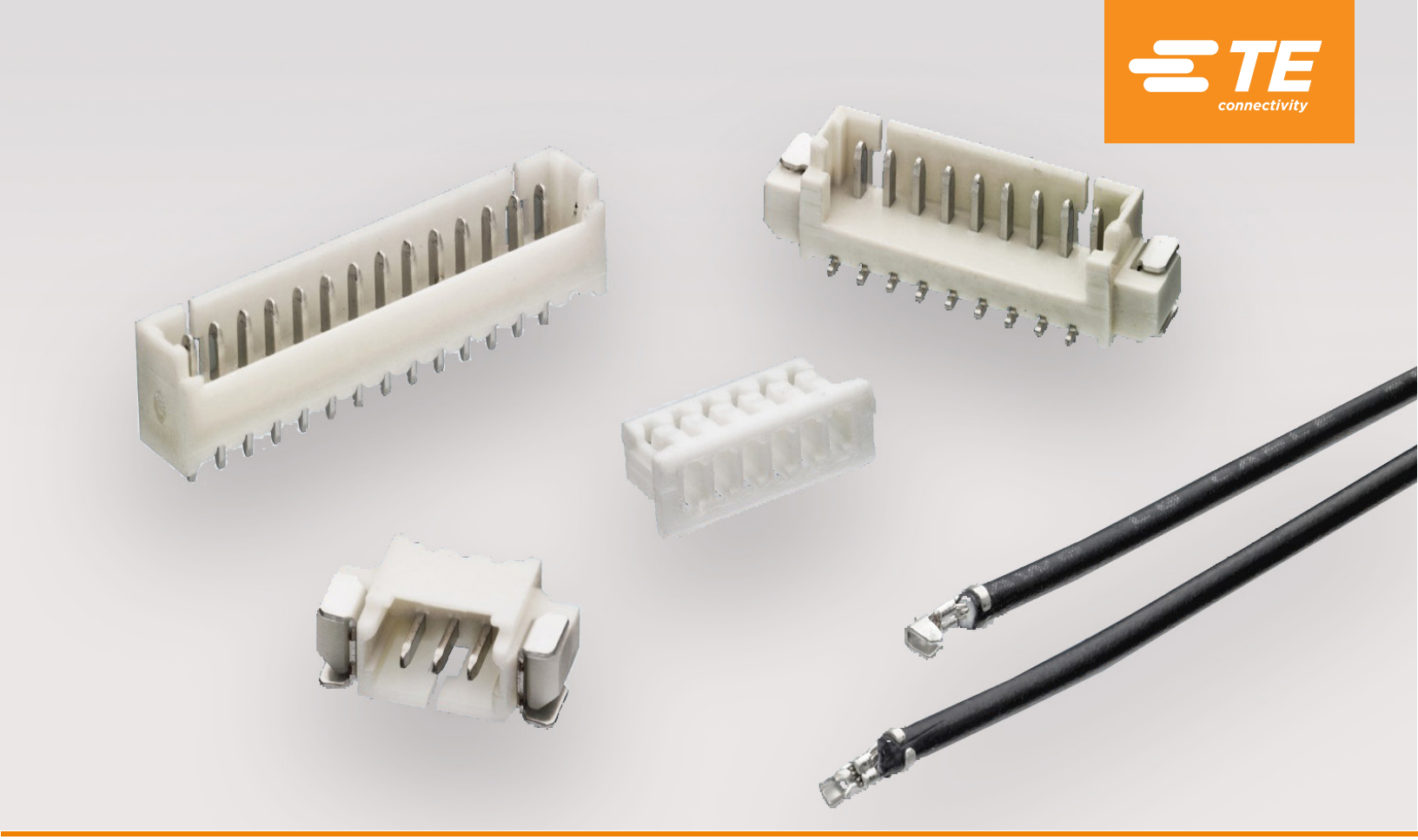


QUICK REFERENCE GUIDE

High Performance Interconnect (HPI) Connectors

TE Connectivity's (TE) wire-to-board High Performance Interconnect (HPI) connector system is available in 1.0mm, 1.25mm, 1.5mm, 2.0mm, and 2.5mm centerline pitch. This connector system offers vertical and horizontal (right angle) connector mounting for versatility, and the square-peg technology enables product compatibility with industry standard products. HPI products can be used anywhere a signal or low power needs to be routed through a device. If your application has more than one printed circuit board then HPI product is an option to connect the PCBs.

