HARTING



Component Range



Quality – made in Germany



This is the basis of the HARTING Technology Group's fundamental principle: to supply the market and therefore our customers only with top quality products which meet the highest international standards. Our organisation is certificated to EN ISO 9001 and CECC 00114, part 1. Our central laboratory is accredited according to EN 45 001.

Throughout the electronic and electrical industries, due to a large investment in automatic high volume production machinery, HARTING is a reliable supplier.

Constant high quality volume production is maintained by stringent quality control systems.

HARTING products are used throughout the electrical and electronic industries wherever connectors, inter-connection systems and solenoids are required and specifically where data processing, control and measurement applications are involved, e.g. from microprocessors to automatic car assembly lines.

Our marketing structure is based on the theory of proximity to the customer: you will find subsidiaries in 23 countries around the world and agencies in many other countries.

Find out more about HARTING products.

We will be pleased to advise you on existing products and our development programme. Information is freely available in full colour, comprehensive, easy to use catalogues.

To obtain your detailed information please use the detachable reply coupon.



Industrial connectors Han®



HARTING industrial connectors, with degree of protection IP 65/68 for secure, robust and pluggable electrical connections for use in the most demanding industrial environments. The product range also has inserts for sensitive signal transmissions through to modular contacts for energy transmissions up to 650 A.

Distinct features/

advantages:

On-the-spot-installation of machines and

plants

Disassembly and reassembly of production

lines when moved

Quick exchange of cables (i.e. in case of cable break)

Connection of test and diagnostic devices (i.e. on vehicles)

Exchange of production units for a model

change etc.

Numbers of contacts: 1 - 216 poles + PE

Rated voltage: 25 V up to 5000 V

Rated current: 5 A up to 650 A

Terminations: Screw terminal

Crimp terminal

HARAX® insulation displacement contact (IDC)

Cage clamp terminal Axial screw terminal PCB solder terminal Solder and wrap terminal

Accessories: Protection covers and cable glands/clamps

UL, CSA for inserts Approvals:

Nema 4/12 for hoods and housings

CCC





Components for cabinets and boxes



Connectors

Series: Han-Snap®

Series for connectors within closed electrical

operating environments

Frontpanel interfaces

Series: Han-Port®

> Single- and double frames for power and signals

Plug sockets

for European and international markets

Data inserts using standard interfaces

PCB Adaptor

Series: Han® Q; Han DD®; Han E®; Han-Modular®

 $\rm Han^{\otimes}$ Q 5/0, $\rm Han^{\otimes}$ Q 7/0 $\rm Han$ $\rm DD^{\otimes}$ Type:

Han E®

Han DD® module, Han® axial screw module





Components for energy transfer and distribution



Energy distribution

Series: Han-Power®

Types: Han-Power® S
Han-Power® T

Connectors

Series: Han® Q, Han-Compact®

Types: Han® Q 5/0

Han® Q 7/0 Han® Q 8/0 Han® Q 17 Han® Q 4/2

System cables

Number of contacts: 5 - 17

Working voltage: max. 500 V Working current: max. 40 A

Fields of application: Transfer of power

Approvals: UL, CSA





Fibre optic data link systems and components



Electro-optic converters:

Solutions for optical wavelengths 660 nm,

850 nm and 1300 nm

Optical transmitter and receiver for F-ST and

F-SMA

Special versions with up to 16 optical ele-

ments

Optical transceivers for M12 connectors

Connectors: Simplex and multipole connectors for glass and polymer optical fibres

Quick assembly connectors

for polymer optical fibres

Contacts for glass and polymer optical fibres for use in Industrial Han® connectors

Connectors up to IP 68

M12 connectors for fibre optic

Cables: For in- and outdoor applications

Hybrid cables

Cable assemblies: Cable assemblies with fibre optic and hybrid

cables

Customer specific harnesses

Accessories: Tools for connector assembly

and test equipment for service purposes





Devices and system components for automation



M8- and M12-connectors with HARAX® rapid termination technique

Types: M8-, M12-connectors, sensor-/actuator boxes, panel feed through, valve connector

Number of contacts: 3 - 4

Working voltage: max. 250 V

Working current: max. 6 A

Fields of application: Electrical sensors and actuators,

automation technology

HARAX® M12-L

Types: This robust family of connectors is based on

the standard M12 connector pattern. It is specially developed for two cores Ethernet

cabling.

