

# DD31H 2,2/16-H-3,81-X - PCB header



1340489

<https://www.phoenixcontact.com/us/products/1340489>

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PCB headers, color: black, nominal current: 8 A, rated voltage (III/2): 160 V, contact surface: Sn, contact connection type: Pin, number of rows: 2, number of positions: 16, product range: DD31H 2,2/..-H, pitch: 3.81 mm, mounting: Wave soldering, pin layout: Linear pinning, solder pin [P]: 3.8 mm, number of solder pins per potential: 1, plug-in system: CONNEXIS DD, Pin connector pattern alignment: Standard, locking: Snap-in locking, mounting method: Engagement nose, type of packaging: packed in cardboard

## Your advantages

- Well-known mounting principle allows worldwide use
- Plug-in direction parallel to the PCB
- Easy PCB replacement thanks to plug-in modules
- Contacts arranged in a double row enable high packing density in a compact area
- Intuitive locking mechanism prevents accidental disconnection

## Commercial data

|                                      |                                |
|--------------------------------------|--------------------------------|
| Item number                          | 1340489                        |
| Packing unit                         | 50 pc                          |
| Minimum order quantity               | 50 pc                          |
| Note                                 | Made to order (non-returnable) |
| Sales key                            | AA02                           |
| Product key                          | AABSUD                         |
| GTIN                                 | 4063151646585                  |
| Weight per piece (including packing) | 18.12 g                        |
| Weight per piece (excluding packing) | 12.08 g                        |
| Customs tariff number                | 85366990                       |
| Country of origin                    | CN                             |

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## Technical data

### Product properties

|                           |                       |
|---------------------------|-----------------------|
| Product type              | PCB headers           |
| Product family            | DD31H 2,2/...-H       |
| Product line              | CONNEXIS Connectors S |
| Number of positions       | 16                    |
| Pitch                     | 3.81 mm               |
| Number of rows            | 2                     |
| Pin layout                | Linear pinning        |
| Solder pins per potential | 1                     |

### Electrical properties

#### Properties

|                             |        |
|-----------------------------|--------|
| Nominal current $I_N$       | 8 A    |
| Nominal voltage $U_N$       | 160 V  |
| Contact resistance          | 5 mΩ   |
| Rated voltage (III/3)       | 160 V  |
| Rated surge voltage (III/3) | 2.5 kV |
| Rated voltage (III/2)       | 160 V  |
| Rated surge voltage (III/2) | 2.5 kV |
| Rated voltage (II/2)        | 320 V  |
| Rated surge voltage (II/2)  | 2.5 kV |

### Mounting

|               |                |
|---------------|----------------|
| Mounting type | Wave soldering |
| Pin layout    | Linear pinning |

### Material specifications

#### Material data - contact

|                                             |                                                                                  |
|---------------------------------------------|----------------------------------------------------------------------------------|
| Note                                        | WEEE/RoHS-compliant, free of whiskers according to IEC 60068-2-82/JEDEC JESD 201 |
| Contact material                            | Cu alloy                                                                         |
| Surface characteristics                     | Tin-plated                                                                       |
| Metal surface contact area (top layer)      | Tin (3 - 5 μm Sn)                                                                |
| Metal surface contact area (middle layer)   | Nickel (1.3 - 3 μm Ni)                                                           |
| Metal surface soldering area (top layer)    | Tin (3 - 5 μm Sn)                                                                |
| Metal surface soldering area (middle layer) | Nickel (1.3 - 3 μm Ni)                                                           |

#### Material data - housing

|                           |              |
|---------------------------|--------------|
| Color (Housing)           | black (9005) |
| Insulating material       | PBT          |
| Insulating material group | II           |

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|                                        |                             |
|----------------------------------------|-----------------------------|
| CTI according to IEC 60112             | $400 \leq \text{CTI} < 600$ |
| Flammability rating according to UL 94 | V0                          |

## Notes

|                     |                                                                                                                                                                                              |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Note on the contact | These connectors conform to DIN EN 61984, connectors without switching capacity (COC). When used for their intended purpose, they must not be plugged in or disconnected live or under load. |
| Note on application | The current depends on the crimp contact and conductor cross section used.                                                                                                                   |

