

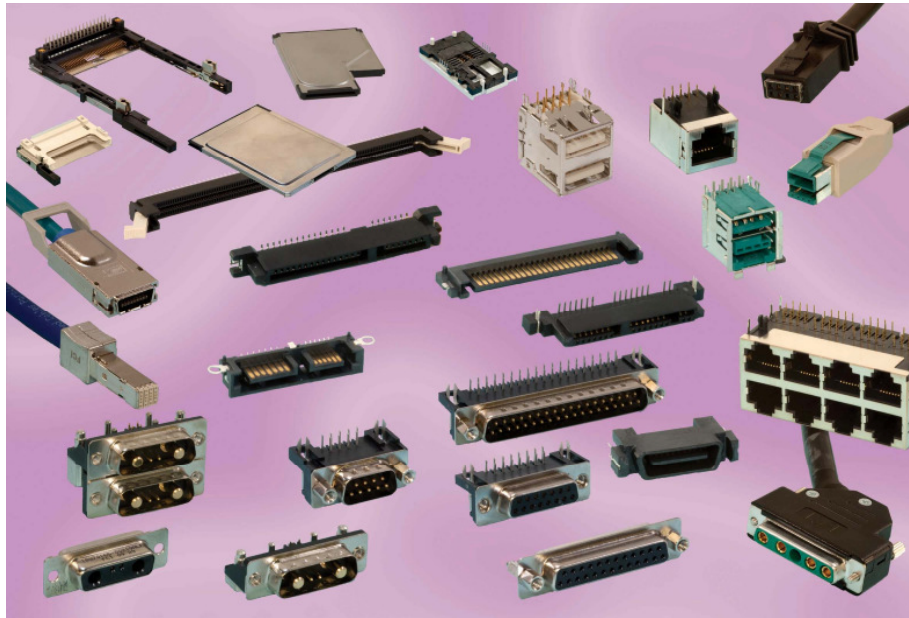


**CONNECTI/ONS**

**μTCA High Power I/O D-Sub**

**December 2009**

# Where does IO-connections stand for?



- FCI's I/O connector solutions:
  - high-density
  - high-speed interfaces
- Applications:
  - networking, storage, and memory, power distribution, media card systems, etc
- Industry standards:
  - Ethernet, SFF, Infiniband, USB, PCMCIA™ or HDMI™, Compact Flash™, SAS, SATA, etc.
- Custom solutions:
  - Cable assemblies.

**CONNECTI/ONS**

# What products is IO Connections comprised of?



## Data & Multimedia I/O's



- ▶ HDMI™
- ▶ USB
- ▶ Modular Jacks
- ▶ Latch-N-Lok™

## High Speed I/O's



- ▶ DensiShield™ Systems
- ▶ Eyemax®
- ▶ Multilane SAS and SATA Connectors

## D-Sub



- ▶ Standard Density
- ▶ High Density
- ▶ Cable Connectors
- ▶ Power Connectors
- ▶ **see more**

## Cable Assemblies



- ▶ DensiShield™ I/O System
- ▶ Eyemax® - Infiniband Cable Assembly
- ▶ Fiber Optics
- ▶ Metral® Cable Assembly
- ▶ **see more...**

# CONNECTI/ONS

## Memory & Media Card Systems



- ▶ Smartcard
- ▶ PCMCIA™
- ▶ ExpressCard™
- ▶ DDR Memory
- ▶ Flash memory products

## Storage Interface



- ▶ Serial Attached SCSI (SAS) Connectors
- ▶ Serial-ATA (SATA) Connectors
- ▶ eSATA Connectors
- ▶ iVDR Connectors
- ▶ **see more...**

More information can be found on a dedicated website at [www.fci.com/io](http://www.fci.com/io)

- ▶ Product selector tables;
- ▶ Data sheets;
- ▶ Product presentations;
- ▶ 3D view models & 2D drawings;
- ▶ Product specifications;
- ▶ Distributor inventory information;
- ▶ etc

- **μTCA standard and general specifications**
- **Competition proposal analysis**
- **FCI product concept**
- **Preliminary drawings**
- **Planning**
- **Proposal summary**

# What is $\mu$ TCA™?



- **Introduction**  
 $\mu$ TCA is designed as per the building practice standards set by PCI Industrial Computer Manufacturers Group (PICMG).
  
