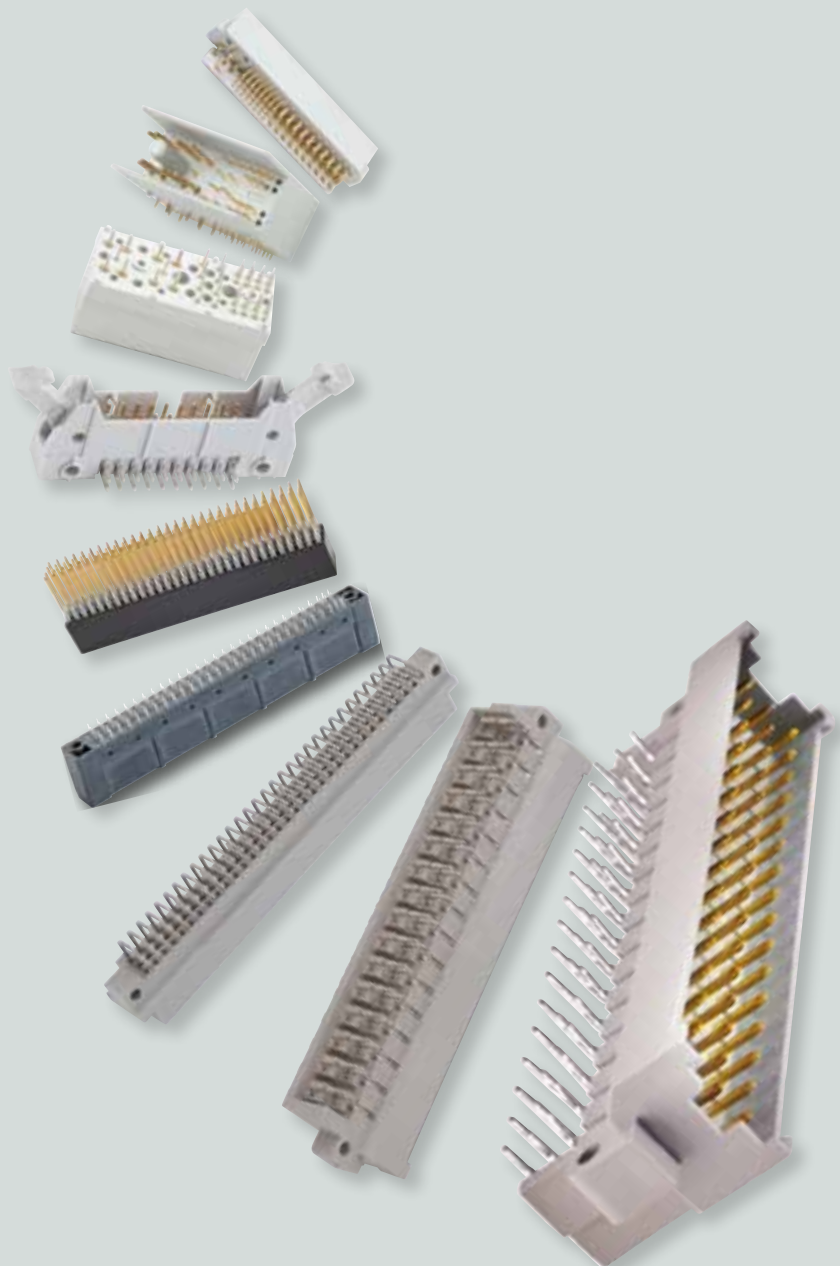




TECHNOLOGY IN CONNECTORS™

## PCB CONNECTORS



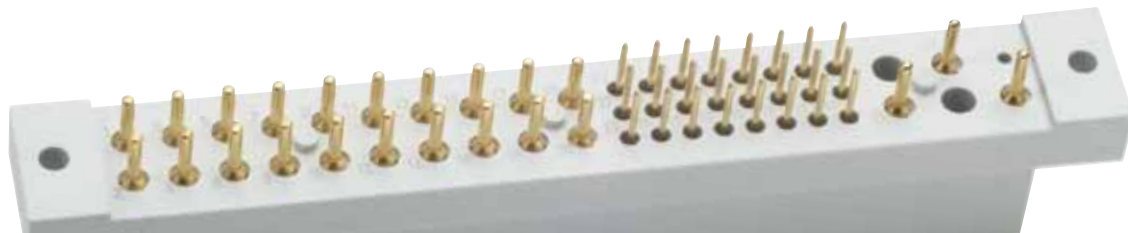


GERMANY

As a leading manufacturer of connectors, CONEC develops, produces and markets its products around the world to customers in the machine-tool, electronics and communications industries.

CONEC has dedicated itself to make a contribution to progress in the connector industry and to satisfy its customers through innovation, quality and excellent service. Around the world, our organization operates as a customer-oriented team.

CONEC is present in numerous countries with its own branch offices and representatives. Our local sales consultants transmit all information directly to the responsible departments to keep the paths of communication short. This provides support in the local language, quick response and competent consulting.



CANADA



USA

CONEC designs and manufactures products in modern facilities. The products are made in accordance to the highest quality standards and industry specifications.

CONEC provides reliable and effective solutions to OEM, EMS and cable houses.



## OUR PHILOSOPHY – CUSTOMER SATISFACTION.



Quality is realized right from the beginning with Total Quality Management concept. Therefore our customers are included into all our processes, starting with design phase, first sampling, series production release and continuous sales support. The phases will be accompanied by drawings, samples and test reports. The entire quality process is documented and approved. CONEC is certified to ISO/TS16949:2002.

CONEC inhouse is equipped with modern test systems. We can verify the requirements and implement a continuous product improvement process to meet and exceed future requirements. To fulfill international and national requirements most of CONEC product series are registered by UL, CSA or VDE.



## CONEC IS YOUR SPECIALIST FOR DESIGN AND PRODUCTION OF SPECIAL CUSTOMIZED PRODUCTS.

Flexibility, assurance and rapid response are required in today's market more than ever before. CONEC fulfills these demands with central order-processing and well implemented quality control systems. Statistical process control as well as just in time deliveries are a common practice. Numerous customers honored this performance by approving CONEC to a "Preferred Supplier" status.



Are you looking for application-specific solutions?  
Standard products do not meet your needs?  
The implementation deadline is tight?

CONEC experienced design team can create your solution for you:

- Special Interconnect solutions to customers specifications
- Prototypes and small series production batches
- Connectors with increased IP ratings for harsh environments.

Contact us to discuss your special requirements.



## PRODUCT LINES



### I/O Connectors

D-SUB Connectors, Standard, Combination and Water Resistant; D-SUB Hoods and D-SUB accessories; Filter D-SUB Connectors, Standard, Combination and Water Resistant; Filter Adapters; Filter Plates; RJ45-IP67 Industrial Ethernet Connector System; USB 2.0-IP67 Connector System; RJ45 Magnetic Modular Jacks



### PCB Connectors

DIN 41617 Connectors; DIN EN 60603-2 Connectors; DIN 41651 Insulation Displacement Connectors CompactPCI Connectors; AdvancedTCA Connectors; MicroTCA Connectors; PC104-, PC104plus Connectors; Pin Header and Socket Connectors



### Sensor Actor Line / Circular Connectors

M12x1 Connectors, Overmolded and Field Attachable, Sockets, Junction Boxes, M12x1 Connector Systems for High Temperature, Food+Beverage, Bus Systems; M8x1 Overmolded Connectors; 7/8" Connectors; Rund24 Connectors; Valve Connectors



### Fiber Optic Connectors

Adapter; Hybrid Adapter; Outdoor Connectors; Patch cords



### Coaxial Connectors

SMA, SSMA, MMCX, TNC, N, MCX, Mixed Adapters and BNC Connectors; D-SUB and DIN Coaxial Contacts; D-SUB and DIN High-Current Contacts

# INDEX

## SECTION 1

AdvancedTCA Connectors \_\_\_\_\_



## SECTION 2

MicroTCA Connectors \_\_\_\_\_



## SECTION 3

CompactPCI Connectors \_\_\_\_\_



## SECTION 4

Connectors DIN EN 60603-2 (DIN 41612) \_\_\_\_\_



## SECTION 5

Combination Connectors DIN EN 60603-2 (DIN 41612) \_\_\_\_\_



## SECTION 6

PC104 and PC104plus Connectors \_\_\_\_\_



## SECTION 7

Connectors DIN 41617 \_\_\_\_\_



## SECTION 8

Flatcable Connectors DIN 41651 \_\_\_\_\_



## SECTION 9

Installation and Assembly Tools \_\_\_\_\_



## SECTION 10

Part Numbers \_\_\_\_\_



665808

75

665895 77

665895

## SECTION 1

# ADVANCEDTCA CONNECTORS

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This newly developed architecture and system layout allows manufacturers of telecom equipment a new standard for designing systems (PICMG 3.0). ATCA stands for: Advanced Telecommunications Computing Architecture

The basic structure is utilizing a modular concept. Application of this new structured approach allows various module designs that are compatible in layout and mechanical installation.

CONEC manufactured the power connectors for the ATCA-System which are used in Zone 1.

**Advanced TCA<sup>®</sup>**



The PICMG Group created the PICMG 3.0 Standard. This Standard specifies the mechanical details with regards to input/output, voltage, current and connection parameters. Control, backplane layout and system architecture are part of the standard.

CONEC has developed a new family of connector products that adhere to this new Standard. Products such as plugs and sockets, high power and signal contacts, have been developed.

This new connector series is available with press fit and through hole contact types.

**Product features:**

- Rugged construction
- Polarizing system
- Premating contacts
- Press fit contacts ("Eye of the needle")
- Selective loading of contact positions
- Screwdown hardware
- Special variations on request

CONEC is member of the PICMG Group.  
For more information please visit  
[www.picmg.com](http://www.picmg.com).



TECHNICAL DATA

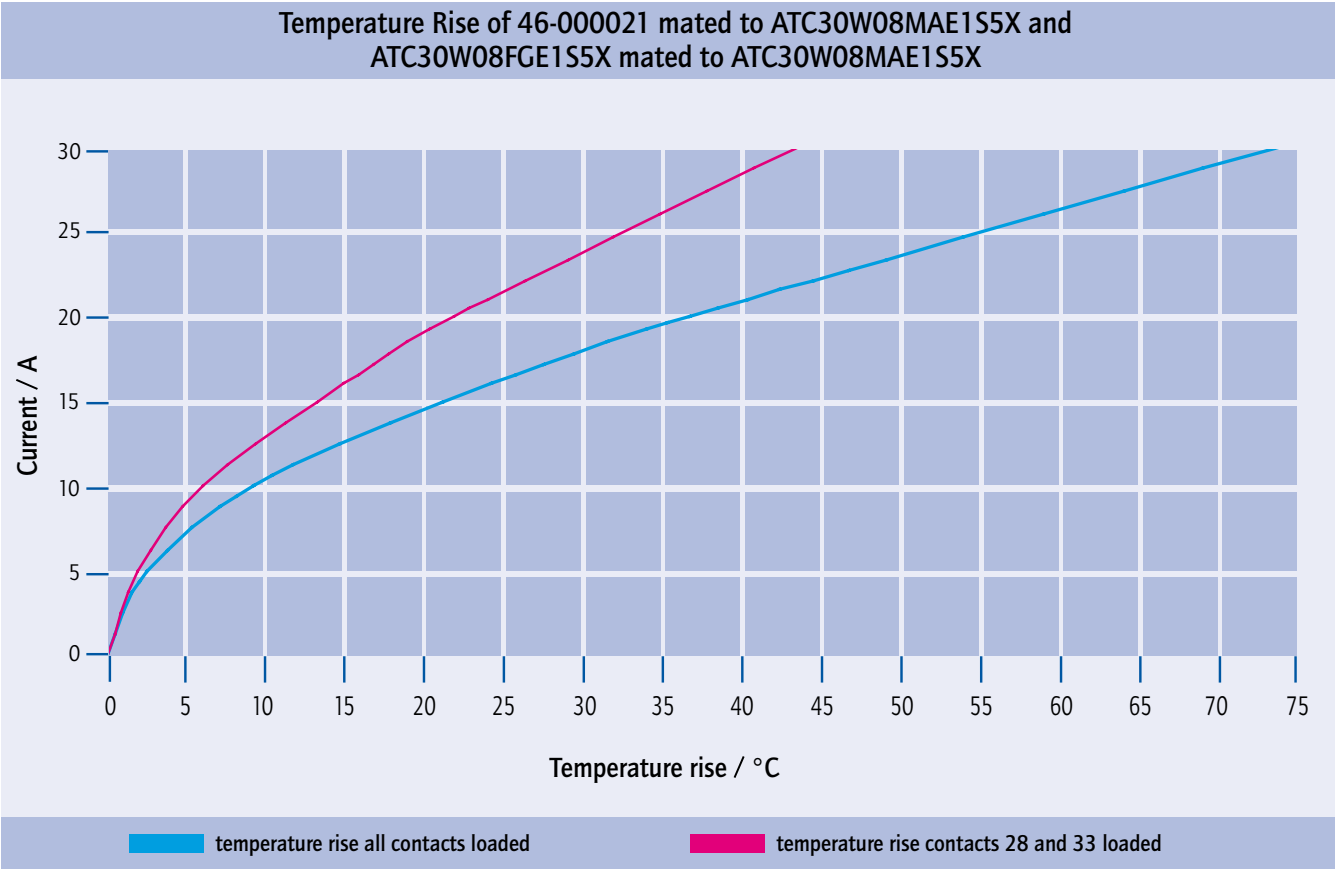
| Materials | Precision machined contacts                                                          | Stamped contacts                                                                                      |
|-----------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| Insulator | Glass filled plastic, UL 94V-0                                                       |                                                                                                       |
| Contacts  |                                                                                      |                                                                                                       |
| Materials | Copper alloy                                                                         |                                                                                                       |
| Plating   | Gold flash over nickel /<br>0.8 µm gold over nickel<br>(press fit design tin plated) | Gold flash over nickel /<br>0.8 µm gold over nickel gold over nickel<br>(press fit design tin plated) |

| Electrical Characteristics                                                    |                                         |             |
|-------------------------------------------------------------------------------|-----------------------------------------|-------------|
| Max. current rating, per UL 1977,<br>(see temperature rise curve for details) |                                         |             |
| Size 16 power contacts                                                        | 30 A continuous all contacts under load |             |
| Size 22 signal contacts                                                       | 2 A nominal rating                      |             |
| Initial contact resistance<br>(termination to termination)                    |                                         |             |
| Size 16 power contacts                                                        | 0.0022 Ω max.                           |             |
| Size 22 signal contacts                                                       | 0.0085 Ω max.                           | 0.02 Ω max. |
| Insulation resistant                                                          | 5 G Ω per IEC 512-2 Test 3a             |             |
| Voltage proof                                                                 |                                         |             |
| Contacts 1 through 16                                                         | 1000 V r.m.s.                           |             |
| Contacts 17 through 34                                                        | 2000 V r.m.s.                           |             |
| Creepage and clearance distance (minimum)                                     |                                         |             |
| Contact positions 1 through 16 to any<br>other contact within this group      | 0.7 mm                                  |             |
| Contact positions 17 through 24 to any<br>other contact within this group     | 2.5 mm                                  |             |
| Contact positions 25 through 34 to any<br>other contact within this group     | 1.4 mm                                  |             |
| Contact positions 13 through 16 to 17 through 20                              | 3.0 mm                                  |             |
| Contact positions 21 through 24 to 25, 26                                     | 4.0 mm                                  |             |
| Contact positions 25, 26 to 27 through 29                                     | 2.0 mm                                  |             |
| Working voltage                                                               | 100 V r.m.s.                            |             |

| Mechanical Characteristics                    |                                                                                                                            |  |
|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|--|
| Blind mating system                           | male and female connector bodies provide "lead-in" for 2.0 mm diametral misalignment                                       |  |
| Polarization                                  | provided by connector body design                                                                                          |  |
| Resistance to solder heat                     | 260°C for 10 seconds duration per IEC 512-6, Test 12e<br>25-watt soldering iron<br>(for other application contact factory) |  |
| Sequential contact mating system (succession) | 1. 25, 26, 28, 29, 30 and 31<br>2. 33<br>3. 34<br>4. contacts 1 to 24 mate before 27 and 32 (last mate)                    |  |
| Mechanical operations                         | 250 cycles                                                                                                                 |  |
| Temperature range                             | -55°C to +125°C                                                                                                            |  |

Technical alterations are subjects to change without notice.

DIAGRAM



# ADVANCEDTCA

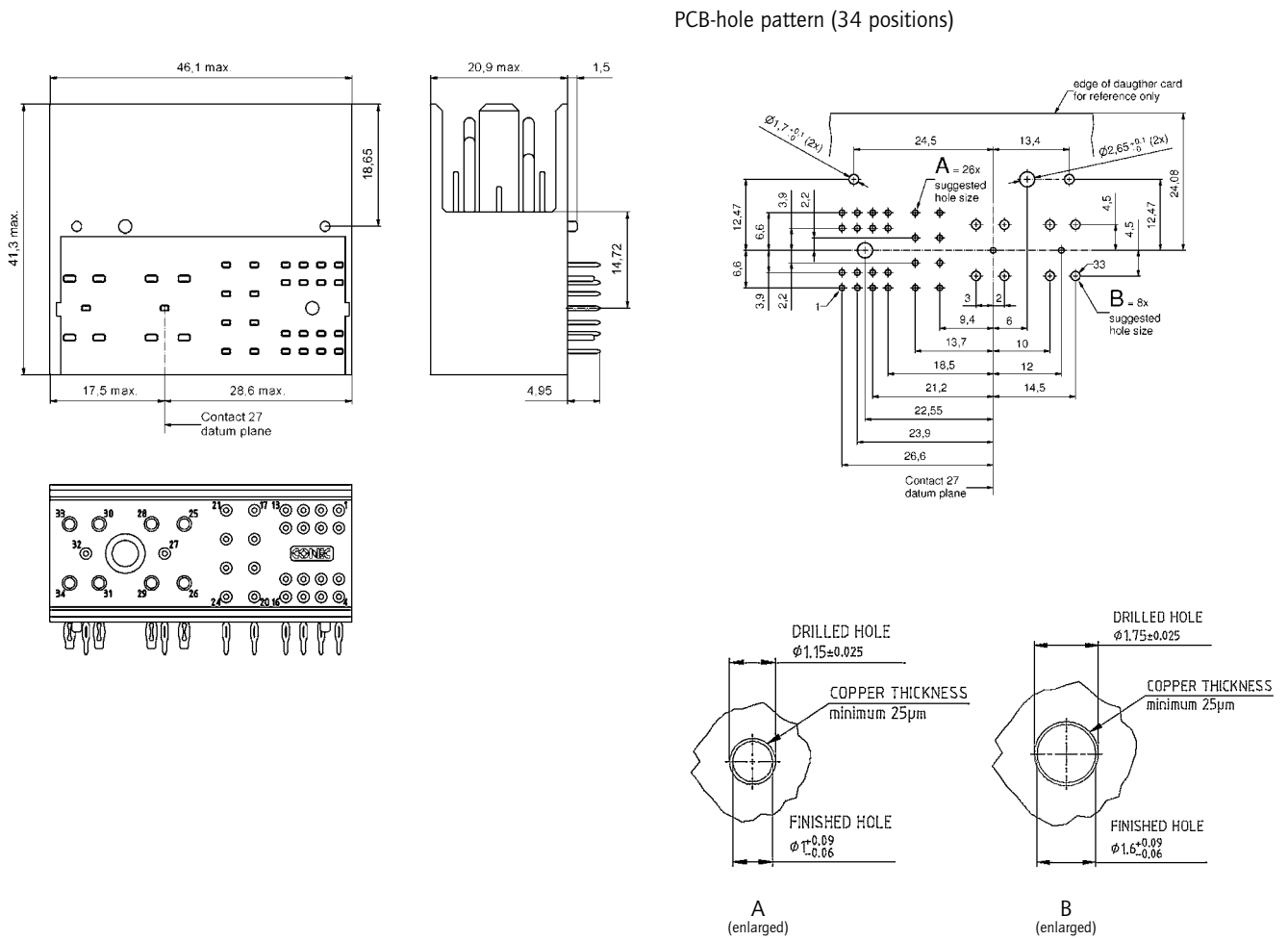
## Male Connector – angled – press fit – precision machined contacts



RoHS compliant – UL listed, File no.: E228329

- DESCRIPTION**
- Signal and power contacts
  - Alternatively 22, 30 or 34 positions
  - Eye of the needle press fit design, tin plated
  - Precision machined contacts for mating area
  - Mating area: gold plated quality class 1 or alternative quality class 3
  - Special contact loadings possible on request

**PRODUCT DRAWING**

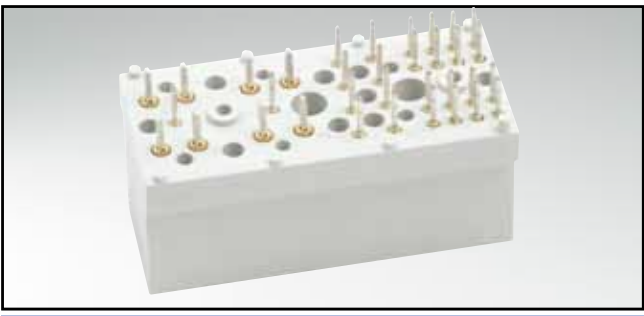


**ORDER DATA**

| Number of positions | Contacts              | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0.8µm Au mating area) |
|---------------------|-----------------------|---------------------------------------------|-------------------------------------------------------|
| 22                  | 14x signal / 8x power | ATC22 W08 MAE3S5 X                          | ATC22 W08 MAE1S5 X                                    |
| 30                  | 22x signal / 8x power | ATC30 W08 MAE3S5 X                          | ATC30 W08 MAE1S5 X                                    |
| 34                  | 26x signal / 8x power | ATC34 W08 MAE3S5 X                          | ATC34 W08 MAE1S5 X                                    |

# ADVANCEDTCA

Female connector – straight – press fit – precision machined contacts

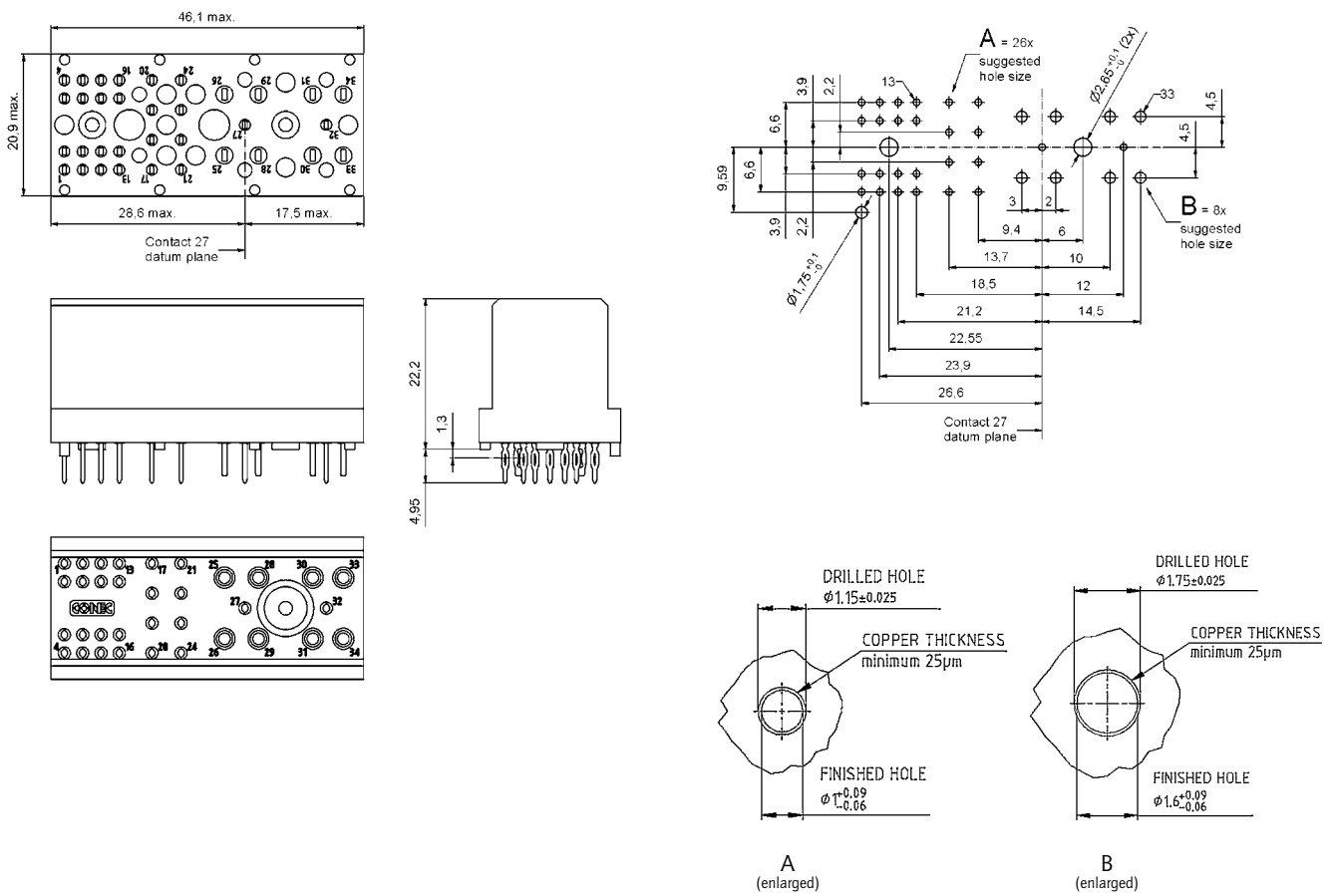


RoHS compliant – UL listed, File no.: E228329

- DESCRIPTION**
- Signal and power contacts
  - Alternatively 22, 30 or 34 positions
  - Eye of the needle press fit design, tin plated
  - Precision machined contacts for mating area
  - Mating area: gold plated quality class 1 or alternative quality class 3
  - Special contact loadings possible on request

**PRODUCT DRAWING**

PCB-hole pattern (34 positions)

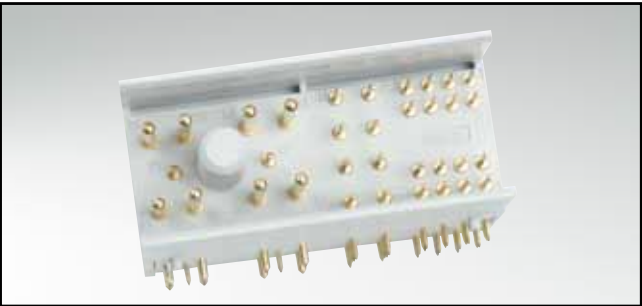


**ORDER DATA**

| Number of positions | Contacts              | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0,8µm Au mating area) |
|---------------------|-----------------------|---------------------------------------------|-------------------------------------------------------|
| 22                  | 14x signal / 8x power | ATC22 W08 FGE3S5 X                          | ATC22 W08 FGE1S5 X                                    |
| 30                  | 22x signal / 8x power | ATC30 W08 FGE3S5 X                          | ATC30 W08 FGE1S5 X                                    |
| 34                  | 26x signal / 8x power | ATC34 W08 FGE3S5 X                          | ATC34 W08 FGE1S5 X                                    |

# ADVANCEDTCA

Male connector – angled – solder pin – precision machined contacts



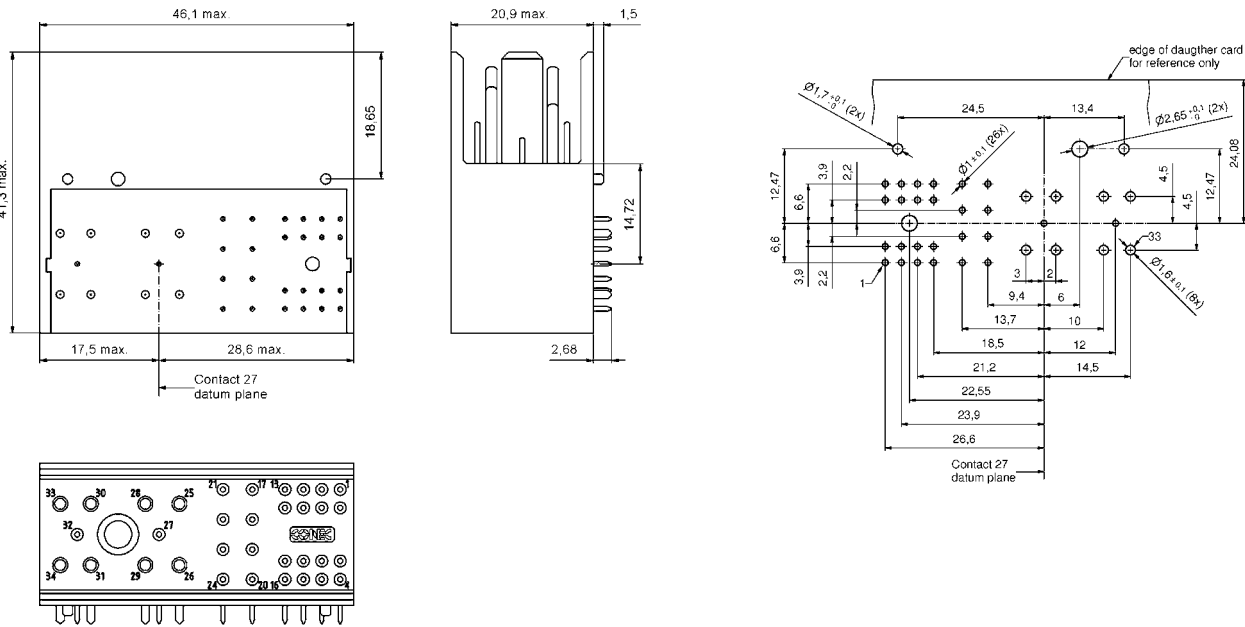
RoHS compliant – UL listed, File no.: E228329

### DESCRIPTION

- Signal and power contacts
- Alternatively 22, 30 or 34 positions
- Mating area: gold plated quality class 1 or alternative quality class 3
- Special contact loadings possible on request

### PRODUCT DRAWING

PCB-hole pattern (34 positions)



### ORDER DATA

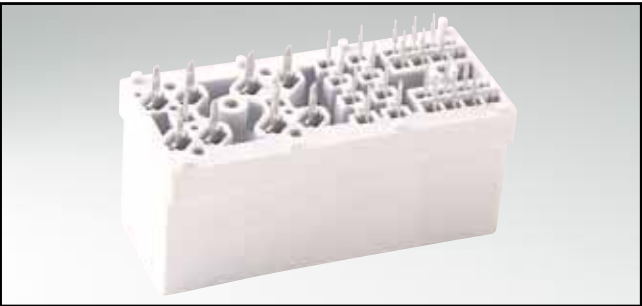
(Dim. = mm)

| Number of positions | Contacts              | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0,8µm Au mating area) |
|---------------------|-----------------------|---------------------------------------------|-------------------------------------------------------|
| 22                  | 14x signal / 8x power | ATC22 W08 MARAS5 X                          | ATC22 W08 MARCS5 X                                    |
| 30                  | 22x signal / 8x power | ATC30 W08 MARAS5 X                          | ATC30 W08 MARCS5 X                                    |
| 34                  | 26x signal / 8x power | ATC34 W08 MARAS5 X                          | ATC34 W08 MARCS5 X                                    |



# ADVANCEDTCA

Female connector – straight – press fit – stamped contacts



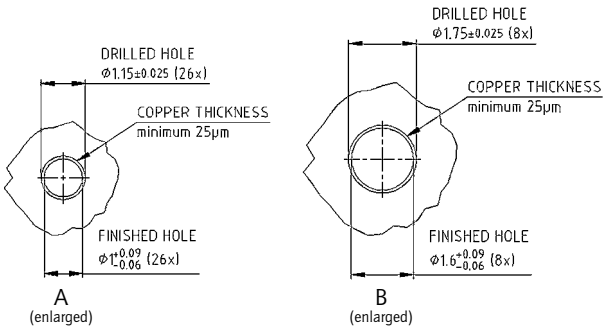
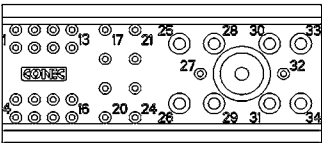
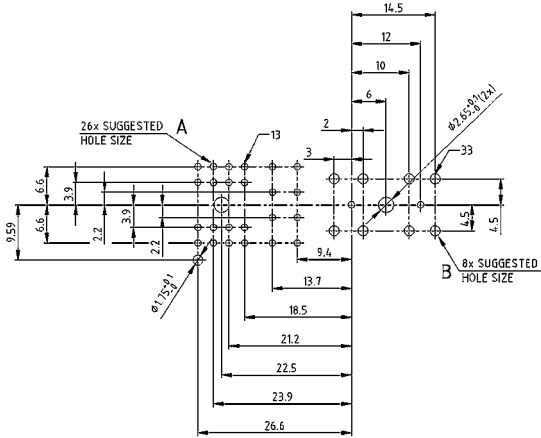
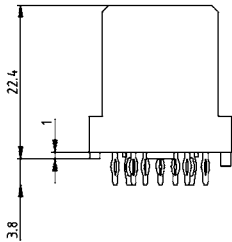
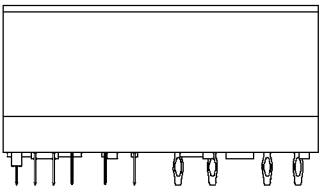
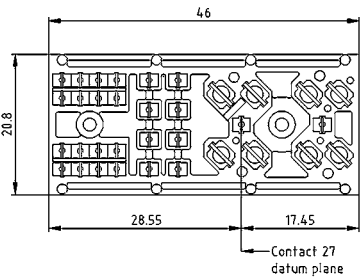
RoHS compliant

DESCRIPTION

- Signal and power contacts
- Alternatively 22, 30 or 34 positions
- Eye of the needle press fit design, tin plated
- Mating area: gold plated quality class 1 or alternative quality class 3
- Special contact loadings possible on request

PRODUCT DRAWING

PCB-hole pattern (34 positions)

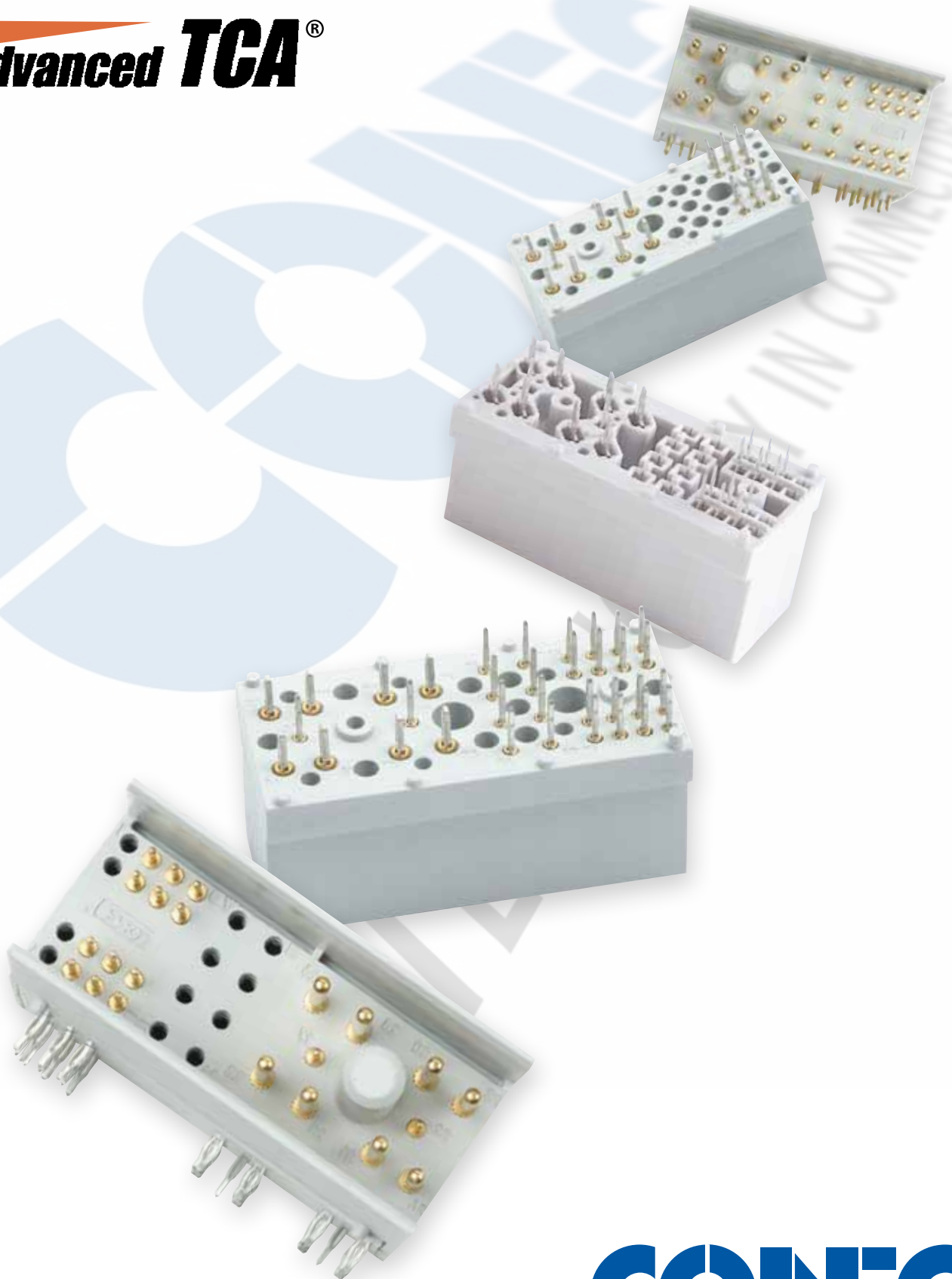


ORDER DATA

(Dim. = mm)

| Number of positions | Contacts              | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0,8µm Au mating area) |
|---------------------|-----------------------|---------------------------------------------|-------------------------------------------------------|
| 22                  | 14x signal / 8x power | 46-000013                                   | 46-000011                                             |
| 30                  | 22x signal / 8x power | 46-000023                                   | 46-000021                                             |
| 34                  | 26x signal / 8x power | 46-000033                                   | 46-000031                                             |

**Advanced TCA<sup>®</sup>**



[www.conec.com](http://www.conec.com)

**CONEC<sup>®</sup>**  
TECHNOLOGY IN CONNECTORS<sup>™</sup>

## SECTION 2

# MICROTCA CONNECTORS

---

The MicroTCA system was developed beside the AdvancedTCA system to meet compact and cost effective requirements. This standard was also developed by the PICMG® group. Conec offers now the full range of interface connectors defined in the MicroTCA specification.

MicroTCA systems are modular constructed. The standard system configuration can consist of up to two Power Modules (PM's), two MicroTCA carrier hubs (MCH's) and up to 12 Advanced Mezzanine Cards (AMC's).

The MTCA.0 specification defines Combination D-SUB connectors type 7W2 and 9W4 as interfaces for the external power input to the power modules with direct voltage. These are populated with two power contacts, each with a current carrying capacity of 24 A per power pin for the 7W2 version (for use in power modules with -48/-60 V) and 49 A for the 9W4 version (module with +24 V) and two signal contacts.

Conec offers also special hoods in straight and angled version. These hoods are especially slim designed to fit into the MicroTCA connector footprint requirements.





The energy will be supplied via power module output connectors from the PM into the MicroTCA backplane. This connector is a hybrid connector with 12 power contact pairs and 72 signal contacts in a 2.00 mm pitch. The angled version is applied to the PCB of the power module while the straight version is designed to be mounted on the system backplane. Alignment pins on the insulating body support the guide system of the module and allows a secured mating.

The current carrying capability is min. 9.3 A and a power module is able to supply the energy to twelve AMC Modules.

The interconnection from the MCH and the AMC modules to the backplane is made by the 170-pin high speed signal connector. This connector is a direct mating connector and allows data rates up to 12.5 Gbps. An additional internal conductive barrier supplies an additional shielding between the two signal layers. The connector is designed with „eye of the needle“ press fit contacts and will be installed into the systems backplane securely and without soldering.



# TECHNICAL DATA

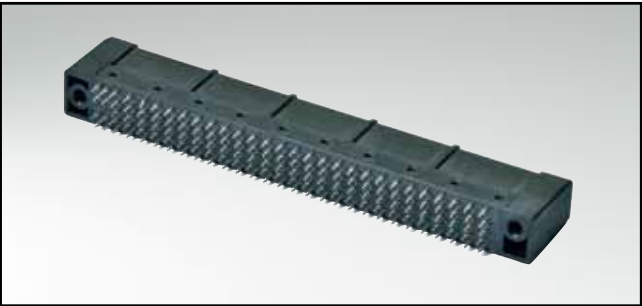
(AdvancedMC Connector)

| Materials                         |                                        |                                  |
|-----------------------------------|----------------------------------------|----------------------------------|
| Housing                           | Liquid Crystal Polymer (LCP), UL 94-V0 |                                  |
| Contacts                          | Copper alloy                           |                                  |
| Contact plating                   | Mating area gold over nickel           | Termination area tin over nickel |
| Electrical characteristics        |                                        |                                  |
| Insulation resistance (IEC 60512) | General purpose contacts               | 0.4 A min.                       |
|                                   | Ground contacts                        | 0.3 A min.                       |
|                                   | Power contacts                         | 1.52 A min.                      |
|                                   | Differential pair contacts             | 0.1 A min.                       |
| Contact resistance                | 25 mΩ                                  |                                  |
| Insulation resistance             | 100 MΩ                                 |                                  |
| Differential Impedance            | 100 Ω ± 10%                            |                                  |
| Crosstalk                         | 3 % (Multi aggressor condition)        |                                  |
| Differential skew                 | < 5 ps                                 |                                  |
| Mechanical Characterisitcs        |                                        |                                  |
| Mating cycles                     | 200                                    |                                  |
| Mating force                      | 100 N max.                             |                                  |
| Withdrawal force                  | 65 N max.                              |                                  |

Technical alterations are subjects to change without notice.

# ADVANCEDMC CONNECTOR

Press fit technology – MicroTCA – for high speed signals

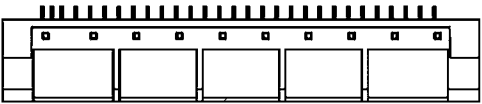
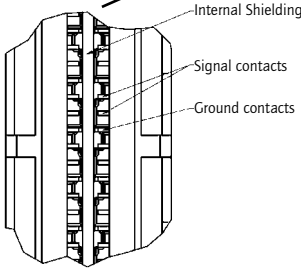
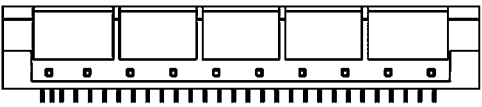


RoHS compliant

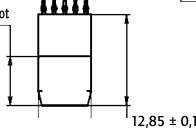
DESCRIPTION

- 170 "high speed" signal contacts
- Direct connector for AMC module
- Data transfer rates up to 12.5 Gbps
- Internal shielding
- Eye of the needle press fit
- Mating area gold plated, quality class 1

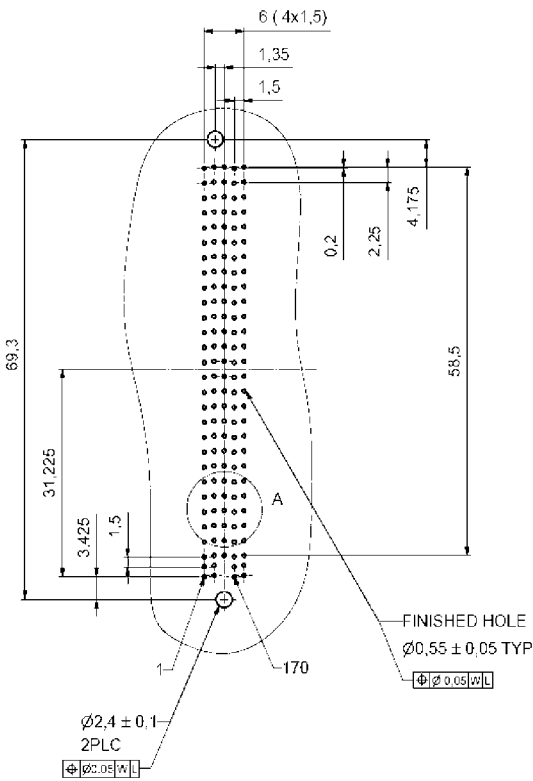
PRODUCT DRAWING



6,95 measured to bottom of card slot



PCB-hole pattern



ORDER DATA

(Dim. = mm)

| Number of positions | Part number |
|---------------------|-------------|
| 170                 | 47-000001   |

# TECHNICAL DATA

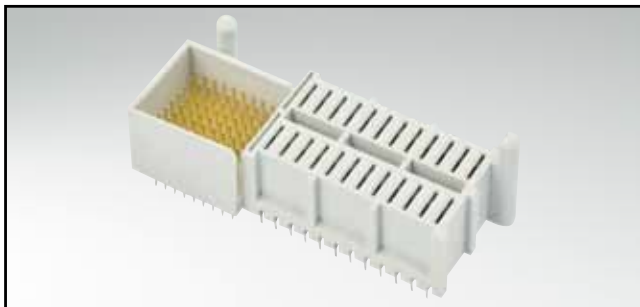
## (Backplane and Power Modul Output Connector)

| Materials                         |                                                |                                                             |
|-----------------------------------|------------------------------------------------|-------------------------------------------------------------|
| Housing                           | Thermoplastic polyester, glass filled; UL94-V0 | Color: grey                                                 |
| Power contacts                    | Copper alloy                                   | Mating area gold over nickel<br>Termination area tin plated |
| Signal contacts                   | Copper alloy                                   | Termination gold over nickel<br>Termination area tin plated |
| Electrical characteristics        |                                                |                                                             |
| Insulation resistance (IEC 60512) | Power contacts and GND contacts                | 9.3 A per pin at max. 30°C temperature rise                 |
|                                   | Signal- and Signal GND contacts                | 0.5 A at max. 30°C temperature rise                         |
| Contact material                  | Power contacts and GND contacts                | 11.625 A                                                    |
|                                   | Signal- and Signal GND contacts                | 0.625 A                                                     |
| Contact resistance                | Power contacts and GND contacts                | 5 mΩ                                                        |
|                                   | Signal- and Signal GND contacts                | 25 mΩ                                                       |
| Insulation resistance             | Power contacts                                 | 100 MΩ min.                                                 |
|                                   | Signal contacts                                | 100 MΩ min.                                                 |
| Temperature range                 | -55°C to +105°C                                |                                                             |
| Mechanical characteristics        |                                                |                                                             |
| Mating cycles                     | 200                                            |                                                             |
| Mating force                      | 145 N max.                                     |                                                             |
| Withdrawal force                  | 110 N max.                                     |                                                             |

Technical alterations are subjects to change without notice.

## BACKPLANE CONNECTOR

## Press fit technology – straight version

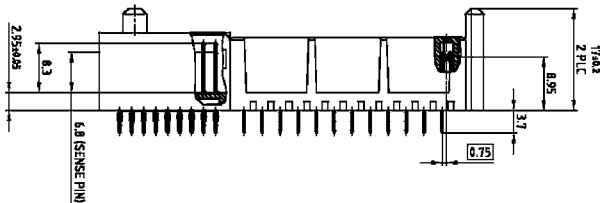


RoHS compliant

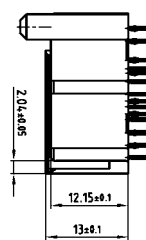
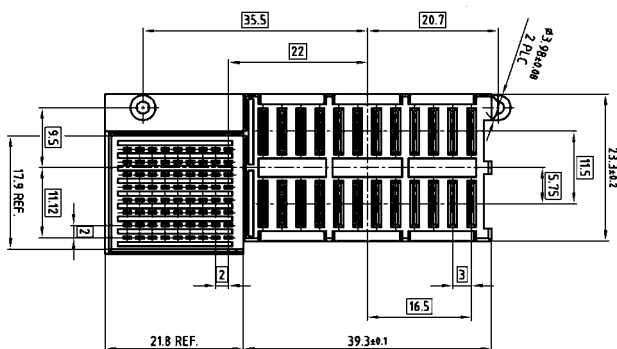
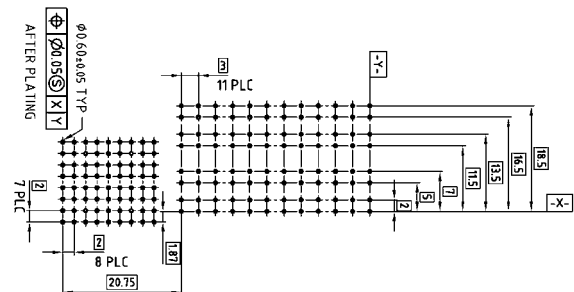
**DESCRIPTION.**

- Connector according to MicroTCA specification
- Combination of signal- and power contacts
- Eye of the needle press fit
- Mating area gold plated, quality class 1

## PRODUCT DRAWING.



## PCB-hole pattern



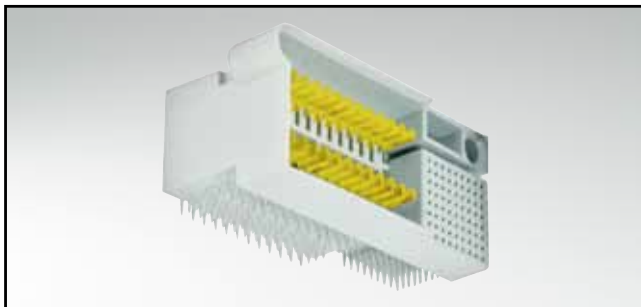
## ORDER DATA

(Dim. = mm)

| Number of positions | Contacts               | Part number |
|---------------------|------------------------|-------------|
| 96                  | 72x signal / 24x power | 47-100001   |

## POWER MODULE OUTPUT CONNECTOR

## Press fit technology – angled version

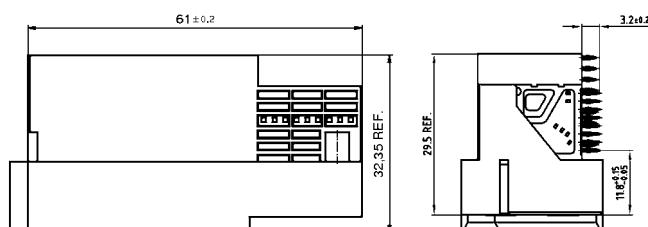
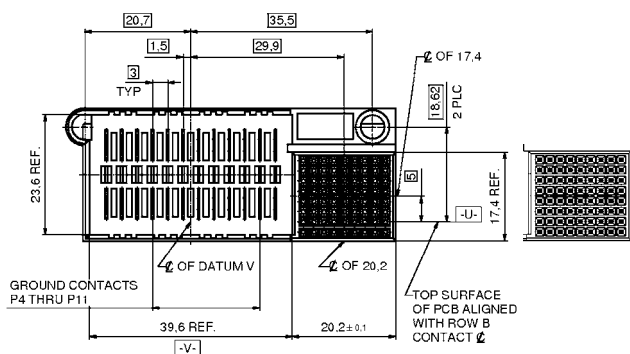


RoHS compliant

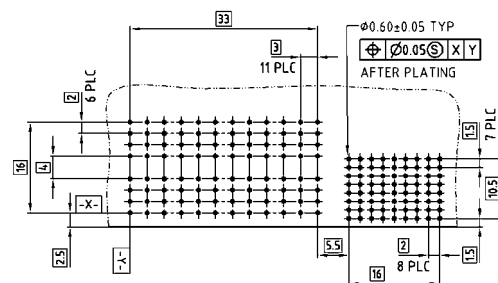
## DESCRIPTION

- Connector according to MicroTCA specification
- Combination of signal- and power contacts
- Eye of the needle press fit
- Mating area gold plated, quality class 1

## PRODUCT DRAWING



PCB-hole pattern



## ORDER DATA

(Dim. = mm)

| Number of positions | Contacts               | Part number |
|---------------------|------------------------|-------------|
| 96                  | 72x signal / 24x power | 47-100011   |

# TECHNICAL DATA

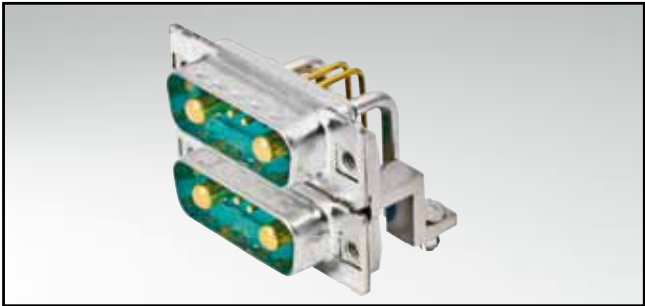
## Power Module Input Connector

| Materials                                             |                                           |                                                                 |
|-------------------------------------------------------|-------------------------------------------|-----------------------------------------------------------------|
| Insulator                                             | PBT (UL 94-V0)                            |                                                                 |
| Power Contacts                                        | Copper alloy, Precision machined contacts | Mating side gold over nickel<br>Soldering side tin over nickel  |
| Signal contacts                                       | Copper alloy, Precision machined contacts | Mating side gold over nickel<br>Soldering side gold over nickel |
| Shell                                                 | Steel                                     | Tin plated                                                      |
| Mounting bracket                                      | Zink die-cast                             | Tin plated                                                      |
| 4-40 UNC threaded insert                              | Copper alloy                              | Tin plated                                                      |
| Hex bolt<br>with 4-40 UNC threaded insert and washers | Steel                                     | Nickel plated                                                   |
| PCB clip for 1.6 mm PCB LP                            | Copper alloy                              | Tin plated                                                      |
| Electrical characteristics                            |                                           |                                                                 |
| Current rating                                        | Power contacts                            | 24 A at max. 30°C temperature rise                              |
|                                                       | Signal contacts                           | 7.5 A nominal                                                   |
| Clearance- and creepage distance                      | Power contacts                            | 1.5 mm min.                                                     |
|                                                       | Signal contacts                           | 0.4 mm min.                                                     |
|                                                       | Signal and power contacts                 | 1.5 mm min.                                                     |
|                                                       | Power contacts and shell                  | 1.5 mm min.                                                     |
|                                                       | Signal contacts and shell                 | 1.5 mm min.                                                     |
| Insulation resistance                                 | Power contact                             | 5000 MΩ min.                                                    |
|                                                       | Signal contact                            | 5000 MΩ min.                                                    |
|                                                       | Signal and power contacts                 | 5000 MΩ min.                                                    |
|                                                       | Power contacts and shell                  | 5000 MΩ min.                                                    |
|                                                       | Signal contacts and shell                 | 5000 MΩ min.                                                    |
| Dielectric with standing voltage                      | 1000 V r.m.s.                             |                                                                 |
| Mechanical characteristics                            |                                           |                                                                 |
| Mating cycles                                         | 250                                       |                                                                 |
| Mating force                                          | 100 N max.                                |                                                                 |
| Unmating force                                        | 65 N max.                                 |                                                                 |

Technical alterations are subjects to change without notice.

# POWER MODUL INPUT CONNECTORS

Plug connector – solder pin – angled – precision machined contacts – dual port style – through hole solder type

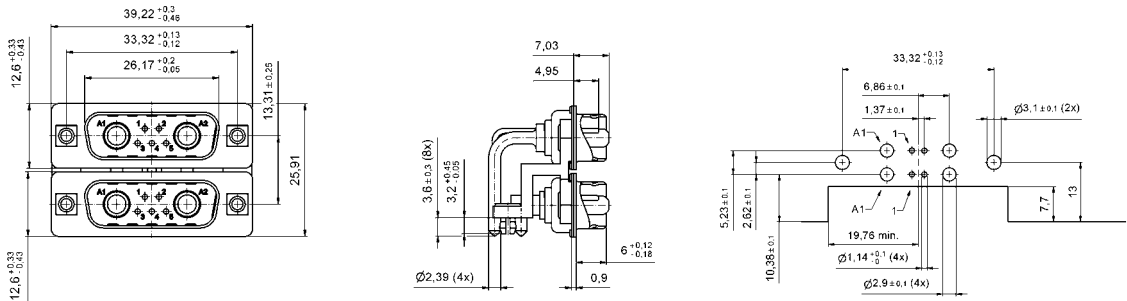


RoHS compliant

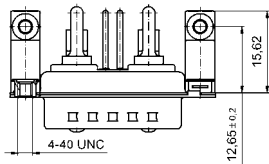
DESCRIPTION

- Standard version according to MTCA specification
- Design 7W2 for -48/-60 V Power modul
- 2 power contacts 24 A / 2 signal contacts per port
- Mounting styles:
  - Mounting bracket with PCB clip, 4-40 UNC threaded insert
  - Mounting bracket with PCB clip, 4-40 UNC hex bolt
- Note for 9W4 product please contact factory

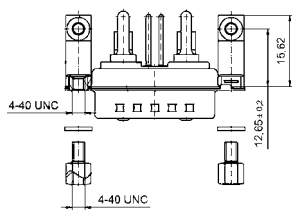
PRODUCT DRAWING



Mounting style:  
Mounting bracket with PCB clip,  
4-40 UNC threaded insert



Mounting style:  
Mounting bracket with PCB clip,  
threaded insert and 4-40 UNC hex bolt



ORDER DATA

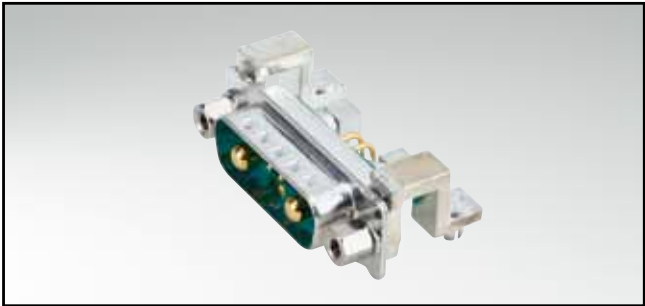
(Dim. = mm)

| PLUG CONNECTOR |                                                                        |             |
|----------------|------------------------------------------------------------------------|-------------|
| Version        | Mounting style                                                         | Part number |
| 7W2            | Mounting bracket with PCB clip / Threaded insert and 4-40 UNC Hex bolt | 13-000011   |
| 7W2            | Mounting bracket with PCB clip / 4-40 UNC Threaded insert              | 13-000021   |

PCB clip 3.1 mm ± 0.10 mm hole diameter and 1.6 mm circuit board thickness

# POWER MODUL INPUT CONNECTORS

Plug connector – solder pin – angled – precision machined contacts – through hole solder type

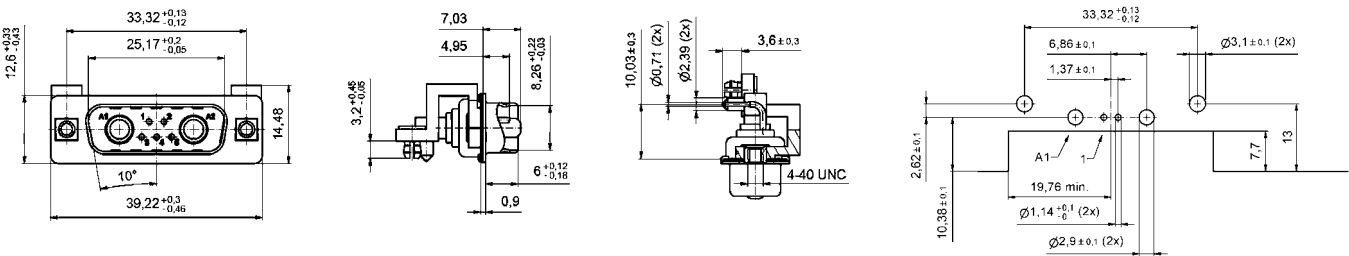


RoHS compliant

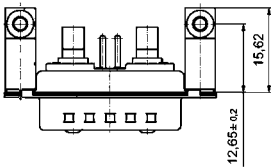
DESCRIPTION

- Design 7W2 for -48/-60 V power modul
- 2 power contacts 24 A / 2 signal contacts
- Single port version for MicroTCA PCB layout
- Mounting styles:
  - Mounting bracket with PCB clip, 4-40 UNC threaded insert
  - Mounting bracket with PCB clip, 4-40 UNC hex bolt
- Note for 9W4 product please contact factory

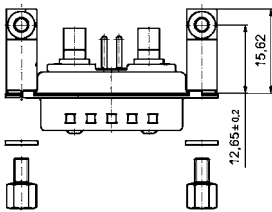
PRODUCT DRAWING



Mounting style:  
Mounting bracket with PCB clip,  
4-40 UNC threaded insert



Mounting style:  
Mounting bracket with PCB clip,  
threaded insert and 4-40 UNC hex bolt



ORDER DATA

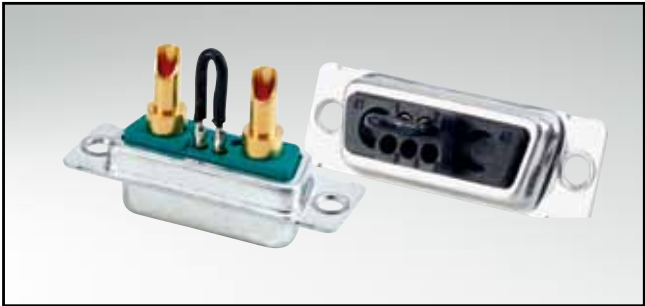
(Dim. = mm)

| PLUG CONNECTOR |                                                                        |             |
|----------------|------------------------------------------------------------------------|-------------|
| Version        | Mounting style                                                         | Part number |
| 7W2            | Mounting bracket with PCB clip / Threaded insert and 4-40 UNC Hex bolt | 13-000051   |
| 7W2            | Mounting bracket with PCB clip / 4-40 UNC Threaded insert              | 13-000061   |

PCB clip 3.1 mm ± 0.10 mm hole diameter and 1.6 mm circuit board thickness

# POWER INPUT CONNECTOR

Socket connector – solder cup or crimp body



RoHS compliant

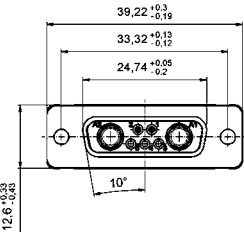
DESCRIPTION

- 7W2 MicroTCA Design: 2 power / 2 signal contacts
- Available with bridged and unbridged signal contacts
- Mounting style: with through-hole 3.0 mm
- Power contacts solder cup or crimp type wire size
- Note for 9W4 product please contact factory

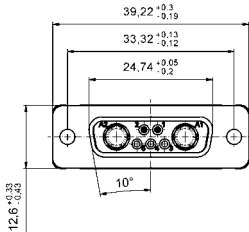
PRODUCT DRAWING

Solder cup

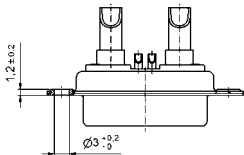
| AWG   | X   | Current Rating |
|-------|-----|----------------|
| 10-12 | 3.5 | max. 30 A      |
| 12-14 | 2.7 | max. 20 A      |
| 16-20 | 1.8 | max. 10 A      |



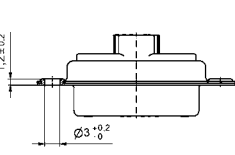
Crimp version



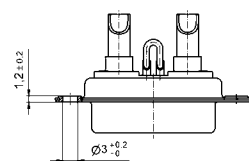
with signal contacts



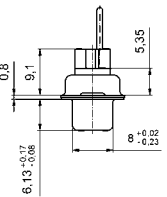
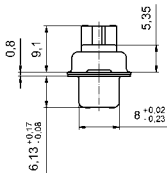
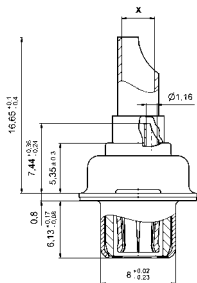
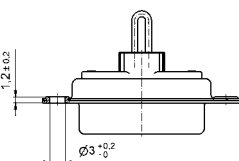
without signal contacts



with bridged signal contacts



with bridged signal contacts



ORDER DATA

(Dim. = mm)

| SOCKET CONNECTOR VERSION SOLDER CUP |              |                |                     |                 |             |
|-------------------------------------|--------------|----------------|---------------------|-----------------|-------------|
| Version                             | Wire size    | Current rating | Mounting style      | Signal contacts | Part number |
| 7W2                                 | AWG 10 to 12 | 30 A           | Through-hole 3.0 mm | unbridged       | 13-000131   |
| 7W2                                 | AWG 12 to 14 | 20 A           | Through-hole 3.0 mm | unbridged       | 13-000141   |
| 7W2                                 | AWG 16 to 20 | 10 A           | Through-hole 3.0 mm | unbridged       | 13-000151   |
| 7W2                                 | AWG 10 to 12 | 30 A           | Through-hole 3.0 mm | bridged         | 13-000161   |
| 7W2                                 | AWG 12 to 14 | 20 A           | Through-hole 3.0 mm | bridged         | 13-000171   |
| 7W2                                 | AWG 16 to 20 | 10 A           | Through-hole 3.0 mm | bridged         | 13-000181   |

| SOCKET CONNECTOR CRIMP BODY |            |                     |                       |             |
|-----------------------------|------------|---------------------|-----------------------|-------------|
| Version                     | Design     | Mounting style      | Crimp signal contacts | Part number |
| 7W2                         | Crimp body | Through-hole 3.0 mm | without               | 13-000190   |
| 7W2                         | Crimp body | Through-hole 3.0 mm | bridged               | 13-000201   |

# POWER INPUT CONTACTS

Socket contact – crimp body – precision machined



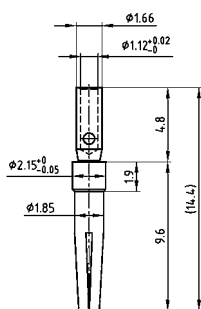
RoHS compliant

## DESCRIPTION

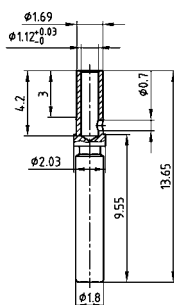
- Precision machined contacts
- Quality class 1, standard
- Other quality classes on request

## PRODUCT DRAWING

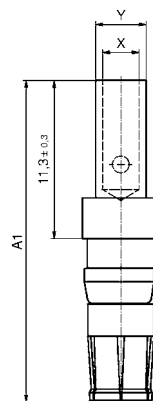
Signal Crimp contact  
(standard version)



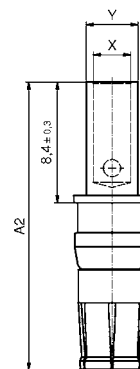
Signal Crimp contact  
(closed entry version)



Power Crimp contact  
(standard version)



Power Crimp contact  
(short version)



| AWG      | A <sub>1</sub> | A <sub>2</sub> | X   | Y    | Current rating |
|----------|----------------|----------------|-----|------|----------------|
| 8 to 10  |                | 20.08          | 4.6 | 5.35 | 40 A           |
| 10 to 12 | 22.98          | 20.08          | 3.7 | 4.7  | 30 A           |
| 12 to 14 | 22.98          | 20.08          | 2.6 | 3.6  | 20 A           |
| 16 to 20 | 22.98          | 20.08          | 1.7 | 2.6  | 10 A           |

(Dim. = mm)

## ORDER DATA

| SOCKET CONNECTOR                           |                          |                        |               |
|--------------------------------------------|--------------------------|------------------------|---------------|
| Contact                                    | Wire cross section       | Current rating         | Part number   |
| Signal crimp (standard version)            | AWG 20 to 24             | 7,5 A                  | 162 C 18709 X |
| Power crimp (standard version)             | AWG 10 to 12 / A = 22.98 | 30 A                   | 132 C 11039 X |
| Power crimp (standard version)             | AWG 12 to 14 / A = 22.98 | 20 A                   | 132 C 11029 X |
| Power crimp (standard version)             | AWG 16 to 20 / A = 22.98 | 10 A                   | 132 C 11019 X |
| Signal crimp (closed entry version)        | AWG 20 to 24             | 7,5 A (Preferred type) | 132 C 15019 X |
| Power crimp (for MicroTCA) (short version) | AWG 8 to 10 / A = 20.08  | 40 A                   | 13-000321     |
| Power crimp (for MicroTCA) (short version) | AWG 10 to 12 / A = 20.08 | 30 A                   | 13-000311     |
| Power crimp (for MicroTCA) (short version) | AWG 12 to 14 / A = 20.08 | 20 A                   | 13-000301     |
| Power crimp (for MicroTCA) (short version) | AWG 16 to 20 / A = 20.08 | 10 A                   | 13-000291     |

# CABLE HOOD AND CONNECTOR SET

Plastic hood with crimp connector body – straight cable entry



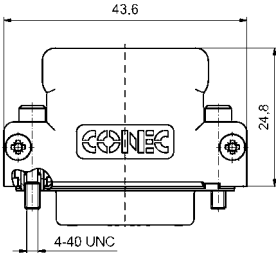
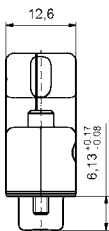
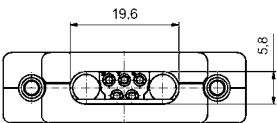
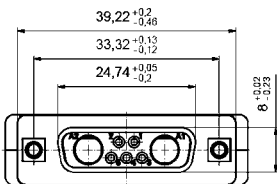
RoHS compliant

DESCRIPTION

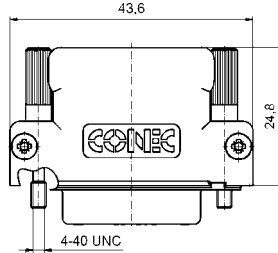
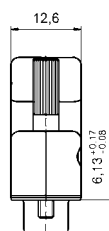
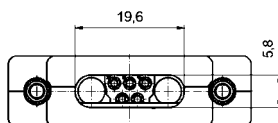
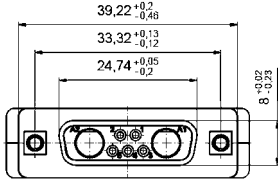
- Compact 7W2 shell inclusive Crimp Socket connector
- Available with bridged signal contacts
- Short 4-40 UNC screws with Phillips or Allen key
- Material Housing: PBT GF; UL 94 V0, black
- Integrated strain relief
- Power contacts for wire size AWG 8 to AWG 20
- Hood can be used only with a special connector

PRODUCT DRAWING

Hood with short screw  
(Socket connector included)



Hood with jack screw  
(Socket connector included)



ORDER DATA

(Dim. = mm)

| Version                         | SOCKET CONNECTOR |                          |  | Part number |
|---------------------------------|------------------|--------------------------|--|-------------|
|                                 | Signal contacts  | Screw design             |  |             |
| Hood/Crimp Socket connector 7W2 | without          | Short/Allen key          |  | 13-000210   |
| Hood/Crimp Socket connector 7W2 | without          | Short/Phillips head      |  | 13-000220   |
| Hood/Crimp Socket connector 7W2 | bridged          | Short/Allen key          |  | 13-000231   |
| Hood/Crimp Socket connector 7W2 | bridged          | Short/Phillips head      |  | 13-000241   |
| Hood/Crimp Socket connector 7W2 | without          | Jack screw/Allen key     |  | 13-000370   |
| Hood/Crimp Socket connector 7W2 | without          | Jack screw/Phillips head |  | 13-000380   |
| Hood/Crimp Socket connector 7W2 | bridged          | Jack screw/Allen key     |  | 13-000391   |
| Hood/Crimp Socket connector 7W2 | bridged          | Jack screw/Phillips head |  | 13-000401   |

# CABLE HOOD

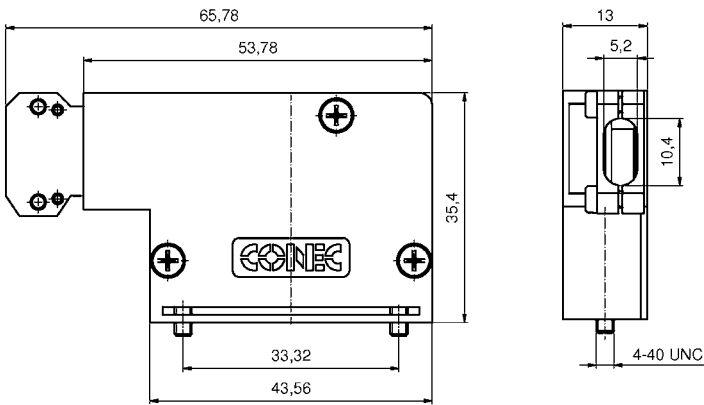
Metal design – side cable entry



RoHS compliant

- DESCRIPTION**
- Cable hood for 7W2 MicroTCA Standard Socket connector
  - Suitable for other D-SUB Connectors
  - Material: Zink die-cast
  - Fastening with 4-40 UNC thread and jack screws
  - Solide zink die-cast strain relief
  - Plastic cable run integrated in shell

**PRODUCT DRAWING**



**ORDER DATA** (Dim. = mm)

| Version | Design     | Part number |
|---------|------------|-------------|
| 7W2     | Metal hood | 16-000010   |

## SECTION 3

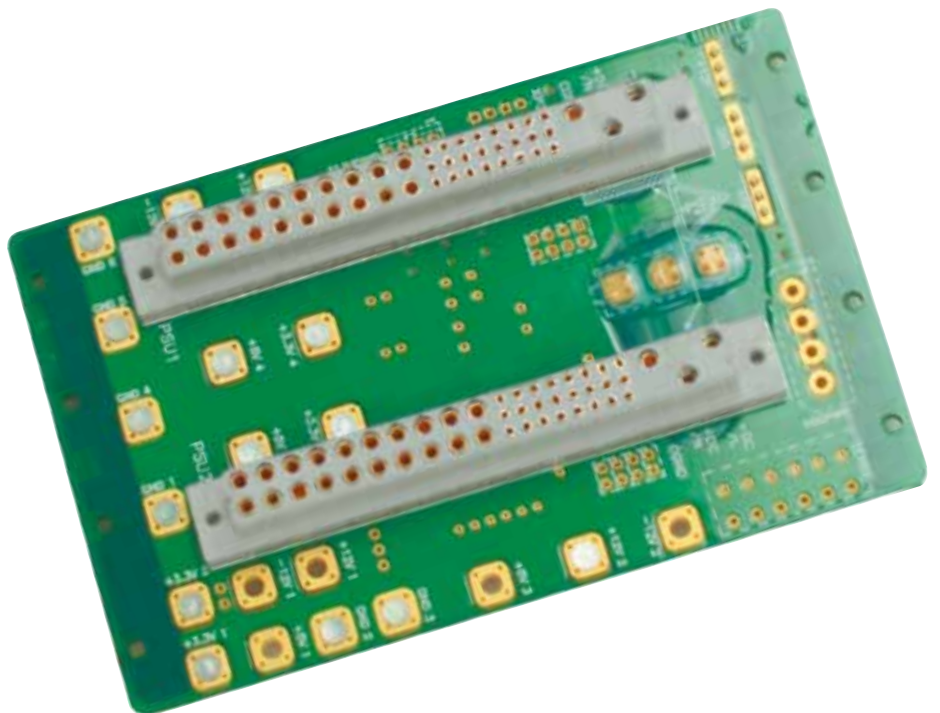
# COMPACTPCI CONNECTORS

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CONEC is a member of the PICMG Group and has developed the 47 positions power connector types, adhering to the specifications outlined in PICMG 2.11 R1.0.

Telecom, datacom, computer, medical, instrumentation and industrial control manufacturers are implementing the Compact PCI Bus structure. 'PCI' as it is known today stands for: Peripheral Component Interconnect.



**Product features:**

- Male and female connectors
- Through hole and press fit types
- Precision machined contacts/stamped contacts
- Stamped flexible press fit design
- Selective assembly on request
- Premating and Sequential mating
- Mounting screws for PCB are available

***CompactPCI®***



TECHNICAL DATA

| Materials                               |                                                                                   |
|-----------------------------------------|-----------------------------------------------------------------------------------|
| Insulator                               | Glass filled plastic, UL 94V-0                                                    |
| Contacts                                |                                                                                   |
| Materials                               | Copper alloy                                                                      |
| Plating for precision machined contacts | Gold flash over nickel/0,8 µm gold over nickel (press fit design tin over nickel) |
| Plating for stamped and formed contacts | Gold flash over nickel/selective 0,8 µm gold over nickel                          |

| Electrical Characteristics                                                            |                                          |
|---------------------------------------------------------------------------------------|------------------------------------------|
| <b>Contact Current Ratings, per UL 1977, (see temperature rise curve for details)</b> |                                          |
| <b>CompactPCI 38 positions</b>                                                        |                                          |
| Size 16 Power Contacts:                                                               |                                          |
| Positions 36, 37 and 38                                                               | 40 A continuous, all contacts under load |
| Positions 1 to 20                                                                     | 28 A continuous, all contacts under load |
| Size 20 Signal Contacts                                                               | 5 A nominal rating                       |
| <b>CompactPCI 47 positions</b>                                                        |                                          |
| Size 16 power contacts:                                                               |                                          |
| Positions 45, 46 and 47                                                               | 40 A continuous, all contacts under load |
| Positions 1 to 20                                                                     | 28 A continuous, all contacts under load |
| Size 22 signal contacts                                                               | 3 A nominal rating                       |
| <b>Initial contact resistance (termination to termination)</b>                        |                                          |
| Size 16 power contacts                                                                | 0.0007 Ω maximum                         |
| Size 20 signal contacts                                                               | 0.004 Ω maximum                          |
| Size 22 signal contacts                                                               | 0.004 Ω maximum                          |
| Insulation Resistance                                                                 | 5 G Ω per IEC 512-2 Test 3a method A     |
| <b>Voltage Proof</b>                                                                  |                                          |
| <b>CompactPCI 38 positions</b>                                                        |                                          |
| Contacts 36, 37 and 38                                                                | 3000 V r.m.s.                            |
| Contacts 1 to 20                                                                      | 1500 V r.m.s.                            |
| Contacts 21 to 35                                                                     | 1000 V r.m.s.                            |
| <b>CompactPCI 47 positions</b>                                                        |                                          |
| Size 16 power contacts:                                                               |                                          |
| Contacts 45, 46 and 47                                                                | 3000 V r.m.s.                            |
| Contacts 1 to 20                                                                      | 1500 V r.m.s.                            |
| Contacts 21 to 44                                                                     | 1000 V r.m.s.                            |
| <b>Creepage and clearance distance (minimum)</b>                                      |                                          |
| <b>CompactPCI 38 positions</b>                                                        |                                          |
| Contact 38 to 36                                                                      | 3.2 mm                                   |
| Contact 37 to contact 36                                                              | 3.2 mm                                   |
| Contact 38 to signal contacts                                                         | 6.4 mm                                   |
| Contact 37 to signal contacts                                                         | 6.4 mm                                   |
| Contact 38 to contact 37                                                              | 2.5 mm                                   |
| Contact 36 to signal contacts                                                         | 2.0 mm                                   |
| <b>CompactPCI 47 positions</b>                                                        |                                          |
| Contact 47 to contact 45                                                              | 3.2 mm                                   |
| Contact 46 to contact 45                                                              | 3.2 mm                                   |
| Contact 47 to signal contacts                                                         | 6.4 mm                                   |
| Contact 46 to signal contacts                                                         | 6.4 mm                                   |
| Contact 47 to contact 46                                                              | 2.5 mm                                   |
| Contact 45 to signal contacts                                                         | 2.0 mm                                   |

## TECHNICAL DATA

|                                |               |
|--------------------------------|---------------|
| <b>Working voltage</b>         |               |
| <b>CompactPCI 38 positions</b> |               |
| Contacts 36, 37 and 38         | 1000 V r.m.s. |
| Contacts 1 to 20               | 500 V r.m.s.  |
| Contacts 21 to 35              | 333 V r.m.s.  |
| <b>CompactPCI 47 positions</b> |               |
| Contacts 45, 46 and 47         | 1000 V r.m.s. |
| Contacts 1 to 20               | 500 V r.m.s.  |
| Contacts 21 to 44              | 333 V r.m.s.  |

| Mechanical Characteristics                           |                                                                                                                      |
|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| Blind mating system                                  | Male and female connector bodies provide "lead-in" for 1.3 mm diametral misalignment                                 |
| Polarization                                         | Provided by connector body design                                                                                    |
| Crimp contacts                                       | Install contact from termination side; release from mating side                                                      |
| <b>Removable contact retention in connector body</b> |                                                                                                                      |
| Size 16 contacts                                     | 67 N                                                                                                                 |
| <b>Fixed contact retention in connector body</b>     |                                                                                                                      |
| Size 16 contacts                                     | 45 N                                                                                                                 |
| Size 20 and 22 contacts                              | 27 N                                                                                                                 |
| Resistance to solder heat                            | 260°C for 10 seconds duration per IEC 512-6, Test 12e, 25-watt soldering iron for other application contact factory  |
| <b>Sequential contact mating system</b>              |                                                                                                                      |
| CompactPCI 38 positions                              | First mate contact 36 and last mate contact positions 22, 25, and 28                                                 |
| CompactPCI 47 positions                              | First mate contact 45 and last mate contact position 27                                                              |
| Safety requirements                                  | Following size 16 contacts are recessed 5 mm below the face of the female insulator for safety requirements          |
| CompactPCI 38 positions                              | Contact positions 37 and 38                                                                                          |
| CompactPCI 47 positions                              | Contact positions 46 and 47                                                                                          |
| Compliant terminations press fit                     | Size 16, 20 and 22 contacts are available with compliant press fit compliant contact terminations                    |
| Printed board and panel mounting                     | Mounting holes provided in connector body for both printed board and panel mouting self-tapping screws are available |
| Mechanical operations                                | 250 cycles                                                                                                           |
| Working temperature                                  | -55°C to +125°C                                                                                                      |

Technical alterations are subjects to change without notice.

