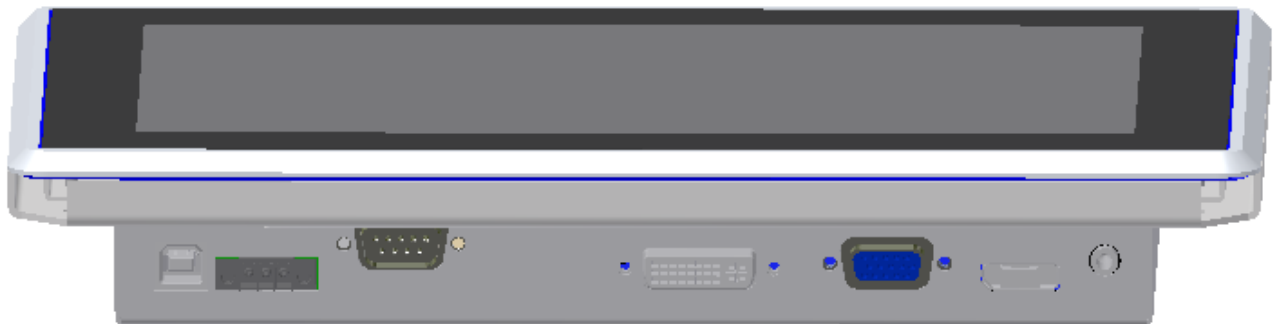


TFT/PB101PU-xxxx

Document Ordercode: DOC/PROTOUCH-WIDE_MONITOR



| Revision | Date | Author | Modification |
|----------|------------|----------------|------------------------------------|
| 0.1 | 15.04.2019 | D. Lagler | Preliminary version |
| 0.2 | 26.04.2019 | D. Lagler | Replaced graphics in chapter 3.2.4 |
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Related Documents

1 Introduction

1.1 General Remarks

The content and presentation of this document has been carefully checked. No responsibility is accepted for any errors or omissions in the documentation.

Note that the documentation for the products is constantly revised and improved. The right to change this documentation at any time without notice is therefore reserved.

Syslogic is grateful for any help referring to errors or for suggestions for improvements.

The following registered trademarks are used:

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| SPI | trademark of Motorola |
| PC | trademark of Philips Corporation |
| Intel Atom | trademark of Intel Corporation |
| Windows Embedded Compact | trademark of Microsoft Corporation |
| Windows Embedded Standard | trademark of Microsoft Corporation |

All other trademarks appearing in this document are the property of their respective company.

1.2 Explanation of Symbols

1.2.1 Danger warnings

The following information is for your personal safety and the prevention of damage to the product described or connected devices.

Safety instructions and warnings for the prevention of danger to the life and health of users or service personnel and for the prevention of damage are highlighted in this document by the pictograms specified below. *Warning* and *Information* pictograms are shown in this document.

1.2.2 Warnings indicate the following:

Death, serious injury or substantial material damage may occur if the related safety measures are not implemented.

The individual *Warning* pictograms have the following meaning:



Attention! General!

Is an instruction that must be observed in order to ensure protection before, while and after using the device. The correct procedure must be observed.



Attention! Electric shock!

Persons may be exposed to dangerous voltages in electrical installations. There is a danger of electric shock if a live part is touched.



Attention! Observe ESD measures!

Electrostatic discharge may destroy electronic components.




Attention! Hot surfaces

Keep clear of surfaces. They may be hot.

1.2.3 Information pictograms indicate the following:

Important information about the product or the relevant section of the document requiring the particular attention of the reader is marked as followed:

 Indicates important and instructional information.

1.3 Copyright note

This documentation is the intellectual property of Syslogic Datentechnik AG, which also has the exclusive copyright. Any modification of the content, duplication or reprinting of this documentation, as well as any distribution to third parties can only be made with the express permission of Syslogic Datentechnik AG.

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1.4 Contents of this Documentation

This document addresses to system integrators, programmers and instructed installation and maintenance personal working with the PROTOUCH-WIDE MONITOR system. It provides all information needed to configure setup and program the product.

1.5 Additional Products and Documents

1.5.1 Hardware Products

The following hardware products are mandatory together with this documentation:



PSU/DT24V60W-3A - 24V Desktop Power Supply 60W - 3 pole
or an equivalent CE-compliant AC/DC power supply

1.5.2 Software Products

1.5.3 Documents

1.6 Items delivered

1.1.1. Built-in version

- 1x TFT/PB101PU-xxxx
- 1x Fixing Frame with M3x6 and M3x8 securing screws
- 1x Power supply connector Weidmüller BCZ 3.81/03/180F SN SW (1792960000)

1.1.2. VESA version

- 1x TFT/PV101PU-xxxx
- 1x Power supply connector Weidmüller BCZ 3.81/03/180F SN SW (1792960000)
- 1x 4x M4x8 securing screws for VESA100 mounting

1.1.3. To be purchased separately

- CE-compliant power supply
e.g. PSU/DT24V60W-3A - 24V Desktop Power Supply 60W - 3 pole

1.7 Installation

The installation of the system is described in chapter 3 of this documentation.

1.8 Safety Recommendations and Warnings

The products are intended for measurement, control and communications applications in industrial environments. The products must be assembled and installed by specially trained people. The strict observation of the assembly and installation guidelines is mandatory.

The use of the products in systems in which the life or health of persons is directly dependent (e.g. life support systems, patient monitoring systems, etc.) is not allowed.

The use of the products in potentially explosive atmospheres requires additional external protection circuitry which is not provided with the products.

In case of uncertainty or of believed errors in the documentation please immediately contact the manufacturer (address see chapter 7.1). Do not use or install the products if you are in doubt. In any case of misuse of the products, the user is solely liable for the consequences.

1.8.1 General warnings



Important note

Ensure that the power supply is disconnected from the device before working on the device (connecting interfaces, replacing flash cards, batteries, opening the enclosure, etc.).



Important note

The output voltage of the external power supply shall be SELV and shall be limited power source according to clause 2.5 EN 60950-1.
Please read the safety instructions of the power supply before installing/connecting the device.

1.8.2 EMC



Important note

This is a Class A product and not intended to be used in domestic environment. The product may cause electromagnetic interference. Appropriate measures must be taken.



Important note

To fulfill class A of EN55032 and EN55024 a CE-compliant AC/DC power supply must be used. Cable length between power supply and device is limited to 3m.

1.8.3 Electro Static Discharge



Electronic boards are sensitive to Electro-Static Discharge (ESD). Please ensure that the product is handled with care and only in an ESD protected environment. Otherwise a proper operation is not guaranteed.

1.8.4 Battery



Changing batteries

Danger of explosion if the battery is not correctly replaced. Replace only with the same or equivalent type recommended by the manufacturer.

Dispose of used batteries according to the manufacturer's instructions.



Maintenance of battery

Empty batteries may leak.

Never short the battery.

1.8.5 Hot surface



Attention! Hot surfaces

Make sure the device is not hot before mounting or changing the installation. The device may be hot and may cause burns.

1.9 Life Cycle Information

1.9.1 Transportation and Storage

During transportation and storage, the products must be in their original packing. It is recommended, to keep the original packing in case of return of the product to the factory for repair. Note that the packing is recyclable.

1.9.2 Assembly and Installation

Observe the EMI-precautions against static discharge. Carefully read the installation documentation before unpacking the product.

The installation procedures must be strictly observed. Note that deviations from the installation guidelines may result in degraded operational reliability or in unfavourable EM-radiation or EM-susceptibility.

1.9.3 Operation

The operating environment must guarantee the environmental parameters (temperature, power supply, etc.) specified in the technical specification section of this document.

The main functionality of the product is defined by the application program. The application program is not part of the delivery by Syslogic but is defined, developed and tested by the customer or a system-integrator for each specific application. Refer to the respective documentation for more information.

1.9.4 Maintenance and Repair

In the rare case of a product hardware-failure or malfunction, the complete product should be exchanged. The faulty product must be returned to the factory for repair. Please use whenever possible the original packing for return of the product (EMI and mechanical protection).

1.9.5 Disposal

At the end of the lifespan the PROTOUCH-WIDE MONITOR products must be properly disposed. PROTOUCH-WIDE MONITOR products contain a multitude of elements and must be disposed like computer parts. The PROTOUCH-WIDE MONITOR products contain batteries which should be properly disposed.

1.9.6 RoHS

The products of the PROTOUCH-WIDE MONITOR family are designed and produced according to the Restriction of Hazardous Substances (RoHS) Directive (2011/65/EU).

1.9.7 WEEE

The products of the PROTOUCH-WIDE MONITOR family are not designed ready for operation for the end-user and are not intended for consumer applications. According to Waste Electrical and Electronic Equipment (WEEE) Directive (2002/96/EC) Syslogic takes back defective devices for proper disposal at the point of sale.

