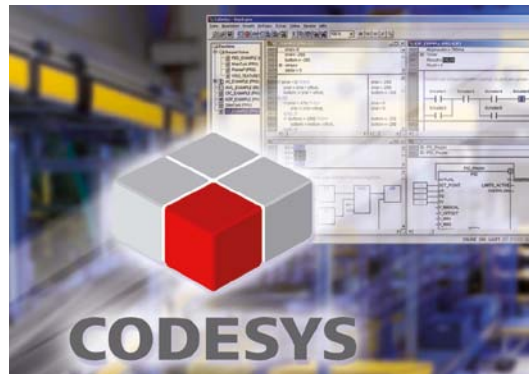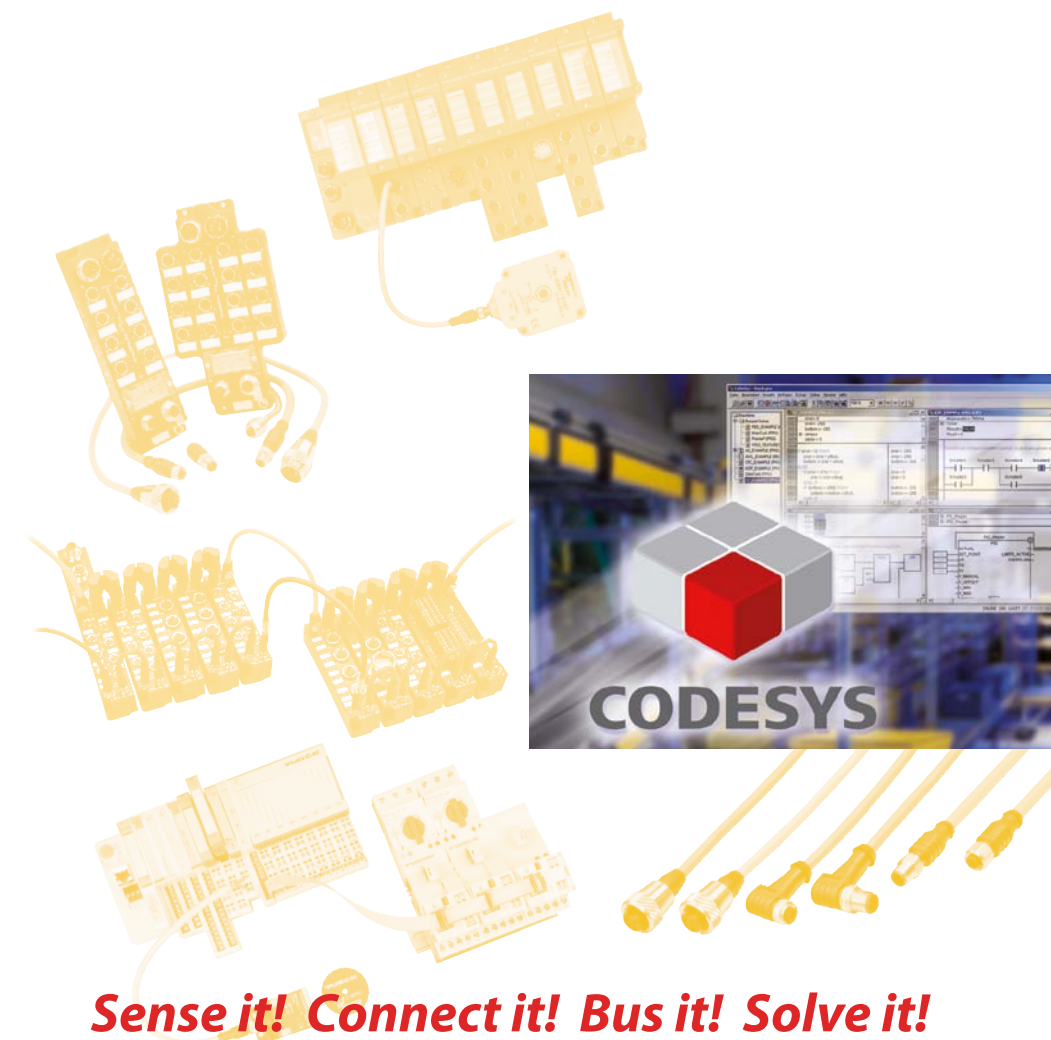# TURCK

