1. INTRODUCTION

This specification covers the AMPMODU MOD IV, IV1/2, and V Receptacle Contacts and Housings. These crimp snap-in receptacle contacts with insulation support will accept a wire size range of 32–20 AWG and mate with 0.64 mm [.025 in.] square or round posts.

The AMPMODU MOD IV contacts represent standard mating pressure, while the AMPMODU MOD IV1/2 and V contacts represent intermediate and high pressure respectively.

Housing configurations include single- and double-rows on 2.54 mm [.100 in.] centerlines up to 70 positions. All three types of contacts are used with AMPMODU MOD IV connector housings. Some of the housing options include detent latching, polarization, and bonded strain relief/pull tabs.

When corresponding with TE Connectivity Personnel, use the terminology provided on this specification to help facilitate your inquiry for information. Basic terms and features of components are provided in Figure 1.
2. REFERENCE MATERIAL

2.1. Revision Summary

This paragraph is reserved for a revision summary of the most recent additions and changes made to this specification which include the following:

- Updated document to corporate requirements.

2.2. Customer Assistance

Reference Part Number 86015 and Product Code 5208 are representative numbers of AMPMODU MOD IV, IV 1/2, and V Receptacles and Housings. Use of these numbers will identify the product line and expedite your inquiries through a service network established to help you obtain product and tooling information. Such information can be obtained through a local TE Representative or, after purchase, by calling the Tooling Assistance Center or Product Information number at the bottom of page 1.

2.3. Drawings

Customer Drawings for specific products are available from the service network. The information contained in Customer Drawings takes priority if there is a conflict with this specification or with any technical documentation supplied by TE.

2.4. Specifications

The following Product Specifications covers test and performance requirements:

<table>
<thead>
<tr>
<th>Document Number</th>
<th>Document Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>108-25007</td>
<td>Interconnection System, AMPMODU MOD V Wire Applied (High Pressure)</td>
</tr>
<tr>
<td>108-25020</td>
<td>Interconnection System, AMPMODU MOD IV (Standard Pressure)</td>
</tr>
<tr>
<td>108-25021</td>
<td>Interconnection System, AMPMODU MOD IV 1/2 (Intermediate Pressure)</td>
</tr>
</tbody>
</table>

2.5. Instructional Material

The following list includes available instruction sheets (408-series) that provide assembly procedures for product, operation, maintenance and repair of tooling, as well as setup and operation procedures of applicators; and customer manuals (409-series) that provides setup, operation, and maintenance of machines.

<table>
<thead>
<tr>
<th>Document Number</th>
<th>Document Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>408-7497</td>
<td>Recommended Procedures for the “Crush” Crimp Technique</td>
</tr>
<tr>
<td>408-7865</td>
<td>Application and Maintenance for Hand Crimping Tool 90202-3</td>
</tr>
<tr>
<td>408-7935</td>
<td>AMPMODU MOD IV Receptacle Connectors (With Strain Relief Tabs)</td>
</tr>
<tr>
<td>408-8040</td>
<td>Heavy Duty Miniature Quick-Change Applicators (Side-Feed Type)</td>
</tr>
<tr>
<td>408-8547</td>
<td>CERTI-CRIMP* II Straight Action Hand Tools</td>
</tr>
<tr>
<td>408-9451</td>
<td>Extraction Tool 843473-1</td>
</tr>
<tr>
<td>408-9452</td>
<td>Extraction Tools 843475-1 and -2</td>
</tr>
<tr>
<td>408-9453</td>
<td>Extraction/Lance Reset Tools 843477-[-] and 843996-2, -3, -4, and -5</td>
</tr>
<tr>
<td>409-5806</td>
<td>AMPOMATOR* CLS III Lead-Making Machine 854400-[-]</td>
</tr>
<tr>
<td>409-5842</td>
<td>AMP-O-LECTRIC Model “G” Terminating Machine 354500-[-]</td>
</tr>
<tr>
<td>409-5852</td>
<td>AMPOMATOR CLS III-G Lead-Making Machine 122500-[-]</td>
</tr>
<tr>
<td>409-5866</td>
<td>AMPOMATOR CLS IV Lead Making Machine 217500-[-]</td>
</tr>
<tr>
<td>409-5878</td>
<td>AMPOMATOR CLS IV+ Lead Making Machine 356500-[-]</td>
</tr>
<tr>
<td>409-10012</td>
<td>AMP-O-MATIC* Side Feed Stripper Crimper III Machine 1320895-[-]</td>
</tr>
<tr>
<td>409-10016</td>
<td>Entry Level Terminator (ELT) Machine 1338600-[-]</td>
</tr>
<tr>
<td>409-10027</td>
<td>Stripping Module 1490502-[-] and 1490500-[-]</td>
</tr>
<tr>
<td>409-10029</td>
<td>Stripping Module 1490503-[-] and 1490501-[-]</td>
</tr>
</tbody>
</table>