2 Product Description

2.1 Introduction

2.1.1 Benefits of Syslogic's Projected capacitive touch panels

The product meets all the requirements of state-of-the-art advanced touch monitor

The TFT technology makes a wide range of applications possible with a perfect and clear picture on an absolutely flat surface.

A metal housing with a solid front frame and scratch resistant glass protects the device

A robust touch screen technology is used.

The product is an information display and input device providing a front protection of IP65.

The absolutely flat PCT (Projected capacitive Touch) touch panel offers the latest Multi-Touch technology. PCT Touch Screen can be used with fingers or with special capacitive touch or thin latex gloves. The touchscreen is self-calibrating.

The device is reliably during long periods of use and requires little care and maintenance.

The product is available for long term.

2.1.2 Intended use of Projected Capacitive Touch Panels

The Projected Capacitive Touch Panel is designed for:

- Visualization and process control
- General control and automation tasks
- Industrial use
- For multi-media systems
- Operation in the ambient conditions specified in the technical data

This device description is designed as a reference guide for the installation, connection, operation and maintenance of all versions of the Projected Capacitive Panel, and also provides all the relevant technical data.

2.2 Device Variants

The Projected capacitive touch monitors are available in the following versions:

| Order code | Flat screen | Mounting type | Connections |
|-------------------|-------------|----------------|----------------------------|
| TFT/PB101PU-N001E | 10.1" WXGA | Flush mounting | Displayport, DVI, VGA, USB |
| TFT/PV101PU-N001E | 10.1" WXGA | VESA mounting | Displayport, DVI, VGA, USB |

Tab. 1 Projected capacitive touch monitor versions

2.3 Accessories

The following accessories are not necessarily supplied with the device. These parts could be ordered additionally or downloaded under www.syslogic.com:

| Accessories | | |
|-----------------|-----------------------|--|
| Order code | Type designation | Description |
| TouchDriver | Touch driver software | Built-in touch driver software for Windows / Linux / Android |
| PSU/DT24V60W-3A | Power supply | 24V Desktop Power Supply 60W - 3 pole |

Tab. 2 Projected capacitive touch panel accessories

2.4 Features

2.4.1 TFT/PB101PU-N001E

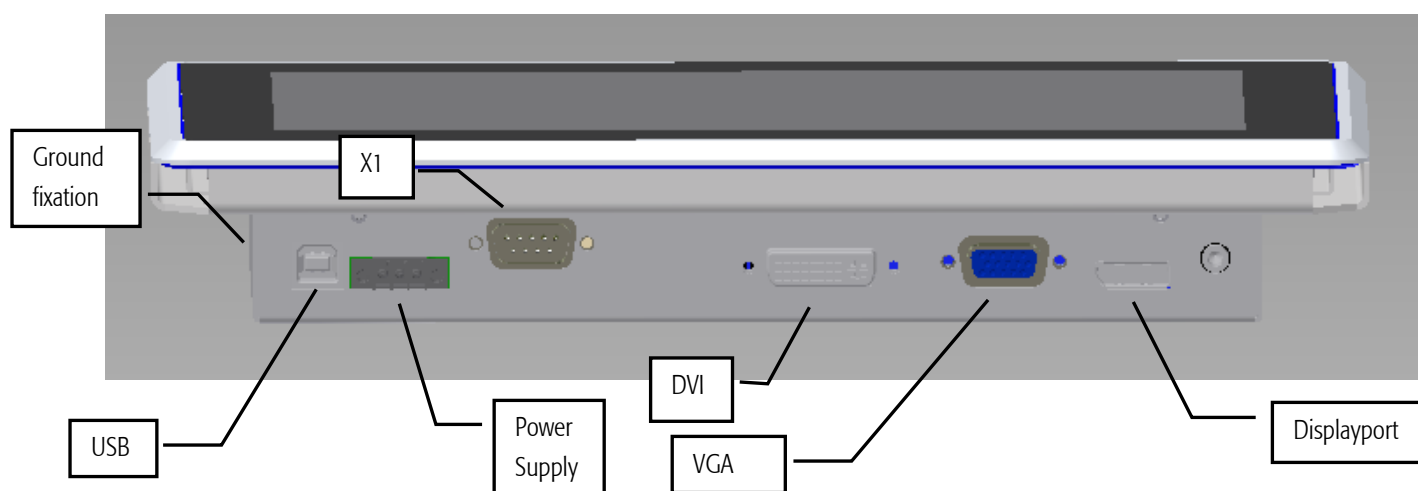


Fig. 1 TFT/PB101PU-N001E (Front)

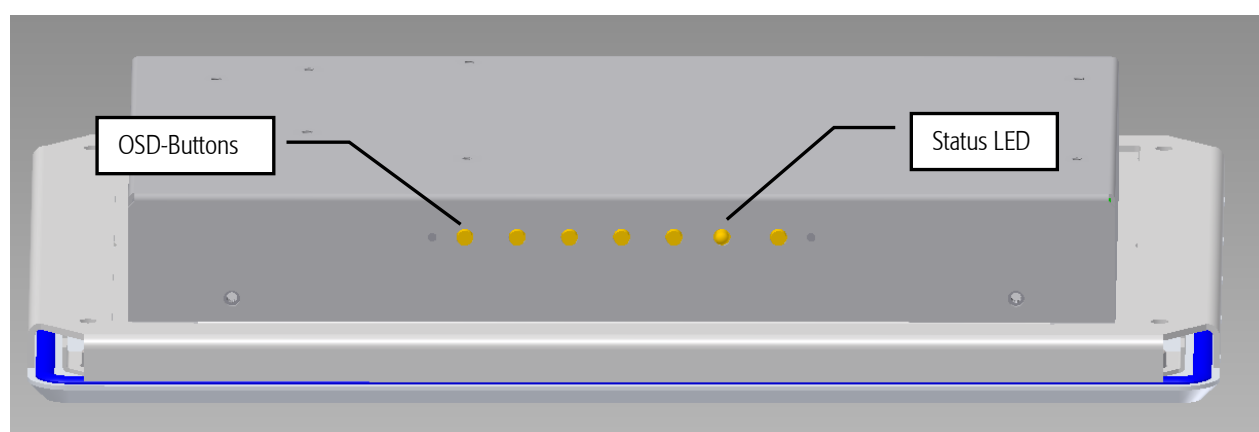


Fig. 2 TFT/PB101PU-N001E (Back)

2.4.2 Power supply

The A/D board and its peripherals are powered by a non-isolated, integrated power supply which generates all the necessary voltages.

Device Connection

Weidmueller BCZ 3.81/03/180F SN BK (Ordercode 1792960000)



Power Supply requirements:

- The power supply used must fulfil CE and safety normative according to the application.
- Always use a short circuit protected power supply.
- Do not use power supplies wires or cables longer than 3m.

| Pin | Signal | Marking | Remarks |
|-----|--------|---------|---------------|
| 1 | NC | | |
| 2 | +24VDC | VDC | |
| 3 | GND | GND | GND (/shield) |

Tab. 3 Power supply connector (1x3 pin)

2.4.3 VGA

Input socket for VGA signals

Device Connection

The VGA interface uses the standard VGA connector Mini DSUB 15pin

| Pin Number | Symbol | Signal |
|------------|--------|-----------------|
| 1 | RED | Analog Red |
| 2 | GREEN | Analog Green |
| 3 | BLUE | Analog Blue |
| 4 | GND | No connection |
| 5 | GND | Digital GND |
| 6 | RGND | Red Return |
| 7 | GGND | Green Return |
| 8 | BGND | Blue Return |
| 9 | NC | +5V DC |
| 10 | SGND | Sync GND |
| 11 | NC | No connection |
| 12 | SDA | DDC Serial Data |
| 13 | HSYNC | Horizontal Sync |
| 14 | VSNC | Vertical Sync |
| 15 | SCL | DDC Data Clock |

Important Note



Maximum cable length allowed for display connection is 3 m. If longer cables are used, special overvoltage and filtering elements must be installed to comply with the requirements of EMI/RFI CE-certification. Only use high quality industrial devices with sufficient EMI compatibility.

