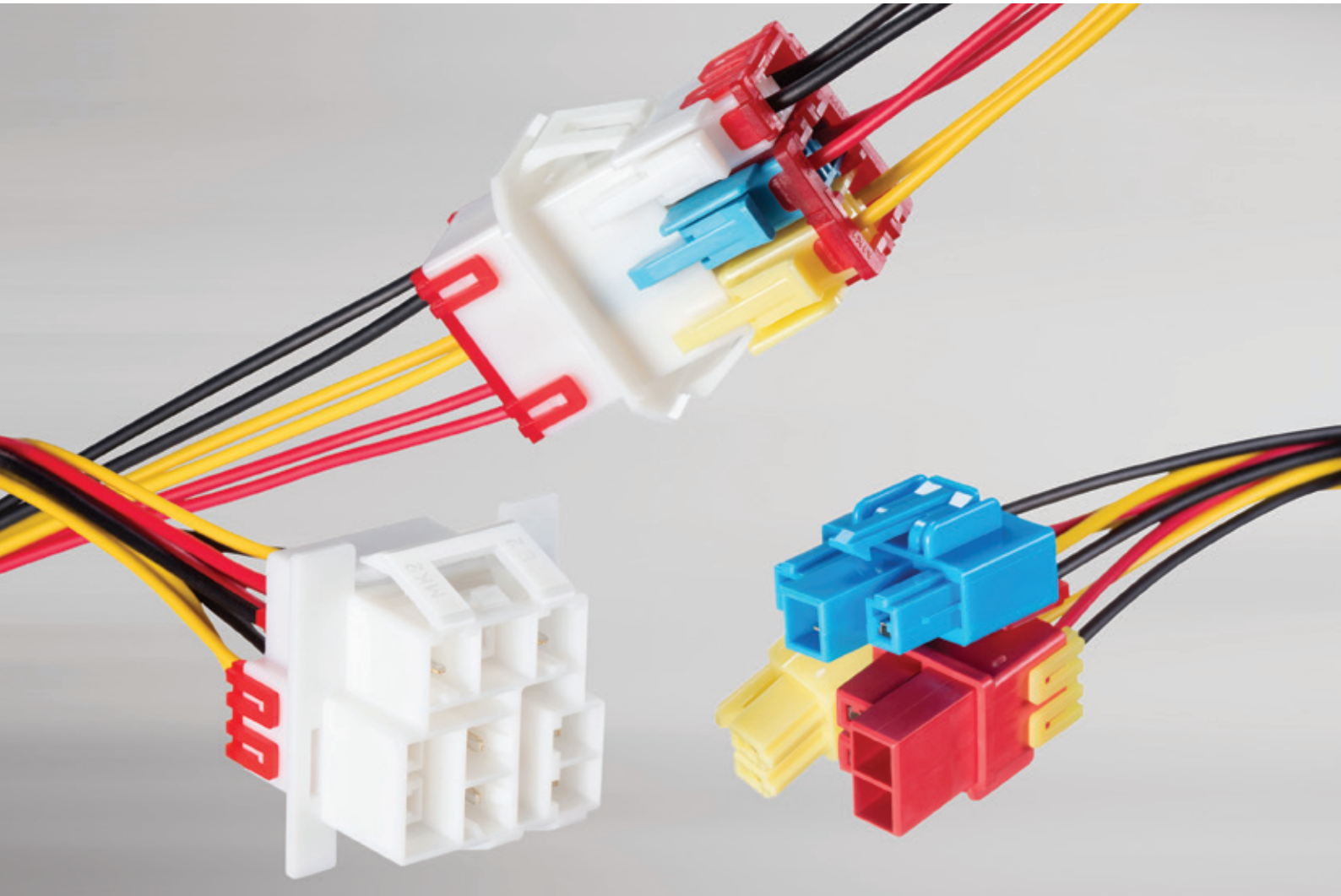


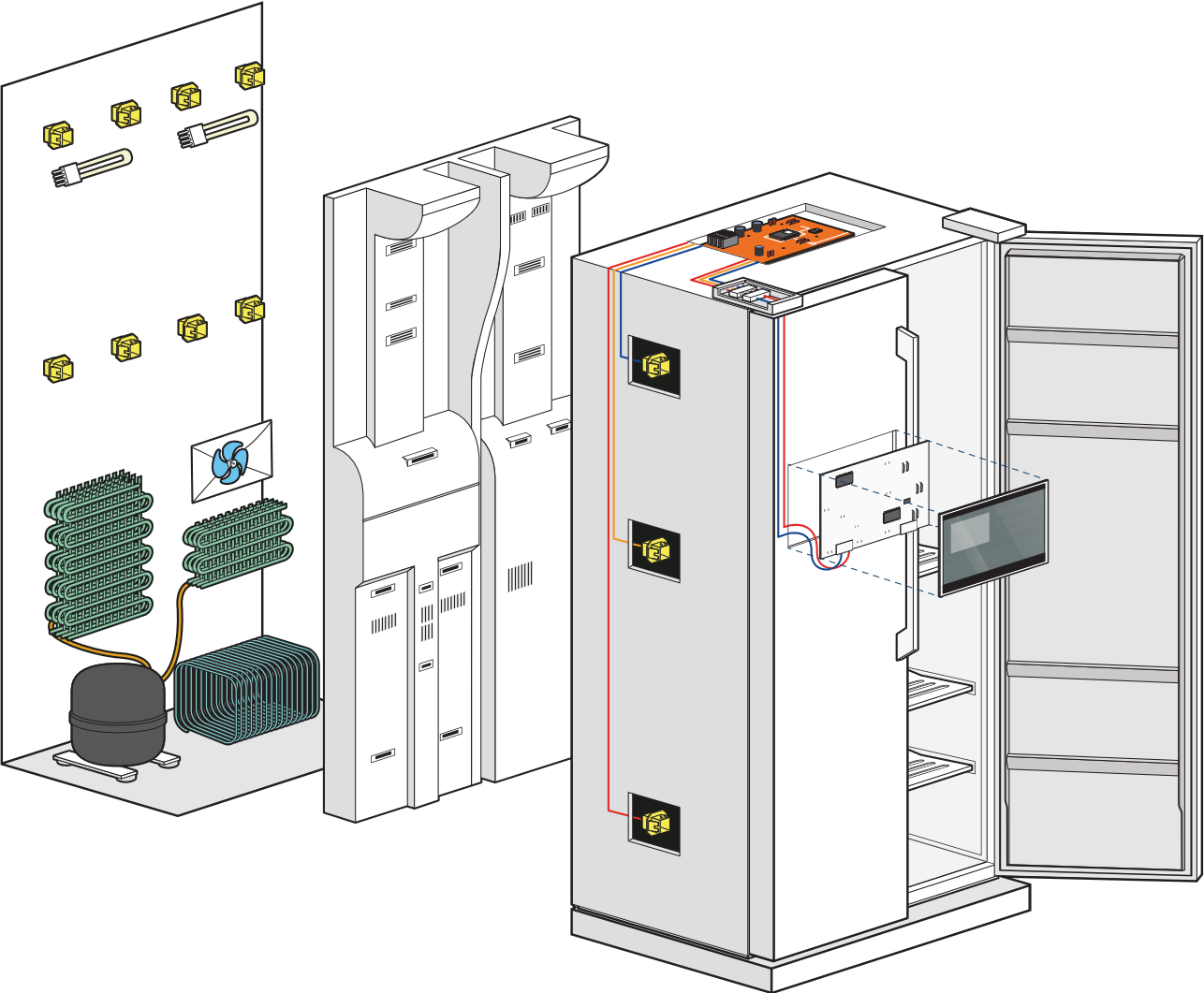
VersaBlade™ >

Wire-to-Wire Connection System



VersaBlade™ Wire-to-Wire Connection System >

For Home Appliance



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› Introduction

White Goods and HVAC applications such as refrigerators, washing machines and heating units often use numerous similarly-configured wire-to-wire power and signal connectors.

This creates a risk of mis-mating and signal failure, along with an increase in manufacturing time and cost in order to assemble multiple harnesses.

Molex's VersaBlade™ connector system addresses these issues with multi-module configurations and color options that provide visible mating guidance and reduced assembly steps.

The system enables reliable signal and power transmission at 300V and 15A for superior mating reliability.

Based on the proven .070" (1.80mm) tab terminal design, the system also offers: single and multi-module styles that can accept a wide wire range between 14-24 AWG; durable shrouded housings with positive or friction locks; panel-mount options; and a TPA retainer for secure terminal retention.

Glow-wire versions are also available.

› Markets and Applications

Markets

- Consumer
- Data / Computing
- Medical
- Industrial

Applications

- Refrigerator
- Washing Machine
- Microwave Oven
- Air Conditioner / Air Cleaner / Dehumidifier
- Exercise Equipment
- Printers / Copiers
- Power Tools
- Dryers