Industrial Automation

FIELDBUS TECHNOLOGY

MODULAR AND COMPACT I/O SYSTEMS IN IP20 AND IP67

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

# Modular and compact I/O systems 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

piconet®
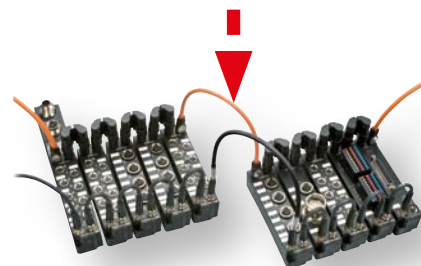
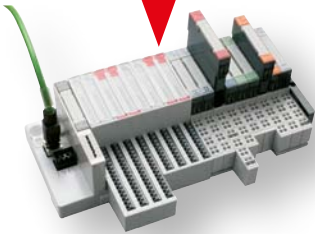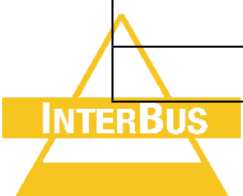| Composition	BL67	piconet®
Modular	✓	✓
Compact		✓
IP20		✓
IP67	✓	✓
Functions		
Digital I/O	✓	✓
Analog I/O	✓	✓
Technology modules	✓	✓
Fieldbus interfaces		
PROFIBUS-DP	✓	✓
DeviceNet™	✓	✓
CANopen	✓	✓
Interbus		✓
PROFINET IO	✓	✓
EtherNet/IP	✓	✓
Modbus TCP	✓	✓
System support		
Motor starter		
RFID	✓	
Valve terminals	✓	✓
Zone 2		
Software		
CODESYS 2.3 programmable	✓	
I/O-ASSISTANT 2		✓
I/O-ASSISTANT 3 (FDT/DTM)	✓	

[1] FXDP modules
[2] FGEN modules

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Industrial Automation

Compact I/O modules		BL20
IP67	IP20	
		✓
✓	✓	
	✓	✓
✓		
✓	✓	✓
		✓
		✓
✓	✓	✓
✓	✓	✓
		✓
✓		
✓		✓
✓		✓
✓		✓
		✓
		✓
✓ 1)		✓
		✓
✓ 2)		✓

INTERBUS Certified! No.099

CANopen

PROFIBUS®

DeviceNet™

BL67 – Modular and compact I/O system in IP67 temperature range -25…+70 °C
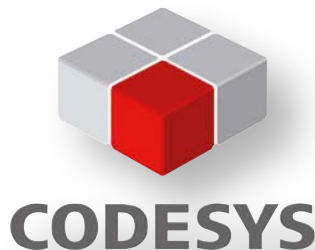
Gateway:
System control

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

CODESYS

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 Supply Module

- Feeds the field, sensors and acutators
- 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

