

Contents

1	Introduction	5
1.1	General Remarks	5
1.2	Explanation of Symbols	5
1.2.1	Danger warnings	5
1.2.2	Warnings indicate the following:	5
1.2.3	Information pictograms indicate the following:	6
1.3	Copyright note	6
1.4	Contents of this Documentation	6
1.5	Additional Products and Documents	6
1.5.1	Hardware Products	6
1.5.2	Software Products	6
1.5.3	Documents	6
1.6	Items delivered	7
1.6.1	Built-in version	7
1.7	Installation	7
1.8	Safety Recommendations and Warnings	7
1.8.1	General warnings	7
1.8.2	EMC	7
1.8.3	Electro Static Discharge	7
1.8.4	Battery	8
1.8.5	Hot surface	8
1.9	Life Cycle Information	8
1.9.1	Transportation and Storage	8
1.9.2	Assembly and Installation	8
1.9.3	Operation	8
1.9.4	Maintenance and Repair	8
1.9.5	Disposal	8
1.9.6	RoHS	9
1.9.7	WEEE	9
1.10	Warranty	9
2	Product Description	10
2.1	Introduction	10
2.1.1	Benefits of Syslogic's Projected capacitive touch panels	10
2.1.2	Intended use of Projected Capacitive Touch Panels	10
2.2	Device Variants	10
2.3	Accessories	11
2.4	Features	11
2.4.1	HB101PR8xxx-yyyy	11
2.4.2	Power supply	12
2.4.3	COM 1 (only on selected products)	12
2.4.4	COM 2 (only on selected products)	13
2.4.5	USB Interface	13
2.4.6	Ethernet LAN Interface	14
2.4.7	Frontside Status LEDs	14
2.5	Touch Screen	15
2.5.1	Basic functions of the touch screen	15
2.5.2	Cleaning the glas front	15
2.5.3	Cleaning the metal housing	15

2.6	Display brightness	15
2.6.1	Modifying display brightness using BIOS setup	15
2.7	Maintenance	17
2.7.1	Removing Service Cover	17
2.7.2	Replace Main Fuse	17
3	Installation and cabling	19
3.1	Introduction	19
3.2	Powering the PROTOUCH-WIDE-R system	19
3.3	Cabling the interfaces	20
3.3.1	Ethernet Cabling	20
3.4	Grounding	20
3.5	Cabling of communication links	21
4	Hardware Description	22
4.1	Mounting	22
4.1.1	TFT/HB101PR8xxx-yyyy	22
5	Technical Data	24
5.1	General Electrical Data (based on Compact8 IPC)	24
5.2	EMI / EMC Specification	26
5.3	Mechanical Data	27
5.3.1	HB101PU8xxx-yyyy	27
5.4	Use cases	28
6	Firmware	29
6.1	Software Structure	29
6.2	Firmware Functions	29
6.3	Application Programming Interface (API)	29
7	Product Revision History	30
7.1	Hardware	30
7.2	Firmware	30
7.3	Errata	31
8	Manufacturer Information	32
8.1	Contact	32
8.2	RMA Service	32

List of Tables

Tab. 1	Projected capacitive touch panel versions	10
Tab. 2	Projected capacitive touch panel accessories	11
Tab. 3	Power supply connector P1	12
Tab. 4	Serial Port COM1	12
Tab. 5	Serial Port COM2	13
Tab. 6	USB1/2 Interface Connector P20 (Dual Type A)	13
Tab. 7	Ethernet Twisted Pair Interface Connector P18 and P19 (M12 D)	14
Tab. 8	Frontside Status LEDs	14
Tab. 9	TFT/HB101PR8xxx-yyyy Mounting dimensions	22
Tab. 10	General Absolute Maximum Ratings	24
Tab. 11	General Recommended Operating Conditions	24
Tab. 12	Maximum cable length	25
Tab. 13	General Electrical Characteristics	25
Tab. 14	General Switching Characteristics	26
Tab. 15	HB101PR8xxx-yyyy dimensions	27
Tab. 16	Hardware Revision State	30
Tab. 17	Firmware Revision State	30