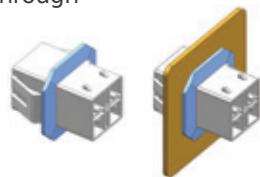
› Features and Benefits

FEATURES	BENEFITS
Multi-configured modular housings with color-coding options	Provide design flexibility and polarization. Enables power and signal carrying within one connector. Facilitates material management when housings and wires are color matched
Optional glow-wire-compliant housing	Meets global safety and environmental requirements for appliance applications
Optional snap-in mounting ears ✖	Enables panel-mount, feed-through configurations
Dual-row system	Provides heat dissipation and low engagement force.
Positive locking type ✖	It is easy to rework by pushing the housing locking area
Friction locking type ✖	It secures receptacle housing and plug housing from unmating
Multi-branched wiring capabilities	Offers harness design options to reduce time and cost
Polarized housing and terminal dimple available (terminal-to-housing; housing-to-housing) ✖	Prevents incorrect connector insertion and mating
Housing lance: Plastic hook captures the hole on terminal	Higher and more solid terminal-to-housing retention. No flaring, weak metal tangs
Accept wide range of wire sizes (14 to 24 AWG)	Supports high voltage and current (300V/15A). More robust than blanked terminals
Terminals can be crimped with two wires	Enables daisy-chain connections
Variety of terminal position assurance (TPA) types	Facilitates correct mating. Provides reliable terminal seating. Availability of options provides design flexibility for harness assembly