TECHNICAL DATA

| Materials                               |                                                                                        |
|-----------------------------------------|----------------------------------------------------------------------------------------|
| Insulator                               | Glass filled plastic, UL 94V-0                                                         |
| Contacts                                |                                                                                        |
| Materials                               | Copper alloy                                                                           |
| Plating for precision machined contacts | Gold flash over nickel/0,8 µm gold over nickel (press fit termination tin over nickel) |
| Plating for stamped and formed contacts | Gold flash over nickel/selective 0,8 µm gold over nickel                               |

| Electrical Characteristics                              |                                          |
|---------------------------------------------------------|------------------------------------------|
| Contact Current Ratings, per UL 1977                    |                                          |
| Mini Power 24 positions                                 |                                          |
| Size 16 power contacts:                                 |                                          |
| Positions 22, 23 and 24                                 | 45 A continuous, all contacts under load |
| Positions 1 to 6                                        | 35 A continuous, all contacts under load |
| Size 20 Signal Contacts                                 | 3 A nominal rating                       |
| Mini Power 26 positions                                 |                                          |
| Size 16 power contacts:                                 |                                          |
| Positions 22-26                                         | 34 A continuous, all contacts under load |
| Positions 1 to 6                                        | 34 A continuous, all contacts under load |
| Size 22 signal contacts                                 | 3 A nominal rating                       |
| Initial contact resistance (termination to termination) |                                          |
| Size 16 power contacts                                  | 0.0007 Ω maximum                         |
| Size 20 signal contacts                                 | 0.004 Ω maximum                          |
| Size 22 signal contacts                                 | 0.004 Ω maximum                          |
| Insulation Resistance                                   | 5 G Ω per IEC 512-2 Test 3a              |
| Voltage Proof                                           |                                          |
| Mini Power 24 positions                                 |                                          |
| Contacts 22, 23 and 24                                  | 3000 V r.m.s.                            |
| Contacts 1 to 6                                         | 1500 V r.m.s.                            |
| Contacts 2 to 21                                        | 1000 V r.m.s.                            |
| Mini Power 26 positions                                 |                                          |
| Size 16 power contacts:                                 |                                          |
| Contacts 1 to 6                                         | 1500 V r.m.s.                            |
| Contacts 7 to 21                                        | 1000 V r.m.s.                            |
| Creepage and clearance distance (minimum)               |                                          |
| Mini Power 24 positions                                 |                                          |
| Contact 24 to contact 22                                | 3.2 mm                                   |
| Contact 23 to contact 22                                | 3.2 mm                                   |
| Contact 24 to contact 23                                | 2.5 mm                                   |
| Contact 24 to signal contacts                           | 6.4 mm                                   |
| Contact 23 to signal contacts                           | 6.4 mm                                   |
| Contact 22 to signal contacts                           | 2.0 mm                                   |
| Mini Power 26 positions                                 |                                          |
| Contact 22 to signal contacts                           | 2.0 mm                                   |

Technical alterations are subjects to change without notice.

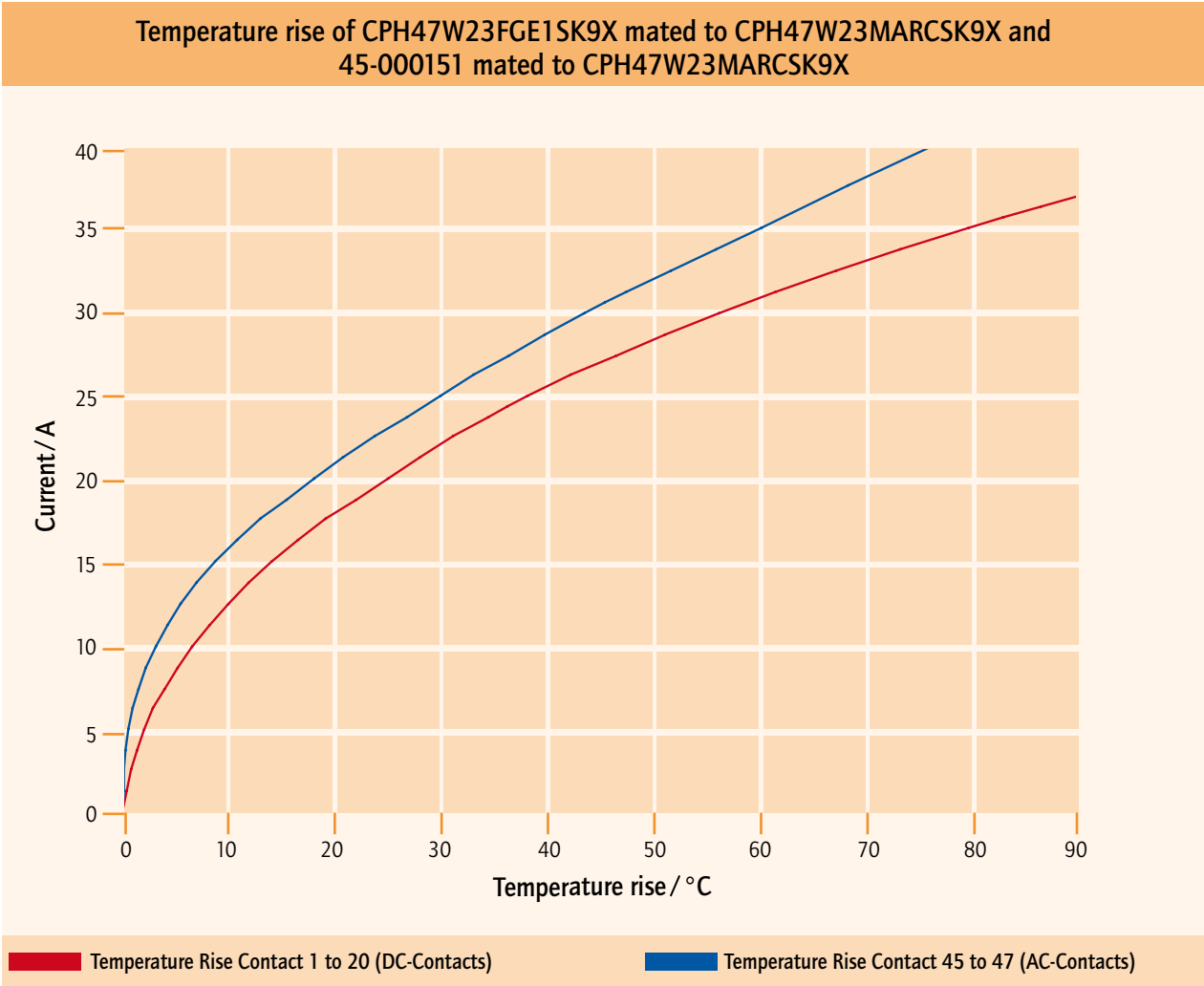
## TECHNICAL DATA

|                                |               |
|--------------------------------|---------------|
| <b>Working voltage</b>         |               |
| <b>Mini Power 24 positions</b> |               |
| Contacts 22, 23 and 24         | 1000 V r.m.s. |
| Contacts 1 to 6                | 500 V r.m.s.  |
| Contacts 7 to 21               | 333 V r.m.s.  |
| <b>Mini Power 26 positions</b> |               |
| Contacts 1 to 6 and 22 to 26   | 500 V r.m.s.  |
| Contacts 7 to 21               | 333 V r.m.s.  |

| Mechanical Characteristics              |                                                                                                                       |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| Blind mating system                     | Male and female connector bodies provide "lead-in" for 1.3 mm diametral misalignment                                  |
| Polarization                            | Provided by connector body design                                                                                     |
| Resistance to solder heat               | 260°C for 10 seconds duration per IEC 512-6, Test 12e, 25-watt soldering iron for other application contact factory   |
| <b>Sequential contact mating system</b> |                                                                                                                       |
| Mini Power 24 positions                 | First mate contact 22 and last mate contact position 7                                                                |
| Mini Power 26 positions                 | Last mate contact position 7                                                                                          |
| Safety requirements                     | Following size 16 contacts are recessed 5 mm below the face of the female insulator for safety requirements           |
| Mini Power 24 positions                 | Contact positions 23 and 24                                                                                           |
| Compliant terminations press fit        | Size 16 and 22 contacts are available with compliant contact terminations                                             |
| Printed board and panel mounting        | Mounting holes provided in connector body for both printed board and panel mounting self-tapping screws are available |
| Mechanical operations                   | 250 cycles                                                                                                            |
| Working temperature                     | -55°C to +125°C                                                                                                       |

Technical alterations are subjects to change without notice.

DIAGRAM

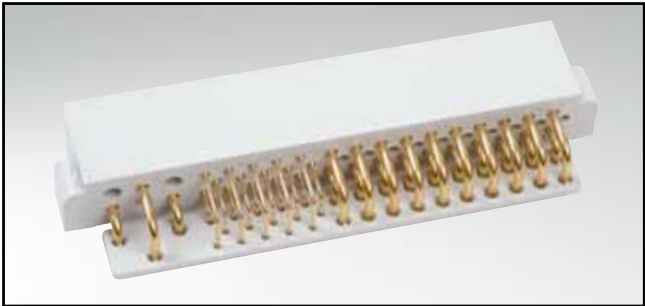


## CONVERSION TABLE

| $\mu\text{m}$<br>1/1000 mm | $\mu\text{inch}$<br>1/1000 inch | mm    | inch | mm    | inch | mm    | inch  | mm    | inch  | mm     | inch  |
|----------------------------|---------------------------------|-------|------|-------|------|-------|-------|-------|-------|--------|-------|
| 0,10                       | 4                               | 3,30  | .130 | 10,16 | .400 | 19,50 | .768  | 30,90 | 1.217 | 49,50  | 1.949 |
| 0,20                       | 8                               | 3,40  | .134 | 10,26 | .402 | 19,70 | .776  | 31,00 | 1.220 | 49,90  | 1.965 |
| 0,25                       | 10                              | 3,50  | .138 | 10,36 | .406 | 19,80 | .780  | 31,20 | 1.228 | 50,10  | 1.972 |
| 0,30                       | 12                              | 3,60  | .142 | 10,56 | .413 | 19,90 | .783  | 31,50 | 1.240 | 50,30  | 1.980 |
| 0,50                       | 20                              | 3,70  | .146 | 10,66 | .417 | 20,00 | .787  | 31,70 | 1.248 | 50,50  | 1.988 |
| 0,70                       | 28                              | 3,80  | .150 | 10,76 | .421 | 20,10 | .791  | 32,00 | 1.260 | 50,70  | 1.996 |
| 0,75                       | 30                              | 3,81  | .150 | 11,00 | .433 | 20,30 | .799  | 32,20 | 1.268 | 50,80  | 2.000 |
| 0,80                       | 32                              | 3,90  | .154 | 11,20 | .441 | 20,32 | .800  | 32,30 | 1.272 | 51,40  | 2.024 |
| 1,00                       | 39                              | 4,00  | .158 | 11,40 | .449 | 20,50 | .807  | 32,50 | 1.280 | 51,50  | 2.028 |
| 1,27                       | 50                              | 4,10  | .161 | 11,50 | .453 | 21,00 | .827  | 32,80 | 1.291 | 52,00  | 2.047 |
| 2,00                       | 79                              | 4,20  | .165 | 11,60 | .457 | 21,10 | .831  | 33,00 | 1.299 | 52,30  | 2.059 |
| 2,50                       | 98                              | 4,30  | .169 | 11,90 | .469 | 21,70 | .854  | 33,10 | 1.303 | 52,80  | 2.079 |
| 3,00                       | 118                             | 4,50  | .177 | 12,00 | .472 | 22,00 | .866  | 33,30 | 1.311 | 53,00  | 2.087 |
| 4,00                       | 157                             | 4,70  | .185 | 12,20 | .480 | 22,10 | .870  | 33,80 | 1.331 | 53,20  | 2.095 |
| 5,00                       | 197                             | 4,90  | .193 | 12,30 | .484 | 22,20 | .874  | 34,00 | 1.339 | 53,80  | 2.118 |
| <b>mm</b>                  | <b>inch</b>                     | 5,00  | .197 | 12,40 | .488 | 22,30 | .878  | 34,20 | 1.346 | 54,00  | 2.126 |
| 0,10                       | .004                            | 5,08  | .200 | 12,50 | .492 | 22,40 | .882  | 34,40 | 1.354 | 54,20  | 2.134 |
| 0,20                       | .008                            | 5,10  | .201 | 12,70 | .500 | 22,50 | .886  | 35,00 | 1.378 | 54,90  | 2.161 |
| 0,25                       | .012                            | 5,20  | .205 | 12,90 | .508 | 22,60 | .890  | 35,40 | 1.394 | 55,00  | 2.165 |
| 0,35                       | .014                            | 5,30  | .209 | 13,00 | .512 | 22,80 | .898  | 35,50 | 1.398 | 55,40  | 2.181 |
| 0,40                       | .016                            | 5,40  | .213 | 13,10 | .516 | 22,86 | .900  | 35,56 | 1.400 | 55,70  | 2.193 |
| 0,45                       | .018                            | 5,50  | .217 | 13,20 | .520 | 22,90 | .902  | 35,60 | 1.402 | 56,60  | 2.228 |
| 0,50                       | .020                            | 5,60  | .220 | 13,50 | .532 | 23,00 | .906  | 36,00 | 1.417 | 57,40  | 2.260 |
| 0,55                       | .022                            | 5,70  | .224 | 13,60 | .535 | 23,10 | .909  | 36,50 | 1.437 | 57,80  | 2.276 |
| 0,60                       | .024                            | 5,80  | .228 | 13,70 | .539 | 23,30 | .917  | 36,60 | 1.441 | 57,90  | 2.280 |
| 0,64                       | .025                            | 6,00  | .236 | 13,90 | .547 | 23,50 | .925  | 36,70 | 1.445 | 58,42  | 2.300 |
| 0,65                       | .026                            | 6,10  | .240 | 14,00 | .551 | 24,00 | .945  | 37,00 | 1.457 | 59,00  | 2.323 |
| 0,70                       | .028                            | 6,40  | .252 | 14,30 | .563 | 24,30 | .957  | 37,30 | 1.469 | 59,20  | 2.331 |
| 0,75                       | .030                            | 6,50  | .256 | 14,40 | .567 | 24,60 | .969  | 37,50 | 1.476 | 59,80  | 2.354 |
| 0,80                       | .032                            | 6,60  | .260 | 14,50 | .571 | 24,90 | .980  | 37,60 | 1.480 | 59,90  | 2.358 |
| 0,85                       | .034                            | 6,70  | .264 | 14,70 | .579 | 25,00 | .984  | 37,70 | 1.484 | 60,00  | 2.362 |
| 0,90                       | .035                            | 6,80  | .268 | 14,80 | .583 | 25,10 | .998  | 37,90 | 1.492 | 60,96  | 2.400 |
| 1,00                       | .039                            | 6,90  | .272 | 14,90 | .587 | 25,40 | 1.000 | 38,00 | 1.496 | 61,10  | 2.406 |
| 1,20                       | .047                            | 7,00  | .276 | 14,98 | .590 | 25,60 | 1.008 | 38,10 | 1.500 | 62,00  | 2.441 |
| 1,25                       | .049                            | 7,10  | .280 | 15,00 | .591 | 25,90 | 1.020 | 39,00 | 1.535 | 63,00  | 2.480 |
| 1,27                       | .050                            | 7,20  | .283 | 15,20 | .598 | 26,00 | 1.024 | 39,20 | 1.543 | 63,50  | 2.500 |
| 1,30                       | .051                            | 7,40  | .291 | 15,24 | .600 | 26,30 | 1.035 | 39,30 | 1.547 | 64,00  | 2.520 |
| 1,35                       | .053                            | 7,50  | .295 | 15,40 | .606 | 26,60 | 1.047 | 39,90 | 1.571 | 65,00  | 2.560 |
| 1,40                       | .055                            | 7,60  | .299 | 15,50 | .610 | 26,70 | 1.051 | 40,00 | 1.575 | 67,00  | 2.638 |
| 1,45                       | .057                            | 7,62  | .300 | 15,60 | .614 | 27,00 | 1.063 | 40,30 | 1.587 | 68,00  | 2.677 |
| 1,50                       | .059                            | 7,70  | .303 | 15,90 | .626 | 27,20 | 1.071 | 40,40 | 1.591 | 69,00  | 2.717 |
| 1,60                       | .063                            | 7,80  | .307 | 16,00 | .630 | 27,40 | 1.079 | 40,60 | 1.598 | 70,00  | 2.756 |
| 1,70                       | .067                            | 7,98  | .314 | 16,20 | .638 | 27,50 | 1.093 | 41,00 | 1.614 | 71,00  | 2.795 |
| 1,80                       | .071                            | 8,00  | .315 | 16,50 | .650 | 27,90 | 1.098 | 41,60 | 1.638 | 74,00  | 2.913 |
| 1,85                       | .073                            | 8,18  | .318 | 16,60 | .654 | 27,94 | 1.100 | 42,70 | 1.681 | 75,00  | 2.953 |
| 1,90                       | .075                            | 8,20  | .323 | 16,80 | .661 | 28,00 | 1.102 | 43,18 | 1.700 | 76,20  | 3.000 |
| 2,00                       | .079                            | 8,30  | .327 | 17,00 | .669 | 28,20 | 1.110 | 44,20 | 1.740 | 77,00  | 3.032 |
| 2,10                       | .083                            | 8,40  | .331 | 17,20 | .677 | 28,50 | 1.122 | 44,80 | 1.764 | 78,74  | 3.100 |
| 2,20                       | .087                            | 8,50  | .335 | 17,30 | .681 | 28,70 | 1.130 | 45,80 | 1.803 | 80,00  | 3.150 |
| 2,30                       | .091                            | 8,60  | .339 | 17,50 | .689 | 29,00 | 1.142 | 46,30 | 1.823 | 81,28  | 3.200 |
| 2,40                       | .095                            | 8,90  | .350 | 17,60 | .693 | 29,20 | 1.150 | 46,70 | 1.839 | 84,00  | 3.307 |
| 2,50                       | .098                            | 9,00  | .354 | 17,70 | .697 | 29,40 | 1.158 | 47,00 | 1.850 | 85,00  | 3.346 |
| 2,54                       | .100                            | 9,10  | .358 | 17,78 | .700 | 29,50 | 1.161 | 47,20 | 1.858 | 86,36  | 3.400 |
| 2,60                       | .102                            | 9,20  | .362 | 17,80 | .701 | 29,70 | 1.169 | 47,30 | 1.862 | 88,90  | 3.500 |
| 2,70                       | .106                            | 9,30  | .366 | 17,90 | .705 | 29,90 | 1.177 | 47,50 | 1.870 | 90,00  | 3.543 |
| 2,80                       | .110                            | 9,40  | .370 | 18,00 | .709 | 30,00 | 1.181 | 47,80 | 1.882 | 91,44  | 3.600 |
| 2,84                       | .112                            | 9,50  | .374 | 18,10 | .713 | 30,20 | 1.189 | 48,00 | 1.890 | 94,00  | 3.701 |
| 2,90                       | .114                            | 9,60  | .378 | 18,30 | .721 | 30,40 | 1.197 | 48,10 | 1.894 | 95,00  | 3.740 |
| 3,00                       | .118                            | 9,70  | .382 | 18,60 | .732 | 30,48 | 1.200 | 48,26 | 1.900 | 100,00 | 3.937 |
| 3,10                       | .122                            | 9,90  | .390 | 19,00 | .748 | 30,50 | 1.201 | 48,80 | 1.921 | 110,00 | 4.331 |
| 3,20                       | .126                            | 10,00 | .395 | 19,20 | .756 | 30,80 | 1.213 | 49,10 | 1.933 | 120,00 | 4.724 |

# COMPACTPCI

Male connector – solder pin – angled – precision machined contacts – 38 positions

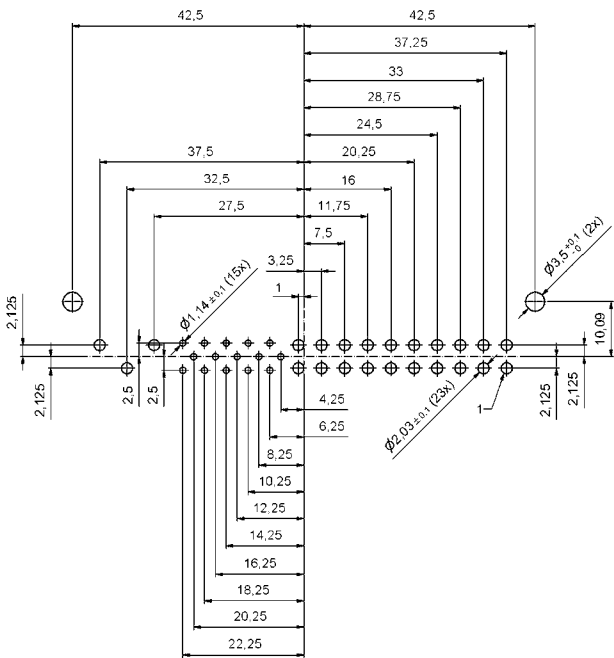
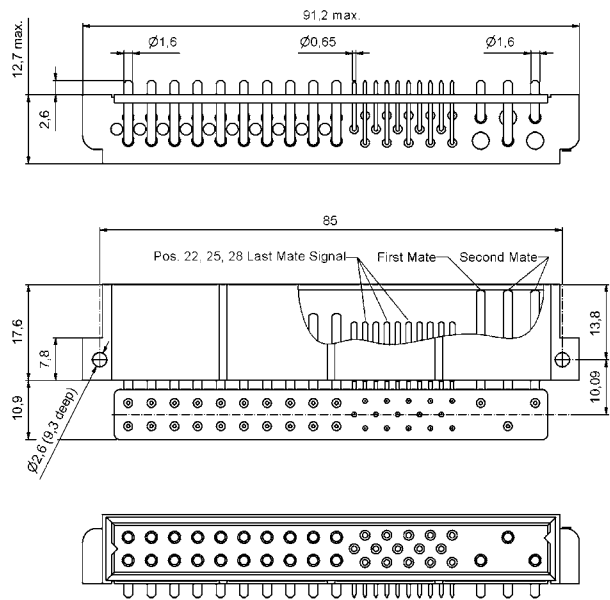


RoHS compliant – UL listed, File no.: E228329

- DESCRIPTION**
- Signal and power contacts
  - 38 contacts, 15x signal/23x power
  - Sequential mating
  - Contact plating quality class 1 or alternative quality class 3
  - Special contact loadings possible on request

**PRODUCT DRAWING**

PCB-hole pattern

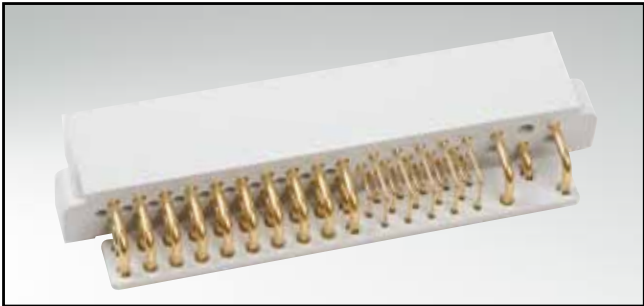


**ORDER DATA** (Dim. = mm)

| Number of positions | Contacts             | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0.8µm Au mating area) |
|---------------------|----------------------|---------------------------------------------|-------------------------------------------------------|
| 38                  | 15x signal/23x power | CPH38 W23 MARASK9 X                         | CPH38 W23 MARCSK9 X                                   |

# COMPACTPCI

Male connector – solder pin – angled – precision machined contacts – 38 positions



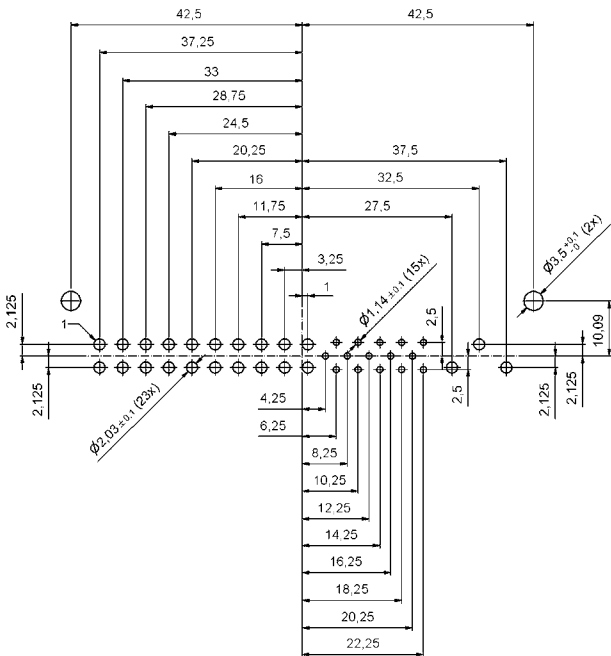
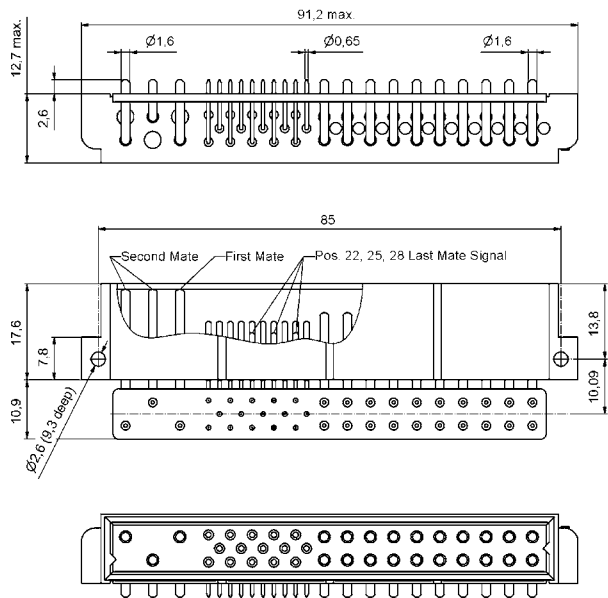
RoHS compliant – UL listed, File no.: E228329

DESCRIPTION

- Signal and power contacts
- 38 contacts, 15x signal / 23x power
- Sequential mating
- Contact plating quality class 1 or alternative quality class 3
- Inverted version
- Special contact loadings possible on request

PRODUCT DRAWING

PCB-hole pattern



ORDER DATA

| Number of positions | Contacts               | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0.8µm Au mating area) |
|---------------------|------------------------|---------------------------------------------|-------------------------------------------------------|
| 38                  | 15x signal / 23x power | CPH38 W23 MARARK9 X                         | CPH38 W23 MARCRK9 X                                   |

# COMPACTPCI

Male connector – solder pin – angled – precision machined contacts – 47 positions

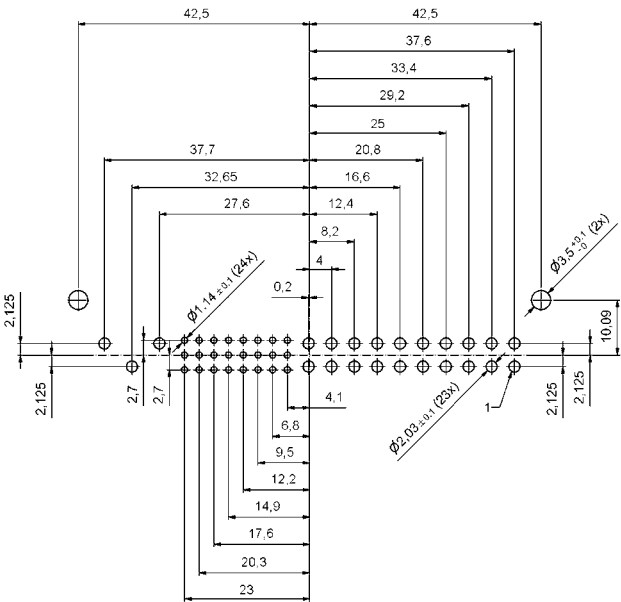
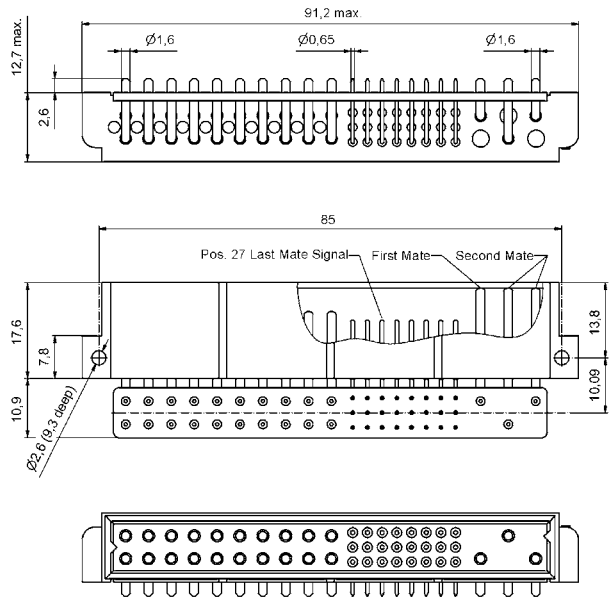


RoHS compliant – UL listed, File no.: E228329

- DESCRIPTION**
- Signal and power contacts
  - 47 contacts, 24x signal / 23x power
  - Sequential mating
  - Contact plating quality class 1 or alternative quality class 3
  - Special contact loadings possible on request

**PRODUCT DRAWING**

**PCB-hole pattern**

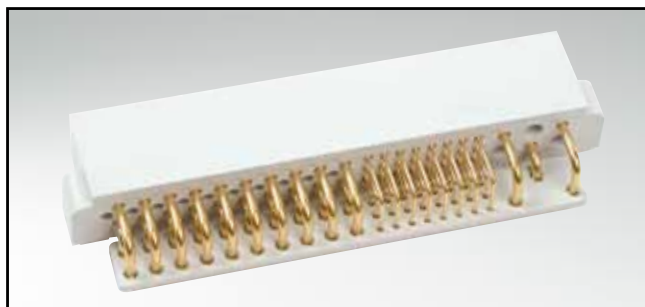


**ORDER DATA** (Dim. = mm)

| Number of positions | Contacts               | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0.8µm Au mating area) |
|---------------------|------------------------|---------------------------------------------|-------------------------------------------------------|
| 47                  | 24x signal / 23x power | CPH47 W23 MARASK9 X                         | CPH47 W23 MARCSK9 X                                   |

# COMPACTPCI

Male connector – solder pin – angled – precision machined contacts – 47 positions

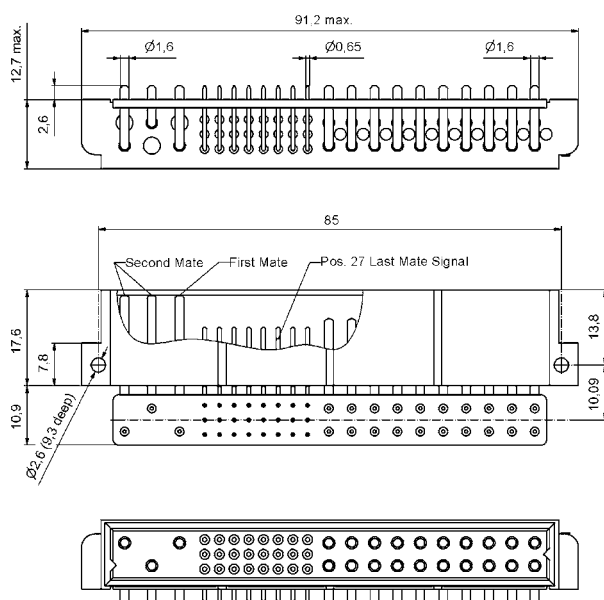


RoHS compliant – UL listed, File no.: E228329

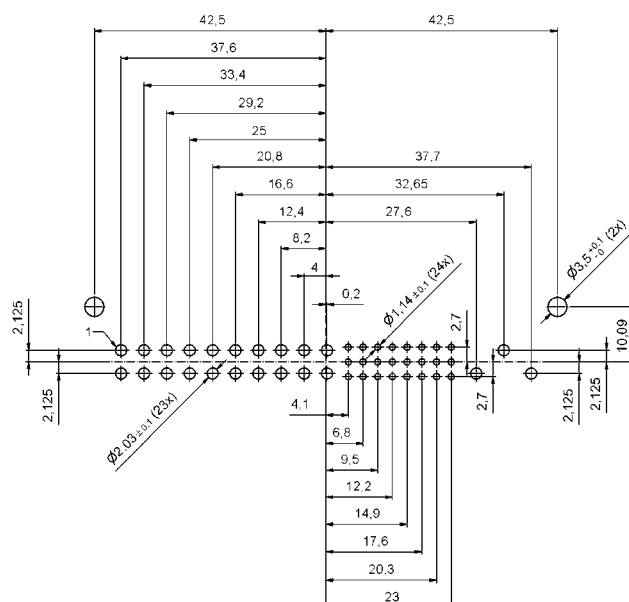
## DESCRIPTION

- Signal and power contacts
- 47 contacts, 24x signal / 23x power
- Sequential mating
- Contact plating quality class 1 or alternative quality class 3
- **Inverted version**
- Special contact loadings possible on request

## PRODUCT DRAWING



## PCB-hole pattern



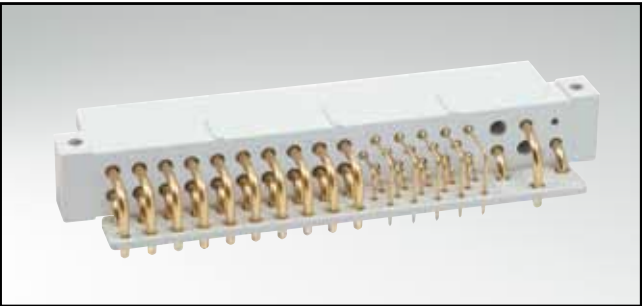
## ORDER DATA

(Dim. = mm)

| Number of positions | Contacts               | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0.8µm Au mating area) |
|---------------------|------------------------|---------------------------------------------|-------------------------------------------------------|
| 47                  | 24x signal / 23x power | CPH47 W23 MARARK9 X                         | CPH47 W23 MARCRK9 X                                   |

# COMPACTPCI

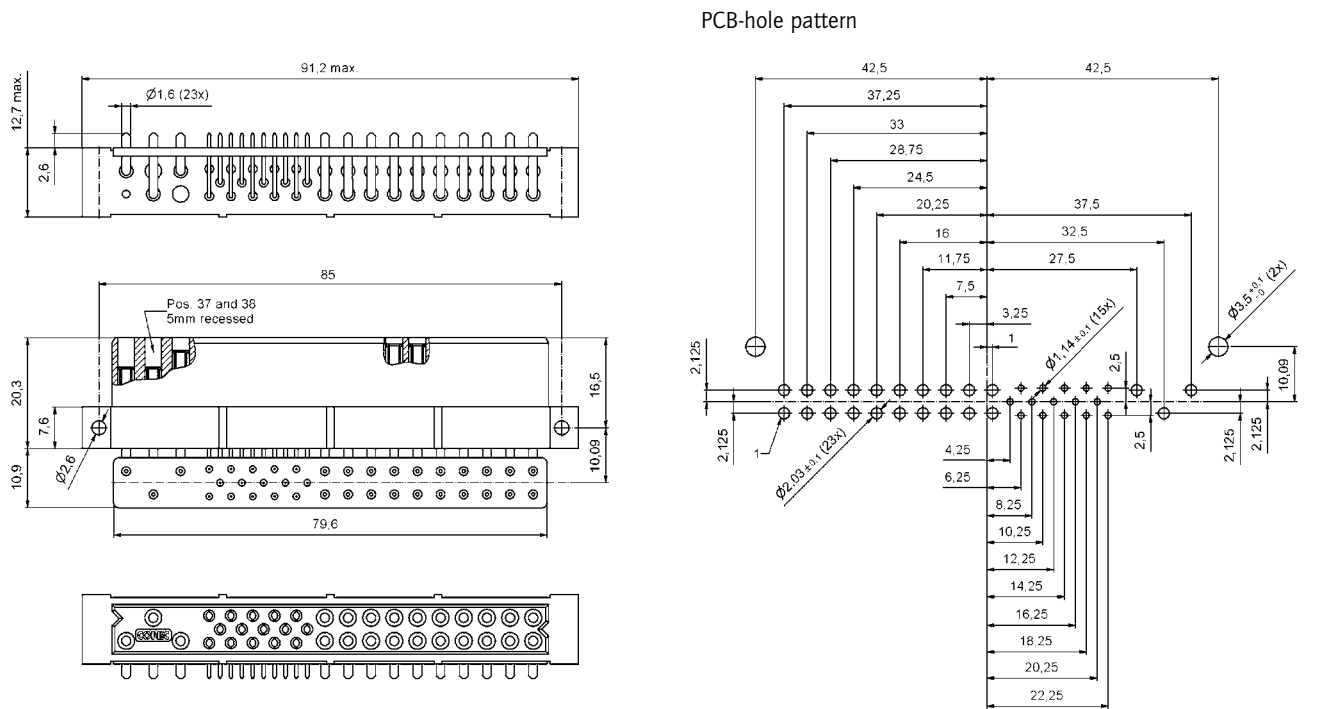
Female connector – angled – precision machined contacts – 38 positions



RoHS compliant – UL listed, File no.: E228329

- DESCRIPTION**
- Signal and power contacts
  - 38 contacts, 15x signal / 23x power
  - Sequential mating
  - Contact plating quality class 1 or alternative quality class 3
  - Special contact loadings possible on request

**PRODUCT DRAWING**

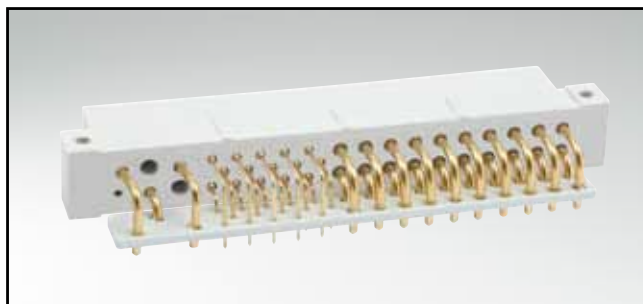


**ORDER DATA** (Dim. = mm)

| Number of positions | Contacts               | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0.8µm Au mating area) |
|---------------------|------------------------|---------------------------------------------|-------------------------------------------------------|
| 38                  | 15x signal / 23x power | CPH38 W23 FARASK9 X                         | CPH38 W23 FARCSK9 X                                   |

# COMPACTPCI

Female connector – solder pin – angled – precision machined contacts – 38 positions

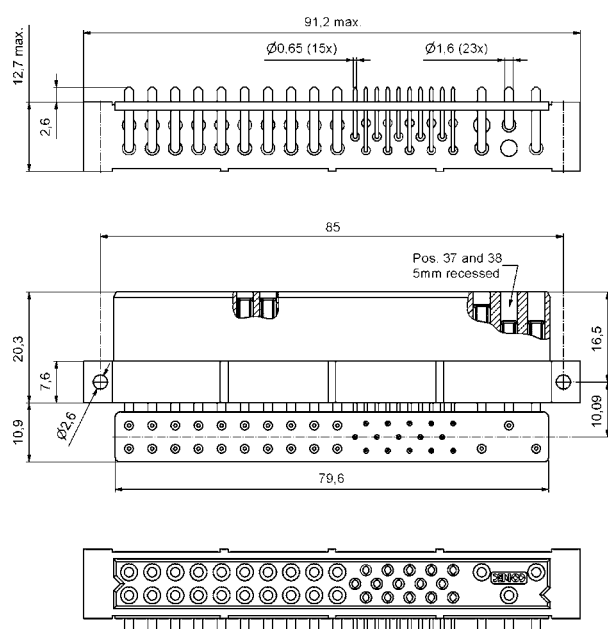


RoHS compliant – UL listed, File no.: E228329

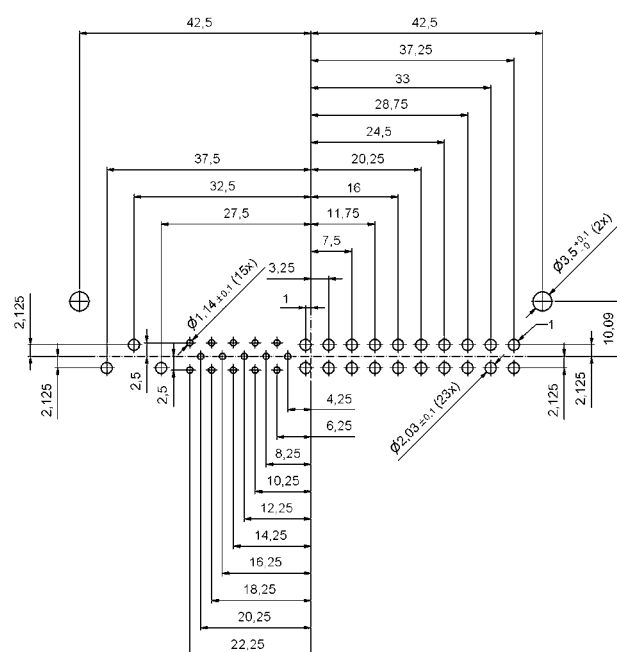
## DESCRIPTION

- Signal and power contacts
- 38 contacts, 15x signal / 23x power
- Sequential mating
- Contact plating quality class 1 or alternative quality class 3
- **Inverted version**
- Special contact loadings possible on request

## PRODUCT DRAWING



## PCB-hole pattern



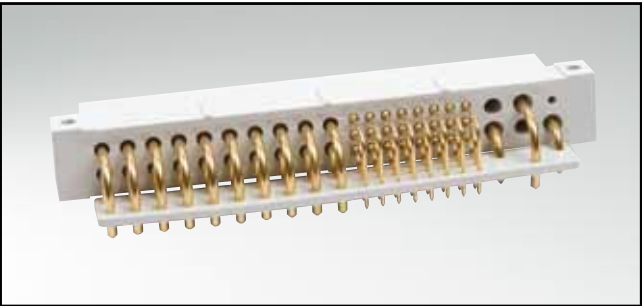
(Dim. = mm)

## ORDER DATA

| Number of positions | Contacts               | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0.8µm Au mating area) |
|---------------------|------------------------|---------------------------------------------|-------------------------------------------------------|
| 38                  | 15x signal / 23x power | CPH38 W23 FARARK9 X                         | CPH38 W23 FARCRK9 X                                   |

# COMPACTPCI

Female connector – angled – precision machined contacts – 47 positions

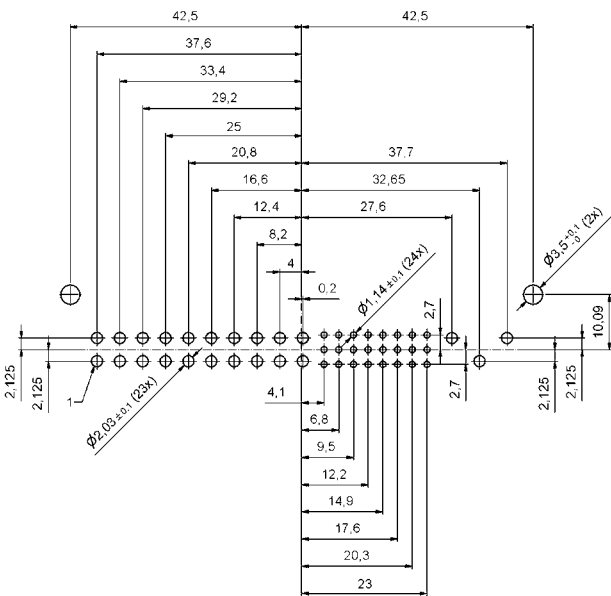
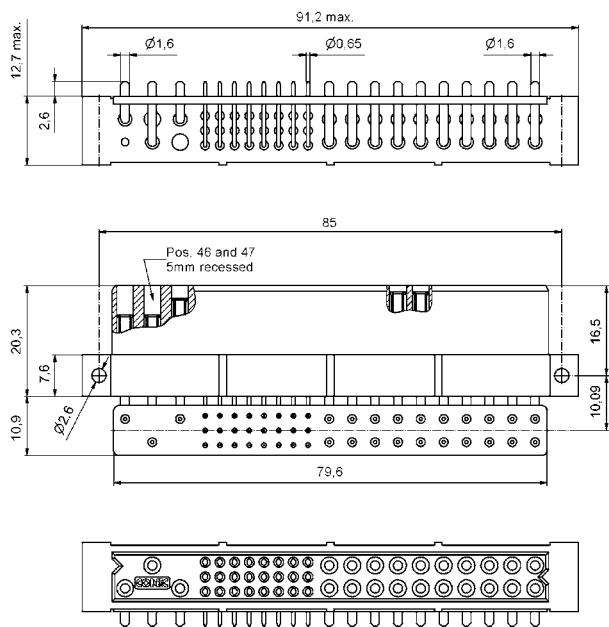


RoHS compliant – UL listed, File no.: E228329

- DESCRIPTION**
- Signal and power contacts
  - 47 contacts, 24x signal / 23x power
  - Sequential mating
  - Contact plating quality class 1 or alternative quality class 3
  - Special contact loadings possible on request

**PRODUCT DRAWING**

**PCB-hole pattern**



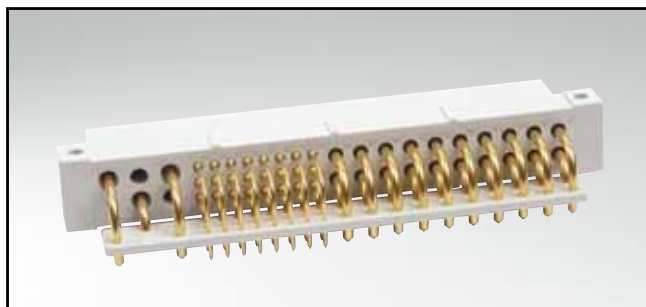
**ORDER DATA**

(Dim. = mm)

| Number of positions | Contacts               | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0.8µm Au mating area) |
|---------------------|------------------------|---------------------------------------------|-------------------------------------------------------|
| 47                  | 24x signal / 23x power | CPH47 W23 FARASK9 X                         | CPH47 W23 FARCSK9 X                                   |

## COMPACTPCI

Female connector – angled – precision machined contacts – 47 positions

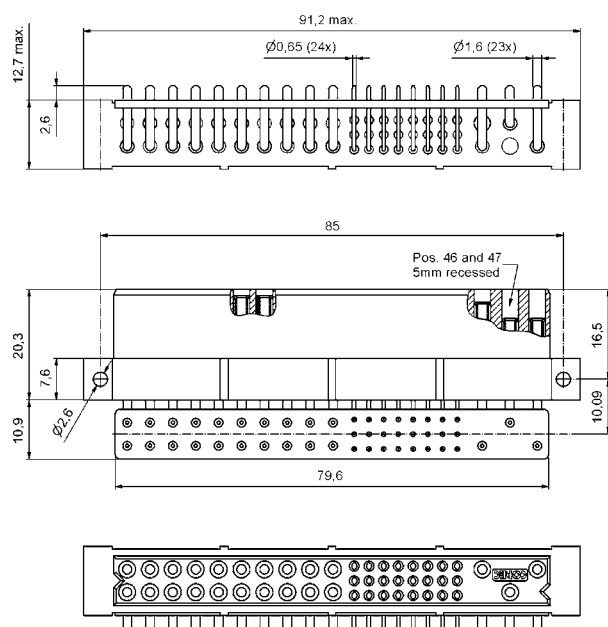


RoHS compliant – UL listed, File no.: E228329

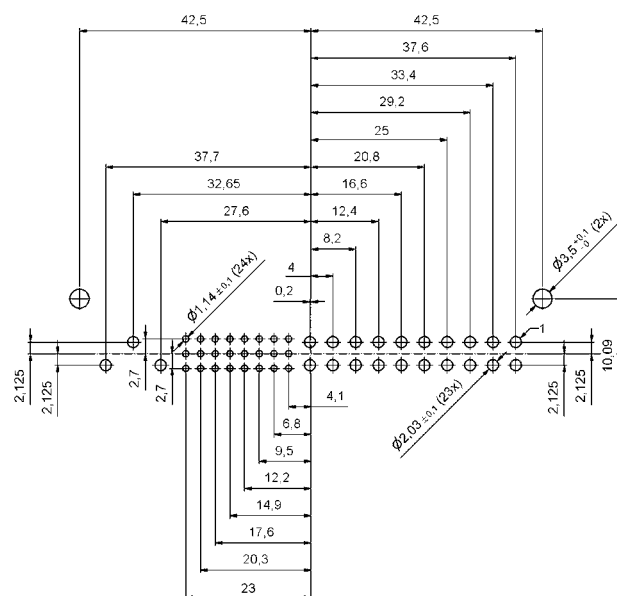
### DESCRIPTION

- Signal and power contacts
- 47 contacts, 24x signal / 23x power
- Sequential mating
- Contact plating quality class 1 or alternative quality class 3
- **Inverted version**
- Special contact loadings possible on request

## PRODUCT DRAWING



## PCB-hole pattern



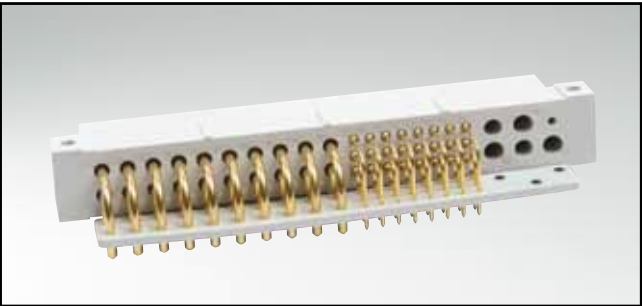
## ORDER DATA

(Dim. = mm)

| Number of positions | Contacts               | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0.8µm Au mating area) |
|---------------------|------------------------|---------------------------------------------|-------------------------------------------------------|
| 47                  | 24x signal / 23x power | CPH47 W23 FARARK9 X                         | CPH47 W23 FARCRK9 X                                   |

# COMPACTPCI

Female connector – angled – precision machined contacts – 47 positions

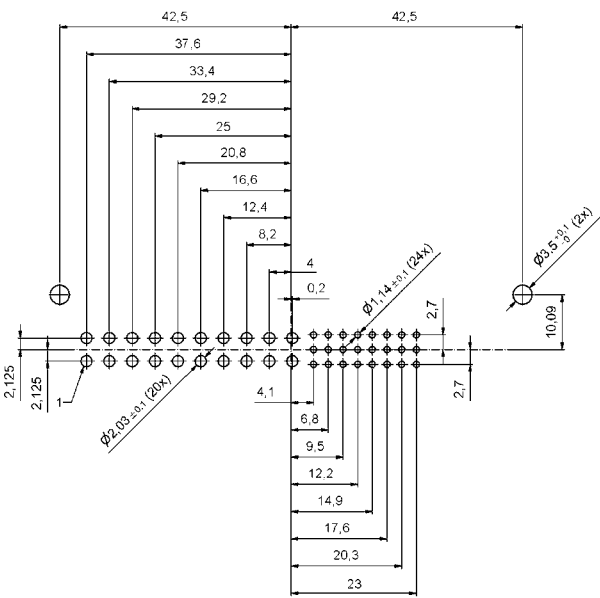
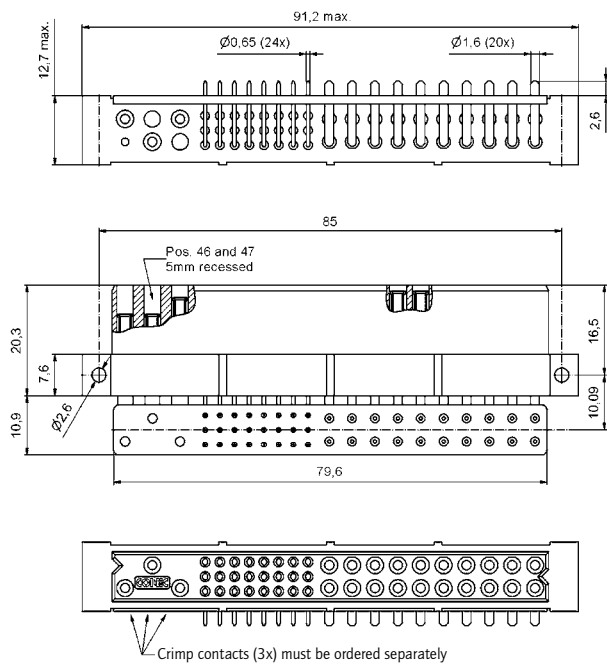


RoHS compliant – UL listed, File no.: E228329

- DESCRIPTION**
- Signal and power contacts
  - Selectively loaded with 24x signal / 20x power
  - Position 45 to 47 for crimp contacts (page 3 | 36)
  - Contact plating quality class 1 or alternative quality class 3
  - Special contact loadings possible on request

**PRODUCT DRAWING**

**PCB-hole pattern**



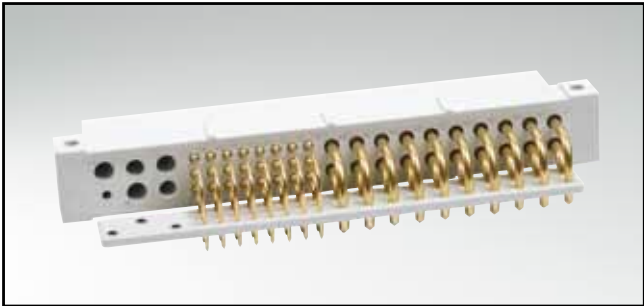
**ORDER DATA**

(Dim. = mm)

| Number of positions | Contacts               | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0.8µm Au mating area) |
|---------------------|------------------------|---------------------------------------------|-------------------------------------------------------|
| 47                  | 24x signal / 20x power | CPH47 W23 FARASN9 X                         | CPH47 W23 FARCSN9 X                                   |

# COMPACTPCI

Female connector – angled – precision machined contacts – 47 positions

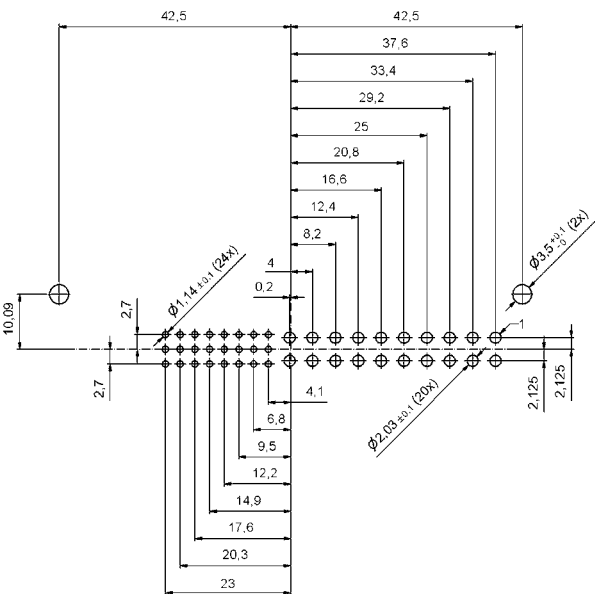
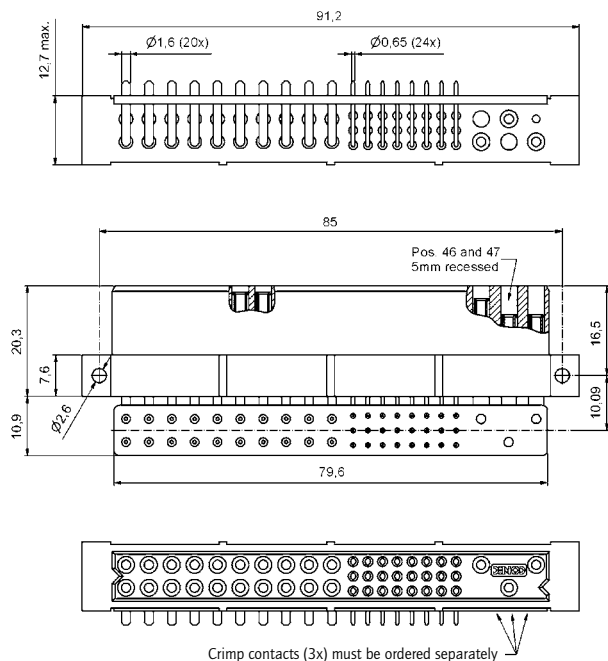


RoHS compliant – UL listed, File no.: E228329

- DESCRIPTION**
- Signal and power contacts
  - Selectively loaded with 24x signal / 20x power
  - Position 45 to 47 for crimp contacts (page 3 | 36)
  - Contact plating quality class 1 or alternative quality class 3
  - **Inverted version**
  - Special contact loadings possible on request

**PRODUCT DRAWING**

PCB-hole pattern



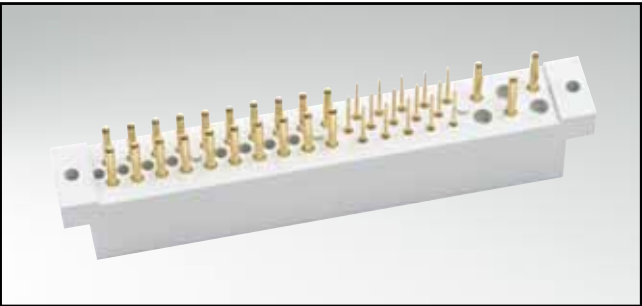
**ORDER DATA**

(Dim. = mm)

| Number of positions | Contacts               | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0.8µm Au mating area) |
|---------------------|------------------------|---------------------------------------------|-------------------------------------------------------|
| 47                  | 24x signal / 20x power | CPH47 W23 FARARN9 X                         | CPH47 W23 FARCRN9 X                                   |

# COMPACTPCI

Male connector – solder pin – straight – precision machined contacts – 38 positions

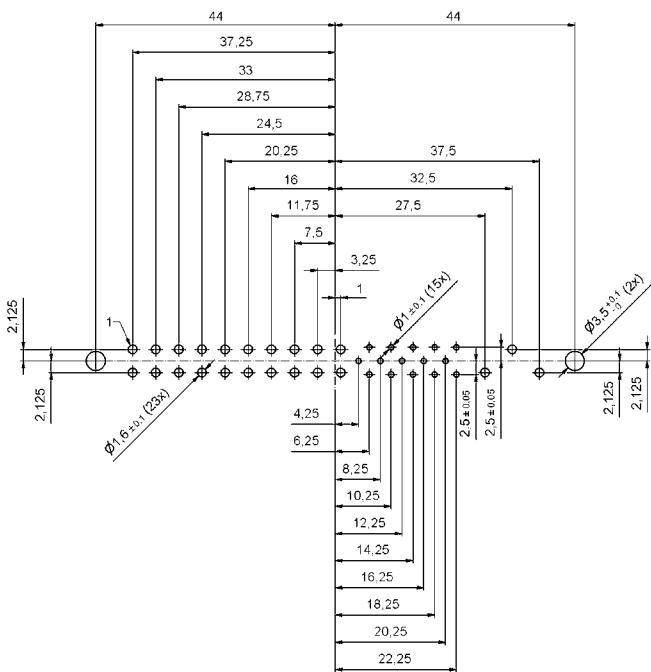
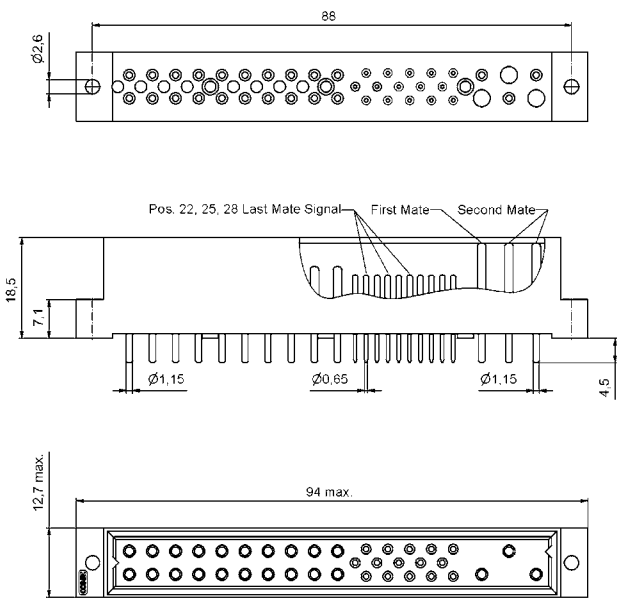


RoHS compliant – UL listed, File no.: E228329

- DESCRIPTION**
- Signal and power contacts
  - 38 contacts, 15x signal / 23x power
  - Sequential mating
  - Contact plating quality class 1 or alternative quality class 3
  - Special contact loadings possible on request

**PRODUCT DRAWING**

PCB-hole pattern



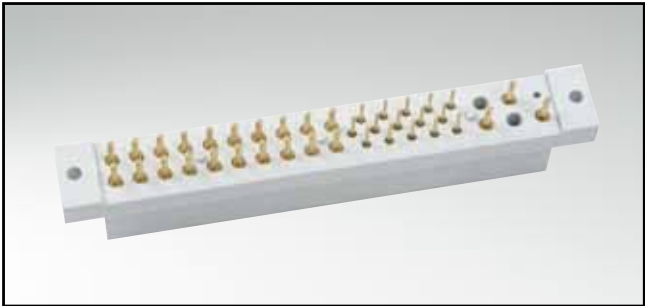
**ORDER DATA** (Dim. = mm)

| Number of positions | Contacts               | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0.8µm Au mating area) |
|---------------------|------------------------|---------------------------------------------|-------------------------------------------------------|
| 38                  | 15x signal / 23x power | CPH38 W23 MGRASK9 X                         | CPH38 W23 MGRCSK9 X                                   |



# COMPACTPCI

Female connector – solder pin – straight – precision machined contacts – 38 positions

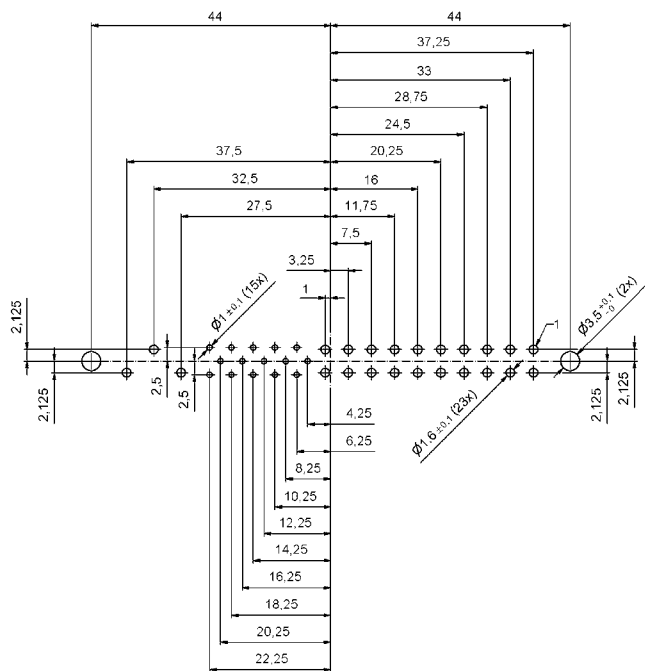
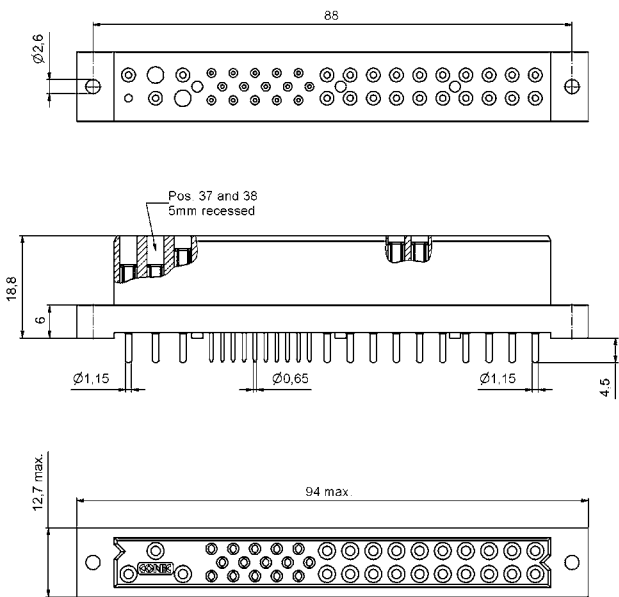


RoHS compliant – UL listed, File no.: E228329

- DESCRIPTION**
- Signal and power contacts
  - 38 contacts, 15x signal / 23x power
  - Sequential mating
  - Contact plating quality class 1 or alternative quality class 3
  - Special contact loadings possible on request

**PRODUCT DRAWING**

PCB-hole pattern

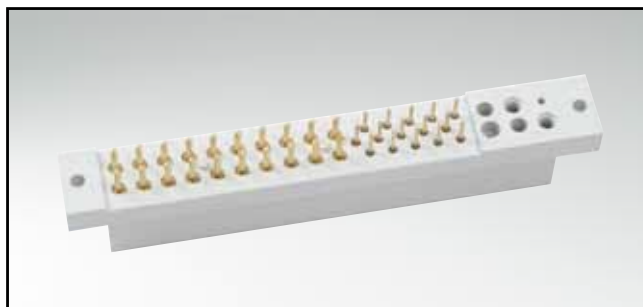


**ORDER DATA** (Dim. = mm)

| Number of positions | Contacts               | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0.8µm Au mating area) |
|---------------------|------------------------|---------------------------------------------|-------------------------------------------------------|
| 38                  | 15x signal / 23x power | CPH38 W23 FGRASK9 X                         | CPH38 W23 FGRCCK9 X                                   |

# COMPACTPCI

Female connector – solder pin – straight – precision machined contacts – 38 positions



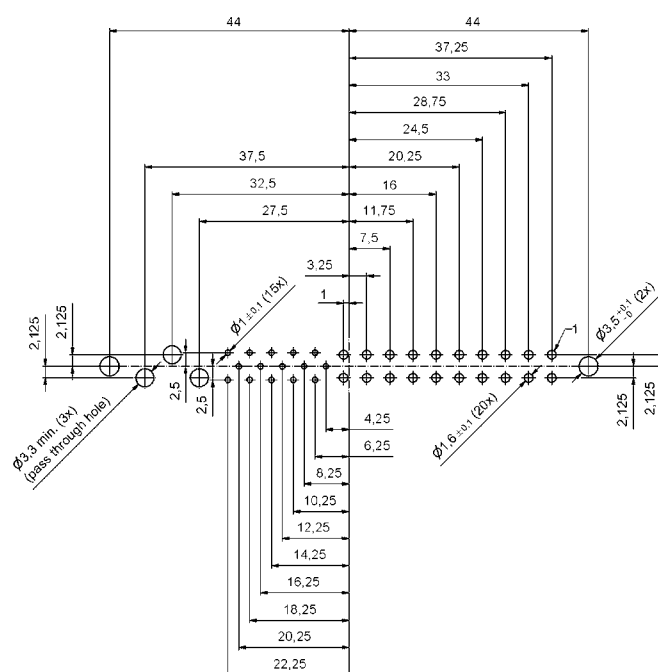
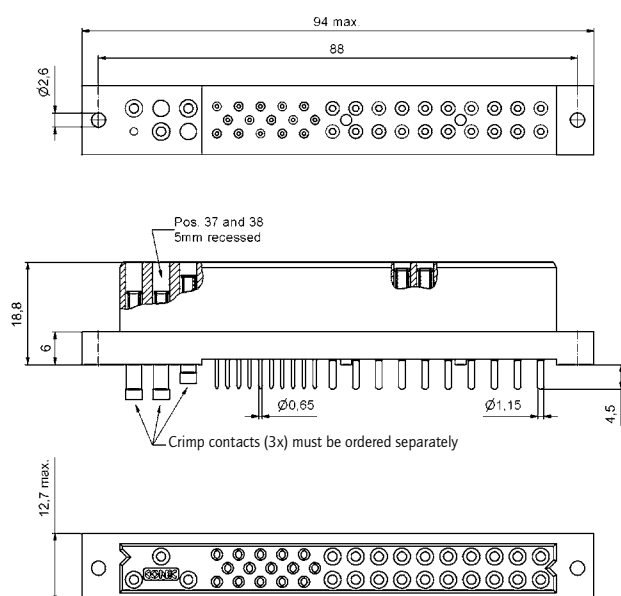
RoHS compliant – UL listed, File no.: E228329

## DESCRIPTION

- Signal and power contacts
- Selectively loaded with 15x signal / 20x power
- Position 36 to 38 for crimp contacts (page 3 | 36)
- Contact plating quality class 1 or alternative quality class 3
- "Low Profile" area for crimp contacts
- Special contact loadings possible on request

## PRODUCT DRAWING

### PCB-hole pattern



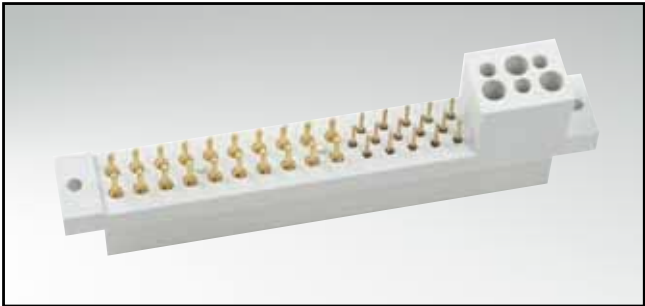
(Dim. = mm)

## ORDER DATA

| Number of positions | Contacts               | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0.8µm Au mating area) |
|---------------------|------------------------|---------------------------------------------|-------------------------------------------------------|
| 38                  | 15x signal / 20x power | CPH38 W23 FGRASN9 X                         | CPH38 W23 FGRCNS9 X                                   |

# COMPACTPCI

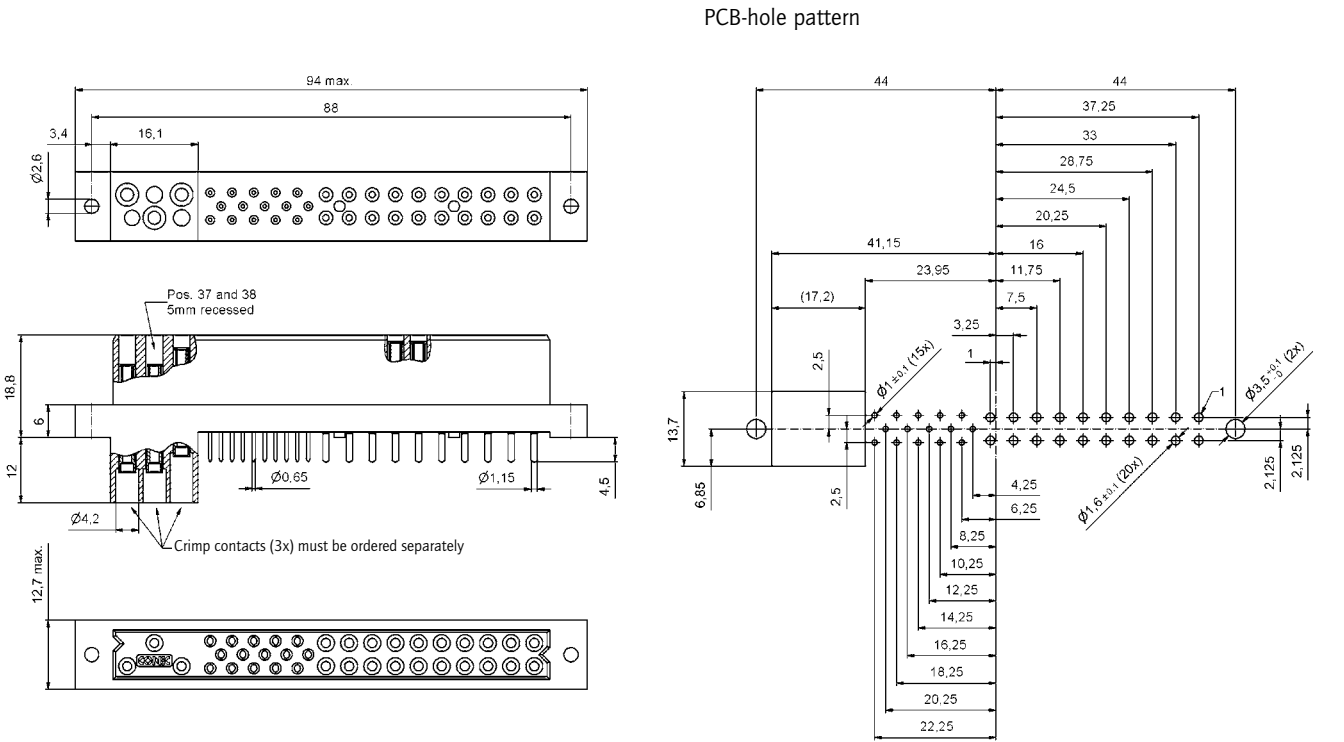
Female connector – solder pin – straight – precision machined contacts – 38 positions



RoHS compliant – UL listed, File no.: E228329

- DESCRIPTION**
- Signal and power contacts
  - Selectively loaded with 15x signal / 20x power
  - Position 36 to 38 for crimp contacts (page 3 | 36)
  - Contact plating quality class 1 or alternative quality class 3
  - "High Profile", insulation support for crimp contacts
  - Special contact loadings possible on request

**PRODUCT DRAWING**

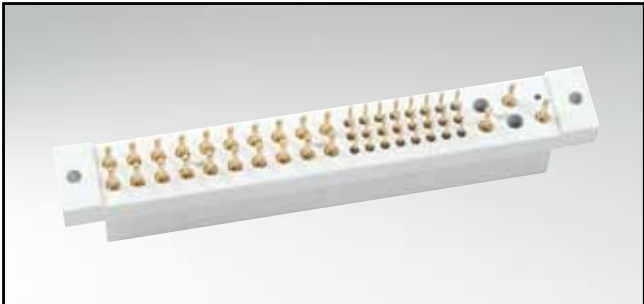


**ORDER DATA** (Dim. = mm)

| Number of positions | Contacts               | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0.8µm Au mating area) |
|---------------------|------------------------|---------------------------------------------|-------------------------------------------------------|
| 38                  | 15x signal / 20x power | CPH38 W23 FGRASH9 X                         | CPH38 W23 FGRC9H9 X                                   |

# COMPACTPCI

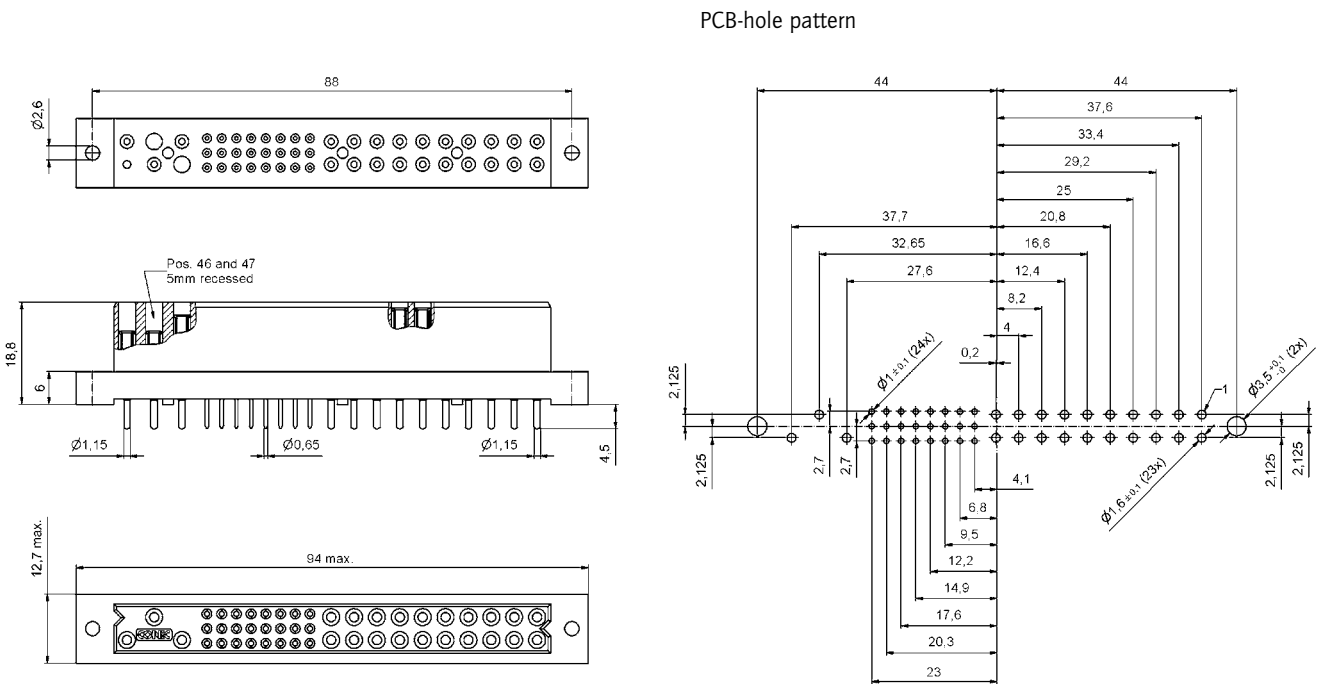
Female connector – solder pin – straight – precision machined contacts – 47 positions