List of Figures

Fig. 1	HB101PR8xxx-yyyy	11
Fig. 2	M12 A-coded male pinout (front view)	12
Fig. 3	M12 D-coded female pinout (front view)	14
Fig. 4	Modify default value of backlight	16
Fig. 5	Remove rear case of TFT/HB101PR8xxx-yyyy device	18
Fig. 6	Additional grounding of the cable shields at the entry point of a cabinet	20
Fig. 8	Non-isolated communication link with common chassis potential	21
Fig. 9	Isolated communication link	21
Fig. 10	Required Cut out HB101PR8xxx-yyyy	22
Fig. 11	Screws to hold the mounting Frame	23
Fig. 12	Fully installed PROTOUCH-WIDE-R	23

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:

IBM-PC, PC/AT, PS/2	trademarks of IBM Corporation
SPI	trademark of Motorola
PC	trademark of Philips Corporation
WINbloc	trademark of Weidmüller Interface GmbH
CompactFlash	trademark of SanDisk 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.

Syslogic Datentechnik AG does not accept any liability for damages arising from the use of any incorrect or incomplete information contained in this documentation or any information missing.

All brand and product names are trademarks or registered trademarks of the owner concerned.

1.4 Contents of this Documentation

This document addresses to system integrators, programmers and instructed installation and maintenance personal working with the PROTOUCH-WIDE-R system. It provides all information needed to configure setup and program the product. For further information consult the documentation of the mounted Mainboard e.g. DOC/IPC_RSL8-E.

1.5 Additional Products and Documents

1.5.1 Hardware Products

The following hardware products are useful together with this documentation:

- IPC/RSL8 Documentation

1.5.2 Software Products

There are no additional software products except operating systems

1.5.3 Documents

For details regarding the integrated IPC see separate product documentation e.g. DOC/IPC_RSL8.

1.6 Items delivered

1.6.1 Built-in version

- 1x TFT/HB101PR8xxx-yyyy
- 1x Fixing Frame with M3x6 and M3x8 securing screws

1.7 Installation

The installation of the system is described in this documentation.

For details regarding the integrated IPC see separate product documentation e.g. DOC/IPC_RSL8

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 8.1). 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.

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



Maintenance of battery

Empty batteries may leak.

Check battery status flag and replace the battery to avoid loss of date (RTC) and damage to the product.



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.

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. The original packing contains an antistatic bag and shock-absorbing material. 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 products must be properly disposed. PROTOUCH products contain a multitude of elements and must be disposed like computer parts. Some of the PROTOUCH products contain batteries which should be properly disposed.

1.9.6 RoHS

The products of the PROTOUCH-WIDE 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 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.

1.10 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 or 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.

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 Panel Computer.

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 a rugged information, display and input device that is specially developed for operation in harsh environments 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 or pens/stylus. The touchscreen is self-calibrating.

Reliably during long and rugged 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
- PLC visualization
- General control and automation tasks
- Industrial use
- For medical technology
- 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 panels are available in the following versions:

Order code	Flat screen	Mounting type	Memory	CPU
TFT/HB101PR8G13-142E	10.1" WXGA	Flush mounting	2GB	Intel E3825 dual core 1.3GHz
TFT/HB101PR8H19-142E	10.1" WXGA	Flush mounting	4GB	Intel E3845 quad core 1.9GHz

Tab. 1 Projected capacitive touch panel 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