- **The features and benefits of PICMG standard are as follows:**
  - Open standard based on standard modules combined.
  - More cost effective than Advanced Telecommunications Computing Architecture (ATCA). The estimated difference in cost is 40 to 50 %.
  - Multiple applications possible, including outdoor.
  - Supporting committee members: Ericsson, Lucent, Intel, Artesyn, Schroff, and Agere
  - Supported by Siemens, Rittal, Force and Radisys
  
- **Market Segments & Applications**
  - Communication
  - Industrial and Instrumentation
  - Military (For power supply applications)

- **High power I/O system comprises of right angled PCB connectors and cable connectors.**
  
- **The  $\mu$ TCA committee voted for the D Sub solution. Two layouts are to be used for better prevention of mis-mating:**
  - **7W2 for 48V / 24A power I/O with 2 power contacts and only 2 signals – this is fully available in FCI range**
  - **9W4 for 24V / 49A power I/O with only 2 power contacts and 2 signals – product launch will be made based on market requirements**
  
- **Basic system requirements are as follows (Reference:  $\mu$ TCA.0 Specification – the first released specification):**
  - **Fixed mating dimensions, electrical and environmental requirements.**
  - **Maximum rise in temperature of 30°C for full loaded connectors.**
  - **Touch proof for cable connector.**
  - **Straight output for the cable hoods.**
  - **Retention mechanism based on female screw-locks from standard D-sub.**
  - **Field Repairable.**

# FCI product design

# Single 7W2 for 48V/24A; 2 power + 2 signal contacts



## PRODUCT DESCRIPTION

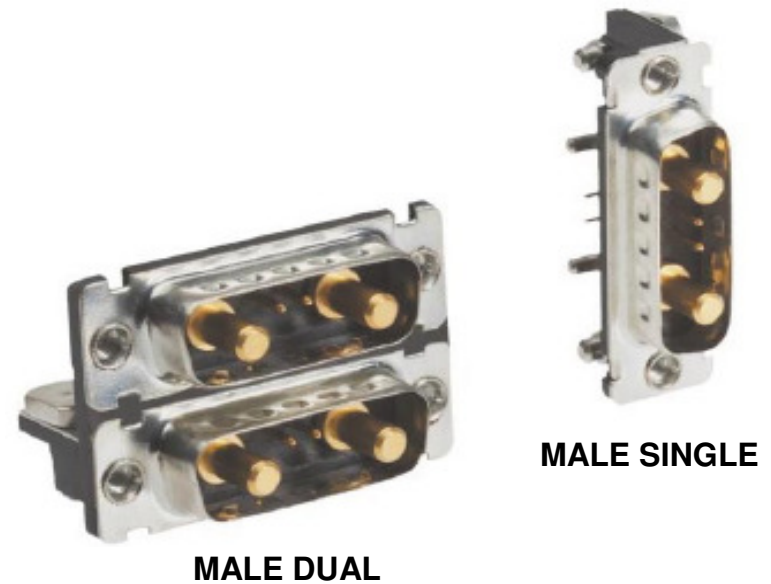
- Micro TCA 48V/24A I/O Power D-sub.
- D-Sub connector range to enable DC input connections to the power modules used in  $\mu$ TCA shelves
- The connectors are designed to fit the power module faceplate on the front side of a power module made in accordance with the  $\mu$ TCA specification

## MALE CONNECTOR

- Male versions are PCB Connectors.
- 7W2 layout with 2 power contacts + 2 signal contacts
- FMLB (first mate last break) functionality enabled for hot plugging
- Male connector available in
  - Dual (stacked) version
  - Single version

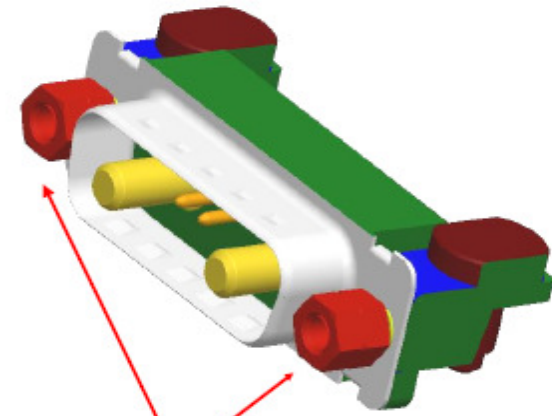
## FEMALE CONNECTOR

- Female versions are cable connectors.
- 7W2 layout with 2 power contacts + 2 signal contacts
- Cost saving jumper option available
- Power contacts are to be purchased separately