RoHS compliant – UL listed, File no.: E228329

- DESCRIPTION**
- Signal and power contacts
  - 47 contacts, 24x signal / 23x power
  - Sequential mating
  - Contact plating quality class 1 or alternative quality class 3
  - Special contact loadings possible on request

**PRODUCT DRAWING**

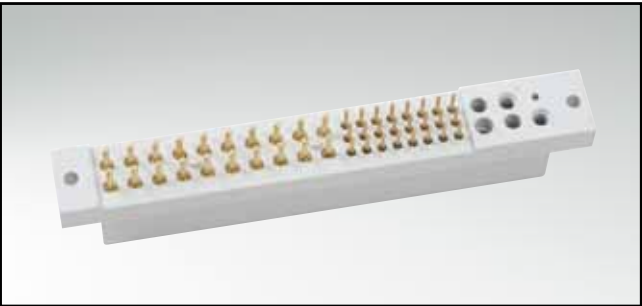


**ORDER DATA** (Dim. = mm)

| Number of positions | Contacts               | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0.8µm Au mating area) |
|---------------------|------------------------|---------------------------------------------|-------------------------------------------------------|
| 47                  | 24x signal / 23x power | CPH47 W23 FGRASK9 X                         | CPH47 W23 FGRCCK9 X                                   |

# COMPACTPCI

Female connector – solder pin – straight – precision machined contacts – 47 positions

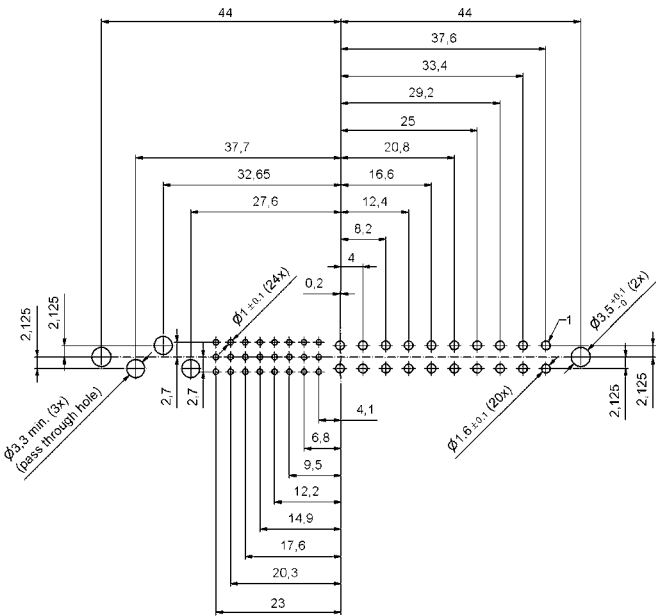
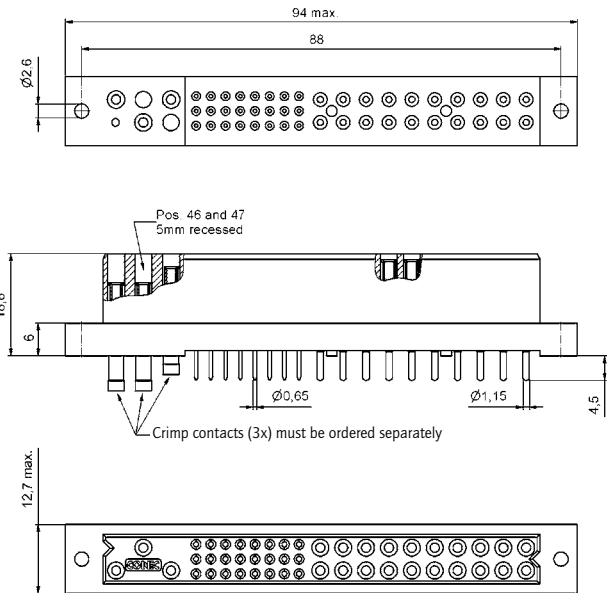


RoHS compliant – UL listed, File no.: E228329

- DESCRIPTION**
- Signal and power contacts
  - Selectively loaded with 24x signal / 20x power
  - Position 45 to 47 for crimp contacts (page 3 | 36)
  - Contact plating quality class 1 or alternative quality class 3
  - "Low Profile" area for crimp contacts
  - Special contact loadings possible on request

**PRODUCT DRAWING**

PCB-hole pattern



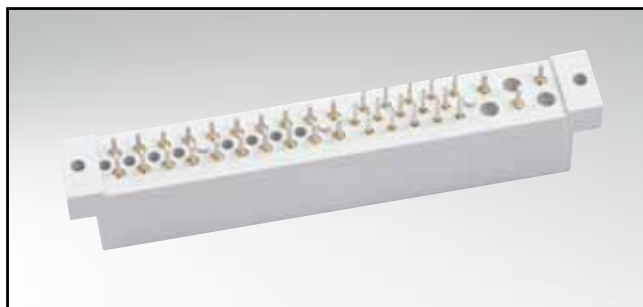
**ORDER DATA**

(Dim. = mm)

| Number of positions | Contacts               | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0.8µm Au mating area) |
|---------------------|------------------------|---------------------------------------------|-------------------------------------------------------|
| 47                  | 24x signal / 20x power | CPH47 W23 FGRASN9 X                         | CPH47 W23 FGRCNS9 X                                   |

# COMPACTPCI

Male connector – press fit – straight – precision machined contacts – 38 positions

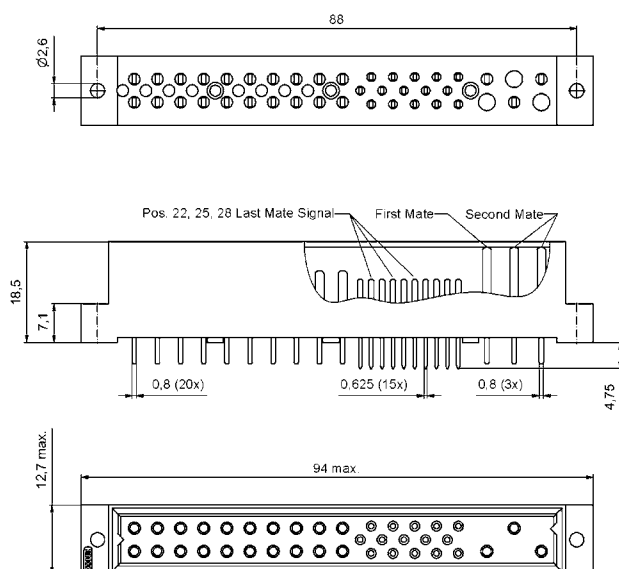


RoHS compliant – UL listed, File no.: E228329

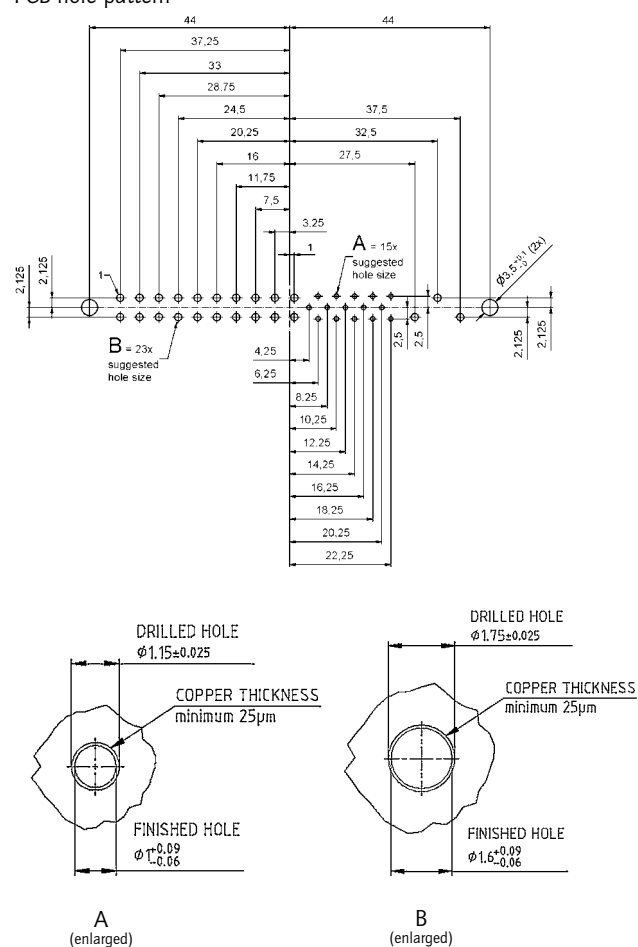
## DESCRIPTION

- Signal and power contacts
- 38 contacts, 15x signal / 23x power
- Sequential mating
- Eye of needle press fit design, tin plated
- Precision machined contact for the mating area
- Contact plating quality class 1 or alternative quality class 3
- Special contact loadings possible on request

## PRODUCT DRAWING



## PCB-hole pattern



(Dim. = mm)

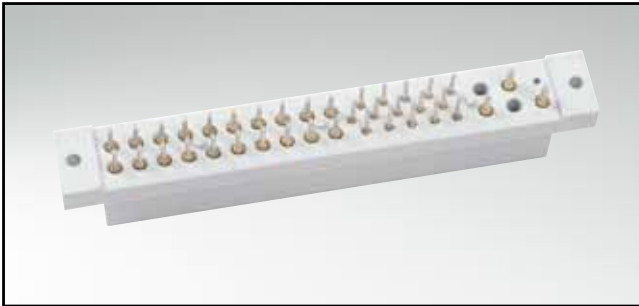
## ORDER DATA

| Number of positions | Contacts               | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0.8µm Au mating area) |
|---------------------|------------------------|---------------------------------------------|-------------------------------------------------------|
| 38                  | 15x signal / 23x power | CPH38 W23 MGE3SK9 X                         | CPH38 W23 MGE1SK9 X                                   |



# COMPACTPCI

Female connector – press fit – straight – precision machined contacts – 38 positions

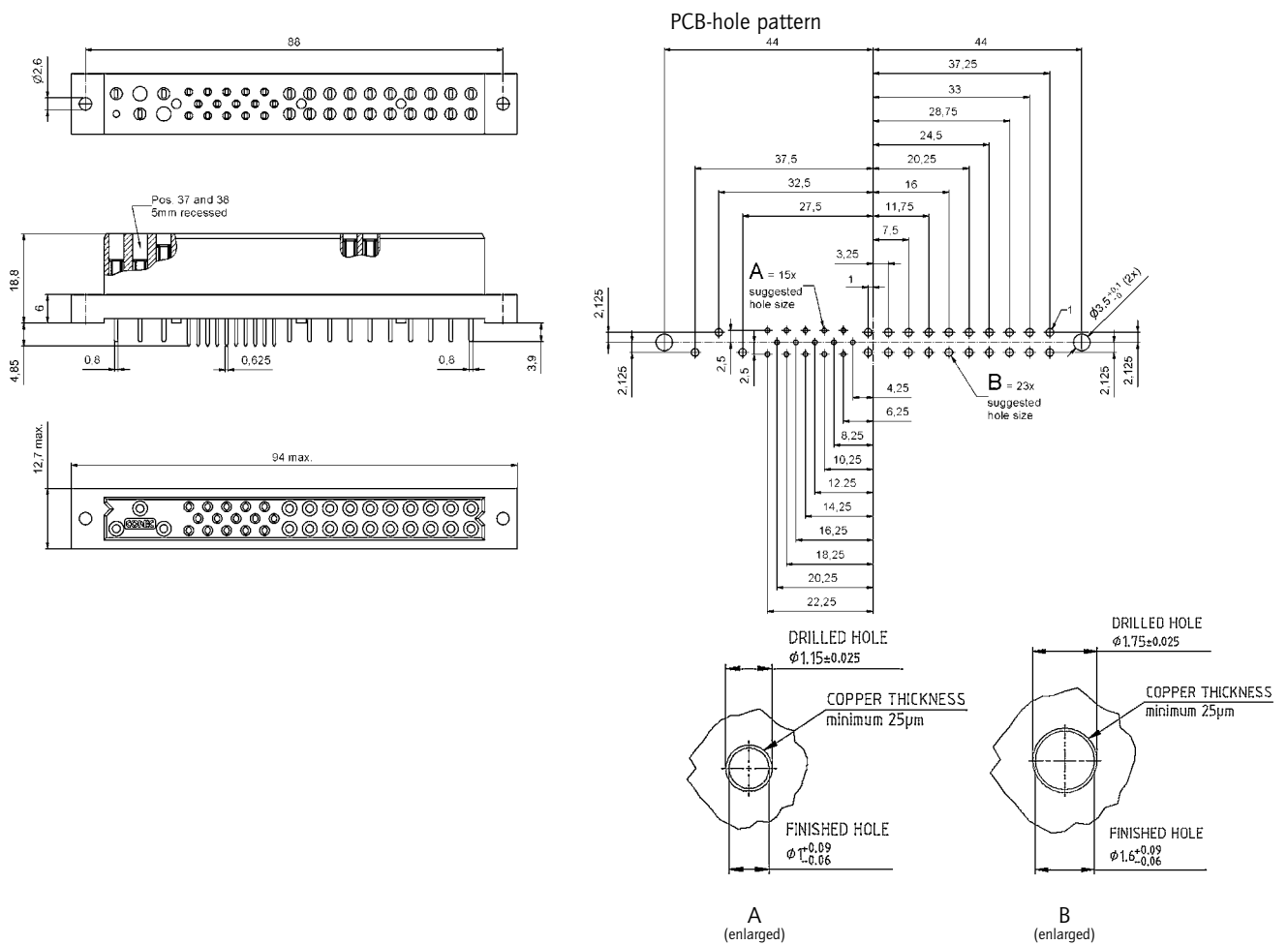


RoHS compliant – UL listed, File no.: E228329

## DESCRIPTION

- Signal and power contacts
- 38 contacts, 15x signal / 23x power
- Sequential mating
- Eye of needle press fit design, tin plated
- Precision machined contact for the mating area
- Contact plating quality class 1 or alternative quality class 3
- Special contact loadings possible on request

## PRODUCT DRAWING



## ORDER DATA

(Dim. = mm)

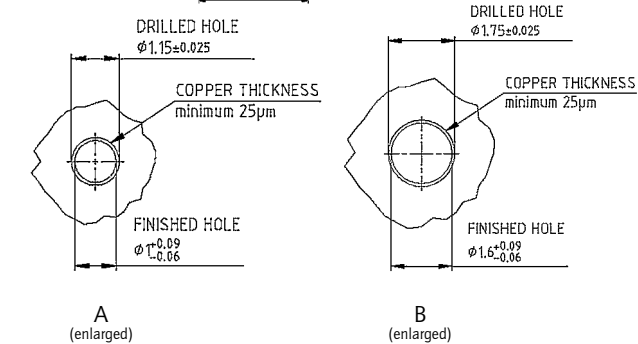
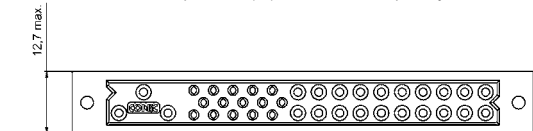
| Number of positions | Contacts               | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0.8µm Au mating area) |
|---------------------|------------------------|---------------------------------------------|-------------------------------------------------------|
| 38                  | 15x signal / 23x power | CPH38 W23 FGE3SK9 X                         | CPH38 W23 FGE1SK9 X                                   |

Female connector – press fit – straight – precision machined contacts – 38 positions



- Signal and power contacts

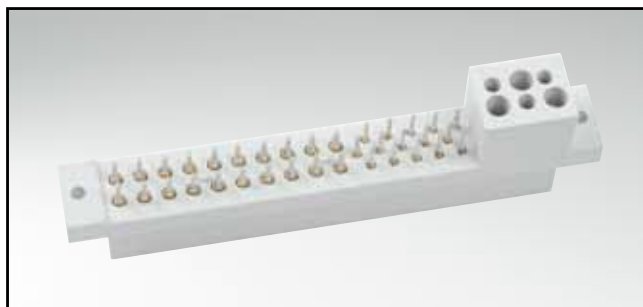
- "Low Profile" area for crimp contacts



|                     |                        |                                             |                                                       |
|---------------------|------------------------|---------------------------------------------|-------------------------------------------------------|
| Number of positions | Contacts               | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0.8µm Au mating area) |
| 38                  | 15x signal / 20x power | CPH38 W23 FGE3SN9 X                         | CPH38 W23 FGE1SN9 X                                   |

# COMPACTPCI

Female connector – press fit – straight – precision machined contacts – 38 positions

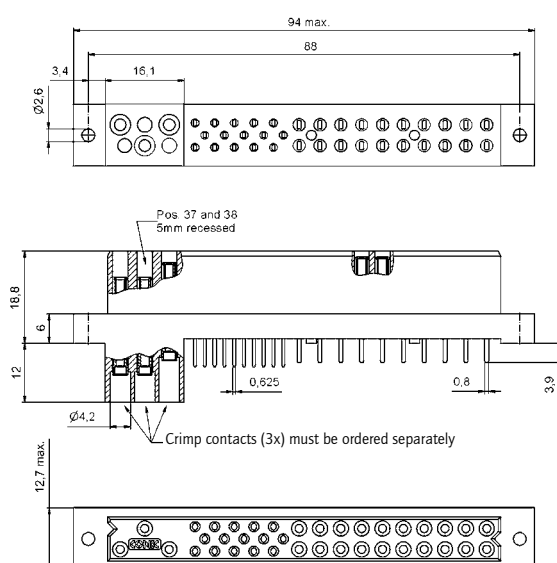


RoHS compliant – UL listed, File no.: E228329

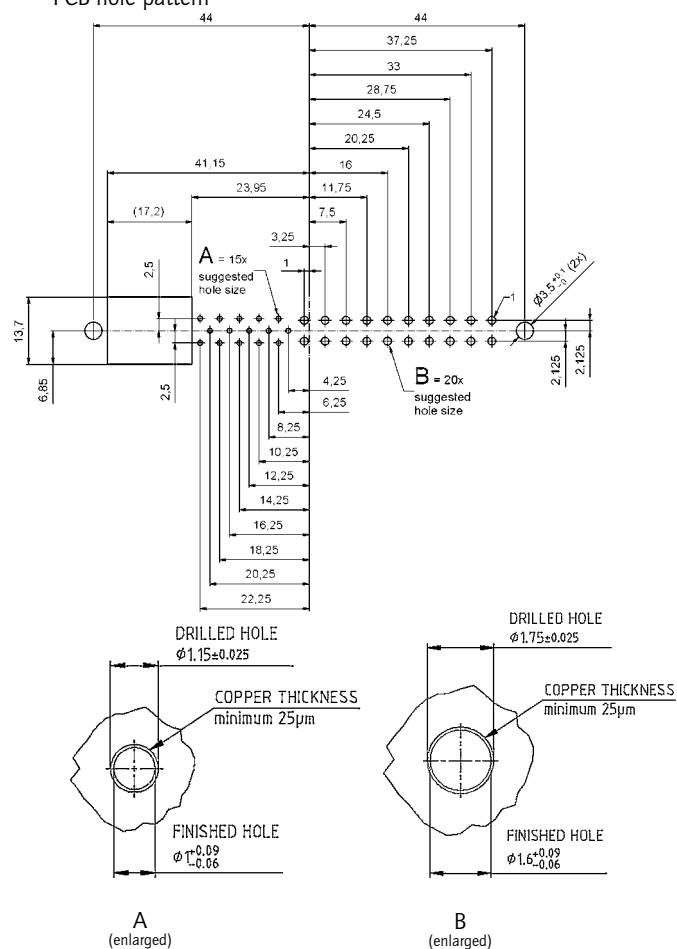
## DESCRIPTION

- Signal and power contacts
- Selectively loaded with 15x signal / 20x power
- Position 36 to 38 for crimp contacts (page 3 | 36)
- Eye of needle press fit design, tin plated
- Precision machined contact for the mating area
- Contact plating quality class 1 or alternative quality class 3
- "High Profile", insulation support for crimp contacts
- Special contact loadings possible on request

## PRODUCT DRAWING



## PCB-hole pattern



(Dim. = mm)

## ORDER DATA

| Number of positions | Contacts               | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0.8 $\mu$ m Au mating area) |
|---------------------|------------------------|---------------------------------------------|-------------------------------------------------------------|
| 38                  | 15x signal / 20x power | CPH38 W23 FGE3SH9 X                         | CPH38 W23 FGE1SH9 X                                         |

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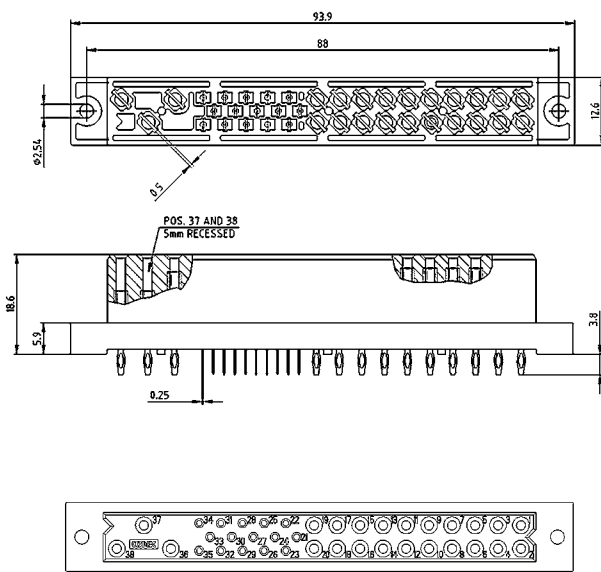


Female connector – press fit – straight – stamped contacts – 38 positions

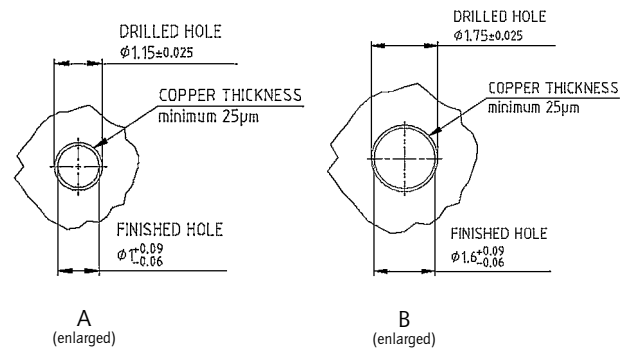
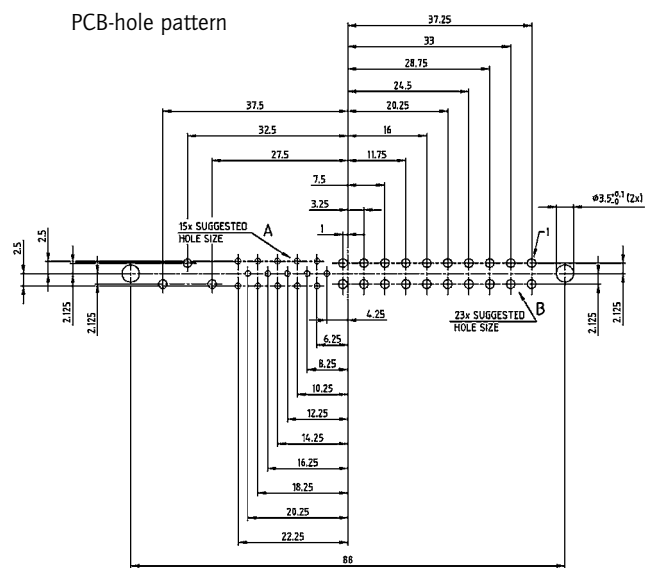


- Signal and power contacts

|                  |    |       |    |
|------------------|----|-------|----|
| PCB-hole pattern | 10 | 37.25 | 10 |
|------------------|----|-------|----|



A diagram of a rectangle with a horizontal dimension line above it. The dimension line has arrows at both ends pointing to the vertical sides of the rectangle and is labeled with the number 33.



| Number of positions | Contacts              | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0.8μm Au mating area) |
|---------------------|-----------------------|---------------------------------------------|-------------------------------------------------------|
| 38                  | 15x signal/ 23x power | 45-000143                                   | 45-000141                                             |



# COMPACTPCI

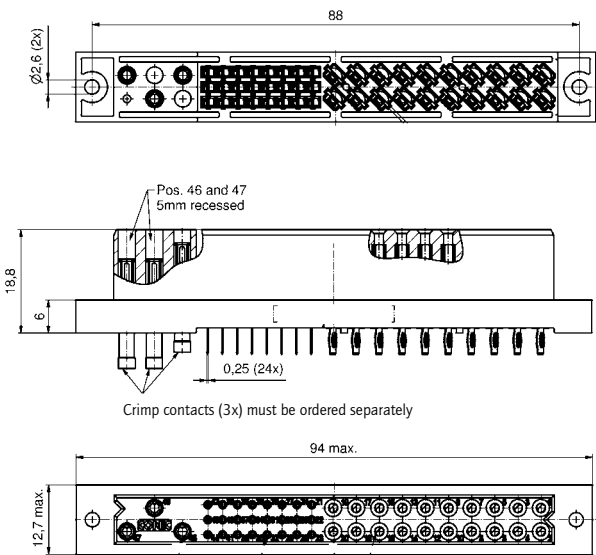
Female connector – press fit – straight – stamped – 47 positions



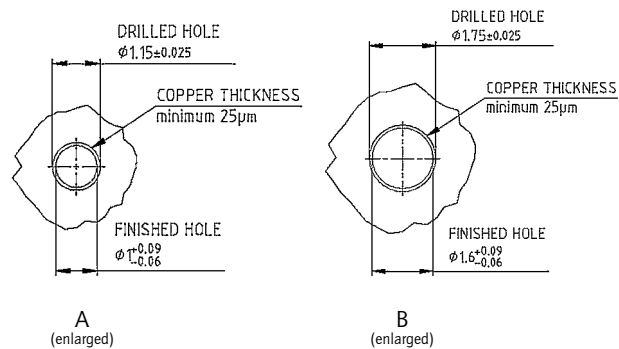
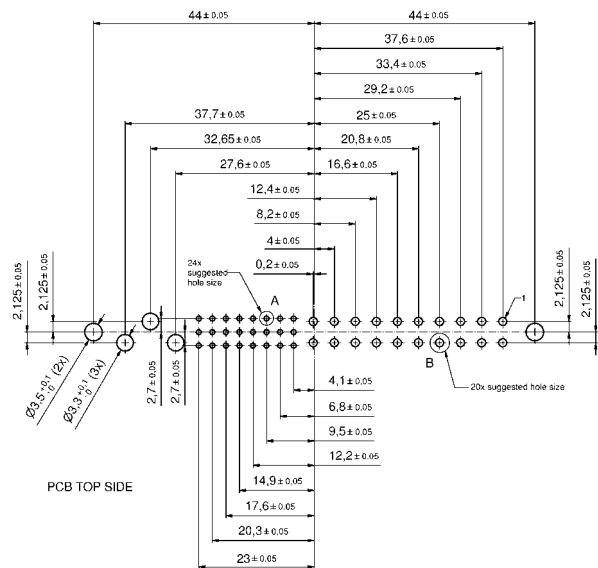
RoHS compliant

- DESCRIPTION
- Signal and power contacts
  - Selectively loaded with 24x signal / 20x power
  - Position 45 to 47 for crimp contacts (page 3 | 36)
  - Eye of needle press fit design, tin plated
  - Contact plating quality class 1 or alternative quality class 3
  - "Low Profile" area for crimp contacts
  - Special contact loadings possible on request

PRODUCT DRAWING



PCB-hole pattern



ORDER DATA

(Dim. = mm)

| Number of positions | Contacts               | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0.8µm Au mating area) |
|---------------------|------------------------|---------------------------------------------|-------------------------------------------------------|
| 47                  | 24x signal / 20x power | 45-000103                                   | 45-000101                                             |

# COMPACTPCI

## Female Connector – crimp version (without contacts) – 47 positions

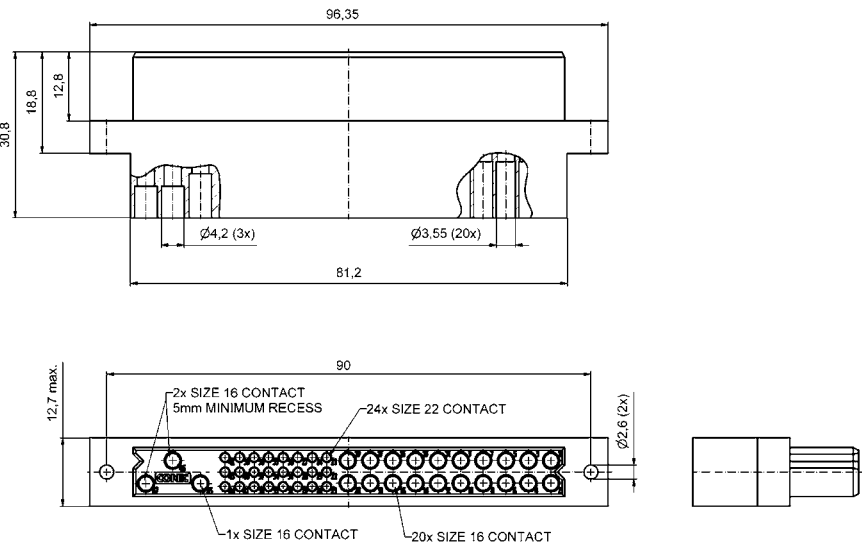


RoHS compliant

### DESCRIPTION

- For precision machined power- and signal contacts
- Power contacts are suitable for wire size AWG 12 to 24
- Signal contacts are suitable for wire size AWG 22
- For crimp contacts please see page 3 | 36

### PRODUCT DRAWING



### ORDER DATA

(Dim. = mm)

| Number of positions | Part number         |
|---------------------|---------------------|
| 47                  | CPH 47W23 FXXXSH9 X |

# COMPACTPCI

## Power and Signal crimp contacts – precision machined version



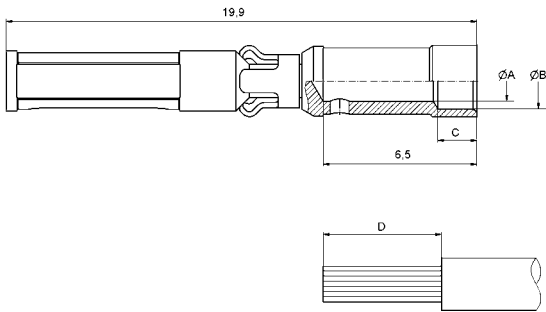
RoHS compliant

**DESCRIPTION**

- Power contacts are suitable for wire size AWG 12 to 24
- Signal contacts are suitable for wire size AWG 22
- Crimp tools see section 9
- Suitable connectors on page 3 | 16, 3 | 17, 3 | 21, 3 | 22, 3 | 24, 3 | 28, 3 | 29, 3 | 34 and 3 | 35
- Gold plated quality class 1 or alternative quality class 3

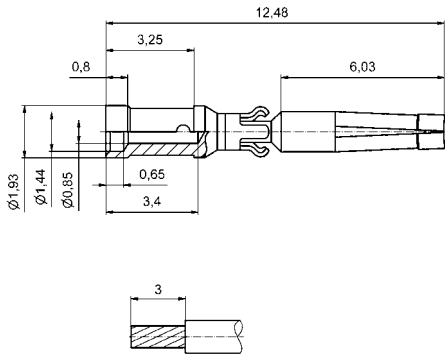
**PRODUCT DRAWING**

Power crimp contact



Cable stripping dimensions

Signal crimp contact



Cable stripping dimensions

| for wire size | A    | B    | C    | D   |
|---------------|------|------|------|-----|
| AWG 12        | 2.49 | –    | –    | 6.5 |
| AWG 14-16     | 2.06 | 2.67 | 1.65 | 5.0 |
| AWG 16-18     | 1.70 | 2.36 | 1.65 | 5.0 |
| AWG 20-22-24  | 1.14 | 1.72 | 1.65 | 5.0 |

**ORDER DATA**

(Dim. = mm)

| for wire size            | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0.8µm Au mating area) |
|--------------------------|---------------------------------------------|-------------------------------------------------------|
| Power crimp AWG 12       | CPZC 1612FA X                               | CPZC 1612FC X                                         |
| Power crimp AWG 14-16    | CPZC 1614FA X                               | CPZC 1614FC X                                         |
| Power crimp AWG 16-18    | CPZC 1616FA X                               | CPZC 1616FC X                                         |
| Power crimp AWG 20-22-24 | CPZC 1620FA X                               | CPZC 1620FC X                                         |
| Signal crimp AWG 22      | CPZC 0822FA X                               | CPZC 0822FC X                                         |

# COMPACTPCI / ADVANCEDTCA

## Mounting screws

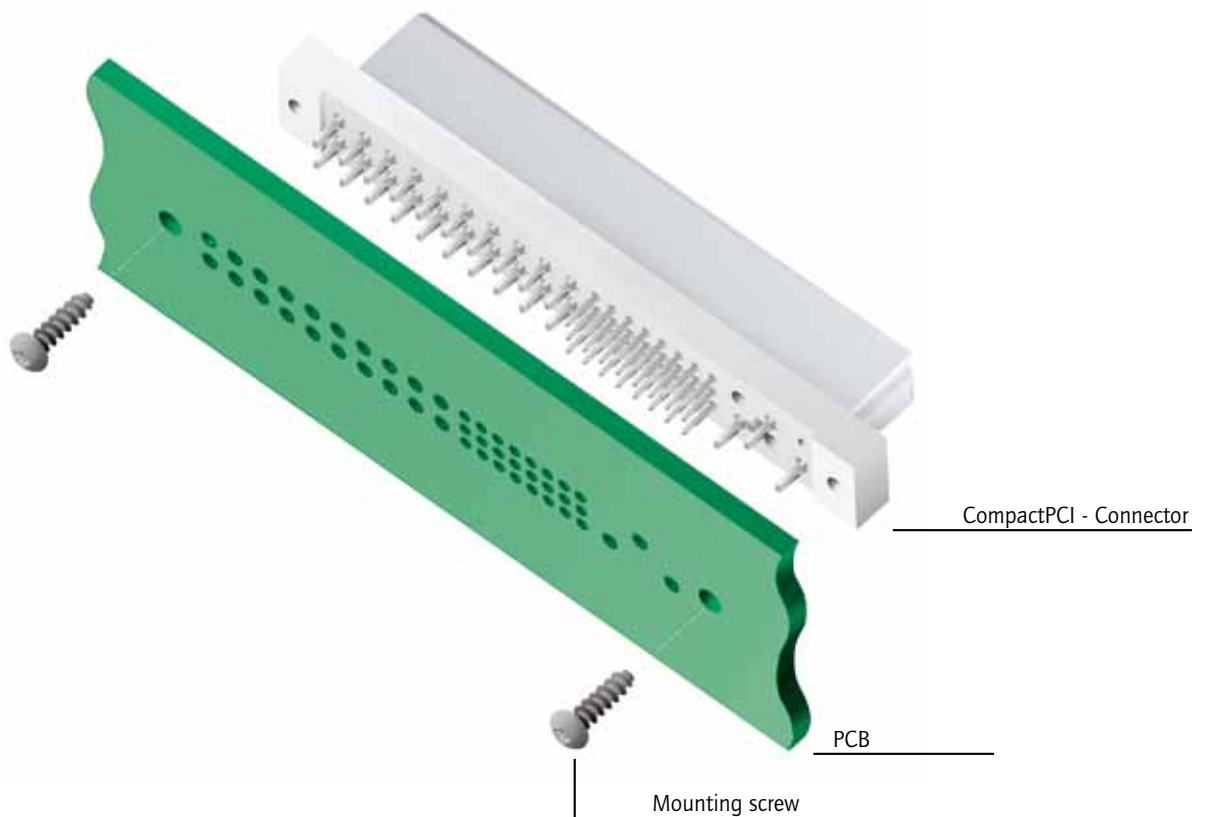


RoHS compliant

### DESCRIPTION

- Mounting screws for PCB
- Material: steel, nickel-plated
- Different length for different PCB thicknesses

### PRODUCT DRAWING



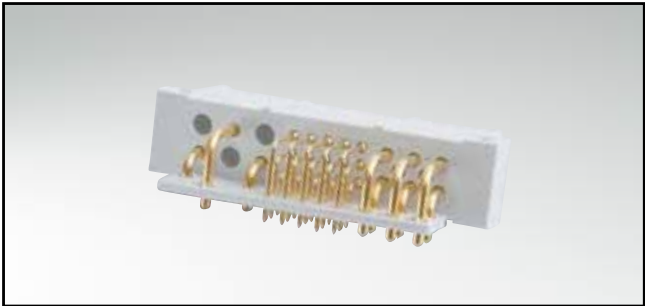
### ORDER DATA

(Dim. = mm)

| Screw for CompactPCI | Thread length | Screw for AdvancedTCA | Thread length |
|----------------------|---------------|-----------------------|---------------|
| CPZS 0170 X          | 8.1 mm        | CPZS 5170 X           | 6.0 mm        |
| CPZS 0270 X          | 10.1 mm       | CPZS 5270 X           | 8.0 mm        |
| CPZS 0370 X          | 11.1 mm       | CPZS 5370 X           | 10.0 mm       |
| CPZS 0470 X          | 12.7 mm       | CPZS 5470 X           | 12.0 mm       |

MINI POWER

Male Connector – solder pin – angled – precision machined contacts – 24 positions



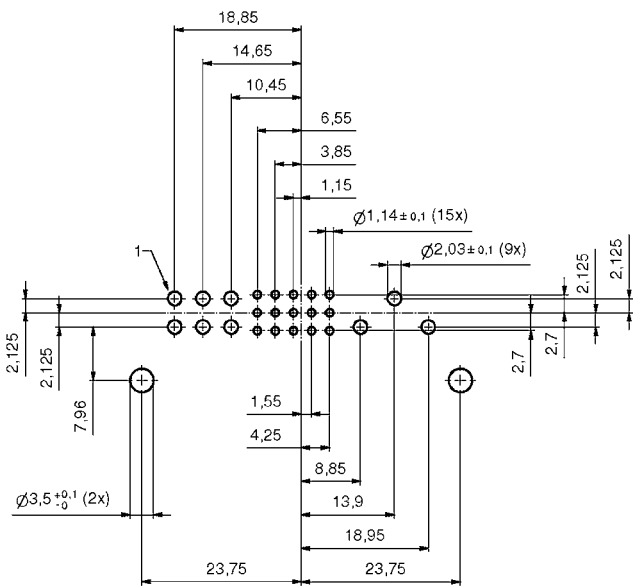
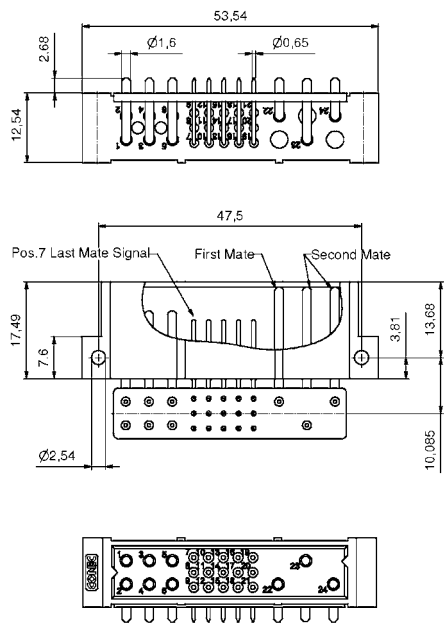
RoHS compliant

DESCRIPTION

- Signal and power contacts
- 24 contacts, 15x signal/9x power
- Sequential mating
- Contact plating quality class 1 or alternative quality class 3
- Special contact loadings possible on request

PRODUCT DRAWING

PCB-hole pattern



ORDER DATA

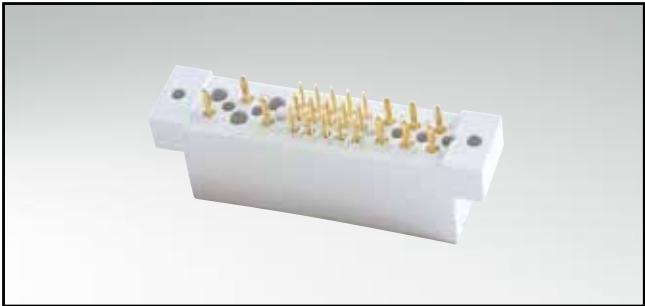
(Dim. = mm)

| Number of positions | Contacts            | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0.8µm Au mating area) |
|---------------------|---------------------|---------------------------------------------|-------------------------------------------------------|
| 24                  | 15x signal/9x power | CPD24 W09 MARASK9 X                         | CPD24 W09 MARCSK9 X                                   |



# MINI POWER

Male connector – solder pin – straight – precision machined contacts – 24 positions

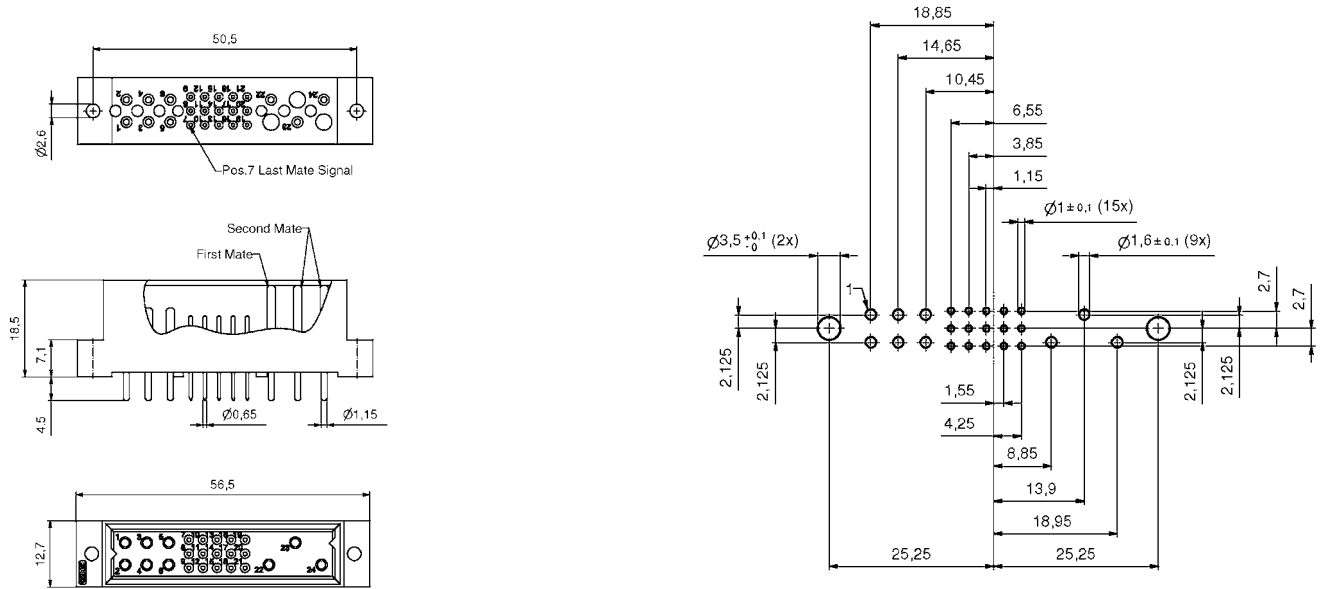


RoHS compliant

- DESCRIPTION**
- Signal and power contacts
  - 24 contacts, 15x signal/9x power
  - Sequential mating
  - Contact plating quality class 1 or alternative quality class 3
  - Special contact loadings possible on request

**PRODUCT DRAWING**

PCB-hole pattern



**ORDER DATA** (Dim. = mm)

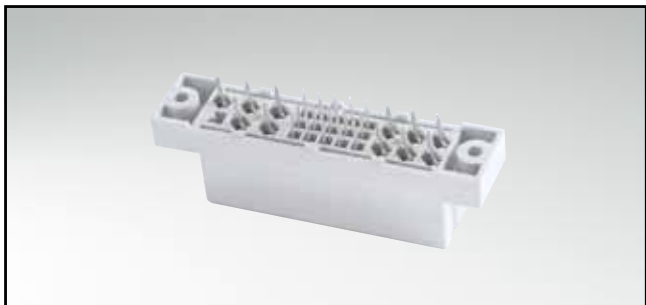
| Number of positions | Contacts            | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0.8µm Au mating area) |
|---------------------|---------------------|---------------------------------------------|-------------------------------------------------------|
| 24                  | 15x signal/9x power | CPD24 W09 MGRASK9 X                         | CPD24 W09 MGRCSK9 X                                   |





# MINI POWER

Female connector – press fit – straight – stamped contacts – 26 positions

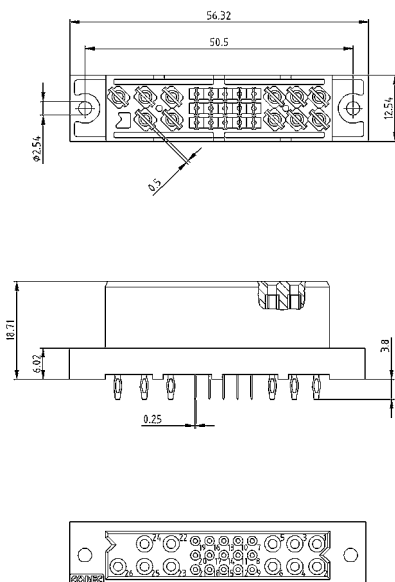


RoHS compliant

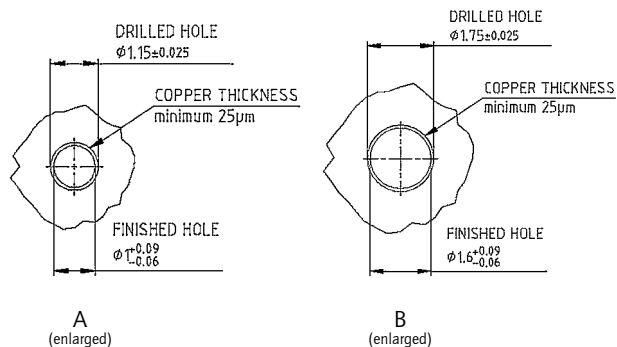
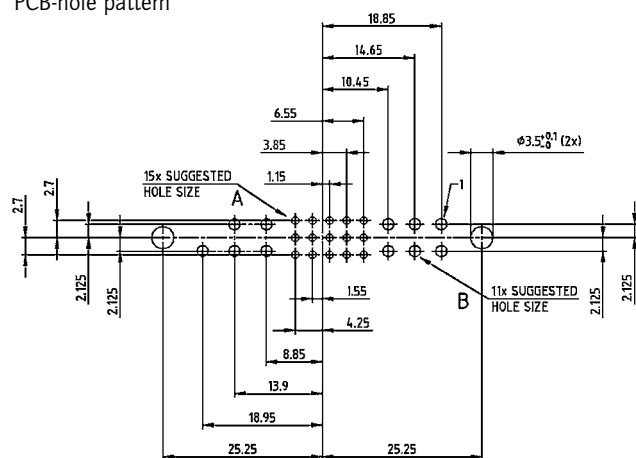
## DESCRIPTION

- Signal and power contacts
- 26 contacts, 15x signal / 11x power
- Sequential mating
- Eye of needle press fit design, tin-plated
- Contact plating quality class 1 or alternative quality class 3
- Special contact loadings possible on request

## PRODUCT DRAWING



## PCB-hole pattern



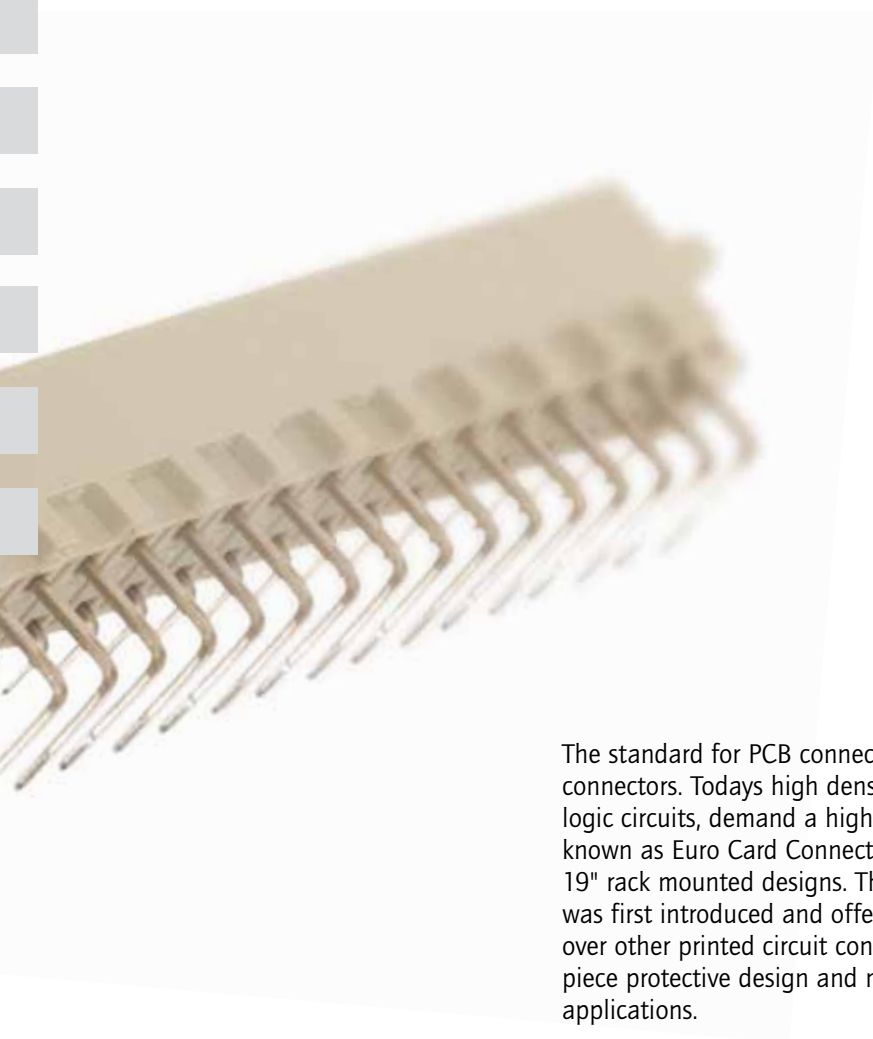
(Dim. = mm)

## ORDER DATA

| Number of positions | Contacts               | Part number<br>Quality class 3 (gold flash) | Part number<br>Quality class 1 (0.8µm Au mating area) |
|---------------------|------------------------|---------------------------------------------|-------------------------------------------------------|
| 26                  | 15x signal / 11x power | 45-000133                                   | 45-000131                                             |

## SECTION 4

# CONNECTORS DIN EN 60603-2

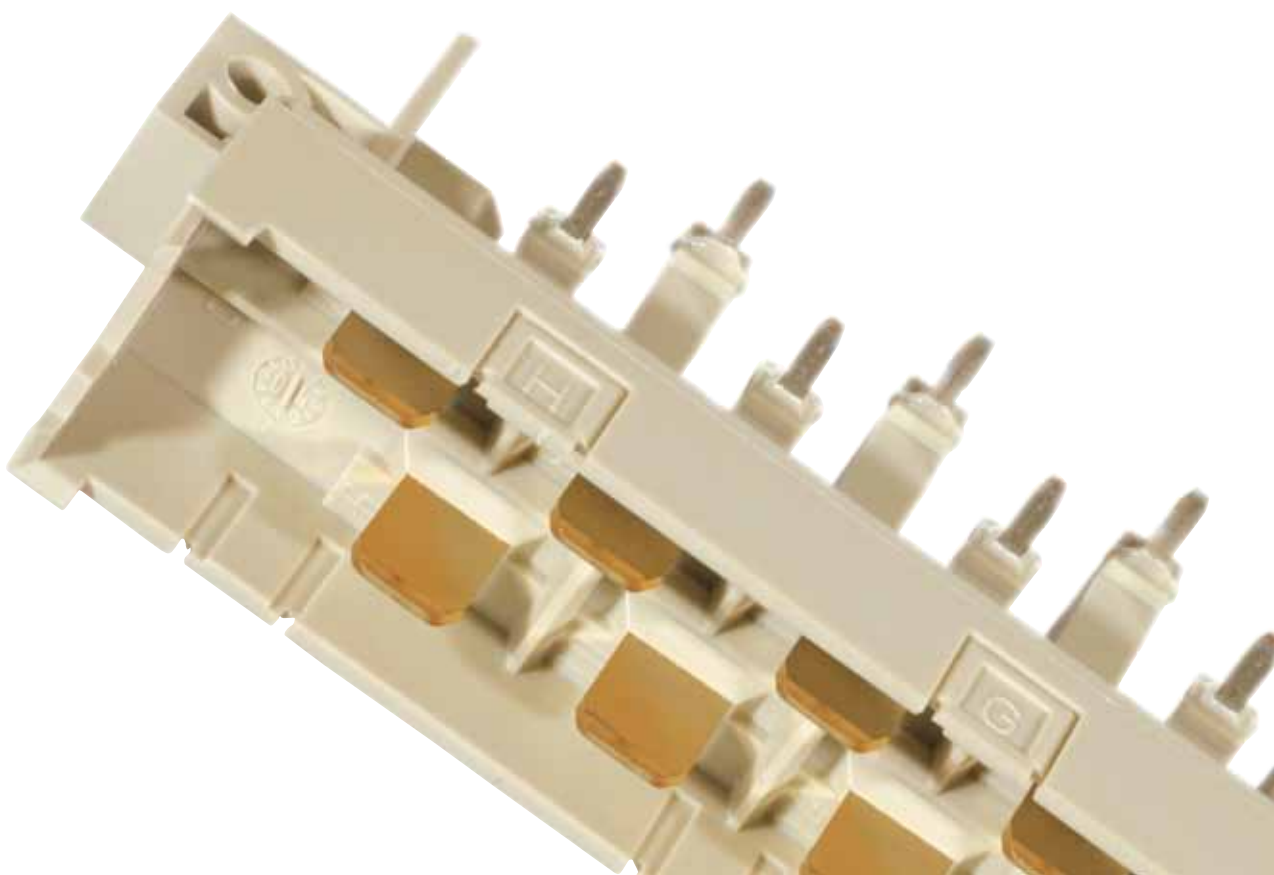


The standard for PCB connectors has been set by the DIN EN 60603-2 two piece connectors. Today's high density packing applications, combined with high speed logic circuits, demand a high reliability interconnection system. The series is also known as Euro Card Connectors, gained popularity due to the similarity with 19" rack mounted designs. The product family has grown over the years since it was first introduced and offers significant improvements in performance and design over other printed circuit connectors. High contact density, low mating force, two piece protective design and many contact termination styles offer unlimited design applications.



CONEC manufactures a wide range of products; series B, C, R, D, E, F, G, H and half size types are also available. Termination methods include: PCB direct soldering, solder eyelet, wire wrap, crimp, faston terminals and screw terminals.

In addition, we manufacture custom products or variations to existing designs with short design cycle and turn around.



TECHNICAL DATA

| Materials                            |                                   | Type<br>B, B / 2                                                                 | Type<br>C, C / 2 | Type<br>R, R / 2 | Type<br>D    | Type<br>E |
|--------------------------------------|-----------------------------------|----------------------------------------------------------------------------------|------------------|------------------|--------------|-----------|
| Insulator                            |                                   | PBT GF                                                                           |                  |                  |              |           |
| Flammability                         |                                   | UL 94 V-0                                                                        |                  |                  |              |           |
| Contacts                             |                                   | Copper alloy                                                                     |                  |                  |              |           |
| Contact plating                      |                                   | gold over nickel                                                                 |                  |                  |              |           |
| Creepage distance                    | contact-ground<br>contact-contact | ≥ 1.2 mm                                                                         |                  |                  | ≥ 3 mm       |           |
| Clearance distance                   | contact-ground<br>contact-contact | ≥ 1.2 mm                                                                         |                  |                  | ≥ 3 mm       |           |
| Initial contact resistance           |                                   | ≤ 20 mΩ                                                                          |                  |                  | ≤ 15 mΩ      |           |
| Initial insulation resistance        | Quality class 1                   | ≥ 10 <sup>12</sup> Ω                                                             |                  |                  |              |           |
|                                      | Quality class 2                   | ≥ 10 <sup>12</sup> Ω                                                             |                  |                  |              |           |
|                                      | Quality class 3                   | ≥ 10 <sup>11</sup> Ω                                                             |                  |                  |              |           |
| Working voltage                      |                                   | 250 V<br>depending on isolation coordination (refer to DIN VDE 0110 / IEC 664-1) |                  |                  | 125 V        |           |
| Working current                      | + 20 °C                           | 2 A                                                                              |                  |                  | 5.5 A        |           |
|                                      | + 70 °C                           | 1 A                                                                              |                  |                  | 4 A          |           |
|                                      | + 100 °C                          | 0.5 A                                                                            |                  |                  | 2.5 A        |           |
| Working temperature                  |                                   | −55 °C to +125 °C                                                                |                  |                  |              |           |
| Insulation group                     |                                   | A                                                                                |                  |                  | C            |           |
| Test voltage V.r.m.s.                | contact-ground                    | 1550 V                                                                           |                  |                  | 1550 V       |           |
|                                      | contact-contact                   | 1000 V                                                                           |                  |                  | 1550 V       |           |
| Insertion and withdrawal forces max. |                                   | 16 positions                                                                     | 15 N             | 16 positions     |              | 20 N      |
|                                      |                                   | 96 positions                                                                     | 90 N             | 32 positions     | 40 N         |           |
|                                      |                                   |                                                                                  |                  |                  | 16 positions | 20 N      |
| Quality class 3                      |                                   | 50 cycles                                                                        |                  |                  | 32 positions | 40 N      |
| Quality class 2                      |                                   | 400 cycles                                                                       |                  |                  | 48 positions | 60 N      |
| Quality class 1                      |                                   | 500 cycles                                                                       |                  |                  |              |           |

Technical alterations are subjects to change without notice.

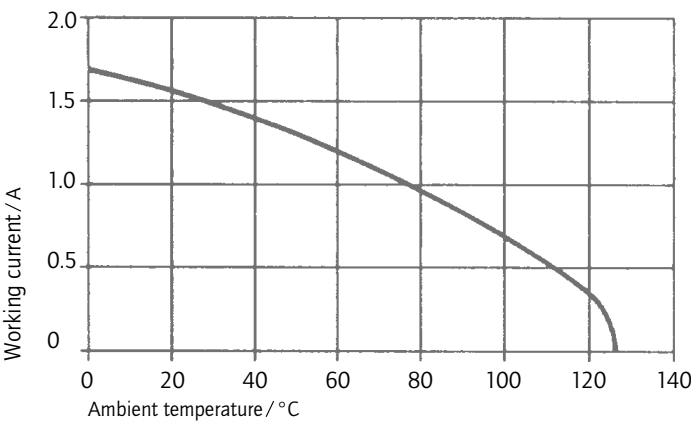
# TECHNICAL DATA

| Materials                                                               |                                   | Type F                                 | Type G                   | Type H                                 | Mixed version                                                           |          |
|-------------------------------------------------------------------------|-----------------------------------|----------------------------------------|--------------------------|----------------------------------------|-------------------------------------------------------------------------|----------|
| Insulator                                                               |                                   | PBT GF                                 | PBT GF                   | PC (Polycarbonat)                      |                                                                         |          |
| Flammability                                                            |                                   | UL94 V-0                               | UL94 V-0                 | UL94 V-1                               |                                                                         |          |
| Contacts                                                                |                                   | Copper alloy                           |                          |                                        |                                                                         |          |
| Contact Plating                                                         |                                   | gold over nickel                       |                          | silver                                 | gold over nickel                                                        | silver   |
| Creepage distance                                                       | contact-ground<br>contact-contact | ≥ 1.6 mm                               | ≥ 1.6 mm (f+z)           | ≥ 4.5 mm                               | ≥ 1.6 mm                                                                | ≥ 4.5 mm |
| Clearance distance                                                      | contact-ground<br>contact-contact | ≥ 3 mm                                 | ≥ 3 mm<br>≥ 1.9 mm (f+z) | ≥ 8 mm                                 | ≥ 3 mm                                                                  | ≥ 8 mm   |
| Initial contact resistance                                              |                                   | ≤ 15 mΩ                                |                          |                                        |                                                                         | ≤ 8 mΩ   |
| Initial insulation resistance                                           | Quality class 1                   | ≥ 10 <sup>12</sup> Ω                   |                          |                                        |                                                                         |          |
|                                                                         | Quality class 2                   | ≥ 10 <sup>12</sup> Ω                   |                          |                                        |                                                                         |          |
|                                                                         | Quality class 3                   | ≥ 10 <sup>11</sup> Ω                   |                          |                                        |                                                                         |          |
| Working voltage                                                         |                                   | 125 V                                  |                          | 500 V                                  | 125 V                                                                   | 500 V    |
| depending on isulation coordination (refer to DIN VDE 0110 / IEC 664-1) |                                   |                                        |                          |                                        |                                                                         |          |
| Working current                                                         | + 20 °C                           | 5.5 A                                  |                          | 15 A                                   | 5.5 A                                                                   | 15 A     |
|                                                                         | + 70 °C                           | 4 A                                    |                          | 12 A                                   | 4 A                                                                     | 12 A     |
|                                                                         | + 100 °C                          | 2.5 A                                  |                          | 8 A                                    | 2.5 A                                                                   | 8 A      |
| Working temperature                                                     |                                   | -55 °C to +125 °C                      |                          |                                        |                                                                         |          |
| Insulation group                                                        |                                   | C                                      |                          |                                        |                                                                         |          |
| Test voltage V.r.m.s.                                                   | contact-ground                    | 2550 V                                 | 2500 V                   | 3100 V                                 | 1550 V                                                                  | 3100 V   |
|                                                                         | contact-contact                   | 1550 V                                 | 1550 V                   | 3100 V                                 | 1550 V                                                                  | 3100 V   |
| Insertion and withdrawal forces max.                                    |                                   | 32 positions 50 N<br>48 positions 75 N | 64 positions 100 N       | 11 positions 80 N<br>15 positions 90 N | 16 + 7 positions 67 N<br>24 + 7 positions 79 N<br>36 + 7 positions 96 N |          |
| Quality class 3                                                         |                                   | 50 cycles                              |                          | 500 cycles                             |                                                                         |          |
| Quality class 2                                                         |                                   | 400 cycles                             |                          |                                        |                                                                         |          |
| Quality class 1                                                         |                                   | 500 cycles                             |                          |                                        |                                                                         |          |

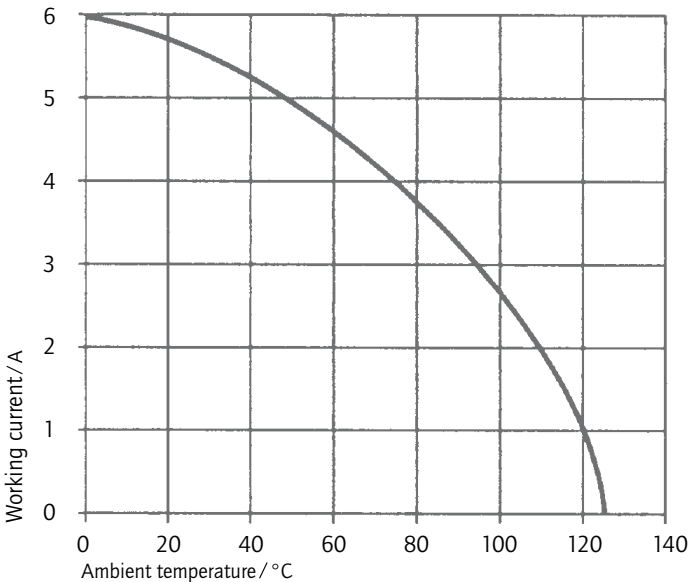
Technical alterations are subjects to change without notice.

# DERATING DIAGRAMS

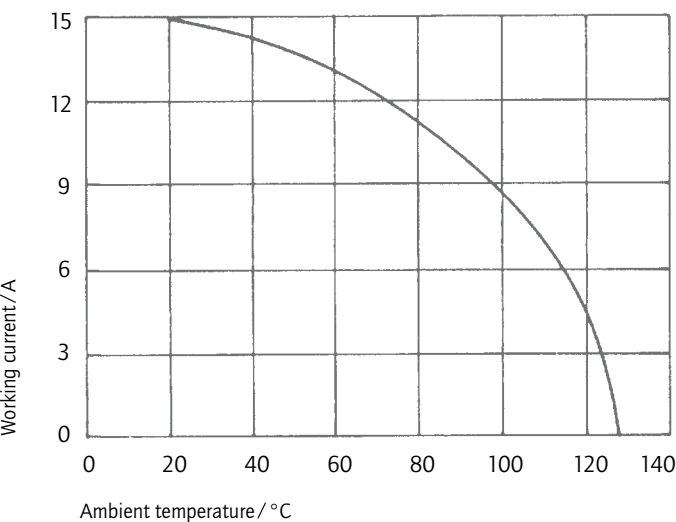
Types B, C, R



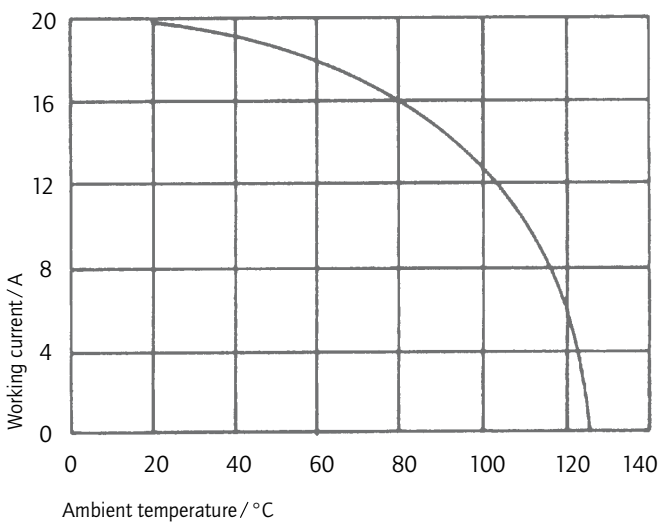
Types D, E, F, G



Type H 15



Type H 11

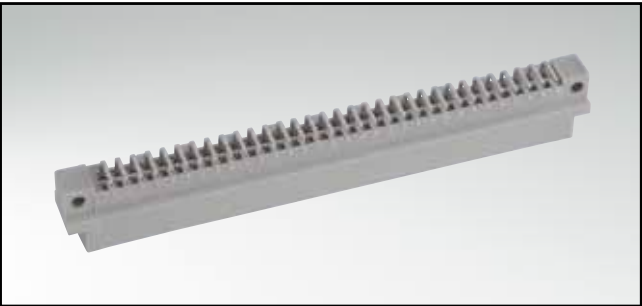


## CONVERSION TABLE

| $\mu\text{m}$<br>1/1000 mm | $\mu\text{inch}$<br>1/1000 inch | mm    | inch | mm    | inch | mm    | inch  | mm    | inch  | mm     | inch  |
|----------------------------|---------------------------------|-------|------|-------|------|-------|-------|-------|-------|--------|-------|
| 0,10                       | 4                               | 3,30  | .130 | 10,16 | .400 | 19,50 | .768  | 30,90 | 1.217 | 49,50  | 1.949 |
| 0,20                       | 8                               | 3,40  | .134 | 10,26 | .402 | 19,70 | .776  | 31,00 | 1.220 | 49,90  | 1.965 |
| 0,25                       | 10                              | 3,50  | .138 | 10,36 | .406 | 19,80 | .780  | 31,20 | 1.228 | 50,10  | 1.972 |
| 0,30                       | 12                              | 3,60  | .142 | 10,56 | .413 | 19,90 | .783  | 31,50 | 1.240 | 50,30  | 1.980 |
| 0,50                       | 20                              | 3,70  | .146 | 10,66 | .417 | 20,00 | .787  | 31,70 | 1.248 | 50,50  | 1.988 |
| 0,70                       | 28                              | 3,80  | .150 | 10,76 | .421 | 20,10 | .791  | 32,00 | 1.260 | 50,70  | 1.996 |
| 0,75                       | 30                              | 3,81  | .150 | 11,00 | .433 | 20,30 | .799  | 32,20 | 1.268 | 50,80  | 2.000 |
| 0,80                       | 32                              | 3,90  | .154 | 11,20 | .441 | 20,32 | .800  | 32,30 | 1.272 | 51,40  | 2.024 |
| 1,00                       | 39                              | 4,00  | .158 | 11,40 | .449 | 20,50 | .807  | 32,50 | 1.280 | 51,50  | 2.028 |
| 1,27                       | 50                              | 4,10  | .161 | 11,50 | .453 | 21,00 | .827  | 32,80 | 1.291 | 52,00  | 2.047 |
| 2,00                       | 79                              | 4,20  | .165 | 11,60 | .457 | 21,10 | .831  | 33,00 | 1.299 | 52,30  | 2.059 |
| 2,50                       | 98                              | 4,30  | .169 | 11,90 | .469 | 21,70 | .854  | 33,10 | 1.303 | 52,80  | 2.079 |
| 3,00                       | 118                             | 4,50  | .177 | 12,00 | .472 | 22,00 | .866  | 33,30 | 1.311 | 53,00  | 2.087 |
| 4,00                       | 157                             | 4,70  | .185 | 12,20 | .480 | 22,10 | .870  | 33,80 | 1.331 | 53,20  | 2.095 |
| 5,00                       | 197                             | 4,90  | .193 | 12,30 | .484 | 22,20 | .874  | 34,00 | 1.339 | 53,80  | 2.118 |
|                            |                                 | 5,00  | .197 | 12,40 | .488 | 22,30 | .878  | 34,20 | 1.346 | 54,00  | 2.126 |
|                            |                                 | 5,08  | .200 | 12,50 | .492 | 22,40 | .882  | 34,40 | 1.354 | 54,20  | 2.134 |
|                            |                                 | 5,10  | .201 | 12,70 | .500 | 22,50 | .886  | 35,00 | 1.378 | 54,90  | 2.161 |
|                            |                                 | 5,20  | .205 | 12,90 | .508 | 22,60 | .890  | 35,40 | 1.394 | 55,00  | 2.165 |
|                            |                                 | 5,30  | .209 | 13,00 | .512 | 22,80 | .898  | 35,50 | 1.398 | 55,40  | 2.181 |
|                            |                                 | 5,40  | .213 | 13,10 | .516 | 22,86 | .900  | 35,56 | 1.400 | 55,70  | 2.193 |
|                            |                                 | 5,50  | .217 | 13,20 | .520 | 22,90 | .902  | 35,60 | 1.402 | 56,60  | 2.228 |
|                            |                                 | 5,60  | .220 | 13,50 | .532 | 23,00 | .906  | 36,00 | 1.417 | 57,40  | 2.260 |
|                            |                                 | 5,70  | .224 | 13,60 | .535 | 23,10 | .909  | 36,50 | 1.437 | 57,80  | 2.276 |
|                            |                                 | 5,80  | .228 | 13,70 | .539 | 23,30 | .917  | 36,60 | 1.441 | 57,90  | 2.280 |
|                            |                                 | 6,00  | .236 | 13,90 | .547 | 23,50 | .925  | 36,70 | 1.445 | 58,42  | 2.300 |
|                            |                                 | 6,10  | .240 | 14,00 | .551 | 24,00 | .945  | 37,00 | 1.457 | 59,00  | 2.323 |
|                            |                                 | 6,40  | .252 | 14,30 | .563 | 24,30 | .957  | 37,30 | 1.469 | 59,20  | 2.331 |
|                            |                                 | 6,50  | .256 | 14,40 | .567 | 24,60 | .969  | 37,50 | 1.476 | 59,80  | 2.354 |
|                            |                                 | 6,60  | .260 | 14,50 | .571 | 24,90 | .980  | 37,60 | 1.480 | 59,90  | 2.358 |
|                            |                                 | 6,70  | .264 | 14,70 | .579 | 25,00 | .984  | 37,70 | 1.484 | 60,00  | 2.362 |
|                            |                                 | 6,80  | .268 | 14,80 | .583 | 25,10 | .998  | 37,90 | 1.492 | 60,96  | 2.400 |
|                            |                                 | 6,90  | .272 | 14,90 | .587 | 25,40 | 1.000 | 38,00 | 1.496 | 61,10  | 2.406 |
|                            |                                 | 7,00  | .276 | 14,98 | .590 | 25,60 | 1.008 | 38,10 | 1.500 | 62,00  | 2.441 |
|                            |                                 | 7,10  | .280 | 15,00 | .591 | 25,90 | 1.020 | 39,00 | 1.535 | 63,00  | 2.480 |
|                            |                                 | 7,20  | .283 | 15,20 | .598 | 26,00 | 1.024 | 39,20 | 1.543 | 63,50  | 2.500 |
|                            |                                 | 7,40  | .291 | 15,24 | .600 | 26,30 | 1.035 | 39,30 | 1.547 | 64,00  | 2.520 |
|                            |                                 | 7,50  | .295 | 15,40 | .606 | 26,60 | 1.047 | 39,90 | 1.571 | 65,00  | 2.560 |
|                            |                                 | 7,60  | .299 | 15,50 | .610 | 26,70 | 1.051 | 40,00 | 1.575 | 67,00  | 2.638 |
|                            |                                 | 7,62  | .300 | 15,60 | .614 | 27,00 | 1.063 | 40,30 | 1.587 | 68,00  | 2.677 |
|                            |                                 | 7,70  | .303 | 15,90 | .626 | 27,20 | 1.071 | 40,40 | 1.591 | 69,00  | 2.717 |
|                            |                                 | 7,80  | .307 | 16,00 | .630 | 27,40 | 1.079 | 40,60 | 1.598 | 70,00  | 2.756 |
|                            |                                 | 7,98  | .314 | 16,20 | .638 | 27,50 | 1.093 | 41,00 | 1.614 | 71,00  | 2.795 |
|                            |                                 | 8,00  | .315 | 16,50 | .650 | 27,90 | 1.098 | 41,60 | 1.638 | 74,00  | 2.913 |
|                            |                                 | 8,18  | .318 | 16,60 | .654 | 27,94 | 1.100 | 42,70 | 1.681 | 75,00  | 2.953 |
|                            |                                 | 8,20  | .323 | 16,80 | .661 | 28,00 | 1.102 | 43,18 | 1.700 | 76,20  | 3.000 |
|                            |                                 | 8,30  | .327 | 17,00 | .669 | 28,20 | 1.110 | 44,20 | 1.740 | 77,00  | 3.032 |
|                            |                                 | 8,40  | .331 | 17,20 | .677 | 28,50 | 1.122 | 44,80 | 1.764 | 78,74  | 3.100 |
|                            |                                 | 8,50  | .335 | 17,30 | .681 | 28,70 | 1.130 | 45,80 | 1.803 | 80,00  | 3.150 |
|                            |                                 | 8,60  | .339 | 17,50 | .689 | 29,00 | 1.142 | 46,30 | 1.823 | 81,28  | 3.200 |
|                            |                                 | 8,90  | .350 | 17,60 | .693 | 29,20 | 1.150 | 46,70 | 1.839 | 84,00  | 3.307 |
|                            |                                 | 9,00  | .354 | 17,70 | .697 | 29,40 | 1.158 | 47,00 | 1.850 | 85,00  | 3.346 |
|                            |                                 | 9,10  | .358 | 17,78 | .700 | 29,50 | 1.161 | 47,20 | 1.858 | 86,36  | 3.400 |
|                            |                                 | 9,20  | .362 | 17,80 | .701 | 29,70 | 1.169 | 47,30 | 1.862 | 88,90  | 3.500 |
|                            |                                 | 9,30  | .366 | 17,90 | .705 | 29,90 | 1.177 | 47,50 | 1.870 | 90,00  | 3.543 |
|                            |                                 | 9,40  | .370 | 18,00 | .709 | 30,00 | 1.181 | 47,80 | 1.882 | 91,44  | 3.600 |
|                            |                                 | 9,50  | .374 | 18,10 | .713 | 30,20 | 1.189 | 48,00 | 1.890 | 94,00  | 3.701 |
|                            |                                 | 9,60  | .378 | 18,30 | .721 | 30,40 | 1.197 | 48,10 | 1.894 | 95,00  | 3.740 |
|                            |                                 | 9,70  | .382 | 18,60 | .732 | 30,48 | 1.200 | 48,26 | 1.900 | 100,00 | 3.937 |
|                            |                                 | 9,90  | .390 | 19,00 | .748 | 30,50 | 1.201 | 48,80 | 1.921 | 110,00 | 4.331 |
|                            |                                 | 10,00 | .395 | 19,20 | .756 | 30,80 | 1.213 | 49,10 | 1.933 | 120,00 | 4.724 |

TYPE B

Male connector – straight and angled – 32 and 64 positions

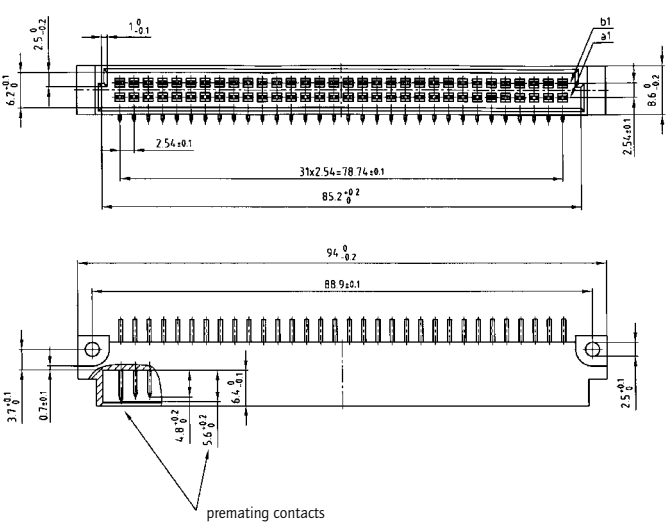


RoHS compliant

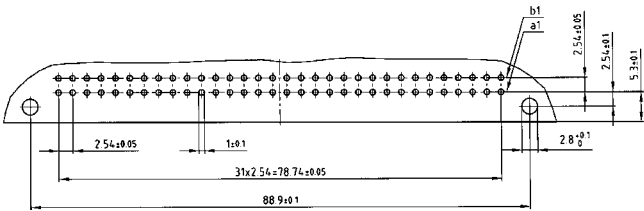
DESCRIPTION

- Solder pin
- Quality class 3 (also available in quality class 2 or 1)
- Premating contacts in row "a" und "b" available
- Special assembly on request

