

Your Global Automation Partner

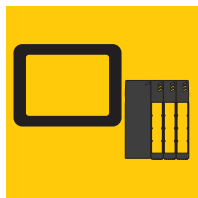
TURCK

Overview HMI/PLC TX Operator Panels



TX Operator Panels – Efficient Control and Visualization

The four product lines of the Turck TX operator panel series provide tailor-made solutions for the control (Programmable Logic Controller PLC) and operation (Human Machine Interface HMI) of simple and medium machines and systems.



HMI/PLC – Your benefit

- CODESYS-V3-PLC and HMI in one panel
- Compact and powerful all-in-one solution



More detailed view

- Brilliant TFT displays
- 4" to 21" screen diagonals
- Resistive or capacitive touch
- Gesture control



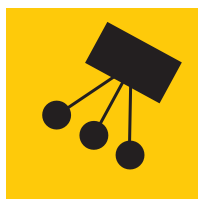
Panel diversity

- Basic, standard, or premium
- Always the right panel for the best price/performance ratio



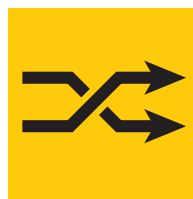
Highly communicative PLC

- CODESYS PLC as the core piece for your system solutions
- Numerous Ethernet/fieldbus protocols as master and slave



More Ethernet ports

- Three independent Ethernet ports
- Physically separated networks
- Internal bridge function for switch functionality



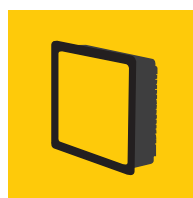
Plug-in modules

- Digital and analog I/O signals
- CAN interface
- Additional serial interfaces RS485/RS232



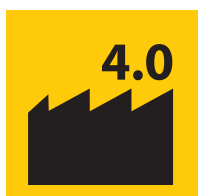
Visualization with TX VisuPro

- Communication with up to eight controllers at the same time
- Data gateway between PLCs
- PDF, videos, IP cameras, audit trail



Modern hardware

- Scalable system performance
- Glass or foil front
- Capacitive or resistive touch
- Metal or plastic housing



I4.0 + IIOT Ready

- Turck Cloud connection
- OPC-UA Server/Client
- VNC Client/Server
- MQTT and Node RED in preparation



More approvals

- cULus
- DNV GL ship approval
- For the Ex area:
UL Class 1 Div. 2, ATEX, IEC Ex

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Portfolio of TX Operator Panels

TX100	TX207
Basic Line	Basic Line
Solid HMI operator panels for simple visualization tasks at an optimized good price-performance ratio	HMI/PLC for medium applications featuring data exchange with field devices such as I/O modules, valves, and drives; the TX207 is characterized by the large number of onboard interfaces for Ethernet, RS232, RS485, and CAN



Application area		
Function	HMI	HMI or HMI/PLC
Control	–	CODESYS V3
Performance class*	1 - TX104 3 - TX107, TX110	5 - TX207
Visualization	TX VisuPro	CODESYS TargetVisu (Default) TX VisuPro (Optional)
Display		
Diagonal	4–10"	7"
Touch	Foil front, resistive touch	Foil front,, resistive touch
System		
Controller	Single-core up to 1 GHz	Dual-core 800 MHz
Operating system	RT Linux	RT Linux
General data		
Housing	Robust plastic housing	Robust plastic housing
Temperature range	0–50 °C	0–50 °C
Approvals	CE, cULus	CE, cULus
Approvals for Ex areas	–	–



* is used to compare the performance of the devices, based mainly on the computing speed of the processor, which increases proportionally to the factor. Details on the respective processor in the technical data.

TX500

Standard Line

HMI/PLC for simple applications featuring data exchange with a few field devices such as I/O modules, valves, and drives; the TX500 devices can also be used as a HMI for simple visualization tasks



TX700

Premium Line

For larger applications featuring data exchange with more field devices, even with different protocols on different interfaces; the TX700 devices are also ideal for demanding visualization tasks



HMI or HMI/PLC

CODESYS V3

2 - TX504E, TX507E

3 - TX507, TX510, TX513

CODESYS TargetVisu (Default)
TX VisuPro (Optional)

4–13"

Foil front, resistive touch

Single-core up to 1 GHz

Windows CE

High-quality metal housing

0–50 °C

CE, cULus

UL Class 1 Div. 2

HMI or HMI/PLC

CODESYS V3

3 - TX705

5 - TX707, TX710

9 - TX715, TX721

CODESYS TargetVisu (Default)
TX VisuPro (Optional)

5–21"

Glass front, capacitive touch,
multi-touch and gesture control

Single to quad-core 800 MHz

RT Linux

High-quality metal housing

-20–60 °C

CE, cULus, DNV GL

UL Class 1 Div. 2, ATEX, IEC Ex



Use Cases and Application Areas

Areas of application and application possibilities for the TX operator panels can be found in automation technology where processes need to be monitored and controlled. The following four examples show a cross-section of typical application.



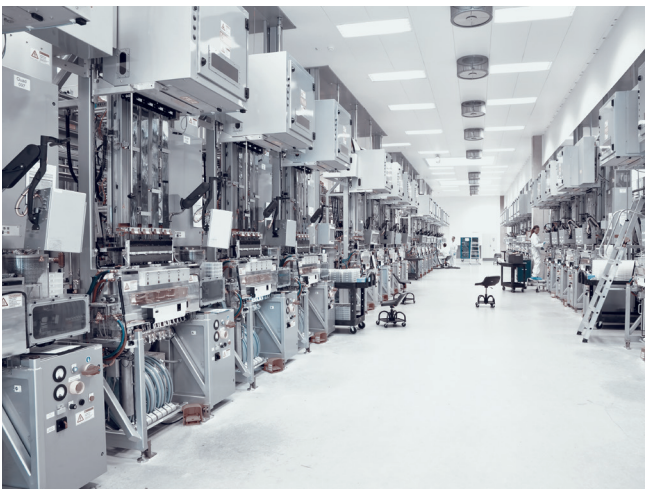
Logistics

Logistics centers offer a wide range of application possibilities for HMI and HMI/PLC devices – from the packaging and distribution center to the control of loading ramps and roller doors. Important conditions and hazards can be made clearly visible to employees in a flexible and dynamic way, for example, through flashing symbols or color changes. Step-by-step work processes can be illustrated visually as a sequence of pictures or drawings. The display of PDFs or videos are further options for achieving and ensuring continuous quality in work processes.



Systems and assemblies

Many machines and assemblies such as pump controls are still controlled and operated in the traditional way using switches, buttons, and indicator lights. Modern and compact HMI/PLC panels offer added value here, too. Firstly, operating data such as pressures, hour meters, or maintenance intervals can be illustrated in a structured way. Secondly, user administration allows different views and information to be made available to various user groups such as operating personnel or service technicians. Also, parameters can be freely adjusted or adjusted within specified ranges at any time.



