Weidmueller connection technology

Electronic Coast of Norway

USN Bakkenteigen

Jarle Andre Tveit
Country Sales Manager Norge
18.10.2023

Weidmüller

Agenda:

Horten 18.10.2023
Connection Technology

01

Bakgrunn og historikk

- Weidmueller Norge
- Kretskort tilkoblinger

02

Connection technology

- Tilkoblingsmetoder
- Materialvalg
- Temperaturområder

03

Fremtidens tilkoblingsteknikk

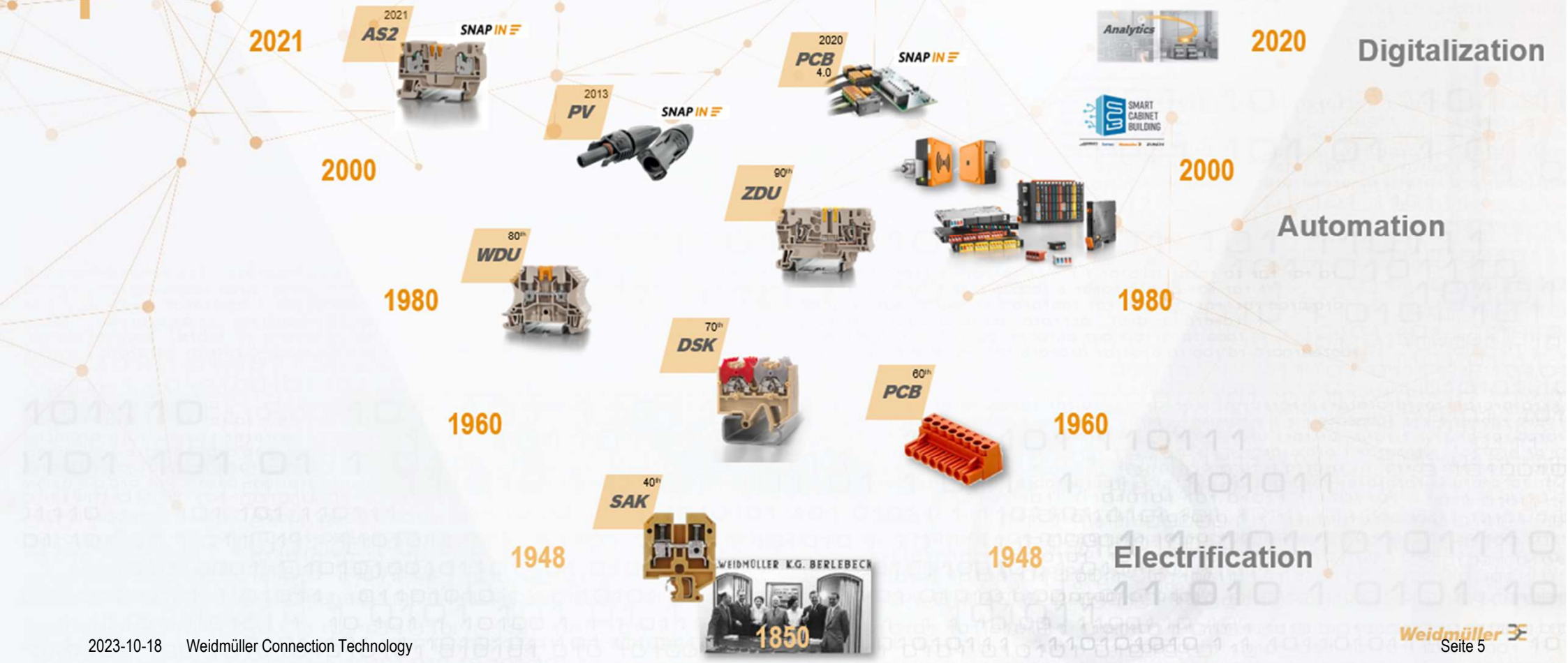
- SnapIn
- Robotmontering
- Single Pair Ethernet

