ASSEMBLY, INSTALLATION, AND REMOVAL OF CONTACTS AND MODULES

TRIPADDLE

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PAGE

RECEIVER CONTACT CRIMP TOOL SETUP

PART # 910101102, 910101103

TOOL SELECTION

Receiver contacts are crimped using one of the following two tools. Set-up instructions are the same for both tools. Tool settings and locator are determined using **Table 1** on the following page.

CRIMP TOOL p/n 910101102
Contact p/n 610110128/ 177

CRIMP TOOL p/n 910101103
Contact p/n 610110101/ 125/ 167/ 171

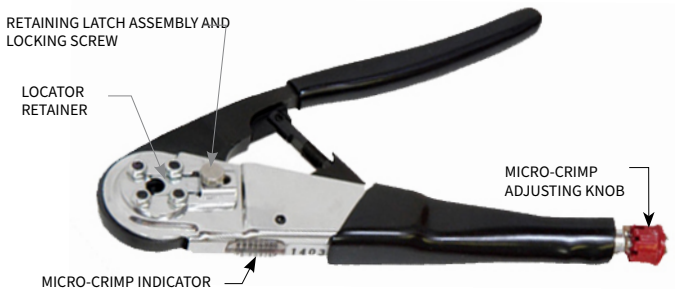

Figure A. *Anatomy of both crimp tools*

TOOL SETUP
(See Table 1 on next page for settings)

1. Loosen the locator latch-locking screw (**Figure A**) by turning counter-clockwise. Remove any previously used locator.
2. Insert the open end of the locator (**Figure B**) into the crimp tool locator retainer. Expect a tight tolerance fit.
3. Slide the retaining latch toward the locator until the locator is securely locked into place. Tighten the locator latch-locking screw.
4. Adjust the crimp tool for the desired setting on the micro-crimp indicator by pulling and turning the micro-crimp adjusting knob:
   Clockwise to increase
   Counter-clockwise to decrease
5. Verify with pin gauge.

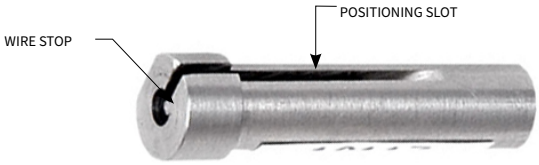

Figure B. *Locator*

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Table 1.

Contact	Crimp Tool	Locator Die	Strip Length (IN [MM])	Wire Gauge	Crimp Setting (IN [MM])		Pullout force (LBS [N])
					MAX	MIN	
610110101 & 610110125	910101103	910104127	Insulation Dia. <0.058" [1.47]. Strip Length = 0.20" [5.08] Insulation Dia. >0.058" [1.47], Strip Length = .28" [7.11]**	20	0.037 [0.94]	0.033 [0.84]	10 [44.5]
				22	0.033 [0.84]	0.029 [0.74]	
				24	0.028 [0.71]	0.025 [0.64]	8 [35.6]
			0.28" [7.11]**	2-24*	0.036 [0.91]	0.033 [0.84]	8* 35.6]*
			0.28" [7.11]**	2-26*	0.034 [0.86]	0.032 [0.81	4* [17.8]*
				3-26*	0.037 [0.94]	0.035 [0.89]	
610110167 & 610110171			Insulation Dia. <0.037" [0.94]. Strip Length = 0.20" [5.08] Insulation Dia. >0.037" [.94], Strip Length = .28" [7.11]**	26	0.028 [0.71]	0.024 [0.61]	4 [17.8]
				28	0.024 [0.61]	0.021 [0.53]	2* [8.9]*
			0.28" [6.35]**	2-28*	0.028 [0.71]	0.026 [0.66]	
			Insulation Dia. <0.037" [0.94]. Strip Length = 0.20" [5.08] Insulation Dia. >0.037" [.94], Strip Length = .28" [7.11]**	30	0.022 [0.56]	0.020 [0.51]	1.0* [4.4]*
			0.28" [6.35]**	2-30*	0.026 [0.66]	0.025 [0.63]	
610110128 & 610110177	910101102	910104146	Insulation Dia. <0.072" [1.47], Strip Length = 0.26" [6.60] Insulation Dia. >0.072" [1.47], Strip Length = .30" [7.62]	14	0.056	0.052	10
				16	0.048	0.044	
				18	0.042	0.040	
			0.30" [7.62]**	2-20	0.044	0.040	
				2-22	0.035	0.031	

*Pullout force is per individual wires

**For strip lengths 0.28" [7.11] and 0.30" [7.62], shrink tubing is recommended for strain relief at the rear of the contact. Tubing should not cover the inspection hole at the rear of the contact.

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RECEIVER CONTACT CRIMPING

TOOL PART # 910101103/102

CONTACT PART # 610110101/ 125/ 128/ 167/ 171/ 177

1. Strip wire to length based on AWG (**Table 1 on previous page**.)
2. Hold the crimp tool parallel to the floor (**Figure A**). Drop contact into the locator.
3. When inserting the contact into the locator the contact retaining tab must be aligned(**Figure C**) with the positioning slot on the locator (**Figure B**).
4. The contact will drop completely into the locator if properly inserted.

   If the contact does not drop completely into the locator, remove the contact, ensure that the contact retaining tab is properly aligned with the contact crimp locator, and re-insert .

   Do not force the contact into the locator as contact damage will occur.

