

CONNECTION SYSTEM

Off-The-Shelf Product Portfolio



Apitv is moving mobility forward with safer, greener and more connected solutions.



Satisfying various industry demands and moving commercial & specialty vehicle architecture to the next generation.



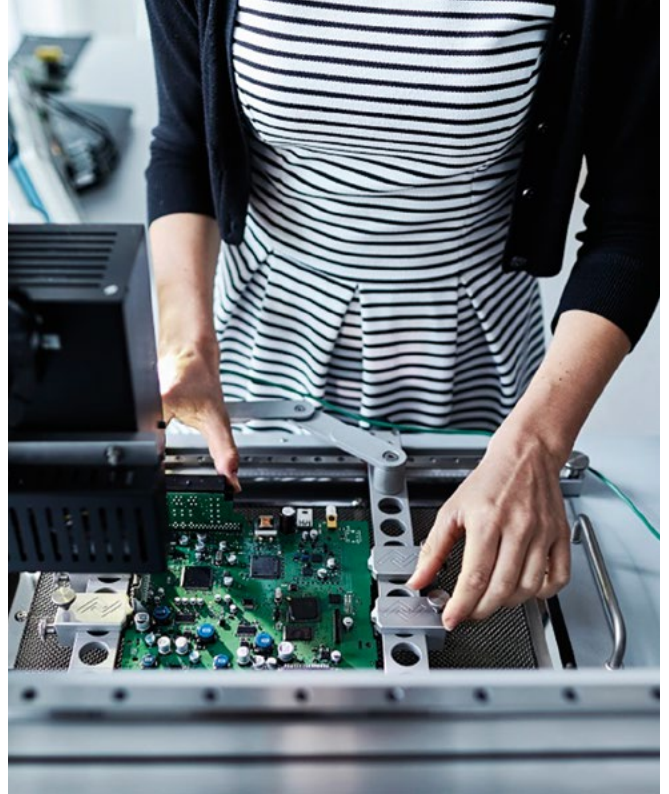
• APTIV •

At Aptiv, we are born to move

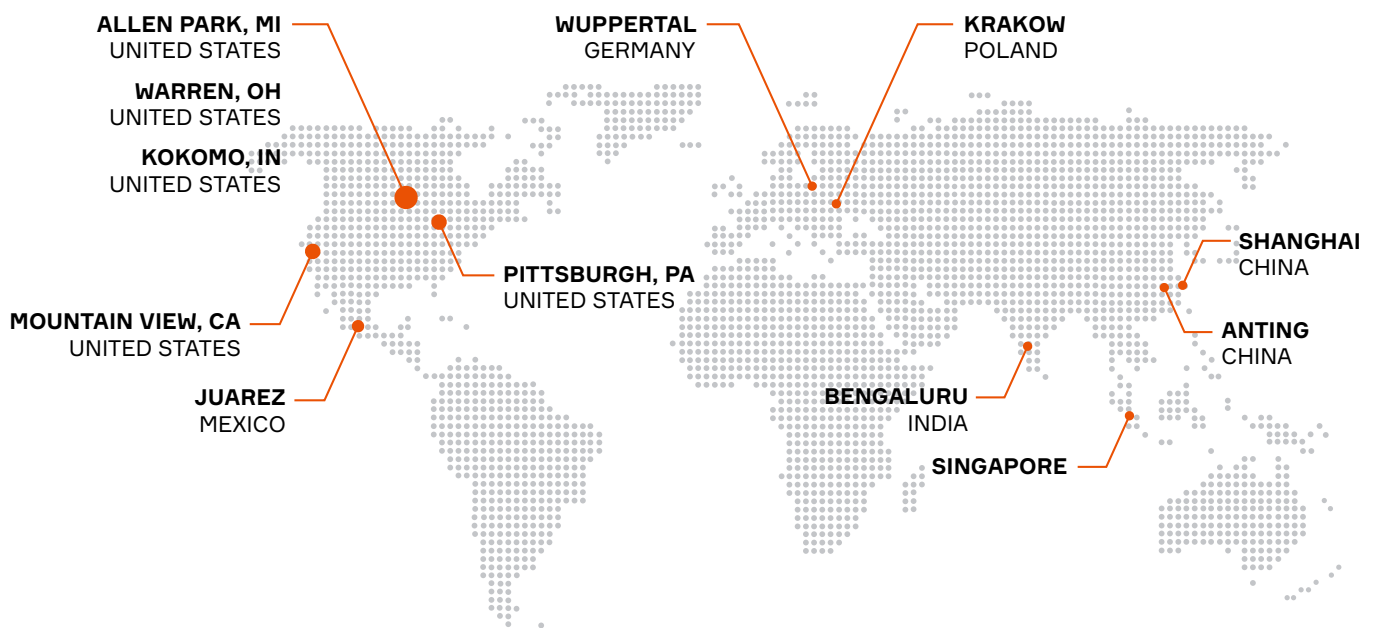
Aptiv is a **global technology company** that develops safer, greener and more connected solutions enabling the future of mobility.

