

Automotive Connection Systems

Glossary of terms₍₁₎

Connection System:

The complete assembly of components associated with a connection; including male/female terminals, male/female connectors, and all other position/retention assurance devices (PLR, TPA, CPA)

Female Terminal:

The electrical receptacle that receives the male blade or pin.

Male Terminal:

The male blade or pin that inserts into the female terminal.

Female Connector:

The connector that houses the female terminal(s).

Male Connector:

The connector that houses the male terminal(s).

Device Connector:

An electrical connector that mates with the electrical interface of a device (e.g. headlamp, switch, battery, etc.)

Terminal to Connector definitions:

Insertion Force:

The force required to insert an individual contact (terminal) into its cavity in a connector.

Retention Force:

The maximum force that can be inserted on an individual contact (terminal) without dislodging it from its proper position in its connector cavity. The force may have two different values; one with the associated wedge (TPA, PLR, etc.) installed and a second value without such assistance.

Positive Latch Reinforcement (PLR):

Terminal Position Assurance (TPA):

Also known as a wedge or spacer feature. It is installed or seated after the terminals are inserted into their housing to assure that the terminals are properly positioned. It either reinforces the primary terminal locking mechanism or provides a separate redundant terminal lock.

Extraction Force:

The force required to completely remove an individual contact (terminal) from its cavity in a connector.

Terminal to Terminal definitions:

Engaging Force:

The force required to mate a separate pair of contacts (terminals) or a contact and mating gage.

Separating Force:

The force required to disengage a mated pair of contacts (terminals) or a contact and a mating test gage

Connector to Connector definitions:

Mating Force:

The force required to mate male and female connector halves or to completely seat a connector in a device header or receptacle.

Unmating Force:

The force required to unmate male and female connector halves or a connector from a device header or receptacle.

Connector Position Assurance (CPA):

Essentially a lock on the lock that holds the two halves of a connector together or holds a connector to the electrical device. It prevents accidental release of the connector lock and serves as an indicator of full connector mating.

Total Connection Resistance:

Electrical resistance of one terminal to terminal interface plus the resistance of the conductor to terminal grip for each terminal. For header type connections, only the resistance of one conductor to terminal grip is included. Included is the "bulk resistance of the terminal material itself.

(1) From USCAR/EWCAP "Performance Standard for Automotive Electrical Connector Systems"