Compact machines

Other types of smaller machines are, for example, mixers, dosing feeders, or stirring units. Here, the necessary entries are generally performed by the operating personnel. Recipes from a predefined pool are also frequently used. However, changes and optimizations can even be made and saved during operation. Such adjustments can also be logged transparently in combination with a user administration. For this type of application, predefined objects and widgets such as the "Audit Trail" are available. In addition to the software, hardware is also often required in such applications. Special variants are available with stainless steel front, which fulfill the protection degree up to IP69.



Modularization

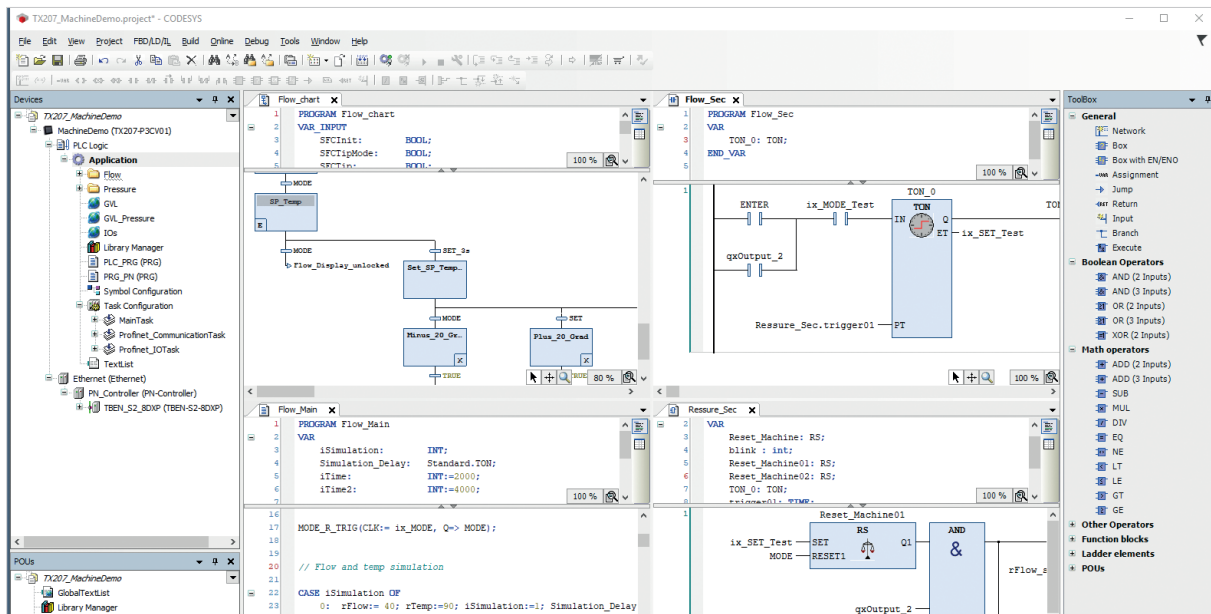
The trend toward the modularization of machines and plants helps the machine manufacturer to standardize plant parts. A kit of independent modules and optional extensions or functions is therefore created, from which users can flexibly put together a configuration to suit their needs. Whether the individual modules or system parts require an HMI or HMI/PLC, or are to be controlled by other modules, can be decided on flexibly according to the level of complexity or optionally at the customer's request. Turck also offers optional PLCs or Field Logic Controllers without their own display. Cost benefits and increased efficiency are just two aspects resulting from the modularization of machines.

CODESYS-PLC

The built-in control functionality can be programmed with CODESYS V3 according to the IEC 61131-3 standard. The user can select any of the standard programming languages available; LD, FBD, IL, ST, CFC, and SFC. All supported Ethernet and fieldbus protocols can be configured via the software that allows real object-oriented PLC programming.

The following figure shows four possible programming languages:

- Top left: Sequential function chart (SFC)
- Top right: Ladder diagram (LD)
- Bottom left: Structured text (ST)
- Bottom right: Function block diagram (FBD or FUP)



In addition to the standard libraries that are already available in the CODESYS setup, Turck supports users with their own libraries and function blocks for IO-Link and the Turck BL ident RFID system. In addition, a large open source community is available on the Internet

that offers a wide range of application expertise and provides sample programs and function blocks. One example is the "Open Source Community for Automation Technology", OSCAT for short. At www.oscat.de you will find extensive knowledge that can support

you in the development of your applications and thus considerably reduce time and costs.

Communication possibilities

The CODESYS controller supports the master and slave functions shown in the table. The CODESYS-Feature OPC-UA server is also already licensed in the TX HMI/PLC panels. In addition, standard Ethernet TCP/IP or UDP/IP or serial communication via RS232, RS485, or RS422 can be freely programmed.

Protocol	Master	Slave
PROFINET	Yes	-
EtherNet/IP	Yes	-
Modbus TCP	Yes	Yes
CANopen	Yes	-
Modbus RTU	Yes	Yes



CODESYS Visualization Possibilities

TargetVisu

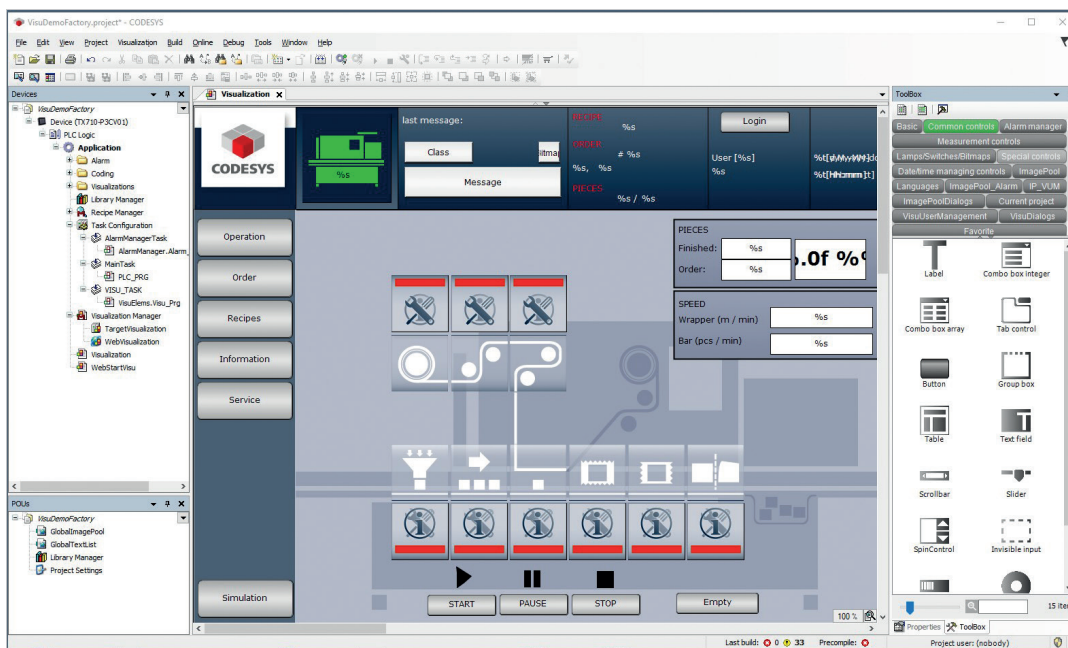
The CODESYS TargetVisu is the visualization that is shown and run locally on the touch screen of the TX operator panels. The integration of the visualization editor into the PLC programming environment ensures maximum efficiency by allowing the PLC programmer to create the visualization in a tool while also programming the controller.