EtherNet/IP™

PROFINET®

Modbus
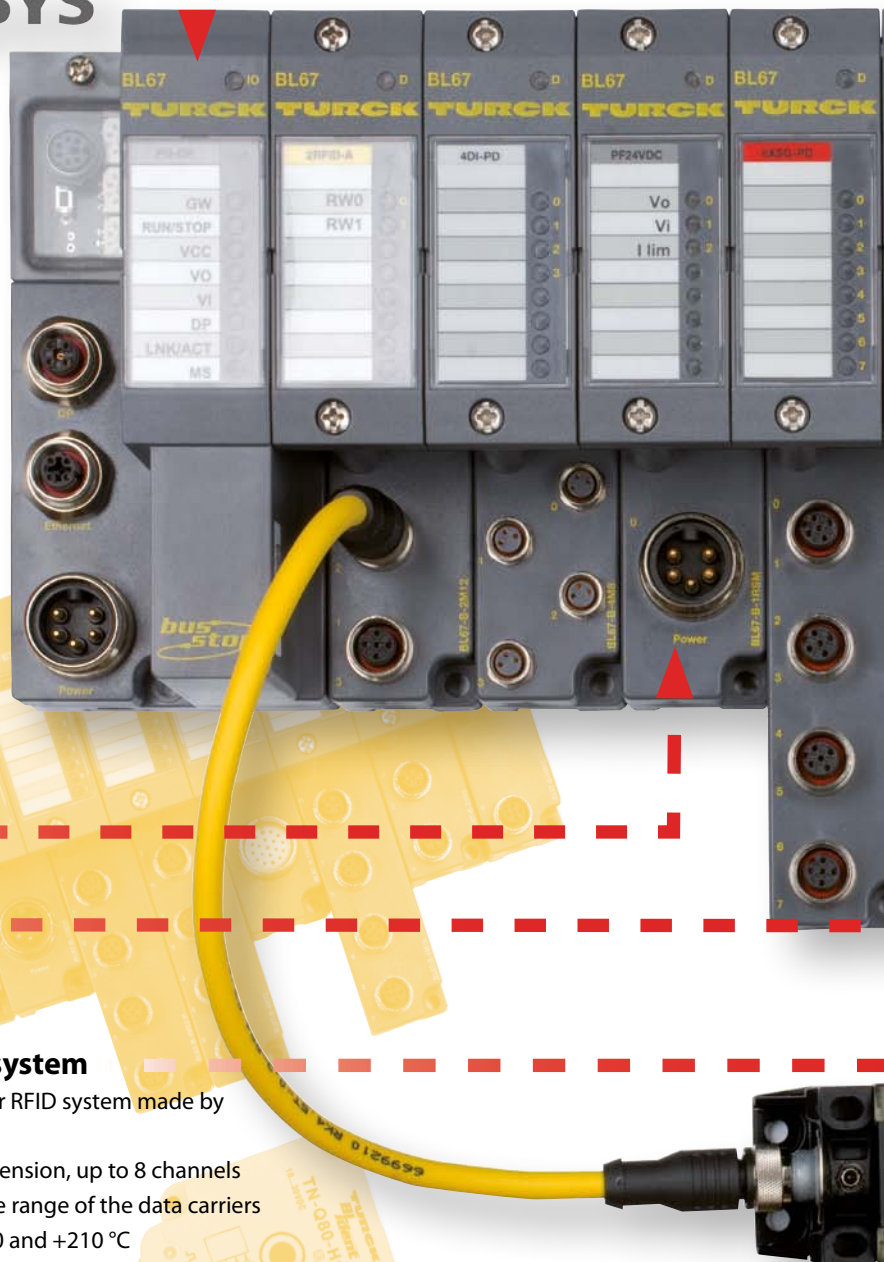
Elektronic modules

- Digital, analog, temperature, RS232, SSI, CANopen interface and more
- Independent of 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 with 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

