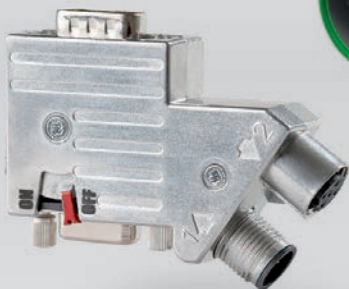
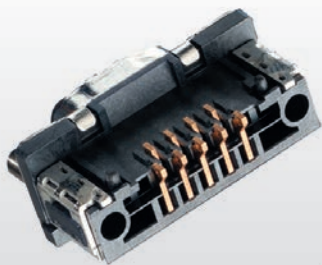


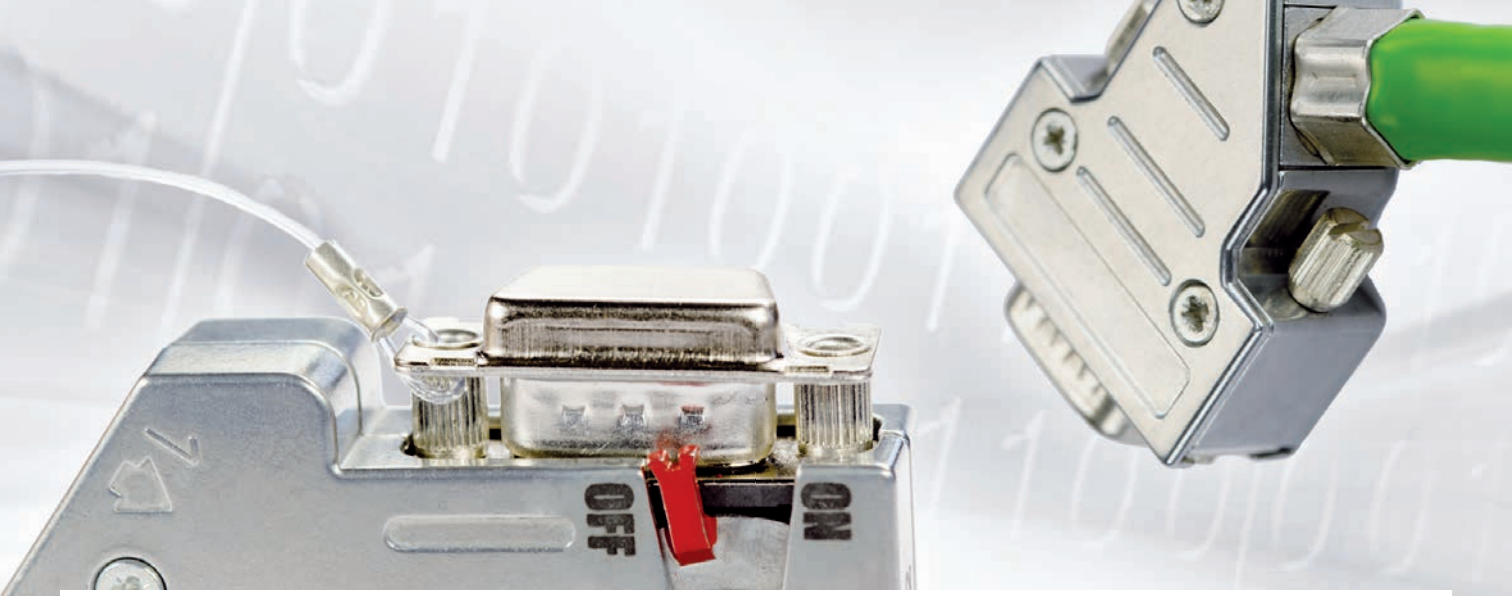
# PROVERTHA<sup>®</sup>

CONNECTORS, CABLES & SOLUTIONS

## Product overview

**Individual. Fast. Safe.**





## **PROVERTHA makes your data network safe**

PROVERTHA Connectors, Cables & Solutions GmbH has been a successful manufacturer for safe connection technology and data transfer systems for over 30 years. About 850 people are employed at PROVERTHA in headquarter at Pforzheim, Germany, and in the three manufacturing facilities in Hungary.

Thanks to its high product quality, PROVERTHA has established itself as a qualified partner worldwide, including the strategically important countries, in railway technology, industry automation, industry communication and industry electronics.

## **Connectors, housings, self-assembly lines**

Complex connection units with a focus on M12 and D-Sub housing technology complete, together with a big variety of plastic and die-cast hoods, the PROVERTHA product range. Our special focus lies on the push-pull latching system Quick-Lock.

## **Standard and special connectors**

We offer mass production as well as special connectors with a large variety of accessories, individual data cables, top-hat rail adapters, wiring harnesses and line sets, complete solutions as well as plastic manufacturing and tools customised for your requirements.

