

AMPMODU* Mass Termination (MT) Connectors





Figure 1

1. INTRODUCTION

AMPMODU Mass Termination (MT) connectors consist of receptacles and right angle pin headers. The receptacles are available pre-loaded with standard or high pressure insulation displacement contacts or unloaded. Unloaded receptacles accept standard or high pressure insulation displacement contacts. The pin headers contain 0.64-mm [.025-in.] square post through hole solder type contacts for printed circuit (pc) board applications. See Figure 1.

A complete list of current connector, contact, cover, and shielding component part numbers cannot be maintained on this document. For all part numbers and their description, contact PRODUCT INFORMATION at the number at the bottom page 1.



Dimensions in this instruction sheet are in millimeters [with inches in brackets]. Figures are not drawn to scale.

The receptacles accept unshielded or shielded jacketed cable with an outside diameter range of 4.32 through 15.2 [.170 through .600], 1.27 [.050] or 2.54 [.100] centerline ribbon cable sizes 28 through 22 AWG, or discrete wire sizes 30 through 20 AWG with a maximum insulation outside diameter of 1.27 [.050] and maximum wall thickness of 0.38 [.015].

The shield of jacketed cable must be braided (foil cannot be used).



Unloaded receptacles will also accept crimp snap-in contacts if a larger wire insulation outside diameter or two-wire circuit application is required. This document does not provide information on using these contacts. For recommendations, contact PRODUCT INFORMATION at the number at the bottom of this page.

Read these instructions and all referenced documents before assembling the connectors. For detailed product application requirements, refer to Application Specification 114-25032. This instruction sheet supercedes Instruction Sheet 408-6682.

Reasons for reissue of this instruction sheet are provided in Section 6, REVISION SUMMARY.

2. DESCRIPTION (Figure 1)

The receptacle contains contact cavities each featuring a locking lance window for positive polarization for inserting contacts. After the receptacle is terminated, a cover is installed to protect the terminated wires and contacts.

Add-on shielding is available to reduce electromagnetic interference/electrostatic discharge (EMI/ESD) at the input-output interface of the connectors.

TOOLING ASSISTANCE CENTER 1-800-722-1111 PRODUCT INFORMATION 1-800-522-6752

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Shielding must be installed if using shielded jacketed cable.

Keying plugs are available to ensure proper connector mating.

3. ASSEMBLY PROCEDURE

Make sure that all the proper components have been chosen for your application, then proceed as follows:

3.1. Cable Preparation



Discrete wire requires no preparation.

1. If shielding receptacles, slide the ferrule (small diameter end first if using the step-down ferrule) onto the cable.

2. Cut ribbon cable to the dimensions in Figure 2. Notch (2.54 [.100] centerline) or slit (1.27 [.050] centerline) ribbon cable to the dimensions in Figure 3. Do not nick or scrape conductor insulation. For available tooling, refer to Paragraph 5.1.

Strip jacketed cable to the dimensions in Figure 4. For shielded cable, slightly flare the end of the cable braid.



Figure 2

3.2. Connector Loading (Unloaded Receptacles)

Align the contact locking lance with the receptacle locking lance window, then insert the contact straight into the contact cavity. Refer to Figure 1. When properly inserted, there will be an audible "click."



If necessary, contacts can be removed using Extraction/Lance Reset Tool 843477-3 according to the instructions packaged with the tool.

3.3. Termination

Terminate the receptacles using the appropriate tooling according to the instructions packaged with the tooling. For available tooling, refer to Paragraph 5.2.



2.54 [.100] Centerline Ribbon Cable Notch



WIRE SIZE (AWG)	WIDTH OF WEB REMOVED
28-26	1.42 [.056]
24-22	1.27 [.050]

Figure 3

3.4. Cover Installation

Each receptacle requires a front and a back cover. The covers are available in low profile and standard profile. Make sure that the mating covers are compatible and appropriate for the application according to the following.