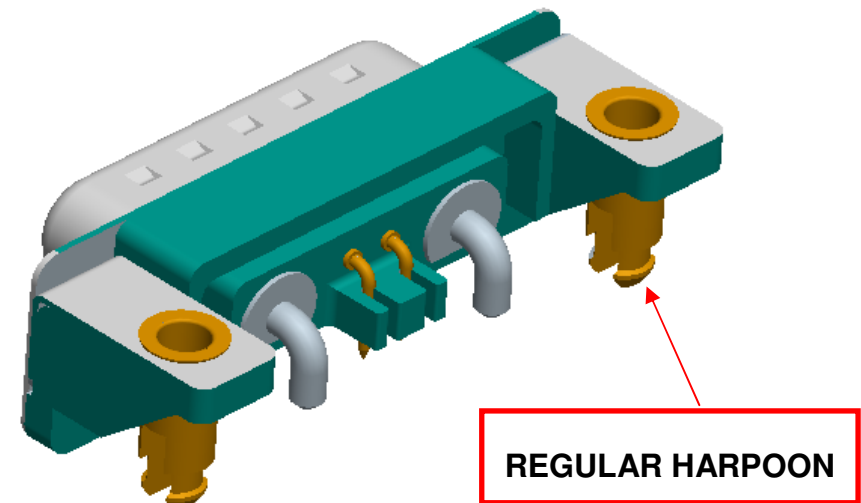
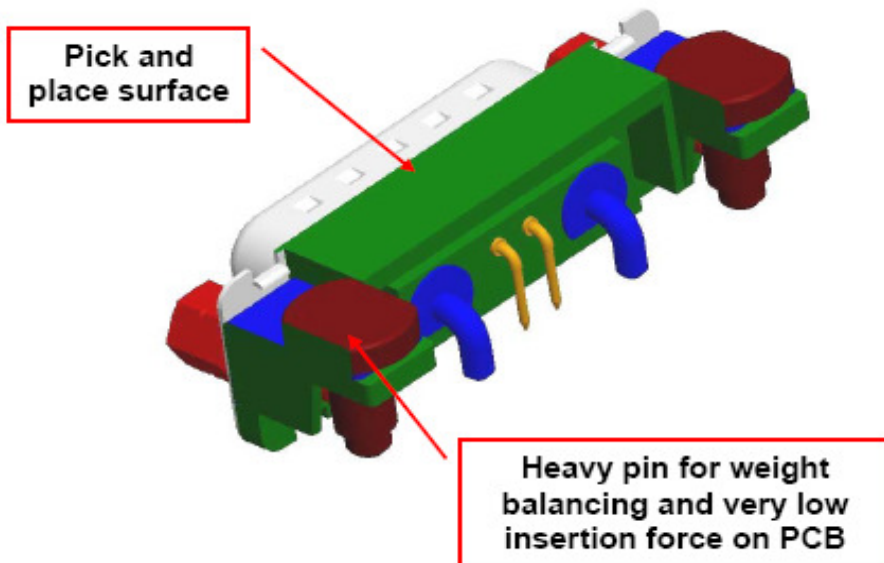


## MALE SINGLE VERSION

- Design from cost effective existing Delta D solution (one shell + one plastic housing)
- Specific metal pegs for low insertion force to allow automatic pick and place usage.
- Weight balancing allowing good placement before reflow process.
- Supplied in honey comb / tape & reel packing
- FCI part number
  - 10070158-003XXXLF (regular harpoon)
  - 10070158-004XXXLF (PiP harpoon)