FDT
CONNECTED

PROFI
BUS

DeviceNet™

piconet ® – I/O system in miniature design for highest industrial requirements

piconet® – Coupling modules

- 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, max. 15 m

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

Bus LEDs

Module/IP-Link LEDs
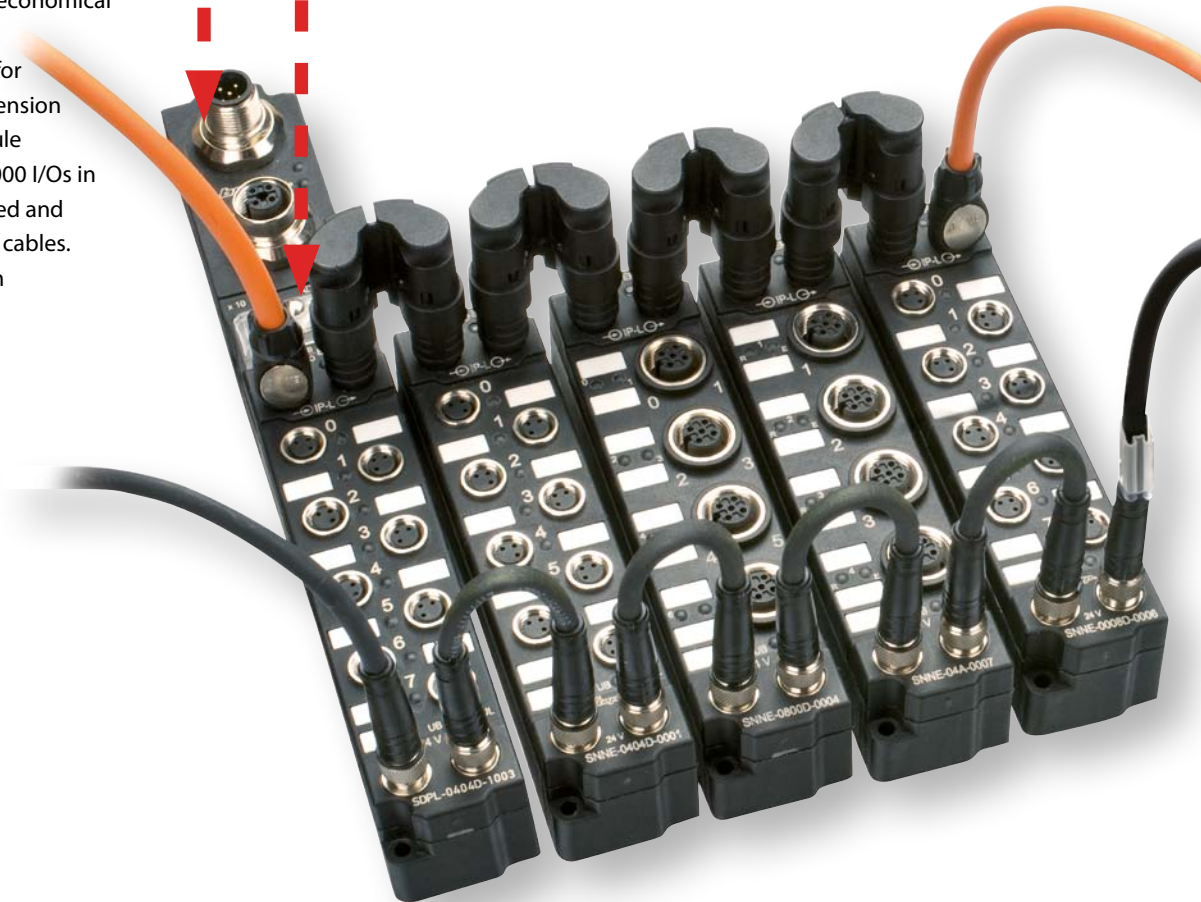
Compact and robust housing

- Only 26.5 mm high, 30 mm wide and 210, 175 or 126 mm long
- Fully encapsulated IP67 housing
- Directly mountable 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

Solid connection

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

EtherNet/IP™

PROFI NET®

Modbus

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 lever fielbus system

piconet® – Bridges for fibre optics and power cables
- ■ Compact mounting
- ■ Reduced space requirements
- ■ Easy installation
- ■ IP67

Power LEDs

High current module Σ12 A with 2 x M8 connectors

Easy planning and configuration with the I/O-ASSISTANT
Configuration software for
- ■ Project planning
- ■ Configuration
- ■ Parametrization
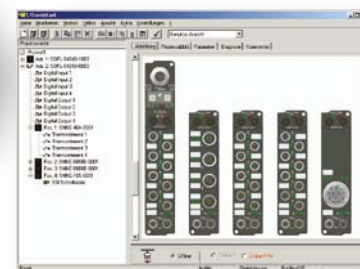
Description
I/O-ASISSTANT supports you in planning and implementing I/O systems. Whether in the online or offline mode, modules are easily configured and parametrized.

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

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 according to the same mechanical concept and have the following characteristics:

- Fiber-glass reinforced plastic housing
- Fully encapsulated module electronics
- Standard connection technology
- Round metal connector
- Vibration and shock tested
- Protection rating 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 galvanically isolated

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

FLDP – PROFIBUS-DP modules

- Module-specific diagnostics
- Up to 32 digital channels

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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, fit in tight spaces
- PROFIBUS-DP or DeviceNet™
- Up to 16 digital channels

FGEN – Multiprotocol 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

DEGREE OF
IP20
PROTECTION

PROFI BUS ®

DeviceNet™

BL20 – Modular and compact I/O system in IP20
The integrator for fieldbus, *BL ident*® system, motor starters

Gateway – System control
- Interface to the higher level control system
- Gateways e.g. for PROFIBUS-DP, CAN-open, DeviceNet™, Ethernet/IP™ and Modbus TCP – also available as economy version

