AMPSEAL CONNECTOR SERIES

FOR INDUSTRIAL & COMMERCIAL TRANSPORTATION

TERMINALS & CONNECTORS

WE GO TO EXTREMES TO MAKE SURE **EVERY CONNECTION COUNTS**

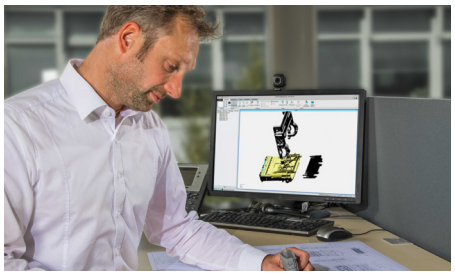
TE Connectivity (TE) Industrial & Commercial Transportation (ICT) is a reliable provider of solutions for harsh environmental conditions. With a focus on employee expertise and durable products, we deliver the solutions and support our customers can count on.

Years ago, tractors, construction equipment, trucks, and boats had simple electrical systems that might have included electrical starting and a basic lighting package. Today, ECUs, joysticks, fuel-efficient engines, LED lights, and CAN systems are standard equipment. The need to protect sensitive electrical systems from vibration, moisture, dust, dirt, salt, and airborne particles has never been greater. TE Industrial & Commercial Transportation is a leader in supporting today's increasingly complex and sophisticated equipment and applications.

Our comprehensive line of products includes an unparalleled portfolio of rugged sensors, terminals, connectors, relays, and hybrid electric mobility solutions. These solutions are designed to withstand the harshest environmental conditions and to help vehicles operate safer, cleaner, and smarter.

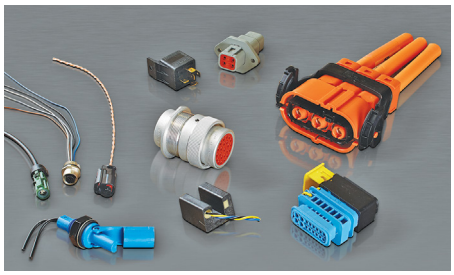
Our solutions adapt to virtually any **harsh environment application,** including:

- Motors and Gearboxes
- ABS/EBS Brake Units
- Telematics Units
- Sensors
- Wire-To-Wire Coupling at the Chassis
- Infotainment Applications