## **Quality products**

Our quality management, certified in accordance with QS 9000, DIN ISO 9001, and ISO/IATF 16949, guarantees a high product quality of all PROVERTHA products.



## PROVERTHA Products

### Connectors and hoods

- D-Sub Connectors and hoods
- QuickLock System: Push-Pull locking for D-Sub
- D-Sub for cable connection
- D-Sub for PCB connection
- TMC PCB D-Sub Pressfit/SMT/THR/THT
- Mixed layout and 600V D-Sub
- High Density D-Sub
- Filter D-Sub
- Mini distribution system and distribution box
- Profi bus and CAN-Bus bus connectors
- Profi bus and CAN-Bus M12
- Ethernet and Profinet M12 D-Code
- 10 GbT Ethernet and Profinet M12 X-Code
- M12 Mini
- M12 Panel mount connectors
- M8 for Industrial Ethernet
- M8 and M12 V4A Stainless steel

### Cable assemblies

- Individual data and power cables for industrial automation, industrial electronics, medical industry and telecommunications
- System cables
- Wire harnesses
- Cable assemblies
- Overmoulded harness assemblies

### Solutions

- Contract manufacturing
- Plastic moulding and assembly
- Tool manufacturing
- Complete solutions including tool-making and reliable production on assembly machines

### Development

- Customized connectors and electro-mechanical subassemblies in economical design optimized for the application
- Complete solutions including purchase and logistics



## D-Sub Hoods – the right hood for every application

The PROVERTHA product range offers more than 20 hood systems for suitable and safe solutions. One main characteristic of our D-Sub hoods is the fast and easy mounting due to a practical design and a minimised number of parts.

### Product series

#### D-Sub plastic hoods

- Plastic hoods in black and coloured versions
- Metallised plastic hoods for applications with shielding demands
- Modular hood system
- Adapter hoods

#### D-Sub Die-cast hoods

- Die cast hoods with 360° RF- shielding for high EMV demands
- Axial, compact, and special full metal hoods with 2 cable exits
- Adapter hoods

### Fast and easy mounting

#### Latching options

- Screw latching with knurled screws in metal in different lengths
- Slide-latching in universal version
- Clip-latching in universal version
- Clip-latching, Quick-Lock Push-pull for fast assembly

### Various cable exit options

#### Application-oriented cable exit

- 180° cable exit
- 90° cable exit
- 45° cable exit
- 1, 2, or 3 cable exits, for example for field bus applications and signal distribution (only for die-cast hoods)

### Safe strain relief and shield connection

#### ■ 360° EMI/RFI Crimpflansch-System

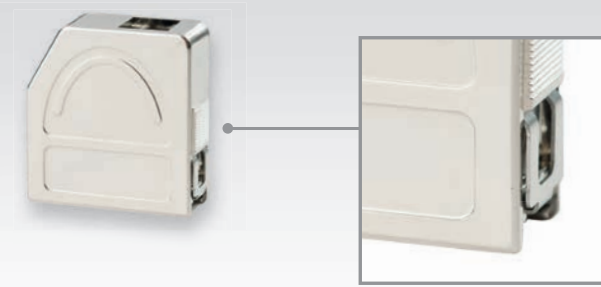
Torsion and vibration proof strain relief with constant low-ohm all around shielding for cable diameters of 3.7–15.7 mm

#### ■ External cable clamp

Special cables with very small or very big diameter are safely shielded and strain relieved with cable diameters of 4–16 mm

#### ■ Internal cable clamp

Compact shielding and strain relieving of standard uses with cable diameters of 4–15 mm



## Quick-Lock-system for D-Sub connectors

The functional push-pull latching allows PROVERTHA's Quick-Lock-system a fast and easy latching of D-Sub cable connectors to D-Sub device interfaces and of flying cables and cable connections.

Pre-assembled D-Sub cables with the Quick-Lock hood can be mated easy and even blindly at places that are difficult to access. The hood snaps in automatically with an audible clicking.

### Quick-lock-system product range

- D-Sub plastic hoods and metallised hoods in two versions:
  - Long version:** 56 mm built-in length
  - Short version:** 42 mm built-in length
- D-Sub die-cast hoods: 42 mm built-in length
- Conversion sets with Quick-Lock bolts and accessories  
The conversions sets for D-Sub device interfaces allow an easy retrofitting or refitting to the Quick-Lock push-pull latching.

