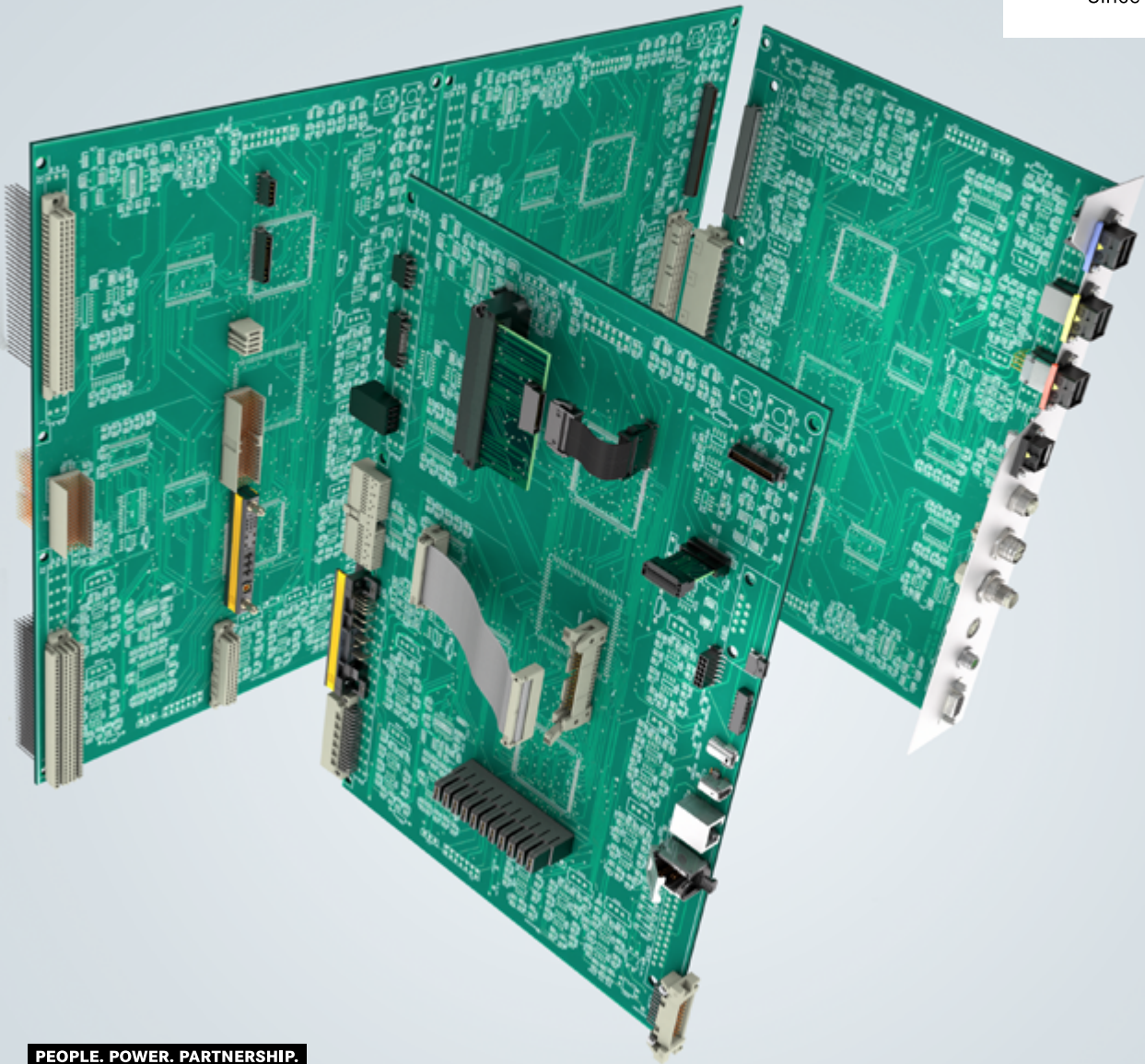




Pushing Performance
Since 1945



PEOPLE. POWER. PARTNERSHIP.

HARTING All for PCB

Portfolio overview

Contents

Contents	2	Digital services	22
PCB technology	3		
PCB CONNECTORS		INTERFACE CONNECTORS	
DIN 41612	4	D-Sub	14
<i>har-modular</i> [®]	5	HARTING T1 Industrial	15
<i>har-bus</i> [®] 64 & <i>har-bus</i> [®] HM	6	HARTING ix Industrial [®]	16
SEK	7	HARTING RJ Industrial [®]	17
<i>har-flex</i> [®]	8	HARTING preLink [®]	18
<i>har-flex</i> [®] Hybrid/Power & <i>har-flex</i> [®] HD Card Edge	9	PushPull connectors	19
<i>har-flexicon</i> [®]	10		
<i>har-drive</i> [®]	11		
CIRCULAR CONNECTORS		INDUSTRIAL CONNECTORS HAN[®]	
Circular connectors M5/M8	12	Han [®] Industrial connectors	20
Circular connectors M12/M23	13	Han [®] Board & Han-Fast [®] Lock	21

About the links / QR codes:

You can access the relevant product family in the E-shop by scanning the QR code in the printed version or by clicking on the QR code next to the headings in the web version.

The QR codes in the Digital Services chapter take you directly to the registration screen for myHARTING or to the corresponding product configurators and the product data manager.

Imprint:

This flyer was created on behalf of the HARTING Technology Group.
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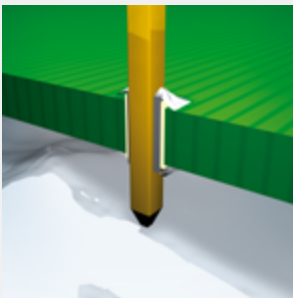
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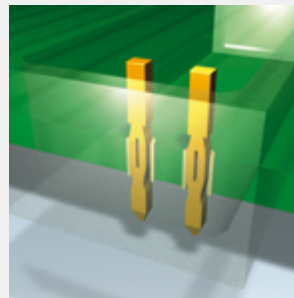
PCB technology

HARTING is your experienced full-range supplier of innovative connection technology for optimised PCB design.

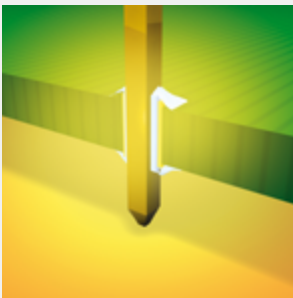
TERMINATION TECHNIQUES:



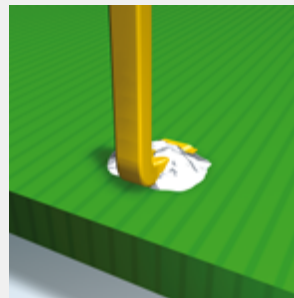
THT:
Solder pins are inserted into through-plated PCB holes and then soldered simultaneously using the wave soldering process.



PRESS-IN:
Solderless connection where pins with flexible press-in zones are pressed into through-plated PCB holes.

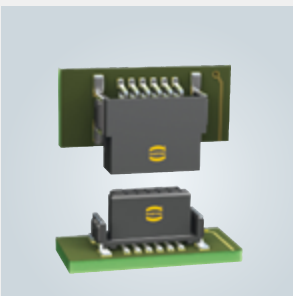


THR:
Solder pins are inserted into through-plated PCB holes and then soldered using the reflow soldering process.



SMT:
The pins are soldered directly onto the PCB surface using solder pads.

APPLICATIONS:



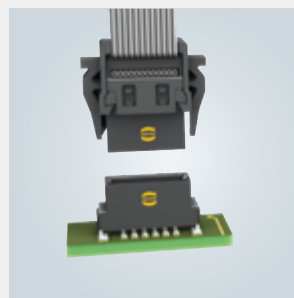
Motherboard-to-daughtercard:
If you combine straight and angled versions, you can implement a right-angled connection between two PCBs. Both the male and female connectors are available in both designs.



Mezzanine:
Combine straight female and male connectors to connect stacked PCBs. Different heights enable PCB spacing of up to 40 mm.



Extender card:
Use angled female and male connectors to connect coplanar PCBs.



Cable/wire-to-board:
You can use cables to create flexible connections between two PCBs. Solder the matching male connector directly onto the PCB.

DIN 41612



DIN 41612 connectors have been used for years in all industrial sectors. The huge portfolio offers optimal solutions for connections between PCBs or for cable-to-board connections. Their robustness and universality are legendary.

The PCBs can be arranged as daughter-card-to-backboard (90°), parallel (0°; mezzanine) or in front of each other (180°; extender card). There are connectors for up to 96 signals or currents of 2 - 40 A. There are also hybrid connectors that allow combinations of signal and power, coax, high voltage or fibre optics.

