HARTING Connectivity AI

Innovation Hub Osnabrück

HARTING
Pushing Performance
Since 1945

SIEMENS

Microsoft

HARTING – Leader in Connectivity

HARTING
Pushing Performance
Since 1945

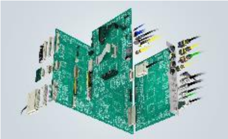

Industrial Connectors Han®


Industrial Ethernet Solutions


PCB Connectors


Circular Connectors


Industrial Ethernet Switches


Interface Connectors


System Cabeling


Customized Solution


Operator Interfaces


Crimp Tools


Charging Connectors

Data & Facts

- **Founded in 1945**
- **100% owned by the Harting family**
- **Company headquarters in Espelkamp, Germany**
- **Approximately 6,200 employees**
- **Revenue of 1.036 billion euros in fiscal year 22/23**
- **15 production facilities worldwide**
- **44 sales subsidiaries**

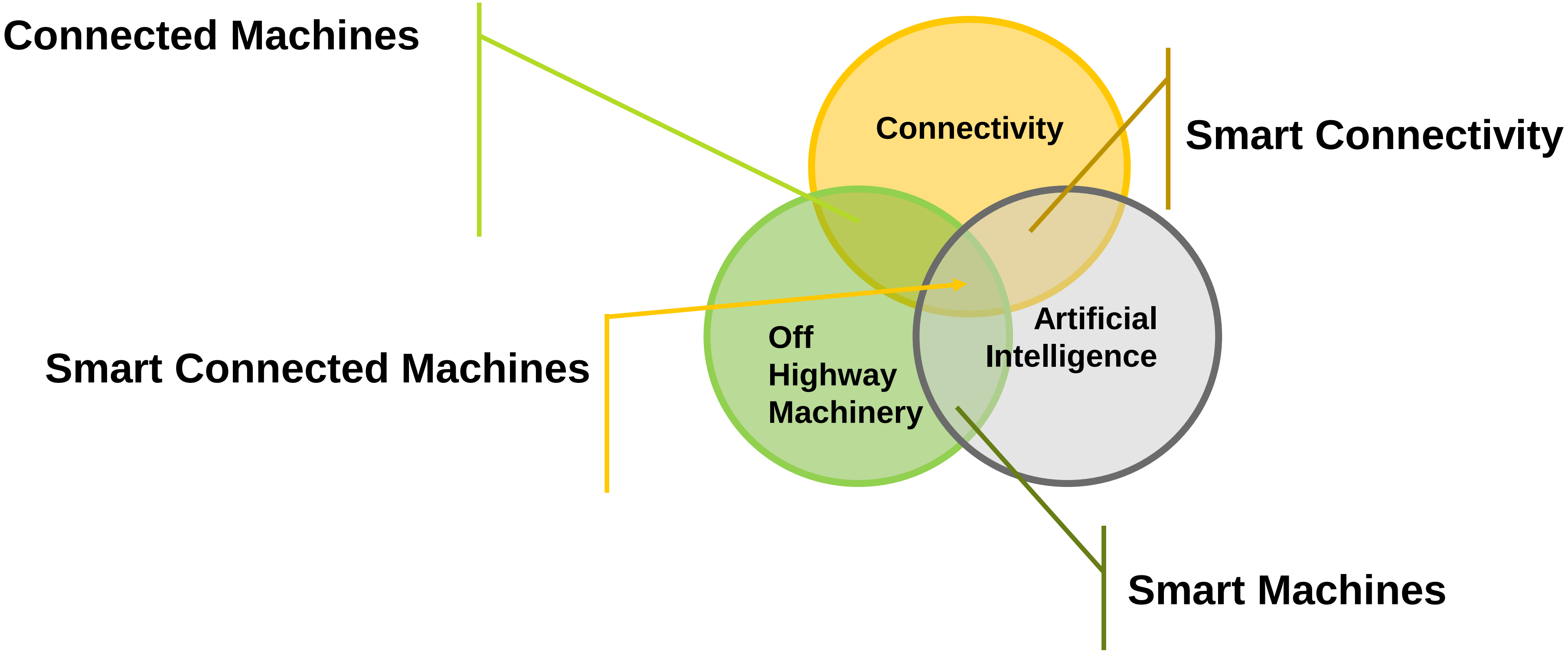
Corporate Website

https://www.harting.com

Coppenrath Innovation Centre - Osnabrück

Innovation Hub Osnabrück

Pushing Performance
Since 1945



Generative Engineering

The HARTING Connectivity AI

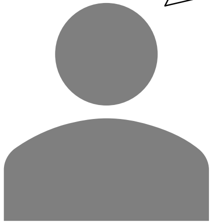
AI with Purpose – Our Goal:

1 **Reduce time-to-market by leveraging AI solutions to *quickly* respond to customer needs by *supporting* our product development with customly generated connectivity solutions.**

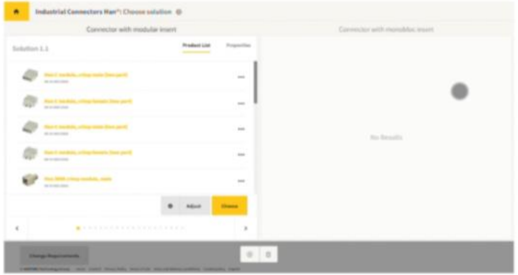
2 **Enable customers to use our Configurator faster by adding natural language input and guided questions.**

Supporting the Customer Journey

I need a
connector with
2x 48V/300A
and 5x 12V/1A.