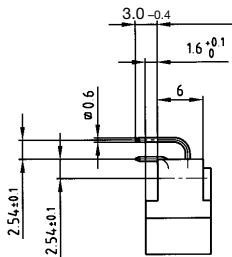
PRODUCT DRAWING



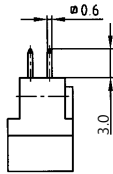
PCB-hole pattern



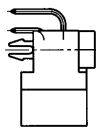
Solder pin angled



Solder pin straight



Solder pin angled with clip



ORDER DATA

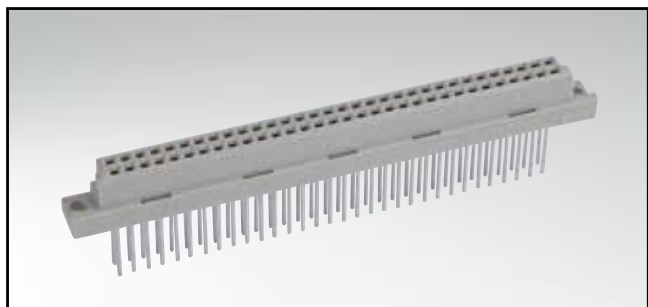
(Dim. = mm)

| No. of Pos. | Row | • = contact, + = no contact |   |   |   |   |   | Solder pin angled | Solder pin straight | Solder pin angled with clip |
|-------------|-----|-----------------------------|---|---|---|---|---|-------------------|---------------------|-----------------------------|
|             |     | Pos.                        | 1 | 2 | 3 | 4 | 5 |                   |                     |                             |
| 32          | b   |                             | + | + | + | + | + | 121 A 10019 X     | 121 A 10049 X       | 121 A 20819 X               |
|             | a   |                             | • | • | • | • | • |                   |                     |                             |
| 32          | b   |                             | + | • | + | • | + | 121 A 10029 X     | 121 A 10059 X       | 121 A 20829 X               |
|             | a   |                             | + | • | + | • | + |                   |                     |                             |
| 64          | b   |                             | • | • | • | • | • | 121 A 10039 X     | 121 A 10069 X       | 121 A 20839 X               |
|             | a   |                             | • | • | • | • | • |                   |                     |                             |

Clip for hole diameter 2.8 + 0.1 mm, PCB thickness = 1.6 mm

# TYPE B

## Female connector – straight and angled – 32 and 64 positions



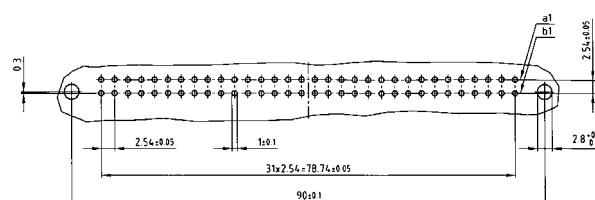
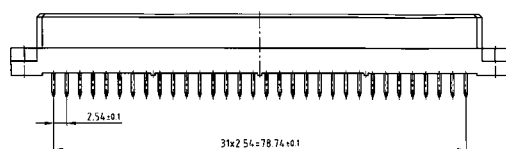
RoHS compliant

### DESCRIPTION

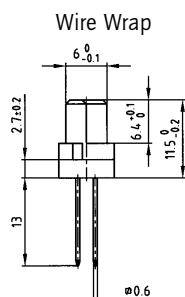
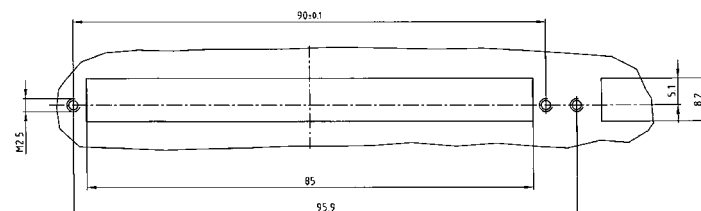
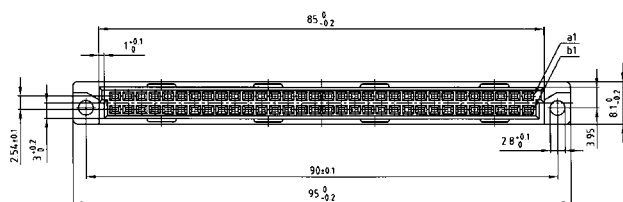
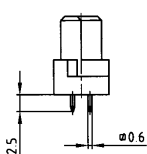
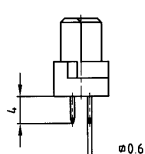
- Solder pin, solder lug and wire wrap
- Quality class 3 (also available in quality class 2 or 1)
- Special assembly on request

### PRODUCT DRAWING

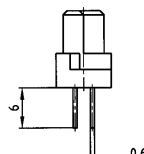
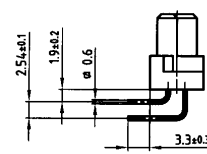
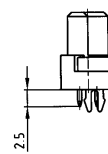
PCB-hole pattern



Panel cutout

Solder pin  
straight 2.5 mmSolder pin  
straight 4 mm

Solder lug

Solder pin  
angledSolder pin straight  
2.5 mm with clip

### ORDER DATA

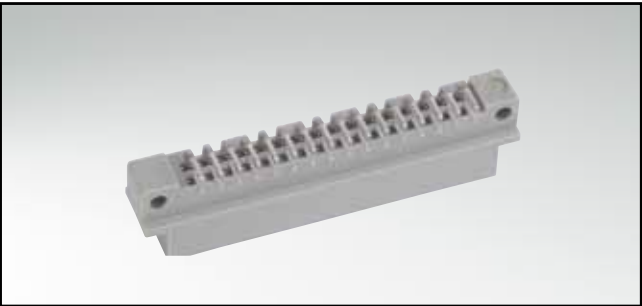
(Dim. = mm)

| No. of Pos. | Row | • = contact, + = no contact |   |   |   |   | Wire Wrap | Solder pin straight 2.5 mm | Solder pin straight 4 mm | Solder lug    | Solder pin angled | Solder pin straight 2.5 mm with clip |
|-------------|-----|-----------------------------|---|---|---|---|-----------|----------------------------|--------------------------|---------------|-------------------|--------------------------------------|
|             |     | Pos.                        | 1 | 2 | 3 | 4 | 5         |                            |                          |               |                   |                                      |
| 32          | a   |                             | • | • | • | • | •         | 122 A 10019 X              | 122 A 10049 X            | 122 A 10079 X | 122 A 10109 X     | 122 A 10139 X                        |
|             | b   |                             | + | + | + | + | +         |                            |                          |               |                   | 122 A 13189 X                        |
| 32          | a   |                             | + | • | + | • | +         | 122 A 10029 X              | 122 A 10059 X            | 122 A 10089 X | 122 A 10119 X     | 122 A 10149 X                        |
|             | b   |                             | + | • | + | • | +         |                            |                          |               |                   | 122 A 13199 X                        |
| 64          | a   |                             | • | • | • | • | •         | 122 A 10039 X              | 122 A 10069 X            | 122 A 10099 X | 122 A 10129 X     | 122 A 10159 X                        |
|             | b   |                             | • | • | • | • | •         |                            |                          |               |                   | 122 A 13209 X                        |

Clip for hole diameter 2.8 + 0.1 mm, PCB thickness = 1.6 mm

TYPE B/2

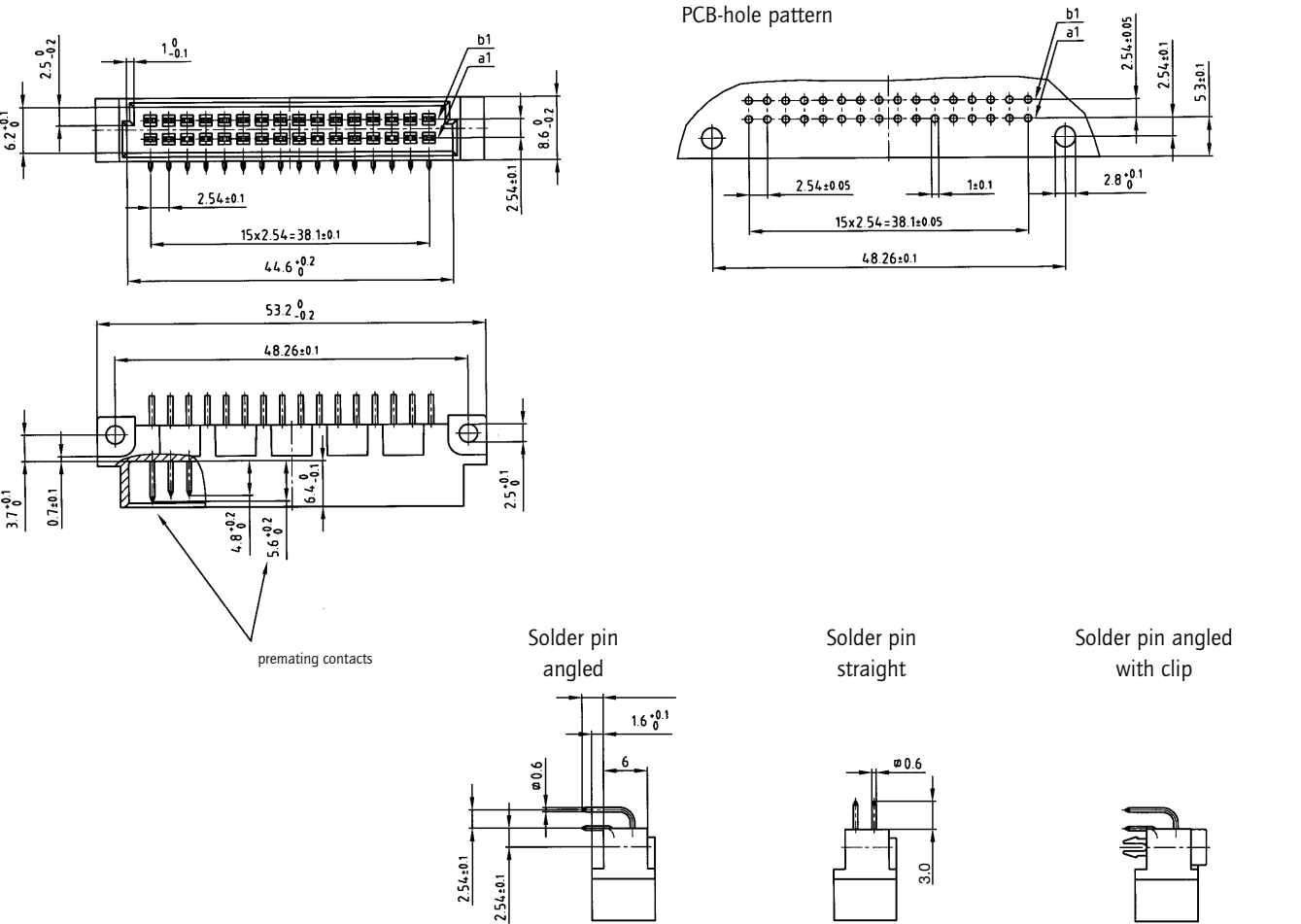
Male connector – straight and angled – 16 and 32 positions



RoHS compliant

- DESCRIPTION
- Solder pin
  - Quality class 3 (also available in quality class 2 or 1)
  - Premating contacts in row "a" und "b" available
  - Special assembly on request

PRODUCT DRAWING



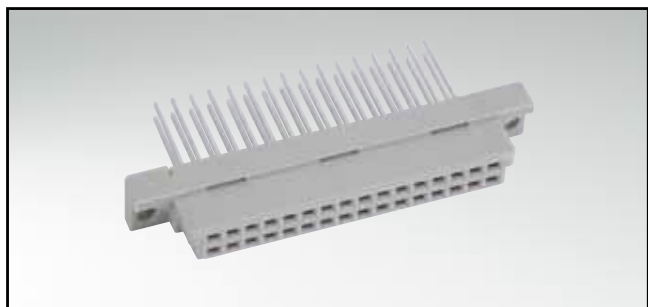
ORDER DATA

| No. of Pos. | Row | • = contact, + = no contact |   |   |   |   |       | Solder pin angled | Solder pin straight | Solder pin angled with clip |
|-------------|-----|-----------------------------|---|---|---|---|-------|-------------------|---------------------|-----------------------------|
|             |     | Pos.                        | 1 | 2 | 3 | 4 | 5 ... |                   |                     |                             |
| 16          | b   |                             | • | • | • | • | •     | 121 A 10259 X     | 121 A 10289 X       | 121 A 20849 X               |
|             | a   |                             | + | + | + | + | +     |                   |                     |                             |
| 16          | b   |                             | • | • | • | • | •     | 121 A 10269 X     | 121 A 10299 X       | 121 A 20859 X               |
|             | a   |                             | + | • | + | • | +     |                   |                     |                             |
| 32          | b   |                             | • | • | • | • | •     | 121 A 10279 X     | 121 A 10309 X       | 121 A 20869 X               |
|             | a   |                             | • | • | • | • | •     |                   |                     |                             |

Clip for hole diameter 2.8 + 0.1 mm, PCB thickness = 1.6 mm

## TYPE B/2

Female connector – straight and angled – 16 and 32 positions

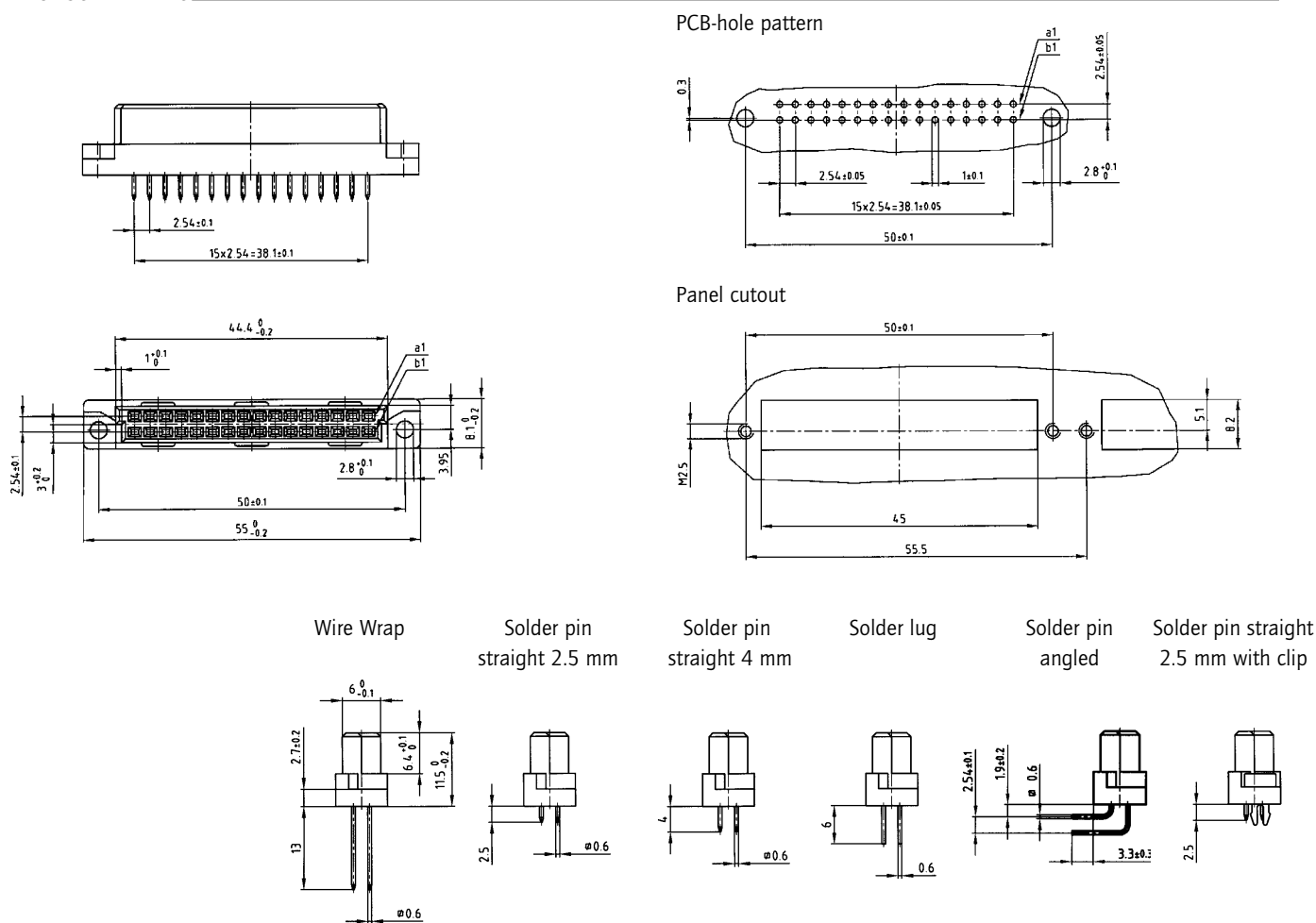


RoHS compliant

### DESCRIPTION

- Solder pin, solder lug and wire wrap
- Quality class 3 (also available in quality class 2 or 1)
- Special assembly on request

### PRODUCT DRAWING



### ORDER DATA

(Dim. = mm)

| No. of Pos. | Row | • = contact, + = no contact |   |   |   |   | Wire Wrap | Solder pin straight 2.5 mm | Solder pin straight 4 mm | Solder lug    | Solder pin angled | Solder pin straight 2.5 mm with clip |
|-------------|-----|-----------------------------|---|---|---|---|-----------|----------------------------|--------------------------|---------------|-------------------|--------------------------------------|
|             |     | Pos.                        | 1 | 2 | 3 | 4 | 5         | ...                        |                          |               |                   |                                      |
| 16          | a   |                             | • | • | • | • | •         |                            | 122 A 10419 X            | 122 A 10449 X | 122 A 10479 X     | 122 A 10509 X                        |
|             | b   |                             | + | + | + | + | +         | +                          |                          | 122 A 10539 X | 122 A 13219 X     |                                      |
| 16          | a   |                             | + | • | + | • | +         | •                          | 122 A 10429 X            | 122 A 10459 X | 122 A 10489 X     | 122 A 10519 X                        |
|             | b   |                             | + | • | + | • | +         | •                          | 122 A 10489 X            | 122 A 10519 X | 122 A 10549 X     | 122 A 13229 X                        |
| 32          | a   |                             | • | • | • | • | •         | •                          | 122 A 10439 X            | 122 A 10469 X | 122 A 10499 X     | 122 A 10529 X                        |
|             | b   |                             | • | • | • | • | •         | •                          | 122 A 10499 X            | 122 A 10529 X | 122 A 10559 X     | 122 A 13239 X                        |

Clip for hole diameter 2.8 ± 0.1 mm, PCB thickness = 1.6 mm

TYPE C

Male connector – straight and angled – 32, 64 and 96 positions

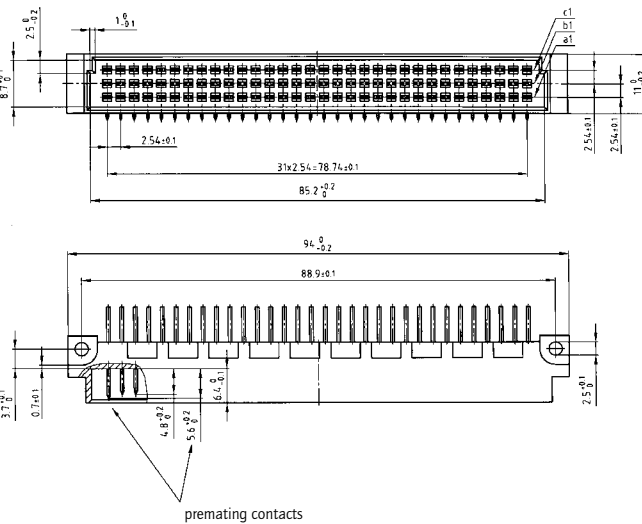


RoHS compliant

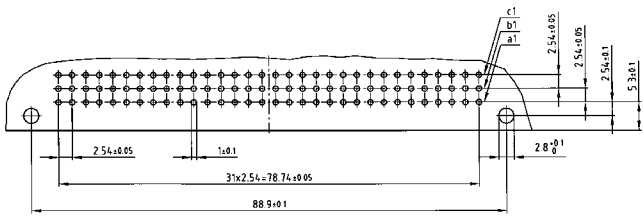
DESCRIPTION

- Solder pin
- Quality class 3 (also available in quality class 2 or 1)
- Premating contacts in row "a", "b" and "c" available
- Special assembly on request

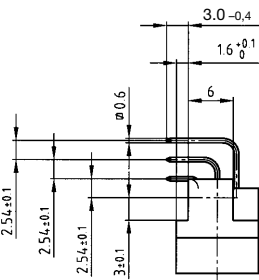
PRODUCT DRAWING



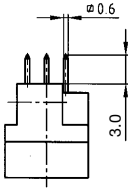
PCB-hole pattern



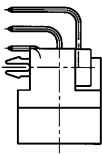
Solder pin angled



Solder pin straight



Solder pin angled with clip



ORDER DATA

| No. of Pos. | Row | • = contact, + = no contact |   |   |   |   |   | Solder pin angled | Solder pin straight | Solder pin angled with clip |
|-------------|-----|-----------------------------|---|---|---|---|---|-------------------|---------------------|-----------------------------|
|             |     | Pos.                        | 1 | 2 | 3 | 4 | 5 |                   |                     |                             |
| 32          | c   |                             | + | + | + | + | + | 121 A 10109 X     | 121 A 10159 X       | 121 A 20879 X               |
|             | b   |                             | + | + | + | + | + |                   |                     |                             |
|             | a   |                             | • | • | • | • | • |                   |                     |                             |
| 32          | c   |                             | + | • | + | • | • | 121 A 10119 X     | 121 A 10169 X       | 121 A 20889 X               |
|             | b   |                             | + | + | + | + | + |                   |                     |                             |
|             | a   |                             | + | • | + | • | • |                   |                     |                             |
| 64          | c   |                             | • | • | • | • | • | 121 A 10139 X     | 121 A 10189 X       | 121 A 20909 X               |
|             | b   |                             | + | + | + | + | + |                   |                     |                             |
|             | a   |                             | • | • | • | • | • |                   |                     |                             |
| 96          | c   |                             | • | • | • | • | • | 121 A 10149 X     | 121 A 10199 X       | 121 A 20919 X               |
|             | b   |                             | • | • | • | • | • |                   |                     |                             |
|             | a   |                             | • | • | • | • | • |                   |                     |                             |

Clip for hole diameter 2.8 ± 0.1 mm, PCB thickness = 1.6 mm

## TYPE C

Female connector – straight and angled – 32, 64 and 96 positions



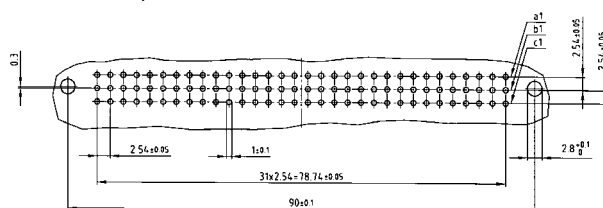
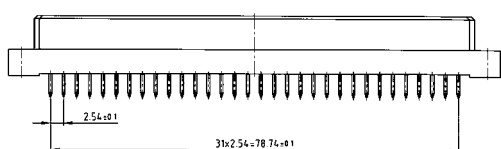
RoHS compliant

### DESCRIPTION

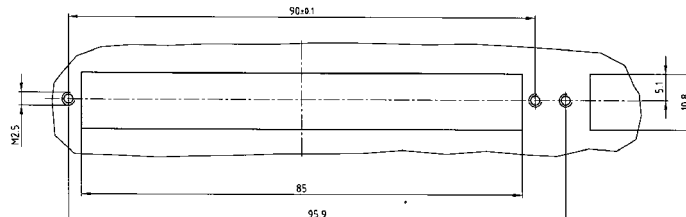
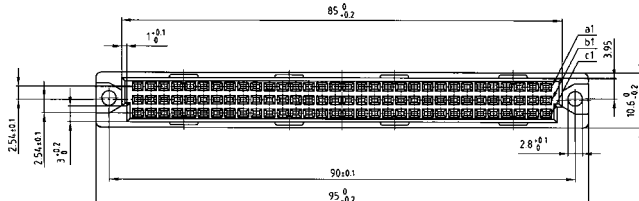
- Solder pin, solder lug and wire wrap
- Quality class 3 (also available in quality class 2 or 1)
- Special assembly on request

### PRODUCT DRAWING

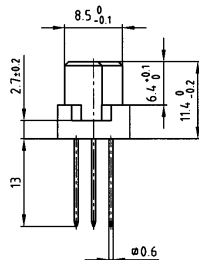
PCB-hole pattern



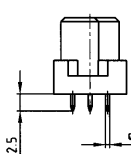
Panel cutout



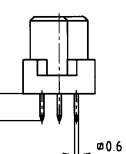
Wire Wrap



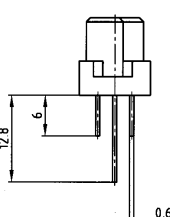
Solder pin straight 2.5 mm



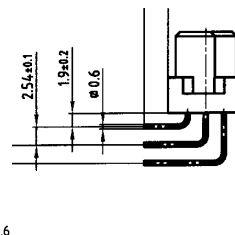
Solder pin straight 4 mm



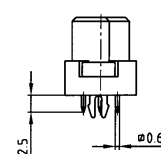
Solder lug



Solder pin angled



Solder pin straight 2.5 mm with clip



### ORDER DATA

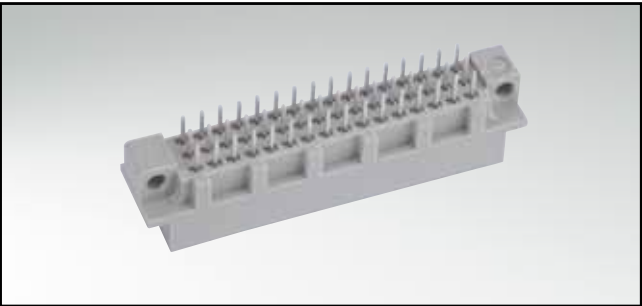
(Dim. = mm)

| No. of Pos. | Row | • = contact, + = no contact |   |   |   |   | Wire Wrap | Solder pin straight 2.5 mm | Solder pin straight 4 mm | Solder lug    | Solder pin angled | Solder pin straight 2.5 mm with clip |
|-------------|-----|-----------------------------|---|---|---|---|-----------|----------------------------|--------------------------|---------------|-------------------|--------------------------------------|
|             |     | Pos.                        | 1 | 2 | 3 | 4 | 5         |                            |                          |               |                   |                                      |
| 32          | a   | •                           | • | • | • | • | •         |                            |                          |               |                   |                                      |
|             | b   | +                           | + | + | + | + | +         | 122 A 10169 X              | 122 A 10219 X            | 122 A 10269 X | 122 A 10319 X     | 122 A 10369 X                        |
|             | c   | +                           | + | + | + | + | +         |                            |                          |               |                   |                                      |
| 32          | a   | +                           | • | • | • | • | •         |                            |                          |               |                   |                                      |
|             | b   | +                           | + | + | + | + | +         | 122 A 10179 X              | 122 A 10229 X            | 122 A 10279 X | 122 A 10329 X     | 122 A 10379 X                        |
|             | c   | +                           | • | • | • | • | •         |                            |                          |               |                   |                                      |
| 64          | a   | •                           | • | • | • | • | •         |                            |                          |               |                   |                                      |
|             | b   | +                           | + | + | + | + | +         | 122 A 10199 X              | 122 A 10249 X            | 122 A 10299 X | 122 A 10349 X     | 122 A 10399 X                        |
|             | c   | •                           | • | • | • | • | •         |                            |                          |               |                   |                                      |
| 96          | a   | •                           | • | • | • | • | •         |                            |                          |               |                   |                                      |
|             | b   | •                           | • | • | • | • | •         | 122 A 10209 X              | 122 A 10259 X            | 122 A 10309 X | 122 A 10359 X     | 122 A 10409 X                        |
|             | c   | •                           | • | • | • | • | •         |                            |                          |               |                   |                                      |

Clip for hole diameter 2.8 + 0.1 mm, PCB thickness = 1.6 mm

TYPE C/2

Male connector – straight and angled – 16, 32 and 48 positions

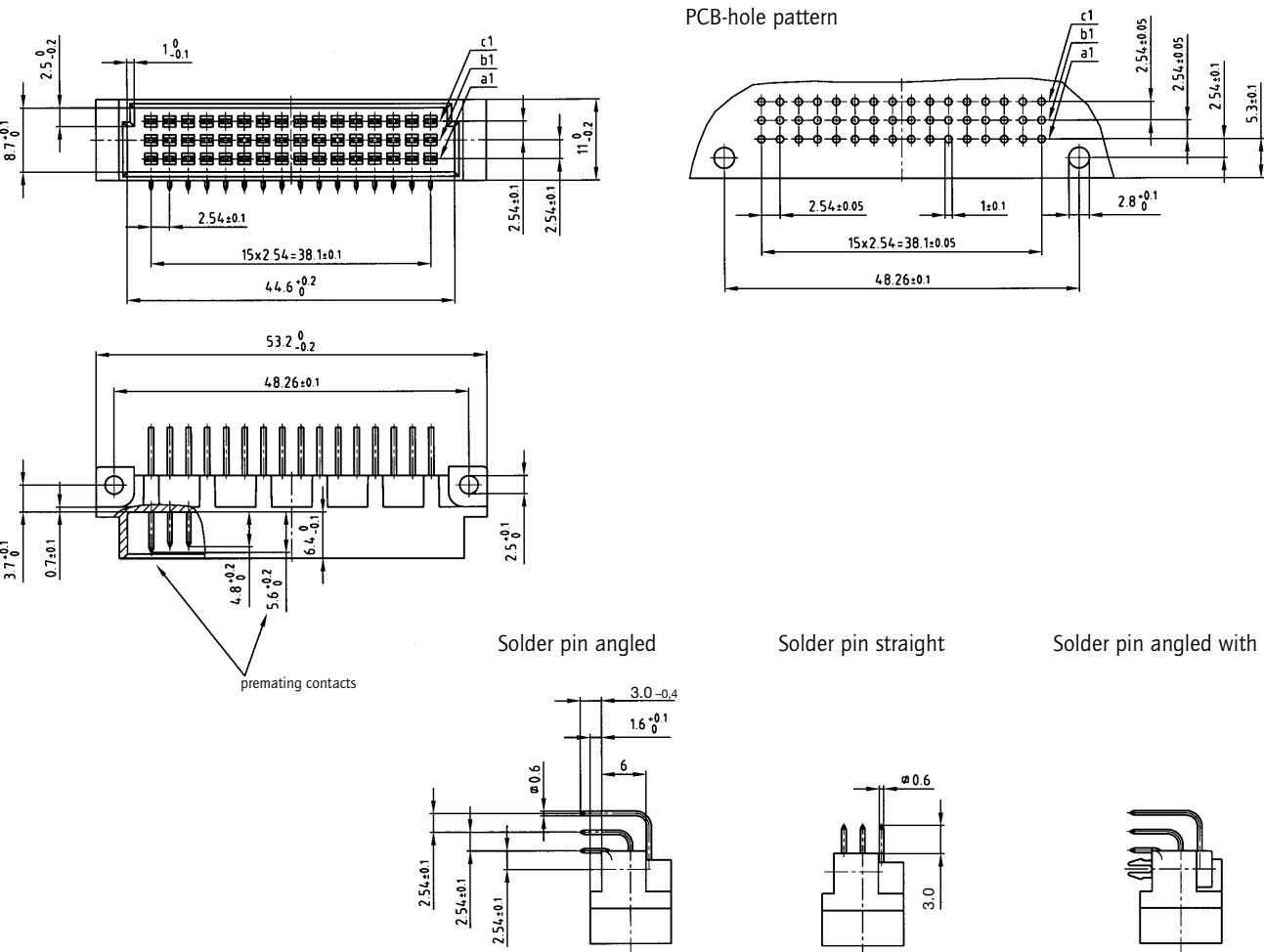


RoHS compliant

DESCRIPTION

- Solder pin
- Quality class 3 (also available in quality class 2 or 1)
- Premating contacts in row "a", "b" and "c" available
- Special assembly on request

PRODUCT DRAWING



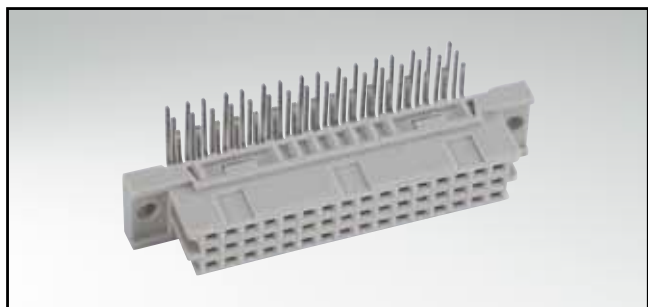
ORDER DATA

| No. of Pos. | Row | • = contact, + = no contact |   |   |   |   |   | Solder pin angled | Solder pin straight | Solder pin angled with clip |
|-------------|-----|-----------------------------|---|---|---|---|---|-------------------|---------------------|-----------------------------|
|             |     | Pos.                        | 1 | 2 | 3 | 4 | 5 |                   |                     |                             |
| 16          | c   |                             | + | + | + | + | + | 121 A 10349 X     | 121 A 10399 X       | 121 A 20929 X               |
|             | b   |                             | + | + | + | + | + |                   |                     |                             |
|             | a   |                             | • | • | • | • | • |                   |                     |                             |
| 16          | c   |                             | + | • | + | • | + | 121 A 10359 X     | 121 A 10409 X       | 121 A 20939 X               |
|             | b   |                             | + | + | + | + | + |                   |                     |                             |
|             | a   |                             | + | • | + | • | + |                   |                     |                             |
| 32          | c   |                             | • | • | • | • | • | 121 A 10379 X     | 121 A 10429 X       | 121 A 20959 X               |
|             | b   |                             | + | + | + | + | + |                   |                     |                             |
|             | a   |                             | • | • | • | • | • |                   |                     |                             |
| 48          | c   |                             | • | • | • | • | • | 121 A 10389 X     | 121 A 10439 X       | 121 A 20969 X               |
|             | b   |                             | • | • | • | • | • |                   |                     |                             |
|             | a   |                             | • | • | • | • | • |                   |                     |                             |

Clip for hole diameter 2.8 + 0.1 mm, PCB thickness = 1.6 mm

# TYPE C/2

Female connector – straight and angled – 16, 32 and 48 positions



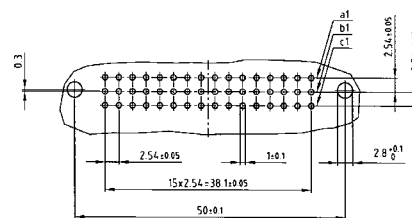
RoHS compliant

## DESCRIPTION

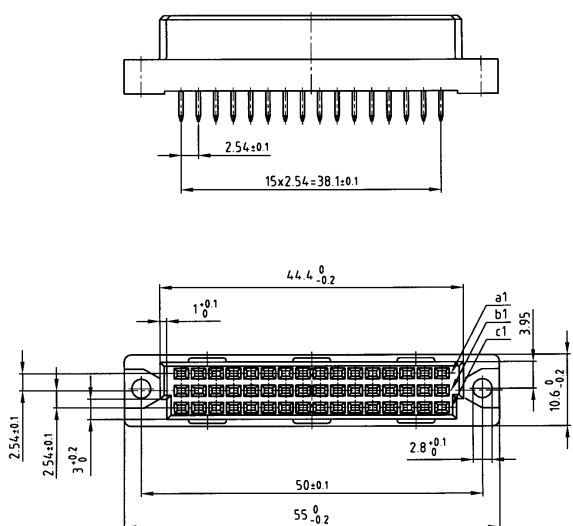
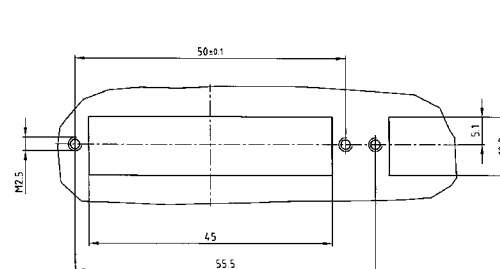
- Solder pin, solder lug and wire wrap
- Quality class 3 (also available in quality class 2 or 1)
- Special assembly on request

## PRODUCT DRAWING

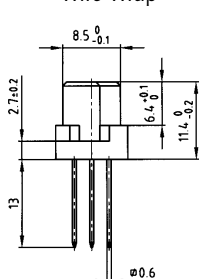
PCB-hole pattern



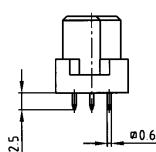
Panel cutout



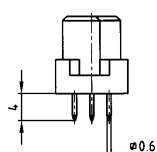
Wire Wrap



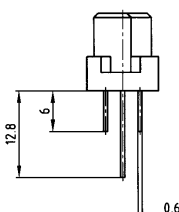
Solder pin straight 2.5 mm



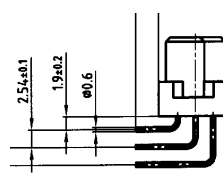
Solder pin straight 4 mm



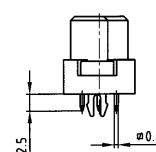
Solder lug



Solder pin angled



Solder pin straight 2.5 mm with clip



## ORDER DATA

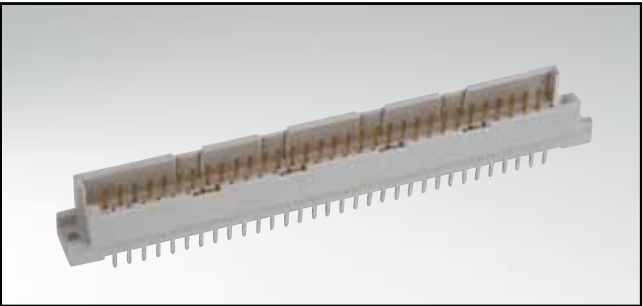
(Dim. = mm)

| No. of Pos. | Row | • = contact, + = no contact |   |   |   |   | Wire Wrap | Solder pin straight 2.5 mm | Solder pin straight 4 mm | Solder lug | Solder pin angled | Solder pin straight 2,5 mm with clip |
|-------------|-----|-----------------------------|---|---|---|---|-----------|----------------------------|--------------------------|------------|-------------------|--------------------------------------|
|             |     | Pos.                        | 1 | 2 | 3 | 4 | 5         |                            |                          |            |                   |                                      |
| 16          | a   |                             | • | • | • | • | •         |                            |                          |            |                   |                                      |
|             | b   |                             | + | + | + | + | +         |                            |                          |            |                   |                                      |
|             | c   |                             | + | + | + | + | +         |                            |                          |            |                   |                                      |
| 16          | a   |                             | + | • | + | • | •         |                            |                          |            |                   |                                      |
|             | b   |                             | + | + | + | + | +         |                            |                          |            |                   |                                      |
|             | c   |                             | + | • | + | • | •         |                            |                          |            |                   |                                      |
| 32          | a   |                             | • | • | • | • | •         |                            |                          |            |                   |                                      |
|             | b   |                             | + | + | + | + | +         |                            |                          |            |                   |                                      |
|             | c   |                             | • | • | • | • | •         |                            |                          |            |                   |                                      |
| 48          | a   |                             | • | • | • | • | •         |                            |                          |            |                   |                                      |
|             | b   |                             | • | • | • | • | •         |                            |                          |            |                   |                                      |
|             | c   |                             | • | • | • | • | •         |                            |                          |            |                   |                                      |

Clip for hole diameter 2.8 + 0.1 mm, PCB thickness = 1.6 mm

TYPE R

Male connector – straight – 32, 64 and 96 positions

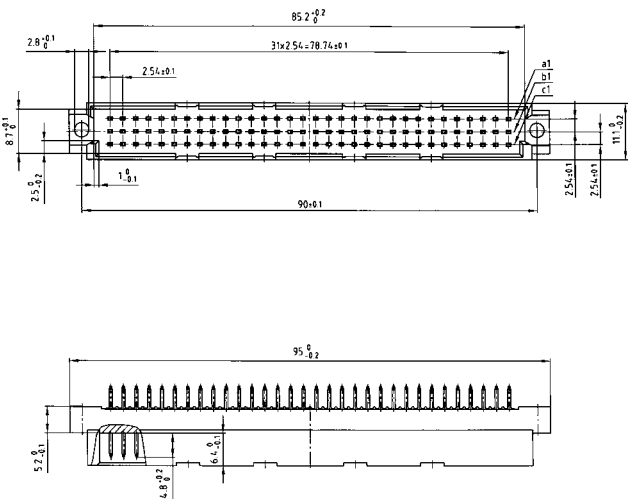


RoHS compliant

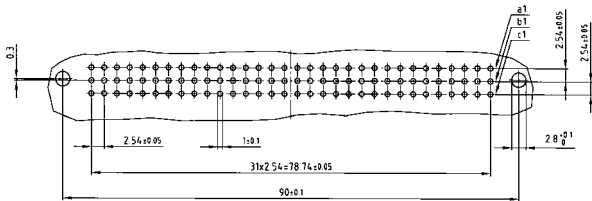
DESCRIPTION

- Solder pin and wire wrap
- Quality class 3 (also available in quality class 2 or 1)

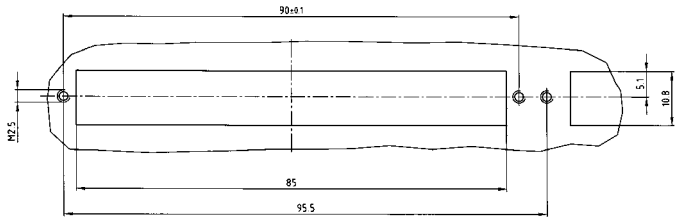
PRODUCT DRAWING



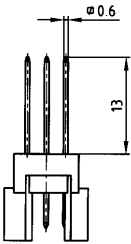
PCB-hole pattern



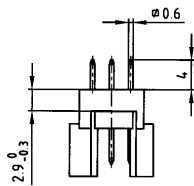
Panel cutout



Wire Wrap



Solder pin straight



ORDER DATA

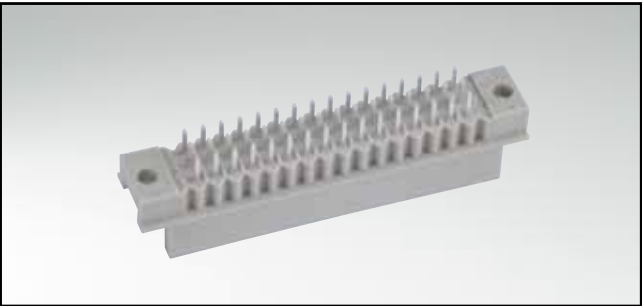
(Dim. = mm)

| No. of Pos. | Row | • = contact, + = no contact |   |   |   |   |   | Wire Wrap     | Solder pin straight |
|-------------|-----|-----------------------------|---|---|---|---|---|---------------|---------------------|
|             |     | Pos.                        | 1 | 2 | 3 | 4 | 5 |               |                     |
| 32          | a   |                             | + | • | + | • | + | 121 A 10509 X | 121 A 10549 X       |
|             | b   |                             | + | + | + | + | + |               |                     |
|             | c   |                             | + | • | + | • | + |               |                     |
| 64          | a   |                             | • | • | • | • | • | 121 A 10519 X | 121 A 10559 X       |
|             | b   |                             | + | + | + | + | + |               |                     |
|             | c   |                             | • | • | • | • | • |               |                     |
| 96          | a   |                             | • | • | • | • | • | 121 A 10529 X | 121 A 10569 X       |
|             | b   |                             | • | • | • | • | • |               |                     |
|             | c   |                             | • | • | • | • | • |               |                     |



TYPE R/2

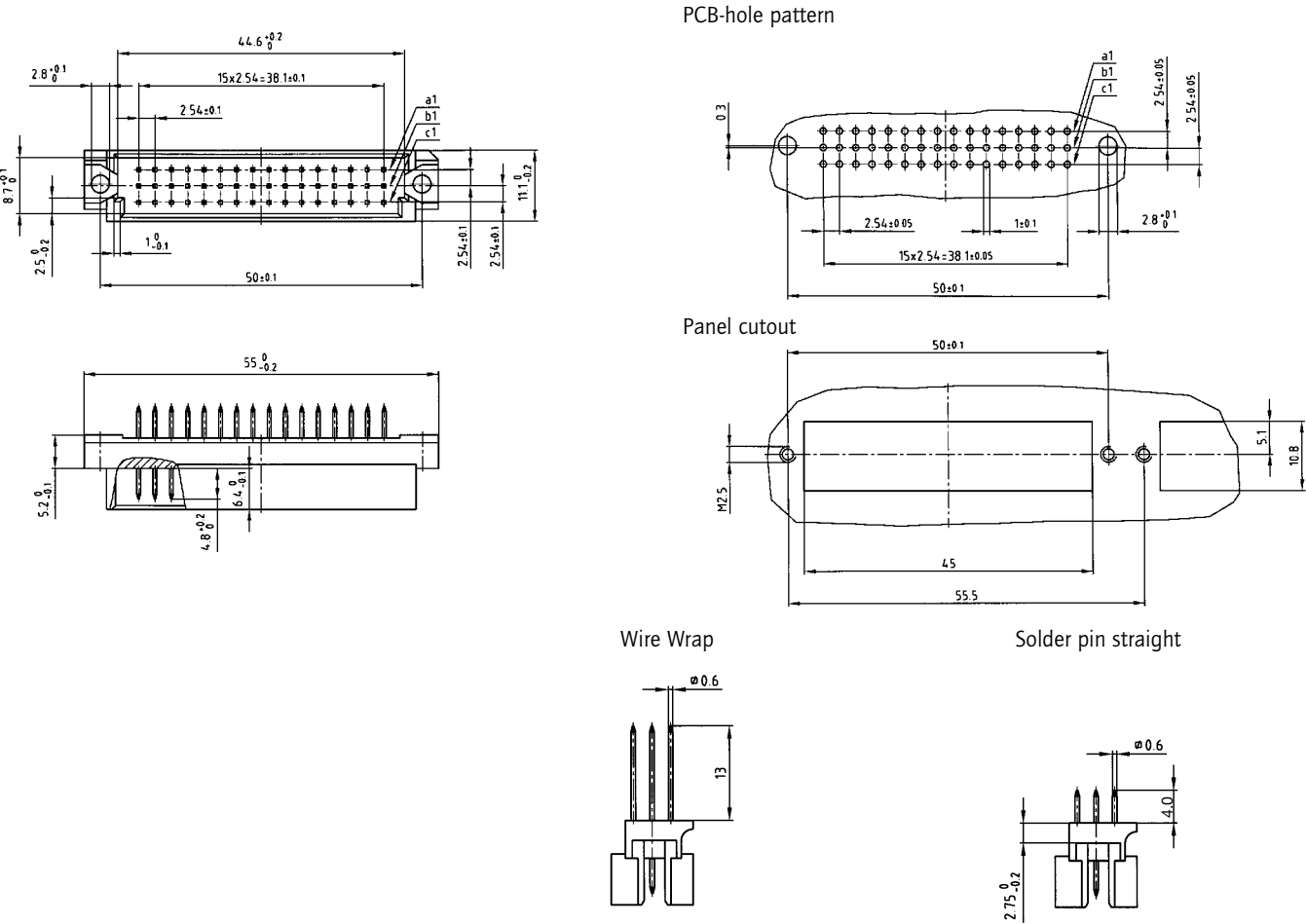
Male connector – straight – 32 and 48 positions



RoHS compliant

- DESCRIPTION
- Solder pin and wire wrap
  - Quality class 3 (also available in quality class 2 or 1)

PRODUCT DRAWING



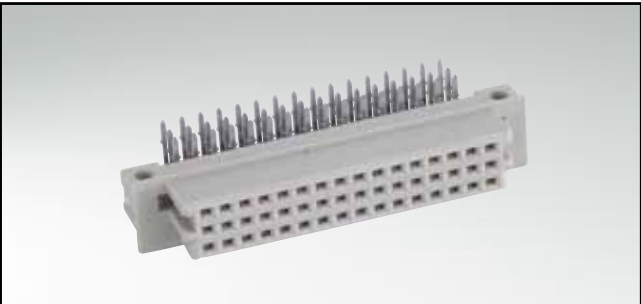
ORDER DATA

(Dim. = mm)

| No. of Pos. | Row | • = contact, + = no contact |   |   |   |   |   | Wire Wrap     | Solder pin straight |
|-------------|-----|-----------------------------|---|---|---|---|---|---------------|---------------------|
|             |     | Pos.                        | 1 | 2 | 3 | 4 | 5 |               |                     |
| 32          | a   |                             | • | • | • | • | • | 121 A 10589 X | 121 A 10619 X       |
|             | b   | +                           | + | + | + | + | + |               |                     |
|             | c   |                             | • | • | • | • | • |               |                     |
| 48          | a   |                             | • | • | • | • | • | 121 A 10599 X | 121 A 10629 X       |
|             | b   |                             | • | • | • | • | • |               |                     |
|             | c   |                             | • | • | • | • | • |               |                     |

# TYPE R/2

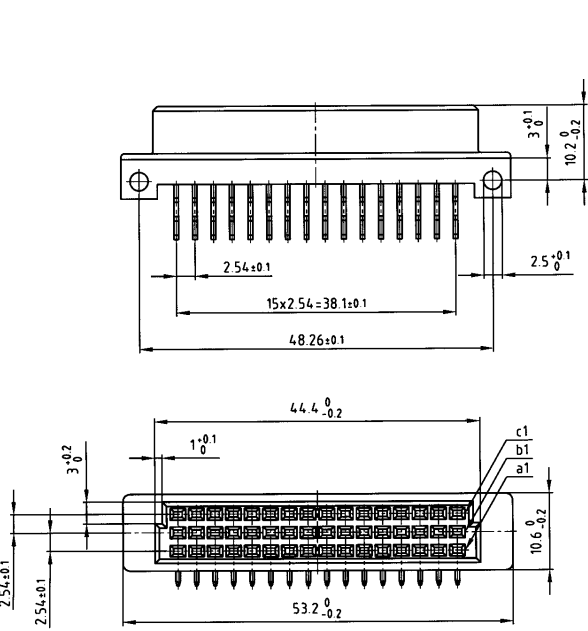
Female connector – angled – 32 and 48 positions



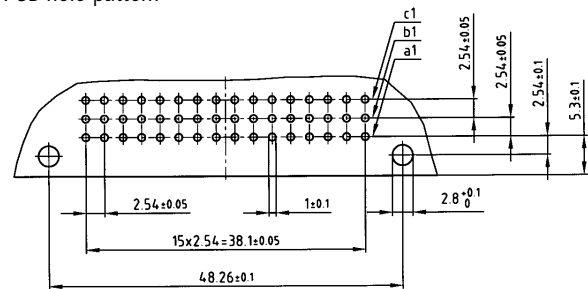
RoHS compliant

- DESCRIPTION
- Solder pin
  - Quality class 3 (also available in quality class 2 or 1)

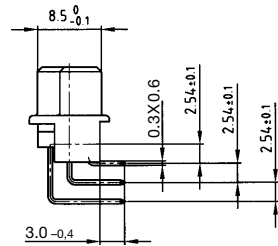
PRODUCT DRAWING



PCB-hole pattern



Solder pin angled



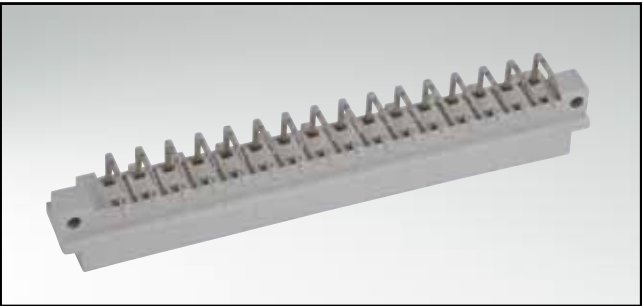
ORDER DATA

(Dim. = mm)

| No. of Pos. | Row | • = contact, + = no contact |   |   |   |   |   | Solder pin angled |
|-------------|-----|-----------------------------|---|---|---|---|---|-------------------|
|             |     | Pos.                        | 1 | 2 | 3 | 4 | 5 |                   |
| 32          | c   |                             | • | • | • | • | • | 122 A 10879 X     |
|             | b   |                             | + | + | + | + | + |                   |
|             | a   |                             | • | • | • | • | • |                   |
| 48          | c   |                             | • | • | • | • | • | 122 A 10889 X     |
|             | b   |                             | • | • | • | • | • |                   |
|             | a   |                             | • | • | • | • | • |                   |

TYPE D

Male connector – straight and angled – 16 and 32 positions

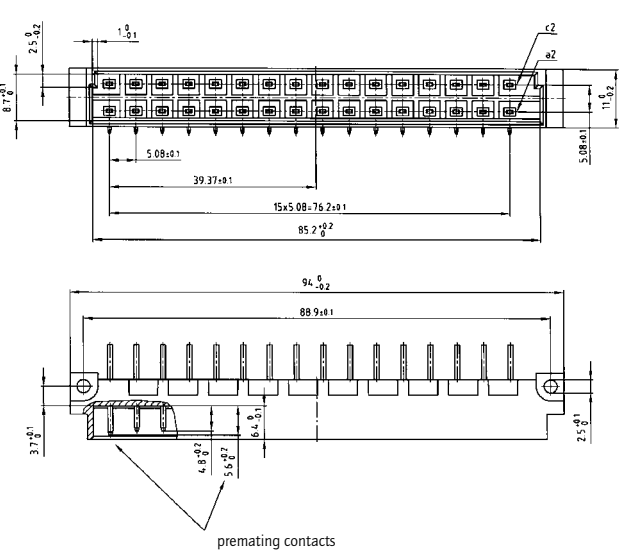


RoHS compliant

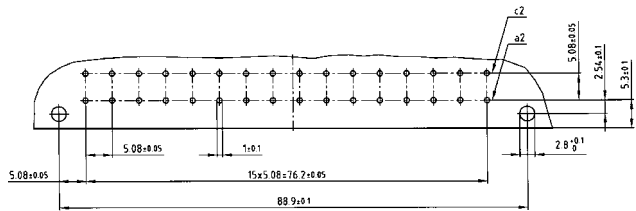
DESCRIPTION

- Solder pin
- Quality class 3 (also available in quality class 2 or 1)
- premating contacts in row "a" available
- Special assembly on request

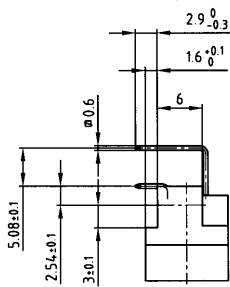
PRODUCT DRAWING



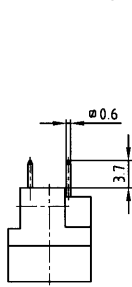
PCB-hole pattern



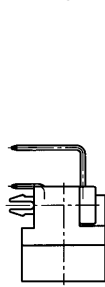
Solder pin angled



Solder pin straight



Solder pin angled with clip



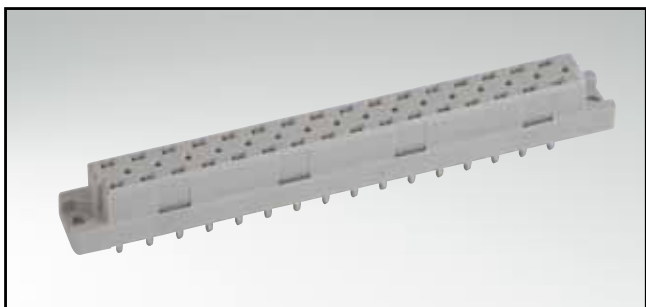
ORDER DATA

| No. of Pos. | Row | • = contact, + = no contact |   |   |       | Solder pin angled | Solder pin straight | Solder pin angled with clip |
|-------------|-----|-----------------------------|---|---|-------|-------------------|---------------------|-----------------------------|
|             |     | Pos.                        | 2 | 4 | 6 ... |                   |                     |                             |
| 16          | c   |                             | • | + | •     | 121 A 10639 X     | 121 A 10659 X       | 121 A 20979 X               |
|             | a   |                             | • | + | •     |                   |                     |                             |
| 32          | c   |                             | • | • | •     | 121 A 10649 X     | 121 A 10669 X       | 121 A 20989 X               |
|             | a   |                             | • | • | •     |                   |                     |                             |

Clip for hole diameter 2.8 + 0.1 mm, PCB thickness = 1.6 mm

## TYPE D

### Female connector – straight – 16 and 32 positions



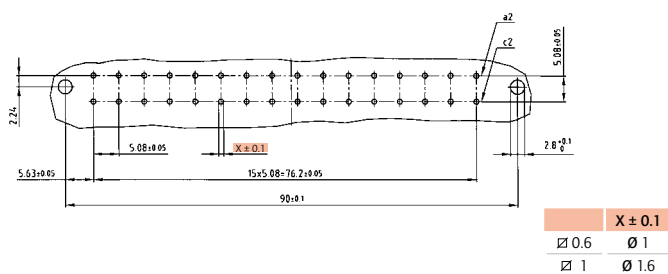
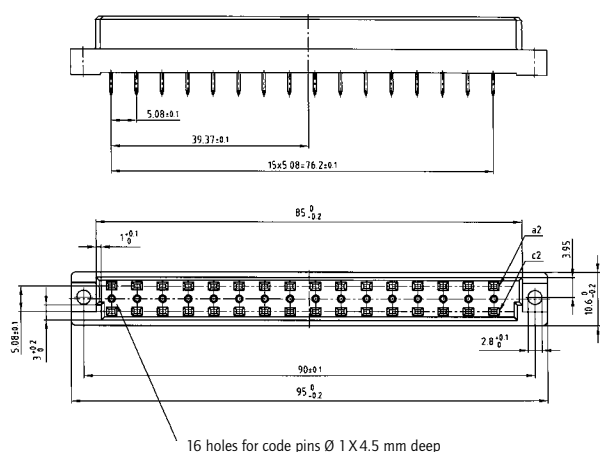
RoHS compliant

#### DESCRIPTION

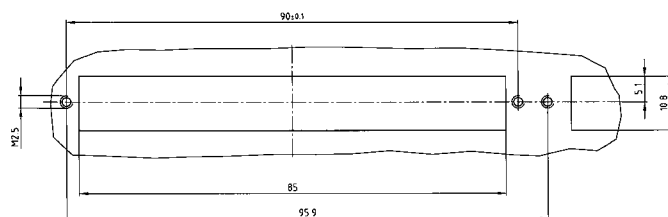
- Solder pin, wire wrap and solder lug
- Quality class 3 (also available in quality class 2 or 1)
- Special assembly on request

#### PRODUCT DRAWING

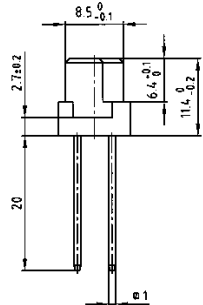
##### PCB-hole pattern



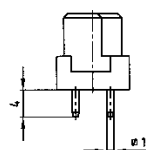
##### Panel cutout



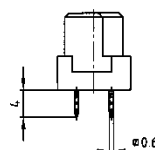
##### Wire Wrap



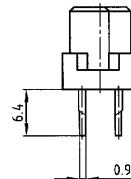
##### Solder pin straight 4 mm



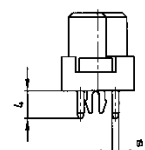
##### Solder pin straight 4 mm



##### Solder lug



##### Solder pin straight 4 mm with clip



#### ORDER DATA

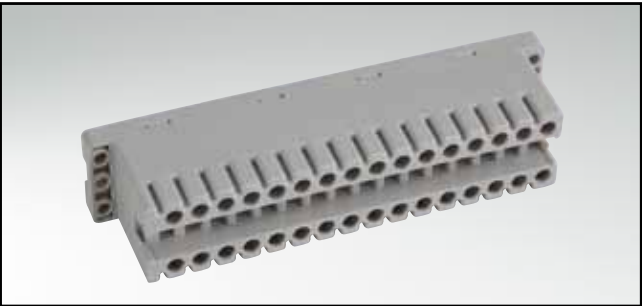
(Dim. = mm)

| No. of Pos. | Row | • = contact, + = no contact |   |   |       | Wire Wrap     | Solder pin straight 4.0 mm Ø 1 mm | Solder pin straight 4.0 mm Ø 0.6 mm | Solder lug    | Solder pin straight 4mm Ø 1mm w. clip |
|-------------|-----|-----------------------------|---|---|-------|---------------|-----------------------------------|-------------------------------------|---------------|---------------------------------------|
|             |     | Pos.                        | 2 | 4 | 6 ... |               |                                   |                                     |               |                                       |
| 16          | a   |                             | • | + | •     | 122 A 10919 X | 122 A 10939 X                     | 122 A 13079 X                       | 122 A 10959 X | 122 A 13349 X                         |
|             | c   |                             | • | + | •     |               |                                   |                                     |               |                                       |
| 32          | a   |                             | • | • | •     | 122 A 10929 X | 122 A 10949 X                     | 122 A 13089 X                       | 122 A 10969 X | 122 A 13359 X                         |
|             | c   |                             | • | • | •     |               |                                   |                                     |               |                                       |

Clip for hole diameter 2.8 ± 0.1 mm, PCB thickness = 1.6 mm

TYPE D WITH SCREW TERMINATION

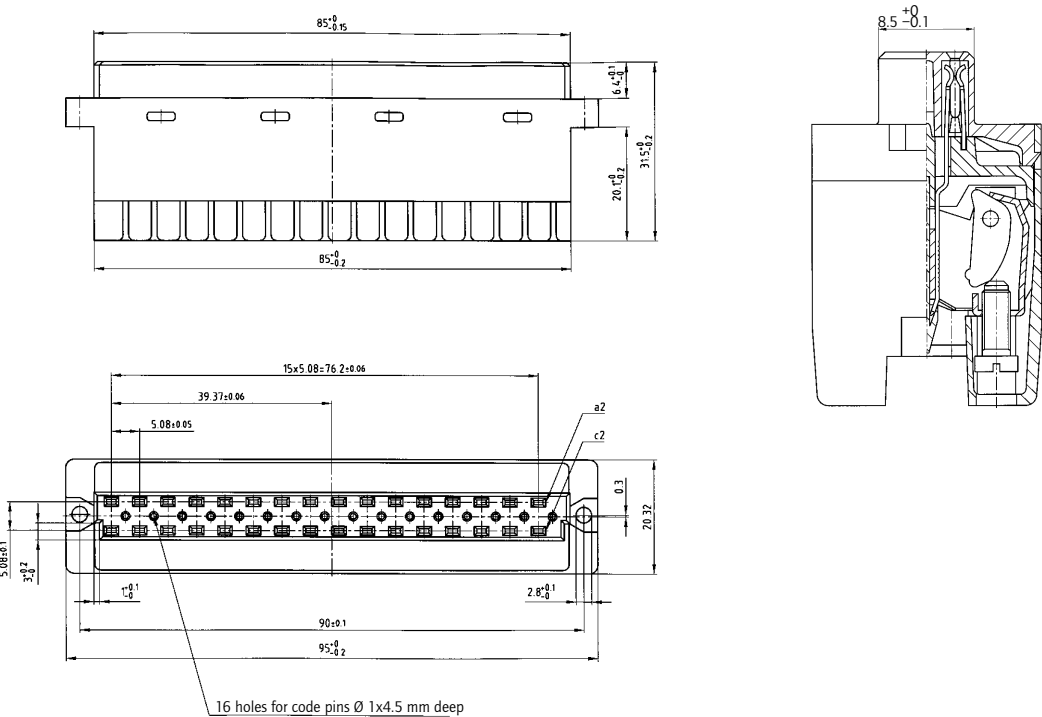
Female connector – straight – 32 positions



RoHS compliant

| TECHNICAL DATA         |                 |
|------------------------|-----------------|
| Conductor size:        | AWG 24 to 16    |
| Operating voltage:     | 6 A             |
| Rated voltage:         | 300 / 250 V~    |
| Insulator:             | PBT GF grey     |
| Operating temperature: | -55°C to +120°C |
| Flammability:          | UL 94 V-0       |
| Material:              | Copper alloy    |
| Contact plating:       | Quality class 2 |
| Screw connection:      | Steel           |

PRODUCT DRAWING

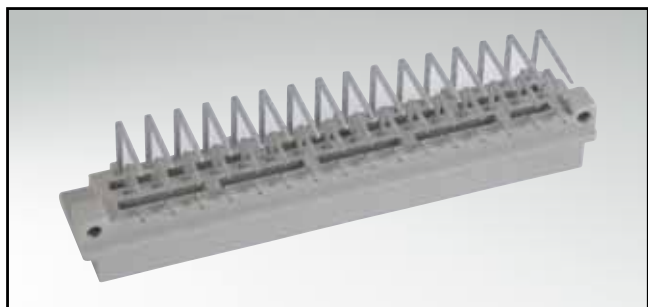


ORDER DATA (Dim. = mm)

| No. of Pos. | Row    | Female connector | Latches with strain relief angled | Latches without strain relief straight |
|-------------|--------|------------------|-----------------------------------|----------------------------------------|
| 32          | c<br>a | 122 B 13029 X    | 12-500600                         | 12-500590                              |

# TYPE E

## Male connector – angled – 32 and 48 positions

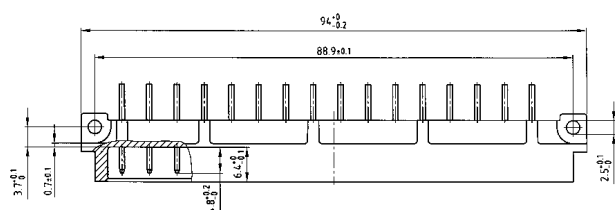
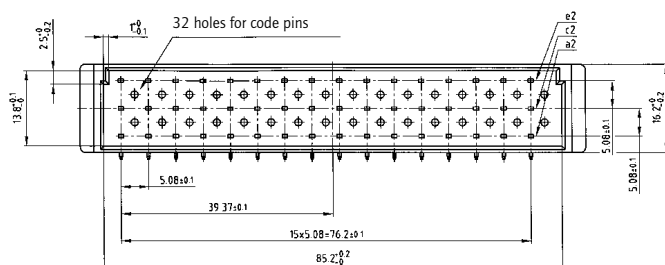


RoHS compliant

### DESCRIPTION

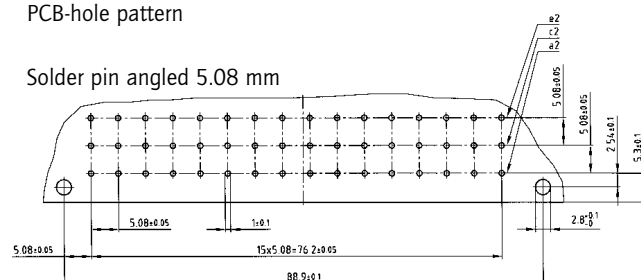
- Solder pin
- Quality class 3 (also available in quality class 2 or 1)

### PRODUCT DRAWING

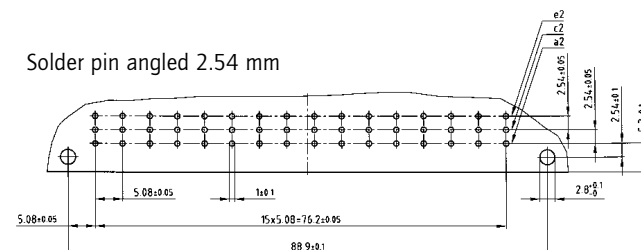


### PCB-hole pattern

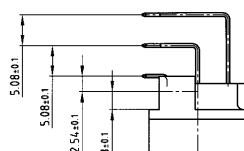
#### Solder pin angled 5.08 mm



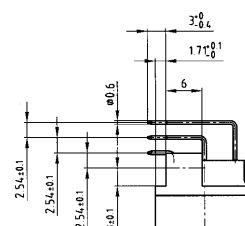
#### Solder pin angled 2.54 mm



#### Solder pin angled contact spacing 5.08 mm



#### Solder pin angled contact spacing 2.54 mm



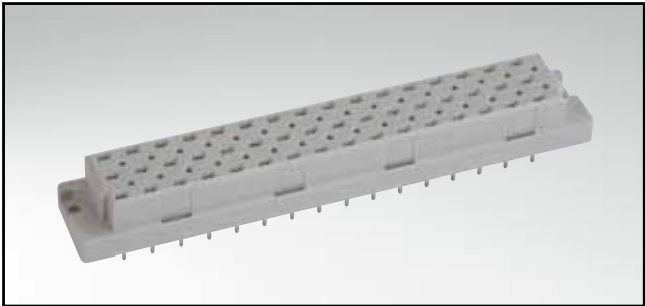
### ORDER DATA

(Dim. = mm)

| No. of Pos. | Row | • = contact, + = no contact |   |   |   | Solder pin angled<br>contact spacing 5.08 mm | Solder pin angled<br>contact spacing 2.54 mm |
|-------------|-----|-----------------------------|---|---|---|----------------------------------------------|----------------------------------------------|
|             |     | Pos.                        | 2 | 4 | 6 |                                              |                                              |
| 32          | e   |                             | + | + | + | 121 A 20789 X                                | 121 A 20779 X                                |
|             | c   |                             | • | • | • |                                              |                                              |
|             | a   |                             | • | • | • |                                              |                                              |
| 32          | e   |                             | • | • | • | 121 A 20809 X                                | 121 A 20799 X                                |
|             | c   |                             | + | + | + |                                              |                                              |
|             | a   |                             | • | • | • |                                              |                                              |
| 48          | e   |                             | • | • | • | 121 A 10859 X                                | 121 A 10849 X                                |
|             | c   |                             | • | • | • |                                              |                                              |
|             | a   |                             | • | • | • |                                              |                                              |

TYPE E

Female connector – straight – 32 and 48 positions



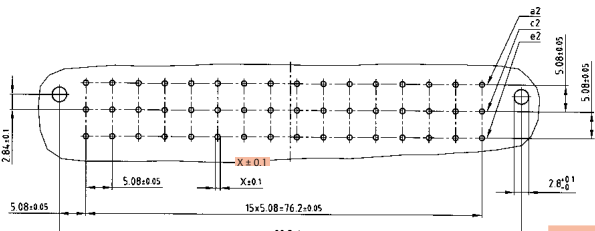
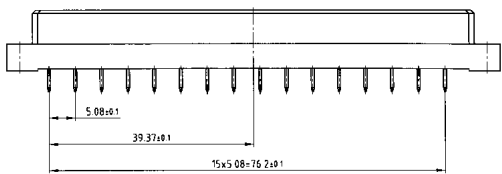
RoHS compliant

DESCRIPTION

- Solder pin, wire wrap and solder lug
- Quality class 3 (also available in quality class 2 or 1)
- Special assembly on request

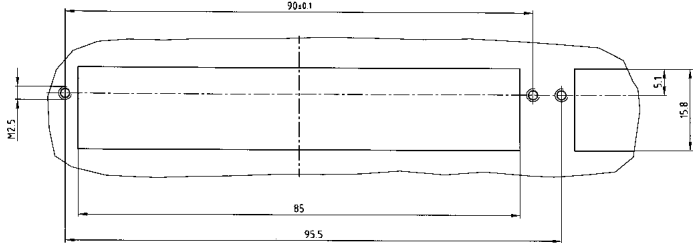
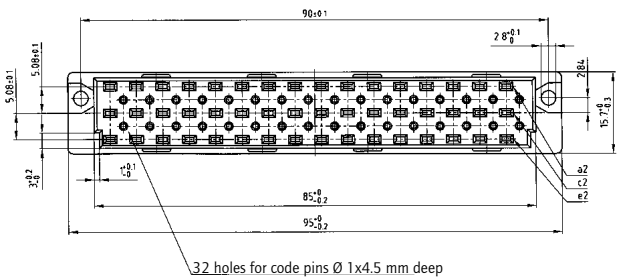
PRODUCT DRAWING

PCB-hole pattern

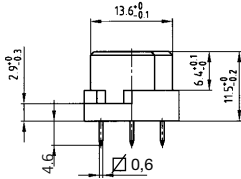


Panel cutout

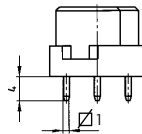
| X ± 0,1 |       |
|---------|-------|
| Ø 0.6   | Ø 1   |
| Ø 1     | Ø 1.6 |



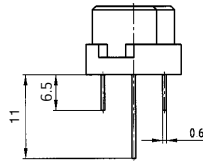
Solder pin  
straight 4.6 mm



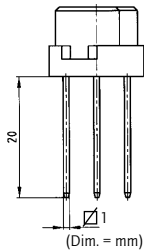
Solder pin  
straight 4 mm



Solder lug



Wire Wrap

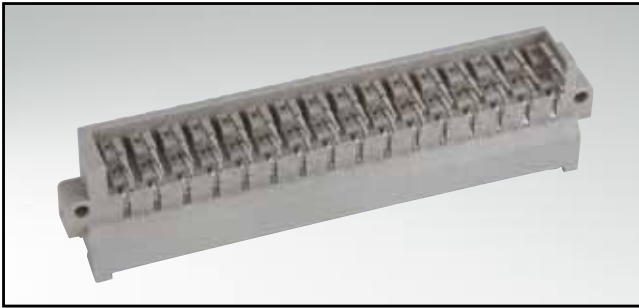


ORDER DATA

| No. of Pos. | Row | • = contact, + = no contact |   |   |   | Solder pin straight<br>4.6 mm Ø 0.6 mm | Solder pin straight<br>4.0 mm Ø 1 mm | Solder lug    | Wire Wrap     |
|-------------|-----|-----------------------------|---|---|---|----------------------------------------|--------------------------------------|---------------|---------------|
|             |     | Pos.                        | 2 | 4 | 6 |                                        |                                      |               |               |
| 32          | a   |                             | • | • | • | 122 A 13099 X                          | 122 A 13129 X                        | 122 A 13149 X | 122 A 13169 X |
|             | c   |                             | • | • | • |                                        |                                      |               |               |
|             | e   |                             | + | + | + |                                        |                                      |               |               |
| 32          | a   |                             | • | • | • | 122 A 13109 X                          | 122 A 13139 X                        | 122 A 13159 X | 122 A 13179 X |
|             | c   |                             | + | + | + |                                        |                                      |               |               |
|             | e   |                             | • | • | • |                                        |                                      |               |               |
| 48          | a   |                             | • | • | • | 122 A 13119 X                          | 122 A 11619 X                        | 122 A 11629 X | 122 A 11609 X |
|             | c   |                             | • | • | • |                                        |                                      |               |               |
|             | e   |                             | • | • | • |                                        |                                      |               |               |

# TYPE F

Male connector – straight and angled – 32 and 48 positions

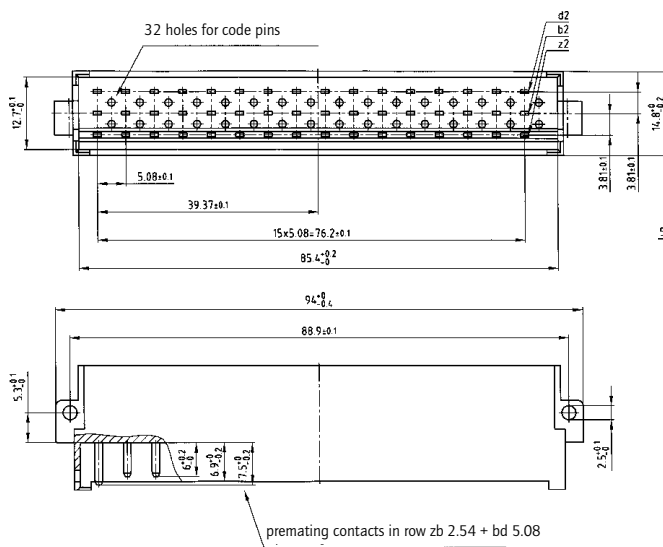


RoHS compliant

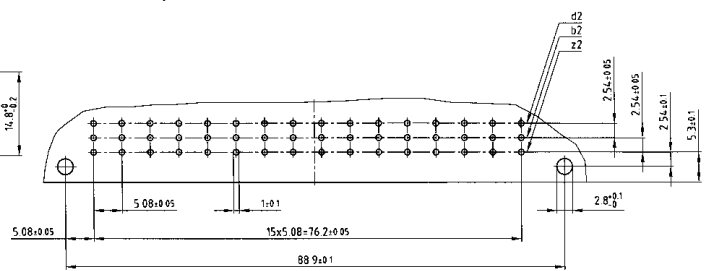
## DESCRIPTION

- Solder pin
- Quality class 3 (also available in quality class 2 or 1)
- Premating contacts in row "z", "b" and "d" available
- Special assembly on request

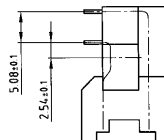
## PRODUCT DRAWING



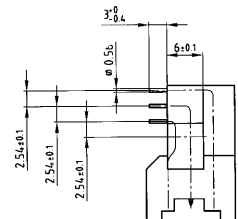
## PCB-hole pattern



Solder pin angled  
contact spacing 5.08 mm



Solder pin angled  
contact spacing 2.54 mm



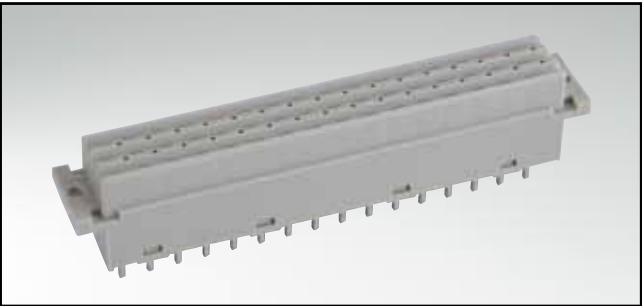
## ORDER DATA

(Dim. = mm)

| No. of Pos. | Row | • = contact, + = no contact |   |   |       | Contact spacing | Solder pin angled |
|-------------|-----|-----------------------------|---|---|-------|-----------------|-------------------|
|             |     | Pos.                        | 2 | 4 | 6 ... |                 |                   |
| 32          | d   |                             | + | + | +     | 2.54 mm         | 121 A 10699 X     |
|             | b   |                             | • | • | •     |                 |                   |
|             | z   |                             | • | • | •     |                 |                   |
| 32          | d   |                             | • | • | •     | 5.08 mm         | 121 A 10709 X     |
|             | b   |                             | + | + | +     |                 |                   |
|             | z   |                             | • | • | •     |                 |                   |
| 48          | d   |                             | • | • | •     | 2.54 mm         | 121 A 10719 X     |
|             | b   |                             | • | • | •     |                 |                   |
|             | z   |                             | • | • | •     |                 |                   |

TYPE F

Female connector – straight – 32 and 48 positions

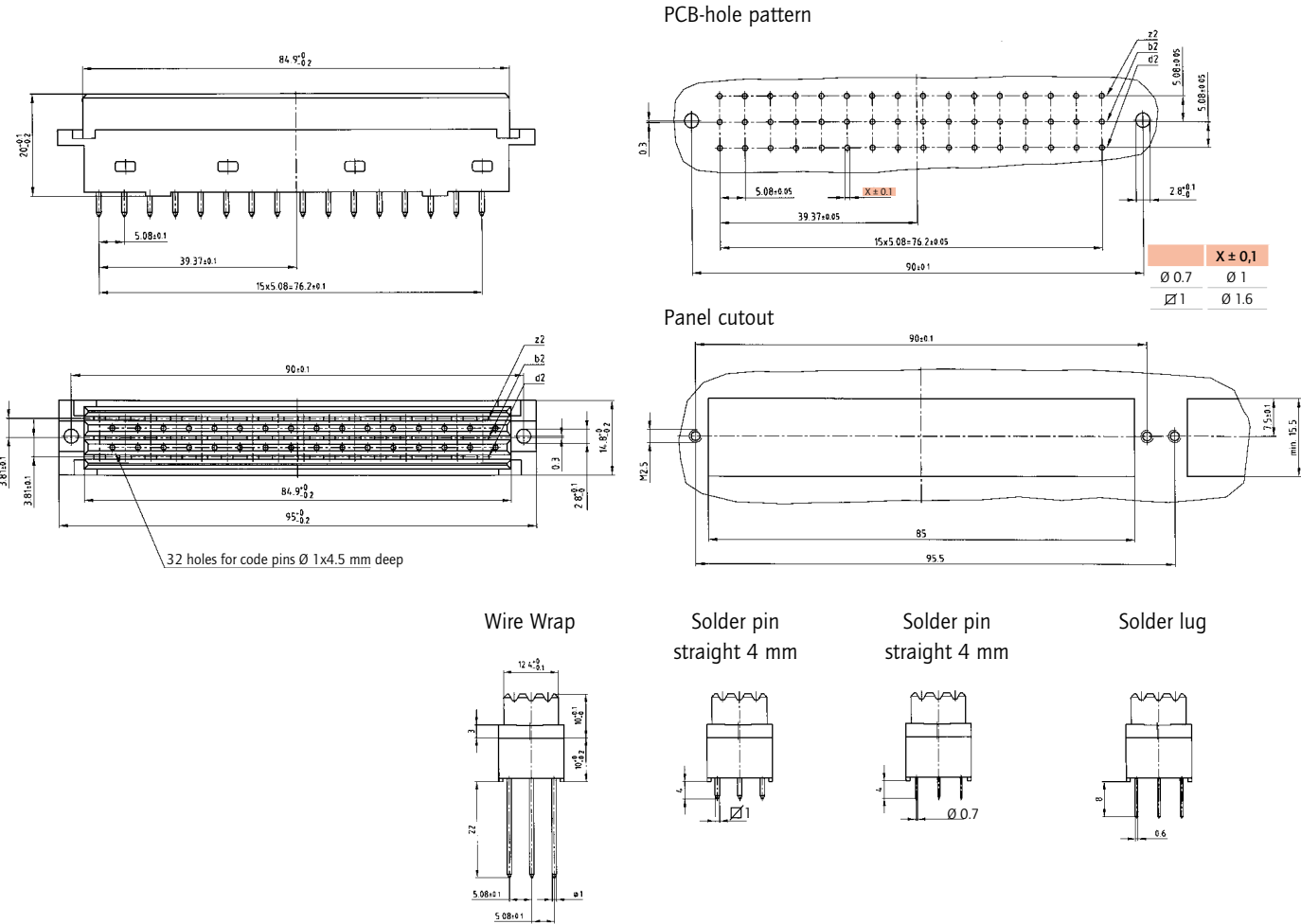


RoHS compliant

DESCRIPTION

- Solder pin, wire wrap and solder lug
- Quality class 3 (also available in quality class 2 or 1)
- Special assembly on request

PRODUCT DRAWING

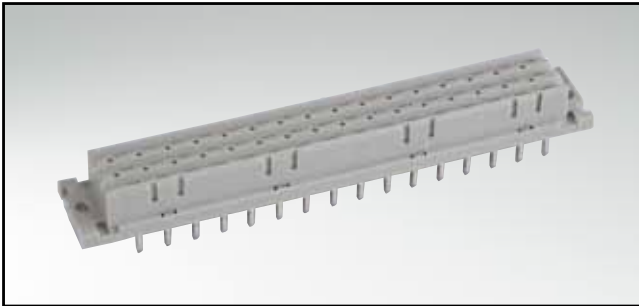


ORDER DATA

| No. of Pos. | Row | • = contact, + = no contact |   |   |   | Wire Wrap     | Solder pin straight<br>Ø 1 mm | Solder pin straight<br>Ø 0.7 mm | Solder lug    |
|-------------|-----|-----------------------------|---|---|---|---------------|-------------------------------|---------------------------------|---------------|
|             |     | Pos.                        | 2 | 4 | 6 |               |                               |                                 |               |
| 32          | z   |                             | • | • | • | 122 A 10979 X | 122 A 11039 X                 | 122 A 11069 X                   | 122 A 11099 X |
|             | b   |                             | • | • | • |               |                               |                                 |               |
|             | d   |                             | + | + | + |               |                               |                                 |               |
| 32          | z   |                             | • | • | • | 122 A 10989 X | 122 A 11049 X                 | 122 A 11079 X                   | 122 A 11109 X |
|             | b   |                             | + | + | + |               |                               |                                 |               |
|             | d   |                             | • | • | • |               |                               |                                 |               |
| 48          | z   |                             | • | • | • | 122 A 10999 X | 122 A 11059 X                 | 122 A 11089 X                   | 122 A 11119 X |
|             | b   |                             | • | • | • |               |                               |                                 |               |
|             | d   |                             | • | • | • |               |                               |                                 |               |

(Dim. = mm)

## Female connector – straight – 32 and 48 positions

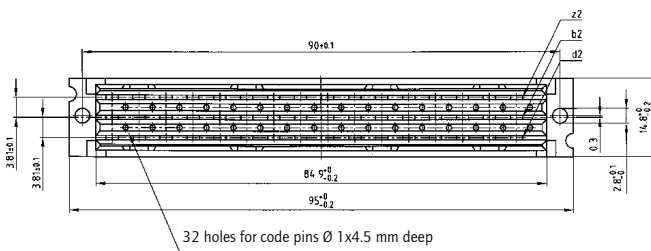
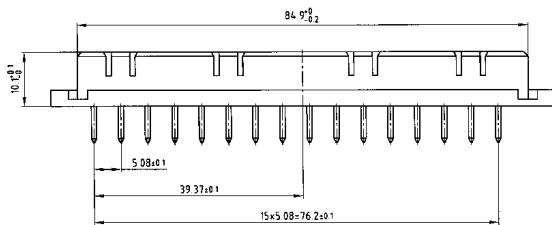


RoHS compliant

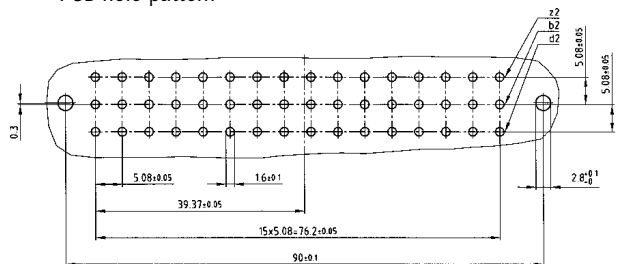
**DESCRIPTION.**

- Solder pin
- Quality class 2 (other quality classes on request)

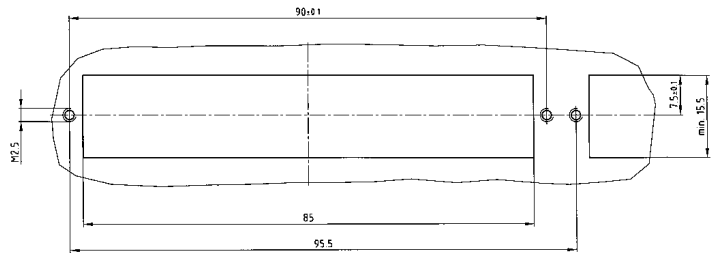
### PRODUCT DRAWING.



