

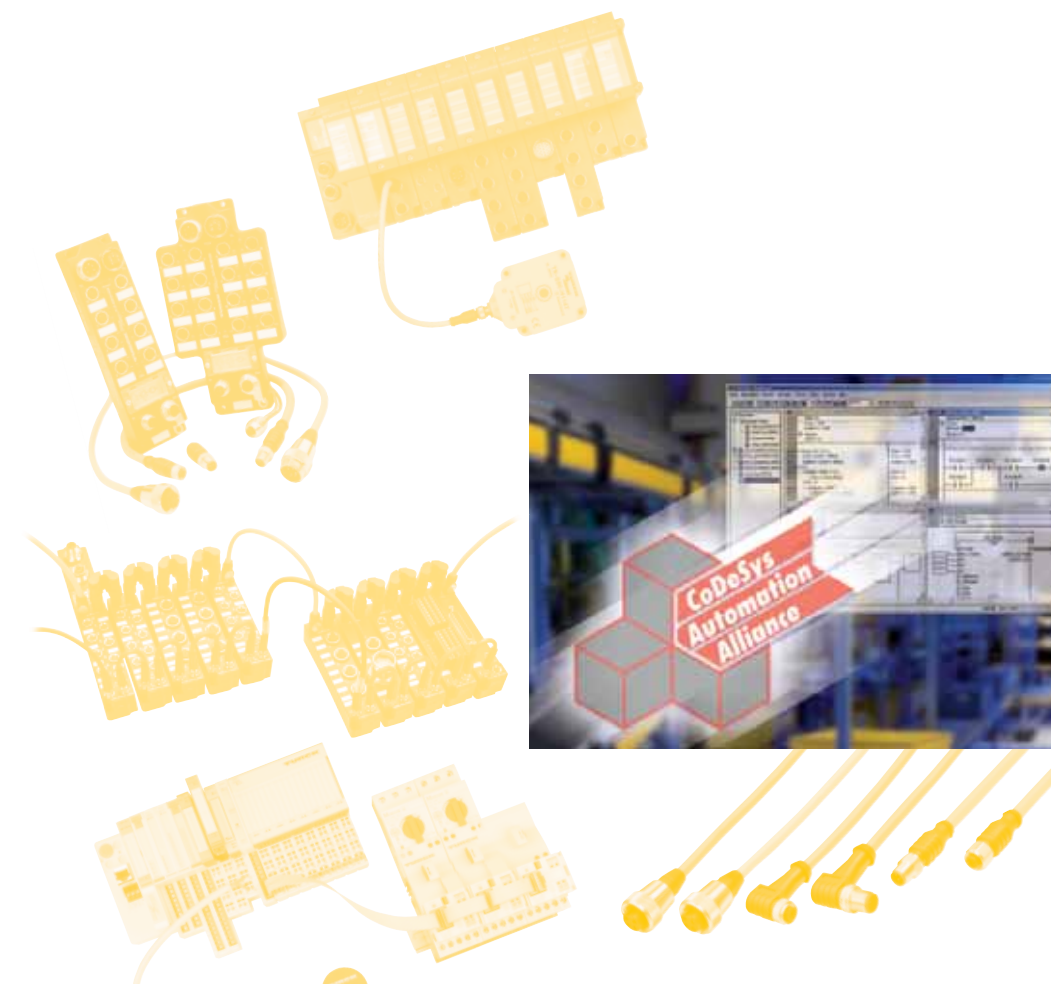


TURCK

Industrial
Automation

FIELD BUS
TECHNOLOGY

MODULAR
I/O SYSTEMS
AND COMPACT
I/O MODULES IN
IP20 AND IP67



Sense it! Connect it! Bus it! Solve it!