2.4.4 DVI

Input socket for DVI-D signals

Device Connection

The DVI-D interface uses the standard DVI-D connector

| Pin Number | Signal | Pin Number | Signal |
|------------|-----------------|------------|-----------------|
| 1 | TMDS 2- | 2 | TMDS 2+ |
| 3 | TMDS 2/4 SHIELD | 4 | TMDS 4- |
| 5 | TMDS 4+ | 6 | DDC Clock |
| 7 | DDC Data | 8 | NC |
| 9 | TMDS 1- | 10 | TMDS 1+ |
| 11 | TMDS 1/4 SHIELD | 12 | TMDS 3- |
| 13 | TMDS 3+ | 14 | +5V |
| 15 | GND for 5V | 16 | Hot Plug Detect |
| 17 | TMDS 0- | 18 | TMDS 0+ |
| 19 | TMDS 0/5 SHIELD | 20 | TMDS 5- |
| 21 | TMDS 5+ | 22 | TMDS Clk SHIELD |
| 23 | TMDS Clk+ | 24 | TMDS Clk- |

Important Note



Maximum cable length allowed for display connection is 3 m. If longer cables are used, special overvoltage and filtering elements must be installed to comply with the requirements of EMI/RFI CE-certification. Only use high quality industrial devices with sufficient EMI compatibility.

2.4.5 DisplayPort

Input socket for displayport signals

Device Connection

The DisplayPort interface uses the standard displayport connector

| Pin Number | Signal | Pin Number | Signal |
|------------|------------------|------------|-----------------|
| 1 | LANE 3- | 2 | GND |
| 3 | LANE3+ | 4 | LANE 2- |
| 5 | GND | 6 | LANE 2+ |
| 7 | LANE 1- | 8 | GND |
| 9 | LANE 1+ | 10 | LANE 0- |
| 11 | GND | 12 | LANE 0+ |
| 13 | GND | 14 | C.E.C. |
| 15 | AUX CH+ | 16 | GND |
| 17 | AUX CH- | 18 | Hot Plug Detect |
| 19 | Return for Power | 20 | DP Power |

Important Note



Maximum cable length allowed for display connection is 3 m. If longer cables are used, special overvoltage and filtering elements must be installed to comply with the requirements of EMI/RFI CE-certification. Only use high quality industrial devices with sufficient EMI compatibility.

2.4.6 USB Interface

The PROTOUCH-WIDE MONITOR is equipped with an USB port to connect the touch panel to the PC

Device Connection

The USB interface uses a standard B type USB connector

Important Note



Maximum cable length allowed for USB connection is 2.7 m. If longer cables are used, special overvoltage and filtering elements must be installed to comply with the requirements of EMI/RFI CE certification. Only use high quality industrial USB devices with sufficient EMI compatibility.
Use shielded cables for maximum EMI protection.
Drawing excessively power might disturb operation.

2.4.7 Status LED

The two coloured LEDs shows the following states:

| LED | Status |
|-------|--------------------------|
| Green | Input signal OK |
| Red | No input signal detected |

Tab. 4 Status LEDs

2.4.8 On Screen Display OSD (only on selected products)

Several display settings can be adjusted using the buttons of the OSD keyboard. The hot key function is used to access the described menu item without having to navigate through the entire menu.

| Key | Description | Hot Key Description |
|--------|---|------------------------|
| Menu | Open OSD menu | Menu popup / menu exit |
| Down | Down | Auto adjust for VGA |
| DEC | Enter sub-menu, decrease key or left key | |
| INC | Enter sub-menu, increase key or right key | |
| Source | Open Source select menu | |
| PWR | Power on/off | |

Tab. 5 OSD key description

Menu tree

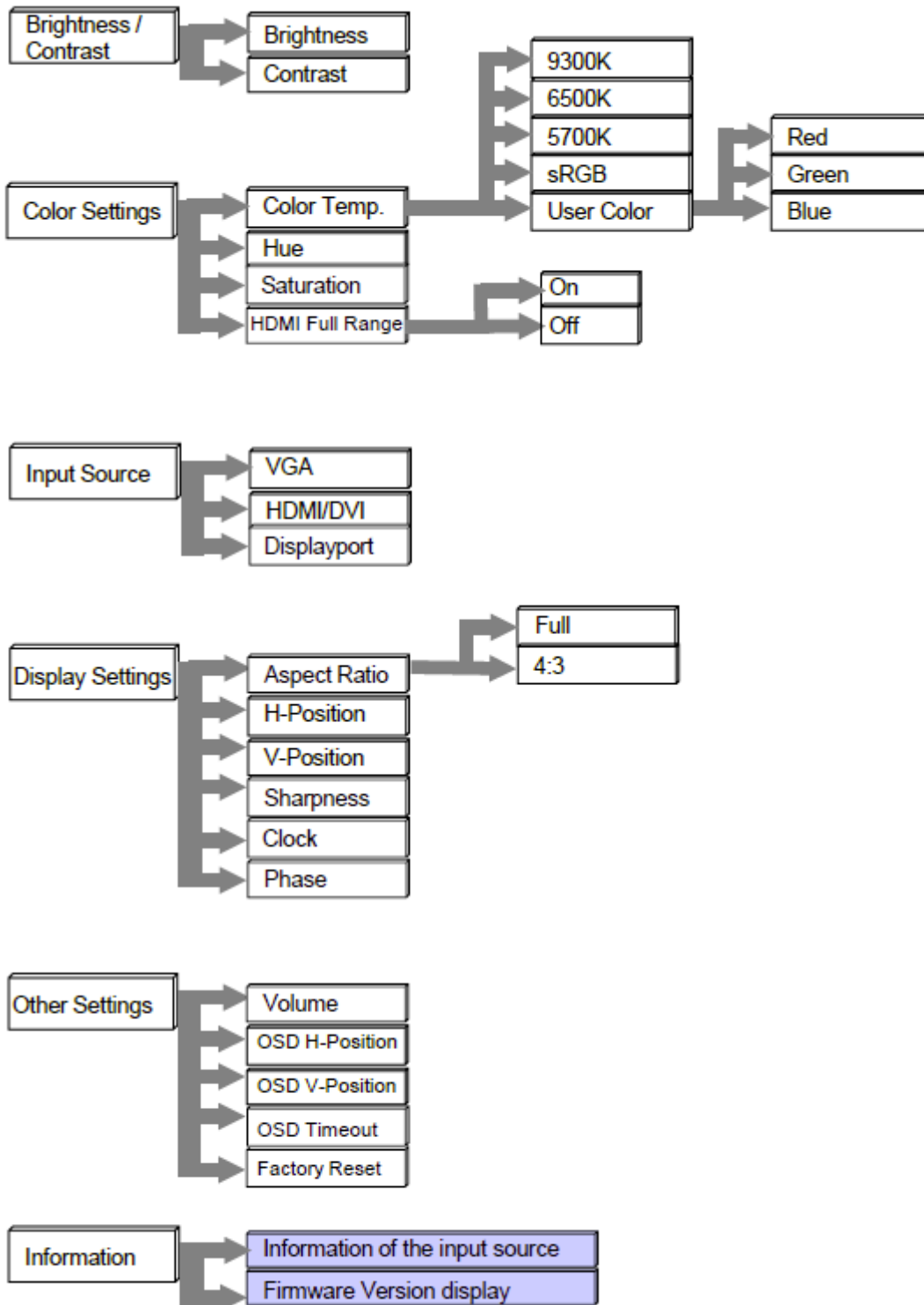


Fig. 3 OSD menu tree

2.4.9 X1 (only on selected products)

X1 offers the possibility to control the monitor remotely by RS232 protocol

The signals are on 5V-TTL level therefore a level converter is needed to connect to a standard RS232 port. The 5VDC on Pin 9 can be used to supply such a converter with the necessary voltage.

Device Connection

The Serial Port X1 is available on DSUB-9

| Pin Number | RS232 |
|------------|-------|
| 1 | NC |
| 2 | RXD |
| 3 | TXD |
| 4 | NC |
| 5 | GND |
| 6 | NC |
| 7 | NC |
| 8 | NC |
| 9 | +5VDC |

Tab. 6 Serial Port X1

Important Note



Maximum cable length allowed for X1 connection is 2.8 m. If longer cables are used, special overvoltage and filtering elements must be installed to comply with the requirements of EMI/RFI CE-certification. Only use high quality industrial devices with sufficient EMI compatibility.