Series	Pitch	Type	No. of contacts	Amperage
DIN Signal	2.54 mm	B, C, D, E, Q, R 2B, 2C, 3B, 3C, 2Q, 3Q, 2R, 3R in short version	20, 30, 32, 48, 64, 96	2 A
DIN mixed connectors	2.54 mm 5.08 mm	M, M flat, M inverse MH24+7 MH21+5	6+10; 24+8; 42+6; 60+4; 78+2; 24+7; 21+5	2 A signal Max. 40 A power
DIN Power	5.08 mm	D, E, F, FM, G, H, 2F, F9, H3 in short version	3, 9, 15, 24, 32, 45, 48, 64	6 A 15 A

- 100+** Wide range of hoods/housing and accessories
- Shield icon** Robust proven design
- Half size and third size types for tight spaces**
- Train icon** Certified protection against smoke and fire, according to EN 45545
- Temperature scale icon** +125°C / -55°C

har-modular®



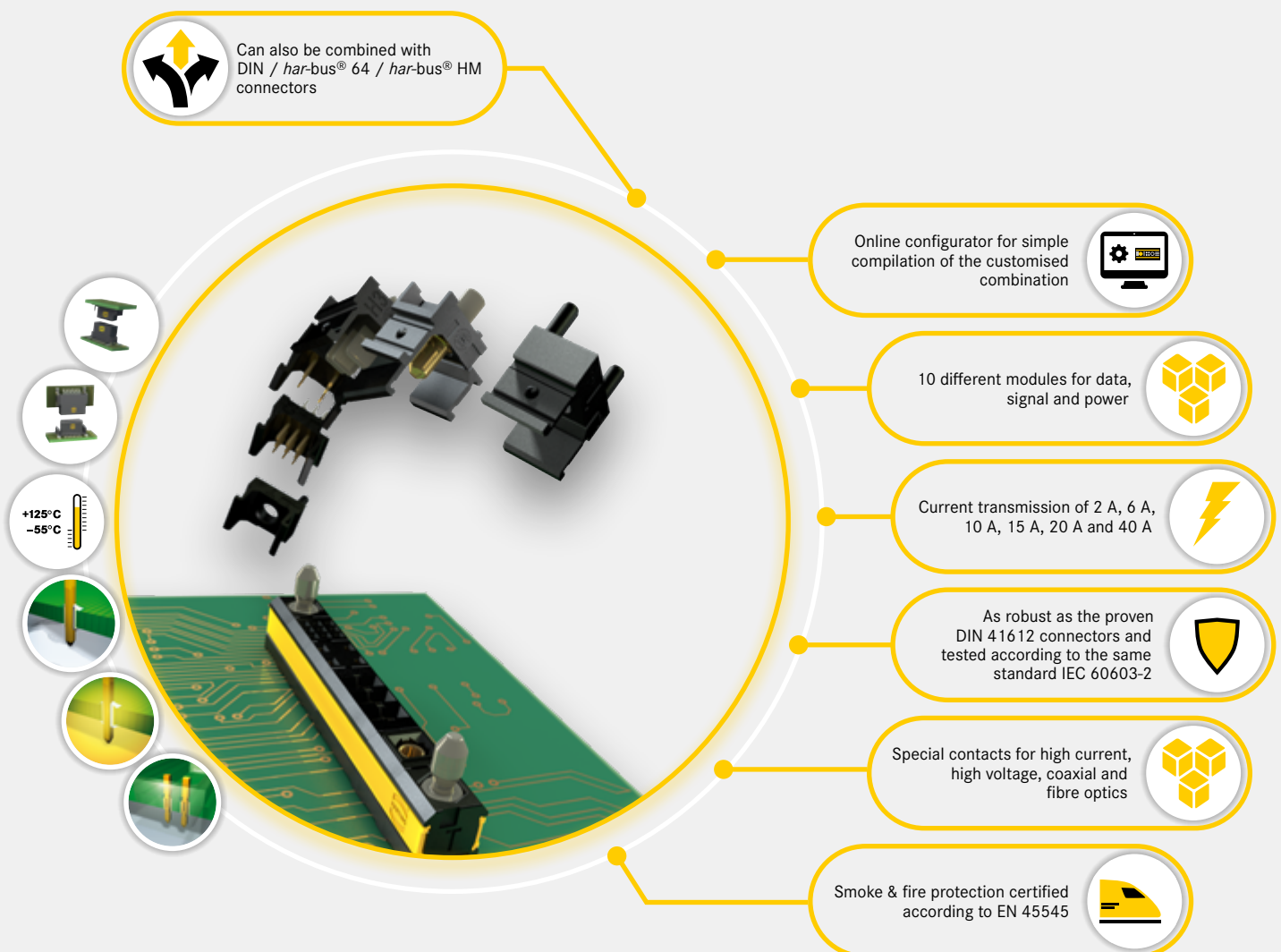
By using the *har-modular*® PCB connector for daughter-card-to-backplane or mezzanine connections, you can assemble your own specific connector from more than 1 billion possible combinations to transmit data, signal and power.

Thus, the *har-modular*® connector is the ideal solution to meet tougher demands for more versatility, modularity and faster device development times: and there is no need to spend a long time searching for the right solution from the standard portfolio and no need to use prototypes.

CREATE YOUR OWN

Online configurator

For fast reliable configurations, you can use the *har-modular*® configurator to assemble a customised connector suitable for your own application in just a few mouse clicks. All the data required for design support is made available directly online and initial samples can be ordered directly from stock from batch size 1.






har-bus[®] 64 & har-bus[®] HM

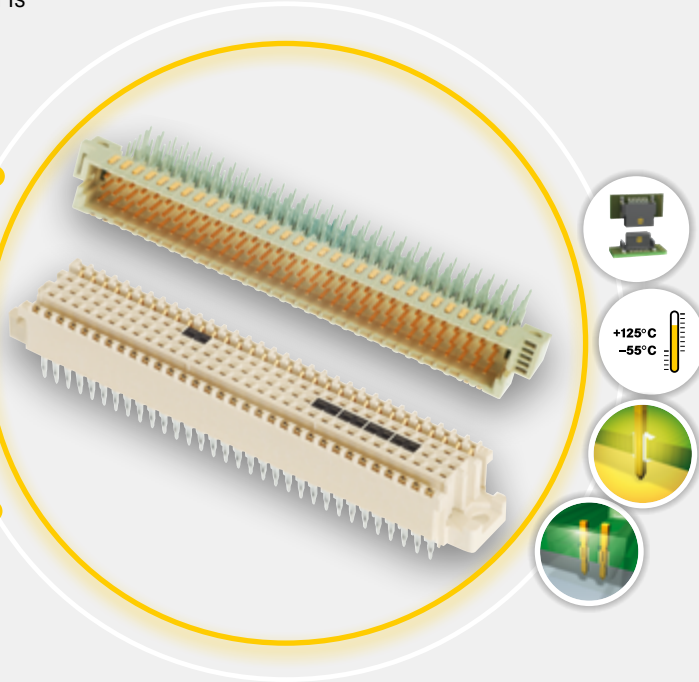


har-bus[®] 64

When the VME architecture was extended from 8 bits to 64 bits with data transfer rates of 160 Mbit/s, HARTING introduced the 160-pin har-bus[®] 64 connector, which is






100% downward compatible with the existing 3-row DIN 41612 connectors with 96 contacts.

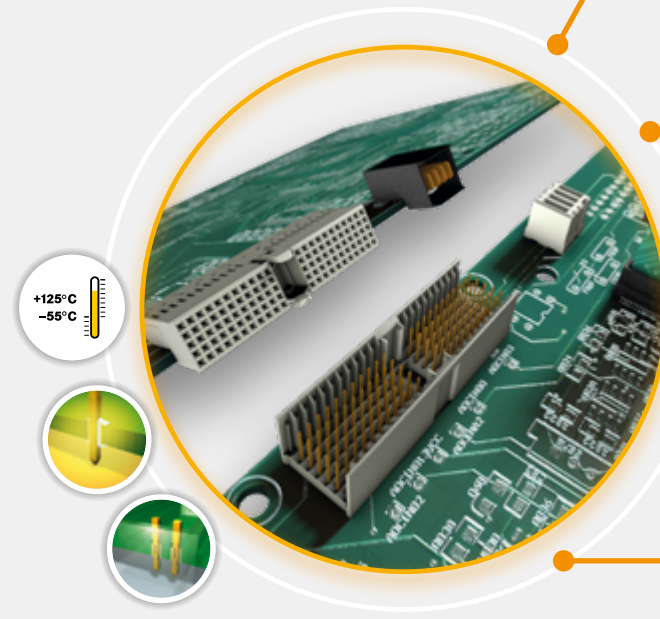
-  Complete connector system with extender card, rear I/O and cable connectors, transfer frame and accessories
-  Data rates of up to 3.125 Gbit/s for differential signals
-  Integrated switching function in the female connector to avoid daisy chain signal interruption



har-bus[®] HM

The har-bus[®] HM connector with 2.0 mm pitch is designed for configuring and creating backplanes for industrial systems in 19" format.

