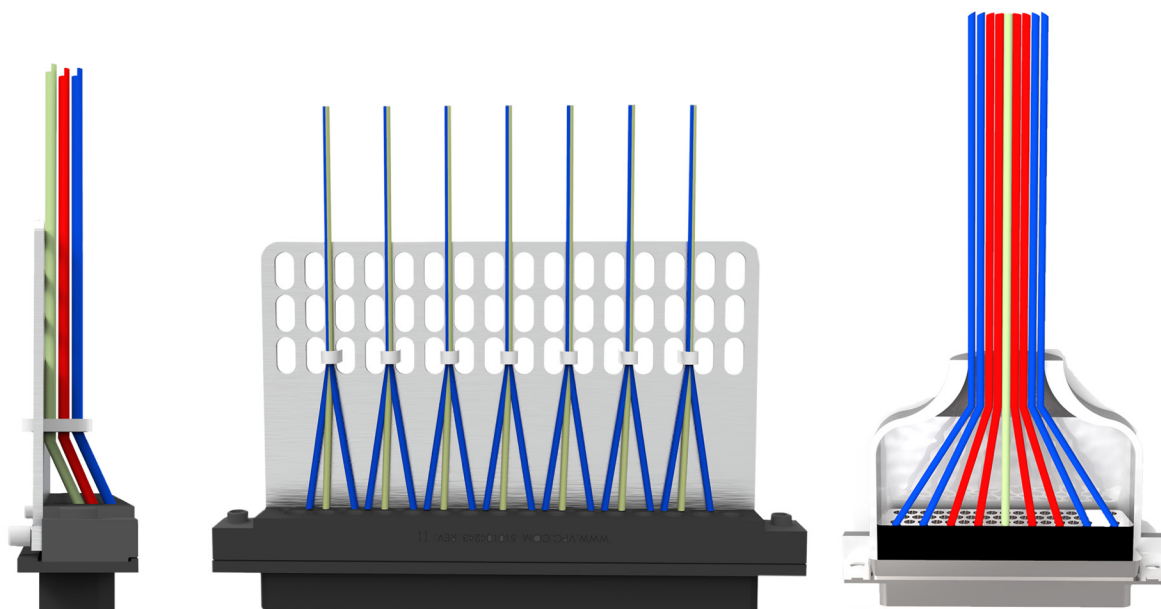
Before installing strain relief, consider the following tips to ensure the best cable management technique. Proper strain relief is crucial for optimal performance. Should you have any questions during the installation process, feel free to [contact us](#).

1. Check for any strained wires before assembling a strain relief plate to a connector. A strained wire is tight and has no slack.
2. Wires must have slack between the module and the strain relief.

CORRECT



INCORRECT



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TECH TIP: ZIP-TIE GUN SETTINGS

(EXAMPLE SHOWN: PANDUIT GTS CABLE TIE TOOL)

Zip-tie guns settings are determined by the size of the zip-ties used. Below are proper settings for a Panduit GTS Cable Tie Tool based on various sizes of zip-ties.

GTS Tool Shown

A 	 SUBMIN .070" (1.8mm)	 MIN .098" (2.5mm)	 INT .142" (3.6mm)	 STD .190" (4.8mm)
B 				
C 	0 - 1	1 - 3	3 - 5	5 - 8

INSTALLING ZIP-TIES



NOTE: DO NOT USE ZIP-TIES OR TWIST LOCKS FOR FIBER OPTIC OR OTHER HIGH FREQUENCY WIRES. VPC RECOMMENDS THE USE OF VELCRO TO PREVENT WIRE DAMAGE. SEE PAGE 7 OF THIS USER MANUAL FOR MORE INFORMATION ON HOW TO USE STRAIN RELIEF WITH FIBER OPTIC AND OTHER HIGH FREQUENCY WIRES.

1. A wire run is grouped with adjacent wire runs to form a zip-tie bundle. This zip-tie bundle is then zip-tied to the space on the strain relief aligned with the plugged holes where the wires exit the module. Use the equation below to calculate the recommended number of wires per zip-tie.

$$\text{Total \# Wires} \div \text{\# Strain Relief Spaces (Figure A)} = \text{\# Wires per Zip-Tie Bundle}$$

2. Use 2 zip-ties vertically, per bundle, to prevent wires from pivoting (**Figure B**).
3. All wires in one wire group will be zip-tied in the same bundle.
4. There should be slack in the wire between the contact and the zip-tie.
5. Zip-ties must be cut flush to the zip-tie head.
6. All zip-tie heads on a strain relief plate must lie in the same direction and orientation.
7. Zip-ties must be tight enough to keep the wires from moving up and down or back and forth, but not be overly tight as to prevent some slack. If the wires can be moved between the zip-tie and the contact, then the contact does not have proper strain relief. Another zip-tie needs to be added in vertical alignment.

NOTE: Do not zip-tie bundles to the edges of the strain relief plate.