Modular I/O systems and compact I/O modules in IP20 and IP67

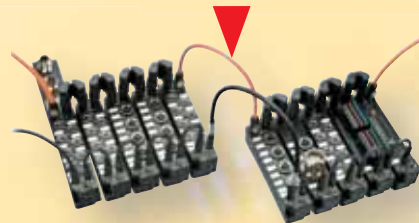
Perfect connections – no matter which fieldbus you use; TURCK provides you with a complete range of products:

- Modular and compact I/O systems in a variety of housing styles and IP-ratings
- Optimal support for planning, commissioning and service with the I/O-ASSISTANT software tool
- Decentralized intelligence with IEC 61131

BL67  **page 4**



piconet®  **page 6**



Modular		✓	✓
Compact			✓
IP20			✓
IP67		✓	✓
Functions			
Digital I/O		✓	✓
Analogue I/O		✓	✓
Technology modules		✓	✓
Fieldbus interfaces			
PROFIBUS-DP		✓	✓
DeviceNet™		✓	✓
CANopen		✓	✓
INTERBUS			✓
PROFINET IO		✓	✓
EtherNet/IP™		✓	✓
Modbus TCP		✓	✓
System support			
Motor starter			
RFID		✓	
Valve terminals		✓	✓
Zone 2			
Software			
CoDeSys programmable (see page 12)		✓	
I/O-ASSISTANT (see page 13)		✓	✓

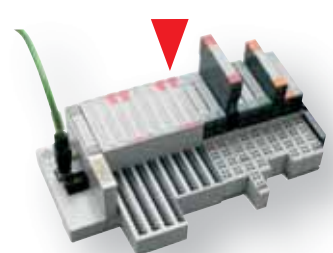
EtherNet/IP™

PROFI
INDUSTRIAL ETHERNET
NET

Ethernet Modbus TCP

Compact I/O modules
IP67

IP20

page 8
BL20

page 10

		✓
✓	✓	
	✓	✓
✓		
✓	✓	✓
		✓
		✓
✓	✓	✓
✓	✓	✓
		✓
✓		
✓		✓
✓		✓
✓		✓
		✓
		✓
✓ (FXDP modules)		✓
		✓
✓ (FXEN modules)		✓

INTERBUS
CANopen
PROFIBUS
PROCESS FIELD BUS

DeviceNet™

Certified! No.099

The BL67 I/O system – the modular I/O system in IP67 for temperature range -25...+70 °C

Gateway:

The system control

- The interface to the higher level control system
- Gateways for PROFIBUS-DP, CANopen, DeviceNet™, PROFINET IO, EtherNet/IP™ and Ethernet Modbus TCP



Optional:

CoDeSys-programmable according to IEC 61131

- Relieves higher-level controller and bus system
- I/O modules independent of the fieldbus
- Prefabricated function blocks e.g. for the RFID *BL ident*® system and serial interfaces

Power Feeding Module

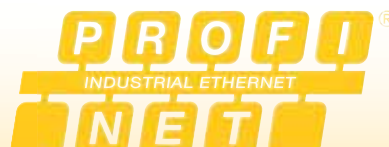
- Power supply for the field, sensors and actuators
- Enables the creation of potential groups which can be switched on or off according to the requirements of the application

Operation control with Pick-to-Light sensors

- Combined digital modules enable one input and one output per M12 connector
- Prefabricated standard M12 sensor cables

BL ident® system

- The modular RFID system made by TURCK
- Modular extension, up to 8 channels
- Temperature range of the data carriers between -40 and +210 °C



Modbus TCP

Elektronic modules

- Digital, analog, temperature, RS232, SSI, CANopen interface and more
- Independent from the applied fieldbus
- Free choice of connection technology
- Available as 2, 4, 8 or 16-channel version
- Local diagnostics and status display via LEDs
- Hot-Swapping function

Base modules

- Passive connection components for sensors and actuators
- Available as M8, M12, M23 and 7/8 connectors
- Connection of I/O modules with single, dual or multicore wiring
- Fast replacement of electronics through the use of separate connection bases

Material recognition

- Distinction of different metals or metallic compositions
- Distance independent material detection
- Inductive sensor with two analog voltage outputs

Integration of valve terminals

- 4, 8 or 16-channel digital output modules with M23 base modules for multipole valve terminals
- Up to 8 CANopen valve terminals with one CAN-valve interface connection module

I/O-ASSISTANT

- Planning, configuration, commissioning and diagnostic software
- Based on FDT/DTM technology
- Available as freeware on www.turck.com