-  Up to 3.125 Gbit/s (Gigabit Ethernet)
-  Complete connector system with matching power connectors, transfer frames and coding elements
-  Design according to international connector standard IEC 61076-4-101
-  Can be used in CompactPCI and VMEbus systems in accordance with the PICMG 2.x specification
-  Up to 308 contacts in compact 2.0 pitch

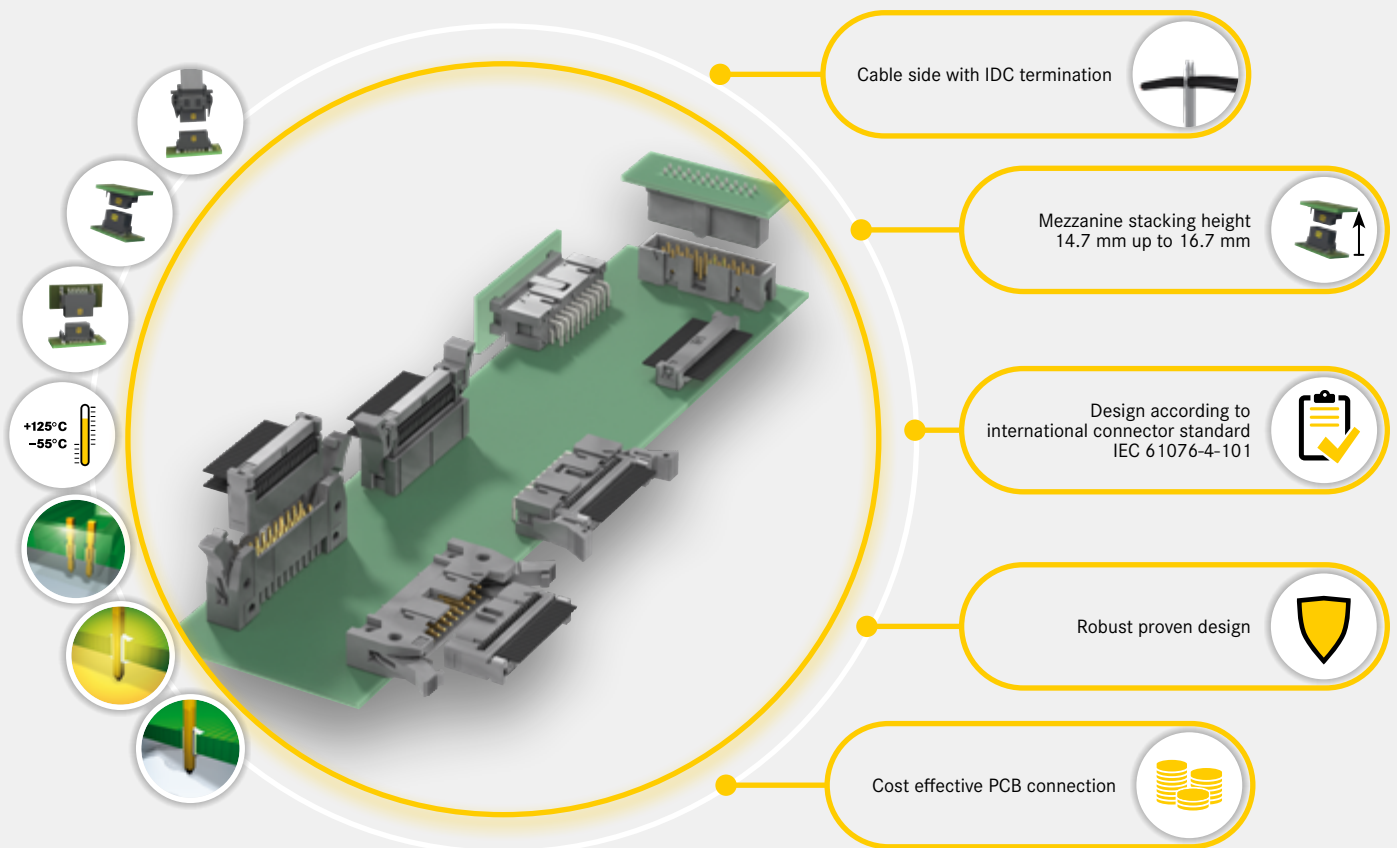


SEK



SEK is the ideal solution for appliance manufacturers when two or more PCBs in the device need to be connected. The PCB connection in the device is traditionally made using ribbon cable (cable-to-board) or achieved with a mezzanine or motherboard-to-daughter card arrangement.

- A compact, economical and reliable solution for your application
- Between 6 and 64 contacts, in 2.54 mm pitch
- Technology that has been proven in millions of actual applications.
- With or without locking device
- Currents up to 2 A



har-flex®



SMALL | FLEXIBLE | ROBUST

har-flex® is the flexible solution for space-saving PCB connections. Optimised for the demanding industrial applications, this robust connector offers a wide range

of applications thanks to the wide range of types and number of pins.

The central image shows a green PCB with a har-flex connector assembly. A ribbon cable is connected to the top of the connector. Below the main assembly, several individual connector components are shown, including different pin counts and configurations. To the left of the main assembly, a temperature scale icon indicates a range from +125°C to -55°C. To the right, five callout boxes provide specific technical details:

- Mezzanine stacking height of 8 to 20 mm** (Icon: Stacking height diagram)
- Exact fit: even number of pins possible from 6 to 100** (Icon: Pin grid diagram)
- Space-saving pitch of 1.27 mm** (Icon: Pitch diagram)
- Transmits data up to 3 Gbit/s** (Icon: Data rate icon showing 0101 and 1010)
- Particularly robust, mechanical hold-downs in SMT or THR** (Icon: Shield and hold-down diagram)

har-flex® Hybrid/Power & har-flex® HD Card Edge

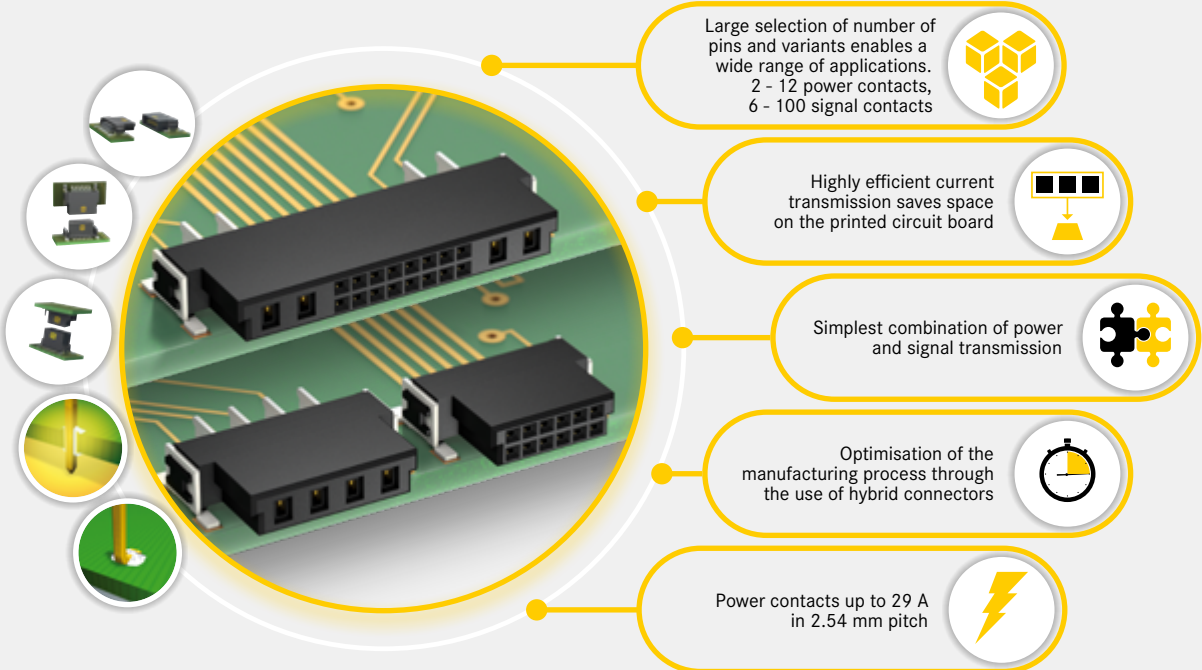


har-flex® Power

The solution for pure power in miniature format. The simple combination with har-flex® Signal makes it easy to separate signal and power transmission, even with particularly high currents.

har-flex® Hybrid

har-flex® Hybrid is the fusion of power and signal. The board-to-board connector is the most effective combination of signal and power transmission.