Communication protocol

Command length: 5 bytes

Check sum: 0xFF

Byte definition: AA BB CC DD EE, with

AA: Start string of commands

BB: String of command function

CC: String of set or get value

DD: Blank string, normally 00

EE: added string to meet check sum

Baud rate: 9600

| Function | Command | Description |
|--------------------------------|----------------|------------------------------------|
| Menu | BF 06 00 00 3A | Menu popup |
| Down | BF 09 00 00 37 | Auto adjust hot key |
| Up | BF 04 00 00 3C | Brightness hot key |
| Decrease | BF 05 00 00 3B | Contrast hot key |
| Increase | BF 07 00 00 39 | |
| Source | BF 08 00 00 38 | Source select key |
| Power | BF 00 00 00 40 | Power key |
| Source change VGA | BF 0A 00 00 36 | |
| Source change DVI | BF 0B 00 00 35 | |
| Source change Displayport | BF 0C 00 00 34 | |
| Get brightness | BF 01 00 00 3F | |
| Increase brightness | BF 2D 00 00 13 | |
| Decrease brightness | BF 03 00 00 3D | |
| Get contrast | BF 0F 00 00 31 | |
| Increase contrast | BF 2E 00 00 12 | |
| Decrease contrast | BF 11 00 00 2F | |
| Power off | BF 31 00 00 0F | |
| Power on | BF 32 00 00 0E | |
| Backlight off | BF 33 00 00 0D | |
| Backlight on | BF 34 00 00 0C | |
| Get backlight status | BF 35 00 00 0B | |
| Place factory reset | BF 30 00 00 10 | |
| Get input source status | BF 1E 00 00 22 | |
| Get power status | BF 1F 00 00 21 | |
| Get PC red colour value | BF 13 00 00 2D | |
| Get PC green colour value | BF 14 00 00 2C | |
| Get PC blue colour value | BF 15 00 00 2B | |
| Set PC colour temp (increase) | BF 16 00 00 2A | cool – normal – warm – sRGB - user |
| Set PC colour temp (decrease) | BF 17 00 00 29 | user – sRGB – warm – normal – cool |
| Increase PC red colour value | BF 18 00 00 28 | |
| Decrease PC red colour value | BF 19 00 00 27 | |
| Increase PC green colour value | BF 1A 00 00 26 | |
| Decrease PC green colour value | BF 1B 00 00 25 | |
| Increase PC blue colour value | BF 1C 00 00 24 | |
| Decrease PC blue colour value | BF 1D 00 00 23 | |
| Set brightness value | BF 02 1E 00 20 | Brightness 30 |
| | BF 02 38 00 06 | Brightness 56 |
| | BF 02 5D 00 E1 | Brightness 93 |
| Set contrast value | BF 10 00 00 30 | Contrast 30 |
| | BF 10 23 00 0D | Contrast 35 |
| | BF 10 5° 00 D6 | Contrast 90 |

Tab. 7 RS232 communication protocol

2.4.10 Internal connectors

Fuse

The main fuse protects the system against destruction in case of high energy distortions on the power line. For replacement, the system must be opened in an ESD protected environment. Only an entitled instructed person is allowed for this operation. Replacement fuse type is Littelfuse 452004.MRL (4A slow-blow).

2.5 Display timings

The PROTOUCH-WIDE MONITOR supports several established and standard timings. Nevertheless, for optimal performance it is best to set the output from the PC to the native resolution of the device.

| Resolution | Refresh rate | VGA | DVI-D | DP | Px101PU |
|------------|--------------|-----|-------|----|---------|
| 720x400 | 70Hz | X | X | X | |
| 640x480 | 60Hz | X | X | X | |
| 640x480 | 67Hz | X | X | X | |
| 640x480 | 72Hz | X | X | X | |
| 640x480 | 75Hz | X | X | X | |
| 800x600 | 56Hz | X | X | X | |
| 800x600 | 60Hz | X | X | X | |
| 800x600 | 72Hz | X | X | X | |
| 800x600 | 75Hz | X | X | X | |
| 832x624 | 75Hz | X | X | X | |
| 1024x768 | 60Hz | X | X | X | |
| 1024x768 | 70Hz | X | X | X | |
| 1024x768 | 75Hz | X | X | X | |
| 1280x800 | 60Hz | X | X | X | X |
| 1280x1024 | 75Hz | | | X | |
| 1280x720 | 60Hz | | | X | |
| 1600x1200 | 60Hz | | | X | |

2.6 Touch Screen

The devices use an Ilitek Ili2511 chipset.

2.6.1 Basic functions of the touch screen

The touch screen operates using the PCT (Projected Capacitive Touch) technology.

Therefore, the touch must be manipulated using fingers, thin latex or special gloves or pens/styluses that are made for use with capacitive touch panels.

Depending on the driver version and Operating System the PCT touch supports Multi-touch up to 5 points. Which means you can operate the touch screen with more than one finger for drawing or selecting.

2.7 Maintenance

To replace the fuse it is required to open the device.



Shutdown the system and disconnect from power supply and all other connections



Make sure the device has cooled down to room temperature



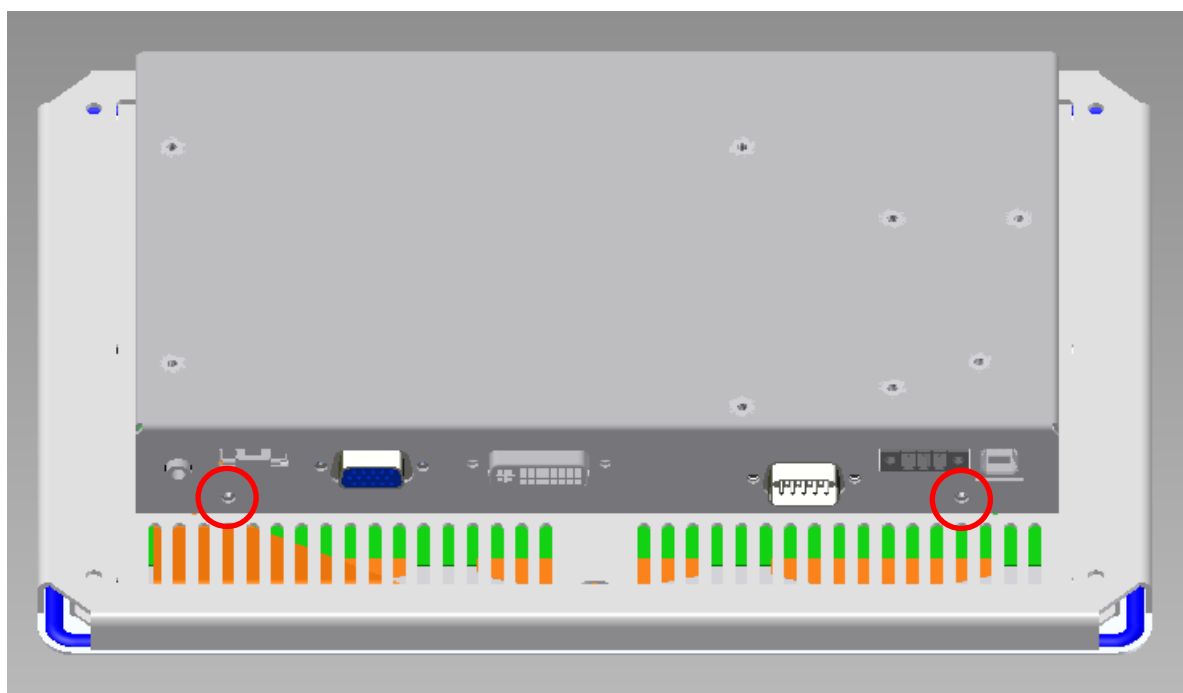
Only open the device in an ESD protected area