Assembly: One-site assembly for cables with diameters

from AWG 22 to ÁWG 24 is possible without special tools. *HARAX*® IDC termination technology allows multiple use of the connector.

Variants: Data IP 67 shielded, with D coding

Specifications: Transmission properties in accordance with

Category 5, ISO/IEC 11801:2002

PROFINET approval for Industrial Ethernet





Solutions for PROFIBUS®



Our network components for PROFIBUS® are designed to be used directly in the field. The high degree of protection up to IP 65 / IP 67 and the implementation of robust metal housings make our components suitable for rough industrial environment. The cabling system is DESINA® conform.

Advantages: Reduced termination for setting up industrial

networks

No need of add. termination box

Space-saving, can be mounted directly within

machines and installations

Plug & Play installation

PROFIBUS®:



Media converter PROFIBUS® / F.O. PROFIBUS®-repeater

Transmission rates up to 12 Mbit/s Standard Han-Brid® Hybrid connection Degree of protection up to IP 65 / IP 67

Accessories: Panel feed-through





Solutions for Industrial Ethernet



Our network components for Industrial Ethernet are designed to be used directly in the field. The high degree of protection up to IP 65 / IP 67 and the implementation of robust metal and plastic housings make our components suitable for rough industrial environment and almost all applications without switch cabinets or termination boxes.

Advantages: Reduced termination for setting up industrial

networks

No need of add, termination boxes

Space saving, can be mounted directly within machines and installations

Plug & Play installation

Ethernet Switches: Fast Ethernet

Industrial Outlets:

(data transmission rate up to 100 Mbit/s)

Ethernet interfaces according to the PROFINET standard (conformance class A up to E) and

ODVA standard

Active network components (IP 30) for control cabinets; up to IP 67 for applications directly in

the field

Extended temperature range and mechanical

stability for highest industrial requirements For structured industrial building network

according to the ISO/IEC 11801:2002 stan-

dard

Data transmission capacity acc. to Category 5 and 6, ISO/IEC 11801:2002 and EN 50 173-1

Ethernet interfaces according to the PROFINET and ODVA standard. Interfaces in acc. to the standard for generic building cabling (ISO/IEC

24702)

Optimized termination technology with high data security. Outlets (IP 30) for control cabinets; up to IP 67 for applications directly in

the field





Solutions for Industrial Ethernet



Connectors

HARTING RJ This modular family of connectors is based on

Industrial®: the standard RI45 connector pattern. It is specially developed for two cores

Ethernet cabling.

On-site assembly for cables with diameters Assembly:

from AWG 22 to AWG 24 is possible without special tools. HARAX® IDC termination techno-

logy allows multiple use of the connector.

Data IP 20 Variants:

Data IP 67 integrated in a Han® 3A hood Data IP 67 integrated in a Push Pull hood Hybrid IP 67 integrated in a Han® 3A hood

Specifications: Transmission properties in accordance

with Category 5 and Category 6,

ISO/IEC 11801:2002

PROFINET approval for Industrial Ethernet

HARAX® M12: This robust family of connectors is based on

the standard M12 connector pattern. It is specially developed for two cores Ethernet

cabling.

Assembly: One-site assembly for cables with diameters

from AWG 22 to AWG 24 is possible without special tools. HARAX® IDC termination technology allows multiple use of the connector.

Variants: Data IP 67 shielded, with D coding

Specifications: Transmission properties in accordance with

Category 5, ISO/IEC 11801:2002

PROFINET approval for Industrial Ethernet





Solutions for Industrial Ethernet



Cable and cable assemblies

Cable

Fields of application: Robust Ethernet cables, specially designed for

industrial applications. Specified for Ethernet cabling according to PROFINET specifications,

if applicable.

Cable types: 2 cores, for fixed, flexible, power chain and

outdoor installations

4 cores, for flexible and outdoor installations
Hybrid cables with 4 data cores and 4 power

supply cores, for flexible installations

Assembly: Specially designed for assembly to the

HARTING RJ Industial® family of connectors.

