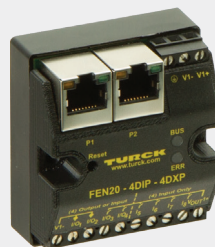# TURCK

Your Global Automation Partner

The Full Range for Industrial Ethernet

Protocols

Turck provides a complete line of Industrial Ethernet products including modular and block I/O systems, in-cabinet and on-machine Ethernet I/O, decentralized control with programmable systems conforming to IEC 61131, and innovative technologies such as RFID and IO-Link.

EtherNet/IP™

EtherNet/IP™ is a communication protocol supported by the ODVA and is designed for use in industrial automation and process control applications. It takes the Common Industrial Protocol (CIP) and implements it onto the foundation of Ethernet. CIP envelops a wide-ranging suite of messages and services for a variety of applications, including safety, control, configuration and information. EtherNet/IP provides users with tools to deploy standard Ethernet technology for industrial applications.

PROFINET

PROFINET® uses the same Ethernet as offices and IT departments. However, its capabilities have been ruggedized to meet the tougher conditions faced in industrial applications. PROFINET is often a first option due to its ability to be used in basically any function in industrial automation. Utilizing its integrated Ethernet based communication and supported by PROFIBUS International, PROFINET is able to satisfy a wide assortment of requirements.

Modbus

Quite simply, Modbus TCP™ is the Modbus RTU protocol with a TCP interface running on Ethernet. TCP/IP refers to Transmission Control Protocol and Internet Protocol, which provides the transmission channel for Modbus TCP/IP messaging. Modbus TCP/IP is used often in industrial environments due to its ease of deployment and maintenance, and because it was developed specifically with industrial applications in mind.

EtherCAT

EtherCAT® stands for Ethernet for Control Automation Technology, with a goal to create the ability to apply Ethernet to automation applications that require very short and quick upload times. EtherCAT uses a unique approach known as "processing on the fly", in which data is not received, processed, and copied in order, but rather processed while passing through the device, allowing EtherCAT to operate at higher speeds than other protocols. This "processing on the fly" principle also allows flexibility in topology and provides data in nearly real-time. EtherCAT is commonly used in any application that requires motion or motion control.

CC-Link IE FieldBasic

CC-Link is a family of industrial networking protocols widely used in Asia with growing use globally. In the context of industrial Ethernet, it typically means CC-Link IE (Industrial Ethernet). It uses standard Ethernet technology but with deterministic, real-time communication features required in industrial automation. CC-Link is designed for high-speed, high-reliability control in manufacturing environments. Turck's CC-Link IE-compatible products allow users to benefit from CC-Link connectivity without sacrificing the flexibility, durability, or advanced features of Turck's I/O systems. It can be used in line, star and ring topologies.

TURCK

Turck is a global leader in automation technology. Over 5,000 employees in 30 countries strive to deliver the best sensor, connectivity, RFID and fieldbus technology products on the market. To do this more efficiently, we have strategically located production facilities across the globe, including sites in the United States, Germany, Switzerland, Mexico, and China. This allows us to adapt to specific market conditions, as well as bring product to the market faster.

Turck strives to provide our customers with not only the best products on the market, but also the best service and support. Our highly trained engineering staff is available to walk you through your system requirements and help find solutions to difficult application problems. Unlike other companies, when you call Turck, you will always be able to speak directly with an engineer in a matter of minutes! Combine this with a network of 2,000 experts across the United States, and you literally have the finest assembly of automation professionals at your doorstep.

Industrial Ethernet

As customers continually search for faster and improved solutions for their industrial automation applications, many are discovering and choosing Industrial Ethernet for its ability to reduce expenses and increase communication capability.
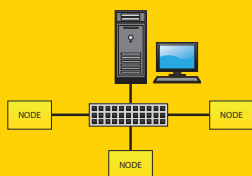
What is Industrial Ethernet?

Ethernet itself is the computer networking technology generally used for local area networks (LANs) and is standardized in IEEE 802.3. Industrial Ethernet is the result of applying traditional Ethernet standards to industrialized applications. To make that possible, industrial grade components are used that can tolerate demanding conditions such as extreme temperatures, shock, vibration, and washdown applications.
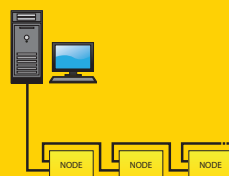
What are the major benefits of Industrial Ethernet?

