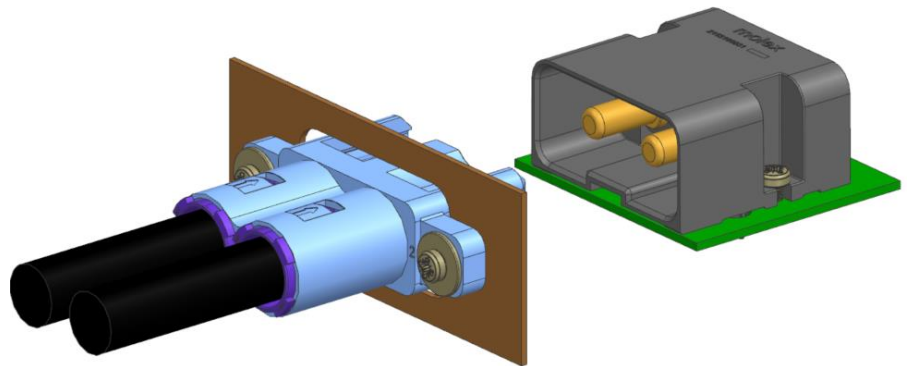


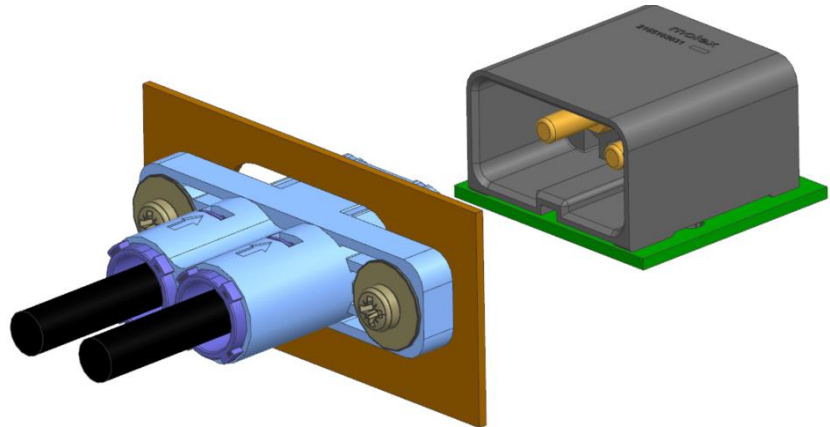
APPLICATION SPECIFICATION

APPLICATION SPECIFICATION FOR POWERWIZE BMI 3.4mm AND 6mm P-TO-B PRODUCT FAMILY

POWERWIZE BMI 6mm
P-to-B CONNECTOR

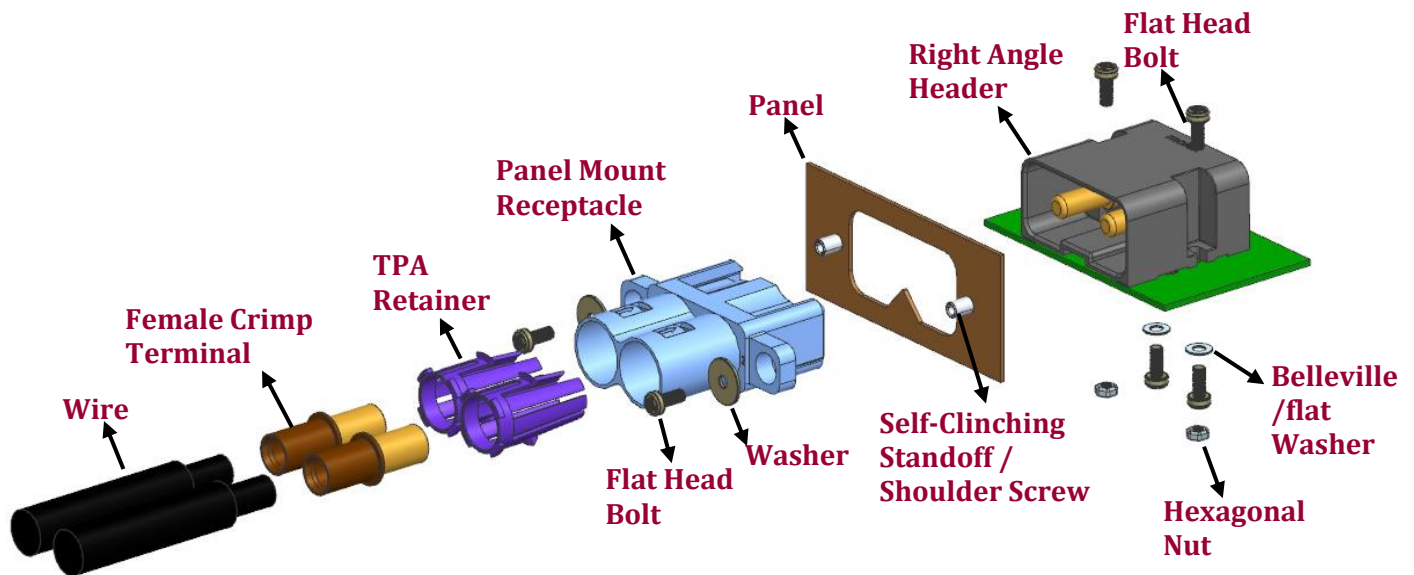


POWERWIZE BMI 3.4mm
P-to-B CONNECTOR



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APPLICATION SPECIFICATION

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APPLICATION SPECIFICATION

1.0 SCOPE

This specification applies to the 3.4mm and 6mm PowerWize BMI, High-Current Panel-to-Board/busbar connector system for function, assembly, and use of this product.

2.0 PRODUCT DESCRIPTION

The PowerWize BMI, High-Current Panel-to-Board/Busbar connector system is a 2-ckt high power connector for busbar and PCB applications. These Connector systems are available in crimp contacts for cable applications with 2.0mm of float on Receptacle side to facilitate BMI (Blind Mate Interface) applications. The connectors are available with pegs. The Right-Angle Header termination is available in two variants.

They are :- Solder tail version (for termination to PCB)
Screw Mount (for termination to PCB and Busbar)

2.1 PRODUCT DESCRIPTION AND SERIES NUMBERS

SL.No	Description	Series Number
1	PowerWize Right Angle Screw/Solder Mount Header	215510
2	PowerWize Receptacle Housing	215511
3	Female Crimp Terminal Assembly	204608
4	TPA for Panel Mount Receptacle	215513
5	Mounting Panel	N/A
6	Self-clinching standoff / Shoulder screw	N/A
7	Flat head Screw	N/A
8	Flat / Belleville Washers	N/A
9	Hexagonal Nut	N/A

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APPLICATION SPECIFICATION

2.2 DIMENSION, MATERIAL AND PLATING

1. Dimensions: Refer to sales drawing.
2. Material: RoHS compliant materials:
 - I. LCP for Header and PBT for Receptacle Housing and TPA.
 - II. Copper Alloy for Male pins and Crimp Socket assembly.
3. Plating: Male Pins : Silver over Nickel underplate overall
Receptacle Terminal : Gold at the contact points and silver on the rest of terminal.