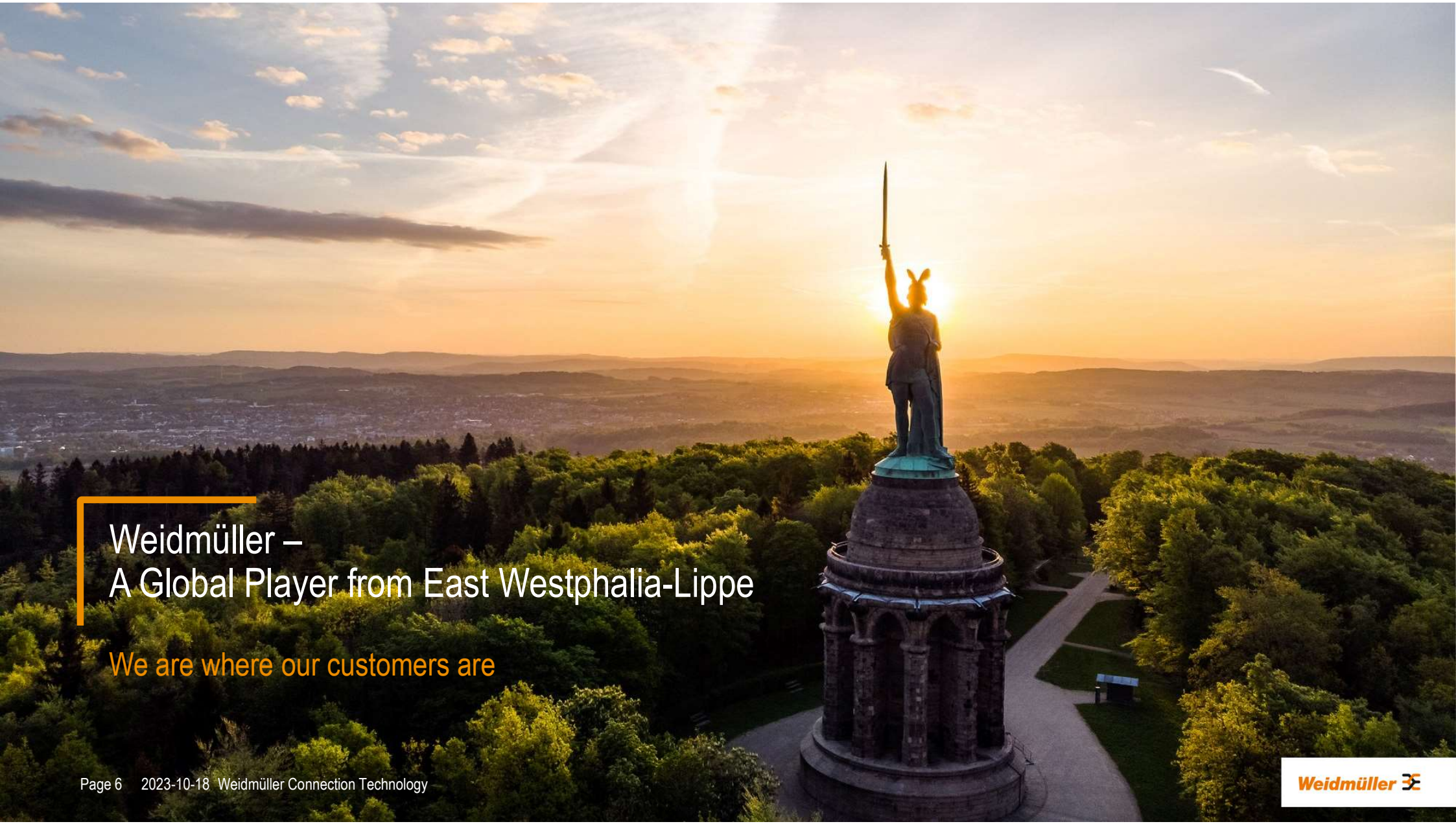
Weidmüller is an expert in the transmission of power, signals and data in industrial environments.

Our solutions are used in modern production plants in industry, power generation, marine and railroad technology, as well as in wind and photovoltaic systems.

