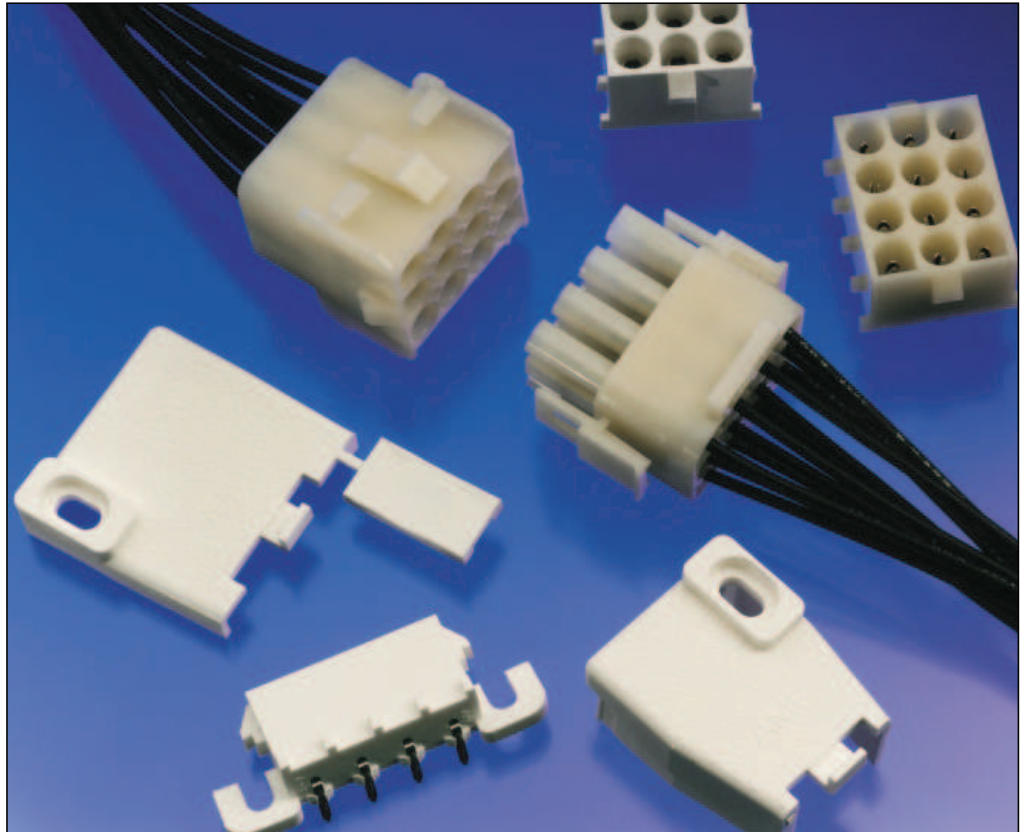


Introduction

Product Facts

- Pins and sockets can be inter-mixed in the same housing
- Positive polarization
- Rear cavity identification
- Contacts completely enclosed in housings
- Positive locking housings
- Insulation capability to 5.1 mm diameter
- Removable, crimp snap-in contacts
- Low contact mating force
- Contacts accept 30–10 AWG 0.5–5.0 mm² wire sizes
- Contacts available with pre-tin or gold plating
- Dual locking lances provide optimum contact stability
- Panel mount or free hanging
- Mate with Universal MATE-N-LOK II Housings
- Available in UL 94 V-0 and V-2 flame retardant material. Meets the material requirements of table 25.1 of UL Standard 1410 (television receivers and video products)
- Not for interrupting current
- Harness to PC Board capability using pin or socket headers
- Pin and socket headers are available in both vertical and right-angle style
- Solderability: Headers meet MIL-STD 202 Method 208
- Contacts are on 6.35 mm centerline spacing
- Recognized under the Component Program of Underwriters Laboratories, Inc., File No. E28476
- Certified by Canadian Standards Association, File No. LR 7189
- Passed test by VDE under their Registration Number 3980/ Continuous Surveillance



Technical Features

Available Number of Positions	1–15
Centerline Spacing	6.35 mm
Housing Material	Polyamide
Flammability Rating	acc. UL 94 V-0 and V-2
Contact Material	Phosphor Bronze, Brass
Contact Finish	Tin or Duplex Gold Plated
Wire Size Range	0.05–5.0 mm ² ; 30–10 AWG
Insulation Range	up to 5.1 mm Diameter
Temperature Range	–55 °C up to +125 °C
Voltage Rating	600 V AC or DC
Current Rating	up to 19 A
Termination Resistance	max. 3.5 mΩ
Connector Mating per Circuit	max. 6.67 N (Split Pin)
Approvals	VDE, UL, CSA
Product Specifications	Connectors: 108-1031 PC Board Headers: 108-1053
Application Specification	114-18011
Instruction Sheet	408-7714 Housings, Contacts and Accessories

Technical Features

Technical Documents

Product Specifications:
108-1031 for Connectors
108-1053 for PC Board Headers

Application Specification:
114-18011 for Contacts

Instruction Sheet:
408-7714 Plug, Cap, Headers,
Pin, Socket and
Accessories

Performance Characteristics

The Universal MATE-N-LOK Connector performance characteristics found on page 12-3 are based on free hanging and panel mount connectors, loaded with contacts crimped on stranded wire.

Dielectric Withstanding Voltage:
5.0 kV AC or 10.0 kV DC between adjacent circuits (initially)

Insulation Resistance:
1000 megohms minimum between adjacent circuits

Voltage Ratings:
600 V AC or DC (UL)
400 V AC or DC (VDE)

Connector Mating:
– Solid Pin:
6.7 N max. per circuit
– Split Pin:
13.4 N max. per circuit

Connector Unmating:
– Solid Pin:
2.25 N min. per circuit
– Split Pin:
3.1 N min. per circuit

Contact Insertion Force:
22.2 N max. per contact

Contact Retention:
66.7 N min. per contact

Durability:
50 cycles, mating and unmating

Maximum Current
The maximum current rating of Universal MATE-N-LOK connectors is limited by the maximum operating temperature of the housings which is +125 °C for UL 94 V-2 housings and +125 °C for UL 94 V-0 housings including the temperature rise of the contacts which is a maximum of 30 °C. There are several variables which have a direct effect on this max. current-carrying capability for a given connector and must be considered for each application.

These variables are:

Wire Size
Larger diameter wire will carry more current since it has less internal resistance to current flow and thus generates less heat. Longer wire lengths also enhance current carrying capabilities since the wire conducts heat away from the connector.

Connector Size
In general, the more circuits in a connector, the less current can be carried.

Ambient Temperature
The higher the ambient temperature, the less current can be carried in any given connector.

Printed Wiring Board Conductor Size
The finished trace conductor width and thickness should be maximized to allow for the greatest current carrying capacity and heat dissipation.

The Universal MATE-N-LOK connectors also will withstand the following tests:

Vibration:
10-55-10 cycles per minute at 1.5 mm total excursion

Physical Shock:
18 drops, 50 g sawtooth at 10 milliseconds

Housing Panel Retention:
334 N min.

Housing Lock Strength:
133.5 N min.

Temperature Range:
–55 °C to +125 °C

Thermal Shock:
–55 °C to +85 °C

Temperature-Humidity Cycling:
+25 °C to +65 °C at 95 %
Relative Humidity

Corrosion:
48 hours at 5% salt concentration

Minimum Wire Lengths for Temperature Rise vs. Current Testing

Wire Size		Wire Length
(AWG)	(mm ²)	(mm)
30	0.05	66
28	0.13	82
26	0.15	104
24	0.24	130
20	0.50	198
18	0.80	239
16	1.30	287
14	2.00	348
12	3.00	417
10	5.00	490

Note:
If wire lengths used are less than those listed above, the current carrying ability of the system will be reduced due to less heat being conducted away from the connector. The customer should fully test all applications.

Technical Features (continued)

Current Rating Verification for 30 °C max. Temperature Rise, 100 % Energized

Wire-to-Wire

Values are based on initial Temperature Rise versus Current Testing and are intended to be a guide in the selection of a connector family.

