

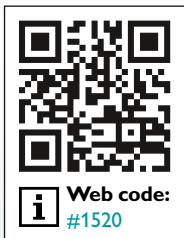


# Connectivity for all dimensions

Robust FINEPITCH series board-to-board connectors

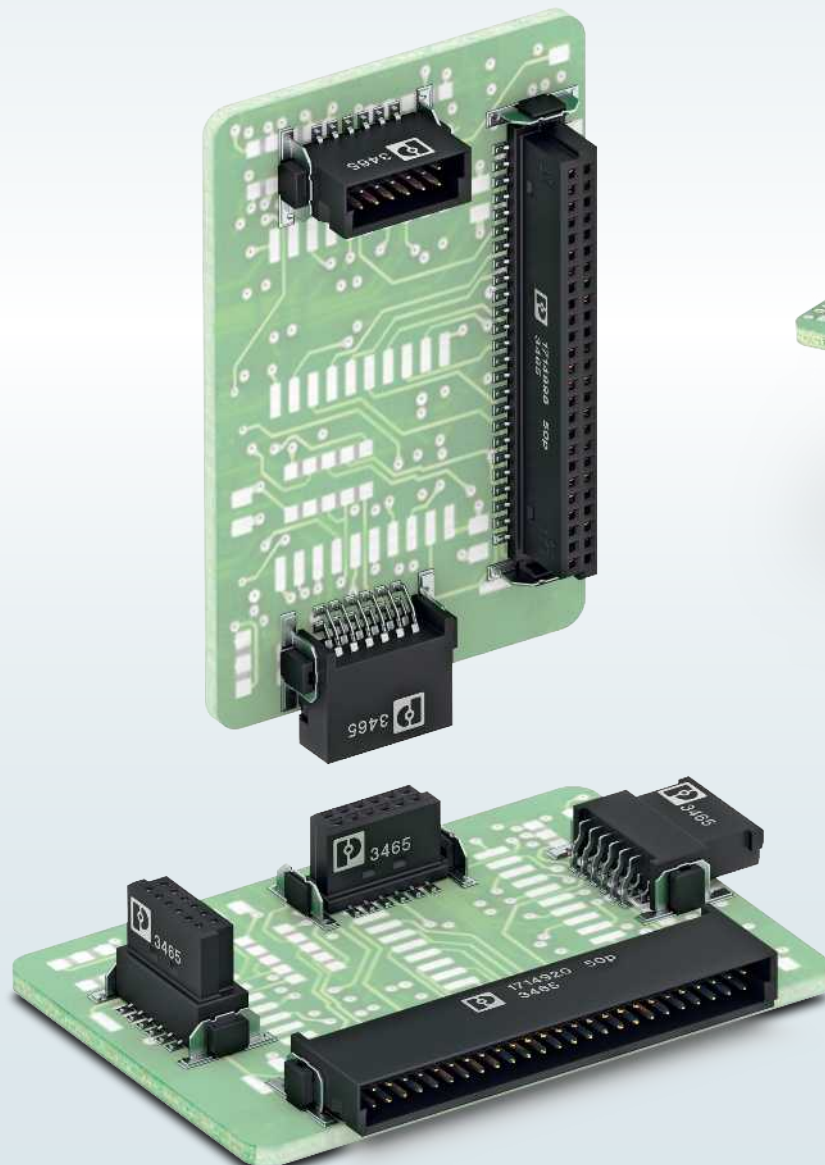
# The best connectivity for all dimensions

With FINEPITCH series board-to-board connectors, Phoenix Contact provides shielded and unshielded solutions for signal and data transmission in the device for the first time. This allows you to realize individual PCB orientations with different designs, stack heights, and numbers of positions in compact 0.8 and 1.27 mm pitches.



## FINEPITCH 1,27 unshielded

- For flexible board-to-board and wire-to-board connections
- For 1.27 mm pitch
- For high contact density from 12-pos. to 80-pos.
- For stack heights from 8 to 13.8 mm



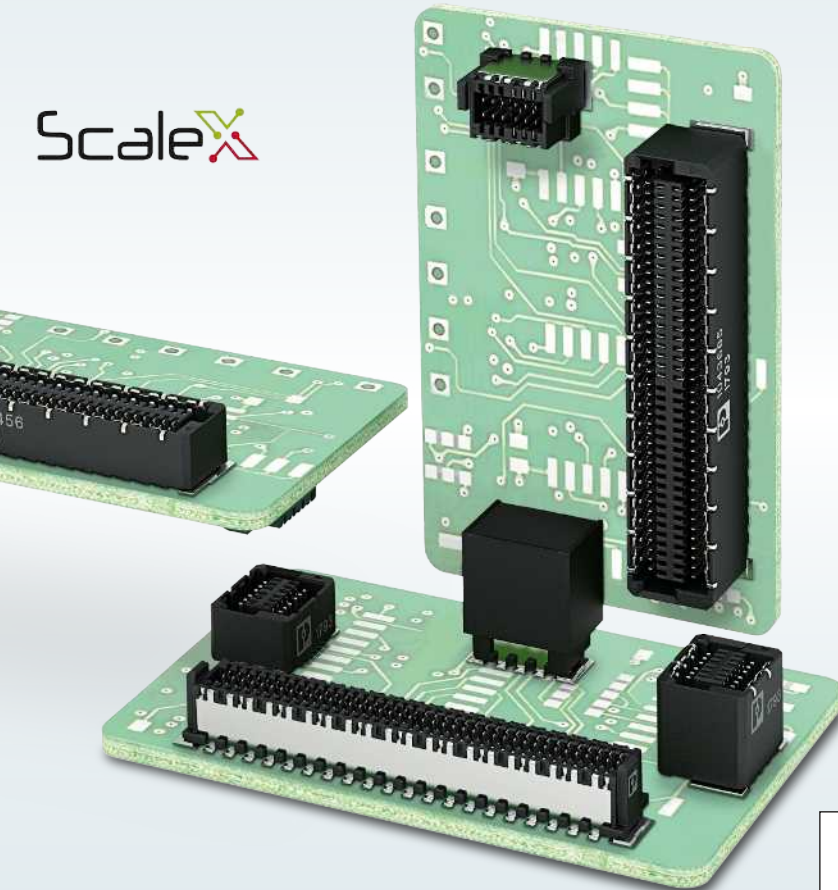


**i** Web code:  
#2069

### FINEPITCH 0,8 shielded

- For robust high-speed board-to-board connections
- For 0.8 mm pitch
- For high contact density from 12-pos. to 80-pos.
- For stack heights from 6 to 12 mm
- For data transmission up to 16 Gbps
- With shielding for excellent EMC properties

ScaleX



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### FINEPITCH 1,27

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## Find out more with the web code

For detailed information, use the web codes provided in this brochure. Simply enter # and the four-digit number in the search field on our website.

**i** Web code: #1234 (example)

Or use the direct link:  
[phoenixcontact.net/webcode/#1234](https://phoenixcontact.net/webcode/#1234)

# The right connection for flexible device design

Thanks to its double-sided contact system, the high-position FINEPITCH series offers the ideal solution for industrial PCB connections. You have maximum flexibility when it comes to arranging the PCBs in your device, and the wide range of FINEPITCH products enables space-saving signal and data transmission. In addition, the shielded versions offer excellent EMC properties.



