



Delivering 50% space savings over traditional USCAR 0.64mm connectors with smaller terminals to fit more signals into vehicle interiors, the Mini50™ Unsealed Connector System is approved as the industry's only USCAR 050 interface

Features and Benefits

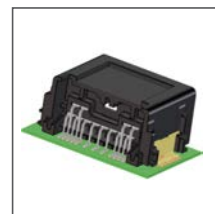
4, 8, 12, 16, 20, and 24 circuit size receptacles and headers available	Addresses industry needs for higher circuit density while maintaining a small PCB footprint
Designed and tested to USCAR 050 specifications	Approved as the industry's only USCAR 050 approved interface from 4 to 12 circuits. Larger circuit versions are in the approval process
50% smaller than USCAR 0.64mm unsealed interfaces	Minimizes PCB footprint for design flexibility and space saving
Independent secondary lock (ISL) terminal-retention feature	Secures terminal inside the housing; one-piece design for applied cost savings
Orientation features molded into the header	Provides wire-routing and module-design flexibility for both vertical and right-angle connectors. Retains the header to the PCB during the soldering process
Board alignment and retention features	Simplifies header placement on the PCB and retains the header to the PCB during soldering. Protects adhesive joints during connector mating and unmating
High-temperature thermoplastic housings	Withstands infrared (IR) and wave lead-free solder processing per ES-40000-5013 Molex specification, up to a maximum temperature of +260°C
Female terminal wire grips for wires 0.35mm ² and smaller	Reduces wire size, and provides weight, space, and cost savings versus 0.64mm interfaces
Three polarization options	Enables limited customization and enforces like-to-like mating via three discrete mechanical, visual, and colored polarizations
CTX50 terminal wire grip design	Offers harness manufacturers the ability to reduce wire gauge sizes while maintaining retention strength
Connector position assurance (CPA) latch available	Prevents accidental un-mating

Mini50™ Unsealed Connector System

- 34791** Single-Row Receptacles
- 34792** Single-Row, Vertical Headers
- 34793** Single-Row, Right-Angle Headers
- 34912** Single-Row, SMT Headers
- 34824** Dual-Row Receptacles
- 34825** Dual-Row, Vertical Headers
- 34826** Dual-Row, Right-Angle Headers
- 34897** Dual-Row, SMT Headers
- 560023** CTX50 Terminals



Mini50™ Single-Row Right-Angle Header (Series 34793)



Mini50™ SMT Right-Angle Header (Series 34897)



Mini50™ Single-Row Receptacle (Series 34791)



Mini50™ Dual-Row Receptacle (Series 34824)

Reference Information

Packaging:

- Housings – Bulk pack
- Terminals – Reel and loose piece

Mates With:

- Receptacles Series: 34791, 34824
- Vertical Headers Series: 34792, 34824, 34825
- Right-Angle Header Series: 34793, 34912, 34826, 34897

Use With Terminals:

- Female Series 560023

Designed in: Millimeters

Physical

Header Housings:

- High-Temperature Thermoplastic

Receptacle Housings:

- High Temperature Thermoplastic

Contact: Copper (Cu) Alloy

Plating:

- Contact Area — Tin (Sn)
- Underplating — Nickel (Ni)

Wire Gauge:

- 0.35 to 0.08mm² (22 to 28 AWG)

Insulation Diameter:

- 1.40mm to 0.76mm (.055 to .030")

Operating Temperature: -40 to +105°C

Electrical

Voltage (max.): 500V

Current (max.): 4.0A

Contact Resistance (max.):

- 20 Milliohms

Dielectric Withstanding Voltage (min.):

- 1500V AC

Isolation Resistance (min.):

- 100 Megohms

Electrical / Mechanical

Over-Current Loading (TSC1000G):

- No Degradation

Durability (max.): 20 milliohms

Tin (Sn) Plating – 10 Cycles

High-Temperature Exposure,

1008 hours (USCAR-2 , GMW3191, TSC1000G):

- Post test resistance (max.) – 20 Milliohms @ 500V DC
- Isolation resistance (max.) – 100 Megohms

Connector Retention Force (min.) = 60N

Temp / Humidity Cycling, 240 hours (USCAR-2 , GMW3191, TSC1000G):