2.7.1 Opening the device

TFT/PB101PU

1. Loosen the four screws fixing the housing

Tool: Torx screwdriver T10





2. Carefully remove the electronics box



Important Note

Be careful not to tear the cables for display and touch

3. Detach the cables to the display and touch

TFT/PV101PU

1. Loosen the eight screws fixing the housing

Tool: Torx screwdriver T10

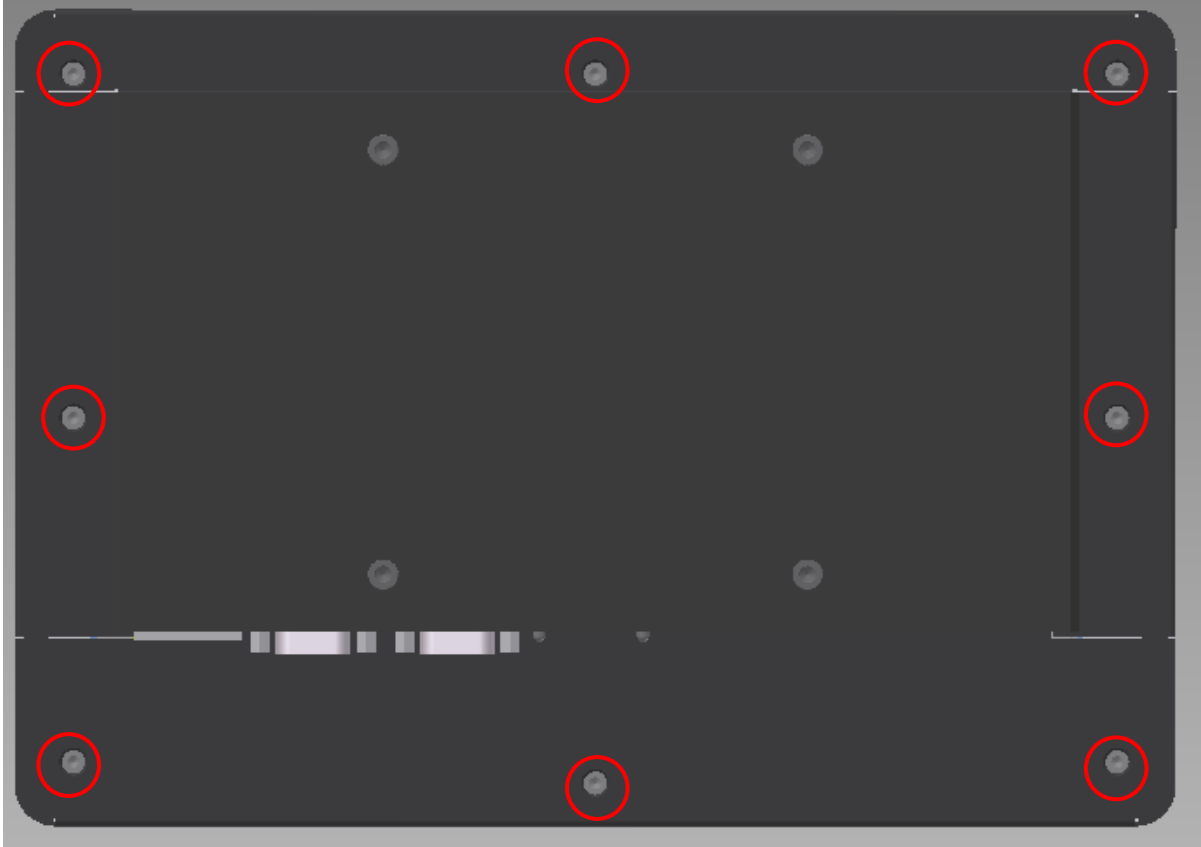


Fig. 4 Remove rear case of TFT/HVxxxPU8yyy-zZZZ devices

2. Carefully remove the electronic box



Important Note

Be careful not to tear the cables for display and touch

3. Detach the cables to the display and touch

2.7.2 Re-assemble the device

To re-assemble the device, follow 2.7.1 in reverse order
Make sure the blue securing lubric on the screws is still intact.

Tool: Torx screwdriver T10, 1.0Nm

2.7.3 Replace fuse

1. Locate the fuse right behind the power connector
2. Extract with tweezers and replace with same type (Littelfuse 452004.MRL)

2.7.4 Cleaning the glass front

For cleaning the glass front please use a soft cloth and a standard glass cleaning detergent.



When cleaning during operation it may happen that input signals are generated.

Prevent the system from unwanted and dangerous actions while the front is being cleaned.



Make sure the device has cooled down to room temperature

2.7.5 Cleaning the metal housing

For cleaning the metal housing please use a soft cloth and a metal polish.



Do not use a coarse scouring cloth, scouring powder or solvent.

Cleaning should only be carried out when the device is switched off!



Make sure the device has cooled down to room temperature

2.7.6 Spare parts

| Designation | Type | Order number |
|--------------|---------------------------------------|-----------------------|
| Power supply | 24V Desktop Power Supply 60W - 3 pole | PSU/DT24V60W-3A |
| Fuse | 4A slow-blow | Littelfuse 452004.MRL |

3 Installation Description

3.1 Mounting

3.1.1 TFT/PB101PU-N001E

Mounting the device requires the following steps:

1. The desired mounting place must have a cut out and wall thickness regarding the following overview.

| Device # | Front cut out dimensions | | Edge radius | Wall thickness |
|-------------------|--------------------------|----------------------|-------------|----------------|
| | W [mm] | H [mm] | R [mm] | D [mm] |
| TFT/PB101PU-N001E | 259 ^{-0/+1} | 178 ^{-0/+1} | max. 3 | 1 to 5 |

Tab. 8 TFT/HB101PU81xxx-C001S Mounting dimensions

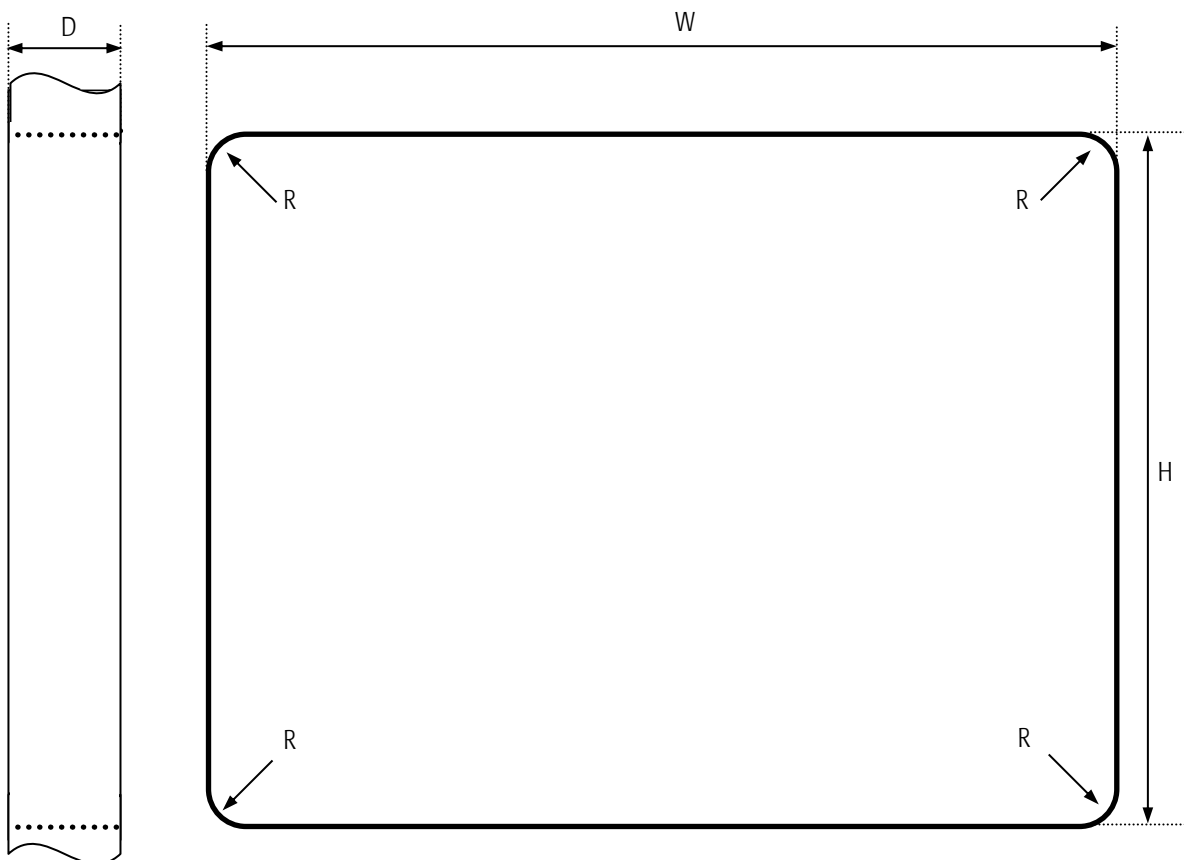


Fig. 5 Required Cut out PBxxxPU8



Mounting Angle:

Mounting Angle must be 90°

Cooling Space:

To ensure cooling leave at least 10cm of free space around product.

2. Remove the screws highlighted in red and then remove the mounting frame.

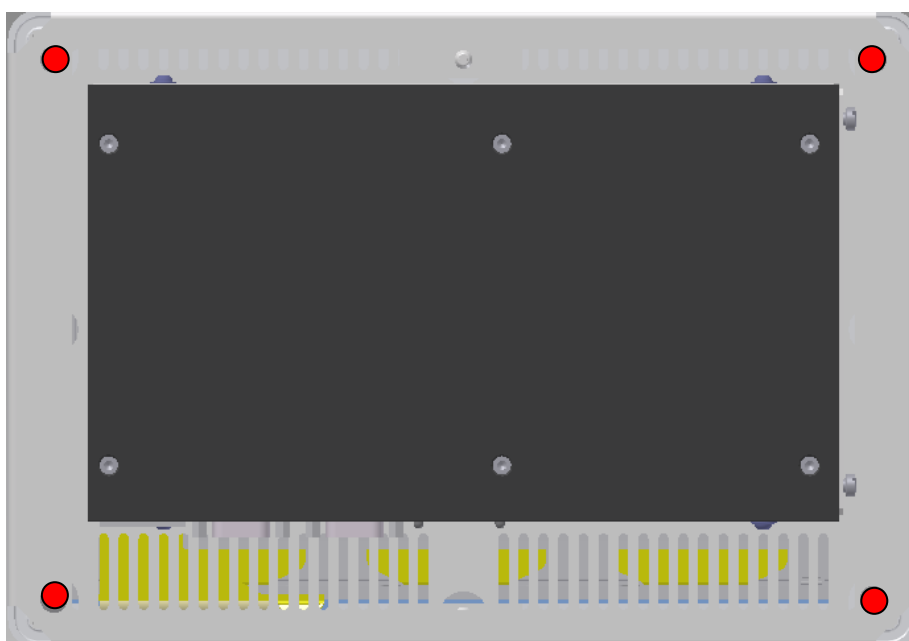


Fig. 6 Screws to hold the mounting Frame

3. Insert the projected capacitive touch panel from the front into the cut out and make sure that the sealing fits properly.
4. Reattach the mounting frame and fix it into place by reattaching the screws highlighted in red. Required torque: 1.3Nm
5. The product is now installed properly.