I/Os

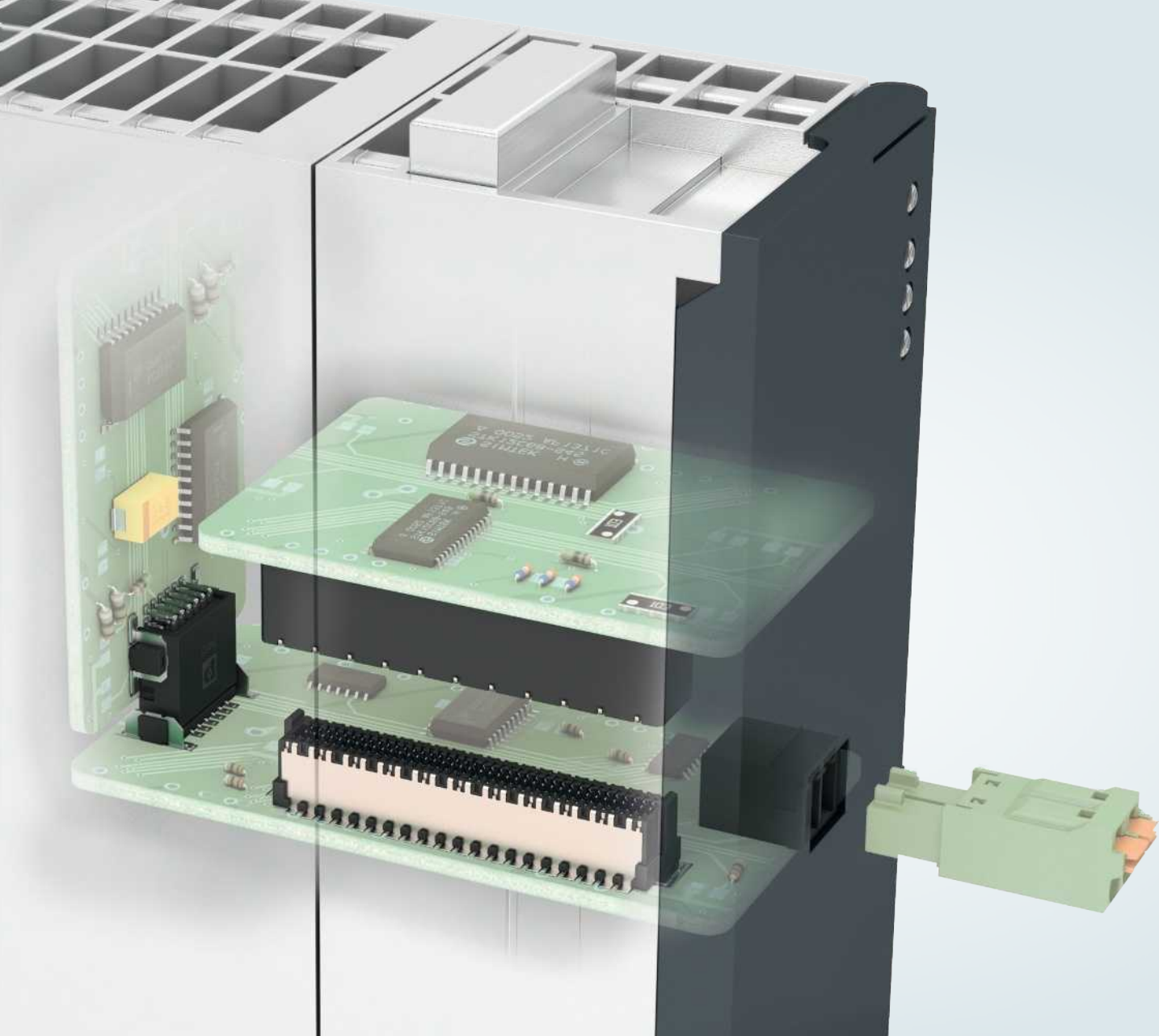


PLCs



Frequency converters





Controllers



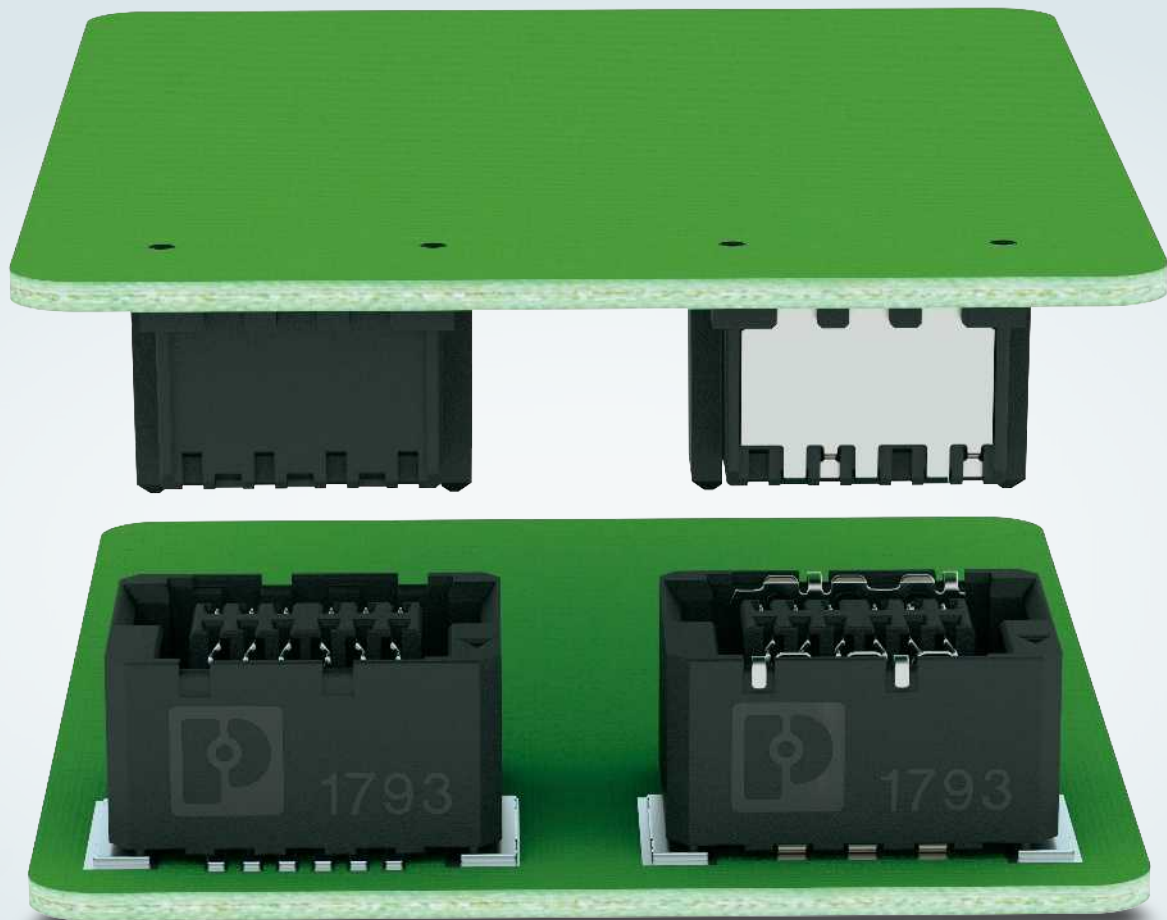
HMIs



Sensors

# Handle specific challenges, thanks to ScaleX technology

With its double-sided ScaleX contact system, the FINEPITCH series with 0.8 mm pitch offers an extremely robust PCB connection. The shielding ensures excellent electromagnetic compatibility and protects against interference, both from and to the outside. High-speed data transmission up to 16 Gbps is supported. This is optimized for automated processing in the SMT process.



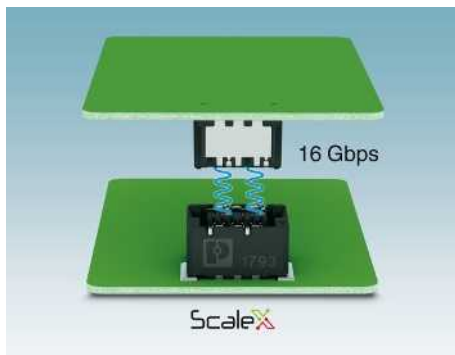
ScaleX

## FINEPITCH 0,8 – Advantages at a glance



### Robust insertion with high tolerance compensation

The hermaphroditic double contact enables a housing geometry in which the contacts are protected.



### High data rate up to 16 Gbps

The FP 0,8 series offers excellent signal integrity.



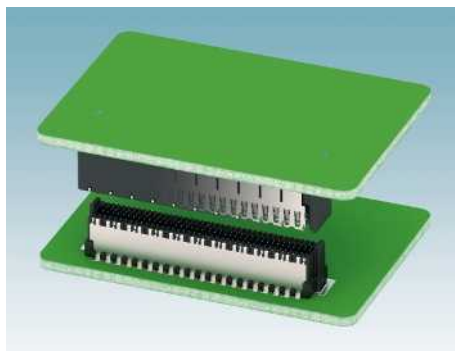
### Reliably connected

The double contact enables a variable wipe length of 1.5 mm.



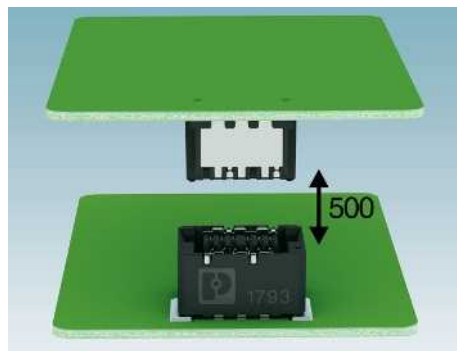
### Flexible device design

With 6 to 12 mm stack heights and additional versions planned for the future, there is a great deal of freedom when it comes to the device design.