- Post test resistance (max.) – 20 Milliohms @ 500V DC
- Isolation resistance (max.) – 100 Megohms

Connector Retention Force (max) = 60N

Terminal Retention (min.) = 30N

Thermal Shock; class 2, 300 & 600 cycles (USCAR-2 , TSC1000G):

- Post test resistance (max.) – 20 Milliohms @ 500V DC
- Isolation resistance (max.) – 100 Megohms

Connector Retention Force (max.) = 60N

Terminal Retention (min.) = 30N

Sinusoidal Vibration / Mechanical Shock (Not Coupled to Engine): (USCAR-2 , VW 75174):

- Post test resistance (max.) – 20 Milliohms @ 500V DC
- Terminal Retention (min.) = 30N

Chemical Resistance: (USCAR-2 , GMW3191, RSA 36-05-019) :

- Post test resistance (max.) – 20 Milliohms @ 500V DC
- Isolation resistance (max.) – 100 Megohms Connector
- Terminal Retention (min.) = 30N

Current Capability: (USCAR-2 , Fiat 7-Z8260):

- Temperature rise over ambient <55°C
- Post test resistance (max.) – 20 Milliohms @ 500V DC
- Terminal Retention (min.) = 30N

Terminal – Connector Insertion Force (USCAR-2, GMW3191):

- Insertion Force (max.) = 5N
- Primary Retention Force (min.) = 10N
- Secondary Retention Force (min.) = 50N

Mating Force (USCAR-2, TSC1000G) (max.): 22N

Unmating Force (USCAR-2, TSC1000G) (max.): 22N

Connector Drop Test:

- (USCAR-2 , RSA 36-05-019):
- Post test visual inspection

Connector Pry Resistance:

- (USCAR-2 , 24012NDS01):
- Post test resistance (max.) – 20 Milliohms @ 500V DC

Repetitive Mating / Unmating: (USCAR-2 , 24012NDS01):

- Post test resistance (max.) – 30 Milliohms @ 500V DC

Polarization Feature Effectiveness (USCAR-2):

- min = 3 * avg. mate force

Header Pin Retention (min.): 15N

Solderability Requirements:

(SMES-152):

- Dip Coat Method–min 95% coverage

Connector Heat Resistance:

(ES-40000-5013):

Lead-free IR reflow processing

= 3 cycles, max temperature

+260°C Random Vibration /

Mechanical Shock

(Not Coupled to Engine):

(USCAR-2 , VW 75174):

- Post test resistance (max.) – 20 Milliohms @ 500V DC

Random Vibration with Thermal Cycling / Mechanical Shock (Not Coupled to Engine):

(USCAR-2 , GMW3191, RSA 36-05-019)

Random vibration with Thermal Cycling:

- Post test resistance (max.) – 20 Milliohms @ 500V DC

Connector Retention Force (max) = 60N

Random Vibration with High Temp Exposure / Mechanical Shock Not Coupled to Engine):

(USCAR-2 , GMW3191, RSA 36-05-019)

Random vibration with Thermal Cycling:

- Post test resistance (max.) – 20 Milliohms @ 500V DC

Connector Retention Force (max) = 60N

Corrosion Resistance: (USCAR-2 , GMW3191, RSA 36-05-019):

