



# Connectors for Construction Applications

• APTIV •



# Aptiv is a global technology company that enables a safer, greener and more connected future with scalable hardware and software solutions.

Our **Connection Systems** business offers a full range of connectivity products for power and data applications.

The portfolio includes low- and high-voltage connectors for conditions ranging from light duty to harsh environments, as well as high-speed data connectors that support increasing bandwidth requirements.



# Aptiv Connection Systems

## PIONEERING MODERN CONNECTIVITY SOLUTIONS

### Global Connectivity Excellence

Aptiv Connection Systems stands at the forefront of electrical and electronic connectivity innovation, delivering premium connection systems that consistently exceed global customer expectations. Our cutting-edge technologies and processes are shaped by deep customer insights and a relentless pursuit of innovation. We remain dedicated to collaborating with partners to develop connectivity solutions that meet demanding quality and performance standards across multiple industries.

### Advanced Manufacturing & Design Capabilities

Using state-of-the-art manufacturing technologies and comprehensive design services, we create high-performance, cost-efficient connection systems available as both off-the-shelf and custom solutions. Our end-to-end approach encompasses the design, manufacturing, assembly, validation and delivery of electrical/electronic connectivity products that satisfy the most stringent industry requirements.

### Versatile Solutions Portfolio

Our diverse product lineup spans from signal-level to high-power connection systems, featuring both unsealed and sealed, ergonomically designed connections for inline, device and header applications. Our comprehensive offerings position Aptiv as a trusted single-source connectivity partner.

### Transportation Market Applications

Aptiv Connection Systems delivers specialized connectivity solutions across several transportation sectors:

- **Automotive**
- **Medium- and heavy-duty trucks**
- **Agricultural equipment**
- **Construction machinery**
- **Marine applications**
- **Mass transit systems**
- **Recreational vehicles**
- **Motorcycle technology**

### The Aptiv Difference

#### Comprehensive Product Ecosystem

An extensive range of connectivity solutions

#### Pioneering Interconnect Technologies

At the cutting edge of the industry

#### Cross-Industry Expertise

Deep knowledge across multiple connector applications

#### A Holistic Systems Approach

Integrated solutions rather than isolated components

#### Customer-Centric Innovation

Solutions developed around real client needs

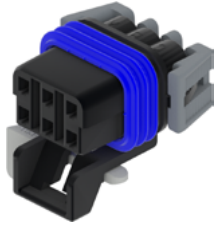
#### Exceptional Service Standards

Consistently exceeding customer expectations

#### A Robust Global Presence

Seamless support across international markets

# Product Series for Construction Applications



## METRI-PACK

SAE J2030-compliant with premium silver interface plating for superior commercial vehicle performance



## GT

Connector series featuring clean body terminals and low connector engage force in a small package size



## OCS 1.5 SEALED

Full inline and device series for improved warranty performance with industry-standard mating interfaces

## CONNECTOR & TERMINAL RANGE

- 150, 280, 480, 630, and 800 Series
- 1-way to 16-way configurations
- Inline, headers, and mixed
- Maximum current: 14A (150 Series) up to 60A (800 Series)
- 125° C maximum temperature
- Cable sealed
- Sn, Ag, and Au plating

- 150 and 280 Series
- 2-way to 20-way configurations
- Inline, headers, mixed and lever lock
- Maximum current: 15A (150 Series), 25A (280 Series)
- 125° C maximum temperature
- Cable sealed
- Sn, Ag and Au plating

- 2-way to 16-way, female and male
- Six standard indexes
- Primary lock reinforcement (PLR)
- CPA available
- 21A continuous maximum current rating
- -40° C to +125° C operating temperature range
- IP69K-rated sealing

