Networked manufacturing environments enable seamless communication, as well as greater speed and efficiency. In addition to data transfer among equipment on the factory floor, information must be shared throughout the entire production environment. Having access to real-time data regarding productivity and throughput empowers sound and immediate decision-making throughout your entire organization.

TE’s Industrial Communications solutions play a critical role in driving the efficiency of many manufacturing processes, safely and reliably.
INTRODUCTION OF AUTOMATION & CONTROL

Today, manufacturing has to be more of everything: more reliable, more automated, more flexible, more scalable, more decentralized. More connected. At TE Automation & Control, we deliver the innovative solutions to reliably connect, power and control the systems that make production more productive.

From the circuit board to the harshest working environments, along the production floor and across the world, we make every connection count.

As hardware and systems become more advanced, the integration of electronics in industrial automation is becoming increasingly important. Embedding intelligence across the factory floor, for example, will ensure that all devices provide real-time data leading to an optimization of the Global Supply Chain. On the verge of Industry 4.0, the migration of more information technologies and applications in the field relies on the secure and predictable transport of data, signal and power.

Industrial communications are key to a seamless integration of all devices and to the reliable transport of a large amount of data through the network. TE Connectivity recognizes this trend and our engaged teams partner with customers around the world to identify and solve their connectivity challenges—now and in the future.

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## TE’S INDUSTRIAL COMMUNICATIONS PRODUCTS

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<td>Signal</td>
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<td></td>
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<td></td>
<td>V4 Turn</td>
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</table>

### Industrial Mini I/O
- **Type I**: Wire-to-Board, Wire-to-Wire, P20, Metal, Plastic, Push/Pull, Latching, Screw, V4 Turn, Data, Signal, Field Installable
- **Type II**: Wire-to-Board, Wire-to-Wire, P20, Metal, Plastic, Push/Pull, Latching, Screw, V4 Turn, Data, Signal, Field Installable

### Industrial RJ45
- **Industrial Ethernet**: Wire-to-Board, Wire-to-Wire, P20, Metal, Plastic, Push/Pull, Latching, Screw, V4 Turn, Data, Signal, Field Installable
- **ODVA (Variant 1)**: Wire-to-Board, Wire-to-Wire, P20, Metal, Plastic, Push/Pull, Latching, Screw, V4 Turn, Data, Signal, Field Installable
- **CPC Product Family**: Wire-to-Board, Wire-to-Wire, P20, Metal, Plastic, Push/Pull, Latching, Screw, V4 Turn, Data, Signal, Field Installable
- **Push/Pull (Variant 14)**: Wire-to-Board, Wire-to-Wire, P20, Metal, Plastic, Push/Pull, Latching, Screw, V4 Turn, Data, Signal, Field Installable
- **Screw Type (Variant 3)**: Wire-to-Board, Wire-to-Wire, P20, Metal, Plastic, Push/Pull, Latching, Screw, V4 Turn, Data, Signal, Field Installable

### Industrial USB Series
- **USB Latching IP20**: Wire-to-Board, Wire-to-Wire, IP20, Metal, Plastic, Push/Pull, Latching, Screw, V4 Turn, Data, Signal, Field Installable
- **Circular**: Wire-to-Board, Wire-to-Wire, IP20, Metal, Plastic, Push/Pull, Latching, Screw, V4 Turn, Data, Signal, Field Installable

### M8/M12
- **Panel Mount/Board Mount**: Wire-to-Board, Wire-to-Wire, IP20, Metal, Plastic, Push/Pull, Latching, Screw, V4 Turn, Data, Signal, Field Installable
- **Y-Adapters**: Wire-to-Board, Wire-to-Wire, IP20, Metal, Plastic, Push/Pull, Latching, Screw, V4 Turn, Data, Signal, Field Installable
- **Cable Assemblies**: Wire-to-Board, Wire-to-Wire, IP20, Metal, Plastic, Push/Pull, Latching, Screw, V4 Turn, Data, Signal, Field Installable
- **M8/M12 connector**: Wire-to-Board, Wire-to-Wire, IP20, Metal, Plastic, Push/Pull, Latching, Screw, V4 Turn, Data, Signal, Field Installable

- **Environment**: IP 20, IP 65, IP 67, IP 68
- **Housing Options**: Metal & Plastic, Push/Pull, Latching, Screw, 1/4 Turn
- **Application**: Industrial Mini I/O, Type I, Type II, Industrial RJ45, Industrial Ethernet, ODVA (Variant 1), CPC Product Family, Push/Pull (Variant 14), Screw Type (Variant 3), Industrial USB Series, USB Latching IP20, Circular, M8/M12, Panel Mount/Board Mount, Y-Adapters, Cable Assemblies, M8/M12 connector
INDUSTRIAL MINI I/O CONNECTOR

The Industrial Mini I/O connector system is a small, compact, latching, wire-to-board I/O interface that is now also available as a vertical version, enabling you to safely and reliably connect in all angles. TE’s Industrial Mini I/O solution allows you to save up to 75 percent of space compared to conventional RJ45 plugs, giving you the flexibility to use your limited space on the PCB more efficiently.