Tab. 2 Projected capacitive touch panel accessories

2.4 Features

For detailed information regarding the built-in IPC see DOC/IPC_RSL8

2.4.1 HB101PR8xxx-yyyy

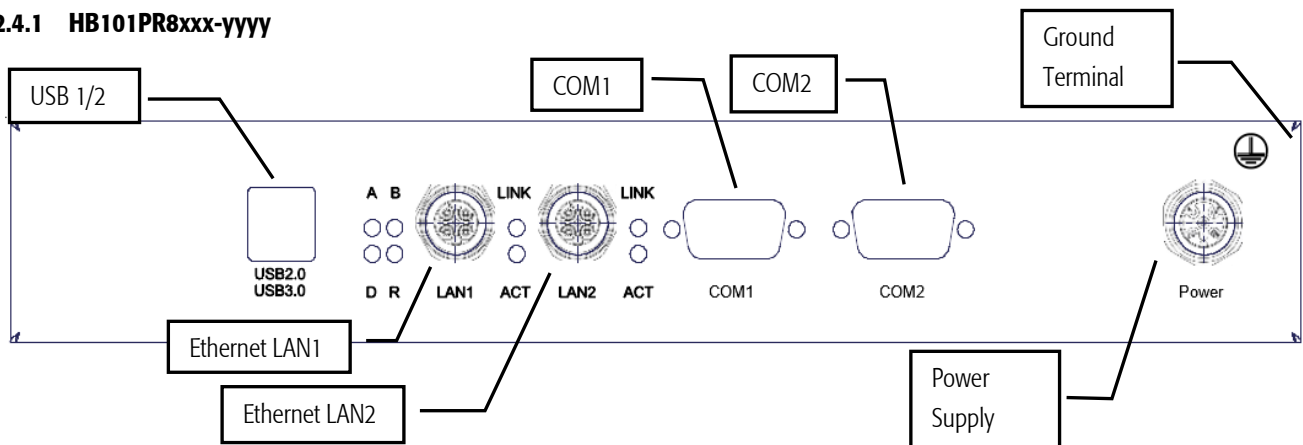


Fig. 1 HB101PR8xxx-yyyy

2.4.2 Power supply

The processor and its peripherals are powered by a non-isolated, integrated power supply which generates all internal voltages.

The main power must be supplied to a 4 pole A-coded male M12 connector

Mating connector type for power: any standard 4 pole A-coded female M12 connector with conformal electrical specification (voltage and current). Use AWG18/0.75mm² wires at minimum to comply with safety requirements and follow the connector manufacturers instruction guide.

Pin	Signal
1	GND
2	+24VDC
3	Power Fail/Remote on/off
4	24VDC_AUX

Tab. 3 Power supply connector P1

For normal operation the external power supply has to be connected to the pins 2 (+24VDC) and 1 (GND) of the power connector P1.

Pin 4 (+24VDC_AUX) is reserved, leave open.

Pin 3 is used as an input for either a power fail or remote on/off signal, it can be left open if function is not used

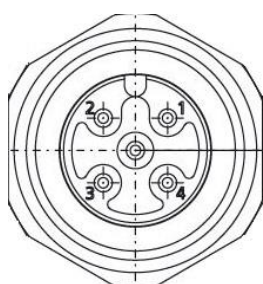


Fig. 2 M12 A-coded male pinout (front view)

Important Note



Input current may vary significantly during operation. Make sure wire diameter is designed properly to remain within the specified operating voltage range.

2.4.3 COM 1 (only on selected products)

Serial port 1 has standard RS232 signals on a standard DSUB-9 connector on the front (COM1).

Device Connection RS232

The Serial Port COM1 is available on DSUB-9

Pin Number	Signal	Pin Number	Signal
1	DCD*	6	DSR*
2	RXD	7	RTS*
3	TXD	8	CTS*
4	DTR*	9	RI*
5	GND		

Tab. 4 Serial Port COM1

2.4.4 COM 2 (only on selected products)

Serial port 2 is available with standard RS232 signals on a standard DSUB-9 connector on the front (COM2).

Device Connection RS232

The Serial Port COM2 is available on DSUB-9

Pin Number	Signal	Pin Number	Signal
1	DCD*	6	DSR*
2	RXD	7	RTS*
3	TXD	8	CTS*
4	DTR*	9	RI*
5	GND		

Tab. 5 Serial Port COM2

2.4.5 USB Interface

The PROTOUCH-WIDE-R features an OHCI/EHCI and a XHCI compatible USB host controller having assigned the base address and IRQ at boot time by the PCI-BIOS. Both ports support USB 2.0 devices and port 1 supports USB 3.0 devices with Superspeed.

Device Connection

The USB interface uses a standard A type double USB connector on the front for USB ports 1 and 2.

P20 bottom Pin Number	USB port 1 Signal	P20 top Pin Number	USB port 2 Signal
1	VBUS	1	VBUS
2	D-	2	D-
3	D+	3	D+
4	GND	4	GND
5	SSRX-	5	-
6	SSRX+	6	-
7	SSGND	7	-
8	SSTX-	8	-
9	SSTX+	9	-

Tab. 6 USB1/2 Interface Connector P20 (Dual Type A)

Important Note



Maximum cable length allowed for USB 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 USB devices with sufficient EMI compatibility. Use shielded cables for maximum EMI protection. Drawing excessively power might disturb operation.