Industrial Ethernet benefits users by utilizing tools and techniques familiar to traditional office communication systems. However, through the use of rugged components, users may now apply Ethernet to industrial applications. This facilitates data transfer across the entire plant floor as well as plant-to-plant globally via secure network connections.
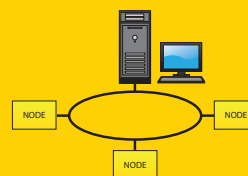
Industrial Ethernet supports a variety of topologies including star, line, device-level ring, and tree (shown below).
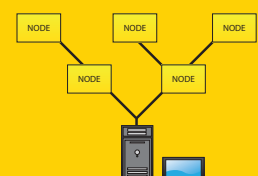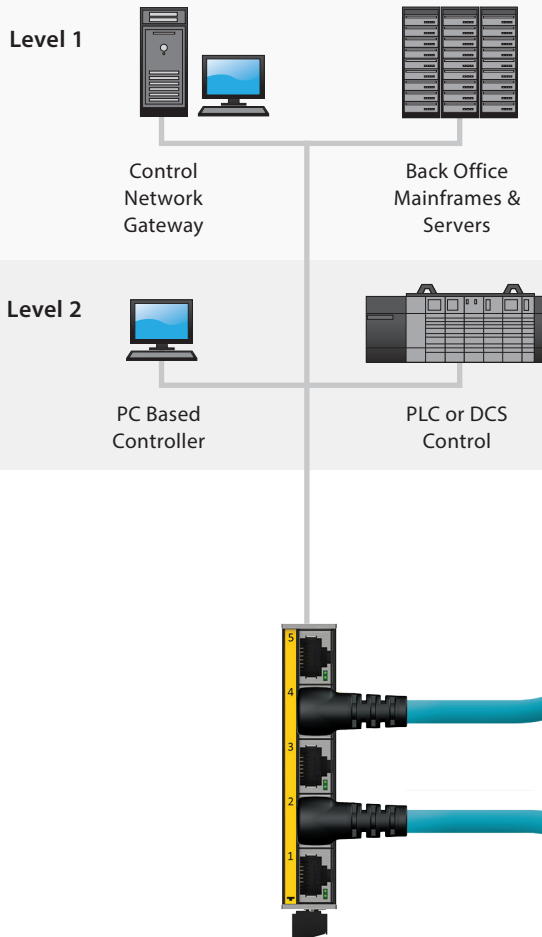
STAR TOPOLOGY   LINE TOPOLOGY   RING TOPOLOGY (DLR/MRP)   TREE TOPOLOGY

Level 1

Control
Network
Gateway

Back Office
Mainframes &
Servers

Level 2

PC Based
Controller

PLC or DCS
Control

Multiprotocol Ethernet Products

Turck provides a complete line of Industrial Ethernet products, including on-machine, in-cabinet, block, and modular I/O. Turck offers Ethernet solutions where I/O can connect directly or indirectly to Ethernet. The most recent innovation is the Multiprotocol Industrial Ethernet concept. Turck's innovative approach to Industrial Ethernet makes moving from another protocol or simply implementing a fieldbus for the first time plug-in simple. Turck's Multiprotocol products are self-configuring and offer a seamless transition to Ethernet, whatever Industrial Ethernet protocol that may be.

1 Device = 4 Protocols

- EtherNet/IP™, PROFINET®, Modbus TCP™, and CC-Link
- Gateway (slave) recognizes the master upon powerup and self-configures for master protocol
- Supports ODVA quick-connect, Device Level Ring (DLR) and multiple configuration options to support a variety of PLC environments
- PROFINET options include: PROFINET RT, PROFINET Fast Start-up (FSU) and Media Redundancy Protocol (MRP)
- PROFINET IRT available in standard product configuration
- EtherCAT® available in select product configurations
- Embedded web server for device configuration and diagnostics
- Embedded ethernet switch to support multiple topologies including linear & ring
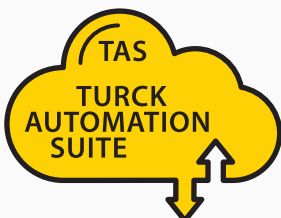
TAS (Turck Automation Suite)
Manage all Turck devices in your production network more efficiently from one software platform.
- Batch configure,
- Troubleshoot
- Real time monitoring
  … more