Large selection of number of pins and variants enables a wide range of applications. 2 - 12 power contacts, 6 - 100 signal contacts

Highly efficient current transmission saves space on the printed circuit board

Simplest combination of power and signal transmission

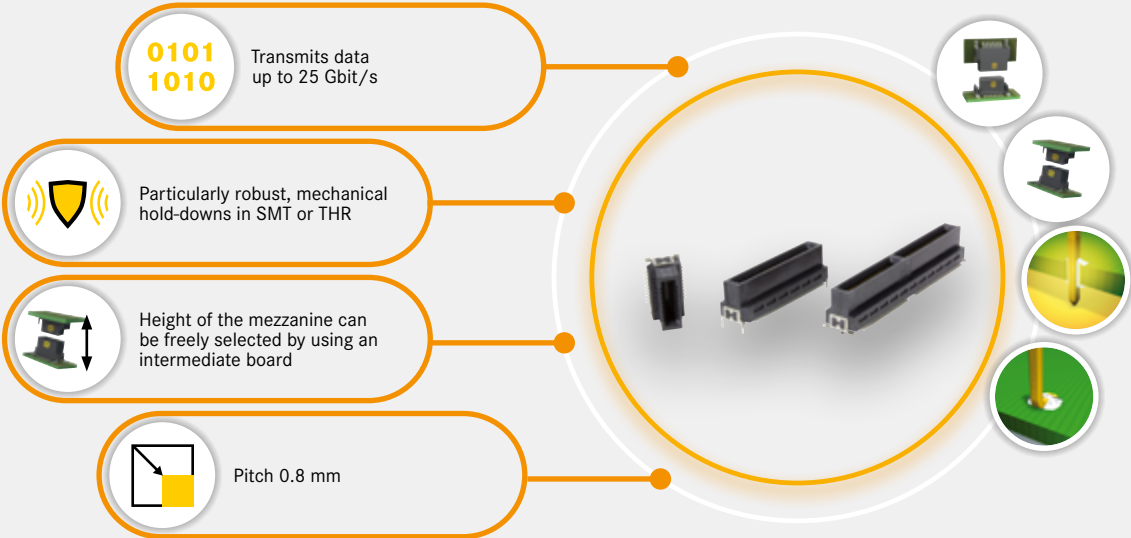
Optimisation of the manufacturing process through the use of hybrid connectors

Power contacts up to 29 A in 2.54 mm pitch

har-flex® HD Card Edge

The har-flex® HD-Card Edge connector is suitable for the transmission of high data rates of up to 25 Gbit/s.

1.6mm boards can be directly plugged into a mezzanine or mother-to-daughter card design using a choice of 20 to 140 contacts in increments of 20.



0101
1010 Transmits data up to 25 Gbit/s

Particularly robust, mechanical hold-downs in SMT or THR

Height of the mezzanine can be freely selected by using an intermediate board

Pitch 0.8 mm

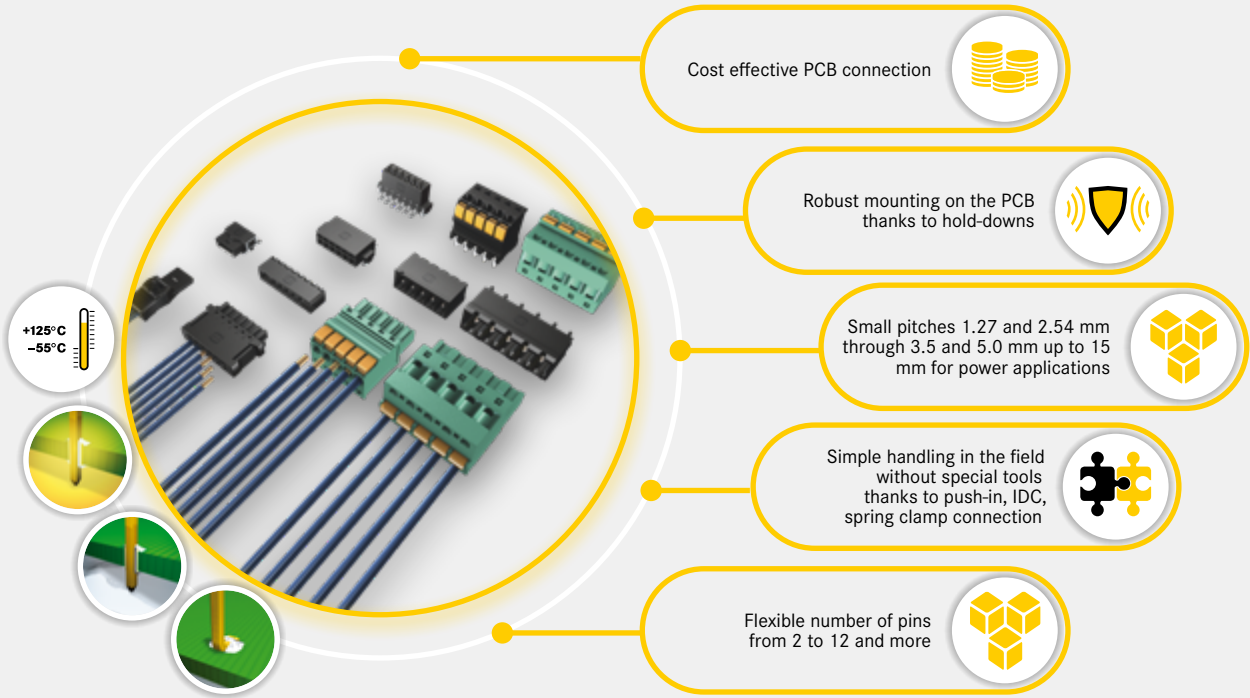


har-flexicon®

har-flexicon®

har-flexicon® is the compact and robust PCB connection technology for single wires and thus ensures a perfect

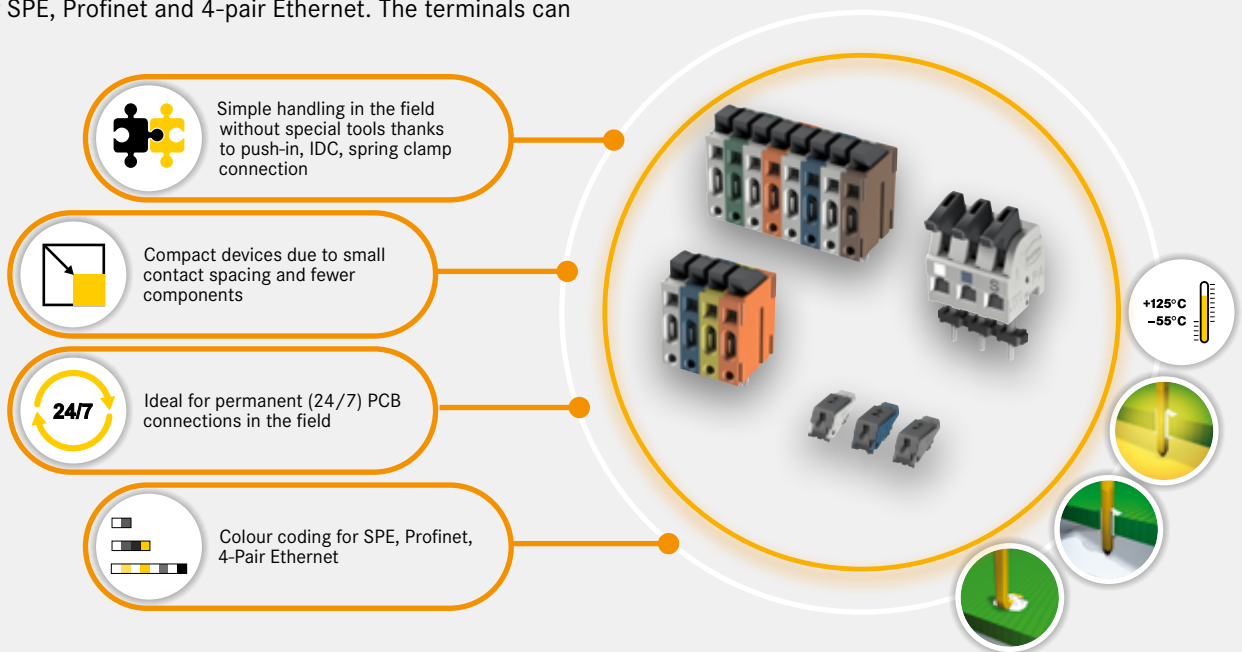
connection between periphery and PCB for industrial devices.



har-flexicon® for Ethernet

har-flexicon® for Ethernet offers terminal block solutions for SPE, Profinet and 4-pair Ethernet. The terminals can

be used for data rates of 10-100 Mbit/s and more.



har-drive®



har-drive® connector family is a flexible solution for signal and power interfaces for decentralised drives.