### Technical features

- New innovative push-pull latching system
- Unlocking only possible by operating both unlocking-clips
- No unlocking possible when pulling on cable or housing
- Crimp flange system with 360° shielding, internal and external cable clamps
- 2–3 cable entries
- Easy retrofit on existing D-Sub device interfaces by using the Quick-Lock accessories
- Automotive approval



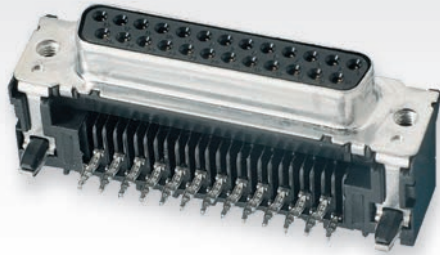
## Quick Mount D-sub hood series 117+147

### Technical features

- Simple and quick assembly due to pre-mounted, captive screws
- Various knurled locking screws especially for vibration applications
- Crimp flange version with cylindric Allen screws
- Complete set with knurled locking screws and cable bushing for the field assembly
- 360° zinc die-cast full-metal hood
- Knurled screw locking: UNC 4-40 or M3

### Flexibility for the cable connection due to 3 cable strain relief versions

- 360° EMI/RFI crimp flange system with hexagonal crimp for vibration and torsion-proof strain relief for extremely rough environmental conditions
- Internal cable clamp as a very compact strain relief solution
- External cable clamp for easy external cable preparation and cable assembly with safe strain relief of the cable



## TMC D-Sub Pressfit Connectors

### Advantages

- Solderless pressfit technology with standard elastic pressfit zone
- Cost-saving and reliably connection technology
- No solder failures, flux problems, no clean process and no thermal stress
- Allows assembly on both PCB sides
- Easy handling with low cost press-in tooling
- The contact is made on the copper layer and not in the tin-layer of the PCB
- The high elasticity compensates large hole tolerances or dimension changes over lifetime
- The pressfit zone design ensures a gas-tight connection due to the high edge pressure on the PCB copper layer

### Features

- Male and female connectors
- Pin numbers: 9/15/25/37
- Right angle versions
- Standard: Assembly height 7.3 mm for 4 HP subrack
- Eurostyle: Assembly height 3.6 mm for 3 HP subrack
- Straight versions in assembly 6.3 and 9 mm; upon request assembly heights 11 mm
- Mounting options on PCB: pressfit clip or screw mounting
- Mating accessories: thru hole, threaded rivet or threaded bolt



## TMC D-Sub SMT Connectors

### Advantages

- Fully automatic SMT assembly and solder process
- Pick-up area on right angle connector and cap on straight versions for vacuum pick-up
- Tray or Tape & Reel packaging
- No mating forces on the contacts
- Metal bracket for tilt-free placing and for absorbing mating forces
- Black insulator for easy and clear detection with vision system
- High temperature plastics for SMT reflow solder process
- Well balanced connector avoids tilting during assembly and solder process

### Features

- Male and female connectors
- Pin numbers: 9/15/25/37
- Right angle versions
- Standard: Assembly height 7.3 mm for 4 HP subrack
- Eurostyle: Assembly height 3.6 mm for 3 HP subrack
- Straight versions in assembly 6.3 and 9 mm; upon request assembly heights 11 mm
- Mounting options on PCB: assembly clip with force or assembly clip with no force
- Mating accessories: thru hole, threaded rivet or threaded bolt



## TMC D-Sub THR Connectors

### Advantages

- Fully automatic SMT assembly and solder process
- Pick-up area on right angle connector and cap on straight versions for vacuum pick-up
- Tray or Tape & Reel packaging
- No mating forces on the contacts
- Metal bracket for tilt-free placing and for absorbing mating forces
- Black insulator for easy and clear detection with vision system
- High temperature plastics for SMT reflow solder process
- Well balanced connector avoids tilting during assembly and solder process

### Features

- Male and female connectors
- Pin numbers: 9/15/25/37
- Right angle versions
- Standard: Assembly height 7.3 mm for 4 HP subrack
- Eurostyle: Assembly height 3.6 mm for 3 HP subrack
- Straight versions in assembly 6.3 and 9 mm; upon request assembly heights 11 mm
- Mounting options on PCB: assembly clip with force or assembly clip with no force
- Mating accessories: thru hole, threaded rivet or threaded bolt



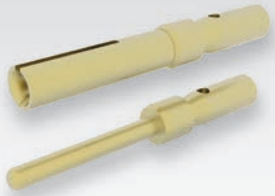
## TMC D-Sub THT Connectors

### Advantages

- Tray packaging
- Metal bracket or metal bolt for effective grounding
- Stamped contacts for economical solutions
- Machined contacts for higher current ratings
- Broad range of mounting accessories

### Features

- Male and female connectors
- Pin numbers: 9/15/25/37
- Right angle versions
- Standard: Assembly height 7.3 mm for 4 HP subrack
- Eurostyle: Assembly height 3.6 mm for 3 HP subrack
- Straight versions in assembly 6.3 and 9 mm; upon request assembly heights 11 mm
- Mounting options on PCB: assembly clip with force or assembly clip with no force
- Mating accessories: thru hole, threaded rivet or threaded bolt



## D-Sub Cable Connection

A wide range of D-Sub connectors for reliable cable assemblies are available. The products in the very reliable crimping technology are with turned crimp contacts for demanding applications in railway technology and factory automation or predestined for applications with high current carrying capacity.