## FEATURES & BENEFITS

- The comprehensive product range supports design flexibility and application versatility
- Both high-current and low-energy circuits are supported, for maximum electrical adaptability
- Robust terminals assure correct alignment and connection integrity
- Connectors are compatible with global standard male blade dimensions for seamless integration
- Connector Position Assurance (CPA) and Terminal Position Assurance (TPA) provide superior connection reliability
- Environmental sealing provides exceptional protection against temperature extremes, chemicals and abrasion

- Tangless terminals deliver superior durability and performance
- Low insertion force benefits reliability and ergonomics
- The pump-handle primary lock enables lower engage force and easy disassembly
- Secondary lock, CPA and TPA ensure connection integrity
- ISO blade standards are supported
- Space-optimized packaging helps maintain electrical performance while optimizing the footprint
- The mixed terminal capability provides design flexibility
- A protected seal interface ensures consistent reliability in challenging environments

- Compatibility with industry standard mating interfaces
- Robust reliability and designed-in durability
- Housing lock overstress protection to prevent lock relaxation or damage
- Polyester resins for an enhanced audible click, to improve operator build feedback and dimensional stability in all seasons
- Optimized PLR for improved terminal unseat detection
- Cavity designed with a positive forward stop to prevent terminal push-through
- Optimized optional CPA that provides additional lock performance to ensure connectors stay mated

## TYPICAL APPLICATIONS

- Main wiring harness and switches
- Back-up relay alarm
- HVAC valves and actuators
- Electronic fuel injection
- Cooling fan
- Hydraulics
- Lighting systems
- Front console and tractor cab wiring
- Chassis and cab roof wiring
- Transmission harness and rear wiring

- Engine and chassis wiring harness
- Resistor assemblies
- Open operator station and cab wiring
- Left-hand joystick controls
- Horn
- Valve manifold hydraulics
- Front console wiring
- Front- and rear-half wiring
- Transmission harness

- Main wiring harness
- Hydraulics
- Front console wiring
- Signal lights
- Instrument panel wiring
- Fuel preheater
- Chassis wiring



# Product Series for Construction Applications



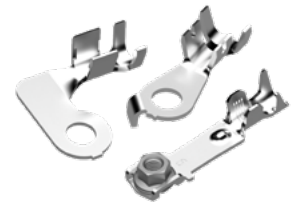
## APEX 2.8 SEALED

Heavy-duty performance and an ergonomic design, with the industry's highest current rating



## WEATHER-PACK

Environmentally sealed electrical connectors field-proven to withstand extreme temperatures, chemical and fluid exposure



## RING TERMINALS

Versatile solutions for low- and high-voltage applications with crimped, welded or sealed anti-rotation capabilities

### CONNECTOR & TERMINAL RANGE

- 2-way to 14-way configurations
- Inline and device
- 40A maximum current
- 150° C maximum temperature
- Mat-sealed; IP68-rated
- Inline and panel-mount, 2-way to 6-way
- CPA available
- Secondary lock (cover)
- 20A continuous maximum current rating
- -40° C to +125° C operating temperature range
- Sealed system
- Pin and sleeve configuration
- Low-energy, low-voltage capability
- Over 200 configurations available
- Sealed or unsealed options
- Small and large cross-wiring
- Low- and high-voltage solutions
- Several mating stud options
- Sn or Ag plating

### FEATURES & BENEFITS

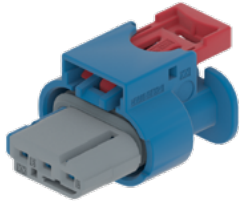
- Industry's most compact 2.8mm system
- Fully protected interface seal
- PLR and CPA to ensure connection integrity
- Mechanical polarization to eliminate mis-mates
- Proven environmental sealing in harsh environments
- Triple-ribbed connector and cavity seals are made of self-lubricating silicone
- Terminals use a flex-pin and lap-lock design to prevent stress relaxation
- Dual-locking tangs lock into the connector cavity to prevent terminal pushout
- Anti-rotation feature
- Stackable ring terminals linked at the screwing point
- Aluminum wire option
- Integrated nut options for easier assembly
- Anti-corrosion properties
- Specialty terminals designed for demanding applications

