# DIN Signal female connector

RoHS compliant

## General information

| | | | | |
|---|---|---|---|---|
| Design | IEC 60603-2 | types: B, 2B, 3B, C, 2C, 3C, M female | | |
| No. of contacts | max. 96 | | | |
| Contact spacing | 2,54 mm | | | |
| Test voltage | 1000V | | | |
| Contact resistance | max. 20mOhm | | | |
| Insulation resistance | min. $10^{12}$Ohm | | | |
| Working current | 2A at 20°C (see derating diagram) | 40 A for type M | | |
| Temperature range | -55°C ... +125°C | | | |
| | -40°C ... +105°C | (for press-in connectors) | | |
| Termination technology | press-in, solder pins | | | |
| Clearance & creepage distance | min. 1,2 mm each | | | |
| Insertion and withdrawal force | 16-pole max. 15N | 20-pole max. 20N | 30-pole max. 30N | 32-pole max. 30N |
| | 48-pole max. 45N | 64-pole max. 60N | 96-pole max. 90N | |
| Mating cycles | PL 1 acc. to IEC 60603-2 | | 500 mating cycles | |
| | PL 2 acc. to IEC 60603-2 | | 400 mating cycles | |
| | PL 3 acc. to IEC 60603-2 | | 50 mating cycles | |
| UL file | E102079 | | | |
| RoHS - compliant | Yes | | | |
| Leadfree | Yes | | | |
| Hot plugging | No | | | |

## Insulator material

| | |
|---|---|
| Material | PBT (thermoplastics, glass fiber reinforcement 30%) |
| Color | RAL 7032 (grey) |
| UL classification | UL 94-V0 |
| Material group acc. IEC 60664-1 | IIIa (175 < CTI < 400) |
| NFF classification | I3, F4 |

## Contact material

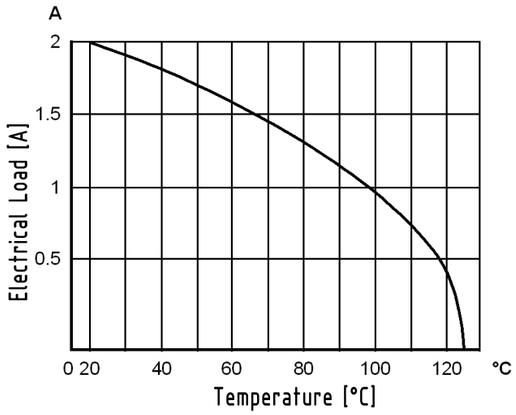
| | | |
|---|---|---|
| Contact material | Copper alloy | |
| Plating termination zone | Sn over Ni for solder, Ni for press-in | |
| Plating contact zone I | Au over PdNi over Ni | (Au over Ni for PL3) |
| Plating contact zone II (termination side) | Au over PdNi over Ni | (Au over Ni for PL3) |

## Derating diagram acc. to IEC 60512-5 (Current carrying capacity)

The current carrying capacity is limited by maximum temperature of materials for inserts and contacts including terminals.

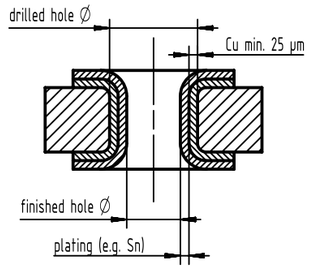
The current capacity curve is valid for continuous, non interrupted current loaded contacts of connectors when simultaneous power on all contacts is given, without exceeding the maximum temperature.

Control and test procedures according to DIN IEC 60512-5




## Recommended configuration of plated through holes for press-in termination

In addition to the hot-air-level (HAL), other PCB surfaces are getting more important. Due to their different properties - such as mechanical strength and coefficient of friction - we recommend the following configuration of PCB through holes.




| | | |
|---|---|---|
| Tin plated PCB (HAL) acc. to EN 60352-5 | Drilled hole Ø | 1,15±0,025 mm |
| | Sn | max. 15 µm |
| | plated hole Ø | 0,94 - 1,09 mm |
| Chemical tin plated PCB | Drilled hole Ø | 1,15±0,025 mm |
| | Sn | min. 0,8µm |
| | plated hole Ø | 1,00 - 1,10 mm |
| Gold /Nickel plated PCB | Drilled hole Ø | 1,15±0,025 mm |
| | Ni | 3 - 7 µm |
| | Au | 0,05 - 0,12 µm |
| | plated hole Ø | 1,00 - 1,10 mm |
| Silver plated PCB | Drilled hole Ø | 1,15±0,025 mm |
| | Ag | 0,1 - 0,3 µm |
| | plated hole Ø | 1,00 - 1,10 mm |
| Copper plated PCB (OSP) | Drilled hole Ø | 1,15±0,025 mm |
| | plated hole Ø | 1,00 - 1,10 mm |

## Assembly instructions

It is highly recommended to use HARTING press-in tools to ensure a reliable press-in process. Please refer to the catalogue for tools, machines and further information about the press-in process.

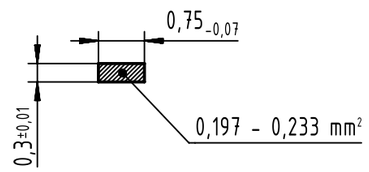
## Soldering instructions

The connectors should be protected when being soldered in a dip, flow or film soldering baths. Otherwise, they might become contaminated as a result of soldering operations or deformed as a result of overheating.

(1) For prototypes and short runs protect the connectors with an industrial adhesive tape, e.g. Tesaband 4331 (www.tesa.de).
Cover the underside of the connector moulding and the adjacent parts of the pcb as well as the open sides of the connector. This will prevent heat and gases of the soldering apparatus from damaging the connector. About 140 + 5 mm of the tape should suffice.

(2) For large series a jig is recommended. Its protective cover with a fast action mechanical locking device shields the connectors from gas and heat generated by the soldering apparatus. As an additional protection a foil can be used for covering the parts that should not be soldered.

## Cross section of solder terminations




| | | | | | |
|---|---|---|---|---|---|
| All Dimensions in mm<br>Original Size DIN A3 | Scale<br>1:1 | Free size tol. | | Ref.<br>Sub. | |
| All rights reserved | Created by<br>LEHNERT | Inspected by<br>ZWAHR | Standardisation<br>HOFFMANN | Date<br>2016-11-03 | State<br>Final Release |
| Department EC PD - DE | Title<br>DIN Signale female connector | | | | Doc-Key / ECM-Nr.<br>100572187/UGD/001/B<br>500000111021 |
| HARTING Electronics GmbH<br>D-32339 Espelkamp | Type<br>DS | Number<br>09032100001 | | Rev.<br>B | Page<br>1/1 |

A3

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