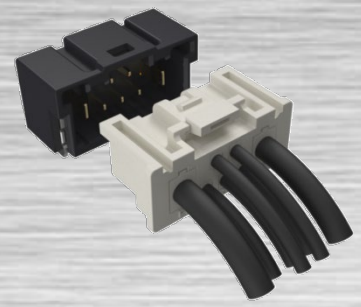
ComboLock® Wire to Board

Product Presentation



Amphenol Information Communications and Commercial Products

FCi Basics

Amphenol ICC

ComboLock®
Agenda

- Value Proposition
- Product Overview
- Product Specifications
- Features & Benefits
- Part Numbers
- Tooling information
- Markets & Application

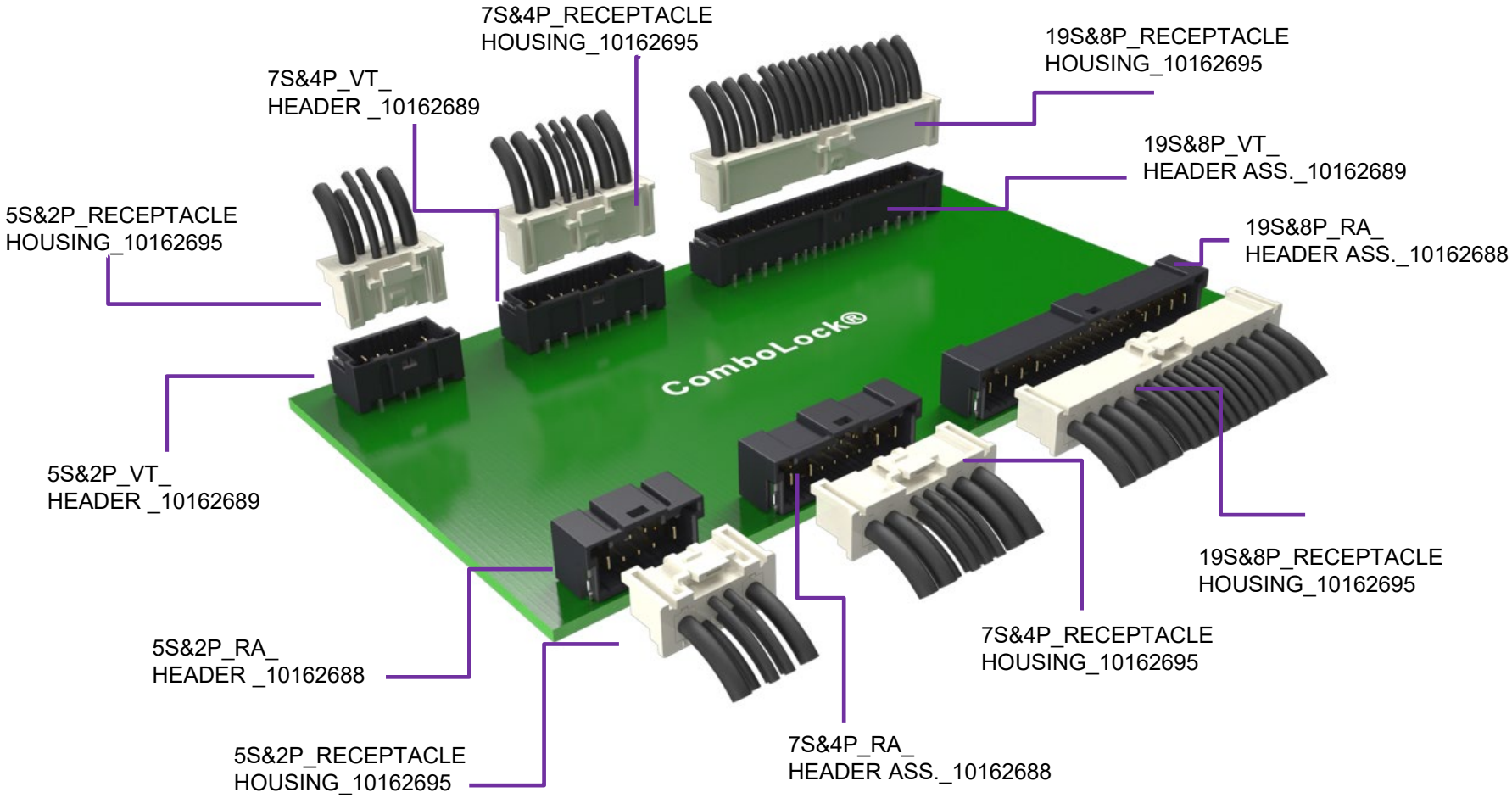
ComboLock®
Value Proposition

- The ComboLock® Wire-to-Board connector's **Compact Design** addresses the growing demand of miniaturization thanks to this **Hybrid connector** which integrates **Signal** and **Power** current into one connection system.

- ComboLock® has a wire range from **30 AWG to 24 AWG in signal pin** offering **1.5A** current capacity, and from **26 AWG to 18 AWG in power pin** offering **10A** current carrying capacity.

- ComboLock® series is available from 5 to 19 positions for signal pin, and 2 to 8 positions for power pin, in double row vertical and right angle in SMT termination with **Active Positive Latching** to enhance retention force**.**

- The ComboLock® is ideal for Server and Storage applications in IT/DataCom and Industrial Market.