2,500+ EMPLOYEES

10,000+ CUSTOMERS



20,000+ DIFFERENT PARTS

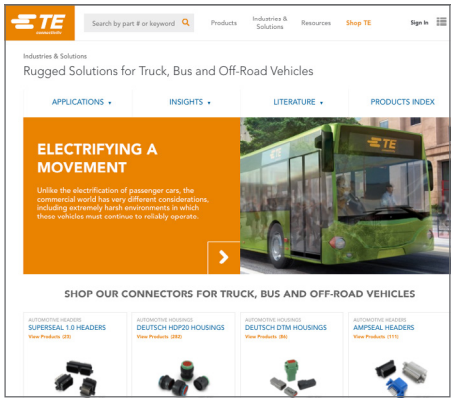
MARKETS WE SERVE

ON-HIGHWAY

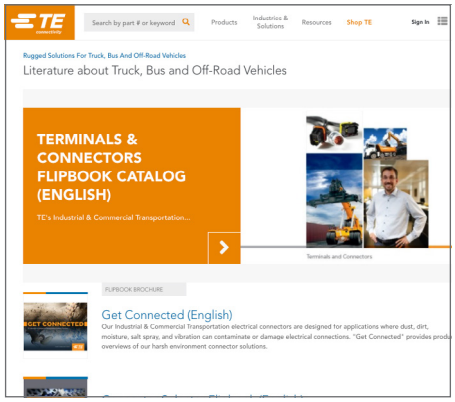
OFF-HIGHWAY

RECREATIONAL TRANSPORTATION

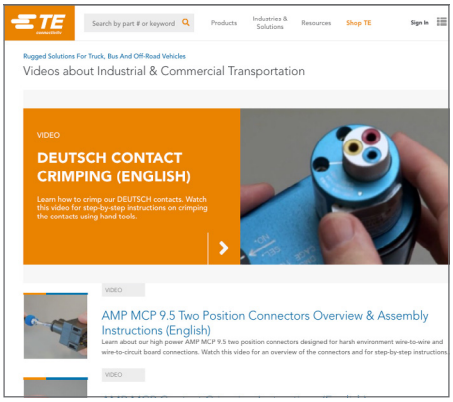
ONLINE RESOURCES



TE.COM/ICT



LITERATURE



VIDEOS

TE SOLUTION CENTER

You can rely on TE Connectivity's helpful Solution Center team to provide answers to your general and technical questions.

Connect with our Solution Center staff at:
te.com/support

AMPSEAL Connector Series

Our AMPSEAL connectors are designed for cable-to-board harsh environment applications. Environmentally sealed for rugged reliability, these connectors are available in cable plugs and PCB mount headers engineered to withstand extreme temperature and moisture, including high-temperature underhood applications.

The pre-assembled receptacle housing connector features built-in contact sealing and an integral interfacial seal that protects mated connectors. Rated to IP69K, AMPSEAL connectors are offered in arrangements from 8 to 35 positions. Available accessories include tool-less backshells, sealing plugs, and Connector Position Assurance (CPA).

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BENEFITS

- Design flexibility with connectors and contacts supporting wire sizes from 16 to 24 AWG
- Secure positive contact seating through secondary contact locking and lanceless contacts.
- Protect from dust, water, and overspray with up to IP69K rugged sealing capabilities.
- Reduce tangling during storage and handling thanks to lanceless receptacle contacts.
- Reduce wire strain and ease assembly with tool-less backshells available for all housing sizes.
- Minimize mismating and misidentification with different connector colors and mechanical polarized keyings.
- Connection security through CPA accessory.

KEY INDUSTRIES

Truck
Bus
Construction
Agriculture
Special Vehicles
Marine
Two-Wheeler
Forklift
Power Generation

APPLICATIONS

PCB Connection
Wire-to-Board
Power Distribution
EV

PRODUCT DOCUMENTATION

Additional product documentation is available for assistance with AMPSEAL Connector products.

The following documentation may be helpful:

108-1329	Product Specification, AMPSEAL Connectors
114-16016	Application Specification, AMPSEAL Connectors

PERFORMANCE SPECIFICATIONS

Current	Up to 17 A gold, up to 8 A tin
Temperature	Operating at temperatures: -40°C to +125°C for gold plated -40°C to +105°C for tin plated
Mating Durability	See note. Mate and unmate specimens for 10 cycles at maximum rate of 600 cycles per hour.
Insulation Resistance	100 megohms minimum. TE Specification 109-28-4. Test between adjacent contacts of mated specimens.
IP Rating	IP67/IP69K with backshells
Random Vibration	See note. TE Specification 109-21-7, Condition G, except 10-500 Hz frequency range. Subject mated specimens to 10 Gs for 8 hours each plane.
Voltage	250 V AC
Flammability	UL 94-V0-rated material

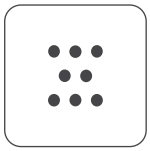
Note: Shall meet visual requirements, show no physical damage and shall meet requirements of additional tests as specified in Test Sequence in Figure 3 of TE product document 108-1329.