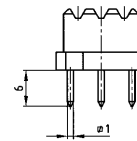
PCB-hole pattern



## Panel cutout



Solder pin straight



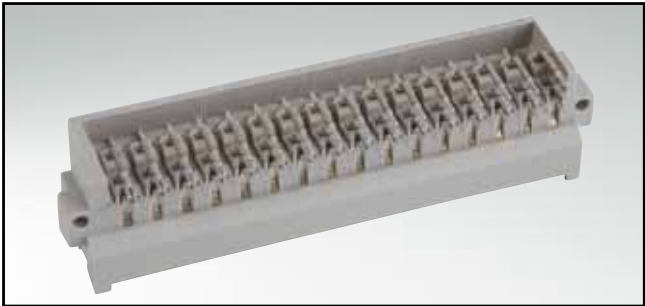
## ORDER DATA

(Dim. = mm)

| No. of Pos. | Row | • = contact, + = no contact |   |   |   | Solder pin straight |
|-------------|-----|-----------------------------|---|---|---|---------------------|
|             |     | Pos.                        | 2 | 4 | 6 |                     |
| 32          | z   | •                           | • | • | • | 122 B 11739 X       |
|             | b   | •                           | • | • | • |                     |
|             | d   | +                           | + | + | + |                     |
| 32          | z   | •                           | • | • | • | 122 B 11749 X       |
|             | b   | +                           | + | + | + |                     |
|             | d   | •                           | • | • | • |                     |
| 48          | z   | •                           | • | • | • | 122 B 11759 X       |
|             | b   | •                           | • | • | • |                     |
|             | d   | •                           | • | • | • |                     |

# TYPE G

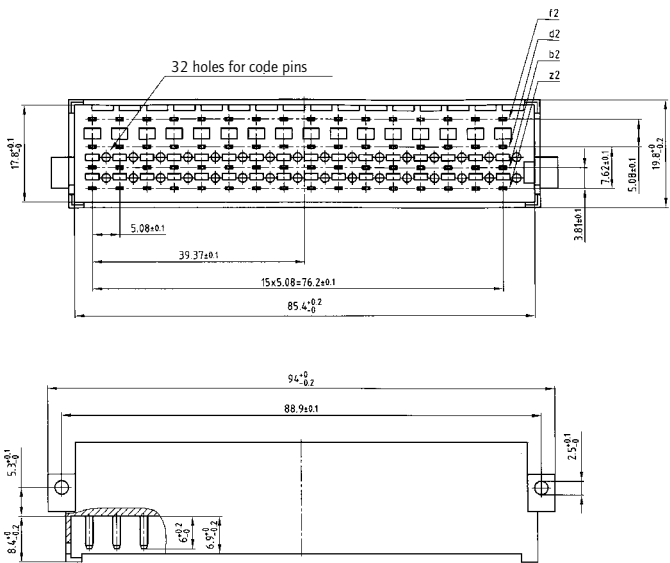
## Male connector – angled – 64 positions



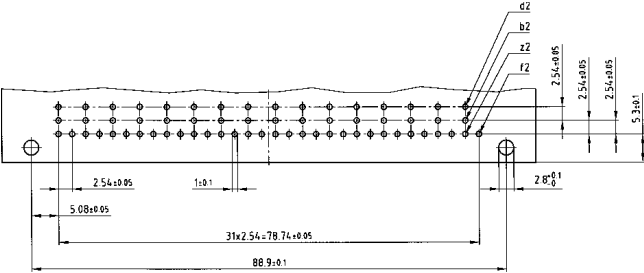
RoHS compliant

- DESCRIPTION
- Solder pin
  - Quality class 3 (also available in quality class 2 or 1)
  - Premating contacts in row "z", "b" and "d" available
  - Special assembly on request

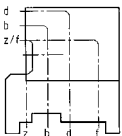
PRODUCT DRAWING



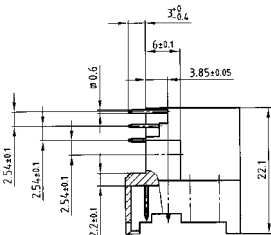
PCB-hole pattern



Solder pin angled  
Cross section



Solder pin angled



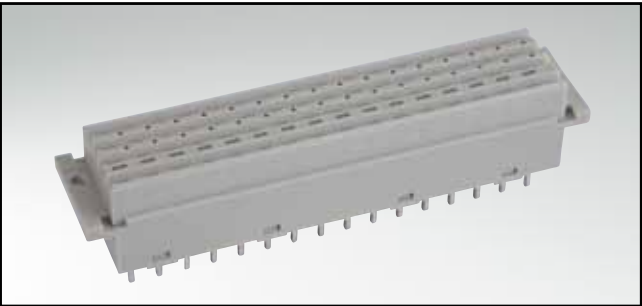
ORDER DATA

| No. of Pos. | Row              | Solder pin angled |
|-------------|------------------|-------------------|
| 64          | f<br>d<br>b<br>z | 121 A 10789 X     |

(Dim. = mm)

# TYPE G

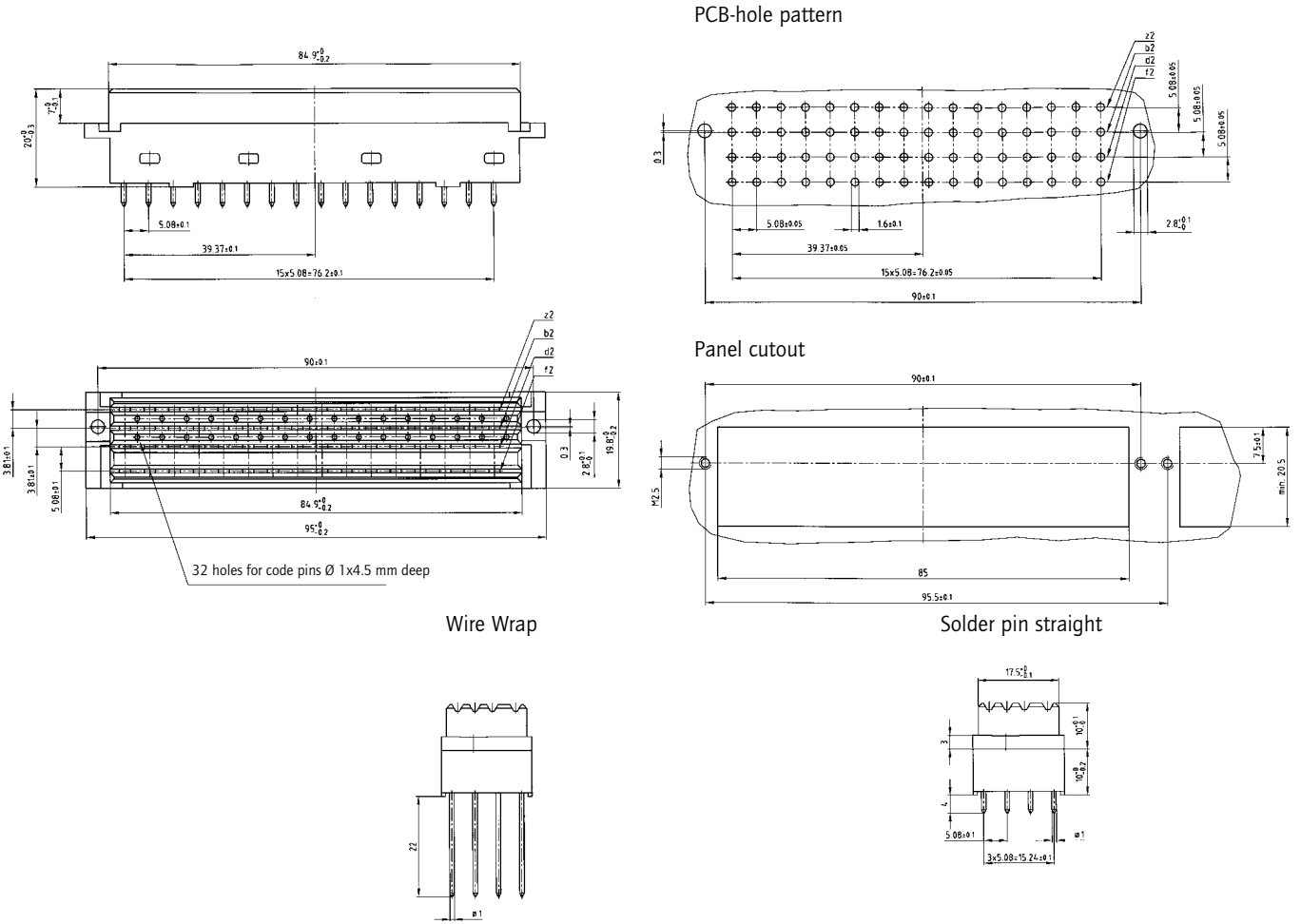
## Female connector – straight – 64 positions



RoHS compliant

- DESCRIPTION
- Solder pin and wire wrap
  - Quality class 3 (also available in quality class 2 or 1)

PRODUCT DRAWING



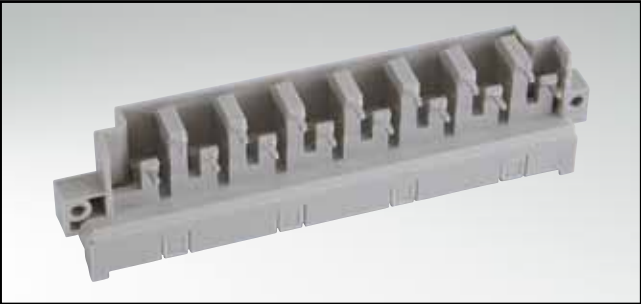
ORDER DATA

| No. of Pos. | Row              | Wire Wrap     | Solder pin straight |
|-------------|------------------|---------------|---------------------|
| 64          | z<br>b<br>d<br>f | 122 A 11129 X | 122 A 11139 X       |

(Dim. = mm)

TYPE H

Male connector – angled – 15 positions

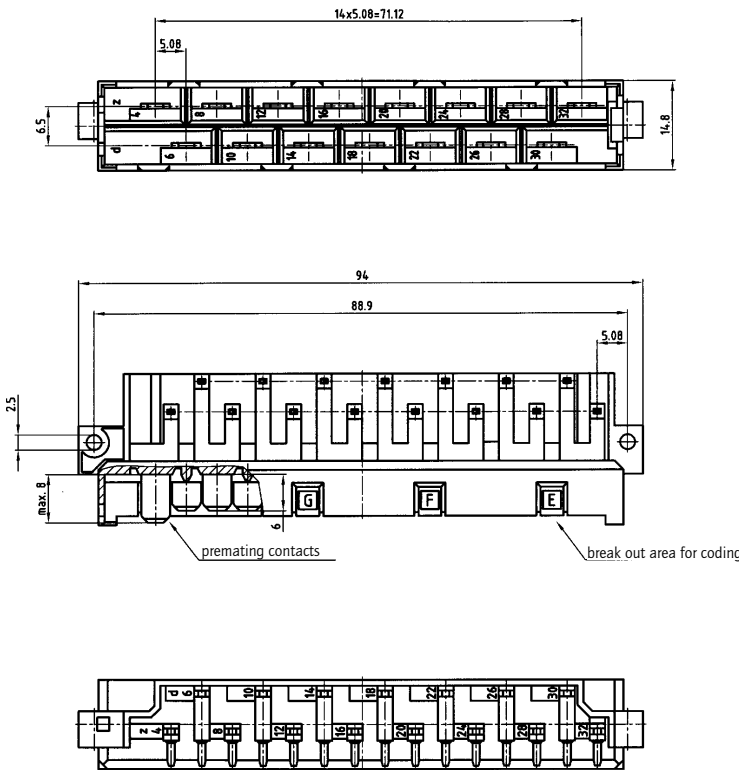


RoHS compliant

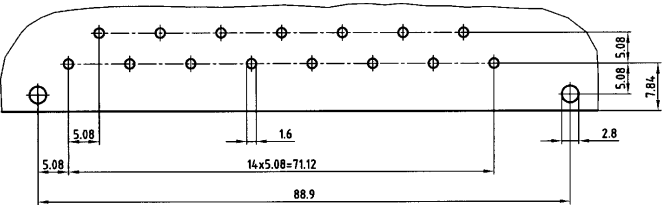
DESCRIPTION

- Solder pin
- With breakout area for coding
- Contact plating: silver
- Premating contacts in row "z" available

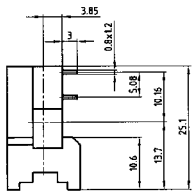
PRODUCT DRAWING



PCB-hole pattern



Solder pin angled



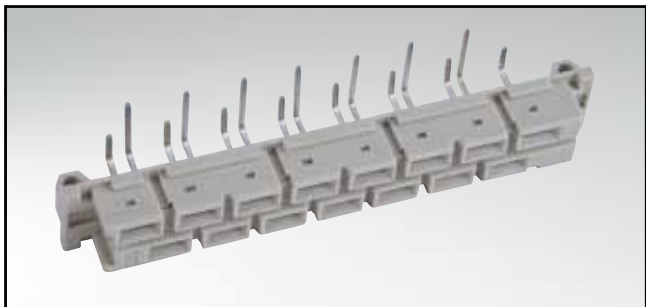
(Dim. = mm)

ORDER DATA

| No. of Pos. | Premating contacts | Solder pin angled |
|-------------|--------------------|-------------------|
| 15          |                    | 121 E 21119 X     |
| 14 + 1      | z 32               | 121 E 21109 X     |
| 13 + 2      | z 4 + 32           | 121 E 21129 X     |

# TYPE H

## Female connector – straight and angled – 15 positions

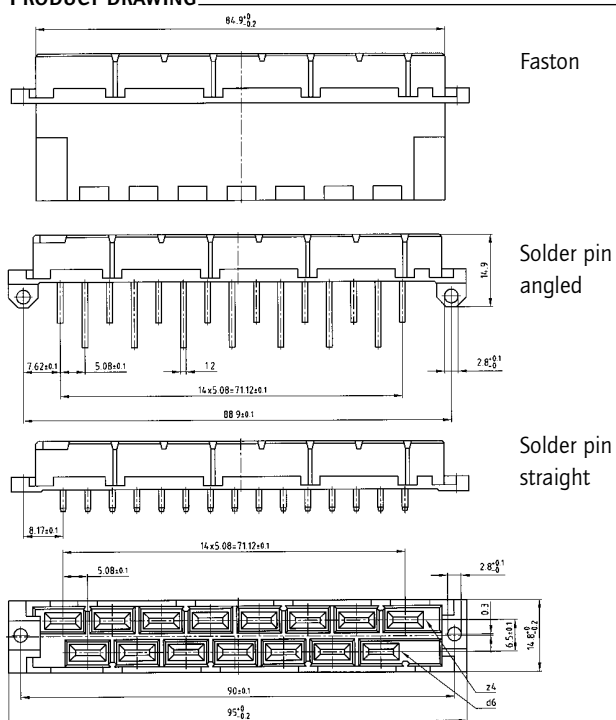


RoHS compliant

### DESCRIPTION

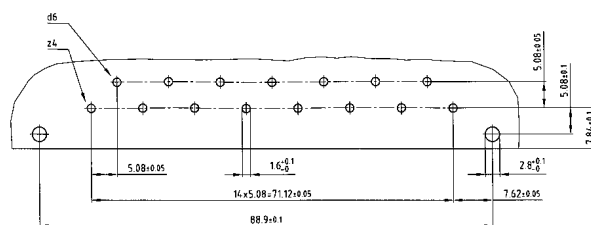
- Solder pin, solder lug, Faston- and screw termination
- With breakout area for coding
- Contact plating: silver

### PRODUCT DRAWING

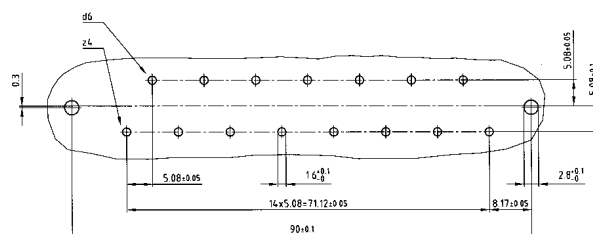


### PCB-hole pattern

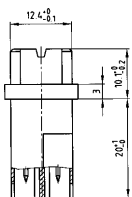
#### Solder pin angled 5.08 mm



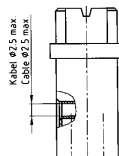
#### Solder pin straight 10.16 mm



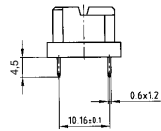
#### Faston



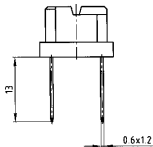
#### Screwed connection



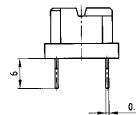
#### Solder pin straight 4.5 mm



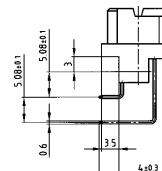
#### Solder pin straight 13 mm



#### Solder lug



#### Solder pin angled



#### Coding piece

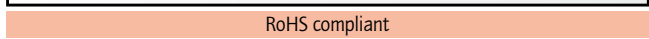


(Dim. = mm)

### ORDER DATA

| No. of Pos. | Faston        | Screwed connection | Solder pin straight 4.5 mm | Solder pin straight 13 mm | Solder lug    | Solder pin angled | Coding piece  |
|-------------|---------------|--------------------|----------------------------|---------------------------|---------------|-------------------|---------------|
| 15          | 122 E 11609 X | 122 E 11619 X      | 122 E 11629 X              | 122 E 11639 X             | 122 E 11649 X | 122 E 11659 X     | 120 X 10019 X |

Male connector – angled – 11 positions

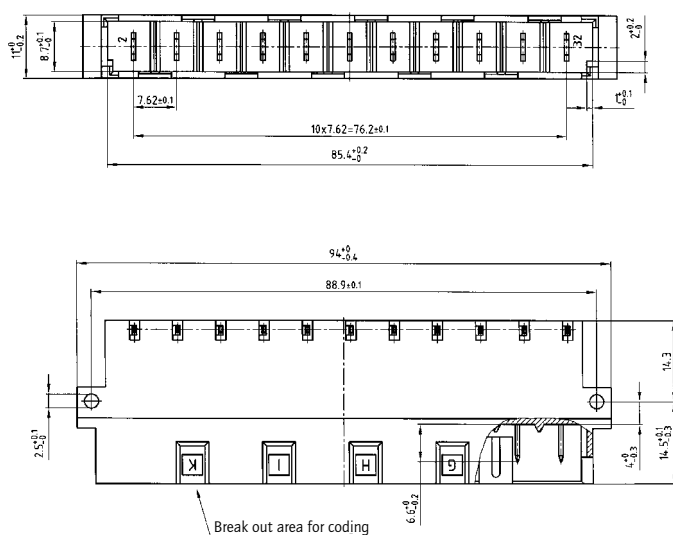


## PRODUCT DRAWING.

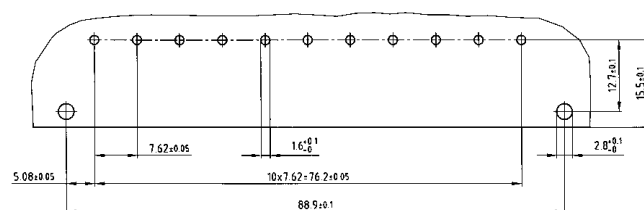
### DESCRIPTION

- Solder pin
- With breakout area for coding
- Contact plating: silver
- Premating contacts in row "z" available

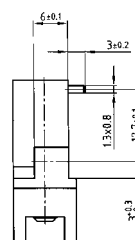
## PRODUCT DRAWING.



## PCB-hole pattern



Solder pin angled



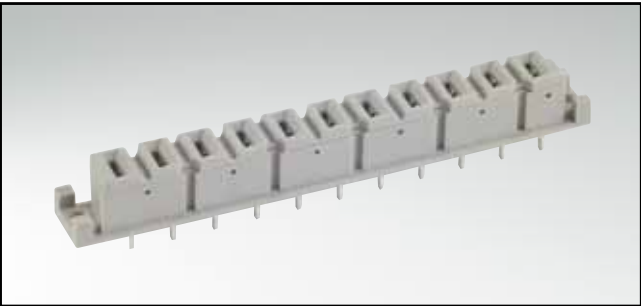
## ORDER DATA

(Dim. = mm)

| No. of Pos. | Premating contact | Solder pin angled |
|-------------|-------------------|-------------------|
| 11          |                   | 121 E 10949 X     |
| 10+1        | z 32              | 121 E 10959 X     |

TYPE H

Female connector – straight – 11 positions

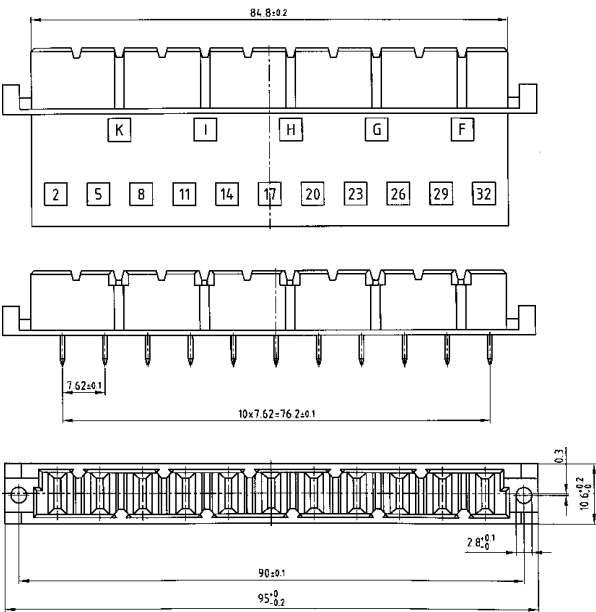


RoHS compliant

DESCRIPTION

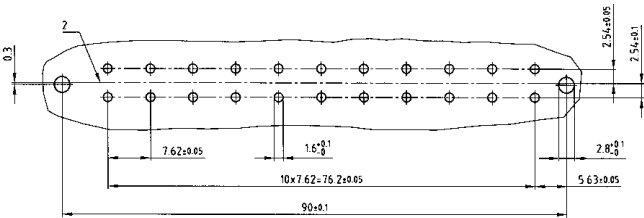
- Solder pin and faston
- With coding area
- Contact plating: silver

PRODUCT DRAWING



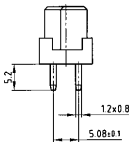
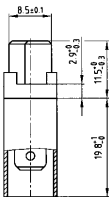
Faston

PCB-hole pattern



Solder pin straight

Coding piece



ORDER DATA

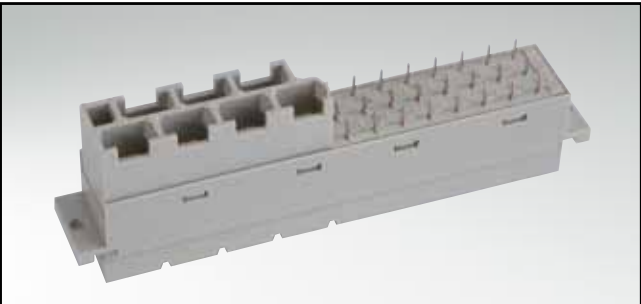
(Dim. = mm)

| No. of Pos. | Faston        | Solder pin straight | Coding piece  |
|-------------|---------------|---------------------|---------------|
| 11          | 122 E 11709 X | 122 E 11719 X       | 120 X 10019 X |



TYPE F+H (MIXED CONNECTOR)

Female connector – straight – 24+7 positions



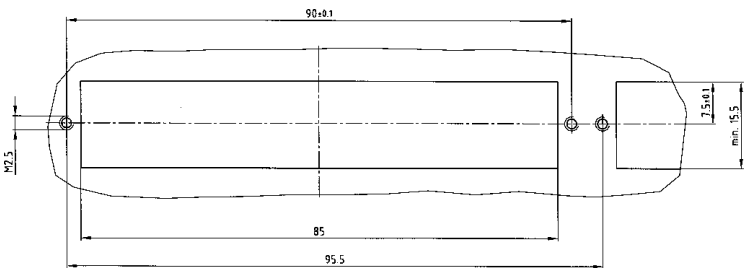
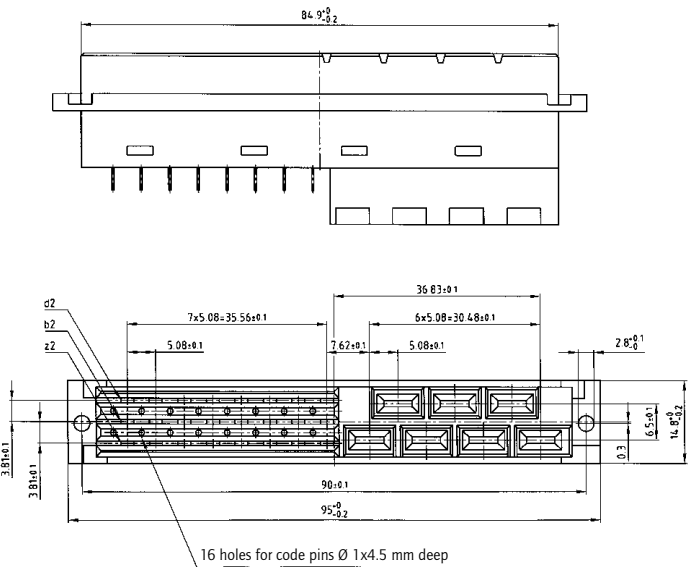
RoHS compliant

DESCRIPTION

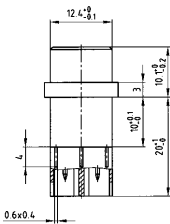
- Solder pin und Faston
- Quality class 2

PRODUCT DRAWING

Panel cutout



Solder pin / Faston



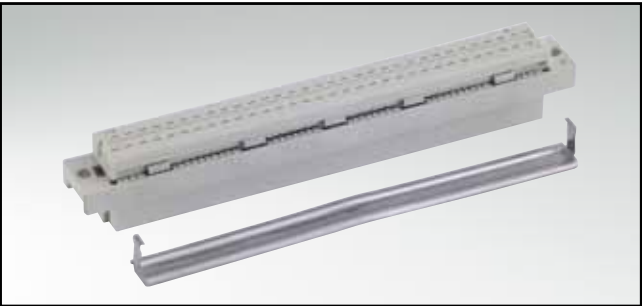
ORDER DATA

(Dim. = mm)

| No. of Pos. | Solder pin / Faston |
|-------------|---------------------|
| 24+7        | 122 B 11159 X       |

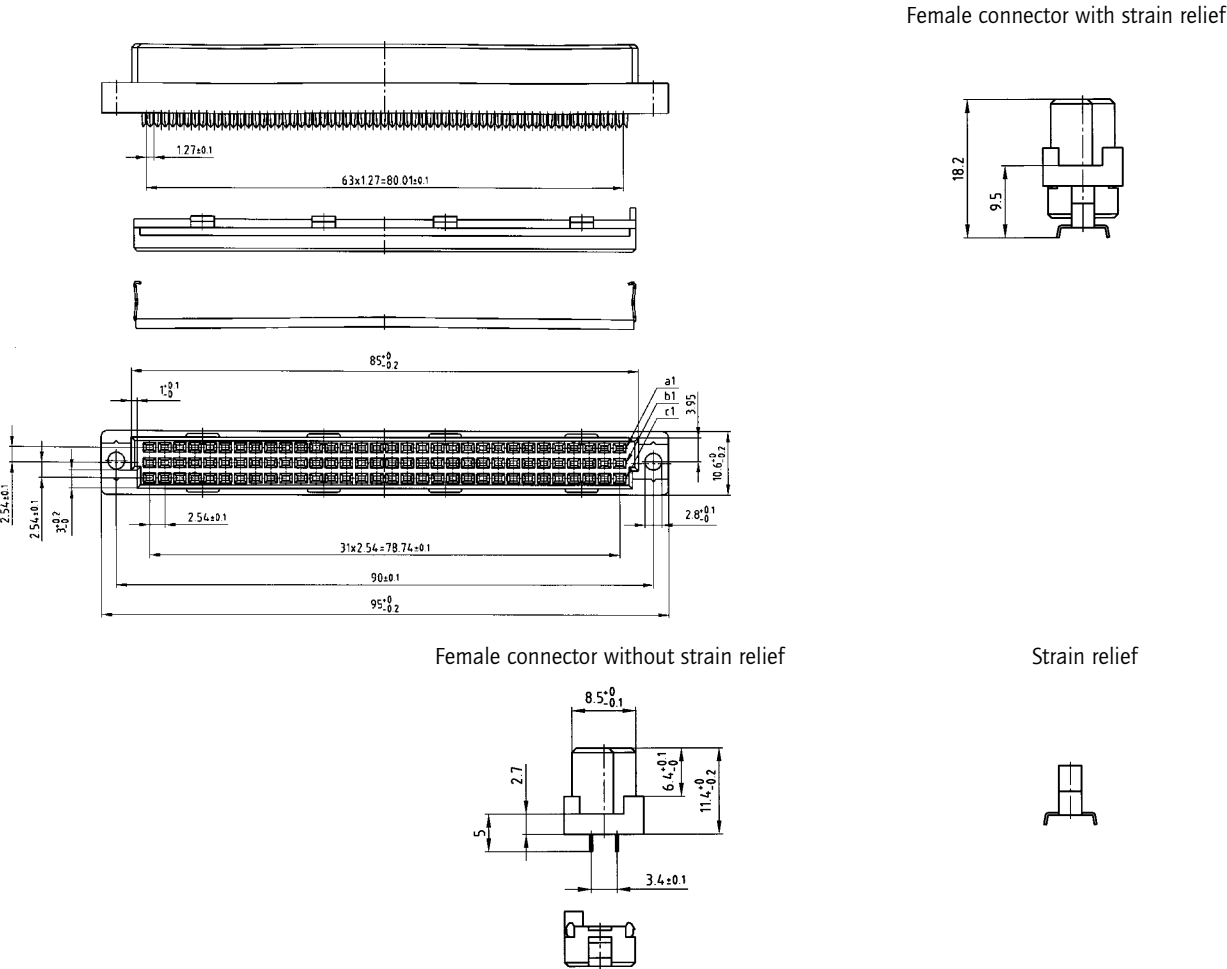
TYPE C

Female connector – Insulation displacement termination (IDC) – 64 positions



- DESCRIPTION
- Ribbon cable termination
  - Strain relief need to be ordered separately
  - Quality class 3 (also available in quality class 2 or 1)

PRODUCT DRAWING



ORDER DATA (Dim. = mm)

| No. of Pos. | • = contact, + = no contact |   |   |   |   |   | Female connector without strain relief | Strain relief |
|-------------|-----------------------------|---|---|---|---|---|----------------------------------------|---------------|
|             | Pos.                        | 1 | 2 | 3 | 4 | 5 |                                        |               |
| 64          | a                           | • | • | • | • | • | 122 A 11699 X                          | 120 X 10169 X |
|             | b                           | + | + | + | + | + |                                        |               |
|             | c                           | • | • | • | • | • |                                        |               |

# INTERCONNECTION HOUSING

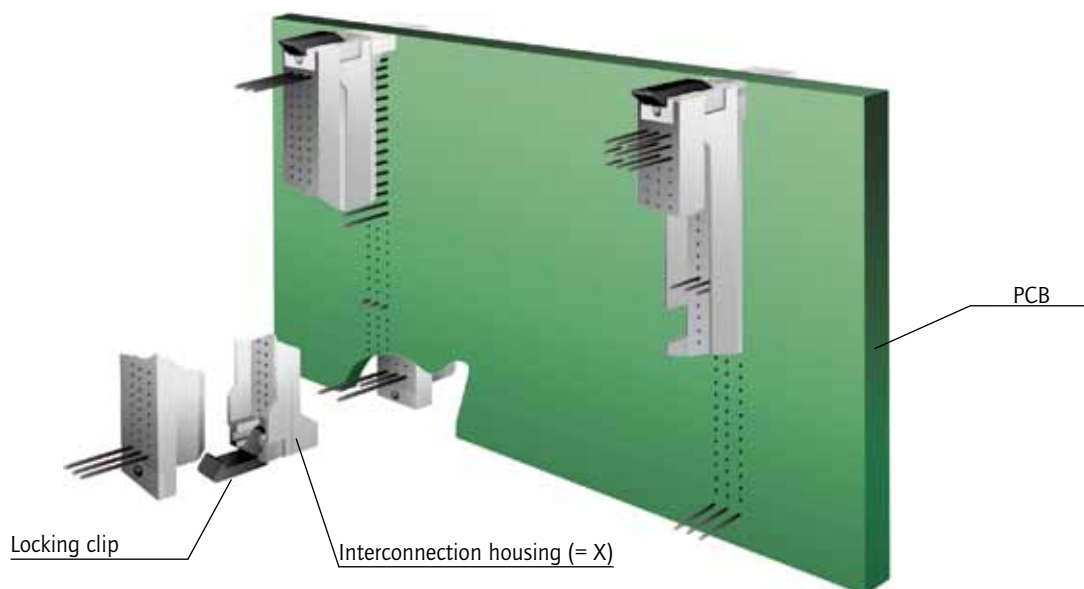
Housing and locking clips for type C and R



## DESCRIPTION

- Usable for female connectors type C and R
- Locking-clips to secure and to unlock the female connector
- For PCB which a thickness from 3.2 to 3.6 mm and a pin length of 13 or 17 mm

## PRODUCT DRAWING



## ORDER DATA

(Dim. = mm)

| No. of Pos. | X (mm) | Interconnection housing | LOCKING CLIPS |               |
|-------------|--------|-------------------------|---------------|---------------|
|             |        |                         | Type C        | Type R        |
| 96          | 4.6    | 120 X 10089 X           | 120 X 10129 X | 120 X 10149 X |
| 96          | 8.6    | 120 X 10099 X           | 120 X 10129 X | 120 X 10149 X |
| 96          | 9.3    | 120 X 10109 X           | 120 X 10129 X | 120 X 10149 X |
| 96          | 10.0   | 120 X 10119 X           | 120 X 10129 X | 120 X 10149 X |

# PLUG-IN FRAME

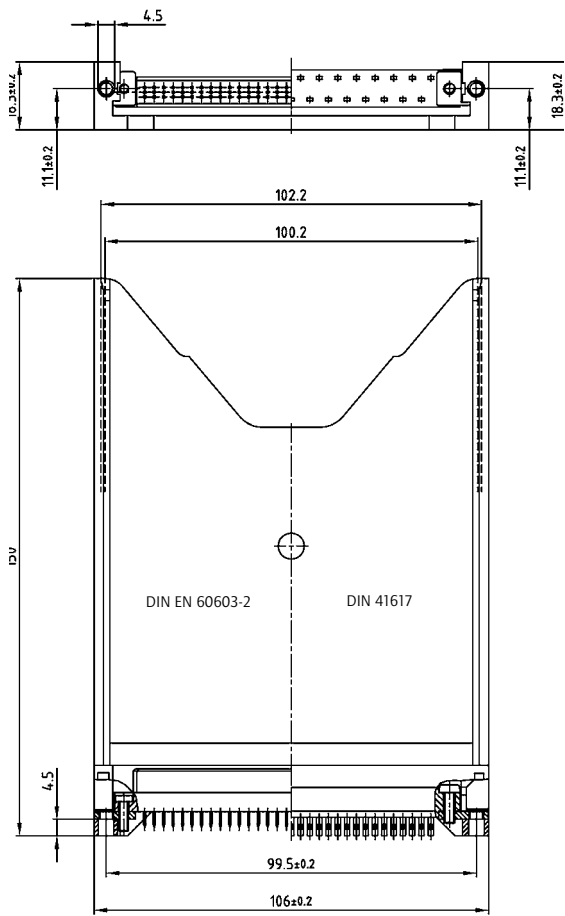
Frame for printed circuit boards (PCB)



RoHS compliant

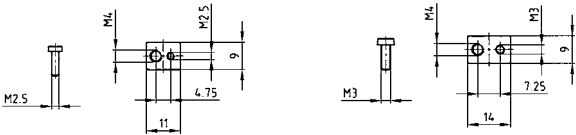
- DESCRIPTION**
- For DIN EN 60603-2 and DIN 41617 connectors
  - For PCB width 100 mm and 102 mm
  - Material: polycarbonat, grey
  - Other colours on request
  - Mounting set needs to be ordered separately

**PRODUCT DRAWING**



Mounting set for  
DIN EN 60603-2

Mounting set for  
DIN 41617

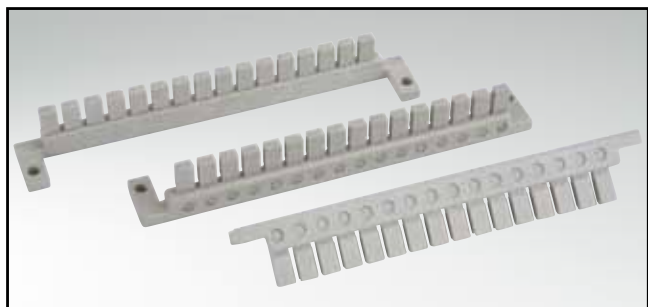


**ORDER DATA** (Dim. = mm)

| PLUG-IN FRAME |               | MOUNTING SET FOR |               |
|---------------|---------------|------------------|---------------|
| grey – 100 mm | grey – 102 mm | DIN EN 60603-2   | DIN 41617     |
| 120 X 10029 X | 120 X 10039 X | 120 X 10059 X    | 120 X 10049 X |

# CODING STRIPS

For connectors DIN EN 60603-2 (DIN 41612)



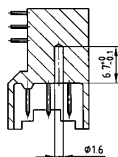
RoHS compliant

## DESCRIPTION

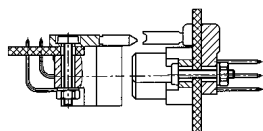
- Mounting style:
  - inside the enclosure (mounting bar)
  - on printed circuit board (PCB)
- Optional coding by removing the segments

## PRODUCT DRAWING

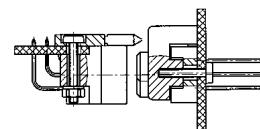
Type D, E, F



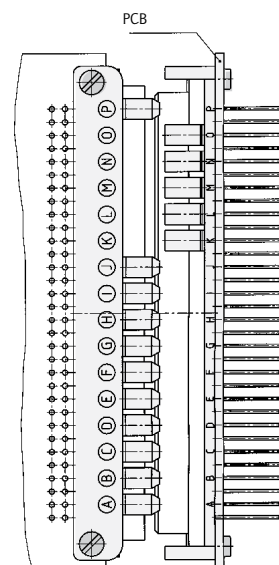
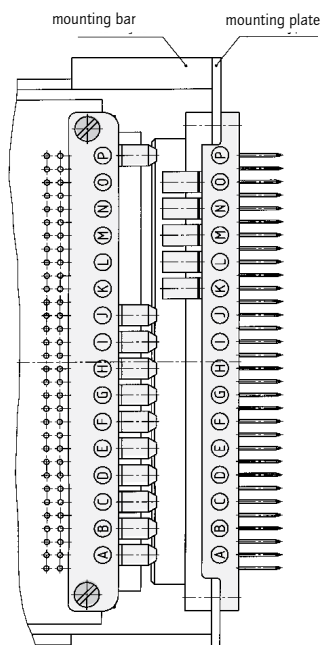
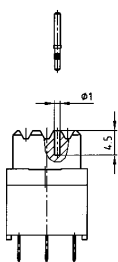
Type R, H



Type C, R, D



Coding pin



## ORDER DATA

(Dim. = mm)

| CODING PIN    | CODING STRIPS FOR                 |                |                        |
|---------------|-----------------------------------|----------------|------------------------|
|               | Female connector (mounting plate) | Male connector | Female connector (PCB) |
| 120 X 10319 X | 120 X 10379 X                     | 120 X 10359 X  | 120 X 10369 X          |

## SECTION 5

# COMBINATION CONNECTORS DIN EN

The combination connectors in accordance with DIN EN 60603-2 offer a variety of applications. The design allows a combination of signal, high current, high voltage and coaxial contacts.

Standard termination types such as solder cup, PCB solder tails, straight right angle and wire wrap tails are available.



# 60603-2

**Product features:**

- Saves space on your PCB
- Various termination method
- Cost factor, one item as compared with separate connectors
- Easy assembly of high power and coaxial contacts
- High power and coaxial contacts are screw-machine types
- Gold plating options available

Fully assembled connectors with high power or coaxial contacts are available.



PART NUMBER CREATOR

9 0 7 8 M 2 M A T 1 1 X 9 0 X

Type  
9 = Type M - DIN EN 60603-2

Variations  
Type M = 40+4, 42+6, 52+2, 60+4, 78+2  
Type M = 16+8, 24+8, 28+6  
Mini type M = 8+4, 12+4, 20+2, 30+2  
+ = to substitute "M" (look at example)

Type of contact  
M = Male connector  
F = Female connector

Quality class for contacts  
A = Quality class 3 = 50 cycles  
B = Quality class 2 = 400 cycles  
C\* = Quality class 1 = 500 cycles \*on request

Termination only for signal contacts  
N\* = Wire Wrap \*not available as male connector  
R = solder pin straight  
T\* = solder pin angled \*not available as female connector

Termination for high power and coaxial contacts

|                                  |                                   |
|----------------------------------|-----------------------------------|
| 11/27 = Solder lug 10 A          | 26/13 = 4 solder pins angled 40 A |
| 12/28 = Solder lug 20 A          | 31 = 5 solder pins straight 50 Ω  |
| 14/29 = Solder lug 40 A          | 32 = 5 solder pins straight 50 Ω  |
| 19/39 = Solder pin straight 20 A | 33 = 5 solder pins straight 75 Ω  |
| 20/40 = Solder pin straight 40 A | 35 = 5 solder pins angled 50 Ω    |
| 18/17 = Solder pin angled 10 A   | 36 = 5 solder pins angled 75 Ω    |
| 21/16 = Solder pin angled 20 A   | 99 = without contacts             |
| 23/15 = Solder pin angled 40 A   |                                   |

Mounting style  
X9 = Mounting hole for screwed or rivet

Standard  
OX = Standard

## TECHNICAL INFORMATION

### SKIN EFFECT

Alternating currents do not uniformly occupy the entire cross section of the conductor, rather inductance effect in the conductor deflects the current towards the surface of the conductor, whereby this deflection increases with the frequency.

The resistive attenuation of a transmission line increases with the frequency as a result of this skin effect.

The skin depth (equivalent thickness of the layer in which current flows) can be determined using

$$\delta = \frac{1}{\sqrt{f \pi \sigma \mu_0 \mu_r}}$$

$f$  = frequency

$\sigma$  = conductivity of the conductor material

$\sigma_{Ag} = 62 \times 10^6 \text{ S/m}$

$\sigma_{Cu} = 58 \times 10^6 \text{ S/m}$

$\mu_0 = 1,256 \times 10^{-6} \text{ Vs / Am}$

$\mu_r$  ... relative permeability constant for the employed material

### VSWR-VALUE

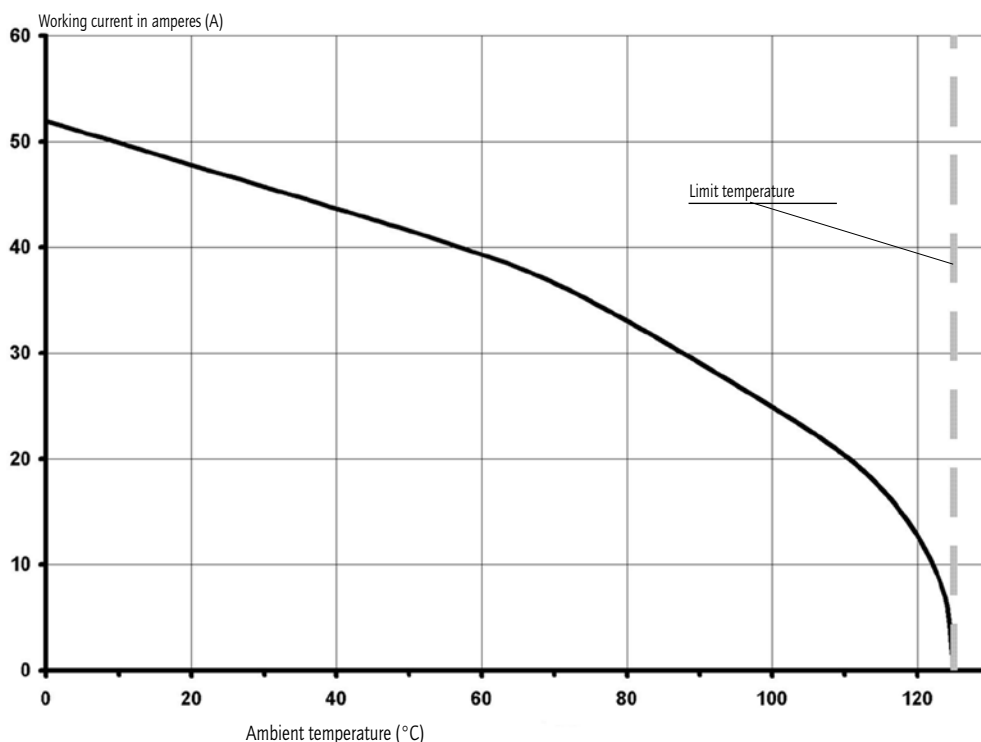
The ration between the value of the largest and the smallest voltages on a loss-free line is known as the ripple or voltage standing wave ratio  $s$  (with  $1 \leq s < \infty$ ). The reciprocal value of the VSWR is known as the inverse voltage standing wave ratio  $m$  (with  $0 < m \leq 1$ ). (VSWR = Voltage standing wave ratio). The value of  $s$  is linked with the  $\rightarrow$  reflection coefficient  $r$  on  $s$  transmissionline according to the equation.

$$s = \frac{(1 + |r|)}{(1 - |r|)}$$

### CURRENT RATING / DERATING CURVE

Measurement is according to DIN 41640 part 3 whereas all power contacts are connected in series.

For test procedure - product-no. 9024M8FCR14X90X has been equipped with 124C10069X and 9024M8MCR14X90X with 123C10069X.

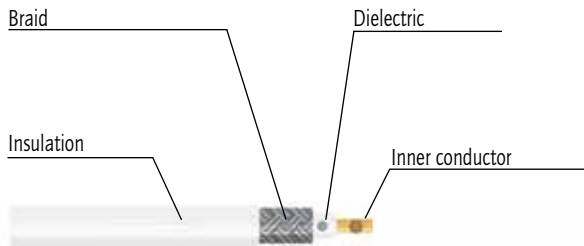


TECHNICAL DATA

| Materials                           |                 | Type M               | Coaxial contacts   | High power contacts | High voltage contacts |
|-------------------------------------|-----------------|----------------------|--------------------|---------------------|-----------------------|
| Insulator                           |                 | PBT GF<br>UL94V-0    | PTFE/PBT/PI        |                     | PTFE                  |
| Contact plating                     |                 | gold over nickel     |                    |                     |                       |
| Contact material                    |                 | copper alloy         |                    |                     |                       |
| Retaining clip                      |                 |                      | copper alloy       |                     |                       |
| Current rating (DC)                 |                 | 2 A                  | 2 A                | 10 to 40 A          | 2 A                   |
| Test voltage                        |                 | 1000 V, 50 Hz        |                    |                     |                       |
| Resistance between mated contacts   |                 | ≤ 2.7 mΩ             |                    |                     |                       |
| Insulation resistance               |                 |                      | 10 <sup>7</sup> MΩ |                     | ≥2x10 <sup>7</sup> MΩ |
| Volume resistivity                  |                 | 10 <sup>16</sup> Ωcm |                    |                     |                       |
| Dielectric strength                 |                 | 50 KV/ mm            |                    |                     |                       |
| Characteristic impedance            |                 |                      | 50/75 Ω            |                     |                       |
| Contact resistance                  | inner conductor |                      | ≤ 2.7 mΩ           |                     | ≤ 2.7 mΩ              |
|                                     | outer conductor | ≤ 2.7 mΩ             | ≤ 2.7 mΩ           | ≤ 1 mΩ              |                       |
| VSWR-value according to MIL-C-39012 | 1.2 GHz         |                      | ≤ 1.2              |                     |                       |
|                                     | 1.5 GHz         |                      | ≤ 1.3              |                     |                       |
|                                     | 2.0 GHz         |                      | ≤ 1.5              |                     |                       |
| Dielectric voltage                  |                 |                      | 750 V 50 Hz        |                     | 3.8 kV                |
| Frequency range                     |                 |                      | 0 to 2 GHz         |                     |                       |
| Working voltage                     |                 | 250 V                | 250 V              |                     | max. 2.8 kV           |
| Temperature range                   |                 | -55°C to +125°C      | -55°C to +135°C    | -55°C to +155°C     | -55°C to +125°C       |
| Mating force per signal contact     |                 | ≤ 3.4 N              | ≤ 7 N              | ≤ 7 N               | ≤ 5 N                 |
| Withdrawal force per signal contact |                 | ≥ 0.2 N              | ≤ 7 N              | ca. 5 N             | ca. 2.5 N             |
| Mating cycles                       |                 | depending on plating |                    |                     |                       |

Technical alterations are subjects to change without notice.

# CRIMPING INSTRUCTIONS FOR COAXIAL CONTACTS



Strip the wire



Slide sleeve over coax cable



Crimp the inner contact on the inner conductor



Snap the inner contact into the outer contact

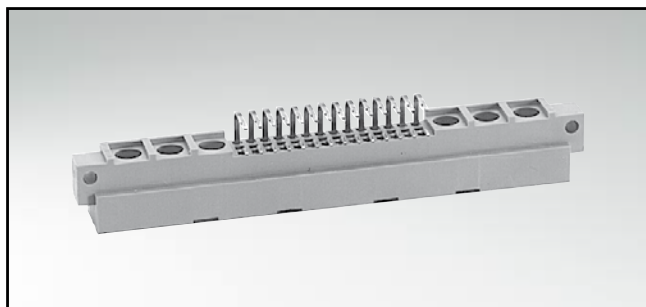


Slide braid over outer contact



Crimp the sleeve on to outer contact

## Male connector – straight and angled

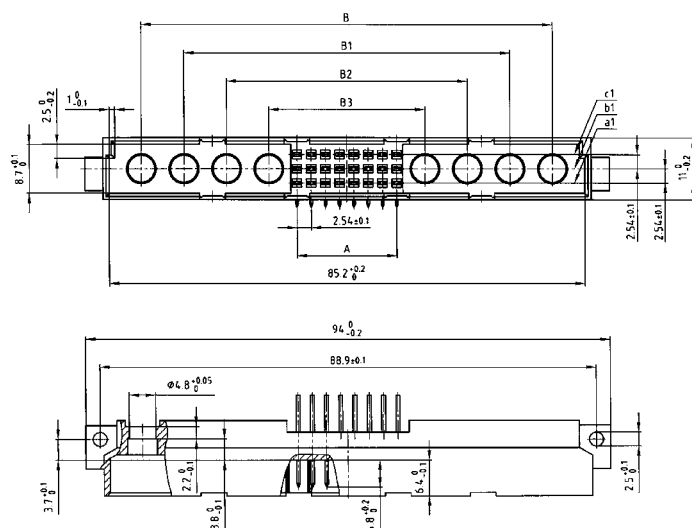


RoHS compliant

## DESCRIPTION

- Solder pin
- No. of Pos. 16+8 - 24+8 - 28+6 - 40+4 - 42+6 - 52+2 - 60+4 - 78+2
- Quality class 3 (also available in quality class 2 or 1)
- Part number creator on page 5 | 2
- For assembly with PCB power and coaxial contacts  
please contact factory

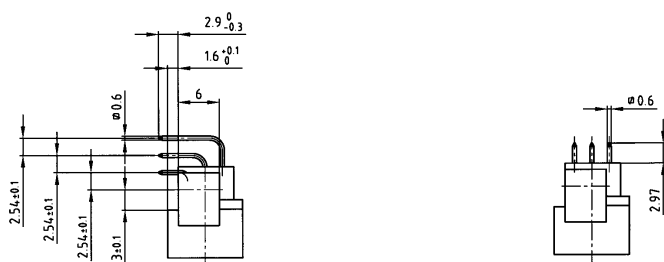
## PRODUCT DRAWING



| No. of Pos. | A $\pm 0.1$   | B $\pm 0.1$   | B <sub>1</sub> $\pm 0.1$ | B <sub>2</sub> $\pm 0.1$ | B <sub>3</sub> $\pm 0.1$ |
|-------------|---------------|---------------|--------------------------|--------------------------|--------------------------|
| 78 + 2      | 25x2.54=63.50 | 29x2.54=73.66 | –                        | –                        | –                        |
| 52 + 2      | 25x2.54=63.50 | 29x2.54=73.66 | –                        | –                        | –                        |
| 60 + 4      | 19x2.54=48.26 | 29x2.54=73.66 | 23x2.54=58.42            | –                        | –                        |
| 40 + 4      | 19x2.54=48.26 | 29x2.54=73.66 | 23x2.54=58.42            | –                        | –                        |
| 42 + 6      | 13x2.54=33.02 | 29x2.54=73.66 | 23x2.54=58.42            | 17x2.54=43.18            | –                        |
| 28 + 6      | 13x2.54=33.02 | 29x2.54=73.66 | 23x2.54=58.42            | 17x2.54=43.18            | –                        |
| 24 + 8      | 7x2.54=17.78  | 29x2.54=73.66 | 23x2.54=58.42            | 17x2.54=43.18            | 11x2.54=27.94            |
| 16 + 8      | 7x2.54=17.78  | 29x2.54=73.66 | 23x2.54=58.42            | 17x2.54=43.18            | 11x2.54=27.94            |

Solder pin angled

Solder pin straight R



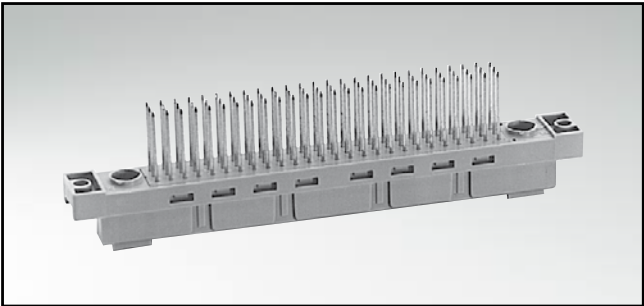
 = Ordering code

## ORDER DATA

(Dim. = mm)

[illegible][illegible]

TYPE M  
Female connector – straight

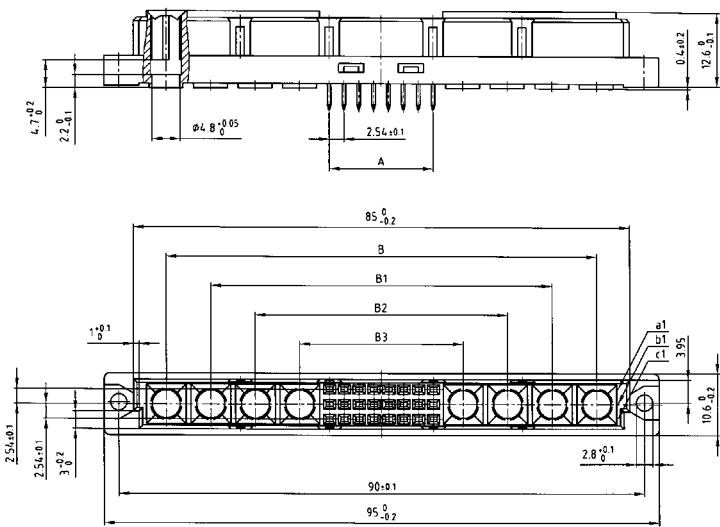


RoHS compliant

DESCRIPTION

- Solder pin and Wire Wrap
- No. of Pos. 16+8 - 24+8 - 28+6 - 40+4 - 42+6 - 52+2 - 60+4 - 78+2
- Quality class 3 (also available in quality class 2 or 1)
- Part number creator on page 5 | 2
- For assembly with PCB power and coaxial contacts please contact factory

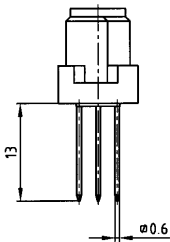
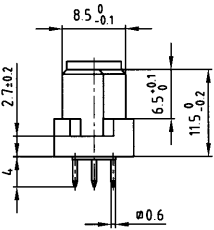
PRODUCT DRAWING



| No. of Pos. | A ± 0.1       | B ± 0.1       | B <sub>1</sub> ± 0.1 | B <sub>2</sub> ± 0.1 | B <sub>3</sub> ± 0.1 |
|-------------|---------------|---------------|----------------------|----------------------|----------------------|
| 78 + 2      | 25x2.54=63.50 | 29x2.54=73.66 | –                    | –                    | –                    |
| 52 + 2      | 25x2.54=63.50 | 29x2.54=73.66 | –                    | –                    | –                    |
| 60 + 4      | 19x2.54=48.26 | 29x2.54=73.66 | 23x2.54=58.42        | –                    | –                    |
| 40 + 4      | 19x2.54=48.26 | 29x2.54=73.66 | 23x2.54=58.42        | –                    | –                    |
| 42 + 6      | 13x2.54=33.02 | 29x2.54=73.66 | 23x2.54=58.42        | 17x2.54=43.18        | –                    |
| 28 + 6      | 13x2.54=33.02 | 29x2.54=73.66 | 23x2.54=58.42        | 17x2.54=43.18        | –                    |
| 24 + 8      | 7x2.54=17.78  | 29x2.54=73.66 | 23x2.54=58.42        | 17x2.54=43.18        | 11x2.54=27.94        |
| 16 + 8      | 7x2.54=17.78  | 29x2.54=73.66 | 23x2.54=58.42        | 17x2.54=43.18        | 11x2.54=27.94        |

Solder pin straight 4 mm **R**

Wire Wrap **N**



  = Ordering code

ORDER DATA

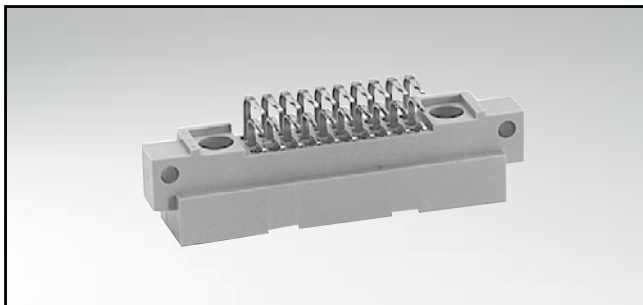
(Dim. = mm)

| No. of Pos. | Version<br>• = contact, + = no contact |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|-------------|----------------------------------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
|             | 1                                      | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 |
| 78 + 2      | a                                      |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | b                                      | ⊕ |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | ⊕  |
|             | c                                      |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 52 + 2      | a                                      |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | b                                      | ⊕ |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | ⊕  |
|             | c                                      |   | + | + | + | + | + | + | + | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  | +  |    |
| 60 + 4      | a                                      |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | b                                      | ⊕ |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | ⊕  |    |
|             | c                                      |   |   |   |   |   | ⊕ |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | ⊕  | ⊕  |
| 40 + 4      | a                                      |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | b                                      | ⊕ |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | ⊕  |    |
|             | c                                      |   |   |   |   |   | ⊕ |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | ⊕  | ⊕  |

| No. of Pos. | Version<br>• = contact, + = no contact |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|-------------|----------------------------------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
|             | 1                                      | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 |
| 42 + 6      | a                                      | + |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | b                                      | + | + |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | c                                      |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 28 + 6      | a                                      | + |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | b                                      | + | + |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | c                                      |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 24 + 8      | a                                      | + |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | b                                      | + | + |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | c                                      |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 16 + 8      | a                                      | + |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | b                                      | + | + |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|             | c                                      |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

## TYPE M/2

## Male connector – straight and angled

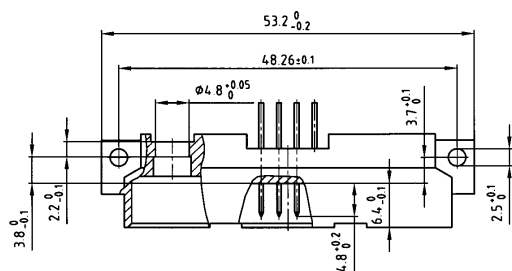
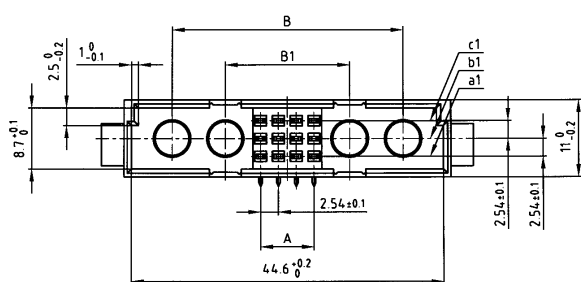


RoHS compliant

### DESCRIPTION

- Solder pin
- No. of Pos. 8+4 - 12+4 - 20+2 - 30+2
- Quality class 3 (also available in quality class 2 or 1)
- Part number creator on page 5 | 2
- For assembly with PCB power and coaxial contacts please contact factory

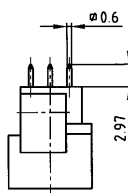
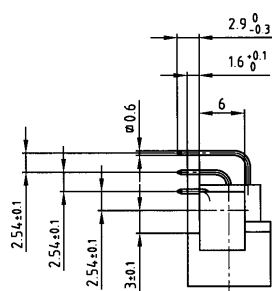
## PRODUCT DRAWING



Solder pin angled ☐ T

Solder pin straight R

| No. of Pos. | A $\pm 0.1$  | B $\pm 0.1$   | B <sub>1</sub> $\pm 0.1$ |
|-------------|--------------|---------------|--------------------------|
| 30 + 2      | 9x2.54=22.86 | 13x2.54=33.02 | —                        |
| 20 + 2      | 9x2.54=22.86 | 13x2.54=33.02 | —                        |
| 12 + 4      | 3x2.54=7.62  | 13x2.54=33.02 | 7x2.54=17.78             |
| 8 + 4       | 3x2.54=7.62  | 13x2.54=33.02 | 7x2.54=17.78             |



 = Ordering code

## ORDER DATA

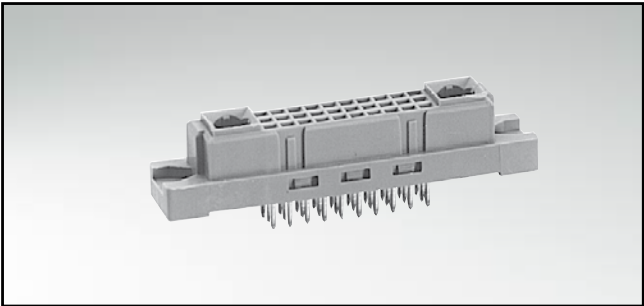
(Dim. = mm)

[illegible]

| No. of Pos. | Version                     |     |   |   |   |   |     |   |   |    |    |    |     |    |    |     |
|-------------|-----------------------------|-----|---|---|---|---|-----|---|---|----|----|----|-----|----|----|-----|
|             | • = contact, + = no contact |     |   |   |   |   |     |   |   |    |    |    |     |    |    |     |
|             | 1                           | 2   | 3 | 4 | 5 | 6 | 7   | 8 | 9 | 10 | 11 | 12 | 13  | 14 | 15 | 16  |
| 12 + 4      | a                           |     |   |   |   |   |     |   |   |    |    |    |     |    |    |     |
|             | b                           | (+) |   |   |   |   | (+) |   |   |    |    |    |     |    |    |     |
|             | c                           |     |   |   |   |   |     | • | • | •  | •  |    | (+) |    |    | (+) |
| 8 + 4       | a                           |     |   |   |   |   |     |   |   |    |    |    |     |    |    |     |
|             | b                           | (+) |   |   |   |   | (+) |   |   |    |    |    |     |    |    |     |
|             | c                           |     |   |   |   |   |     | + | + | +  | +  |    | (+) |    |    | (+) |

TYPE M/2

Female connector – straight

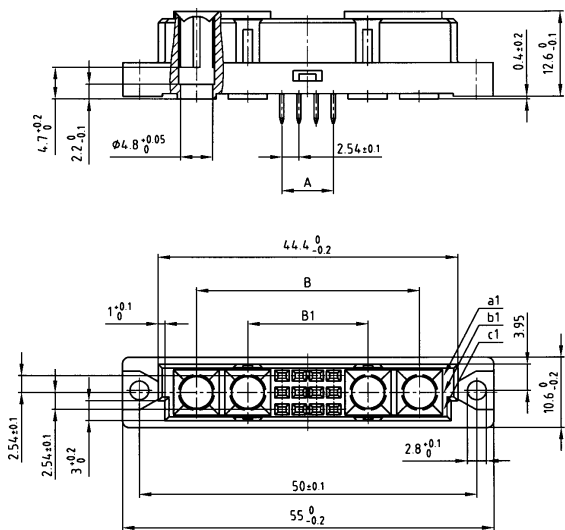


RoHS compliant

DESCRIPTION

- Solder pin and Wire Wrap
- No. of Pos. 8+4 - 12+4 - 20+2 - 30+2
- Quality class 3 (also available in quality class 2 or 1)
- Part number creator on page 5 | 2
- For assembly with PCB power and coaxial contacts please contact factory

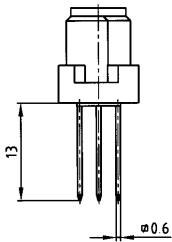
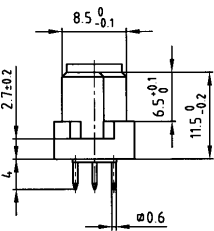
PRODUCT DRAWING



| No. of Pos. | A ±0.1       | B ±0.1        | B1 ±0.1      |
|-------------|--------------|---------------|--------------|
| 30 + 2      | 9x2.54=22.86 | 13x2.54=33.02 | –            |
| 20 + 2      | 9x2.54=22.86 | 13x2.54=33.02 | –            |
| 12 + 4      | 3x2.54=7.62  | 13x2.54=33.02 | 7x2.54=17.78 |
| 8 + 4       | 3x2.54=7.62  | 13x2.54=33.02 | 7x2.54=17.78 |

Solder pin straight 4 mm **R**

Wire Wrap **N**



  = Ordering code

ORDER DATA

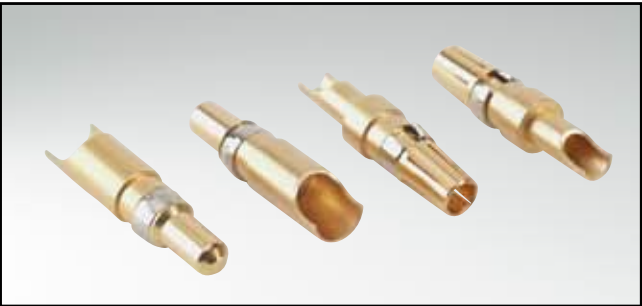
(Dim. = mm)

| No. of Pos. | Version<br>• = contact, + = no contact |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |
|-------------|----------------------------------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|
|             | 1                                      | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 30 + 2      | a                                      | + | • | • | • | • | • | • | • | •  | •  | •  | •  | •  | •  | •  |
|             | b                                      | + | • | • | • | • | • | • | • | •  | •  | •  | •  | •  | •  | •  |
|             | c                                      | + | • | • | • | • | • | • | • | •  | •  | •  | •  | •  | •  | •  |
| 20 + 2      | 1                                      | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|             | a                                      | + | + | + | + | + | + | + | + | +  | +  | +  | +  | +  | +  | +  |
|             | b                                      | + | + | + | + | + | + | + | + | +  | +  | +  | +  | +  | +  | +  |
|             | c                                      | + | + | + | + | + | + | + | + | +  | +  | +  | +  | +  | +  | +  |

| No. of Pos. | Version<br>• = contact, + = no contact |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |
|-------------|----------------------------------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|
|             | 1                                      | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 12 + 4      | a                                      | + | + | • | • | • | • | • | • | •  | •  | •  | •  | •  | •  | •  |
|             | b                                      | + | + | • | • | • | • | • | • | •  | •  | •  | •  | •  | •  | •  |
|             | c                                      | + | + | • | • | • | • | • | • | •  | •  | •  | •  | •  | •  | •  |
| 8 + 4       | 1                                      | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|             | a                                      | + | + | + | + | + | + | + | + | +  | +  | +  | +  | +  | +  | +  |
|             | b                                      | + | + | + | + | + | + | + | + | +  | +  | +  | +  | +  | +  | +  |
|             | c                                      | + | + | + | + | + | + | + | + | +  | +  | +  | +  | +  | +  | +  |

TYPE M

High power contacts – solder cup – straight

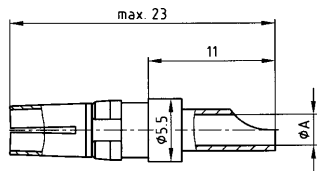


RoHS compliant

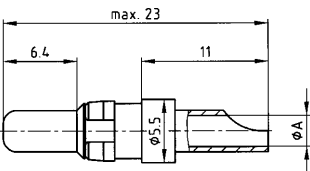
- DESCRIPTION
- Precision machined contacts
  - Quality class 3: gold flash
  - Quality class 1: 0.8µm gold on mating side
  - Other quality classes on request
  - Assembled contacts available on request

PRODUCT DRAWING

Socket contact

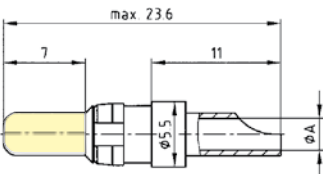


Plug contact



| AWG     | Current Rating | ØA <sup>+0.15</sup> |
|---------|----------------|---------------------|
| 16 - 20 | 10 A           | 1,80                |
| 12 - 14 | 20 A           | 2,70                |
| 8 - 10  | 30 A           | 4,80                |

Premating contact



ORDER DATA

(Dim. = mm)

| SOCKET CONTACT |                |               |             |               |
|----------------|----------------|---------------|-------------|---------------|
| AWG            | Current rating | Quality class | Termination | Part number   |
| 16 - 20        | 10 A           | 1             | 11          | 124 C 10039 X |
| 16 - 20        | 10 A           | 3             | 27          | 124 A 10039 X |
| 12 - 14        | 20 A           | 1             | 12          | 124 C 10049 X |
| 12 - 14        | 20 A           | 3             | 28          | 124 A 10049 X |
| 8 - 10         | 40 A           | 1             | 14          | 124 C 10069 X |
| 8 - 10         | 40 A           | 3             | 29          | 124 A 10069 X |

| PLUG CONTACT |                |               |             |               |
|--------------|----------------|---------------|-------------|---------------|
| AWG          | Current rating | Quality class | Termination | Part number   |
| 16 - 20      | 10 A           | 1             | 11          | 123 C 10039 X |
| 16 - 20      | 10 A           | 3             | 27          | 123 A 10039 X |
| 12 - 14      | 20 A           | 1             | 12          | 123 C 10049 X |
| 12 - 14      | 20 A           | 3             | 28          | 123 A 10049 X |
| 8 - 10       | 40 A           | 1             | 14          | 123 C 10069 X |
| 8 - 10       | 40 A           | 3             | 29          | 123 A 10069 X |

| PREMATING CONTACT |                |               |               |
|-------------------|----------------|---------------|---------------|
| AWG               | Current rating | Quality class | Part number   |
| 16 - 20           | 10 A           | 1             | 123 C 10139 X |
| 12 - 14           | 20 A           | 1             | 123 C 10149 X |
| 8 - 10            | 40 A           | 1             | 123 C 10169 X |

# TYPE M

## High power contacts – crimp – straight



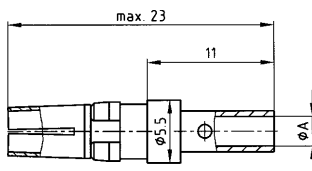
RoHS compliant

### DESCRIPTION

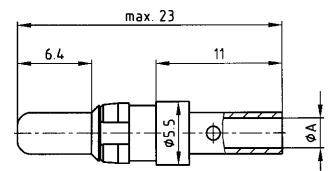
- Precision machined contacts
- Quality class 3: gold flash
- Quality class 1: 0.8µm gold on mating side
- Other quality classes on request