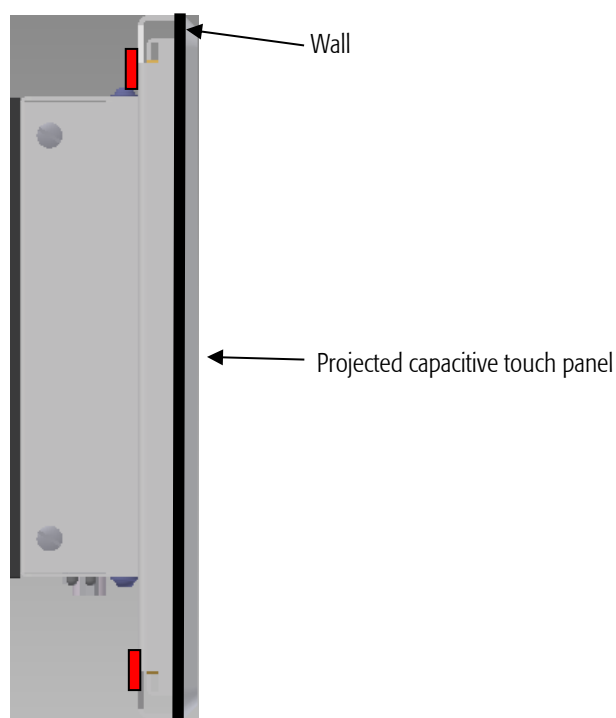
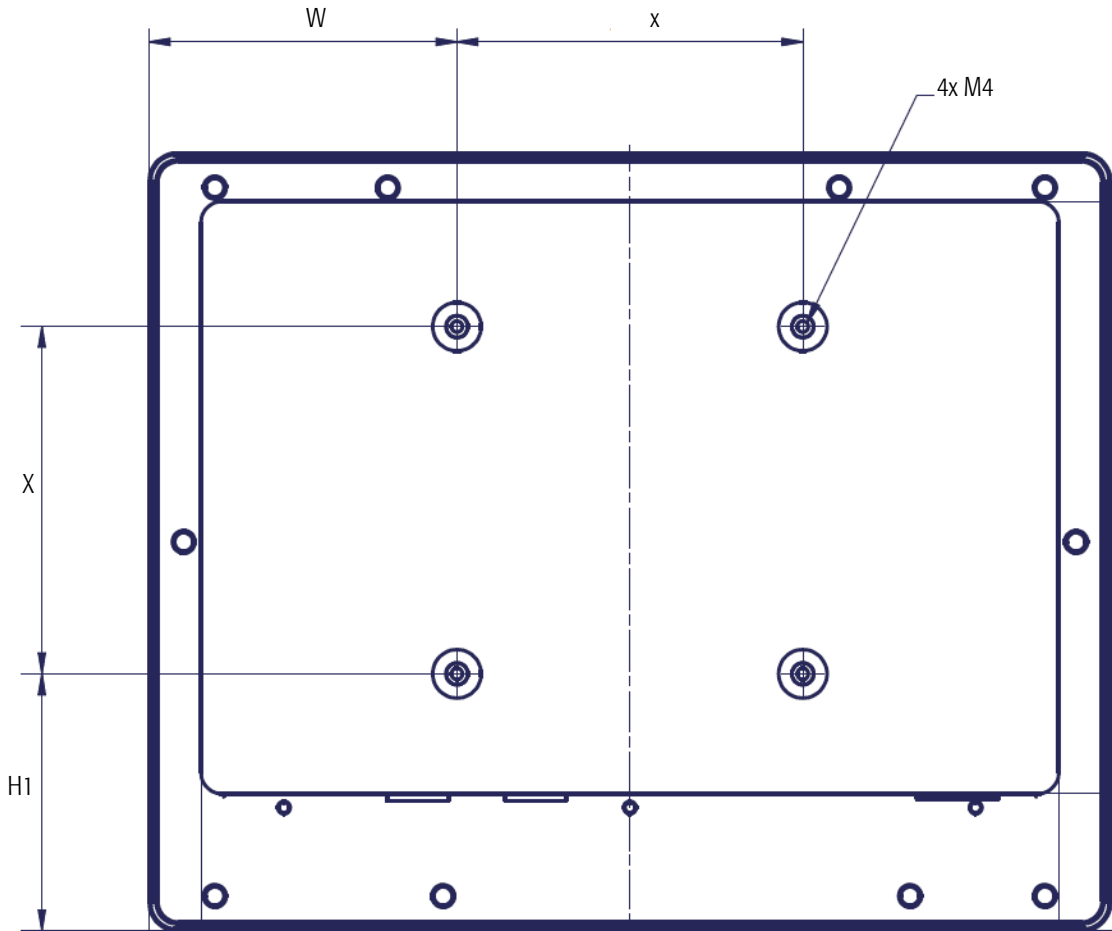


Fig. 7 Fully installed PROTOUCH-WIDE MONITOR

3.1.2 TFT/PV101PU-N001E

All TFT/PV101PU-N001E are equipped with a VESA100 (100x100mm) mounting system delivered with M4x8 Philips screws. To mount the device follow these steps:

1. Remove the screws from the back of the device
2. Screw the device to the VESA100 mounting frame. Maximum thickness of the frame is 3mm. If using a thicker frame replace the screw. The screw must not fit more than 8mm and must fit least fit 5mm. Fix the device with a torque of 1.3Nm.



| Device # | X [mm] | W [mm] | H 1[mm] |
|------------------|--------|--------|---------|
| TFT/PV101PU-xxxx | 100 | 87 | 58 |

Tab. 9 PV101PU-xxxx VESA dimensions



Mounting Angle:

Mounting Angle must be $90^\circ \pm 15^\circ$

Cooling Space:

To ensure cooling leave at least 10cm of free space around product.

For best thermal performance use spacer M4 x 5mm between the VESA mounting frame and the device

3.2 Installation and cabling

3.2.1 Introduction

Installation and cabling of the PROTOUCH-WIDE MONITOR system has to be done with great care; the correct cabling is essential for high operational reliability and the correct grounding is necessary for protection and EMC. To meet the requirements of *CE*-certification all cables must be shielded. The enclosure must be connected to ground via the designated fastener (see 4.3 for details).



Important Note

To meet the requirements of EMI/RFI *CE*-certification, correct mounting, installation and cabling of the PROTOUCH-WIDE MONITOR system according to these guidelines is absolutely necessary.

3.2.2 Powering the PROTOUCH-WIDE MONITOR System

The logic supply voltage, i.e. the power driving the electronic circuits (motherboard and extensions) is internally generated from the 12/24VDC power supply input. Remember that the power supply is non-isolated. The power supply has to be connected according to paragraph 2.4.2 . Maximum allowed cable length between AC/DC power supply and system power input is 3m. If the cable is longer than 3m or routed outside the building, special overvoltage and filtering elements have to be installed to comply with the requirements of EMI/RFI *CE*-certification. When selecting the external power supply, the maximum power dissipation of the system has to be considered.



The PROTOUCH-WIDE MONITOR system must only be operated indoors and must be connected to an indoor power supply. Maximum cable length allowed for power supply connection is 3m. If longer cables are used, special overvoltage and filtering elements must be installed to comply with the requirements of EMI/RFI *CE*-certification.



Please make sure that the input voltage does not exceed the recommended operating range otherwise the electronics board could get damaged and correct operation cannot be guaranteed.
Use an overload protected power supply to prevent damage in case of a short inside the system.
The AC/DC power supply must fulfil the requirements for EMI/RFI *CE*-certification.

3.2.3 Cabling the interfaces

Use appropriate cabling for all interfaces. Shielded cabling is required to meet the EMI/EMC limits.