3. REQUIREMENTS

3.1. Storage

A. Ultraviolet Light

Prolonged exposure to ultraviolet light may deteriorate the chemical composition used in the housings.
B. Shelf Life
The housings and contacts should remain in the shipping containers until ready for use to prevent deformation to the housings or contacts. The housings or contacts should be used on a first in, first out basis to avoid storage contamination that could adversely affect signal transmissions.

C. Chemical Exposure
Do not store the contacts near any chemical listed below as they may cause corrosion stress cracking in the contacts.

<table>
<thead>
<tr>
<th>Alkalies</th>
<th>Ammonia</th>
<th>Citrates</th>
<th>Phosphates</th>
<th>Citrates</th>
<th>Sulfur Compounds</th>
<th>Amines</th>
<th>Carbonates</th>
<th>Nitrites</th>
<th>Sulfur Nitrites</th>
<th>Tartrates</th>
</tr>
</thead>
</table>

**NOTE** Where the above environmental conditions exist, phosphor-bronze contacts are recommended instead of brass if available.

3.2. Wire Selection and Preparation

A. Type
The wire size range for AMPMODU MOD IV, IV1/2, and V receptacle contacts is 32 through 20 AWG.

B. Preparation
The wire must be stripped to the dimension provided in Figure 2.

**CAUTION** Do not nick, scrape, or cut the wire conductor during the stripping operation.

The table in Figure 2 also provides insulation strip lengths as determined by the size contact used. Also listed are acceptable wire insulation diameters for the contacts.

<table>
<thead>
<tr>
<th>WIRE SIZE RANGE, (AWG)</th>
<th>INSUL DIA MAX.</th>
<th>STRIP LENGTH</th>
<th>WIRE BARREL</th>
<th>INSUL BARREL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>CRIMP HEIGHT</td>
<td>CRIMP WIDTH</td>
</tr>
<tr>
<td>20</td>
<td>●</td>
<td>4.78-3.58 [1.88-1.41]</td>
<td>0.94-0.72 [0.037-0.0285]</td>
<td>1.4 [0.055]</td>
</tr>
<tr>
<td>22</td>
<td>●</td>
<td>4.78-3.58 [1.88-1.41]</td>
<td>0.84-0.72 [0.033-0.0285]</td>
<td>1.57 [0.062]</td>
</tr>
<tr>
<td>24</td>
<td>●</td>
<td>4.78-3.58 [1.88-1.41]</td>
<td>0.83-0.64 [0.0325-0.025]</td>
<td>1.4 [0.055]</td>
</tr>
<tr>
<td>22</td>
<td>1.55 [0.061]</td>
<td>4.37-2.77 [1.72-1.09]</td>
<td>0.97-0.81 [0.038-0.032]</td>
<td>1.07 [0.042]</td>
</tr>
<tr>
<td>24</td>
<td>1.55 [0.061]</td>
<td>4.37-2.77 [1.72-1.09]</td>
<td>0.86-0.71 [0.034-0.028]</td>
<td>1.4 [0.055]</td>
</tr>
<tr>
<td>26</td>
<td>1.55 [0.061]</td>
<td>4.37-2.77 [1.72-1.09]</td>
<td>0.81-0.71 [0.032-0.028]</td>
<td>1.4 [0.055]</td>
</tr>
<tr>
<td>26-30</td>
<td>1.22 [0.048]</td>
<td>4.37-2.77 [1.72-1.09]</td>
<td>0.74-0.64 [0.029-0.025]</td>
<td>1.4 [0.055]</td>
</tr>
<tr>
<td>27, 28</td>
<td>1.02 [0.040]</td>
<td>4.37-2.77 [1.72-1.09]</td>
<td>0.61-0.51 [0.024-0.020]</td>
<td>1.4 [0.055]</td>
</tr>
<tr>
<td>30, 32</td>
<td>1.02 [0.040]</td>
<td>4.37-2.77 [1.72-1.09]</td>
<td>0.61-0.48 [0.024-0.019]</td>
<td>N/A</td>
</tr>
<tr>
<td>INSULATING PIERCING CRIMP CONTACTS</td>
<td>1.4 [0.055]</td>
<td>UNSTRIPPED</td>
<td>1.33-1.21 [0.0525-0.0475]</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>1.02 [0.040]</td>
<td></td>
<td>1.23-1.11 [0.0485-0.0435]</td>
<td>N/A</td>
</tr>
</tbody>
</table>