All applications should be tested by the end user. The values listed are per circuit for fully loaded housings being 100% energized.

Universal MATE-N-LOK Calculated Current Table (A)

No. of Cir- cuits	Wire Size										
	AWG (mm ²)	10 5.0	12 3.0	14 2.0	16 1.3	18 0.8	20 0.5	22 0.38	24 0.24	26 0.15	30 0.05
2		19.0	18.0	17.0	14.5	13.0	10.0	8.0	6.5	5.5	3.5
3		17.5	16.5	15.5	13.0	12.0	9.0	7.5	6.0	5.0	3.0
4		16.5	15.5	15.0	12.5	11.0	8.5	7.0	5.5	4.5	3.0
5		16.0	15.0	14.0	12.0	10.5	8.0	6.5	5.5	4.5	3.0
6	In-Line	15.5	14.5	13.5	11.5	10.0	8.0	6.5	5.0	4.0	2.5
6	Matrix	15.0	14.0	13.0	11.0	9.5	7.5	6.0	5.0	4.0	2.5
8		14.5	14.0	13.0	10.5	9.5	7.5	6.0	5.0	4.0	2.5
9		13.5	12.5	11.5	9.5	8.5	6.5	5.5	4.5	3.5	2.0
10		14.0	13.0	12.5	10.0	9.0	7.0	5.5	4.5	3.5	2.5
12		12.5	12.0	11.0	9.0	8.0	6.0	5.0	4.0	3.0	2.0
15		12.0	11.5	10.0	8.5	7.5	6.0	4.5	4.0	3.0	2.0

Note: All combinations were not tested, and this chart contains interpolated and extrapolated values.

Wire-to-Board

Due to the vast differences in trace geometry and printed circuit board configurations, we are unable to provide a separate current carrying chart for our printed circuit board header products.

However, the above Wire-to-Wire charts may be used as a guideline for headers if the trace width and thickness is equal to the listed wire gauge.

For vertical headers, only 75 % of the Wire-to-Wire value should be used.

The chart values are only a tool for connector selection and will require the customer to fully test their application.

**Termination Resistance/
Contact Crimp Tensile Force**

Wire Size		Termination Resistance		Contact Crimp Tensile Force (N)
(AWG)	(mm ²)	Test Current (A)	Resistance* (mΩ)	
30	0.05	–	–	9
28	0.08	–	–	13
26	0.12	–	–	27
24	0.20	1.5	3.50	36
22	0.30	3.0	3.50	62
20	0.50	4.5	3.00	62
18	0.80	6.0	3.00	133
16	1.20	8.0	2.75	200
14	2.00	10.0	2.75	222
12	3.00	–	–	267
10	5.00	–	–	311

***) Note:** This is the total resistance between wire crimps of a mated pin and socket.

Connector Mating Combinations

Connector Part Number				Mating Connector Part Numbers									
				PC Board Headers ¹⁾									
No. of Circuits	Flammability Rating	Style	Plug ¹⁾	Cap ¹⁾	Plating	Vertical Pin			Vertical Socket			Right-Angle	
						Standard Tail	Standard Tail Polarized	Long Tail	Standard Tail	Standard Tail Polarized	Long Tail	Pin	Socket
1	UL 94 V-2	-	1-350867-0	770421-1	-	-	-	-	-	-	-	-	-
			926471-1	926472-1									
1	UL 94 V-0	-	350865-1	350866-1	-	-	-	-	-	-	-	-	-
			926471-3	926472-3									
2	UL 94 V-2	In-Line	1-480698-0	1-480699-0	pre-tinned	826839-1	641963-1	350582-1	826846-1	643411-1	350986-4	-	-
					Duplex ²⁾	2-826839-1	641963-4	350582-4	2-826846-1	-	-	-	-
					pre-tinned	826839-3	641964-1 1-641964-1 ³⁾	350787-1	826846-3	643412-1	350831-1	1-350942-0	643226-1
					Duplex ²⁾	2-826839-3	641964-3	350787-3	2-826846-3	-	-	3-350942-0	-
3	UL 94 V-2	In-Line	1-480700-0	1-480701-0	pre-tinned	826840-1	641965-1	350583-1	826847-1	643413-1	350987-4	-	-
					Duplex ²⁾	2-826840-1	-	350583-4	2-826847-1	-	-	-	-
					pre-tinned	826840-3	641966-1 1-641966-1 ³⁾	350790-1	826847-3	643414-1	350832-1	1-350943-0	643228-1
					Duplex ²⁾	2-826840-3	-	350790-3	2-826847-3	643414-3	350832-4	3-350943-0	-
4	UL 94 V-2	In-Line	1-480702-0	1-480703-0	pre-tinned	826841-1	641967-1	350584-1	826848-1	643415-1	350988-4	1-350948-0	-
					Duplex ²⁾	2-826841-1	-	350584-4	2-826848-1	-	350988-5	-	-
					pre-tinned	826841-3	641968-1	350793-1	826848-3	643416-1	350833-1	1-350944-0	643230-1
					Duplex ²⁾	2-826841-3	-	350793-3	2-826848-3	-	350833-4	3-350944-0	3-643230-0
5	UL 94 V-2	In-Line	1-480763-0	1-480764-0	pre-tinned	826842-1	643405-1	-	826849-1	-	-	1-350949-0	-
					Duplex ²⁾	2-826842-1	-	-	2-826849-1	-	-	-	-
					pre-tinned	826842-3	643406-1	-	826849-3	-	-	1-350945-0	643232-1
					Duplex ²⁾	2-826842-3	-	-	2-826849-3	-	-	3-350945-0	3-643232-0
6	UL 94 V-2	In-Line	640585-1	926307-1	pre-tinned	826843-1	643407-1	-	826850-1	-	-	640587-1	-
					Duplex ²⁾	-	-	-	2-826850-1	-	-	-	-
					pre-tinned	826843-3	643408-1	-	826850-3	-	-	640583-1	643234-1
					Duplex ²⁾	-	-	-	2-826850-3	-	-	640583-3	3-643234-0
6	UL 94 V-2	Matrix	1-480704-0	1-480705-0	pre-tinned	829178-1	641969-1	350585-1	350762-4	643423-1	350989-4	-	-
					Duplex ²⁾	2-829178-1	-	350585-2	350762-5	-	350989-5	-	-
					pre-tinned	829178-3	641970-1	350732-1	829182-3	643424-1	350834-1	-	-
					Duplex ²⁾	2-829178-3	641970-3	350732-4	2-829182-3	643424-3	350834-4	-	-

For Higher Housing Positions and Notes:
See Page 12-5.

Connector Mating Combinations (continued)