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

Refer to the appropriate sales for information on dimensions, materials, plating, and markings.

Product Specifications :

- [2155100006-PS](#) – POWERWIZE BMI 6mm Product Specification.
- [2155100003-PS](#) – POWERWIZE BMI 3.4mm Product Specification.

Sales Drawings :

- [2155106031](#) – POWERWIZE BMI 6mm Right Angle Screw Mount Header
- [2155106241](#) – POWERWIZE BMI 6mm Right Angle Solder Mount Header
- [2155116121](#) – POWERWIZE BMI 6mm Panel Mount Receptacle Assembly
- [2155136001](#) – POWERWIZE BMI 6mm TPA Retainer

- [2155103031](#) – POWERWIZE BMI 3.4mm Right Angle Screw Mount Header
- [2155103241](#) – POWERWIZE BMI 3.4mm Right Angle Solder Mount Header
- [2155113121](#) – POWERWIZE BMI 3.4mm Panel Mount Receptacle Assembly
- [2155133001](#) – POWERWIZE BMI 3.4mm TPA Retainer

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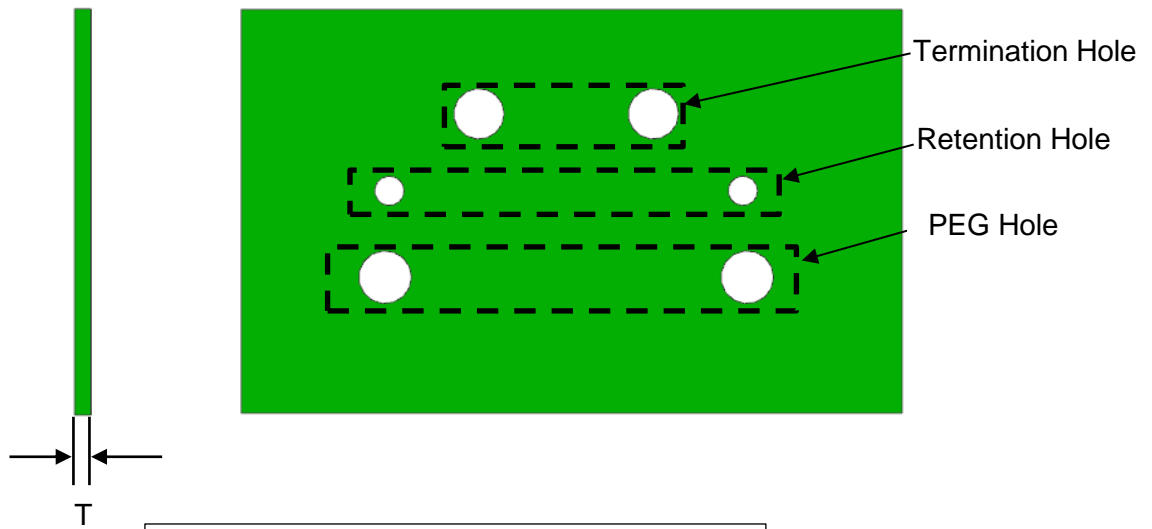
APPLICATION SPECIFICATION

4.0 HEADER INSTALLATION TO PCB

PowerWize BMI Headers are available with insert molded male terminal circuits.

4.1 GENERAL PCB DETAILS

PCB and its feature details are provided below and it's common for all screw mount and solder mount Header Variants.



For Solder Tail Headers, T = 2.40mm
 For Screw Mount headers, T = 1.58mm MIN.

10-layer PCB with 2 oz per layer for 3.4 & 6mm Connectors

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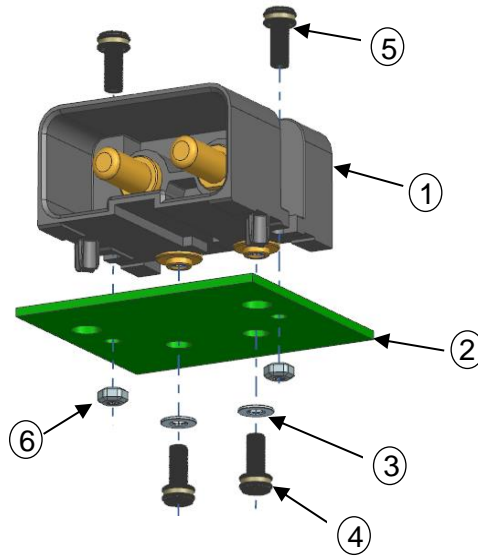
APPLICATION SPECIFICATION

We have 2 types of Terminations available for PowerWize BMI Headers.

1. Screw Mount (Used for both PCB and Busbars)
2. Solder Mount (Used for PCB only)

4.2 SCREW MOUNT HEADER INSTALLATION TO PCB

6mm Screw Mount header
Assembly components

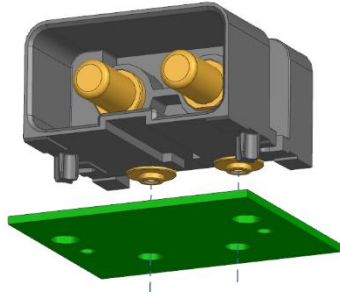


General Numbering,
 Component 1 – 6mm Screw Mount Header
 Component 2 – PCB
 Component 3 – Washer (Flat washer or Belleville washer)
 Component 4 – M3 x 0.5mm Flat Head Bolt
 Component 5 – M3 x 0.5mm Flat Head Bolt
 Component 6 – M3 Hexagonal nut

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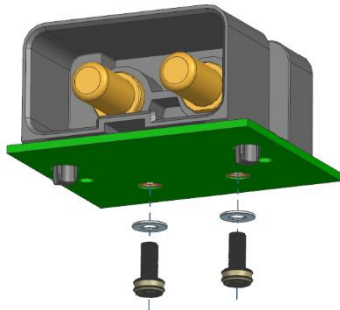
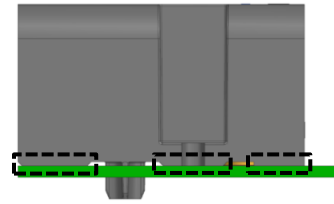
APPLICATION SPECIFICATION

4.2.1 6mm SCREW MOUNT HEADER INSTALLATION TO PCB



Step 1:
Align the Screw Mount terminals with the Termination holes of the PCB.