✖ Feature Details

Mounting-Ear Type

Enables panel-mount, feed-through configurations



Two Locking Types

A. Positive Locking

Easy to rework



B. Friction Locking

Provides secure mating retention



Polarization

A. Terminal-to-Housing | Terminals are segmented by a dimple design to fit into designated housings and prevent incorrect mating



B. Housing-to-Housing | Housings are designed with polarization keys in order to properly distinguish signal and power lines



› Specifications

Reference Information

- Packaging : Housing / TPA – Bulk
Terminal – Reel
- UL File No. : E29179
- CSA File No. : LR19980
- RoHS : Compliant
- Halogen Free : Not Low Halogen
- Glow Wire Compliant : Available

Mechanical

- Contact Insertion Force(max.) : 3.5kgf
- Contact Retention to Housing(min.) : 4.0kgf
- Durability(max.) : 30 Cycles

Physical

Housing

- PBT : Polybutylene Terephthalate
Colors - Natural, Blue, Red
- GWIT : Polyethylene Terephthalate /
Polycarbonate (PET / PC)
Colors - Natural, Blue, Yellow

Terminal Plating

- Male Terminal : Brass / Tin
- Female Terminal : Phosphor Bronze / Tin

Operating Temperature

- PBT : -40 to+120°C
- GWIT : -40 to+110°C

Electrical

- Voltage(max.) : 300V
- Current(max.) : 15A
- Contact Resistance : 10 milliohm
- Dielectric Withstanding Voltage : AC 1500V
- Insulation Resistance : 100 megaohms

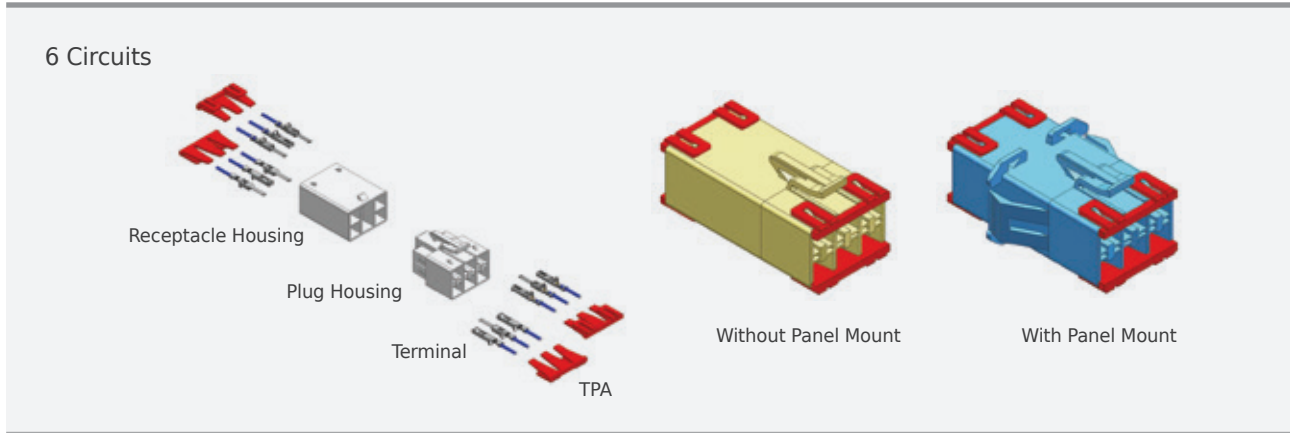
Housing Part Number Guide

Product Resin / Color
Series Number Variation
EX) 3 5 1 5 1 – x 4 1 x'

X	X'	Resin	Color
0	0	PBT	Natural
0	2		Red
0	3		Yellow
0	4		Blue
0	9	GWIT	Natural
9	2		Red
9	3		Yellow
9	4		Blue

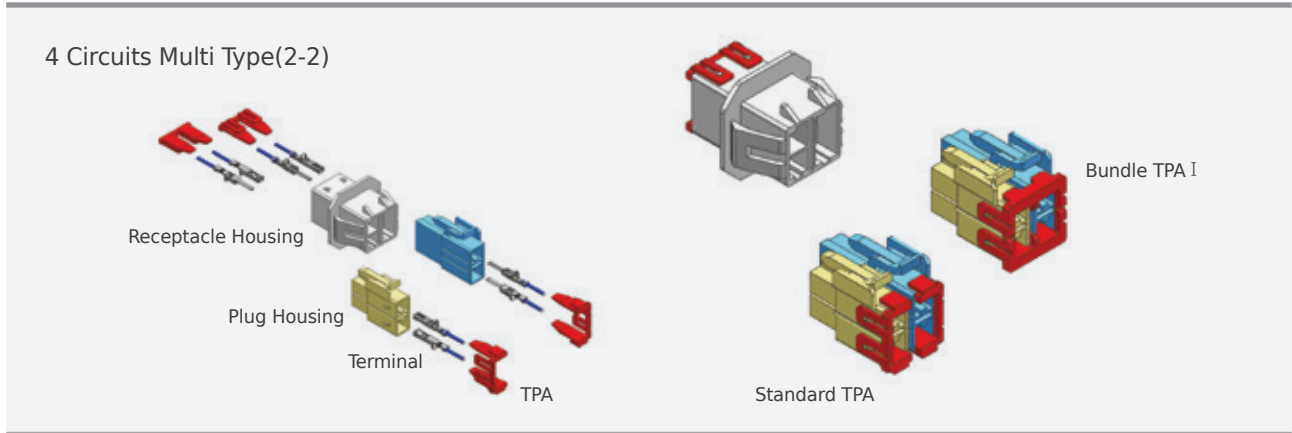
* 35965, 35524 Series is exceptional.