CANopen

PROFIBUS
PROCESS FIELD BUS
BUS

DeviceNet™

The *piconet*® I/O system – in miniature housings for highest industrial requirements

piconet® – Coupling modules

- As interface to the higher level control system
- Gateway between PROFIBUS-DP, CANopen, DeviceNet™, INTERBUS, EtherNet/IP™, Modbus TCP, PROFINET and fiber-optic cable based Sub-Bus „IP-Link“
- Coupling modules connect the higher level open fieldbus and the economical extension modules.
- Fiber-optic subnet (IP-Link) for connection of up to 120 extension modules per coupling module
- High-speed transmission, 1000 I/Os in approx. 1 ms via prefabricated and interference-free fiber-optic cables.
- Fiber-optic cable length up to 15 m



Bus addressing switch and service interface to I/O-ASSISTANT software

Bus LEDs

Module/ IP-Link LEDs

Compact and robust housing

- Only 26.5 mm high, 30 mm wide and 210, 175 or 126 mm long
- Fully encapsulated IP67 housing
- Suited for direct use on the machine
- Ideally suited for special or serial machine engineering as well as for various field applications

piconet®-Stand-alone module

- Stand-alone modules connect the integrated I/Os directly with the open fieldbus, e.g. PROFIBUS-DP, CANopen, DeviceNet™, INTERBUS, Modbus TCP, EtherNet/IP and PROFINET

A secure connection

- Prefabricated bus, fiber optic, power and I/O cables
- Field-wireable connectors
- Additional networking components such as T-pieces, terminating resistors etc.



piconet® - Extension modules

- Flexible and tested I/O connection technology in M8 x 1, M12 x 1 and M23 x 1
- Extension modules independent of the higher level fieldbus system

piconet® - Bridges for fibre optics and power cables

- Compact mounting
- Reduced space requirements
- Easy installation
- IP67

Easy planning and configuration with the I/O-ASSISTANT

Configuration software for

- Project planning
- Configuration
- Parameterization



Description

The configuration software I/O-ASSISTANT supports you in planning and implementation of an I/O system. Whether in the online or offline mode, the I/O-ASSISTANT simplifies module configuration and parameterization.

The software is also extremely helpful in system set-up and testing.



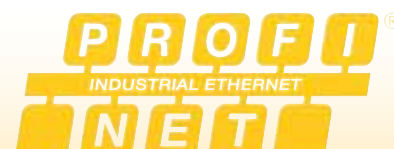
Power LEDs

High current module ≈ 12 A with 2 x M8 connectors



Certified! No.099

Modbus TCP EtherNet/IP™

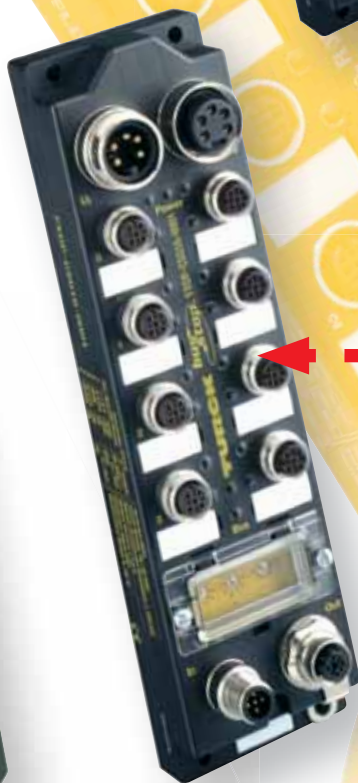


Compact fieldbus I/O modules in IP67 and IP20

Compact fieldbus modules

These rugged modules are ideal for use in harsh industrial environments (both electrical and mechanical). No matter if PROFIBUS-DP, DeviceNet™, Modbus TCP, EtherNet/IP™ or PROFINET protocols are required, all compact fieldbus I/O modules are designed with the same mechanical concept and have the following characteristics:

- Fibre-glass reinforced plastic housing
- Fully encapsulated module electronics
- Standard connection technology
- Metal round connector
- Vibration and shock tested
- Degree of protection IP67



FXDP – Configurable PROFIBUS-DP modules

- Freely configurable I/Os
- Channel-specific diagnostics
- Diagnostics according to PROFIBUS standard
- Diagnostics can be mapped to user data area
- Up to 16 digital channels