- Post test resistance (max.) – 20 Milliohms @ 500V DC

Isolation resistance (max.) –

100 Megohms Connector

Connector Retention Force (max) = 60N

Terminal Retention (min.) = 30N



Mini50 Package Size Reductions

Comparison between Mini50™ 1-by-4 and 0.64mm USCAR 1-by-4 footprints

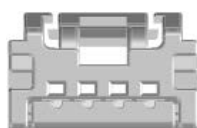
Mini50™ Unsealed Connector System

Female Receptacle

USCAR 1-by-4



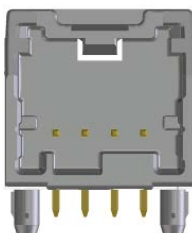
Mini50™ 1-by-4



Approximate 51% reduction in frontal area for 4-circuit receptacle

Male Right-Angle Header

USCAR 1-by-4

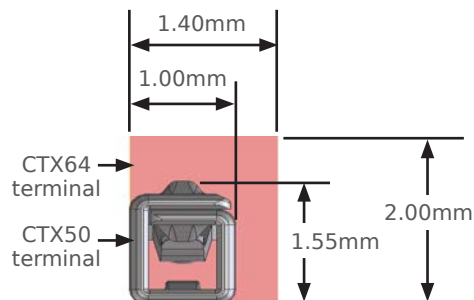


Mini50™ 1-by-4



Approximate 50% reduction in frontal area for 4-circuit right-angle header

Female Terminal



Cross-sectional area is 45% smaller than 0.64mm terminal

Mini50™ Receptacles



4 Circuit Polarization A Housing



8 Circuit Polarization A Housing

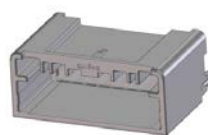


12 Circuit Polarization A Housing

Mini50™ Headers



4 Circuit Polarization A SMT Header



8 Circuit Polarization A Vertical Header

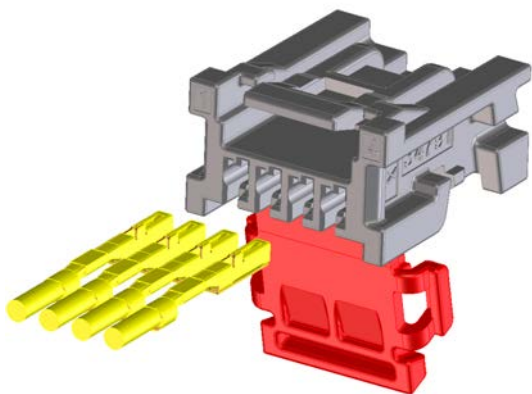


12 Circuit Polarization A Right-Angle Header

Mini50 Harness Assembly Complexity Reduction

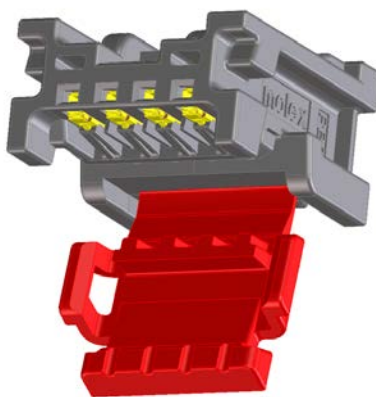
The independent secondary lock (ISL) is molded as part of the housing, reducing the number of components and cost.