WebVisu

The CODESYS WebVisu is built in a similar way to a TargetVisu. The web-based display variant allows remote access, remote monitoring, as well as service and diagnostics of a plant only with the help of a browser. The WebVisu can thus be easily used in addition to TargetVisu on PCs or mobile devices.

Internal visualization

The visualization pages can also be carried out within the CODESYS programming environment. This is a particularly useful feature in the context of programming and commissioning. Not only can variables and states be very easily observed, they can also be manipulated. This also applies for all visualization pages of the TargetVisu and WebVisu.



Basic elements	General controls	Input options	Special controls	Practical controls	Animation possibilities
Rectangles	Buttons	Keys	Trace	Pointer instruments	Text display
Ellipses	Tables	Toggling	ActiveX elements	Lamps	Color change
Curves	Scroll bars	Picture change	Waiting symbols	Switch	Visible/invisible
Polygons	Slider	Mouse-over	Text editors	Potentiometer	Operable/inactive
Bitmaps	Loading bar	Function calls	–	Bar graphs	Shift
Buttons	Radio buttons	–	–	–	Resizing
Frames	Check boxes	–	–	–	Rotation
Bezier curves	–	–	–	–	Character properties

TX VisuPro

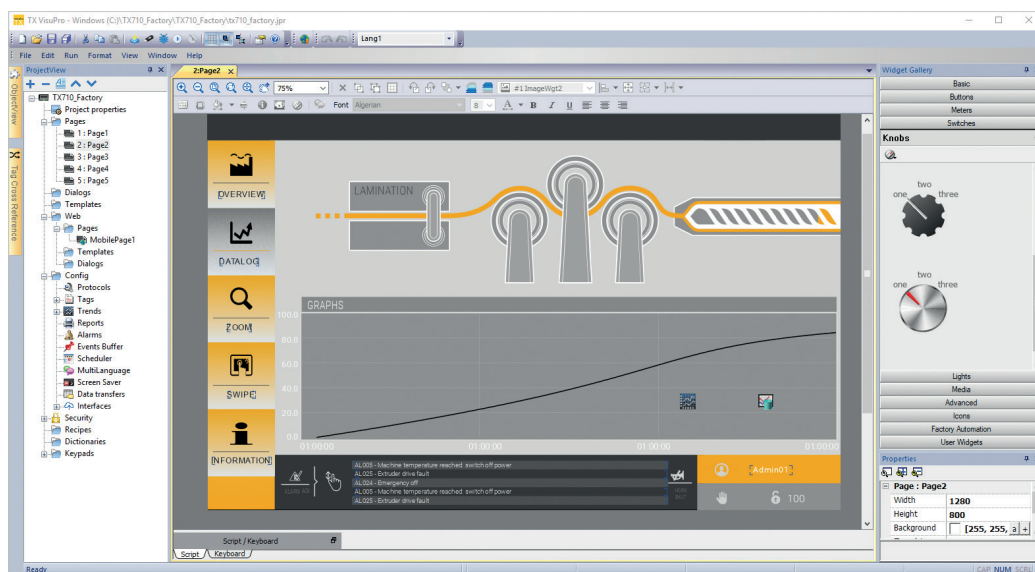
TX VisuPro is a modern development environment for the creation of contemporary, innovative, and user-friendly graphical user interfaces. TX VisuPro applications can communicate simultaneously with up to eight of the same or different controllers. Advanced features such as gesture control, scheduler, Java Scripting, IP cameras, emails, or audit trails can be generated quickly and intuitively according to your requirements.

The HMI thereby becomes the show-piece of each machine and plant.

TX VisuPro is not licensed and can be downloaded free of charge at www.turck.de. Thanks to the integrated simulation mode, the creation and testing of a visualization is already possible without the available hardware.

Excerpt of the supported HMI protocols and controls:

- Siemens Simatic
- Phoenix Contact
- Allen-Bradley
- Beckhoff
- CODESYS (V2, V3)
- Mitsubishi
- Omron
- Modbus (TCP, RTU)
- CANopen
- OPC UA (Server, Client)



