Terminals and Splices Selection Guide

RoHS Ready

TE connectivity

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Fax: + 86-21-2407-1599

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Fax: + 86-29-8786-8788

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Fax: + 65-6482-1012

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Fax: + 886-2-8768-2268

Thailand – Bangkok
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Fax: + 66-2-955-0505

Vietnam – Ho Chi Minh City
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Fax: + 84-8-930-3443

Terminals and Splices

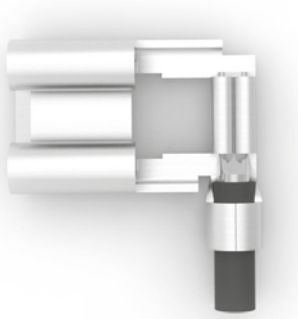
Contents

Product Introduction

The TE family of quick connects provides the right product for most applications. All styles provide features to enhance quality and reliability of interconnections. The FASTON product line consists of two mating parts—the receptacle and the tab. Receptacles are available in both straight and flag configurations and come in a variety of sizes. They are designed numerically by a series number that corresponds to the width of the mating tab. There are six series of both straight-on and flag receptacles "312", "250", "205", "187", "125", and "110".

Product Styles

Flag Receptacles



The flag receptacle is a reliable termination for those applications where space is a critical factor. Connection with mating tab is at right-angle to axis of conductor. Typical installations include bussing switches in back-splashes of ranges or in similar heavy duty applications.

Straight Receptacles

Straight receptacles are made with or without insulation support. Insulation diameters of .040–.230 are accommodated by the insulation support receptacle. Another feature of this type is a step-down insulation support barrel to compensate for insulation thickness to maintain axial alignment of the conductor strands. Over-insertion of shoulderless tabs is prevented by tapering walls at the rear of the receptacle.

Wire Crimp Tabs

The wire crimp tabs are designed for line splices and other special applications. They can be applied to 22-14 AWG wire with "F" crimp termination and include insulation support. The wire crimp tab is also available with AMPLIVAR connector type serrations for magnet wire applications.

1) Select Series – Tab width onto which the Receptacle is being plugged FASTON products are grouped according to tab width dimensions in series:

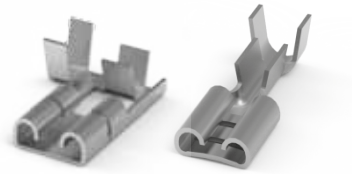
9.5mm ("375" Series)
6.3mm ("250" Series)
5.2mm ("205" Series)
4.8mm ("187" Series)
2.8mm ("110" Series)

* Receptacle series must match the mating tab width and thickness.

2) Select Wire Range – AWG or sqmm

3) Select Wire Type & Terminal Orientation (straight or flag), then Crimp Style – Method by which the terminal is applied to the wire

"F" Crimp



Most Common Crimp
Used on Straight and Flag Terminals
Offers Optimum Combination of Strength and Conductivity
Method of Termination Provides Maximum Resistance to Vibration and Corrosion

Tab-Lok Crimp

- Featured on Flag Terminals
- Locking Tab on Wire Barrel is Inserted through a Slot on the Terminal itself

"C" Crimp

Featured on Flag Terminals
Provides Reliable Electrical and Mechanical Performance with a Minimum Profile

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Test Specifications

Operating Temperatures of Materials and Finishes

FASTON terminals are made available in brass and phosphor bronze which can be plated with tin or silver. The line also includes a selection of nickel plated steel tabs and receptacles.

Certain products are available in either pre-tin or tin plated. Tin plate is the electro-depositing of tin on base metal over the entire surface of the terminal following the fabrication of the terminal. Pre-tin plate is the plating of tin on base metal prior to fabrication which produces exposed base metal in the terminal edge areas after stamping.

Brass

Plain

Allowable connection temperature* — 110°C.

Plain brass is used frequently, where applications have optimal environmental conditions.

Tin Plated

Allowable connection temperature — 110°C.

Tin plating of receptacle and tab improves operation at higher temperatures, and in addition helps to protect the connection against corrosion.

Silver Plated

Allowable connection temperature — 130°C.

Silver plated connections allow the highest operating temperature for brass and a higher current-carrying capacity.

* Allowable connection temperature is the ambient temperature plus temperature rise of the terminal at normal operating conditions.

Phosphor Bronze

Plain

Allowable connection temperature — 110°C.

Phosphor bronze is used in applications where brass would normally be corroded, for example the various freezing mixtures and ammonias.

Tin Plated

Allowable connection temperature — 110°C.

Tin plating of receptacle and tab improves operation at higher temperatures, and in addition helps to protect the connection against corrosion.

Silver Plated

Allowable connection temperature — 130°C.

Silver plated connections allow the highest operating temperature for phosphor bronze and higher current-carrying capacity.

Steel

Nickel Plated

Allowable connection temperature — 250°C.

This combination allows a reliable connection at high temperatures, for example in stoves, cooking appliances, etc. For optimum performance, these nickel plated receptacles are used with compatible lead wires and tabs that can be welded to heating units.

Plastics (Insulation)

Material Temperature Rating —

The following list shows various plastics and their application temperatures.

High temp. polyamide (nylon) . . . . . 150°C
Polyamide, (nylon) . . . 125°C
Polypropylene . . . . . 105°C
Polyester. . . . . 90°C
Polyethylene. . . . . 75°C
A.B.S. . . . . 70°C
PVC. . . . . 60°C

Note: For information related to Glow Wire temperature ratings, contact TE Engineering.

Stress Relieving of Brass or Steel Receptacles

The process of stress relieving is unique to TE quick connects and is most commonly used in the production of those receptacles designated as premier line, including Ultra-Fast, Ultra-Fast Plus FASTON and PIDG receptacles. Stress is introduced into copper alloy or steel terminals during the stamping process. When metal strip is formed into the receptacle, the material is deformed beyond its yield stress to form it into its new shape. This forming operation leaves a residual stress in the grain structure. The orientations and magnitudes of the forming stresses are complex, but can exist in the same direction as the applied load. Thus, residual stresses can reduce the force necessary to open the receptacle during the tab insertion. Stress relieving the terminal restores the elastic spring properties and improves receptacle performance by reducing the residual stresses. After stress relieving, the receptacle resists opening when a tab is inserted, especially where difficult or awkward mating situations may cause mechanical abuse.

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Test Specifications

The following information and related charts are taken from the qualification requirements as defined in UL-310, the safety standard for electrical Quick-Connect terminals. Throughout this catalog, when a reference is made to a part being UL listed, that part has been qualified to the standards shown in these charts.

Temperature Rise and Millivolt Drop

The temperature rise and millivolt drop characteristics are the lowest in the industry. They comply with safety requirements and exhibit extreme stability during extended time tests.

When using FASTON terminals, the allowable connection temperatures can be adjusted, based on the application, by considering actual current(s) and related temperature rise, time at this temperature, humidity, corrosion environment, vibration, base metal, plating (if any), and other environmental considerations.

Test Parameters for FASTON Terminals (Based on UL-310 Temperature Rise and Current Requirements)

Contact Size	Wire Size (Strand Count)	Continuous Current	Intermittent Current
250 Series	10 (105)	24	48
205 Series	12 (65)	20	40
187 Series	14 (41)	15	30
	16 (26)	10	20
	18 (16)	7	14
	20 (10)	4	8
	22 (7)	3	6
110 Series	16 (26)	5	10
	18 (16)	4	8
	20 (10)	3	6
	22 (7)	2	4

Note: This information applies only to UL listed (UL) terminals. A part with a component recognition (cULus) status deviates from the electrical or other requirements defined in the UL-310 safety standard.

This table can be used as a guide for selecting a characteristic such as contact size, wire size, or current (either continuous or intermittent operating current) when the other two are known. This table also identifies the possible receptacle sizes available for a given wire size. The continuous current column highlights the maximum current that should be applied to a given receptacle and wire combination to meet a 30°C maximum temperature rise. Intermittent current can be defined as a one hour cycle consisting of 45 minutes on and 15 minutes off. The temperature rise of the connector using the intermittent current on the corresponding wire size will be less than 85° C. The wire used in the testing to meet these electrical requirements is tin plated copper with stranding as indicated above in parentheses for terminals intended for internal wiring connections.

Tensile Strength (forces for crimp pull-out)

Maximum tensile strength of the wire to terminal connection does not insure reliable electrical performance. An acceptable compromise between maximum tensile strength and electrical stability is recommended.

Normally the tensile strength is much greater than the force required to disconnect the tab from the receptacle; therefore, no difficulties or hazards are encountered.

Forces for Crimp Pull-out Test (UL-310 Specification)

Wire Size		Minimum Force	
AWG	(mm^2)	pounds	N
22	0.32	8	36
20	0.52	13	58
18	0.82	20	89
16	1.3	30	133
14	2.1	50	223
12	3.3	70	311
10	5.3	80	356

The forces shown for the crimp pull out test represent the minimum force required to separate the wire from the crimped terminal in an axis parallel to the wire exit direction from the contact. This force does not include the holding force of the insulation crimp (if applicable).

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Test Specifications (Continued)

Insertion and Withdrawal Forces for Engagement-Disengagement

The UL-310 safety standard defines a broad range for the insertion and extraction value of each connector series. Many of the FASTON product families (such as premier line, budget line, low insertion force type, etc.) have been designed for specific applications and to address forces within the overall range as defined in the chart.

Insertion and Withdrawal Forces for Engagement-Disengagement Test (UL-310 Specification)

Tab Size	Force, pounds (N)					
	First Insertion, Maximum Individual	First withdrawal			Sixth withdrawal	
		Maximum	Minimum		Minimum	
			Average	Individual	Average	Individual
Test Tab and Unplated Connector						
.250 6.30	18 (80)	18 (80)	6 (27)	4 (18)	5 (22)	4 (18)
.205 5.20 / **.187** 4.80	15 (67)	20 (89)	5 (22)	3 (13)	3 (13)	2 (9)
.125 3.20 / **.110** 2.80	12 (53)	14 (62)	3 (13)	2 (9)	2 (9)	1 (4)
Test Tab and Tin Plated Connector						
.250 6.30	17 (76)	17 (76)	5 (22)	3 (13)	4 (18)	3 (13)
.205 5.20 / **.187** 4.80	15 (67)	20 (89)	5 (22)	3 (13)	3 (13)	2 (9)
.125 3.20 / **.110** 2.80	12 (53)	14 (62)	3 (13)	2 (9)	2 (9)	1 (4)

This chart show the forces required to engage and disengage a connector from a **plain brass test tab** (tab for mechanical testing as shown in the tab section of this catalog). The force is measured with a testing device capable of holding the reading and providing accurate alignment with slow and steady engagement and disengagement of the connector and test tab.

Wire Range

FASTON receptacles are available in various wire ranges from 26-10 AWG, depending on series size. The chart below is designed to show our recommended two-wire combinations.

Specific wire and insulation combinations should be evaluated for suitability and not all combinations may be appropriate for high speed or automatic termination equipment.

Recommended Two-Wire Combinations

Wire Ranges																
8-10	12-10	14-10	14-12	16-12	16-14	18-12	18-14 (2) 16	(2) 18 (2) 16	18-14	18-16	20-14	20-16 (2) 18	20-16	20-18	22-16	22-18
Two-Wire Combinations																
10-22[1]	12-22[1]	14-14	18-16	16-22	18-18	18-18	16-16	16-16	22-18	18-22[1]	20-22	18-18	20-18	20-20	18-22[1]	22-20[1]
10-20	12-20	14-16	18-14	16-20	18-20	18-16	16-22[1]	18-18	20-18	18-20	20-20	18-20	20-20	20-22[1]	18-20	22-22
10-18	12-18	14-18	16-16	16-18	16-22[1]	18-14	16-20	16-18[1]	18-18	18-18	20-18	20-20	22-18[1]	22-22	20-20	
10-16	12-16	14-20	14-22[1]	16-16	16-20	18-20	16-18		20-20	20-20	20-16	22-20	22-22		20-22	
10-14	14-16	14-22	14-20	18-18	18-22	18-18			20-16	18-22	18-22[1]	22-20				
12-14	14-14	16-16		18-20		16-22	18-20		22-16[1]		18-18					
	14-12	16-18		18-14		16-20	18-22				18-16					
		16-12		20-14		16-16	20-20				16-22[1]					
		18-12				14-22[1]	20-22									
		20-12		22-14[1]		14-20										
		22-12[1]														

[1] Min./max. wire size combinations

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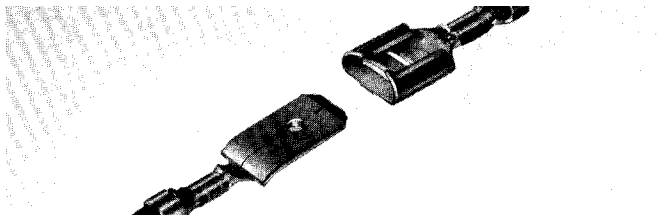
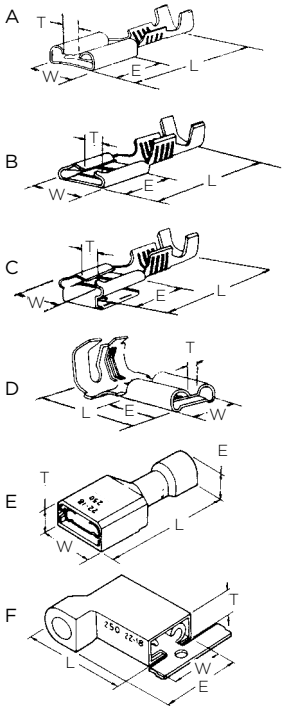
FASTON Terminals

FASTON Terminals and Splices are the industry's broadest line of quick connect-disconnect receptacles and tab-type terminals. The terminals are available in both straight and flag-types and come in a variety of sizes. Sizes are designated numerically by a series number which corresponds to the width of the mating tab. There are four series "250", "205", "187" and "110".