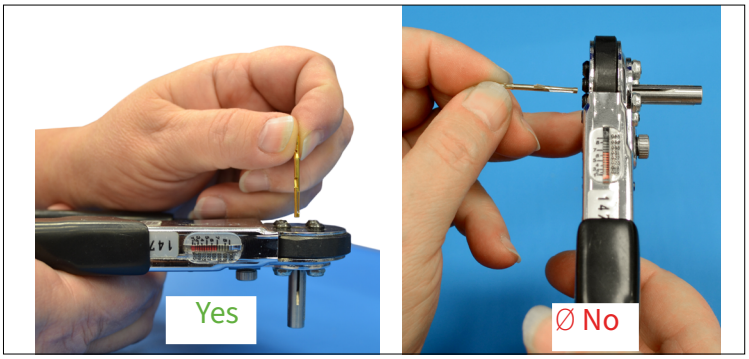

Figure A. *Appropriate method for inserting contact into crimp tool.*

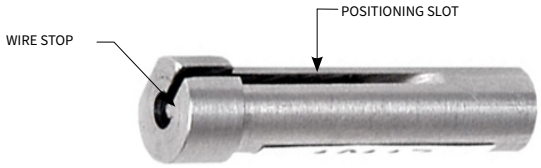

Figure B. *Positioning slot and wire stop*

OBSERVE PRECISION RATCHET ACTION BY OPENING AND CLOSING THE CRIMP TOOL FULLY SEVERAL TIMES. THE TOOL CANNOT BE OPENED WITHOUT COMPLETING A CYCLE. NEVER ATTEMPT TO DISASSEMBLE THE TOOL. NEVER TIGHTEN OR LOOSEN STOP NUTS ON THE BACK OF THE TOOL.

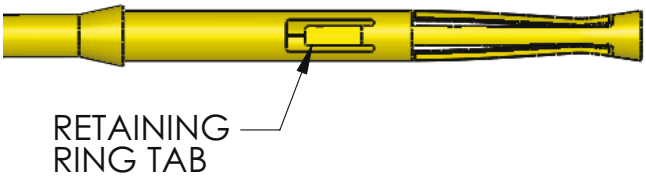

Figure C. *Retaining tab must be aligned with locator positioning slot when inserting.*

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RECEIVER CONTACT CRIMP INSPECTION

PART # 610110101/ 125/ 128/ 167/ 171/ 177

ACCEPTABLE CRIMP CRITERIA

1. The crimp must be between the inspection hole and the end of the contact.

2. The crimp indentations are distinctive and create a square appearance **(Figure A)**.

3. No crimp indentions are connected to the inspection hole **(Figure B)**. If the indentions make contact with or are above the inspection hole, the crimp is unacceptable.

4. No crimp indentions are connected to the end of the contact. If the indentions make are against the end of the contact, the crimp is unacceptable.

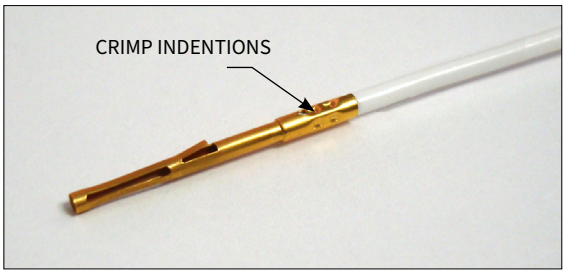

Figure A. Correct location of the crimp indentations.

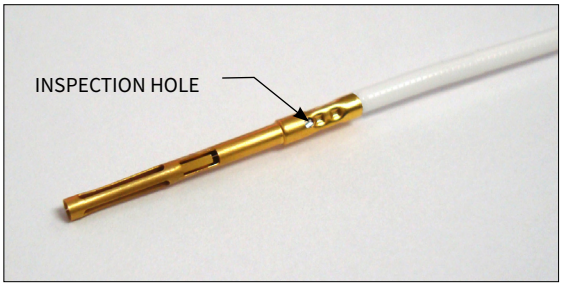

Figure B. The crimp region is between the inspection hole and the end.

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RECEIVER CONTACT INSTALLATION & REMOVAL

PART # 610110101/ 125/ 128/ 167/ 171/ 177

910110102

TOOLS REQUIRED
$^{5}/_{64}$ Allen Wrench or
Phillips Head Screwdriver

NOTE: These instructions refer to 90 Series modules, but also apply to iCon series modules.

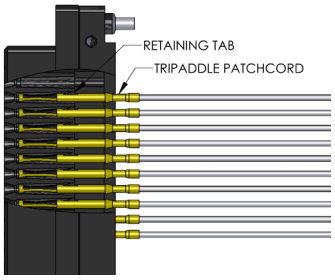

Figure A. Contacts inserted into the module.

INSTALLATION

1. Insert the patchcord into desired position from the back (wiring side) of the assembled module **(Figure A)**. Installation is only possible on one side.
2. Push the contact forward.
3. Once in place, slightly pull the wire to ensure that the contact is fully seated.

REMOVAL

** All VPC receiver modules require two halves to be separated for contact extraction.*

1. With the module removed from the receiver frame, use a $^{5}/_{64}$ Allen wrench or Phillips head screwdriver to remove the two 2-56 screws from both sides of the top of the module **(Figure B)**.
2. Grasp the module halves and apply force in opposite directions, rocking the ends of the module while slightly pulling the top of the module away from the bottom.
3. Be sure to open both sides of the module simultaneously or contacts could be damaged.
4. Place the extraction tool, p/n 910110102 over the contact to be removed. Use care to keep the tool perpendicular to the surface of the module, otherwise the tool or the contact could be bent (**Figure C**).