### Additional protection thanks to EMC shielding

The shielded versions have excellent protection against electromagnetic interference.



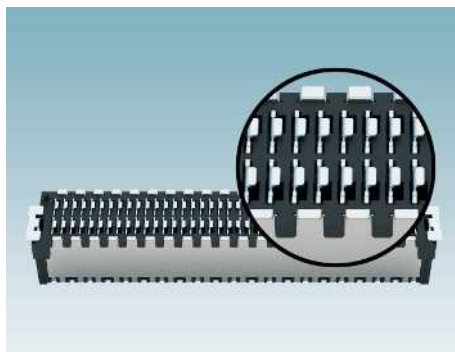
### Continuously reliable contact

The contact surfaces are designed for 500 insertion cycles, which corresponds to the highest performance level 1.



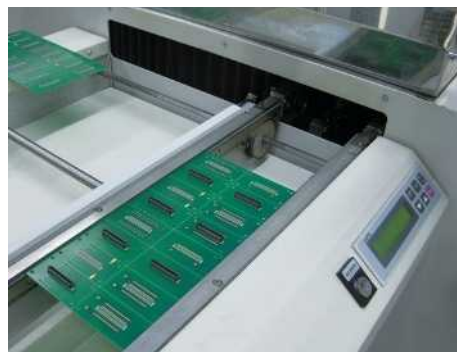
### Marking with position 1

On the mating partners, position 1 in row a is marked with an arrow.



### Process-reliable soldering

Female and male connectors feature a coplanarity of  $\leq 0.1$  mm.



### Automated processing

Thanks to tape-on-reel packing and pick-and-place pads, the products can be processed automatically.

## Innovative contact system

The FINEPITCH 0,8 series with ScaleX technology features a unique double contact. The contacts are designed to be hermaphroditic and therefore consist of a male element and a female element. This enables vibration-proof connection in a very confined space. The contacts have gull-wing solder pins, which are ideal for automatic soldering processes.

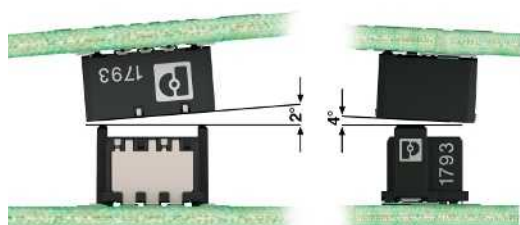


## Robustness

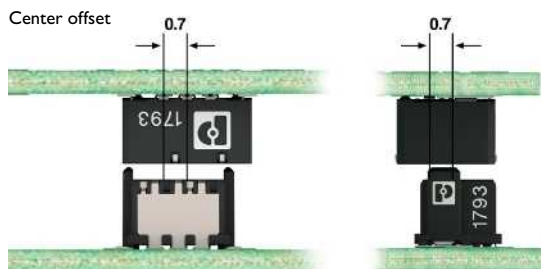
ScaleX technology enables a housing geometry in which the contacts are protected against damage in the event of mismatching. The contact system offers corresponding tolerance compensation with a center offset of  $\pm 0.7$  mm and an inclination tolerance of  $2^\circ/4^\circ$ . High tolerance compensation is therefore possible for your application.



Inclination tolerance



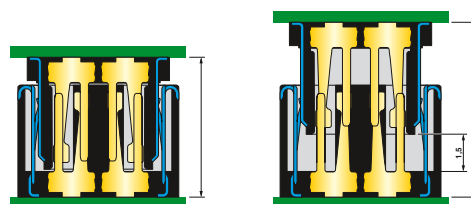
Center offset



## Flexible device design

Thanks to the arrangement of male and female connectors, different stack heights can be implemented. A continuous range from 6 to 12 mm can be covered using just two male and female connectors. Within this range, the mating partners offer a variable wipe length of 1.5 mm. This minimizes product variance while simultaneously providing a high degree of flexibility for device design. We plan to extend the portfolio in future to include stack heights up to 20 mm.

| Stack height (mm) | Male connector (mm) | Female connector (mm) |
|-------------------|---------------------|-----------------------|
| 6 to 7.5          | 1.15                | 4.85                  |
| 7.5 to 9          | 2.65                | 4.85                  |
| 9 to 10.5         | 1.15                | 7.85                  |
| 10.5 to 12        | 2.65                | 7.85                  |



Minimum PCB spacing (left) and maximum PCB spacing (right), thanks to the wipe length

\* See page 14 for the definition of the terms center offset, inclination tolerance, and stack height.



## FINEPITCH 0,8 – Technical data

| General technical data                              |                                           | Standards                                   |
|-----------------------------------------------------|-------------------------------------------|---------------------------------------------|
| Pitch                                               | 0.8 mm                                    |                                             |
| Number of positions                                 | 12, 20, 32, 52, 80                        |                                             |
| EMC properties                                      | Shielded                                  |                                             |
| Data transmission speed                             | Up to 16 Gbps                             |                                             |
| Nominal current (at 20°C)                           | 1.4 A (52-pos.)                           | IEC 60512-5-2:2002                          |
| Insulation resistance                               | Min. 5 GΩ                                 | IEC 60512-3-1:2002                          |
| Contact resistance                                  | Max. 20 mΩ                                | IEC 60512-2-1:2002                          |
| Test voltage                                        | 500 V AC                                  | IEC 60512-4-1:2003                          |
| Air clearances and creepage distances               | Min. 0.25 mm                              |                                             |
| Temperature limits during operation                 | -55°C to +125°C                           |                                             |
| Insertion and withdrawal force per contact          | ≤ 1.2 N                                   |                                             |
| Approval                                            | UL 1977                                   |                                             |
| Environmental and durability tests                  |                                           |                                             |
| Service life                                        | 500 insertion cycles, performance level I | IEC 60512-9-1:2010                          |
| Oscillation, sinusoidal                             | 10-2000 Hz, 20g                           | IEC 60512-6-4:2002                          |
| Contact interference during oscillation, sinusoidal | < 1 μs                                    | IEC 60512-2-5:2003                          |
| Shocks, half-sinusoidal                             | 50g, 11 ms                                | IEC 60512-6-3:2002                          |
| Contact interference during shocks, half-sinusoidal | < 1 μs                                    | IEC 60512-2-5:2003                          |
| Information on metal parts                          |                                           |                                             |
| Note                                                | WEEE/RoHS-compliant, free of whiskers     | IEC 60068-2-82/JEDEC JESD 201               |
| Live metal parts                                    | Cu alloy                                  |                                             |
| Surface of contact area                             | Ni; Au                                    |                                             |
| Surface of soldering area                           | Sn                                        |                                             |
| Information on insulation material                  |                                           |                                             |
| Insulation material and group                       | LCP; IIIa                                 |                                             |
| Color                                               | Black                                     |                                             |
| Resistance to creepage                              | CTI 150                                   | DIN EN 60112 (VDE 0303-11)                  |
| Flammability rating UL 94                           | V0                                        |                                             |
| Processing note                                     |                                           |                                             |
| Process                                             | SMD soldering                             | According to IPC/JEDEC J-STD-020D.1:2008-03 |
| Moisture sensitivity level                          | MSL 1                                     |                                             |
| Coplanarity                                         | ≤ 0.1 mm                                  |                                             |
| Classification temperature Tc                       | +260°C                                    |                                             |
| Packaging                                           | Tape-on-reel                              |                                             |

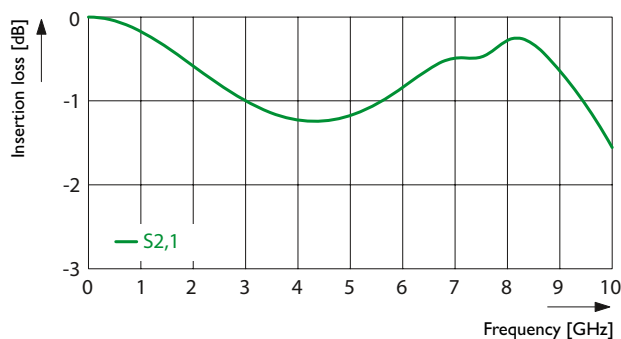
# FINEPITCH 0,8 – Data transmission

## Data transmission

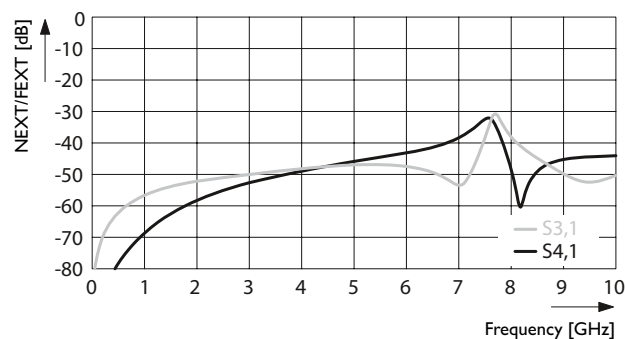
The FINEPITCH FP 0,8 series is particularly suitable for high-speed data transmission up to 16 Gbps. Excellent signal integrity is achieved at high frequencies up to 8 GHz. Insertion loss indicates the attenuation of the signal level during data transmission from the transmitter to the receiver. Crosstalk refers to the interference caused to data transmission on adjacent contacts. Near-end crosstalk (NEXT) is detected

on the transmitter side and far-end crosstalk (FEXT) on the receiver side.