Milestones of Industrial Connectivity

Weidmüller sets standards - yesterday, today and tomorrow





Weidmüller –
A Global Player from East Westphalia-Lippe

We are where our customers are

Our locations worldwide

- Group companies
- Agencies and representative offices
- Distributors and direct sales
- Development
- Production

Weidmüller Interface Norway

Meet our team

Jarle Andre Tveit
Country Manager

Vika Rutmane
Customer support

Per Ivar Andersen
BDM

Morten Lillenes
BDM

Thomas Moen
BDM

Nordic support team

Founded 2018

Weidmüller Interface Norway

Location

Jarle Andre Tveit Country Manager	Region West Distributors
Vika Rutmane	Customer Support
Per Ivar Andersen BDM	Region South Marine & Process
Morten Lillenes BDM	Region Middle Energy & Aqua Distributors
Thomas Moen BDM	Region East Infrastructure Distributors

Division DFC

Device and Field Connections
Materials

Weidmüller

Materialvalg:
Isolasjonsmateriale

- Stabilitet
- Mekanisk styrke
- Isolasjonsevne
- Temperatur
- Mer info på hjemmesiden

Plastic Abbreviation		Wemid PA66	Wemid GF	Polybutylene terephthalate PBT (GF)	Polycarbonate PC	Liquid crystal polymer LCP (GF)
		Wemid is a modified thermoplastic, its properties are specially tailored to meet the needs of our cable connectors. Advantages over PA are the improved fire protection and the higher sustained working temperature. WEMID meets the stringent requirements for use in railway carriages according to NF F 16-101.	**Glass-fibre reinforced WEMID** offers excellent dimensional stability and very good mechanical properties. This makes a difference when used as an end bracket. The material falls in the V-0 flammability class according to UL 94.	**Thermoplastic polyester (PBT/glass fibre reinforced)** offers excellent dimensional stability (hence its use in plug connectors) and a high constant operating temperature. Compared to other insulating materials, the creepage-current resistance is lower.	**Polycarbonate (PC)** is an impact-resistant (unbreakable), crystal-clear material which is not easily scratched. It is particularly suitable for use in transparent covers.	**LCP (glass fibre reinforced)** offers excellent dimensional stability, particularly at high temperatures. As the material is similar to PCBs and has a very low thermal expansion coefficient, it is particularly suitable for components that are soldered in the reflow oven.
Description						
		higher sustained working temperature improved fire resistance halogen-free and phosphor-free flame-retardant material low smoke produced in the event of fire permitted for use in railway applications following NF F 16-101 specifications	excellent dimensional stability very good mechanical characteristics halogen-free flame retardant material	high dimensional stability good electrical and mechanical characteristics Flame retardants that do not form dioxin or furan	high dimensional stability high constant operating temperature high electrical insulation properties halogen-free flame retardant material	excellent dimensional stability high constant operating temperature minimal water absorption low thermal expansion coefficient
Properties						
Specific volume resistance to IEC 60093	Ω x cm	10^{11}	10^{15}	10^{13}	10^{16}	10^{14}
Electric strength to IEC 60243-1	kV / mm	25	35	29	≥ 30	35
Tracking resistance (A) to IEC 60112	CTI	600	550	200	≥ 175	175
Upper max. permissible temperature	°C	120	120	130	115 / 125	240
Lower max. permissible temperature, static	°C	-50	-40	-50	-50	-50
Flamability class to UL 94		V-0	V-0	V-0	V-2 / V-0	V-0
Fire behaviour to railway standard		I2 / F2 *)	-		I2 / F2	-

Materialvalg:

Elektrisk kontaktpunkt:

Tin

Tin-plated contact surfaces are the standard surfaces for OMNIMATE plug-in connectors at Weidmüller. These surfaces are ideally suited for normal operating conditions in the industrial environment, while high contact forces and the relatively low degree of hardness of the surface material ensure low contact resistances. Tin-plated contact surfaces are suitable for transmitting higher currents and voltages (>100 mV and >100 mA) and for low plugging cycles.

Gold

Gold-plated contact surfaces are more resistant against climatic, corrosive and especially mechanical stress conditions. The latter mainly occur as a result of vibrations or high plugging cycles. Gold surfaces have the best properties for transmitting low currents and voltages (<100 mV and <3 mA).

Silver

Due to its high conductivity, silver is excellently suited to high-current applications. OMNIMATE Power products come equipped with silver-plated contact surfaces, depending on their performance class.