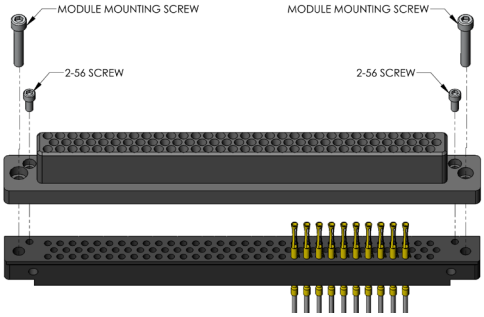

Figure B. *Open both sides of the module simultaneously or pins could be damaged.*

DO NOT PRESS THE TOOL INTO THE MODULE UNTIL THE TIP OF THE EXTRACTION TOOL HAS FULLY SEATED INTO THE MODULE AND COMPRESSED THE RETAINING RING TAB ON THE CONTACT.

5. Once the extraction tool is seated and the retaining tabs on the contact are compressed, press the tool into the module. The contact will be pushed out of the rear of the module.
6. On the opposite side of the module from the extraction tool, grasp the contact and hold it while removing the extraction tool. This will prevent the contact from being pulled back into the module while the tool is being removed.
7. Replace the module top using both hands to push the separated halves together. Replace and tighten the module retaining screws to a maximum torque of 1.5 in-lbs [0.16 Nm].

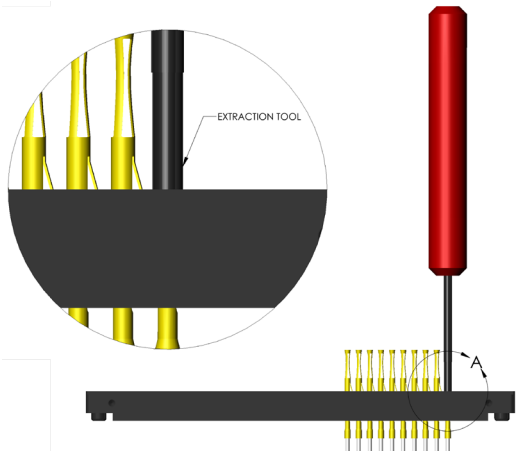

Figure C. *Ensure that the tool is kept perpendicular to the module face to avoid damage to the contact or tool.*

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ITA CONTACT CRIMP TOOL SETUP

PART # 910101102, 910101103

TOOL SELECTION

ITA contacts are crimped using one of the following two tools. Set-up instructions are the same for both tools. Tool settings and locator are determined using **Table 2** and **Table 3** on the following pages.

CRIMP TOOL p/n 910101102
TABLE 2
Contact p/n 610110129/ 147/ 172/ 173

CRIMP TOOL p/n 910101103
TABLE 3
Contact p/n 610110108/ 146/ 169

TOOL SETUP
(Refer to Tables 2 & 3 for settings)

1. Loosen the locator latch-locking screw (**Figure A**) by turning counter-clockwise. Remove any previously used locator.

2. Insert the open end of the locator (**Figure B**) into the crimp tool locator retainer. Expect a tight tolerance fit.

3. Slide the retaining latch toward the locator until the locator is securely locked into place. Tighten the locator latch-locking screw.

4. Adjust the crimp tool for the desired setting on the micro-crimp indicator by pulling and turning the micro-crimp adjusting knob:
   Clockwise to increase
   Counter-clockwise to decrease

5. Verify with pin gauge.

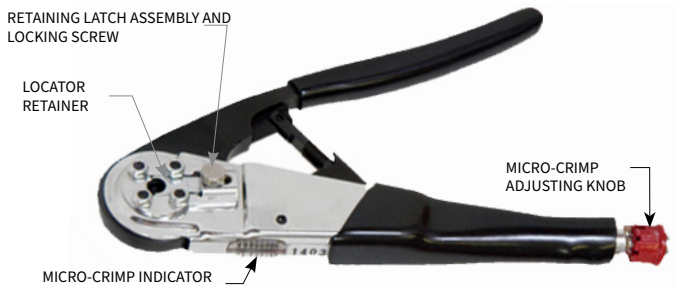

Figure A. *Anatomy of both crimp tools*

Figure B. *Locator*

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Table 2.

<table>
<tr><th rowspan="2">CONTACT</th><th rowspan="2">CRIMP TOOL</th><th rowspan="2">LOCATOR DIE</th><th rowspan="2">STRIP LENGTH (IN [MM])</th><th rowspan="2">WIRE</th><th colspan="2">CRIMP SETTING (IN [MM])</th><th rowspan="2">PULLOUT FORCE (LBS [N])</th></tr>
<tr><th>MAX</th><th>MIN</th></tr>
<tr><td rowspan="5">610110129
&
610110147</td><td rowspan="10">910101102</td><td rowspan="10">910104118</td><td rowspan="3">Insulation Dia. <0.072” [1.47], Strip Length = 0.26” [6.60].|

Insulation Dia. >0.072” [1.47], Strip Length = .30” [7.62]</td><td>14</td><td>0.063” [1.60]</td><td>0.059” [1.50]</td><td rowspan="10">10 [44.5]*</td></tr>
<tr><td>16</td><td>0.055” [1.39]</td><td>0.051” [1.29]</td></tr>
<tr><td>18</td><td>0.049” [1.24]</td><td>0.045” [1.14]</td></tr>
<tr><td rowspan="2">0.30” [7.62]</td><td>2-20*</td><td>0.048” [1.21]</td><td>0.044” [1.11]</td></tr>
<tr><td>2-22*</td><td>0.044” [1.11]</td><td>0.040” [1.01]</td></tr>
<tr><td rowspan="5">610110172
&
610110173</td><td rowspan="3">Insulation Dia. <0.072” [1.47], Strip Length = 0.26” [6.60].