Headquartered in Dublin, Aptiv has approximately 150,000 employees and operates 14 technical centers, as well as manufacturing sites and customer support centers in 45 countries.

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Major Design Centers Worldwide





The world of **transportation**

Aptiv has been a trusted automotive supplier for decades, introducing practical innovations in the areas of safety, efficiency, and connectivity. The transportation market has been advancing in these areas and Aptiv can offer product solutions designed for the tougher operational and environmental requirements.

Commercial and recreation vehicles are often exposed to higher levels of environmental forces, including vibration, dust, water, debris, and temperature. To protect the integrity of the electrical system, high performance connection systems are required.

To deliver superior performance, a number of complex factors in the electrical system must be addressed in the component design, including sealing, locking features, and materials.

CTCS

CONNECTOR TYPE

A complete portfolio of connectors, accessories, covers, terminals, seals, and hand crimp tools

- Inline and device applications
- 2 through 62 way configurations
- Sealed and unsealed applications
- Slider lock and Lever lock assist mechanisms
- Housings using CTS 1.5, 2.8, 6.3 mm terminals

TYPICAL MARKETS

Commercial, construction, agricultural, and marine vehicles

TYPICAL APPLICATIONS

- Suitable for harsh environments
- Cab, chassis, engine compartment, and on-engine applications
- Ideally for connections in a vehicle sheet metal firewall pass-through location



FEATURE & BENEFITS

- Interchangeable with other industry terminals and housing
- Mounting flexibility: panel, strap/clip, and bracket
- Improved vibration resistance: up to 30G sine, 20Grms random 330 hrs./axis and robust back shells
- High temperature ratings: up to -40 to +140°C
- Additional connector shielding for protection against debris ingress
- Tin, silver, and gold plating options for terminals
- Offered in both non-V0 and V0 materials

APEX



CONNECTOR TYPE

- In-line sealed connectors
- APEX 150 (1.5 mm) housings: 10, 14, 16 way
- 24 and 55 way ErgoMate™ housings
- APEX 2.8 mm housings: 2, 3, 4, 6, 10 & 14 ways

TYPICAL MARKETS

Commercial, construction, agricultural, and marine vehicles

TYPICAL APPLICATIONS

Suitable for harsh environments

FEATURE & BENEFITS

- High performance in-line connectors for vibration, high temperature, moisture or harsh assembly environment
- Fulfill USCAR and other OEMs' performance specifications
- 2-piece APEX terminal technology
- Clean Body Terminal design friendly to mat seal
- No polarization needed
- Tin, Silver and Gold plated versions available
- Temperature range: -40 to 155 °C degree

HES

CONNECTOR TYPE

- Circular connector size 24 shell
- Terminal patterns
- 19, 21, 23, 29, 31, 47, 50 and 60 way Headers
- Terminals: 1.0, 1.6, 2.4 mm