Step 2:
With the Termination holes aligned and pegs inserted into the PCB peg holes, Place the Header onto the PCB with the Header pad surface flushing with the PCB top surface



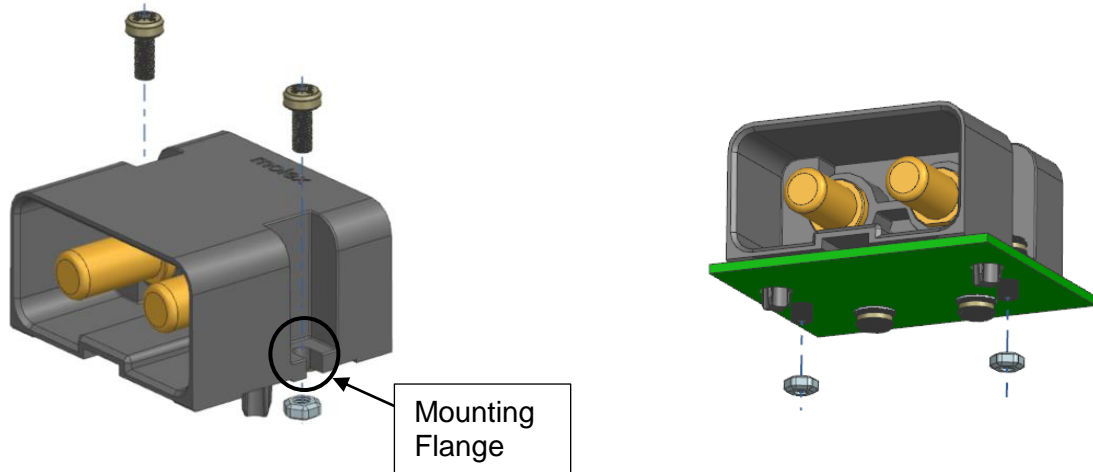
Step 3:
For Termination, use M3 conductive bolt and washer(Flat washer or Belleville washer) and mount the Header with PCB with required torque of min 4lbf

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APPLICATION SPECIFICATION

Step 4:

Insert the M3 bolt into the PCB from the Header as shown and fasten with a M3 hexagonal nut from the bottom on both sides of the Header. This will add higher board retention for the Header with PCB

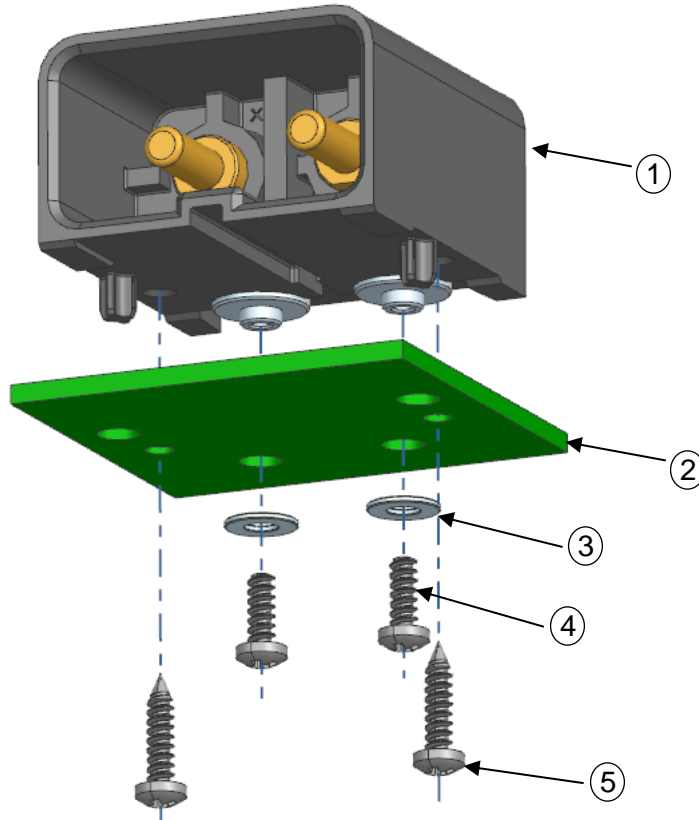


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APPLICATION SPECIFICATION

4.2.2 3.4mm SCREW MOUNT HEADER INSTALLATION TO PCB

3.4mm Screw Mount Header Assembly components

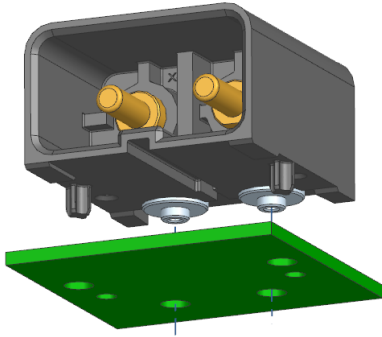


General Numbering,
 Component 1 – 3.4mm Screw Mount Header
 Component 2 – PCB
 Component 3 – Washer (Flat washer or Belleville washer)
 Component 4 – M2 x 0.4mm Flat Head bolt
 Component 5 – M2 x 0.4mm Flat Head Screw

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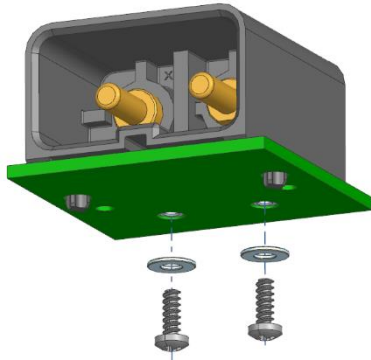
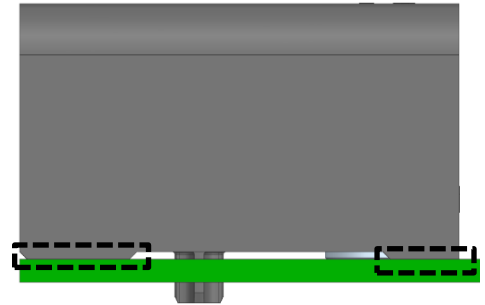
APPLICATION SPECIFICATION

3.4mm Screw Mount Header Installation to PCB



Step 1:
Align the Screw Mount terminals with the Termination holes of the PCB.

Step 2:
With the Termination holes aligned and pegs inserted into the PCB peg holes, Place the Header onto the PCB with the Header pad surface flushing with the PCB top surface

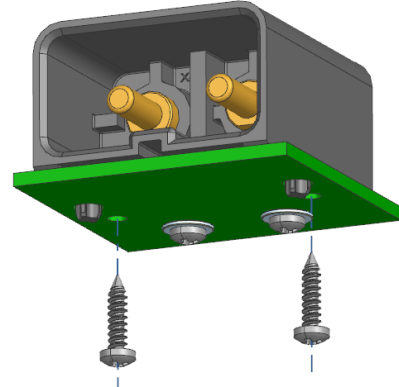
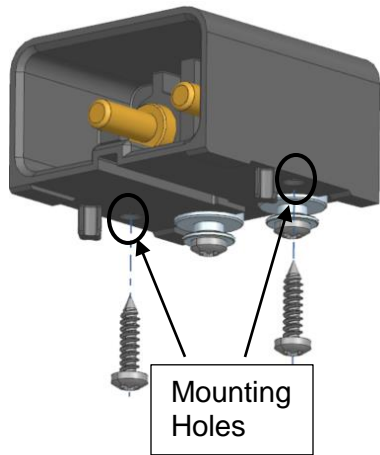


Step 3:
For Termination, use M3 conductive bolt and washer (Flat washer or Belleville washer) and mount the Header with PCB with required torque of min 4lbf

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Step 4:
Install the self-tapping screw on both sides of the Header.
This will add Higher Retention for the Header with PCB