## Dimensions

|                       |                |
|-----------------------|----------------|
| Dimensional drawing   |                |
| Pitch                 | 3.81 mm        |
| Width [w]             | 40.67 mm       |
| Height [h]            | 18.23 mm       |
| Length [l]            | 25.91 mm       |
| Installed height      | 14.43 mm       |
| Solder pin length [P] | 3.8 mm         |
| Pin dimensions        | 0.65 x 0.64 mm |

|               |        |
|---------------|--------|
| PCB design    |        |
| Hole diameter | 3 mm   |
|               | 1.1 mm |

## Mechanical tests

|                   |                       |
|-------------------|-----------------------|
| Visual inspection |                       |
| Specification     | IEC 60512-1-1:2002-02 |
| Result            | Test passed           |

|                 |                       |
|-----------------|-----------------------|
| Dimension check |                       |
| Specification   | IEC 60512-1-2:2002-02 |
| Result          | Test passed           |

|                            |                        |
|----------------------------|------------------------|
| Resistance of inscriptions |                        |
| Specification              | IEC 60068-2-70:1995-12 |
| Result                     | Test passed            |

|                         |                        |
|-------------------------|------------------------|
| Polarization and coding |                        |
| Specification           | IEC 60512-13-5:2006-02 |
| Result                  | Test passed            |

|                          |  |
|--------------------------|--|
| Contact holder in insert |  |
|--------------------------|--|

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|                                                |                        |
|------------------------------------------------|------------------------|
| Specification                                  | IEC 60512-15-1:2008-05 |
| Contact holder in insert<br>Requirements >20 N | Test passed            |

## Insertion and withdrawal forces

|                                     |             |
|-------------------------------------|-------------|
| Result                              | Test passed |
| No. of cycles                       | 25          |
| Insertion strength per pos. approx. | 6 N         |
| Withdraw strength per pos. approx.  | 6 N         |

## Electrical tests

### Thermal test | Test group C

|                            |                       |
|----------------------------|-----------------------|
| Specification              | IEC 60512-5-1:2002-02 |
| Tested number of positions | 20                    |

### Insulation resistance

|                                              |                       |
|----------------------------------------------|-----------------------|
| Specification                                | IEC 60512-3-1:2002-02 |
| Insulation resistance, neighboring positions | > 5 MΩ                |

### Air clearances and creepage distances |

|                                                        |                     |
|--------------------------------------------------------|---------------------|
| Specification                                          | IEC 60664-1:2007-04 |
| Insulating material group                              | II                  |
| Comparative tracking index (IEC 60112)                 | CTI ≥400 to <600    |
| Rated insulation voltage (III/3)                       | 160 V               |
| Rated surge voltage (III/3)                            | 2.5 kV              |
| minimum clearance value - non-homogenous field (III/3) | 1.5 mm              |
| minimum creepage distance (III/3)                      | 2.2 mm              |
| Rated insulation voltage (III/2)                       | 160 V               |
| Rated surge voltage (III/2)                            | 2.5 kV              |
| minimum clearance value - non-homogenous field (III/2) | 1.5 mm              |
| minimum creepage distance (III/2)                      | 1.5 mm              |
| Rated insulation voltage (II/2)                        | 320 V               |
| Rated surge voltage (II/2)                             | 2.5 kV              |
| minimum clearance value - non-homogenous field (II/2)  | 1.5 mm              |
| minimum creepage distance (II/2)                       | 2.2 mm              |

## Environmental and real-life conditions

### Vibration test

|                        |                                          |
|------------------------|------------------------------------------|
| Specification          | IEC 60068-2-6:2007-12                    |
| Frequency              | 10 - 150 - 10 Hz                         |
| Sweep speed            | 1 octave/min                             |
| Amplitude              | 0.35 mm (10 Hz ... 60.1 Hz)              |
| Acceleration           | 50 m/s <sup>2</sup> (60.1 Hz ... 150 Hz) |
| Test duration per axis | 2.5 h                                    |
| Test directions        | X-, Y- and Z-axis                        |