Connector Part Number				Mating Connector Part Numbers									
				PC Board Headers ¹⁾									
No. of Circuits	Flammability Rating	Style	Plug ¹⁾	Cap ¹⁾	Plating	Vertical Pin			Vertical Socket			Right-Angle	
						Standard Tail	Standard Tail Polarized	Long Tail	Standard Tail	Standard Tail Polarized	Long Tail	Pin	Socket
8	UL 94 V-2	In-Line	640586-1	926308-1	pre-tinned	826844-1	-	770143-1	-	-	-	-	-
			926301-1 ⁵⁾		Duplex ²⁾	-	-	-	-	-	-		
	UL 94 V-0	In-Line	640582-1	926308-3	pre-tinned	826844-3	643410-1	-	826851-3	-	-	640584-1	643326-1
			926301-3 ⁵⁾		Duplex ²⁾	-	-	-	2-826851-3	-	-	640584-3	643326-2
9	UL 94 V-2	Matrix	1-480706-0	1-480707-0	pre-tinned	829179-1	641971-1	350586-1	350763-4	643425-1	350990-4	-	-
			1241811-1 ⁵⁾	927231-1	Duplex ²⁾	2-829179-1	641971-3	350586-4	350763-5	-	350990-5	-	-
	UL 94 V-0	Matrix	350720-1	350782-1	pre-tinned	829179-3	$\frac{641972-1}{1-641972-1^{3)}$	350742-1	829183-3	643426-1	350835-1	-	-
			350720-4 ⁵⁾	927231-3	Duplex ²⁾	2-829179-3	641972-3	350742-4	2-829183-3	643426-3	350835-4	-	-
10	UL 94 V-2	In-Line	926302-1 ⁵⁾	926309-1	pre-tinned	-	-	-	-	-	-	-	-
			926681-1	926681-1	Duplex ²⁾	-	-	-	-	-	-	-	-
	UL 94 V-0	In-Line	926302-3 ⁵⁾	926309-3	pre-tinned	-	-	-	-	-	-	-	-
			926681-3	926681-3	Duplex ²⁾	-	-	-	-	-	-	-	-
12	UL 94 V-2	Matrix	1-480708-0	1-480709-0	pre-tinned	829180-1	641973-1	350587-1	350764-4	-	350991-4	-	-
			1241812-1 ⁵⁾		Duplex ²⁾	2-829180-1	-	350587-4	350764-5	-	350991-5	-	-
	UL 94 V-0	Matrix	350735-1	350783-1	pre-tinned	829180-3	$\frac{641974-1}{1-641974-1^{3)}$	350737-1	350829-1	643428-1	350836-1	-	-
			350735-4 ⁵⁾	926647-1	Duplex ²⁾	2-829180-3	641974-3	350737-4	350829-4	-	350836-2	-	-
15	UL 94 V-2	Matrix	1-480710-0	1-480711-0	pre-tinned	829181-1	641975-1	350588-1	350765-4	643429-1	350992-4	-	-
			1241813-1 ⁵⁾		926647-3	Duplex ²⁾	2-829181-1	-	350588-4	350765-5	-	-	-
	UL 94 V-0	Matrix	350736-1	350784-1	pre-tinned	829181-3	641976-1	350738-1	350830-1	643430-1	350837-1	-	-
			350736-4 ⁵⁾		Duplex ²⁾	2-829181-3	-	350738-4	350830-4	-	350837-2	-	-

- ¹⁾ Universal MATE-N-LOK Plug and Cap housings accept pin or socket contacts. Use the appropriate contacts in the Plug housing as required by the mating component, shown on page 12-6 and 12-7.
- ²⁾ Duplex Finish: Plated with 0.76 µm min. gold in mating area, matte tin-lead on solder tail end over 1.27 µm min. nickel underplate on entire contact.
- ³⁾ Black in color.
- ⁴⁾ Tool Removable.
- ⁵⁾ Latches for visual locking check.

Note:
Standard Tail for use with PC Board thickness 1.57 mm.

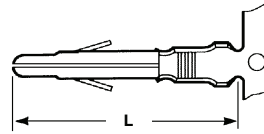
Pin Contacts

Pin:
2.13 mm diameter in mating area

Split Pin:
2.18 mm diameter in mating area

Housings: Page 12-10

These contacts can be used in either Universal MATE-N-LOK Plug or Cap housings only.



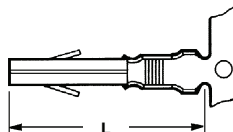
Wire Size Range (mm ²)	Insulation Diameter Range (mm)	Dimension L (mm) Pin	Material and Finish	Part Numbers		Part Number
				Loose-Piece	Package Quantity	Hand Tool
0.05-0.12	0.8-1.5	20.1	Brass, pre-tinned	770672-1	1,000	58439-1
			Phosphor Bronze, Gold ²⁾	770672-6	1,000	
0.2-0.8	1.0-2.5	20.1	Brass, pre-tinned	926896-1	1,000	539746-2 ⁵⁾
			Brass, Gold ²⁾	926896-2	1,000	
			Brass, Select Gold ³⁾	926896-7	1,000	
			Phosphor Bronze, pre-tinned	926896-3	1,000	
			Phos. Bronze, Select Gold ³⁾	926896-6	1,000	
0.2-0.8	1.0-2.5 (Split Pin) *	20.1	Brass, pre-tinned	926897-1	1,000	539746-2 ⁵⁾
			Phosphor Bronze, pre-tinned	926897-3	1,000	
			Brass, Select Gold ³⁾	926897-6	1,000	
			Phos. Bronze, Select Gold ³⁾	926897-7	1,000	
0.5-2.1	1.5-3.3	20.1	Brass, pre-tinned	926894-1	1,000	539746-2 ⁵⁾ 539652-2 ⁵⁾
			Brass, Gold ²⁾	926894-2	1,000	
			Brass, Select Gold ³⁾	926894-7	1,000	
			Phosphor Bronze, pre-tinned	926894-3	1,000	
			Phos. Bronze, Select Gold ³⁾	926894-6	1,000	
0.5-2.1	1.5-3.3 (Split Pin) *	20.1	Brass, pre-tinned	926898-1	1,000	539746-2 ⁵⁾ 539652-2 ⁵⁾
			Brass, Gold ²⁾	926898-2	1,000	
			Phosphor Bronze, pre-tinned	926898-3	1,000	
			Phos. Bronze, Select Gold ³⁾	926898-6	1,000	
			Brass, Select Gold ³⁾	926898-7	1,000	
0.5-2.1	3.3-5.1	20.1	Brass, pre-tinned	350552-1	1,000	90298-2 ⁶⁾ 90299-2 ⁶⁾
			Brass, Gold ²⁾	350552-2	1,000	
			Brass, Select Gold ³⁾	350552-7	1,000	
			Phosphor Bronze, pre-tinned	350552-3	1,000	
			Phos. Bronze, Select Gold ³⁾	350552-6	1,000	
0.5-2.1	3.3-5.1 (Split Pin) *	20.1	Brass, pre-tinned	350707-1	1,000	90298-2 ⁶⁾ 90299-2 ⁶⁾
			Brass, Gold ²⁾	350707-2	1,000	
			Brass, Select Gold ³⁾	350707-7	1,000	
0.8-2.1 ⁴⁾	3.3-5.1	20.1	Brass, pre-tinned	-	1,000	90298-2 ⁶⁾ 90299-2 ⁶⁾
			Phosphor Bronze, pre-tinned	350918-3	1,000	
1.5-2.5	3.3-5.1	20.6	Brass, pre-tinned	926900-1	1,000	539747-2 ⁵⁾
			Phosphor Bronze, pre-tinned	926900-3	1,000	
			Phosphor Bronze, Gold ²⁾	926900-6	1,000	
			Brass, Gold ²⁾	926900-7	1,000	
1.5-2.5	max. 5.1 (Split Pin) *	20.6	Brass, pre-tinned	926902-1	1,000	539747-2 ⁵⁾
			Phosphor Bronze, pre-tinned	926902-3	1,000	
			Brass, Select Gold ³⁾	926902-7	1,000	
3.0-5.0	max. 5.1 ¹⁾	20.1	Phosphor Bronze, pre-tinned	640309-3	1,000	69710-1 ⁶⁾
			Brass, Select Gold ³⁾	640309-6	1,000	
			Phosphor Bronze, Gold ²⁾	-	-	

***) Split Pins** for use with housings >6 positions to reduce engaging force.
Plain Versions upon request.

Socket Contacts

These contacts can be used in either Universal MATE-N-LOK Plug or Cap housings only.