7S&4P_RECEPTACLE HOUSING_10162695
19S&8P_RECEPTACLE HOUSING_10162695
7S&4P_VT_ HEADER _10162689
19S&8P_VT_ HEADER ASS._10162689
5S&2P_RECEPTACLE HOUSING_10162695
19S&8P_RA_ HEADER ASS._10162688
ComboLock®
5S&2P_VT_ HEADER _10162689
19S&8P_RECEPTACLE HOUSING_10162695
7S&4P_RECEPTACLE HOUSING_10162695
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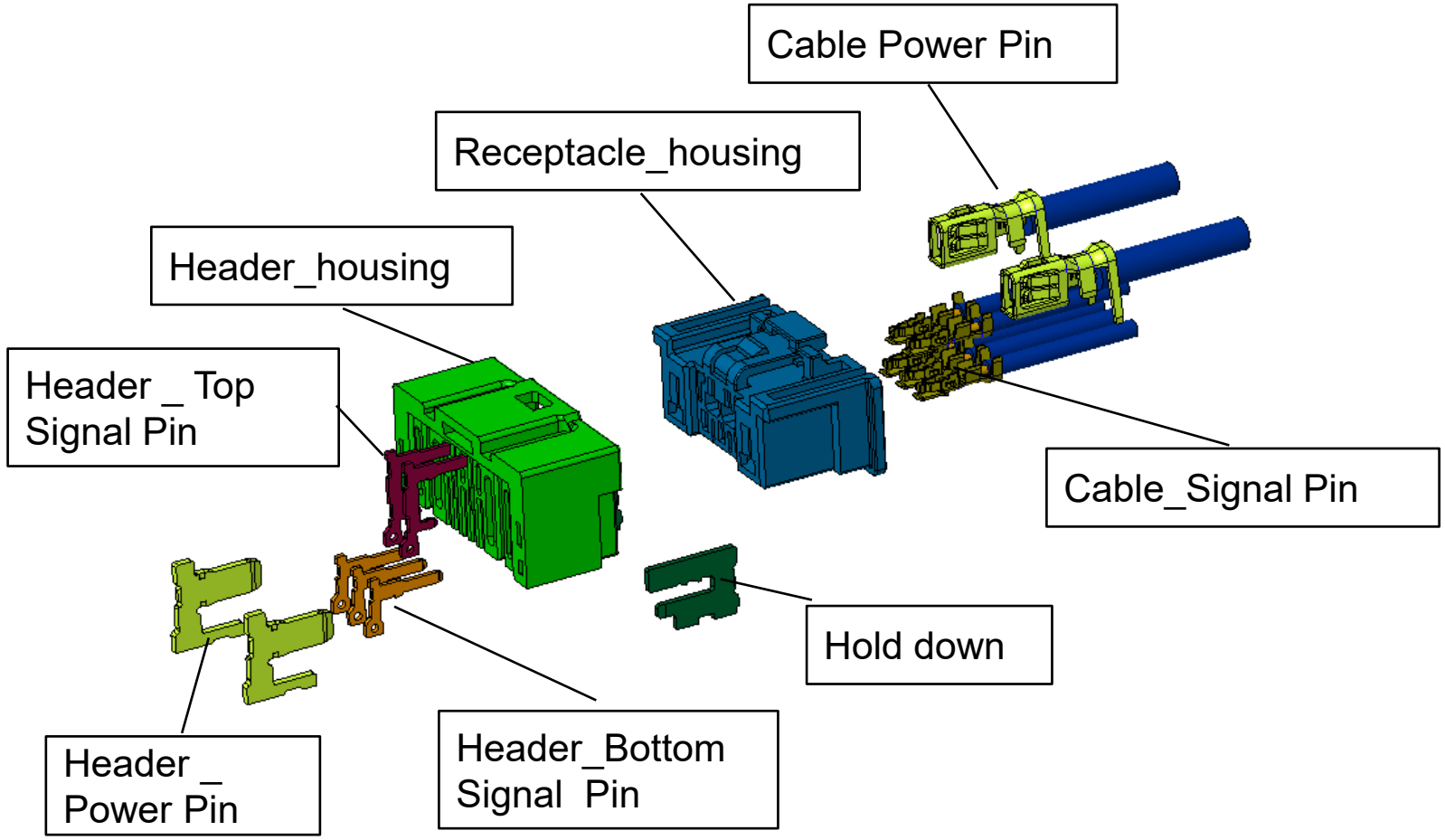
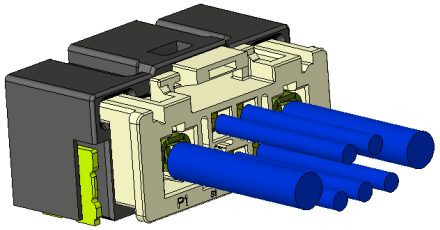
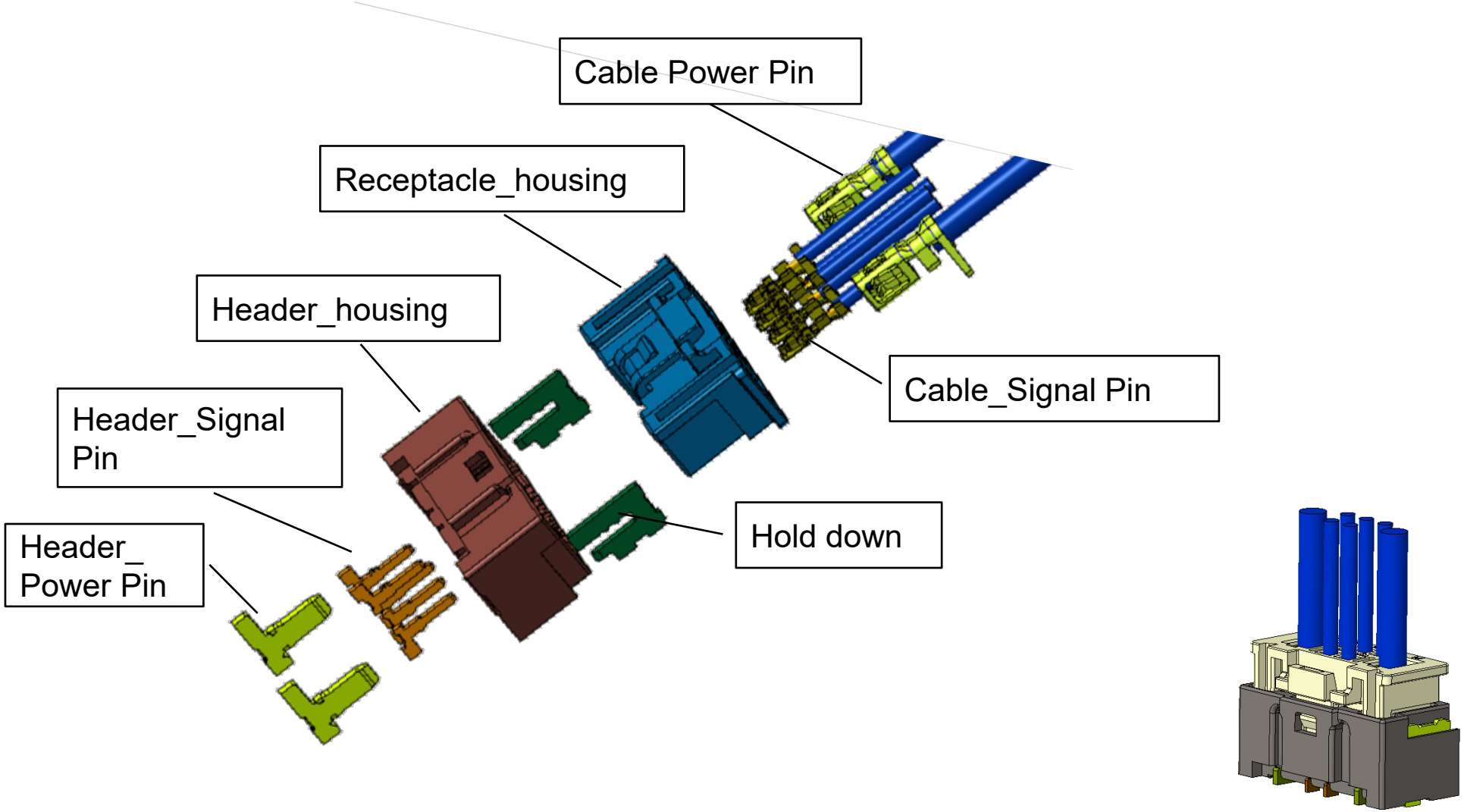
5S&2P_RECEPTACLE HOUSING_10162695
7S&4P_RA_ HEADER ASS._10162688