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## Durability test

|                                             |                       |
|---------------------------------------------|-----------------------|
| Specification                               | IEC 60512-9-1:2010-03 |
| Impulse withstand voltage at sea level      | 2.95 kV               |
| Contact resistance R <sub>1</sub>           | 5 mΩ                  |
| Contact resistance R <sub>2</sub>           | 5 mΩ                  |
| Contact resistance R <sub>2</sub> 2nd level | 5 mΩ                  |
| Insertion/withdrawal cycles                 | 25                    |

## Climatic test

|                                   |                                                                           |
|-----------------------------------|---------------------------------------------------------------------------|
| Specification                     | ISO 6988:1985-02                                                          |
| Corrosive stress                  | 0.2 dm <sup>3</sup> SO <sub>2</sub> on 300 dm <sup>3</sup> /40 °C/1 cycle |
| Thermal stress                    | 105 °C/168 h                                                              |
| Power-frequency withstand voltage | 1.39 kV                                                                   |

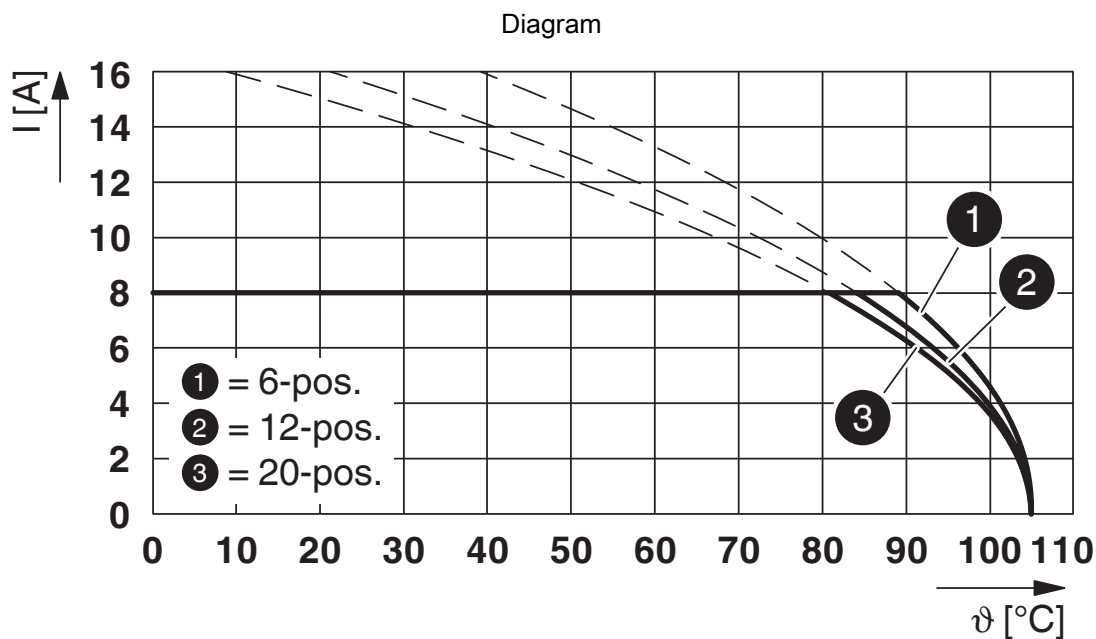
## Ambient conditions

|                                         |                                                     |
|-----------------------------------------|-----------------------------------------------------|
| Ambient temperature (operation)         | -55 °C ... 105 °C (dependent on the derating curve) |
| Ambient temperature (storage/transport) | -40 °C ... 70 °C                                    |
| Relative humidity (storage/transport)   | 30 % ... 70 %                                       |
| Ambient temperature (assembly)          | -5 °C ... 100 °C                                    |

