TTL, Inc. has a strategic business unit that focuses on the global transportation market. Delphi Connection Systems has a reputation for producing high quality electrical and electronic connectors that meet and exceed customer requirements. Together, these industry leaders provide extensive product inventory and superior service from product-knowledgeable experts. TTI and Delphi – now you have a choice!

**Delphi Connection Systems**

_A World Leader in Automotive/Transportation Connector Systems is Available from the World’s Leading Connector Specialist._

- Extensive Product Portfolio
- Full Service Provider
- Leading Edge Interconnect Technologies
- Expertise in Multi-industry Connector Applications
- Integrated Systems Approach
- Development of Customer-Focused Solutions
- Service that Exceeds Customers' Expectations
- Strong Global Presence

- World Class Connector Line Card
- Product Knowledgeable Experts
- Local Sales and Product Support
- Broad and Deep Inventory Profile
- Leading Edge Technology Products & Supplies
- Value Added Solutions
- Full Customized Connector Capability
- Dedicated 200,000 square foot Connector Facility
- Full Suite of Supply Chain Services
- Quality and Reliability
- 98% On-Time Delivery

_Delphi's Headquarters in Troy, Michigan_  
_TTI's 200,000 square foot Connector Operations Center in Fort Worth, Texas_
## Connection Systems

### Connector Family

<table>
<thead>
<tr>
<th>Metri-Pack</th>
<th>GT</th>
<th>RF Coax Cable Assemblies</th>
<th>Weather Pack</th>
</tr>
</thead>
</table>

### Connector Type

- 150 Series
- 280 Series
- 480 Series
- 630 Series
- 800 Series
- Headers
- Junction
- Mixed
- Coaxial Cables
- Pin and Sleeve

### Features & Benefits

- Extended product range offers significant design and application versatility
- Used in high current to low energy circuits for electrical versatility
- Strength and stability of terminals help assure correct alignment
- Utilizes internationally standard male blade sizes for design flexibility
- Connector Position Assurance (CPA) and Terminal Position Assurance (TPA) for superior connection reliability
- Sealed version for excellent resistance to temperatures, chemicals, and abrasion
- Testing to SAEJ2030
- Tangless terminals for durable design
- Low engage force for improved reliability and ergonomics
- Pump-handle primary lock for lower engage and easy disassembly
- Secondary lock, Connector Position Assurance (CPA) and Terminal Position Assurance (TPA) capabilities for improved system design
- Mates to ISO, SAE blades for compatibility
- Conforms to USCAR design footprint for superior connection reliability
- Cam lever/mechanical assist for hand engage/disengage
- Optimized content packaging for electrical performance equal to less space efficient terminations
- Pre-staged male blade stabilizer for superior male blade protection
- Mixed terminal capability for design flexibility
- Protected seal interface for superior connection reliability
- Flexible manufacturing cells allow high volume/low mix and low volume/high mix
- Extensive experience in transportation E/E Architecture design and manufacturing
- Fully-certified testing/validation lab
- Full participation in global standards activities
- Sealed system specifically designed to withstand exposure to extreme temperatures, chemicals, and fluids
- Pin and sleeve configuration to alleviate stress relaxation
- Secondary lock and Connector Position Assurance (CPA) for improved system design
- Dual-locking tangs on terminals help prevent backing out
- Terminal plugging requires no orientation
- Positive locking indexing prevents mismating of connectors
- Low energy, low voltage capability for vehicle electronics

### Typical Markets

- Commercial Vehicles
- Marine
- Agricultural Vehicles
- Construction
- Marine
- Motorcycles
- Commercial Vehicles
- Marine

### Typical Applications

- Flat blade connections for electronic through high current applications
- Ergonomic connections for in-line, device, header, and bulkhead applications
- Ground position sensors and antenna applications
- Proven harsh environmentally-sealed connections
## Automotive and Transportation

### Connector Families

<table>
<thead>
<tr>
<th>064</th>
<th>Micro-Pack</th>
<th>Heavy Duty 1.0mm Vane</th>
<th>Power Pack 2000</th>
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</thead>
<tbody>
<tr>
<td>Headers</td>
<td>100 Series (unsealed)</td>
<td>1.0mm Vane Terminals</td>
<td>Inline</td>
</tr>
<tr>
<td>Micro64</td>
<td>100W Series (sealed)</td>
<td>50-way and 60-way Configurations</td>
<td>Right Angle</td>
</tr>
<tr>
<td>MicroVT</td>
<td>Headers</td>
<td>Female Harness Connector</td>
<td>Panel Mount Headers</td>
</tr>
<tr>
<td>MTS</td>
<td></td>
<td>Mating Header</td>
<td></td>
</tr>
<tr>
<td>MTS-B</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Features & Benefits

- **Connectors**
  - Unlimited number of rows and columns with 2.54mm centerline spacing to accommodate more terminals in less space
  - Pin and box tangless female terminal for reliable sealing and easy repair
  - Robust terminal interface design for continuous 7A current capability with either a square or round pin
  - Non-oriented female terminal to simplify insertion
  - Sealed and unsealed versions
  - Industry standard design for flexibility
  - Validated for high density commercial vehicle electronics
  - Cam lever/mechanical assist, Connector Position Assurance (CPA), secondary lock, and wire dress available for improved system design
  - 360° orientation available
  - Conforms to USCAR design footprint for broad application flexibility