Cable Power Pin
Receptacle_housing
Header_housing
Header _ Top
Signal Pin
Cable_Signal Pin
Hold down
Header _
Power Pin
Header_Bottom
Signal Pin




Cable Power Pin
Receptacle_housing
Header_housing
Cable_Signal Pin
Header_Signal Pin
Hold down
Header_ Power Pin

ComboLock®
Product Specifications

Specifications

- Pitch: 1.0mm (signal), 3.0mm (power).
- PCB Termination: SMT
- Configuration: Double Row, Vertical and Right Angle

Materials

- Board connector: High temperature thermoplastic, Black, UL94V-0
- Receptacle housing: High temperature thermoplastic, Natural UL94 V-0
- Crimping terminal: Phosphor bronze alloy, 5u” gold plating

Electrical Performances

- Voltage Rating: 50V AC/DC
- Insulation Resistance: 100MΩ Min.
- Contact Resistance: 30MΩ max. (Initial)
- Current Rating: 10A/power pin, 1.5A/signal pin at 20°C ambient T° Rise: 30°C max.
- Current Rating: 1.5A (signal), 10A (power)

Mechanical Performance

- Durability: 30 cycles
- Insertion Force: Signal pin 2N max.; Power pin 7N max.
- Withdrawal Force: Signal pin 0.5N min.; Power pin 2.5N min.
- Wire Gauge: Signal pin AWG 24-30; Power pin AWG 18-26