Transmission Category 5 and 6 in accordance with

properties: ISO/IEC 11801:2002

Cable assemblies

Fields of application: Assembled and tested system cables for the

structured cabling of Industrial Ethernet networks, based on RJ45 connectors. In accordance with the PROFINET guideline,

if applicable.

Cable type: All HARTING RJ Industrial® Ethernet Twisted

Pair Cables

Transmission Class D and E in accordance with properties: ISO/IEC 11801:2002, 100 % tested

Connectors: All HARTING RJ Industrial® connectors. IP 20

data variant is available overmoulded as well.

Cable length: 1.5 m, 3 m, 5 m, 10 m, 20 m, 50 m, 100 m





PCB connectors Contact spacing 2.54 mm



Connectorsacc. to IEC 60 603-2DIN 41612contact spacing 2.54 mm

Types: B, C, D, E, F, FM, H, MH, M, Q, R, R (HE 11), short types 2B, 2C, 3C, 2F, F9, H 3, 2Q, 2R,

har-bus® 64 for VME 64x (acc. to IEC 61 076-4-113)

Number of contacts: 3 - 160

Working current: 2 - 15 A

max. 40 A (special contacts)

Terminations: Straight and angled solder pins

Solder lugs

Press-in technique

SMC (Surface Mount Compatible) types

Crimp terminal

Wrap posts 0.6 x 0.6 and 1 x 1 mm Insulation displacement terminal

Faston blade Cage-clamp terminal

Accessories: Extensive range of complementary hoods made

from plastic, metallized plastic or full metal

Fixing brackets and interfaces

Shrouds

Tooling for press-in and crimp termination

Service: Concepts for SMC and press-in technique

Approvals: UL, VDE, IEC, CECC





Metric connectors Contact spacing 2.5 and 2 mm



Metric connectors

<u>har-bus® HM/HM+</u>

with 5 resp. 8 rows

Types:

acc. to IEC 61076-4-101

contact spacing 2 mm / CompactPCI A, AB19, AB22, AB25, B19, B22, B25, C, D, DE,

E, Monoblock 47 (A + B₂₂)

SMC (Surface Mount Compatible) types

Number of contacts: max. 308, incl. shielding max. 220 signal contacts

har-bus® HM 6 row

Extension of IEC 61 076-4-101

contact spacing 2 mm

Types: Modules with optional features as guiding, coding and end wall

SMC types

Number of contacts: 72 or 144 signal contacts

har-bus® HM Power

Types: Straight female press-fit modules

Angled male press-fit and SMC modules

Lagging / leading contacts

Working current: max. 23 A at 70 °C

har-pak® acc. to DIN 41642 / IEC 61076-4-100

contact spacing 2.5 mm

Types: 1 SU, 2 SU, 2.3 SU, 4 SU, 5.4 SU, 9 SU

and 10 SU (1 <u>S</u>ystem <u>U</u>nit = 25 mm)

Number of contacts: 1 up to 475 Working current: max. 4 A

All connector families

Accessories: Tooling for press-in termination

Service: Shielding effectiveness measurements

Signal integrity analysis

Computer simulations (3D-FEM)

EN ISO 9001 and 14001 certified

SPICE modelling

Concepts for SMC technique UL, CSA, VDE, IEC, CECC

Approvals: UL, CSA, VDE, IEC, CECC





Telecom Computing Architecture (TCA) connectors acc. to PICMG specification



AdvancedMC™ connector for AdvancedTCA®



According to: PICMG AMC.0 specification

Type: B+

Right angled card edge connector for direct mating with Advanced Mezzanine Cards (AdvancedMCTM). The connector is mounted on an AdvancedTCA® carrier board.

Number of contacts: 170 Contact spacing: 0.75 mm

Termination: Press-in needle-eye contacts, 0.55 mm pcb

hole diameter

High speed transmission: Suitable for 12.5 Gbps applications

AdvancedMC™ connector for MicroTCA™



According to: PICMG MicroTCA.0 specification

Type: Standard signal connector

Straight card edge connector for direct mating with Advanced Mezzanine Cards (AdvancedMC^{IM}). The connector is mounted

on the MicroTCÁ™ backplane.