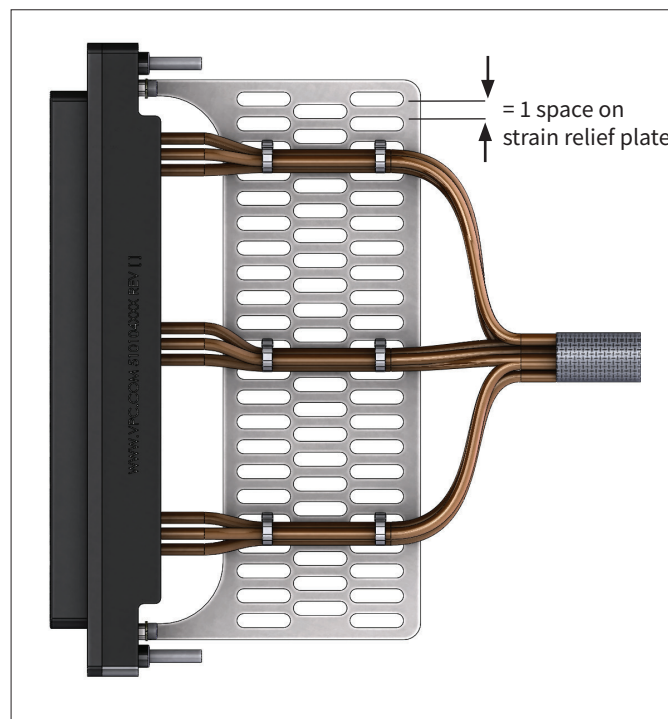


Figure A

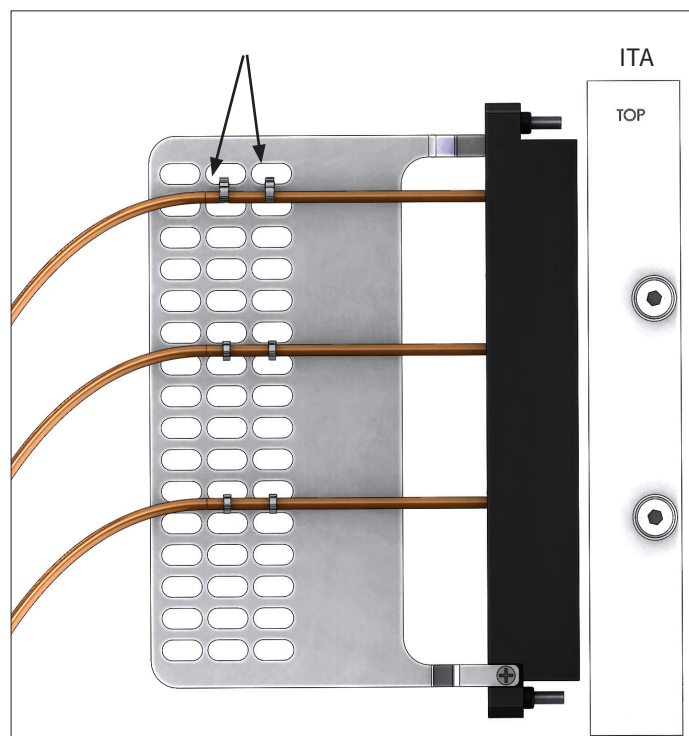


Figure B

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90 SERIES MODULE STRAIN RELIEF ASSEMBLY

STRAIN RELIEF PART # 510109116
FOR USE WITH MODULE PART #'S 510104102, -120, -123, -133, -134,-136, -149, -206, -243, - 261

TOOLS REQUIRED

Zip-Tie Gun
Torque Screw Driver

- 1. Replace any wire that is short enough to cause strain on the crimp area.
- 2. Place the strain relief plate against the module so it rests on the module ledge. Insert the screws to hold the strain relief plate.
- 3. Torque the strain relief plate screws to the values given in the table below.
- 4. Attach wires to the strain relief plate using the best method based on the wire type. Use velcro versus zip-ties, for fiber optic wire or other high frequency wire.



Figure A.

Figure B. Torque Values diagram

Module Breakout		
Strain Relief	Module	Torque Spec
510109116	510104102	4 in-lb
	510104120	
	510104123	
	510104133	
	510104134	
	510104136	3 1/2 in-lb
	510104149	
	510104206	
	510104243	
	510104261	

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QUADRAPADDLE MODULE STRAIN RELIEF ASSEMBLY

PART # 510109348, 510109349
FOR USE WITH MODULE PART # 510150115, - 116, -130, -131

TOOLS REQUIRED

Zip-Tie Gun
Torque Screw Driver

1. Replace any wire that is too short and causing the wire to strain in the crimp area.
2. Separate the 2 base pieces of the strain relief plate. Place the smaller of the plates against a module side. Each plate has a groove that fits into a strip on the side of the module (**Figure B**).
3. Be sure that the wires are exiting in the direction of the strain relief plate.
4. Place the opposite strain relief plate to other module side.
5. Align the screw holes with the standoffs between the two plates. Screw the two plates together with the supplied screws.
6. Make sure no wires get pinched between the two plates.
7. Torque to 2-½ in-lbs.
8. Attach wires to the strain relief plate using the best method based on the wire type. Use velcro versus zip-ties, for fiber optic wire or other high frequency wire. See instructions on page 4 for properly installing zip-ties.