Housings: Page 12-10



Wire Size Range (mm ²)	Insulation Diameter Range (mm)	Dimension L (mm) Socket	Material and Finish	Part Numbers		Part Number
				Loose-Piece	Package Quantity	Hand Tool
0.05-0.12	0.8-1.5	19.3	Brass, pre-tinned	770673-1	1.000	58439-1
			Phosphor Bronze, Gold ²⁾	-	-	
0.2-0.8	1.0-2.5	19.3	Brass, pre-tinned	926895-1	1.000	539746-2 ⁵⁾
			Brass, Select Gold ³⁾	926895-7	1.000	
			Phosphor Bronze, pre-tinned	926895-3	1.000	
			Phos. Bronze, Select Gold ³⁾	926895-6	1.000	
0.5-2.1	1.5-3.3	19.3	Brass, pre-tinned	926893-1	1.000	539746-2 ⁵⁾ 539652-2 ⁵⁾
			Brass, Gold ²⁾	926893-2	1.000	
			Brass, Select Gold ³⁾	926893-7	1.000	
			Phosphor Bronze, pre-tinned	926893-3	1.000	
0.5-2.1	3.3-5.1	19.8	Phos. Bronze, Select Gold ³⁾	926893-6	1.000	90298-2 ⁶⁾ 90299-2 ⁶⁾
			Brass, pre-tinned	350551-1	1.000	
			Brass, Gold ²⁾	350551-2	1.000	
			Brass, Select Gold ³⁾	350551-7	1.000	
0.8-2.1 ⁴⁾	3.3-5.1	19.8	Phosphor Bronze, pre-tinned	350551-3	1.000	90298-2 ⁶⁾ 90299-2 ⁶⁾
			Phos. Bronze, Select Gold ³⁾	-	-	
1.5-2.5	3.3-5.1	19.8	Brass, pre-tinned	-	-	539747-2 ⁵⁾
			Phosphor Bronze, pre-tinned	350919-3	1.000	
			Phosphor Bronze, Gold ²⁾	926901-1	1.000	
			Brass, Gold ²⁾	926901-3	1.000	
3.0-5.0	max. 5.1 ¹⁾	19.8	Phosphor Bronze, Gold ²⁾	926901-6	1.000	69710-1 ⁶⁾
			Brass, Gold ²⁾	926901-7	1.000	
			Phosphor Bronze, pre-tinned	640310-3	1.000	
			Brass, Select Gold ³⁾	640310-6	1.000	
			Phosphor Bronze, Gold ²⁾	-	-	

Plain Versions upon request.

Notes:

- ¹⁾ There is no insulation barrel on this contact. Insulation maximum diameter is limited by the housing cavity diameter.
- ²⁾ 0.76 µm Gold finish in mating area and inside wire barrel over 1.27 µm nickel underplate on entire contact.
- ³⁾ 0.76 µm Gold finish in mating area, 1.27 µm tin plating inside wire barrel over 1.27 µm nickel underplate on entire contact.
- ⁴⁾ Recommended for predominant use of 2.0 mm² wire size
- ⁵⁾ Die Set for **ERGOGRIMP Basic Hand Tool**, Part No. **539635-1**
Adapter for ERGOGRIMP Die Sets: Part No. **1285003-1** for pneumatic tool 626 system
- ⁶⁾ Hand Tool, Part No. **90298-2** for wire size 0.5-0.8 mm²
Hand Tool, Part No. **90299-2** for wire size 1.3-2.1 mm²
Hand Tool, Part No. **69710-1** with Die Set **58380-1** for wire size 3.0 mm²
Hand Tool, Part No. **69710-1** with Die Set **58380-2** for wire size 5.0 mm²

Electric Crimp Unit: Part No. **539630-1**

Pneumatic Tool: Part No. **189722-1**

Die Set for 0.2-0.8 mm²: Part No. **656130-1**

Die Set for 0.5-2.1 mm²: Part No. **656131-1**

Tool Holder: Part No. **189767-1**

Contact Insertion Tool for wire sizes, ≥ 0.5 mm², Part No. **455830-1**

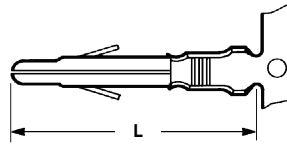
Note: Use Phosphor Bronze contacts for use with higher temperature and changing from moist to dry condition.

Accessories

Grounding Pin
(Mate first, Break last,
not for interrupting current)

2.54 mm longer than
standard pin.

These contacts can be used in
either Universal MATE-N-LOK
Plug or Cap housings only.



Wire Size Range		Insulation Diameter Range (mm)	Dimension L (mm)	Material and Finish	Contact Part Numbers		Part Number
(mm ²)	(AWG)				Loose-Piece	Package Quantity	Hand Tool
0.2-0.8	24-18	1.5-3.3	22.6	Brass, pre-tin plated	-	-	-
0.5-2.1	20-14	1.5-3.3	22.6	Brass, pre-tin plated	350669-1	5,000	539746-2**
3.0-5.0	12-10	5.1 max.*	23.1	Phosphor Bronze, pre-tin plated	-	-	-

* There is no insulation barrel on this contact. Insulation maximum diameter is limited by the housing cavity.
** Die Set for ERGOCRIMP Basic Hand Tool, Part No. **539635-1**.

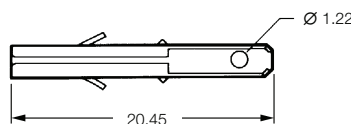
Programmable Connector Contact

Socket with 2.8 mm Series
Special FASTON Tab
(i.e. Part No. **350871-1**)