For serial production in standard applications, the stamped crimp contacts on reels are the economic solution.

- Standard D-Sub: crimp, IDC, solder cup and wire wrap, stamped and turned crimp contacts
- Mixed Layout D-Sub: crimp and hand solder, crimp and solder cup power contacts
- 600 V-D-Sub: crimp, turned and punched crimp contacts
- High Density D-Sub: crimp and solder cup connectors stamped and turned crimp contacts
- Filter D-Sub: Cable soldering and solder cup as well as wire wrap

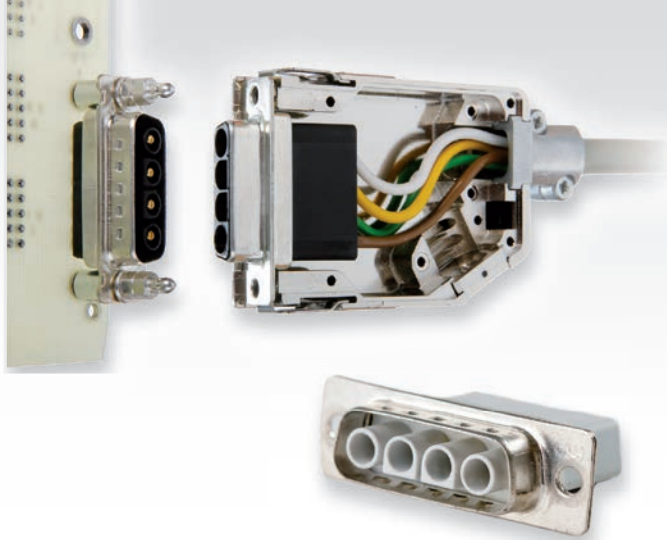
## D-Sub PCB Connection

A broad range of D-Sub connectors with straight and angled PCB connection for any kind of PCB application is available. The new product line TMC with the termination styles Pressfit, SMT, THR and THT with stamped contacts plus SMT grounding and fixing brackets and Tray or Tape & Reel packing is the economical solution applications with fully automatic SMT assembly and solder process.

For sophisticated applications in railway technology and factory automation or for applications with high current-carrying capacity, the versions with turned contacts are predestined.

- Male and female versions
- Solder pin 180° in different assembly heights
- Solder pin 90° in the assembly height Standard and Eurostyle Pin numbers
- Pressfit/SMT/THR: 9/15/25/37
- Solder pin 180° and 90°: 9/15/25/37/50





## 600V D-Sub connectors for power applications

4-pole connector range with touch-proof female versions according to VDE 0110

### Electrical data

- Operating voltage: 630V
- Overvoltage category: **I:** 2,5kV  
**II:** 4kV nach IEC 60 664
- Creepage/Clearance: > 1,8mm/3,2mm
- Degree of pollution degree: 1
- Carrying capacity: **Turned contacts:** 20A  
**Stamped contacts:** 16A

### Mechanical data

- Termination style: Crimp, PCB 90°, PCB 180°
- Wire cross section: AWG 20 – AWG 12
- Temperature range: -55°C to +125°C
- Mating cycles: **Turned contacts:** 200 (class 2)  
**Stamped contacts:** 20

### Materials

- Insulator: PA GF UL 94-V0
- Contact: **Contact material:** Cu alloy  
**Clip material:** CuBe-alloy
- Plating: **Turned contact:**  
Au over Ni barrier  
**Stamped contact:** tin plated

## Mixed layout D-Sub connectors

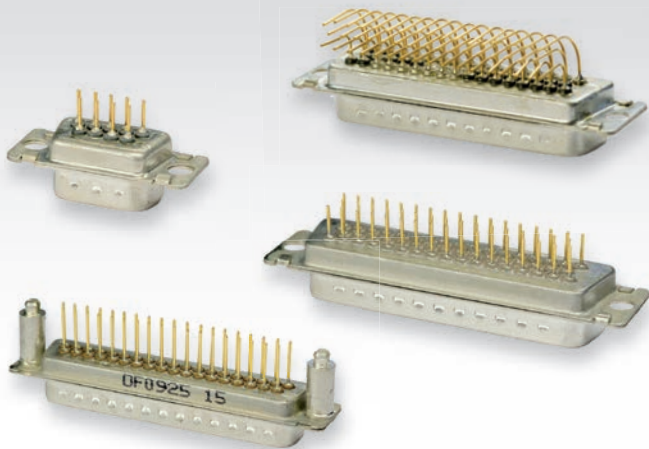
Our mixed layout D-Sub connector program includes a complete product portfolio for printed circuit boards and cable connections with different contact figurations. High-quality single components such as turned power contacts and massive mounting accessories allow high-quality, suitable solutions and customer-specific applications.