FEATURES

- 1.0mm – 2.5mm centerline
- Vertical and horizontal PCB mount
- Through hole (DIP) & surface mount termination (SMT)
- Polarized
- Partially and fully shrouded
- Square termination posts
- Latching and gold plating options available
- Reach up to 2A

BENEFITS

- Provides design flexibility
- Cost effective wire-to-board
- Ensures proper compatibility of both the header and the housing
- Prevents stubbing contacts
- Enables inter-changeability with industry standard designs

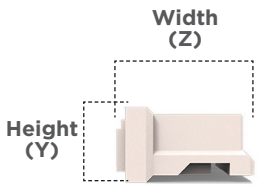
APPLICATIONS

- Business and retail equipment
- Consumer devices
- Industrial
- Automotive
- Medical
- Appliance

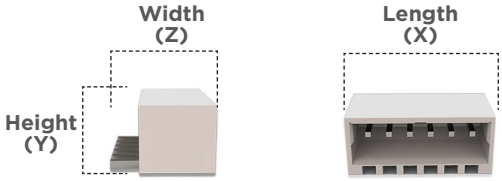
Components: How to Read Product Selector Dimensions

Understanding HPI connector's PCB footprint will help you quickly determine if the HPI product line is the correct wire-to-board solution to meet your design objectives. The part selector matrix helps you understand the PCB footprint. Note that only PCB headers have a PCB footprint, but the mating housing will also consume valuable space within a device, which is why we highlight both poducts' dimensions.

HOUSING DIMENSIONS



HEADER DIMENSIONS



The length (X) dimension is different for each position size, however, both the height (Y) and width (Z) are constant dimensions for each base PN. All the length dimensions are listed in the product selector table for a two position connector. The length of the connector is simply calculated. For example, If you decide that PN 1734595 is the connector that you need, then a two position connector's length is 4.3mm. However, if you need a three position connector, the length of the connector is 5.3mm, which is 4.3mm + 1.0mm. Each additional position size requires an increase of 1.0mm. For example if you need a nine position connector please refer to the following equations. (Please refer to customer drawings for tolerances.)

- 2 position length = 4.3mm
- 9 positions – 2 positions = 7 positions
- 7 positions * 1.0mm per pin increase = 7.0mm
- 9 position length = 4.3mmm + 7.0mm = 11.3mm

Reading Dimensions in the Product Matrix

PIN	Product Type	AWG	PCB Termination Style	Mount Angle	Position Range	Length (X)	Height (Y)	Width (Z)
1734595	Header	28-32	SMT	Vertical	2 to 15	4.3 + 1.0 Per Pin Increase	4.30	5.10

Connector Dimensions (mm)

Product Overview, Ratings, and Specifications

In order to better understand the product capabilities and limitations, it is advised that you refer to TE's specifications. The following table is intended to be used with the product selector matrix. The product selector matrix has a column on the far right that indicates Spec. Group, which aligns with the first column on the left in the graph below.

Spec Group	Centerline (mm)	PCB Termination Style	Product Specification	Application Specification	Qualification Reports	Rated Current Amps (Max.)	Rated Voltage (Max.)	Rated Voltage (Volts)	Operating Temp.
A	1.00	SMT	108-57264	114-57020	501-57283	1.00	50	AC/DC	-55 to 105°C
B			108-115169	114-115031	501-115186	1.00	50	AC	-40 to 85°C
C	1.25	SMT & DIP	108-57225	114-57016	501-57229	1.00	100	AC	-40 to 85°C
D			108-57499	114-57016	501-57573	1.00	125	AC/DC	-25 to 85°C
E			108-57273	114-57016	501-57299	1.00	100	AC	-40 to 85°C
F	1.50	SMT	108-57631	114-57018	501-57736	3.00	250	AC	-55 to 105°C
G	2.00	SMT & DIP	108-51087	114-57011	501-51084	3.00	250	AC/DC	-25 to 85°C
H			108-57100	114-57011	501-57058	3.00	250	AC/DC	-25 to 85°C
I			108-57499	114-57011	501-57573	1.00	125	AC/DC	-25 to 85°C
J			108-57217	114-57013	501-57218	3.00	100	DC	-25 to 85°C
K	2.50	SMT & DIP	108-57099	114-57004	501-57057	3.00	250	AC/DC	-25 to 85°C
L			108-57175	114-57012	501-57195	3.00	250	AC/DC	-40 to 105°C

Connector Dimensions (mm)

Product Matrix: How to select a HPI connector part number

The charts on this page highlight the relationship between the key product features, including AWG, PCB termination style, mount angle, position range, and dimensions to the product base number. Once you determine the correct base number, please refer to TE's website.

