



Pushing Performance

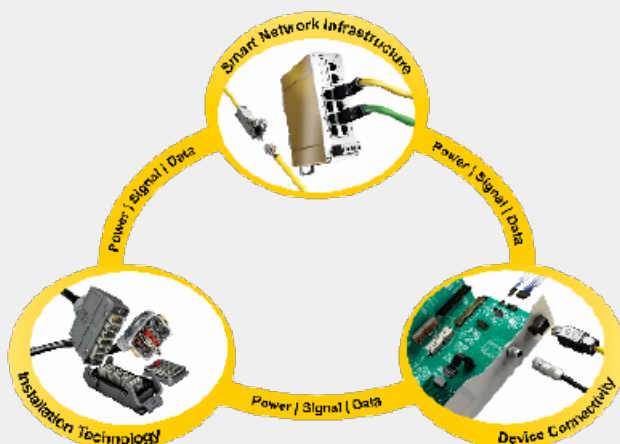


People | Power | Partnership

HARTING for shipbuilding industry

Solutions for shipbuilding

The HARTING Technology Group is skilled in the fields of electrical, electronic and optical connection, transmission and networking, as well as in manufacturing, mechatronics and software creation. The Group uses these skills to develop customized solutions and products such as connectors for energy and data transmission. For the Communication Network Infrastructure HARTING offers a broad range of tailored products.



Reliable connections for shipbuilding

The demands on interfaces in the shipbuilding industry are very diverse. Important environmental factors are vibration, salt and electro-magnetic compatibility (EMC). HARTING offers suitable industrial connectors to meet such demands. With robust and compact design they ensure a safe and easy installation. The Han® HPR housing series meets the highest environmental challenges. The housings are made from die-cast aluminium with corrosion resistant coating and reaching IP 68 / IP 69K. Hood and housing of the Han® 24 HPR EasyCon are divided into two parts to provide an optimum shielding for high current connections.



Han® 24 HPR EasyCon motor connector

Increased protection from environmental influences

For the Han® M series, HARTING has developed the Han® M Plus housing which effectively protects electrical and electronic interfaces even under extreme conditions. To achieve this, the aluminium die-cast housing is covered with a polyurethane (PU) coating. The coating provides additional protection against mechanical and chemical impact and at the same time ensures that the connection is highly UV-resistant. Han® M Plus is therefore ideal for use in aggressive environments like sea water, saline atmosphere or oil. The PU coating also effectively protects the housings against unavoidable impacts by rigid objects e.g. tools.

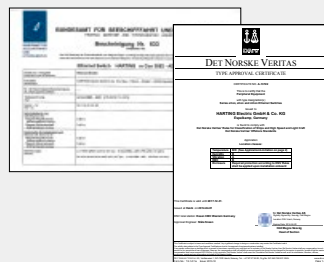


Han® M Plus housing with polyurethane coating

Strong in standardization



HARTING products are manufactured according to the newest standards. For the maritime industry, the DNV GL Group is the leading classification society which inspects the tests of components. HARTING Ethernet switches have DNV ship approvals and are tested under different temperatures, air humidity levels, vibration and EMC radiation on board. The permissible application range for HARTING connectors extend from the machine room to the mast. As well, the new HARTING Hall effect current sensors are certified for the use on board.



Current sensors

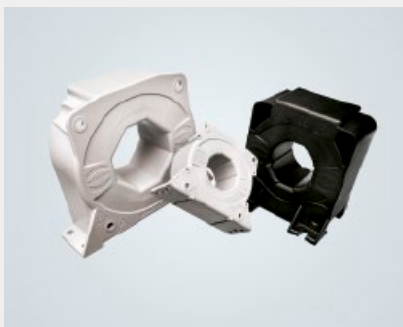
Current sensors are used for voltage free measurement of currents, e.g. in frequency converters, switch boards, electric motors and generators. HARTING offers compensated Hall effect current sensors which stand out for their accuracy, linearity, short response times and their large frequency range. Compared with current transformers the sensors detect dc and mixed currents, which is essential for use in intermediate circuits. With their accurate measurement they minimize malfunctions, efficiency losses and shut-downs due to faults.

Ethernet switches

With HARTING Ethernet switches (managed/unmanaged) you can network the elements of control and monitoring systems on the ship, e.g., the alarm monitoring and control system (AMCS), and do this in a quick and reliable manner. Certified by the BSH – German Federal Maritime and Hydrographic Agency, HARTING switches produce only very low EMC emissions and also have high resistance to EMC. This means that the minimum separation to be maintained from magnetic compasses (control and steering) can be relatively small.

Value-added solutions

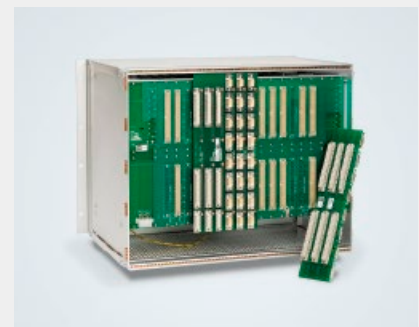
HARTING offers tailored total-solutions which also includes complete harnessing as well as high-speed PCBs in addition to the plug connectors. The PCBs developed by HARTING to customer specifications work with transfer rates of up to 40 Gb/s. HARTING provides consultancy assistance to the customer and help to achieve an optimal solution. Highspeed PCB including rack systems, “ready-to-run” module carriers, I/O panels, enclosures and patch panels are some examples.