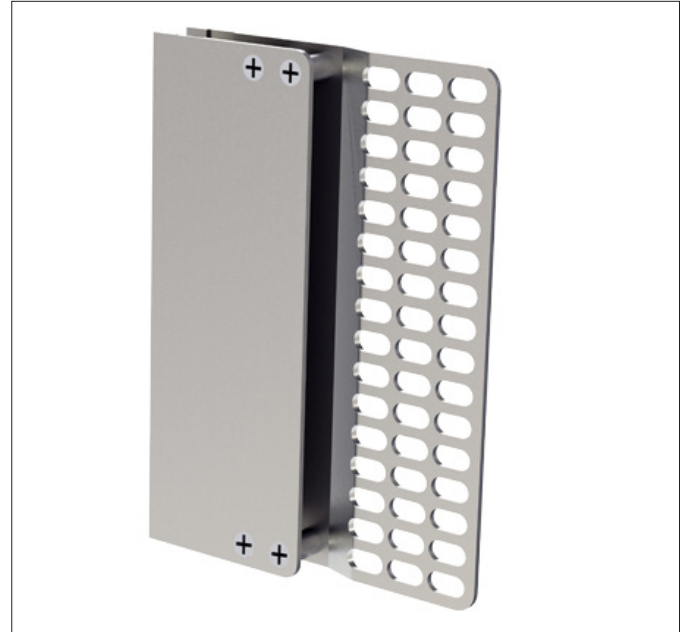


Figure A. Strain Relief part # 510109349

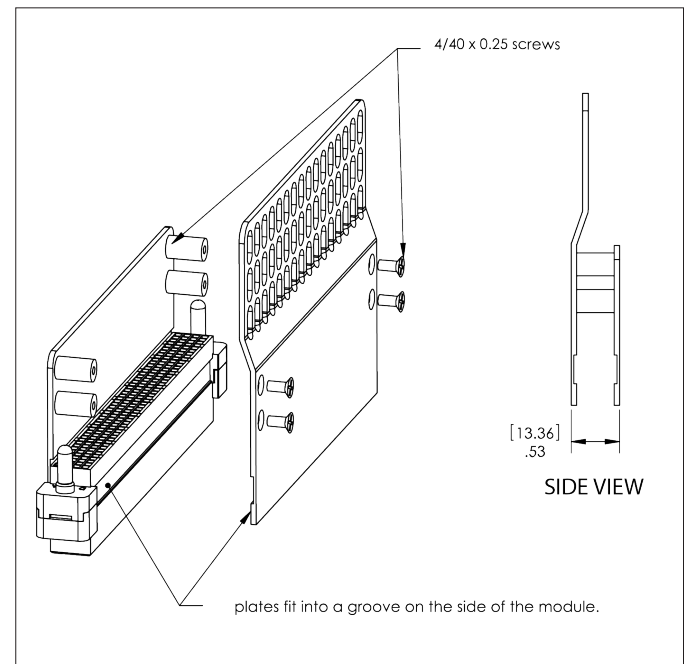


Figure B.

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HIGH FREQUENCY MODULE STRAIN RELIEF ASSEMBLY

PART # 510109116,-282,-296, -298, -475, -548



NOTE: DO NOT USE ZIP-TIES OR TWIST LOCKS ON HIGH FREQUENCY WIRE. VPC RECOMMENDS THE USE OF VELCRO. ZIP-TIES OR TWIST LOCKS ON HIGH FREQUENCY WIRE, ESPECIALLY WITH TOO MUCH TENSION APPLIED, WILL PINCH THE WIRE. OVERTIGHTENED APPLICATION TO STRAIN RELIEF ON HIGH FREQUENCY WIRE (ANY WIRE TERMINATED TO VTAC, COAX, OR FIBER OPTIC) CAN DAMAGE THE WIRE.

TOOLS REQUIRED

Torque Screw Driver

STRAIN RELIEF GUIDELINES

1. Ensure that the bend radius is larger than the minimum bend radius of high frequency wire at all times. See below for minimum bend radius by wire type:

Min. Bend for RG-316: 0.6" [15.2 mm]

Min. Bend for RG-178: 0.4" [10.16mm]

Min. Bend for Flex 402: 0.5" [12.5 mm]

Min. Bend for Flex 405: 0.25"[6.35 mm]

2. Place the strain relief plate against the module so it rests on the module ledge (example **Figure A**). For a fully loaded module it will be necessary to stagger the wires over the strain relief.

NOTE: The receiver frame is installed between the strain relief plate and module for part # 510109298 (Figure B).