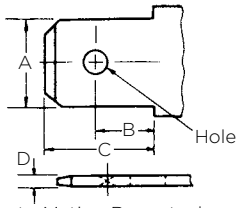
Receptacles



"250" Series

Style	Applicable Wire AWG	Applicable Wire mm²	Wire Ins. Dia.	Fits Tab Thickness	Material/Finish	Dimensions W	L	E	T	Part No. S.T.
A	20-14	0.50-2.27	2.2-3.4	0.8	Brass	7.5	19.2	7.8	0.9	170031-1†
	22-18	0.30-0.89	2.3-3.3	0.8	Brass	7.6	19.1	7.8	2.3	170183-1
					Brass/Tin					170183-2
	18-14	0.75-2.27	2.5-4.3	0.8	Brass	7.6	18.9	7.8	1.7	170213-1
					Brass/Tin					170213-2
	18-14	0.75-2.27	3.1-3.6	0.8	Brass/Tin	7.6	19.2	7.8	1.7	41274
	16-12 or 18x (2)	1.25-3.37 or 0.82x (2)	5.3-6.7 or 3.1x (2)	0.8	Brass/Tin	7.6	20.9	7.8	1.7	41728
		1.75-5.27	3.0-5.0	0.8	Brass/Tin	7.6	19.6	7.8	1.7	170224-2
B	22-18	0.30-0.90	2.36-3.30	0.8	Brass/Tin	7.6	17.1	7.7	2.4	737439-2 LIF
	18-14	0.75-2.27	3.1-3.6	0.8	Brass/Tin	7.6	17.1	7.7	2.2	737440-2 LIF
	18-14	0.75-2.27	3.1-3.6	0.8	Brass/Tin	7.6	19.1	7.7	-	63688-1 LIF
C	18-14	0.75-2.27	3.1-4.3	0.8	Brass	7.6	19.6	7.8	2.9	42741-1
					Brass/Tin					42741-2
	18-14	0.80-2.00	3.05-4.32	0.8	Brass/Tin	7.6	19.6	7.7	2.9	61944-2
D	18-12	0.75-3.37	2.8-5.3	0.8	Brass/Tin	8.1	17.0	7.8	3.1	41802
	12-10	3.08-4.86								42563-2
E	22-18	0.30-0.89	3.4 Max.	0.8	Brass/Tin Nylon-Red	9.4	21.7	5.1	5.2	2-520183-2
	16-14	1.25-2.27	4.1 Max.		Brass/Tin Nylon-Blue			5.7		3-350819-2
F	22-18	0.30-0.89	4.2 Max.	0.8	Brass/Tin Nylon-Red	9.8	16.1	14.7	5.0	2-520128-2
	16-14	1.25-2.27	4.7 Max.		Brass/Tin Nylon-Blue					3-520132-2

†With lance. ††Hermetic Terminals(For internal use only.)



Refer to Mating Receptacle For Tab Thickness.

Tab	A	B	C	D
250 Series	6.35	3.4	7.95	0.8
205 Series	5.21	3.18	6.35	0.8

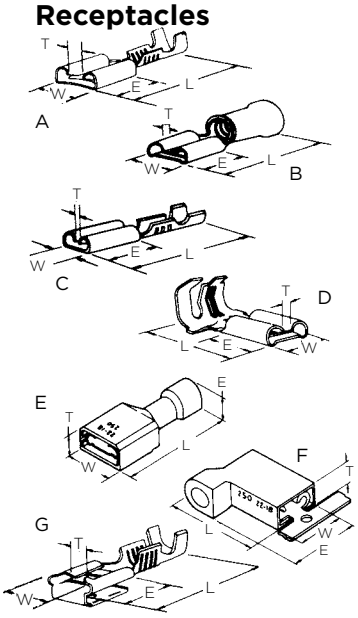
"205" Series

A	22-18	0.30-0.89	2.2-3.2	0.5	Brass/Tin	6.4	15.7	6.4	1.3	170122-2
			2.2-3.2	0.8	Brass/Tin	6.4	15.7	6.4	0.7	170181-2
				0.5	Brass					170181-1
					Brass/Tin					170181-4
B	22-18	0.30-0.89	2.2-3.2	0.5	Brass/Tin	6.4	15.6	6.4	1.3	42710-2
A	18-14	0.75-2.27	3.3-4.6	0.8	Brass	6.4	15.7	6.4	0.7	170179-1
					Brass/Tin					170179-2
D	20-14	0.50-2.27	2.8-4.3	0.8	Brass/Tin	6.4	13.5	6.4	0.6	42234-2

Note: All Part Numbers are RoHS compliant.

FASTON Terminals

Receptacles

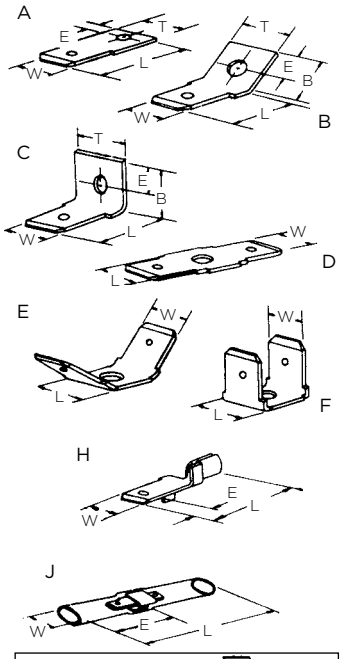


"187" Series Receptales

Style	Applicable Wire AWG	Applicable Wire mm²	Wire Ins. Dia.	Fits Tab Thick-ness	Material/Finish	Dimensions W	L	E	T	Part No. S.T.
A	24-20	0.20~0.56	1.0~1.8	0.5	Brass/Tin	5.6	15.0	6.4	1.5	60573-1
			1.5~2.5							170214-2Δ
	20-16	0.50~1.42	2.3~3.3	0.5	Brass	5.6	15.2	6.4	1.5	170037-1
					Brass/Tin					170037-2
	18-14	0.75~2.27	2.2~3.4	0.5	Phos.Brz./Tin	5.6	15.2	6.4	1.5	170466-1
	20-16	0.50~1.40	2.29~3.30	0.8	Brass/Tin	5.6	14.9	6.4	1.8	63477-2 LIF
	20-16	0.50~1.40	2.29~3.30	0.5	Brass/Tin	5.6	14.9	6.4	1.8	63475-2 LIF
D	20-16	0.50~1.42	2.8~4.3	0.5	Brass	5.6	13.5	6.4	1.0	170140-1
					Brass/Tin					170140-2
	20-16	0.50~1.40	2.79~4.32	0.5	Brass/Tin	5.6	13.5	6.4	1.1	42800-2
E	22-18	0.30~0.89	3.4 Max.	0.5	Brass/Tin Nylon-Red	8.0	21.7	5.1	4.2	2-520181-2
	16-14	1.25~2.27	4.1 Max.		Brass/Tin Nylon-Blue			5.7	4.8	3-350815-2
F	22-18	0.30~0.89	4.2 Max.	0.5	Brass/Tin Nylon-Red	8.1	16.1	13.1	4.8	2-520334-2
	16-14	1.25~2.27	4.7 Max.		Brass/Tin Nylon-Blue					3-520338-2
G	20-16	0.50~1.40	2.29~3.30	0.5	Brass/Tin	5.7	15.6	5.7	-	62026-1

ΔUL approval wire range AWG#22-20

Tabs



"110" Series Receptacles

Style	Applicable Wire AWG	Applicable Wire mm²	Wire Ins. Dia.	Fits Tab Thick-ness	Material/Finish	Dimensions W	L	E	T	Part No.
C	24-20	0.20~0.56	2.0~2.8	0.5	Brass	3.8	15.4	6.4	0.7	170043-1Δ
					Brass/Tin					170043-2Δ
				0.7	Brass					170056-1Δ
					Brass/Tin					170056-2Δ
	22-18	0.30~0.89	1.5~2.5	0.5	Brass	3.8	16.1	6.4	0.6	42068
					Brass/Pre-tinned					42068-1
B	22-18	0.30~0.89	2.5 Max.	0.5	Brass/Pre-tinned Nylon-Trsp.	3.8	18.6	6.4	0.6	61059-2
E	22-18	0.30~0.89	3.1 Max.	0.5	Brass/Tin Nylon-Red	7.0	18.7	4.2	4.1	2-520083-2 2-520084-2

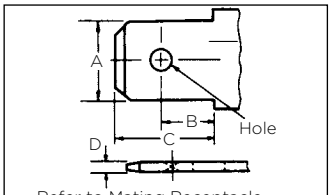
ΔUL approval wire range AWG#22

"250" Series Tabs

Style	Hole Dia.	Stock Thickness	Material/ Finish	Dimensions B	W	L	E	T	Part No.
A	4.5	0.8	Brass/Tin	—	6.3	18.2	4.3	7.5	63038-2
A	1.4	0.8	Brass/Tin	—	6.4	14.02	3.4	7.9	63824-1(Strip)
B	3.3	0.8	Brass/Tin	7.5	6.3	10.2	4.3	7.5	42822-2
E	3.3	0.8	Brass/Tin	—	6.3	8.0	—	—	—
F	3.3	0.8	Brass/Tin	—	6.3	8.0	—	—	41480
J	—	—	Plastic Tube Over Brass Tab	—	6.3 9.9	53.2 Max.	21.8 Min.	—	321235

"187" Series Tabs

A	1.32	0.5	Brass/Tin	—	4.8	12.5	3.2	7.9	63823-1(Strip)
F	3.3	0.5	Brass/Tin	6.7	4.8	8.3	—	6.7	170001-3
F	3.3	0.5	Brass/Tin	—	4.8	6.7	—	—	170001-2



Refer to Mating Receptacle For Tab Thickness.

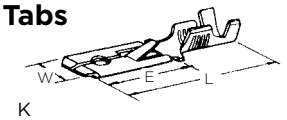
Tab	A	B	C	D
187 Series	4.75	3.18	6.35	0.51
110 Series	2.79	5.54	7.11	*

Note: All Part Numbers are RoHS compliant.

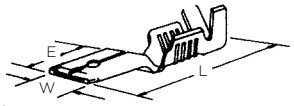
FASTON Terminals

Wire Crimp Type Tabs and Insulation sleeves, Pods

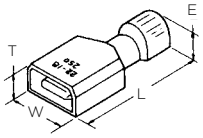
Wire Crimp Type Tabs



K



M



N

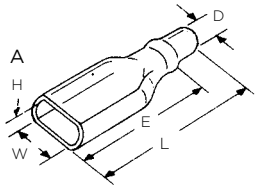
"250" Series

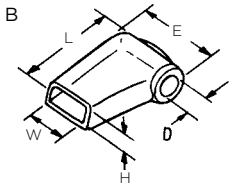
Type	Applicable Wire AWG	Applicable Wire mm²	Wire Ins.Dia.	Material/ Finish	Tab Thickness	Dimensions W	Dimensions L	Dimensions E	Part No. S.T.
K	20-14	0.50-2.27	2.2-3.4	Brass/Tin	0.8	6.0	24.4	14.0	170030-2†
M	22-18	0.30-0.89	2.0-3.0	Brass	0.8	6.4	20.7	9.4	42475-3
				Brass/Tin					42475-4
	18-14	0.75-2.27	2.8-3.8	Brass			20.6		42474-3
				Brass/Tin					42474-4
N	22-18	0.30-0.89	3.4 Max.	Brass/Tin Nylon-Red	0.8	12.4	21.7	5.1	2-520102-2
	16-14	1.25-2.27	4.1 Max.	Brass/Tin Nylon-Blue				5.7	3-520106-2

†With Lance *Die Insert Number for Hand Tool P/N 58078-3.

Insulation Sleeves For FASTON Receptacle

Material:Soft Vinyl Cloride Cloudy

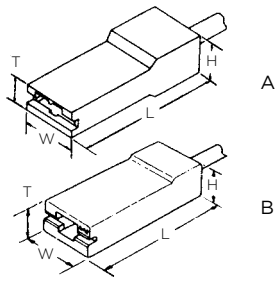




Type	FASTON Series	D	E	L	W	H	Part No.
A	250	2.0	19.0	24.0	8.0	3.5	170823-3
		2.5					170823-2
		3.2	22.0	27.0	8.0	3.5	1-170823-8
		3.5	20.5	25.0	8.0	3.5	1-170823-5
			30.5	35.0			1-170823-9
			35.5	40.0			2-170823-0
		4.8	20.0	25.0	8.0	3.5	170823-6
	205	2.5	18.0	23.0	6.5	3.0	4-170823-1
	187	2.2	18.0	23.0	5.8	2.2	1-170823-3
		2.5	15.0	20.0	5.8		1-170823-4
	110	1.8	16.0	21.0	4.0	2.1	170823-9
		2.5					170823-1
B	250	3.2	14.5	18.5	8.5	4.5	170891-1
		4.8					170891-2
	187	3.2	12.4	14.9	6.5	3.0	3-170823-8

AMPIP/ Post-Insulation Pods for FASTON Receptacle

Material:Nylon, Natural



Type	Wire Ins.Dia.	Dimensions L	Dimensions T	Dimensions W	Dimensions H	Part No.	Accepts Terminals
A	5.1	24.4	4.6	9.1	8.0	171706-1	"250" Series FASTON Rec. 47829, 170183, 170187, 170213
B	4.6	19.7	5.7	8.6	6.2	1-480418-0	"205" Series FASTON Rec. 42710, 170122, 170123, 170181, 170182
	4.3	19.7	5.5	7.8	6.0	1-480435-0	"187" Series FASTON Rec. 170037, 170038, 170203, 170214

Note: All Part Numbers are RoHS compliant.