CODESYS

## 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 reasonably priced
- 8 or 16 I/Os arranged on 12.5 mm
- Integrated connection level with „push-in" tension spring technology, no tools necessary
- Combinable Economy and standard I/O modules

BL ident®, the RFID system
- Up to 8 RFID channels
- Gatways with pre-processing function, relieves the higher-level controller
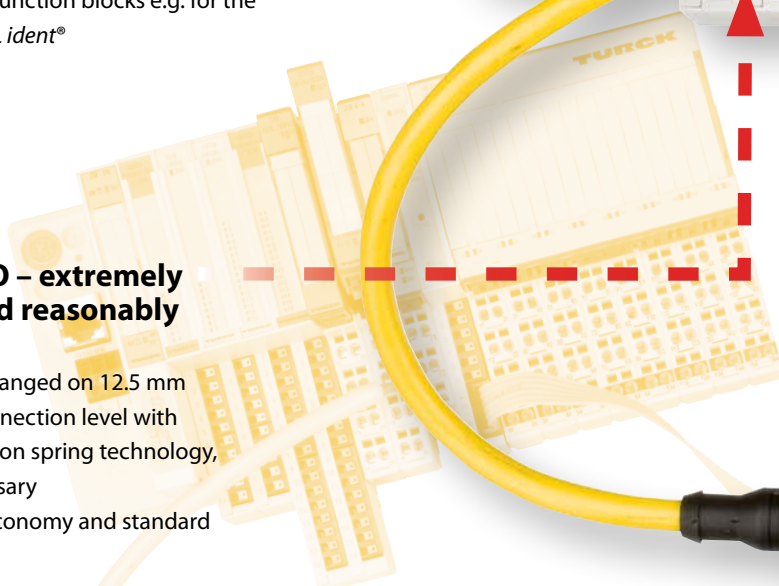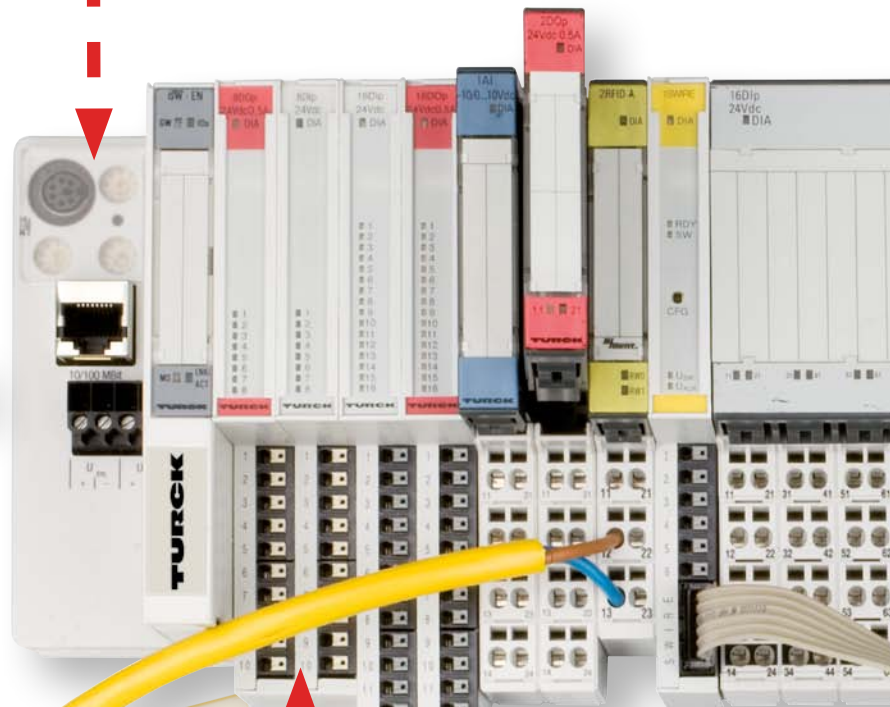
EtherNet/IP™