### TYPICAL APPLICATIONS

- Engine and chassis wiring harness
- Front console cab wiring
- Generator wiring
- Battery and related connections
- Platform wiring
- Main wiring
- Discharge spout and light wiring harness
- Main wiring harness and switches
- Seat suspension and console cab wiring
- Fuel injection pump
- Transmission wiring
- Chassis wiring
- 12V receptacle, power take-off (PTO)
- Sprayer harness
- Third wheel assist wiring
- Tank wiring; sensors, meters, valves
- Hydraulic lift wiring
- Cab wiring harness
- Backup alarm
- Seat air suspension
- Battery connections
- Transmission harness
- Main wiring harness
- Engine and chassis wiring harness
- Lighting systems; revolving light
- Front console harness



# Product Series for Construction Applications



## 48V CONNECTORS

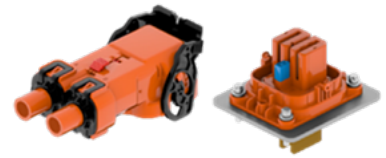
Broad portfolio of 48V connectors with proven, robust terminal systems to avoid intermittent contacts



### HV CONNECTORS

## AUX MODULES

Largest global portfolio of auxiliary module connections for battery electric vehicles (BEVs) and hybrids



### HV CONNECTORS

## POWER CONVERSION

Largest global portfolio of power conversion connections for BEVs and hybrids

## CONNECTOR & TERMINAL RANGE

- LVCS 0.64 and 2.8 Series
- CMC 0.64 V0 Series
- CTS 1.2 SensoMate Series
- Apex 2.8 Sealed Series
- CTS 9.5 Sealed Series
- DCS 9.5 Power Sealed/4.8 Series
- Mixed CTS 9.5 and Apex 1.2 Series
- PowerPack LV 1000 and 2000 Connectors
- PowerPack 48V Sealed Ring Connectors

- ShieldPack HV630
- ShieldPack HV280
- ShieldPack HV AK Class 1, 2
- Shield Pack HV 280/630 Splice
- ShieldPack APEX280
- ShieldPack HV HES240 onboard charger (OBC)
- PowerPack HV630 OBC
- Headers and connectors

- DCT1400
- ShieldPack HV AK Class 4
- ShieldPack HV RCS800, 890, 1100, and 1190
- PowerPack HV RCS800
- ShieldPack HV Metal and Plastic Pass-Throughs

## FEATURES & BENEFITS

- Industry standard interfaces are supported
- Connectors withstand high vibration levels and operating temperatures
- Connectors meet IEC creepage and clearance standards up to 60V
- A terminal secondary lock eliminates terminal pushout risk
- Sealed connectors mitigate risk of electrochemical corrosion

- Industry standard interfaces
- Withstand high vibration levels and operating temperatures
- Multiple layouts and high-voltage interlock loop (HVIL) options
- Finger-proof, touch-safe designs
- Tool-less mating and un-mating systems
- Space-saving options
- Field-proven designs used across electrification market

- Industry standard interfaces
- Withstand high vibration levels and operating temperatures
- Multiple layouts and HVIL options
- Finger-proof, touch-safe designs
- Tool-less mating and un-mating systems
- Innovative Screw Position Assurance
- Field-proven designs used across electrification market

## TYPICAL APPLICATIONS

- Motor and drivetrain connections
- Lighting applications
- Pump applications
- Battery connections
- Sensor and actuator connections
- Other auxiliaries

- Engine auxiliaries: AC compressors, pumps and heaters
- DC-to-DC converter
- Onboard charger
- Battery pack
- HV power distribution unit (PDU)

- Traction drives
- Battery connections
- Electric motors
- HV PDU



# Product Series for Construction Applications



## HIGH-SPEED DATA CONNECTORS

Enabling seamless data transmission for applications such as radars, lidars, cameras and other sensors