### PRODUCT DRAWING

Socket contact

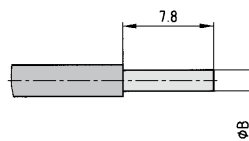


Plug contact

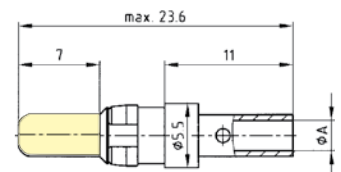


| AWG     | Current Rating | ØA <sup>+0.15</sup> | ØB max. |
|---------|----------------|---------------------|---------|
| 16 - 20 | 10 A           | 1,70                | 1,70    |
| 12 - 14 | 20 A           | 2,60                | 2,60    |
| 10 - 12 | 30 A           | 3,70                | 3,70    |
| 8 - 10  | 40 A           | 4,60                | 4,60    |

Wire stripping



Premating contact



### ORDER DATA

(Dim. = mm)

| SOCKET CONTACT |                |               |               | PLUG CONTACT |                |               |               | PREMATING CONTACT |                |               |               |
|----------------|----------------|---------------|---------------|--------------|----------------|---------------|---------------|-------------------|----------------|---------------|---------------|
| AWG            | Current rating | Quality class | Part number   | AWG          | Current rating | Quality class | Part number   | AWG               | Current rating | Quality class | Part number   |
| 16 - 20        | 10 A           | 1             | 124 C 11019 X | 16 - 20      | 10 A           | 1             | 123 C 11019 X | 16 - 20           | 10 A           | 1             | 123 C 11119 X |
| 16 - 20        | 10 A           | 3             | 124 A 11019 X | 16 - 20      | 10 A           | 3             | 123 A 11019 X | 12 - 14           | 20 A           | 1             | 123 C 11129 X |
| 12 - 14        | 20 A           | 1             | 124 C 11029 X | 12 - 14      | 20 A           | 1             | 123 C 11029 X | 10 - 12           | 30 A           | 1             | 123 C 11139 X |
| 12 - 14        | 20 A           | 3             | 124 A 11029 X | 12 - 14      | 20 A           | 3             | 123 A 11029 X | 8 - 10            | 40 A           | 1             | 123 C 11149 X |
| 10 - 12        | 30 A           | 1             | 124 C 11039 X | 10 - 12      | 30 A           | 1             | 123 C 11039 X |                   |                |               |               |
| 10 - 12        | 30 A           | 3             | 124 A 11039 X | 10 - 12      | 30 A           | 3             | 123 A 11039 X |                   |                |               |               |
| 8 - 10         | 40 A           | 1             | 124 C 11049 X | 8 - 10       | 40 A           | 1             | 123 C 11049 X |                   |                |               |               |
| 8 - 10         | 40 A           | 3             | 124 A 11049 X | 8 - 10       | 40 A           | 3             | 123 A 11049 X |                   |                |               |               |

TYPE M

High power contacts – solder pin – straight

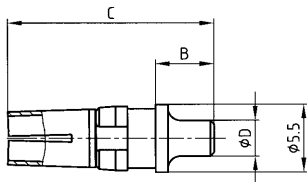


RoHS compliant

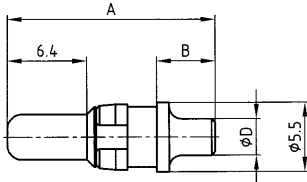
- DESCRIPTION
- Precision machined contacts
  - Quality class 3: gold flash
  - Quality class 1: 0.8µm gold on mating side
  - Other quality classes on request
  - Assembled contacts available on request

PRODUCT DRAWING

Socket contact

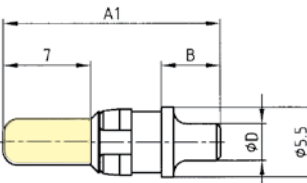


Plug contact



| Current rating | A     | A <sub>1</sub> | B    | C     | ØD   |
|----------------|-------|----------------|------|-------|------|
| 20 A           | 16.70 | 17.30          | 4.70 | 16.10 | 2.90 |
| 40 A           | 17.75 | 18.35          | 5.75 | 17.15 | 3.80 |

Premating contact



ORDER DATA

(Dim. = mm)

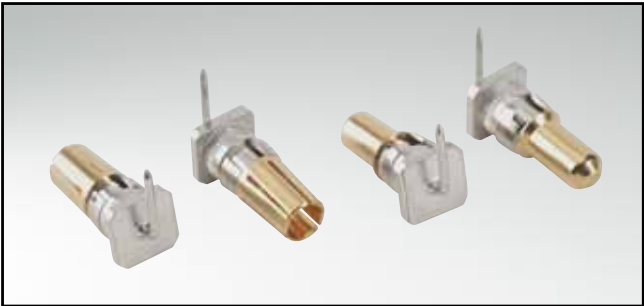
| SOCKET CONTACT |               |             |               |
|----------------|---------------|-------------|---------------|
| Current rating | Quality class | Termination | Part number   |
| 20 A           | 1             | 19          | 124 C 14029 X |
| 20 A           | 3             | 39          | 124 A 14029 X |
| 40 A           | 1             | 20          | 124 C 14049 X |
| 40 A           | 3             | 40          | 124 A 14049 X |

| PLUG CONTACT   |               |             |               |
|----------------|---------------|-------------|---------------|
| Current rating | Quality class | Termination | Part number   |
| 20 A           | 1             | 19          | 123 C 14029 X |
| 20 A           | 3             | 39          | 123 A 14029 X |
| 40 A           | 1             | 20          | 123 C 14049 X |
| 40 A           | 3             | 40          | 123 A 14049 X |

| PREMATING CONTACT |               |             |               |
|-------------------|---------------|-------------|---------------|
| Current rating    | Quality class | Termination | Part number   |
| 20 A              | 1             | 19          | 123 C 14129 X |
| 40 A              | 1             | 20          | 123 C 14149 X |

# TYPE M

High power contacts – solder pin – angled

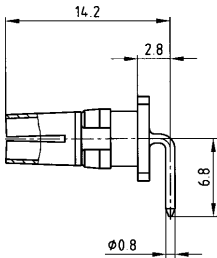


RoHS compliant

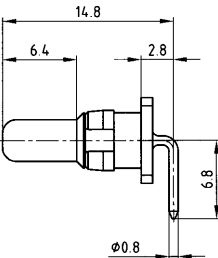
- DESCRIPTION**
- Precision machined contacts
  - Quality class 3: gold flash
  - Quality class 1: 0.8µm gold on mating side
  - Other quality classes on request
  - Assembled contacts available on request

**PRODUCT DRAWING**

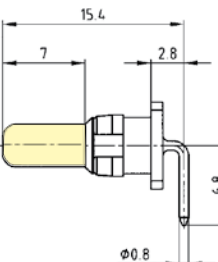
Socket contact



Plug contact



Premating contact



**ORDER DATA** (Dim. = mm)

| SOCKET CONTACT |               |             |               |
|----------------|---------------|-------------|---------------|
| Current rating | Quality class | Termination | Part number   |
| 10 A           | 1             | 18          | 124 C 12019 X |
| 10 A           | 3             | 17          | 124 A 12019 X |

| PLUG CONTACT   |               |             |               |
|----------------|---------------|-------------|---------------|
| Current rating | Quality class | Termination | Part number   |
| 10 A           | 1             | 18          | 123 C 12019 X |
| 10 A           | 3             | 17          | 123 A 12019 X |

| PREMATING CONTACT |               |               |
|-------------------|---------------|---------------|
| Current rating    | Quality class | Part number   |
| 10 A              | 1             | 123 C 12119 X |

TYPE M

High power contacts – solder pin – angled



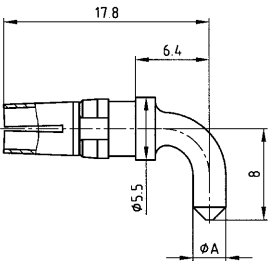
RoHS compliant

DESCRIPTION

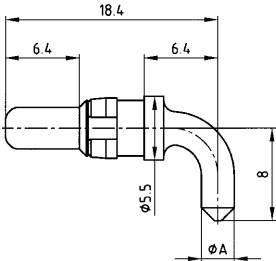
- Precision machined contacts
- Quality class 3: gold flash
- Quality class 1: 0.8µm gold on mating side
- Other quality classes on request
- Assembled contacts available on request

PRODUCT DRAWING

Socket contact

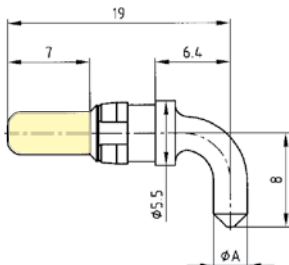


Plug contact



| Current Rating | ØA   |
|----------------|------|
| 20 A           | 2.90 |
| 40 A           | 3.80 |

Premating contact



ORDER DATA

(Dim. = mm)

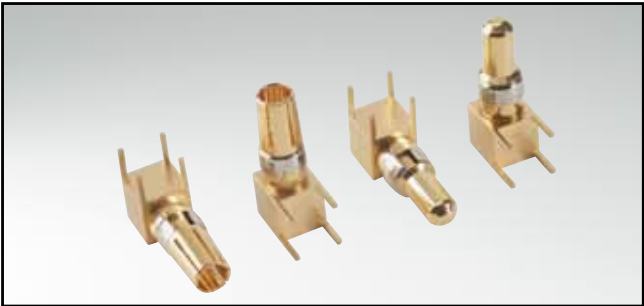
| SOCKET CONTACT |               |             |               |
|----------------|---------------|-------------|---------------|
| Current rating | Quality class | Termination | Part number   |
| 20 A           | 1             | 21          | 124 C 13019 X |
| 20 A           | 3             | 16          | 124 A 13019 X |
| 40 A           | 1             | 23          | 124 C 13039 X |
| 40 A           | 3             | 15          | 124 A 13039 X |

| PLUG CONTACT   |               |             |               |
|----------------|---------------|-------------|---------------|
| Current rating | Quality class | Termination | Part number   |
| 20 A           | 1             | 21          | 123 C 13019 X |
| 20 A           | 3             | 16          | 123 A 13019 X |
| 40 A           | 1             | 23          | 123 C 13039 X |
| 40 A           | 3             | 15          | 123 A 13039 X |

| PREMATING CONTACT |               |               |
|-------------------|---------------|---------------|
| Current rating    | Quality class | Part number   |
| 20 A              | 1             | 123 C 13119 X |
| 40 A              | 1             | 123 C 13139 X |

# TYPE M

High power contactcs – solder pin – angled

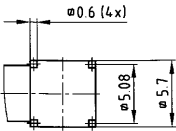
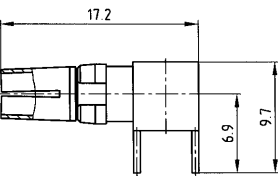


RoHS compliant

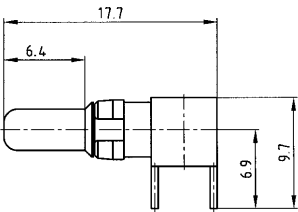
- DESCRIPTION**
- Precision machined contacts
  - Quality class 3: gold flash
  - Quality class 1: 0.8µm gold on mating side
  - Other quality classes on request
  - Assembled contacts available on request

**PRODUCT DRAWING**

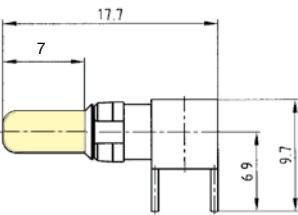
Socket contact



Plug contact



Premating contact



**ORDER DATA** (Dim. = mm)

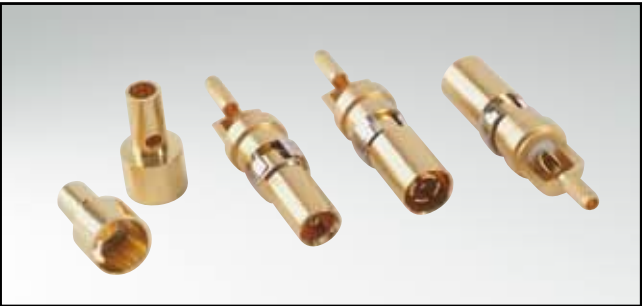
| SOCKET CONTACT |               |             |               |
|----------------|---------------|-------------|---------------|
| Current rating | Quality class | Termination | Part number   |
| 40 A           | 1             | 26          | 124 C 10019 X |
| 40 A           | 3             | 13          | 124 A 10019 X |

| PLUG CONTACT   |               |             |               |
|----------------|---------------|-------------|---------------|
| Current rating | Quality class | Termination | Part number   |
| 40 A           | 1             | 26          | 123 C 10019 X |
| 40 A           | 3             | 13          | 123 A 10019 X |

| PREMATING CONTACT |               |               |
|-------------------|---------------|---------------|
| Current rating    | Quality class | Part number   |
| 40 A              | 1             | 123 C 10029 X |

TYPE M

Coaxial contacts – straight – inner conductor solder – outer conductor crimp/solder termination



RoHS compliant

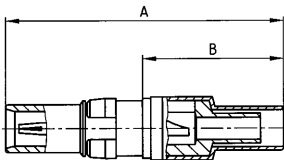
DESCRIPTION

- 50 Ω and 75 Ω Version
- Socket contact suitable for male connectors
- Plug contact suitable for female connectors
- Contact platings:
  - 0.8µm gold mating side inner conductor
  - other platings on request
- Delivery includes: contacts and sleeve supplied loose

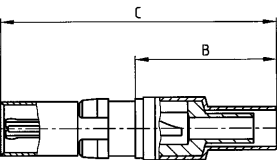
PRODUCT DRAWING

50 Ω Version

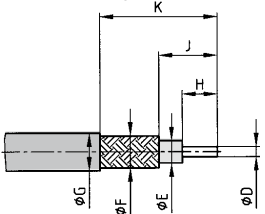
Socket contact



Plug contact



Wire stripping

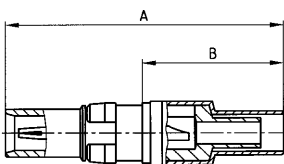


| usable cable RG                      | A    | B    | C    | ØD max. | ØE max. | ØF max. | ØG max. | H   | J   | K    |
|--------------------------------------|------|------|------|---------|---------|---------|---------|-----|-----|------|
| 178 B/U, 196 A/U, 404 U <sup>+</sup> | 24.2 | 12.3 | 23.9 | 0.90    | 1.2     | 1.4     | 2.3     | 2.5 | 5.0 | 10.0 |
| 174 U, 188 A/U, 316 U                | 24.2 | 12.3 | 23.9 | 0.80    | 1.9     | 2.3     | 3.2     | 2.5 | 5.0 | 10.0 |
| 316 U <sup>*</sup>                   | 24.2 | 12.3 | 23.9 | 0.90    | 1.9     | 2.7     | 3.5     | 2.5 | 5.0 | 10.0 |
| 58 C/U, 141 A/U                      | 25.4 | 13.5 | 25.2 | 0.90    | 3.0     | 4.1     | 5.2     | 3.0 | 5.0 | 9.5  |

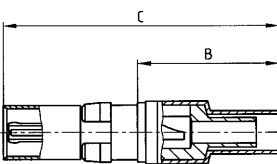
\* = double braided - <sup>+</sup> = low noise

75 Ω Version

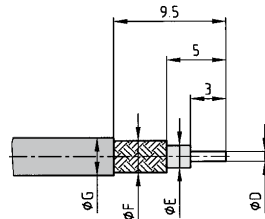
Socket contact



Plug contact



Wire stripping



| usable cable RG  | A    | B    | C    | ØD max. | ØE max. | ØF max. | ØG max. |
|------------------|------|------|------|---------|---------|---------|---------|
| 179 B/U, 187 A/U | 24.2 | 12.3 | 23.9 | 0.50    | 1.9     | 2.3     | 3.2     |
| 180 B/U          | 23.1 | 11.2 | 22.8 | 0.90    | 2.8     | 3.1     | 4.5     |

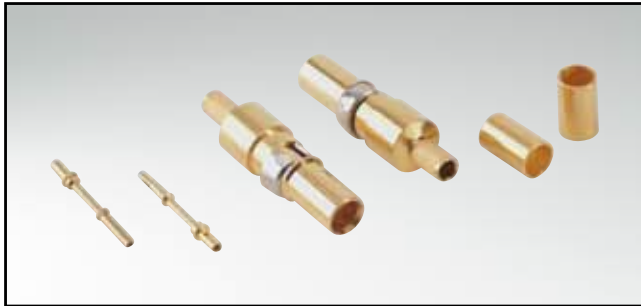
ORDER DATA

(Dim. = mm)

| SOCKET CONTACT |                                      |               | PLUG CONTACT |                                      |               |
|----------------|--------------------------------------|---------------|--------------|--------------------------------------|---------------|
| Version        | Usable cable RG                      | Part number   | Version      | Usable cable RG                      | Part number   |
| 50 Ω           | 178 B/U, 196 A/U, 404 U <sup>+</sup> | 124 C 20059 X | 50 Ω         | 178 B/U, 196 A/U, 404 U <sup>+</sup> | 123 C 20059 X |
| 50 Ω           | 174 U, 188 A/U, 316 U                | 124 C 20069 X | 50 Ω         | 174 U, 188 A/U, 316 U                | 123 C 20069 X |
| 50 Ω           | 316 U *                              | 124 C 20079 X | 50 Ω         | 316 U *                              | 123 C 20079 X |
| 50 Ω           | 58 C/U, 141 A/U                      | 124 C 20089 X | 50 Ω         | 58 C/U, 141 A/U                      | 123 C 20089 X |
| 75 Ω           | 179 B/U, 187 A/U                     | 124 C 30039 X | 75 Ω         | 179 B/U, 187 A/U                     | 123 C 30039 X |
| 75 Ω           | 180 B/U                              | 124 C 30049 X | 75 Ω         | 180 B/U                              | 123 C 30049 X |

## TYPE M

### Coaxial contacts – straight – inner and outer conductor crimp termination



RoHS compliant

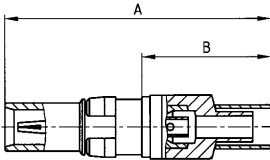
#### DESCRIPTION

- 50 Ω Version
- Socket contact suitable for male connectors
- Plug contact suitable for female connectors
- Contact platings:
  - 0.8µm gold mating side inner conductor
  - other platings on request
- Delivery includes: contacts and sleeve supplied loose

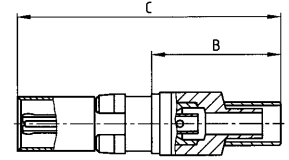
#### PRODUCT DRAWING

##### 50 Ω Version

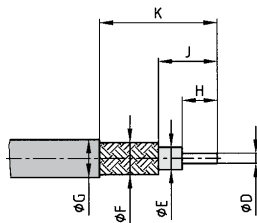
Socket contact



Plug contact



Wire stripping



| usable cable RG       | A    | B    | C    | ØD max. | ØE max. | ØF max. | ØG max. | H   | J   | K   |
|-----------------------|------|------|------|---------|---------|---------|---------|-----|-----|-----|
| 174 U, 188 A/U, 316 U | 23.1 | 11.2 | 22.9 | 0.60    | 1.9     | 2.3     | 3.2     | 3.0 | 4.3 | 9.3 |
| 58 C/U, 141 A/U       | 22.8 | 10.9 | 22.6 | 1.30    | 3.7     | 4.4     | 5.2     | 3.8 | 5.3 | 9.0 |
| 316 U*                | 23.1 | 11.2 | 22.9 | 0.60    | 1.9     | 3.0     | 3.8     | 3.0 | 4.3 | 9.3 |

\* = double braided

(Dim. = mm)

#### ORDER DATA

| SOCKET CONTACT |                       |               | PLUG CONTACT |                       |               |
|----------------|-----------------------|---------------|--------------|-----------------------|---------------|
| Version        | Usable cable RG       | Part number   | Version      | Usable cable RG       | Part number   |
| 50 Ω           | 174 U, 188 A/U, 316 U | 124 C 21049 X | 50 Ω         | 174 U, 188 A/U, 316 U | 123 C 21049 X |
| 50 Ω           | 58 C/U, 141 A/U       | 124 C 21059 X | 50 Ω         | 58 C/U, 141 A/U       | 123 C 21059 X |
| 50 Ω           | 316 U *               | 124 C 21069 X | 50 Ω         | 316 U *               | 123 C 21069 X |

TYPE M

Coaxial contacts – angled – inner conductor solder – outer conductor crimp/solder termination



RoHS compliant

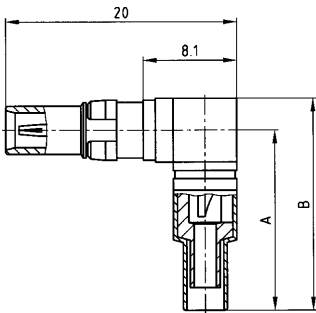
DESCRIPTION

- 50 Ω and 75 Ω Version
- Socket contact suitable for male connectors
- Plug contact suitable for female connectors
- Contact platings:
  - 0.8µm gold mating side inner conductor
  - other platings on request
- Delivery includes: contacts and sleeve supplied loose

PRODUCT DRAWING

50 Ω Version

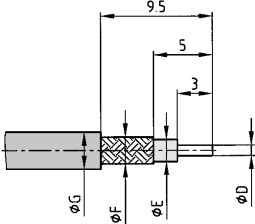
Socket contact



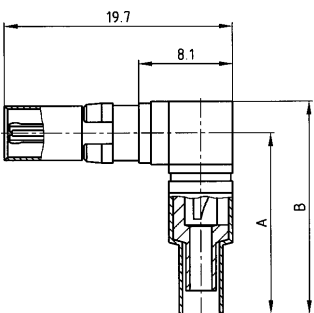
| usable cable RG                      | A    | B    | ØD max. | ØE max. | ØF max. | ØG max. |
|--------------------------------------|------|------|---------|---------|---------|---------|
| 178 B/U, 196 A/U, 404 U <sup>+</sup> | 15.7 | 18.5 | 0.90    | 1.2     | 1.4     | 2.3     |
| 174 U, 188 A/U, 316 U                | 15.7 | 18.5 | 0.90    | 1.9     | 2.3     | 3.2     |
| 122 U                                | 15.7 | 18.5 | 0.90    | 2.8     | 3.1     | 4.5     |
| 316 U*                               | 16.8 | 19.5 | 0.90    | 1.9     | 2.7     | 3.5     |
| 58 C/U, 141 A/U                      | 18.0 | 20.8 | 0.90    | 3.0     | 4.1     | 5.2     |

\* = double braided - + = low noise

Wire stripping

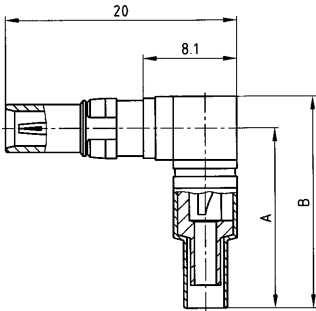


Plug contact



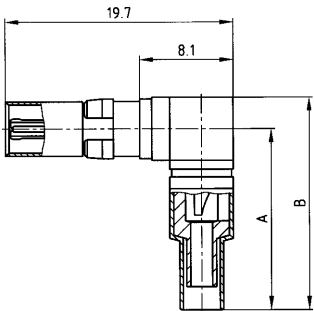
75 Ω Version

Socket contact



| usable cable RG  | A    | B    | ØD max. | ØE max. | ØF max. | ØG max. |
|------------------|------|------|---------|---------|---------|---------|
| 196 A/U          | 15.7 | 18.5 | 0.90    | 1.2     | 1.4     | 2.3     |
| 179 B/U, 187 A/U | 15.7 | 18.5 | 0.90    | 1.9     | 2.3     | 3.2     |
| 180 B/U          | 15.7 | 18.5 | 0.90    | 2.8     | 3.1     | 4.5     |

Plug contact



ORDER DATA

(Dim. = mm)

| SOCKET CONTACT |                                      |               | PLUG CONTACT |                                      |               |
|----------------|--------------------------------------|---------------|--------------|--------------------------------------|---------------|
| Version        | Usable cable RG                      | Part number   | Version      | Usable cable RG                      | Part number   |
| 50 Ω           | 178 B/U, 196 A/U, 404 U <sup>+</sup> | 124 C 22069 X | 50 Ω         | 178 B/U, 196 A/U, 404 U <sup>+</sup> | 123 C 22069 X |
| 50 Ω           | 174 U, 188 A/U, 316 U                | 124 C 22079 X | 50 Ω         | 174 U, 188 A/U, 316 U                | 123 C 22079 X |
| 50 Ω           | 316 U *                              | 124 C 22089 X | 50 Ω         | 316 U *                              | 123 C 22089 X |
| 50 Ω           | 122 U                                | 124 C 22099 X | 50 Ω         | 122 U                                | 123 C 22099 X |
| 50 Ω           | 58 C/U, 141 A/U                      | 124 C 22109 X | 50 Ω         | 58 C/U, 141 A/U                      | 123 C 22109 X |
| 75 Ω           | 196 A/U                              | 124 C 32049 X | 75 Ω         | 196 A/U                              | 123 C 32049 X |
| 75 Ω           | 179 B/U, 187 A/U                     | 124 C 32059 X | 75 Ω         | 179 B/U, 187 A/U                     | 123 C 32059 X |
| 75 Ω           | 180 B/U                              | 124 C 32069 X | 75 Ω         | 180 B/U                              | 123 C 32069 X |

## TYPE M

### Coaxial contacts – angled – inner and outer conductor crimp termination



RoHS compliant

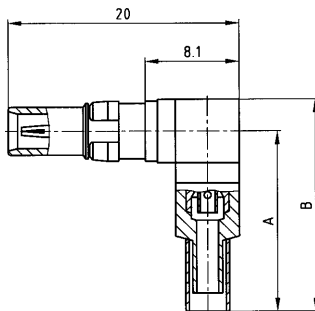
#### DESCRIPTION

- 50  $\Omega$  and 75  $\Omega$  Version
- Socket contact suitable for male connectors
- Plug contact suitable for female connectors
- Contact platings:
  - 0.8  $\mu$ m gold mating side inner conductor
  - other platings on request
- Delivery includes: contacts and sleeve supplied loose

#### PRODUCT DRAWING

##### 50 $\Omega$ Version

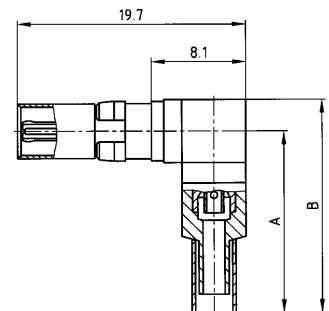
###### Socket contact



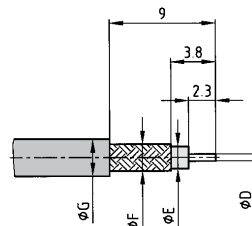
| usable cable RG       | A    | B    | $\varnothing D$ max. | $\varnothing E$ max. | $\varnothing F$ max. | $\varnothing G$ max. |
|-----------------------|------|------|----------------------|----------------------|----------------------|----------------------|
| 174 U, 188 A/U, 316 U | 15.7 | 18.5 | 0.60                 | 1.9                  | 2.3                  | 2.3                  |
| 316 U*                | 15.7 | 18.5 | 0.60                 | 1.9                  | 3.0                  | 3.8                  |
| 58 C/U, 141 A/U       | 15.4 | 18.2 | 1.00                 | 3.7                  | 4.4                  | 5.2                  |

\* = double braided

###### Plug contact

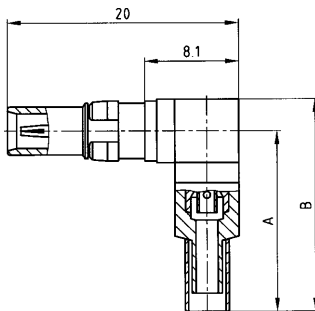


#### Wire stripping



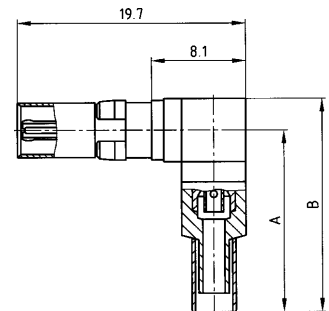
##### 75 $\Omega$ Version

###### Socket contact



| usable cable RG  | A    | B    | $\varnothing D$ max. | $\varnothing E$ max. | $\varnothing F$ max. | $\varnothing G$ max. |
|------------------|------|------|----------------------|----------------------|----------------------|----------------------|
| 179 B/U, 187 A/U | 15.7 | 18.5 | 0.60                 | 1.9                  | 2.3                  | 3.2                  |
| 180 B/U          | 14.9 | 17.7 | 0.60                 | 2.8                  | 3.2                  | 4.5                  |

###### Plug contact



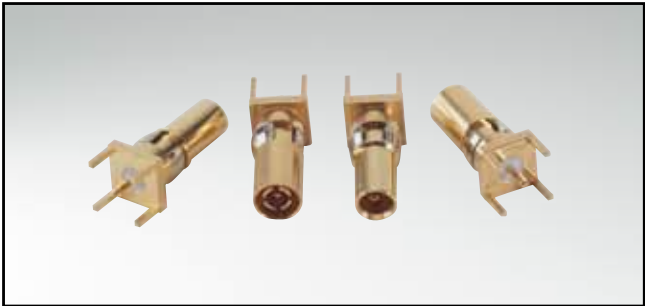
#### ORDER DATA

(Dim. = mm)

| SOCKET CONTACT |                       |               | PLUG CONTACT |                       |               |
|----------------|-----------------------|---------------|--------------|-----------------------|---------------|
| Version        | Usable cable RG       | Part number   | Version      | Usable cable RG       | Part number   |
| 50 $\Omega$    | 174 U, 188 A/U, 316 U | 124 C 23049 X | 50 $\Omega$  | 174 U, 188 A/U, 316 U | 123 C 23049 X |
| 50 $\Omega$    | 316 U *               | 124 C 23059 X | 50 $\Omega$  | 316 U *               | 123 C 23059 X |
| 50 $\Omega$    | 58 C/U, 141 A/U       | 124 C 23069 X | 50 $\Omega$  | 58 C/U, 141 A/U       | 123 C 23069 X |
| 75 $\Omega$    | 179 B/U, 187 A/U      | 124 C 33039 X | 75 $\Omega$  | 179 B/U, 187 A/U      | 123 C 33039 X |
| 75 $\Omega$    | 180 B/U               | 124 C 33049 X | 75 $\Omega$  | 180 B/U               | 123 C 33049 X |

TYPE M

Coaxial contacts – straight – PCB termination – 5 solder pins



RoHS compliant

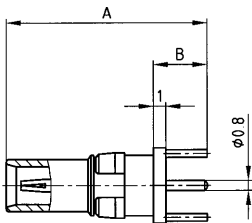
DESCRIPTION

- 50 Ω Version
- Socket contact suitable for male connectors
- Plug contact suitable for female connectors
- Contact platings:
  - 0.8µm gold mating side inner conductor
  - other platings on request

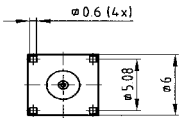
PRODUCT DRAWING

50 Ω Version

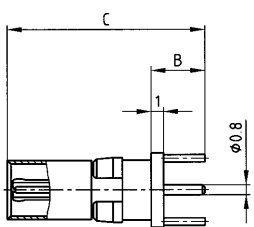
Socket contact



| Termination type | A    | B   | C    |
|------------------|------|-----|------|
| 31               | 16.2 | 4.3 | 16.0 |
| 32               | 17.7 | 5.8 | 17.5 |

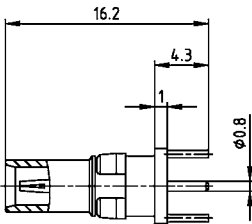


Plug contact

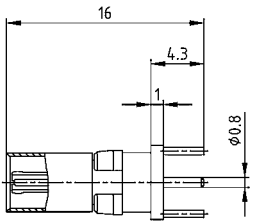


75 Ω Version

Socket contact



Plug contact



ORDER DATA

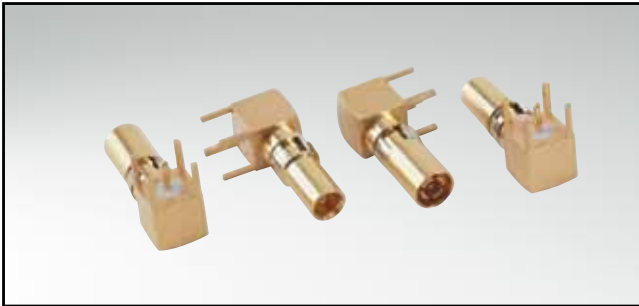
(Dim. = mm)

| SOCKET CONTACT |             |               |
|----------------|-------------|---------------|
| Version        | Termination | Part number   |
| 50 Ω           | 31          | 124 C 24039 X |
| 50 Ω           | 32          | 124 C 24049 X |
| 75 Ω           | 33          | 124 C 34029 X |

| PLUG CONTACT |             |               |
|--------------|-------------|---------------|
| Version      | Termination | Part number   |
| 50 Ω         | 31          | 123 C 24039 X |
| 50 Ω         | 32          | 123 C 24049 X |
| 75 Ω         | 33          | 123 C 34029 X |

## TYPE M

Coaxial contacts – angled – PCB termination – 5 solder pins



RoHS compliant

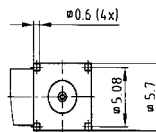
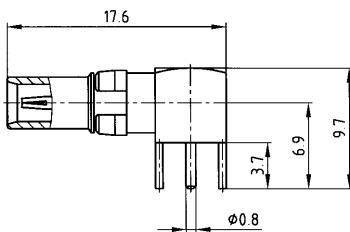
### DESCRIPTION

- 50 and 75  $\Omega$  Version
- Socket contact suitable for male connectors
- Plug contact suitable for female connectors
- Contact platings:
  - 0.8  $\mu$ m gold mating side inner conductor
  - other platings on request

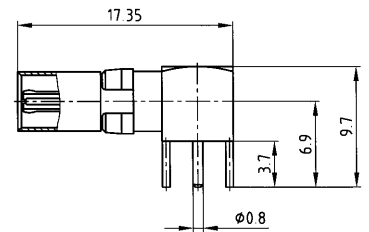
### PRODUCT DRAWING

#### 50 $\Omega$ Version

Socket contact

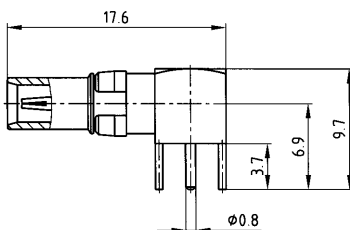


Plug contact

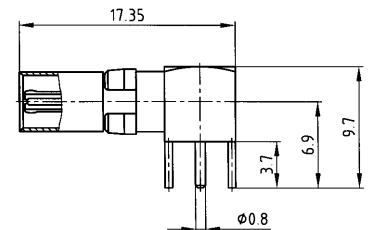


#### 75 $\Omega$ Version

Socket contact



Plug contact



### ORDER DATA

(Dim. = mm)

| SOCKET CONTACT |             |               | PLUG CONTACT |             |               |
|----------------|-------------|---------------|--------------|-------------|---------------|
| Version        | Termination | Part number   | Version      | Termination | Part number   |
| 50 $\Omega$    | 35          | 124 C 25029 X | 50 $\Omega$  | 35          | 123 C 25029 X |
| 75 $\Omega$    | 36          | 124 C 35029 X | 75 $\Omega$  | 36          | 123 C 35029 X |

## SECTION 6

## PC104 AND PC104PLUS CONNECTORS

Numerous manufacturers now use these standards for system architecture. This has promoted the triumphant march of the "personal computer" to be carried over into the field of industrial production, in the form of IPCs (industrial personal computers).

Prerequisite for this was an adaptation of these well-known "office world" systems to the requirements and conditions prevailing in industrial production environments.

Among the most important development goals incorporated into the specifications were

- a compact form-factor of about 90 mm x 96 mm (3.6 x 3.8 inches) for individual, low-profile function modules,
- a universal, self-building bus system to achieve superior modularity and compatibility,
- the definition of a robust, reliable connector system capable of replacing the edge connectors common to the PC world,
- reduced power requirements for modules.

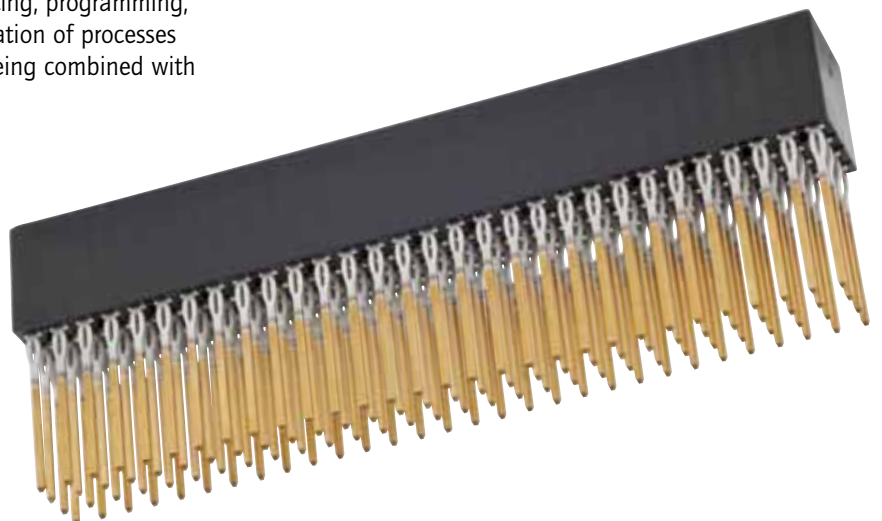
Realization of these goals has made it possible for today's industrial PCs to be deployed in the operating, programming, visualization, long-term archival and simulation of processes – and beyond this – they are capable of being combined with conventional industrial controllers or PLCs.

Specification-compliant bus connectors play a key role in PC104 and PC104plus system architecture interconnections.

In order to form a 104-pole ISA bus, the standard defines two, two-row connectors having a 2.54 mm contact grid; one connector with 64 contacts, the other with 40 contacts. These connectors must be located on the circuit board at prescribed positions.

In order to achieve a self-building system through the stacking of modules, these connectors are designed as "stack-through" and "non-stack-through" (terminating) connectors.

Stack through connectors have 12.2 mm and 17.0 mm long contacts and they function both as a pin connector and as a socket connector for signals routed from level-to-level in the module stack.





Press-fit contacts are the preferred technology for circuit board stack-through connectors. Terminating connectors with short contacts are used on the first stack level. These are often available either as solder or press-fit versions.

The PC104plus specification defines a connector for implementing a PCI bus. It is a 4 x 30 positions connector with a 2.00 mm contact grid pattern.

Because of the smaller grid spacing and increased contact density exhibited by these connectors, the specification describes an additional shroud that is to be plugged onto the circuit board's underside. This shroud stabilizes the stack-through contacts and ensures they are properly guided when modules are stacked.

PC104 and PC104plus connectors are specified to be compatible so that a mix of modules, compliant with either specification, can be used together in a single system configuration— which is often the case.

CONEC uses for its PC104 and PC104plus connectors a flexible press fit termination. This Eye of the needle design preserves the circuit board during the press-fit process and it ensures good retention force for the mounted component.



# TECHNICAL DATA

## PC104 Connectors

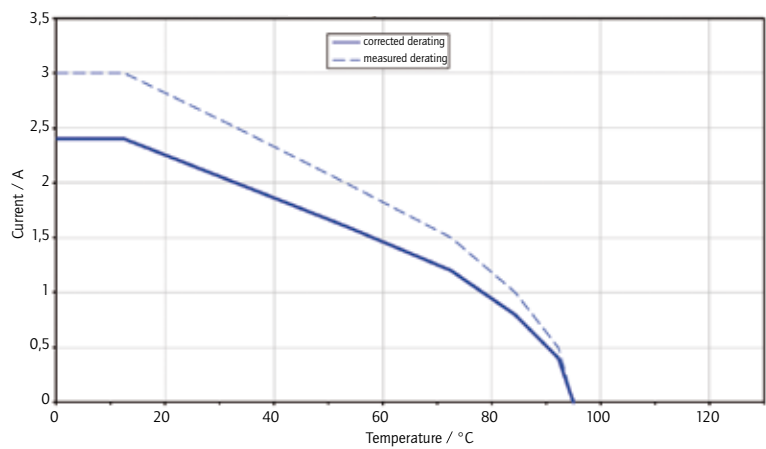
| Materials |                   |
|-----------|-------------------|
| Insulator | PBT, GF, UL94 V-O |
| Contacts  | Copper alloy      |

| Electrical Characteristics |                                |
|----------------------------|--------------------------------|
| Current rating             | 2.2 A in acc. to IEC 60512-5-2 |
| Contact resistance         | < 20 mΩ                        |
| Working temperature        | -55°C to +95°C                 |

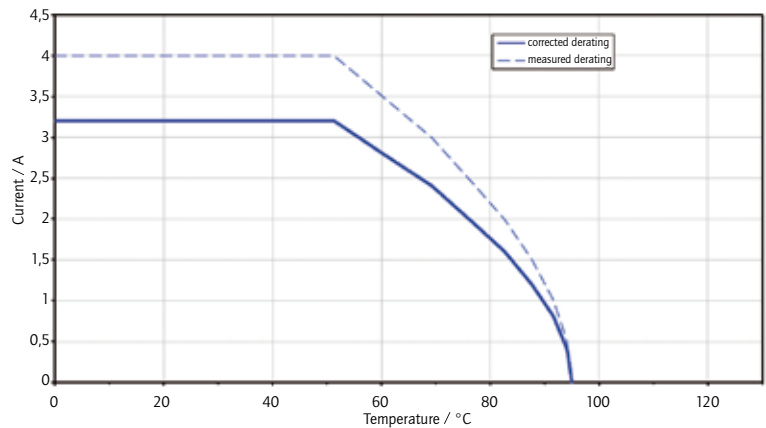
| Mechanical characteristics |                                         |
|----------------------------|-----------------------------------------|
| Mating force               | max. 0.9 N / Pin with test Pin Ø 0.6 mm |
| Withdrawal force           | min. 0.3 N / Pin with test Pin Ø 0.6 mm |
| Press-in force             | max. 80 N / Pin                         |
| PCB thickness              | 1.6 mm                                  |
| Creepage distance          | min. 1.2 mm                             |

Technical alterations are subjects to change without notice.

Derating curve 100-pos. connector – all contacts loaded



Derating curve 64-pos. connector – contacts loaded in acc. to PC104 specification



# TECHNICAL DATA

## PC104plus Connectors

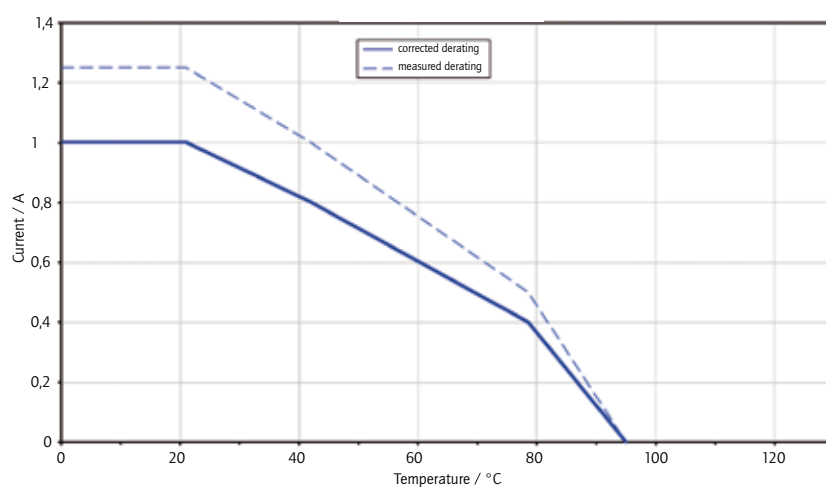
| Materials |                   |
|-----------|-------------------|
| Insulator | PBT, GF, UL94 V-0 |
| Contacts  | Copper alloy      |

| Electrical Characteristics |                        |
|----------------------------|------------------------|
| Current rating             | 1 A ref. IEC 60512-5-2 |
| Contact resistance         | < 20 mΩ                |
| Working temperature        | -55°C to +95°C         |

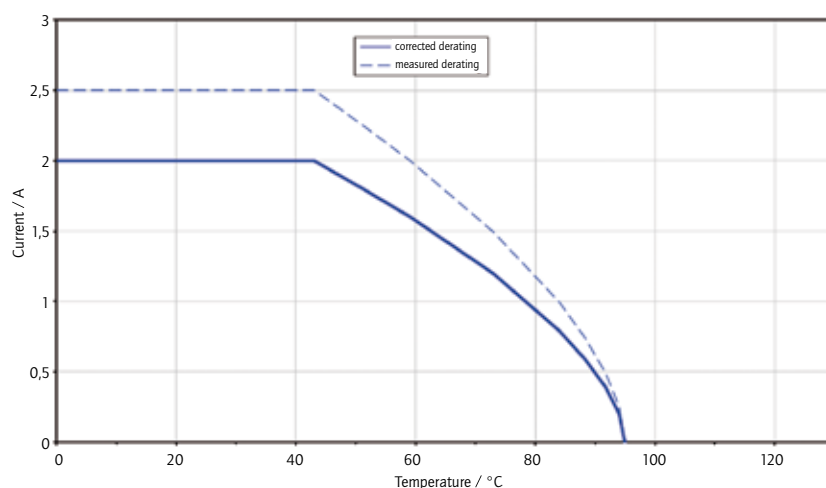
| Mechanical characteristics |                                         |
|----------------------------|-----------------------------------------|
| Mating force               | max. 1.5 N / Pin with test Pin Ø 0.5 mm |
| Withdrawal force           | min. 0.3 N / Pin with test Pin Ø 0.5 mm |
| Press-in force             | max. 80 N / Pin                         |
| PCB thickness              | 1.4 mm                                  |
| Creepage distance          | min. 0.6 mm                             |

Technical alterations are subjects to change without notice.

Derating curve 120-pos. connector – all contacts loaded

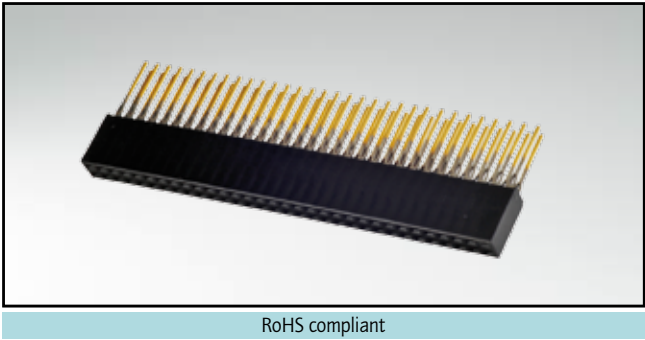


Derating curve 120-pos. connector – contacts loaded in acc. to PC104 specification



# PC104 STACK-THROUGH VERSION

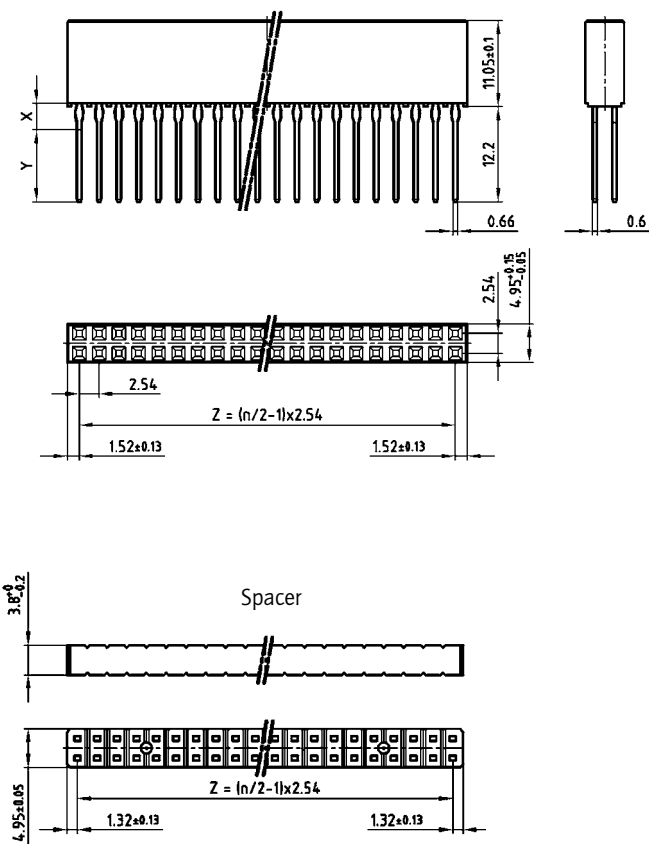
Female connector – straight – press fit contact – contact length 12.2 mm



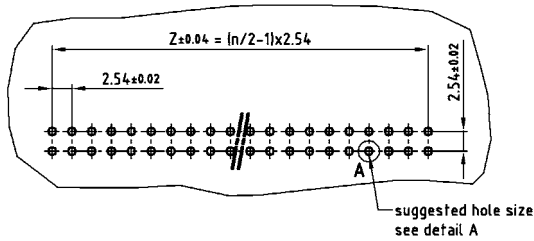
RoHS compliant

- DESCRIPTION**
- Standard version for PC104 module height 15.0 mm
  - Flexible press fit design
  - Double beam contacts
  - 40 / 64 / 100 positions version (further versions on request)
  - Quality class 3 and alternative quality class 2 available on request
  - Delivered as a set with "spacer"

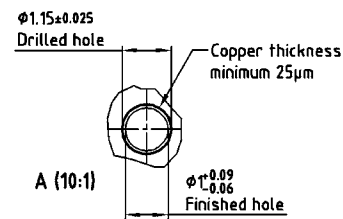
**PRODUCT DRAWING**



**PCB-hole pattern**



| Quality Class | Plating                   |                    |               |
|---------------|---------------------------|--------------------|---------------|
|               | Underplate min. 1.3 µm Ni |                    |               |
|               | Mating Area               | Post Area "X"      | Post Area "Y" |
| 3             | 0.25 µm Au                | 1.3 µm Sn 100 matt | 0.10 µm Au    |
| 2             | 0.40 µm Au                | 1.3 µm Sn 100 matt | 0.25 µm Au    |



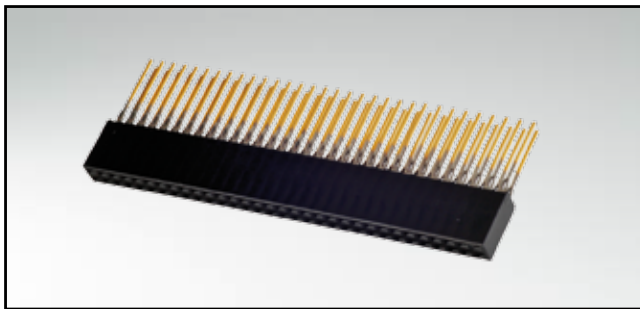
**ORDER DATA**

(Dim. = mm)

| Number of positions | Quality class 3 | Quality class 2 |
|---------------------|-----------------|-----------------|
| 40                  | 49-000023       | 49-000022       |
| 64                  | 49-000103       | 49-000102       |
| 100                 | 49-000143       | 49-000142       |

# PC104 STACK-THROUGH VERSION

Female connector – straight – press fit contact – contact length 17 mm

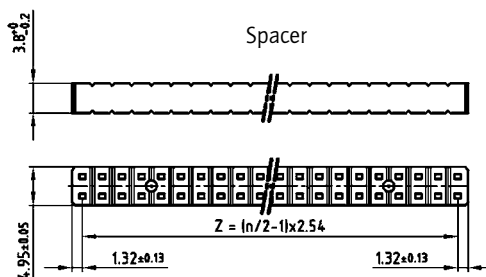
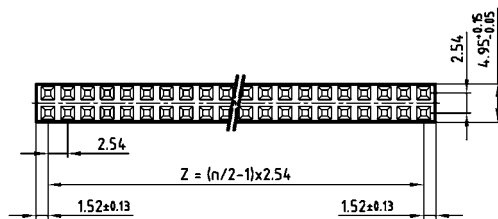
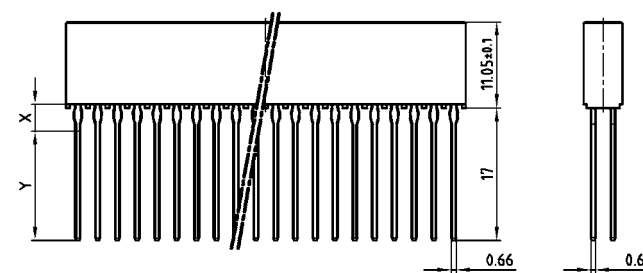


RoHS compliant

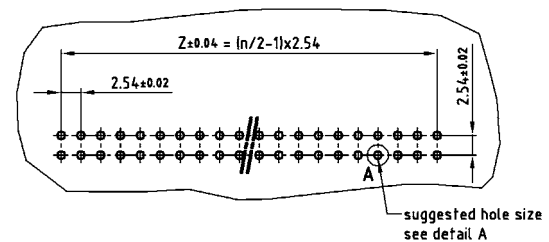
## DESCRIPTION

- Special contact length to achieve higher module stacks
- Flexible press fit design
- Double beam contacts
- 40/64/100 positions version (further versions on request)
- Quality class 3 and alternative quality class 2 available on request
- Delivered as a set with "spacer"

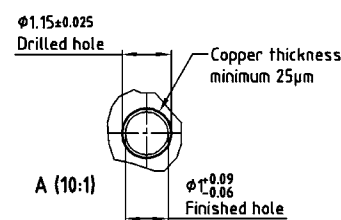
## PRODUCT DRAWING



## PCB-hole pattern



| Quality Class | Plating                   |                    |               |
|---------------|---------------------------|--------------------|---------------|
|               | Underplate min. 1.3 µm Ni |                    |               |
|               | Mating Area               | Post Area "X"      | Post Area "Y" |
| 3             | 0.25 µm Au                | 1.3 µm Sn 100 matt | 0.10 µm Au    |
| 2             | 0.40 µm Au                | 1.3 µm Sn 100 matt | 0.25 µm Au    |



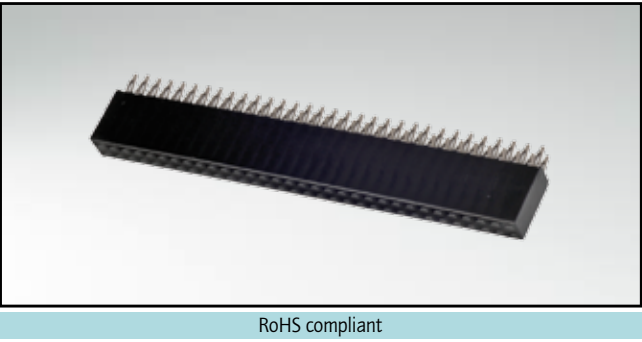
## ORDER DATA

(Dim. = mm)

| Number of positions | Quality class 3 | Quality class 2 |
|---------------------|-----------------|-----------------|
| 40                  | 49-000033       | 49-000032       |
| 64                  | 49-000113       | 49-000112       |
| 100                 | 49-000153       | 49-000152       |

# PC104 Non-STACK-THROUGH VERSION

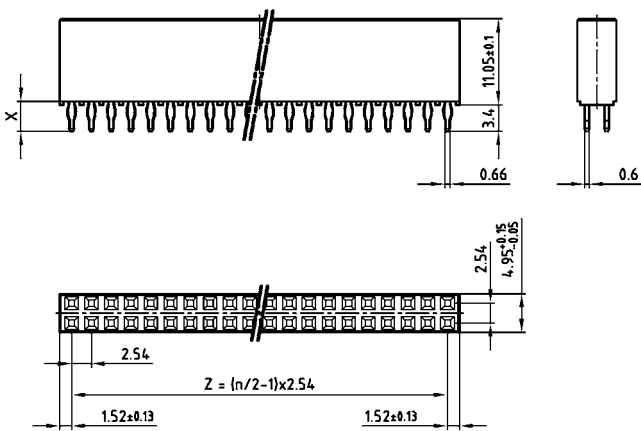
Female connector – straight – press fit contact – contact length 3.4 mm



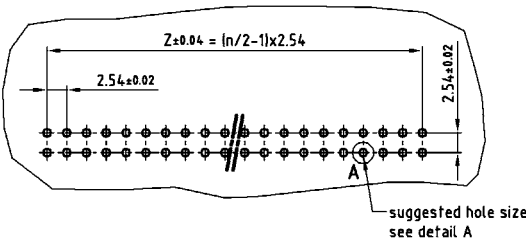
RoHS compliant

- DESCRIPTION**
- Flexible press fit design
  - Double beam contacts
  - 40 / 64 / 100 positions version (further versions on request)
  - Quality class 3 and alternative quality class 2 available on request

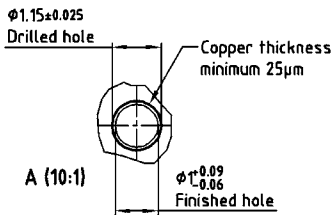
**PRODUCT DRAWING**



**PCB-hole pattern**



| Quality Class | Plating                   |                    |
|---------------|---------------------------|--------------------|
|               | Underplate min. 1.3 µm Ni |                    |
|               | Mating Area               | Post Area "X"      |
| 3             | 0.25 µm Au                | 1.3 µm Sn 100 matt |
| 2             | 0.40 µm Au                | 1.3 µm Sn 100 matt |



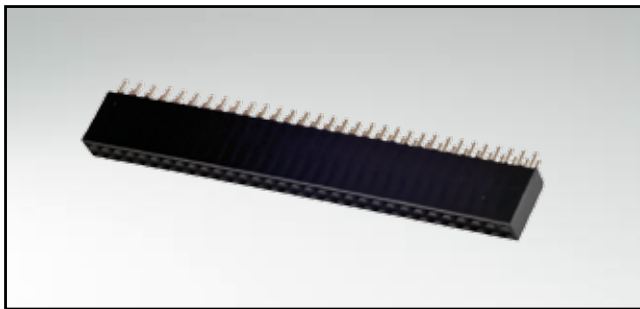
**ORDER DATA**

(Dim. = mm)

| Number of positions | Quality class 3 | Quality class 2 |
|---------------------|-----------------|-----------------|
| 40                  | 49-000013       | 49-000012       |
| 64                  | 49-000093       | 49-000092       |
| 100                 | 49-000133       | 49-000132       |

# PC104 Non-Stack-Through Version

Female connector – straight – solder pin – contact length 3.4 mm

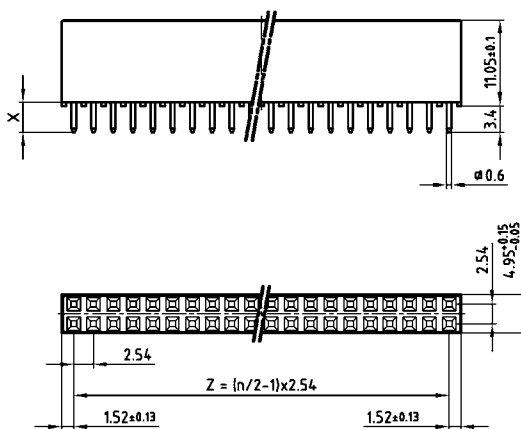


RoHS compliant

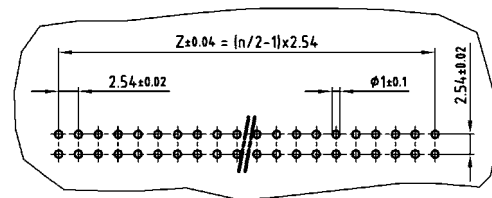
## DESCRIPTION

- Double beam contacts
- 40 / 64 / 100 positions version (further versions on request)
- Quality class 3 and alternative quality class 2 available on request

## PRODUCT DRAWING



## PCB-hole pattern



| Quality Class | Plating                   |                    |
|---------------|---------------------------|--------------------|
|               | Underplate min. 1.3 µm Ni |                    |
|               | Mating Area               | Post Area "X"      |
| 3             | 0.25 µm Au                | 1.3 µm Sn 100 matt |
| 2             | 0.40 µm Au                | 1.3 µm Sn 100 matt |

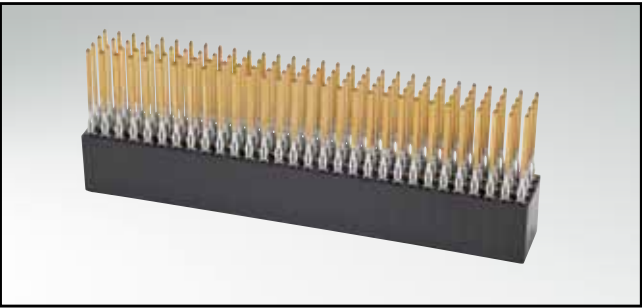
## ORDER DATA

(Dim. = mm)

| Number of positions | Quality class 3 | Quality class 2 |
|---------------------|-----------------|-----------------|
| 40                  | 49-000043       | 49-000042       |
| 64                  | 49-000123       | 49-000122       |
| 100                 | 49-000163       | 49-000162       |

# PC104PLUS STACK-THROUGH VERSION

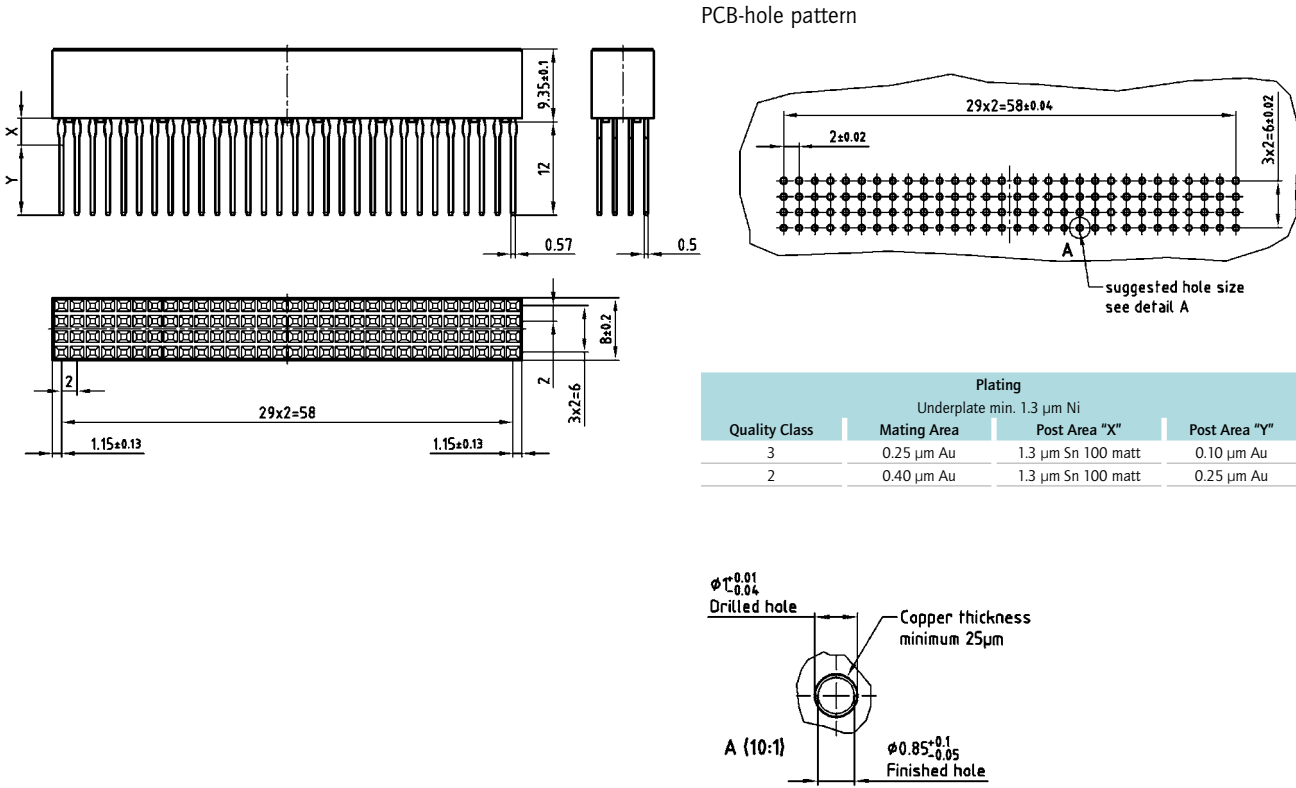
Female connector – straight – press fit contact – contact length 12.2 mm



RoHS compliant

- DESCRIPTION**
- Flexible press fit design
  - Double beam contacts
  - Standard version 120 positions
  - Quality class 3 and alternative quality class 2 available on request

**PRODUCT DRAWING**



**ORDER DATA** (Dim. = mm)

| Number of positions | Quality class 3 | Quality class 2 |
|---------------------|-----------------|-----------------|
| 120                 | 49-100023       | 49-100022       |

# PC104PLUS Non-STACK-THROUGH VERSION

Female connector – straight – press fit contact – contact length 3.0 mm



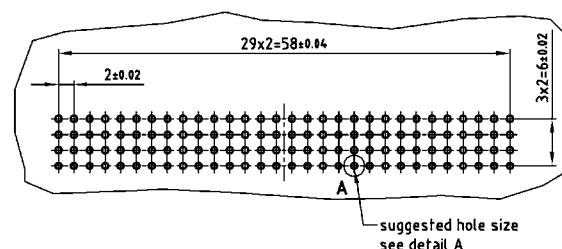
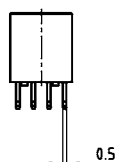
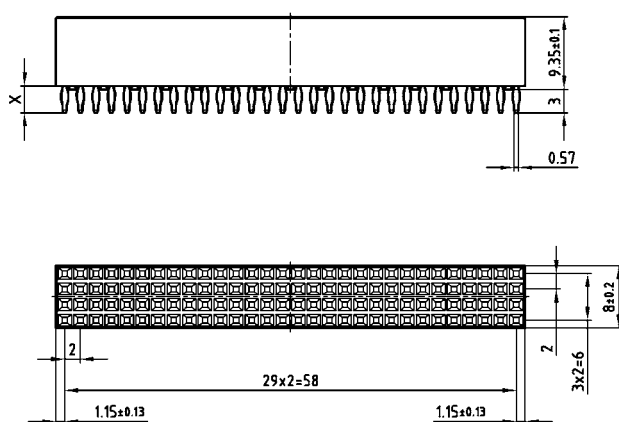
RoHS compliant

## DESCRIPTION

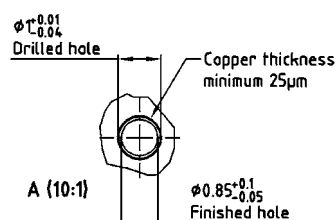
- Flexible press fit design
- Double beam contacts
- Standard version 120-position
- Quality class 3 and alternative quality class 2 available on request

## PRODUCT DRAWING

### PCB-hole pattern



| Quality Class | Plating                   |                                     |
|---------------|---------------------------|-------------------------------------|
|               | Underplate min. 1.3 µm Ni |                                     |
| 3             | Mating Area<br>0.25 µm Au | Post Area "X"<br>1.3 µm Sn 100 matt |
| 2             | Mating Area<br>0.40 µm Au | Post Area "X"<br>1.3 µm Sn 100 matt |



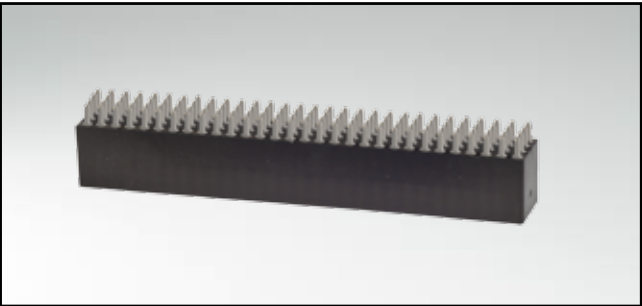
## ORDER DATA

(Dim. = mm)

| Number of positions | Quality class 3 | Quality class 2 |
|---------------------|-----------------|-----------------|
| 120                 | 49-100013       | 49-100012       |

# PC104PLUS Non-STACK-THROUGH VERSION

Female connector – straight – solder pin – contact length 3.0 mm

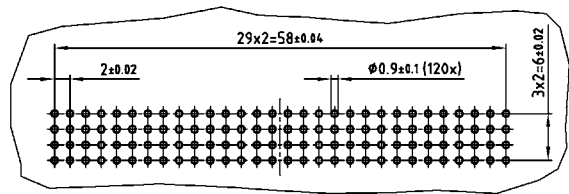
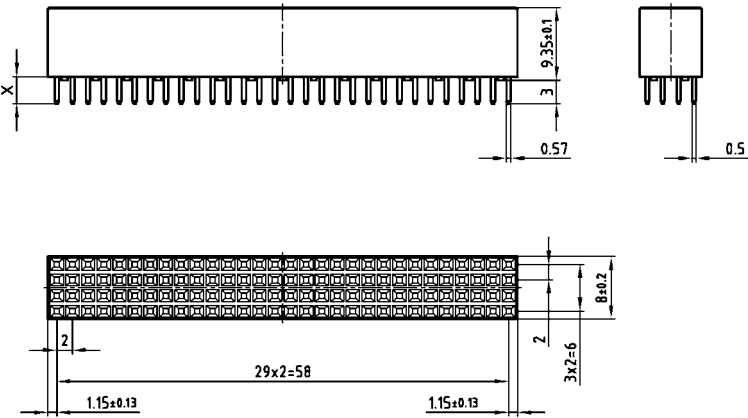


RoHS compliant

- DESCRIPTION**
- Double beam contacts
  - Standard version 120-position
  - Standard finishing quality class 2, alternative quality class 3

**PRODUCT DRAWING**

PCB-hole pattern



| Quality Class | Plating     |                    |
|---------------|-------------|--------------------|
|               | Mating Area | Post Area "X"      |
| 3             | 0.25 µm Au  | 1.3 µm Sn 100 matt |
| 2             | 0.40 µm Au  | 1.3 µm Sn 100 matt |

**ORDER DATA**

(Dim. = mm)

| Number of positions | Quality class 3 | Quality class 2 |
|---------------------|-----------------|-----------------|
| 120                 | 49-100003       | 49-100002       |

# PC104 UND PC104PLUS ACCESSORIES

## Spacer and interconnection housing "shroud"



RoHS compliant

### DESCRIPTION

#### Spacer

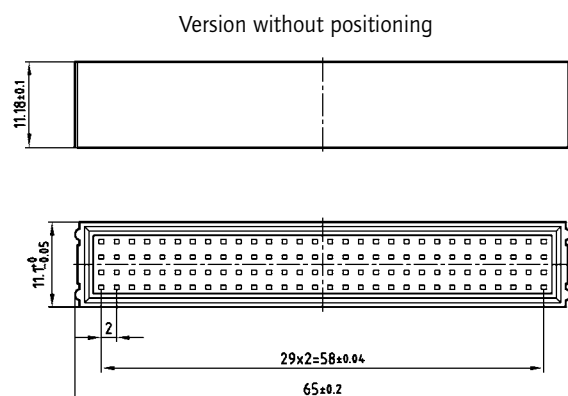
- Can be ordered separately
- 40 / 64 / 100 positions version (further positions on request)

#### Interconnection housing (shroud)

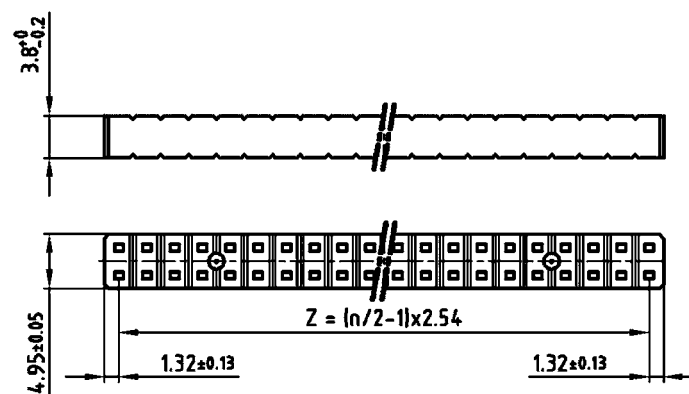
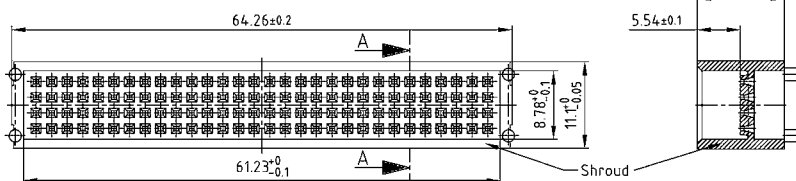
- Specific shroud to stabilize and guide stack-through contacts
- Available with and without positioning
- Color is black (further colors on request)

### PRODUCT DRAWING

Interconnection housing for PC104plus



Version with positioning



### ORDER DATA

(Dim. = mm)

| INTERCONNECTION HOUSING PC104PLUS |                     |             |
|-----------------------------------|---------------------|-------------|
| No. of Pos.                       | Design              | Part number |
| 120                               | with positioning    | 49-100030   |
| 120                               | without positioning | 49-100040   |

| SPACER FOR PC104    |             |
|---------------------|-------------|
| Number of positions | Part number |
| 40                  | 49-100080   |
| 64                  | 49-100060   |
| 100                 | 49-100050   |

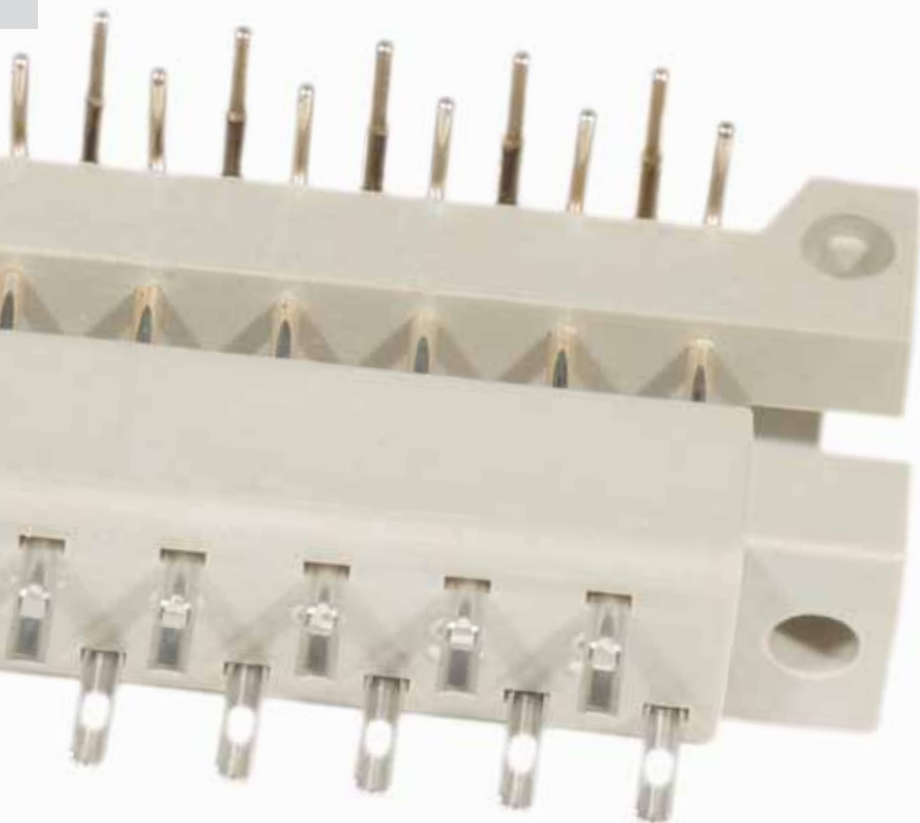
## SECTION 7

# CONNECTORS DIN 41617

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This traditional connector is still being used in many applications. New designs as well as redesigns of existing systems are manufactured with this series of connectors.

One reason is the proven solid design and the high current carrying capability.





The connector is available in three layouts:  
13, 21 and 31 positions in male and female  
version with gold or silver plated contacts.  
Available termination styles are: solder cup,  
straight and right angled PCB solder tails.

In addition a connector converter from  
DIN 41617 to DIN EN 60603-2 provides  
adaptability to the newer connector series.

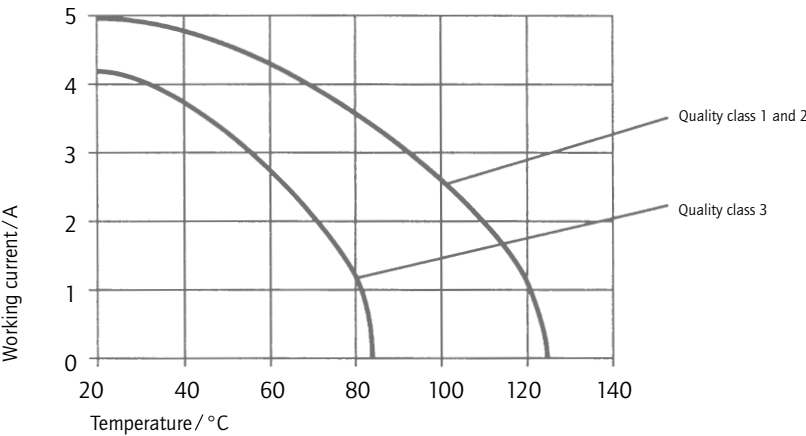


TECHNICAL DATA

| Material                               |                 | DIN 41617                                                                                          | DIN 41617 / DIN EN 60603 |
|----------------------------------------|-----------------|----------------------------------------------------------------------------------------------------|--------------------------|
| Insulator                              |                 | Polycarbonat GF                                                                                    |                          |
| Contacts                               |                 | Copper alloy                                                                                       |                          |
| Flammability                           |                 | UL 94 V-1                                                                                          |                          |
| Initial contact resistance             |                 | ≤ 15 mΩ                                                                                            | ≤ 10 mΩ                  |
| Initial insulation resistance          | Quality class 1 | ≥ 10 <sup>12</sup> Ω                                                                               | ≥ 10 <sup>11</sup> Ω     |
|                                        | Quality class 2 | ≥ 10 <sup>11</sup> Ω                                                                               |                          |
|                                        | Quality class 3 | ≥ 10 <sup>10</sup> Ω                                                                               |                          |
| Creepage distance                      | Contact–Ground  | ≥ 1 mm                                                                                             | ≥ 1.2 mm                 |
|                                        | Contact–Contact | ≥ 0.5 mm                                                                                           |                          |
| Clearance distance                     | Contact–Ground  | ≥ 1 mm                                                                                             | ≥ 1.2 mm                 |
|                                        | Contact–Contact | ≥ 1 mm                                                                                             |                          |
| Voltage Proof U eff.                   | Contact–Ground  | 900 V                                                                                              | 1000 V                   |
|                                        | Contact–Contact | 1150 V                                                                                             | 1550 V                   |
| Working voltage                        |                 | 250 V<br>depending on isolation coordination (refer to DIN VDE 0110/IEC 664-1)                     |                          |
| Working current                        | + 20 °C         | Quality class 1 + 2 = 4 A max.                                                                     | 4 A max.                 |
|                                        | + 70 °C         |                                                                                                    |                          |
|                                        | + 100 °C        | Quality class 3 = 2 A max.                                                                         |                          |
| Working temperature                    | Quality class 1 | -65 °C to +125 °C                                                                                  | -65 °C to +125 °C        |
|                                        | Quality class 2 | -55 °C to +125 °C                                                                                  |                          |
|                                        | Quality class 3 | -25 °C to + 85 °C                                                                                  |                          |
| Mating and unmating forces<br>(F max.) |                 | 13 pos. 32 N / AU    30 N / AG<br>21 pos. 33 N / AU    48 N / AG<br>31 pos. 48 N / AU    70 N / AG | 31 + 1 pos. 80 N         |
| Quality class 3                        |                 | 50 cycles                                                                                          | 50 cycles                |
| Quality class 2                        |                 | 400 cycles                                                                                         | 400 cycles               |
| Quality class 1                        |                 | 500 cycles                                                                                         | 500 cycles               |
| Silver plating                         |                 | 500 cycles                                                                                         |                          |

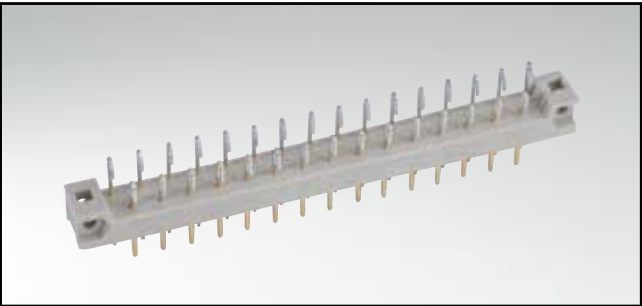
Technical alterations are subjects to change without notice.

