



Smart Panel PLC

**Graphic operating terminals
with sequencing functions**

**Win CE terminals with colour
displays from 3,5" up to 15"**

**Complete range of PLC functions
in accordance with IEC 61131-3**

**Integrated visualization system
for graphical user interfaces**

**Convenient integration of the
Vario I/O system via Ethernet**



Features

- Compact, robust hardware
- Touch-screen operation
- Brilliant colour displays
- Soft PLC runtime (realtime operation)
- Programming according to IEC 61131-3 (all 5 program languages)
- Flexible task configuration
- Configurable start procedure
- Convenient debugging and commissioning tools
- Fully integratable graphical visualization editor
- Fast, efficient data exchange between visualization and soft PLC
- Graphical PLC configuration for the Vario I/O system
- Access to variables via network (Ethernet TCP/IP)
- Data access via OPC (optional)
- Web server (optional)

APPLICATIONS

- Machine building
- Plant engineering
- Factory automation
- Process automation
- Plastics processing
- Building automation

DESCRIPTION

Fully graphic control terminal

As the central element in an automation system, the PMA Smart Panel PLCs perform all the relevant sequencing tasks:

- Soft PLC for realtime operation to IEC 61131-3
- Visualization and operation

Adjustable task priorities permit individual adaptation of partial tasks to the requirements of the sequencing program. This makes optimum use of processor performance for short response times.

In this way, short cycle times of the Soft PLC are ensured, together with fast response of the user interface.

Integration of a sequencing program and a user interface in one piece of equipment with a common programming environment results in decisive time and cost advantages. Moreover, the Engineering is simplified. Thanks to the joint use of data in the sequencing program and for visualization, possible error sources are eliminated. Via the Ethernet interface, the control terminal can be linked into existing networks very easily.

By means of network variables, other PLCs are able to access the common data. An optional OPC server permits convenient access to the process data, e.g. from a PC.

An additional means of access is provided by the optional web server on the Smart Panel

PLC. In this case, the user interface is made available via the network in the form of HTML pages. In this way, display and operation are possible from a PC with the help of a standard browser.

Touch-panel computer

The Smart Panel PLCs are particularly compact devices intended for mounting e.g. in control panels. The computer core consists of a 'low power' processor, which operates without the need for additional cooling.

The program is stored in an on-board Flash memory or in a Compact Flash card. Thanks to this design, the control terminal's hardware is particularly robust for a long service life.

Visualization is provided by a range of fully graphic colour displays with resolutions from 320 x 240 up to 1024 x 768 pixels. The displays feature excellent readability and brightness, plus long-life background lighting. Moreover, the resistive touch feature permits direct operation via the screen. No other operating panels or terminals are required.

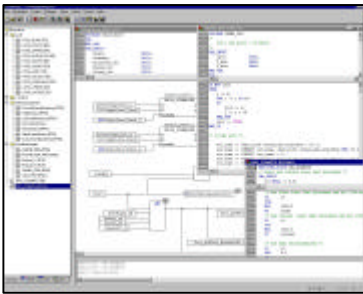
IEC 61131 programming environment

Programming of the terminal is based on the standard IEC 61131-3. The CoDeSys system is completely compatible with the standard, and offers convenient programming in all of the languages defined in IEC 61131:

- Instruction List (IL)
- Function Block Diagram (FBD)
- Ladder Diagram (LD)

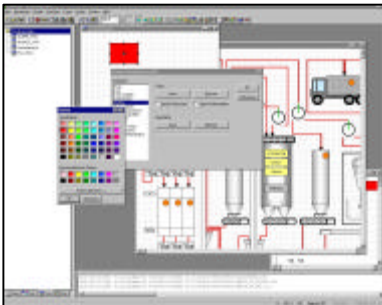
- Structured Text (ST)
- Sequential Function Chart (SFC)
- Continuous Function Chart (CFC)

Powerful test functions greatly reduce the necessary programming and commissioning times.