- **064 Series**
  - Low energy (<5 amps), high density capabilities allow many electronic signals to be accommodated in one space-saving connector
  - Filtered or shielded systems protect against electromagnetic interference (EMI)
  - 3.0mm to 3.5mm centerlines accommodate applications where space is limited
  - Mechanical assist and bolt-together designs enable ergonomic assembly/disassembly
  - Improved one-piece (vs. two-piece) female terminal for sealed applications
  - Sealed version for excellent resistance to temperatures, chemical, and abrasion (100W)
  - Connector Position Assurance (CPA) and Terminal Position Assurance (TPA) for superior connection reliability

- **Micro-Pack**
  - Four contact points supported and protected by an external shield can
  - Tin-plated terminal with selective gold plating at the contact interface
  - Capable of 7.5 amps at 125°C
  - Able to withstand vibration requirements of 29.5g RMS
  - Unique pre-stage feature aids in ensuring terminals are fully sealed

- **Heavy Duty 1.0mm Vane**
  - Current carrying capability up to 200 amps at 105°C
  - Hand engage/disengage for one-way connectors to eliminate tools and save space and cost
  - Mates with both a single blade style terminal and itself for easy application to device connectors
  - Individually-sealed terminal cavities for environmental protection to the terminal contact areas and arcing protection
  - Silver plating to withstand 155°C
  - Connector Position Assurance (CPA) and Terminal Position Assurance (TPA) for superior connection reliability
  - Conforms to USCAR design footprint for broad application flexibility

### Typical Markets

- **Commercial Vehicles**
- **Marine**
- **Motorcycles**
- **Commercial Vehicles**
- **Marine**
- **Industrial Applications**

### Typical Applications

- **High density connections for commercial vehicle and transportation electronics**
- **1mm pin connections for low power and electronic devices**
- **Engine controllers, ABS modules, transmission controllers, and other devices requiring large I/O**
- **High power connection for 0V-600V AC/DC power systems for commercial on-road and off-road vehicles, hybrid vehicles, and industrial applications**
**CONNECTOR FAMILY**

**Data Connectivity**
- Ports
- Hubs
  - Auxiliary Jacks
  - SD Cards
  - USB
  - Cables and Connections
- USCAR Mini-B Headers

**Modular Electrical Center**
- Micro-relay
- Mini-relay
- Maxi-fuse
- Mini-fuse

**High-Voltage/Hybrid Connections**
- Connections designed for 42V-600V DC and AC
- Minimum shielding effectiveness of 40dB (150kHz to 200MHz) ensures EMI protection
- Connection Systems to Handle Wide Current Ranges

**Additional Components**
- Assembly Coverings and Channels
- Brackets, Clamps and Clips
- Cable Seals
- Fuse Holders and Lamp Sockets
- Ring and Battery Terminals
- Splice Savers
- 56, 58, and 59 Series Connectors

**FEATURES & BENEFITS**
- Customer convenience
- Interface designed for high mate/unmate cycles to provide strong, robust construction and enhanced reliability
- Engineered for various data protocols
  - 1394
  - MOST
  - US
- Designed to meet commercial and specialty vehicle applications standards

- Offers the versatility of custom designs, with the economics of off-the-shelf modules
- All mini- and maxi-fuse centers have bussing capability to reduce the number of leads required
- All mini- and micro-relays are designed for motor and resistive load applications and are a “plug-in” type of relay designed for use in electrical centers
- All modular electrical centers utilize secondary lock combs that are custom designed to match the module
- Shielding connection to control radiated emissions and EMI
- Terminal cavities isolated to protect against short circuit between high voltage terminals
- HVIL (Hazardous Voltage Interlock) available to protect during service operation
- Systems offering internal and external shielding
- Panel mount header with mating harness connector
- Custom designed connection systems to meet customer specifications
- Shield interface sealed from environment (no galvanic degradation)
- Leverage product development expertise to address all on- and off-road requirements
- Durable and proven designs
- Harness attachment devices designed for automotive and transportation products
- Ergonomic and assembly efficient designs including orientation features
- Custom designed solutions for customer specific applications

**TYPICAL MARKETS**
- Agriculture
- Commercial Vehicles
- Construction
- Marine
- Motorcycles
- Commercial Vehicles
- Automotive
- Commercial Vehicles
- Marine

**TYPICAL APPLICATIONS**
- Applications requiring interface with an array of onboard information and entertainment systems
- Full range of power distribution applications, including stringent underhood environments
- High 300V battery pack, inverter modules, control modules, belt-driven accessories, power distribution center, BEC, transmission, power steering
- General automotive and transportation electrical distribution attachment needs
There's a TTI location near you.

<table>
<thead>
<tr>
<th>Global Headquarters</th>
<th>European Headquarters</th>
<th>Asian Headquarters</th>
</tr>
</thead>
<tbody>
<tr>
<td>TTI, Inc.</td>
<td>TTI, Inc.</td>
<td>TTI Electronics Asia Pte. Ltd.</td>
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<tr>
<td>2441 Northeast Parkway</td>
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<td>(65) 6788-9200</td>
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<td>+49 8142 6680-490 Fax</td>
<td>(65) 6788-9300 Fax</td>
</tr>
<tr>
<td></td>
<td><a href="http://www.ttieurope.com">www.ttieurope.com</a></td>
<td><a href="http://www.ttiasia.com">www.ttiasia.com</a></td>
</tr>
</tbody>
</table>

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