PROFINET®

Modbus

Standard I/O – multifunctional and system friendly

- Hot-swapping of electronic modules
- 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
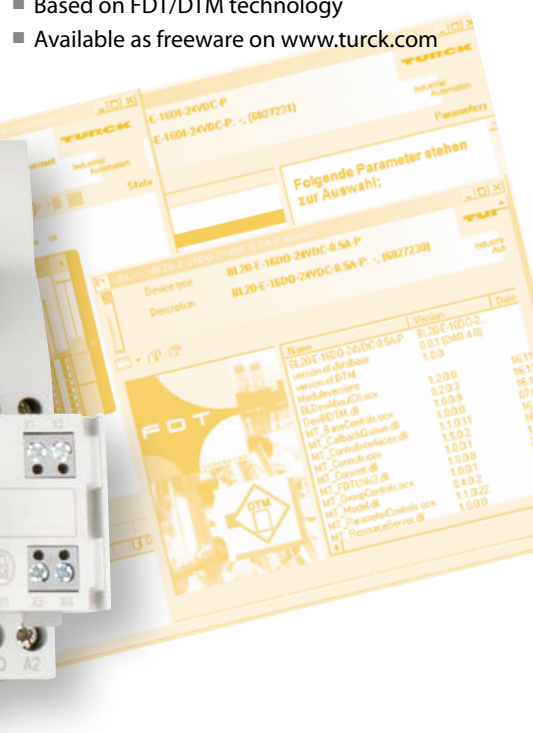
Motor starter

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

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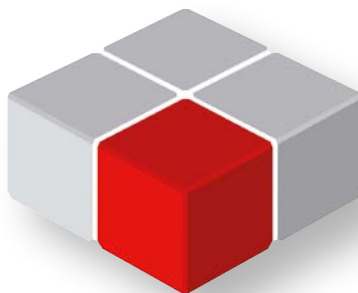- Up to 16 devices per slice
- Simple wiring

Motor starters:
- Modular
- Flexibly integrated
- Easily mounted and operated
- Cost-efficient

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

- Instruction List (IL)
- Sequential Function Chart (AS)
- Function Block Diagram (FBD)
- Structured Text (ST)
- Ladder Diagram (LD)

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
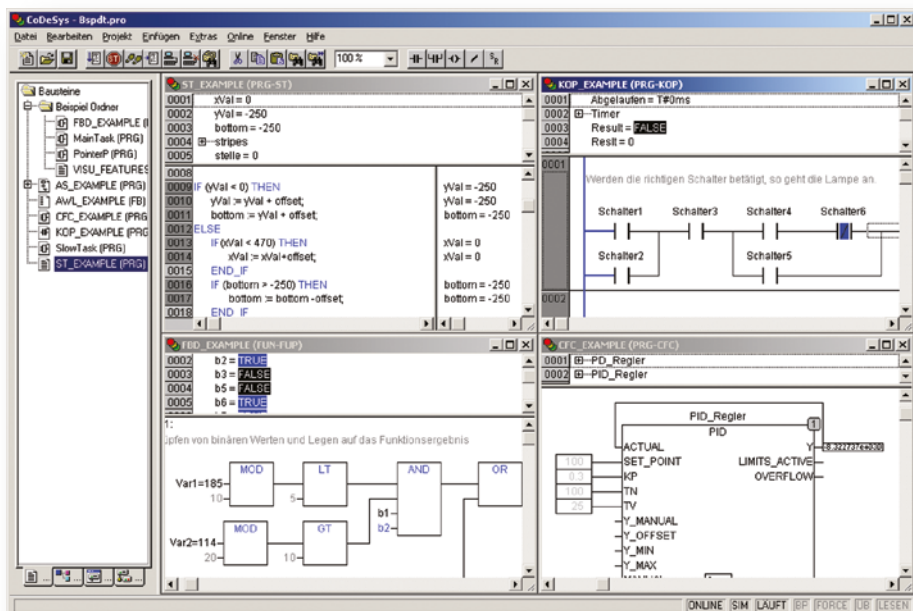