FGDP – PROFIBUS-DP-Modules with galvanic isolation

- Channel-specific diagnostics
- Diagnostics according to PROFIBUS standard
- Diagnostics can be mapped to user data area
- Up to 16 digital channels
- Galvanic isolation of operating and load voltage

FLDP – PROFIBUS-DP modules

- Module-specific diagnostics
- Up to 32 digital channels

PROFI
PROCESS FIELD BUS
BUS

DeviceNet™

Modbus TCP

FDNL – DeviceNet™ modules

- Channel-specific diagnostics (LX series) or module-specific diagnostics (SE series)
- Up to 16 digital channels
- Power supply via DeviceNet™

FDNP – DeviceNet™ modules

- Channel-specific diagnostics (LX series) or module-specific diagnostics (SE series)
- Up to 16 digital channels
- Separate power supply for the outputs

FDN/FDP – IP20 modules

- Extremely compact for mounting in tight spaces
- PROFIBUS-DP or DeviceNet™
- Up to 16 digital channels


FXEN – Configurable Ethernet modules

- Integrated Ethernet switch
- Freely configurable I/Os
- Channel-specific diagnostics
- Up to 16 digital channels

Accessories

- Cordsets – premoulded cables for bus, power supply and I/Os
- T and Y pieces Terminating resistors
- Flange connectors
- Feed-through receptacles
- Passive junction boxes

EtherNet/IP™

PROFI
INDUSTRIAL ETHERNET
NET

The BL20 I/O system – The integrator for fieldbus, ident system, motor starter

Gateway – The system control

- The interface to the higher level control system
- Gateways e.g. for PROFIBUS-DP, CANopen, DeviceNet™, Ethernet/IP™ and Modbus TCP – also available as economy version



Optional – CoDeSys programmable according to IEC 61131

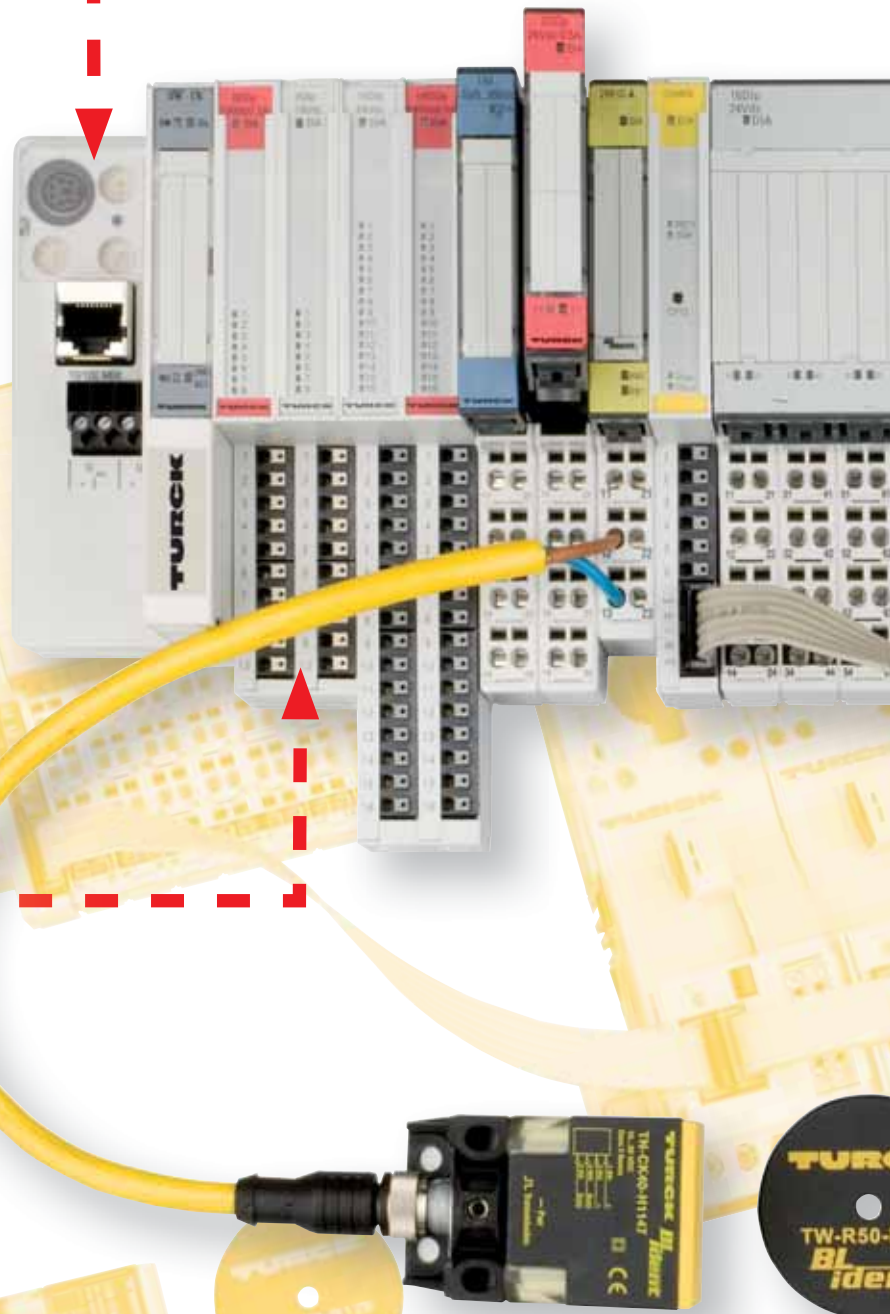
- Relieves higher-level controller and bus system
- I/O modules independent of the fieldbus
- Prefabricated function blocks e.g. for the RFID system *BL ident*®

