



Automation & Robots

OPTIMAL CONNECTIVITY

Connecting your Solutions

2024



OPTIMAL CONNECTIVITY LLC is certified according to ISO 9001:2015, ISO 14000:2015 and ISO 45001:2018



HARTING Connectors for Automation

ProfiNet, Han Modular, Push-In and many industrial connectors are designed and manufactured by HARTING. They are used for safe data transfer, signaling and for power:

- RJ45 connectors for Siemens Scalance switches
- Internal bus systems with the **Han-Quintax®** module or **Han® Megabit**
- Video and other data transmission using **Han® Gigabit** modules
- Low voltage supply and digital signals with **Han DD®** modules
- Transmission of mid-range power with **Han® EE** modules
- Transmission of higher power loads (batteries, air condition units) with modules for power levels: **40A to 200A** (UIC 552)
- **Han® Eco** product range complies with standards IEC 61948 and EN 45545-2 HL3 and is fire-resistant according to UL94 V.

Push-In Connectors

Up to **30% less assembly time** for field installation. Push-In connection technology expands the portfolio of Han® industrial connectors with an additional field connection method. The focus is on fast and uncomplicated assembly of the connector with consistent quality and robustness.

Pneumatic & Electric Connectors

For pneumatic tubes (1.6, 3, 4 or 6mm) **Han® Modules** are providing full flexibility with reliable **pneumatic modules**. Compressed air feeds can be routed through the same connector along with power and signal lines without in a separate compressed air connection for drive units, control units, brakes, holding and unloading units and much more.

M12 Circular Connectors

Signals (A, B coding),	2 – 12 poles
Data (D, X coding),	4 and 8 poles
Power (L, S, K coding)	3 and 4 poles + FE/PE, up to 16 A / 630 V
Hybrid (Y coding)	4 + 4 poles for data and power

M12 circular connectors are one of the **most widely used** size of circular connectors. M12 connectors are available in **many coding variants** for all industrial lifelines – for **power, signals** and **data**. IP65/67 protected and packaged in a rugged metal housing, they provide a completely reliable connection when used in demanding applications.

M23 Circular Connectors

Signals	6 – 19 poles
Capacity	6 – 9 poles

M23 circular connectors are used in **industrial applications** when **high power** must be transmitted or **many signal contacts** must be bundled. They are typically used for **electrical motor drives**.



Industrial Modems, DSL, Media Converter

Our FlexDSL GigaFlex **universal transmission system** is used at mission-critical applications such as **SCADA** (Supervisory Control and Data Acquisition), **Modbus** or **Telecontrol** Networks.

We offer up to **15.2Mbps** data transmission rate per each pair of copper wire. Up to 4x SHDSL & SHDSL.bis EFM-based interfaces with an integrated Layer 3 Managed Ethernet Switch with RSTP, MSTP, VLAN, QoS, NAT, VPN, RIP, OSPF, 2x RS-232/422/485, 2x I/O ports, PoE Support.

MiniFlex E1 DINrail unit allows as one of our media converter models, either Ethernet data transmission over **E1** links or E1 channels **transmission over Packet Networks**. In media converter mode the MiniFlex E1 interface card is compatible with Orion3 devices, while in TDMoIP mode it is interoperable with third-party products that support SAToP (RFC4553), CESoPSN (RFC5086) or CESoETH (MEF-8).



WiFi 802.11ax - WiFi 6E Access Points

OPTIMAL CONNECTIVITY offers **Triple-Band WiFi 6/6E** 8x8 WiFi access points which also cover 2.4GHz band. The radio modules supporting 2.4GHz, 5GHz as well as WiFi 6E (6 - 7.2 GHz). The recently approved spectrum and an increased number of channels allows data transfer rates of multiple Gbps, at up to **160MHz bandwidth** per channel.