2.4.6 Ethernet LAN Interface

The PROTOUCH-WIDE-R features up to two PCI Ethernet controllers having assigned the base address and IRQ at boot time by the BIOS. The Ethernet interface drives two LED's (yellow and green) beside the LAN connector for status information. The meaning of the LED activity is programmable (normally set by the low-level driver).

LAN1 and LAN2 feature Intel I210 Ethernet controllers supporting 10/100Mb/s. Both interfaces support Auto Negotiation and Auto MDIX functions. Check manufacturer's datasheets for detailed information.

No configuration options are available for the Ethernet device.

Device Connection

The Ethernet interfaces use the standard D-coded M12 CAT5 connector LAN1 and LAN2 on the front for 100Ω shielded Twisted Pair cabling.

Mating connector type for LAN1, LAN2: any standard D-coded male M12 CAT5 conformal connector.

Pin Number	Signal	Remarks
1	TX+	
2	RX+	
3	TX-	
4	RX-	

Tab. 7 Ethernet Twisted Pair Interface Connector P18 and P19 (M12 D)

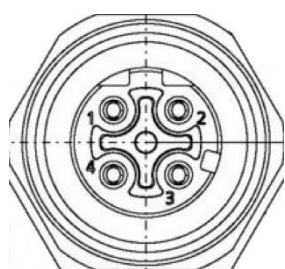


Fig. 3 M12 D-coded female pinout (front view)



Important Note

Do not apply any supply voltage to this port.

2.4.7 Frontside Status LEDs

The four colored LEDs on the front side show the following states:

Label	LED	Signal	Remarks
B	Red	STOP signal	For programming see DOC/IPC_RSL8
R	Green	Board ready	For programming see DOC/IPC_RSL8
A	Green	Aux LED	For programming see DOC/IPC_RSL8
D	Yellow	Disk activity	SATA/CFast only

Tab. 8 Frontside Status LEDs

The LEDs beside the LAN connectors show status information of the corresponding LAN interface which is dependent on the driver used.

2.5 Touch Screen

The devices use an Ilitek Ili2511 chipset.

2.5.1 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.

2.5.2 Cleaning the glas front

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

2.5.3 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!

2.6 Display brightness

Display brightness can be manipulated either in the BIOS setup or using the driver interfaces in the operating system.

Defining the default display brightness in BIOS has the advantage that the brightness is defined already at start-up and boot sequence. If change of the brightness is required after start-up it is required to use the boot driver interface. For further details on manipulating display brightness refer to the manual of the operating system.

If required display brightness may be manipulated by I/O Register access. Please contact manufacturer's sales for details.

2.6.1 Modifying display brightness using BIOS setup

To modify the brightness in BIOS Setup utility follow this procedure:

1. Start up the device while pressing [del]-key
2. As the BIOS Setup Utility shows up press left to select menu "Advanced" then down to select option "Graphics"
3. In the Advanced/Graphics menu select Backlight settings and enter desired value
4. Press [F10] key and confirm to save changings to quit

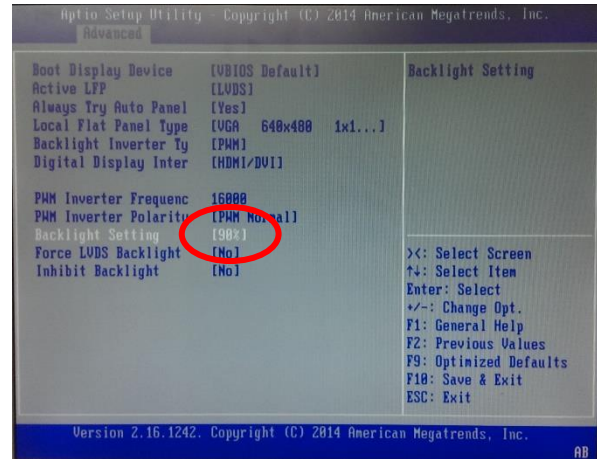
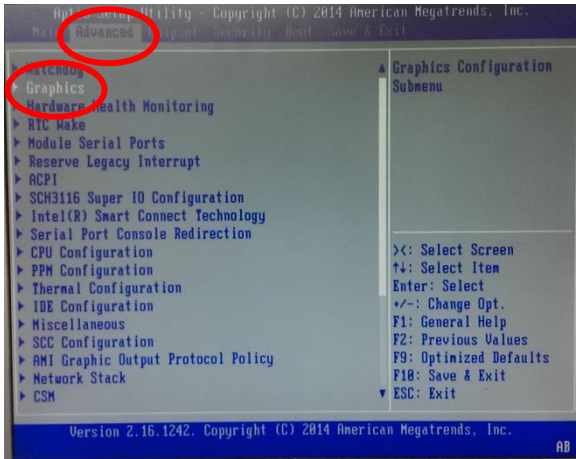