3. Torque the strain relief screws to 3 ½ in-lbs.
4. Use velcro to properly strain relieve the high frequency wires.



Figure A. Part # 510109475

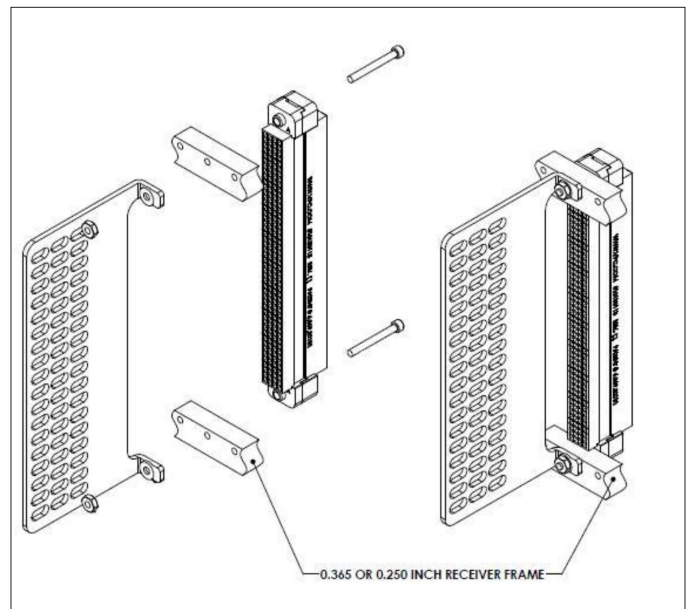


Figure B. 90 Series module strain relief, part # 510109298

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FIBER OPTIC STRAIN RELIEF ASSEMBLY

PART # 510109116, -296, -298

STRAIN RELIEF GUIDELINES

1. Ensure that the bend radius is larger than the minimum bend radius of the fiber optic wire at all times.
Min. Bend Radius= 15 X Diameter of Wire (Figure A)

Min. Bend - 62.5/125μ Multimode= 1.77" [45 mm]
Min. Bend- POF= 1.18" [30 mm]
2. For receiver side wires, leave a slight amount of slack in the cable when securing to the strain relief plate to allow the contacts to align when the modules are engaged (Figure B).



WHEN HANDLING FIBER OPTIC CABLES DO NOT LOOK INTO THE ENDS OF ANY CONNECTOR. LASER LIGHT COULD CAUSE PERMANENT EYE DAMAGE.

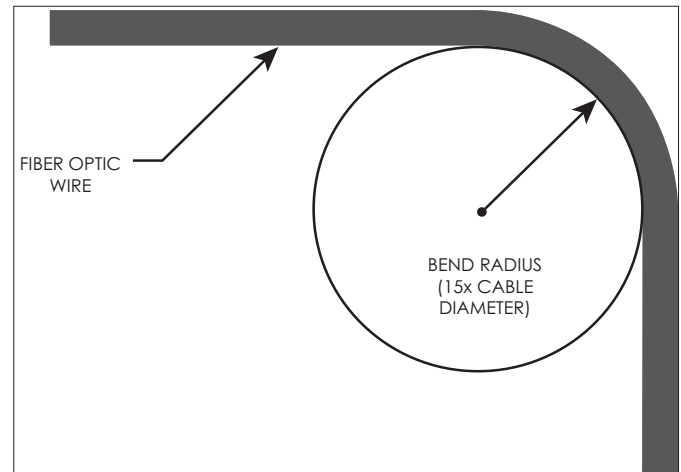


Figure A. Min. Bend Radius = 15 x Wire Diameter

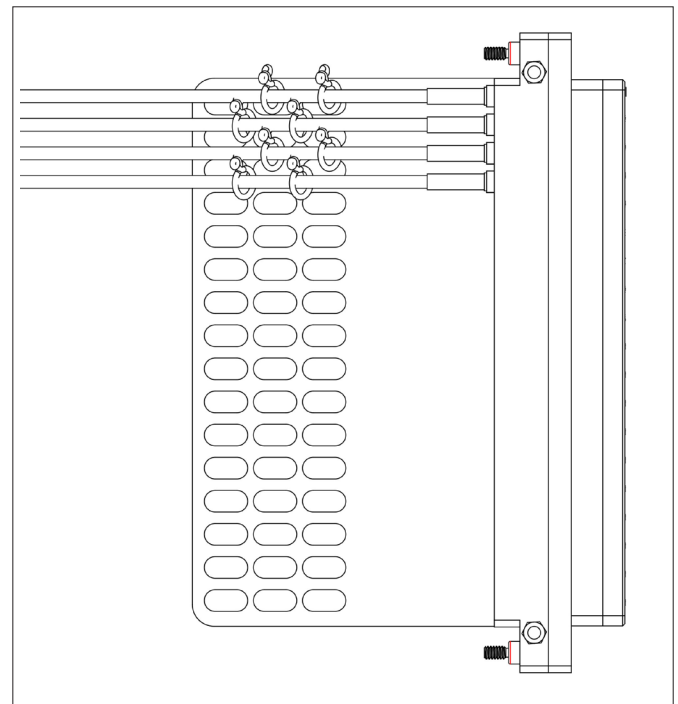


Figure B.