S-parameters are available in the download area to support the design-in process.



Insertion loss



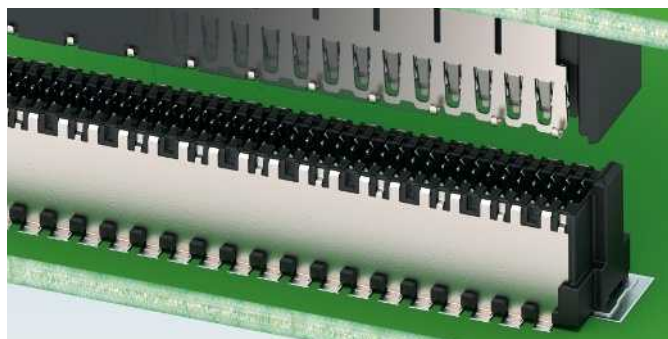
Crosstalk

## EMC shielding

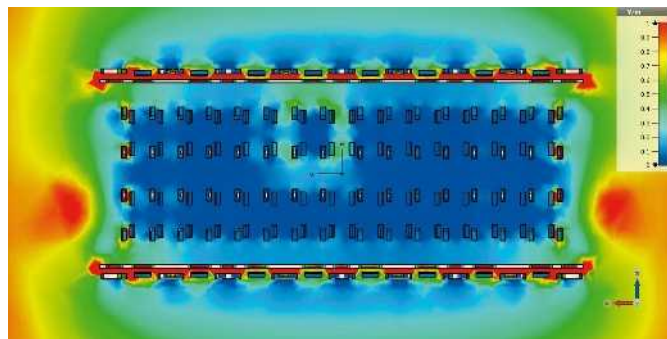
The shielded FP 0,8 series has excellent electromagnetic compatibility (EMC). The shielded connectors are therefore suitable for applications with high EMC requirements. The numerous shield transition points from female to male connector ensure that interference currents are immediately discharged. A good solder connection also ensures continuous shielding against interference signals.

The figure of the electrical field illustrates the shielding effect and depicts a very low coupling inductance in the connector when an interference signal is present at the shield. When both external contacts are connected to ground, optimal 360° shielding is achieved.

This optimally protects data transmission against interference.



Shield transition from female to male connector



Electrical field

|   | Shielded vertical female connector |                       |           |                       |           |
|-----------------------------------------------------------------------------------|------------------------------------|-----------------------|-----------|-----------------------|-----------|
|                                                                                   | Number of positions                | Height: 4.85 mm       |           | Height: 7.85 mm       |           |
|                                                                                   |                                    | Type                  | Order No. | Type                  | Order No. |
|                                                                                   | 12                                 | FP 0,8/ 12-FV-SH 4,85 | 1043710   | FP 0,8/ 12-FV-SH 7,85 | 1043682   |
|                                                                                   | 20                                 | FP 0,8/ 20-FV-SH 4,85 | 1053612   | FP 0,8/ 20-FV-SH 7,85 | 1053614   |
|                                                                                   | 32                                 | FP 0,8/ 32-FV-SH 4,85 | 1043711   | FP 0,8/ 32-FV-SH 7,85 | 1043683   |
|                                                                                   | 52                                 | FP 0,8/ 52-FV-SH 4,85 | 1043713   | FP 0,8/ 52-FV-SH 7,85 | 1043684   |
|  | Shielded vertical male connector   |                       |           |                       |           |
|                                                                                   | Number of positions                | Height: 1.15 mm       |           | Height: 2.65 mm       |           |
|                                                                                   |                                    | Type                  | Order No. | Type                  | Order No. |
|                                                                                   | 12                                 | FP 0,8/ 12-MV-SH 1,15 | 1043786   | FP 0,8/ 12-MV-SH 2,65 | 1043731   |
|                                                                                   | 20                                 | FP 0,8/ 20-MV-SH 1,15 | 1053586   | FP 0,8/ 20-MV-SH 2,65 | 1053609   |
|                                                                                   | 32                                 | FP 0,8/ 32-MV-SH 1,15 | 1043787   | FP 0,8/ 32-MV-SH 2,65 | 1043733   |
|                                                                                   | 52                                 | FP 0,8/ 52-MV-SH 1,15 | 1043789   | FP 0,8/ 52-MV-SH 2,65 | 1043756   |
|                                                                                   | 80                                 | FP 0,8/ 80-MV-SH 1,15 | 1043790   | FP 0,8/ 80-MV-SH 2,65 | 1043757   |

Number of positions

The FP 0,8 series includes five standard numbers of positions: 12, 20, 32, 52, and 80. Other numbers of positions between 12 and 80 are available on request.

The number of positions corresponds to the total number of contacts. Example: a 12-pos. product has six contacts per row. On all FP 0,8 series products, position 1 is marked with an arrow.



Various numbers of positions from 12 to 80

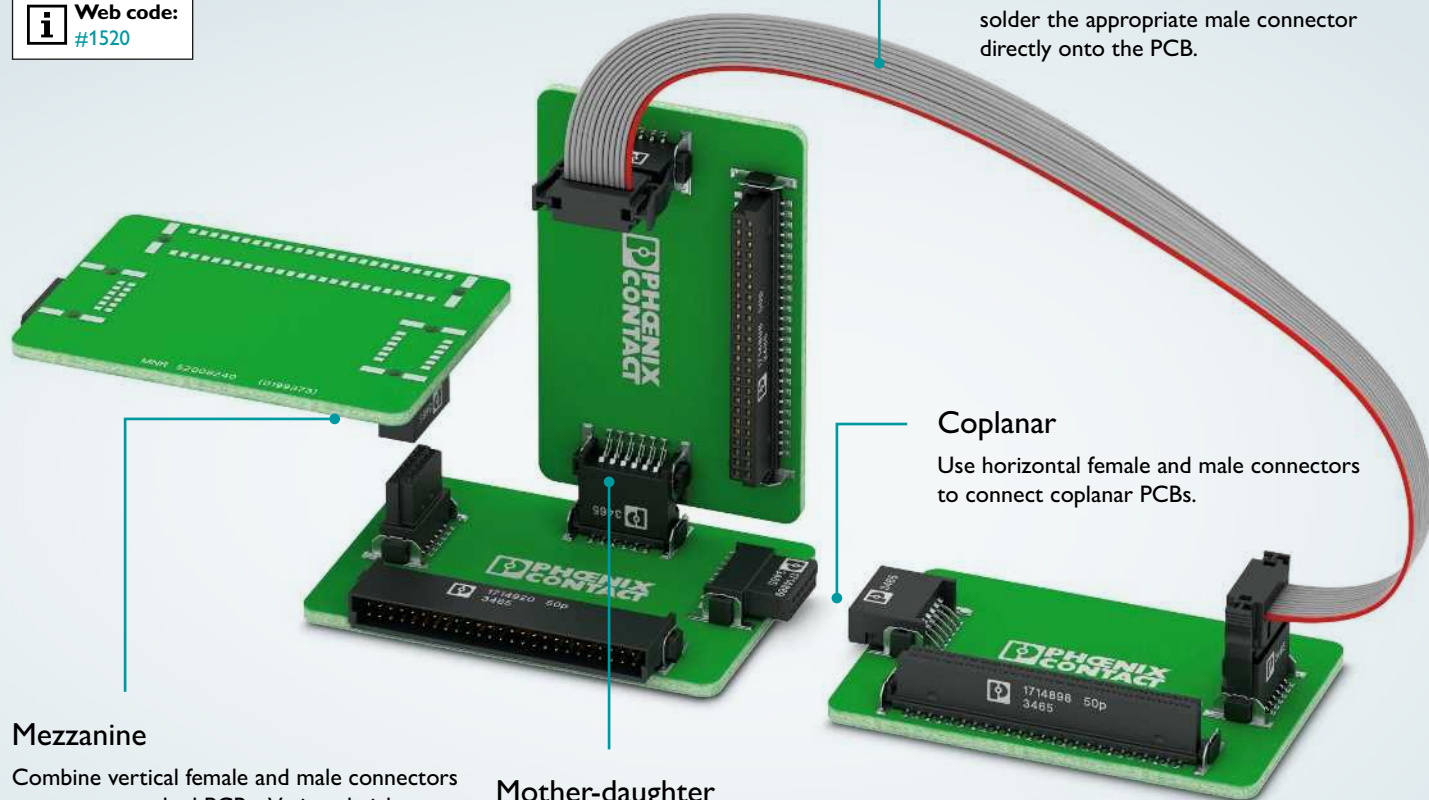
# Flexibility for your device design with FINEPITCH 1,27

FINEPITCH 1,27 series board-to-board connectors offer versatile solutions for the connection of several PCBs within the device. Horizontal and vertical male and female connectors enable application-specific arrangements – with assembled flat-ribbon cables for wire-to-board applications available on request.