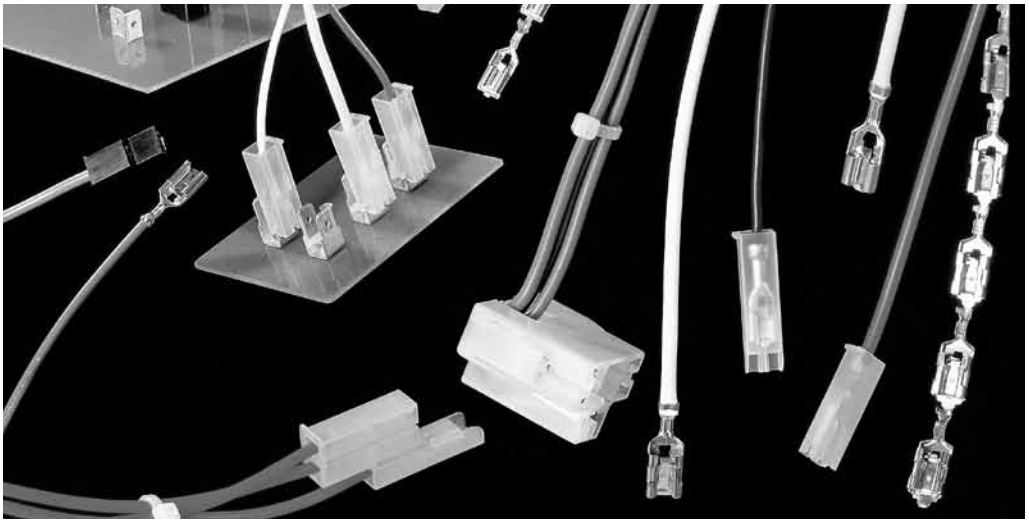
Positive Lock Connectors

<Mark II>

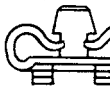
The Positive Lock Connectors are wire-to-tab termination connectors designed to provide fast connect/disconnect and positive locking capabilities using a combination of specially designed receptacles and a housing that accommodates them.
In the past, the methods of connection with tabs and receptacles often presented difficulties in wire termination because of their inherent high insertion and withdrawal forces making productivity extremely low.
With these uniquely designed Positive Lock Connectors, the insertion and withdrawl forces are exceedingly low and as a result, assembling operation is greatly facilitated and cost reduced.
This feature of low insertion and withdrawl forces not only helps prevent damage of tabs and other parts during the assembling of equipment but also protect operators from injuries as were often experienced in old days.
Moreover, despite the low insertion force, the connectors are guaranteed of high electrical performance due to thorough consideration given to the contact surface design.

■Fast Connect/Disconnect and Positive Locking Capabilities

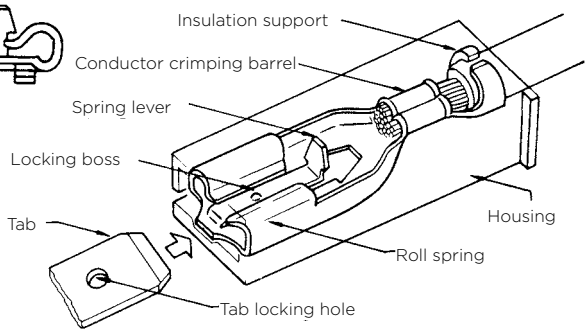
The receptacle is so designed that the mating tab can be inserted smoothly as the receptacle's spring lever is depressed. When the tab is completly inserted, the spring lever returns back to its original position and the boss on the tab fits into the tab hole and locks firmly.
In this state, even if wire is pulled, it cannot be pulled out easily.
To extract, hold the housing and pull it out. The spring lever butts against the inside wall of the housing, lock is released and wire can be pulled off easily.



Receptacle Terminal



Mark II Commercial Type Conn.
(Shown for reference only)



■Confirmation of Tab Insertion

When the tab is inserted into the receptacle, there is a clear sound of click which enables confirmation of tab insertion. Halfmating is thus prevented.

■Good Electrical Contact

The receptacle and the tab are held in surface-to-surface contact, ensuring extremely good electrical contact.

■Loading of Receptacle Terminals in Housing

The terminated receptacle terminals can be loaded in the housing by hand easily. When loaded, the terminals are retained in the housing firmly by a housing lance mechanism.

■Types of Connectors

The Positive Lock connectors are available in two types, according to the configurations of receptacle terminals :

Mark II Ex Series

■Mark II

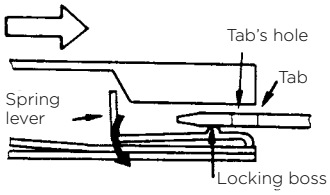
Commercial Type ----
110 Series (1, 3 positions)
187 Series (1, 2, 3, 4 positions)
250 Series (1, 2, 4 positions and Flag type)
For TRIAC use (3 position)
Heavy Duty Type ----
250 Series (1, 2 positions)
For shield beam use -
(312 Series 3 position)

■EX Series

These are terminals used without a housing.
When necessary, a sleeve is available that can be applied after a terminal is terminated. Also, there are a heat-resistant version of terminal that can be used without insulation, EXII Series and EXIII Series which is loaded into the housing after termination.

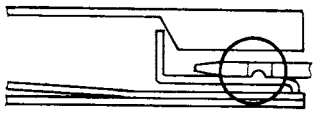
Locking Mechanism (Mark II Commercial Type Connector)

1. Insert tab



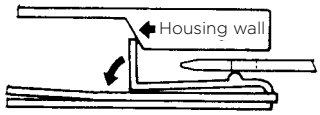
Spring lever is depressed as tab is inserted.

2. Mating and lock

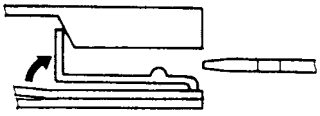


When tab is inserted through, spring lever returns to original position and locking boss fits in tab's hole.

3.Extracting



Hold housing and pull wire. Spring lever butts against the slanting wall of housing and locked tab is disengaged.



When tab is extracted, spring lever returns to original position by spring action.

Positive Lock Connectors
Instruction Sheet : 411-5094

Applicable Safety Standards

The safety standards listed on the right are applied to specific part numbers. For confirmation of approval, contact our Sales Department by indicating the part number(s) in question.
Please note that there are instances where the standards differ from TE Connectivity is performance specifications.

<Mark II>

UL File No. E28476
(Recognized Component)
- Voltage Rating :
  - As par requirements of equipment used.
- Current Rating :
  - As par requirements of equipment used.

CSA Report No. LR7189
- Voltage Rating : 250V
- Current Rating :
  - AWG #24=1.5A
  - AWG #22=3A
  - AWG #20=4A
  - AWG #18=7A
  - AWG #16=10A
  - AWG #14=15A
  - AWG #12=20A
  - AWG #10=24A

VDE License No. 3184
- Voltage Rating :
  - 250V AC / 300V DC
- Current Rating :
  - AWG #24=2.5A
  - AWG #22=3A
  - AWG #20=5A
  - AWG #18=7A
  - AWG #16=12A
  - AWG #14=15A
  - AWG #12=20A
  - AWG #10=25A

Temperature Rating : 80˚C
Insulation Groove : B
IP Protection : IP00

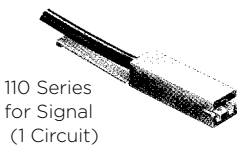
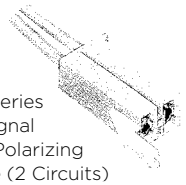
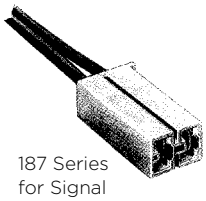
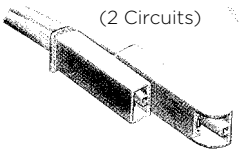
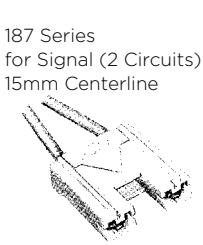
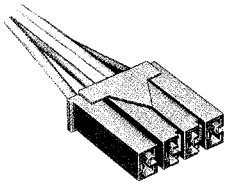
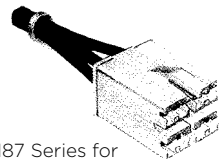
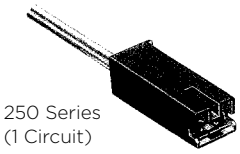
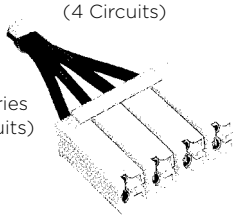
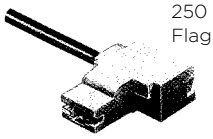
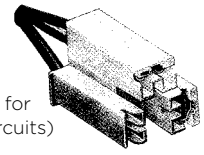
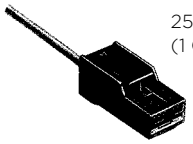
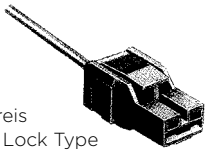
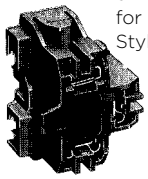
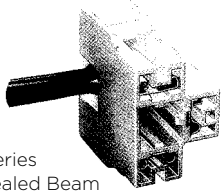
<EX Series>

UL File No. 66717
(Recognized Component)
- Voltage Rating :
  - As par requirements of equipment used.
- Current Rating :
  - As par requirements of equipment used.

CSA Report No. LR7189
- Voltage Rating :
  - As par requirements of equipment used.
- Current Rating :
  - As par requirements of equipment used.

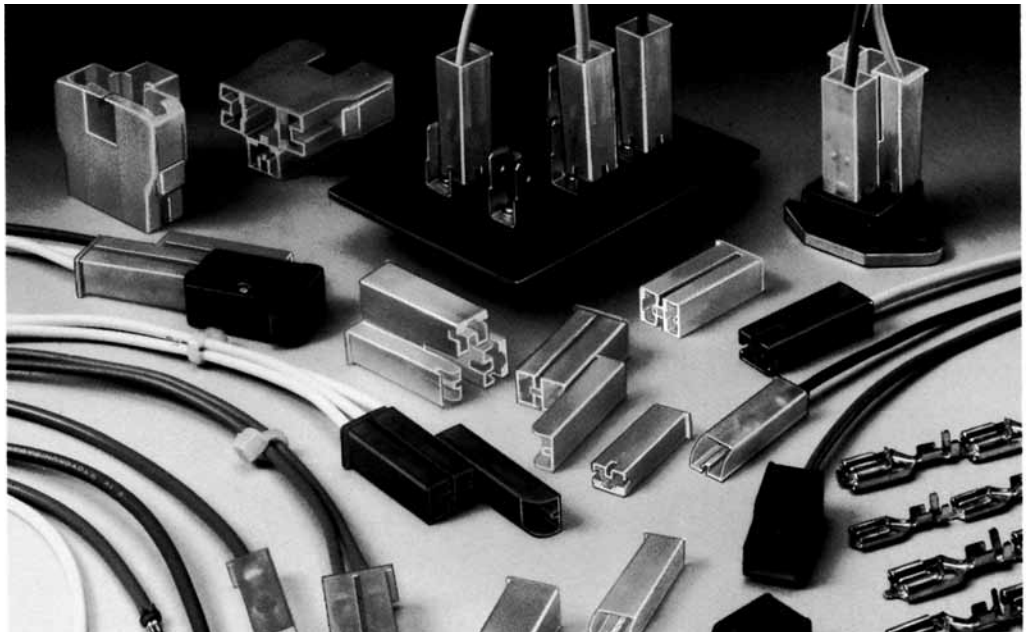
Positive Lock Connectors

<Mark II> Product Introduction

Connector	Type	Descriptions	No. of Cir.	Configuration
Mark II	Commercial	110 Series for Signal Circuit	1 3	
		187 Series for Signal Circuit	1 2	
		187 Series for Signal Circuit with Polarizing Guide	2	
		187 Series for Signal Circuit with Locking Feature	1	
		187 Series for Signal Circuit for Micro Switch	2 3	
		187 Series for Signal Circuit 15mm Centerline	2	
		187 Series for Timer	4	
		187 Series for Power Relay	4	
		250 Series	1 2 4	 
		250 Series Flag Style	1	
		Connector for Triac (Uses a mixture of 187/250 Series)	3	
	Heavy-duty	250 Series Low Profile Type	1	
		250 Series	1	
		250 Series Double Lock Type	1	
		250 Series / FASTON Mixture Parallel Type	2	
		250 Series / FASTON Mixture "T" Type	2	
		250 Series / FASTON Mixture Double Lock "T" Type	2	
		312 Series for Sealed Beam	3	
		312 Series for Sealed Beam Flag Style	3	

Positive Lock Connectors

<Mark II>



Performance Data

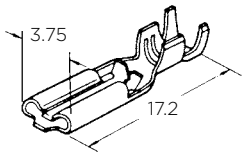
Insulation Resistance :
1,000MΩ Min.
Total Resistance :
3mΩ Max.(Initial)
6mΩ Max.(Final)
Operating Temperature :
−40˚C~+105˚C
Terminal Locking Force :
(187)58.8N Min. (Initial)
49N Min. (Final)
(250)78.4N Min. (Initial)
68.6N Min. (Final)
Connector Insertion Force :
(187)29.4N Max. (per circuit)
(250)34.3N Max. (per circuit)
Connector Extraction Force :
5.88N Min. (per circuit)
Dielectric Withstanding Voltage :
2,000V AC (for one minute)
Product Specification :
108-5252(110)
108-5126(187)
108-5338(187, wire to wire)
108-5127(250)
Application Specification :
114-5120(110)
114-5041(187)
114-5042(250)
Instruction Sheet :
411-5094(all Positive Lock)
411-5425(110)