MATERIAL SPECIFICATIONS

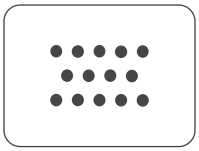
Wire Seal	Silicone rubber
Mating Seal	Silicone rubber
Cover	PBT
Housing	PBT
Locking Wedge	PBT

AMPSEAL Housings & Headers

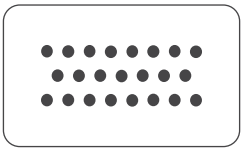
CONFIGURATIONS



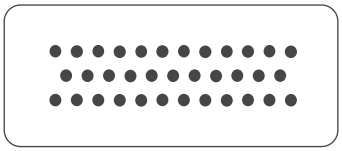
8 Positions
8 size 1.3 mm



14 Positions
14 size 1.3 mm

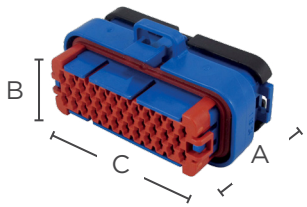


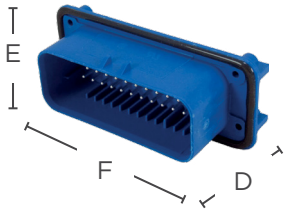
23 Positions
23 size 1.3 mm

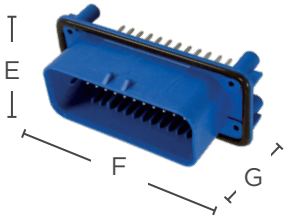


35 Positions
35 size 1.3 mm

DIMENSIONS







	AMPSEAL Receptacle Housing			AMPSEAL Header			
Cavity	Overall Length A	Overall Height B	Overall Width C	Overall Length 180° D	Overall Height E	Overall Width F	Overall Length 90° G
	Inch (mm)						
8	1.32 (33.6)	1.36 (34.6)	1.08 (27.4)	1.35 (34.3)	1.26 (32.1)	1.61 (40.8)	1.49 (37.9)
14	1.32 (33.6)	1.36 (34.6)	1.39 (35.4)	1.35 (34.3)	1.26 (32.1)	1.92 (48.8)	1.49 (37.9)
23	1.32 (33.6)	1.36 (34.6)	1.87 (47.4)	1.35 (34.25)	1.26 (32.1)	2.39 (60.8)	1.49 (37.9)
35	1.32 (33.6)	1.36 (34.6)	2.50 (63.4)	1.35 (34.25)	1.26 (32.1)	3.03 (76.9)	1.49 (37.9)

Dimensions are for reference only

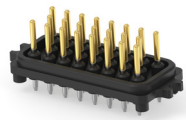
AMPSEAL Housings & Headers

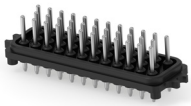
ORDERING INFORMATION - RECEPTACLE HOUSINGS

Position	Keyed Housing Color	Receptacle Housing	
		16-20 AWG (1.5 – 0.5 mm^2)	20-24 AWG (0.5 – 0.2 mm^2)
8	Black	776286-1	2371882-1
8	Natural	776286-2	2371882-2
14	Black	776273-1	2371883-1
14	Natural	776273-2	2371883-2
14	Gray	776273-4	2371883-4
14	Blue	776273-5	2371883-5
23	Black	770680-1	2371884-1
23	Natural	770680-2	2371884-2
23	Gray	770680-4	2371884-4
23	Blue	770680-5	2371884-5
35	Black	776164-1	2371885-1
35	Natural	776164-2	2371885-2
35	Gray	776164-4	2371885-4
35	Blue	776164-5	2371885-5
35	Orange	776164-6	2371885-6

STICK HEADERS

AMPSEAL stick headers are low profile pin carriers available for overmolding and integration into modules.





Position	Contact Finish	Stick Header
8	Tin plated	2301063-1
8	Gold plated	2301063-2
23	Tin plated	1740313-1
23	Gold plated	2120833-1
35	Tin plated	1103599-1

ROBUST HEADERS

The AMPSEAL robust headers set a new standard for reliable, secure, and easy-to-use PCB connectivity in industrial, commercial and transportation applications. M3 metal bushings enable enhanced module security and vibration resistance. These headers provide long-lasting performance in even the harshest environments.