› Mating Structure Standard Type








Housing				Terminal Mating by Housing Circuits					
Circuits	Receptacle Housing		Plug Housing	Receptacle Housing			Plug Housing		
	Without Panel Mount	With Panel Mount	Positive Lock	Circuit No.	Type	Terminal Series	Circuit No.	Type	Terminal Series
1	35150-x10x	35150-x11x	35151-x11x	1	Male	35745	1	Female	35746
2	35150-x20x	35150-x21x	35151-x21x	1	Male	35745	1	Female	35746
3	35150-x30x	35150-x31x	35151-x31x	1	Male	35745	1	Female	35746
				2	Female	35746	2	Male	35745
				3	Male	35747	3	Female	35748
4	35150-x40x	35150-x41x	35151-x41x	1	Male	35745	1	Female	35746
				2	Male	35747	2	Female	35748
				3	Female	35746	3	Male	35745
				4	Female	35748	4	Male	35747
6	35150-x60x	35150-x61x	35151-x61x	1	Male	35747	1	Female	35748
				2	Female	35746	2	Male	35745
				3	Male	35745	3	Female	35746
				4	Male	35745	4	Female	35746
				5	Female	35746	5	Male	35745
				6	Male	35747	6	Female	35748
Circuits	TPA			Terminal Series and Barrel Size					
Used with	35182-x19x	35150-x29x	35150-x39x	Male	35745/35747	Female	35746/35748	-0110	AWG 22-20
								-0210	AWG 18-14
								-0310	AWG 20&20, 18&18
								-0410	AWG 24

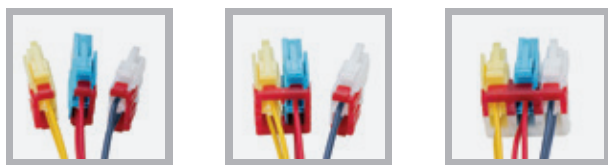
› Mating Structure Multi Type



Housing				Terminal Mating by Housing Circuits						
	Receptacle	Plug		Receptacle Housing			Plug Housing			
Circuits	With Panel Mount	Positive Lock		Circuit No.	Type	Terminal Series	Type	Circuit No.	Type	Terminal Series
4	Multi 2-2  35180-x40x	A Type  35965-x20x	B Type  35965-x21x	1	Male	35745	A Type	2	Female	35746
				2	Male	35747		1	Female	35746
				3	Female	35746	B type	1	Male	35745
				4	Female	35748		2	Male	35745

Circuits	TPA	TPA※		Terminal Series and Barrel Size							
Used with	 35182-x29x	Standard Type  35965-x29x	Bundle Type I  104081-x28x	Male	Female	-0110	AWG 22-20				
						-0210	AWG 18-14				
						-0310	AWG 20&20, 18&18 ※※				
						35745/35747	35746/35748	-0410	AWG 24		