Positive Lock Connectors

<Mark II> 110 Series

Receptacle Terminals

Applicable Tab Width :
2.79mm
Material : Pre-tinned Brass

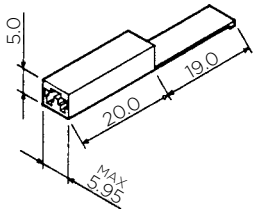


Applicable Wire		Insulation Diameter	Part No. of Receptable Terminals
AWG#	mm²		S.T.*
24-20	0.2~0.5	1.02~1.78	175411-1
20-16	0.5~1.25	2.10~3.10	174777-1

*Air-feed Applicator should be used. Extraction Tool P/N : 724659-4(411-5397)

Receptacle Housing

Applicable contact
Part No. : 175411, 174777

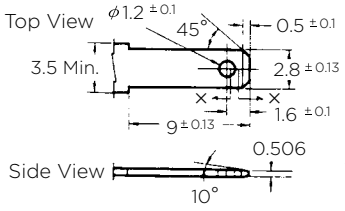


1 Circuit
Material : UL94V-2 , 6/6 Nylon
Part No. : 174779-1 (Natural)

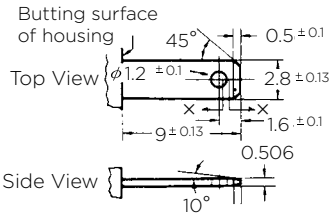
NEW
Material : UL94V-0, GWT750, Nylon
Part No. : 7-174779-1 (Natural)

Tab Dimension
For Signal Circuit

1 Circuit

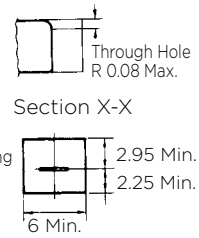


Type A
(When using tab shoulder for butting)



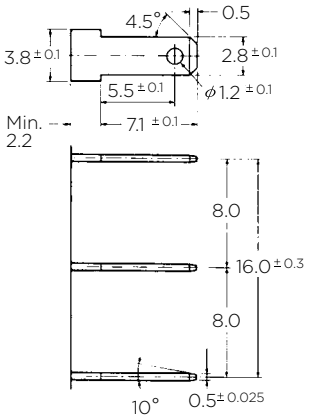
Type B
(When using resin, etc., for butting)

Sagging of the tab's hole must not exceed 0.08mm.



Housing Outline

3 Circuits

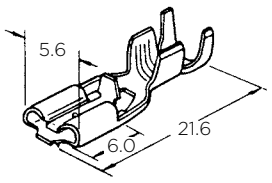


Note: All Part Numbers are RoHS compliant.

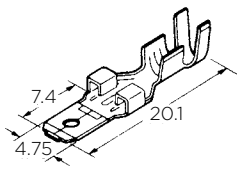
Positive Lock Connectors

<Mark II> 187 Series

Terminals



Receptacle



Tab

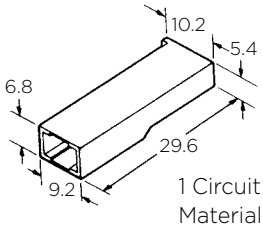
Applicable Wire AWG#	Applicable Wire mm²	Insulation Diameter	Material and Finish	Part No. of Terminals Receptacle S.T.*	Part No. of Terminals Tab S.T.
24-20	0.22~0.53	1.5~2.7	Pre-tinned Brass	170324-1	—
			Phos.bronze/Nickel Plated	170324-2	—
			Pre-tinned Phos.bronze	170324-5	—
20-16	0.51~1.38	1.9~3.4	Pre-tinned Brass	170325-1	175179-1
			Pre-tinned Phos.bronze	170325-5	—
18-14	0.70~2.08	One wire 2.1~3.6 Two wire 5.5(Max.)**	Pre-tinned Brass	170326-1***	—

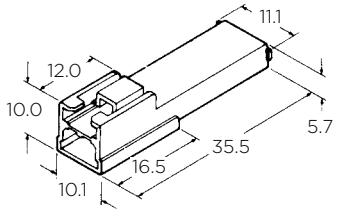
*Air feed Applicator should be Used. Extraction Tool P/N : 724659-1(411-5106)

External Diameter of a single wire 1.6~3.1mm. *: 753816-1(411-5237)

Tab Housings

Applicable Terminal
Part No. : 175179





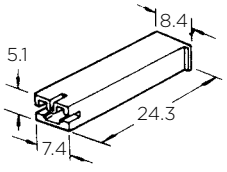
1 Circuit (Free Hanging)
Material : UL94V-0, 6/6 Nylon
Part No. : 176448-1 (Natural)
176448-6 (Blue)
176448-7 (Red)
Mating Receptacle Housing
Part No. : 173974-☐

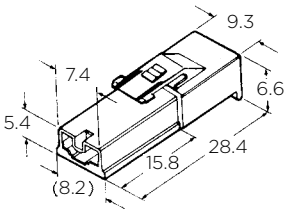
NEW Material : UL94V-0, GWT750, Nylon
Part No. : 7-176448-1 (Natural)

1 Circuit (Junction Type, with locking)
Material : UL94V-0, 6/6 Nylon
Part No. : 179182-1 (Natural)
179182-6 (Blue)
179182-7 (Red)
Mating Receptacle Housing
Part No. : 179183-☐

Receptacle Housing

Applicable Terminal
Part No. : 170324
170325
170326
Material :
See columns right.





1 Circuit
Material : UL94V-2, 6/6 Nylon
Part No. : 172074-1 (Natural)
172074-2 (Black)
172074-4 (Yellow)
172074-5 (Green)
172074-6 (Blue)
172074-7 (Red)

NEW
Material : UL94V-0, GWT750, Nylon
Part No. : 7-172074-1 (Natural)
7-173974-1 (Natural)

Material : UL94V-0, 6/6 Nylon
Part No. : 173974-1 (Natural)
173974-2 (Black)
173974-4 (Yellow)
173974-5 (Green)
173974-6 (Blue)
173974-7 (Red)
Mating Tab Housing
Part No. : 176448-☐

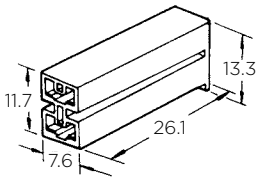
1 Circuit (Junction type, with locking)
Material : UL94V-0, 6/6 Nylon
Part No. : 179183-1 (Natural)
179183-6 (Blue)
179183-7 (Red)
179183-9 (Black)
Mating Tab Housing
Part No. : 179182-☐

Note: All Part Numbers are RoHS compliant.

Positive Lock Connectors

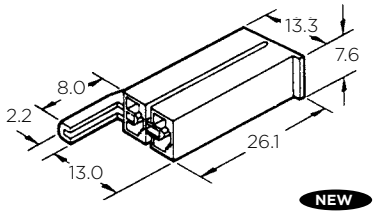
<Mark II> 187 Series (Straight-type)

Receptacle Housing



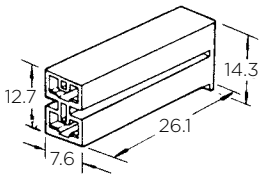
2 Circuits (6mm Pitch)
Material : UL94V-2, 6/6 Nylon
Part No. : 172210-1 (Natural)
172210-2 (Black)
172210-4 (Yellow)
172210-5 (Green)
172210-6 (Blue)
172210-7 (Red)

Material : UL94V-0, 6/6 Nylon
Part No. : 1-172210-1 (Natural)
1-172210-2 (Black)
1-172210-4 (Yellow)
1-172210-5 (Green)
1-172210-6 (Blue)
1-172210-7 (Red)

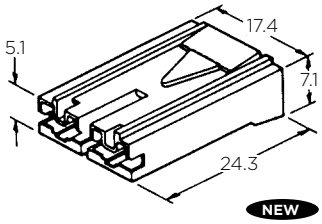


2 Circuits (6mm Pitch, with Polarized Guide)
Material : UL94V-2, 6/6 Nylon
Part No. : 174587-1 (Natural)
Material : UL94V-0, 6/6 Nylon
Part No. : 1-174587-1 (Natural)
1-174587-4 (Yellow)
1-174587-5 (Green)
1-174587-6 (Blue)
1-174587-7 (Red)
NEW Material : UL94V-0, GWT750, Nylon
Part No. : 7-174587-1 (Natural)

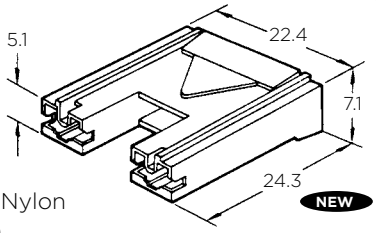
2 Circuits (7mm Pitch)
Material : UL94V-2, 6/6 Nylon



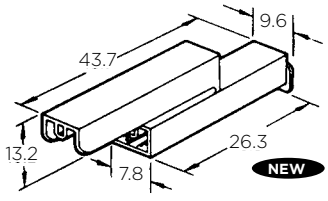
Part No. : 175578-1 (Natural)
Material : UL94V-0, 6/6 Nylon
Part No. : 1-175578-1 (Natural)
1-175578-2 (Black)
NEW
Material : UL94V-0, GWT750, Nylon
Part No. : 7-175578-1(Natural)



2 Circuits (10mm Pitch)
Material : UL94V-0, 6/6 Nylon
Part No. : 179720-1 (Natural)
179720-2 (Black)
179720-4 (Yellow)
179720-6 (Blue)
179720-7 (Red)
NEW Material : UL94V-0, GWT750, Nylon
Part No. : 7-179720-1 (Natural)

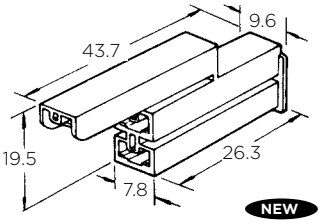


2 Circuits (15mm Pitch, for electro-magnetic)
Material : UL94V-0, 6/6 Nylon
Part No. : 176498-1 (Natural)
176498-2 (Black)
176498-4 (Yellow)
176498-6 (Blue)
NEW Material : UL94V-0, GWT750, Nylon
Part No. : 7-176498-1 (Natural)

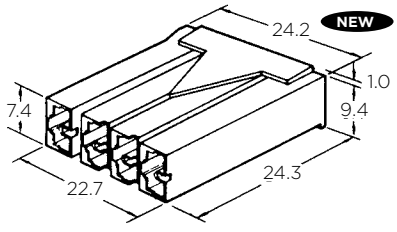


2 Circuits (for Micro-Switch)
Material : UL94V-2, 6/6 Nylon
Part No. : 174712-1 (Natural)
Material : UL94V-0, 6/6 Nylon
Part No. : 1-174712-1 (Natural)
1-174712-6 (Blue)
1-174712-7 (Red)
NEW Material : UL94V-0, GWT750, Nylon
Part No. : 7-174712-1 (Natural)

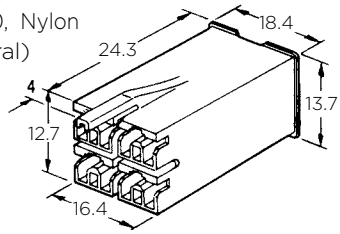
3 Circuits (for Micro-Switch)
Material : UL94V-2, 6/6 Nylon



Part No. : 172075-1 (Natural)
172075-4 (Yellow)
172075-5 (Green)
172075-6 (Blue)
172075-7 (Red)
Material : UL94V-0, 6/6 Nylon
Part No. : 1-172075-1 (Natural)
1-172075-4 (Yellow)
1-172075-6 (Blue)
NEW Material : UL94V-0, GWT750, Nylon
Part No. : 7-172075-1 (Natural)



4 Circuits (for Timer)
Material : UL94V-0, 6/6 Nylon
Part No. : 174513-1 (Natural)
NEW Material : UL94V-0, GWT750, Nylon
Part No. : 7-174513-1 (Natural)

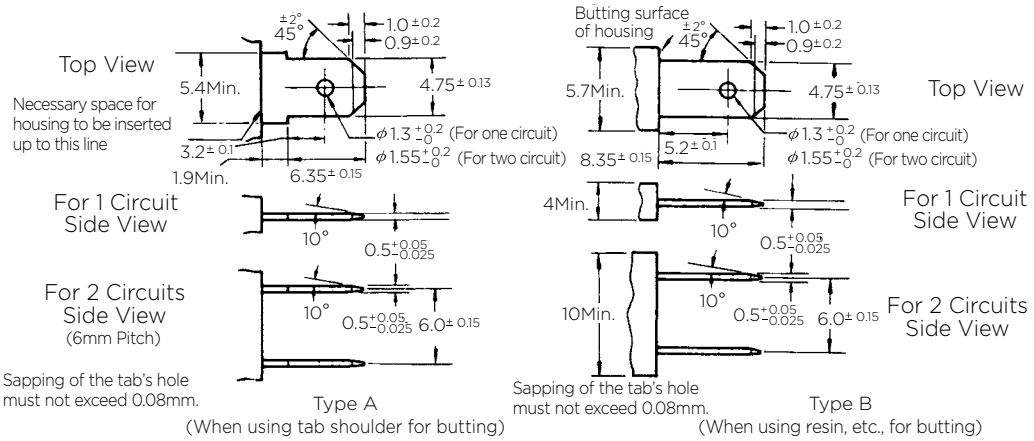


4 Circuits (for Power Relay)
Material : UL94V-2, 6/6 Nylon
Part No. : 173150-1 (Natural)
Material : UL94V-0,6/6 Nylon
Part No. : 1-173150-1 (Natural)

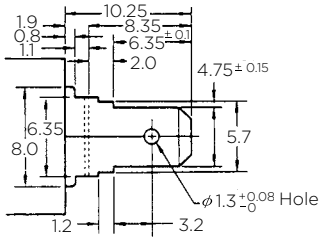
Note: All Part Numbers are RoHS compliant.