Economy I/O – extremely compact and competitively priced

- 8 or 16 I/Os in only 12,5 mm
- Integrated connection level with „Push-in“ tension spring technology, no tools necessary
- Economy I/Os combinable with standard I/O slices

BL ident®, the RFID system

- Up to 8 RFID channels
- Pre-processing in programmable gateway relieves the higher-level controller.



EtherNet/IP™

PROFI
INDUSTRIAL ETHERNET
NET

Modbus TCP

Standard I/O – multifunctional and system friendly

- Exchangeable electronic modules – disconnection of field wiring is not necessary
- Up to two neighbouring modules are exchangeable during normal system operation without disrupting system functions
- Single or block modules with screw or cage clamp terminals



I/O-ASSISTANT

- Planning, configuration, commissioning and diagnostic software
- Based on FDT/DTM technology
- Available as freeware on www.turck.com



Motor starter

(Direct and reversing starters up to 15 kW acc. to IEC/EN 60947-4-1)

- 3 connection-slices per gateway
- Up to 16 devices per slice
- Simple wiring

The motor starters consequently build upon the advantages of the BL20 system:

- Modular
- Flexible
- Simple mounting and operation
- Cost-efficient

CANopen

PROFI
PROCESS FIELD BUS
BUS

DeviceNet™

CoDeSys

Easy programming with CoDeSys according to IEC 61131-3

The programmable gateways become decentral control units with the CoDeSys programming software.

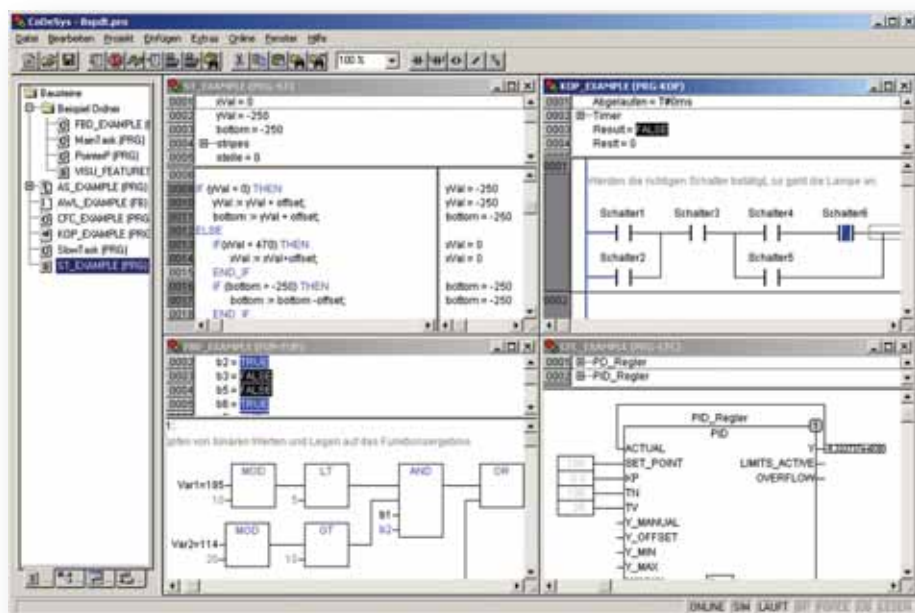
The graphical programming interface supports all IEC-61131-3 programming languages