HARTING Hall-Effect current sensors



HARTING Ha-VIS mCon 3000 Next Generation switches



Integrated solution with HIS PCB's

1

Open Deck



Open deck critical environment requirements:

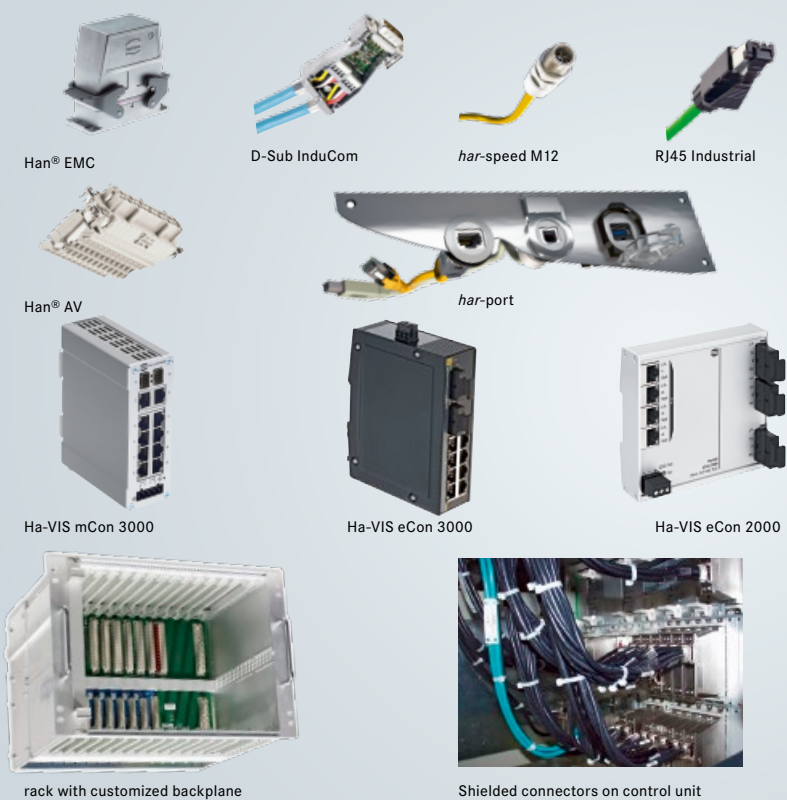
- a) Temperature
- b) Water
- c) Salt

HARTING product characteristics for deck and mast:

- housings with corrosion resistant coating or stainless steel
- fast and simple wiring of modular subsections and equipment on deck
- RFID components for marking of expensive machines and tools
- electrical connection of bulker hatch covers
- connectors for antennas
- ready to mate cabling solutions

2

Wheelhouse



Wheelhouse critical environment requirements:

- a) Electronic environment
- b) Magnetic compass
- c) Sensitive data

HARTING product characteristics for wheelhouse consoles:

- EMC connector housing
- BSH tested ethernet switches (IEC 60945)
- Fiber-optical connectors
- Choise of connectors for NMEA 0183 and NMEA 2000 interfaces
- Industrial type ethernet connectors (RJ45)
- Push-Pull solutions with f.o. and RJ45 inserts
- screened bus connectors (Inducom)
- customized pluggable rack systems with reduction of wiring through backplanes



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Ha-VIS eCon 2000



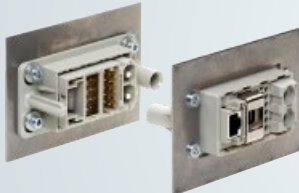
current sensor



Han® HC Modular



IP65/IP67 ethernet switch



Han-Modular® Docking frame



Shielding of Han® 24 HPR EasyCon



ethernet switches on board



docking frames for MSB



power connection for thruster

Engine room critical environment requirements:

- a) Vibration
- b) Temperature
- c) Oil

HARTING product characteristics for engine room and MSB:

- vibration proof and EMC motor connectors up to 650A
- biggest portfolio of housings and inserts (from f.o. until 200A module) for fast connection of control units and distribution boxes
- modular docking frames with draw-out type MCC for power and signal modules combination
- Ha-VIS eCon unmanaged ethernet switch portfolio with robust design for harsh environment
- GL approved current sensors from 100A to 2000A for rectifier, converter and motor/generator or inside of the MSB



Han-Eco®



Han A® plastic hood



Han-Power® S



Han-Modular® ECO



Han-Power® T

Cabin critical environment requirements:

- a) fast
- b) simple
- c) low smoke/fire resistant

HARTING product characteristics for passenger and crew cabins:

- connection outlets for office use
- easy wiring with Han-Modular® connector (combination of power, data and signal contacts in one connector)
- reliable electrical connectors for fire detectors, climate control units and public alarm systems
- light weight plastic housing for e.g. cabin lamps
- complex uniform cabin distribution box with a backplane as a basis



Han-Port® data connectors



Han-Port® plug sockets



cabin distribution



cabin lamp with Han 3A®



Pushing Performance

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