Insulation Dia. >0.072” [1.47], Strip Length = .30” [7.62]**</td><td>14</td><td>0.063” [1.60]</td><td>0.059” [1.45]</td></tr>
<tr><td>16</td><td>0.059” [1.49]</td><td>0.055” [1.39]</td></tr>
<tr><td>18</td><td rowspan="3">0.055” [1.39]</td><td>0.051” [1.29]</td></tr>
<tr><td rowspan="2">0.20” [5.08]</td><td>2-20*</td><td>0.050” [1.27]</td></tr>
<tr><td>2-22*</td><td>0.044” [1.11]</td><td>0.040” [1.01]</td></tr>
</table>

*Pullout force is per individual wire

**For strip lengths 0.28” [7.11] and 0.30” [7.62], shrink tubing is recommended for strain relief at the rear of the contact. Tubing should not cover the inspection hole at the rear of the contact.

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Table 3

<table>
<tr><th rowspan="2">CONTACT</th><th rowspan="2">CRIMP TOOL</th><th rowspan="2">LOCATOR DIE</th><th rowspan="2">STRIP LENGTH
(IN [MM])</th><th rowspan="2">WIRE GAUGE</th><th colspan="2">CRIMP SETTING (IN [MM])</th><th rowspan="2">PULLOUT FORCE
(LBS [N])</th></tr>
<tr><th>MAX</th><th>MIN</th></tr>
<tr><td rowspan="8">610110108
&
610110146</td><td rowspan="12">910101103</td><td rowspan="12">910104107</td><td rowspan="3">Insulation Dia. <0.065” [1.65].
Strip Length = 0.20” [5.08]

Insulation Dia. >0.065” [1.65],
Strip Length = .28” [7.11]**</td><td>20</td><td>0.037 [0.94]</td><td>0.033 [0.84]</td><td rowspan="2">10 [44.5]</td></tr>
<tr><td>22</td><td>0.033 [0.84]</td><td>0.029 [0.74]</td></tr>
<tr><td>24</td><td>0.029 [0.74]</td><td>0.025 [0.64]</td><td>8 [35.6]</td></tr>
<tr><td rowspan="4">0.28” [7.11]**</td><td>2-24*</td><td>0.037 [0.94]</td><td>0.033 [0.84]</td><td>8* [35.6]*</td></tr>
<tr><td>2-26*</td><td>0.033 [0.84]</td><td>0.029 [0.74]</td><td rowspan="2">4* [17.8]*</td></tr>
<tr><td>3-26*</td><td>0.037 [0.94]</td><td>0.033 [0.84]</td></tr>
<tr><td>2-28*</td><td>0.026 [0.66]</td><td>0.024 [0.61]</td><td>2* [8.9]*</td></tr>
<tr><td rowspan="4">610110169</td><td rowspan="3">Insulation Dia. <0.037” [0.94].
Strip Length = 0.20” [5.08]

Insulation Dia. >0.037” [0.94],
Strip Length = .28” [7.11]**</td><td>26</td><td>0.028 [0.71]</td><td>0.026 [0.66]</td><td>4 [17.8]</td></tr>
<tr><td>28</td><td>0.024 [0.61]</td><td>0.023 [0.58]</td><td>2* [8.9]*</td></tr>
<tr><td>30</td><td>0.022 [0.56]</td><td>0.020 [0.51]</td><td rowspan="2">1.0* [4.4]*</td></tr>
<tr><td>0.28” [6.35]**</td><td>2-30*</td><td>0.026 [0.66]</td><td>0.025 [0.63]</td></tr>
</table>

*Pullout force is per individual wire

**For strip lengths 0.28” [7.11] and 0.30” [7.62], shrink tubing is recommended for strain relief at the rear of the contact. Tubing should not cover the inspection hole at the rear of the contact.

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ITA CONTACT CRIMPING & CRIMP INSPECTION

ITA PART # 610110108/ 129/ 146/ 147/ 169/ 172/ 173

CRIMPING

1. Strip wire to the length based on AWG (**consult Table 2 or 3 on previous pages**).

2. Insert stripped wire fully into the contact and squeeze the crimp tool handle until a positive stop is reached. The tool will release and return into a fully "open" position. Remove crimped contact and wire.

3. Ensure that the crimp minimum is measured with an approved gauge pin.

OBSERVE PRECISION RATCHET ACTION BY OPENING AND CLOSING THE CRIMP TOOL FULLY SEVERAL TIMES. NOTE THAT THE TOOL CANNOT BE OPENED WITHOUT COMPLETING A CYCLE. NEVER ATTEMPT TO DISASSEMBLE THE TOOL. NEVER TIGHTEN OR LOOSEN STOP NUTS ON THE BACK OF THE TOOL.

FIGURE A. Correct location of the crimp indentations (610110129).

ACCEPTABLE CRIMP CRITERIA

1. The crimp must be between the inspection hole and the end of the contact. to be acceptable.

2. The crimp indentations are distinctive and create a square appearance **(Figure A)**.

3. No crimp indentions are connected to the inspection hole (**Figure B**). If the indentions make contact with or are above the inspection hole, the crimp is unacceptable.

FIGURE B. The crimp region is between the inspection hole and the end of the contact (610110129).

NOTE: Images shown are crimped to 14 AWG wire.

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ITA CONTACT INSTALLATION & REMOVAL

PART # 610110108/ 113/ 129/ 145/ 146/ 147/ 169/ 172/ 173,

910110102

NOTE: These instructions refer to 90 Series modules, but also apply to iCon series modules.

INSTALLATION

1. Insert the patchcord into desired position from the back (wiring side) of the assembled module **(Figure A)**. Installation is only possible on one side.

2. Push the contact forward.

3. Once in place, pull the wire slightly to ensure that the contact is seated.

REMOVAL

1. With the module removed from the ITA frame, place the extraction tool, p/n 910110102, over the contact to be removed/ replaced. Use care to keep the tool perpendicular to the surface of the module, otherwise the tool or the contact could be bent **(Figure B)**.