Fig. 4 Modify default value of backlight

2.7 Maintenance

To replace the battery or the C-Fast Data storage it is required to remove the service cover.



Maintenance of battery

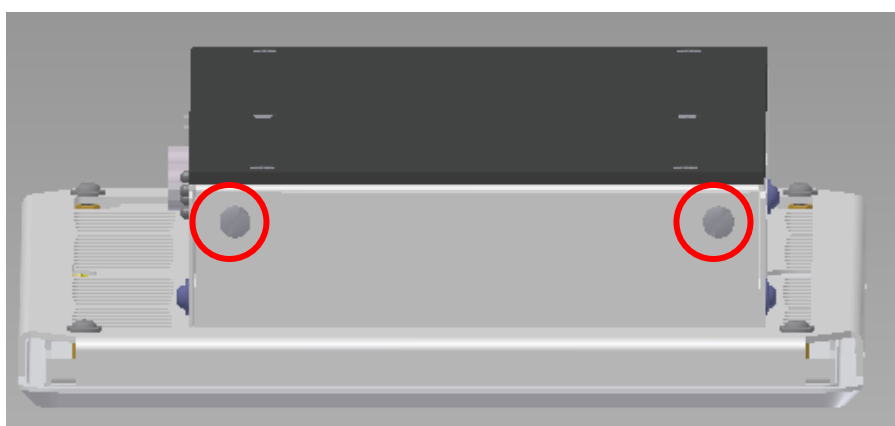
Empty batteries may leak.

Check battery status flag and replace the battery to avoid loss of date (RTC) and damage to the product.

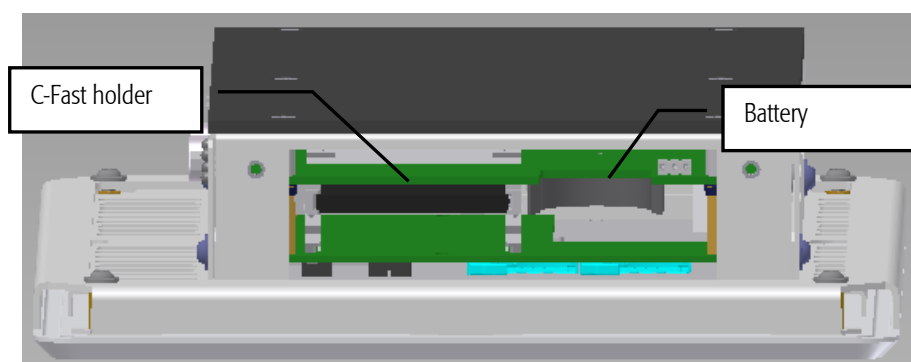
2.7.1 Removing Service Cover

TFT/HB101PR8xxx-yyy

1. Disconnect device from power.
2. Remove the two knurled screws highlighted and remove the cover.



3. After removing the cover the C-Fast and the battery slot are accessible.



4. Please install the Service Cover before operating the Projected capacitive touch panel.

2.7.2 Replace Main Fuse

In the rare case of over-voltage, the main fuse may be blown.

The onboard fuse prevents the destruction of the product in cause of a malfunction. The fuse must be replaced by an instructed person/technician and in an ESD protected environment. The main fuse is located next to the power connector on the PCB. Required spare part: Littlefuse Nano² Slow-Blow 4A order code 0452004.MRL.