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iCon AND i1 RECEIVER STRAIN RELIEF ASSEMBLY

PART # 310113456, 310113531

TOOLS REQUIRED

Zip-Tie Gun

Phillips Head Screwdriver

iCon

1. The strain relief to the iCon receiver on the wiring side of the receiver frame (Figure A).
2. Fasten the strain relief to the iCon receiver frame with the included screws and a Phillips head screwdriver. Wires should be restrained a minimum of 2 " from the wiring face of the module.
3. Attach wires to the strain relief plate using the best method based on the wire type. Use velcro versus zip-ties, for fiber optic wire or other high frequency wire. See instructions on page 4 for properly installing zip-ties.

NOTE: If using 8 AWG, 10 AWG, or non-flexible coax wire in the modules' center positions, the iCon strain relief stand-off kit, part # 310113582, is required.

NOTE: When assembling the strain relief using the stand-off kit, install all patchcords in the module before attaching strain relief.



Figure A. iCon

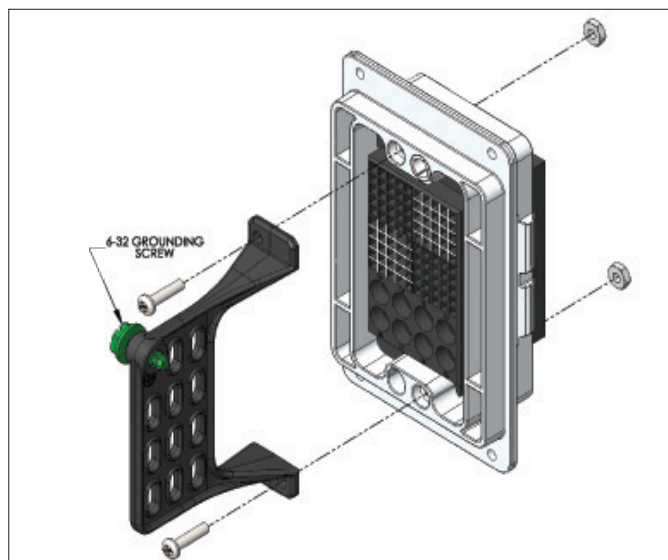


Figure B. i1 receiver strain relief.

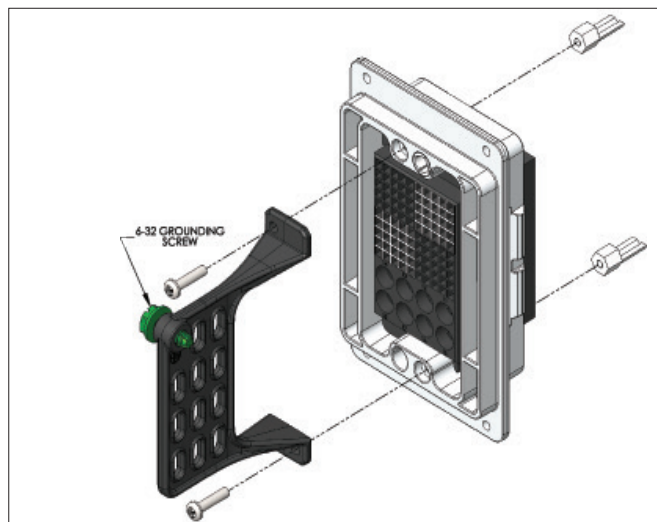


Figure C.

i1

1. Using a Phillips head screwdriver, fasten the strain relief to the back (wiring) side of the i1 receiver with the 2-56 screws and nuts provided (**Figure B**). Place the nuts in the keying positions from the front side of the receiver.
2. Torque screws to 2 in-lbs [0.23 Nm].

NOTE: If using the keying features, replace the 2-56 nuts with the keying pins (Figure C) and use the longer screws that come with the strain relief kit.

NOTE: If using 8AWG or 10AWG wire, the iCon strain relief kit, part # 310113582, will be required. Install patchcords into module before attaching strain relief.

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i2 MICRO iCON RECEIVER STRAIN RELIEF ASSEMBLY

PART # 310113559

TOOLS REQUIRED

Zip-Tie Gun

Phillips Head Screwdriver

1. Using a Phillips head screwdriver, fasten the strain relief to the back (wiring) side of the i2 Micro iCon receiver with the 2-56 screws and nuts provided (**Figure A**). Place the nuts in the keying positions from the front side of the receiver.
2. Torque screws to 2 in-lbs [0.23 Nm] (**Figure B**).