## CTCS XP/SP, UNSEALED & FLEX

Surpassing the industry's toughest standards set by leading commercial vehicle manufacturers



## HES

Circular connectors engineered for uncompromising performance in extreme environments

## CONNECTOR & TERMINAL RANGE

- High Speed FAKRA
- Mini-coax connectors
- Automatable Modular Ethernet Connectors (AMEC)
- High-Speed Modular Twisted-Pair Data (H-MTD)

- Inline and device applications
- 2-way to 62-way configurations
- 1.5mm, 2.8mm and 6.3mm blade sizes and mixed cavity configurations
- Sealed and unsealed applications
- Flame-retardant V0 material option
- Panel, strap/clip and bracket male mounting options
- Modular mixed data, power and signal connections
- Two lock-assist mechanisms for sealed connectors: slider lock and lever lock

- 24 shell connectors
- Six terminal patterns
- Standard/reverse configurations
- Thin wall, regular wall and heavy wall
- 19mm, 22mm and 25mm conduit adapters, straight and right angle
- 50-way to 60-way header system
- Pin/sleeve terminals compatible with MIL 390329 industry standard cavity
- Ni or Au plating

## FEATURES & BENEFITS

- Multi-gigabit data rates and power over coax
- Sealed & unsealed
- Stable performance across temperatures and frequencies
- Anti-stubbing technology
- Highest mechanical robustness
- Wide range of cable types
- Serviceable designs

- Optional back shells in 180° and 90° angles with additional ribbing provide improved vibration resistance
- The zero-gap back shell design protects against dust and debris ingress
- Secure locking features prevent accidental connector release before full mating
- A patented housing design and an enhanced terminal contact spring deliver superior vibration performance
- The FLEX version features a modular design for customizable combinations of data, power and signal terminals
- A robust, ergonomic slider design enables easy handling

- Three-rib seal design for up to 57% higher performance
- Up to 44% higher terminal retention while reducing plugging force
- Validated to SAE J2030
- HES terminals for improved electrical performance
- Ergonomic harness assembly
- Assembly benefits: lock window and alignment arrows; color-coordinated seals

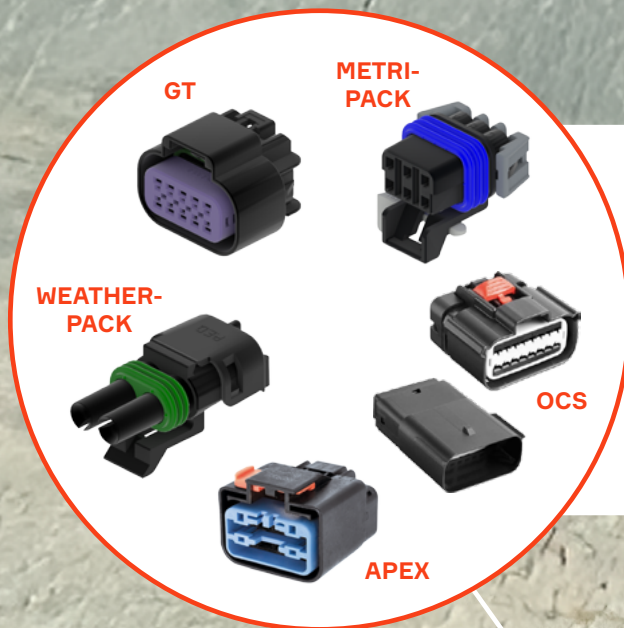
## TYPICAL APPLICATIONS

- Cameras
- Antennas
- Smart sensors and modules
- Infotainment
- Autonomous driving
- Radar
- Lidar

- Cab wiring harness
- Platform wiring harness
- Chassis wiring
- Transmission harness
- Engine harness connections
- Sensors, switches and actuators
- Hydraulic pumps
- Control unit connections