Female screwlocks are provided separately for front panel fixation

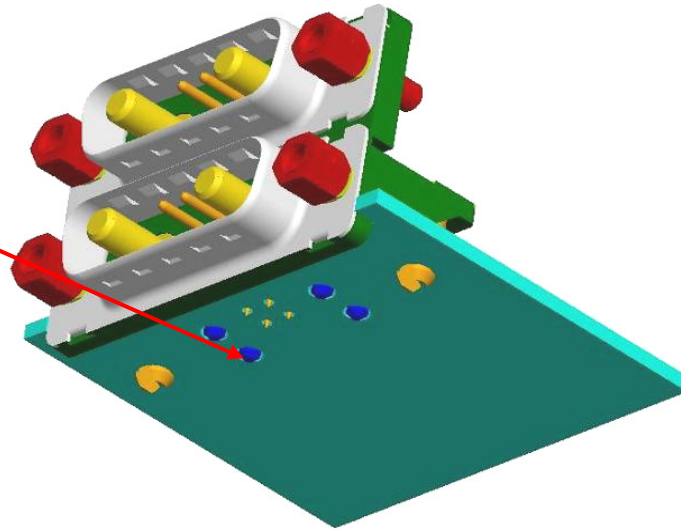


# Stacked 7W2 for 48V/24A; 2 power + 2 signal contacts



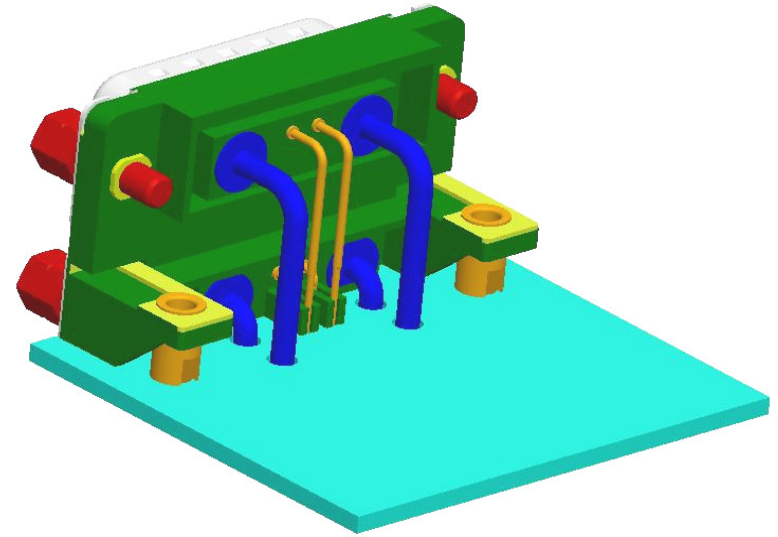
**Traditional Solder-to-board also available**

**Board locks solution**



## MALE DUAL VERSION

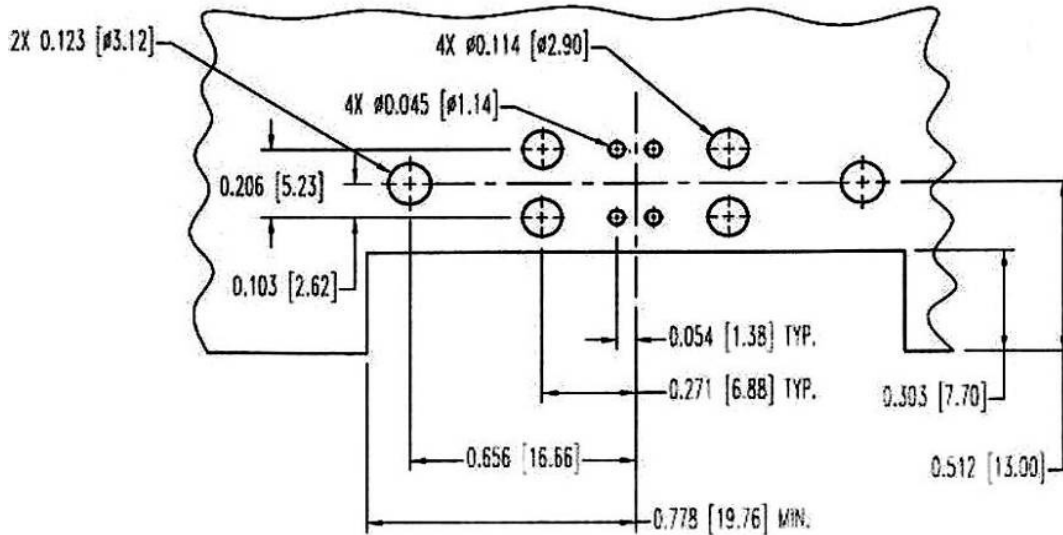
- Design from cost effective existing Delta D solution (Two shell + one plastic housing)
- Optimized bracket + board locks
- Supplied in Honey comb packing box
- FCI part number
  - 10070158-001XXXLF (regular harpoon)
  - 10070158-002XXXLF (PiP Peg)