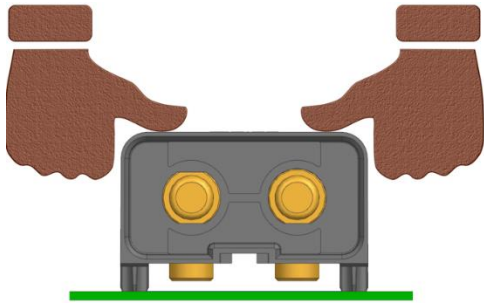


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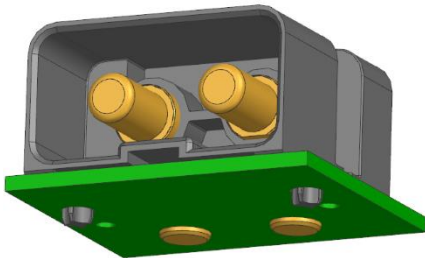
APPLICATION SPECIFICATION

4.3 SOLDER TAIL HEADER INSTALLATION TO PCB

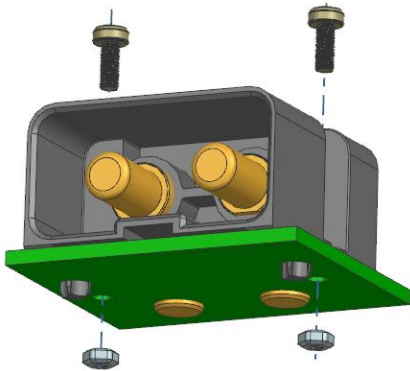
4.3.1 6mm SOLDER MOUNT HEADER INSTALLATION TO PCB



Step 1:
Place and press the header by hand to push into the PCB assuring flush surface-to-surface contact between the bottom of the header and the top of the PCB, as shown in the image



Step 2:
Solder Mount headers are soldered with Reflow soldering process as per the specifications mentioned in PS.

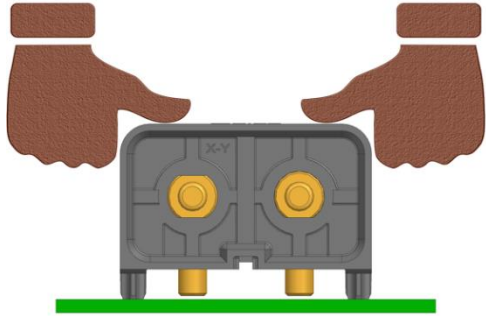


Step 3:
For Higher Rigidity, Header is mounted with M3 x 0.5 bolt and hexagonal nut on both sides as shown.

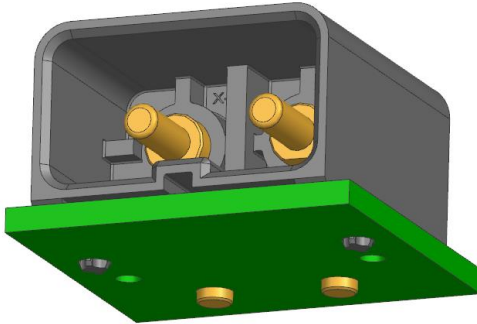
REVISION: A	ECR/ECN INFORMATION: EC No: DATE:	TITLE: APPLICATION SPECIFICATION FOR 3.4mm AND 6mm POWERWIZE BMI CONNECTORS	SHEET No. 13 of 28
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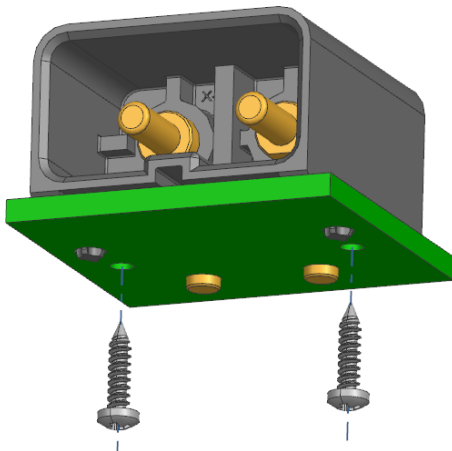
4.3.2 3.4MM SOLDER MOUNT HEADER INSTALLATION TO PCB



Step 1:
Place and press the header by hand to push into the PCB assuring flush surface-to-surface contact between the bottom of the header and the top of the PCB, as shown in the image



Step 2:
Solder Mount Headers are soldered with Reflow soldering process as per the specifications mentioned in PS.



Step 3:
For Higher Rigidity, Header is mounted with M2 x 0.4mm screw and hexagonal nut on both sides as shown.

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APPLICATION SPECIFICATION

5.0 POWERWIZE CRIMPED CABLE ASSEMBLY

5.1 Crimp contacts are available to accept a wide range of wire gauges (10 AWG to 2 AWG)

Cable requirements:

2/4/6/8/10 AWG cable for 6mm Receptacle Assembly

8/10 AWG cable for 3.4mm Receptacle Assembly

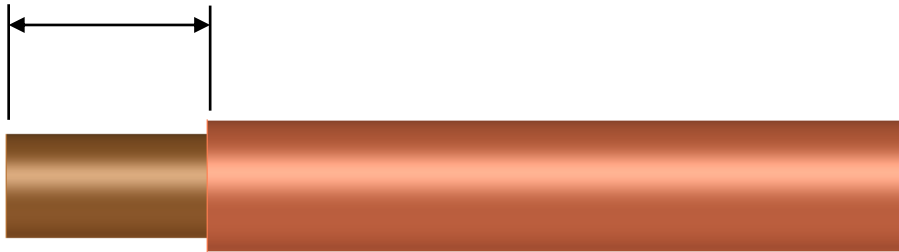
5.2 Cut cable to desired length

5.3 Strip cable per below schematic

a. Recommended cable processing machine is a Schleuniger Eco Strip 9600

b. The cable stripping aid (tool 62203-0623) is used to pull the insulation slug off the cable

14.50mm to 16.00mm Strip Length



5.4 Fully insert terminal onto stripped wire (wire ties may be used on exposed strands to prevent loose strands)

a. When handling the terminals, wear protective gloves to prevent cross-contamination of oils. Avoid handling terminals in the contact area and use the crimp barrel if needed