*Maximum diameter shall be 1.75 mm [0.069 in. ] when used in 15.24 mm [0.600 in.] high housings, and 1.4 mm [0.055 in.] when used in 16.38 mm [0.645 in.] high housings or 13.84 mm [0.545 in.] high housings.

Figure 2
3.3. Crimped Contact Requirements
Locate the contact to be crimped in the appropriate tooling according to the instructions packaged with that tooling. Detailed instructions covering the placement of contacts in the tooling and the use of such tooling is packaged with each tool.

Terminate the contact according to the directions shipped with the appropriate tooling. See Section 5, TOOLING.

**CAUTION**
Wire insulation shall NOT be cut or broken during the crimping operation, nor shall the insulation be crimped into the contact wire barrel. Reasonable care should be taken by tooling operators to provide undamaged wire terminations.

A typical contact is shown as it should appear after crimping in Figure 3.

A. Crimp Height
The crimp applied to the wire portion of the contact is the most compressed area and is most critical in ensuring optimum electrical and mechanical performance of the crimped contact. The crimp height must be within the dimensions provided in Figure 2.

B. Crimp Length
For optimum crimp effectiveness, the crimp must be within the area shown and must meet the crimp dimensions provided in Figure 3. Effective crimp length shall be defined as that portion of the wire barrel, excluding bellmouth(s), fully formed by the crimping tool. Instructions for adjusting, repairing, and inspecting tools are packaged with the tools. See Section 5, TOOLING.

C. Bellmouths
Front and rear bellmouths shall be evident and conform to the dimensions given in Figure 3.

D. Cutoff Tab
The cutoff tab shall be cut to the dimensions shown in Figure 3.

E. Burrs
The cutoff burr shall not exceed the dimensions shown in Figure 3.

F. Wire Barrel Flash
The wire barrel flash shall not exceed the dimensions shown in Section X–X.

G. Insulation Barrel Crimp
The insulation barrel shall grip the insulation firmly without cutting into it. Care must be taken to prevent cutting, nicking, or scraping of the insulation. The insulation barrel crimp width must be within the dimensions provided in Figure 2.

H. Wire Location
After crimping, the wire conductor and insulation must be visible in the transition area between the wire and insulation barrels.

I. Conductor Extension
The conductor may extend beyond the wire barrel to the maximum shown in Figure 3.

J. Wire Barrel Seam
The wire barrel seam must be closed with no evidence of loose wire strands visible in the seam.

K. Twist and Roll
There shall be no twist, roll, deformation or other damage to the mating portion of the crimped contact that will prevent proper mating. See Figure 4.