TYPICAL MARKETS

Commercial, construction, military, marine, and agriculture vehicles

TYPICAL APPLICATIONS

- Ideally for connections in a vehicle sheet metal firewall pass-through location
- Intended for use in any high density, in-line application

FEATURE & BENEFITS

- Terminal designed for lower insertion forces
- 3-rib design provides better sealing capability up to 50% compared to existing designs
- Environmentally sealed to IP68
- Robust, specialized finger design virtually eliminates terminal unseats
- Fully interchangeable with industry standards terminals and connections
- Frontward/backward compatibility
- Rugged construction to withstand harsh environments
- Sonic welded design provides 360 degrees of contact to withstand high vibration to meet J-2030 standards
- Validated to SAE J-2030 and various other customer specifications



DCS Power Sealed



CONNECTOR TYPE

Solutions for power interconnection using 2.8mm, 4.8/5.6mm and 9.5mm DCS Power terminals with 2, 3, 4 ways

TYPICAL MARKETS

Commercial, construction, agricultural, and marine vehicles

TYPICAL APPLICATIONS

Cooling fans, air conditioning, electrical power feeding

FEATURE & BENEFITS

- Connector position assurance (CPA - 2 ways)
- Terminal position assurance (TPA)
- User friendly with integrated secondary lock device allowing for detection of unseated terminals
- Easy and quick connection system with terminal guiding system
- Circumferential interface sealing and single wire sealing
- Mechanical coding

OCS

CONNECTOR TYPE

- In-line sealed and unsealed connectors
- Terminals: 0.64, 1.2, 1.5 and 2.8 mm

TYPICAL MARKETS

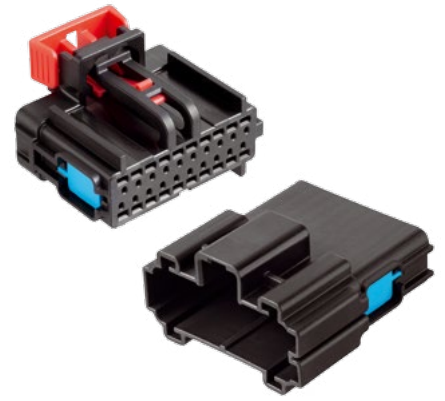
Commercial, agricultural, and marine vehicles

TYPICAL APPLICATIONS

Suitable for body & engine & cockpit compartment applications

FEATURE & BENEFITS

- Robust design features for enhanced warranty performance and designed-in durability
- Clear and consistent audible click
- Enhanced strain relief for blocked cavity configurations
- Thumb grip incorporated to aid connector unmating
- USCAR indexing
- Cavity compatible with industry standard terminals
- Validated to USCAR-2 Class III and other OEMs' specifications
- Small package size
- Optional CPA
- Standard mating interfaces
- Interchangeability with other compatible systems in the market



SICMA Mini-Sealed



CONNECTOR TYPE

- High sealing performance in-line connectors using SICMA/GTS 1.5 mm terminals
- 2, 3, 4, 5, 6 ways
- 6 way hybrid SICMA 1.5 & 2.8 mm

TYPICAL MARKETS

Commercial, construction, agricultural, and marine vehicles

TYPICAL APPLICATIONS

Suitable for body, engine compartment and harsh environment applications

FEATURE & BENEFITS

- High sealing performance ensured by rear block/mat seal and circumferential interface seal
- Optimized size with 3.33 mm pitch for 1.5 mm terminals
- Reduced size sealed housing
- Easy and quick connection system with locking principle
- Integrated secondary lock feature (TPA) allowing detection of unlocked terminals
- Terminal Position Assurance (TPA)
- Optional Connector Position Assurance for 2 and 6 ways (CPA)
- Optional wire back covers

SICMA Inline Unsealed Connector

CONNECTOR TYPE

2 & 6 way connectors using SICMA 1.5mm terminals, 24 & 36 way connectors using 1.5 & 2.8 mm terminals