NOTE: If using the keying features, replace the 2-56 nuts with the keying pins

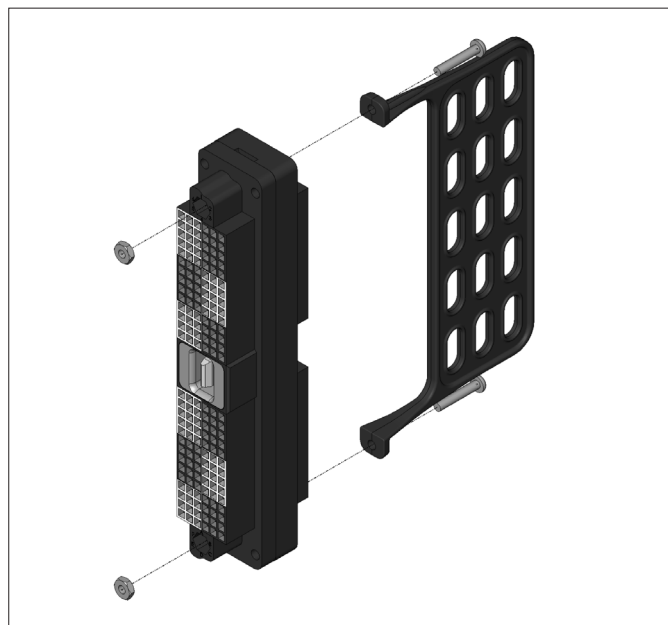


Figure A.

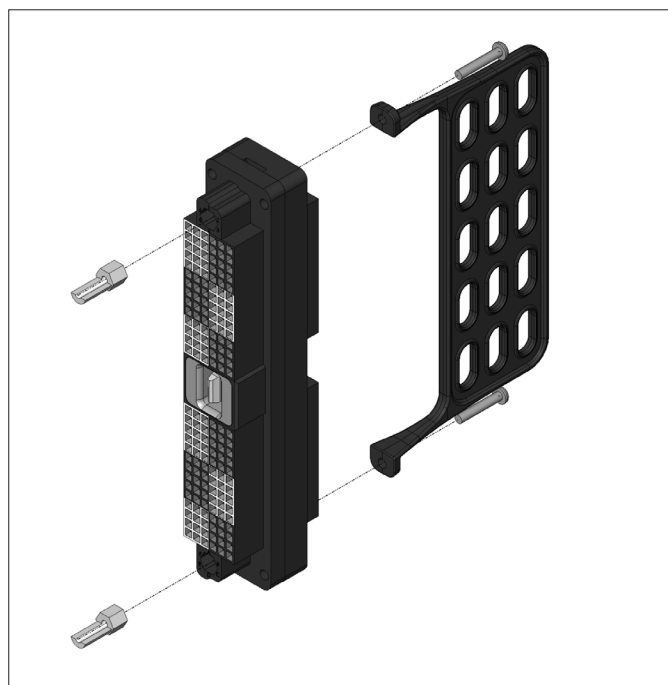


Figure B. Strain relief with keying pins.

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i2 MX RECEIVER STRAIN RELIEF ASSEMBLY

PART # 310113681

TOOLS REQUIRED

Zip-Tie Gun

Phillips Head Screwdriver

1. Using the Phillips head screwdriver, fasten the strain relief to the back (wiring) side of the i2 MX receiver with the 2-56 screws and nuts provided (**Figure A**). Place the nuts in the keying positions from the front side of the receiver.
2. Torque screws to 3.5 in-lbs [0.4 Nm] strain relief and 3.5 in-lbs [0.4 Nm] Keying.

*NOTE: If using the keying features, replace the 2-56 nuts with the keying pins (**Figure B**).*

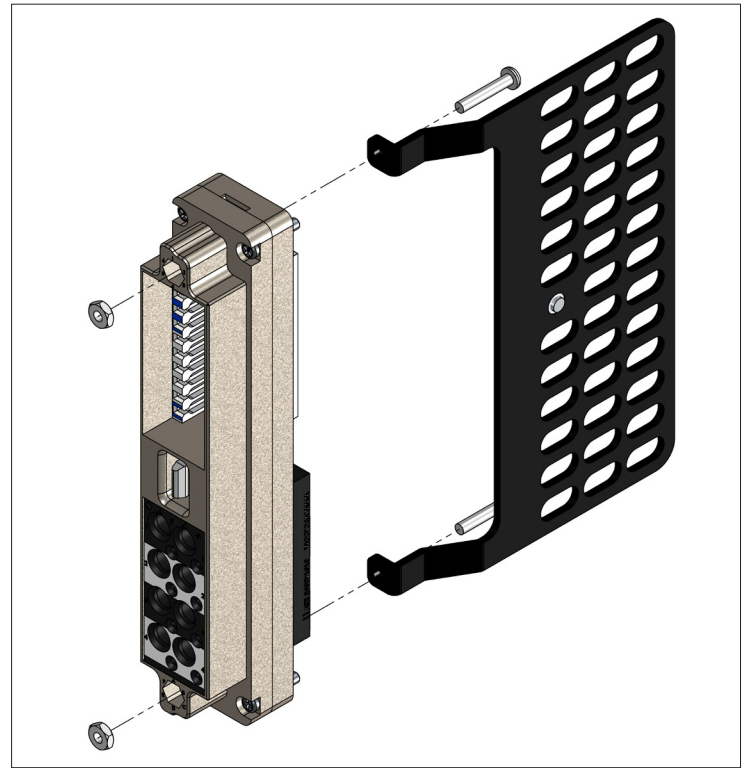


Figure A.