The number of pins can easily be adapted to your requirements, as can the stacking height of the board-to-board mezzanine solution.

+70° C
-40° C

Space saving on the PCB due to individually selectable number of pins

Cost effective PCB connection

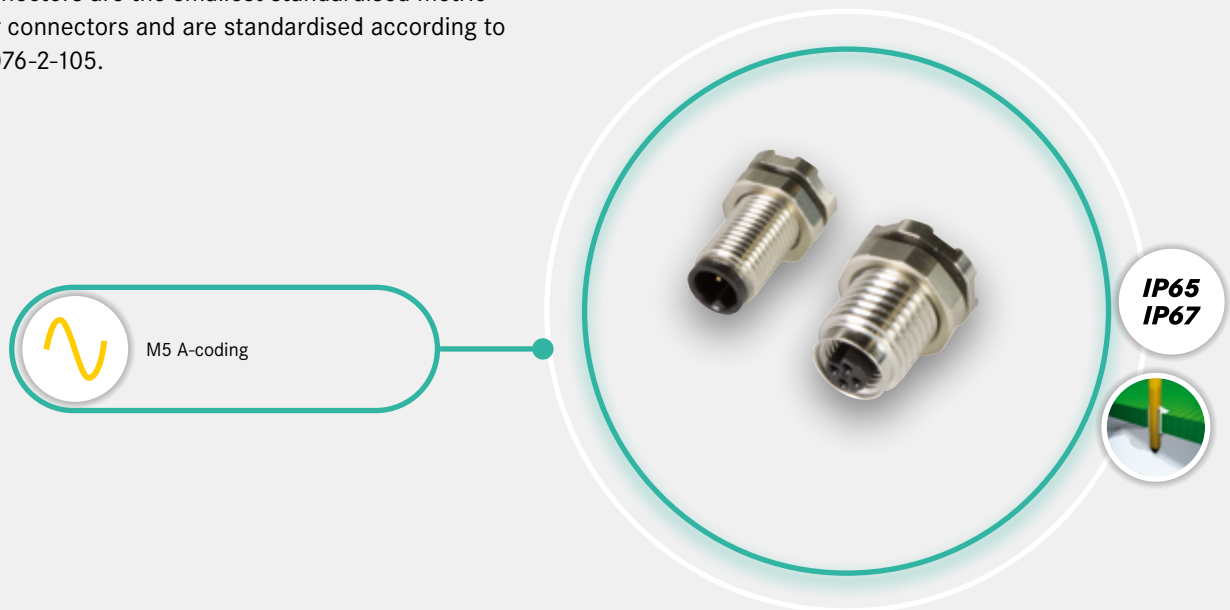
M5/M8 Circular connectors



The M5, M8, M12 and M23 circular connectors are typical connector solutions in the industrial IP65/IP67 environment. They are compact and robust solutions for data, signal and power transmission on both the cable and the device side.

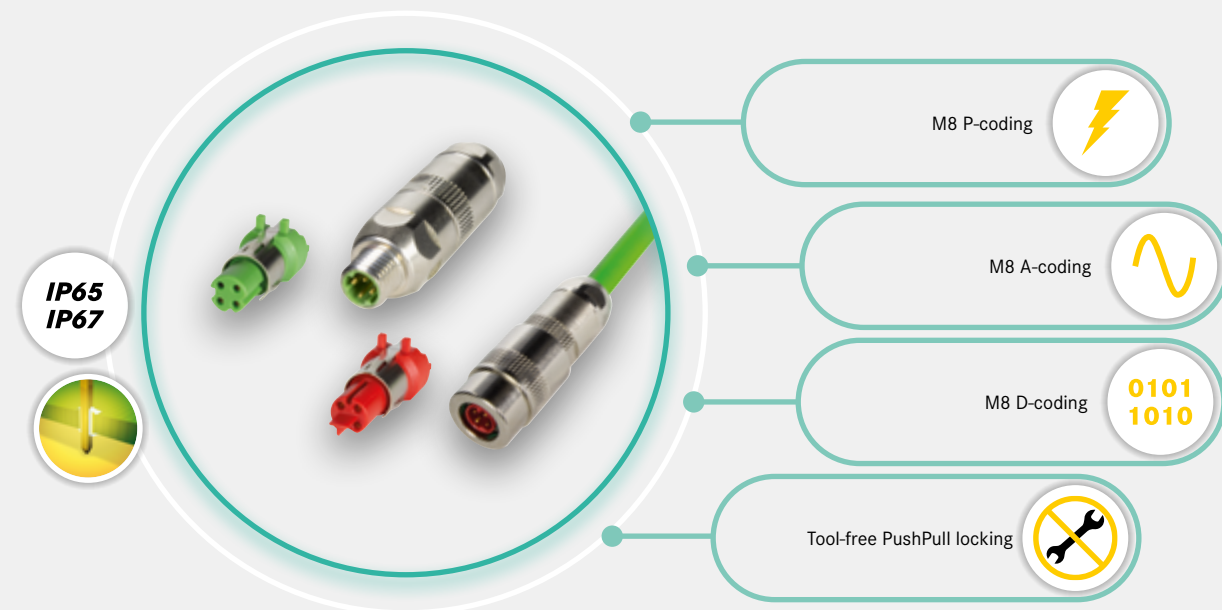
M5 Circular connectors

M5 connectors are the smallest standardised metric circular connectors and are standardised according to IEC 61076-2-105.



M8 Circular connectors

According to IEC 61076-2-104/ -114, M8 circular connectors are standardised and ideally suited for miniaturised signal and data transmission.



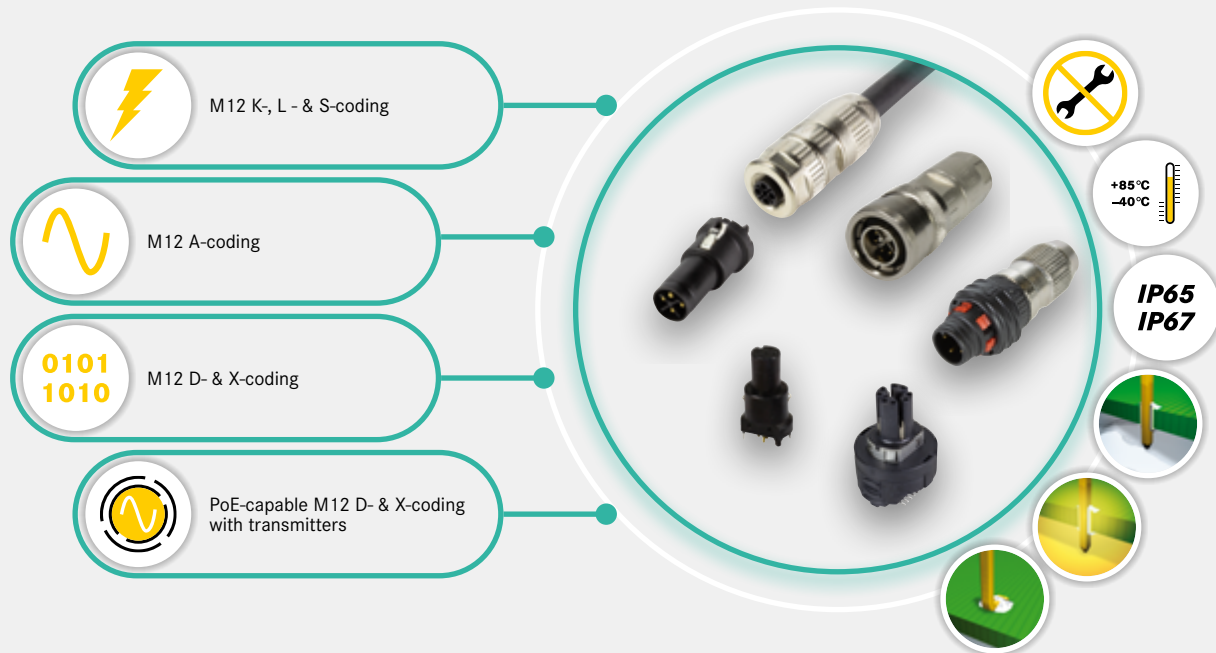
M12/M23 Circular connectors



M12 Circular connectors

M12 connectors are the most widely used circular connectors in the industrial environment. Various M12

codings are standardised in IEC 61076-2-101/ -109/ -111/-113 and are used for power, signal and data transmission.