### For printed circuit board connection

- Connectors with 180° and with 90° solder pins
- Straight connector with boardlock or combilock fastening bolt (boardlock with integrated threaded rivet) for safe ground connection and latching on the circuit board
- Angled connector with massive metal bracket with latching clip for the safe ground connection

### For cable connection

- Crimp connector with signal crimp contacts in machined or punched versions
- Crimp special contact versions:  
High-current crimp contacts from 10A to 40A;  
coax crimp contacts: 50 Ohm
- Hand-soldering special contact versions:  
High-current hand-soldering contacts from 10A to 40A
- D-Sub hoods in plastic, metallised, and full metal die cast version

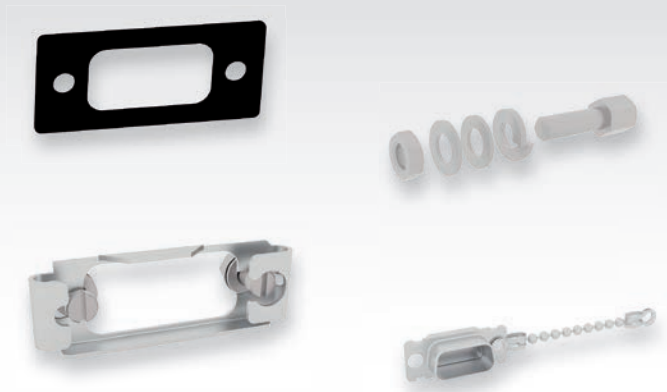


## Filter D-Sub Connectors

- 100% assured quality – individual inspection of every connector
- Selective filter configuration in the connector possible
- The installation dimension are the same
- PROVERTHA standard accessories usable without restrictions
- Capacity values available from 2pF to 2000 pF
- R-shielded, closed metal back
- High damping values up to 50 dB

### Technical features

- Pol number: 9, 15, 25, 37, 50
- Nominal temperature: -25°C up to +85°C
- Nominal voltage: 100 VDC (variation No. 01 (2000pF) = 50VDC)
- Test voltage: 200 VDC (variation No. 01 (2000pF) = 125VDC)
- Nominal current: 5 ADC max.
- Insulation resistance: Minimum 1G $\Omega$  at 25°C



## D-Sub Accessories

A wide range of accessories with components for various locking systems, for EMC protection and dust protection on open D-Sub interfaces as well as articles for the secure attachment to front panels and housing walls.

- EMC protection with full metal blind flanges
- EMC protection with plastic version with shield coating
- Dust protection with plastic protective caps; Versions with / without fastening strap
- Plunger pins for the QuickLock Push-Pull locking system
- Slide Lock
- Clip Lock
- Screw Lock without hood
- Hexagon screws with different lengths UNC and M3 as sets
- Hexagon threaded screw with captive spring washer
- Sealing flanges



## Modular fully shielded IP 67 Mini Distribution System

For customer-specific very compact distributor or splitter solutions with 360° shielding the modular distribution system has been developed with a Mini T or Y Splitter as basis. This allows the configuration of robust fully shielded distribution systems like Input / Output boxes for high performance applications.

- Very compact dimensions
- Mini T/Y splitter with up to 5 inputs/outputs
- Flexible due to connection options
- Connection: M12, M8, cable clamp, crimp flange
- Full metal housing with 360° shielding design
- Mounting brackets for wall mounting
- Version without fastening straps for direct connection to interfaces
- Option for installation of a DIN rail clip for snap-on mounting on DIN rail

## Compact distribution boxes with 360° shielding

Compact solutions with distribution boxes with 360° shielding and direct or pluggable cable connection can be realized with the compact all-metal distribution box. Mounting straps allow secure wall mounting. For the integration of electronics in the distribution box are standoffs provided for the installation of a PCB.

- Versions in IP 67 and IP 20
- Design for recessed top or PCB
- Connection: D-Sub, M12, M8, cable clamp, crimp flange
- Full metal housing with 360° shielding design
- Up to 6 inputs / outputs
- Multiple versions of the base with adapter
- Versions with mounting straps for wall mounting
- Versions with DIN rail clip for DIN rail snap-on mounting
- Customized versions e. g. in stainless steel



## Profibus Bus Connectors and Profibus Cable assemblies

PROVERTHA offers the complete bus connector range for Profibus networks. The Connector & Play bus connector series guarantees the realisation of reliable and failure-proof quick connection solutions in only a few seconds.