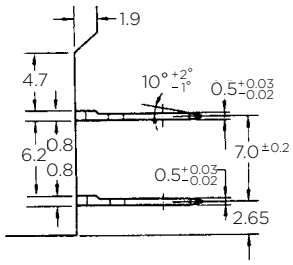
Positive Lock Connectors

<Mark II> For 187 Series (For Signal Circuit) Mating Tab Dimension of Commercial Type

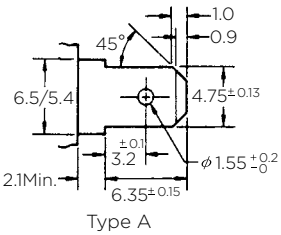


2 Circuits (7mm Pitch)

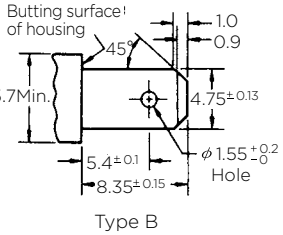




2 Circuits (With Polarized Guide)

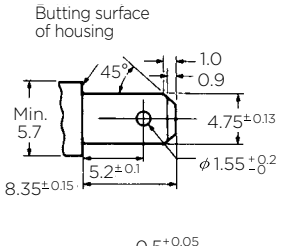


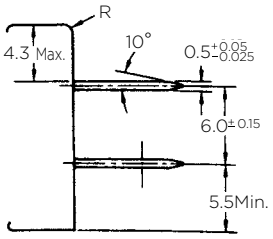
Type A

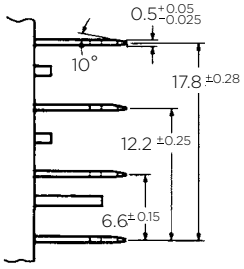


Type B

4 Circuits (Timer)



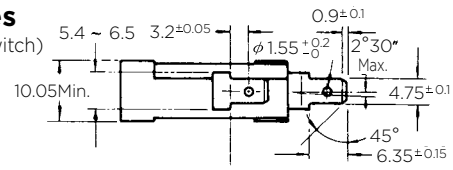




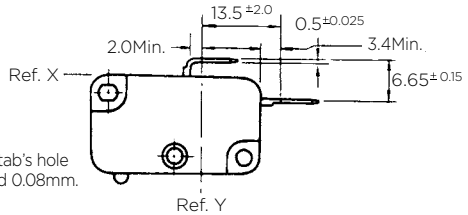
187 Series

(For Micro Switch)

Top View

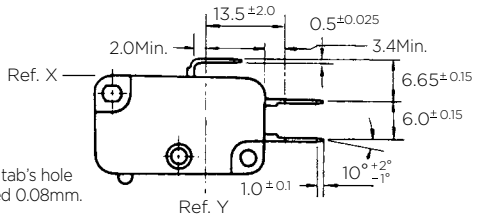


Side View



Sapping of the tab's hole must not exceed 0.08mm.

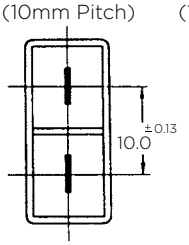
Side View



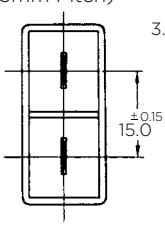
Sapping of the tab's hole must not exceed 0.08mm.

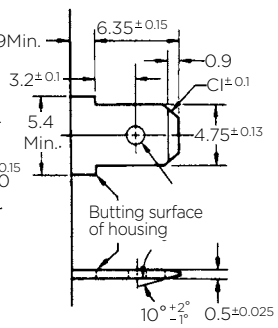
2 Circuits

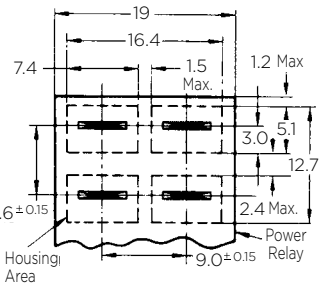
(10mm Pitch)



(15mm Pitch)







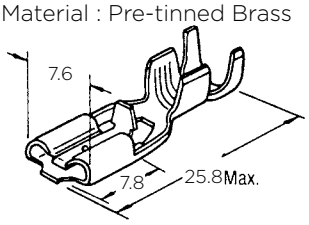
Dimensions for Power Relay

Positive Lock Connectors

<Mark II> 250 Series

Straight-type

Receptacle Terminals
Applicable Tab Width :
6.35mm
Material : Pre-tinned Brass

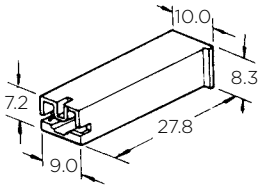


Applicable Wire		Insulation Diameter	Part No.
AWG#	mm²		S.T.*
22-18	0.31~0.89	1.5~3.1	170327-1
18-14	0.76~2.09	2.2~3.4	170328-1
15-10	1.75~5.2	3.0~5.1	170329-1

*Air-feed Applicator should be used. Extraction Tool P/N : 724659-2 (411-5106)

Note : P/N 911775-1=#14#15(One), #20+ #16(Two), #20x2+ #16 (Three)
P/N 911776-1=#12 or #10(One)

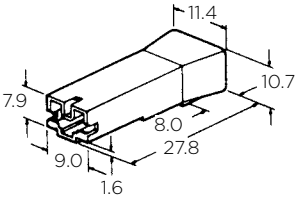
Receptacle Housings
Applicable contact
Part No. : 170327
170328
170329



1 Circuit
Material : UL94V-2, 6/6 Nylon
Part No. : 172076-1 (Natural)
172076-2 (Black)
172076-4 (Yellow)
172076-5 (Green)
172076-6 (Blue)
172076-7 (Red)

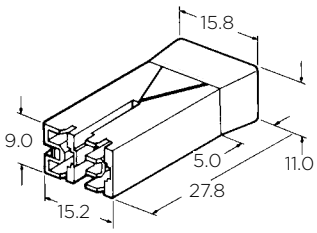
NEW Material : UL94V-0, GWT750, Nylon
Part No. : 7-172076-1 (Natural)

Material : UL94V-0, 6/6 Nylon
Part No. : 2-172076-1 (Natural)
2-172076-2 (Black)
2-172076-4 (Yellow)
2-172076-5 (Green)
2-172076-6 (Blue)
2-172076-7 (Red)

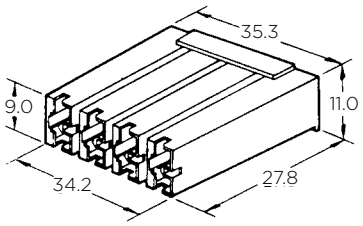


1 Circuit
Material : UL94V-0, 6/6 Nylon
Part No. : 177627-1 (Natural)
177627-4 (Yellow)
177627-6 (Blue)
177627-7 (Red)

NEW
Material : UL94V-0, GWT750, Nylon
Part No. : 7-177627-1 (Natural)



2 Circuits
Material : UL94V-0, 6/6 Nylon
Part No. : 178833-1 (Natural)

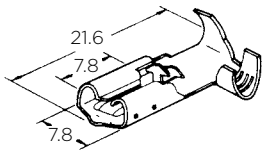


4 Circuits
Material : UL94V-2, 6/6 Nylon
Part No. : 174429-1 (Natural)

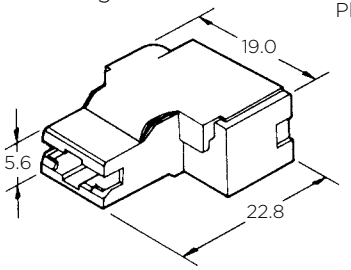
Flag Style Receptacle Connectors

Product Specification :
108-5162
Application Specification :
114-5070
Instruction Sheet :
411-5215

Terminals



Housing



Material : Pre-tinned Brass

Wire Range		Insulation Diameter	Part No.	Housing Part No.
AWG#	mm²		S.T.	
22-18	0.30~0.89	1.5~3.1	172761-1	172469-X
18-14	0.75~2.27	2.8~5.2	172763-1	
14-12	2.00~3.37		172765-1	
22-18	0.30~0.90	1.5~3.1	936603-1	85091-1
18-14	0.80~2.00	2.8~5.2	936604-1	85091-1
14-12	2.0~3.37	2.8~5.2	936605-1	85091-1

Please do not use this part number for production items.

1 Circuit
Material : UL94V-2, 6/6 Nylon
Part No. : 172469-1 (Natural)
172469-2 (Blue)
172469-3 (Yellow)
172469-4◆ (Green)
172469-8 (Black)

Material : UL94V-0, 6/6 Nylon
Part No. : 1-172469-1 (Natural)
1-172469-2 (Blue)

NEW
Material : UL94V-0, GWT750, Nylon
Part No. : 7-172469-1 (Natural)

Note: Part Numbers are RoHS compliant except: ◆ Indicates "not reviewed for EU RoHS/ELV compliance".

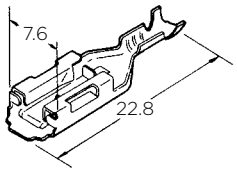
Positive Lock Connectors

<Mark II> Heavy-Duty Type

250 Series Receptacle Terminals

Acceptable Tab Width :
6.35mm

Material : Brass

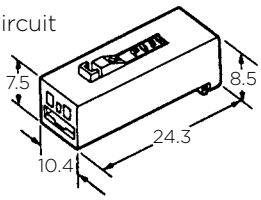


Applicable Wire		Insulation Diameter	Finish	Part Nos. of Rec. Terminals
AWG	mm²			S.T.
22-20	0.3~0.56	1.5~2.4	None	170452-1
			Pre-tinned	170452-2
18-14	0.75~2.27	2.2~3.4	None	170454-1
			Pre-tinned	170454-2
12-10	3.08~5.27	3.6~5.0	None	170456-1
			Pre-tinned	170456-2

Extraction Tool P/N : 724659-2(411-5106)
Application Spec. : 114-5060 / Product Spec.: 108-5150 / Instruction Sheet : 411-5154

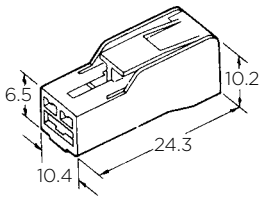
250 Series Receptacle Housings

1 Circuit



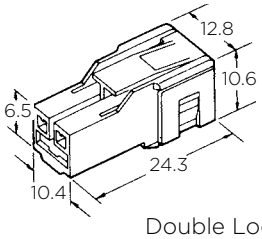
Low Profile Type

Material : UL94V-2, 6/6 Nylon
Part No. : 174090-1 (Natural)
174090-2 (Black)



Standard Type

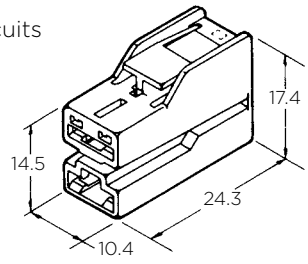
Material : 6/6 Nylon
Part No. : 172320-1 (Natural)
172320-2 (Black)



Double Lock Type

Material : UL94V-2, 6/6 Nylon
Part No. : 172863-1 (Natural)
172863-2 (Black)

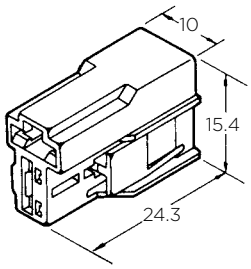
2 Circuits



Parallel Type

Material : UL94V-0, 6/6 Nylon
Part No. : 172433-2 (Black)

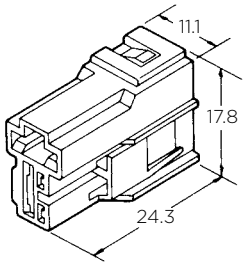
*Uses FASTON Receptacle terminal
P/N 170452 in circuit # II.
P/N 170454 in circuit # II.
P/N 170456 in circuit # II.



T Type

Material : UL94V-0, 6/6 Nylon
Part No. : 172434-1 (Natural)
172434-2 (Black)

*Uses FASTON Receptacle terminal
P/N 170452 in circuit # I.
P/N 170454 in circuit # I.
P/N 170456 in circuit # I.



Double Lock T Type

Material : UL94V-0, 6/6 Nylon
Part No. : 172864-1 (White)
172864-2 (Black)

*Uses FASTON Receptacle terminal
P/N 170452 in circuit # I.
P/N 170454 in circuit # I.
P/N 170456 in circuit # I.

Note: All Part Numbers are RoHS compliant.