※ Standard and Bundle Type TPA Usage



Standard Type

Bundle Type I

Bundle Type II

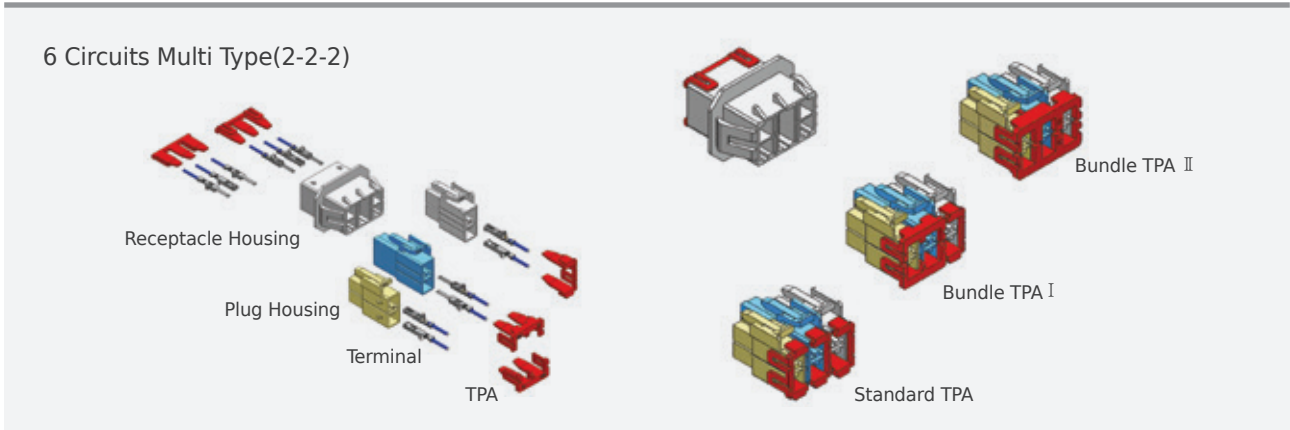
※※ Crimping Type














Standard Crimping

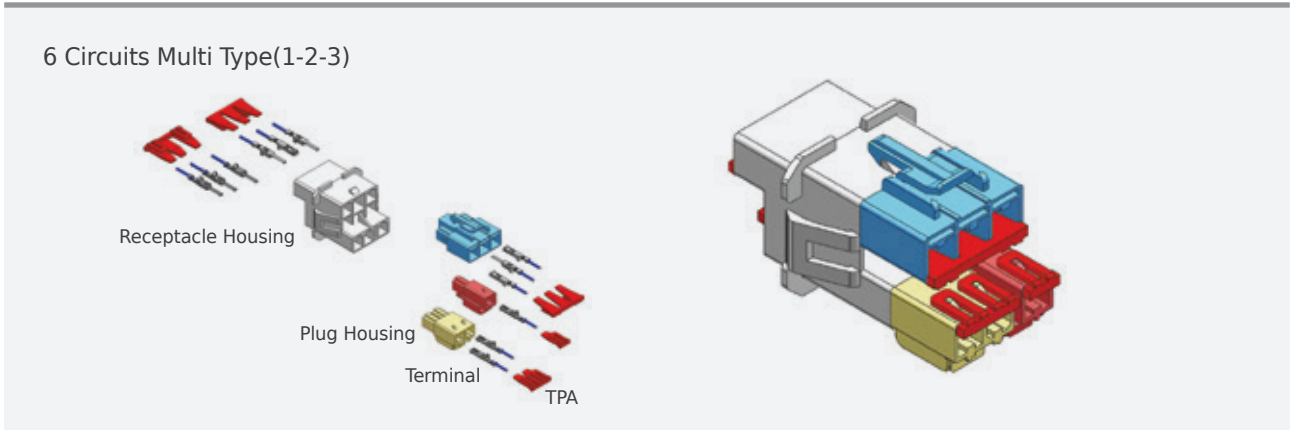
Double Crimping












› Mating Structure Multi Type



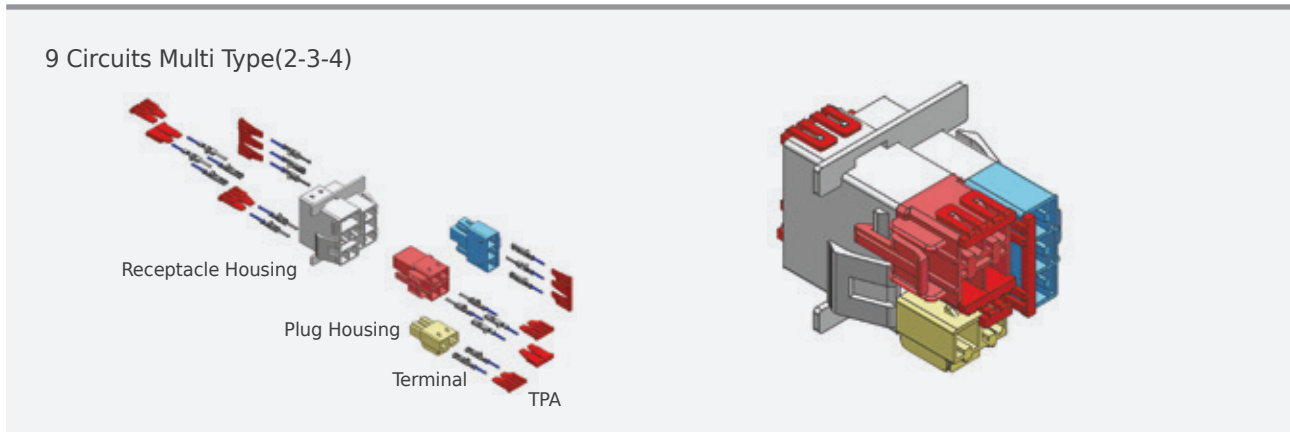
Housing		Terminal Mating by Housing Circuits										
	Receptacle	Plug			Receptacle Housing			Plug Housing				
Circuits	With Panel Mount	Positive Lock			Circuit No.	Type	Terminal Series	Type	Circuit No.	Type	Terminal Series	
6	Multi 2-2-2	A Type	B Type	C Type	1	Male	35747	C Type	2	Female	35748	
	   				6	Male	35747		1	Female	35748	
						2	Female	35746	B Type	2	Male	35745
						5	Female	35746		1	Male	35745
						3	Male	35745	A Type	2	Female	35746
	35180-x60x	35965-x20x	35965-x21x	35965-x22x	4	Male	35745		1	Female	35746	
	With Panel Mount	Friction Lock			1	Male	35747	4	1	Female	35746	
	Multi 4-2	4p	2p		6	Male	35747		2	Female	35746	
	  				3	Female	35745		3	Male	35745	
						4	Female	35745		4	Male	35745
						2	Male	35746	2	2	Female	35746
	204102-0609	204102-0409	204102-0209		5	Male	35746		1	Female	35746	
Circuits	TPA	TPA ※※			Terminal Series and Barrel Size							
Used with	   	Standard Type	Bundle Type I	Bundle Type II	Male	Female	-0110	AWG 22-20				
								-0210	AWG 18-14			
								-0310	AWG 20&20, 18&18			
								-0410	AWG 24			
						35745/35747	35746/35748					