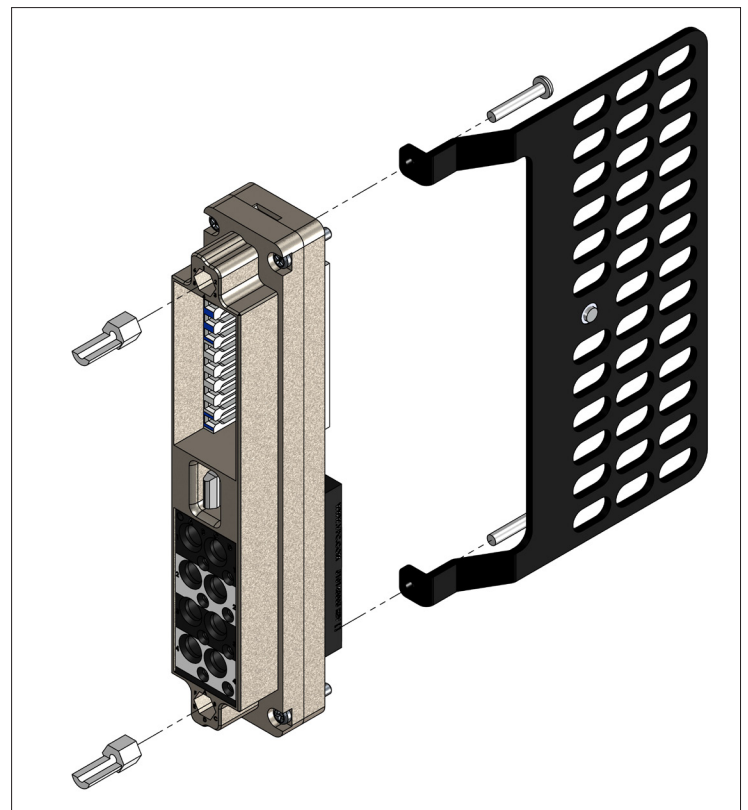


Figure B. i2 MX receiver strain relief with keying pins.

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90 SERIES SIM MODULE RECEIVER STRAIN RELIEF ASSEMBLY

PART # 510 109 568

TOOLS REQUIRED

Zip-Tie Gun
Phillips Head Screwdriver

1. Using the Phillips head screwdriver, fasten the strain relief to the rear (wiring) side of the 90 Series SIM module with the 2-56 screws provided (**Figure A**).
2. Torque screws to 2 in-lbs [0.23 Nm].
3. Secure wires with zip-ties included with strain relief for restraining wires. Follow zip-tie guidelines provided earlier in this manual.

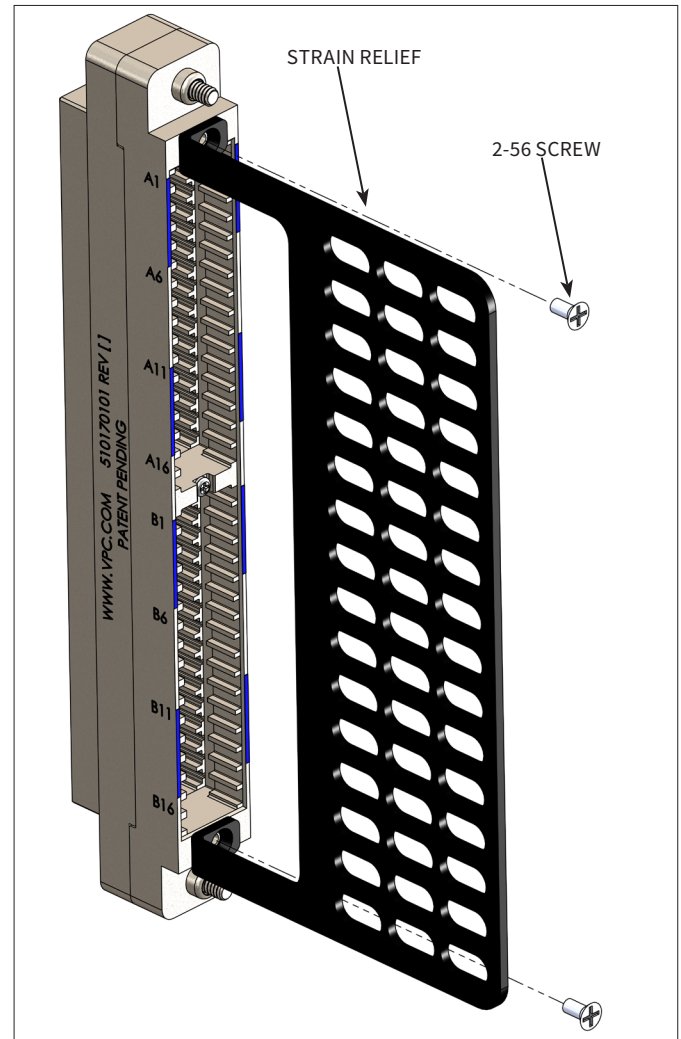


Figure A.