DO NOT PRESS THE TOOL INTO THE MODULE UNTIL THE TIP OF THE EXTRACTION TOOL HAS FULLY SEATED INTO THE MODULE AND COMPRESSED THE RETAINING RING TAB ON THE CONTACT.

2. Once the extraction tool is seated and the retaining tabs on the contact are compressed, press the tool into the module. The contact will be pushed out of the rear of the module.

3. On the opposite side of the module from the extraction tool, grasp the contact and hold it while removing the extraction tool. This will prevent the contact from being pulled back into the module while the tool is being removed.

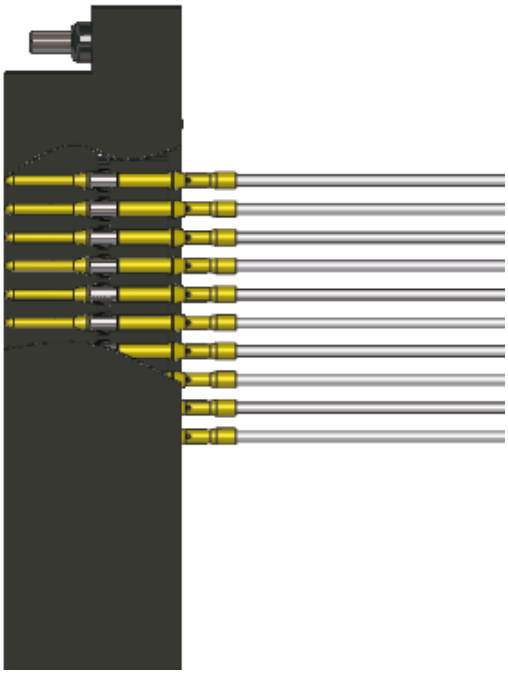

Figure A. *Contacts inserted in the module.*

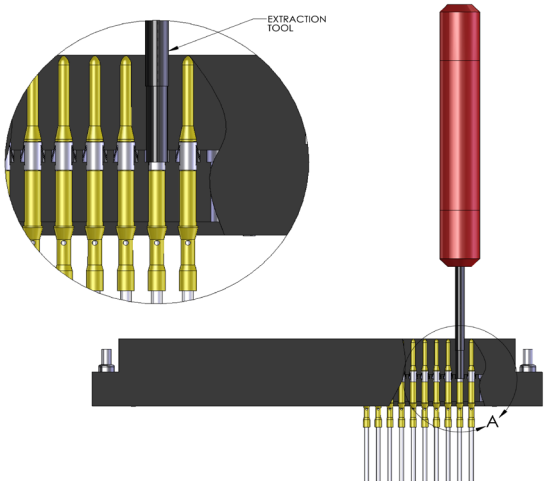

Figure B. *Ensure that the extraction tool is kept perpendicular to the module face to avoid damage to the contact or tool.*

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WIRE WRAP CONTACT ASSEMBLY

PART # 610110113/ 145

TOOLS REQUIRED
Wire Stripping Tool
Wire-Wrap Gun
Wire-Wrap Bit

NOTE: VPC performs wire-wrap terminations in accordance with IPC-A-620 standards.

NOTE: Wire-wraps must be performed with solid wire. Stranded wire will not work for wire wrapping. VPC recommends 26 - 30 AWG wire.

1. Cut and strip the wire. Depending on the style of wire-wrap gun and bit being used, the wire is either stripped during the wrapping process or needs to be stripped before the wrapping process. Refer to the wire-wrap gun instructions to determine the process to use.

2. Insert the wire into the wire slot on the wire-wrap gun. For modified and standard bits, insert the wire in the wire slot as deep as possible. For C.S.W. bits the wire has to be inserted all the way through the wire slot until it goes out of the cutting window. The simplified sleeve of the manual tool has no notch.

3. Hold the wire in place by hand (**Figure A**).

4. Position the terminal hole of the wire-wrap gun on the post to be wrapped. The wire-wrap gun should be parallel with the contact. The wire must continue to be held in place by hand.

5. Engage the wire-wrap gun to wrap the wire. During the wrapping operation, gently press the tool forward onto the wire-wrap post. The turns of the connection should be nicely wrapped against the other. **Do not** push too hard. **Do not** pull backwards.

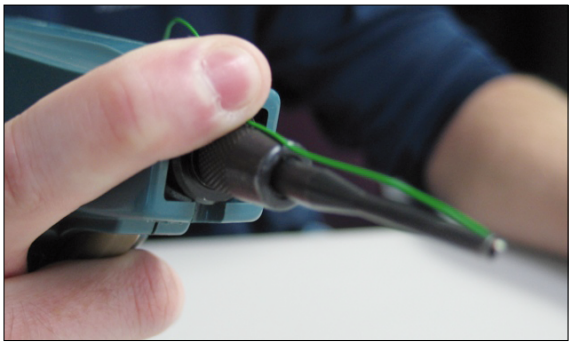

Figure A. Hold the wire in place by hand.

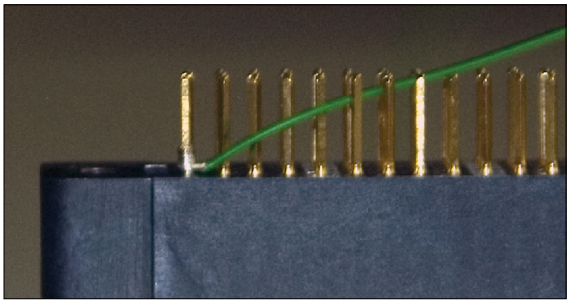

Figure B. Completed wrapped wire.