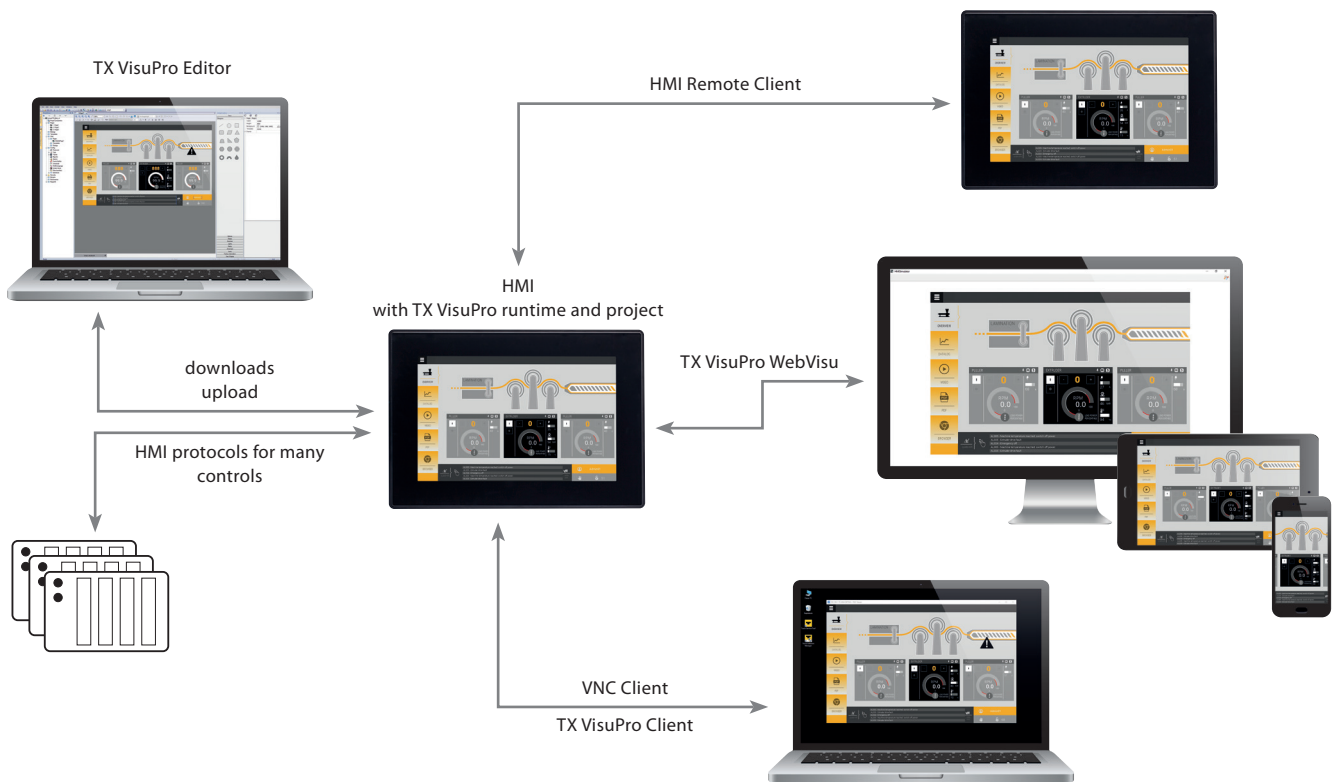
Basic elements	General controls	Input options	Special controls	Practical controls	Animation possibilities
Rectangles	Buttons	Keys	Trace	Pointer instruments	Text display
Ellipses	Tables	Toggling	Text editors	Lamps	Color change
Curves	Scroll bars	Picture change	Media player	Switch	Visible/invisible
Polygons	Slider	Mouse-over	Web controls	Potentiometer	Operable/inactive
Bitmaps	Loading bar	Function calls	IP camera	Bar graphs	Shift
Buttons	Radio buttons	Gesture control	Recipes	–	Resizing
Frames	Check boxes	Widget properties	Scheduler	–	Rotation
Bezier curves	Scales	–	Audit tables	–	Character properties
Rings/circles	–	–	Rotation menu	–	–
Icons	–	–	Send email	–	–
–	–	–	Alarm management	–	–
–	–	–	Recipe management	–	–
–	–	–	User administration	–	–

More options for visualization with TX VisuPro

The actual visualization is executed and shown in its native form on the runtime of the centrally displayed HMI. The visualization with TX VisuPro offers yet even

more opportunities and features for display and operation. The HMI device can therefore also be accessed remotely in various ways. The figure offers a sche-

matic overview for this.



HMI Remote Client

The HMI Remote Client is practically a twin of the central HMI with the TX VisuPro runtime, which acts as a server in this case. The Remote Client automatically loads the current version of the Visu application from the server during start-up and then executes it independently. The application can then be operated from both devices independently of each other, allowing different content to be accessed at the same time.

TX VisuPro WebVisu

TX VisuPro on the web enables access to all visualization pages that were created as a web type. This can also be other pages and content. This offers hardware-independent remote access via a web browser. All devices that feature an HTML5-enabled web browser, such as web panels, PCs or mobile devices such as tablets or smartphones, can be used for this purpose.

TX VisuPro Client/VNC Client

The TX VisuPro HMI Client is an independent windows application. The tool is part of the TX VisuPro setup and is automatically installed as part of it. The Client enables remote access to the native Visu application of the central HMI. The VNC Client enables full access to all the HMI settings. This is, for example, the ideal solution for remote maintenance and diagnosis of the control panel.

TX100 Series



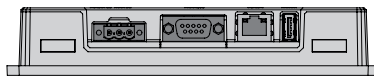
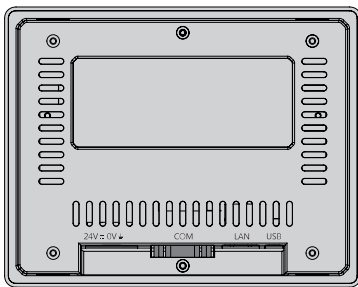
The HMIs of the TX100 product series include three devices with resistive touch display with screen diagonals of 4", 7", or 10". The high-quality plastic housing and the reduced number of interfaces offer an optimal price/performance ratio in cost-sensitive applications. The devices have one Ethernet interface, a serial interface (RS232, RS422 or RS485) and a USB port. The TX100 devices are pure operator interfaces without control function and, like all TX devices, can be easily connected to almost all control-

lers by means of protocol support. Alternatively, the panels can also be used as a web panel.

Areas of application

- HMI panel
- Web panel

Interfaces:



Type key

TX 1 07 - 00 VP ST

TX Product family **1** Series **04** Screen diagonals

Product family
TX Turck HMI

Series
1 TX100 Series

Size
04 4.3"
07 7"
10 10.1"

00 PLC **VP** Visualization **ST** Communication

PLC
00 HMI without PLC functionality

Visualization
VP TX VisuPro Runtime

Communication
ST Standard HMI protocols

TX207



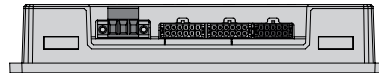
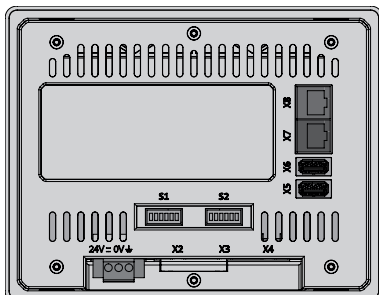
The TX207 combines the high-quality plastic housing of the TX100 series with a much more powerful hardware platform. The resistive touchscreen has a screen diagonal of 7". The TX207 has sufficient memory and computing power, and is equipped with a real-time Linux operating system. Therefore, the main application area for this HMI is on the integrated control functionality, and the programming is carried out with CODESYS V3. Numerous interfaces are already on board for the connection of

I/Os, drives, and field devices. The TX207 has two Ethernet ports, two RS232 and two RS485, as well as two CAN interfaces and USB host ports.