Back View



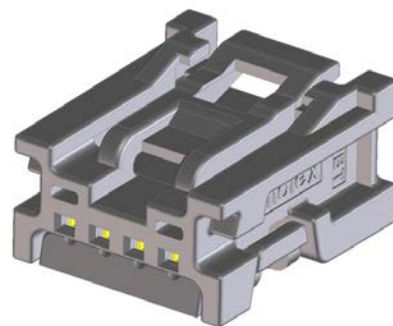
1. Insert Crimped Terminals

Front View



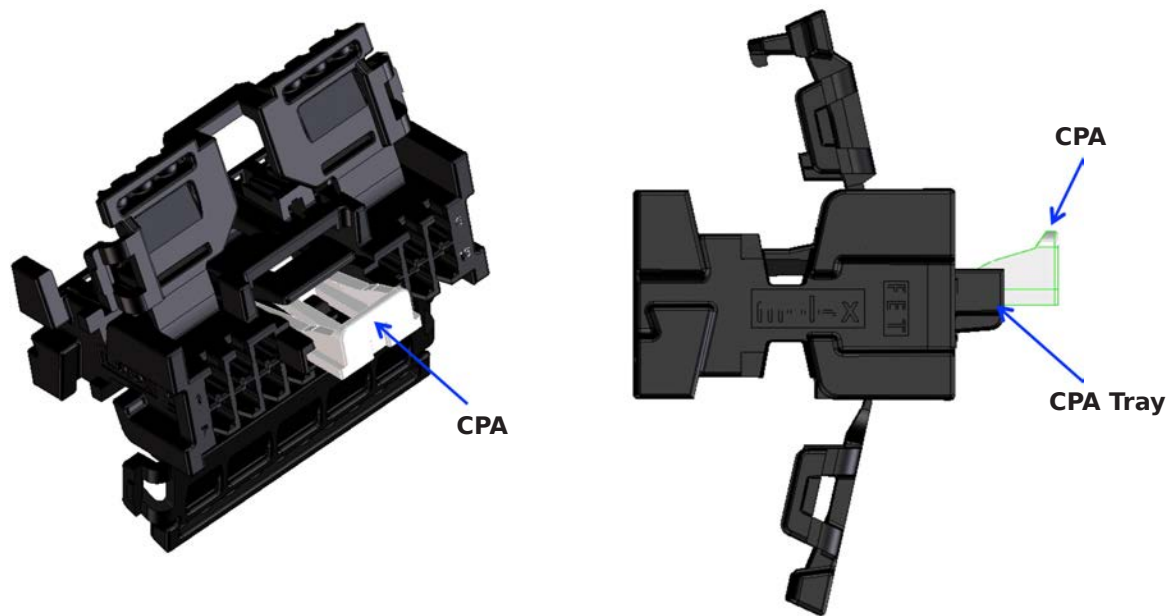
2. Close ISL

Front View



3. Final Assembly

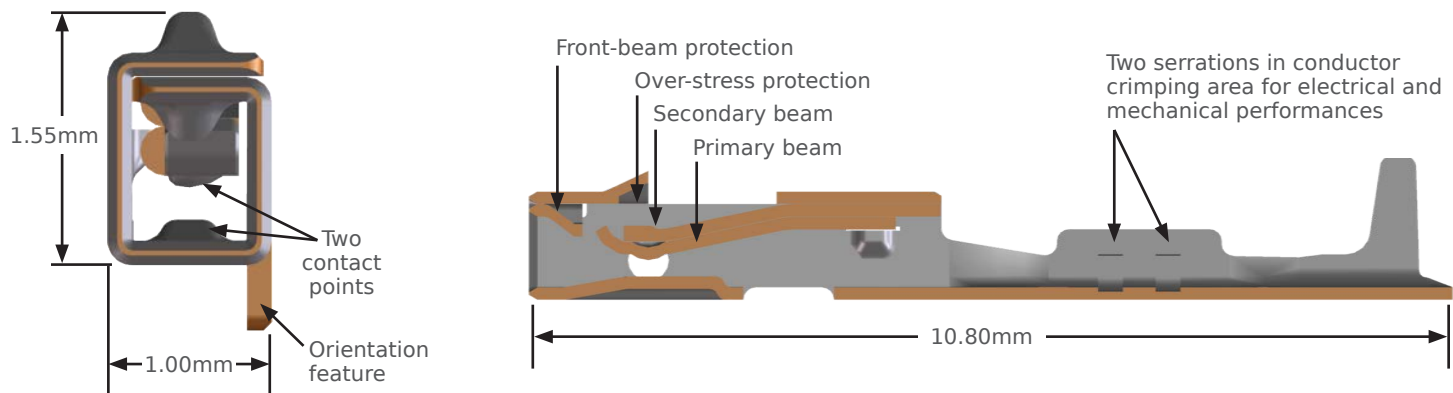
Optional CPA Addition – this is available on all sizes from 4 to 24 circuits