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90 SERIES MODULE INSTALLATION AND REMOVAL

TOOLS REQUIRED
$^{3}/_{32}$ Allen Wrench

INSTALLATION

1. Place the module in the receiver or ITA until the upper and lower module screws touch the mating holes in the inner frame. Ensure that Position 1 is located at the top for systems in which the modules are oriented vertically or to the left for systems in which the modules are oriented horizontally.

2. Using a $^{3}/_{32}$ Allen wrench, tighten the top screw 1 to 2 full turns, while pushing lightly against the face of the module.

3. Maintain this pressure while tightening the bottom screw 1 to 2 full turns.

4. Repeat this sequence until the module is seated. Torque the screw to 4 in-lbs [0.45 Nm].

REMOVAL INSTRUCTIONS

1. To remove, loosen the top screw 1 to 2 full turns, then loosen the bottom screw 1 to 2 full turns.

2. Repeat this sequence until the module is separated from the receiver or ITA.

NOTE: Push or pull the module evenly from the top and bottom to prevent damage to the module.

NOTE: For optimum performance and system longevity, distribute the contact load evenly throughout the module.

Figure A. *Receiver module*

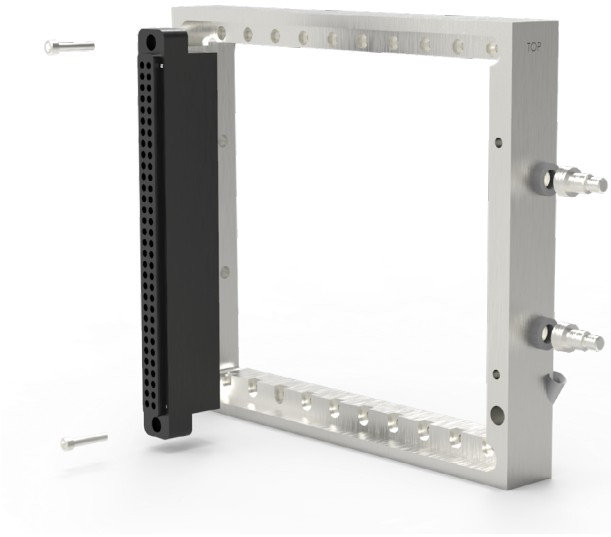

Figure B. *ITA module*

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ICON MODULE INSTALLATION AND REMOVAL

TOOLS REQUIRED
Phillips Head Screwdriver

INSTALLATION

NOTE: A receiver strain relief plate or ITA backshell may need to be removed prior to installing or removing an iCon module. Please refer to the appropriate User Manual for instructions on how to perform these steps.

1. Place the module in the receiver or ITA until the upper and lower module screws touch the mating holes in the inner frame. Install modules so that Position 1 is located at the top of the ITA/receiver frame.

2. Using a Phillips head screwdriver, tighten the top screw 1 to 2 full turns, while pushing lightly against the face of the module.

3. Maintain this pressure while tightening the bottom screw 1 to 2 full turns.

4. Repeat this sequence until the module is seated. Torque the screw to 1.5 in-lbs [0.16 Nm].

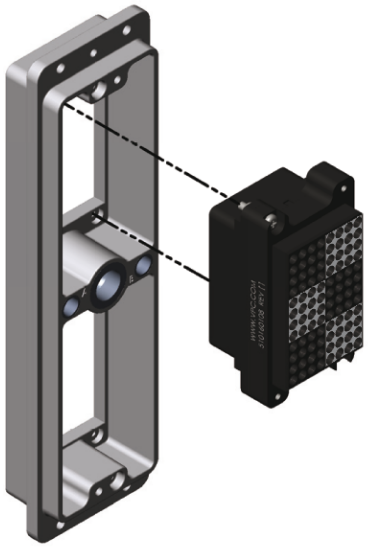

Figure A. *Receiver module*

REMOVAL

1. To remove, loosen the top screw 1 to 2 full turns, then loosen bottom screw 1 to 2 full turns.

2. Repeat this sequence until the module is separated from the receiver or ITA.

NOTE: Push or pull the module evenly from the top and bottom to prevent damage to the module.

NOTE: For optimum performance and system longevity, distribute the contact load evenly throughout the module.

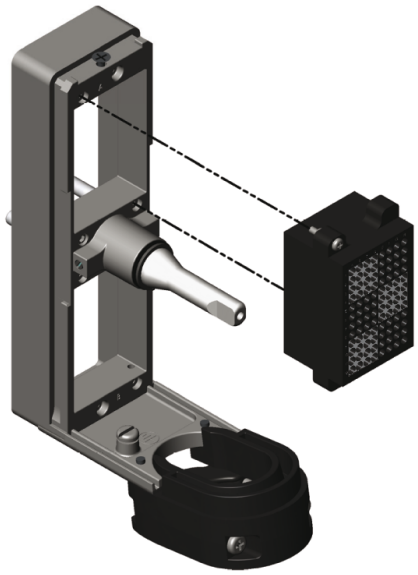

Figure B. *ITA module*

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RECEIVER PCB ADAPTER INSTALLATION AND REMOVAL

PART # 510104135/ 187

TOOLS REQUIRED

$^{3}/_{32}$ Allen Wrench

INSTALLATION

1. Solder the header to the PCB (IPC-A-610 standard recommended for PCB design). The PCB must be manufactured with the header installation area complying with the recommended PCB layout (**Figure A** or **B**).

2. Place the module in the receiver until the upper and lower module screws touch the mating holes in the inner frame. Ensure that Position 1 is located at the top for systems in which the modules are oriented vertically or to the left for systems in which the modules are oriented horizontally.