Areas of application

- Control
- HMI panel
- Web panel

Interfaces:



Type key

TX 2 07 - P3 CV 01

TX Product family **2** Series **07** Screen diagonals

Product family
TX Turck HMI/PLC

Series
2 TX200 Series

Size
07 7"

P3 PLC **CV** Visualization **01** Communication

PLC
P3 CODESYS V3 Runtime

Visualization
CV CODESYS V3 TargetVisu Runtime

Communication
01 PROFINET controller
EtherNet/IP™ scanner
Modbus TCP master/slave
Modbus RTU master/slave
CANopen master

TX100 | TX207 Technical Data



Type designation	TX104-00VPST	TX107-00VPST
Ident. no.	100002311	100002312
Display/touch		
Display	TFT color	TFT color
Touch	resistive	resistive
Active screen area	4.3"	7"
Resolution (pixels)	480 x 272	800 x 480
Format	16:9	16:9
Brightness	200 Cd/m ² typ.	200 Cd/m ² typ.
Dimmable	Yes	Yes
System		
Processor	ARM Cortex A8, 300 MHz	ARM Cortex A8, 1 GHz
Flash memory	2048 MB	4096 MB
RAM memory	256 MB	512 MB
Memory expansion	USB	USB
Real-time clock	-	-
Buzzer	-	-
PLC data		
Programming	-	-
Programming languages	-	-
Programming interfaces	-	-
Program memory	-	-
Retain memory	-	-
Interfaces		
Ethernet ports	1 x 10/100 Mbit	1 x 10/100 Mbit
Serial ports	1x (RS232/RS485/RS422, configurable)	1x (RS232/RS485/RS422, configurable)
USB ports	1x host v.2.0, max. 500 mA	1x host v.2.0, max. 500 mA
SD Card	-	-
Expansion slot	-	-
Power supply		
Rated value	24 VDC, max. 0.25 A	24 VDC, max. 0.3 A
Permissible voltage range	18...32 VDC	10...32 VDC
General data		
Operation temperature	0...50 °C	0...50 °C
Approvals	CE, cULus	CE, cULus
Ex approval	-	-
Protection class	IP66 front, IP20 rear	IP66 front, IP20 rear
Dimensions		
Housing front (W x H)	147 x 107 mm	187 x 147 mm
Installation cut-out (W x H)	136 x 96 mm	176 x 136 mm
Mounting depth	29 mm	29 mm
Weight	320 g	540 g



TX110-00VPST	TX207-P3CV01
100002313	100002080
TFT color resistive	TFT color resistive
10.1"	7"
1024 x 600	800 x 480
16:9	16:9
200 Cd/m ² typ.	200 Cd/m ² typ.
Yes	Yes
ARM Cortex A8, 1 GHz	ARM Cortex A9, Dual Core 800 MHz
4096 MB	4096 MB
512 MB	1024 MB
USB	USB
-	Yes (battery-backed)
-	-
-	CODESYS V3
-	IEC 61131-3 (IL, LD, FBD, SFC, ST)
-	Ethernet
-	20 MB
-	63 kB
1 x 10/100 Mbit	1x 10/100/1000 Mbit 1x 10/100 Mbit
1x (RS232/RS485/RS422, configurable)	2x (RS232), 2x (RS422/RS485), 2x (CAN)
1x host v.2.0, max. 500 mA	2x host v.2.0, max. 100 mA
-	-
-	-
24 VDC, max. 0.38 A	24 VDC, max. 0.3 A
10...32 VDC	10...32 VDC
0...50 °C	0...50 °C
CE, cULus	CE, cULus
-	-
IP66 front, IP20 rear	IP66 front, IP20 rear
282 x 197 mm	187 x 147 mm
271 x 186 mm	176 x 136 mm
29 mm	29 mm
900 g	560 g

TX500 Series



The HMI devices from the TX500 family combine the "Control, Operation and Monitoring" functions and can already be used as a standard line for simple control tasks. The high-quality metal housing is combined with a film front and resistive touch display with screen diagonals from 4" to 13". The Ethernet ports are connected to each other via an integrated switch. In addition to a serial interface (RS232, RS485, or RS422), the devices are equipped with a further two USB ports. Due to the smaller CPU, the

two ECO-variants (TX504E and TX507E) should only be used as an operator panel or for very simple control applications.

Areas of application

- Control
- HMI panel

Plug-in module

The TX500 devices with displays from 7" feature two interfaces for the connection of optional plug-in modules. Up to two plug-in modules can be inserted on each of the two slots, if one of the two modules has an expansion slot. This is the case, for example, on the serial modules and the plug-in modules for CAN.

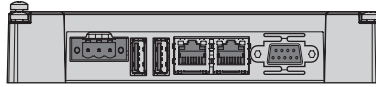
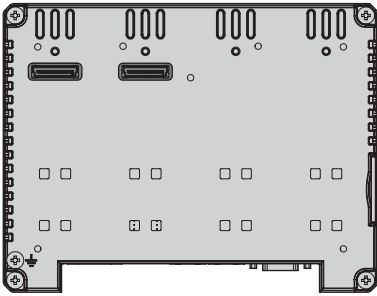
Overview of the available plug-in modules

- RS232 interface
- RS485 interface
- CANopen Manager
- Digital I/O module (8 DI, 6 DO, 1 relay output)
- Multi-functional I/O module (20 DI, 12 DO, 8 AI, 4 AO)

(For more details on the plug-in modules, see Accessories overview)



Interfaces:



Type key

TX 5 04 E - P3 CV 01

TX Product family **5** Series **04** Screen diagonals

Product family
TX Turck HMI/PLC

Series
5 TX500 Series

Size
04 4.3"
07 7"
10 10.4"
13 13.3"

E Processor **- P3** PLC **CV** Visualization

Processor
E 600 MHz (ECO)
blank 1 GHz

PLC
P3 CODESYS V3 PLC Runtime

Visualization
CV CODESYS V3 TargetVisu Runtime

01 Communication

Communication
01 PROFINET controller (Master)
EtherNet/IP™ scanner
Modbus TCP master/slave
Modbus RTU master/slave
CANopen master

TX500 Technical Data



Type designation	TX504E-P3CV01	TX507E-P3CV01
Ident. no.	6828101	6828103
Display/touch		
Display	TFT color	TFT color
Touch	resistive	resistive
Active screen area	4.3"	7"
Resolution (pixels)	480 x 272	800 x 480
Format	16 : 9	16 : 9
Brightness	150 Cd/m ² typ.	300 Cd/m ² typ.
Dimmable	Yes (up to 0%)	Yes (up to 0%)
System		
Processor	ARM Cortex A8, 600 MHz	ARM Cortex A8, 600 MHz
Flash memory	128 MB	128 MB
RAM memory	256 MB	256 MB
Memory expansion	USB, SD card	USB, SD card
Real-time clock	Yes (battery-backed)	Yes (battery-backed)
Buzzer	Yes	Yes
PLC data		
Programming	CODESYS V3	CODESYS V3
Programming languages	IEC 61131-3 (IL, LD, FBD, SFC, ST)	IEC 61131-3 (IL, LD, FBD, SFC, ST)
Programming interfaces	Ethernet	Ethernet
Program memory	20 MB	20 MB
Retain memory	16 kB	16 kB
Interfaces		
Ethernet ports	2 x 10/100 Mbit	2 x 10/100 Mbit
Serial ports	1 x (RS232/RS485/RS422, configurable)	1 x (RS232/RS485/RS422, configurable)
USB ports	1 x host v2.0	1 x host v2.0, 1 x host v2.0/1.1
SD Card	Yes	Yes
Expansion slot	1 x plug-in slot	2 x plug-in slots
Power supply		
Rated value	24 VDC, max. 0.55 A	24 VDC, max. 0.7 A
Permissible voltage range	10–32 VDC	10...32 VDC
General data		
Operation temperature	0...50 °C	0...50 °C
Approvals	CE, cULus	CE, cULus
Ex approval	UL Class 1 Div. 2	UL Class 1 Div. 2
Protection class	IP66 front, IP20 rear	IP66 front, IP20 rear
Dimensions		
Housing front (W x H)	147 x 107 mm	187 x 147 mm
Installation cut-out (W x H)	136 x 96 mm	176 x 136 mm
Mounting depth	56 mm	47 mm
Weight	950 g	850 g