Material and Finish:
Brass, pre-tin plated

Part No. **350877-1**

Package Quantity: 1,000



Contact Extraction Tool

Part No. **9-1579007-5**

Spare Tube:
Part No. **9-1579007-7**



Contact Insertion Tool

Part No. **91002-1**

Instruction Sheet:
408-7347



Housings

Housings, Free Hanging or Panel Mount, 6.35 mm Centerline

Part Numbers:
See Table on Page 12-10

Related Product Data

Product Specification:
108-1031 for Connectors

Performance Characteristics:
Page 12-3

Contacts:
Page 12-6 thru 12-8

Panel Cutout Recommendations:
Page 12-11

Keying Plug:
Page 12-12

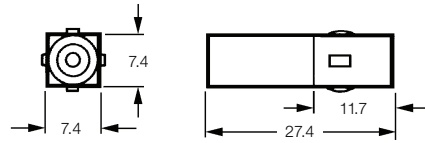
Strain Reliefs:
Page 12-12 and 12-13

Technical Documents:
Page 12-2

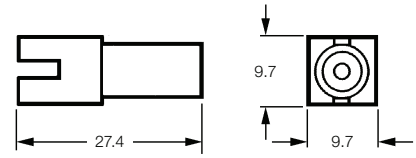
Mating Headers:
Page 12-4 and 12-5

1 Circuit, Free-Hanging

Plug

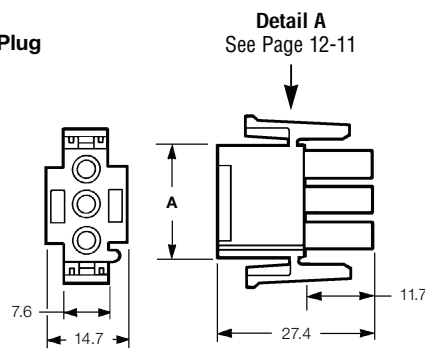


Cap

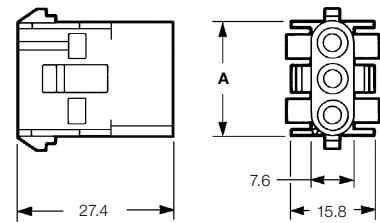


2, 3, 4, 5, 6, 8 and 10 Circuit, In-Line

Plug

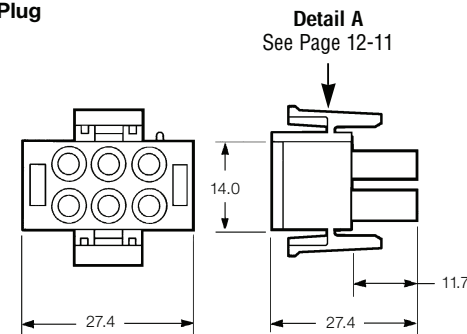


Cap

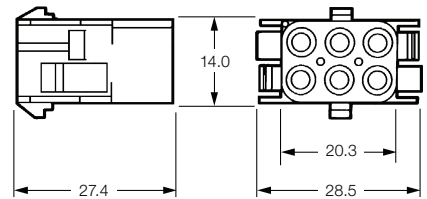


6 Circuit, Matrix

Plug

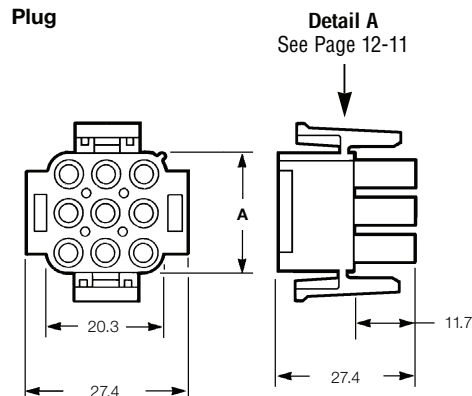


Cap

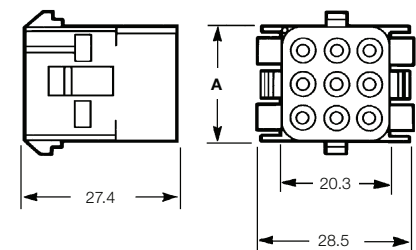


9, 12 and 15 Circuit, Matrix

Plug

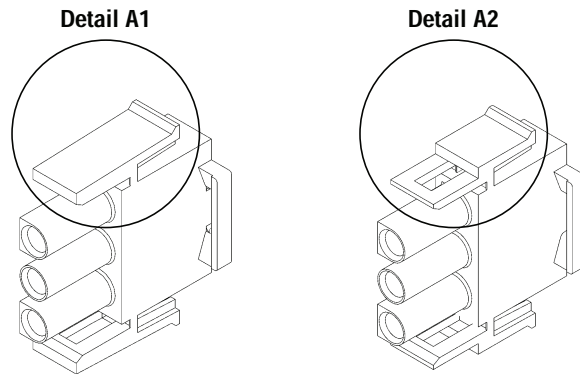


Cap



Housings (continued)

9, 12 and 15 Circuit, Matrix (continued)



Detail A1

Solid locking latches, flat outer surface (Robust design)

Detail A2

Latches with stepped outer surface and "Window" feature for locking inspection

Parts with "Window" latches are marked in the table with *.

No. of Circuits	Dimension A (mm)	Housing Part Numbers					
		Polyamide acc. UL 94 V-2, Natural Color ²⁾			Polyamide acc. UL 94 V-0 ²⁾		
		Plug	Cap	Package Quantity	Plug	Cap	Package Quantity
1	–	1-350867-0	770421-1	7,000	350865-1	350866-1	4,000
2	14.0	1-480698-0 ¹⁾	1-480699-0 ¹⁾	4,000	350777-1 ¹⁾ 350777-4 ¹⁾ *	350778-1 ¹⁾	2,000
3	20.3	1-480700-0 ¹⁾ 1241809-1 *	1-480701-0 ¹⁾	3,000	350766-1 ¹⁾ 350766-4 ¹⁾ *	350767-1 ¹⁾ 926683-3	2,500
4	26.7	1-480702-0 ¹⁾ 926298-1	1-480703-0 ¹⁾ 926306-1	1,500	350779-1 ¹⁾ 350779-4 ¹⁾ *	350780-1 ¹⁾ 926305-3	2,000
5	33.0	1-480763-0 ¹⁾ 926299-1 ¹⁾ *	1-480764-0 ¹⁾	1,500	350809-1 ¹⁾ 926299-3 ¹⁾ ³⁾ *	350810-1 ¹⁾ 926306-3	1,500
6	–	926300-1 ¹⁾ *	926307-1 ¹⁾	1,200	640581-1 ¹⁾ 926300-3 ¹⁾ ³⁾ *	926307-3 ¹⁾	1,200
		1241810-1 *	1-480705-0	1,200	350715-1	350781-1	2,000
		1-480704-0 ¹⁾ 794096-1 ⁴⁾	926682-1		350715-4 *	926682-3	
8	52.1	640586-1 ¹⁾ 926301-1 ¹⁾ *	926308-1 ¹⁾	900	640582-1 ¹⁾ 926301-3 ¹⁾ ³⁾ *	926308-3 ¹⁾	900
9	20.3	1-480706-0 1241811-1 *	1-480707-0	1,200	350720-1 350720-4 *	350782-1 927231-3	1,200
10	64.8	926302-1 ¹⁾ ³⁾ *	926309-1 ¹⁾	500	926302-3 ¹⁾ ³⁾ *	926309-3 ¹⁾	700
12	26.7	1-480708-0 1241812-1 *	1-480709-0	900	350735-1 350735-4 *	926681-3	900
15	33.0	1-480710-0 1241813-1 *	1-480711-0	850	350736-1 350736-4 *	926647-3	700

¹⁾ In-Line style.

²⁾ Housing material has +125 °C temperature rating.

³⁾ Without flanges for strain reliefs.

⁴⁾ Tool-Removable.

Recommend Panel Cutout

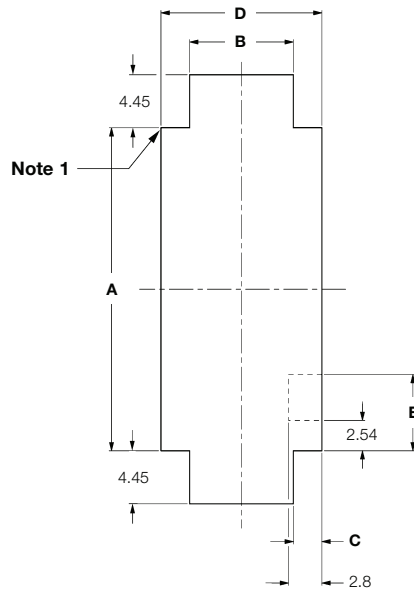
Cap Housing

View is from Cap Entry Side

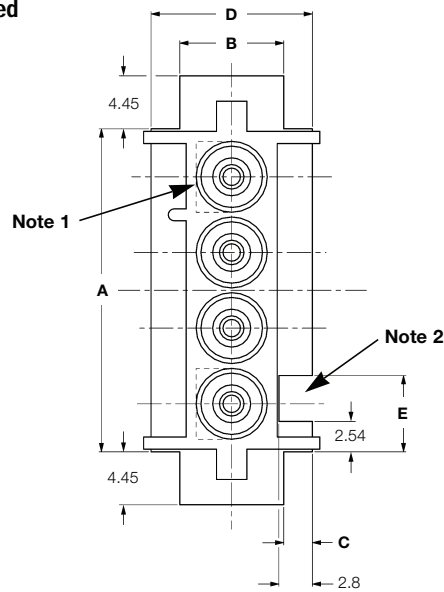
Please refer to
Application Specification:
114-18011

Note 1:
Circuit Number 1 location when
using panel keying with 2, 3, 4,
5, 6, 8 and 10 circuit In-Line
housings.

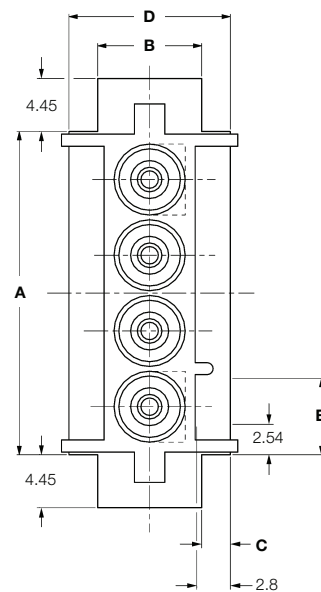
Note 2:
Optional:
Do not remove this material
"E" when keying cap housing to
panel.



Coded



Uncoded



Remarks:

1. Recommended panel thickness 0.8 mm up to 2.3 mm. Panel must be punched so that housing enters panel in same direction as the punch.
2. 4.45 mm dimension is 3.18 mm for 6, 8 and 10 circuit In-Line housings.