L. Straightness
The force applied during crimping may cause some bending between the crimped wire barrel and the mating portion of the contact. Such deformation is acceptable within the following limits, as shown in Figures 5 and 6.
Wire Conductors and Insulation Must Both be Visible in this Area

0.00 - 0.081 [.000-.032] Conductor Location

Wire Barrel Seam Closed with No Conductor Strands Showing

0.15 [.006] Max.

Insulation Barrel Crimp Width

Insulation Should NOT Be Cut, Nicked or Scraped

0.20 [.008] Max.

Wire Barrel Crimp Width

0.25 [.010] Min.

Rear Bellmouth

0.25 [.010] Max.

Front Bellmouth

Cutoff Tabs MUST Be Visible

See View A

View A

Cutoff Tabs MUST Be Visible

No Damage or Distortion In the Contact Area

0.08 [.003] Max. Burr

0.15 [.006] Cutoff Tab Max.

NOTE: Comparing a crimped contact to an uncrimped contact should reveal any fault that may have occurred to front shoulder or locking lances during crimping.

Effective crimp length shall be 2.67 mm [.105 in.] minimum for 20–24 AWG wire, and 2.16 mm [.085 in.] minimum for all other wire sizes; and is defined as that portion of the wire barrel fully formed by the tool, excluding the bellmouths.

Figure 3
1. Up and Down
The crimped contact, including cutoff tab and burr, shall not be bent above or below the datum line more than the amount shown in Figure 5.

2. Side to Side
The side-to-side bending of the contact may not exceed the limits provided in Figure 6.

**NOTE**
Periodic inspections must be made to ensure crimped contact formation is consistent as referenced.
3.4. Housings

AMPMODU MOD IV housings are available in a variety of configurations. The housing sizes range from 1 to 70 positions. These housings include single- and double-row positioning on 2.54 mm [.100 in.] centerlines.

Housing options include detent latching, polarization, and bonded strain relief/pull tabs. See Figure 7.

![Figure 7](image)

3.5. Keying Plugs

Keying plugs are used to exclude an open receptacle contact or housing position from mating. Keying plugs are available for either the receptacle contact or for plugging directly into the housing. See Figure 8.

![Figure 8](image)
3.6. Repair/Replace
Contacts are not repairable once a termination has been made. Any defective or damaged contact must be replaced with a new one.

If the contact is seated in a housing, use the extraction tool information provided in Section 5, TOOLING.

4. QUALIFICATION
AMPMODU MOD IV, IV 1/2, and V contact receptacles are Recognized in the Component Program of Underwriters Laboratories Inc. (UL) in File Number E28476, and are Certified by CSA International in File Number LR7189.

5. TOOLING
Figure 9 provides tool part numbers and instructional material related to wire size.

**NOTE**
TE Tool Engineers have designed machines for a variety of application requirements. For assistance in setting up prototype and production line equipment, contact TE Tool Engineering through your local TE Representative or call the Tooling Assistance Center number on the bottom of page 1.

- **Hand Crimping Tool**
  Hand crimping tools that accommodate the full wire size range are designed for prototype and low-volume applications such as repair of damaged contacts.

- **Applicator**
  Applicators are designed for the full wire size range of strip-fed, precision formed contacts, and provide for high volume, heavy duty, production requirements. The applicators can be used in bench or floor model power units.

**NOTE**
Each applicator is shipped with a metal identification tag attached. DO NOT remove this tag or disregard the information on it. Also, a packet of associated paperwork is included in each applicator shipment. This information should be read before using the applicator; then it should be stored in a clean, dry area near the applicator for future reference. Some changes may have to be made to the applicators to run in all related power units. Contact the Tooling Assistance Center number located at the bottom of page 1 for specific changes.

- **Power Units**
  A power unit is an automatic or semi-automatic device used to assist in the application of a product. Power unit includes the power source used to supply the force or power to an applicator.

- **Extraction Tools**
  Extraction tools are designed to release the locking lance inside the connector housing without damaging the housing or contacts and remove the individual contact for replacement or for relocation to another housing cavity.