3. Using a $^{3}/_{32}$ Allen wrench, tighten the top screw 1 to 2 full turns, while pushing lightly against the face of the module.

4. Maintain this pressure while tightening the bottom screw 1 to 2 full turns.

5. Repeat this sequence until the module is seated. Torque the screws to 4 in-lbs [0.45 Nm].

REMOVAL

1. To remove, loosen the top screw 1 to 2 full turns, then loosen bottom screw 1 to 2 full turns.

2. Repeat this sequence until the module is separated from the receiver.

Dimensions shown: [millimeters]
inches

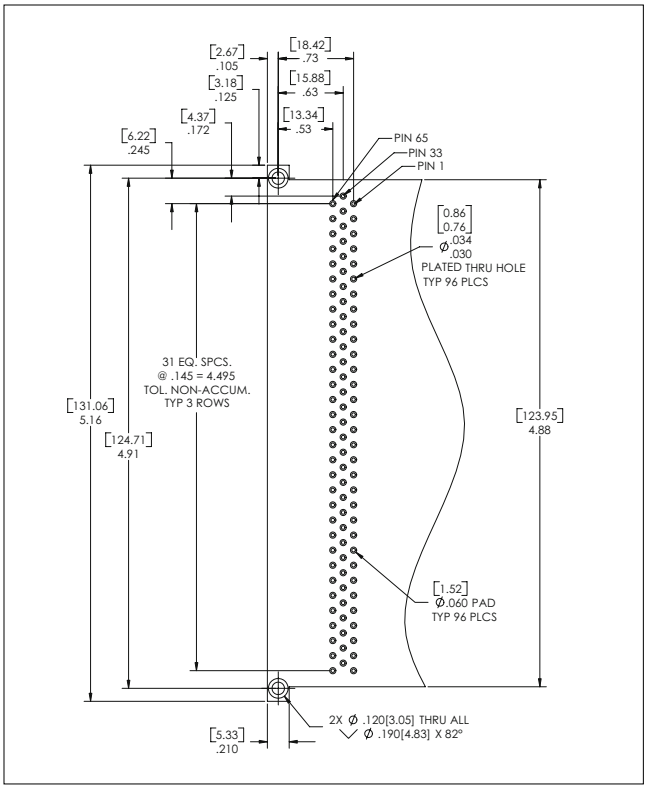

Figure A. *p/n 510104135 recommended board layout. Solder side shown.*

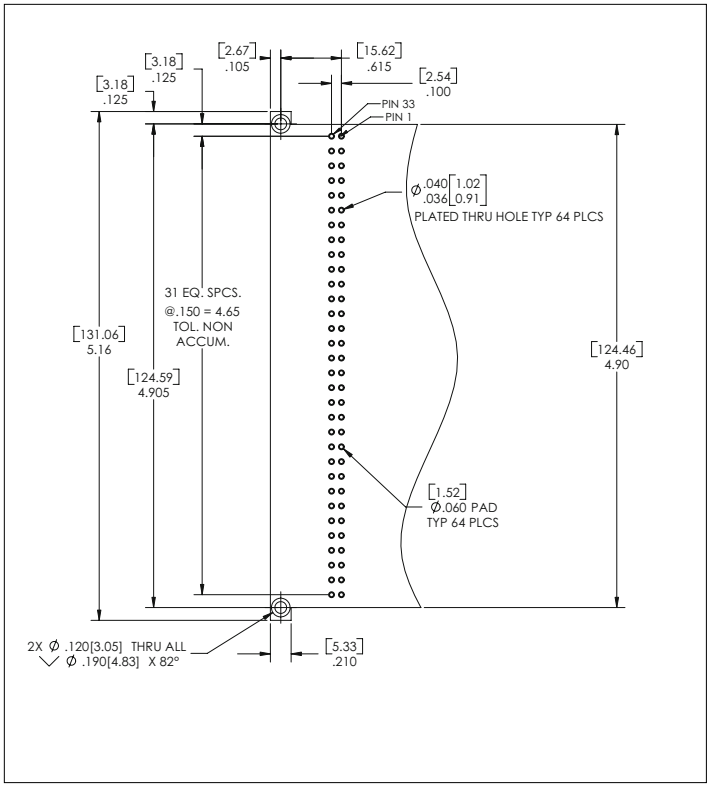

Figure B. *p/n 510104187 recommended board layout. Solder side shown.*

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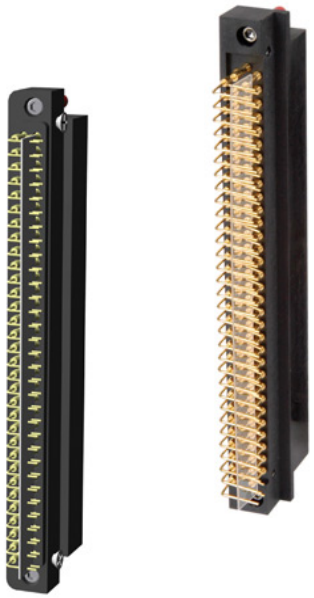
ITA PCB ADAPTER INSTALLATION AND REMOVAL

PART # 510108112, 510108125

TOOLS REQUIRED

$^{3}/_{32}$ Allen Wrench



INSTALLATION

1. Solder the header to the PCB (IPC-A-610 standard recommended for PCB design). The PCB must be manufactured with header installation area complying with the recommended PCB layout (**Figure A or B**).

2. Place the module in the ITA until the upper and lower module screws touch the mating holes in the inner frame. Ensure that Position 1 is located at the top for systems in which the modules are oriented vertically or to the left for systems in which the modules are oriented horizontally.

3. Using a $^{3}/_{32}$ Allen wrench, tighten the top screw 1 to 2 full revolutions, while pushing lightly against the face of the module.