Single Pair Ethernet (SPE) Connectors

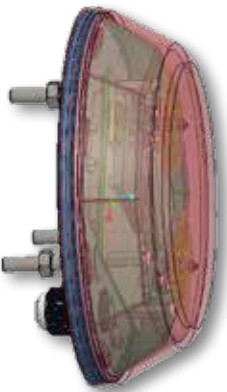
Single Pair Ethernet interfaces for industrial applications are defined in IEC 63171-6. Instead of 4 pairs of wires Single Pair Ethernet uses a single pair of twisted copper wires. SPE IEEE802.3 cg defined at 10Base-T1L allows different transmission speeds up to 10Mbit/s and distances up to 1000m using STP cables. Sensors, actuators and peripherals, machine controls, train and bus networks, building automation are typical use cases for SPE.

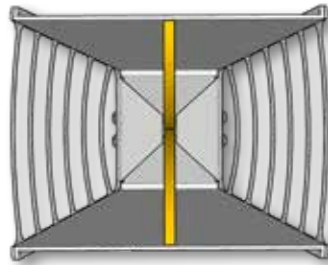
Protective Flexible Conduit Sleeves

Protective flexible **conduits**, **fittings** and **glands** are chosen for protecting our cable assemblies used in railway, industrial and defense applications.

Our comprehensive product range for cable protection covers over 60 metallic and non-metallic systems. **Non-metallic** conduits are made from Polyamide or Polypropylene and range from 7mm to 106mm in diameter.

Metallic conduits are made of galvanised or stainless steel. We offer a range of sizes from 10mm to 75mm.



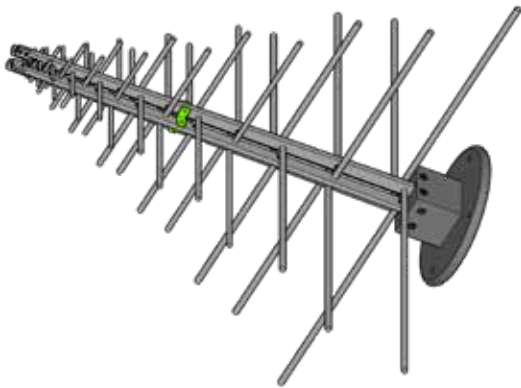


Custom-Designed Antennas

OPTIMAL CONNECTIVITY is the leading manufacturer of highly sophisticated **custom-designed antennas** and antenna systems for industrial applications.

Based on latest technologies, we design **antennas** for industrial system solutions with highest integration of multi-band radiator with horizontal, vertical and cross-polarized, directive radio pattern.

Our portfolio covers frequency bands from 200 MHz up to 7000 MHz for industrial applications in VHF, UHF, GPS, GLONASS, LTE, 5G, WiFi 2.4-5.8 GHz and WiFi 6-7GHz.



Fiberoptic Cable Assemblies

OPTIMAL CONNECTIVITY provides standard lengths cable assemblies of fiber optic cables from 1m to 2km. Cable assemblies can be coiled on mobile drums.

We also offer **manufacturing** of **customized cabling solutions** for applications in rugged environment, using tactical cable, glass yarn, steel tape or steel braid armoured multi core cable.

Our cable assemblies are designed to withstand harshest environmental conditions like oil, fluids, high temperatures, mechanical stress and pressure.

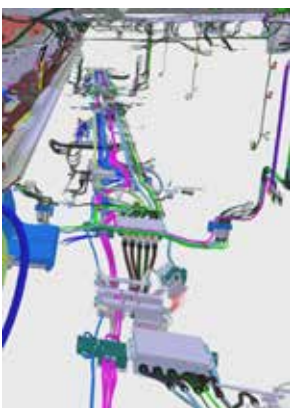


Product Engineering

Product Simulation allows to save precious time and cost and is offered by OPTIMAL CONNECTIVITY for products in electromagnetic and mechanical applications.

Using Open Source software packages nearly every requirement can be addressed like heat or signal propagation, material strength, antenna pattern and signal coverage.