## Flat-ribbon cable

You can use a flat-ribbon cable and pre-assembled female connectors with IDC connection to establish flexible connections between two PCBs. You can solder the appropriate male connector directly onto the PCB.



## Mezzanine

Combine vertical female and male connectors to connect stacked PCBs. Various heights enable PCB spacing of 8 mm to 13.8 mm.

## Mother-daughter

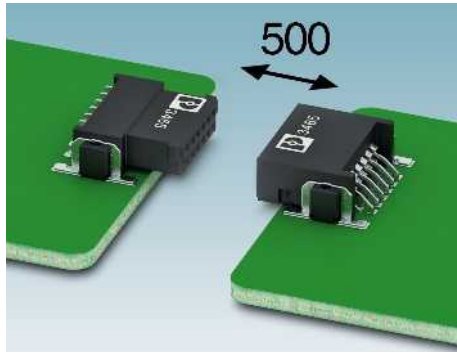
If you combine vertical and horizontal designs, a right-angled connection is established between two PCBs. Male and female connectors are available in both designs.

## Coplanar

Use horizontal female and male connectors to connect coplanar PCBs.

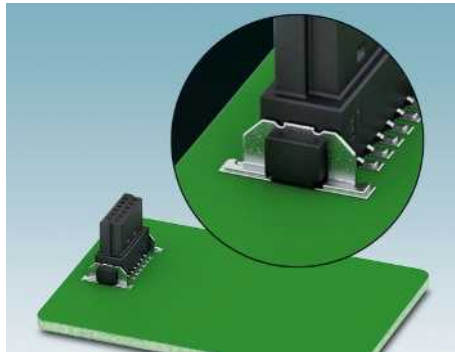


## FINEPITCH 1,27 – Advantages at a glance



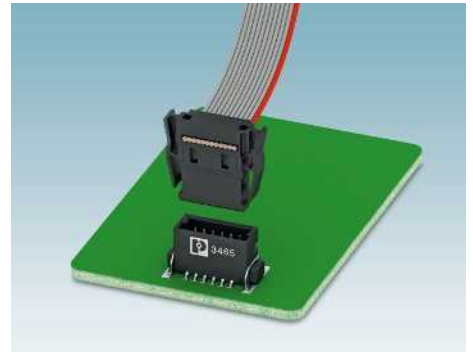
### Continuously reliable contact

The gold-plated contact surface enables up to 500 insertion and withdrawal cycles, performance level 1.



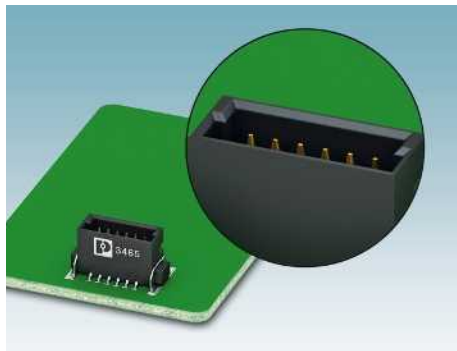
### Stable soldering

Anchor metals ensure that the connection to the PCB is mechanically stable.



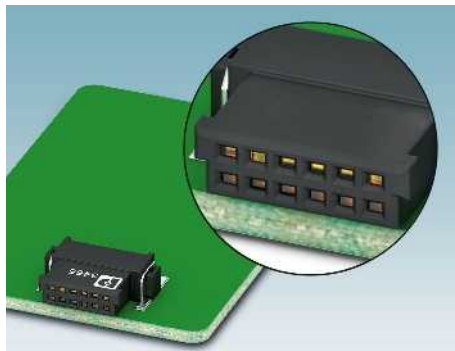
### Protection from vibrations

Latching on both sides prevents connections from coming loose due to vibrations.



### Reliable connection

Lead-in chamfers ensure that male and female connectors are guided and engage correctly.



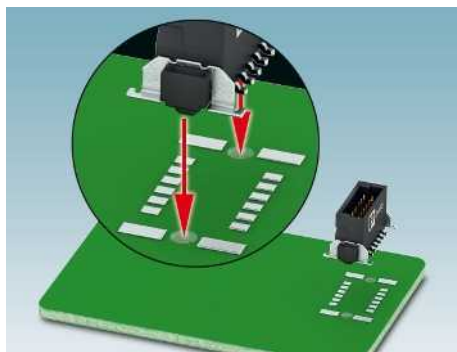
### Mismatching prevented

Polarization prevents female and male connectors from being rotated 180° before being connected to each other.



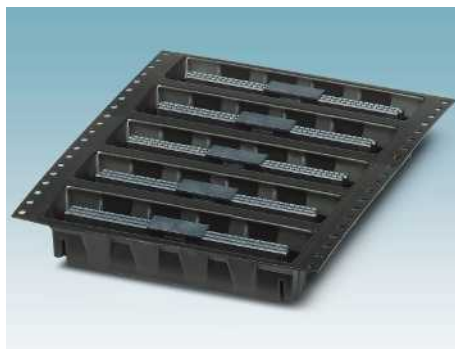
### Process-reliable soldering

Female and male connectors feature a coplanarity of  $\leq 0.1$  mm.



### Securely positioned

Positioning pins on the bottom ensure secure positioning on the PCB.



### Process-compatible packaging

The female and male connectors are supplied in tape-on-reel packing, connectors without cables are supplied in tray format, and pre-assembled connectors are supplied in a bag.



### Automated soldering

The PCB connectors are soldered using the SMT method. Overhead soldering and Automatic Optical Inspection (AOI) are also possible.

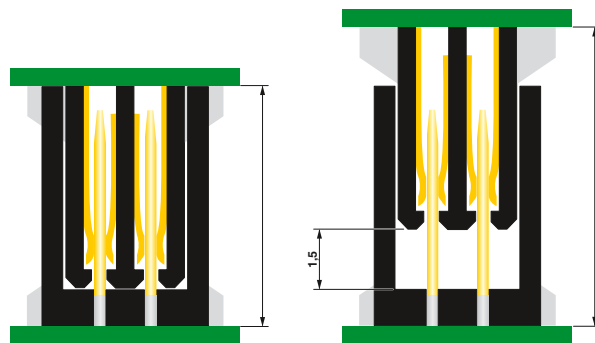
# FINEPITCH 1,27 – Installation instructions

## Stack heights

The stack height describes the distance between two PCBs overlapping in parallel. You can use vertical versions of the female and male connectors to reliably connect PCBs. Thanks to their wipe length of 1.5 mm, the PCB connectors are ideal for a continuous range of stack heights between 8 mm and 13.8 mm.

The female connector is fully inserted into the male connector with the respective minimum PCB spacing. If the respective maximum PCB spacing is reached, 1.5 mm of the male contact remain outside of the contact zone. This ensures reliable contact overlapping of at least 0.9 mm at all times.