Position	Right-Angle PCB Header	Vertical PCB Header
8	2489696-1	2492561-1
14	2492564-1	2490748-1
23	2489008-1	2445465-1
35	2489009-1	2474615-1

AMPSEAL Housings & Headers

ORDERING INFORMATION - HEADERS

Position	Keyed Housing Color	Contact Finish	Right-Angle PCB Header		Vertical PCB Header	
			Without Seal	With Seal	Without Seal	With Seal
8	Black	Tin plated	776279-1	776280-1	776275-1	776276-1
8	Black	Gold plated	1-776279-1	1-776280-1	1-776275-1	1-776276-1
8	Natural	Tin plated	776279-2	776280-2	776275-2	776276-2
8	Natural	Gold plated	1-776279-2	1-776280-2	1-776275-2	1-776276-2
14	Black	Tin plated	776266-1	776267-1	776261-1	776262-1
14	Black	Gold plated	1-776266-1	1-776267-1	1-776261-1	1-776262-1
14	Natural	Tin plated	776266-2	776267-2	776261-2	776262-2
14	Natural	Gold plated	1-776266-2	1-776267-2	1-776261-2	1-776262-2
14	Gray	Tin plated	776266-4	776267-4	776261-4	776262-4
14	Gray	Gold plated	1-776266-4	1-776267-4	1-776261-4	1-776262-4
14	Blue	Tin plated	776266-5	776267-5	776261-5	776262-5
14	Blue	Gold plated	1-776266-5	1-776267-5	1-776261-5	1-776262-5
23	Black	Tin plated	770669-1	776087-1	776200-1	776228-1
23	Black	Gold plated	1-770669-1	1-776087-1	1-776200-1	1-776228-1
23	Natural	Tin plated	770669-2	776087-2	776200-2	776228-2
23	Natural	Gold plated	1-770669-2	1-776087-2	1-776200-2	1-776228-2
23	Gray	Tin plated	770669-4	776087-4	776200-4	776228-4
23	Gray	Gold plated	1-770669-4	1-776087-4	1-776200-4	1-776228-4
23	Blue	Tin plated	770669-5	776087-5	776200-5	776228-5
23	Blue	Gold plated	1-770669-5	1-776087-5	1-776200-5	1-776228-5
35	Black	Tin plated	776180-1	776163-1	776230-1	776231-1
35	Black	Gold plated	1-776180-1	1-776163-1	1-776230-1	1-776231-1
35	Natural	Tin plated	776180-2	776163-2	776230-2	776231-2
35	Natural	Gold plated	1-776180-2	1-776163-2	1-776230-2	1-776231-2
35	Gray	Tin plated	776180-4	776163-4	776230-4	776231-4
35	Gray	Gold plated	1-776180-4	1-776163-4	1-776230-4	1-776231-4
35	Blue	Tin plated	776180-5	776163-5	776230-5	776231-5
35	Blue	Gold plated	1-776180-5	1-776163-5	1-776230-5	1-776231-5
35	Orange	Gold plated	1-776180-6	1-776163-6	–	1-776231-6

AMPSEAL Connector Accessories

The accessory items available to complement the AMPSEAL connectors are backshells, sealing plugs, and CPA.

BACKSHELLS

AMPSEAL backshells offer a high level of protection and help reduce wire strain. They are made of heavy-duty thermoplastic and provide enhanced aesthetics for AMPSEAL connector applications.

Pos	Part Number	Description
8	2138529-1	Vertical exit with wire relief (a wire tie is recommended around the end of the backshell to aid in securing the halves together)
14	2138530-1	
23	2389806-1	
35	2389807-1	

Note: One half, two halves required per receptacle housing

SEALING PLUGS

Open cavities provide pathways for contaminates to enter the connectors. To maintain seal integrity, any unused cavity that has been pierced must be filled with the appropriate size sealing plug.