3.2.4 Grounding

The system can be grounded using the designated grounding fastener with appropriate cable end sleeve. In some cases, it is recommended to connect the shields of the cables to chassis potential at the entry point into the housing cabinet as shown in Fig. 8. If the cables enter a hermetically closed cabinet, use special 360-degree metal clamps (EMI/RFI protected types which contact to the cable shield).



Important Note

Grounding of the cable's shields using *pig-tail wires* are not recommended because of their high impedance at high frequencies. It is better to clamp the shields onto a grounded copper rail.

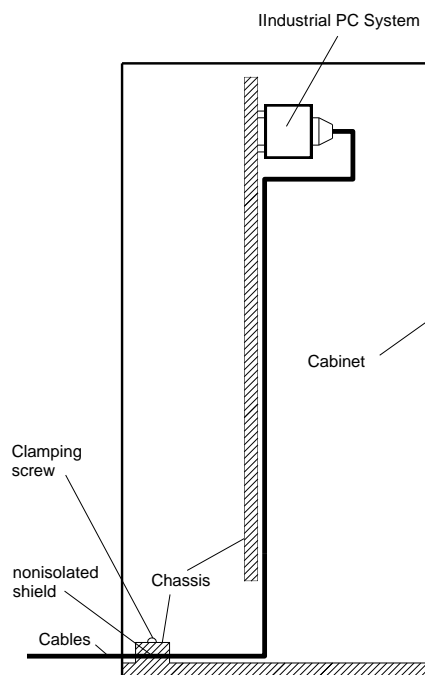


Fig. 8 Additional grounding of the cable shields at the entry point of a cabinet

3.2.5 Cabling of communication links

If the communication ports are non-isolated ports, cable shields have to be connected to chassis potential on both sides of the interconnection cable. If the cable is very long, a thick copper wire (10 mm²) for potential adjustment is highly recommended. Fig. 10 shows a non-isolated system with common chassis ground.

Some of the communication ports are galvanically isolated ports. In such cases the shield of the interconnection cable must be wired to chassis potential only on one side of the cable.

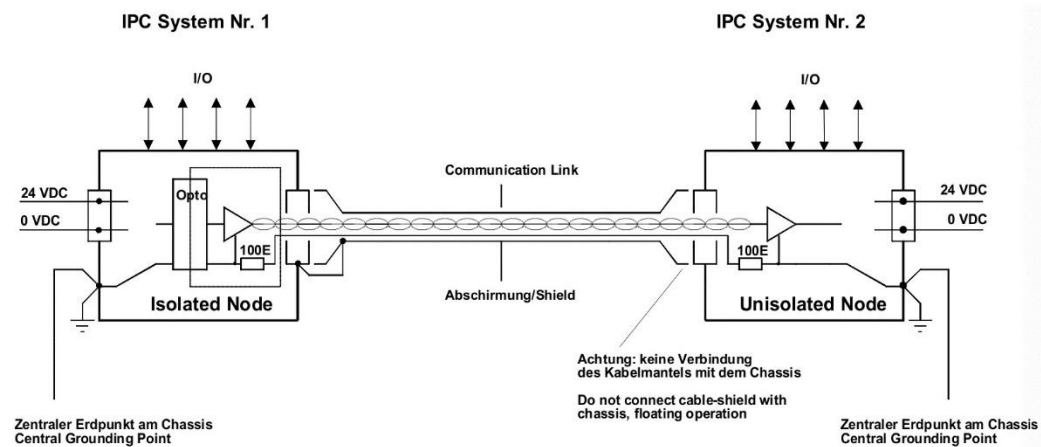


Fig. 9 shows an isolated system with independent grounds.

! Important Note

Grounding of the cable's shields using *pig-tail wires* are not recommended because of their high impedance at high frequencies. It is better to clamp the shields onto a grounded copper rail.

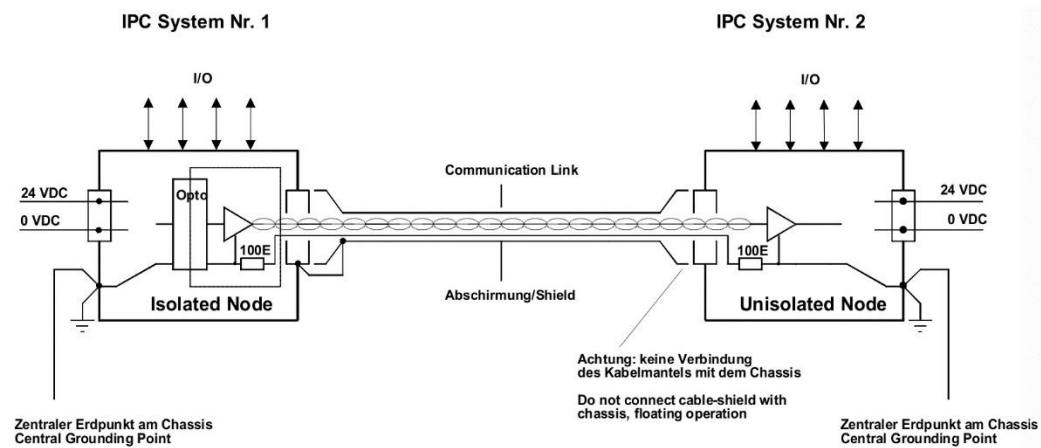


Fig. 9 Isolated communication link

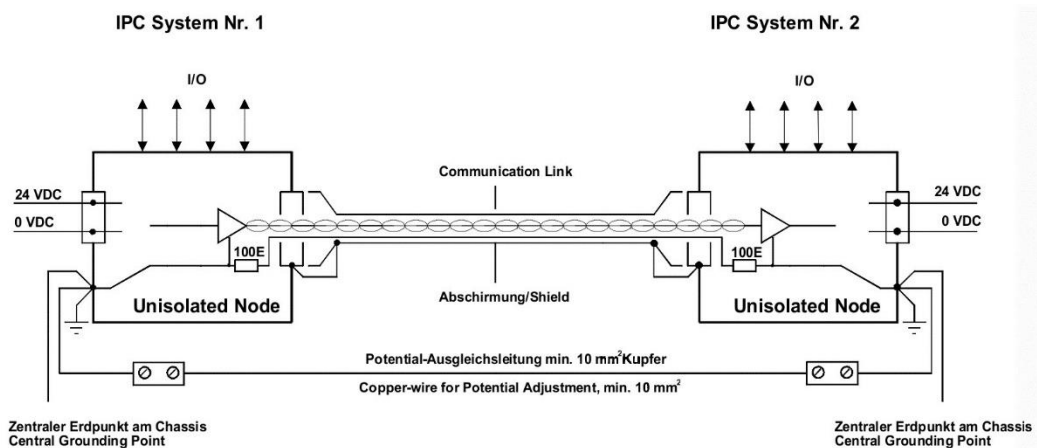


Fig. 10 Non-isolated communication link with common chassis potential

4 Technical Data

4.1 General Electrical Data

Important Note



Do not operate the PROTOUCH-WIDE MONITOR outside of the recommended operating conditions. Otherwise lifetime and performance will degrade. Operating the board and the display outside of the absolute maximum ratings may damage the hardware.

Absolute Maximum Ratings

| Parameter | Symbol | min | nom | max | Unit |
|-------------------------------------|--------|-----|-------|-----|------|
| supply voltage | Vdc | 9.5 | 12/24 | 36 | VDC |
| storage temperature range | Tst | -20 | 25 | 70 | °C |
| operating temperature range | Ta | -20 | | 60 | °C |
| operating humidity (not condensing) | Rh | 10 | | 90 | % |

Tab. 10 General Absolute Maximum Ratings

Recommended Operating Conditions

| Parameter | Symbol | min | nom | max | Unit |
|-----------------------------|--------|-----|-------|-----|------|
| supply voltage | VDC | 12 | 12/24 | 24 | VDC |
| operating temperature range | Ta | 0 | 25 | 40 | °C |

Tab. 11 General Recommended Operating Conditions

Maximum cable length

| Interface | Maximum Length | Comment |
|--------------------------|----------------|--|
| Power ¹ | <3m | CE conformal AC/DC power supply must be used |
| VGA ¹ | <3m | |
| DVI ¹ | <3m | |
| Displayport ¹ | <3m | |
| X1 ¹ | <2.7m | |
| USB ¹ | <2.7m | |

Tab. 12 Maximum cable length



To ensure proper operation of the device keep inside temperature below 70°C.

Operation at 70±0°C inside temperature is only possible during 240 consecutive hours.

Important Note



Maximum ambient temperature is highly dependent on mounting, air flow and usage conditions.