### Characteristics and advantages

- Connector & play M12 fast connection
- Safe and easy field assembly due to internal cable clamp
- External cable clamp for the field assembly of special cables with a larger cable diameter
- Safe shielding and torsion-proof strain relief even under extreme demands due to 360° EMI/RFI crimp flange
- Economic solution, connection in seconds due to Quick Connector bus connector lines

### Profibus Cable assemblies

All PROVERTHA M12 cable assemblies are available in various versions (male/male, male/female, female/female) and in various cable lengths of 0.3–10 meters

## Profibus M12 B-Code Panel mount connectors

- Available for rear panel mounting and front panel mounting
- Versions: pin, bush
- Strand length: 500 mm, other lengths on request
- Wall thickness: max. 4 mm

## Profibus M12 B-Code T- and Y-Distributors

- 360° EMI/RFI zinc die-cast full-metal housing
- Degree of protection IP 67
- Pin 1–4 connected, shield on housing
- Easy, safe wall mounting with 2 x M4 screws (Mounting hole: 4.5mm)

## Profibus M12 B-Code connectors for field assembly

- Cable connectors with crimp flange system
- Machined crimp contacts
- 360° EMI/RFI IP 67
- Cable exit: 180°
- Versions: pin, bush



## CAN-Bus M12 A-Code 5-pole

### CAN-Bus M12 A-Code Panel mount connectors

- Available for rear panel mounting and front panel mounting
- Versions: pin, bush
- Strand length: 500 mm, other lengths on request
- Wall thickness: max. 4 mm

### CAN-Bus M12 A-Code T- and Y-Distributors

- 360° EMI/RFI zinc die-cast full-metal housing
- Degree of protection IP67
- Pin 1–5 connected, shield on housing
- Easy, safe wall mounting with 2 x M4 screws (Mounting hole: 4.2mm)

### CAN-Bus M12 A-Code

- 360° EMI/RFI IP67
- Die-cast housing
- Versions: male/female, female/female, male/male
- Various cable lengths from 0.3–10 m
- Cable exit: 180°
- Torsion-/vibration-proof with crimp flange system



## CAN-bus bus connectors and bus connector lines

PROVERTHA offers the complete bus connector range for CAN-bus networks. The Connector & Play bus connector series guarantees the realisation of reliable and failure-proof quick connection solutions in only a few seconds.

### Characteristics and advantages

- Connector & Play M12 quick connector
- Safe and easy field assembly due to internal cable clamp
- External cable clamp for the field assembly of special cables with a larger cable diameter
- Safe shielding and torsion-proof strain relief even under extreme demands due to 360° EMI/RFI crimp flange
- Economic solution, connection in seconds due to Quick bus connector cable assemblies

### Profinet M12 Cable assemblies

All PROVERTHA M12 cable assemblies are available in various versions (male/male, male/female, female/female) and in various cable lengths of 0.3–10 meters



## Profinet M12 D-Code

### Profinet M12 D-Code Cable connectors

- Reliable and failure-proof solution through special connector design
- Fast and easy field manufacture due to pre-mounted assembly groups and crimp snap-in contacts
- Torsion- and vibration-proof cable strain relief and shield transition
- Various versions for different cable diameters
- For Profinet cable 6.5
- For Railcat cable 7.3; 6.6; 8.3

### Profinet M12 Cable assemblies

- 360° EMI/RFI IP67
- Variable length from 0.3–10 meters
- Variations: male/male, male/female, female/female

### Profinet M12 D-Code Panel mount connectors

- Available for back wall mounting and front wall mounting
- Versions: pin, bush
- Strand length: 500 mm, other lengths on request
- Wall thickness: max. 4 mm



## 10 GBit Ethernet + Profinet M12 X-Code

### Crimp flange/crimp sleeve 180° and 90°

#### 360° Shielding and vibration-/torsion-proof

- Very compact dimensions
- Reliable due to vibration-proof crimp technology for signals + shield
- Torsion- and vibration-proof shield connection
- Torsion- and vibration-proof strain relief
- Certified plastics acc. to EN 45545-2 for railway applications

### Cable gland 180° and 90°

#### Wide cable clamping range from 4 to 9 mm

- Compact dimensions
- Cable clamping ranges: 4–6,5 mm and 5,5–9 mm
- Reliable shielding and strain relief with cable gland
- Certified plastics acc. to EN 45545-2 for railway applications

### M12 X-Code Cable assemblies

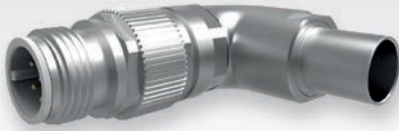
#### 360° Shielding and vibration-/torsion-proof

- 360° EMI/RFI IP67 shielding
- Variable lengths from 0,3–10 m
- Versions: Male/Male, Crossover version
- Certified plastics acc. to EN 45545-2 for railway applications

In 8 Stufen um  
45° drehbar!