M23 Circular connectors

M23 circular connectors are used in industrial applications when high power needs to be transmitted or many

signal contacts need to be bundled.



D-Sub



For many years, the D-Sub connector has provided a proven solution for bus signals in industrial applications. It is available in more pole counts, variants, housings, contacts and versions than practically any other industrial connector. Its long history and continuous evolution have made the D-Sub series such as High Density, Mixed and Filter, just to name a few examples, the all-purpose interface for demanding industrial applications.

Series	a*	Benefits
D-Sub Standard	1 - 5	Max. 7.5 A
D Sub High Density	1 - 5	More contacts than in standard D-Sub
D-Sub IP67	1 - 5	Waterproof
D-Sub Mixed	21	Maximum flexibility
D-Sub Filter	1- 4	Protection against electromagnetic interference

HARTING T1 Industrial



The HARTING T1 Industrial according to IEC 63171-6 is the standardised Single Pair Ethernet (SPE) mating face for industrial applications. This standard includes all variants from IP20 to IP65/67 in the form factors IP20, M8 and M12. The mating face is designed for high-performance Ethernet data transmission for all SPE standards up to 10 Gbit/s.

IEEE transmission standards

10 Mbit/s	1000 m	IEEE 802.3cg	10BASE-T1
100Mbit/s	15 m	IEEE 802.3bw	100BASE-T1
1 Gbit/s	40 m	IEEE 802.3bp	1000BASE-T1
2.5/5/10 Gbit/s	15 m	IEEE 802.3ch	MultiGigBASE-T1

With Power over Data Line (PoDL) phantom powering up to 50 W at the end device according to IEEE 802.3bu

IP20 and IP65/67 for applications in control cabinets and harsh industrial environments

IP20
IP65
IP67

Resistant to shock and vibration according to IEC 61373 category 1B

Robust connector: designed for up to 1,000 mating cycles

Space saving design

+85°C
-40°C

360° shielding

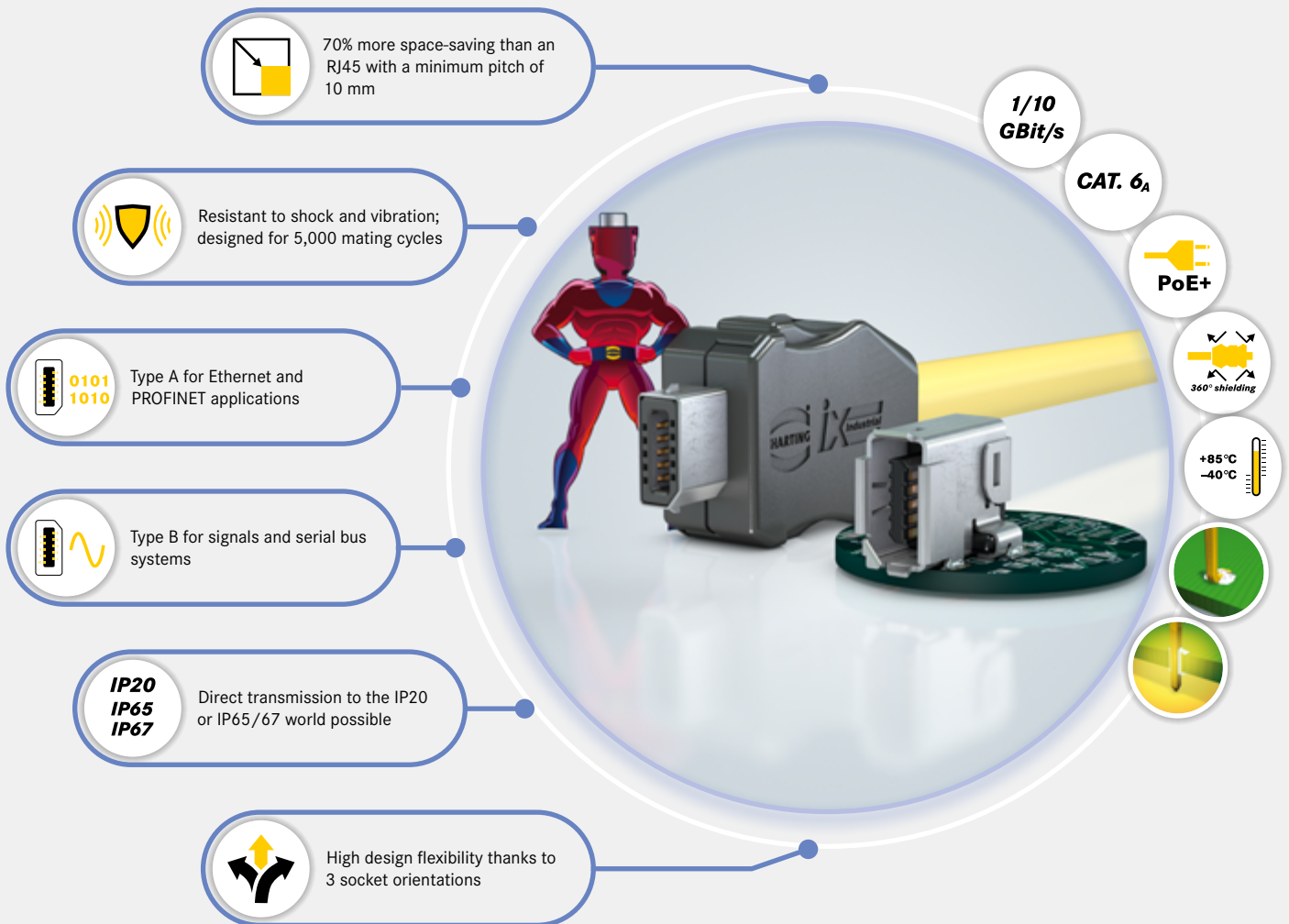
1/10
Gbit/s

HARTING ix Industrial®



The HARTING ix Industrial® connector, standardised according to IEC 61076-3-124, is the robust, miniaturised and high-performance alternative for the future. Adapted to the harsh industrial conditions, the ix Industrial® with

its different mating faces offers the perfect alternative for RJ45 Ethernet interfaces (type A) as well as for common signal and bus interfaces (type B).