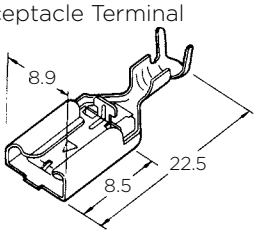
Positive Lock Connectors

<Mark II> Heavy-Duty Type

312 Series Connectors for Sealed Beam

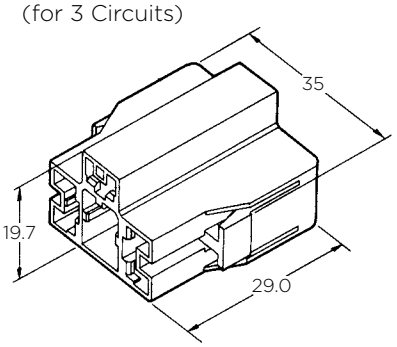
Product Specification :
108-5131
Instruction Sheet : 412-5120

Straight Type
Receptacle Terminal



Acceptable Tab Width : 7.92mm
Material : Pre-tinned Brass
Part No. : 170381-1 (S.T.)
Application Spec. : 114-5047

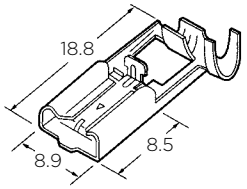
Receptacle Housing
(for 3 Circuits)



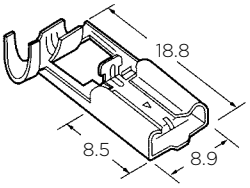
Part No. : 172236-1 (Natural)
172236-2 (Black)
Material : 6/6 Nylon

Flag Type
Receptacle Terminal

Acceptable Tab Width : 7.92mm
Material : Pre-tinned Brass
Application Spec. : 114-5079 (for standard wire)
114-5220 (for thin wire)

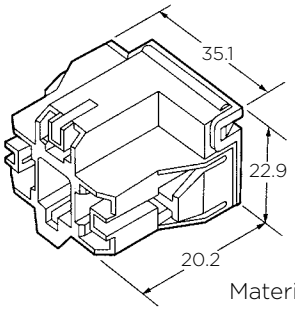


Flag Type(L)
Terminal Part No. : 172795-1
(for standard wire / S.T.)
Terminal Part No. : 900319-1
(for thin wire / S.T.)

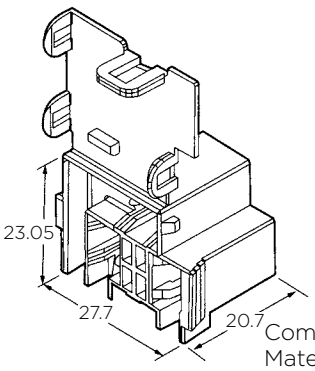


Flag Type(R)
Terminal Part No. : 172796-1
(for standard wire / S.T.)
Terminal Part No. : 900318-1
(for thin wire / S.T.)

Flag Type, for 3 circuits
Receptacle Terminal



Material : 6/6 Nylon
(for standard wire)
Part No. : 172615-2 (Black)
(for thin wire)
Part No. : 177720-2 (Black)

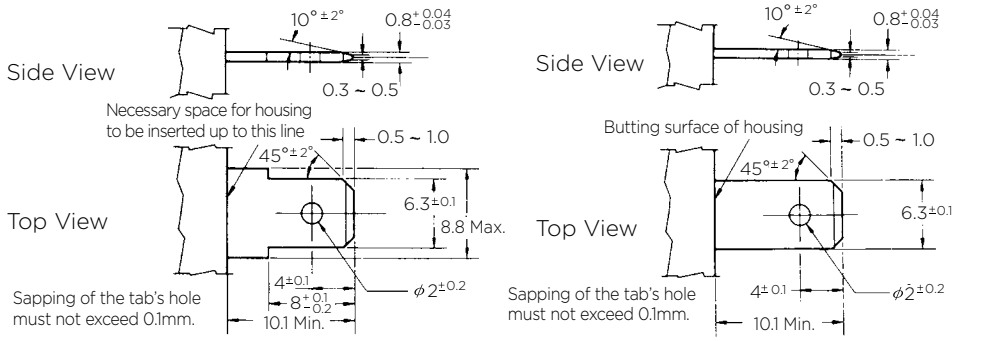


Compact Type
Material : PBT
Part No. : 353752-2 (Black)

Note: All Part Numbers are RoHS compliant.

<Mark II> Mating Tab Dimension of Heavy-duty Type

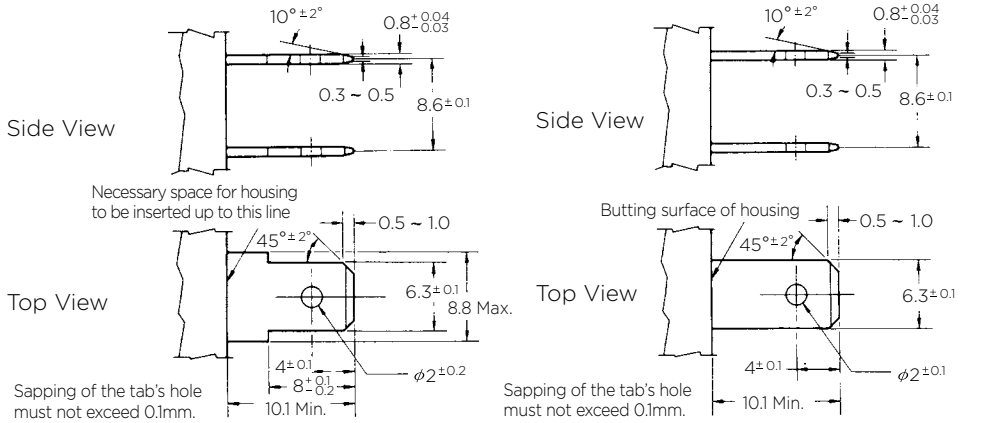
250 Sereis
(for 1 Circuit)



Type A (When using tab shoulder for butting)

Type B (When using resin, etc., for butting)

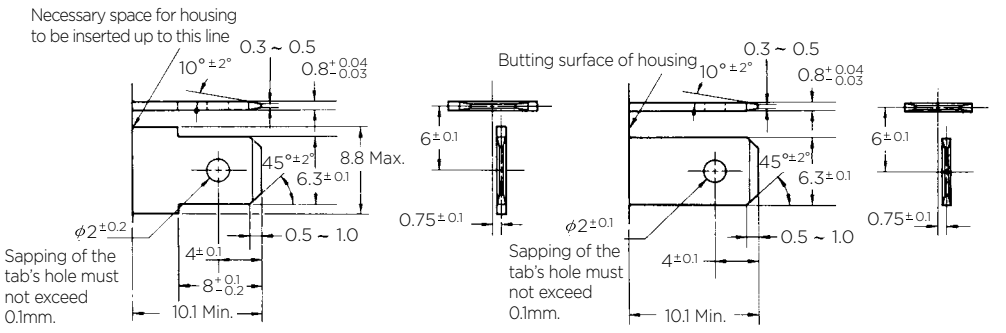
250 Series Parallel Type
(for 2 Circuits)



Type A (When using tab shoulder for butting)

Type B (When using resin, etc., for butting)

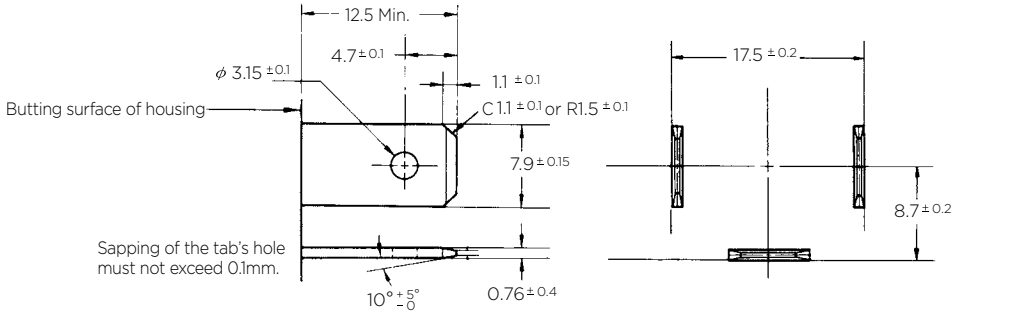
250 Series T Type
(for 2 Circuits)



Type A (When using tab shoulder for butting)

Type B (When using resin, etc., for butting)

For Sealed Beam
(for 3 Circuits)

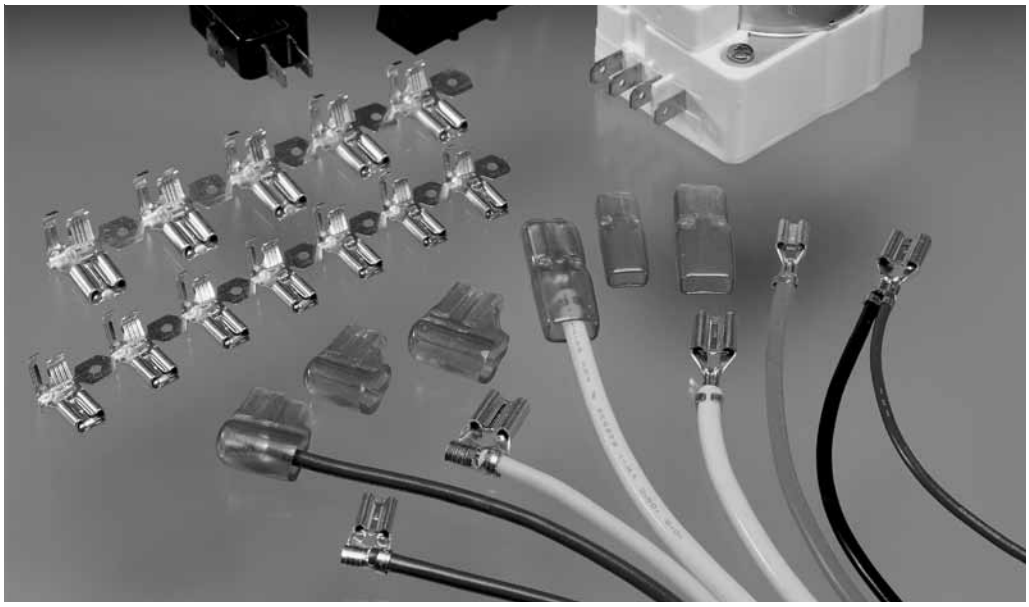


Positive Lock Connectors

These EX Series receptacle terminals have been developed as an addition to the low insertion force Positive Lock product line which has proven performance in tab and receptacle connection.

Compact in design, they are useful in saving space for installation. As well as can be used as a bare terminal, they are available in three types ; Sleeve Type that is capable of using a sleeve ; Housing Type that uses a housing ; and Double-Lock Type in which a double-lock plate is loaded to protect the connection after terminated terminals are loaded into a housing.

Sleeve Type (EX) 187 and 250 Series



Features :

- ■Low mating force (about half that of FASTON receptacles).
- ■Low withdrawal force.
- ■Compact design for space saving.
- ■Half-mating prevented.
- ■Can be used with tabs of various specifications.
- ■No tangling of wire even if terminals are used bare.
- ■Insulation sleeves available for certain applications.
- ■Choice of 187 and 250 Series depending on the width of mating tabs. Both Series available in Straight and Flag types.

Performance Data

<187 Series>
Voltage rating : 250V AC
Current rating : (AWG)
#26=2.0A / #24=2.5A
#22=3.0A / #20=5.0A
#18=7.0A / #16=12A
#14=15A
Low level Overall
Termination Resistance :
3m Ω Max. (Initial)
6m Ω Max. (Final)
Operating Temperature :
−40˚C~+105˚C
Terminal Locking Force : 58.8N Min.
<250 Series>
Voltage Rating : 250V AC
Current Rating : (AWG)
#22=3.0A / #20=5.0A
#18=7.0A / #16=12A
#14=15A / #12=20A
#10=25A
Low Level Overall
Termination Resistance :
3m Ω Max. (Initial)
6m Ω Max. (Final)
Operating Temperature :
−40˚C~+105˚C
Terminal Locking Force :
78.4N Min.

Although this product can be used without a housing as with FASTON receptacle terminals, it is provided with an insulation sleeve which, serving as a housing in certain applications, is loaded after wire is crimped to terminals. Also there is a high temperature version that can be used bare in temperatures up to 300˚C. This receptacle can be used with terminals of standard FASTON tab specifications. The height of the lever that releases locking with tabs is designed not to be greter than the height of the rolling section where tabs are inserted. As a result, even if a housing is not used, there is no danger of terminals being deformed. These receptacles, when mated with tabs, display performance that is characteristic of conventional Positive Lock products.
To pull out tabs, simply press down the locking lever of mated receptacles, which action enables to release and extract them with ease and low force.
These receptacles and associated insulation sleeves are available in the following two versions : which to use depends on the width of mating tabs.