› Mating Structure Multi Type



Housing			Terminal Mating by Housing Circuits							
	Receptacle	Plug	Receptacle Housing			Plug Housing				
Circuits	With Panel Mount	Positive Lock	Circuit No.	Type	Terminal Series	Circuits	Circuit No.	Type	Terminal Series	
6	 35186-0610	 35151-x31x	1	Male	35747	3	1	Female	35746	
			2	Female	35746		2	Male	35745	
			3	Male	35745		3	Female	35748	
			 35151-x21x	4	Male	35745	2	2	Female	35746
			 35151-x11x	5	Male	35745		1	Female	35746
				6	Male	35747	1	1	Female	35746
Circuits	TPA	TPA	Terminal Series and Barrel Size							
Used with	 Upper 35182-x39x	 Lower 35187-x39x	 35182-x19x	 35150-x29x	 35150-x39x	Male	Female	-0110	AWG 22-20	
						 35745/35747	 35746/35748	-0210	AWG 18-14	
								-0310	AWG 20&20, 18&18	
								-0410	AWG 24	

› Mating Structure Multi Type



Housing			Terminal Mating by Housing Circuits							
	Receptacle	Plug	Receptacle Housing			Plug Housing				
Circuits	With Panel Mount	Positive Lock	Circuit No.	Type	Terminal Series	Circuits	Circuit No.	Type	Terminal Series	
9	Multi 2-3-4  35524-x92x	 35151-x21x	1	Male	35745	2	1	Female	35746	
	Full Panel Mount	 35151-x31x	2	Male	35745		2	Female	35746	
			3	Male	35745	3	1	Female	35746	
	Multi 2-3-4  202650-0909	 35151-x41x	4	Female	35746	4	2	Male	35745	
			5	Male	35747		3	Female	35748	
				6	Female	35746	4	4	Male	35747
				7	Female	35746		3	Male	35745
				8	Male	35747	4	2	Female	35748
				9	Male	35747		1	Female	35746
Circuits	TPA	TPA	Terminal Series and Barrel Size							
Used with	 35182-x39x	 35150-x29x	 35150-x39x	Male	Female	-0110	AWG 22-20			
						-0210	AWG 18-14			
						-0310	AWG 20&20, 18&18			
						-0410	AWG 24			

Ordering Information

1. Standard Type Housing

Receptacle Housing

Circuits	Type	Component	Part Number	Material	Color
1	Without Panel Mount		35150-0100	PBT	Natural
			35150-0109	GWIT	Natural
1	With Panel Mount		35150-0110	PBT	Natural
2	Without Panel Mount		35150-0200	PBT	Natural
			35150-0204	PBT	Blue
			35150-0209	GWIT	Natural
			35150-3209	GWIT	Yellow
			35150-4209	GWIT	Blue
	With Panel Mount		35150-0210	PBT	Natural
			35150-0214	PBT	Blue
			35150-0219	GWIT	Natural
			35150-3219	GWIT	Yellow
			35150-4219	GWIT	Blue
3	Without Panel Mount		35150-0300	PBT	Natural
			35150-0304	PBT	Blue
			35150-0309	GWIT	Natural
			35150-3309	GWIT	Yellow
			35150-0310	PBT	Natural
	With Panel Mount		35150-0314	PBT	Blue
			35150-0319	GWIT	Natural
			35150-3319	GWIT	Yellow
			35150-4319	GWIT	Blue
4	Without Panel Mount		35150-0400	PBT	Natural
			35150-0404	PBT	Blue
			35150-0409	GWIT	Natural
			35150-0410	PBT	Natural
			35150-0414	PBT	Blue
	With Panel Mount		35150-0419	GWIT	Natural
			35150-3419	GWIT	Yellow
			35150-4419	GWIT	Blue
6	Without Panel Mount		35150-0600	PBT	Natural
			35150-0604	PBT	Blue
			35150-0609	GWIT	Natural
			35150-3609	GWIT	Yellow
			35150-0610	PBT	Natural
	With Panel Mount		35150-0614	PBT	Blue
			35150-0619	GWIT	Natural
			35150-3619	GWIT	Yellow
			35150-4619	GWIT	Blue

Plug Housing

Circuits	Component	Part Number	Material	Color
1		35151-0110	PBT	Natural
		35151-0119	GWIT	Natural
2		35151-0210	PBT	Natural
		35151-0214	PBT	Blue
		35151-0219	GWIT	Natural
		35151-3219	GWIT	Yellow
3		35151-4219	GWIT	Blue
		35151-0310	PBT	Natural
		35151-0314	PBT	Blue
		35151-0319	GWIT	Natural
		35151-3319	GWIT	Yellow
		35151-4319	GWIT	Blue
4		35151-0410	PBT	Natural
		35151-0414	PBT	Blue
		35151-0419	GWIT	Natural
		35151-3419	GWIT	Yellow
		35151-4419	GWIT	Blue
6		35151-0610	PBT	Natural
		35151-0614	PBT	Blue
		35151-0619	GWIT	Natural
		35151-3619	GWIT	Yellow
		35151-4619	GWIT	Blue