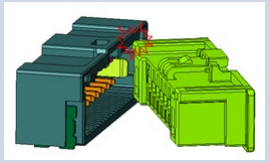
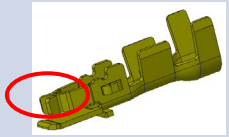
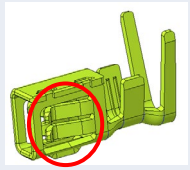
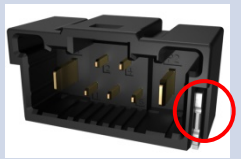
Environmental

- Operating Temperature: -40°C to +105°C

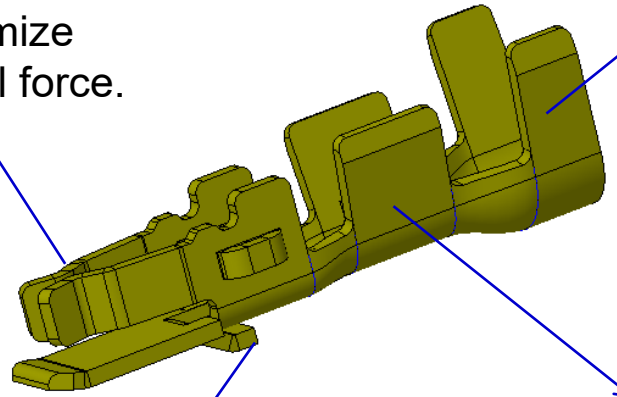
Specification

- Product Specification: GS-12-1702
- Packaging Specification: GS-14-2794
- Application Specification: GS-20-0703

ComboLock®
Features and Benefits

Product Pic	Features	Benefits	Customer Value
	Poka-yoke	Easily assembly with right direction	Avoid error assembly of header and receptacle
	Housing with positive locking	Ensures secure mating retention and prevents unintentional FPC release	Provides an audible click while mating and secures performance over time
	Double beam contact (x2)	Prevents contact damage during mating and offers two points of contact	Maximize contact normal force
	Both side dual beam contact in power contacts	Prevents contact damage with high power current and offers both side of two points of contact	Supported contact beam to maximize contact normal force.
	Hold down features	Secure the SMT headers onto the PCB	Improves board retention

Supported contact beam to maximize contact normal force.

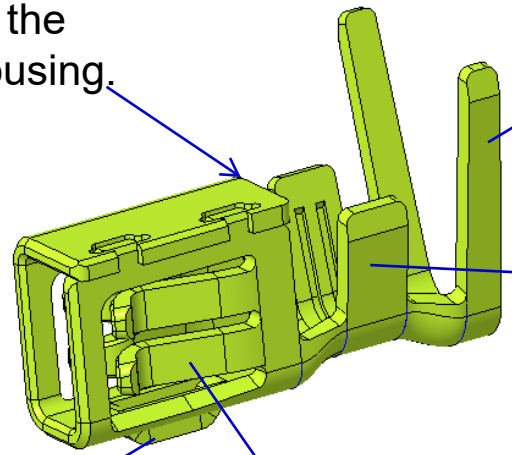


Overlapping insulation crimp barrels to maximize retention

Latching feature to respect the 1st retention on the terminal into the housing.

Large wire crimp region for a proof retention and connection

Latching feature to respect the 1st retention on the terminal into the housing.



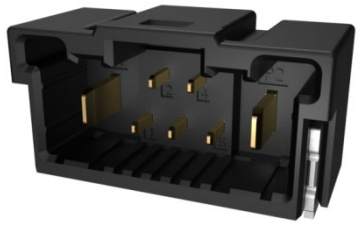
Overlapping insulation crimp barrels to maximize retention

Large wire crimp region for an automotive proof retention and connection

Poka-yoke Structure

Supported contact beam to maximize contact normal force.

R/A board header



10162688-X XX X XX X LF

Plating of Signal:
2:Contact Area:
5U"Au Min.
Solder Area:
100U''Min.Matte Tin.

Signal Pin NO.:
XX: 05~19Pin(Uneven)

Packing:
T: Tray
C: Tape & Reel

Power Pin NO.:
XX: 02~08 Pin(Even)

Plating of Power:
2:Contact Area:
5U"Au Min.
Solder Area:
Gold flash.