¹ Do not connect to lines directly leaving a building without additional safety measures

Electrical Characteristics

(over recommended operating range, unless otherwise noted)

| Parameter | Symbol | min | typ | max | Unit |
|--|--------|-----|-----|-----|------|
| general parameters | | | | | |
| Power Consumption TFT/PB101PU-N001E, Brightness 100% | Ptot | | 9.5 | 11 | W |
| Power Consumption TFT/PB101PU-N001E, Brightness 70% | Ptot | | 8 | 9 | W |
| Power Consumption TFT/PB101PU-N001E, Brightness 30% | Ptot | | 5.5 | 6.5 | W |

Tab. 13 General Electrical Characteristics

Switching Characteristics (nominal conditions)

| Parameter | Symbol | min | nom | max | |
|--|----------|-----|-----|-----|-----|
| video sample rate | f_s | | | 80 | MHz |
| horizontal sync. frequency | f_{HS} | 30 | | 60 | kHz |
| vertical sync. frequency | f_{VS} | 56 | | 75 | Hz |
| LCD inverter brightness PWM base clock | fpwm | | 200 | | Hz |

Tab. 14 General Switching Characteristics

4.2 EMI / EMC Specification

The PROTOUCH-WIDE MONITOR system fulfils the following standards:

Emission: EN55032 Class A

Immunity: EN55035 Class A



Important note

This is a Class A product and not intended to be used in domestic environment. The product may cause electromagnetic interference. Appropriate measures must be taken.



Important note

To fulfill class A of EN55032 and EN55024 a CE-conformal AC/DC power supply must be used. Cable length between power supply and device is limited to 3m.

4.3 Mechanical Data

4.3.1 TFT/HB101PU

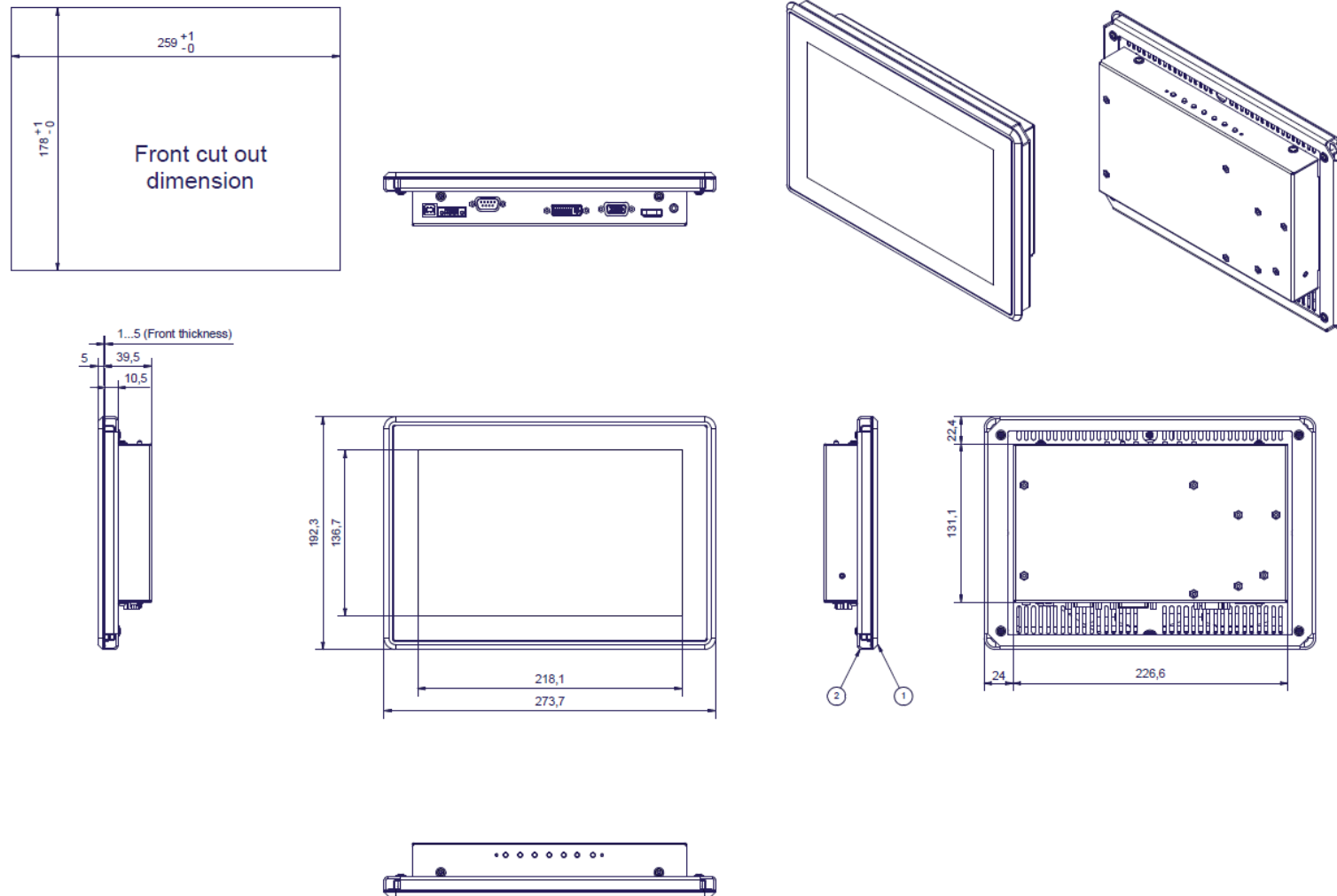


Fig. 11 TFT/HB101PU mechanical dimensions

5 Firmware

5.1 Software Structure

The monitor device is based on the following software structure:

Firmware

- Basic functions

Panel configuration

- Configuration depending on the built-in display

EDID

- Capabilities of the device for each display data port

5.2 Firmware Functions

Some functions as brightness and contrast can be configured by the user using the OSD (2.4.8 or the serial port (2.4.9

6 Product Revision History

6.1 Hardware

This paragraph lists the different hardware revisions of the PROTOUCH-WIDE MONITOR delivered beginning with the first production lot. Note that prototypes are not included and must be returned to factory for upgrade or replacement. All information listed in this document relies on definitive state hardware. Therefore, this information may be incompatible with the prototyping hardware.

Important Note



This document always covers the newest product revision listed in Tab. 15. Please contact the manufacturer's technical support for upgrade options.

| Board Identification (see product label) | Product Revision | Remarks |
|---|---------------------|---------|
| TFT/PB101PU-N001E | #1.0 | Series |
| TFT/PV101PU-N001E | #1.0 | Series |

Tab. 15 Hardware Revision State

6.2 Firmware

This paragraph lists the different firmware versions of the PROTOUCH-WIDE MONITOR systems delivered beginning with the first production lot. Note that prototyping boards are not included and must be returned to factory for upgrade or replacement. All information listed in this document relies on definitive state hardware. Therefore, this information may be incompatible with the prototyping board hardware.

| Device Identification (see product label) | Panel file | Remarks |
|---|--------------------------------|---------|
| TFT/PB101PU-N001E | TM1280800JVHG32-00_1280x800_V1 | |
| TFT/PV101PU-N001E | TM1280800JVHG32-00_1280x800_V1 | |

Tab. 16 Firmware Revision State

6.3 Errata

This paragraph lists some important errata of the current boards to enable workarounds in user software. Additional errata might be present, but a workaround is already implemented in the firmware.

Note that prototype board errata (boards with revision #0) are not listed here. Contact Syslogic technical support for prototype board information.



Important Note

This document always covers the latest product revision listed in Tab. 15
Please contact the manufacturers technical support for upgrade options.

7 Manufacturer Information

7.1 Contact

Our distributors and system integrators will gladly give you any information about our products and their use. If you want to contact the manufacturer directly, please send an email message containing a short description of your application and your request to the following address or use one of the information or technical support request forms on our internet homepage:

Syslogic Datentechnik AG
Taefernstrasse 28
CH-5405 Baden-Daettwil/Switzerland

e-mail: support@syslogic.com

Web: www.syslogic.com

T: +41 56 200 90 40

F: +41 56 200 90 50

7.2 Warranty

Our products are covered by a world-wide manufacturer's warranty. The warranty period starts at the delivery time from our official distributor to the customer. The duration of the warranty period is specified in the respective product catalogs and the offers. All products carry a date code and a job number for identification. The manufacturing data and deliveries are registered in a high-level Quality Management System.

The warranty covers material and manufacturing defects. All products must be returned via the official distributor to the factory for repair or replacement. The warranty expires immediately if the products are damaged by operation outside of the specified recommended operating conditions. The warranty also expires if the date code or job number listed on the product is altered or rendered unintelligible. The warranty does not include damage due to errors in firmware or software delivered with the products.

7.3 RMA Service

Syslogic offers a Return Material Authorization process to simplify handling of devices that needs to be returned to the manufacturer. Please follow the instructions on our web page: <https://www.syslogic.com> to get best service.