Application Tooling



Type	Terminal Series	Detail Number	Handtool	Fine Adjust Die Number	Extraction Tool Number
Male	35745	-0110	63819-6800	63862-9000	63813-2700
		-0210	63819-0600	63862-9100	63813-2700
		-0310	63819-0700	63862-9200	63813-2700
		-0410	63819-6900	63902-0700	63813-2700
Female	35746	-0110	63819-6800	63862-9000	63813-2700
		-0210	63819-0600	63862-9100	63813-2700
		-0310	63819-0700	63862-9200	63813-2700
		-0410	63819-6900	63901-4300	63813-2700

Every images in this catalog is only for your reference.

Ordering Information

2. Multi Type Housing

Receptacle Housing

Circuits	Type	Component	Part Number	Material	Color
4	Multi 2-2		35180-0400	PBT	Natural
			35180-0404	PBT	Blue
			35180-0409	GWIT	Natural
			35180-3409	GWIT	Yellow
			35180-4409	GWIT	Blue
6	Multi 2-2-2		35180-0600	PBT	Natural
			35180-0604	PBT	Blue
			35180-0609	GWIT	Natural
			35180-3609	GWIT	Yellow
			35180-4609	GWIT	Blue
6	Multi 2-4		204102-0609	GWIT	Natural
6	Multi 1-2-3		35186-0610	PBT	Natural
9	Multi 2-3-4		35524-0920	PBT	Natural
			35524-0924	GWIT	Blue
			35524-0929	GWIT	Natural
9	Multi 2-3-4		202650-0909	GWIT	Natural

3. Used With Terminal

Type	Design	Component	Part Number	Applicable Wire Size
Male	With Dimple		35745-0110	AWG 22-20
			35745-0210	AWG 18-14
			35745-0310	AWG 18&18, 20&20
			35745-0410	AWG 24
Female	Without Dimple		35747-0110	AWG 22-20
			35747-0210	AWG 18-14
			35747-0310	AWG 18&18, 20&20
			35747-0410	AWG 24
Female	With Dimple		35746-0110	AWG 22-20
			35746-0210	AWG 18-14
			35746-0310	AWG 18&18, 20&20
			35746-0410	AWG 24
Female	Without Dimple		35748-0110	AWG 22-20
			35748-0210	AWG 18-14
			35748-0310	AWG 18&18, 20&20
			35748-0410	AWG 24

Plug Housing

Circuits	Type	Component	Part Number	Material	Color
4	A		35965-0200	PBT	Natural
			35965-0204	PBT	Blue
			35965-9200	GWIT	Natural
			35965-9203	GWIT	Yellow
			35965-0210	PBT	Natural
2	B		35965-0214	PBT	Blue
			35965-9210	GWIT	Natural
			35965-9213	GWIT	Yellow
2	C		35965-0220	PBT	Natural
			35965-9220	GWIT	Natural
			35965-9223	GWIT	Yellow
			35965-9224	GWIT	Blue
2			204102-0209	GWIT	Natural
4			204102-0409	GWIT	Natural

* Multi 1-2-3 and 2-3-4 Type is using the same Plug Housing from Standard Type.



4. Used With TPA



Circuits	Type	Component	Part Number	Material	Color
1	Standard Receptacle/Plug		35182-0190	PA66	Natural
			35182-0192	PA66	Red
2	Standard Receptacle/Plug		35150-0290	PA66	Natural
			35150-0292	PA66	Red
3	Standard Receptacle/Plug		35150-0390	PA66	Natural
			35150-0392	PA66	Red
2	Multi Receptacle		35182-0290	PA66	Natural
			35182-0292	PA66	Red
3	Multi Receptacle		35182-0390	PA66	Natural
			35182-0392	PA66	Red
3	Multi Receptacle		35187-0390	PA66	Natural
2	Multi Plug		35965-0290	PA66	Natural
			35965-0292	PA66	Red
2	Multi Plug Bundle		104081-0282	PA66	Red
3	Multi Plug Bundle		49547-0392	PA66	Red
			(Upper)		
			49548-0390	PA66	Natural
			(Lower)		

Please contact Versablade@molex.com for any product requests.