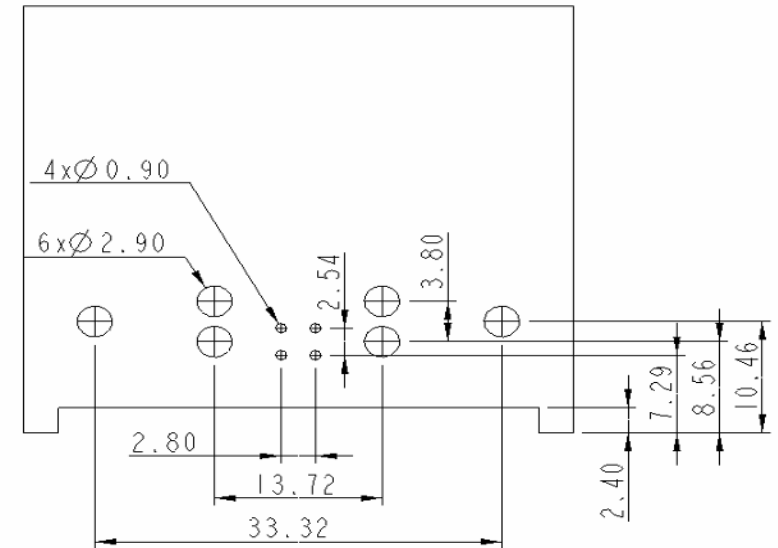
# μTCA 48V/24A Power I/O Connector



**Competition Footprint**



**FCI 7W2 compact Footprint**



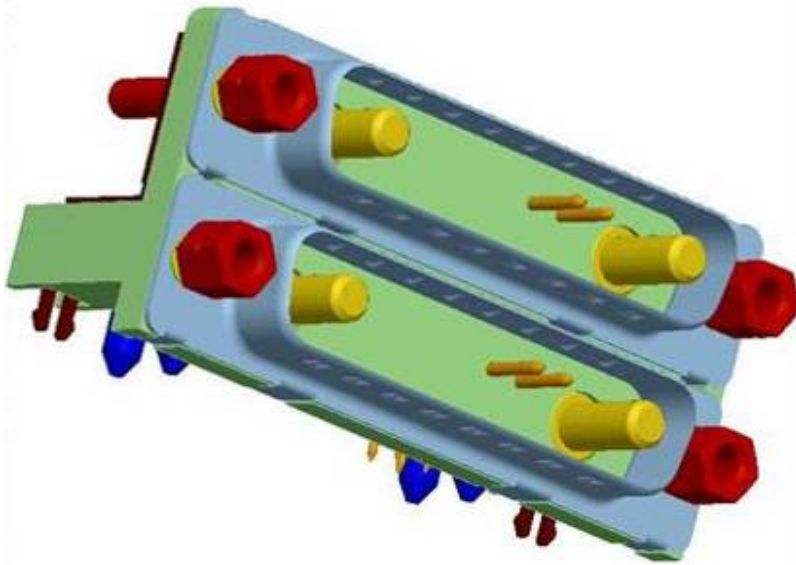
- Tails designed up to 2.4 mm board thickness.
- Space saving compact footprint allowing more tracks on the PCB.

	FCI 7W2	Competition
To first power contact:	8.56	10.38
To board lock hole:	10.46	13.00
To 2 <sup>nd</sup> power contact:	12.36	15.62
To 1 <sup>st</sup> signal contact:	7.29	10.38
To 2 <sup>nd</sup> signal contact:	9.83	15.62m
PCB cut out:	2.40	7.70