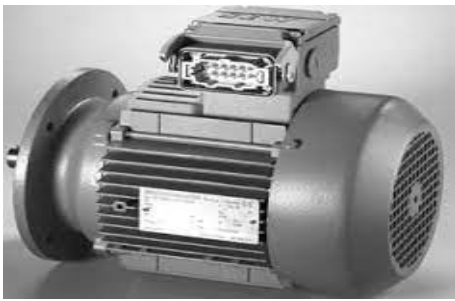
Manufacturing of precision parts from **aluminium** alloys, 6061, 5060, ... ferrous steels SS316 etc., **Teflon**, Noryl, ASA, ABS and other polymers like polyesters, filled polymers are our expertise.



Product Prototyping PCB Layout

OPTIMAL CONNECTIVITY is offering **PCB design**, manufacturing, and testing wherever electronic products in sensor and in data communication segment were not sufficient to fulfill the customer requirements. Such PCB projects are requiring an in-depth knowledge of the technologies and a proven supply chain.





Assemblies SEW-EURODRIVE Assemblies

SEW-EURODRIVE developed pluggable line topologies called MOVIMOT and MOVIPRO. The switchgear moved to decentralized units on or near monitors, resulting in an initiative called DESINA. Despite increasing energy demand, drives and decentralized units became smaller in a trend towards miniaturization.

HARTING created with Han Q 8/0 and Han Q 4/2 interface standards. These were incorporated into the DESINA standard and other SEW-EURODRIVE products.

The Q 4/2 allows a decentralized subscriber to be supplied with sufficient energy and to conduct bidirectional energy flows in a touch-safe way, while the Q 8/0 ensures a direct drive supply from the decentralized converter.

HARTING and SEW-EURODRIVE developed har-flex THR, a solution for the MOVI-C modular electronics system.

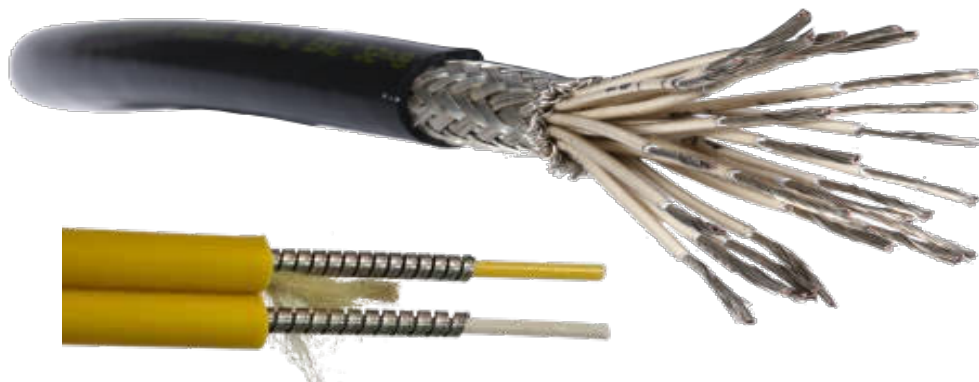
Originating from applications in automobile industry Han 10E has since become the standard for electrical motor connectors, by saving time and resources for technicians. With a corresponding housing solution, Han-Drive became the standard for plug-in drives.

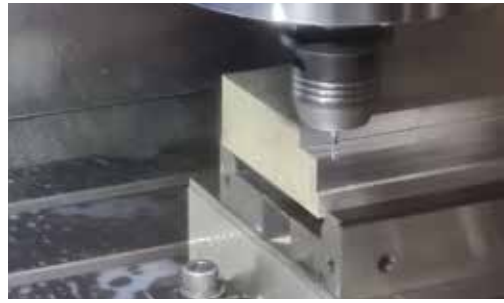


Power and Control Cable Assemblies

Our rugged cable assemblies combine sealing ability and physical strength with design simplicity, making them the most dependable. With IP67 rating our MIL 38999 type assemblies are reliable connections suitable to any industrial and military applications.