For non-shielded application:

PROFILE	FRONT	BACK	
	Polarizing	Shielding and Non-Shielding	
	Latching		
Low	Ejection		
	Non-Polarizing		
	Non-Polarizing	Shielding	
Oleradard	l la ma a shua diti a	Hermaphroditic	
Standard	Hermaphroditic	Ejection	

For shielded application:

PROFILE	FRONT	BACK
		Shielding
Low	Non-Polarizing	Shielding and Non-Shielding



	CABLE STRIP LENGTH = <u>+</u> 0.25 [<u>+</u> .010]		
CONNECTOR	JAC		
SIZE (No. of Positions)	lf Using Straight Cable Exit Shielding	lf Using Right Angle Cable Exit Shielding	BRAID
6	25.65 [1.010]	—	6.35 [.250]
10	35.81 [1.410]	—	8.89 [.350]
16	42.93 [1.690]	—	8.89 [.350]
18	—	53.59 [2.110]	8.89 [.350]
26	44.70 [1.760]	65.02 [2.560]	
40	60.71 [2.390]	82.53 [3.210]	44 40 [450]
50	65.02 [2.560]	89.92 [3.540]	11.43 [.450]
60		104.90 [4.130]	

Add 76.2 [3.00] to jacket strip length if using CHAMPOMATOR* 2.5 Bench Terminating Machine 354786-[] or Tooling Assembly 91411-2 for terminating.

 Dimensions are typical. The strip lengths will vary according to length needed to dress wires.

Figure 4

Install the cover onto the receptacle as follows:



For shielding applications, to ensure proper mating of the connectors, keep in mind that the back cover must be installed onto the side of the receptacle that will sit against the inner shell of the shield (refer to Paragraph 3.5). Depending on the location of the receptacle Position 1, it may be necessary to switch the covers. 1. Position the front or back cover at a slight angle to the receptacle housing, and align the cover tabs with the back of the contact cavities. Refer to Figure 5.

2. Insert the cover tabs into the contact cavities, then rotate the cover toward the wires until the cover sits on the receptacle cavity barriers.



A cavity barrier is located between each contact cavity on both sides of the receptacle.

3. If using covers with locating posts, position the appropriate wire into each slot, and if using the low profile shielding and non-shielding back cover, each slot must only contain a maximum of two wires. If using covers with locking latches, gather the wires so that they are within the locking latches. Refer to Figure 5.

4. Hold the cover and wires in position, and install the mating cover in the same manner.

5. Holding the wires in position, press the front and back covers together until the locating posts or locking latches engage each other.

6. Refer to Figure 6, and inspect the assembly.

Cover Installation (Applies to All)

Non-Polarizing and Shielding Covers Shown



Hermaphroditic and Hermaphroditic Covers Shown



Cover Inspection (Applies to All)

Non-Polarizing and Shielding Covers Shown



Hermaphroditic and Hermaphroditic Covers Shown



a Front and Back Cover Tabs are Inserted into Back of Receptacle Contact Cavities

¹Each Cover Slot Contains the Appropriate Wire ²All Wires are Within the Locking Latches

Locking Latches or Locating Posts are Fully Engaged

No Wires are Trapped Between Receptacle and Cover

Figure 6

3.5. Shielding

b

С

d

A. Shielding Receptacles

Shielding components for the receptacle consist of a (male) inner shell, (female) outer shell, and straight or step-down ferrule. Shielding is available with straight cable exit or right angle cable exit.

Make sure that the ferrule is properly installed onto the cable and the cable is prepared as described in Paragraph 3.1, then proceed as follows:

1. Fold the cable braid back over the cable jacket.

2. If applicable, install the cable tie pull ring onto the receptacle and through the hole located near the back edge of each shell.



Only certain right angle cable exit shielding feature this hole.

3. Position the receptacle in the inner shell so that the cover at the wire end butts against the shell locator tab and the mating face is flush with the edge of the shell. See Figure 7, Detail A. Position the cable in the shell cable outlet so that the fold of the braid and the jacket are against the edge of the cable outlet. See Figure 7, Detail B.

4. Fit the outer shell over the opposite side of the receptacle so that the locking windows are aligned with the respective locking teeth of the inner shell, and the cable outlet is over the wires. See Figure 7, Detail B.

5. Press the inner and outer shells together until the teeth engage the windows. Make sure that no wires are trapped between the shells. See Figure 8, Detail A.