VT board header

10162689-X XX X XX X LF

Plating of Signal:
1: Matte Tin
2: 5U"Au Min.

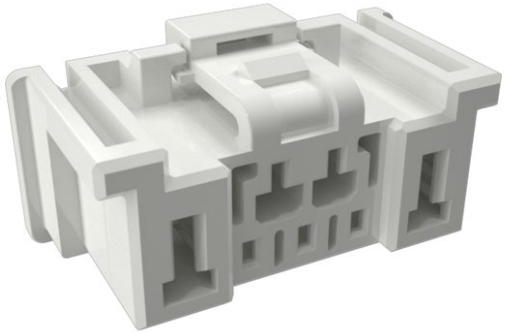
Signal Pin NO.:
XX: 05~19 Pin

Packing:
T: Tray
C: Tape & Reel

Power Pin NO.:
XX: 02~08 Pin

Plating of Power:
1: Matte Tin
2: 5U"Au Min.

Receptacle Housing:

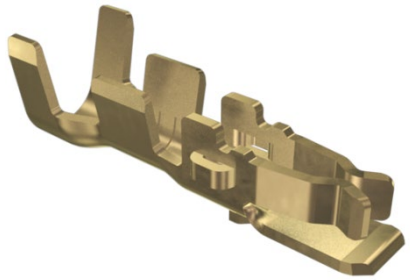


10162695-I XX XX 0 LF

- MATERIAL
- NUMBER OF SIGNAL POS.: TOTAL 05~19PINS (UNEVEN)
- NUMBER OF POWER POS. : TOTAL 02~08PINS (EVEN)
- PACKAGE
- RoHS COMPATIBLE , SEE NOTE 2

ComboLock®
Terminal Part Number

Signal Crimping Terminal



10162696-Y 0 X LF

- LF — RoHS COMPLIANT
- X — APPLICATION WIRE
  - 1 = FOR AWG#24~26
  - 2 = FOR AWG#28~30
- Y — PLATING, SEE TABLE

Power Crimping Terminal

10116269 7-X0XLF

- F — RESERVE NUMBER
- X — APPLICABLE WIRES:
  - 2:AWG #18~20
  - 3:AWG #22~26
- 0 — PLATING SPEC:
  - 0: 5u" MIN. Au ON CONTACT AREA
    Gold flash ON CRIMPING AREA

For demanding applications requiring secure internal wire to board connections, typically between internal circuit boards for Power; Control and Communication

sweet spot

Consumer

Premium Household Appliances

Coffee machine

IT/DataCom

Data Control Cabinet

Network Control

Communication System

Smart Grid Gateway

Gaming

Medical Ultrasound

Industrial

Vending

Industrial Control

Solar Inverter

ComboLock®
Additional information

- ComboLock® Datasheet
- ComboLock® Product Presentation
- ComboLock® Product Specification
- ComboLock® Application Specification
- ComboLock® Product overview

Crimping Hand Tool: 10164147-001LF (signal)
10164148-001LF (power)

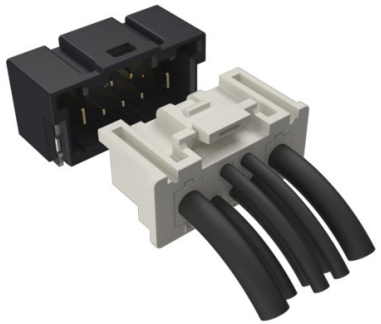
- *See application spec GS-20-0703 …*

Glossary
Generic terms and definitions

- **Header** *Housing with pins (Male connector)*
- **Receptacle** *Female Housing*
- **Latch** *Active latch*

- **STG** *Staggered (signal contacts placed on staggered row)*

- **Horizontal** *Connection axis parallel to the board*
- **Vertical** *Connection axis perpendicular to the board*



Header RA
+
Receptacle with cable

Header VT
+
Receptacle with cable

Thank you