⋮



## M12 Cable connectors 90°

### Crimp flange/crimp sleeve 180° and 90°

#### 360° shielding and vibration-/torsion-proof

- Very compact dimensions
- Torsion- and vibration-proof strain relief and shield termination due to crimp flange/crimp sleeve system
- Torsion- and vibration-proof shield connection
- Torsion- and vibration-proof strain relief
- Certified plastics acc. to EN 45545-2 for railway applications
- Codings: A-5, A-8, B, D and X

### Cable gland 180° und 90°

#### Wide cable clamping range from 4–9 mm

- Compact dimensions
- Cable clamping range: 4–6.5 mm and 5,5–9 mm
- Reliable shielding and strain relief with the cable gland
- Certified plastics acc. to EN 45545-2 for railway applications
- Codings: A-5, A-8, B, D and X



## M12 Rear Panel Cable connectors 180° and 90°

Functional reliability from the cabinet door to the device

### Crimp flange/crimp sleeve 180° and 90°

#### 360° shielding and vibration-/torsion-proof

- Very compact dimensions
- Torsion- and vibration-proof strain relief and shield termination due to crimp flange/crimp sleeve system
- Torsion- and vibration-proof shield connection
- Torsion- and vibration-proof strain relief
- Certified plastics acc. to EN 45545-2 for railway applications
- Codings: A-5, A-8, B, D and X

### Cable gland 180° und 90°

#### Wide cable clamping range from 4–9 mm

- Compact dimensions
- Cable clamping range: 4–6.5 mm and 5,5–9 mm
- Reliable shielding and strain relief with the cable gland
- Certified plastics acc. to EN 45545-2 for railway applications
- Codings: A-5, A-8, B, D and X



## M12 Mini Cable Gland

### High Performance in Miniature Format

- Most compact M12 IP67 cable connector
- Very compact dimensions : L=40/OD: Ø15/Ø14
- 10Gbit Ethernet and Profinet with version M12 X-coded
- Ethernet and Profinet with version M12 D-Coded
- Further coding available: A-5, A-8 and B
- Cable diameter: 4–9 mm
- Fully shielded version
- Bulkhead version also available
- No mismatching of connectors due to easy retrofittable color coding rings
- Certified plastics according to EN 45 545-2 for railway applications



## M12 Panel Mount Crimp Connectors and Assemblies

The fully shielded M12 panel mount crimp connector for front or rear mounting in protection class IP67 specifically fulfill the requirements for the functionally reliable single conductor connection and the interference-free data transmission. This is achieved by a secure signal contact by means of turned solid crimp contacts and the full metal housing.

The simple snap-in mounting of the harnessed crimp contacts enables tailor-made device interface solutions for Ethernet, Profinet, Profibus and CAN / DeviceNet with freely definable strand lengths.

- Shielded housing
- Reliable due to vibration-proof crimp contacts
- High current carrying capacity due to turned contacts
- Compact outer dimensions
- Degree of protection IP 67: screw-locked or open by encapsulation
- Pre-assembled versions with e. g. UL conductors
- Wireclip assemblies for easy handling of single cores and Process-reliable automatic soldering on the soldering wave
- Non-rotating mounting through surfaces on the housing
- Versions for rear panel mounting
- Versions for front panel mounting
- Codes: A-5, A-8, B, D, X (scheduled)
- Plastics certified acc. to EN 45545-2 for railway applications





## M12 Specials

### M12 Gender Changer

#### For secure interfaces on the cabinet door

- Fully shielded metal housing
- Very compact dimensions
- Reliable due to vibration-proof crimp technology
- Rotation-proof assembly due to plane surfaces on the housing

### M12 90° Adapter

- Compact dimensions for applications with smallest space
- Male - Female, Female - Female, Male - Male
- Various versions for Profi bus, DeviceNet/  
CAN-Bus, Industrial Ethernet (Profinet)
- Customized versions upon request



## M12 Connectors crimp flange conduit adapter NW 10

#### Secure data transmission and cable routing

- 360° EMI/RFI Shielding
- Secure data transmission vibration-proof crimp technology for signals and shield
- Safe cable routing in connectable conduit
- Torsion- and vibration-proof strain relief and shield termination due to crimp flange/crimp sleeve system
- Schutzart IP 67 / IP68 (rconduit side)
- Codings: A-5 and D; other codings upon request
- Straight and right angle versions
- Recommended conduit: PMA PCST-10B.50



## M12 V4A Stainless steel

### Cable connectors and device connectors

#### For process technology and off shore applications

- Compact dimensions
- Reliable solutions with 360° shielding
- Reliable shielding and strain relief with the cable gland
- Vibration-proof crimp technology for the signal contacts
- Codings: A-5, A-8, B, D and X
- Cable connectors and panel mount connectors
- V4A Stainless steel
- Applications in process and process engineering, medical technology, clean rooms, food industry, vacuum technology and shipbuilding