6. Unfold the braid over the cable outlet, and spread the braid evenly (without distorting the weave) around the cable outlet. Make sure that the cable jacket is against the cable outlet. See Figure 8, Detail A.





Figure 8

7. Slide the ferrule toward the receptacle until the front portion is over the cable outlet. See Figure 8, Detail B. Crimp the ferrule using the appropriate tooling according to the instructions packaged with the tooling. Refer to Paragraph 5.3 for available tooling.

8. Refer to Figure 8, Detail B, and inspect the assembly.



Make sure that the crimp height of the ferrule conforms to the dimensions stated in the tooling instructions or in 114-25032.

B. Shielding Pin Headers

Shielding for the pin header is a one-piece shell. Proceed as follows:

1. Seat the pin header onto the pc board according to the requirements in 114-25032.



To avoid deformation, contamination, or damage to the contact solder tines, handle pin header by the housing only. 2. Fit the shell over the pin header so that the cantilever beam aligns with the mating face of the pin header. Make sure that the mounting posts enter the pc board mounting holes. See Figure 9.

3. Push the shell onto the pc board until the mounting posts are fully inserted and the shield bottoms on the board.

4. Solder the pin header solder tines and shell mounting posts to the pc board according to the requirements in 114-25032.



Figure 9

3.6. Keying

Keying plugs are used to selectively close contact cavities in receptacles. The keying plugs are available for inserting into a contact in the receptacle or for inserting into the receptacle housing contact cavity.



The keying plugs can be inserted before or after receptacle termination.

Make sure that the receptacle keying plug position is compatible with the pin header keying insert position (contact removed). Remove the applicable contacts from the pin header using Keying Tool 843853-1 according to the instructions packaged with the tool.



The contacts compatible with receptacle keying plug positions must be removed from the pin header before installation onto the pc board. These contacts cannot be re-used after removal.

To insert keying plugs, refer to Figure 10, and proceed as follows:

A. Contact Keying Plug

1. Align the tapered end of the keying plug with the appropriate contact cavity at the mating face of the receptacle.



Figure 10

2. Insert the keying plug into the contact until the keying plug locking lance engages the housing. If properly inserted, there will be an audible "click."

B. Housing Keying Plug

1. If necessary, remove the contact from the receptacle housing contact cavity using Extraction/Lance Reset Tool 843477-3 according to the instructions packaged with the tool.

2. Insert the keying plug, tapered end first, into the contact cavity at the wire end of the receptacle until the keying plug locking lance engages the housing. If properly inserted, there will be an audible "click."

3.7. Mating and Unmating Connectors

A. Mating

To mate shielded connectors, refer to Figure 11, and proceed as follows:

1. Align the receptacle shield polarizing slots with the pin header shield polarizing tabs.

2. Insert the receptacle into the pin header until fully bottomed. The polarizing slots should slide onto the polarizing tabs.

To mate unshielded connectors, refer to Figure 11, and proceed as follows:

1. Position the mating face of the receptacle with the mating face of the pin header so that the receptacle Position 1 aligns with the pin header Position 1.

2. Insert the receptacle into the pin header until fully bottomed.





Figure 11

B. Unmating

Rock the connectors until they are apart. Make sure that one end is free, but not pulled more than 5 degrees, before rocking the same end back.

4. REPLACEMENT

4.1. Connectors

Replace any damaged receptacles and pin headers. De-solder all pin header contact solder tines and shield mounting posts, remove the pin header from the pc board, and replace the pin header.



Undamaged contacts can be removed from a damaged receptacle and re-used. Refer to Paragraph 4.2.

Covers and shields cannot be re-used after removal.

Undamaged keying plugs can be re-used after removal. Discard any damaged keying plugs.

4.2. Contacts

Damaged contacts cannot be used. Contacts removed from pin headers cannot be re-used.

A. Insulation Displacement

To remove a damaged insulation displacement or crimp snap-in contact, and replace it with an insulation displacement contact, proceed with the following.

1. Remove the damaged contact from the receptacle using Extraction/Lance Reset Tool 843477–3 according to the instructions packaged with the tool.