Style	No. of Circuits	Dimensions (mm)				
		A	B	C	D	E
In-Line	2	14.4	8.7	2.4	13.5	6.4
	3	20.7	8.7	2.4	13.5	6.4
	4	27.1	8.7	2.4	13.5	6.4
	5	33.4	8.7	2.4	13.5	6.4
	6	39.8	3.9	4.8	13.5	10.0
	8	52.5	3.9	4.8	13.5	10.0
	10	65.2	3.9	4.8	13.5	10.0
Matrix	6	14.4	12.2	7.0	26.2	6.4
	9	20.7	12.2	7.0	26.2	6.4
	12	27.1	12.2	7.0	26.2	8.9
	15	33.4	12.2	7.0	26.2	8.9

Strain Reliefs

Keying Plug

Instruction Sheet:
408-3320

Part No. **1-640415-1**

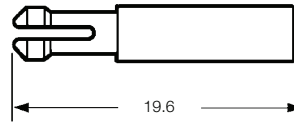
Package Quantity: 500

Material: Polyamide, UL 94 V-2

Part No. **1-640415-0**

Package Quantity: 500

Material: Polyamide, UL 94 V-0



Note: The keying plug locks into plug and cap housing cavities.

Plug Housing Strain Reliefs

Instruction Sheet:
408-3320

Related Product Data

Plug Housings:
Page 12-10

Technical Documents:
Page 12-2

Part No. **1-350589-0**

Package Quantity: 500

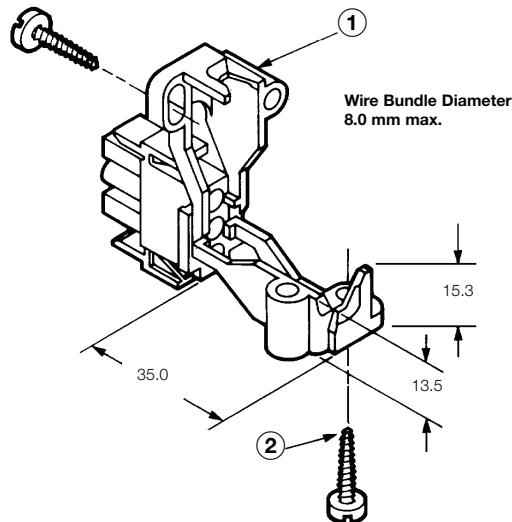
Material: Polyamide, UL 94 V-2

Part No. **350811-1**

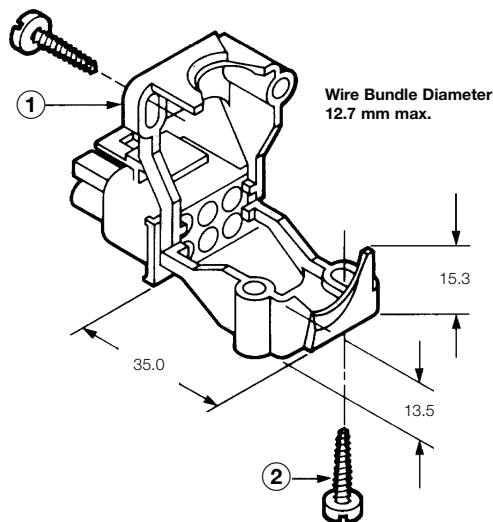
Package Quantity: 500

Material: Polyamide, UL 94 V-0

2, 3, 4, 5, 6 and 8 Circuit, In-Line



6, 9, 12 and 15 Circuit, In-Line



Part No. **1-350590-0**

Package Quantity: 500

Material: Polyamide, UL 94 V-2

Part No. **350812-1**

Package Quantity: 500

Material: Polyamide, UL 94 V-0

- ① Strain relief part number represents one half of a strain relief. Two strain reliefs required per housing.
- ② Two pan head sheet metal screws acc. DIN 7971 (not supplied!) 3.5 mm diameter x 16.0 mm.

Strain Reliefs (continued)

Plug or Cap Housing Strain Reliefs

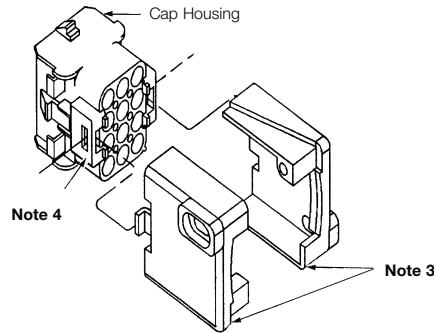
2, 3, 4, 5, 6, 8, 9, 12 and 15 Circuits
(Enclosed)

Instruction Sheet:
408-3320

Related Product Data

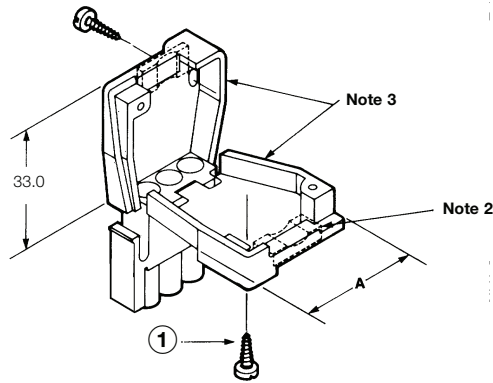
Housings:
Page 12-10

Technical Documents:
Page 12-2

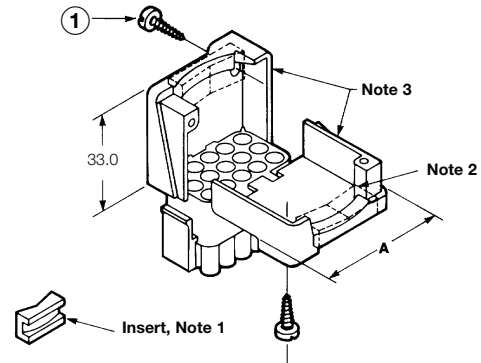


- ① Two pan head sheet metal screws according DIN 7971 3.5 x 9.5 mm (not supplied!)

In-Line



Matrix



Style	No. of Circuits	Dimension A (mm)	Insert Supplied	Single Wire Diameter Range (mm)	Wire Bundle Diameter Range (mm)	Part Numbers		Package Quantity
						Polyamide UL 94 V-2	Polyamide UL 94 V-0	
						Natural	White	
In-Line	2	24.4	Yes	1.0-4.9	-	1-640719-0	640713-1	100
			No	-	5.1-8.9	1-640719-1	640713-2	100
	3	29.0	Yes	1.0-4.9	-	1-640720-0	640714-1	100
			No	-	5.1-8.9	641763-1	641945-1	100
	4	33.7	Yes	1.0-4.9	-	641775-1	641776-1	100
			No	-	5.1-8.9	641775-2	641776-2	100
	5	38.9	Yes	1.0-4.9	-	643030-3	643030-1	100
			No	-	5.1-8.9	643030-2	643030-4	100
	6 Note 5	45.2	Yes	1.0-4.9	-	643585-1	643313-1	200
			No	-	5.1-8.9	643585-2	643313-2	200
8 Note 5	56.1	Yes	1.0-4.9	-	-	643314-1	200	
		No	-	5.1-8.9	-	643314-2	200	
Matrix	6	26.2	Yes	-	3.0-16.5	1-640721-0	640715-1	100
	9	26.2	Yes	-	3.0-16.5	1-640722-0	640716-1	100
	12	32.5	Yes	-	3.8-19.0	1-640723-0	640717-1	100
	15	38.9	Yes	-	5.1-21.6	1-640724-0	640718-1	100

Notes:

1. Cable clamping insert comes attached to strain relief. It can be used to provide additional adjustment for small wire bundles or discarded.
2. Insert to be positioned as shown by dotted lines.
3. Strain relief part number represents one-half of a strain relief. Two strain reliefs required per housing.
4. Must use cap housing adapters when attaching strain reliefs to a cap housing. Two adapters required per housing (see page 12-14).
5. Strain reliefs for 6 and 8 position In-Line fits plug housings only.

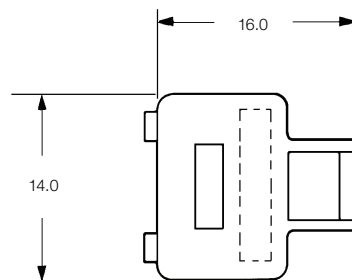
Accessories for Strain Reliefs

Cap Housing Adapters

Instruction Sheet:
408-3320

These adapters are designed to anchor the cap housing strain reliefs to the housings and prevent the strain relief halves from “drawing in” when the screws are being torqued down to clamp the cable.