5.5 Verify there are no loose ends of wire protruding from terminal

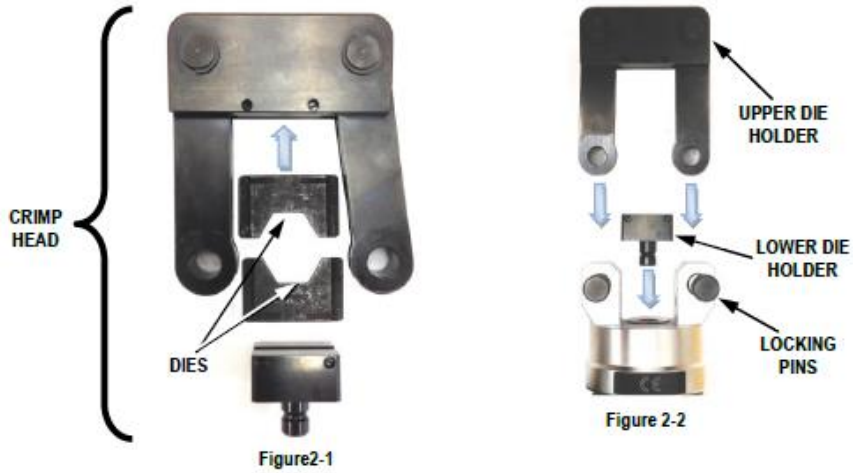
5.6 Place terminal with cable into the crimping tool

a. Recommend MOLEX crimp tool 192890800

b. Portable crimping tool 638161000 and crimp head 638161100 also needed

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APPLICATION SPECIFICATION



Battery Powered Crimping Tool



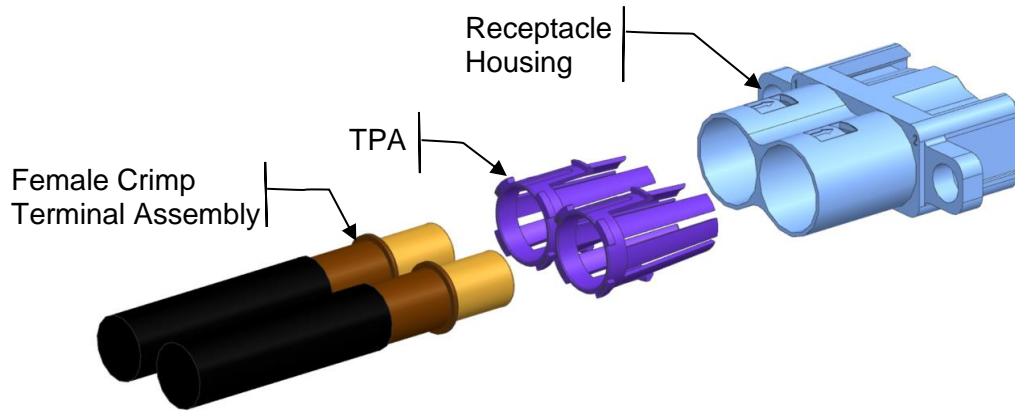
5.7 Crimp the terminal in the press. See document TM-192862000 for tool operating instructions
 5.8 Inspect the terminal crimp dimensions specified in documents ATS-192900080 (1/0 crimps)

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APPLICATION SPECIFICATION

6.0 RECEPTACLE ASSEMBLY

Components involved in the Receptacle Assembly are as shown below



6.1 TPA INSTALLATION

- TPA installation to the Female Crimp Terminal Assembly

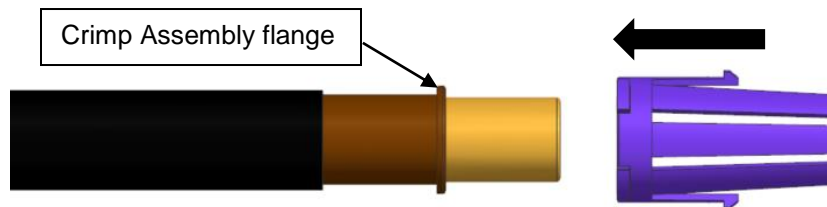
There are 2 different methods to install TPA to the Female Crimp Terminal Assembly.

- Method 1: TPA installation post crimping
- Method 2: TPA installation prior to crimping

6.1.1 TPA INSTALLATION POST CRIMPING

Method 1 includes the following procedure:

1. Fix Crimp Terminal Assembly and move the TPA in the direction shown until TPA beams flex around the crimp assembly flange and settle as shown below.



2. Move the TPA towards Female Crimp Terminal Assembly flange until the top surface of TPA beam touches to the rear surface of crimp assembly flange as shown below.



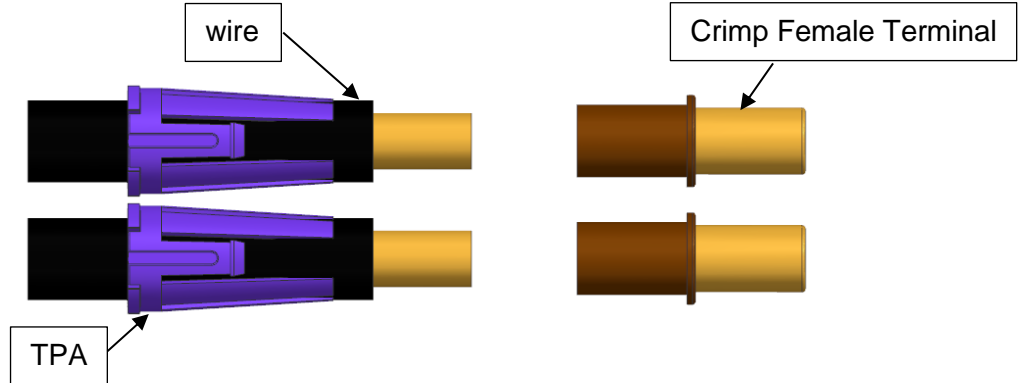
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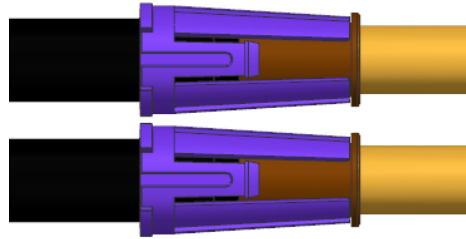
6.1.2 TPA INSTALLATION PRIOR TO CRIMPING

Method 2 includes the following procedure:

1. Install the TPA on to the uncrimped wire as shown

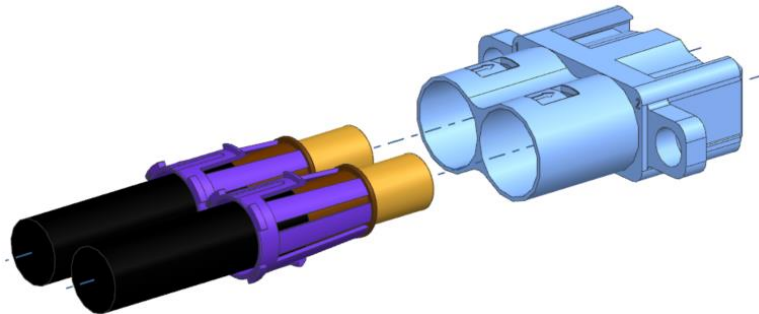


2. Now, Crimp the wire with the Crimp Female Terminals and move the TPA towards the flange.



6.2 MOUNTING FEMALE CRIMP TERMINAL ASSEMBLY TO RECEPTACLE HOUSING

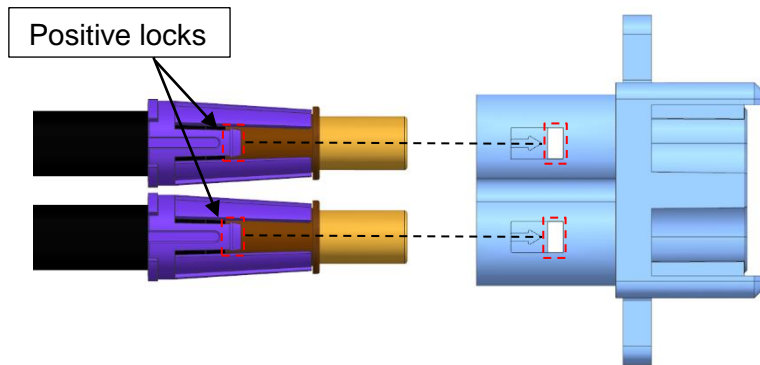
1. Align the sub-assembly of crimp Terminal and TPA with the Receptacle Housing barrel