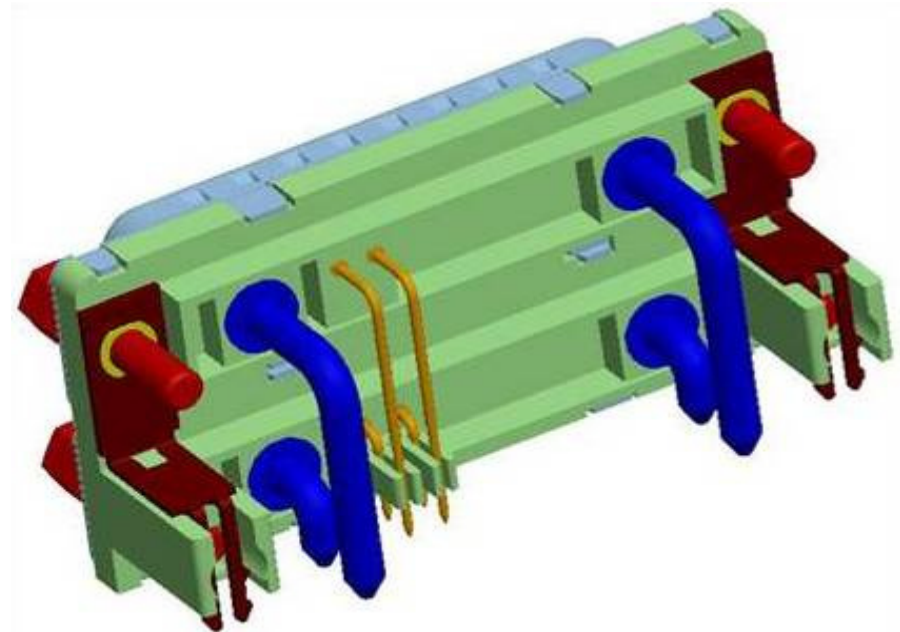
# 9W4 for 24V/49A; 2 power + 2 signal contacts



- This product will be developed later on as per market demand with similar solution as per 7W2 in single and dual versions



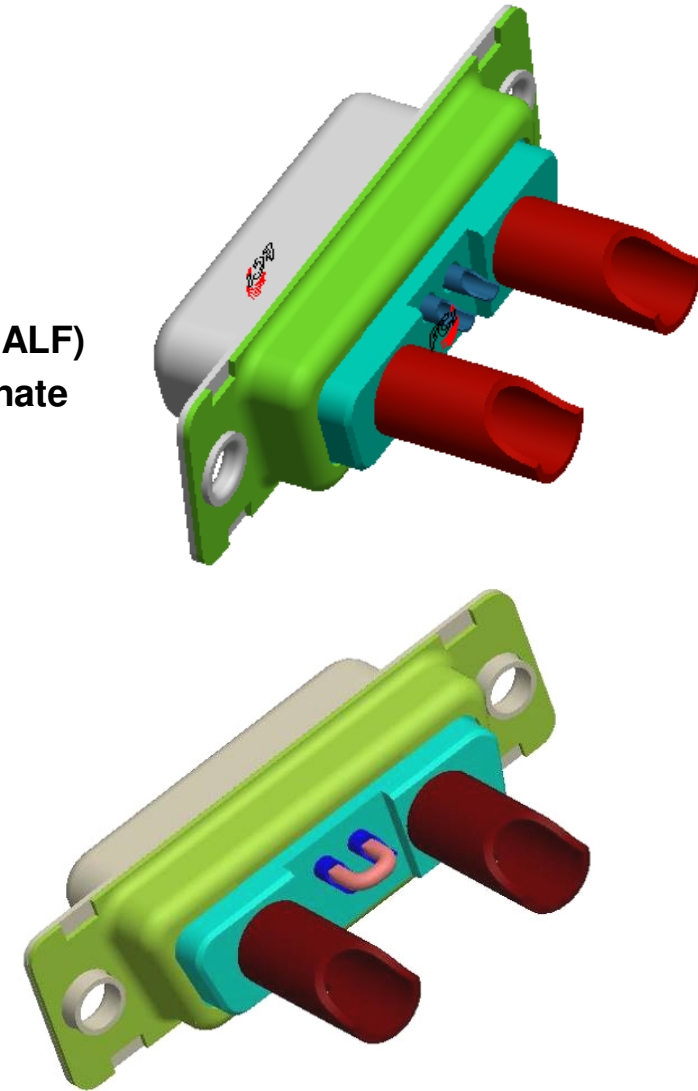
- Same cost effective Delta D design



## FEMALE CABLE CONNECTOR

- Female connector are supplied with out power contact
- Solder bucket or crimp power contacts can be used
- Female connector available in 2 versions
  - D-sub Solder stamped contacts (FCI part number:10070165-00119ALF)
  - Shortening the two contacts with some shunt. So that it can eliminate the cable for signal. (FCI part number:10070165-00219ALF)
- FCI part number for power contacts