**For All Positions,
Except 2, 6 and 8 Circuit
Cap Housings**



Part No. **641777-1**

Package Quantity: 500

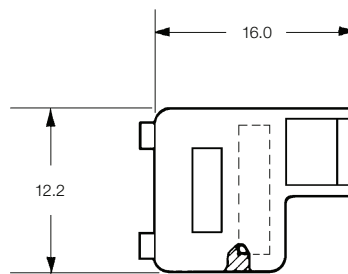
Material:
Polyamide, natural color,
acc. UL 94 V-2

Part No. **641778-1**

Package Quantity: 500

Material:
Polyamide, white,
acc. UL 94 V-0

**For 2 Circuit In-Line
and 6 Circuit Matrix
Cap Housings only**



Part No. **643182-1**

Package Quantity: 500

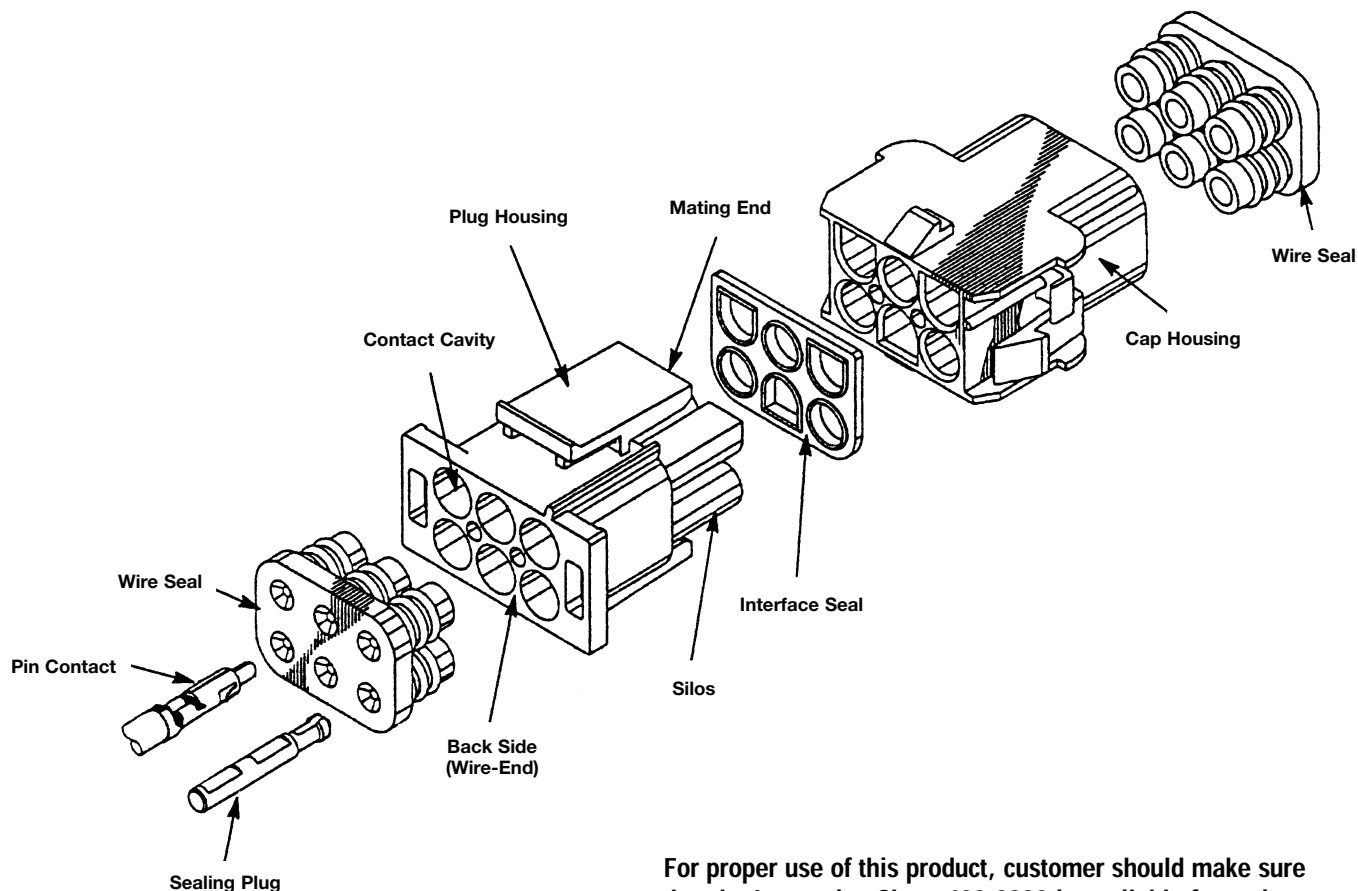
Material:
Polyamide, natural color,
acc. UL 94 V-2

Part No. **643182-2**

Package Quantity: 500

Material:
Polyamide, white,
acc. UL 94 V-0

Sealed Connector System



For proper use of this product, customer should make sure that the Instruction Sheet 408-3392 is available for review.

Product Facts

- Economical splash proof/immersion sealed connector system.
- No design changes to existing Universal MATE-N-LOK product.
- Existing applications utilizing Universal MATE-N-LOK can be upgraded to a splash proof system.
- Utilizes two wire seals and one interface seal.
- Wire size range 0.5–2.1 mm² with insulation diameter range 1.5–3.3 mm.
- 2.8–3.3 mm insulation diameter passed European IP sealing level 57 (swirling dust/immersion to 1 meter for 30 minutes).
- 1.5–2.8 mm insulation diameter passed European IP sealing level #56 (swirling dust/heavy seas).
- Universal MATE-N-LOK II keying plug can be used to seal unused circuits.

Sealing Components

Material:
Silicone rubber, blue color

Technical Documents

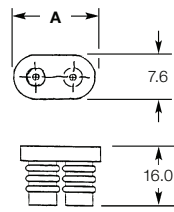
Product Specification:
108-1031-1 Splash Proof Seal, Connectors

Contacts:
Page 12-17 and Page 12-18

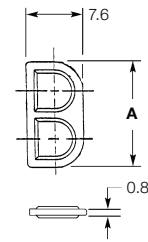
Housings:
Page 12-10

Instruction Sheet:
408-3392 Splash Proof Seals

2, 3, and 4 Circuit, In-Line

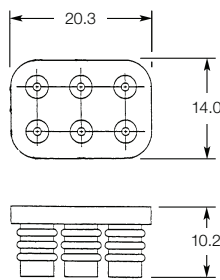


Wire Seal

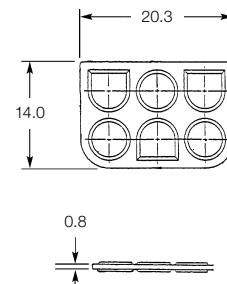


Interface Seal

6 Circuit, Matrix

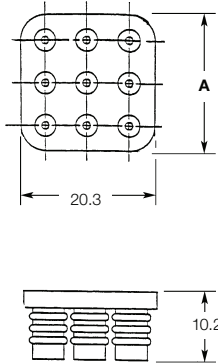


Wire Seal

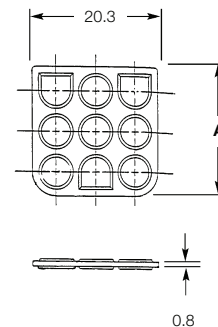


Interface Seal

9, 12, and 15 Circuit, Matrix



Wire Seal



Interface Seal

No. of Circuits	Dimension A (mm)	Part Numbers		Package Quantity
		Interface Seal	Wire Seal	
2	14.0	794269-1	794270-1	500
3	20.3	794271-1	794272-1	500
4	26.7	794273-1	794274-1	500
6	–	794275-1	794276-1	500
9	20.3	794277-1	794278-1	500
12	26.7	794279-1	794280-1	500
15	33.0	794281-1	794282-1	500

Note: One interface seal and two wire seals required per mated assembly.