TYPICAL MARKETS

Transportation vehicles

TYPICAL APPLICATIONS

Harness Sectioning in Cockpit, Dashboard and interior connections

FEATURE & BENEFITS

- Reliable harness sectioning, inline connection solution
- Compact male and female housings which provide a convenient inline wire to wire solution
- Mixed sizes of 1.5 & 2.8 mm terminals populating 24 and 36 way connectors



SICMA Sealed Full Interconnect



CONNECTOR TYPE

- 6 & 24 way –mixed size of 1.5 & 2.8 mm Sicma terminals
- 56 way – 1.5 Sicma terminals
- Sicma Terminals: 0.64, 1.5, 2.8mm

TYPICAL MARKETS

Commercial, construction, agricultural, and marine vehicles

TYPICAL APPLICATIONS

Engine management with gas converter, automatic gear box management, body control modules

FEATURE & BENEFITS

- Market standard, foot print interface to device headers
- Sealed Interconnection from harness wiring to an electronic equipment
- Wire to Electronic Printed Circuit Board (PCB) in order to build electronic control units

CMC

CONNECTOR TYPE

- Full interconnect sealed solutions for engine management solutions using 0.64 and 1.5 GTS terminals
- CMC (Computer Modular Connector) is one of the most popular interfaces for Engine
- Management Electronic Control Units: 32, 48, 64 & 112 ways

TYPICAL MARKETS

Commercial vehicles, construction, agricultural, marine vehicles

TYPICAL APPLICATIONS

- Suitable for harsh environments
- Powertrain Electronic Control Units

FEATURE & BENEFITS

- Accepts reversible wire dress cover
- Right or left mountable rotating lever for mate assistance
- 15 g sinus vibration resistant with Tin terminals
- 1.5 Bar pressure proof sealing
- 45° & 90° wire bundle exit through back shell covers



SICMA Panel Through



CONNECTOR TYPE

- Connector solutions for Door to Body connections using SICMA 1.5 and 2.8 mm terminals connector solutions
- 14, 16, 24, 33, 34, 42 and 50 ways

TYPICAL MARKETS

Commercial, construction, agricultural, and marine vehicles

TYPICAL APPLICATIONS

Particularly suitable for door to body or engine to cockpit pass-through applications

FEATURE & BENEFITS

- Suitable for a combination of low and medium current applications
- Mating assistance system with slider to minimize mating force and allowing blind mating
- Male terminals can be protected from hazardous damage of male blades thanks to a front grid protection
- Optional back shell cover

Lamp Connector

CONNECTOR TYPE

- HIR2/HB3/HB4 sealed
- PG18.5 sealed & unsealed versions
- PG20 sealed version
- PGJ19 sealed version (H8, H9 and H11)

TYPICAL MARKETS

Vehicles lighting, Indicator lamp

TYPICAL APPLICATIONS

Fog Lamps, Daytime running lights

FEATURE & BENEFITS

PG18.5 & PG20

- Easy unmating thanks to robust rear latch
- Housing locking principle
- Front Terminal Position Assurance (TPA)

PGJ19

- Safe mating and unmating thanks to robust and protected front and rear latch
- Housing locking principle

APEX HIR2

- Built around High-Performance APEX 2.8 Terminal System HIR2 mates to standard industry bulbs of the increasingly popular halogen infrared variety



Sensor Connector



CONNECTOR TYPE

- DCS SensoMate 2.8 mm sealed 2 and 3 way
- HDK 1.2 2 way
- ATS (DSQ) 4 and 5 way
- APEX SensoMate 1.2 mm sealed 2, 3, 4 and 5 way
- APEX SensoMate 2.8 mm sealed 2 and 3 way
- GTS SensoMate 2 and 3 way

TYPICAL MARKETS

Commercial, construction, agricultural, marine, and transportation vehicles

TYPICAL APPLICATIONS

Fuel injector, actuator, pressure sensor applications, distance and radar sensor

FEATURE & BENEFITS

- High vibration resistance
- Single wire sealing
- For heavy duty diesel engine applications
- Terminal position assurance (TPA)
- APEX SensoMate compliant to USCAR guidelines
- HDK and APEX 1.2 complies with AK 1.2 / USCAR 120
- High temperature: T3=125°C (HDK and GTS up to T4=150°C)