- Monitoring of variables
- Writing and forcing of variables
- Breakpoints and stepping
- Single-cycle operation
- Sequence monitoring
- Recording and graphical representation of variables (tracing)
- Exchange of program modules without interrupting the process

The integrated visualization system has access to all the variables used by the sequencing program, thus eliminating the risk of multiple definitions.



Numerous functions are available for creating user-specific operating screens.

- Basic elements: rectangle, ellipse, graphics, etc.
- Complex elements: alarm handling, trends, tables, etc.
- Animation
- Various data entry keypads
- Special functions

TECHNICAL DATA

PROCESSOR

TPC-30-PLC01/TPC-66SN-PLC01

CPU: Intel XscalePXA270 (312/416MHz)

Passive cooling

64 Mbyte on-board RAM

32/64 Mbyte on-board Flash memory

TPC-1261H-PLC01/TPC-1570H-PLC01

CPU: GX3 LX800 (500MHz) (TPC1261)

Celeron M (600MHz) (TPC1570)

Passive cooling

256 Mbyte on-board RAM

DISPLAY

TPC-30T

3,5-inch colour TFT display

Resolution: QVGA 320 x 240 pixels

64k colours, 200 cd/sqm

resistive touch operation

TPC-66SN

5,7-inch colour FSTN LC display

Resolution: QVGA 320 x 240 pixels

64k colours, 300 cd/sqm

resistive touch operation

TPC-1261H

12,1-inch colour TFT display

Resolution: SVGA 800 x 600 pixels

256 k colours, 300 cd/sqm

resistive touch operation

PC-1570H

15-inch colour TFT display

Resolution: XGA 1024 x 768 pixels

256 k colours, 350 cd/sqm

resistive touch operation

INTERFACES

Serial interfaces

Type: RS 232 / V.24, 9-pin Sub-D connector

Max. cable length: 12 m

TPC-30 1x, TPC-66 2x, TPC-1261 3x, TPC-1570 2x

Type: RS 485, 9-pin Sub-D connector

Max. cable length: 1000 m

TPC-30 alt. 1x, TPC-66 1x, TPC-1261 1x,

TPC-1570 1x

Network

Ethernet interface (10/100 Base-T)

USB interface

2 x USB (Typ A) TPC-1261, TPC-1570

2 x USB (1 x Typ A, 1 x Typ B) TPC66

1 x USB (1 x Typ A mini) TPC-30

Memory expansion

1 x SD card (only TPC-30)

1 x Compact Flash card Type I (only TPC-

66/1261/1570)

POWER SUPPLY

Supply voltage: 24 VDC (18 .. 32 V DC)

TPC-30T: ≤ 10 W (8 .. 28 V DC)

TPC-66SN: ≤ 20 W

TPC-1261H: ≤ 60 W

TPC-1570H: ≤ 60 W

Protection Class III (protective low voltage)

ENVIRONMENTAL CONDITIONS

Permissible temperatures

For specified accuracy: 0...50°C

Storage & transport: -20...60 °C

Climatic category

Relative humidity: 10...95 % at 40°C, no condensation

INFLUENCING FACTORS

Power supply

No effect. No loss of data in case of a power supply failure (Flash memory).

Vibration test

sinusoidal oscillations in accordance with IEC 60068-2-6 and EN 60068-2-6;

Loading: 2g for 1 hour in every direction

Shock test

to IEC 60068-2-27 and EN 60068-2-27

Loading: 10 g for 11 ms, half sine wave, three shocks in every direction

ELECTROMAGNETIC COMPATIBILITY

Immunity test to EN 50082-2

All interface cables must be screened.