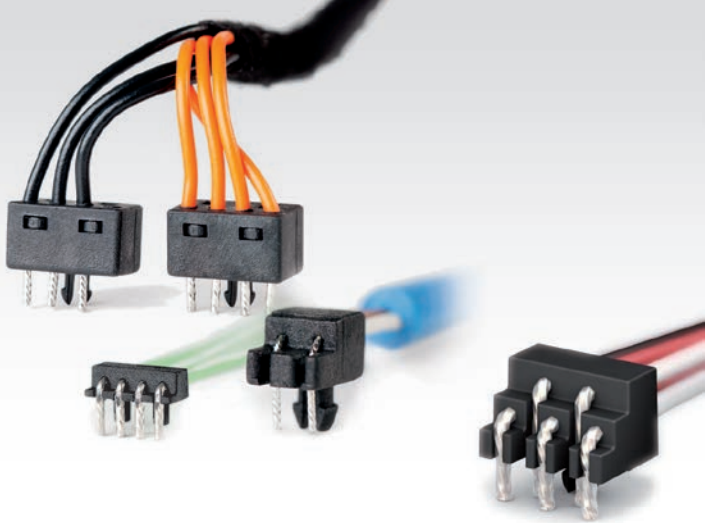
Coming soon

## M12 Power L-Code

### Cable connectors cable gland

Reliable and interference-proof for cables to 14 mm  
(wire size max 2,5 mm<sup>2</sup>)

- Full metal housing with 360° shielding prevents EMI/RFI from the cable
- Vibration-proof crimp technology for the wires
- Cable gland for secure strain relief
- Full metal housing for rough environment
- Strain relief for cables 7–14 mm
- Wire size: 0,5–2,5 mm<sup>2</sup> / AWG 20–14
- Compact dimensions
- Certified plastics acc. to EN 45545-2 for railway applications



## Wire to Board

Wherever low installation heights and absolute reliability of the cable connection are important, we recommend the space saving wire to board solutions with Wireclip from PROVERTHA. We offer process and functionally reliable connections of single stranded wires and single cores of round and sheathed cables in completely different, customized configurations. Wireclip wire to board solutions are space-saving, economical and safe.

- Process-safe solution through wave soldering or selective soldering system for single wires
- Easy handling and reduced assembly costs
- Proven million of times in automotive applications
- Retaining clip with snap-in locking clip for secure fixation and power absorption
- Standard version with solder connection 90°
- Low profile version with installation height 2.5 mm and soldering connection 90°
- Vertical version with solder connection 90°
- 2-row version
- Mixed version for combination power (AWG 18) + signal (AWG 22)
- Different pole numbers and different AWG sizes

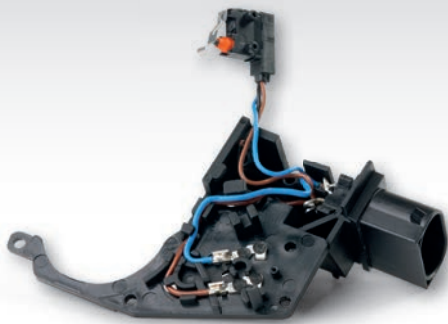


## Cable Assemblies

We manufacture individual data cables, harnesses and cable harnesses to a high professional standard in the fields automotive, railway technology, industrial automation and industrial electronics as well as aviation and medicine.

The competence as a connector manufacturer gives you in combination with our powerful harness shop decisive competitive advantages.

- UL approval for cable assembly
- Equipment for all cable connection styles
- Automated harnessing processes
- Automated processing of single cores
- Crimping machines for automated crimping
- Soldering robot for automated soldering
- Automated potting
- Overmolded solutions
- Own tool shop for individual short-term solutions



## Solutions

Contract manufacturing – Plastic manufacturing  
– Tool-making

In our plants in Hungary, we are manufacturing high-quality assembly groups and individual parts according to customer-specific requirements. As a reliable partner with many years of experience, we develop, manufacture, and deliver customised solutions for you.

All productions are organised according to the requirements of IATF 16949. To avoid errors and for the permanent optimisation of all processes, the use of FMA and Six Sigma tools is a natural part of our quality principles.

## Complete and detailed solutions for various industries

Use our experience in automotive technology, control technology, industrial technology, medical technology, aviation technology, household electronics and audio/video technology for your customer-specific solution. Our modern logistics guarantee the reliable availability of the individual parts and the production is planned in a way that a maximum flexibility with the shortest delivery times possible is ensured.

**Contact us, we will be happy to advise you personally!**

# PROVERTHA®

CONNECTORS, CABLES & SOLUTIONS

## Sales Partner



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### SVK Elektronik s.r.o.

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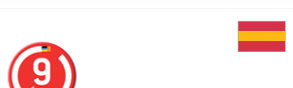
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# About us



**More than**  
**35**  
**years of**  
**experience**

- Products for highest physical stability in extremely challenging networks
- Many innovations
- Customer-specific solutions



**850**  
**employees**

- German-Hungarian company
- Production in Hungary
- Customer Service in Germany
- Happy customers



**Certifi-**  
**cates**

- For your safety
- IATF 16949
- ISO 9001
- For our environment  
our production locations  
are ISO 14001 certified
- UL approvals

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