Derating-Diagramm DIN 41617



# CONNECTOR ACCORDING TO DIN 41617

Male connector – solder lug – 13, 21 and 31 positions



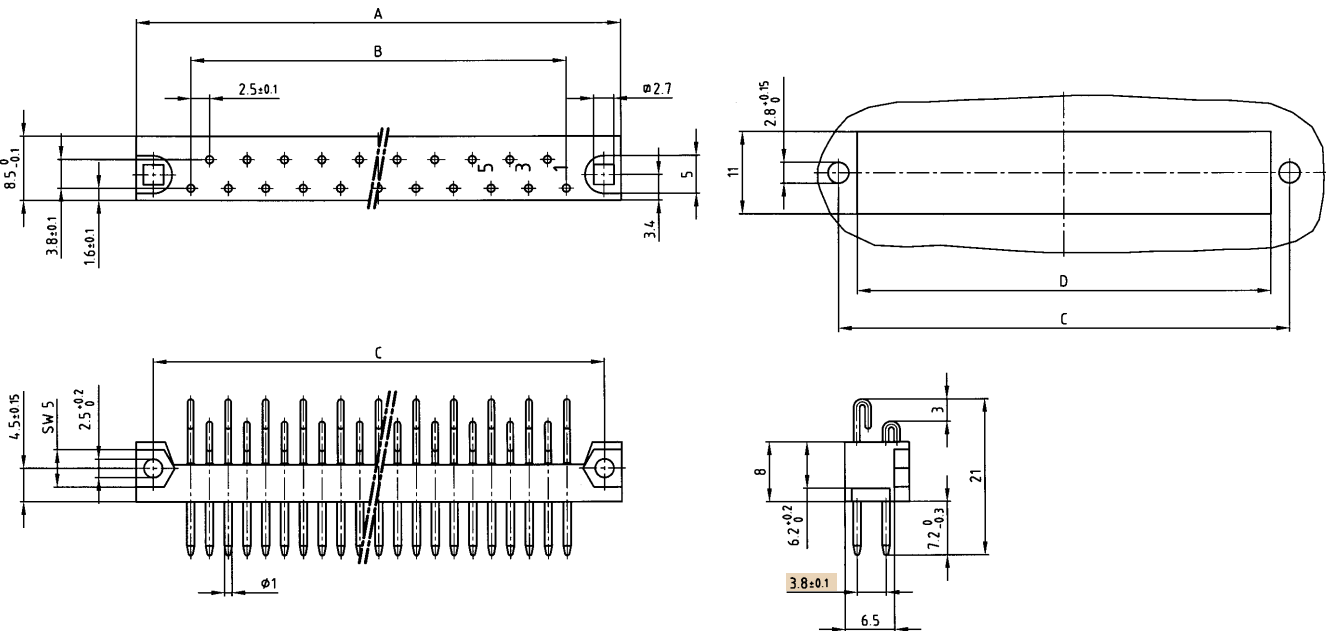
RoHS compliant

DESCRIPTION

- Solder lug
- Contact plating
  - standard quality classes 3 and 2
  - quality class 1 on request (\*)
  - hard silver plated
- Special insulator

PRODUCT DRAWING

Panel cutout



| No. of Pos. | A ± 0.2 | B ± 0.1       | C ± 0.1 | D  |
|-------------|---------|---------------|---------|----|
| 13          | 44.6    | 12 x 2.5 = 30 | 40      | 35 |
| 21          | 64.6    | 20 x 2.5 = 50 | 60      | 55 |
| 31          | 89.6    | 30 x 2.5 = 75 | 85      | 80 |

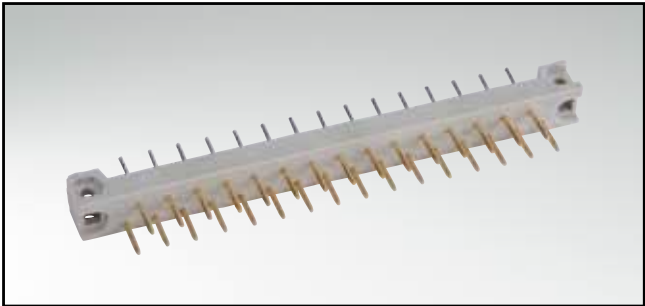
ORDER DATA

(Dim. = mm)

| No. of Pos. | hard silver plated | Quality class 3 | Quality class 2 | Quality class 1 * |
|-------------|--------------------|-----------------|-----------------|-------------------|
| 13          | 101 E 10139 X      | 101 A 10139 X   | 101 B 10139 X   | 101 C 10139 X     |
| 21          | 101 E 10149 X      | 101 A 10149 X   | 101 B 10149 X   | 101 C 10149 X     |
| 31          | 101 E 10159 X      | 101 A 10159 X   | 101 B 10159 X   | 101 C 10159 X     |

# CONNECTOR ACCORDING TO DIN 41617

Male connector – straight – 13, 21 and 31 positions



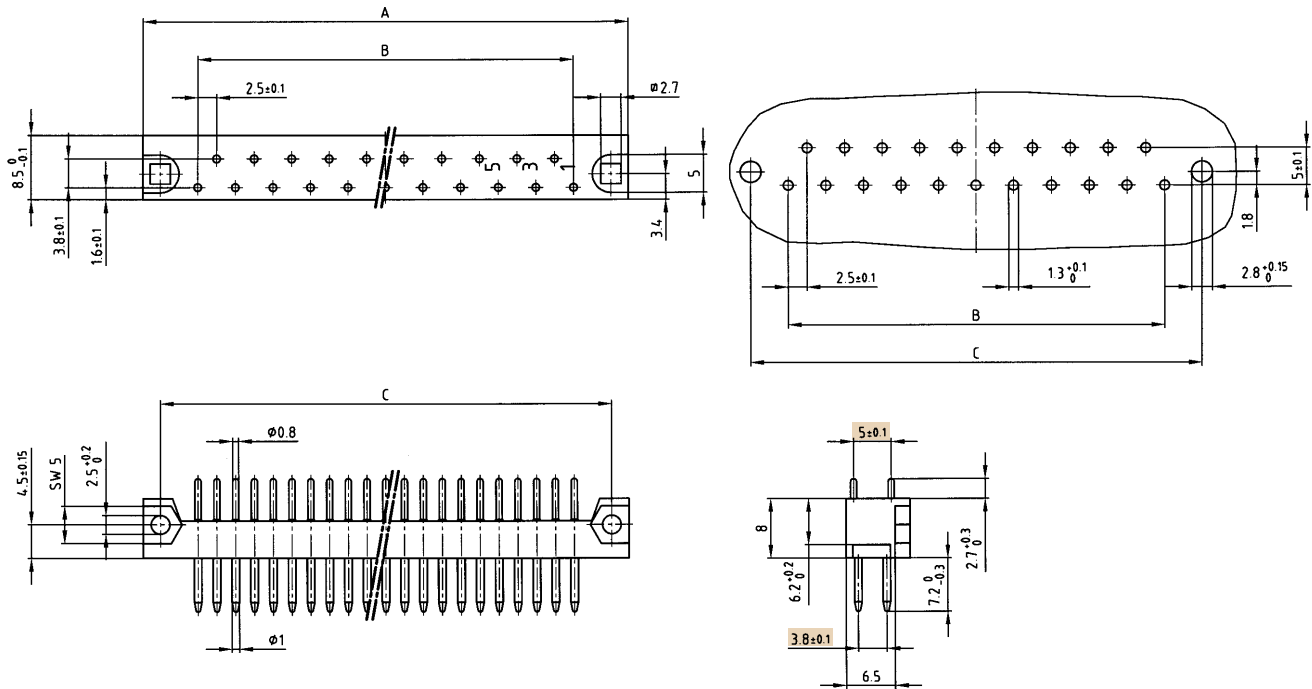
RoHS compliant

DESCRIPTION

- Solder pin
- Contact plating
  - standard quality classes 3 and 2
  - quality class 1 on request (\*)
  - hard silver plated
- Special insulator

PRODUCT DRAWING

PCB-hole pattern



| No. of Pos. | A ± 0.2 | B ± 0.1       | C ± 0.1 |
|-------------|---------|---------------|---------|
| 13          | 44.6    | 12 x 2.5 = 30 | 40      |
| 21          | 64.6    | 20 x 2.5 = 50 | 60      |
| 31          | 89.6    | 30 x 2.5 = 75 | 85      |

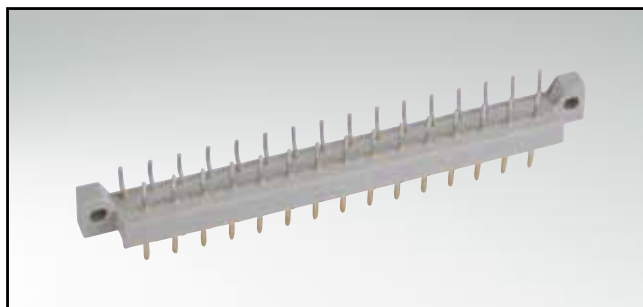
ORDER DATA

(Dim. = mm)

| No. of Pos. | hard silver plated | Quality class 3 | Quality class 2 | Quality class 1 * |
|-------------|--------------------|-----------------|-----------------|-------------------|
| 13          | 101 E 10019 X      | 101 A 10019 X   | 101 B 10019 X   | 101 C 10019 X     |
| 21          | 101 E 10029 X      | 101 A 10029 X   | 101 B 10029 X   | 101 C 10029 X     |
| 31          | 101 E 10039 X      | 101 A 10039 X   | 101 B 10039 X   | 101 C 10039 X     |

# CONNECTOR ACCORDING TO DIN 41617

Male connector – angled – 13, 21 and 31 positions

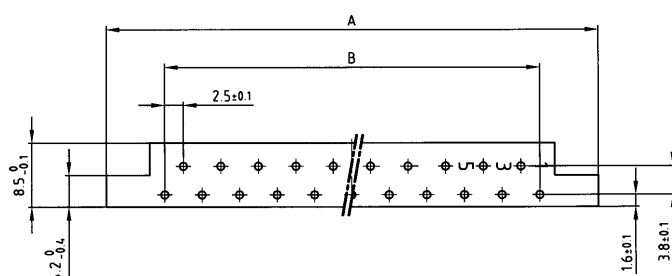


RoHS compliant

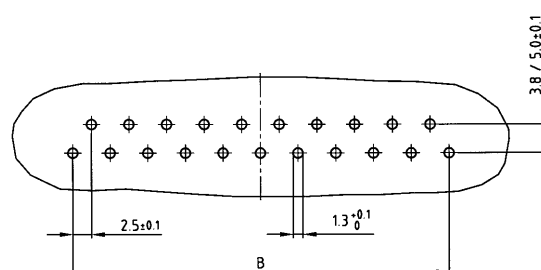
## DESCRIPTION

- Solder pin
- Contact plating
  - standard quality classes 3 and 2
  - quality class 1 on request (\*)
  - hard silver plated
- Standard insulator

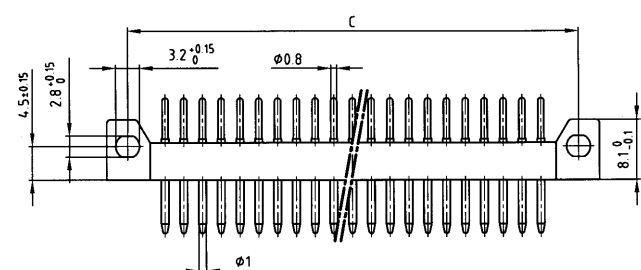
## PRODUCT DRAWING



PCB-hole pattern

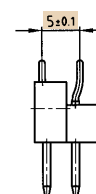
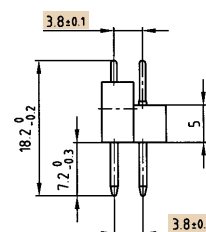


Contact spacing



3,8 mm

5,0 mm



| No. of Pos. | A ±0.2 | B ±0.1    | C ±0.1 |
|-------------|--------|-----------|--------|
| 13          | 45.6   | 12x2.5=30 | 40     |
| 21          | 65.6   | 20x2.5=50 | 60     |
| 31          | 89.6   | 30x2.5=75 | 85     |

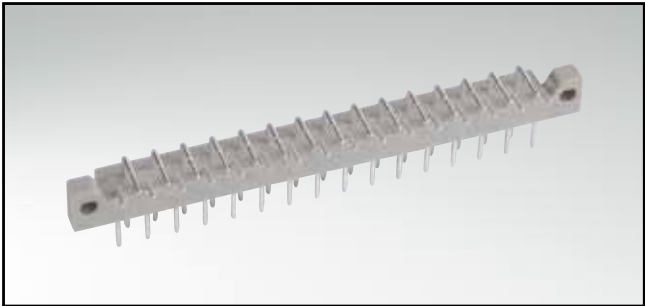
## ORDER DATA

(Dim. = mm)

| No. of Pos. | Contact spacing | hard silver plated | Quality class 3 | Quality class 2 | Quality class 1 * |
|-------------|-----------------|--------------------|-----------------|-----------------|-------------------|
| 13          | 3.8 mm          | 101 E 10049 X      | 101 A 10049 X   | 101 B 10049 X   | 101 C 10049 X     |
| 13          | 5.0 mm          | 101 E 10169 X      | 101 A 10169 X   | 101 B 10169 X   | 101 C 10169 X     |
| 21          | 3.8 mm          | 101 E 10059 X      | 101 A 10059 X   | 101 B 10059 X   | 101 C 10059 X     |
| 21          | 5.0 mm          | 101 E 10179 X      | 101 A 10179 X   | 101 B 10179 X   | 101 C 10179 X     |
| 31          | 3.8 mm          | 101 E 10069 X      | 101 A 10069 X   | 101 B 10069 X   | 101 C 10069 X     |
| 31          | 5.0 mm          | 101 E 10189 X      | 101 A 10189 X   | 101 B 10189 X   | 101 C 10189 X     |

# CONNECTOR ACCORDING TO DIN 41617

Male connector – angled – 13, 21 and 31 positions

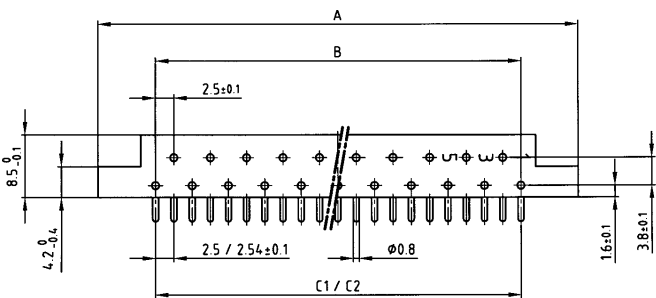


RoHS compliant

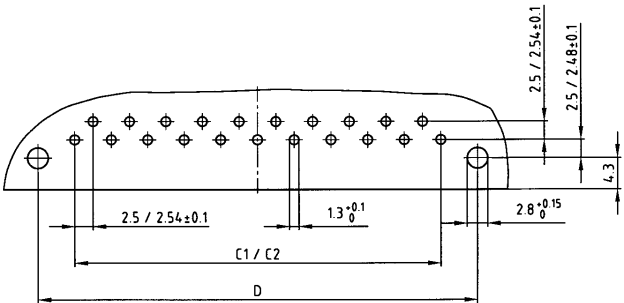
DESCRIPTION

- Solder pin
- Contact plating
  - standard quality classes 3 and 2
  - quality class 1 on request (\*)
  - hard silver plated
- Standard insulator

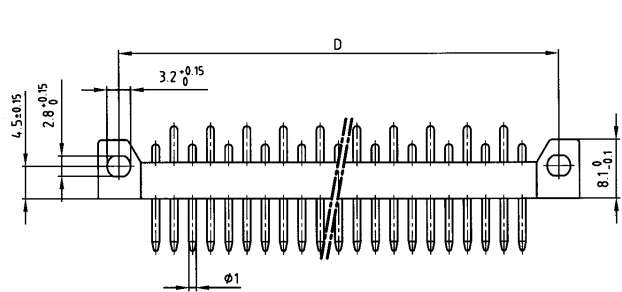
PRODUCT DRAWING



PCB-hole pattern

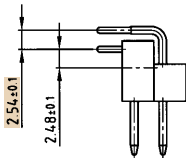
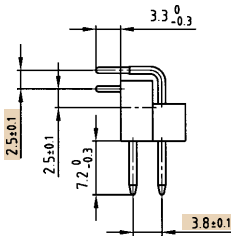


Contact spacing



2,5 mm

2,54 mm



| No. of Pos. | A ±0.2 | B ±0.1    | C <sub>1</sub> ±0.1 | C <sub>2</sub> ±0.1 | D ±0.1 |
|-------------|--------|-----------|---------------------|---------------------|--------|
| 13          | 45.6   | 12x2.5=30 | 12x2.5=30           | 12x2.54=30.48       | 40     |
| 21          | 65.6   | 20x2.5=50 | 20x2.5=50           | 20x2.54=50.80       | 60     |
| 31          | 90.6   | 30x2.5=75 | 30x2.5=75           | 30x2.54=75.20       | 85     |

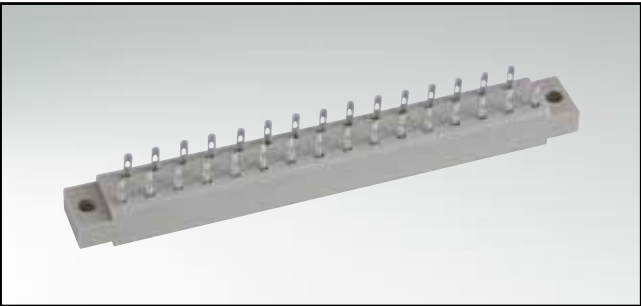
ORDER DATA

(Dim. = mm)

| No. of Pos. | Contact spacing | hard silver plated | Quality class 3 | Quality class 2 | Quality class 1 * |
|-------------|-----------------|--------------------|-----------------|-----------------|-------------------|
| 13          | 2.50 mm         | 101 E 10079 X      | 101 A 10079 X   | 101 B 10079 X   | 101 C 10079 X     |
| 13          | 2.54 mm         | 101 E 10089 X      | 101 A 10089 X   | 101 B 10089 X   | 101 C 10089 X     |
| 21          | 2.50 mm         | 101 E 10099 X      | 101 A 10099 X   | 101 B 10099 X   | 101 C 10099 X     |
| 21          | 2.54 mm         | 101 E 10109 X      | 101 A 10109 X   | 101 B 10109 X   | 101 C 10109 X     |
| 31          | 2.50 mm         | 101 E 10119 X      | 101 A 10119 X   | 101 B 10119 X   | 101 C 10119 X     |
| 31          | 2.54 mm         | 101 E 10129 X      | 101 A 10129 X   | 101 B 10129 X   | 101 C 10129 X     |

# CONNECTOR ACCORDING TO DIN 41617

Female connector – solder lug – 13, 21 and 31 positions

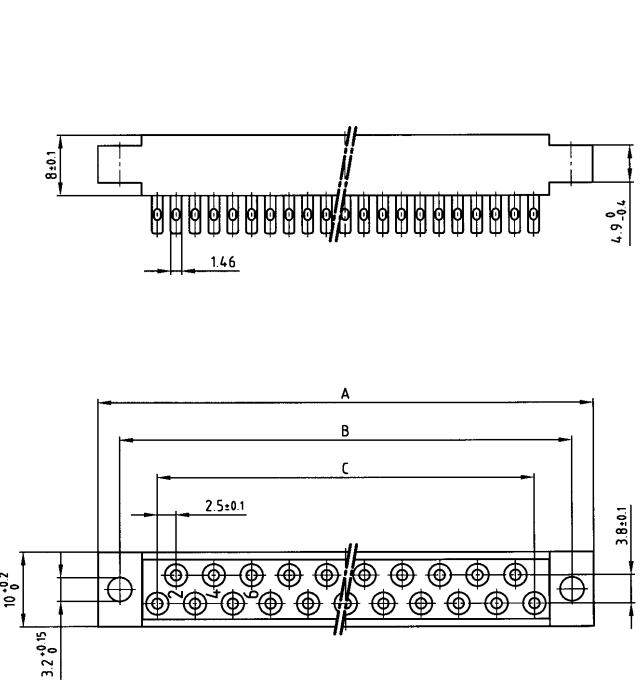


RoHS compliant

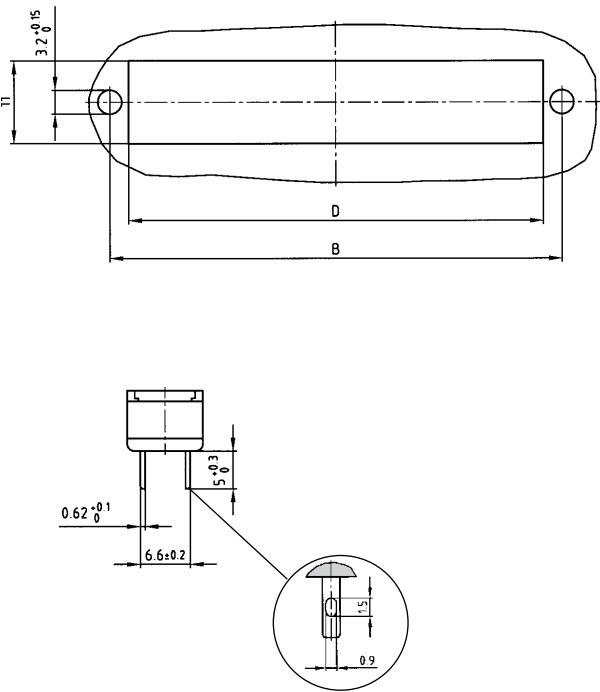
### DESCRIPTION

- Solder lug
- Contact plating
  - standard quality classes 3 and 2
  - quality class 1 on request (\*)
  - hard silver plated

### PRODUCT DRAWING



### Panel cutout



| No. of Pos. | A $\pm 0.3$ | B $\pm 0.1$ | C $\pm 0.1$ | D  |
|-------------|-------------|-------------|-------------|----|
| 13          | 45.8        | 40          | 12x2.5=30   | 35 |
| 21          | 65.8        | 60          | 20x2.5=50   | 55 |
| 31          | 90.8        | 85          | 30x2.5=75   | 80 |

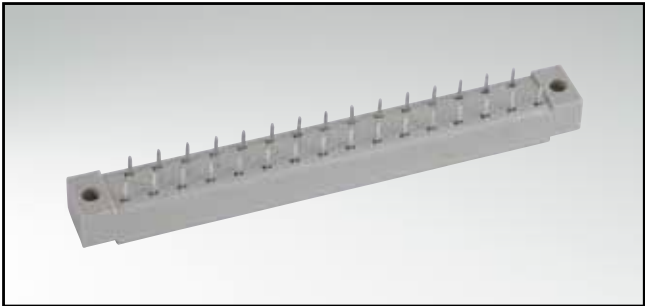
### ORDER DATA

(Dim. = mm)

| No. of Pos. | hard silver plated | Quality class 3 | Quality class 2 | Quality class 1 * |
|-------------|--------------------|-----------------|-----------------|-------------------|
| 13          | 102 E 10019 X      | 102 A 10019 X   | 102 B 10019 X   | 102 C 10019 X     |
| 21          | 102 E 10029 X      | 102 A 10029 X   | 102 B 10029 X   | 102 C 10029 X     |
| 31          | 102 E 10039 X      | 102 A 10039 X   | 102 B 10039 X   | 102 C 10039 X     |

# CONNECTOR ACCORDING TO DIN 41617

Female connector – straight – 13, 21 and 31 positions



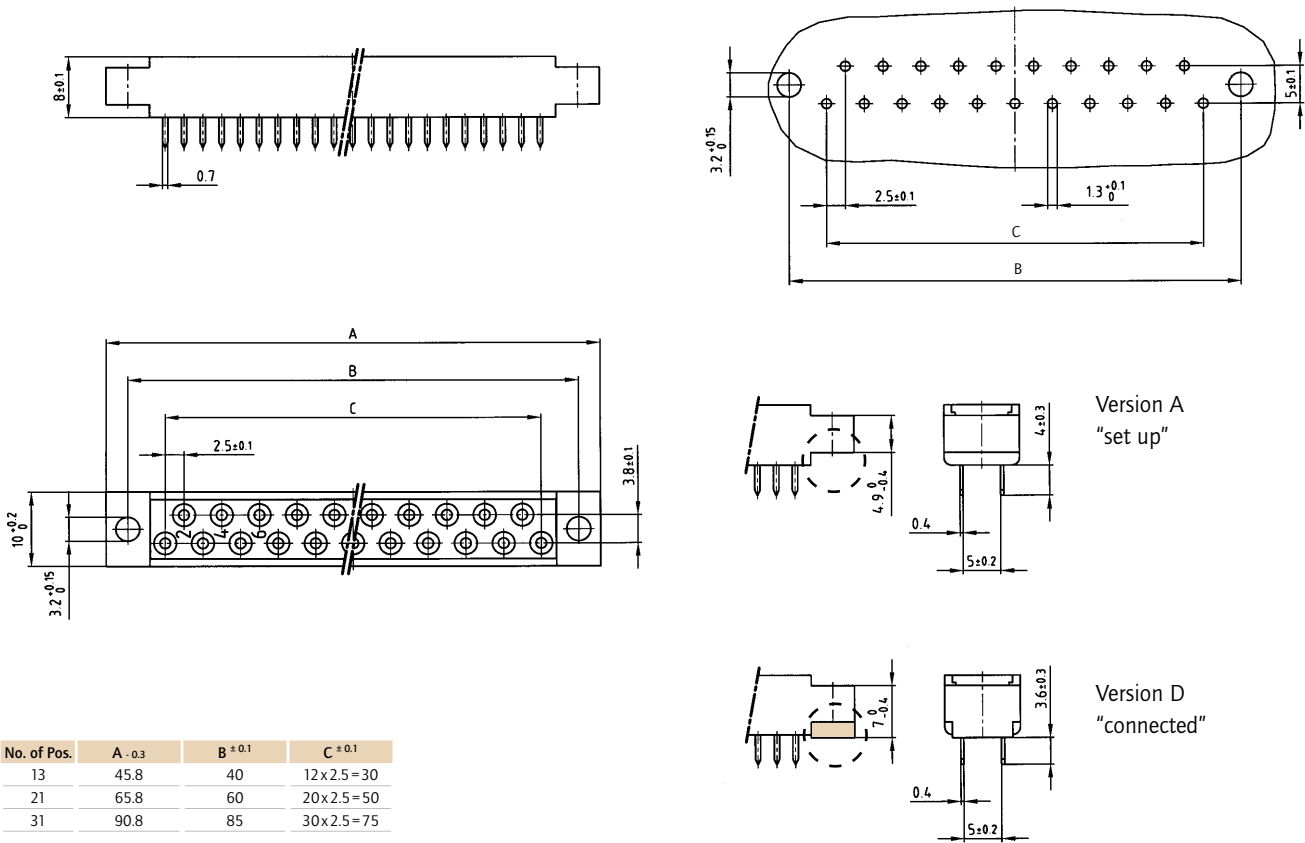
RoHS compliant

DESCRIPTION

- Solder pin
- Insulator "set up" (A) or "connected" (D)
- Contact plating
  - standard quality classes 3 and 2
  - quality class 1 on request (\*)
  - hard silver plated

PRODUCT DRAWING

PCB-hole pattern



| No. of Pos. | A -0.3 | B ±0.1 | C ±0.1    |
|-------------|--------|--------|-----------|
| 13          | 45.8   | 40     | 12x2.5=30 |
| 21          | 65.8   | 60     | 20x2.5=50 |
| 31          | 90.8   | 85     | 30x2.5=75 |

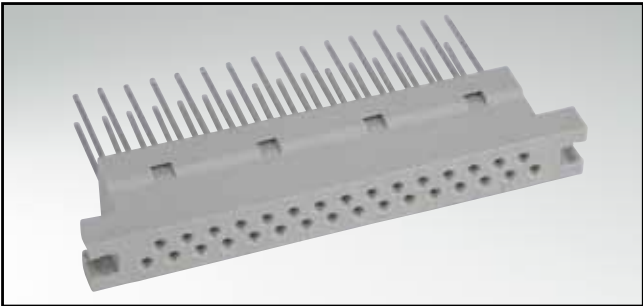
ORDER DATA

(Dim. = mm)

| No. of Pos. | Insulator | hard silver plated | Quality class 3 | Quality class 2 | Quality class 1 * |
|-------------|-----------|--------------------|-----------------|-----------------|-------------------|
| 13          | Version A | 102 E 10049 X      | 102 A 10049 X   | 102 B 10049 X   | 102 C 10049 X     |
| 13          | Version D | 102 E 10059 X      | 102 A 10059 X   | 102 B 10059 X   | 102 C 10059 X     |
| 21          | Version A | 102 E 10069 X      | 102 A 10069 X   | 102 B 10069 X   | 102 C 10069 X     |
| 21          | Version D | 102 E 10079 X      | 102 A 10079 X   | 102 B 10079 X   | 102 C 10079 X     |
| 31          | Version A | 102 E 10089 X      | 102 A 10089 X   | 102 B 10089 X   | 102 C 10089 X     |
| 31          | Version D | 102 E 10099 X      | 102 A 10099 X   | 102 B 10099 X   | 102 C 10099 X     |

# CONNECTOR ACCORDING TO DIN 41617 / DIN EN 60603-2

## Converter female connector – 31 / 32 positions

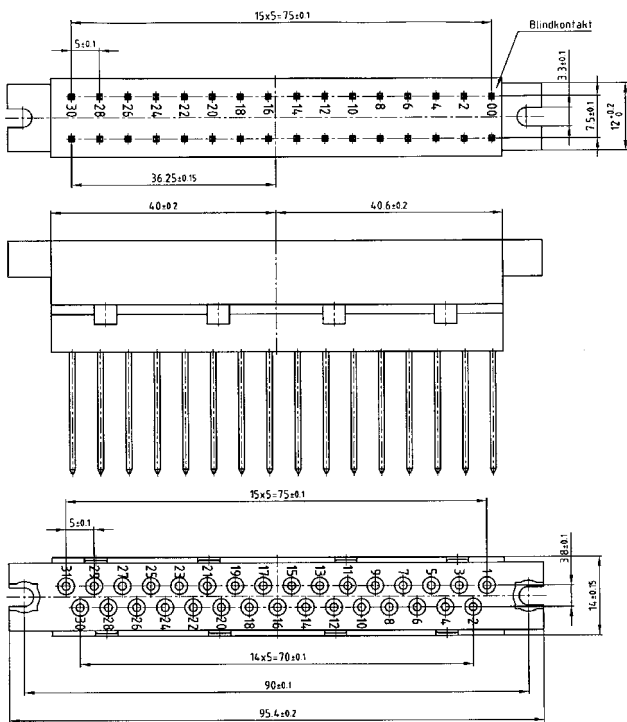


RoHS compliant

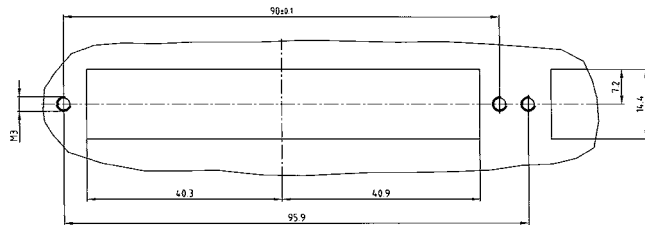
### DESCRIPTION

- Wire Wrap and solder lug
- Quality class 1 (Standard)
- Mating side with 31 contacts
- Connecting side with 32 contacts (one contact not contacted)

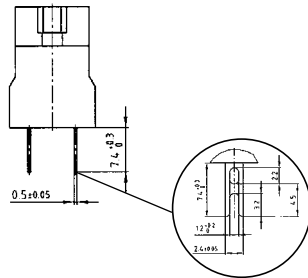
### PRODUCT DRAWING



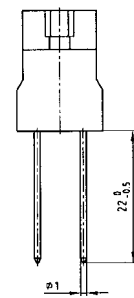
### Panel cutout



### Solder lug



### Wire Wrap



(Dim. = mm)

### ORDER DATA

| No. of Pos. | Quality class | Solder lug    | Wire Wrap     |
|-------------|---------------|---------------|---------------|
| 31/32       | 1             | 122 C 13019 X | 122 C 13069 X |

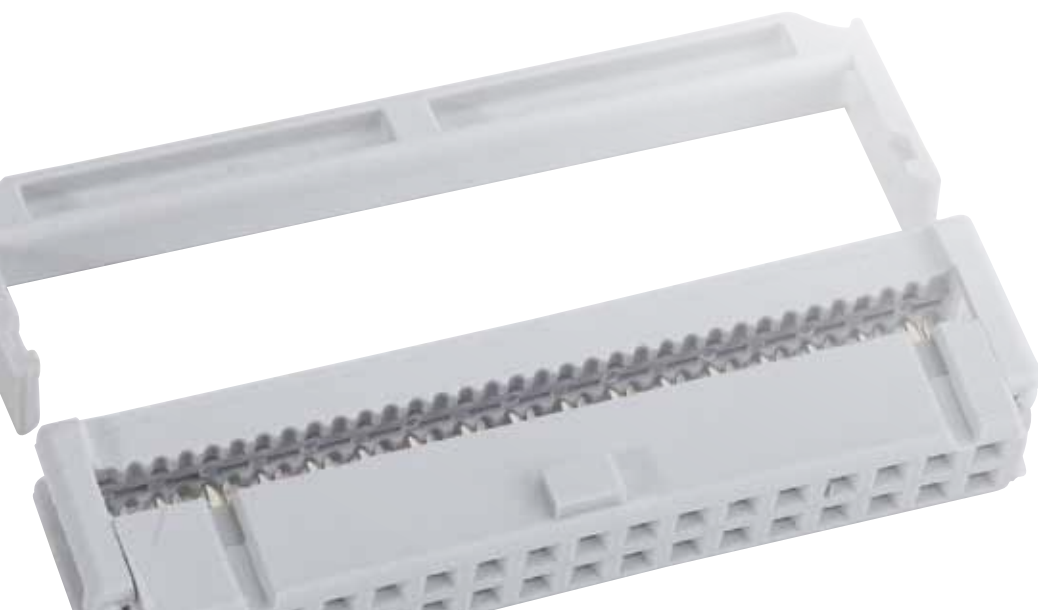
## SECTION 8

# FLATCABLE CONNECTORS DIN 41651

The CONEC flatcable connector system meets DIN 41651 requirement. It is a reliable and cost effective interconnect system.

The flat cables used with this connector family have 10 to 64 (AWG 28) conductors at 1.27 mm pitch.

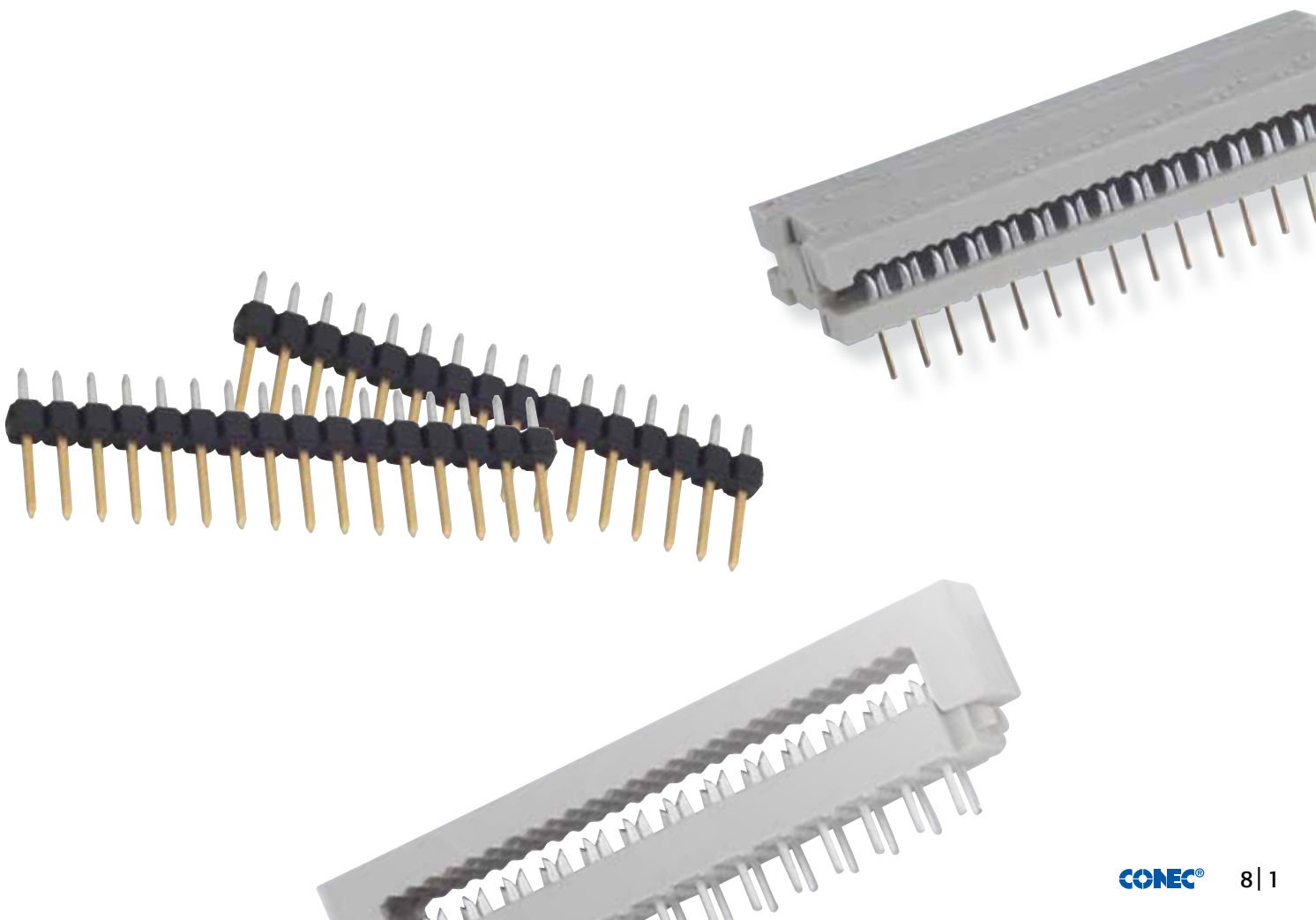
The shrouded headers provide convenient guide for the mating socket connectors. The shroud also provides polarization to prevent incorrect mating. The locking ears not only provide latching of the mated pair but also act as ejectors for unmating the mated pair.





CONEC has beside the DIN41651 Connector serie another flatcable connectors in the program. This are D-Subminiature, Type C (DIN 41612), DIP and PCB Connectors.

Plug and Socket Connectors with 2.54 mm contact spacing complete the program.



TECHNICAL DATA

| Materials                                             | DIN 41651                             | DIP + PCB                      | DIN 41612-IDC    | CBL                            | CSU                            |
|-------------------------------------------------------|---------------------------------------|--------------------------------|------------------|--------------------------------|--------------------------------|
| Insulator                                             | PBT GF                                |                                |                  | PA                             | PA                             |
| Flammability                                          | UL 94 V-0                             |                                |                  |                                |                                |
| Material contacts                                     | Copper alloy                          |                                |                  |                                |                                |
| Contact plating                                       | gold over nickel                      | gold over nickel or tin plated | gold over nickel | gold over nickel or tin plated | gold over nickel or tin plated |
| Working temperature                                   | -65° C to +150° C                     |                                |                  | -40°C to +135°C                | -45°C to +115°C                |
| Working current                                       | 1 A                                   |                                |                  | 5 A<br>+70° C                  |                                |
| Insulation resistance                                 |                                       | ≥ 10 <sup>12</sup> Ω           |                  | ≥ 10 <sup>12</sup> Ω           | ≥ 10 <sup>12</sup> Ω           |
| Contact resistance                                    |                                       |                                |                  | ≤ 10 mΩ                        | 4 mΩ                           |
| Voltage proof                                         | 1000 V eff.                           | 550 V eff.                     |                  |                                |                                |
| Working voltage                                       |                                       | 250 V                          |                  |                                | 250 V                          |
| Quality class 3<br>Quality class 2<br>Quality class 1 | 50 cycles<br>400 cycles<br>500 cycles |                                |                  |                                |                                |

Technical alterations are subjects to change without notice.

# FLATCABLE CONNECTORS

## Socket connector – insulation displacement termination (IDC)

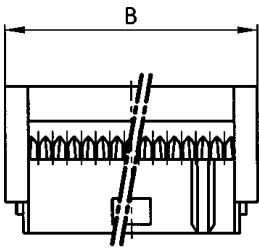
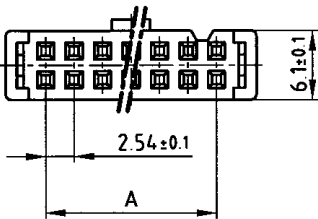


RoHS compliant

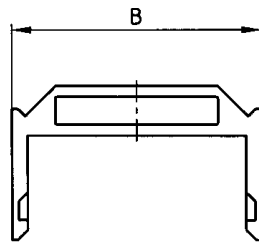
**DESCRIPTION**

- Contact spacing 2.54 mm
- 6 to 64 positions
- Strain relief needs to be ordered separately
- With polarization key
- Standard quality class 3
- Other quality classes on request

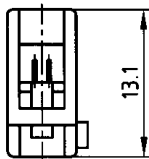
**PRODUCT DRAWING**



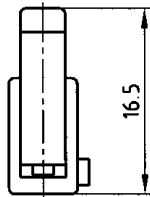
strain relief



without strain relief



with strain relief (installed)



| No. of Pos. | A ± 0.1          | B ± 0.2 | No. of Pos. | A ± 0.1           | B ± 0.2 |
|-------------|------------------|---------|-------------|-------------------|---------|
| 06          | 2 x 2.54 = 5.08  | 12.30   | 26          | 12 x 2.54 = 30.48 | 37.60   |
| 08          | 3 x 2.54 = 7.62  | 14.80   | 34          | 16 x 2.54 = 40.64 | 47.80   |
| 10          | 4 x 2.54 = 10.16 | 17.30   | 40          | 19 x 2.54 = 48.26 | 55.40   |
| 14          | 6 x 2.54 = 15.24 | 22.40   | 50          | 24 x 2.54 = 60.96 | 68.10   |
| 16          | 7 x 2.54 = 17.78 | 24.90   | 60          | 29 x 2.54 = 73.66 | 80.80   |
| 20          | 9 x 2.54 = 22.86 | 30.00   | 64          | 31 x 2.54 = 78.74 | 85.85   |

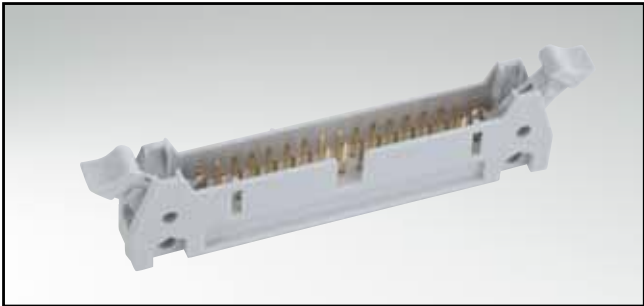
**ORDER DATA**

(Dim. = mm)

| No. of Pos. | Socket connector | Strain relief | No. of Pos. | Socket connector | Strain relief |
|-------------|------------------|---------------|-------------|------------------|---------------|
| 6           | 142 A 10199 X    |               | 26          | 142 A 10259 X    | 140 X 10099 X |
| 8           | 142 A 10209 X    |               | 34          | 142 A 10269 X    | 140 X 10109 X |
| 10          | 142 A 10219 X    | 140 X 10059 X | 40          | 142 A 10279 X    | 140 X 10119 X |
| 14          | 142 A 10229 X    | 140 X 10069 X | 50          | 142 A 10289 X    | 140 X 10129 X |
| 16          | 142 A 10239 X    | 140 X 10079 X | 60          | 142 A 10299 X    | 140 X 10139 X |
| 20          | 142 A 10249 X    | 140 X 10089 X | 64          | 142 A 10419 X    | 140 X 10159 X |

FLATCABLE CONNECTORS

Plug connector – straight



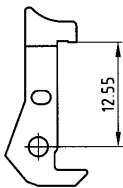
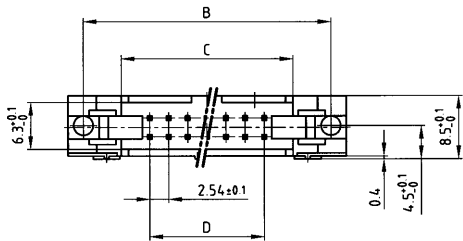
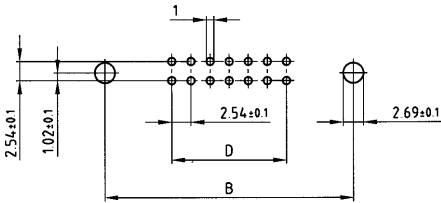
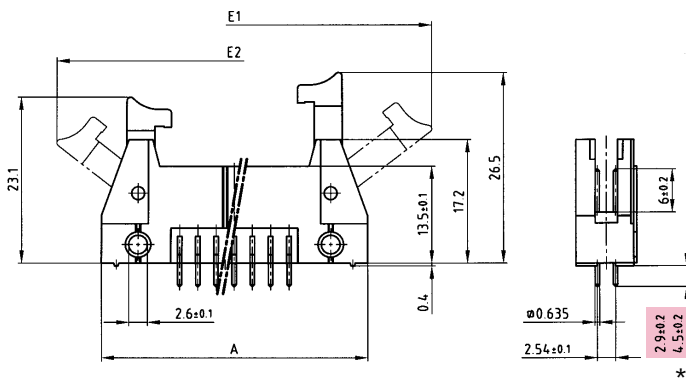
RoHS compliant

DESCRIPTION

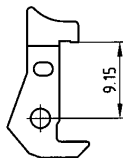
- Solder pin
- Pin length 2.9 mm alternative 4.5 mm (\*) on request
- 10 to 64 positions
- Center polarization
- Available with long, short and without latches
- Long latches for socket connector with strain relief

PRODUCT DRAWING

PCB-hole pattern



Long latches  
Part no. 140 X 10019 X



Short latches  
Part no. 140 X 10029 X

| No. of Pos. | A ±0.2 | B ±0.1 | C ±0.2 | D ±0.1         | E1     | E2     |
|-------------|--------|--------|--------|----------------|--------|--------|
| 10          | 32.00  | 27.94  | 17.82  | 4x2.54= 10.16  | 50.00  | 44.50  |
| 14          | 37.08  | 33.02  | 22.90  | 6x2.54= 15.24  | 55.00  | 49.50  |
| 16          | 39.62  | 35.56  | 25.44  | 7x2.54= 17.78  | 57.60  | 52.10  |
| 20          | 44.70  | 40.64  | 30.52  | 9x2.54= 22.86  | 62.50  | 57.00  |
| 26          | 52.32  | 48.26  | 38.14  | 12x2.54= 30.48 | 70.10  | 64.60  |
| 34          | 62.48  | 58.42  | 48.30  | 16x2.54= 40.64 | 80.30  | 74.80  |
| 40          | 70.10  | 66.04  | 55.92  | 19x2.54= 48.26 | 87.90  | 82.40  |
| 50          | 82.80  | 78.74  | 68.62  | 24x2.54= 60.96 | 100.70 | 95.20  |
| 60          | 95.50  | 91.44  | 81.32  | 29x2.54= 73.66 | 113.40 | 107.90 |
| 64          | 100.58 | 96.52  | 86.40  | 31x2.54= 78.74 | 118.52 | 113.02 |

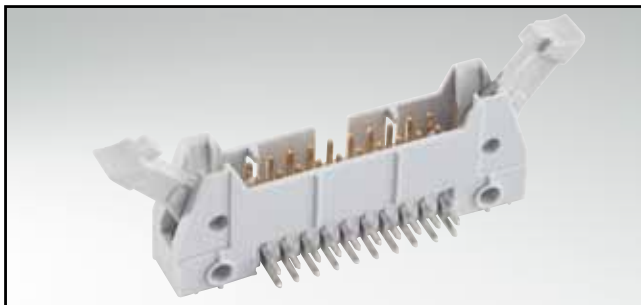
ORDER DATA

(Dim. = mm)

| No. of Pos. | WITHOUT LATCHES   |                    | WITH SHORT LATCHES |                    | WITH LONG LATCHES |                    |
|-------------|-------------------|--------------------|--------------------|--------------------|-------------------|--------------------|
|             | Pin length 2.9 mm | Pin length 4.5 mm* | Pin length 2.9 mm  | Pin length 4.5 mm* | Pin length 2.9 mm | Pin length 4.5 mm* |
| 10          | 141 A 10019 X     | 141 A 10109 X      | 141 A 10199 X      | 141 A 10289 X      | 141 A 10379 X     | 141 A 10469 X      |
| 14          | 141 A 10029 X     | 141 A 10119 X      | 141 A 10209 X      | 141 A 10299 X      | 141 A 10389 X     | 141 A 10479 X      |
| 16          | 141 A 10039 X     | 141 A 10129 X      | 141 A 10219 X      | 141 A 10309 X      | 141 A 10399 X     | 141 A 10489 X      |
| 20          | 141 A 10049 X     | 141 A 10139 X      | 141 A 10229 X      | 141 A 10319 X      | 141 A 10409 X     | 141 A 10499 X      |
| 26          | 141 A 10059 X     | 141 A 10149 X      | 141 A 10239 X      | 141 A 10329 X      | 141 A 10419 X     | 141 A 10509 X      |
| 34          | 141 A 10069 X     | 141 A 10159 X      | 141 A 10249 X      | 141 A 10239 X      | 141 A 10429 X     | 141 A 10519 X      |
| 40          | 141 A 10079 X     | 141 A 10169 X      | 141 A 10259 X      | 141 A 10349 X      | 141 A 10439 X     | 141 A 10529 X      |
| 50          | 141 A 10089 X     | 141 A 10179 X      | 141 A 10269 X      | 141 A 10359 X      | 141 A 10449 X     | 141 A 10539 X      |
| 60          | 141 A 10099 X     | 141 A 10189 X      | 141 A 10279 X      | 141 A 10369 X      | 141 A 10459 X     | 141 A 10549 X      |
| 64          | 141 A 12289 X     | 141 A 12429 X      | 141 A 12319 X      | 141 A 12329 X      | 141 A 12339 X     | 141 A 12349 X      |

# FLATCABLE CONNECTORS

## Plug connector – angled



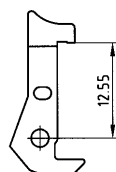
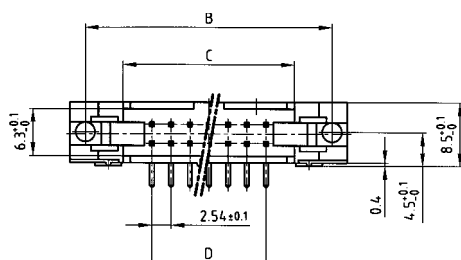
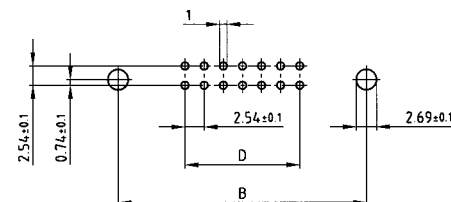
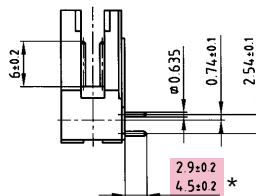
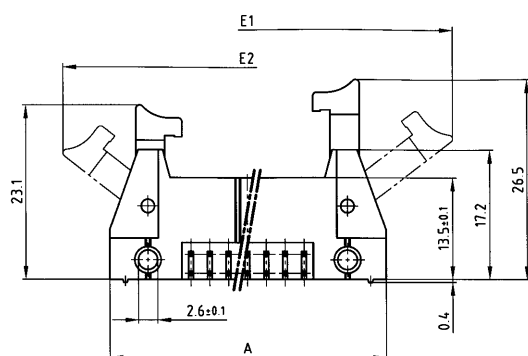
RoHS compliant

### DESCRIPTION

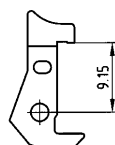
- Solder pin
- Pin length 2.9 mm alternative 4.5 mm (\*) on request
- 10 to 64 positions
- Center polarization
- Available with long, short and without latches
- Long latches for socket connector with strain relief

### PRODUCT DRAWING

### PCB-hole pattern



Long latches  
Part no. 140 X 10019 X



Short latches  
Part no. 140 X 10029 X

| No. of Pos. | A ±0.2 | B ±0.1 | C ±0.2 | D ±0.1         | E1     | E2     |
|-------------|--------|--------|--------|----------------|--------|--------|
| 10          | 32.00  | 27.94  | 17.82  | 4x2.54= 10.16  | 50.00  | 44.50  |
| 14          | 37.08  | 33.02  | 22.90  | 6x2.54= 15.24  | 55.00  | 49.50  |
| 16          | 39.62  | 35.56  | 25.44  | 7x2.54= 17.78  | 57.60  | 52.10  |
| 20          | 44.70  | 40.64  | 30.52  | 9x2.54= 22.86  | 62.50  | 57.00  |
| 26          | 52.32  | 48.26  | 38.14  | 12x2.54= 30.48 | 70.10  | 64.60  |
| 34          | 62.48  | 58.42  | 48.30  | 16x2.54= 40.64 | 80.30  | 74.80  |
| 40          | 70.10  | 66.04  | 55.92  | 19x2.54= 48.26 | 87.90  | 82.40  |
| 50          | 82.80  | 78.74  | 68.62  | 24x2.54= 60.96 | 100.70 | 95.20  |
| 60          | 95.50  | 91.44  | 81.32  | 29x2.54= 73.66 | 113.40 | 107.90 |
| 64          | 100.58 | 96.52  | 86.40  | 31x2.54= 78.74 | 118.52 | 113.02 |

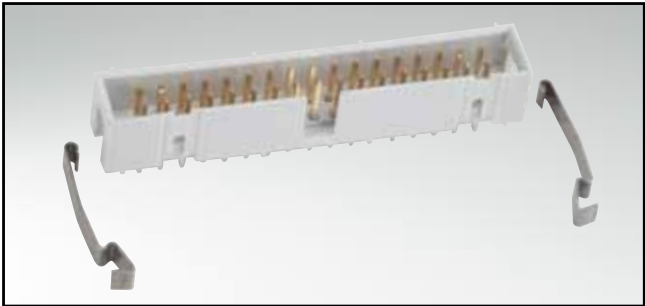
### ORDER DATA

(Dim. = mm)

| No. of Pos. | WITHOUT LATCHES   |                    | WITH SHORT LATCHES |                    | WITH LONG LATCHES |                    |
|-------------|-------------------|--------------------|--------------------|--------------------|-------------------|--------------------|
|             | Pin length 2.9 mm | Pin length 4.5 mm* | Pin length 2.9 mm  | Pin length 4.5 mm* | Pin length 2.9 mm | Pin length 4.5 mm* |
| 10          | 141 A 10559 X     | 141 A 10649 X      | 141 A 10739 X      | 141 A 10829 X      | 141 A 10919 X     | 141 A 11009 X      |
| 14          | 141 A 10569 X     | 141 A 10659 X      | 141 A 10749 X      | 141 A 10839 X      | 141 A 10929 X     | 141 A 11019 X      |
| 16          | 141 A 10579 X     | 141 A 10669 X      | 141 A 10759 X      | 141 A 10849 X      | 141 A 10939 X     | 141 A 11029 X      |
| 20          | 141 A 10589 X     | 141 A 10679 X      | 141 A 10769 X      | 141 A 10859 X      | 141 A 10949 X     | 141 A 11039 X      |
| 26          | 141 A 10599 X     | 141 A 10689 X      | 141 A 10779 X      | 141 A 10869 X      | 141 A 10959 X     | 141 A 11049 X      |
| 34          | 141 A 10609 X     | 141 A 10699 X      | 141 A 10789 X      | 141 A 10879 X      | 141 A 10969 X     | 141 A 11059 X      |
| 40          | 141 A 10619 X     | 141 A 10709 X      | 141 A 10799 X      | 141 A 10889 X      | 141 A 10979 X     | 141 A 11069 X      |
| 50          | 141 A 10629 X     | 141 A 10719 X      | 141 A 10809 X      | 141 A 10899 X      | 141 A 10989 X     | 141 A 11079 X      |
| 60          | 141 A 10639 X     | 141 A 10729 X      | 141 A 10819 X      | 141 A 10909 X      | 141 A 10999 X     | 141 A 11089 X      |
| 64          | 141 A 12279 X     | 141 A 12439 X      | 141 A 12359 X      | 141 A 12369 X      | 141 A 12379 X     | 141 A 12389 X      |

# FLATCABLE CONNECTORS

## Low profile header – straight



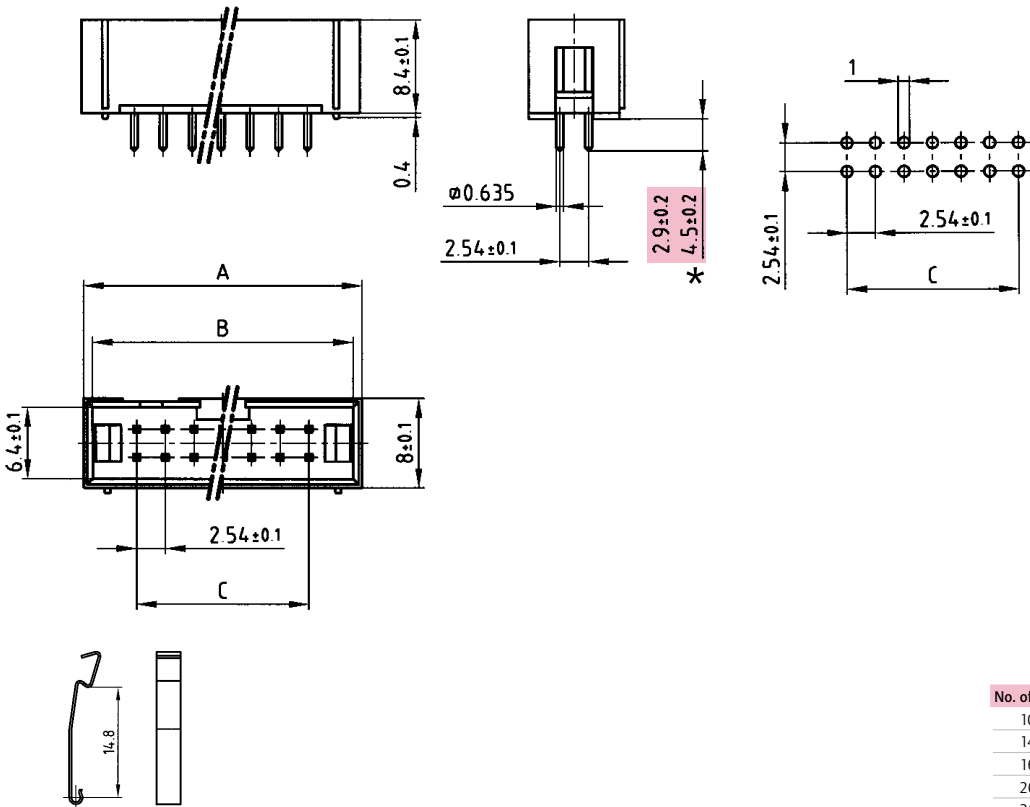
RoHS compliant

DESCRIPTION

- Solder pin
- Pin length 2.9 mm alternative 4.5 mm (\*) on request
- 10 to 64 positions
- Center polarization
- Space saving version
- Clip latches need to be ordered separately

PRODUCT DRAWING

PCB-hole pattern



Clip latches  
Part no. 140 X 10039 X

| No. of Pos. | A ± 0.2 | B ± 0.1 | C ± 0.1           |
|-------------|---------|---------|-------------------|
| 10          | 19,50   | 17,90   | 4 x 2.54 = 10.16  |
| 14          | 24,60   | 23,00   | 6 x 2.54 = 15.24  |
| 16          | 27,20   | 25,60   | 7 x 2.54 = 17.78  |
| 20          | 32,30   | 30,70   | 9 x 2.54 = 22.86  |
| 26          | 39,90   | 38,30   | 12 x 2.54 = 30.48 |
| 34          | 50,10   | 48,50   | 16 x 2.54 = 40.64 |
| 40          | 57,80   | 56,20   | 19 x 2.54 = 48.26 |
| 50          | 70,50   | 68,90   | 24 x 2.54 = 60.96 |
| 64          | 89,10   | 86,40   | 31 x 2.54 = 78.74 |

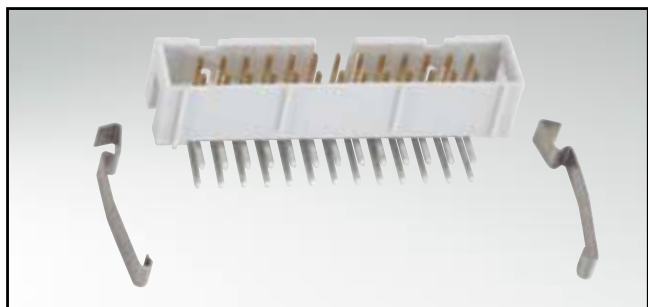
ORDER DATA

(Dim. = mm)

| No. of Pos. | Pin length 2.9 mm | Pin length 4.5 mm* | No. of Pos. | Pin length 2.9 mm | Pin length 4.5 mm* |
|-------------|-------------------|--------------------|-------------|-------------------|--------------------|
| 10          | 141 A 11639 X     | 141 A 11729 X      | 34          | 141 A 11689 X     | 141 A 11779 X      |
| 14          | 141 A 11649 X     | 141 A 11739 X      | 40          | 141 A 11699 X     | 141 A 11789 X      |
| 16          | 141 A 11659 X     | 141 A 11749 X      | 50          | 141 A 11709 X     | 141 A 11799 X      |
| 20          | 141 A 11669 X     | 141 A 11759 X      | 60          | 141 A 12269 X     | 141 A 12449 X      |
| 26          | 141 A 11679 X     | 141 A 11769 X      |             |                   |                    |

# FLATCABLE CONNECTORS

## Low profile header – angled

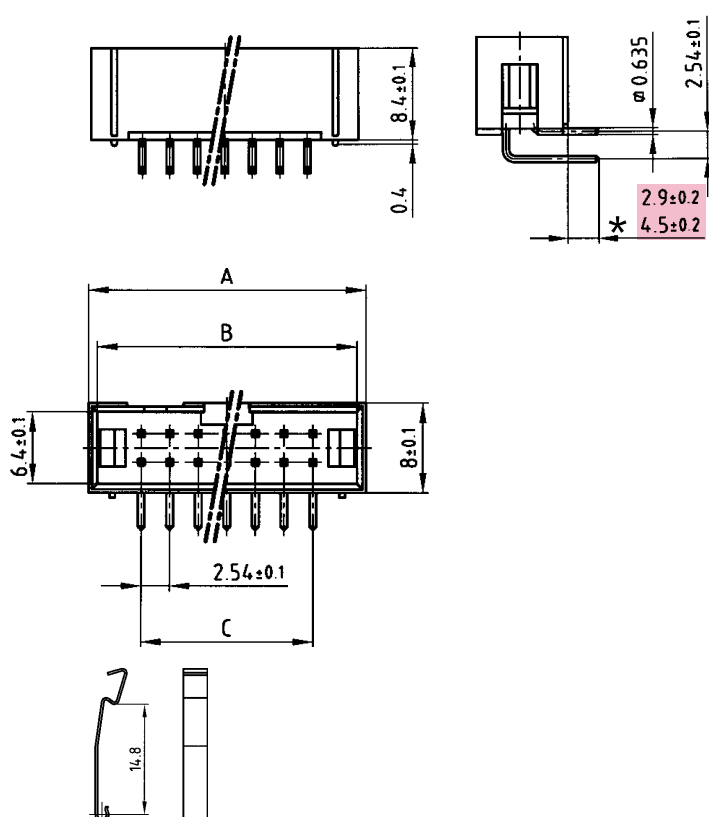


RoHS compliant

### DESCRIPTION

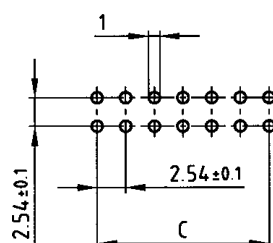
- Solder pin
- Pin length 2.9 mm alternative 4.5 mm (\*) on request
- 10 to 64 positions
- Center polarization
- Space saving version
- Clip latches need to be ordered separately

### PRODUCT DRAWING



Clip latches  
Part no. 140 X 10039 X

### PCB-hole pattern



| No. of Pos. | A ± 0.2 | B ± 0.1 | C ± 0.1           |
|-------------|---------|---------|-------------------|
| 10          | 19.50   | 17.90   | 4 x 2.54 = 10.16  |
| 14          | 24.60   | 23.00   | 6 x 2.54 = 15.24  |
| 16          | 27.20   | 25.60   | 7 x 2.54 = 17.78  |
| 20          | 32.30   | 30.70   | 9 x 2.54 = 22.86  |
| 26          | 39.90   | 38.30   | 12 x 2.54 = 30.48 |
| 34          | 50.10   | 48.50   | 16 x 2.54 = 40.64 |
| 40          | 57.80   | 56.20   | 19 x 2.54 = 48.26 |
| 50          | 70.50   | 68.90   | 24 x 2.54 = 60.96 |
| 64          | 89.10   | 86.40   | 31 x 2.54 = 78.74 |

### ORDER DATA

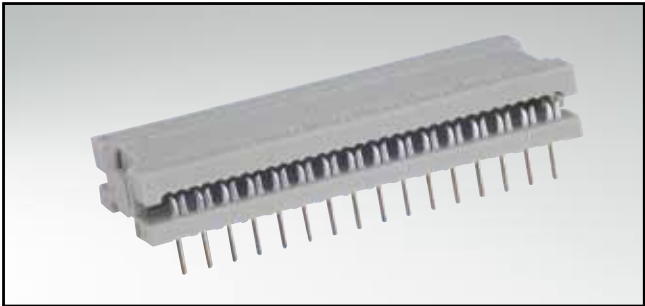
(Dim. = mm)

| No. of Pos. | Pin length 2.9 mm | Pin length 4.5 mm* |
|-------------|-------------------|--------------------|
| 10          | 141 A 11909 X     | 141 A 11999 X      |
| 14          | 141 A 11919 X     | 141 A 12009 X      |
| 16          | 141 A 11929 X     | 141 A 12019 X      |
| 20          | 141 A 11939 X     | 141 A 12029 X      |
| 26          | 141 A 11949 X     | 141 A 12039 X      |

| No. of Pos. | Pin length 2.9 mm | Pin length 4.5 mm* |
|-------------|-------------------|--------------------|
| 34          | 141 A 11959 X     | 141 A 12049 X      |
| 40          | 141 A 11969 X     | 141 A 12059 X      |
| 50          | 141 A 11979 X     | 141 A 12069 X      |
| 60          | 141 A 12399 X     | 141 A 12459 X      |

# FLATCABLE CONNECTORS

Dip connector – 4 to 40 positions

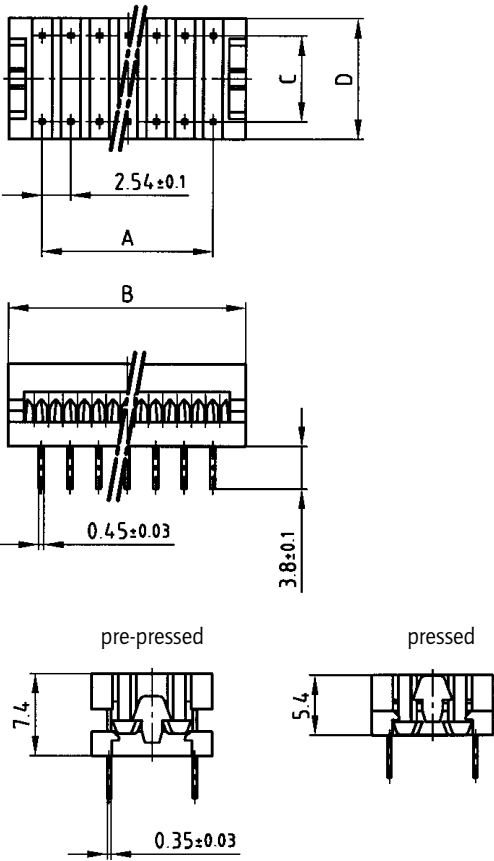


RoHS compliant

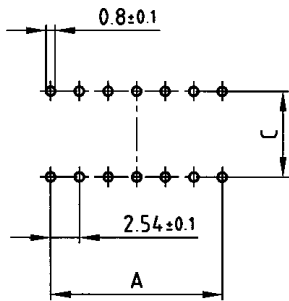
DESCRIPTION

- Insulation displacement termination (IDC)
- Contact spacing 2.54 mm
- Contact plating: gold or tin plated

PRODUCT DRAWING



PCB-hole pattern



| No. of Pos. | A ± 0.1       | B ± 0.2 | C ± 0.1 | D ± 0.1 |
|-------------|---------------|---------|---------|---------|
| 4           | 2.54          | 8.41    | 7.62    | 10.7    |
| 6           | 2x2.54=5.08   | 10.95   | 7.62    | 10.7    |
| 8           | 3x2.54=7.62   | 13.49   | 7.62    | 10.7    |
| 10          | 4x2.54=10.16  | 16.03   | 7.62    | 10.7    |
| 12          | 5x2.54=12.70  | 18.57   | 7.62    | 10.7    |
| 14          | 6x2.54=15.24  | 21.11   | 7.62    | 10.7    |
| 16          | 7x2.54=17.78  | 23.56   | 7.62    | 10.7    |
| 18          | 8x2.54=20.32  | 26.19   | 7.62    | 10.7    |
| 20          | 9x2.54=22.86  | 28.73   | 7.62    | 10.7    |
| 22          | 10x2.54=25.40 | 31.35   | 10.16   | 13.2    |
| 24          | 11x2.54=27.94 | 33.60   | 15.24   | 18.3    |
| 28          | 13x2.54=33.02 | 38.97   | 15.24   | 18.3    |
| 32          | 15x2.54=38.10 | 44.05   | 15.24   | 18.3    |
| 36          | 17x2.54=43.18 | 49.13   | 15.24   | 18.3    |
| 40          | 19x2.54=48.26 | 53.90   | 15.24   | 18.3    |

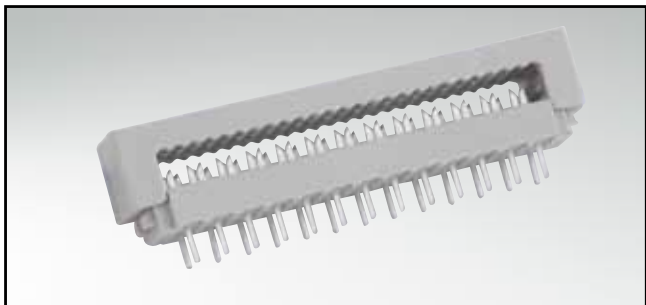
ORDER DATA

(Dim. = mm)

| No. of Pos. | gold plated   | tin plated    | No. of Pos. | gold plated   | tin plated    |
|-------------|---------------|---------------|-------------|---------------|---------------|
| 4           | 220 A 10019 X | 220 F 10019 X | 20          | 220 A 10099 X | 220 F 10099 X |
| 6           | 220 A 10029 X | 220 F 10029 X | 22          | 220 A 10109 X | 220 F 10109 X |
| 8           | 220 A 10039 X | 220 F 10039 X | 24          | 220 A 10119 X | 220 F 10119 X |
| 10          | 220 A 10049 X | 220 F 10049 X | 28          | 220 A 10129 X | 220 F 10129 X |
| 12          | 220 A 10059 X | 220 F 10059 X | 32          | 220 A 10139 X | 220 F 10139 X |
| 14          | 220 A 10069 X | 220 F 10069 X | 36          | 220 A 10149 X | 220 F 10149 X |
| 16          | 220 A 10079 X | 220 F 10079 X | 40          | 220 A 10159 X | 220 F 10159 X |
| 18          | 220 A 10089 X | 220 F 10089 X |             |               |               |

# FLATCABLE CONNECTORS

## PCB connector – 10 to 64 positions

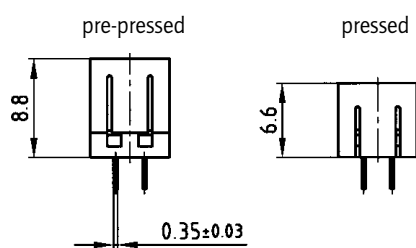
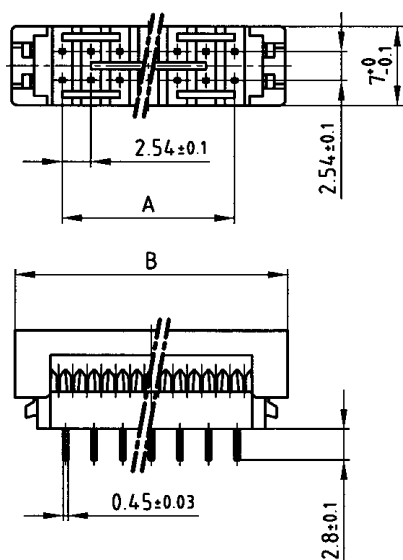


RoHS compliant

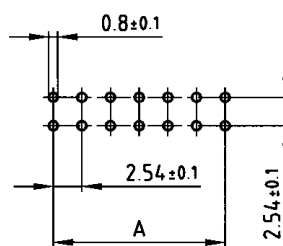
### DESCRIPTION

- Insulation displacement termination (IDC)
- Contact spacing 2.54 mm
- Contact plating: gold or tin plated

### PRODUCT DRAWING



### PCB-hole pattern



| No. of Pos. | A ± 0.1           | B ± 0.2 |
|-------------|-------------------|---------|
| 10          | 4 x 2.54 = 10.16  | 19.15   |
| 14          | 6 x 2.54 = 15.24  | 24.25   |
| 16          | 7 x 2.54 = 17.78  | 26.82   |
| 20          | 9 x 2.54 = 22.86  | 31.90   |
| 26          | 12 x 2.54 = 30.48 | 39.50   |
| 34          | 16 x 2.54 = 40.64 | 49.68   |
| 40          | 19 x 2.54 = 48.26 | 57.30   |
| 50          | 24 x 2.54 = 60.96 | 70.00   |
| 60          | 29 x 2.54 = 73.66 | 82.75   |
| 64          | 31 x 2.54 = 78.74 | 87.78   |

### ORDER DATA

(Dim. = mm)

| No. of Pos. | tin plated    |
|-------------|---------------|
| 10          | 220 F 10169 X |
| 14          | 220 F 10179 X |
| 16          | 220 F 10189 X |
| 20          | 220 F 10199 X |
| 26          | 220 F 10209 X |

| No. of Pos. | tin plated    |
|-------------|---------------|
| 34          | 220 F 10219 X |
| 40          | 220 F 10229 X |
| 50          | 220 F 10239 X |
| 60          | 220 F 10249 X |
| 64          | 220 F 10259 X |

FLATCABLE CONNECTORS

D-SUB IDC – stamped contacts – 9 to 37 positions



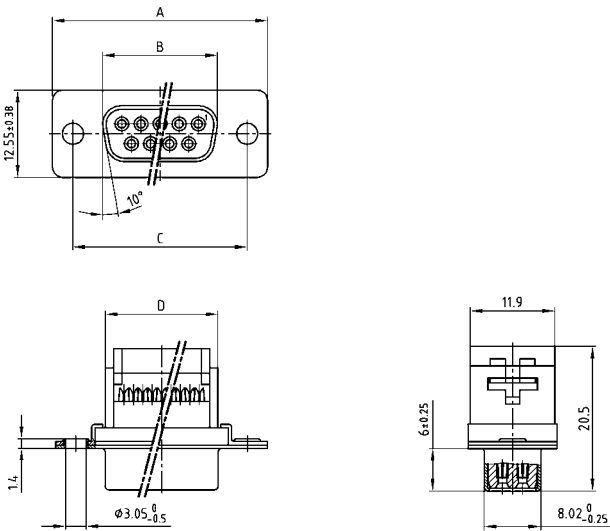
RoHS compliant – CSA listed, File No.: LR 115000-1 – UL listed, File No.: E202784

DESCRIPTION

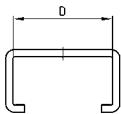
- For wire size AWG 26 to 28 flatcable
- Mounting style: with through-hole, Ø 3 mm
- Connector includes strain relief
- Quality class 3 (other quality classes on request)
- Shell: steel tin plated

PRODUCT DRAWING

Socket connector

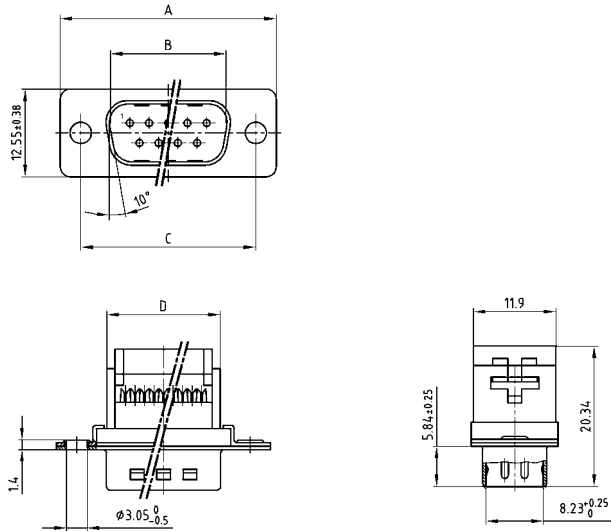


Strain relief

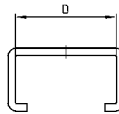


| No. of Pos. | A ± 0.25 | B ± 0.25 | C ± 0.25 | D ± 0.25 |
|-------------|----------|----------|----------|----------|
| 09          | 30.80    | 16.46    | 25.00    | 16.10    |
| 15          | 39.10    | 24.79    | 33.30    | 24.00    |
| 25          | 53.09    | 38.50    | 47.04    | 38.14    |
| 37          | 69.40    | 54.96    | 63.50    | 54.60    |