1.00mm HPI Connector

Base PN	Product Type	AWG	PCB Termination Style	Mount Angle	Position Range	Length (X)	Height (Y)	Width (Z)	Mating Base PN	Product Spec. Group
1734597-1	Contact	28 - 32	N/A	N/A	N/A	N/A	N/A	N/A	1470364	A
1470364	Housing	28 - 32	N/A	N/A	2 to 15	5.0 + 1.0 Per Pin Increase	2.80	5.00	1734595; 1734709	A
1734595	Header	28 - 32	SMT	Vertical	2 to 15	4.3 + 1.0 Per Pin Increase	4.30	5.10	1470364	A
1734709	Header	28 - 32	SMT	Right Angle	2 to 15	4.3 + 1.0 Per Pin Increase	2.90	4.95	1470364	A
2367199	Contact (Locking)	28 - 32	N/A	N/A	N/A	N/A	N/A	N/A	2367198	B
2367198	Housing (Locking)	28 - 32	N/A	N/A	3 to 15	6.0 + 1.0 Per Pin Increase	2.8	5	2367196; 2367197	B
2367196	Header (Locking)	28 - 32	SMT	Right Angle	3 to 15	5.0 + 1.0 Per Pin Increase	2.9	4.3	2367198	B
2367197	Header (Locking)	28 - 32	SMT	Vertical	3 to 15	5.0 + 1.0 Per Pin Increase	4.3	2.9	2367198	B

Connector Dimensions (mm)

The hand tool for terminal PN 1734597-1 is 2119536-1.

1.25mm HPI Connector

Base PN	Product Type	AWG	PCB Termination Style	Mount Angle	Position Range	Length (X)	Height (Y)	Width (Z)	Mating Base PN	Product Spec. Group
1734193-1	Contact	28 - 32	N/A	N/A	N/A	N/A	N/A	N/A	440146-x	B
440146	Housing	28 - 32	N/A	N/A	2 to 15	4.25 + 1.25 Per Pin Increase	3.15	3.95	1734260-x; 1734261-x; 1734829-x; 1734598-x	B
1734260	Header	28 - 32	SMT	Vertical	2 to 15	7.79 + 1.25 Per Pin Increase	4.75	4.25	440146-x	C
1734261	Header	28 - 32	SMT	Right Angle	2 to 15	7.79 + 1.25 Per Pin Increase	3.45	4.70	440146-x	D
1734829	Header	28 - 32	DIP	Right Angle	2 to 15	4.25 + 1.25 Per Pin Increase	3.20	4.70	440146-x	C
1734598	Header	28 - 32	DIP	Vertical	2 to 15	4.25 + 1.25 Per Pin Increase	4.70	3.20	440146-x	D

Connector Dimensions (mm)

The hand tool for terminal PN 1734193-1 is 2119537-1.

1.50mm HPI Connector

Base PN	Product Type	AWG	PCB Termination Style	Mount Angle	Position Range	Length (X)	Height (Y)	Width (Z)	Mating Base PN	Product Spec. Group
1775442-1	Contact	24 - 30	N/A	N/A	N/A	N/A	N/A	N/A	1775441-x	E
1775441	Housing	24 - 30	N/A	N/A	2 to 15	4.25 + 1.50 Per Pin Increase	2.70	6.15	1775443-x; 1775444-x	E
1775443	Header	24 - 30	SMT	Vertical	2 to 15	4.50 + 1.50 Per Pin Increase	5.00	6.00	1775441-x	E

Connector Dimensions (mm)

The hand tool for terminal PN 1775442-1 is 2119538-1.