From the mission „Seamless interconnection between devices – from cabinet to field“

Signal

Data

Power

Hybrid

Core Portfolio

Device Connectors

Field Wiring

OEM Products

OMNIMATE Signal		OMNIMATE Power			OMNIMATE Data	PLC Interfaces
PCB Signal Plug Connectors	PCB Signal Terminals	PCB Power Plug Connectors	PCB Power Terminals	Panel Feed-through Terminals	Data Connectors	Modules, Cabling & Migrations

HDC Heavy Duty Connectors		IE Passive	SAI Passive	Cable Assembly		FreeCon contactless	Application-specific solutions	
ModuPlug	Hx-Series MixMate	IP2x Series IP6x Series	Distributors & Housings	Cordsets	Cable Harnessing	Power & Data Transmission	FieldPower Energy bus	Photovoltaics connectors

Customer specific / Long-term	Customer specific / Short-term	Customer specific / 2nd Source	Application specific	Single Parts
Individual development with IP & exclusivity	High volume project business	Short-term "Competition displacement"	**Initial** development with a lead-customer for multiple customers	Standardized piece parts

SIEMENS ET200S | **OTIS** RBI connector | **Huawei** MAP 52 / MAP 100 | **SIEMENS** Power Connector | **SIEMENS** S7 1200 | **Moeller** **Pilz** **Mitsubishi** XI/ON (ModioS) | **KONE** KonboX | Multiple customers eg **EATON**, **Benedict**