Splash Proof Seals

Pin Contacts Used with Splash Proof Seals

These contacts can be used in either Plug or Cap housings only.

Solid Pin:
Diameter 2.13 mm

Split Pin:
Diameter 2.18 mm

Related Product Data

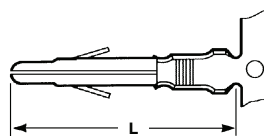
Product Specification:
108-1031 for Connectors

Application Specification:
114-1010 for Contacts

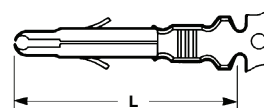
Performance Characteristics:
Page 12-2

Housings:
Page 12-9 and Page 12-10

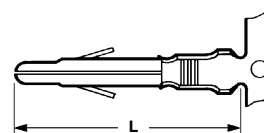
Pin



Split Pin



Grounding Pin



2.54 mm longer than standard pin.
(Mate first, break last, not for interrupting current)

Wire Size Range (mm ²)	Insulation Diameter Range (mm)	Dimension L (mm)	Material and Finish	Contact Part Numbers		Part Number
				Pin		
				Loose Piece	Package Quantity	Hand Tool
0.5–2.1	1.5–3.3	20.1	Brass, pre-tinned ¹⁾	926894-1	500	539746-2 ⁴⁾ 539652-2 ⁴⁾
			Brass, Gold ²⁾	926894-2	500	
			Brass, Selective Gold ³⁾	926894-7	500	
			Phosphor Bronze, pre-tinned ³⁾	926894-3	500	
			Phosphor Bronze, Selective Gold ³⁾	926894-6	500	
0.5–2.1	1.5–3.3 (Split Pin)	20.1	Brass, pre-tinned ¹⁾	926898-1	500	539746-2 ⁴⁾
			Brass, Gold ²⁾	926898-2	500	
			Phosphor Bronze, pre-tinned ¹⁾	926898-3	500	
			Copper Iron, plain	926898-4	500	
			Copper Iron, pre-tinned ¹⁾	926898-5	500	
			Phosphor Bronze, Selective Gold ³⁾	926898-6	500	
0.5–2.1	1.5–3.3 (Grounding Pin)	20.1	Brass, Selective Gold ³⁾	926898-7	500	539746-2 ⁴⁾
			Brass, pre-tinned ¹⁾	350669-1	500	

- ¹⁾ 2–6 μm tin plated.
- ²⁾ 0.8 μm gold over 1.3 μm nickel inside crimp and contact area, entire contact with 1.3 μm nickel plating.
- ³⁾ 2–6 μm gold over nickel in contact area.
- ⁴⁾ Die Set for ERGOCRIMP Basic Hand Tool, Part No. **539635-1**.

Notes:

1. AMP recommends split pins be used in housings having 6, 9, 12 and 15 circuits to reduce mating force.
2. Phosphor bronze material contacts are available for use in high temperature/humidity cycling applications, consult Tyco Electronics.
3. AWG 18–24 (0.2–0.8 mm²) contacts, shown on page 12-4 and 12-5, can be used with splash proof seals if insulation diameter range is 1.5 mm and 2.5 mm.

Splash Proof Seals (continued)

Socket Contacts Used with Splash Proof Seals

These contacts can be used in either Plug or Cap housings only.

Solid Socket

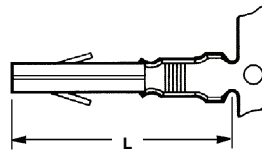
Related Product Data

Product Specification:
108-1031 for Connectors

Application Specification:
114-1010 for Contacts

Performance Characteristics:
Page 12-2

Housings:
Page 12-9 and Page 12-10



Wire Size Range (mm ²)	Insulation Diameter Range (mm)	Dimension L (mm)	Material and Finish	Contact Part Numbers		Part Number
				Socket		
				Loose Piece	Package Quantity	Hand Tool
0.5–2.1	1.5–3.3	19.3	Brass, pre-tinned ¹⁾	926893-1	500	539746-2 ⁴⁾ 539652-2 ⁴⁾
			Brass, Gold ²⁾	926893-2	500	
			Brass, Selective Gold ³⁾	926893-7	500	
			Phosphor Bronze, pre-tinned ³⁾	926893-3	500	
			Phosphor Bronze, Selective Gold ³⁾	926893-6	500	

- ¹⁾ 2–6 µm tin plated.
- ²⁾ 0.8 µm gold over 1.3 µm nickel inside crimp and contact area, entire contact with 1.3 µm nickel plating.
- ³⁾ 2–6 µm gold over nickel in contact area.
- ⁴⁾ Die Set for ERGOCRIMP Basic Hand Tool, Part No. **539635-1**.

Notes:

1. AMP recommends split pins be used in housings having 6, 9, 12 and 15 circuits to reduce mating force.
2. Phosphor bronze material contacts are available for use in high temperature/humidity cycling applications, consult Tyco Electronics.
3. AWG 18–24 (0.2–0.8 mm²) contacts, shown on page 12-4 and 12-5, can be used with splash proof seals if insulation diameter range is 1.5 mm and 2.5 mm.

Accessories

Sealing Plug

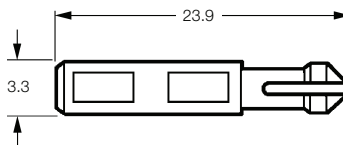
Part No. 770377-1

Package Quantity: 1,000

Instruction Sheet:
408-3392

Material: Polyamide

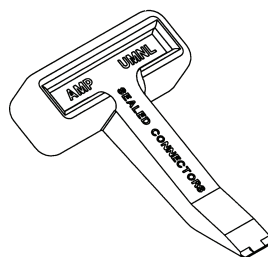
Flammability Rating:
UL 94 V-0



Seal Latch Tool

Part No. 794381-1

Instruction Sheet:
408-3392



Contact Extraction Tool

Part No. 9-1579007-5

Instruction Sheet:
408-4371

Spare Tube:
Part No. 9-1579007-7



Contact Insertion Tool

(For Inserting Contacts
applied to Small Diameter Wire)

Part No. 91002-1

Instruction Sheet:
408-7347



Test Connectors

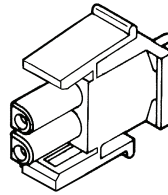
Test Connectors
(with Spring Loaded Contacts)

Housing Material:
Polyamide

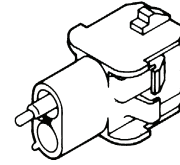
Flammability Rating:
UL 94 V-0

2, 3, 4, and 5 Circuit, In-Line

Plug



Cap



Related Product Data

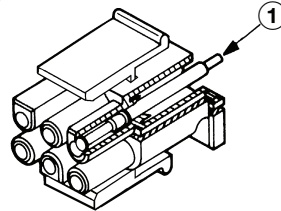
Mating Connectors:
Housings and headers having the same number of circuits. The housings can have pin or socket contacts, or also a combination of both.

Mating Housings:
Page 12-10

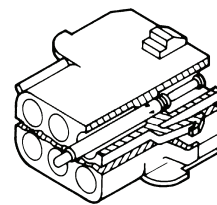
Mating Headers:
Page 12-4 and Page 12-5

6, 9, 12 and 15 Circuit, Matrix

Plug



Cap



① 2.13 mm Diameter Pin Mates with Universal MATE-N-LOK Sockets

Instruction Sheet:
408-7714

No. of Circuits	Kit Part Numbers			
	Plug	Package Quantity	Cap	Package Quantity
2	350848-2	1	350849-2	1
3	350848-3	1	350849-3	1
4	350848-4	1	350849-4	1
5	350848-5	1	350849-5	1
6	350848-6	1	350849-6	1
9	350848-9	1	350849-9	1
12	1-350848-2	1	1-350849-2	1
15	1-350848-5	1	1-350849-5	1

Notes:

1. Test probes have 5 A max. current rating, 1,000,000 cycles.
2. Test Connector housings are of the same configuration as standard housings. Refer to Page 12-10 for dimensional specifications.