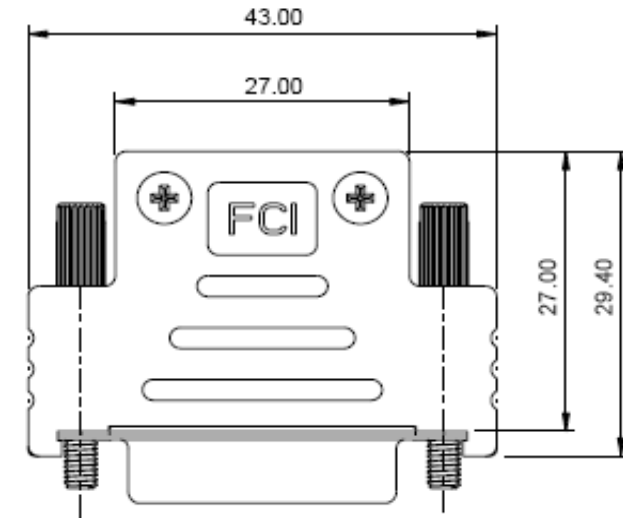
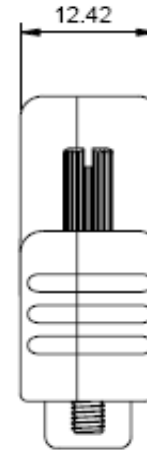
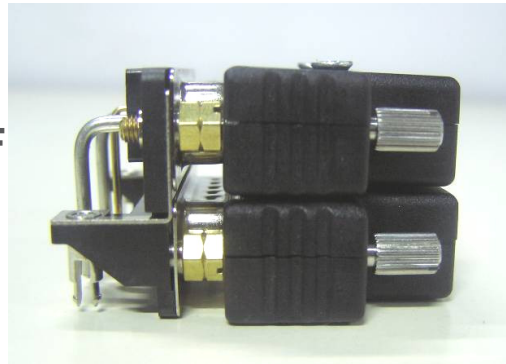
<b>8638PSC3005LF</b>	30 A crimp contacts
<b>8638PSS4005LF</b>	40 A solder buckets contacts



# Cable hood



FCI P/N 10070163-01LF

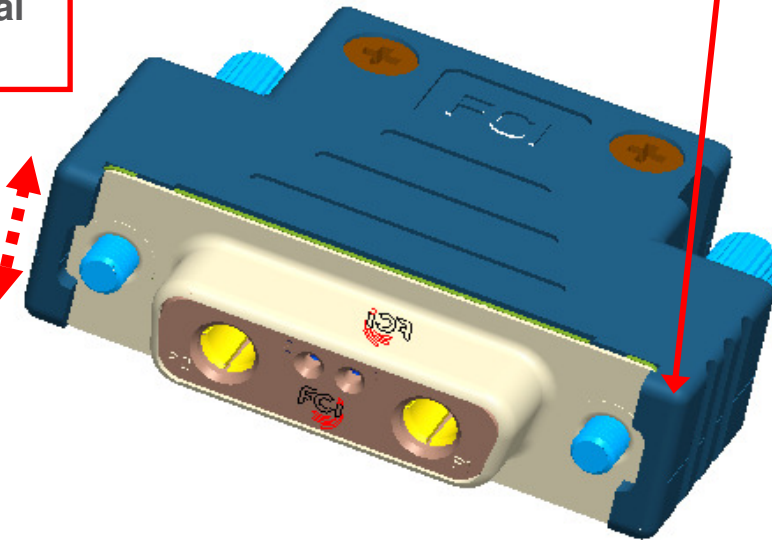
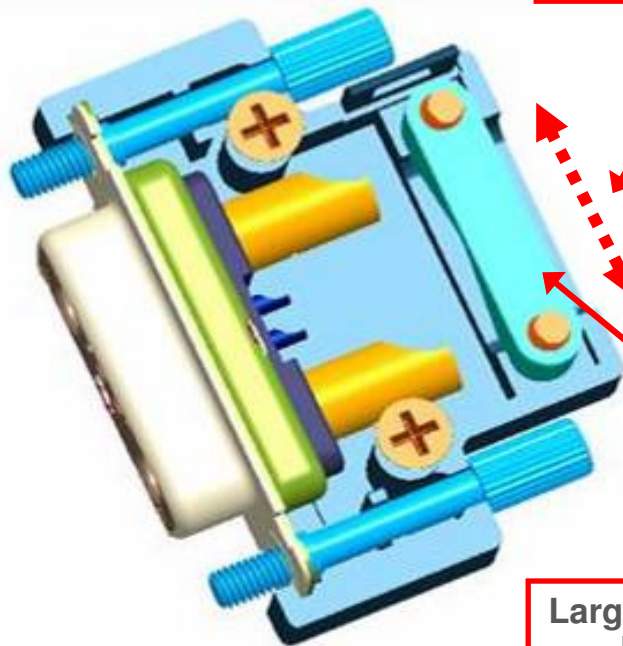