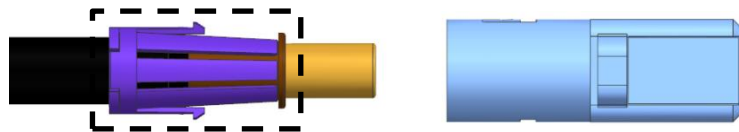
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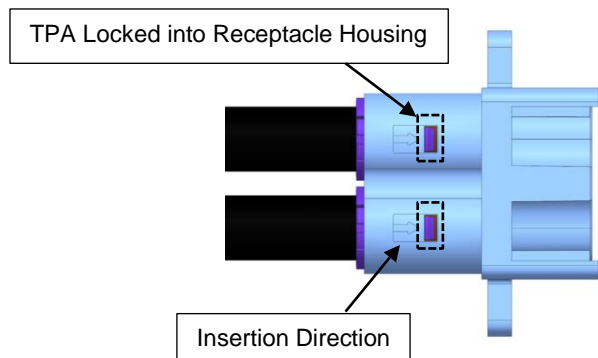
- Before installing the Female Crimp Terminal Assembly to Receptacle Housing, make sure that TPA locking ramp is in alignment with the locking cutout available on the housing as shown below.



- It is strictly advised to keep the TPA attached to flange while assembling to the Receptacle Housing to avoid any insertion issues. Two (opposed) positive locks hold the TPA retainer securely to the blindmate receptacle housing silo. Six beams (for 6mm TPA) and four beams (for 3.4mm TPA) robustly hold the crimp contact inside the TPA retainer, preventing the contact from backing out of the receptacle



- Insert the Crimp Terminal Assembly into the Receptacle Housing until the TPA gets locked into the Housing and makes the “click sound”. This audible click assures that crimp contacts are fully engaged and prevent terminal backout.



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6.3 RECEPTACLE ASSEMBLY INSTALLATION TO PANEL

There are 2 methods for installing Receptacle Assembly to panel.

Method 1 : Installaion with self clinching standoffs

Method 2 : Installation with shoulder screws

Both the methods involve the same procedure except that method 1 involves the panel with pre-assembled standoff whereas method 2 involves usage of shoulder screw while assembling the Receptacle Assembly to panel.

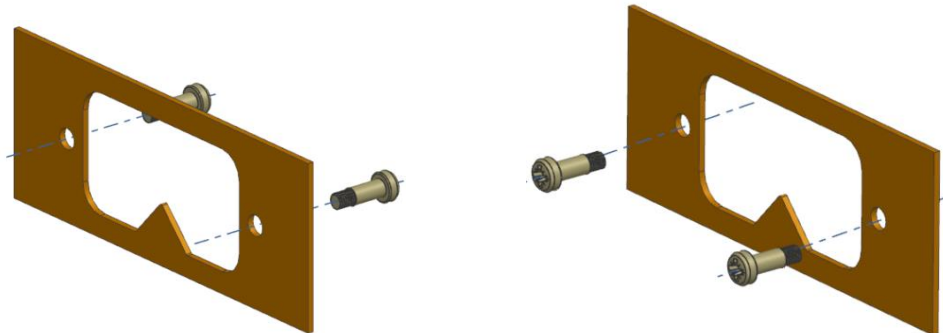
Reference images for approach 1(With self-clinching standoff):

Self-clinching standoffs are pre-assembled to the panel. So, assembler needs one side Access While mounting the Receptacle Assembly to the panel.



Reference images for approach 2(With Shoulder Screw):

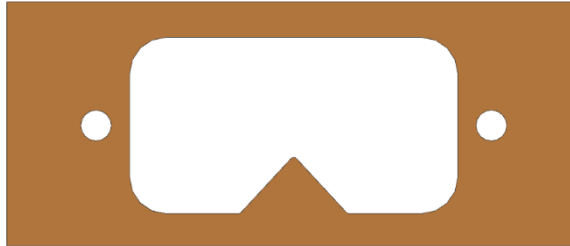
Shoulder screws are used at the point of assembling the Receptacle Assembly to the Panel. So, assembler needs access on both sides of the panel to install the Receptacle Assembly.



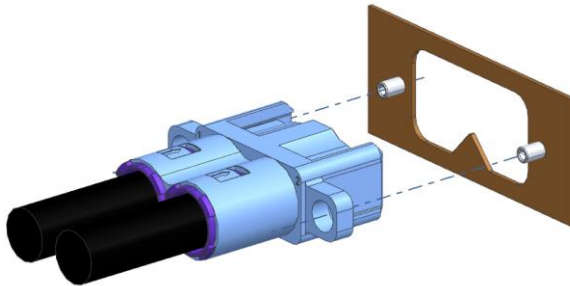
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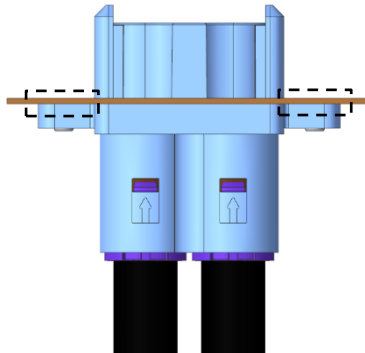
1. Recommended panel cut out should be used to assemble with Receptacle Assembly as shown below with specific dimensions like hole diameter, cut-out width, height, and all specified dimensions as per sales drawing. [2155116121](#) and [2155113121](#).



2. For installing Receptacle Assembly to panel, make axis to axis alignment of mounting holes between the housing and panel as shown in the below



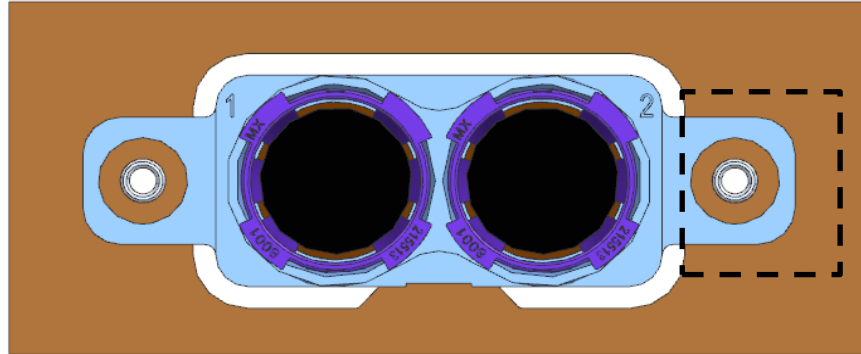
3. Fix the panel and move the Receptacle Assembly until the Receptacle flange and panel surface flush.