- Cab and armrest wiring harness
- Platform wiring harness
- Chassis wiring
- Transmission harness
- Engine harness connections





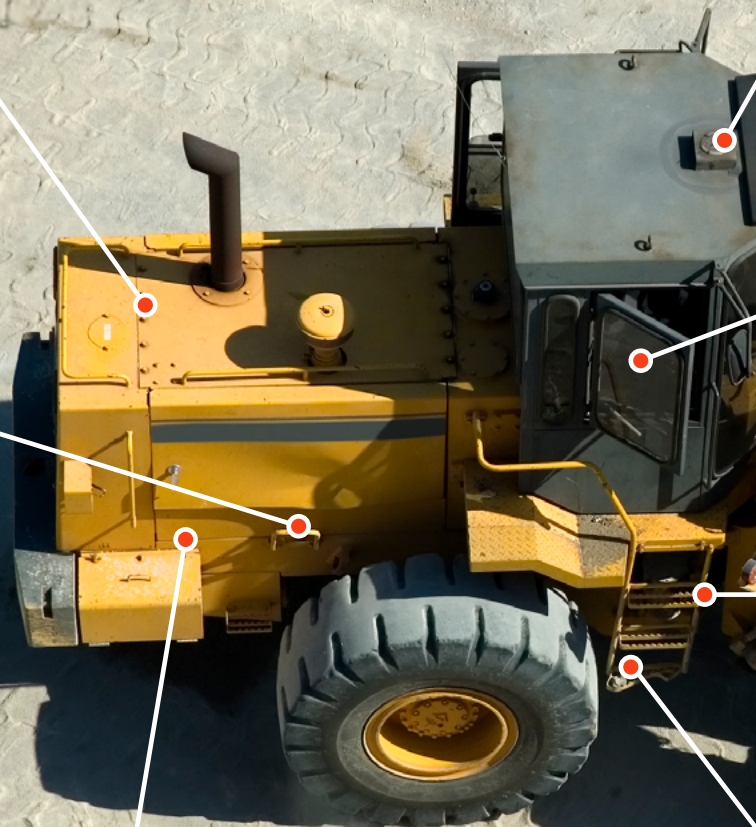
- Main, chassis and instrumental panel wiring
- Hydraulics
- HVAC valves, actuators
- Joystick controls
- Signal lights
- Fuel preheater
- Generator wiring



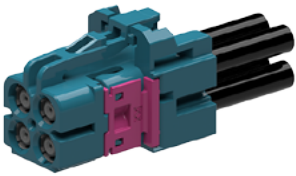
- Traction drives
- Battery connections
- HV PDU
- Electric motors



- Engine auxiliaries:  
A/C compressors, pumps  
and heaters
- DC-to-DC converter; OBC
- Battery pack; HV PDU







**HIGH SPEED DATA CONNECTORS**

- Cameras and antennas
- Smart sensors
- Infotainment features
- Autonomous systems
- Radar and lidar



**CTCS**

**HES**

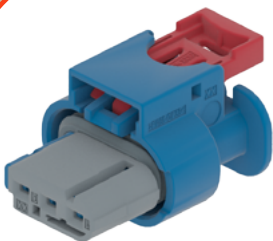


- Cab and armrest wiring
- Platform and chassis wiring
- Transmission and engine wiring
- Sensors, hydraulics, control unit, switches and actuators



**RING TERMINALS**

- Cab and front console wiring
- Backup alarm
- Seat air suspension
- Battery connections
- Transmission harness
- Main, engine and chassis wiring harness
- Lighting systems



**48V**

- Motor and drivetrain connections
- Lighting applications
- Pump applications
- Battery connections
- Sensor and actuator connections





# For More Information

[VISIT OUR WEBSITE](#)

[BROWSE OUR E-CATALOG](#)



• **APTIV** •

CS-SP-176-CONS-EN0626