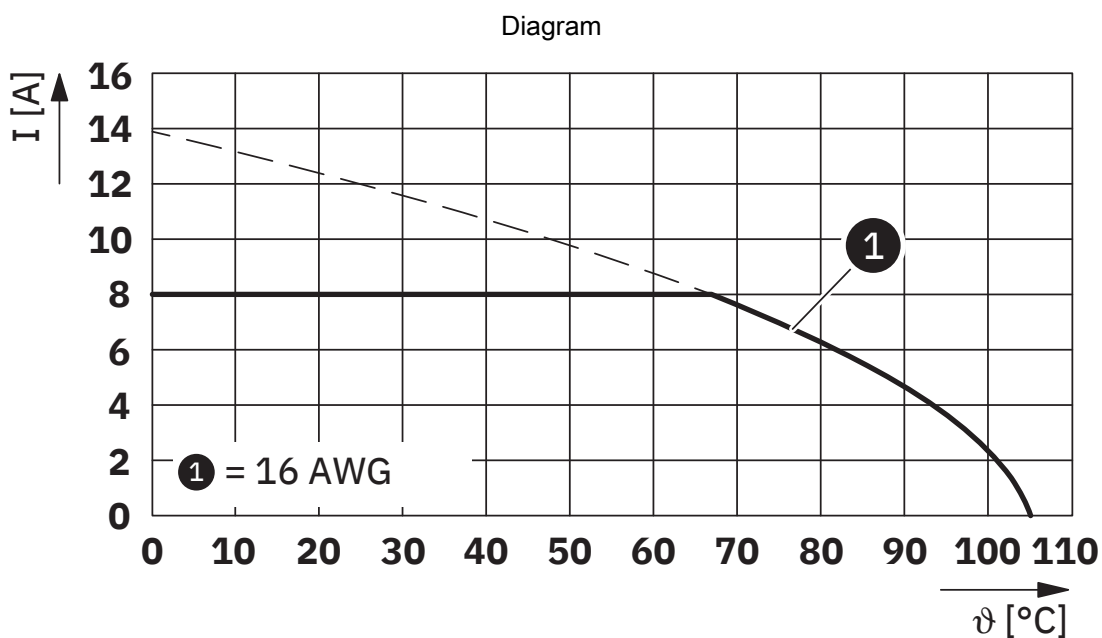
## Packaging specifications

|                   |                     |
|-------------------|---------------------|
| Type of packaging | packed in cardboard |
|-------------------|---------------------|

## Drawings



Type: DD31PC 2,2/...-3,81-X with DD31H 2,2/...-H-3,81-X



Type: DD31PS 1,5/...-3,81-X with DD31H 2,2/...-H-3,81-X

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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1340489>

|                                                                                                                                                       |                                |                                |                   |                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------|-------------------|-------------------------------|
| <div> <b>cULus Recognized</b><br/>Approval ID: E60425-20240617</div> |                                |                                |                   |                               |
|                                                                                                                                                       | Nominal voltage U <sub>N</sub> | Nominal current I <sub>N</sub> | Cross section AWG | Cross section mm <sup>2</sup> |
| Use group B                                                                                                                                           |                                |                                |                   |                               |
|                                                                                                                                                       | 150 V                          | 8 A                            | -                 | -                             |

|                                                                                                                                                     |                                |                                |                   |                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------|-------------------|-------------------------------|
| <div> <b>UL Recognized</b><br/>Approval ID: E118976-20240617</div> |                                |                                |                   |                               |
|                                                                                                                                                     | Nominal voltage U <sub>N</sub> | Nominal current I <sub>N</sub> | Cross section AWG | Cross section mm <sup>2</sup> |
|                                                                                                                                                     | 250 V                          | 8 A                            | -                 | -                             |

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## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-13.0 | 27460201 |
|-------------|----------|

### ETIM

|          |          |
|----------|----------|
| ETIM 9.0 | EC002637 |
|----------|----------|

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## Environmental product compliance

|                                         |                                          |
|-----------------------------------------|------------------------------------------|
| EU RoHS                                 |                                          |
| Fulfills EU RoHS substance requirements | Yes, No exemptions                       |
| China RoHS                              |                                          |
| Environment friendly use period (EFUP)  | EFUP-E                                   |
|                                         | No hazardous substances above the limits |
| EU REACH SVHC                           |                                          |
| REACH candidate substance (CAS No.)     | No substance above 0.1 wt%               |

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