Emission test to EN 50081-2

Emission from housing: EN 55011, Class A

GENERAL

Weights

TPC-30T / 66SN / 1261H / 1570H:

approx. 0,3 kg / 0,8 kg / 2,2 kg / 5,5 kg

Protection class

Front panel: IP 65

Rear: IP 20

Electrical safety

Complies with EN 61 010-1:

Over-voltage category II

Contamination degree 2

Working voltage range 50 V

Protection Class III

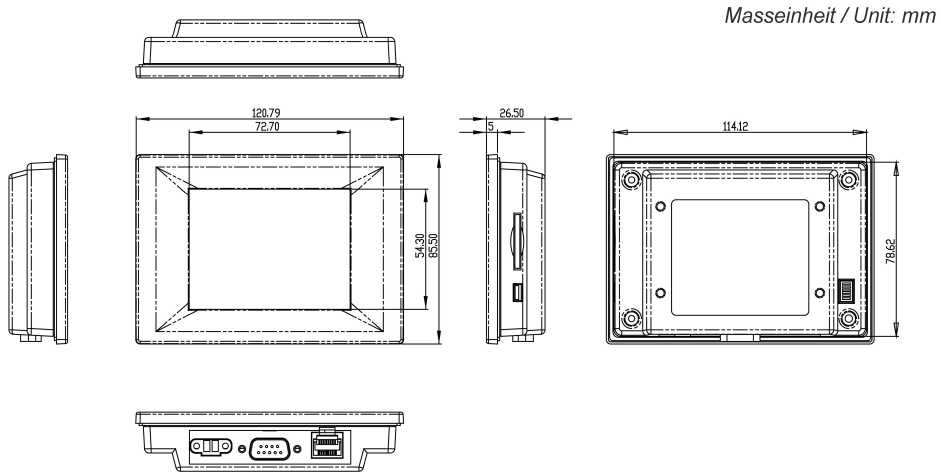
CE marking

Fulfills the EU Directives for electromagnetic compatibility and low voltage.

Standard accessories

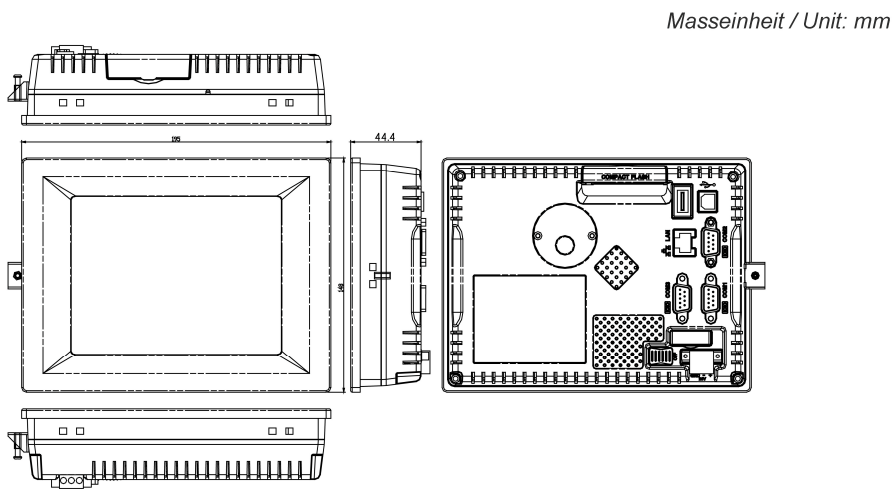
Supply voltage terminal

Mounting accessories



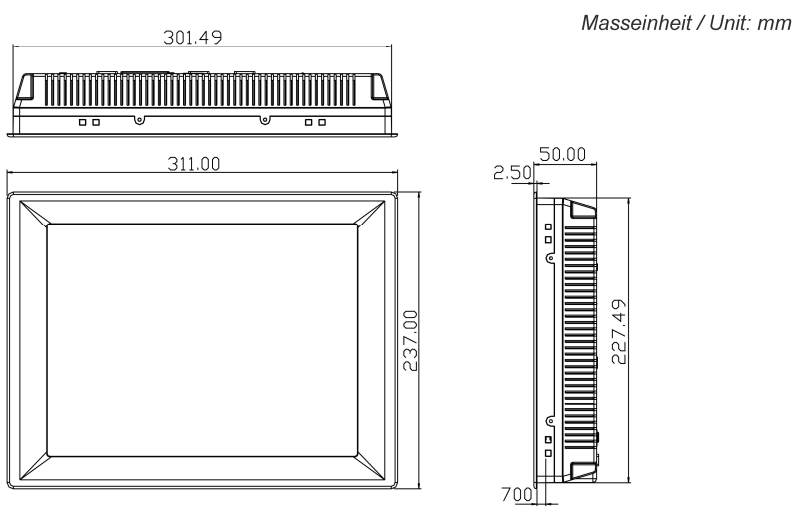
Abmessungen Schalttafel Ausschnitt / Dimensions Panel Cut-out: 115 x 79,5 mm