- Statement list (STL)
- Ladder Diagram (LD)
- Continuous Function Chart (CFC)
- Structured Text (ST)
- Sequential Function Chart (AS)



Simple connection

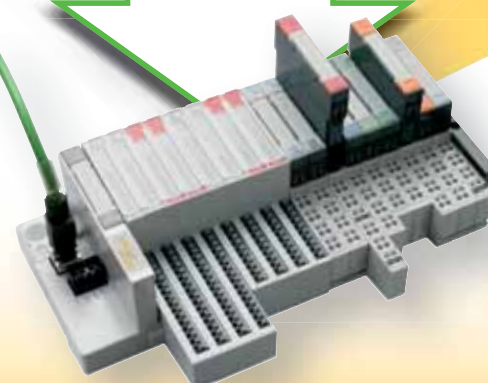
- Quick and simple connection of heterogeneous systems
- Standard transmission protocols such as e.g. TCP/IP and UDP/IP
- Network-global variables
- Bidirectional data exchange between CoDeSys systems
- Additional programming is not required



Data exchange via Ethernet

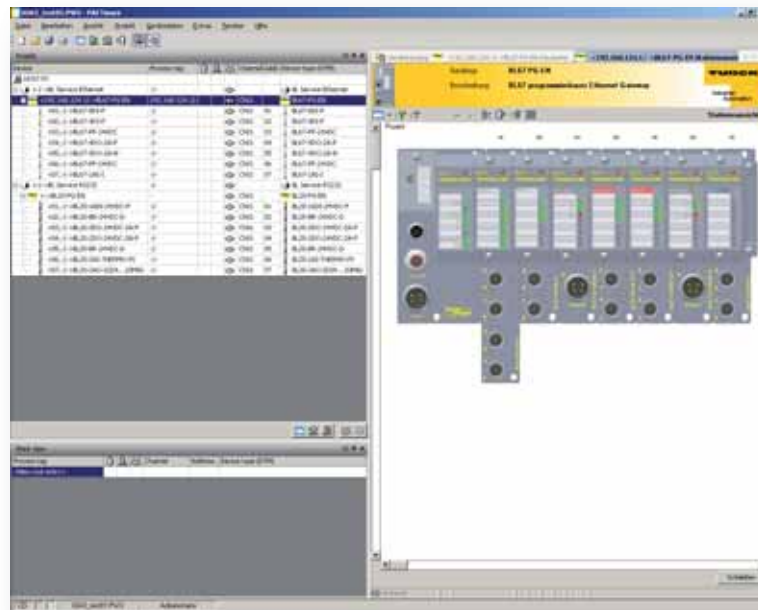
Project planning and configuration

- Target-Support-Package as driver for the target system
- Drag and Drop function for the hardware configuration
- Standard editor for I/O configuration and parameterization
- Symbolic display of variables for I/O addresses
- Numerous diagnostics and commissioning functions
- Funktion blocks e. g. for the RFID system *BL ident*®



Easy parameterization with I/O-ASSISTANT on the basis of FDT/DTM

- System configuration, parameterization and diagnostics with a graphical interface based on FDT/DTM technology
- DTMs can be integrated in any FDT frame application for configuration, commissioning and maintenance
- I/O-ASSISTANT and DTMs are available free of charge on www.turck.com



Description

The configuration software I/O-ASSISTANT supports you in planning and implementation of an I/O system.

No matter if you are online or offline, the I/O-ASSISTANT simplifies the configuration as well as the configuration and parameterization of the modules.