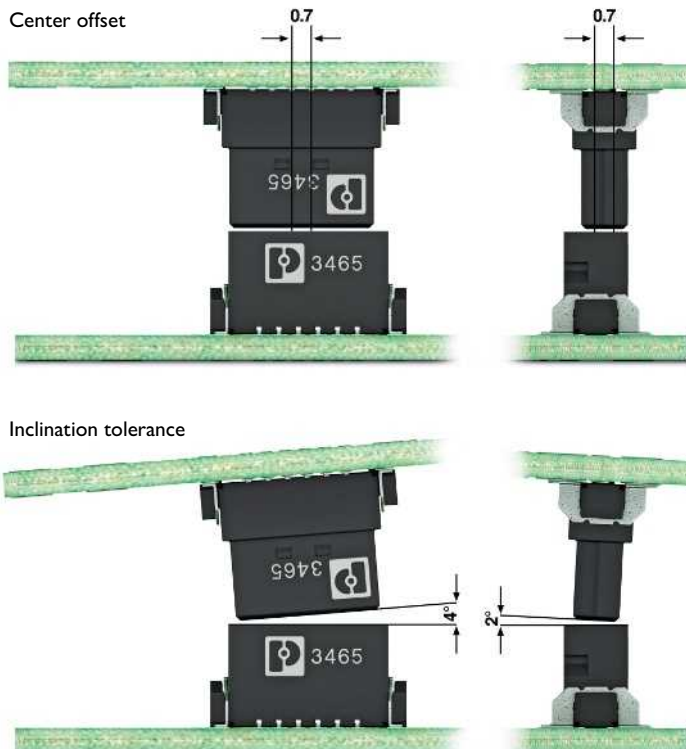
| Stack height (mm) | Male connector (mm) | Female connector (mm) |
|-------------------|---------------------|-----------------------|
| 8.0 to 9.5        | 1.75                | 6.25                  |
| 9.5 to 11.0       | 3.25                | 6.25                  |
| 10.8 to 12.3      | 1.75                | 9.05                  |
| 12.3 to 13.8      | 3.25                | 9.05                  |



Minimum PCB spacing (left) and maximum PCB spacing (right), thanks to the wipe length

## Center offset and inclination tolerance

Female and male connectors are designed so that reliable mating is ensured, even with a center offset of up to  $\pm 0.7$  mm. A deviation of  $\pm 4^\circ$  is permitted for longitudinal angles, and a deviation of  $\pm 2^\circ$  for oblique angles. This geometry allows tolerances in the mounting process for robust applications.



# FINEPITCH 1,27 – Technical data

| General technical data                              |                                           | Standards                                   |
|-----------------------------------------------------|-------------------------------------------|---------------------------------------------|
| Pitch                                               | 1.27 mm                                   |                                             |
| Number of positions                                 | 12, 16, 20, 26, 32, 40, 50, 68, 80        |                                             |
| Nominal current (at 20°C)                           | 1.4 A (50-pos.)                           | IEC 60512-5-2:2002                          |
| Insulation resistance                               | Min. 10 GΩ                                | IEC 60512-3-1:2002                          |
| Contact resistance                                  | Max. 25 mΩ                                | IEC 60512-2-1:2002                          |
| Test voltage                                        | 500 V AC                                  | IEC 60512-4-1:2003                          |
| Air clearances and creepage distances               | Min. 0.4 mm                               |                                             |
| Temperature limits during operation                 | -55°C to +125°C                           |                                             |
| Insertion and withdrawal force per contact          | Approx. 0.5 N                             |                                             |
| Approval                                            | UL 1977                                   |                                             |
| Environmental and durability tests                  |                                           |                                             |
| Service life                                        | 500 insertion cycles, performance level I | IEC 60512-9-1:2010                          |
| Oscillation, sinusoidal                             | 10 - 2000 Hz, 20g                         | IEC 60512-6-4:2002                          |
| Contact interference during oscillation, sinusoidal | < 1 μs                                    | IEC 60512-2-5:2003                          |
| Shocks, half-sinusoidal                             | 50g, 11 ms                                | IEC 60512-6-3:2002                          |
| Contact interference during shocks, half-sinusoidal | < 1 μs                                    | IEC 60512-2-5:2003                          |
| Information on metal parts                          |                                           |                                             |
| Note                                                | WEEE/RoHS-compliant, free of whiskers     | IEC 60068-2-82/JEDEC JESD 201               |
| Live metal parts                                    | Cu alloy                                  |                                             |
| Surface of contact area                             | Ni; PdNi; Au or Ni; NiP; Au               |                                             |
| Surface of soldering area                           | Sn                                        |                                             |
| Information on insulation material                  |                                           |                                             |
| Insulation material and group                       | LCP; IIIa                                 |                                             |
| Resistance to creepage                              | CTI 175                                   | DIN EN 60112 (VDE 0303-11)                  |
| Flammability rating UL 94                           | V0                                        |                                             |
| Processing note                                     |                                           |                                             |
| Process                                             | SMD soldering                             | According to IPC/JEDEC J-STD-020D.1:2008-03 |
| Moisture sensitivity level                          | MSL 1                                     |                                             |
| Coplanarity                                         | ≤ 0.1 mm                                  |                                             |
| Connection capacity of IDC female connector         |                                           |                                             |
| Pitch of flat-ribbon cable                          | 0.635 mm                                  |                                             |
| Standard cable type                                 | PVC                                       |                                             |
| Conductor cross section AWG/kcmil                   | 30/7                                      |                                             |
| Contact resistance of IDC female connector          | Max. 10 mΩ                                |                                             |

|    | Vertical female connector   |                     |           |                                                                                                                                                                                                                                |           |
|-------------------------------------------------------------------------------------|-----------------------------|---------------------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|                                                                                     | Number of positions         | Height: 6.25 mm     |           | Height: 9.05 mm                                                                                                                                                                                                                |           |
|                                                                                     |                             | Type                | Order No. | Type                                                                                                                                                                                                                           | Order No. |
|                                                                                     | 12                          | FP 1,27/ 12-FV 6,25 | 1714891   | FP 1,27/ 12-FV 9,05                                                                                                                                                                                                            | 1714999   |
|                                                                                     | 16                          | FP 1,27/ 16-FV 6,25 | 1714892   | FP 1,27/ 16-FV 9,05                                                                                                                                                                                                            | 1715000   |
|                                                                                     | 20                          | FP 1,27/ 20-FV 6,25 | 1714893   | FP 1,27/ 20-FV 9,05                                                                                                                                                                                                            | 1714881   |
|                                                                                     | 26                          | FP 1,27/ 26-FV 6,25 | 1714894   | FP 1,27/ 26-FV 9,05                                                                                                                                                                                                            | 1714882   |
|                                                                                     | 32                          | FP 1,27/ 32-FV 6,25 | 1714895   | FP 1,27/ 32-FV 9,05                                                                                                                                                                                                            | 1714884   |
|                                                                                     | 40                          | FP 1,27/ 40-FV 6,25 | 1714897   | FP 1,27/ 40-FV 9,05                                                                                                                                                                                                            | 1714885   |
|                                                                                     | 50                          | FP 1,27/ 50-FV 6,25 | 1714898   | FP 1,27/ 50-FV 9,05                                                                                                                                                                                                            | 1714886   |
|   | Horizontal female connector |                     |           |                                                                                                                                                                                                                                |           |
|                                                                                     | No. of pos.                 | Type                | Order No. |                                                                                                                                                                                                                                |           |
|                                                                                     | 12                          | FP 1,27/ 12-FH      | 1714869   |                                                                                                                                                                                                                                |           |
|                                                                                     | 16                          | FP 1,27/ 16-FH      | 1714871   |                                                                                                                                                                                                                                |           |
|                                                                                     | 20                          | FP 1,27/ 20-FH      | 1714872   |                                                                                                                                                                                                                                |           |
|                                                                                     | 26                          | FP 1,27/ 26-FH      | 1714873   |                                                                                                                                                                                                                                |           |
|                                                                                     | 32                          | FP 1,27/ 32-FH      | 1714875   |                                                                                                                                                                                                                                |           |
|                                                                                     | 40                          | FP 1,27/ 40-FH      | 1714877   |                                                                                                                                                                                                                                |           |
|                                                                                     | 50                          | FP 1,27/ 50-FH      | 1714878   |                                                                                                                                                                                                                                |           |
|                                                                                     | 68                          | FP 1,27/ 68-FH      | 1714879   |                                                                                                                                                                                                                                |           |
| 80                                                                                  | FP 1,27/ 80-FH              | 1714880             |           |                                                                                                                                                                                                                                |           |
|  | IDC female connector        |                     |           | <div>Note</div> <div>IDC female connectors are available on request. The processing note for assembly must be observed. This information can be found on the detailed product page on our website at: phoenixcontact.net</div> |           |
|                                                                                     | No. of pos.                 | Type                | Order No. |                                                                                                                                                                                                                                |           |
|                                                                                     | 12                          | FP 1,27/ 12-FWL     | 1714902   |                                                                                                                                                                                                                                |           |
|                                                                                     | 16                          | FP 1,27/ 16-FWL     | 1714903   |                                                                                                                                                                                                                                |           |
|                                                                                     | 20                          | FP 1,27/ 20-FWL     | 1714904   |                                                                                                                                                                                                                                |           |
|                                                                                     | 26                          | FP 1,27/ 26-FWL     | 1714905   |                                                                                                                                                                                                                                |           |
|                                                                                     | 32                          | FP 1,27/ 32-FWL     | 1714907   |                                                                                                                                                                                                                                |           |
|                                                                                     | 40                          | FP 1,27/ 40-FWL     | 1714908   |                                                                                                                                                                                                                                |           |
|                                                                                     | 50                          | FP 1,27/ 50-FWL     | 1714909   |                                                                                                                                                                                                                                |           |
|                                                                                     | 68                          | FP 1,27/ 68-FWL     | 1714910   |                                                                                                                                                                                                                                |           |
| 80                                                                                  | FP 1,27/ 80-FWL             | 1714911             |           |                                                                                                                                                                                                                                |           |