MIL 38999 type connectors are capable of providing almost every possible mix of signal, power, data, RF, fiber optic and multiple wires in a single connector housing. We understand your requirements and build unique connectivity solutions by selecting the right components from a list of connectors, receptacles, backshells, sockets or pin contacts and finally protective caps and covers.





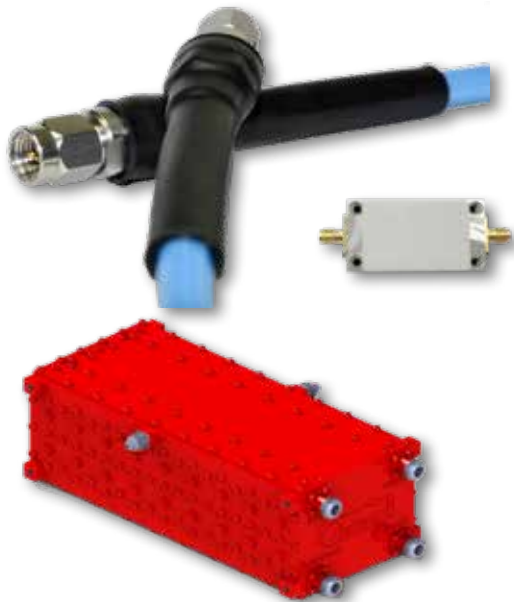
Interference Invariant Cable Assemblies

Interferences can be originating from various sources like motors, drives, controllers, switches, WiFi access points, 5G modems, GNSS amplifiers and other transmitting devices.

In industrial power distribution, control rooms, network cabling and RF cabling etc. we are using **high quality connectors** like N, TNC, BNC, SMA, MMCX, Ethernet Cat.6 or Cat.7/8 data cable with RJ45, M8, M12, M23 etc. and suitably screened cables to avoid electromagnetic interferences. OPTIMAL CONNECTIVITY is offering cable assemblies which are tested to support data-critical applications.

Multi-screened flexible, semi-flexible and semi-rigid cable assemblies are also part of our product portfolio with a variety of low insertion loss connectors like MMPX, MMCX, BMA, N, SK, 2.92, 3.5, SMA, TNC.

OPTIMAL CONNECTIVITY offers **cavity, SAW, BAW** and **Dielectric** filters for various frequency bands. They are efficiently suppressing unwanted interference intermodulation frequencies.



Multi-core Coaxial Connectors

Miniaturization offers us products for field-proven multi-coaxial 50 Ohm connectors with up to 12 coaxial contacts in a single housing.

The up to 12 coaxial contacts allow carrier frequencies up to 26 GHz with a low VSWR (Voltage Standing Wave Ratio) and using a low loss communication cable like RG405, 40 GHz, outer diameter $\varnothing 2.65$ mm, FEP jacket low-loss multi-core coaxial assemblies are created.

Thanks to **short manufacturing times** and stock levels we can address request for assembly mass production including cutting, stripping, crimping, sealing, labeling and testing within shortest possible.



Low VSWR Single Core Coaxial Connectors

Our **RF** and **Microwave** portfolio includes connectors, cables and cable assemblies designed for use across all markets and manufactured in Dubai. In addition, we are specialized in filters, resistive components, wave guides and lightning protectors.

OPTIMAL CONNECTIVITY produces its own low-loss coaxial **RG** and **MIL C17** type cables fitting to its own RF connectors types like N, TNC, SMA, ... corrugated feeder cable, 1/2, 3/8, 3/4, waveguides.

Hence, we can offer world class price/performance for these products. Key differentiators of our connectors are low IL, low attenuation and a high-performance tri-metal surface treatment.



Installation & Maintenance - Commissioning



OPTIMAL CONNECTIVITY operates under UAE manufacturing license issued by Dubai Economic Department and Ministry of Industry and Advanced Technologies. We also own an ICV certificate as proof to our commitment to the growth of UAE.