TAS
TURCK
AUTOMATION
SUITE

Field Logic Controller (FLC)
- Powered by Turck's ARGEE Technology
- Web based programming environment
- Standard in Turck Multiprotocol block I/O devices
- No PLC needed to perform logic
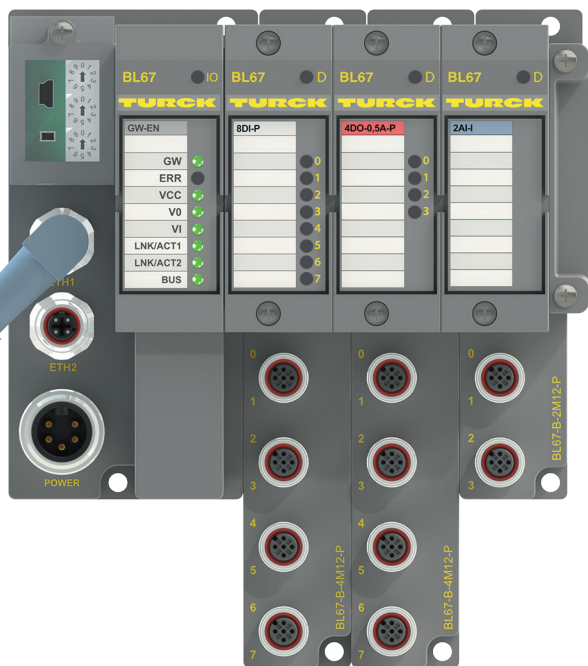
BL67: On-Machine Modular I/O

- Multiprotocol gateway with interface to the higher level control system
- Programmable features for local or distributed control
- BL Ident® - RFID system featuring both HF and UHF technologies
- Modules for digital and analog I/O, serial, IO-Link, counter, etc.
- M8 Picofast®, M12 Eurofast®, M23 Multifast® and 7/8-16 UN Minifast® connection options
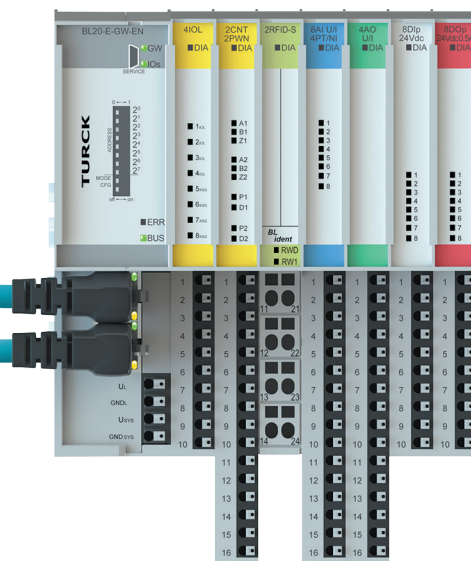
BL20: In-Cabinet Modular I/O

- Multiprotocol gateway with interface to the higher level control system
- Programmable features for local or distributed control
- BL Ident - RFID system featuring HF and UHF technology
- Modules for digital and analog I/O, serial, IO-Link, counter, PWM, etc.
- Economy I/O options for application flexibility and I/O density
- Tension clamp or screw terminal connections

CODESYS

- IEC 61131-3 based programming software
- Allows programming in Ladder, Structured Text, Flow Chart, Sequential Function and Instruction List
- Download for free at www.turck.us
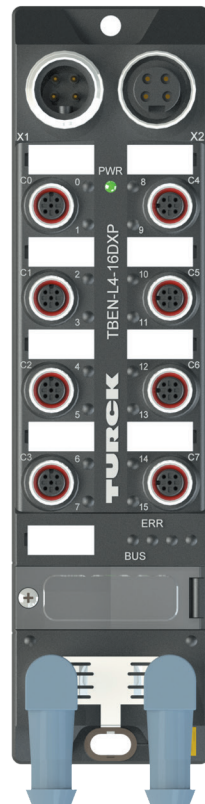
TX Series HMI/PLC

- HMI devices with integrated PLC functionality
- 4", 7", 10", 13", 15" and 21" TFT displays
- Modbus TCP, PROFINET, and Ethernet/IP scanner
- Programmable with CODESYS 3 software

TBEN: On-Machine Block I/O

- Per point diagnostics
- Up to 16 channels (TBEN-L*) or 8 channels (TBEN-S*) of I/O available
- Universal I/O option - each channel can be an input or output
- Specialty I/O options such as RFID, universal analog input & IO-Link master
- Environmental protection: IP67, 68, and 69K rated
- Operating temperature range of -40 °C to +70 °C
- 4 or 5 pin auxiliary power connection options
- CC-Link now supported on multi-protocol blocks