TX507-P3CV01

TX510-P3CV01

TX513-P3CV01

6828104

6828105

6828107

TFT color

TFT color

TFT color

resistive

resistive

resistive

7"

10.4"

13.3"

800 x 480

800 x 600

1280 x 800

16 : 9

4 : 3

16 : 9

300 Cd/m² typ.

300 Cd/m² typ.

300 Cd/m² typ.

Yes (up to 0%)

Yes (up to 0%)

Yes (up to 0%)

ARM Cortex A8, 1 GHz

ARM Cortex A8, 1 GHz

ARM Cortex A8, 1 GHz

256 MB

256 MB

256 MB

256 MB

256 MB

256 MB

USB, SD card

USB, SD card

USB, SD card

Yes (battery-backed)

Yes (battery-backed)

Yes (battery-backed)

Yes

Yes

Yes

CODESYS V3

CODESYS V3

CODESYS V3

IEC 61131-3 (IL, LD, FBD, SFC, ST)

IEC 61131-3 (IL, LD, FBD, SFC, ST)

IEC 61131-3 (IL, LD, FBD, SFC, ST)

Ethernet

Ethernet

Ethernet

20 MB

20 MB

20 MB

16 kB

16 kB

16 kB

2 x 10/100 Mbit

2 x 10/100 Mbit

2 x 10/100 Mbit

1 x (RS232/RS485/RS422, configurable)

1 x (RS232/RS485/RS422, configurable)

1 x (RS232/RS485/RS422, configurable)

1 x host v2.0, 1 x host v2.0/1.1

1 x host v2.0, 1 x host v2.0/1.1

1 x host v2.0, 1 x host v2.0/1.1

Yes

Yes

Yes

2 x plug-in slots

2 x plug-in slots

2 x plug-in slots

24 VDC, max. 0.7 A

24 VDC, max. 1.0 A

24 VDC, max. 1.2 A

10...32 VDC

10...32 VDC

10...32 VDC

0...50 °C

0...50 °C

0...50 °C

CE, cULus

CE, cULus

CE, cULus

UL Class 1 Div. 2

UL Class 1 Div. 2

UL Class 1 Div. 2

IP66 front, IP20 rear

IP66 front, IP20 rear

IP66 front, IP20 rear

187 x 147 mm

287 x 232 mm

336 x 267 mm

176 x 136 mm

276 x 221 mm

326 x 256 mm

47 mm

56 mm

56 mm

850 g

2200 g

2600 g

TX700 Series



The HMI/PLC panels of the TX700 series impress with innovative design. The panels of the Premium Line improve the high quality metal housings with a redesigned front with capacitive glass display. Panels are available with screen diagonals from 5" to 21". The panels now also feature up to three Ethernet ports, which can be used independently for different applications. It is thereby also possible to turn the panels into a universal IoT platform. Remote maintenance and remote access can be quickly and easily achieved with the integrated VNC

Server. The PLC programming is freely available via CODESYS V3, the graphical user interface can be created with the visualization editor in CODESYS, or optionally with TX VisuPro.

Areas of application

- Control
- HMI panel
- Multi-touch and gesture control
- IoT Gateway
- Extended temperature range of -20 to 60 °C

Variants for the food industry and extreme environments

The TX700 series has also been expanded to include special Food&Beverage variants and devices with special displays that meet F&B specifications and ensure good readability even in sunlight. The blue front of the F&B variants (7" and 15") has a stainless steel frame and a full polyester coating. This covers the glass front even in the event

of a possible glass breakage and meets hygiene requirements. The TX700HB variants (high brightness with 7" and 10") are equipped with sunlight readable displays with a brightness of up to 800 candela. These devices ensure safe display and operation even in extreme environments.

Plug-in modules

The TX700 panels can also be expanded with functions, interfaces, and local I/O signals via plug-in modules. The concept has been adopted from the TX500 panel series. The same plug-in modules can be used.

Gesture control via TX VisuPro

The glass front of the TX700 operator panels with capacitive touch supports multi-touch and gesture control functionality. The gestures can be flexibly configured in the TX VisuPro visualization editor. A predefined object, also known as a widget, defines the area of

the display the gesture is to be recognized and which action is to be subsequently performed. Modern operating concepts can thereby quickly and flexibly be adapted to the requirements of the individual machine or system. Below is an overview of the typical gestures.

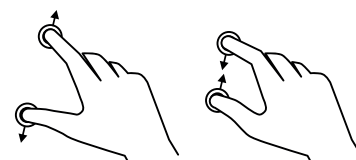
Swipe



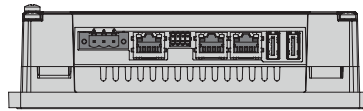
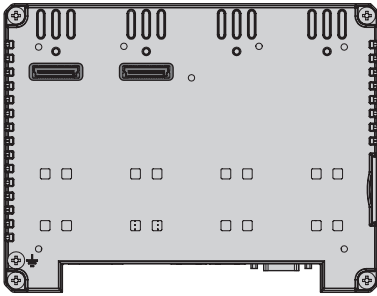
Rotate



Zoom



Interfaces:



Type code

TX 7 05 FB - P3 CV 01

TX Product series **7** Series **05** Screen diagonal

Product series
TX Turck HMI/PLC

Series
7 TX700 series

Size
00 Without display
05 5"
07 7"
10 10.1"
15 15.6"
21 21.5"

FB Variant - **P3** PLC **CV** Visualization

Variant
Blank Standard
FB Food & Beverage
HB High Brightness
S Single Core
D Dual Core
Q Quad Core

PLC
P3 CODESYS V3 PLC Runtime

Visualization
CV CODESYS V3 TargetVisu Runtime
WV WebVisu (CODESYS, TX VisuPro)

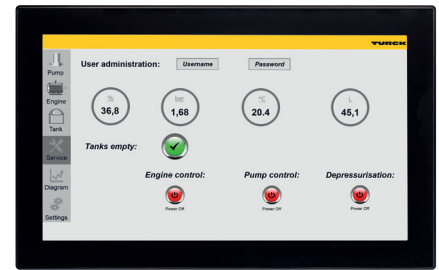
01 Communication

Communication
01 PROFINET controller
EtherNet/IP™ scanner
Modbus TCP master/slave
Modbus RTU master/slave
CANopen master