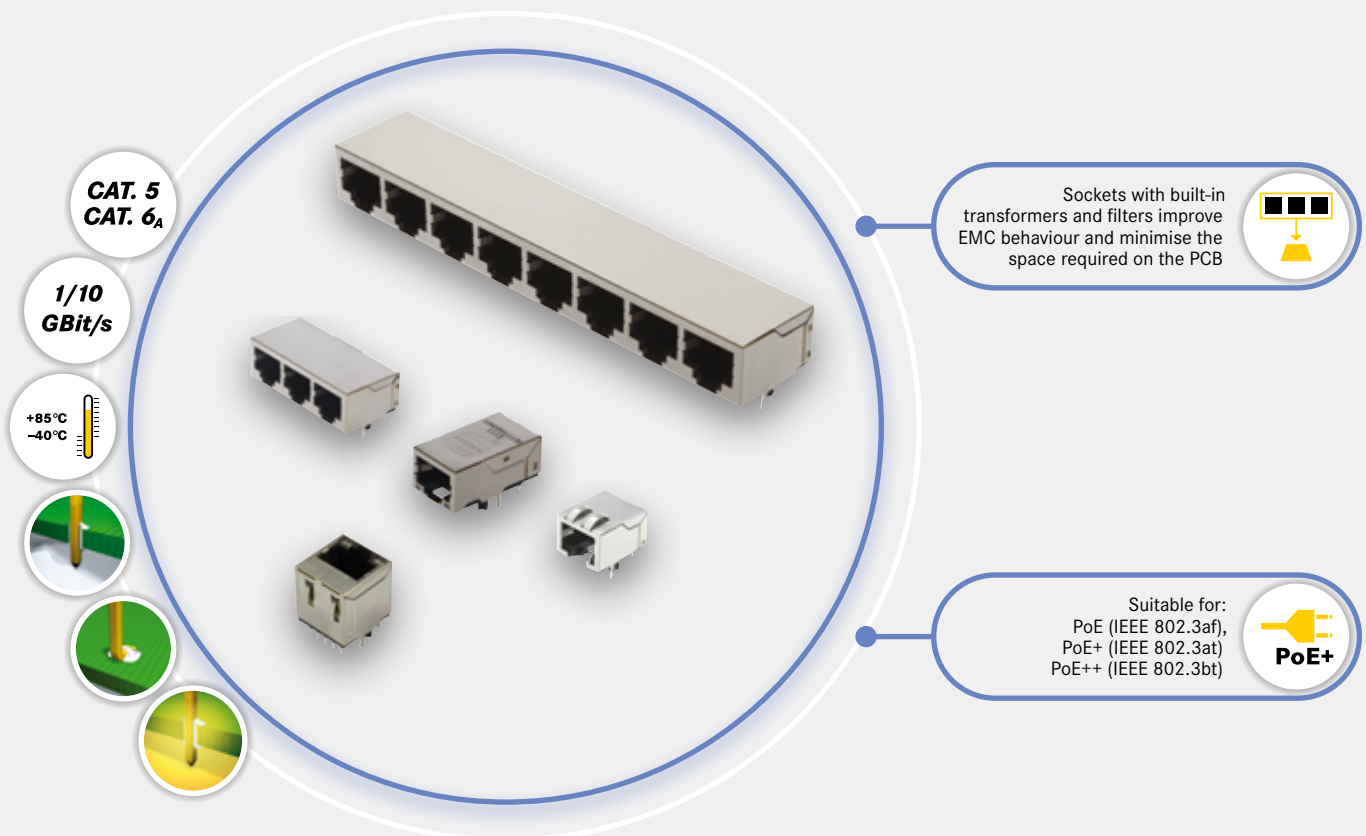


HARTING RJ Industrial®



The HARTING RJ Industrial® connector family is based on the RJ45 standard and was specially developed for use in harsh industrial environments. For the fast and secure connection of the 2- or 4-pair Ethernet cable, the appropriate PCB sockets are available for the device side

up to a transfer rate of 1/10 Gbit/s, optionally with or without transformer, in reflow version or as THT version, in straight or angled type.

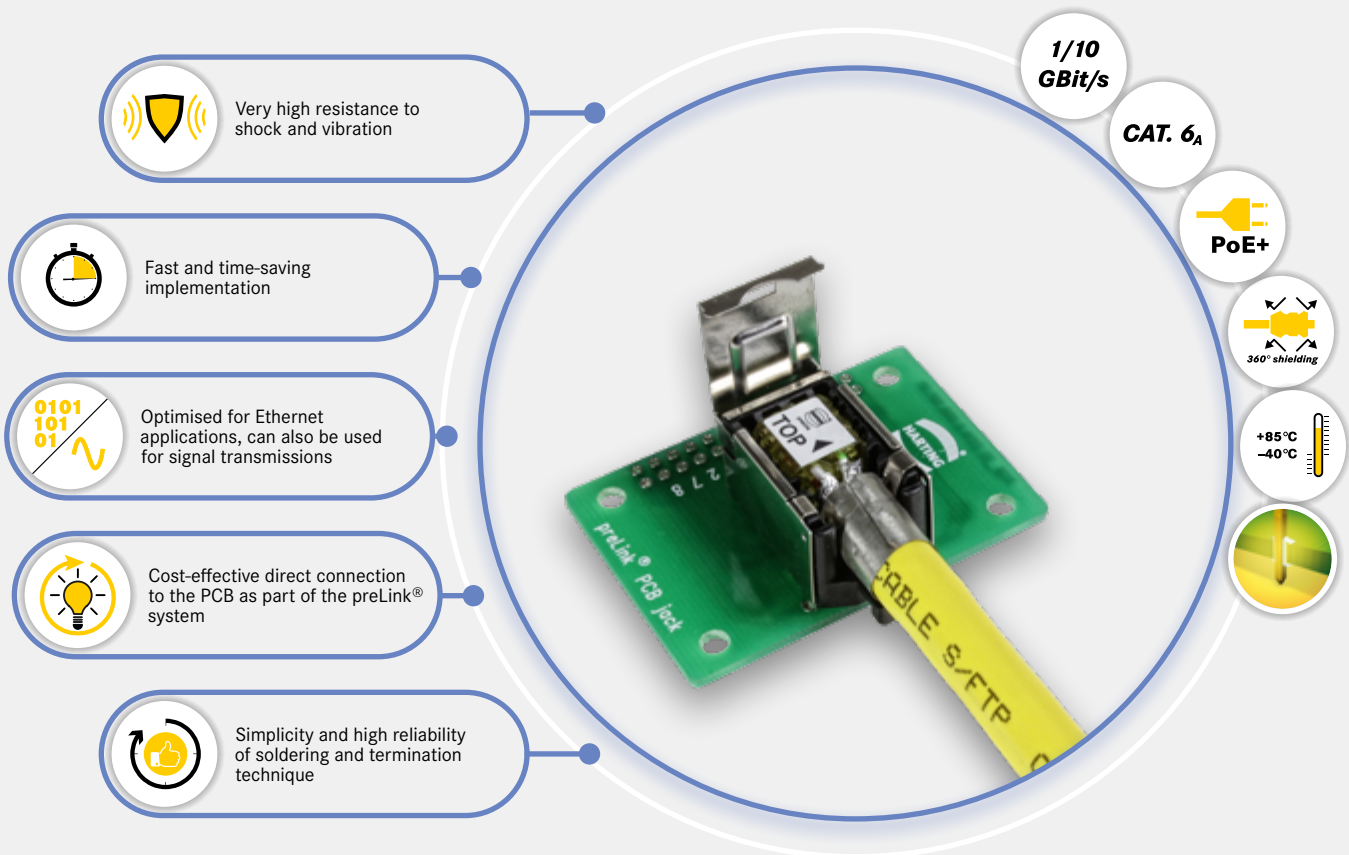


HARTING preLink®



HARTING preLink® is a modular Ethernet cabling technology for IT, automation and industry. All preLink® connectors and sockets, as well as the PCB socket, can

be connected in seconds with the preLink® termination block.



PushPull connectors

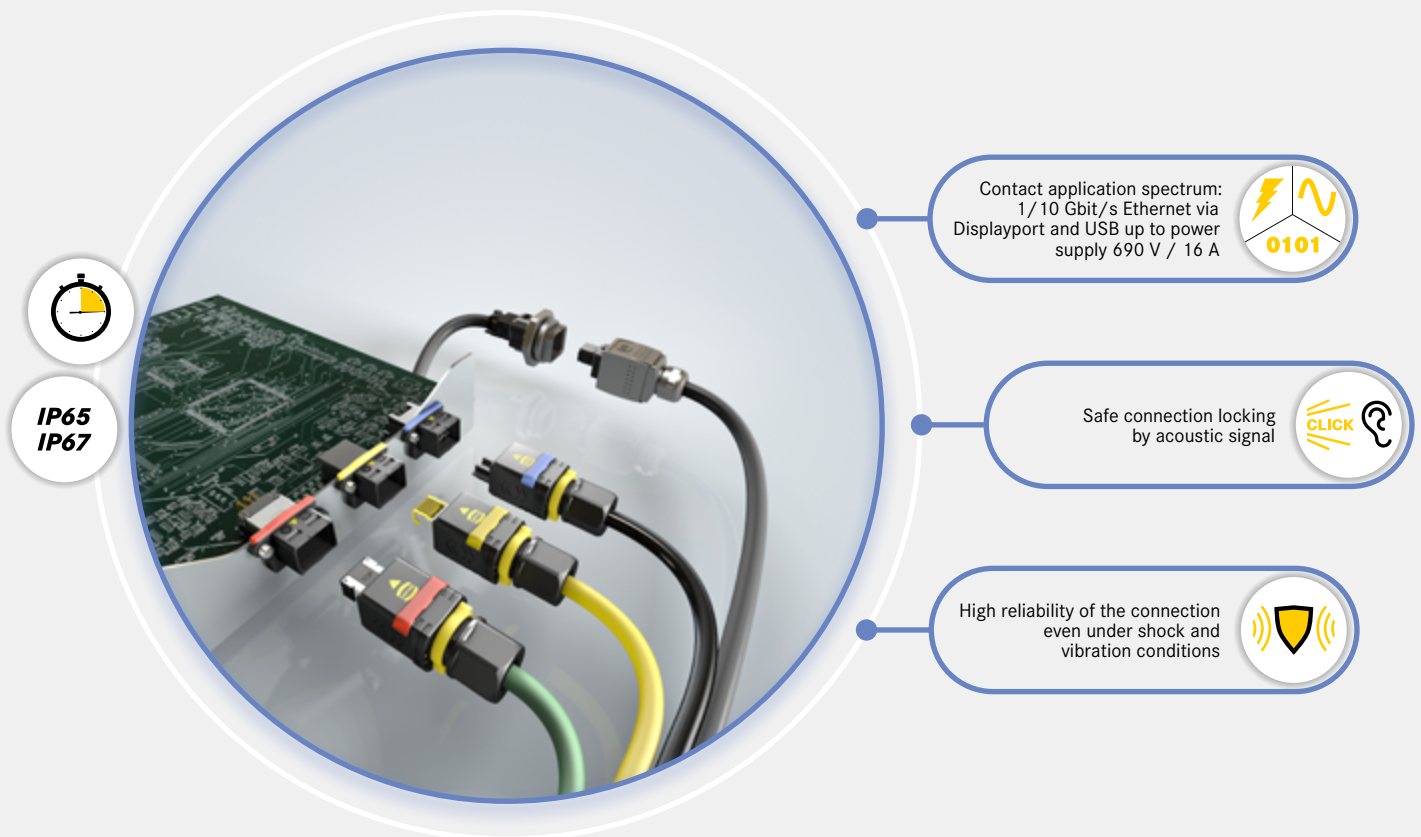


The PushPull connector family is designed for transmitting optical and electrical communications, as well as signals and power.