Wire-To-Wire Power

Product Name	Description	Pitch	Current Rating	Circuits Size	Applications
MX150L™ 	Offered in wire-to-wire, wire-to-panel and wire-to-board configurations, the IP67-rated MX150L™ system provides design flexibility for low level signal to high power applications. Key features include pre-assembled connector housings, integral TPA and two-way mat seal on mating connector, sealed panel-mount plugs and proven blade-type terminals.	5.84mm, 7.62mm	Up to 18.0A and 40.0A	2-16	- Commercial Vehicle - Consumer - Industrial Automation
Versablade™ 	The Versablade™ wire-to-wire connector system consists of wide flat blade tab terminals (1.78mm), multi-configured modular housings and terminal position assurance inserts for modularity and design flexibility in various applications. Other features include positive lock and TPA secondary lock, single-row system and spring style mounting ears.	Various	4.0A -15.0A	1-9	- Consumer - Industrial Automation
MLX™ 	The MLX™ series is interchangeable, intermateable and intermountable with industry standard products. This allows greater flexibility in mating with existing wire harnesses, connectors or PCB headers. The housings are designed for both male and female terminals. Housings are fully polarised and offer positive locking.	6.35mm	13.5A	1-15	- Commercial Vehicle - Consumer - Industrial Automation - Networking
Mini-Fit® Products 	The Mini-Fit® family is designed for higher-current / higher-density applications which require design flexibility for wire-to-wire, wire-to-board and board-to-board configurations. Features include fully isolated terminals, positive locking, low-engagement forces and polarised housings and receptacles. Glow wire compliant and Halogen free versions are available.	4.20mm	13.0A	2-24	- Consumer - Data / Communications - Industrial Automation - Networking - Medical - Automotive - Commercial Vehicle - Military / Aerospace - Telecommunications - Alternative Energy Source
Standard .093" 	Industry standard .093" pin-and-socket power connectors are suitable for wire-to-wire and wire-to-board configurations. Terminals can be used in both plug or receptacle housings allowing for design flexibility. PCB headers are also available. Features include panel mount and free hanging housings with positive locks and fully isolated contacts.	5.03mm	17.0A	1-15	- Consumer - Data / Communications - Networking
Standard .062" 	The Industry standard 0.62" pin-and-socket wire-to-wire connector system provides a robust economical solution to applications needing a current handling capability of up to 5.0A. Housings will accept both male and female terminals and are polarised to eliminate mismatching.	3.68mm	5.0A	1-36	- Consumer - Data / Communications - Networking
Inertia Lock 3.30mm 	Smallest pitch wire-to-wire connector system for 100 to 300 V signal and power applications when using 2.60mm diameter wire. The system features a positive lock design for secure mating, fully shrouded contacts and an optional TPA retainer.	3.30mm	4.0A	2-6	- Consumer - Industrial Automation

Product Name	Description	Pitch	Current Rating	Circuits Size	Applications
Beau™ Power Connectors 	Beau™ plug and socket blade-type connectors provide superior durability over hollow-pin connectors, allowing repetitive mating without any damage. Thermoplastic backshells provide greater dielectric strength and safety, uniform float contacts enable maximum surface engagement, low contact resistance and easier mating.	6.35mm	10.0A	2-24	<ul style="list-style-type: none"> - Consumer - Industrial Automation
Micro-Fit™ Products 	The Micro-Fit™ family is a wire-to-wire, wire-to-board and board-to-board connector system in single- and dual-row configurations. Features include blind mate (BMI), compliant pin (CPI) and reduced mating force (RMF) options. PCB-mount headers are available in straight and right angle, SMT and through-hole types, Halogen Free and Glow Wire compliant materials.	3.00mm	5.0A	2-24	<ul style="list-style-type: none"> - Alternative Energy Source - Consumer - Data / Communications - Medical - Military / Aerospace - Telecommunications

Wire-To-Wire Signal

Product Name	Description	Pitch	Current Rating	Circuits Size	Applications
SPOX™ 	The SPOX™ family features Mini-SPOX™, including crimp and IDT housings, wire-to-wire and wire-to-board options and Macro-SPOX™, including unshrouded and partially shrouded headers, along with board-to-board options. The “spring box”-shaped terminals provide multiple points of contact assuring excellent signal integrity.	2.50-5.08mm	3.0-7.0A	2-16	<ul style="list-style-type: none"> - Transportation - Consumer - Data/Communications - Industrial Automation
SPOX BMI™ 	SPOX BMI™ (Blind-Mate Interface) connectors offer low-profile, dual-row, wire-to-wire and wire-to-board solutions. Self-aligning features and mated stack distance of only 11.00mm allow for secure use in both horizontal and vertical directions. Multiple pin counts permit design flexibility and provide solutions for both power and signal applications.	2.54mm	3.0A	6-16	<ul style="list-style-type: none"> - Networking - Telecommunications
Mizu-P25™ 	Mizu-P25™ wire-to-wire connector system is IP67 certified. The family includes systems rated up to 125 V and 250 V. Due to their small dimensions both systems are ideal for wire-to-wire applications in confined spaces. Other features include positive locking, polarisation and special terminal designs for high vibration applications.	2.50mm	3.0 / 4.0A	2-4	<ul style="list-style-type: none"> - Transportation - Consumer - Industrial Automation
SL™ Modular Connectors 	SL™ (Stackable Linear) is a modular, single-row, wire-to-wire and wire-to-board system including press-fit(compliant-pin), through-hole and SMT PCB termination. Latching vertical/right-angle headers; discret wire, FFC and IDT crimp housings are available. SL™ intermates with CGrid® and KK® product families in same pitch to provide design flexibility and configuration options.	2.54mm	3.0A	2-25	<ul style="list-style-type: none"> - Transportation - Consumer - Data / Communications - Industrial Automation - Medical - Networking

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