Project planning and configuration

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

Data exchange via Ethernet
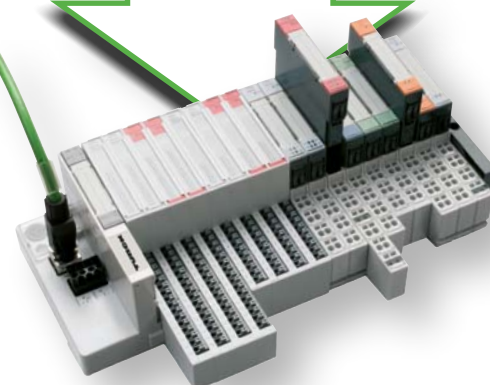
I/O-ASSISTANT

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

- System configuration, parametrization and diagnostics with a graphical interface based on FDT/DTM technology
- DTMs are easily integrated in any FDT frame application for configuration, commissioning and maintenance
- I/O-ASSISTANT and DTMs are available as freeware on www.turck.com
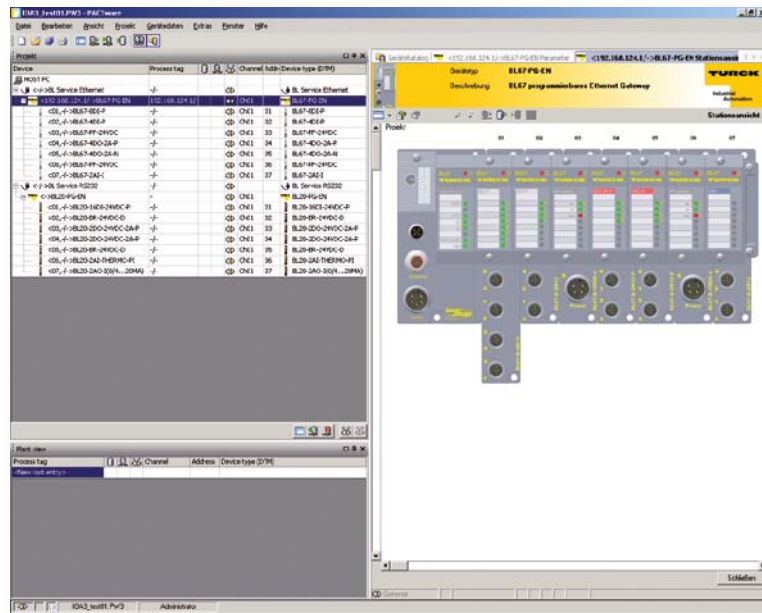
Description

I/O-ASISSTANT supports you in planning and implementing I/O systems. Whether in the online or offline mode, modules are easily configured and parametrized.

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!