- ●187 Series
  Straight/Flag types
- ●250 Series
  Straight/Flag types

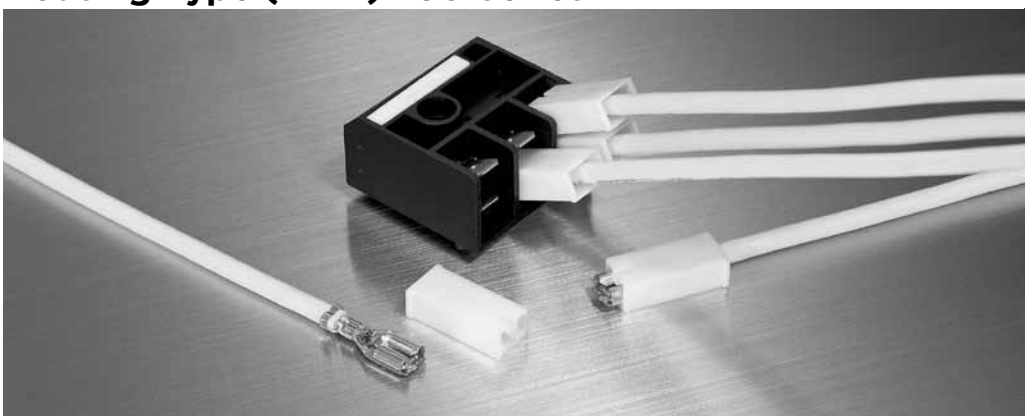
Product Specification :

<187 Series/Straight Type>
108-5236
108-5257
(for heat resistant)
<187 Series/Flag Type>
108-5250
<250 Series/Straight Type>
108-5251
108-5322
(for heat resistant)<250 Series/Flag Type>
108-5254

Application Specification :
<187 Series/Straight Type>
114-5114
114-5125
(for heat resistant)
<187 Series/Flag Type>
114-5118
<250 Series/Straight Type>
114-5119
114-5146
(for heat resistant)
<250 Series/Flag Type>
114-5122
Instruction Sheet :
411-5391

Housing Type (EX-II) 250 Series

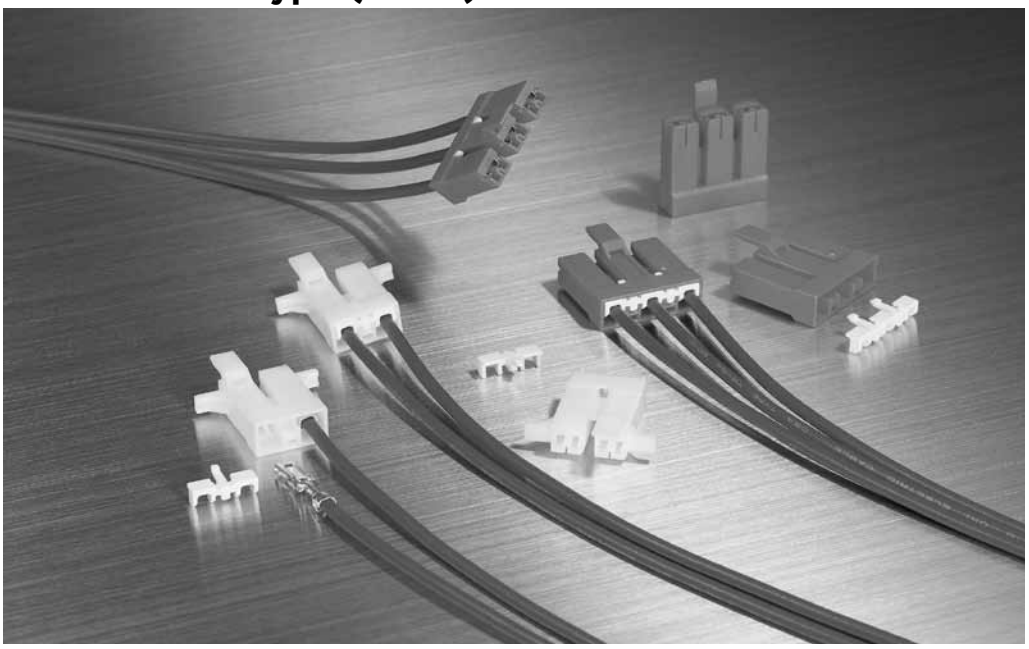
Features :
- Used either loaded in a housing after wire termination or bare as they stand.
- Terminal tip protrude from the housing, making mating with a tab in narrow space easily.
- Mate with 250 Series tabs
- Applicable wire - AWG#22-10
- Outer diameter of wire insulation - 1.5~4.3mm
- Materials :
  terminals - Tin plated Brass
  housing - UL94V-0,
  6/6 Nylon
- Product specification :
  108-5437
- Application specification :
  114-5195
- Instruction Sheet :
  411-5691



The housing Type EX Series connectors are used loaded in a housing after wire termination. With these receptacles, the terminal tip protrudes from the housing, making it possible to confirm mating with a tab in narrow space easily. Also they can be used as a bare terminal without being loaded into a housing.
Matin and unmating of tabs are done easily without fail like other connector types.

Double-Lock Type (EX-III)110 Seriles

Features :
- Provide positive protection to the connection with a double-lock plate after terminals are loaded into the housing.
- The width of applicable tabs - 2.8mm.
- 2 and 3 position connectors are available currently. One position is under development.
- Product specification :
  108-5530
- Application specification :
  114-5229
- Instruction Sheet :
  411-5806



Performance Data
Voltage Rating : 250V AC/DC
Current Rating : (AWG)
#26=2A / #24=2.5A
#22=3A / #20=4A
#18=6A / #16=8A
Low Level Overall Resistance :
10m Ω Min. (initial)
20m Ω Min. (final)
Insulation Resistance :
1,000M Ω Min. (initial)
100M Ω Min. (final)
Operating Temperature :
−40˚C~+105˚C
UL94V-0 ambient temperature
+ heat generated by current
Terminal Locking Force :
49N Min.

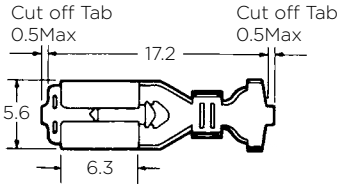
This EX Series connectors are a receptacle connector which, after loaded into the housing, provides positive protection and retension to the wire connection by means of a double-lock plate. The width of the mated tab is 2.8mm. This product is useful in making good electrical connection and has all features of Positive Lock connectors such as ease of connect and disconnect despite of its tab and receptacle mating configuration.

Positive Lock Connectors

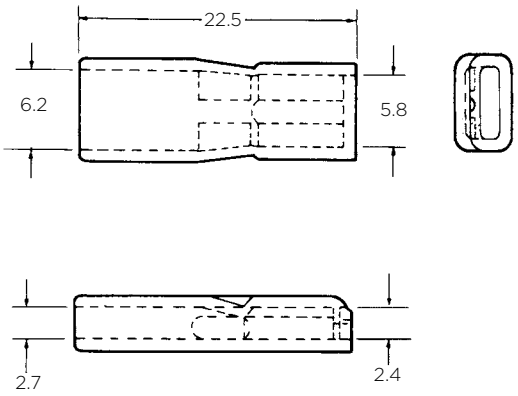
EX187 Series

Straight Type

Material and Finish :
Receptacle — Pre-tinned Brass, 0.3mm thickness, Stainless steel for heat resistant
Sleeve — UL94V-0, Soft PVC



Receptacle

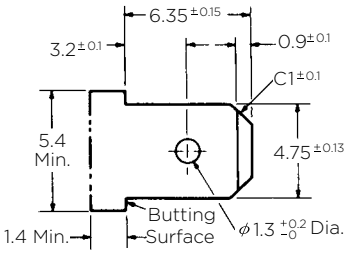


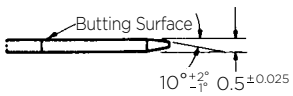
Insulation Sleeve

Applicable Wire		Wire Ins. Dia.	Part Number of Receptacle	Part Number
AWG	mm²		Strip Form	of Sleeve
26-22	0.14~0.53	1.3~3.6	173722-1	174737-1 (Blue)
20-14	0.50~2.20	1.9~4.4	173724-1	174737-2 (Yellow)
For heat-resistant				
26-20	0.14~0.53	1.3~3.6	175032-1	—
20-14	0.50~2.20	1.9~4.4	175034-1	—

*Operating Temperature Range : −40°C~200°C(ambient temperature + temprature rise by current carrying) Sleeve housing not used.
**Mating tab is made of stainless steel.

Mating Tab Dimension





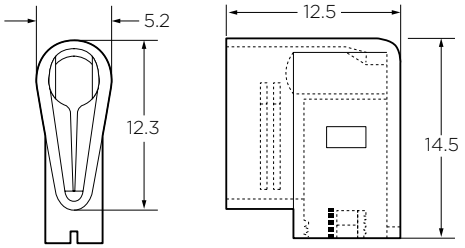
Note: All Part Numbers are RoHS compliant.

Positive Lock Connectors

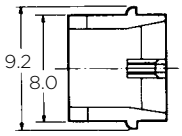
EX187 Series

Flag Type Sleeve

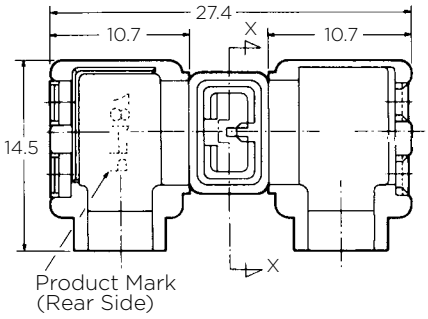
Applicable Contact
Part No. : 175019-1

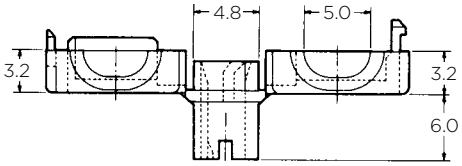


Insulation Sleeve



Section X-X



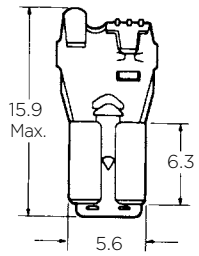


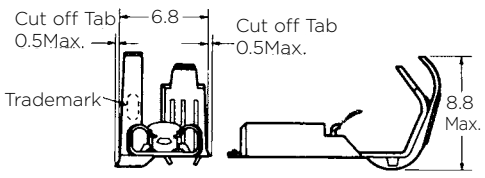
One Touch Sleeve

Type	Wire. Ins. Dia.	Material (Color)	Part No. of Sleeve
Sleeve	1.7~4.32	Soft PVC, UL94V-2 (Blue)	1717269-1
		Soft PVC, UL94V-0 (Yellow)	1717269-2
One Touch Sleeve	1.7~3.1	6/6 Nylon, UL94V-0 (Natural)	1-178708-1
		6/6 Nylon, UL94V-0 (Yellow)	1-178708-4
		6/6 Nylon, UL94V-0 (Green)	1-178708-5
		6/6 Nylon, UL94V-0 (Blue)	1-178708-6
		6/6 Nylon, UL94V-0 (Red)	1-178708-7
		6/6 Nylon, UL94V-0 (Black)	1-178708-9

Flag Type Receptacle Contact

Material and Finish :
Receptacle — Pre-tinned Brass,
0.3mm thickness





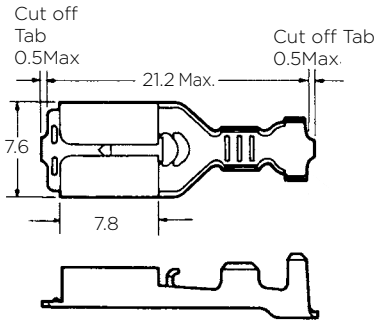
Applicable Wire		Wire Ins. Dia.	Part Number of Receptacle (Strip Form)
AWG	mm²		
22-16	0.30~1.42	1.5~4.32	175019-1

Note: All Part Numbers are RoHS compliant.

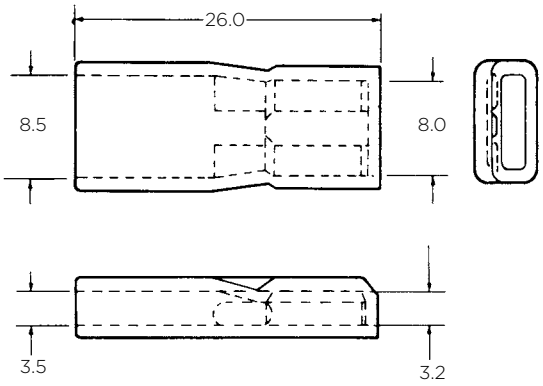
EX250 Series

Straight Type

Material and Finish :
Receptacle— Pre-tinned Brass,
0.41mm thickness,
stainless steel for heat resistant
Sleeve— UL94V-0, Soft PVC



Receptacle

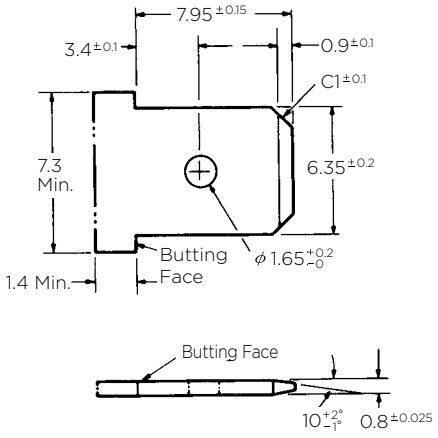


Insulation Sleeve

Applicable Wire		Wire Ins. Dia.	Part Number of Receptacle	Part Number of Sleeve
AWG	mm²		Strip Form	
22-18	0.31~0.89	1.5~3.1	175020-1	174817-1 (Blue) 174817-2 (Yellow)
18-14	0.75~2.09	2.2~3.4	175022-1	
15-10	1.75~5.40	3.0~5.1	175024-1	
For heat resistant*				
18-14	0.76~2.09	2.2~3.4	175164-1☆	—

*Operating Temperature Range : −40˚C~+300˚C(ambient temperature + temperature rise by current carrying) Sleeve housing not used.
**Mating tab is made of stainless steel.
☆UL. CSA Not Certified.

Mating Tab Dimension



Note: All Part Numbers are RoHS compliant.