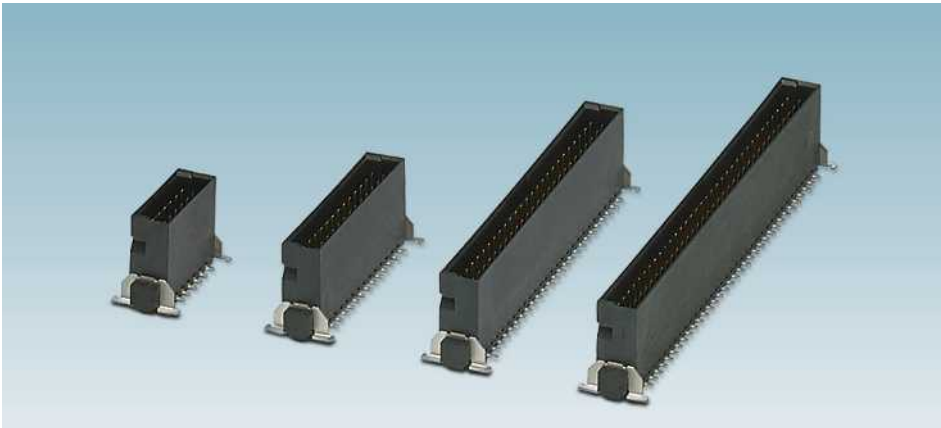


|   | Vertical male connector   |                     |           |                                                                                                                                                                                                                                                                                        |           |
|-----------------------------------------------------------------------------------|---------------------------|---------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|                                                                                   | Number of positions       | Height: 1.75 mm     |           | Height: 3.25 mm                                                                                                                                                                                                                                                                        |           |
|                                                                                   |                           | Type                | Order No. | Type                                                                                                                                                                                                                                                                                   | Order No. |
|                                                                                   | 12                        | FP 1,27/ 12-MV 1,75 | 1714934   | FP 1,27/ 12-MV 3,25                                                                                                                                                                                                                                                                    | 1714924   |
|                                                                                   | 16                        | FP 1,27/ 16-MV 1,75 | 1714936   | FP 1,27/ 16-MV 3,25                                                                                                                                                                                                                                                                    | 1714925   |
|                                                                                   | 20                        | FP 1,27/ 20-MV 1,75 | 1714937   | FP 1,27/ 20-MV 3,25                                                                                                                                                                                                                                                                    | 1714927   |
|                                                                                   | 26                        | FP 1,27/ 26-MV 1,75 | 1714938   | FP 1,27/ 26-MV 3,25                                                                                                                                                                                                                                                                    | 1714928   |
|                                                                                   | 32                        | FP 1,27/ 32-MV 1,75 | 1714940   | FP 1,27/ 32-MV 3,25                                                                                                                                                                                                                                                                    | 1714929   |
|                                                                                   | 40                        | FP 1,27/ 40-MV 1,75 | 1714941   | FP 1,27/ 40-MV 3,25                                                                                                                                                                                                                                                                    | 1714930   |
|                                                                                   | 50                        | FP 1,27/ 50-MV 1,75 | 1714943   | FP 1,27/ 50-MV 3,25                                                                                                                                                                                                                                                                    | 1714931   |
|  | Horizontal male connector |                     |           | <div>High degree of flexibility</div> <p>Where the number of positions match, any male connector can be combined with any female connector. The high-position PCB connectors with 1.27 mm pitch are compatible with the layouts and connections of existing systems on the market.</p> |           |
|                                                                                   | No. of pos.               | Type                | Order No. |                                                                                                                                                                                                                                                                                        |           |
|                                                                                   | 12                        | FP 1,27/ 12-MH      | 1714912   |                                                                                                                                                                                                                                                                                        |           |
|                                                                                   | 16                        | FP 1,27/ 16-MH      | 1714914   |                                                                                                                                                                                                                                                                                        |           |
|                                                                                   | 20                        | FP 1,27/ 20-MH      | 1714915   |                                                                                                                                                                                                                                                                                        |           |
|                                                                                   | 26                        | FP 1,27/ 26-MH      | 1714916   |                                                                                                                                                                                                                                                                                        |           |
|                                                                                   | 32                        | FP 1,27/ 32-MH      | 1714917   |                                                                                                                                                                                                                                                                                        |           |
|                                                                                   | 40                        | FP 1,27/ 40-MH      | 1714918   |                                                                                                                                                                                                                                                                                        |           |
|                                                                                   | 50                        | FP 1,27/ 50-MH      | 1714920   |                                                                                                                                                                                                                                                                                        |           |
|                                                                                   | 68                        | FP 1,27/ 68-MH      | 1714921   |                                                                                                                                                                                                                                                                                        |           |
|                                                                                   | 80                        | FP 1,27/ 80-MH      | 1714923   |                                                                                                                                                                                                                                                                                        |           |

Number of positions

The double-row board-to-board connectors are available with the following number of positions: 12, 16, 20, 26, 32, 40, 50, 68, and 80. The number of positions corresponds to the total number of contacts.

Example: a 12-pos. product has six contacts per row. On all FP 1,27 series products, position 1 is marked as a1.



Various numbers of positions from 12 to 80

# FINEPITCH 1,27 – Assembled IDC female connector

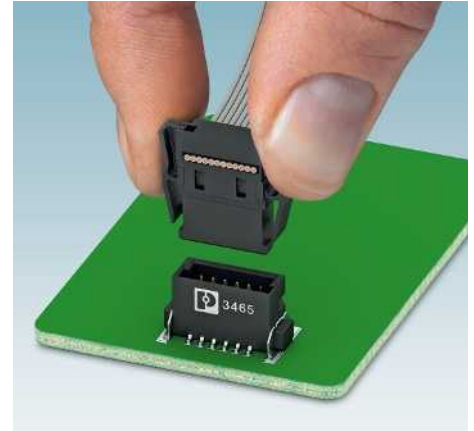
## Configure your IDC female connectors in four steps

The following designation key helps you configure a flexible flat-ribbon cable connection between two PCBs. Select the following:

1. The desired number of positions
2. The appropriate assembly variant
3. The flat-ribbon cable material
4. The desired cable length

The designation key summarizes this information and is used as the individual order number for your configuration. The color-coded wire (in this case, red) is on the same side as the position 1 marking on the connector.

The delivery time for individual cable assemblies is available on request.



Designation key:

Designation key:

|      |       | 1.    |   |   |   |   |             |   | 2.                        |                |                            |   | 3.               |     |   |                           | 4. |                   |
|------|-------|-------|---|---|---|---|-------------|---|---------------------------|----------------|----------------------------|---|------------------|-----|---|---------------------------|----|-------------------|
| F    | P     | 1     | , | 2 | 7 | / | ...         | - | F                         | W              | L                          | - | ...              | ... | / | ...                       | /  | ...               |
| Fine | Pitch | Pitch |   |   |   |   | No. of pos. |   | Female connector/<br>plug | Wire/<br>cable | Locking/<br>locking flange |   | Assembly variant |     |   | Type of flat-ribbon cable |    | Length            |
|      |       |       |   |   |   |   | 12          |   |                           |                |                            |   | 1                | 0   |   | P                         |    | 0.05 to<br>0.95 m |
|      |       |       |   |   |   |   | 16          |   |                           |                |                            |   | 1                | 1   |   | T                         |    |                   |
|      |       |       |   |   |   |   | 20          |   |                           |                |                            |   | 1                | 2   |   | H                         |    |                   |
|      |       |       |   |   |   |   | 26          |   |                           |                |                            |   | 2                | 0   |   |                           |    |                   |
|      |       |       |   |   |   |   | 32          |   |                           |                |                            |   | 2                | 1   |   |                           |    |                   |
|      |       |       |   |   |   |   | 40          |   |                           |                |                            |   |                  |     |   |                           |    |                   |
|      |       |       |   |   |   |   | 50          |   |                           |                |                            |   |                  |     |   |                           |    |                   |
|      |       |       |   |   |   |   | 68          |   |                           |                |                            |   |                  |     |   |                           |    |                   |
|      |       |       |   |   |   |   | 80          |   |                           |                |                            |   |                  |     |   |                           |    |                   |