PRODUCT OVERVIEW

- Small, compact size
- Vertical Mini I/O
- Latching feature to meet high vibration environment
- SMT and Through Hole available
- Two unique interfaces to prevent improper connection
- Cat 5E/Gigabit Ethernet support

PRODUCT FEATURES

- Operating Temperature: -40 °C ~ +85 °C
- Durability: 1500 Cycles
- Cable retention force: 98 N

PART NUMBERS

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<th>Description</th>
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<td>2040008-1</td>
<td>Plug Kit Mini I/O Plug Kit Type II, Black Latch</td>
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<td>1971885-1</td>
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<tr>
<td>1971885-2</td>
<td>INDUSTRIAL MINI I/O HDR ASSY, Vertical, SMT, Type II</td>
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<td>1971886-1</td>
<td>INDUSTRIAL MINI I/O HDR ASSY, Vertical, THR, Type I</td>
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<td>2040537-1</td>
<td>INDUSTRIAL MINI I/O HDR ASSY, Right Angle, THR, Type I</td>
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<td>1-2040537-1</td>
<td>INDUSTRIAL MINI I/O HDR ASSY, Right Angle, THR, Type II</td>
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<tr>
<td>1971993-1</td>
<td>INDUSTRIAL MINI I/O BYPASS CONN TYPE I</td>
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</table>

APPLICATIONS

- Industrial Communications
- Motion & Drives
- PLC’s
- Robotics

More information at: www.te.com/products/mini-i-o

BENEFITS

- Less downtime and reliable connections due to vibration resistance
- Space saving of up to 75% and increased design flexibility
- Polarized with two options to prevent mis-mating

INDUSTRIAL RJ45 CONNECTORS

The Industrial Ethernet RJ45 connectors from TE Connectivity offer a ruggedized design for use in Industrial Ethernet applications and are equipped with a robust termination technology. With the field installation RJ45 Modular Plug Series, this solution is capable of a data transmission rate of 100 Mbit/s (4 pos.) up to 1000 Mbit/s (8 pos.). Designed for use in Industrial environments, the connector features rugged locks with the jack, while an optional supporting frame allows a secondary locking, resulting in a secure interconnection.

Equipped with a fast termination technology, utilizing the company’s “common core” design in the RJ45 Modular Plug Series, this solution can be applied in the field without the need for any tools, significantly reducing installation time and costs. This fast termination technology is used in all of TE’s field installable connector series, including IP20, ODVA and push-pull connectors.

PRODUCT OVERVIEW

- Field-installable modular plugs
- Installation without tools
- Common core insert
- Ruggedized design for use in Industrial Ethernet applications

PRODUCT FEATURES

- Metallic locking tab for locking
- Polarized for proper mating
- Operating Temperature: -40°C to +70°C

PART NUMBERS

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<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
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<tbody>
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<td>IE RJ45 CONNECTOR IP20 4POS 180DEG</td>
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<td>1903527-1</td>
<td>IE RJ45 CONNECTOR, IP20, 8POS, 180DEG</td>
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<td>1987004-2</td>
<td>RJ45 PLUG, PUSH-PULL, ASSY, CAT5, SHIELDED, 8POS</td>
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<td>1954656-2</td>
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<td>1811689-1</td>
<td>KIT, Receptacle, 8 POS Shielded</td>
</tr>
</tbody>
</table>

APPLICATIONS

- Industrial Communications
- Motion & Drives
- PLC’s
- Robotics
- Process automation
- Machinery
- Diagnostic equipment

BENEFITS

- IDC version helps to reduce complexity of installation process
- IP67 version helps protect the equipment from water and dust
- Bulkhead receptacle mounts to either inside or outside of the panel cutout

Available as:
- IP20 (regular and with 45 degree angle)
- IP 65/67 Push Pull
- IP 65/67 ODVA compliant (plastic and metal shell version)
CABLE ASSEMBLIES

TE’s Industrial Communications solution includes standard length Industrial Ethernet cable assemblies. The PVC jacketed cable assemblies are available in 3 through 20 meter lengths. Options are available for IP20, field installable and IP67 versions.