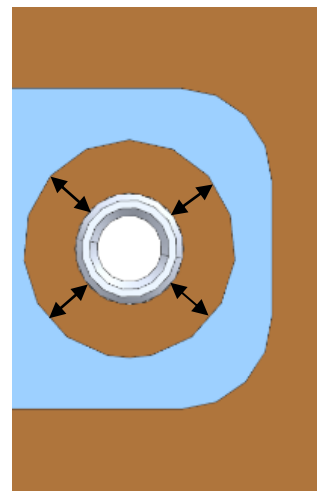
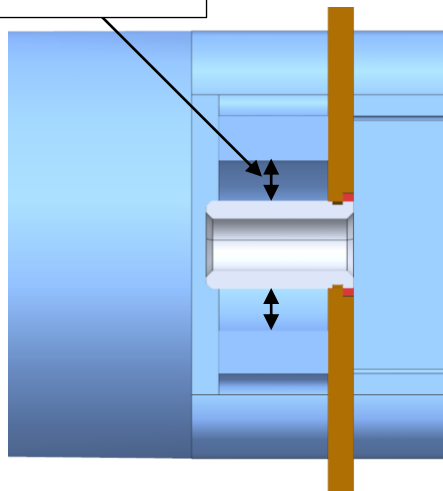
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4. Panel will have radial float of 2.00 mm radially on both sides when the housing is inserted in to the panel as shown in below. Such that panel move in all axis for perfect alignment.



2mm Radial Float

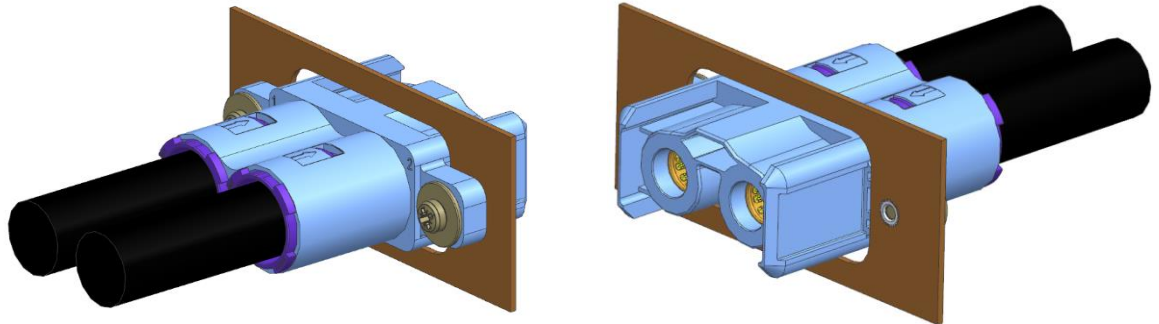


2mm Radial Float

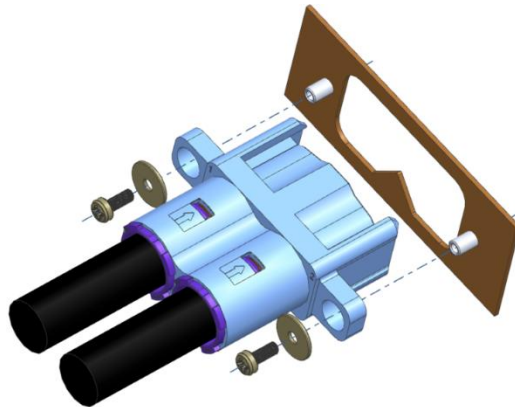
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5. Now, with the appropriate washer and bolt, mount the Receptacle Assembly to the panel.
6. For, the fasteners installation the hardware components need to be purchased by the customer as per recommendations specified in the sales drawing [2155116121](#) and [2155113121](#).



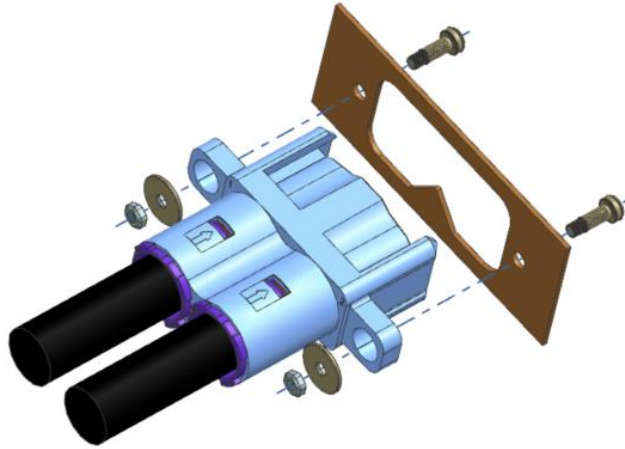
7. In approach 1, self-clinching stand off is pre-assembled to the panel and Receptacle Assembly is installed to the panel with the recommended bolt and washer on both the sides.



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8. In approach 2, shoulder screw needs to be inserted on the back side of panel and mount with the appropriate screw and washer from the back of Receptacle assembly on both the sides of the Assembly.



9. After installing the Receptacle Assembly to the panel make sure that we are getting radial float without any obstructions.

For 6mm Receptacle Assembly

ITEM NO.	DESCRIPTION	QTY	REMARKS
1	Receptacle Panel	1	--
2	M3 self-clinch close to edge standoff or M3 shoulder screw and M3 hexagonal nut (Standoff and screw length, L=7mm)	2	--
3	Receptacle Housing	1	--
4	M3 flat washer OD=9mm - 9.3mm, T= 0.5mm - 1mm	2	--
5	M3 x 0.5 bolt L= 4mm - 8mm	2	--
6	TPA	2	Refer SD: 2155136001
7	Crimped Sockets	2	Wire size : 2AWG,4AWG, 6AWG,8AWG & 10AWG Refer 2046080000-SD

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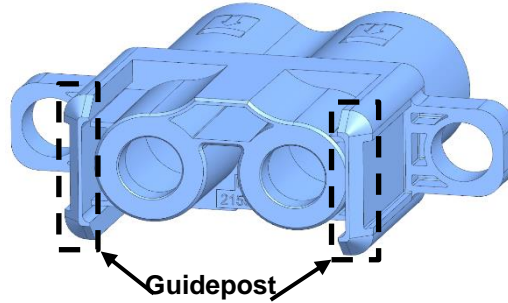
For 3.4mm Receptacle Assembly

ITEM NO.	DESCRIPTION	QTY	REMARKS
1	Receptacle Panel	1	--
2	M3 Self-clinch close to edge Standoff or M3 Shoulder Screw and M3 Hexagonal Nut (Standoff and screw length, L=7mm)	2	--
3	Receptacle Housing	1	--
4	M3 Flat Washer OD=9mm - 10mm, T= 0.5mm - 1mm	2	--
5	M3 X 0.5 Screw L= 4mm - 8mm	2	--
6	TPA	2	Refer SD: 2155133001
7	Crimped Sockets	2	Wire Size : 8AWG & 10AWG Refer SD-2046083011