Use extraction tools 843473-1, 843475-1, 843475-2, 843477-[ ], and 843996-2, -3, -4, and -5 for extracting contacts from AMPMODU MOD IV housings. See the instructional material shipped with the extraction tooling for specific housing information.

<table>
<thead>
<tr>
<th>WIRE SIZE RANGE, (AWG)</th>
<th>INSULATION DIAMETER MAX.</th>
<th>HAND TOOL (DOCUMENT)</th>
<th>APPLICATOR (DOCUMENT)</th>
<th>POWER UNIT (DOCUMENT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>24-20</td>
<td>1.75 [.069]</td>
<td>91516-1</td>
<td>466562-2 (408-8040)</td>
<td>354500-1 (409-5842)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>466562-5 (408-8040)</td>
<td>565435-5 (409-5128)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1338600- ( ] (409-1016)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>90202-3 (408-7865)</td>
<td>1320895-1 (409-10012)</td>
</tr>
<tr>
<td>26-22</td>
<td>1.55 [.061]</td>
<td>91517-1</td>
<td>466571-2 (408-8040)</td>
<td>354500-1 (409-5842)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>466571-4 (408-8040)</td>
<td>565435-5 (409-5128)</td>
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<td></td>
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<td>1338600- ( ] (409-1016)</td>
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<tr>
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<td></td>
<td></td>
<td>466918-1 (409-5855)</td>
<td>1320895-1 (409-10012)</td>
</tr>
<tr>
<td>30-26</td>
<td>1.22 [.048]</td>
<td>91516-1</td>
<td>466395-2 (408-8040)</td>
<td>354500-1 (409-5842)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>466395-5 (408-8040)</td>
<td>565435-5 (409-5128)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1338600- ( ] (409-1016)</td>
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</tr>
</tbody>
</table>

*Figure 9 (cont’d)*
## Wire Size Range, (AWG) vs Insulation Diameter Max.

<table>
<thead>
<tr>
<th>WIRE SIZE RANGE, (AWG)</th>
<th>INSULATION DIAMETER MAX.</th>
<th>HAND TOOL (DOCUMENT)</th>
<th>APPLICATOR (DOCUMENT)</th>
<th>POWER UNIT (DOCUMENT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>32-27</td>
<td>1.02 (.040)</td>
<td>91541-1 (408-8547)</td>
<td>466655-2 (408-8040)**</td>
<td>354500-1 (409-5842)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>565435-5 (409-5128)</td>
<td>1338600-1 (409-10016)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>466921-1 (409-5855)</td>
<td>1320895-1 (409-10012)</td>
</tr>
</tbody>
</table>

**Applicator will require minor modification.**

### Insulation Piercing Crimp Contacts

1.4-1.02 [.055-.040]  
1901829-1 (408-8547)  
567307-1 (408-8040)  
567307-2 (408-8040)**  
354500-1 (409-5842)  
565435-5 (409-5128)  
1338600-1 (409-10016)

---

**Figure 9 (end)**

- **ampomator CLS Lead-Making Machines**: 122500-[-], 217500-[-], 356500-[-], 854400-[-]  
- **AMP-LECTRIC Model "G" Terminating Machine**: 354500-1  
- **AMP-LECTRIC Model "K" Terminating Machine**: 565435-5  
- **AMP-OMATIC Side Feed Stripper-Crimper III Machine**: 1320895-1  
- **Hand Tool (Typ)**  
- **Entry Level Terminator (ELT) Machine**: 1338600-[-]  
- **Optional Stripping Module**: 1490500-[-], 1490501-[-], 1490502-[-], 1490503-[-]  
- **Extraction Tool (Typ)**
6. VISUAL AID

Figure 10 shows a typical application of AMPMODU MOD IV, IV\(1/2\) and V Receptacle Contacts and Housings. This illustration should be used by production personnel to ensure a correctly applied product. Applications which DO NOT appear correct should be inspected using the information in the preceding pages of this specification and in the instructional material shipped with the product or tooling.

**FIGURE 10. VISUAL AID**