PRODUCT OVERVIEW
- PVC jacketed cable
- Rated to 250 V
- Shielded and non-shielded options
- Category 5e
- IP20 and IP67 options
- Standard lengths of 3, 5, 7, 10, 15 and 20 meters

PRODUCT FEATURES
Mechanical
- Operating Temp. -55 °C to +85 °C

Electrical
- Voltage Rating — 30VAC (rms)
- Data Rate – 480Mbits/s

MATERIALS
- Housing – High temperature thermoplastic, UL94V-0, black
- Contact – Brass, gold plated on contact area, nickel underplated
- Shield – Steel, nickel plated, copper underplated

APPLICATIONS
- Human Machine Interface (HMI) – Panels
- Barcode Readers
- Machine Vision
- Mass Storage
- Printers

More information at: www.te.com/products/industrial-USB-connectors

PART NUMBERS

CABLE ASSEMBLIES

The industrial USB connectors from TE Connectivity are ideal for all industrial USB applications where a high locking force or a sealed design for the use in industrial applications is required. With the introduction of a new IP20 series of industrial USB connectors that feature an integrated locking mechanism with audible and tactile feedback, TE offers an excellent interconnect solution for internal USB cable routing. The newly designed locking feature helps prevent accidental pull out of the plug, which enables customers to secure a cable internally without having to worry about the plug coming loose during transit and use.

A sealed and highly reliable version (IP65/IP67) of the industrial circular USB connectors is also available. This rugged USB connector is designed for use in harsh environments and features a quick-connect bayonet coupling mechanism.

PRODUCT OVERVIEW
- USB 2.0 standard, USB type A & B connection system
- Rugged IP20 and Sealed IP 67 solution
- Integrated locking mechanism provides excellent strong lock strength
- Protective cover available for the receptacles
- Plastic and metal housing

PRODUCT FEATURES
Mechanical
- Operating Temp. -55 °C to +85 °C

Electrical
- Voltage Rating — 30VAC (rms)
- Data Rate – 480Mbits/s

MATERIALS
- Housing – High temperature thermoplastic, UL94V-0, black
- Contact – Brass, gold plated on contact area, nickel underplated
- Shield – Steel, nickel plated, copper underplated

APPLICATIONS
- Human Machine Interface (HMI) – Panels
- Barcode Readers
- Machine Vision
- Mass Storage
- Printers

More information at: www.te.com/products/industrial-USB-connectors

PART NUMBERS

PRODUCT OVERVIEW

PRODUCT FEATURES
Mechanical
- Operating Temp. -55 °C to +85 °C

Electrical
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MATERIALS
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APPLICATIONS
- Human Machine Interface (HMI) – Panels
- Barcode Readers
- Machine Vision
- Mass Storage
- Printers

More information at: www.te.com/products/industrial-USB-connectors

PART NUMBERS

PRODUCT OVERVIEW

PRODUCT FEATURES
Mechanical
- Operating Temp. -55 °C to +85 °C

Electrical
- Voltage Rating — 30VAC (rms)
- Data Rate – 480Mbits/s

MATERIALS
- Housing – High temperature thermoplastic, UL94V-0, black
- Contact – Brass, gold plated on contact area, nickel underplated
- Shield – Steel, nickel plated, copper underplated

APPLICATIONS
- Human Machine Interface (HMI) – Panels
- Barcode Readers
- Machine Vision
- Mass Storage
- Printers

More information at: www.te.com/products/industrial-USB-connectors

PART NUMBERS
M8/M12 CONNECTOR

TE Connectivity’s M8/M12 Connector System for machine industrial automation and control applications provides a solution that safely and reliably ensures the communication in industrial environments. This connector system also finds applications outside of its traditional industries where a compact reliable connection system with environmental protection is required. TE’s solution includes an extensive connector range of PCB headers, cable assemblies and I/O boxes, and provides users with an interface that supports higher bandwidth needs - meeting the requirements of up to 10 Gb/s.

TE’s broad product portfolio provides customers with shielded and unshielded cable assembly options in both Cat5e and Cat6A cable types. For rewiring on site a range of field serviceable connectors are provided, while the T and Y adaptors facilitate simple splitting of control signals, allowing versatile systems to be quickly and easily established. Additional styles are available on request including alternative mounting arrangements for panel mount connectors and double ended cable assemblies.

PRODUCT OVERVIEW

- Easily installable connector system including connectors, I/O modules and Cable assemblies
- Alternative mount arrangements for solder cup or PCB
- Panel mount and distribution version available
- Shield reliable

PRODUCT FEATURES

Mechanical
- IP 67 protection level
- Operating temperature: -25˚C to +85˚C
- Retention force: 4 to 5 ways max.15N 8 ways: max.30N

Electrical
- Rated voltage: 4-pins: 250V, 5-pins: 60V, 8-pins: 30V
- Current-carrying capacity
  - A-coding 4 to 5 ways =4A 8 ways =2A
  - B-coding 5 ways =4A D-coding 4 ways =4A

Materials
- Brass substrate
- Alternative gold or silver finish

Standards/Specifications
- IEC 61082

BENEFITS

- M8/M12 Connector System provides full solution including quick turn, prototype cable assemblies

PART NUMBERS

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</table>

APPLICATIONS

- Industrial Communications
- Sensor
- Machine tools
- Process automation

More information at:
www.te.com/products/m8-m12
LET’S CONNECT

We make it easy to connect with our experts and are ready to provide all the support you need.

Just call your local support number or visit www.te.com/industrial to chat with a Product Information Specialist.

Technical Support
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