Wide exit for easy cable bending

Slim hood for possible cable connector stacking (dual Version)

Reinforced plastic sides for high robustness

Large metal strain relief for high cable retention



## 48V/24A

- Fully available
- Press release made
- Updated website
- Available samples



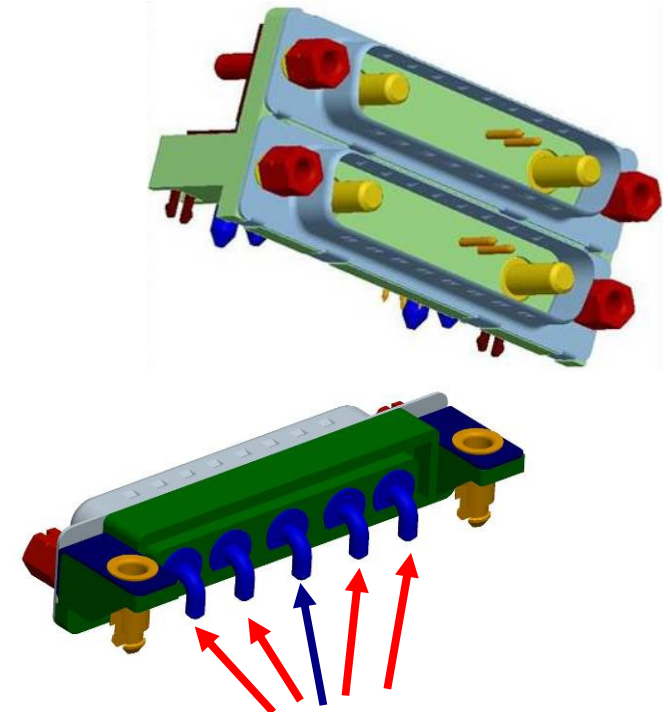
## 24V/49A

- Product launch will be made depending on market requirements.

## 12V/49A *New standard to come!*

- Product concept under finalization
- Product launch will be made depending on market requirements.

## FCI manufacturing in low cost site



Power contacts are existing  $\mu$ TCA 24 V terminals (49 A), except the central one (48V, 24A)

# Part numbers 48V/24A



## 48V/24A

PCB dual connector 10070158-001  
10070158-002



PCB single connector 10070158-003  
10070158-004



Cable connector 10070165



Cable power contacts 8638PSS4005LF  
8638PPC3005LF

Cable hood 10070163



# Part numbers 48V/24A



- PCB dual connector  
10070158-001xxxLF  
10070158-002xxxLF
- PCB single connector  
10070158-003xxxLF  
10070158-004xxxLF
- Cable connector  
10070165-xxx19ALF
- Cable power contacts  
8638PSS4005LF  
8638PPC3005LF
- Cable hood  
10070163-01LF



- FCI can propose an optimized design in accordance with  $\mu$ TCA D-sub power I/O standards:
  - PCB type one front shell, one housing per connector concept for cost effectiveness
  - Small cut out (minimum distance from panel) on PCB
  - Single and stacked versions available
  - Solder-to-board and Pin in paste both available
  - Hoods with improved retention for cable body
  - FMLB functionality for hot plugging