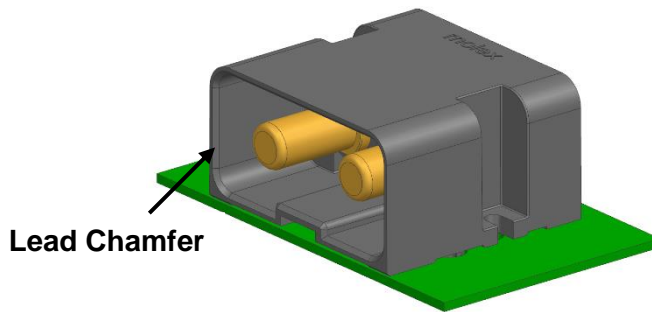
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APPLICATION SPECIFICATION

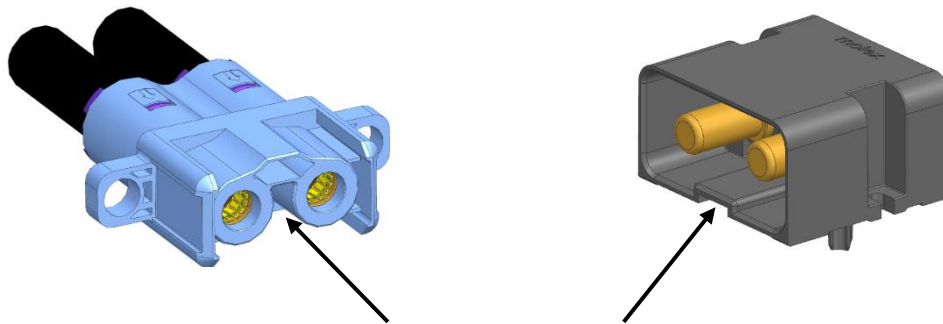
7.0 POWERWIZE MATING REQUIREMENTS



Receptacle Housing has in-built guideposts which engages with the inner wall of the header shrouds to align the connectors during Receptacle Assembly and the Header mating. These guideposts also help in providing 2mm gatherability while mating.



Right Angle Header is provided with entry chamfer to engage with the Receptacle guideposts on all the directions while mating.



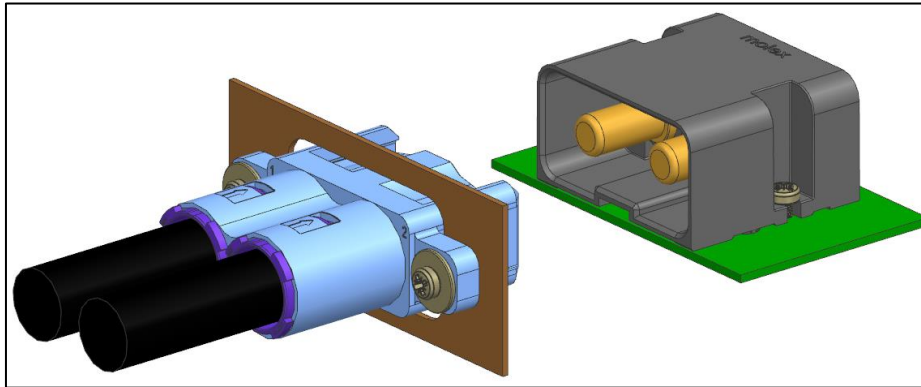
Mechanical Keying

Unique geometry at the front of the panel mount receptacle and matching geometry on the header shroud prevents mis-mating between the receptacle and header

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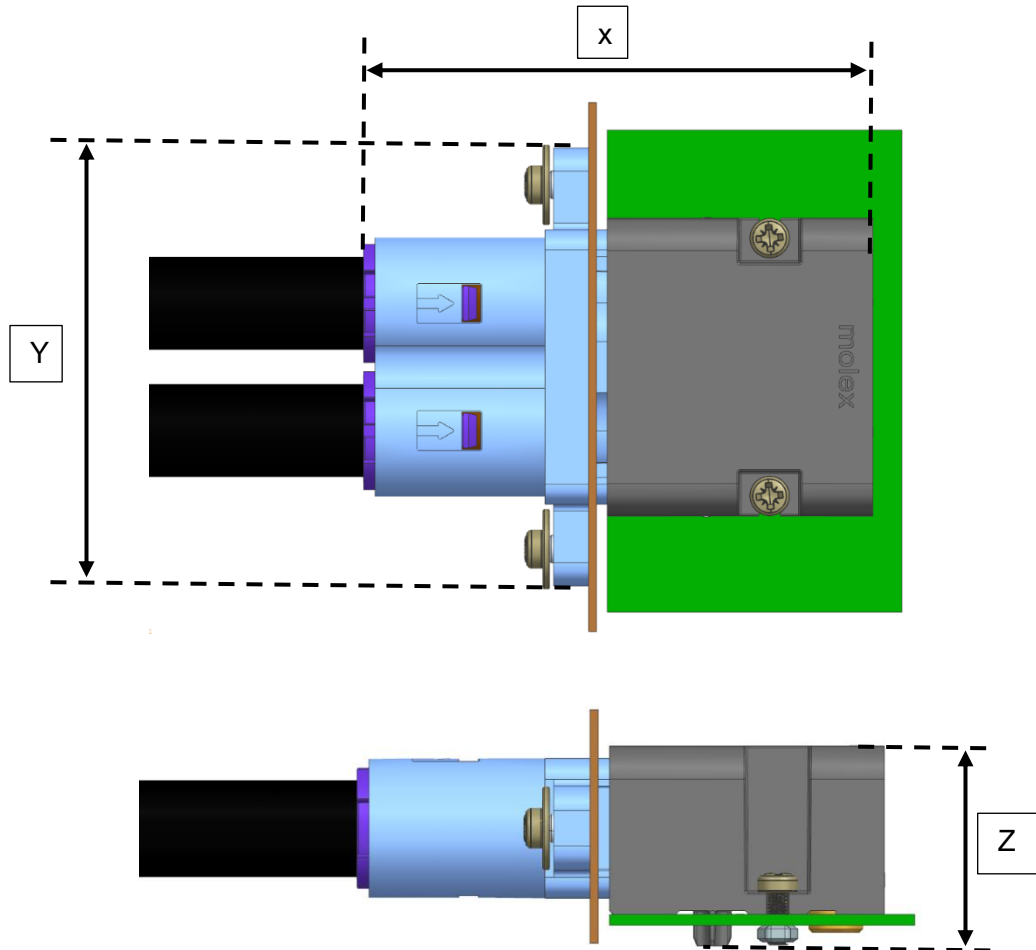
RIGHT-ANGLE HEADER AND PANEL MOUNT RECEPTACLE MATING ASSEMBLY



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8.0 FINAL ASSEMBLY DIMENSIONS



OVERALL DIMENSIONS OF POWERWIZE VARIANTS

6mm, X= 75.95mm	3.4mm, X = 57.58mm
Y= 63.45mm	Y = 51.80mm
Z= 26.70mm	Z = 20.45mm

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