Color	Contact Size (mm)	Wire Size AWG (mm^2)	Part Number	Material
White	1.3	16 – 20 (1.5 – 0.5)	770678-1	Nylon
Natural	1.3	20 – 24 (0.5 – 0.2)	776364-1	Nylon

CONNECTOR POSITION ASSURANCE (CPA)

AMPSEAL Connector Position Assurance provides mating assurance and helps prevent accidental unmating of the connector. It can be used with all AMPSEAL receptacle housings.

Color	Part Number	Material
Red	2373965-1	PBT

AMPSEAL Contacts

AMPSEAL connectors commonly use the 1.3 mm three contact beam lanceless stamped & formed contact system.

1.3 MM CONTACT PERFORMANCE SPECIFICATIONS

Durability
10 cycles (tin & gold)

Current Rating	
Contact Size (mm)	**Max. Current (A)**
1.3 (tin)	Up to 8
1.3 (gold)	Up to 17

Contact Retention	
Contact Size (mm)	**Max. Load**
1.3	Contacts shall not dislodge, applying an axial load of 115 N to contacts in the axial direction with wedgelock in locked position.

Crimp Tensile Strength	
Contact Size (AWG)	**Tensile Strength (N)**
1.3 mm	
24	50
22	50
20	≥ 80
18	≥ 90
16	≥ 150

AMPSEAL Contacts

1.3 MM STAMPED & FORMED CONTACTS FOR AMPSEAL CONNECTORS

Contact Size (mm)	Wire Size AWG (mm^2)	Insulation Diameter Inch (mm)	Finish	Receptacle Part Numbers			
				Strip Form	Package Quantity	Loose Piece	Package Quantity
1.3	16 – 20 (1.5 – 0.5)	0.067 – 0.106 (1.7 – 2.7)	Pre-tin plated	770520-1	25000	770854-1	5000
1.3	16 – 20 (1.5 – 0.5)	0.067 – 0.106 (1.7 – 2.7)	Selective gold plated	770520-3	25000	770854-3	5000
1.3	20 – 22 (0.5 – 0.3)	0.055 – 0.071 (1.4 – 1.8)	Pre-tin plated	770520-5	25000	/	/
1.3	22 – 24 (0.3 – 0.2)	0.055 – 0.071 (1.4 – 1.8)	Pre-tin plated	770520-6	25000	/	/
1.3	20 – 22 (0.5 – 0.3)	0.055 – 0.071 (1.4 – 1.8)	Selective gold plated	770520-8	25000	/	/
1.3	22 – 24 (0.3 – 0.2)	0.055 – 0.071 (1.4 – 1.8)	Selective gold plated	1-770520-1	25000	/	/

AMPSEAL Wire Sealing, Sealing Plugs, and CPA

The wire sealing range is the recommended outside diameter of the wire insulation required to maintain an environmental seal in the rear connector cavities.

Contact Size (mm)	Wire Size AWG (mm^2)	Standard Seal Inch (mm)
1.3	16 – 20 (1.5 – 0.5)	0.067 – 0.106 (1.7 – 2.7)
1.3	20 – 24 (0.5 – 0.2)	0.055 – 0.71 (1.4 – 1.8)

AMPSEAL CONNECTORS

TOOLING

Tools are specific to each contact style. To create a proper crimp and achieve high performance specifications, contacts must be crimped with the recommended tooling.

HAND TOOLS FOR 1.3 MM CONTACTS

PRO-CRIMPER III

CERTI-CRIMP II

Wire Size AWG (mm^2)	Receptacle Strip Form Part Number	Receptacle Loose Piece Part Number	Hand Tool Part Number	Description
16 – 20 (1.5 – 0.5)	770520-1 770520-3	770854-1 770854-3	58529-1	PRO-CRIMPER III hand tool and die set assembly
16 – 20 (1.5 – 0.5)	770520-1 770520-3	770854-1 770854-3	2217748-1	CERTI-CRIMP II straight action hand tool
20 – 22 (0.5 – 0.3)	770520-8 770520-5	/	2396182-1	CERTI-CRIMP II straight action hand tool
22 – 24 (0.3 – 0.2)	1-770520-1 770520-6	/	2396101-1	CERTI-CRIMP II straight action hand tool

Note: Base PRO-CRIMPER III tool part number with -2 suffix is the part number for the die set, which can be ordered separately.