This software is also extremely helpful in system set-up and testing.

Functions

- Supporting software tool
- Selection of the required modules
- Offline planning and configuration of BL67 and BL20 modules
- Configuration, parameterization and commissioning of individual modules
- Reading and setting of process data
- Commissioning help for testing the wiring and sensors without PLC
- Realistic display of configured BL67 components
- Automatic documentation of configured BL67 and BL20 systems



Components for fieldbus and power supply infrastructure

Premoulded and tested connector systems significantly reduce the error rate of fieldbus installations and speed up system set-up. The components are simply plugged together – „Plug and Play“ is the motto!

Passive junction boxes in IP67 for

- Fieldbus
- Power supply



Active junction boxes in IP67

- Repeater
- Spanner
- Ethernet switches



Fieldbus accessories

- T-pieces
- Y-pieces
- Flange connectors
- Feed-through receptacles
- Terminating resistors
- Field-wireable connectors



Fieldbus cables

- PROFIBUS-DP
- DeviceNet™
- Ethernet/Industrial Ethernet



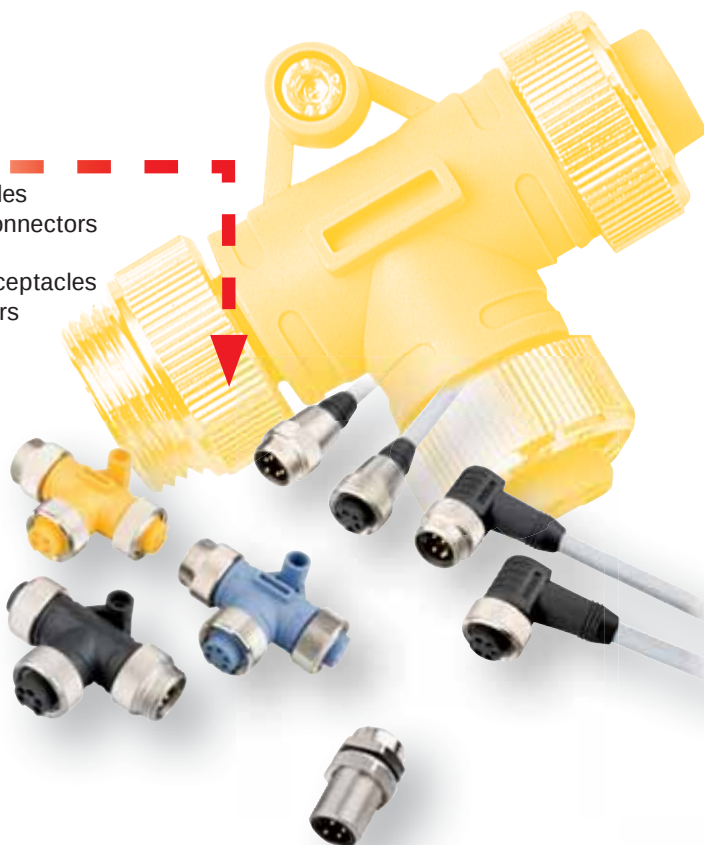
EtherNet/IP™

PROFI
INDUSTRIAL ETHERNET
NET

DeviceNet™

Power supply

- Premoulded cables
- Field-wireable connectors
- T-pieces
- Feed-through receptacles
- Flange connectors


Sensor cables

- M8
- M12
- M23
- valve connector


Power supplies in IP67

CANopen
PROFIBUS
PROCESS FIELD BUS

Ethernet Modbus TCP
JIT - Delivery program

Ideally the length of the cord set is adjusted according to the requirements of the plant. For this reason TURCK now offers a Just-In-Time-delivery service (JIT) for premoulded cables.

The new JIT-5D-Program for perfect connections:

- Just-In-Time delivery within 5 days only*
- Free choice of cable length
- Premoulded fieldbus and power cables
- High flexibility with respect to planning and mounting of your application
- High cost savings

Work-day

Ordering
until 12 pm

Production

***JUST
IN
TIME!***

Delivery
3 workdays
after ordering

Arrival
at the
customer

5. Work-day

* valid for deliveries within the
European Union (EU)

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