4. Maintain this pressure while tightening the bottom screw 1 to 2 full revolutions.

5. Repeat this sequence until the module is seated. Torque the screws to 4 in-lbs [0.45 Nm].

REMOVAL

1. To remove, loosen the top screw 1 to 2 full revolutions. Loosen bottom screw 1 to 2 full revolutions.

2. Repeat this sequence until the module is separated from the ITA.

Dimensions shown: [millimeters]
inches

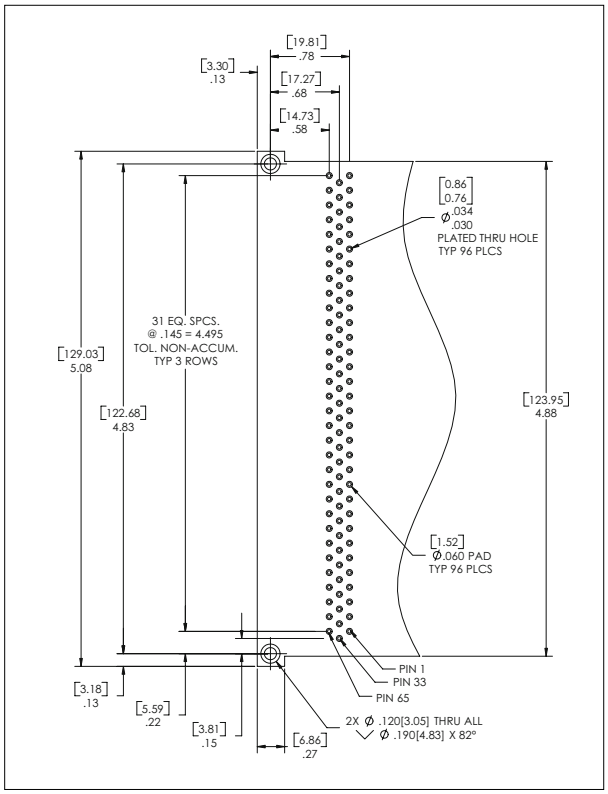


Figure A. *p/n 510108125* recommended board layout. Solder side shown.

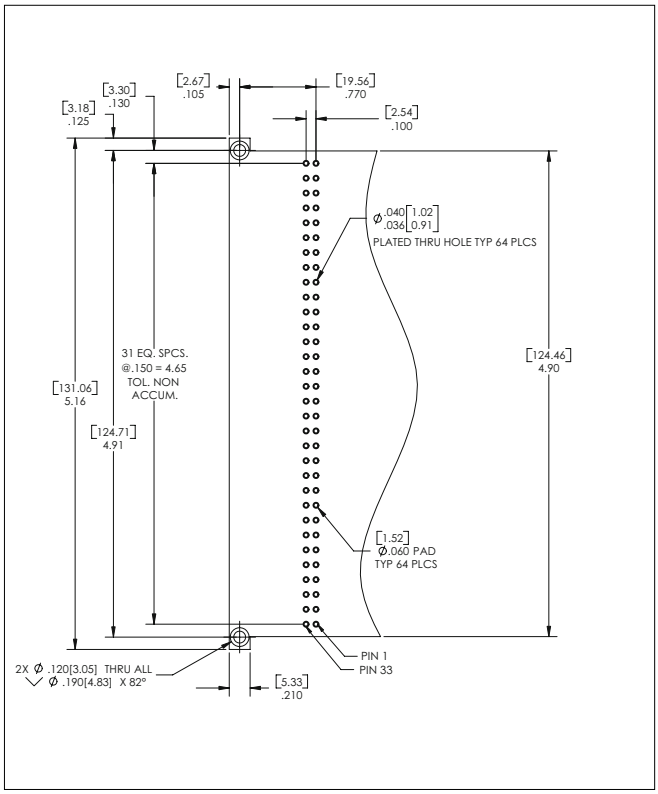


Figure B. *p/n 510108112 recommended board layout. Solder side shown.*

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CROSS REFERENCE TABLES

	STANDARD/ 90 SERIES MODULES						CASS/ 80 SERIES MODULES		ICON MODULES					CRIMP TOOLS		LOCATORS			EXTRACTION
RECEIVER CONTACTS	510104134	510104136	510104149	510104206	510104243	510104261	510113120	510113125	510160103	510160108	510160109	510160111	510160115	910101102	910101103	910104116	910104127	910104146	910110102
610110101	X	X	X	X	X	X	X	X	X	X	X	X	X		X		X		X
610110104	X	X	X	X	X	X	X	X	X	X	X	X	X						X
610110125	X	X	X	X	X	X	X	X	X	X	X	X	X		X		X		X
610110128	x	x	x	x	x	x			x	x	x	x	x	X				x	x
610110167	X	X	X	X	X	X	X	X	X	X	X	X	X		X		X		X
610110171	X	X	X	X	X	X	X	X	X	X	X	X	X		X		X		X
610110177	x	x	x	x	x	x	x	x	x	x	x	x	x	x				X	x

	STANDARD/ 90 SERIES MODULES						CASS/ 80 SERIES MODULES		ICON MODULES					CRIMP TOOLS		LOCATORS		EXTRACTION
ITA CONTACTS	510108101	510108126	510108131	510108178	510108210	510108245	510114106	510114107	510161103	510161108	510161109	510161111	510161115	910101102	910101103	910104107	910104118	910110102
610110108	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X		X
610110113	X	X	X	X	X	X	X	X	X	X	X	X	X					X
610110129	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X
610110145	X	X	X	X	X	X	X	X	X	X	X	X	X					X
610110146	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X		X
610110147	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X
610110169	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X		X
610110172	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X
610110173	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X

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