2.00mm HPI Connector

Base PN	Product Type	AWG	PCB Termination Style	Mount Angle	Position Range	Length (X)	Height (Y)	Width (Z)	Mating Base PN	Product Spec. Group
1735801-1	Contact	24 - 30	N/A	N/A	N/A	N/A	N/A	N/A	440129-x; 1735447-x	F
440129	Housing	24 - 30	N/A	N/A	2 to 16	4.7 + 2.00 Per Pin Increase	4.50	6.90	440054-x; 440055-x; 1775470-x; 1775469-x;	G
440054	Header	24 - 30	DIP	Vertical	2 to 16	6.0 + 2.00 Per Pin Increase	6.05	4.70	440129-x	G
440055	Header	24 - 30	DIP	Right Angle	2 to 16	6.0 + 2.00 Per Pin Increase	4.95	7.70	440129-x	G
1775470	Header	24 - 30	SMT	Vertical	2 to 16	7.4 + 2.00 Per Pin Increase	6.15	5.40	440129-x	G
1775469	Header	24 - 30	SMT	Right Angle	2 to 16	7.4 + 2.00 Per Pin Increase	5.50	7.60	440129-x	G
1734827	Header	24 - 30	SMT	Right Angle	2 to 15	8.0 + 2.00 Per Pin Increase	5.60	6.00	440129-x	H
1735447	Housing (Locking)	24 - 30	N/A	N/A	3 to 16	7.92 + 2.00 Per Pin Increase	6.55	9.40	1735446-x	F
1735446	Header (Locking)	24 - 30	DIP	Vertical	3 to 16	8.0 + 2.00 Per Pin Increase	6.07	5.20	1735447-x	F
1470106-1	Contact	22 - 28	N/A	N/A	N/A	N/A	N/A	N/A	1470107-x	I
1470107*	Housing	22 - 28	N/A	N/A	6 to 32	8.0 + 2.00 Per Pin Increase	5.10	7.40	1470109-x; 1470108-x	I
1470109*	Header	22 - 28	DIP	Vertical	6 to 32	8.0 + 2.00 Per Pin Increase	6.50	5.00	1470107-x	I
1470108*	Header	22 - 28	DIP	Right Angle	6 to 32	8.0 + 2.00 Per Pin Increase	5.00	9.50	1470107-x	I

* = Dual Row Connectors
Connector Dimensions (mm)

The hand tool for terminal PNs 440132-1 and 1735801-1 is 2119539-1.

2.50mm HPI Connector

Base PN	Product Type	AWG	PCB Termination Style	Mount Angle	Position Range	Length (X)	Height (Y)	Width (Z)	Mating Base PN	Product Spec. Group
440134-1	Contact	22 - 28	N/A	N/A	N/A	N/A	N/A	N/A	440133-x	J
440133	Housing	22 - 28	N/A	N/A	2 to 15	7.1 + 2.50 Per Pin Increase	4.20	7.15	440052-x, 440053-x; 1775317-x; 1775316-x	J
440052	Header	22 - 28	DIP	Vertical	2 to 15	7.5 + 2.50 Per Pin Increase	6.00	3.80	440133-x	J
440053	Header	22 - 28	DIP	Right Angle	2 to 14	7.5 + 2.50 Per Pin Increase	4.20	8.20	440133-x	J
1775317	Header	22 - 28	SMT	Vertical	2 to 15	9.5 + 2.50 Per Pin Increase	6.40	4.80	440133-x	J
1775316	Header	22 - 28	SMT	Right Angle		8.8 + 2.50 Per Pin Increase	4.80	7.70	440133-x	J
1470223-1	Contact	22 - 28	N/A	N/A	N/A	N/A	N/A	N/A	1470222-x	K
1470222	Housing	22 - 28	N/A	N/A	2 to 15	7.4 + 2.50 Per Pin Increase	4.70	8.00	1470224-x	K
1470224	Header	22 - 28	DIP	Vertical	2 to 15	7.5 + 2.50 Per Pin Increase	5.90	4.90	1470222-x	K

Connector Dimensions (mm)

There are no hand tools available for these terminals.

Applications



Business & Retail Equipment

- Copiers
- Printers
- Scanners
- Fax Machines
- Projectors
- Vending Machines
- ATMs



Industrial Industry

- Appliances
- Industrial Controls
- GPS
- Thermostats
- HVAC
- Lighting



Consumer Devices

- PCs
- Ultrabook Devices
- Game Consoles
- Set Top Boxes
- Stereo Equipment

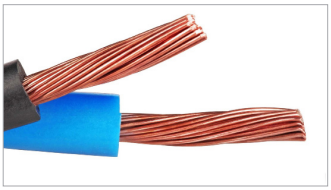


Medical Industry

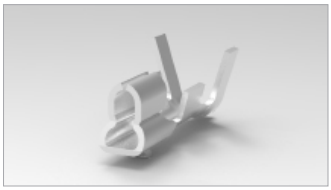
- Medical Monitors
- Imaging Systems
- Portable Stations
- Treatment Equipment