Number of contacts: 170 Contact spacing: 0.75 mm

Termination: Press-in needle-eye contacts, 0.55 mm pcb

hole diameter

High speed transmission: Suitable for 12.5 Gbps applications

Both connector families

Accessories: Tooling for press-in termination

Design-in support: Signal integrity data

(S-parameter, TDR, eye-diagrams) Simulation data and models (e.g. SPICE) Test boards and 3D models (STEP, IGES)



Mini Coax connector system



Mini Coax

Types: 1 SU, 1.25 SU, 1.5 SU

(1 <u>S</u>ystem <u>U</u>nit = 25 mm)

Number of contacts: 2, 4, 6, 8 and 10

(other loadings on request)

Frequency range: 0 - 2.5 GHz

Nominal impedance: 50Ω

Termination: Press-in technique

Mini Coax+

Frequency range: 0 – 4 GHz

Nominal impedance: 50Ω

Termination: SMT / SMC (Surface Mount Compatible)

Both connector families

Accessories: Tooling for press-in termination

Pre-assembled cables Termination loads

Service: Shielding effectiveness measurements

Signal integrity analysis

Computer simulations (3D-FEM)

SPICE modelling

Approvals: UL, VDE, IEC, CECC





Standard, IP 67 subminiature D connectors



<u>D-Sub</u> acc. to CECC 75 301-802

Number of contacts: 9, 15, 25, 37, 50

Working current: 2 - 7.5 A

Fields of application: Industrial electronics, office electronics,

information and telecommunication technology.

Terminations: Solder buckets

Straight and angled solder pins European, US and low-profile footprint SMC (Surface Mount Compatible) types

Wrap terminals
Crimp terminals

Insulation displacement termination

Press-in technique

Accessories: Extensive range of hoods: plastic, metallized

plastic, plastic with internal metal plate and full metal with a large choice of locking systems.

Approval: UL

D-Sub IP 67 acc. to DIN 40 050, IEC 529

Number of contacts: 9, 15, 25, 37, 50

Working current: 5 A

Fields of application: Any market where liquid ingress is forbidden like Industrial, Medical, Machinery and Transportation.

Terminations: Rear panel mount straight and angled for pcb

application

Rear and front panel mount solder cup Solder cup for cable inside application in conjunction with IP 67 hood range

Accessories: IP 67 hoods black or metallized thermoplastic with

a large range of screws

Front sealing rubber for full IP 67 mated system

application

Approval: UL





Mixed, high density, filter subminiature D connectors



D-Sub mixed acc. to DIN 41652 T1

MIL-C 24 308

Versions: 2W2C, 3W3, 3W3C, 5W1, 5W5, 7W2, 7W7,

8W8, 9W4, 13W3, 13W6, 17W2, 21W1, 21WA4, 24W7, 25W3, 27W2, 36W4

Signal 5 A; power up to 40 A Working current:

Terminations: Solder cup Crimp terminals

SMC (Surface Mount Compatible) types on

request

Accessories: Wide range of special contacts, like coaxial,

> power and high voltage Special accessories like blind mating kits

D-Sub high density

Number of contacts: 15, 26, 44, 62, 78

Working current: 2 A max.

Terminations: Straight and angled solder pins

Crimp terminals

D-Sub filter acc. to IEC 1000 Number of contacts: 9, 15, 25, 37 Working current: 7.5 A max. Terminations: Solder buckets

Straight and angled solder pins

SMC (Surface Mount Compatible) types Accessories:

Various integrated filters possible

with 47 pF, 470 pF, 1000 pF and 3900 pF ...