2. Cut the wire at the back of the damaged contact. Discard the contact.

3. Insert the replacement contact into the receptacle contact cavity from which the damaged contact was removed.

4. Terminate the wire onto the contact. Pull back slightly on the wire to ensure that the contact is locked in place.

To remove a damaged insulation displacement or crimp snap-in contact, and replace it with an insulation displacement contact extracted from another receptacle, proceed with the following.

1. Cut the wire at back of the damaged contact. Discard the contact.

2. Obtain a receptacle containing the applicable contacts, and terminate the wire onto Position 1 of the receptacle.

3. Remove the contact from the receptacle, and reset the contact locking lance using Extraction/ Lance Reset Tool 843477-3 according to the instructions packaged with the tool.



The locking lance must be reset using the proper tooling to ensure retention in the housing.

4. Insert the terminated contact into the receptacle contact cavity from which the damaged contact was removed. Pull back slightly on the wire to ensure that the contact is locked in place.

B. Crimp Snap-In

To remove a damaged insulation displacement or crimp snap-in contact, and replace it with a crimp snap-in contact, proceed with the following.

1. Remove the damaged contact from the receptacle using Extraction/Lance Reset Tool 843477-3 according to the instructions packaged with the tool.

2. Cut the wire at the back of the damaged contact. Discard the contact. Prepare the wire according to the requirements in 114–25003.

3. Terminate the prepared wire onto the replacement contact.

4. Insert the contact into the receptacle contact cavity from which the damaged contact was removed. Pull back slightly on the wire to ensure that the contact is locked in place.

5. AVAILABLE TOOLING

5.1. Cable Preparation



These tools are for 2.54 [.100] centerline ribbon cable only. Commercial tools are available for slitting 1.27 [.050] centerline ribbon cable.

TOOLING	ADAPTER	POWER UNIT OR HAND TOOL	
_	_	Ribbon Cable Cutting Hand Tool 91220-1	
	_	Manual Arbor Frame Assembly 58024-1	
Ribbon Cable	_	Pneumatic Applicator Frame Assembly 91112-2	
Notcher 854449-[]	Adapter Kit 854468-2	2700-lb Pneumatic Power Unit 312522-1	
	Adapter Kit 854468-1	AMP-O-LECTRIC* Model "K" Terminator Machine 2-565435-2 (or 565435-5●)	

5.2. Receptacle Termination

TOOLING	ADAPTER	POWER UNIT OR HAND TOOL
	_	Pistol Grip Manual Handle Assembly 58074-1
Terminating Head 58062-1		Pistol Grip Pneumatic Handle Assembly 58075-1
		Pneumatic Power Bench Assembly 58338-1
		Electric Power Unit 931800-1

Hand Tool Package 58577-1 (Consists of Terminating Head 58062-1 and Pistol Grip Manual Handle Assembly 58074-1)

 Machine 565435-5 is no longer available for new applications, but can still be used for existing applications.

Cont'd

TOOLING	ADAPTER	POWER UNIT OR HAND TOOL
	Discrete Wire Organizer Assembly 527085-1	Manual Arbor Frame Assembly 91085-2
Tooling Assembly 91411-2	Pneumatic Upper Tool Mount 527145-1 and Discrete Wire Organizer Assembly 527085-1	Pneumatic Applicator Frame Assembly 91112-2
Tooling Kit 1-762661-0	_	CHAMPOMATOR 2.5 Bench Terminating Machine 354786-[] (Cannot be Used for Ribbon Cable)

5.3. Receptacle Shield Ferrule Crimp

TOOLING	APPLICATOR	POWER UNIT OR HAND TOOL
Die Assembly 812665-[]	Ferrule Applicator Assembly 812407-1	AMP-O-LECTRIC Model "K" Terminator Machine 2-565435-2 (or 565435-5●)
Die Assembly 527116-[]	_	Hand Crimping Tool 91410-1

 Machine 565435-5 is no longer available for new applications, but can still be used for existing applications.

6. REVISION SUMMARY

Revisions to this instruction sheet include:

• Updated instruction sheet to corporate requirements