The HARTING PushPull locking technology is the simplest to work with and has minimal space requirements. As a true device connector, the PushPull is perfect for device communications because of its high assembly density, high bandwidth and outstanding signal integrity.

PushPull connectors are the ideal device connection technology for all industrial electronics devices executed to protection classes up to IP65/67, from sensors to controls and industrial computers.

There is an integrated product portfolio for data, signals and power. The spectrum of available contact carriers ranges from 1/10 Gigabit Ethernet to 690 V / 16 A power supply also with standardised mating faces such as RJ45, SC-RJ, LC Duplex, Mini DisplayPort and USB, among others.



Industrial connectors Han®



Industrial connectors Han® with degree of protection IP65/67 represent the worldwide connector standard with regard to safe installation, efficient commissioning and servicing of machines and plants. The modular design of machines and systems becomes rational and economical through the use of Han® connectors. The strengths of these connectors include their wide range of applications, the breadth of applications and

the robustness. The well-known advantages of the Han® connector family are also available for direct device connectivity. This makes it possible to install control cabinet-based automation and decentralised IP65/67 devices using identical connectors and provides the user with investment security and operational safety.

0101

**IP65
IP67**

+125°C
-40°C

Currents up to 40 A

Modular PCB adapters

Compatibility of the components with each other ensured

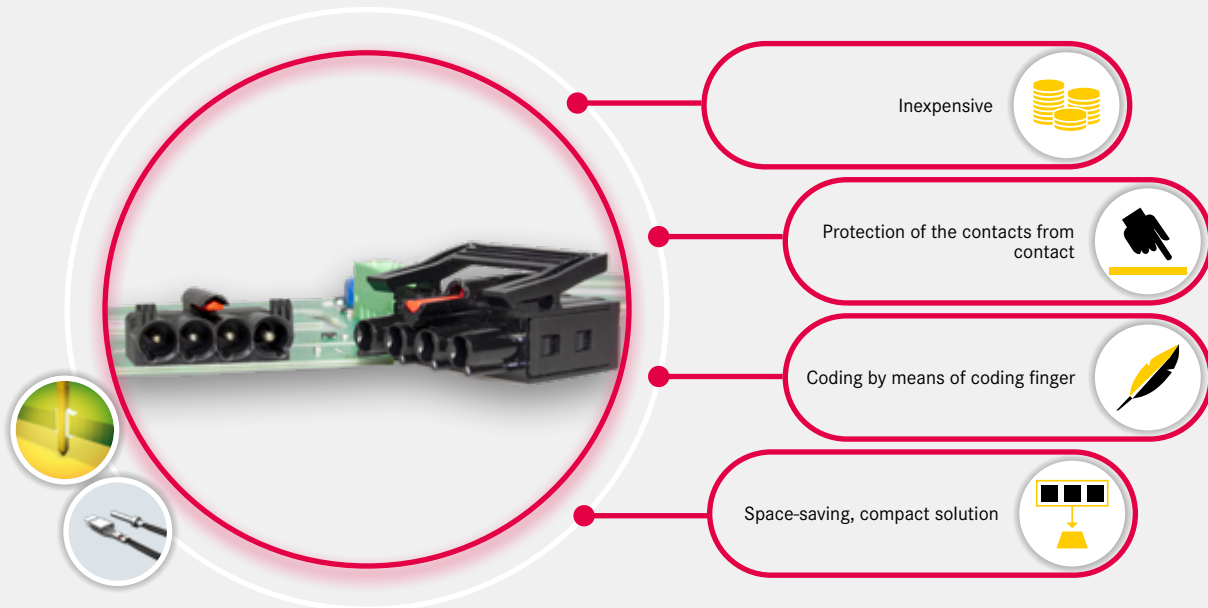
Suitable for harsh industrial environments

Han® Board & Han-Fast® Lock



Han® Board

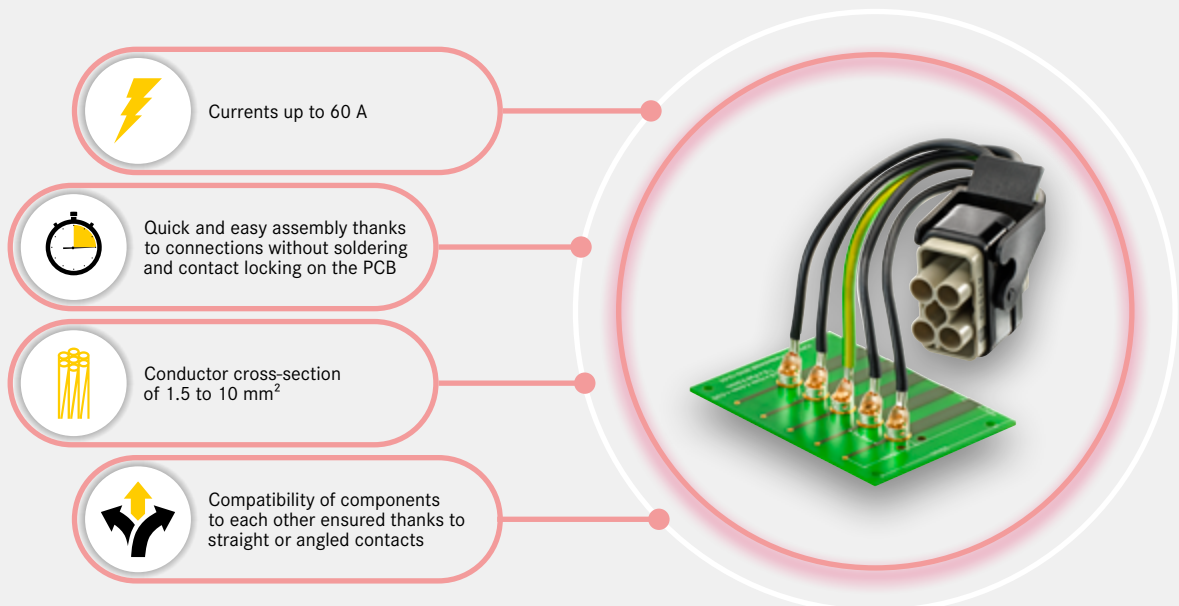
Han® Board is a power connector that can be used to supply power to a board via a three-phase mains supply.



Han-Fast® Lock

Han-Fast® Lock is a solderless PCB connector that is used for directly connecting the cable on a PCB.

PCB contact locking directly on the PCB means that machine processing and fast assembly of the PCB is possible.



Digital services

Suitable digital services for our products can be found in our eShop and on the product detail pages. These services help you to save time and reduce errors. Register for free with myHARTING and enjoy the wide range of benefits offered by our digital services and tools.



Design your individual PCB connector with the *har-modular*[®] configurator!



9 different modules - 31 different lengths - 1 billion possibilities.

With the *har-modular*[®] configurator, you can quickly and easily create an individual PCB connector for your specific application, with a comprehensive engineering data package already provided to you upon completion of the design. Now it's up to you - CREATE YOUR OWN.

Configure your suitable solution in our M23 Configurator!



6, 7, 9, 12, 17 or rather 19 contacts?

In our M23 configurator you can quickly and easily find your suitable device interface and also immediately check whether a suitable cable side is available.

The configurators offer these advantages:

- A guided configuration – just a few steps to your finished complete connector solution
- Enables the simple compilation of a customised solution from a complex portfolio
- Prepares all necessary design-in data and documents
- Detailed 3D live visualisation for a visual check
- Reduced complexity and error prevention ensures safety and time savings
- Collaboration made easy with simple sharing of the configuration ID
- Access to all configurations in your personal account – independent of time and location
- Easy to add from the watch list, the shopping basket or via copy and paste

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Pushing Performance
Since 1945

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the gateway to your country website.