All custom design possible (based on a contact by contact approach)

D-Sub filter with mixed contacts available on request

All connector families

Accessories: Extensive range of hoods

Tooling for crimp termination Special configurations on request

Fields of application: Industrial, medical, telecom, computer

and aerospace applications

Approval: UL



Compact Push Pull Power interfaces EMI protected subminiature D interfaces



Push Pull Power

Fields of application: Factory and building automation, industrial

electronics, transportation, lighting and display technology, telecommunication and

wireless networks

Ideal for compact devices in harsh

environments

Number of contacts: 4 or 2 + PE
Working current: 12 - 16 A
Working voltage: 48 V or 250 V
Protection class: IP 67 and 65

Locking mechanism: Push Pull one-hand locking

Housing material: Plastic

Wire terminations: Crimp terminal

Solder terminal Cage clamp terminal

Accessories: Protective caps, cable assemblies, tools

InduCom

Fields of application: Transportation, machinery, factory automation

For high requirements reg. EMC and

mechanical stability

Number of contacts: 9, 15, 25, 37, 50

Working current: 2 – 7.5 A Housing material: Zinc die-cast

Cable terminations: Crimp flange or cable clamp

Wire terminations: Crimp terminal Solder terminal

Accessories: Crimp flanges and ferrules, cable clamps,

blind plugs, D-Sub contacts, complete field

bus interfaces, tools



IDC connector systems for flat cables Contact spacing 2.54 mm x 2.54 mm



Male and female

connectors: acc. to IEC 60 603-13, comply with MIL-C 83 503

Number of contacts: 6, 10, 14, 16, 20, 26, 30, 34, 40, 50, 60, 64

Working current: 1 A max. Working voltage: 320 V

Terminations: Female: IDC for flat cable

Male standard and low profile: Straight and right angled solder pins

Press-in technique

SMC (Surface Mount Compatible) versions Wrap posts

Strain relief, locking lever, board lock, vacuum Accessories: cover

Packaging: Carton box, tape on reel, tube

Approval: .**91**

Service: Concepts for SMC and press-in technique

Transition: 2 rows, 4 rows, DIP

2 rows: 6, 8, 10, 14, 16, 20, 24, 26, 30, 34, 40, Number of contacts:

50, 60, 64

4 rows: 10, 16, 20, 26, 34, 40, 50

DIP: 14, 16, 24, 28, 40

Working current: 1 A max.

IDC process for cable Direct solder to pcb

Standard or kinked pin for 2 rows series

Assembly: 2 rows: pre-mounted cover

4 rows and DIP: separate cover



Terminations:



Micro electronic connectors Contact spacing 1.27 and 2 mm



<u>har-mik®</u>

Series I/O

in accordance with: • SCSI 2 - SCSI 3

• I.P.I.2 • HI.P.P.I

• EIA/TIA 232 E (RS 232 E)

• IEEE 1284 • IEEE 1496 (S-Bus)

Number of contacts: 20 - 100 Working current: 1 A

Fields of application: Input/output interface for use in EDP,

industrial and office electronics

and telecommunication

Terminations: Straight and right angled solder pins

IDC for discrete wires IDC for flat cables Press-in technique

SMC (Surface Mount Compatible) versions

har-link® acc. to IEC 61076-4-107

Number of contacts: 10 Working current: 1.5 A

Fields of application: Bus systems such as CompactPCI,

S-Bus and VME

Terminations: IDC (for male connector)

Right angled solder pin (for female connector)

The har-link® connector system is a compact and robust pcb-to-cable interface with excellent data transmission properties for high speed networking and telecommunications (up to 2 Gbit/s per twisted pair).

Both connector families

Approval: UL





HARTING Integrated Solutions



HARTING Integrated Solutions (HIS) is the backplane and backplane system assembly facility for the HARTING group.

Manufacturing on three continents, in Northampton (England), Zhuhai (China) and Chicago (USA), HIS offers a complete 'Value Chain' of services for its customers, using common equipment, tooling and procedures.

Backplane design: Cadence

Allegro software Fast and accurate

designs from our experienced team

Manufacturing:

Assembly standards to IPC610 Continuous in-house training

Surface Mount - Pressfit - Wave Solder HARTING's own CPM range of presses

Ability to handle large, high layer-count PCB's

'Fast-track' prototype service

Vertical integration

Cardframes, power supplies, thermal management

Test: All assemblies fully tested and 'ready-to-run'

State-of-the-Art robotic backplane test equip-

ment

Including optical inspection Cost-effective set-up

Project Management: Full management of your backplane projects

Design Prototypes

Volume production



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