Wide portfolio & unique Design-In services

OMNIMATE® Signal
Transfer signal at highest density

OMNIMATE® Power
Powerful connections at maximum safety

OMNIMATE® Data
Reliable data transmission

&

OMNIMATE® Service
Developments designed with unique efficiency

Portfolio

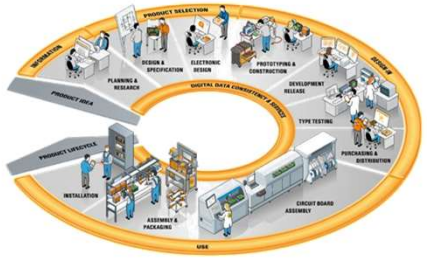
Latest Innovations

OMNIMATE® 4.0
Fully digital integrated
Value chain

Single Pair Ethernet
Communication standard
for the IIoT

APL-Components
Digital interface
for process

Board-to-Board
Flexible engineering of
compact devices

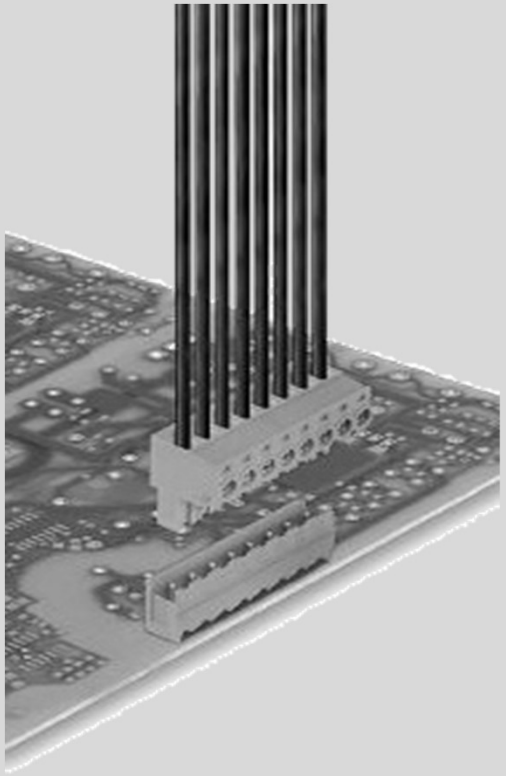


Interactive Services
Support during Design-In process

OMNIMATE 4.0

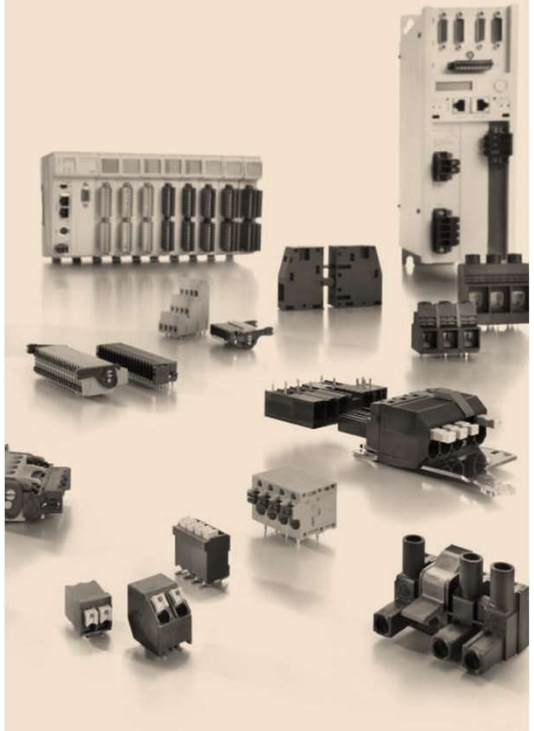
Connections for the future

Weidmüller



1.0

Standardized PCB connection

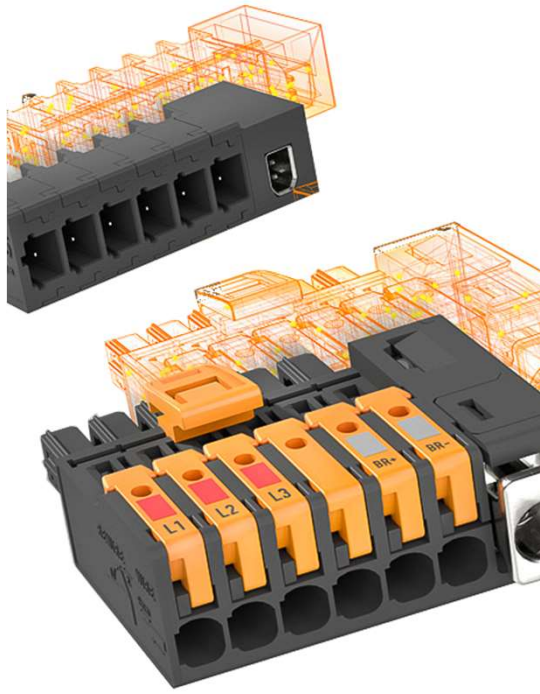


2.0

Application-related extension

3.0

Digital services

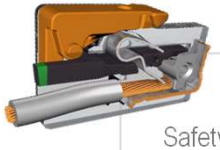


4.0

Cyber physical systems

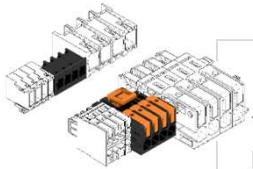
OMNIMATE 4.0® Fast. Flexible. Digital.

Four Innovations in one new Product



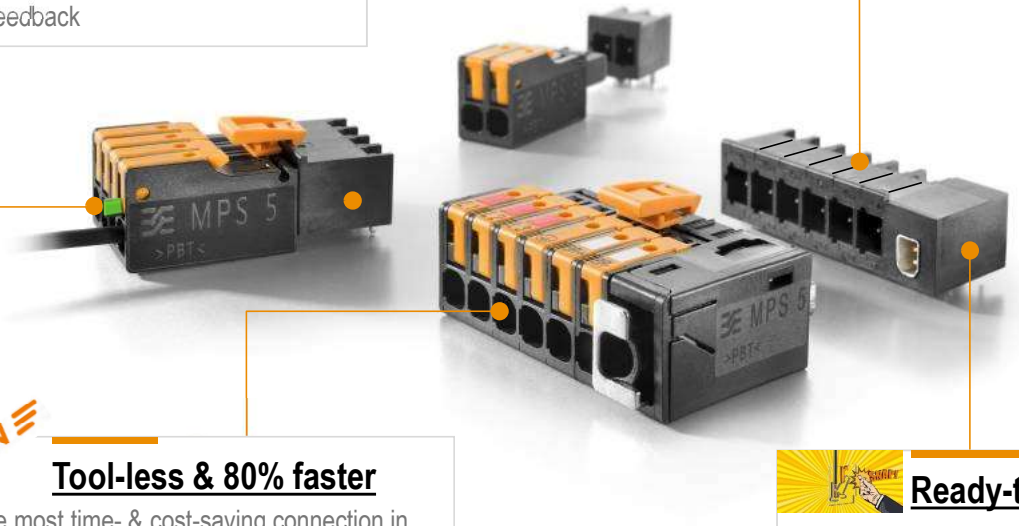
100% Safe

Safety concept with acoustic and visual feedback

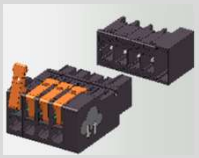


Configurable

The modular Connector-Design ensures highest flexibility for your individual Product.