CPA and supporting features added to bridged receptacles

CTX50 Female Receptacle Terminal

All dimensions shown in millimeters

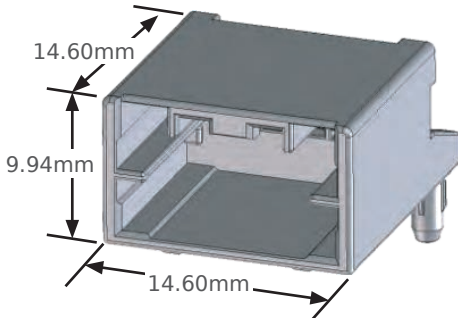
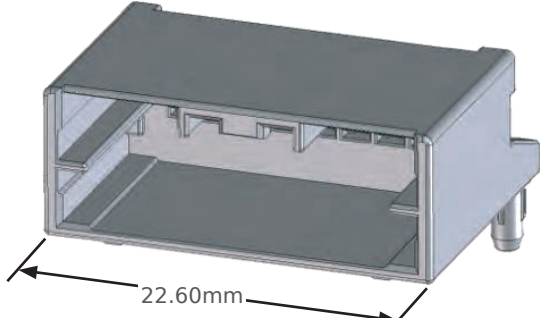
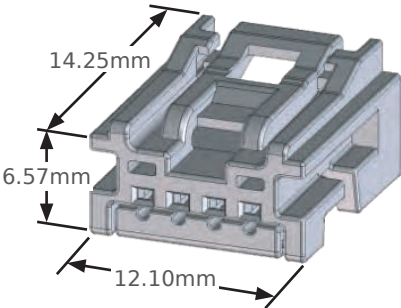
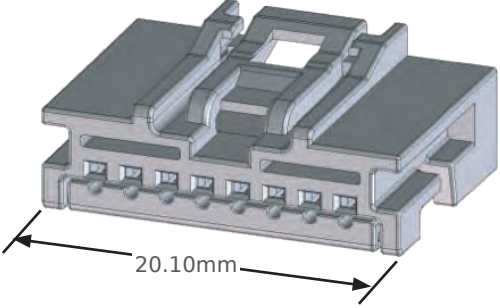


Female Terminal Wire Range

Wire Size	0.08mm ²	0.13mm ²	0.22mm ²	0.35mm ²	0.35mm ²
Wire Name	Ultra Thin	Ultra Thin	Ultra Thin	Ultra Thin	Thin
Outer Diameter of Wire Insulation					
Recommended Grip Size	Grip S		Grip M		Grip L

Mini50 Product Family

Illustrations depict 4 and 8 circuit options. Larger circuit sizes available.
All dimensions show in millimeters

Single Row	
Headers	 
	4 circuit 8 circuit
Receptacles	 

Applications

Automotive and Commercial Vehicle Transportation

- Headliners
- Clusters / navigation
- Radios
- Cameras / sensors
- HVAC
- Switches
- Lighting
- Mirrors



Mirrors / Cameras



Interior Lighting



Cluster / Navigation



HVAC

Receptacles

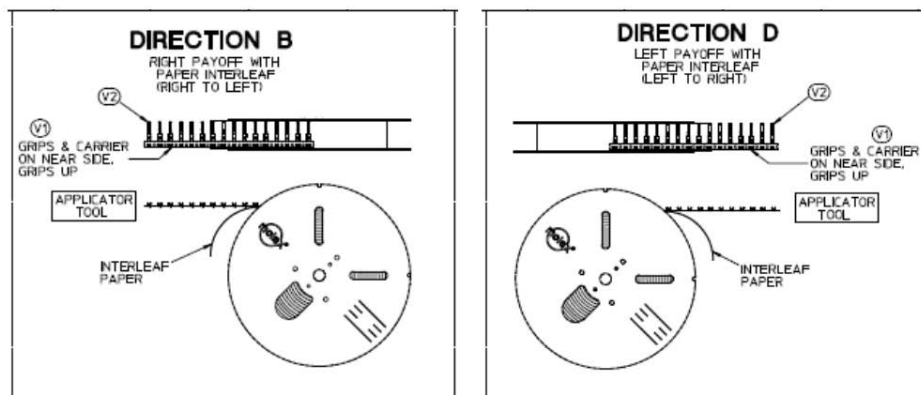
Order No.	Component	Rows	Circuit Size
34791	Receptacles	Single	4 and 8
34824		Dual	12, 16, 20, and 24

CTX50 Terminals

Order No.	Plating	Wire Gauge (mm ²)	Wound Direction / Payoff Direction
560023	Tin	0.08 - 0.13 0.22 - 0.35	D=Left; B=Right

Note: Reference PS-34791-000 for all validated wire types.

Pay-Off Direction



Headers – Tape and Reel Packaging

Order No.	Components	Rows	Orientation	Termination Style	Circuit Sizes
34792	Headers	Single	Vertical	Through Hole	4 and 8
34793			Right-Angle	SMT	
34912		Dual	Vertical	Through Hole	12, 16, 20, and 24
34825			Right-Angle	SMT	
34826			Vertical	Through Hole	
34897			Right-Angle	SMT	