Components: A Complete Solution

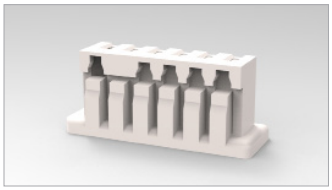
A typical crimp type wire-to-board interconnect solution requires four components. First a raw discrete wire, which is stripped, and then a crimp type contact is crimped onto the wire. The contact and wire are then inserted into an unloaded receptacle housing, which is mated with a header that is terminated to a PCB either through hole (DIP) or SMT style.



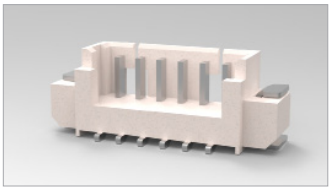
Raw Discrete Wire (Stripped)



Crimp Contact



Receptacle Housing



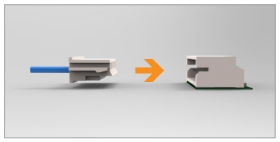
PCB Header

HPI Attributes

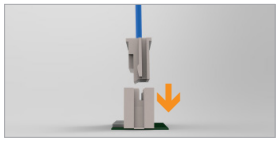
PCB MOUNT ORIENTATION

Depends on the direction that the housing mates with the PCB header.

Right Angle
The housing is mated parallel to the PCB.



Vertical
The housing is mated perpendicular to the PCB.



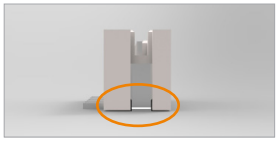
TERMINATION METHOD TO PCB

Depends on how the PCB header is applied to a PCB.

Through Hole (DIP)
Attached to PCB by inserting PCB tines into the pre-drilled holes in the PCB and then soldered on the bottom side of the board.

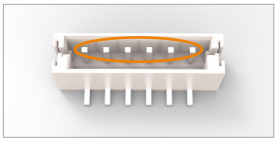


Surface Mount (SMT)
Attached to the PCB by soldering process where PCB tines are soldered to the top of a PCB.

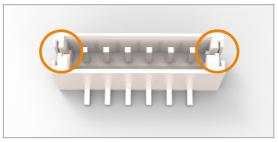


SQUARE TERMINATION POSTS

This design is an industry standard that allows TE's products to be interchanged with other industry standard products.



Polarized
Ensures that PCB headers and cable side receptacle housings properly mate.



Frequently Asked Questions

The charts on this page highlight the relationship between the key product features, including AWG, PCB termination style, mount angle, position range, and dimensions to the product base number. Once you determine the correct base number, please refer to TE's website.

Question 1
What gauge wire (AWG) will you be using?

Answer 1
TE's HPI product accepts 22-32 AWG discrete wire. Remember that the higher the AWG measurement number, the smaller the discrete wire. For example, 32 AWG is smaller than 22 AWG will likely have less current carrying capacity.

Question 2
Are you transferring signal or lower power throughout your device?

Answer 2
HPI products are simple interconnect solutions that can be used to transfer signal or lower power in multiple applications across many industries.

Question 3
Does your application have a fan, motor, switch, display, light or any other simple device?

Answer 3
HPI product may be the ideal solution to control these type of ancillary items.

Question 4
Does your application require a locking feature to strengthen the mating connection between the plug assembly and receptacle?

Answer 4
If your application requires a secure mating retention feature, TE's 1.0mm and 2.0mm HPI product line offers an external locking feature to improve the reliability of the interconnect system.

Question 5
What are the technical requirements of your application?

Answer 5
It is imperative that you ask your customer the current and voltage requirements of their application. Current, which is expressed in amps, is usually the driving factor when selecting a small pitch wire-to-board product. Other information that you should consider include operating temperature, PCB real estate, profile height limitations, material restrictions, etc.

Question 6
What tooling is available to apply TE's wire-to-board products?

Answer 6
TE's tooling divisions offers a wide range of hand tools, semi-automatic, and automatic tools. Please visit **https://www.te.com/usa-en/products/application-tooling.html** to determine the application tooling that meets your needs.

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