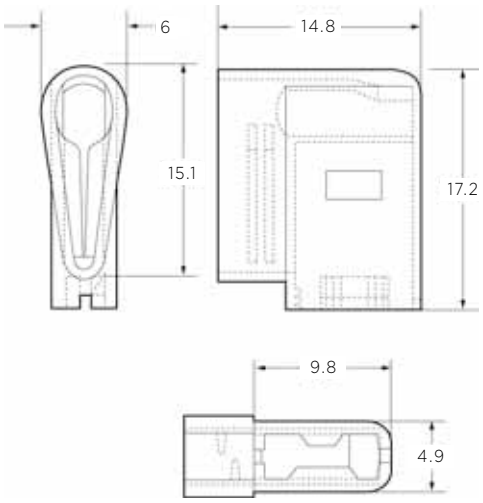
Positive Lock Connectors

EX250 Series

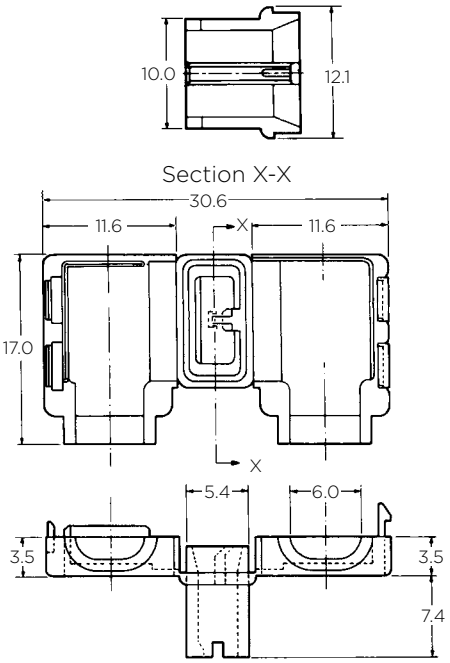
Flag Type Sleeve

Applicable Contact Part No. : 175057-1

Insulation Sleeve



Sleeve Type

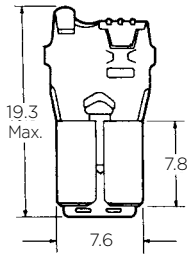


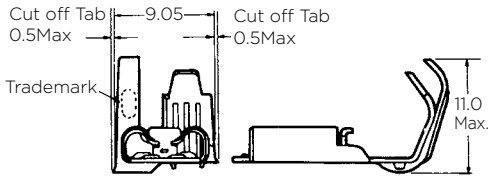
One Touch Sleeve

Type	Wire Ins. Dia.	Material (Color)	Part No. of Sleeve
Sleeve	2.8~5.3	Soft PVC, UL94V-0 (Blue)	1717268-1
		Soft PVC, UL94V-0 (Yellow)	1717268-2
One Touch Sleeve	2.8~4.2	6/6 Nylon, UL94V-2 (Natural)	176497-1
		6/6 Nylon, UL94V-2 (Black)	176497-9
		6/6 Nylon, UL94V-0 (Natural)	1-176497-1
		6/6 Nylon, UL94V-0 (Yellow)	1-176497-4
		6/6 Nylon, UL94V-0 (Blue)	1-176497-6
		6/6 Nylon, UL94V-0 (Red)	1-176497-7
		6/6 Nylon, UL94V-0 (Black)	1-176497-9

Flag Type Receptacle Contact

Material and Finish :
Receptacle—Pre-tinned Brass, 0.41mm thickness





Applicable Wire		Wire Ins. Dia.	Part Number of Receptacle (Strip Form)
AWG	mm²		
18-12	0.75~3.37	2.8~4.1	175057-1
12-10	3.08~5.37	2.8~4.9	175178-1✳

✳There is no application sleeve.

Note: All Part Numbers are RoHS compliant.

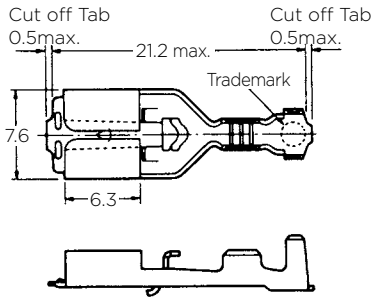
Positive Lock Connectors

EX250 Series

Terminals

Material and Finish :
Pre-tinned Brass

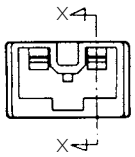
Product Specification :
108-5437
Application Specification :
144-5195
Instruction Sheet :
411-5691

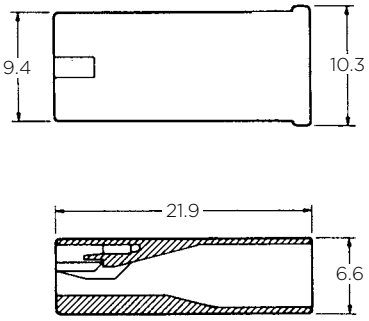


Applicable Wire		Wire Ins. Dia.	Part Number	Part Number of Applicators
AWG#	mm²		Strip	Desk Top Type
22-18	0.31~0.89	1.5~3.1	179973-1	1385091-2
18-14	0.76~2.09	2.2~3.34	179974-1	1339734-1
15-10	1.75~5.4	3.0~4.3	179975-1	1339736-1

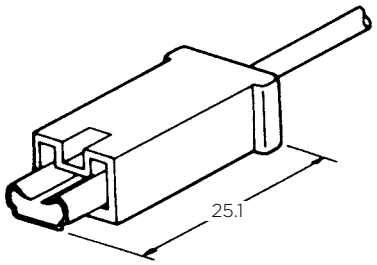
Housing (1 position)
Material : UL94V-0, 6/6 Nylon
Part Number :
179970-1 (Natural)
179970-2 (Red)
179970-4 (Yellow)
179970-6 (Blue)
179970-9 (Black)

NEW
Material : UL94V-0, GWT750, Nylon
Part No. : 7-179970-1(Natural)



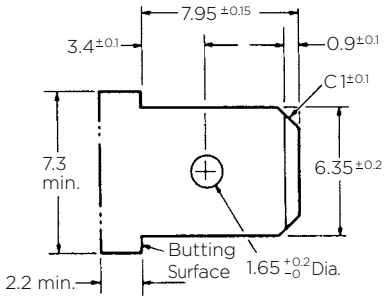


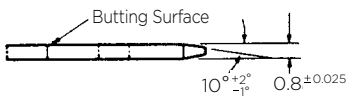
Section X-X



View of terminal assembly

Applicable Tab Dimension





This EX Series connectors can be used for many applications. For details, contact our Sales Department.

Note: All Part Numbers are RoHS compliant.

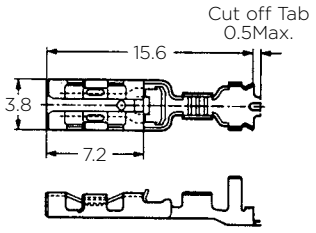
Positive Lock Connectors

110 Series (EX-III) Double Lock Type

Straight-type terminals

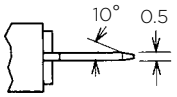
Material :
Pre-tinned Phosphor bronze

Product Specification :
108-5530
Application Specification :
114-5229
Instruction Sheet :
411-5806

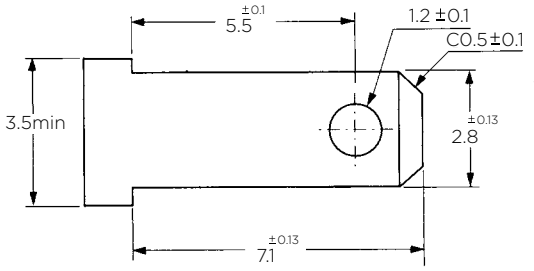


Applicable Wire		Wire Ins. Dia.	Part No. of Rec.	Part No. of
AWG#	mm²		Strip Form	Applicator
26-22	0.14~0.34	1.3~2.0	353249-2	1852689-2
20-16	0.50~1.25	2.0~3.1	353250-2	1385107-2

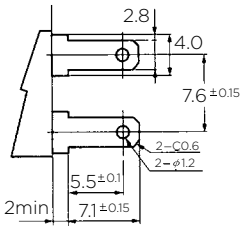
Mating Tab Dimension



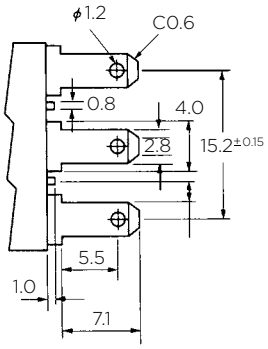
1 Position



2 Position



3 Position



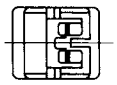
Note: All Part Numbers are RoHS compliant.

Positive Lock Connectors

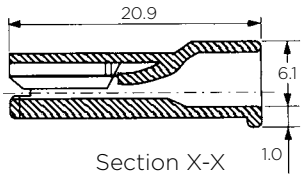
110 Series (EX-III) Double Lock Type

1 Position

Material : UL94V-0 , 6/6 Nylon
Part Number :
353251-1 (Natural)



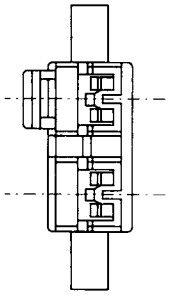
(1 Pos. type has no double lock plate)

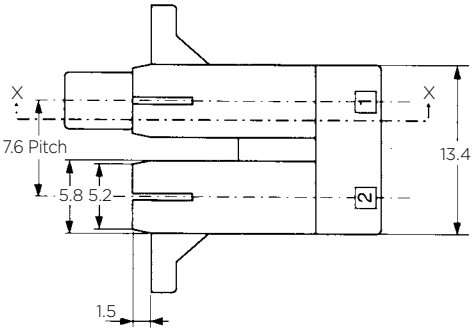


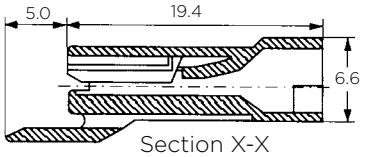
Section X-X

2 Position

Material : UL94V-0, 6/6 Nylon
Part Number :
353253-1 (Natural)



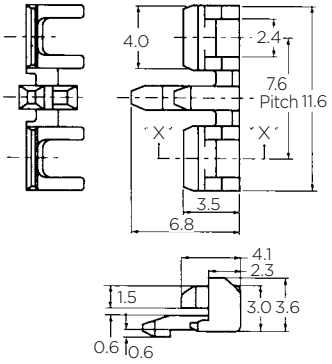




Section X-X

Double Lock Plate

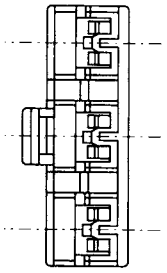
Material : UL94V-0, 6/6 Nylon
Part Number :
353254-1 (Natural)

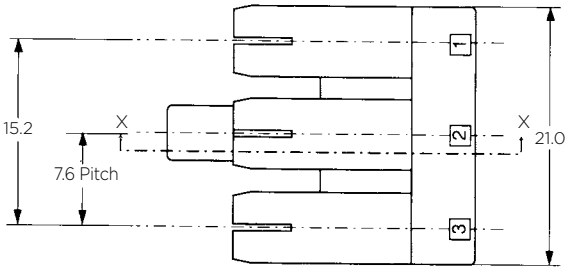


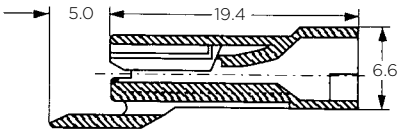
3 Position

Material : UL94V-0, 6/6 Nylon
Part Number :
353255-1 (Natural)
353255-7 (Red)

NEW Material : UL94V-0, GWT750 Nylon
Part Number : 7-353255-1 (Natural)



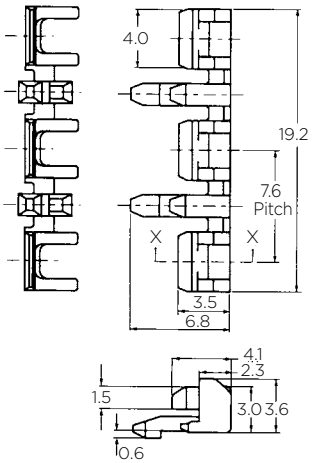




Section X-X

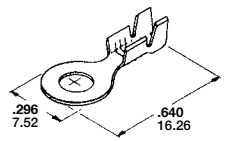
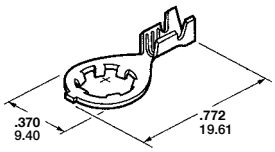
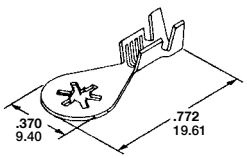
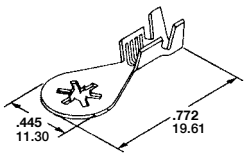
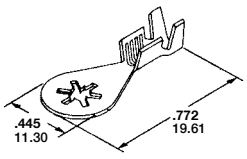
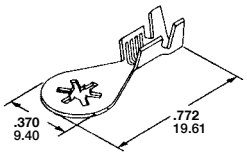
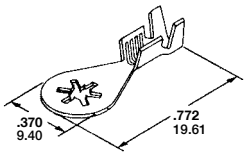
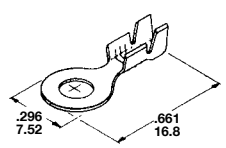
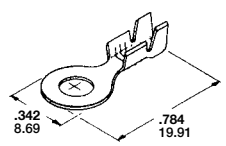
Double Lock Plate

Material : UL94V-0, 6/6 Nylon
Part Number :
353256-1 (Natural)



Note: All Part Numbers are RoHS compliant.

Ring Tongue Terminal, Insolation Support

		Style	TE Part Number	Wire Range AWG	Stock Thickness	Insulation Diameter	Stud Size	Material and Finesh
A		A	41332	18-14	0.51	3.05-4.32	8	Brass Tin Plated
B		B	61436-2	22-16	0.64	2.54-3.56	4.50	Brass Tin Plated
C		C	61794-4	18-14	0.64	2.67-3.68	8	Brass None
D		D	61795-3	18-14	0.64	2.67-3.68	10	Brass Tin Plated
E		E	63482-1	18-14	0.64	2.67-3.68	10	Steel Tin Plated
F		F	640051-1	18-14	0.61	2.67-3.68	8	Stainless Steel None
G		G	640052-1	18-14	0.61	2.67-3.68	10	Stainless Steel None
H		H	170011-2	18-14	0.51	3.10-4.30	10	Brass Tin Plated
I		I	640253-2	16-12	0.46	(2)3.18	10	Brass Tin Plated

Note: All Part Numbers are RoHS compliant.

Engineering Notes

Note: All Part Numbers are RoHS compliant.

FOR MORE INFORMATION

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Mexico:	+52 (0) 55-1106-0800
UK:	+44 (0) 800-267666
USA:	+1 (800) 522-6752

For other country number go to te.com/supportcenter
Part numbers in this brochure are RoHS Compliant*, unless marked otherwise.
*as defined www.te.com/leadfree

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