High Voltage – Auxiliary Device Solutions (up to 1000V)

CONNECTOR TYPE

- **On-Board Charger:** Header and inline unshielded connectors
- **PTC heaters, AC compressors and inverters:** Shield-Pack HV280 & Apex HV280 2 way, AK class1 2 & 3 way

TYPICAL MARKETS

Commercial, construction/agriculture, recreational, and marine vehicles

TYPICAL APPLICATIONS

A/C compressor, heater, coolant control module, on board charger, DC converter, battery accessory output

FEATURE & BENEFITS

Multiple currents depending on customer applications

- On-board charger – 32A at 85°C
- Shield-Pack HV280 – 40A at 85°C

Multiple shielding principles:

Bundle shielding, Individual shielded cables, Multi-core shielded cables

Secured connection features

- Connector Position Assurance (CPA) and Terminal Position Assurance (TPA) for superior connection reliability
- Integrated interlock for safe disconnection

Robust vibration performance in harsh environments



High Voltage – Power Conversion Solutions (up to 1000V)

CONNECTOR TYPE

Batteries, eMotors & inverters:

RCS 800/890 2 way connectors; Metal and AK Plastic pass-through 1 to 3 way; HV890 AK Class4 2 way

TYPICAL MARKETS

Commercial, construction/agriculture, recreational, and marine vehicles

TYPICAL APPLICATIONS

Inverters, drive motors/generators, and high current/high voltage battery outputs

FEATURE & BENEFITS

Multiple currents depending on customer applications

- RCS800/890 – 210A at 85°C

Multiple shielding principles:

Bundle shielding, Individual shielded cables, Multi-core shielded cables

Secured connection features

- Connector Position Assurance (CPA) and Terminal Position Assurance (TPA) for superior connection reliability
- Integrated interlock for safe disconnection

Robust vibration performance in harsh environments



Low Voltage Solutions (12-48V)

CONNECTOR TYPE

Power Pack 1000

- High current sealed connectors 1 and 2 ways
- Inline and device (right and straight angle)

TYPICAL MARKETS

Commercial, construction/agriculture, and recreational

TYPICAL APPLICATIONS

- High current wiring harness inline
- High current device application and sealed pass-through panel mount system

FEATURE & BENEFITS

Current carrying capability:

- 145A at 85°C
- Silver-plated Power Pack 1000 multi-contact terminal system

Secured connection features

- Connector Position Assurance (CPA) and Terminal Position Assurance (TPA) for superior connection reliability

Multiple configurations:

- 1 way and 2 way inline connections with both straight and right orientations
- 2 way wire-to-device connections with straight and right angle cable exits

High sealing protection:

- IP67 rated



Charging Solutions

CONNECTOR TYPE

Vehicle Charging Inlets

- AC inlets : SAE J1772/Type I, Type II, GBT
- DC inlets : Combo 1, Combo 2, GBT

AC Charge Connectors (Type I, Type II and GBT)

- Mode 3 cable assemblies
- Mode 2 charge couplers

TYPICAL MARKETS

Commercial vehicles such as trucks and buses, recreational vehicles

TYPICAL APPLICATIONS

- AC & DC Vehicle charging interface according to regional standards (SAE J1772/Type I, Type II, GBT)
- Charging cable assemblies to connect charging stations to vehicles
- Portable Electric Vehicle Supply Equipment (EVSE) for grid-to-vehicle charging

FEATURE & BENEFITS

High reliability field proven solutions

- In serial production at multiple automotive OEMs
- Time tested products performing in real life environments for example on roads

Products qualified against demanding automotive requirements

- Certified according to multiple regional standards (CE conformity, UL certified, GBT certified)
- Detailed automotive PPAPs based on comprehensive lab tests above industry standards



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