NEWS



Smart

OMNIMATE ® 4.0 will go smart! With integrated functionalities directly integrated within the Connectors.
Let us know your requirements and we will make it happen.

SNAP IN

Tool-less & 80% faster

The most time- & cost-saving connection in the market. No Tools or Ferrules needed.

Ready-to-Robot

THR-Components – for automated PCB Assembly.
SNAP IN + digital twin – for automated Wiring

Weidmüller

OMNIMATE 4.0 ® Fast. Flexible. Digital.

The Gamechanger in the Connector-Market

SNAP IN

OMNIMATE® 4.0 – The Business Booster

Configure your individual Product within seconds

Configurator goes web

NEWS

OMNIMATE® 4.0 configurator in WMC is online available up from August 2022 via browser in easyConnect

easyConnect

Selection of products according norms

Individualization of connector in seconds

Engineering data in realtime

Fastest samples & automatic offers

Efficiency Lead | Digital Value Chain

OMNIMATE

Products and solutions

Weidmüller

OMNIMATE® Signal PCB connectors pitch 3.xx

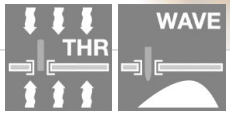
The pluggable connections for signals

Packing density 2.0

Your devices take advantages of more contacts packed onto a small surface and a large wire cross-section capacity.

Convincing safety during use

Safe to use, with quick wire connection, tool-free locking and unlocking and touch-safe design.



Soldering versatility

The portfolio is suitable for all common soldering techniques such as reflow soldering and wave soldering.

Services for your design-in processes

AppGuide for device developers

72h

72-hour sample service

Weidmüller

OMNIMATE® Power PCB terminals

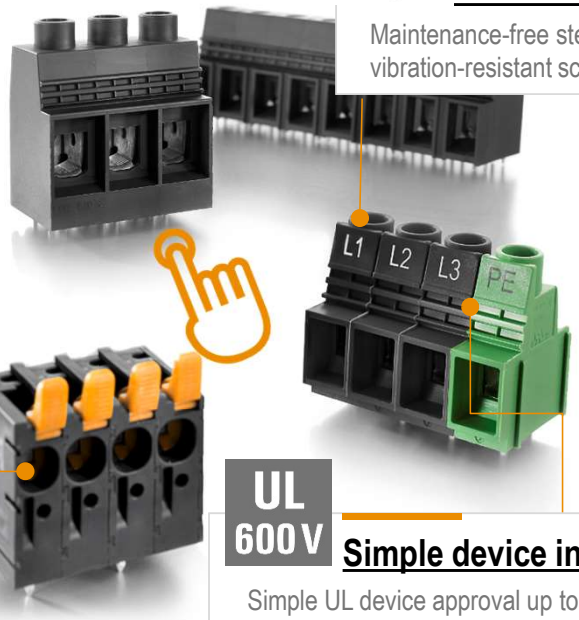
Safe and efficient connection

Reliable connection

The contact system is getting automatically closed after it was opened.

Screw connectivity

Maintenance-free steel clamping yoke for vibration-resistant screw connections



PUSH IN

Simple connection

Allows a toolfree wire connection to the PCB board. Solid wires or wires with ferrules can be directly plugged.