Technical Features TX700



Type designation	TX705-P3CV01	TX707-P3CV01
Ident. no.	100002029	100002030
Display/touch		
Display	TFT color	TFT color
Touch	capacitive	capacitive
Active screen area	5"	7"
Resolution (pixels)	800 x 480	800 x 480
Format	16 : 9	16 : 9
Brightness	300 Cd/m ² typ.	500 Cd/m ² typ.
Dimmable	Yes (up to 0%)	Yes (up to 0%)
System		
Processor	ARM Cortex A8, 1 GHz	ARM Cortex A9, Dual Core 800 MHz
Flash memory	4096 MB	4096 MB
RAM memory	512 MB	1024 MB
Memory expansion	USB, SD card	USB, SD card
Real-time clock	Yes (battery-backed)	Yes (battery-backed)
Buzzer	-	-
PLC data		
Programming	CODESYS V3	CODESYS V3
Programming languages	IEC 61131-3 (IL, LD, FBD, SFC, ST)	IEC 61131-3 (IL, LD, FBD, SFC, ST)
Programming interfaces	Ethernet	Ethernet
Program memory	20 MB	20 MB
Retain memory	63 kB	63 kB
Interfaces		
Ethernet ports	2 x 10/100 Mbit	1 x 10/100/1000 Mbit 2 x 10/100 Mbit
Serial ports	1 x (RS232/RS485/RS422, configurable)	1 x (RS232/RS485/RS422, configurable)
USB ports	1 x host v.2.0, max. 500 mA	2 x host v.2.0, max. 500 mA
SD Card	Yes	Yes
Expansion slot	1 x plug-in slot	2 x plug-in slots
Power supply		
Rated value	24 VDC, max. 0.6 A	24 VDC, max. 0.7 A
Permissible voltage range	10...32 VDC	10...32 VDC
General data		
Operation temperature	-20...60 °C	-20...60 °C
Approvals	CE, cULus	CE, cULus
Ex approval	UL Class 1 Div. 2, ATEX, IEC Ex	UL Class 1 Div. 2, ATEX, IEC Ex
Protection class	IP66 front, IP20 rear	IP66 front, IP20 rear
Dimensions		
Housing front (W x H)	147 x 107 mm	187 x 147 mm
Installation cut-out (W x H)	136 x 96 mm	176 x 136 mm
Mounting depth	52 mm	47 mm
Weight	800 g	1100 g



TX710-P3CV01

100002031

TFT color
capacitive

10.1"

1280 x 800

16 : 9

500 Cd/m² typ.

Yes (up to 0%)

ARM Cortex A9, Dual Core 800 MHz

4096 MB

1024 MB

USB, SD card

Yes (battery-backed)

-

CODESYS V3

IEC 61131-3 (IL, LD, FBD, SFC, ST)

Ethernet

20 MB

63 kB

1 x 10/100/1000 Mbit

2 x 10/100 Mbit

1 x (RS232/RS485/RS422, configurable)

2 x host v.2.0, max. 500 mA

Yes

2 x plug-in slots

24 VDC, max. 1.0 A

10...32 VDC

-20...60 °C

CE, cULus

UL Class 1 Div. 2, ATEX, IEC Ex

IP66 front, IP20 rear

282 x 197 mm

271 x 186 mm

56 mm

1800 g

TX715-P3CV01

100002032

TFT color
capacitive

15.6"

1366 x 768

16 : 9

400 Cd/m² typ.

Yes (up to 0%)

ARM Cortex A9, Quad Core 800 MHz

8192 MB

2048 MB

USB, SD card

Yes (battery-backed)

-

CODESYS V3

IEC 61131-3 (IL, LD, FBD, SFC, ST)

Ethernet

20 MB

63 kB

1 x 10/100/1000 Mbit

2 x 10/100 Mbit

1 x (RS232/RS485/RS422, configurable)

2 x host v.2.0, max. 500 mA

Yes

2 x plug-in slots

24 VDC, max. 1.2 A

10...32 VDC

-20...60 °C

CE, cULus

UL Class 1 Div. 2, ATEX, IEC Ex

IP66 front, IP20 rear

422 x 267 mm

411 x 256 mm

56 mm

3500 g

TX721-P3CV01

100002033

TFT color
capacitive

21.5"

1920 x 1080

16 : 9

300 Cd/m² typ.

Yes (up to 0%)

ARM Cortex A9, Quad Core 800 MHz

8192 MB

2048 MB

USB, SD card

Yes (battery-backed)

-

CODESYS V3

IEC 61131-3 (IL, LD, FBD, SFC, ST)

Ethernet

20 MB

63 kB

1 x 10/100/1000 Mbit

2 x 10/100 Mbit

1 x (RS232/RS485/RS422, configurable)

2 x host v.2.0, max. 500 mA

Yes

2 x plug-in slots

24 VDC, max. 1.7 A

10...32 VDC

-20...60 °C

CE, cULus

UL Class 1 Div. 2, ATEX, IEC Ex

IP66 front, IP20 rear

552 x 347 mm

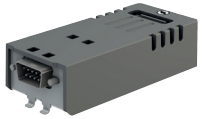
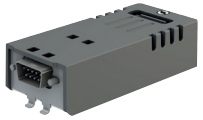

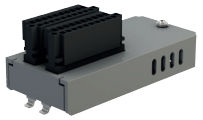
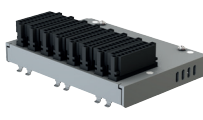

541 x 336 mm

56 mm


6100 g

Accessories

Plug-in modules


























Figure	Ident-No.	Type designation	Description	
	100002598	TX-RS485	RS485 interface	Galvanically isolated 9-pin SUB-D plug connection With plug-in expansion slot
	100002599	TX-RS232	RS232 interface	9-pin SUB-D plug connection With plug-in expansion slot
	6828210	TX-CAN	CANopen Manager	CANopen Manager/Master in CODESYS Max. 1 Mbit Galvanically isolated 9-pin SUB-D plug connection With plug-in expansion slot
	6828203	TX-IO-DX06	8 DI, 6 DO, 1 relay output	I/O module 8 digital inputs, 24 VDC, PNP 6 digital outputs, 24 VDC, 0.5A, PNP 1 relay, NO contact
	6828201	TX-IO-XX03	20 DI, 12 DO 0.5A, 8 AI, 4 AO	I/O module 20 digital inputs, 24 VDC, PNP 12 digital outputs, 24 VDC, 0.5A, PNP 8 analog inputs, U, I, RTD, TC 4 analog outputs, U, I
	100004786	TX-EXTEND	Plug-in extension	Can be used with the TX504 and TX705 Required when operating the TX-IO-XX03-I/O module With plug-in expansion slot

Protective film

Figure	Ident-No.	Type designation	Number per unit	Use
	100003928	TX-PROTFOIL-04	10 pcs.	TX504 or TX104
	100003930	TX-PROTFOIL-07	10 pcs.	TX507 or TX107 or TX207
	100003931	TX-PROTFOIL-10	10 pcs.	TX510
	100003932	TX-PROTFOIL-13	10 pcs.	TX513

The protective films can be used for HMI devices with resistive touch. More variants with added UV protection are available.