Customer Need



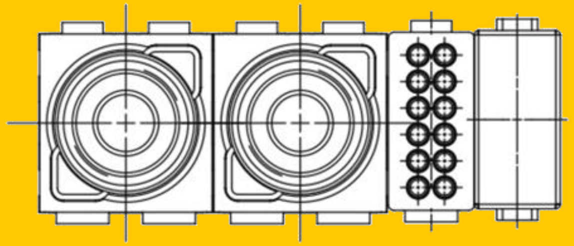
Product Configurator

Generative Engineering

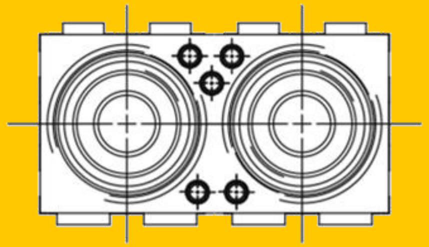
Systemic support for product definition

Providing the right Solution

Product Configurator



Generative Engineering



readily available, maintain flexibility in the future	+	smaller, no wasted space/materials, perfect fit to requirement
wasted space, more contacts than required	–	not readily available

Success through Collaboration & Integration

Microsoft

Azure Open AI
(LLM AI)
Microsoft

Parse text into structured requirements

HARTING

Connectivity AI
HARTING

Identification of existing and generation of new connector solutions

SIEMENS

Data-Driven Engineering
Siemens

Creation of engineering data

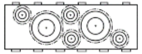
Customer:
acceleration in design process

How it works

1a. Customer Request

"For a wind mill project I need a new connector with two 100A/250V and four 20A/12V contacts." *Microsoft OpenAI Services interpret the customer requests.*

1b. HARTING Connectivity AI

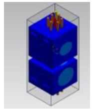


Asks questions, allows altering the design in the process, decides on Han or PushPull and quickly generates 2D versions for visualization.

2. CAD Model

Siemens' Unattended Engineer creates CAD Drawings in Siemens NX.

3. Simulations



Simulations by Siemens check the design for feasbility (Joules Heating + Temperature).

4. Engineering Samples

Rapid Prototyping (FDM) can be used to create first **engineering samples**.

Customer satisfied

Our Highlights

HARTING
Pushing Performance
Since 1945

- Interactivity
- Simulation
- Products
- Faster

1) Interactive Chat with Realtime Changes
2) Guiding Questions and Responses
3) Summaries and Explanations

Can you reduce the number of 20 Amps connector to 1 and 5 Amps connector to 3

Connector design has been successfully updated with 1 contact for 20 Amps and 3 contacts for 5 Amps.

can you change it to Pushpull connector

Connector design has been successfully updated to PUSHPULL product family.

Hello, I am your Generative Connector Assistant! What are your requirements for a new connector?

Design a connector with feature a total of 8 contacts, each rated for 5A, to support efficient transmission of power and signal. The connector should be lightweight, compact, and resistant to vibration and sudden movements. It should also withstand a wide range of temperatures and comply with IP67 protection standards for resistance to dust and moisture. The connector should support quick and secure installation and disconnection for ease of maintenance.

Could you please specify the number of mating cycles required for the connector? Also, how many units are expected to be sold?

The values chosen for the connector design are based on standard industry require
case of the connector:
- **Product Family**: PUSHPULL connectors are suitable for applications requiring
connections, especially in harsh environments.
- **Environmental Condition**: OUTDOOR usage necessitates protection against en
choice.
- **Degree of Protection**: IP65 ensures dust tightness and protection against wate
- **Pollution Class**: PD2 is typical for industrial environments with moderate pollu
- **Overvoltage Class**: II is selected for equipment with a nominal supply voltage.
- **EMV Protection**: Necessary for environments with potential electromagnetic interference.
- **Housing Material**: METAL is chosen for durability and strength in harsh conditions.
- **Mating Cycles**: 500 cycles are standard for industrial applications requiring frequent connections and disconnections.
- **Operating Temperature**: -40°C to 85°C to ensure functionality in a wide range of temperatures.
- **Use Case**: Designed for industrial PCs, requiring reliable power and data transmission.
- **Quantity**: 1000 units based on expected demand.

Our Highlights

Interactivity

Simulation

Products

Faster

1) Advanced 2D and 3D Simulations
2) Thermal, structural and electrical Performances
3) Utilizing Simcenter FloEFD

Our Highlights

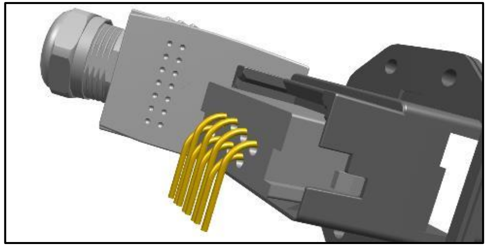
Interactivity

Simulation

Products

Faster

1) 2 Product Families available
2) Switch Type in Realtime
3) Cable to Board for PCBs



Our Highlights

Interactivity

Simulation

Products

Faster

< 3 min

for completely integrated Toolchain

Requirement to Prototype
➔ From Weeks to minutes

Faster 2D Simulation

5x **faster Response in interactive Chat**

Opportunities

Sustainability

Material- and space-saving constructions, as there is no modular design

Speed

quickly respond to changing customer and market requirements

Individualization

Increase in customization through customer-specific solutions

Contact

Innovation Hub Osnabrück
Artificial Intelligence & Smart Farming

Dr.-Ing. Julia Fröhlich
Director Innovation Hub

+49 151 / 21075307
julia.froehlich@HARTING.com
http://linkedin.com/in/julia-froehlich

Thank you for your attention!

HARTING

Pushing Performance

Since 1945