## Cable type

The PVC flat-ribbon cable is available as standard (type P flat-ribbon cable).  
Cross section: AWG 30/0.06 mm<sup>2</sup>  
Litz wire: Cu litz wire, tin-plated, 7 x 0.102 mm  
Pitch: 0.635 mm  
Contact resistance: max. 10 mΩ

The cable length can be between 0.05 and 0.95 m. Configuration is also possible in 50 mm increments.

| Key | Cable type                                 | Operating temperature               | Coded wire | Comment    |
|-----|--------------------------------------------|-------------------------------------|------------|------------|
| P   | PVC                                        | -10°C ... +105°C<br>(-30°C at rest) | Red        | Standard   |
| T   | TPE-S<br>resistant to<br>high temperatures | -40°C ... +125°C<br>(-60°C at rest) | Green      | On request |
| H   | TPE-0<br>halogen-free                      | -20°C ... +105°C<br>(-40°C at rest) | Blue       | On request |

## Configurable PCB connectors with 1.27 mm pitch

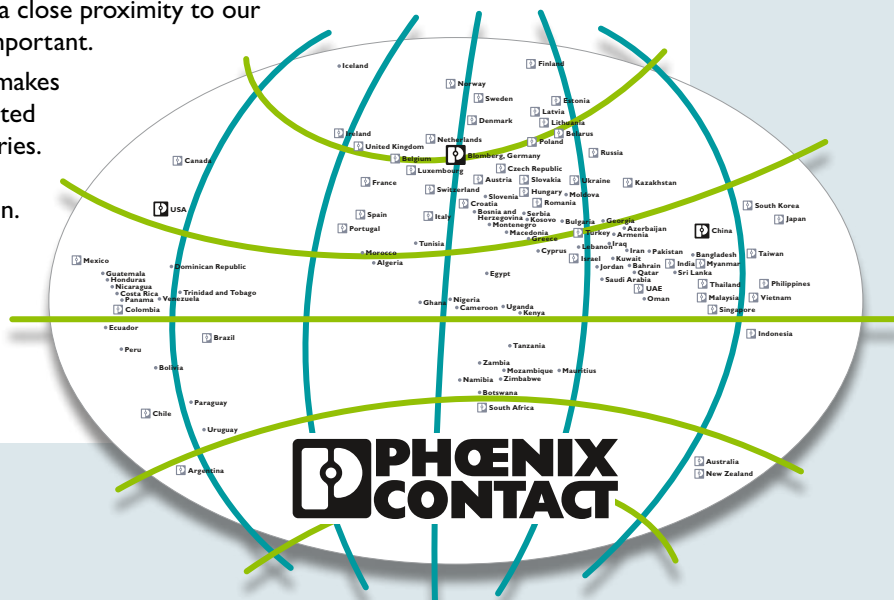
| Assembly variants                                                                                                    | Number of positions | Order designation          | Order No.               | Type of flat-ribbon cable | Length (m)   |
|----------------------------------------------------------------------------------------------------------------------|---------------------|----------------------------|-------------------------|---------------------------|--------------|
| <b>Assembly variant 10</b><br><br>   | 12                  | FP 1,27/ 12-FWL-10/.../... | <a href="#">1010259</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 16                  | FP 1,27/ 16-FWL-10/.../... | <a href="#">1010258</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 20                  | FP 1,27/ 20-FWL-10/.../... | <a href="#">1010257</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 26                  | FP 1,27/ 26-FWL-10/.../... | <a href="#">1010256</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 32                  | FP 1,27/ 32-FWL-10/.../... | <a href="#">1010255</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 40                  | FP 1,27/ 40-FWL-10/.../... | <a href="#">1010246</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 50                  | FP 1,27/ 50-FWL-10/.../... | <a href="#">1010254</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 68                  | FP 1,27/ 68-FWL-10/.../... | <a href="#">1010253</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 80                  | FP 1,27/ 80-FWL-10/.../... | <a href="#">1010252</a> | P                         | 0.05 to 0.95 |
| <b>Assembly variant 11</b><br><br>   | 12                  | FP 1,27/ 12-FWL-11/.../... | <a href="#">1010580</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 16                  | FP 1,27/ 16-FWL-11/.../... | <a href="#">1010251</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 20                  | FP 1,27/ 20-FWL-11/.../... | <a href="#">1010250</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 26                  | FP 1,27/ 26-FWL-11/.../... | <a href="#">1010248</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 32                  | FP 1,27/ 32-FWL-11/.../... | <a href="#">1010247</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 40                  | FP 1,27/ 40-FWL-11/.../... | <a href="#">1010581</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 50                  | FP 1,27/ 50-FWL-11/.../... | <a href="#">1010245</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 68                  | FP 1,27/ 68-FWL-11/.../... | <a href="#">1010244</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 80                  | FP 1,27/ 80-FWL-11/.../... | <a href="#">1010243</a> | P                         | 0.05 to 0.95 |
| <b>Assembly variant 12</b><br><br> | 12                  | FP 1,27/ 12-FWL-12/.../... | <a href="#">1010242</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 16                  | FP 1,27/ 16-FWL-12/.../... | <a href="#">1010241</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 20                  | FP 1,27/ 20-FWL-12/.../... | <a href="#">1010240</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 26                  | FP 1,27/ 26-FWL-12/.../... | <a href="#">1010239</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 32                  | FP 1,27/ 32-FWL-12/.../... | <a href="#">1010238</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 40                  | FP 1,27/ 40-FWL-12/.../... | <a href="#">1010237</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 50                  | FP 1,27/ 50-FWL-12/.../... | <a href="#">1010236</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 68                  | FP 1,27/ 68-FWL-12/.../... | <a href="#">1010235</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 80                  | FP 1,27/ 80-FWL-12/.../... | <a href="#">1010234</a> | P                         | 0.05 to 0.95 |
| <b>Assembly variant 20</b><br><br> | 12                  | FP 1,27/ 12-FWL-20/.../... | <a href="#">1010233</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 16                  | FP 1,27/ 16-FWL-20/.../... | <a href="#">1010232</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 20                  | FP 1,27/ 20-FWL-20/.../... | <a href="#">1010231</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 26                  | FP 1,27/ 26-FWL-20/.../... | <a href="#">1010230</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 32                  | FP 1,27/ 32-FWL-20/.../... | <a href="#">1010229</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 40                  | FP 1,27/ 40-FWL-20/.../... | <a href="#">1010228</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 50                  | FP 1,27/ 50-FWL-20/.../... | <a href="#">1010224</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 68                  | FP 1,27/ 68-FWL-20/.../... | <a href="#">1010221</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 80                  | FP 1,27/ 80-FWL-20/.../... | <a href="#">1010220</a> | P                         | 0.05 to 0.95 |
| <b>Assembly variant 21</b><br><br> | 12                  | FP 1,27/ 12-FWL-21/.../... | <a href="#">1010218</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 16                  | FP 1,27/ 16-FWL-21/.../... | <a href="#">1010215</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 20                  | FP 1,27/ 20-FWL-21/.../... | <a href="#">1010212</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 26                  | FP 1,27/ 26-FWL-21/.../... | <a href="#">1010211</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 32                  | FP 1,27/ 32-FWL-21/.../... | <a href="#">1010210</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 40                  | FP 1,27/ 40-FWL-21/.../... | <a href="#">1010204</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 50                  | FP 1,27/ 50-FWL-21/.../... | <a href="#">1010202</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 68                  | FP 1,27/ 68-FWL-21/.../... | <a href="#">1010200</a> | P                         | 0.05 to 0.95 |
|                                                                                                                      | 80                  | FP 1,27/ 80-FWL-21/.../... | <a href="#">1010180</a> | P                         | 0.05 to 0.95 |

Assembly variant and number of positions = order designation and order number, type of flat-ribbon cable and length can be configured

## In dialog with customers and partners worldwide

Phoenix Contact is a globally present, Germany-based market leader. Our group is synonym for future-oriented components, systems, and solutions in the fields of electrical engineering, electronics, and automation. A global network across more than 100 countries, and 16,500 employees ensure a close proximity to our customers, which we believe is particularly important.

The wide variety of our innovative products makes it easy for our customers to find future-oriented solutions for different applications and industries. We especially focus on the fields of energy, infrastructure, process and factory automation.



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