FEN20: In-Cabinet Block I/O

- Available in a variety of I/O channels
- Universal I/O option - each channel can be an input or output
- Specialty I/O with IO-link master
- IP20 rated for in-cabinet, fixed I/O applications
- 3 power zones for isolation flexibility
- Removable terminals for easy installation

Cables and Connectors for All Major Protocols

- EtherNet/IP, PROFINET, Modbus TCP, EtherCAT, and CC-Link

Industrial Ethernet Adapters

- Conduit Adapter
- Cabinet Adapter
- Wall Plate Adapter
- Ethernet Receptacles

Ethernet Switches

- IP20 featuring 5 and 8 ports
- IP67 featuring 5, 9, and 10 ports
- Managed and unmanaged versions available

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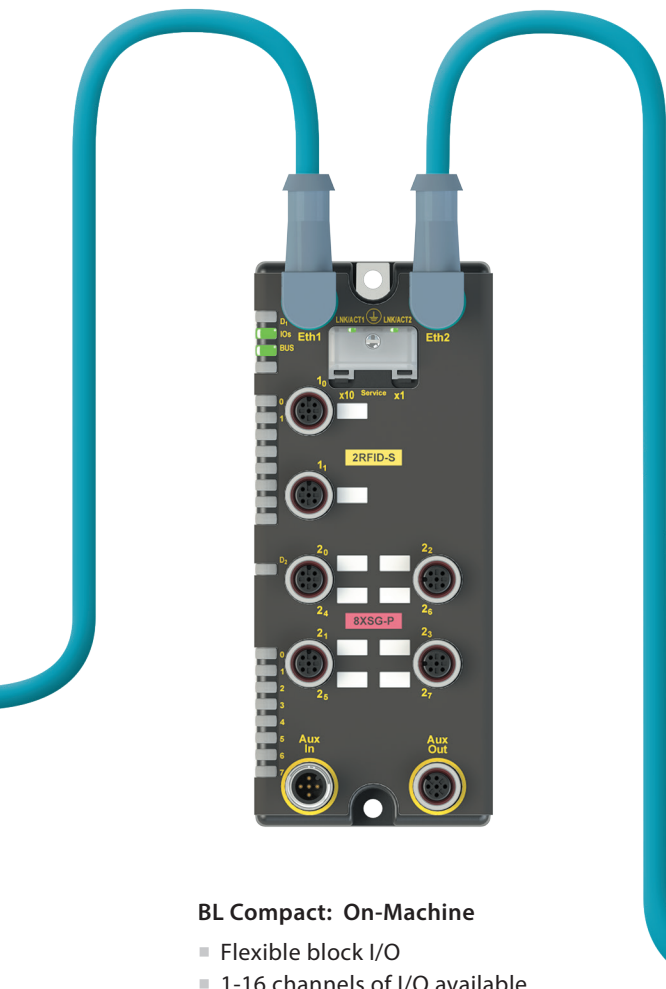
BL Compact: On-Machine

- Flexible block I/O
- 1-16 channels of I/O available
- Mix and match discrete, analog and specialty modules such as RFID and IO-Link on a single device
- Environmental protection IP67/IP69K

Safety Solutions: On-Machine

- Available for PROFIsafe (PROFINET) and CIP Safety (Ethernet/IP)
- Capable of local safety control without a Safety PLC
- Flexible 'Hybrid' combination of safety and general purpose I/O with:
  - 2 redundant safety inputs
  - 2 redundant configurable safety inputs/outputs
  - 4 general purpose inputs/outputs
  - 2 IO-link master ports.
- Full safety option with:
  - 4 safety inputs
  - 4 safety inputs/outputs
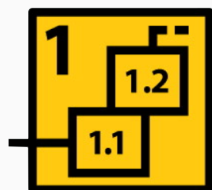
BEEP Backplane Ethernet Extension Protocol

- Single IP address 1 scanner and 32 attached devices
- Supports drop in device replacement
- Standard in Turck digital I/O blocks

Power Supplies

- 12/24 VDC outputs from 2-20 Amps
- 120 VAC up to 480 VAC input options
- IP20 and IP67 options available

TURCK

30 subsidiaries and over
60 representations worldwide!

www.turck.com