Fig. 1 Overall dimensions of TPC-30T



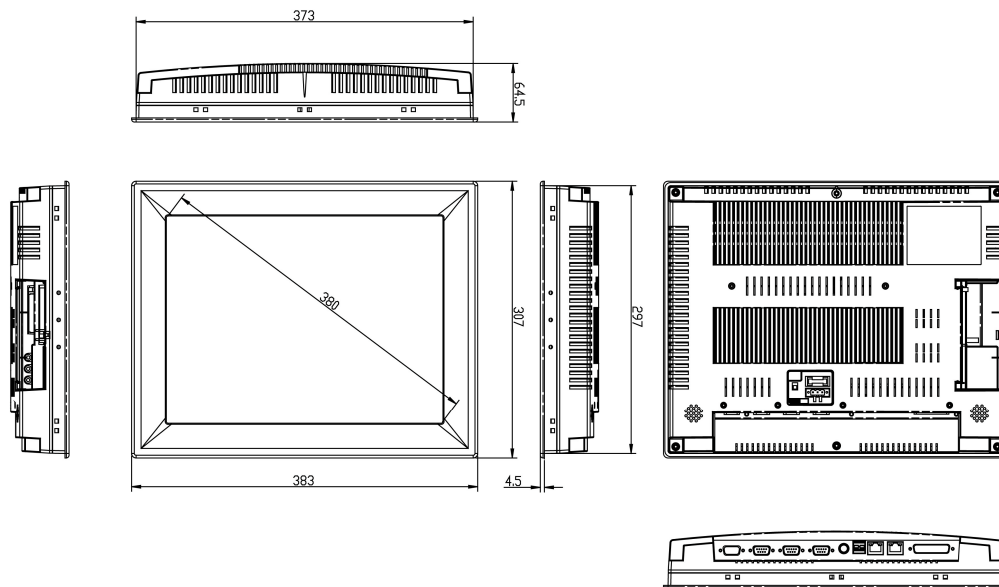
Abmessungen Schalttafel Ausschnitt / Dimensions Panel Cut-out: 188,4 x 141,4 mm

Fig. 2 Overall dimensions of TPC-66SN (Cut-out dimension: 188 x 141 mm)



Abmessungen Schalttafel Ausschnitt / Dimensions Panel Cut-out: 302 x 228 mm

Fig. 3 Overall dimensions of TPC-1261H (Cut-out dimension: 302 x 228 mm)



Abmessungen Schalttafel Ausschnitt / Dimensions Panel Cut-out: 373,5 x 297,5mm

Fig.4: Overall dimensions TPC-1570H (Cut-out dimension: 373,5 x 297,5 mm)

| Description | Order no. | Features |
|---------------------------|-----------------|---|
| TPC-30-SoftPLC | TPC-30T-PLC01 | Fully graphic touch-control terminal with 3,5" display screen, Soft PLC, and integrated visualization. |
| TPC-66-SoftPLC | TPC-66SN-PLC01 | Fully graphic touch-control terminal with 5,7" display screen, Soft PLC, and integrated visualization. |
| TPC-1261-SoftPLC | TPC-1261H-PLC01 | Fully graphic touch-control terminal with 12,1" display screen, Soft PLC, and integrated visualization. |
| TPC-1570-SoftPLC | TPC-1570H-PLC01 | Fully graphic touch-control terminal with 15" display screen, Soft PLC, and integrated visualization. |
| Support CD with PLC Tools | PMA-PLC-TOOLS01 | Support CD "PMA PLC-Tools" with CoDeSys development package, utility for configuring Vario I/O systems, documentation, and training examples. |



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