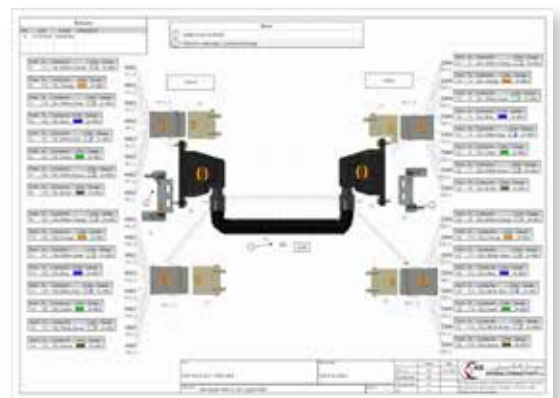
OPTIMAL CONNECTIVITY is recognized for its excellence in **deployment of solutions** and its **commissioning** of on-site systems which includes Field Service, Field Repair and Field Testing.



We exclusively use products from top-quality manufacturers. Therefore we are able to offer beyond products also **product design, manufacturing, local assembly** and **commissioning**. With over 25 years of connectivity expertise, OPTIMAL CONNECTIVITY is set to provide support at all stages of a project which ranges from conception and prototyping to volume manufacturing, installation and field service.

Our Service Portfolio

- Offset Cooperation, Manufacturing in UAE
- Solution Development - Data Package
- System Design & Co-Design
- Technical Requirement Analysis
- Project Management
- Computer Aided Design CAD, Manufacturing CAM
- CNC Machining, metal works, laser cutting, bending, welding
- Surface Treatment, Galvanization, Passivation, HotDip
- Custom-made antennas
- Edge & Cloud data acquisition application design
- Radio Frequency & Microwave Assembly Manufacturing
- Power Cable Assembly Manufacturing
- Fiber Optic Cable Assembly Manufacturing
- Fusion Splicing of Fiber Optic Cables
- Field Termination
- Site Surveys, Heat Maps, Link Budget Calculation
- Testing & Measurement
- OTDR, Vector Network and Spectrum Analysis
- Refurbishment of outdated infrastructures
- Installation
- Contracting
- Logistics Support
- On-Site Maintenance and Repair
- Product Training



We are certified according to

ISO 9001 : 2015

ISO 14001 : 2015

ISO 45001 : 2018

to achieve highest quality in management processes, production and occupational health & safety.

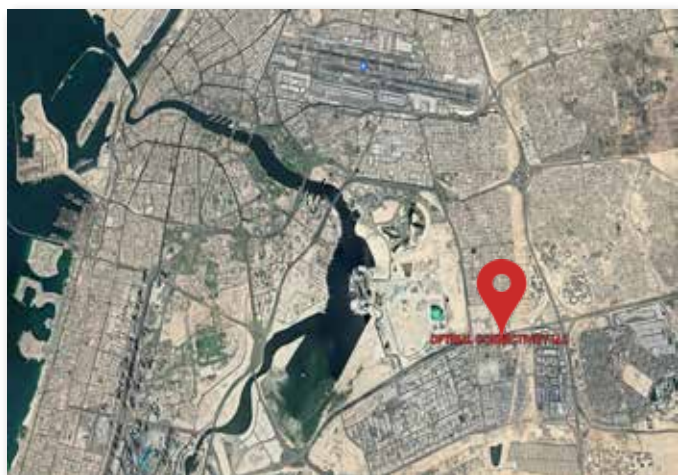


How to find our office:



GPS coordinates: N 25° 10' 53.00" E 55° 22' 46.00"

Makani Code: 40R CN 36679 86045



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WAIVER

It is exclusively in written agreements that we provide our customers with warrants and representations as to the technical specifications and/or the fitness for any particular purpose. The facts and figures contained herein are carefully compiled to the best of our knowledge, but they are intended for general informational purposes only.