AUTOMATED TOOLING FOR 1.3 MM CONTACTS

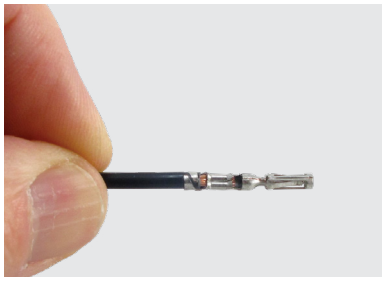
Wire Size AWG (mm^2)	Receptacle Strip Form Part Number	Applicator Part Number	Description
16 – 20 (1.5 – 0.5)	770520-1 770520-3	2151376-1	OCEAN end feed applicator with mechanical feed
16 – 20 (1.5 – 0.5)	770520-1 770520-3	2151376-2	OCEAN end feed applicator with pneumatic feed
20 – 22 (0.5 – 0.3)	770520-8 770520-5	2837821-1	OCEAN end feed applicator with pneumatic feed
22 – 24 (0.3 – 0.2)	1-770520-1 770520-6	2837822-1	OCEAN end feed applicator with pneumatic feed

Note: Applicators with additional feed styles are available; please contact your TE representative.

AMPSEAL CONNECTORS

HOW-TO INSTRUCTIONS

CONTACT INSERTION



Step 1

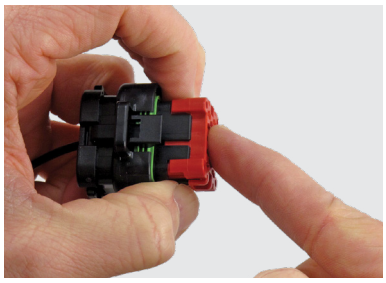
Grasp crimped contact approximately one inch behind the contact barrel.

Step 2

Check that the wedgelock of the plug assembly is in open position. Align the contact with the applicable cavity.

Step 3

Insert the contact into the connector cavity until there is an audible and tactile click. A slight tug will verify the contact is locked in place.



Step 4

After all the contacts have been inserted, close the wedgelock by simultaneously squeezing locking latches inward and pushing the wedgelock into the housing.

Note: AMPSEAL connector grommet is solid until pierced.

CONTACT REMOVAL

Step 1

Insert the tip of a screwdriver (2-5 mm wide blade) between the edge of the plug assembly housing and one corner of the wedgelock.

Step 2

Gently pry the edge of the wedgelock until it is released from (but not completely removed) the housing. Repeat these steps for the opposite corner of the wedge.

Step 3

Gently pull the wire of the contact to be removed while rotating the wire (a quarter turn each direction) back and forth until the contact is removed from the housing.

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ABOUT TE CONNECTIVITY

TE Connectivity is a global industrial technology leader creating a safer, sustainable, productive, and connected future. Our broad range of connectivity and sensor solutions enable the distribution of power, signal and data to advance next-generation transportation, renewable energy, automated factories, data centers, medical technology and more. With more than 85,000 employees, including 9,000 engineers, working alongside customers in approximately 130 countries, TE ensures that EVERY CONNECTION COUNTS.
Learn more at **www.te.com** and on LinkedIn, Facebook, WeChat, Instagram and X (formerly Twitter).

LET'S CONNECT

We make it easy to connect with our experts and are ready to provide all the support you need. For additional information or product assistance, please contact your field representative or our customer service department. Additional information is also available on the website **te.com/ict.**

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www.te.com/support

United States . . . . +1 800 522 6752

Germany . . . . . +49 6151 607 1999

China . . . . . +86 400 820 6015

Japan . . . . . +86 044 844 8052

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