UL 600 V

Simple device integration

Simple UL device approval up to 600 V

Services for your design-in processes

AppGuide for device developers

72h

72-hour sample service

OMNIMATE® Data – Reliable data transmission

Innovate your Devices with trendsetting Connectivity

Ethernet PCB terminals

USB PCB jacks

RJ45 PCB jacks

D-SUB PCB connectors

Single Pair Ethernet PCB sockets

- Website OMNIMATE® Data
- Online Catalogue OMNIMATE® Data

- Product Catalogue (PDF)
- Quick overview (PDF)
- Configuration Software: WMC

Applications

- Application Brochures
- AppGuide

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Single Pair Ethernet

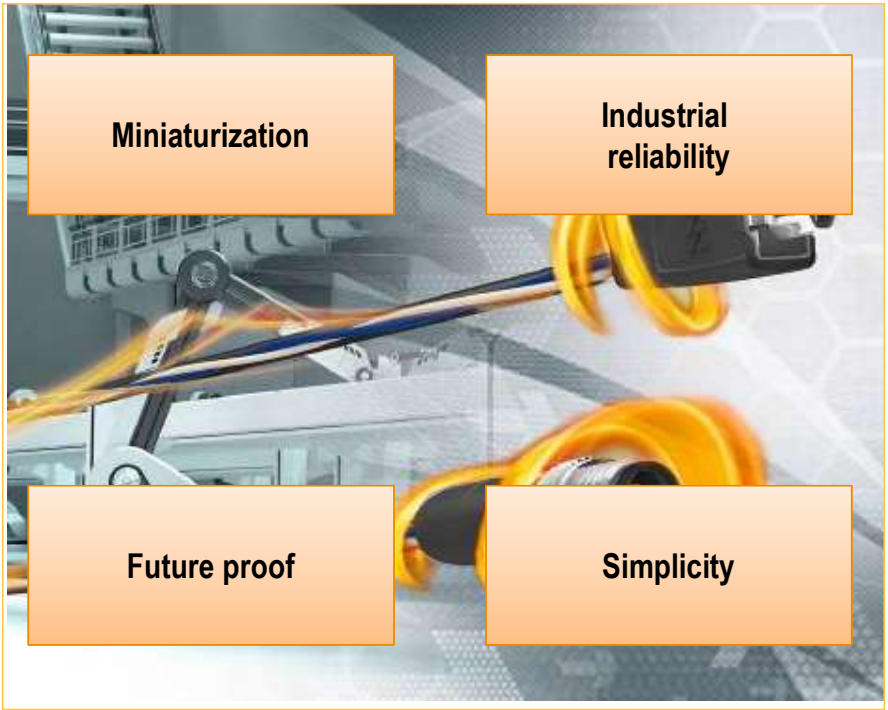
The new standard Interface for the Industrial Internet of Things

Market requirements for SPE connection technology

Analysis of the market requirements profile

Market research

- Small installation space for the connection technology in the devices
- Industrial contact and locking system
- Consistency of the mating face from IP20 to IP67
- Flexibility and variance of existing cabling systems is the benchmark
- Future-proof transfer rates
- One mating face, no parallel systems



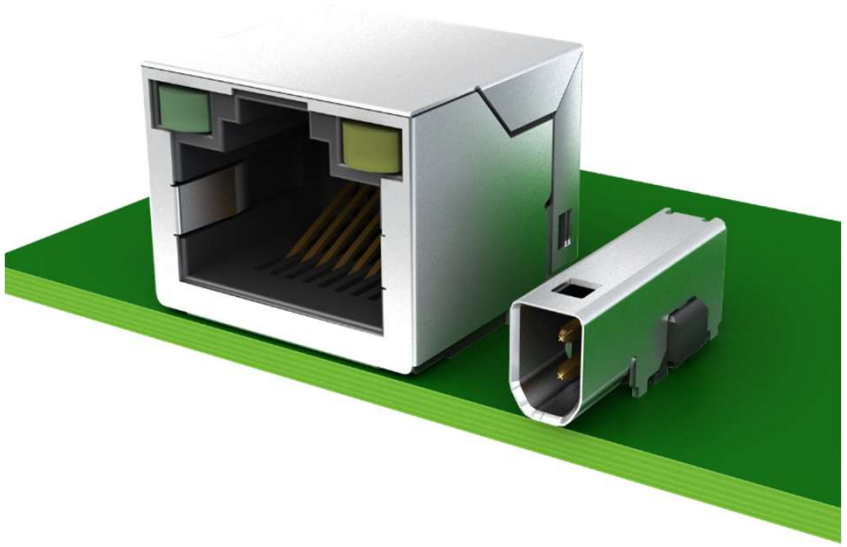
Miniaturization: High packing density

1 Most compact industrial SPE Interface

2 High packing density 50% of the installation space of standard RJ45

3 Integration in standard M8 housing and connector

- Double the packing density compared to RJ45
- Doubling the number of interfaces while maintaining the housing contour
- Requires minimum installation space in the device. Only 20% of the volume of an RJ45 jack



Spørsmål?

https://www.weidmueller.com