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

Passive junction boxes in IP67 for
- Fieldbus
- Power supply
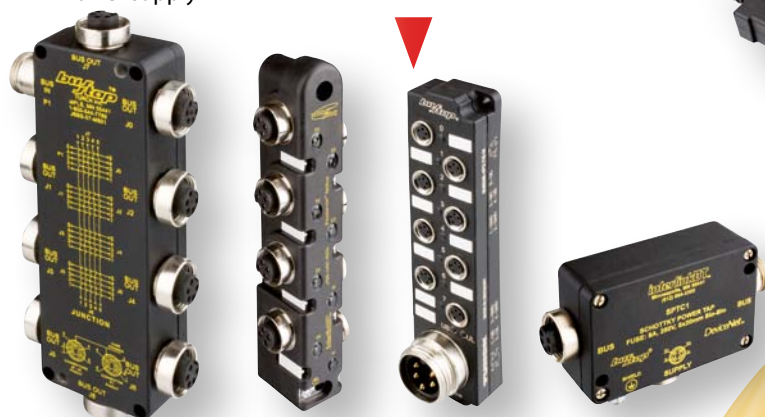
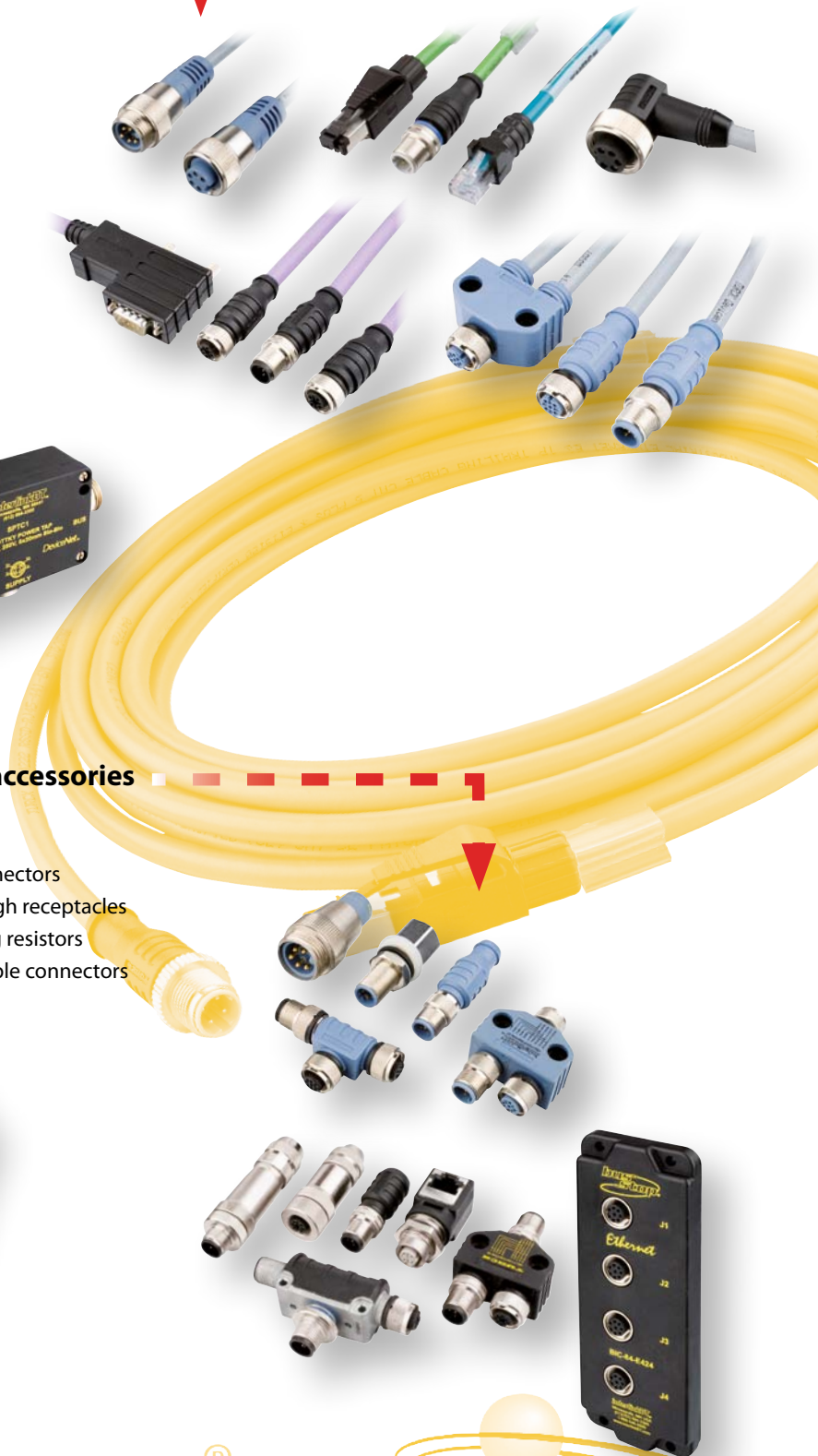## Active junction boxes in IP67
- Repeater
- Spanner
- Ethernet switches

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

EtherNet/IP™

PROFI NET®

DeviceNet™

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Power supply

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

JIT – Delivery program

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

The JIT-5 program for the perfect connections:

- Just-In-Time delivery within 5 days only* for selected cable qualities.
- 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**   **1.**

**Ordering
until 12 pm**

Production

JUST
IN
TIME!

TXL(PUR)/TEL(PVC) sensor cables

- M8, M12, M23
- With and without LED
- Valve connector

**Delivery
3 workdays
after ordering**

**Arrival
at the
customer**

**5. Work-
day**

* the 5 days apply only for deliveries within the European Union (EU)

Power supply in IP67

- 24 VDC output voltage
- 2A, 4A or 8A
- AC/DC wide-range input

CANopen

PROFI BUS®

Modbus

TURCK

Industrial
Automation

www.turck.com

To get all product
information, just
scan the QR code
with a smart-
phone or webcam