Plug connector



Strain relief



| No. of Pos. | A ± 0.25 | B ± 0.25 | C ± 0.25 | D ± 0.25 |
|-------------|----------|----------|----------|----------|
| 09          | 30.80    | 16.79    | 25.00    | 16.10    |
| 15          | 39.10    | 25.12    | 33.30    | 24.00    |
| 25          | 53.09    | 83.84    | 47.04    | 38.14    |
| 37          | 69.40    | 55.30    | 63.50    | 54.60    |

ORDER DATA

(Dim. = mm)

| SOCKET CONNECTOR    |                |               |
|---------------------|----------------|---------------|
| Number of positions | Mounting style | Part number   |
| 09                  | Through-hole   | 302 A 10089 X |
| 15                  | Through-hole   | 302 A 10099 X |
| 25                  | Through-hole   | 302 A 10109 X |
| 37                  | Through-hole   | 302 A 10119 X |

| PLUG CONNECTOR      |                |               |
|---------------------|----------------|---------------|
| Number of positions | Mounting style | Part number   |
| 09                  | Through-hole   | 301 A 10089 X |
| 15                  | Through-hole   | 301 A 10099 X |
| 25                  | Through-hole   | 301 A 10109 X |
| 37                  | Through-hole   | 301 A 10119 X |

# FLATCABLE CONNECTORS

## D-SUB IDC – stamped contacts – 9 to 37 positions



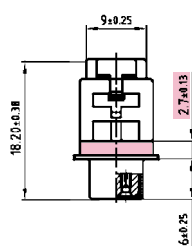
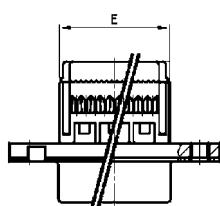
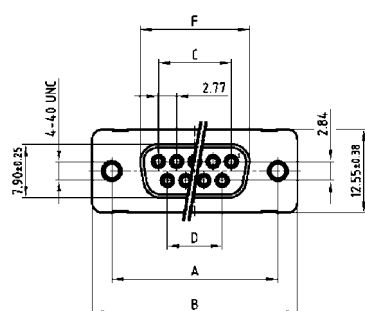
RoHS compliant – CSA listed, File No.: LR 115000-1 – UL listed, File No.: E202784

### DESCRIPTION

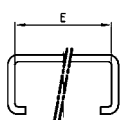
- For wire size AWG 26 to 28 flatcable
- Mounting style: with 4-40 UNC threaded insert
- Connector includes strain relief
- Quality class 3 (other quality classes on request)
- Shell: steel tin plated
- Not suitable for hood assembly

### PRODUCT DRAWING

Socket connector

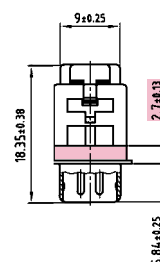
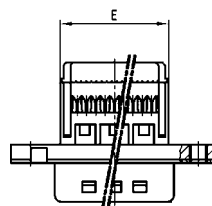
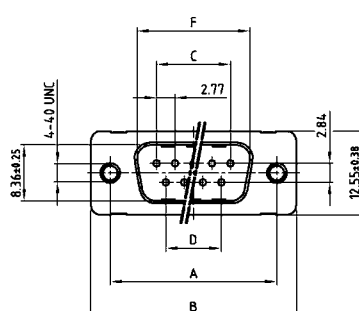


Strain relief

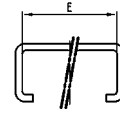


| No. of Pos. | A ± 0.13 | B ± 0.25 | C ± 0.13 | D ± 0.13 | E ± 0.25 | F ± 0.25 |
|-------------|----------|----------|----------|----------|----------|----------|
| 09          | 24.99    | 30.80    | 11.08    | 8.31     | 16.10    | 16.33    |
| 15          | 33.32    | 39.10    | 19.39    | 16.62    | 24.00    | 24.66    |
| 25          | 47.04    | 53.09    | 33.24    | 30.47    | 38.14    | 38.38    |
| 37          | 63.50    | 69.40    | 49.86    | 47.09    | 54.60    | 54.84    |

Plug connector



Strain relief



| No. of Pos. | A ± 0.13 | B ± 0.25 | C ± 0.13 | D ± 0.13 | E ± 0.25 | F ± 0.25 |
|-------------|----------|----------|----------|----------|----------|----------|
| 09          | 24.99    | 30.80    | 11.08    | 8.31     | 16.10    | 16.92    |
| 15          | 33.32    | 39.10    | 19.39    | 16.62    | 24.00    | 25.25    |
| 25          | 47.04    | 53.09    | 33.24    | 30.47    | 38.14    | 38.96    |
| 37          | 63.50    | 69.40    | 49.86    | 47.09    | 54.60    | 55.45    |

### ORDER DATA

(Dim. = mm)

| SOCKET CONNECTOR    |                          |                |
|---------------------|--------------------------|----------------|
| Number of positions | Mounting style           | Part number    |
| 09                  | Threaded insert 4-40 UNC | DLS 1XSSAG04 X |
| 15                  | Threaded insert 4-40 UNC | DLS 2XSSAG04 X |
| 25                  | Threaded insert 4-40 UNC | DLS 3XSSAG04 X |
| 37                  | Threaded insert 4-40 UNC | DLS 4XSSAG04 X |

| PLUG CONNECTOR      |                          |                |
|---------------------|--------------------------|----------------|
| Number of positions | Mounting style           | Part number    |
| 09                  | Threaded insert 4-40 UNC | DLS 1XPSAG04 X |
| 15                  | Threaded insert 4-40 UNC | DLS 2XPSAG04 X |
| 25                  | Threaded insert 4-40 UNC | DLS 3XPSAG04 X |
| 37                  | Threaded insert 4-40 UNC | DLS 4XPSAG04 X |

FLATCABLE CONNECTORS

D-SUB IDC – stamped contacts – 9 to 37 positions



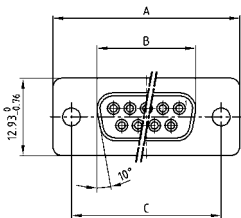
RoHS compliant – CSA listed, File No.: LR 115000-1 – UL listed, File No.: E202784

DESCRIPTION

- For wire size AWG 26 to 28 flatcable
- Mounting style: with through-hole, Ø 3 mm
- Strain relief need to be ordered separately
- Quality class 3 (also available in quality class 1)
- Shell: Steel tin plated

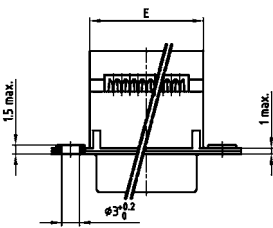
PRODUCT DRAWING

Socket connector

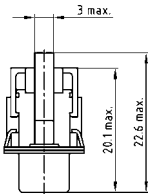


Mounting style: Through-hole

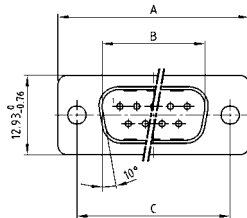
with strain relief



Strain relief

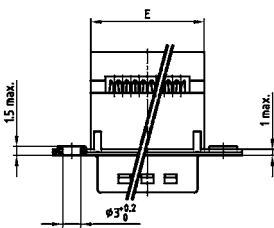


Plug connector

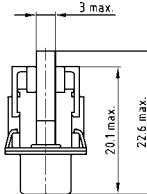


Mounting style: Through-hole

with strain relief



Strain relief



| No. of Pos. | A -0.76 | B +0.25 | C                    | E +0.10 |
|-------------|---------|---------|----------------------|---------|
| 09          | 30.80   | 16.30   | 25.00 +0.12          | 18.73   |
| 15          | 39.20   | 24.60   | 33.30 +0.15<br>-0.10 | 26.86   |
| 25          | 53.10   | 38.30   | 47.04 ±0.13          | 40.78   |
| 37          | 69.40   | 54.80   | 63.50 ±0.13          | 57.04   |



| No. of Pos. | A -0.76 | B +0.25 | C                    | E +0.10 |
|-------------|---------|---------|----------------------|---------|
| 09          | 30.80   | 16.79   | 25.00 +0.12          | 18.73   |
| 15          | 39.20   | 25.12   | 33.30 +0.15<br>-0.10 | 26.86   |
| 25          | 53.10   | 38.84   | 47.04 ±0.13          | 40.78   |
| 37          | 69.40   | 55.30   | 63.50 ±0.13          | 57.04   |

ORDER DATA

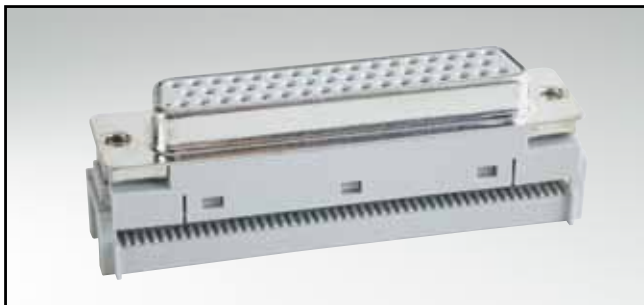
(Dim. = mm)

| SOCKET CONNECTOR    |                |               |
|---------------------|----------------|---------------|
| Number of positions | Mounting style | Part number   |
| 09                  | Through-hole   | 162 A 11899 X |
| 15                  | Through-hole   | 162 A 11909 X |
| 25                  | Through-hole   | 162 A 11919 X |
| 37                  | Through-hole   | 162 A 11929 X |
| 09                  | Strain relief  | 160 X 10019 X |
| 15                  | Strain relief  | 160 X 10029 X |
| 25                  | Strain relief  | 160 X 10039 X |
| 37                  | Strain relief  | 160 X 10049 X |

| PLUG CONNECTOR      |                |               |
|---------------------|----------------|---------------|
| Number of positions | Mounting style | Part number   |
| 09                  | Through-hole   | 161 A 13499 X |
| 15                  | Through-hole   | 161 A 13509 X |
| 25                  | Through-hole   | 161 A 13519 X |
| 37                  | Through-hole   | 161 A 13529 X |
| 09                  | Strain relief  | 160 X 10019 X |
| 15                  | Strain relief  | 160 X 10029 X |
| 25                  | Strain relief  | 160 X 10039 X |
| 37                  | Strain relief  | 160 X 10049 X |

# FLATCABLE CONNECTORS

## D-SUB IDC – stamped contacts – 50 positions



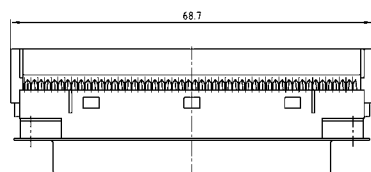
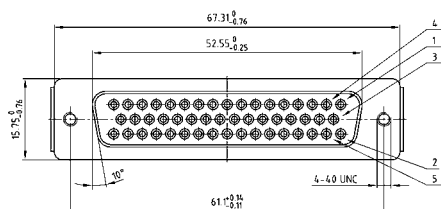
RoHS compliant – CSA listed, File No.: LR 115000-1 – UL listed, File No.: E202784

### DESCRIPTION

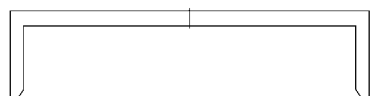
- For wire size AWG 26 to 28 flatcable
- Mounting style: with 4-40 UNC threaded insert
- Strain relief need to be ordered separately
- Quality class 3 (also available in quality class 1)
- Shell: Steel tin plated

### PRODUCT DRAWING

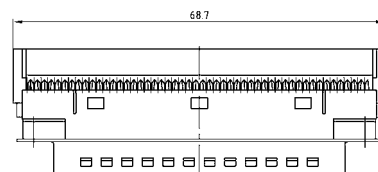
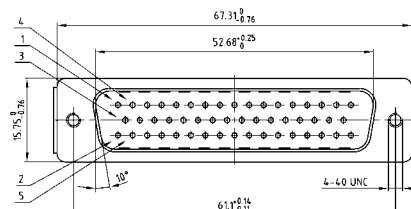
Socket connector



Strain relief



Plug connector



Strain relief



### ORDER DATA

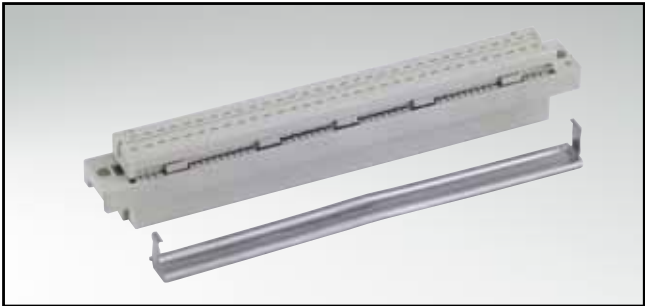
(Dim. = mm)

| SOCKET CONNECTOR    |                          |               |
|---------------------|--------------------------|---------------|
| Number of positions | Mounting style           | Part number   |
| 50                  | Threaded insert 4-40 UNC | 162 A 11939 X |
| 50                  | Strain relief            | 160 X 10059 X |

| PLUG CONNECTOR      |                          |               |
|---------------------|--------------------------|---------------|
| Number of positions | Mounting style           | Part number   |
| 50                  | Threaded insert 4-40 UNC | 161 A 13539 X |
| 50                  | Strain relief            | 160 X 10059 X |

FLATCABLE CONNECTORS

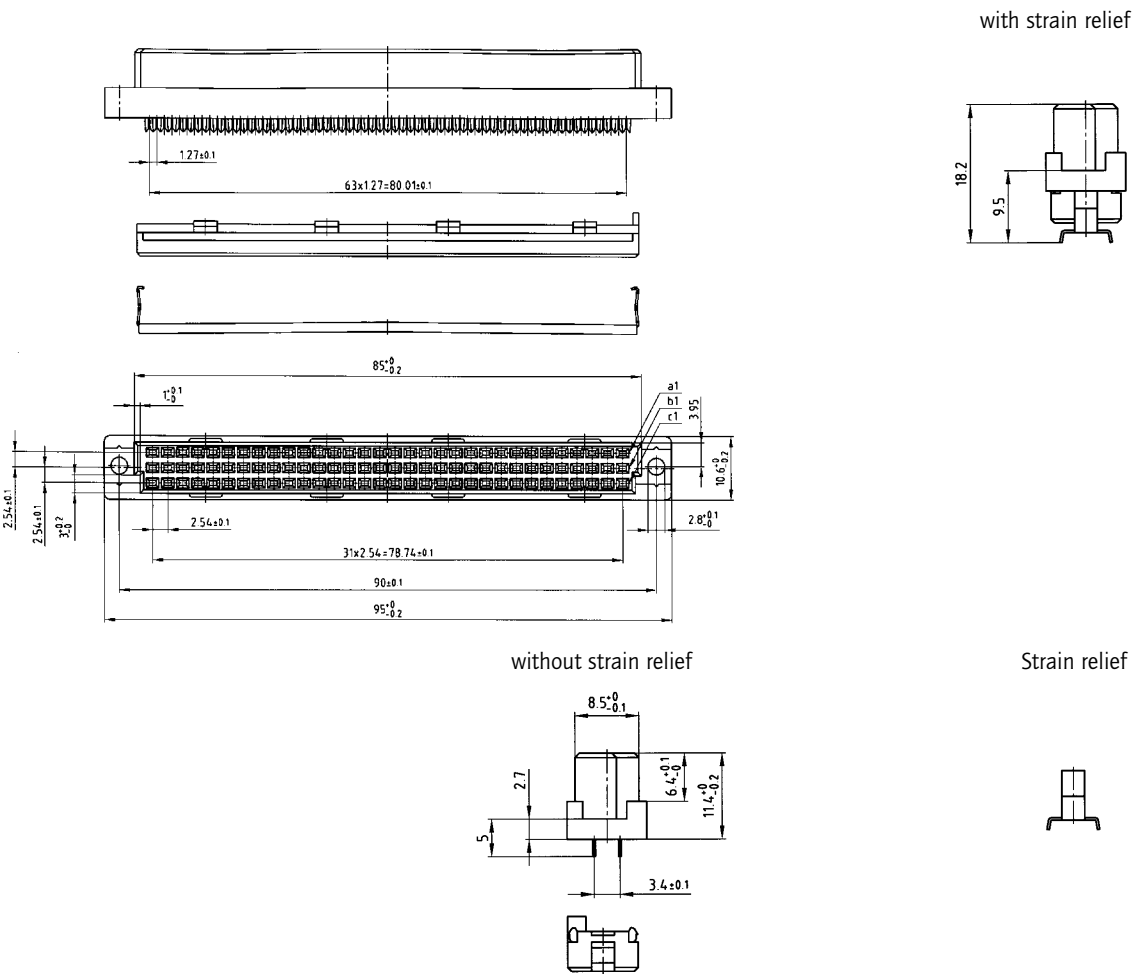
Type C – female connector – Insulation displacement termination (IDC) – 64 positions



RoHS compliant

- DESCRIPTION
- Flat cable termination
  - Strain relief need to be ordered separately
  - Quality class 3 (also available in quality class 2 or 1)

PRODUCT DRAWING

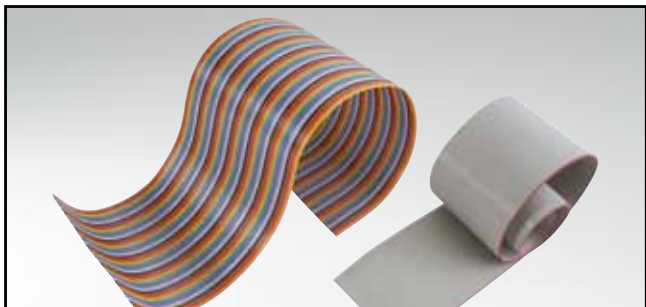


ORDER DATA (Dim. = mm)

| No. of Pos. | • = contact, + = no contact |   |   |   |   |   | Female connector without strain relief | Strain relief |
|-------------|-----------------------------|---|---|---|---|---|----------------------------------------|---------------|
|             | Pos                         | 1 | 2 | 3 | 4 | 5 |                                        |               |
| 64          | a                           | • | • | • | • | • | 122 A 11699 X                          | 120 X 10169 X |
|             | b                           | + | + | + | + | + |                                        |               |
|             | c                           | • | • | • | • | • |                                        |               |

# FLATCABLE

Grey or color-coded



RoHS compliant

## DESCRIPTION

Flat cable **colored grey**

■ Flame-retardant ref. class UL-VW-1

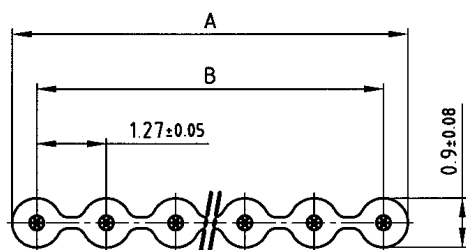
■ UL-Style No. 2651

Flat cable **color-coded**

■ Flame-retardant ref. class UL-VW-1

■ UL-Style No. 2651

## PRODUCT DRAWING



| Technical Data       |                                                                                                      |
|----------------------|------------------------------------------------------------------------------------------------------|
| Conductor:           | Cu tin plated                                                                                        |
| Dielectric strength: | > 2 kV<br>at 50 Hz, at acc. over one minute                                                          |
| Insulation:          | min. 100 Ω x km at 20 °C                                                                             |
| Conductor resistant: | max. 216 Ω / km at 20 °C                                                                             |
| Capacitance:         | max. 60 pF / m at 1 kHz                                                                              |
| Impedance (GSG):     | ca. 100 Ω at 1 MHz                                                                                   |
| Current rating:      | max. 2,1 A at 25 °C                                                                                  |
| Working voltage:     | max. 300 V                                                                                           |
| Temperature range:   | at rest: -30 °C to +105 °C (-40 °C per ISO6722)<br>in motion: -20 °C to +105 °C (-40 °C per ISO6722) |

Flame-retardant ref. class UL-VW-1 / CSA FT-1

| No. of Pos. | A                      | B                      |
|-------------|------------------------|------------------------|
| 10          | 12.70 <sup>+0.25</sup> | 11.43 <sup>+0.18</sup> |
| 14          | 17.78 <sup>+0.25</sup> | 16.51 <sup>+0.18</sup> |
| 16          | 20.32 <sup>+0.38</sup> | 19.05 <sup>+0.28</sup> |
| 20          | 25.40 <sup>+0.38</sup> | 24.13 <sup>+0.28</sup> |
| 25          | 31.75 <sup>+0.38</sup> | 30.48 <sup>+0.28</sup> |
| 34          | 43.18 <sup>+0.51</sup> | 41.91 <sup>+0.38</sup> |
| 40          | 50.80 <sup>+0.51</sup> | 49.53 <sup>+0.38</sup> |
| 50          | 63.50 <sup>+0.51</sup> | 62.23 <sup>+0.38</sup> |
| 64          | 81.28 <sup>+0.51</sup> | 80.01 <sup>+0.38</sup> |

## ORDER DATA

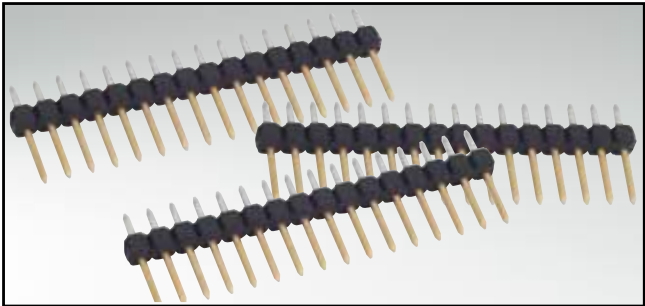
(Dim. = mm)

| No. of Pos. | Flat cable grey |
|-------------|-----------------|
| 10          | 145 X 10029 X   |
| 14          | 145 X 10039 X   |
| 16          | 145 X 10059 X   |
| 20          | 145 X 10069 X   |
| 25          | 145 X 10089 X   |
| 34          | 145 X 10109 X   |
| 40          | 145 X 10129 X   |
| 50          | 145 X 10139 X   |
| 64          | 145 X 10159 X   |

| No. of Pos. | Flat cable color-coded |
|-------------|------------------------|
| 10          | 145 X 10179 X          |
| 14          | 145 X 10189 X          |
| 16          | 145 X 10209 X          |
| 20          | 145 X 10219 X          |
| 25          | 145 X 10239 X          |
| 34          | 145 X 10259 X          |
| 40          | 145 X 10279 X          |
| 50          | 145 X 10289 X          |
| 64          | 145 X 10309 X          |

# CSU - PIN HEADER

Straight version – one and two rows



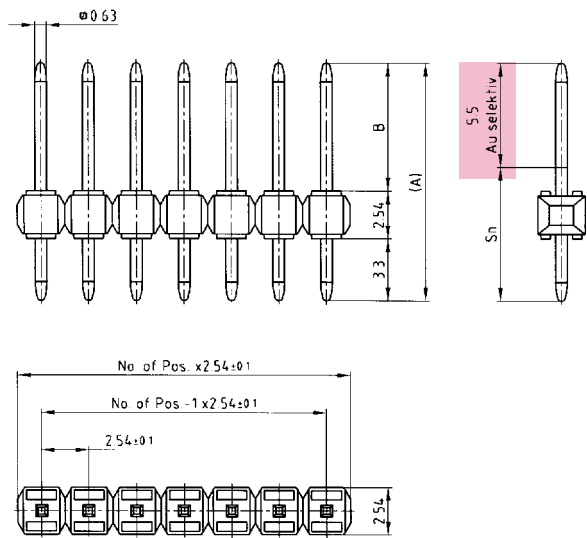
RoHS compliant

DESCRIPTION

- Solder pin
- Contact spacing 2.54 mm
- One row: 5, 10, 20, 30, 40 and 50 positions
- Two row: 10, 20, 40, 60, 80 and 100 positions
- Further positions on request
- Contact plating:
  - gold plated in mating area and tin in solder area
  - completely tin plated
- Other platings on request

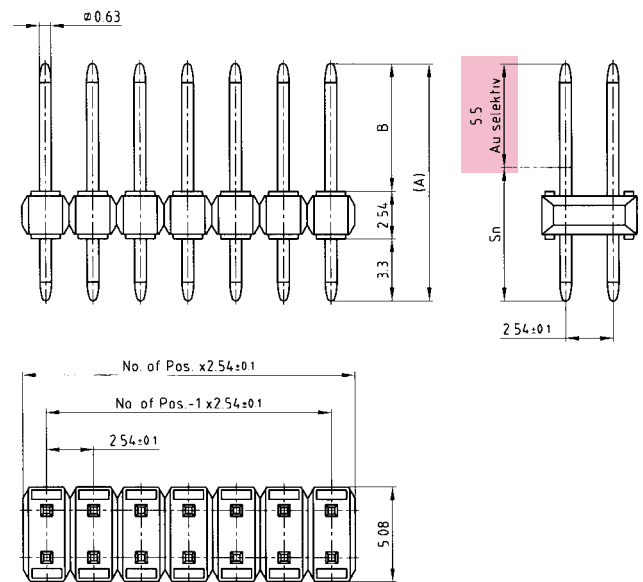
PRODUCT DRAWING

One row straight



| Pin lenght A | B ± 0,1 |
|--------------|---------|
| 11,3         | 5,46    |
| 12,6         | 6,76    |
| 14,7         | 8,66    |
| 17,7         | 11,86   |
| 19,8         | 13,96   |
| 21,6         | 15,76   |
| 24,9         | 19,06   |

Two row straight



ORDER DATA

(Dim. = mm)

| ONE ROW – STRAIGHT – PIN LENGTH 11.3 MM |               |               |
|-----------------------------------------|---------------|---------------|
| Number of positions                     | gold plated   | tin plated    |
| 5                                       | 201 A 12059 X | 201 F 12059 X |
| 10                                      | 201 A 12109 X | 201 F 12109 X |
| 20                                      | 201 A 12209 X | 201 F 12209 X |
| 30                                      | 201 A 12309 X | 201 F 12309 X |
| 40                                      | 201 A 22159 X | 201 F 22159 X |
| 50                                      | 201 A 22259 X | 201 F 22259 X |

| ONE ROW – STRAIGHT – PIN LENGTH 12.6 MM |               |               |
|-----------------------------------------|---------------|---------------|
| Number of positions                     | gold plated   | tin plated    |
| 5                                       | 201 A 10059 X | 201 F 10059 X |
| 10                                      | 201 A 10109 X | 201 F 10109 X |
| 20                                      | 201 A 10209 X | 201 F 10209 X |
| 30                                      | 201 A 10309 X | 201 F 10309 X |
| 40                                      | 201 A 22439 X | 201 F 22439 X |
| 50                                      | 201 A 22539 X | 201 F 22539 X |

| TWO ROW – STRAIGHT – PIN LENGTH 11.3 MM |               |               |
|-----------------------------------------|---------------|---------------|
| Number of positions                     | gold plated   | tin plated    |
| 10                                      | 201 A 12419 X | 201 F 12419 X |
| 20                                      | 201 A 12469 X | 201 F 12469 X |
| 40                                      | 201 A 12569 X | 201 F 12569 X |
| 60                                      | 201 A 12669 X | 201 F 12669 X |
| 80                                      | 201 A 22299 X | 201 F 22299 X |
| 100                                     | 201 A 22399 X | 201 F 22399 X |

| TWO ROW – STRAIGHT – PIN LENGTH 12.6 MM |               |               |
|-----------------------------------------|---------------|---------------|
| Number of positions                     | gold plated   | tin plated    |
| 10                                      | 201 A 10419 X | 201 F 10419 X |
| 20                                      | 201 A 10469 X | 201 F 10469 X |
| 40                                      | 201 A 10569 X | 201 F 10569 X |
| 60                                      | 201 A 10669 X | 201 F 10669 X |
| 80                                      | 201 A 22579 X | 201 F 22579 X |
| 100                                     | 201 A 22679 X | 201 F 22679 X |

# CSU - PIN HEADER

## Straight version – one and two rows

### ORDER DATA

| ONE ROW – STRAIGHT – PIN LENGTH 14.7 MM |               |               |
|-----------------------------------------|---------------|---------------|
| Number of positions                     | gold plated   | tin plated    |
| 5                                       | 201 A 12779 X | 201 F 12779 X |
| 10                                      | 201 A 12829 X | 201 F 12829 X |
| 20                                      | 201 A 12929 X | 201 F 12929 X |
| 30                                      | 201 A 13029 X | 201 F 13029 X |
| 40                                      | 201 A 22719 X | 201 F 22719 X |
| 50                                      | 201 A 22819 X | 201 F 22819 X |

| ONE ROW – STRAIGHT – PIN LENGTH 17.7 MM |               |               |
|-----------------------------------------|---------------|---------------|
| Number of positions                     | gold plated   | tin plated    |
| 5                                       | 201 A 13499 X | 201 F 13499 X |
| 10                                      | 201 A 13549 X | 201 F 13549 X |
| 20                                      | 201 A 13649 X | 201 F 13649 X |
| 30                                      | 201 A 13749 X | 201 F 13749 X |
| 40                                      | 201 A 22999 X | 201 F 22999 X |
| 50                                      | 201 A 23099 X | 201 F 23099 X |

| ONE ROW – STRAIGHT – PIN LENGTH 19.8 MM |               |               |
|-----------------------------------------|---------------|---------------|
| Number of positions                     | gold plated   | tin plated    |
| 5                                       | 201 A 14219 X | 201 F 14219 X |
| 10                                      | 201 A 14269 X | 201 F 14269 X |
| 20                                      | 201 A 14369 X | 201 F 14369 X |
| 30                                      | 201 A 14469 X | 201 F 14469 X |
| 40                                      | 201 A 23279 X | 201 F 23279 X |
| 50                                      | 201 A 23379 X | 201 F 23379 X |

| ONE ROW – STRAIGHT – PIN LENGTH 21.6 MM |               |               |
|-----------------------------------------|---------------|---------------|
| Number of positions                     | gold plated   | tin plated    |
| 5                                       | 201 A 14939 X | 201 F 14939 X |
| 10                                      | 201 A 14989 X | 201 F 14989 X |
| 20                                      | 201 A 15089 X | 201 F 15089 X |
| 30                                      | 201 A 15189 X | 201 F 15189 X |
| 40                                      | 201 A 23559 X | 201 F 23559 X |
| 50                                      | 201 A 23659 X | 201 F 23659 X |

| ONE ROW – STRAIGHT – PIN LENGTH 24.9 MM |               |               |
|-----------------------------------------|---------------|---------------|
| Number of positions                     | gold plated   | tin plated    |
| 5                                       | 201 A 15659 X | 201 F 15659 X |
| 10                                      | 201 A 15709 X | 201 F 15709 X |
| 20                                      | 201 A 15809 X | 201 F 15809 X |
| 30                                      | 201 A 15909 X | 201 F 15909 X |
| 40                                      | 201 A 23839 X | 201 F 23839 X |
| 50                                      | 201 A 23939 X | 201 F 23939 X |

| TWO ROW – STRAIGHT – PIN LENGTH 14.7 MM |               |               |
|-----------------------------------------|---------------|---------------|
| Number of positions                     | gold plated   | tin plated    |
| 10                                      | 201 A 13139 X | 201 F 13139 X |
| 20                                      | 201 A 13189 X | 201 F 13189 X |
| 40                                      | 201 A 13289 X | 201 F 13289 X |
| 60                                      | 201 A 13389 X | 201 F 13389 X |
| 80                                      | 201 A 22859 X | 201 F 22859 X |
| 100                                     | 201 A 22959 X | 201 F 22959 X |

| TWO ROW – STRAIGHT – PIN LENGTH 17.7 MM |               |               |
|-----------------------------------------|---------------|---------------|
| Number of positions                     | gold plated   | tin plated    |
| 10                                      | 201 A 13859 X | 201 F 13859 X |
| 20                                      | 201 A 13909 X | 201 F 13909 X |
| 40                                      | 201 A 14009 X | 201 F 14009 X |
| 60                                      | 201 A 14109 X | 201 F 14109 X |
| 80                                      | 201 A 23139 X | 201 F 23139 X |
| 100                                     | 201 A 23239 X | 201 F 23239 X |

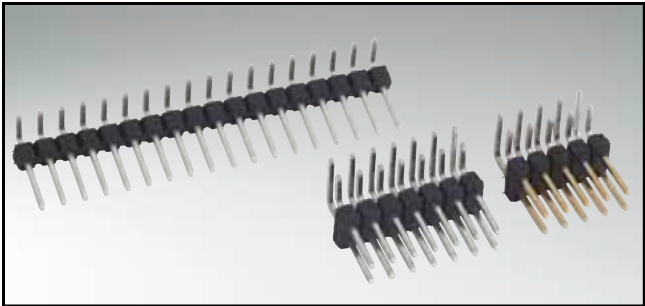
| TWO ROW – STRAIGHT – PIN LENGTH 19.8 MM |               |               |
|-----------------------------------------|---------------|---------------|
| Number of positions                     | gold plated   | tin plated    |
| 10                                      | 201 A 14579 X | 201 F 14579 X |
| 20                                      | 201 A 14629 X | 201 F 14629 X |
| 40                                      | 201 A 14729 X | 201 F 14729 X |
| 60                                      | 201 A 14829 X | 201 F 14829 X |
| 80                                      | 201 A 23419 X | 201 F 23419 X |
| 100                                     | 201 A 23519 X | 201 F 23519 X |

| TWO ROW – STRAIGHT – PIN LENGTH 21.6 MM |               |               |
|-----------------------------------------|---------------|---------------|
| Number of positions                     | gold plated   | tin plated    |
| 10                                      | 201 A 15299 X | 201 F 15299 X |
| 20                                      | 201 A 15349 X | 201 F 15349 X |
| 40                                      | 201 A 15449 X | 201 F 15449 X |
| 60                                      | 201 A 15549 X | 201 F 15549 X |
| 80                                      | 201 A 23699 X | 201 F 23699 X |
| 100                                     | 201 A 23799 X | 201 F 23799 X |

| TWO ROW – STRAIGHT – PIN LENGTH 24.9 MM |               |               |
|-----------------------------------------|---------------|---------------|
| Number of positions                     | gold plated   | tin plated    |
| 10                                      | 201 A 16019 X | 201 F 16019 X |
| 20                                      | 201 A 16069 X | 201 F 16069 X |
| 40                                      | 201 A 16169 X | 201 F 16169 X |
| 60                                      | 201 A 16269 X | 201 F 16269 X |
| 80                                      | 201 A 23979 X | 201 F 23979 X |
| 100                                     | 201 A 24079 X | 201 F 24079 X |

# CSU - PIN HEADER

Angled version – one and two row



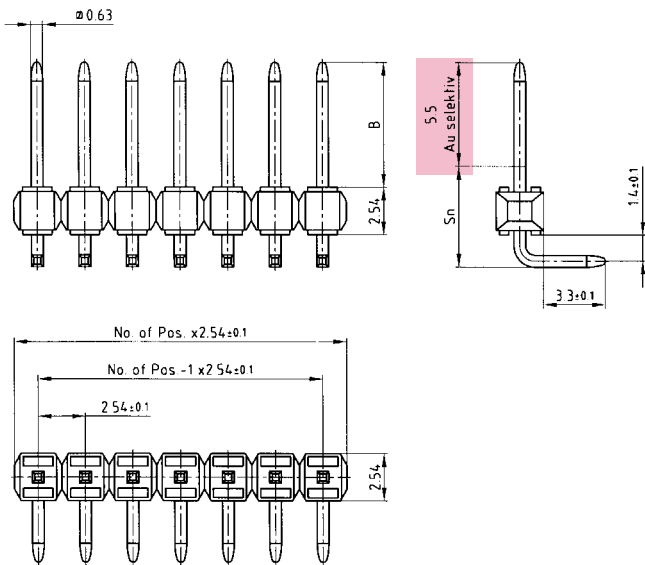
RoHS compliant

DESCRIPTION

- Solder pin
- Contact spacing 2.54 mm
- One row: 5, 10, 20, 30, 40 and 50 positions
- Two row: 10, 20, 40, 60, 80 and 100 positions
- Further positions on request
- Contact plating:
  - gold plated in mating area and tin in solder area
  - completely tin plated
- Other platings on request

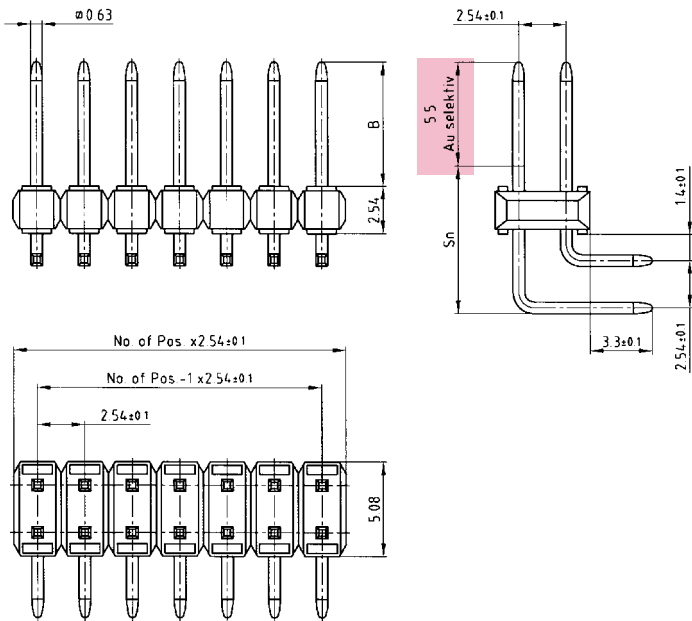
PRODUCT DRAWING

One row angled



| One row angled |             |
|----------------|-------------|
| Pin length     | $B \pm 0.1$ |
| 12.6 mm        | 04.5        |
| 14.7 mm        | 06.6        |
| 17.7 mm        | 09.6        |
| 19.8 mm        | 11.7        |
| 21.6 mm        | 13.5        |
| 24.9 mm        | 16.8        |

Two row angled



| Two row angled       |                      |             |
|----------------------|----------------------|-------------|
| Pin length inner row | Pin length outer row | $B \pm 0.1$ |
| 12.6 mm              | 17.7 mm              | 4.5         |
| 14.7 mm              | 19.8 mm              | 6.6         |

(Dim. = mm)

# CSU - PIN HEADER

## Angled version – one and two row

### ORDER DATA

| ONE ROW – ANGLED – PIN LENGTH 12.6 MM |               |               |
|---------------------------------------|---------------|---------------|
| Number of positions                   | gold plated   | tin plated    |
| 5                                     | 201 A 16379 X | 201 F 16379 X |
| 10                                    | 201 A 16429 X | 201 F 16429 X |
| 20                                    | 201 A 16529 X | 201 F 16529 X |
| 30                                    | 201 A 16629 X | 201 F 16629 X |
| 40                                    | 201 A 24119 X | 201 F 24119 X |
| 50                                    | 201 A 24219 X | 201 F 24219 X |

| ONE ROW – ANGLED – PIN LENGTH 14.7 MM |               |               |
|---------------------------------------|---------------|---------------|
| Number of positions                   | gold plated   | tin plated    |
| 5                                     | 201 A 10779 X | 201 F 10779 X |
| 10                                    | 201 A 10829 X | 201 F 10829 X |
| 20                                    | 201 A 10929 X | 201 F 10929 X |
| 30                                    | 201 A 11029 X | 201 F 11029 X |
| 40                                    | 201 A 24399 X | 201 F 24399 X |
| 50                                    | 201 A 24499 X | 201 F 24499 X |

| ONE ROW – ANGLED – PIN LENGTH 17.7 MM |               |               |
|---------------------------------------|---------------|---------------|
| Number of positions                   | gold plated   | tin plated    |
| 5                                     | 201 A 17099 X | 201 F 17099 X |
| 10                                    | 201 A 17149 X | 201 F 17149 X |
| 20                                    | 201 A 17249 X | 201 F 17249 X |
| 30                                    | 201 A 17349 X | 201 F 17349 X |
| 40                                    | 201 A 24679 X | 201 F 24679 X |
| 50                                    | 201 A 24779 X | 201 F 24779 X |

| ONE ROW – ANGLED – PIN LENGTH 19.8 MM |               |               |
|---------------------------------------|---------------|---------------|
| Number of positions                   | gold plated   | tin plated    |
| 5                                     | 201 A 17459 X | 201 F 17459 X |
| 10                                    | 201 A 17509 X | 201 F 17509 X |
| 20                                    | 201 A 17609 X | 201 F 17609 X |
| 30                                    | 201 A 17709 X | 201 F 17709 X |
| 40                                    | 201 A 24819 X | 201 F 24819 X |
| 50                                    | 201 A 24919 X | 201 F 24919 X |

| ONE ROW – ANGLED – PIN LENGTH 21.6 MM |               |               |
|---------------------------------------|---------------|---------------|
| Number of positions                   | gold plated   | tin plated    |
| 5                                     | 201 A 17819 X | 201 F 17819 X |
| 10                                    | 201 A 17869 X | 201 F 17869 X |
| 20                                    | 201 A 17969 X | 201 F 17969 X |
| 30                                    | 201 A 18069 X | 201 F 18069 X |
| 40                                    | 201 A 24959 X | 201 F 24959 X |
| 50                                    | 201 A 25059 X | 201 F 25059 X |

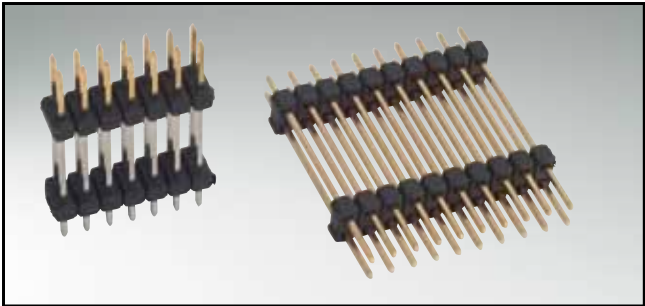
| ONE ROW – ANGLED – PIN LENGTH 24.9 MM |               |               |
|---------------------------------------|---------------|---------------|
| Number of positions                   | gold plated   | tin plated    |
| 5                                     | 201 A 18179 X | 201 F 18179 X |
| 10                                    | 201 A 18229 X | 201 F 18229 X |
| 20                                    | 201 A 18329 X | 201 F 18329 X |
| 30                                    | 201 A 18429 X | 201 F 18429 X |
| 40                                    | 201 A 25099 X | 201 F 25099 X |
| 50                                    | 201 A 25199 X | 201 F 25199 X |

| TWO ROW – ANGLED – PIN LENGTH 12.6 / 17.7 MM |               |               |
|----------------------------------------------|---------------|---------------|
| Number of positions                          | gold plated   | tin plated    |
| 10                                           | 201 A 16739 X | 201 F 16739 X |
| 20                                           | 201 A 16789 X | 201 F 16789 X |
| 40                                           | 201 A 16889 X | 201 F 16889 X |
| 60                                           | 201 A 16989 X | 201 F 16989 X |
| 80                                           | 201 A 24259 X | 201 F 24259 X |
| 100                                          | 201 A 24359 X | 201 F 24359 X |

| TWO ROW – ANGLED – PIN LENGTH 14.7 / 19.8 MM |               |               |
|----------------------------------------------|---------------|---------------|
| Number of positions                          | gold plated   | tin plated    |
| 10                                           | 201 A 11139 X | 201 F 11139 X |
| 20                                           | 201 A 11189 X | 201 F 11189 X |
| 40                                           | 201 A 11289 X | 201 F 11289 X |
| 60                                           | 201 A 11389 X | 201 F 11389 X |
| 80                                           | 201 A 24539 X | 201 F 24539 X |
| 100                                          | 201 A 24639 X | 201 F 24639 X |

# CSU - PIN HEADER

Double hood – straight – one and two row



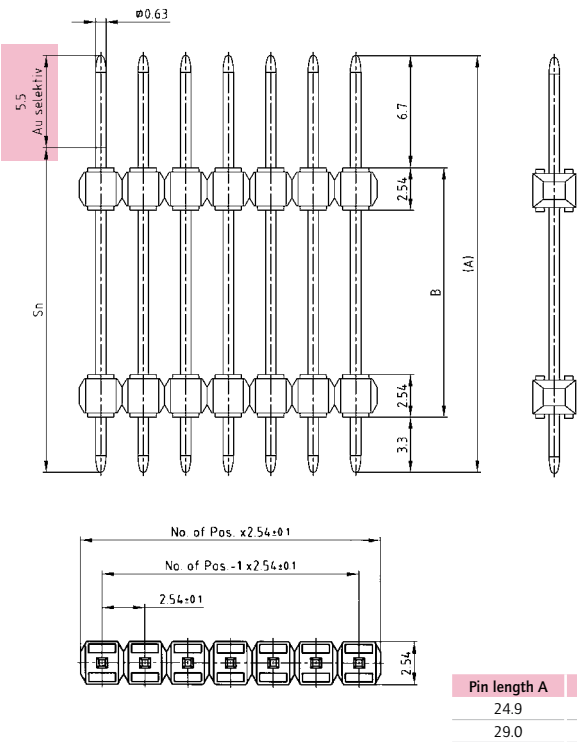
RoHS compliant

DESCRIPTION

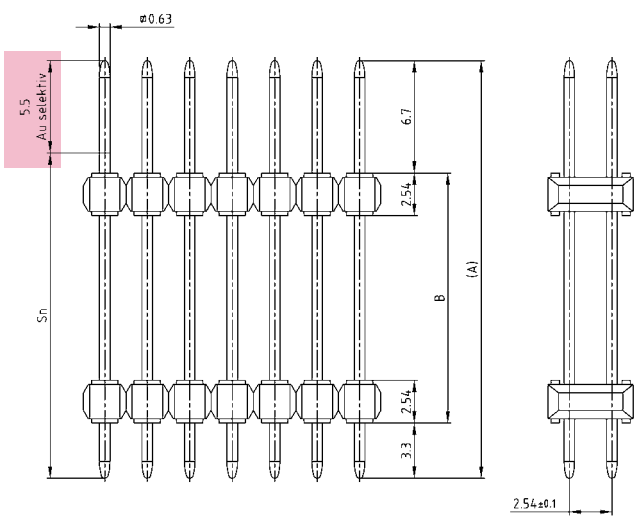
- Solder pin
- Contact spacing 2.54 mm
- One row: 5, 10, 20, 30, 40 and 50 positions
- Two row: 10, 20, 40, 60, 80 and 100 positions
- Further positions on request
- Contact plating
  - gold plated in mating area and tin in solder area
  - completely tin plated
- Other platings on request

PRODUCT DRAWING

One row straight



Two row straight



ORDER DATA

(Dim. = mm)

| ONE ROW – STRAIGHT – PIN LENGTH 24.9 MM |               |               |
|-----------------------------------------|---------------|---------------|
| Number of positions                     | gold plated   | tin plated    |
| 5                                       | 201 A 18539 X | 201 F 18539 X |
| 10                                      | 201 A 18589 X | 201 F 18589 X |
| 20                                      | 201 A 18689 X | 201 F 18689 X |
| 30                                      | 201 A 18789 X | 201 F 18789 X |
| 40                                      | 201 A 25239 X | 201 F 25239 X |
| 50                                      | 201 A 25339 X | 201 F 25339 X |

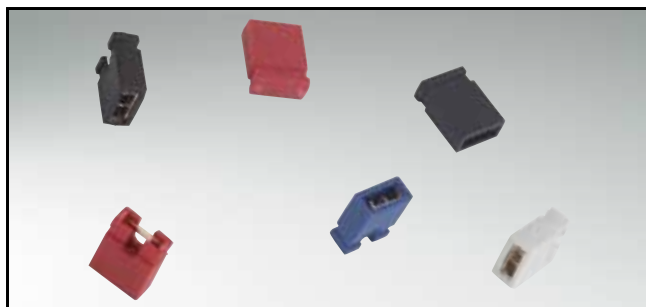
| ONE ROW – STRAIGHT – PIN LENGTH 29.0 MM |               |               |
|-----------------------------------------|---------------|---------------|
| Number of positions                     | gold plated   | tin plated    |
| 5                                       | 201 A 19259 X | 201 F 19259 X |
| 10                                      | 201 A 19309 X | 201 F 19309 X |
| 20                                      | 201 A 19409 X | 201 F 19409 X |
| 30                                      | 201 A 19509 X | 201 F 19509 X |
| 40                                      | 201 A 25519 X | 201 F 25519 X |
| 50                                      | 201 A 25619 X | 201 F 25619 X |

| TWO ROW – STRAIGHT – PIN LENGTH 24.9 MM |               |               |
|-----------------------------------------|---------------|---------------|
| Number of positions                     | gold plated   | tin plated    |
| 10                                      | 201 A 18899 X | 201 F 18899 X |
| 20                                      | 201 A 18949 X | 201 F 18949 X |
| 40                                      | 201 A 19049 X | 201 F 19049 X |
| 60                                      | 201 A 19149 X | 201 F 19149 X |
| 80                                      | 201 A 25379 X | 201 F 25379 X |
| 100                                     | 201 A 25479 X | 201 F 25479 X |

| TWO ROW – STRAIGHT – PIN LENGTH 29.0 MM |               |               |
|-----------------------------------------|---------------|---------------|
| Number of positions                     | gold plated   | tin plated    |
| 10                                      | 201 A 19619 X | 201 F 19619 X |
| 20                                      | 201 A 19669 X | 201 F 19669 X |
| 40                                      | 201 A 19769 X | 201 F 19769 X |
| 60                                      | 201 A 19869 X | 201 F 19869 X |
| 80                                      | 201 A 25659 X | 201 F 25659 X |
| 100                                     | 201 A 25759 X | 201 F 25759 X |

# SHORT CIRCUIT PLUG

Open and closed version



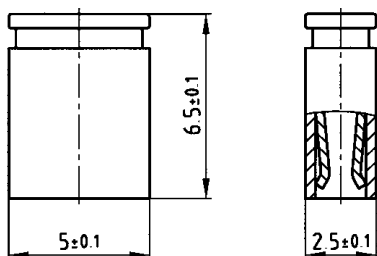
RoHS compliant

## DESCRIPTION

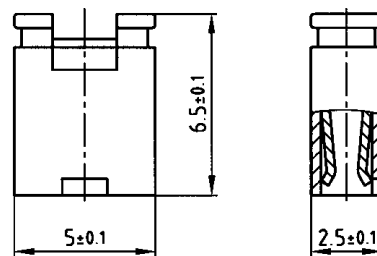
- Gold plated contacts
- Contact spacing 2.54 mm
- Several colors

## PRODUCT DRAWING

Closed version



Open version



### Technical Data

|                        |                    |
|------------------------|--------------------|
| Contacts:              | Phosphorbronze     |
| Insulator:             | PA 6,6 UL 94 V-0   |
| Contact resistance:    | ≤ 7 mΩ             |
| Current rating:        | 2.5 A              |
| Insulation resistance: | 10 <sup>12</sup> Ω |
| Withdrawal force:      | ≤ 3 N              |
| Insertion force:       | ≤ 6 N              |
| Temperature range:     | -65°C to + 150°C   |
| Contact surface:       | Gold over nickel   |
| Contact spacing:       | 2.54 mm            |

## ORDER DATA

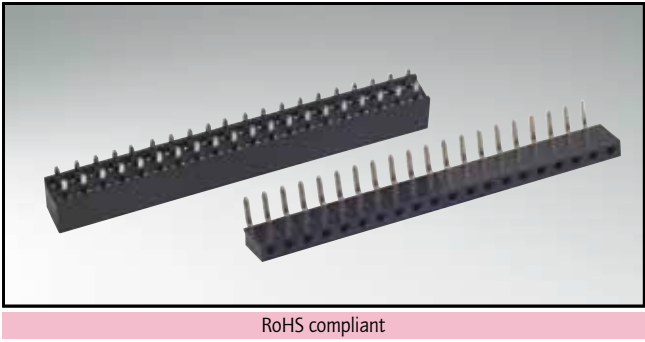
(Dim. = mm)

| Color | closed version |
|-------|----------------|
| grey  | 200 A 10069 X  |
| black | 200 A 10079 X  |
| blue  | 200 A 10089 X  |
| red   | 200 A 10099 X  |
| green | 200 A 10109 X  |

| Color | open version  |
|-------|---------------|
| grey  | 200 A 10019 X |
| black | 200 A 10029 X |
| blue  | 200 A 10039 X |
| red   | 200 A 10049 X |
| green | 200 A 10059 X |

CBL - SOCKET CONNECTOR

Straight and angled – one and two row – installation height 5.7 mm



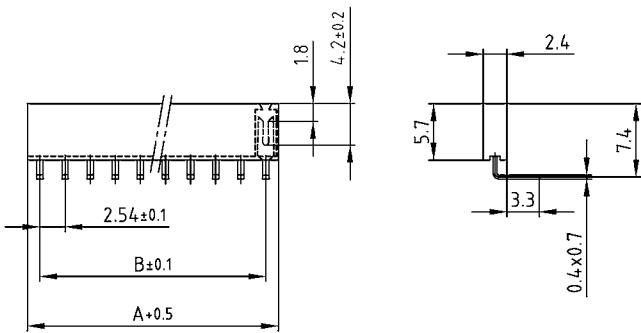
RoHS compliant

DESCRIPTION

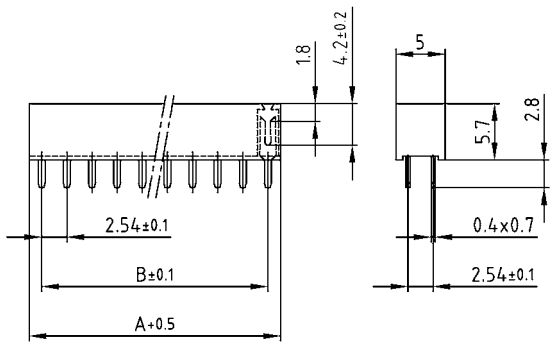
- Solder pin
- Contact spacing 2.54 mm
- One row: 5, 10 and 20 positions
- Two row: 10, 20 and 40 positions
- Further positions on request
- Contact plating: gold or tin plated
- Suitable for CSU pin headers

PRODUCT DRAWING

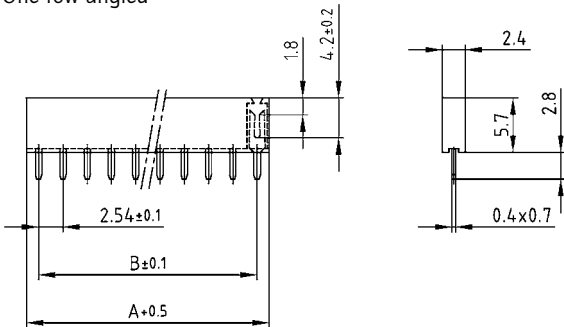
One row straight



Two row straight



One row angled



| No. of Pos. |         | A + 0.5 | B ± 0.1           |
|-------------|---------|---------|-------------------|
| One row     | Two row |         |                   |
| 5           | 10      | 12.7    | 4 x 2.54 = 10.16  |
| 10          | 20      | 25.4    | 9 x 2.54 = 22.86  |
| 20          | 40      | 50.8    | 19 x 2.54 = 48.26 |

ORDER DATA

(Dim. = mm)

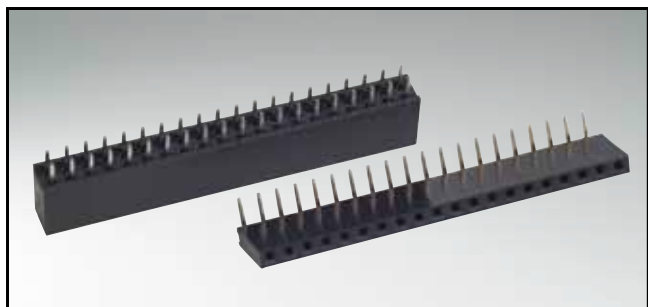
| ONE ROW – STRAIGHT |               |               |
|--------------------|---------------|---------------|
| No. of Pos.        | gold plated   | tin plated    |
| 5                  | 202 A 10019 X | 202 F 10019 X |
| 10                 | 202 A 10029 X | 202 F 10029 X |
| 20                 | 202 A 10039 X | 202 F 10039 X |

| TWO ROW – STRAIGHT |               |               |
|--------------------|---------------|---------------|
| No. of Pos.        | gold plated   | tin plated    |
| 10                 | 202 A 10079 X | 202 F 10079 X |
| 20                 | 202 A 10089 X | 202 F 10089 X |
| 40                 | 202 A 10099 X | 202 F 10099 X |

| ONE ROW – ANGLED |               |               |
|------------------|---------------|---------------|
| No. of Pos.      | gold plated   | tin plated    |
| 5                | 202 A 10049 X | 202 F 10049 X |
| 10               | 202 A 10059 X | 202 F 10059 X |
| 20               | 202 A 10069 X | 202 F 10069 X |

# CBL SOCKET CONNECTOR

Straight – one and two row – installation height 8.5 mm



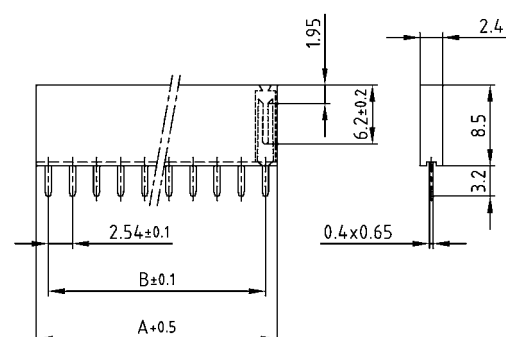
RoHS compliant

## DESCRIPTION

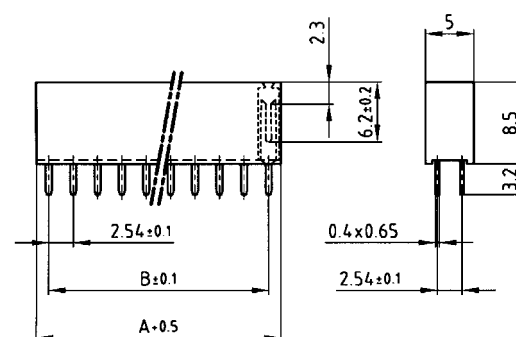
- Solder pin
- Contact spacing 2.54 mm
- One row: 5, 10 and 20 positions
- Two row: 10, 20 and 40 positions
- Further positions on request
- Contact plating: gold plated or tin plated
- Suitable for CSU pin headers

## PRODUCT DRAWING

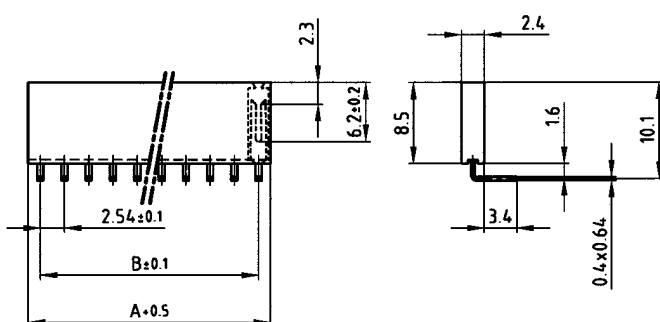
One row straight



Two row straight



One row angled



| No. of Pos. |         | A + 0.5 | B ± 0.1           |
|-------------|---------|---------|-------------------|
| one row     | two row |         |                   |
| 5           | 10      | 12.7    | 4 x 2.54 = 10.16  |
| 10          | 20      | 25.4    | 9 x 2.54 = 22.86  |
| 20          | 40      | 50.8    | 19 x 2.54 = 48.26 |

## ORDER DATA

(Dim. = mm)

| ONE ROW – STRAIGHT |               |               |
|--------------------|---------------|---------------|
| No. of Pos.        | gold plated   | tin plated    |
| 5                  | 202 A 10109 X | 202 F 10109 X |
| 10                 | 202 A 10119 X | 202 F 10119 X |
| 20                 | 202 A 10129 X | 202 F 10129 X |

| TWO ROW – STRAIGHT |               |               |
|--------------------|---------------|---------------|
| No. of Pos.        | gold plated   | tin plated    |
| 10                 | 202 A 10169 X | 202 F 10169 X |
| 20                 | 202 A 10179 X | 202 F 10179 X |
| 40                 | 202 A 10189 X | 202 F 10189 X |

| ONE ROW – ANGLED |               |               |
|------------------|---------------|---------------|
| No. of Pos.      | gold plated   | tin plated    |
| 5                | 202 A 10139 X | 202 F 10139 X |
| 10               | 202 A 10149 X | 202 F 10149 X |
| 20               | 202 A 10159 X | 202 F 10159 X |

## SECTION 9

# INSTALLATION AND ASSEMBLY TOOLS



CONEC offers a variety of special tools to facilitate the reliable, rational assembly of contacts and connectors in its line of flatcable connectors. These tools are practice-proven and ensure the optimal handling of our products.



For technical support and handling technic  
please contact the factory.





DESCRIPTION \_\_\_\_\_

**Press in tool**  
for straight CompactPCI male connector, 38 positions

**Part number**            360X15129X

**Press in tool**  
for straight CompactPCI male connector, 47 positions

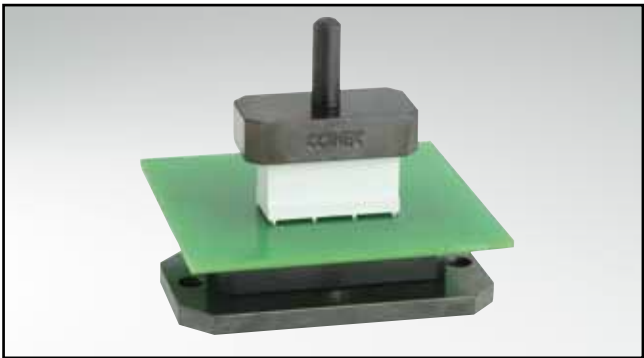
**Part number**            360X15139X



DESCRIPTION \_\_\_\_\_

**Press in tool**  
for straight CompactPCI female connector,  
38 and 47 positions

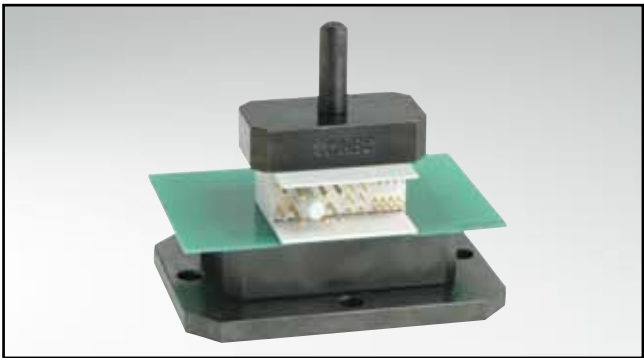
**Part number**            360X15119X



DESCRIPTION \_\_\_\_\_

**Press in tool**  
for straight AdvancedTCA female connectors

**Part number**            360X15149X



DESCRIPTION \_\_\_\_\_

**Press in tool**  
for angled AdvancedTCA male connectors

**Part number**            360X15159X



DESCRIPTION \_\_\_\_\_

**Hand crimp tool**  
for CompactPCI crimp contacts  
(Inserts need to be ordered separately)

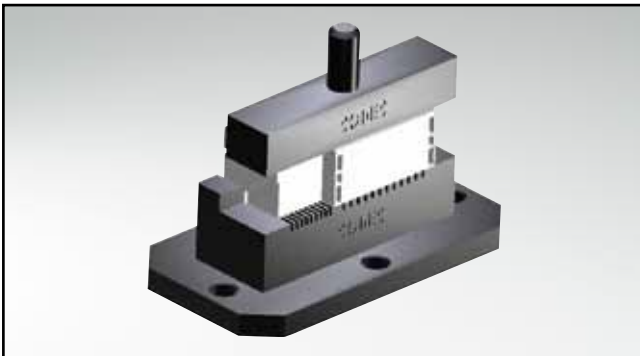
**Part number** 360X21079X



DESCRIPTION \_\_\_\_\_

**Inserts**  
for above hand crimp tool

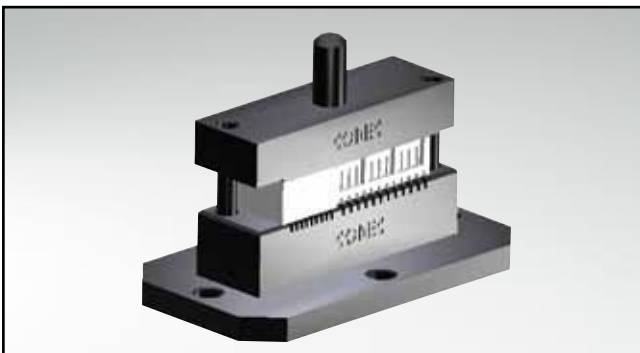
**Part number** 360X21089X



DESCRIPTION \_\_\_\_\_

**Press in tool**  
for MicroTCA Power Module output connector, angled

**Part number** 36-000080



DESCRIPTION \_\_\_\_\_

**Press in tool**  
for MicroTCA Power Backplane output connector, straight

**Part number** 36-000070



DESCRIPTION \_\_\_\_\_

**Hand Crimp tool**  
for high power contacts DIN EN 60603-2

**Part number**                    360 X 10409 X



DESCRIPTION \_\_\_\_\_

**Inserts**  
for above hand crimp tool

**Part number**                    360 X 20029 X



DESCRIPTION \_\_\_\_\_

**Hand Crimp tool**  
for coaxial contacts (inner conductor) and  
D-SUB for Signal Crimp contacts standard and High Density  
(Inserts must be ordered separately)

**Part number**                    360 X 10329 X



DESCRIPTION \_\_\_\_\_

**Inserts**  
for above hand crimp tool

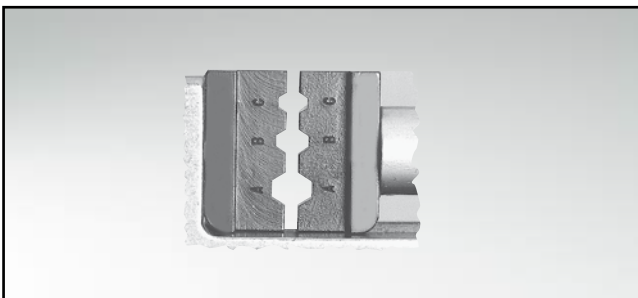
Inserts for hand crimp tool  
for use with hand crimp tool 360X10329 X

| Plug Connector | Socket connector | Tool Inserts  | Inserts cavity                      |        |
|----------------|------------------|---------------|-------------------------------------|--------|
| 123 C 21049 X  | 124 C 21049 X    | 360 X 11049 X | depends on<br>wire<br>select cavity |        |
| 123 C 21059 X  | 124 C 21059 X    | 360 X 11049 X |                                     |        |
| 123 C 21069 X  | 124 C 21069 X    | 360 X 11049 X |                                     |        |
| 123 C 23049 X  | 124 C 23049 X    | 360 X 11059 X | AWG                                 | Cavity |
| 123 C 23059 X  | 124 C 23059 X    | 360 X 11059 X |                                     |        |
| 123 C 23069 X  | 124 C 23069 X    | 360 X 11059 X |                                     |        |
| 123 C 33039 X  | 124 C 33039 X    | 360 X 11059 X |                                     |        |
| 123 C 33049 X  | 124 C 33049 X    | 360 X 11059 X |                                     |        |
|                |                  |               | 24 →                                | 5      |
|                |                  |               | 26 →                                | 5      |
|                |                  |               | 28 →                                | 4      |
|                |                  |               | 30 →                                | 3      |


**DESCRIPTION**
**Hand Crimp tool**

for coaxial contacts (outer conductor),  
(Inserts must be ordered separately)

**Part number** 360 X 10519 X


**DESCRIPTION**
**Inserts**

for above hand crimp tool

**Inserts for hand crimp tool coaxial contacts (outer conductor)  
for use with hand crimp tool 360X10519X**

| Plug Connector | Socket connector | Tool Inserts  | Inserts cavity |
|----------------|------------------|---------------|----------------|
| 123 C 20059 X  | 124 C 20059 X    | 360 X 11019 X | C              |
| 123 C 20069 X  | 124 C 20069 X    | 360 X 11019 X | B              |
| 123 C 20079 X  | 124 C 20079 X    | 360 X 11039 X | B              |
| 123 C 20089 X  | 124 C 20089 X    | 360 X 11029 X | A              |
| 123 C 21049 X  | 124 C 21049 X    | 360 X 11019 X | B              |
| 123 C 21059 X  | 124 C 21059 X    | 360 X 11029 X | A              |
| 123 C 21069 X  | 124 C 21069 X    | 360 X 11039 X | B              |
| 123 C 22069 X  | 124 C 22069 X    | 360 X 11019 X | C              |
| 123 C 22079 X  | 124 C 22079 X    | 360 X 11019 X | B              |
| 123 C 22089 X  | 124 C 22089 X    | 360 X 11039 X | B              |
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| 123 C 22109 X  | 124 C 22109 X    | 360 X 11029 X | A              |
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| 123 C 32059 X  | 124 C 32059 X    | 360 X 11019 X | B              |
| 123 C 32069 X  | 124 C 32069 X    | 360 X 11019 X | A              |
| 123 C 23049 X  | 124 C 23049 X    | 360 X 11019 X | B              |
| 123 C 23059 X  | 124 C 23059 X    | 360 X 11039 X | B              |
| 123 C 23069 X  | 124 C 23069 X    | 360 X 11029 X | A              |
| 123 C 33039 X  | 124 C 33039 X    | 360 X 11019 X | B              |
| 123 C 33049 X  | 124 C 33049 X    | 360 X 11019 X | A              |



DESCRIPTION \_\_\_\_\_

**Extraction tool**  
for D-SUB coaxial, high power and high voltage contacts  
for DIN EN 60603-2 high power and coaxial contacts

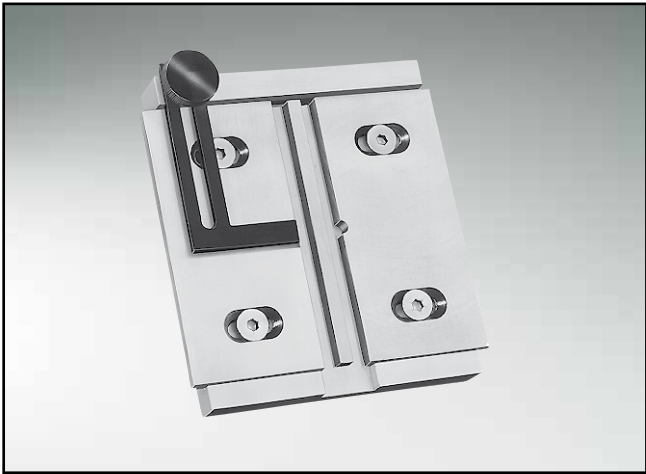
**Part number**                    360 X 10219 X



DESCRIPTION \_\_\_\_\_

**Hand cutting scissors**

**Part number**                    360 X 10059 X



DESCRIPTION \_\_\_\_\_

**Tooling set**  
for hand lever press    (see page 9 | 7)

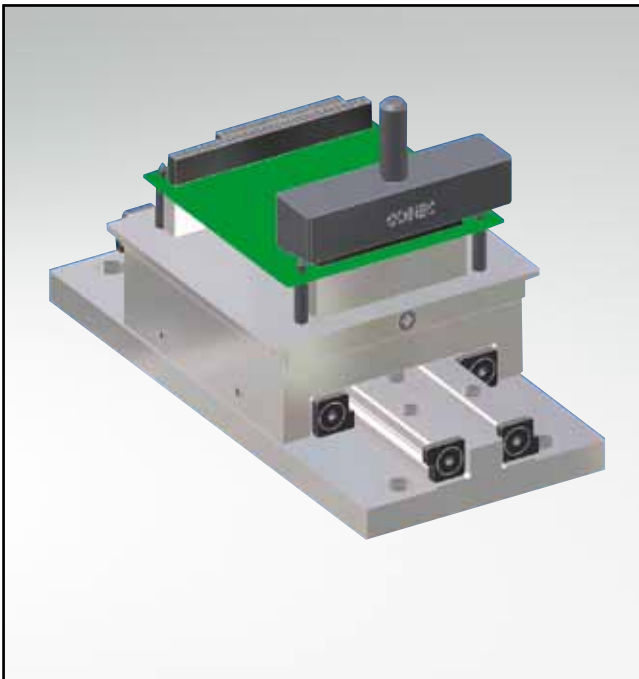
**Part number**                    360 X 10029 X



DESCRIPTION \_\_\_\_\_

Manually operated lever press

Part number 360 X 12369 X



DESCRIPTION \_\_\_\_\_

Press in tool  
for PC104 and PC104plus connectors

Part number 36-000130

SECTION 10  
**PART NUMBERS**

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6  
66589



# 66589B 74

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6 589B 76

B 77

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| 101 A 10179 X | 7   5          | 101 E 10169 X | 7   5          | 120 X 10149 X | 4   35         |
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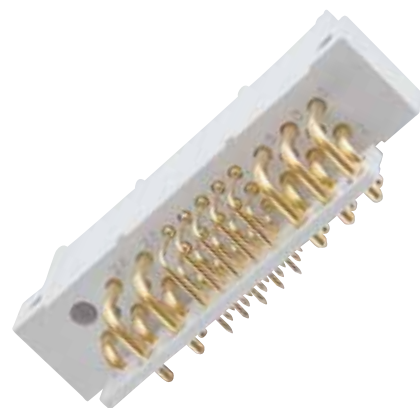


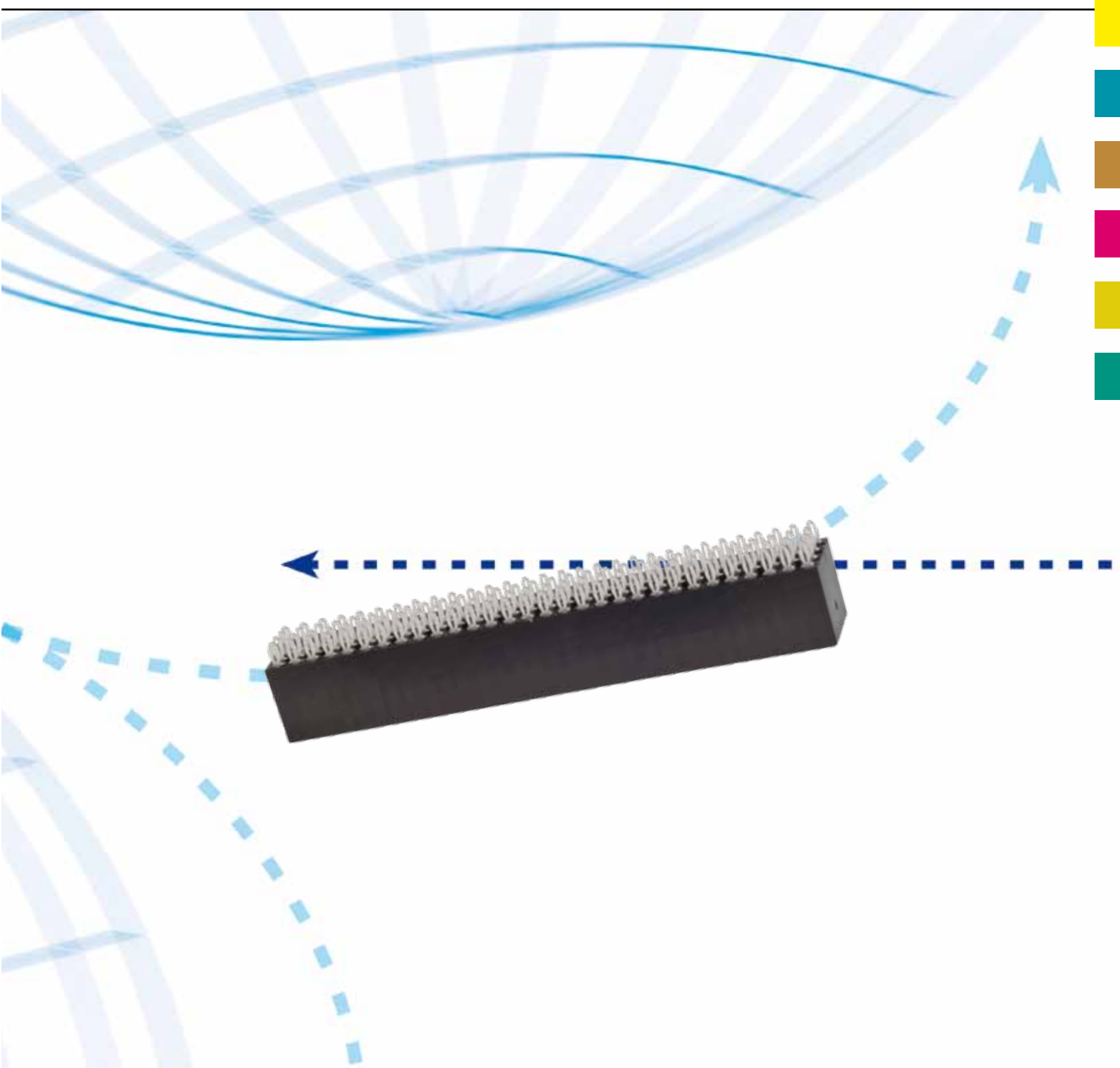
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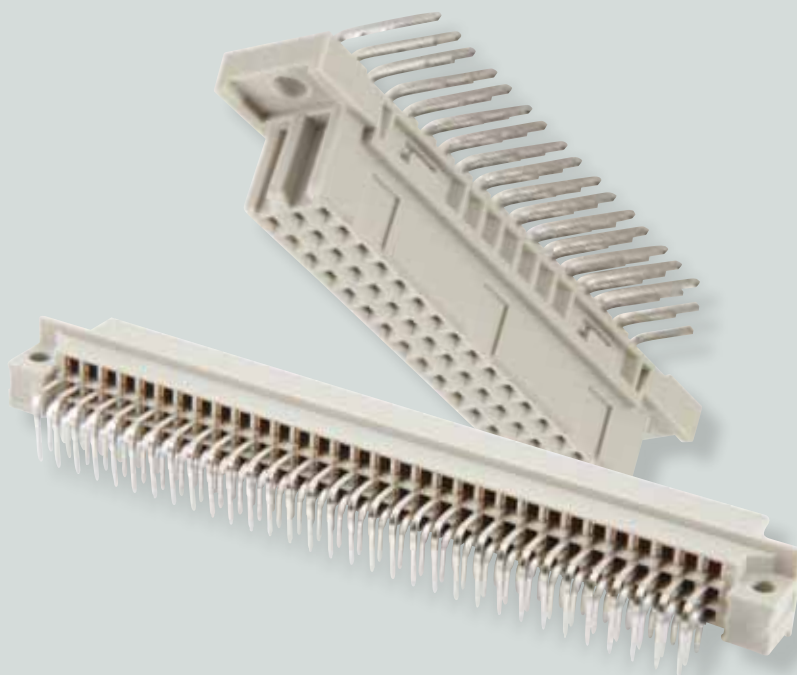




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