Mounting Accessories

Ident-No.	Type designation	Mounting clamp, old	Mounting clamp, new	Power supply	Serial	CAN	Use
100003186	TX100-MOUNT-07	–	4 x 	1 x 	–	–	TX104-00VPST TX107-00VPST
100003187	TX100-MOUNT-10	–	11 x 	1 x 	–	–	TX110-00VPST
100003206	TX200-MOUNT-07	–	4 x 	1 x 	–	1x 	TX207-P3CV01
6828220	TX500-MOUNT-07	4 x 	–	1 x 	–	–	TX504E-P3CV01 TX507E-P3CV01 TX507-P3CV01
6828221	TX500-MOUNT-10	10 x 	–	1 x 	–	–	TX510-P3CV01
6828222	TX500-MOUNT-13	14 x 	–	1 x 	–	–	TX513-P3CV01
100003188	TX700-MOUNT-07	–	4 x 	1 x 	1 x 	–	TX705-P3CV01 TX707-P3CV01
100003189	TX700-MOUNT-10	–	11 x 	1 x 	1 x 	–	TX710-P3CV01
100003190	TX700-MOUNT-15	–	12 x 	1 x 	1 x 	–	TX715-P3CV01
100003191	TX700-MOUNT-21	–	14 x 	1 x 	1 x 	–	TX721-P3CV01

The sets with mounting brackets and connectors are always included in the delivery. However, they can also be ordered separately as spare parts.

Turck Cloud Solutions

Turck Cloud Portal



Turck Cloud Solutions offers a Cloud solution that is specifically tailored to industrial requirements and can be hosted locally or externally. The bidirectional encrypted communication is designed to maximize data security. Dashboards allow a clear overview of the machine data and statuses, and convenient operation of the machines. Additional features, such as data analysis or monitoring of production processes, create immediate real added value.

Key Features

- Scalable Cloud solutions
- Hosted locally or externally
- Encrypted, bidirectional, and efficient data transmission
- Fast and easy integration
- Can be customized
- Efficient system monitoring
- Simple remote diagnostics
- Predictive maintenance
- Identification of the optimization fields
- Easy entry into Industry 4.0

Ident-No.	Type designation	Description
9940005	TCS-Portal-Project-Registration-01	Setup of a project in the Turck Cloud Portal
9940006	TCS-Portal-Device-Registration-01	Registration of a device in the Turck Cloud Portal
9940007	TCS-Portal-Device-Dataflat-Month-01	Monthly data flat rate per device in the Turck Cloud Portal
9940008	TCS-Portal-Customization-01	Customer-specific adaptation of the Turck Cloud Portal

Note: Cloud Solutions are only available in certain countries. Please contact your local sales contact.

TCG20 - Edge gateways for the control cabinet



The EDGE gateways in the TCG20 series offer several interfaces for simple integration into automation networks. As a result, both new systems and existing systems that already have their own controllers can be quickly and easily integrated into Cloud systems. Thanks to the built-in web-based EDGE PLC with its intuitive graphical editor, data can be pre-processed and prepared as required with the TCG20 series without any additional hardware or software.

Key Features

- Fully integrated into the Turck Cloud
- Web-Based EDGE PLC
- End-to-end encryption
- Optional LAN, WLAN, UMTS
- OPC UA and MQTT enable flexible Cloud connections
- Integration into virtually any automation system via Ethernet, serial and CAN interfaces
- Built-in firewall
- VPN Clients
- NAT router

	Ident-No.	Type designation	UMTS	WLAN	Ethernet ports
	100002555	TCG20-UMTS-1ETH-CRS-01	•	–	1
	100002556	TCG20-UMTS-5ETH-CRS-01	•	–	5
	100002557	TCG20-WLAN-1ETH-CRS-01	–	•	1
	100002558	TCG20-WLAN-5ETH-CRS-01	–	•	5
	100002559	TCG20-UMTS-WLAN-1ETH-CRS-01	•	•	1
	100002560	TCG20-UMTS-WLAN-5ETH-CRS-01	•	•	5

CODESYS-V3 Controls

IP67 controllers in the robust block I/O housing



The CODESYS-V3 controller TBEN-L-PLC is a compact IP67 PLC for the control of smaller, medium, or modular machines. With its robust housing, wide temperature range, and high protection rating, the TBEN-L-PLC enables machine-oriented automation concepts directly in the field without the need for control cabinets. The use of pre-assembled cables reduces the cabling requirements and enables fast and efficient commissioning.

Key Features

- Simple programming with CODESYS V3 acc. to IEC-61131-3
- CODESYS WebVisu (optional)
- Fully integrated into the Turck Cloud
- Extremely robust
- Temperature range -40...+70 °C
- 2 Ethernet ports
- 2 serial interfaces (RS232, RS485)
- CAN interface
- 8 local DX I/O signals
- Output current up to 2 A per channel

Ident-No.	Type designation	Description
6814018	TBEN-L5-PLC-10	IP67 controller, power supply 7/8", 5-pin
10000272	TBEN-L5-PLC-11	IP67 controller, power supply 7/8", 5-pin with WebVisu license
6814019	TBEN-L4-PLC-10	IP67 controller, power supply 7/8", 4-pin
10000273	TBEN-L4-PLC-11	IP67 controller, power supply 7/8", 4-pin with WebVisu license

Programmable gateways for modular I/O systems BL20 and BL67



The generation of programmable gateways for the modular I/O systems BL20 and BL67 are programmable via CODESYS V3. Thanks to the Turck multiprotocol technology, the devices can be used in any of the three Ethernet protocols PROFINET, EtherNet/IP™, and Modbus TCP. As distributed intelligence, the programmable gateways can pre-process data on-site, control tasks autonomously, or act as a protocol converter.

Key Features

- Simple programming with CODESYS V3 acc. to IEC-61131-3
- CODESYS WebVisu (optional)
- Can be used in PROFINET, EtherNet/IP™, and Modbus TCP networks thanks to multi-protocol Ethernet technology
- Autonomous control of applications even without higher-level control
- Modbus TCP Master
- OPC-UA Server (in preparation)

Ident-No.	Type designation	Description
6827394	BL67-PG-EN-V3	Programmable BL67 gateway, multiprotocol Ethernet
10000041	BL67-PG-EN-V3-WV	Programmable BL67 gateway, multiprotocol Ethernet, with CODESYS WebVisu
6827393	BL20-PG-EN-V3	Programmable BL20 gateway, multiprotocol Ethernet
6827398	BL20-PG-EN-V3-WV	Programmable BL20 gateway, multiprotocol Ethernet, with CODESYS WebVisu

More information is available at www.turck.de

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