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iDOCK RECEIVER STRAIN RELIEF ASSEMBLY

D1 PART # 310131102
D3/D4 PART # 310131101
STRAIN RELIEF (iCON) # 310131531

TOOLS REQUIRED

Zip-Tie Gun
Phillips Head Screwdriver

D1

1. Using a Phillips head screwdriver, fasten the strain relief to the back (wiring) side of the D1 receiver with the 2-56 screws and nuts provided (**Figure A**). Place the nuts in the keying positions from the front side of the receiver.
2. Torque screws to 2 in-lbs [0.23 Nm].

NOTE: If using 8AWG or 10AWG wire, the iCon strain relief stand off kit, part # 310113582, will be required. Install patchcords into module before attaching strain relief.

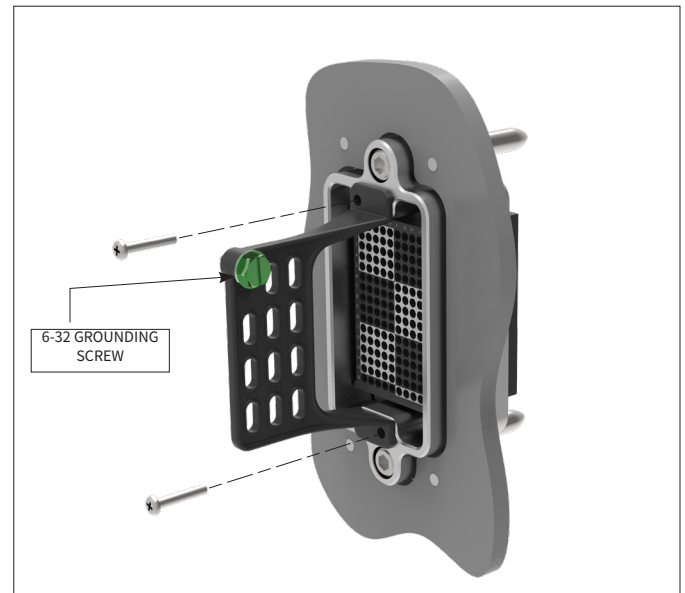


Figure A. D1

D3/D4 WITH ICON MODULE

1. Using a Phillips head screwdriver, fasten the strain relief to the back (wiring) side of the D3/D4 receiver with the two 2-56 screws provided (**Figure B**).
2. Torque screws to 2 in-lbs [0.23 Nm].

NOTE: Two 2-56 nuts are included with the strain relief plate; however, they are not required for this application. The screws will enter the tapped mounting screw holes, instead.

NOTE: If using 8AWG or 10AWG wire, the iCon strain relief stand off kit, part # 310113582, will be required. Install patchcords into module before attaching strain relief.

NOTE: The strain reliefs for iCon modules will fasten directly to the receiver and not to the module.

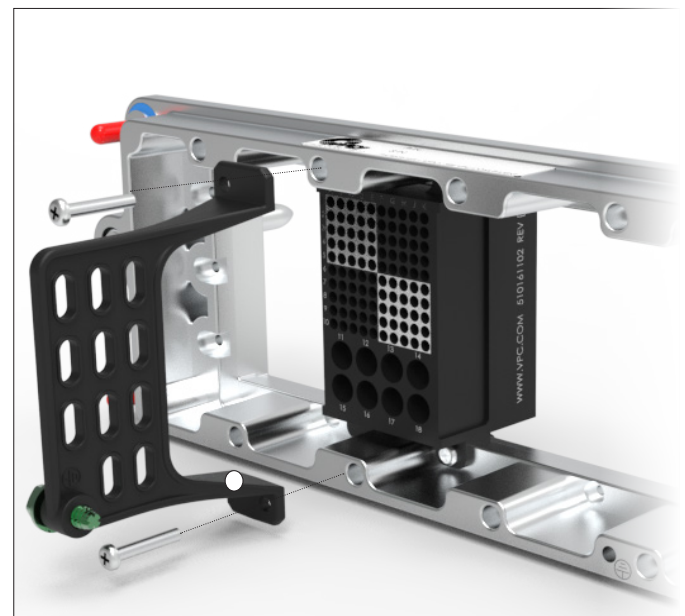


Figure B. D3/D4 with iCon module

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