Please note that in the code above the package code for tape and reel and quantity 1000pcs is included.

1. Make sure that the device is not connected to a power supply!
2. Remove Torx screws with a T10 screwdriver around the rear case of the device

TFT/HB101PR8xxx-yyyy

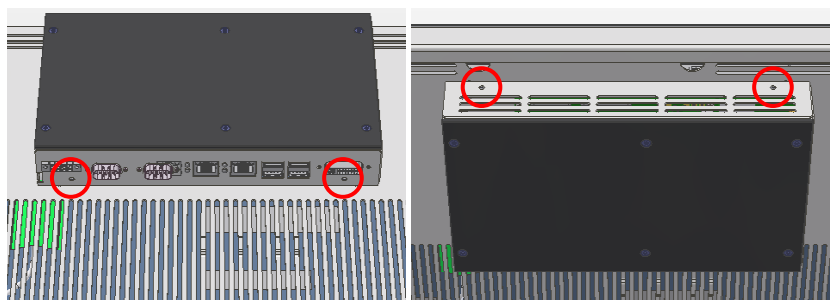


Fig. 5 Remove rear case of TFT/HB101PR8xxx-yyyy device

3. Carefully remove rear case (pay attention not to disconnect the cables).
4. The fuse is located right behind the power connector. Carefully remove the fuse with a pair of tweezers or needle-nosed pliers and replace with a new fuse.

3 Installation and cabling

3.1 Introduction

Installation and cabling of the PROTOUCH-WIDE-R 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. To meet the requirements of "CE"-certification all cables have to be shielded. The enclosure has to be connected to ground via the mounting kit.



Important Note

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

3.2 Powering the PROTOUCH-WIDE-R system

The "logic supply voltage", i.e. the power driving the electronic circuits (CPU and base board) is internally generated from the power supply input.

The power supply has to be connected according to paragraph 2.4.2 . If the cable is directly connected to a line outside the building, special overvoltage and filtering elements have to be installed to comply with the requirements of EMI/RFI "CE"-certification. Use AWG18/0.75mm² wires at minimum to comply with the safety requirements and follow the connector manufacturers instruction guide.

When selecting the external power supply the maximum power dissipation of the system has to be considered.



Important Note

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 fulfill the requirements for EMI/RFI "CE"-certification.



Warning

The device requires a current limited power supply. Use a 4AT fuse or a power supply that does not exceed 4A max.

3.3 Cabling the interfaces

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

3.3.1 Ethernet Cabling

Warning



If it cannot be assured that the Ethernet LAN cabling does not get in contact with non-SELV telecommunications or other high voltage cabling or equipment, an external isolation adapter (Phoenix Contact FL ISOLATOR 100-M12, order number 2902985, or similar product) must be inserted between this systems LAN port and the non-SELV telecommunications or other high voltage cabling or equipment. This is mandatory to fulfill the requirements of the safety standards.

3.4 Grounding

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. 6. 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 cables 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.

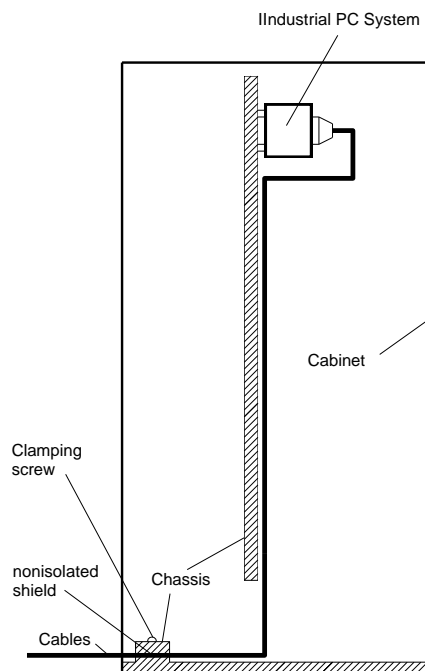


Fig. 6 Additional grounding of the cable shields at the entry point of a cabinet

3.5 Cabling of communication links

If the communication ports are unisolated 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. 8 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. Fehler! Verweisquelle konnte nicht gefunden werden. Fig. 9 shows an isolated system with independent grounds.

Important Note



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

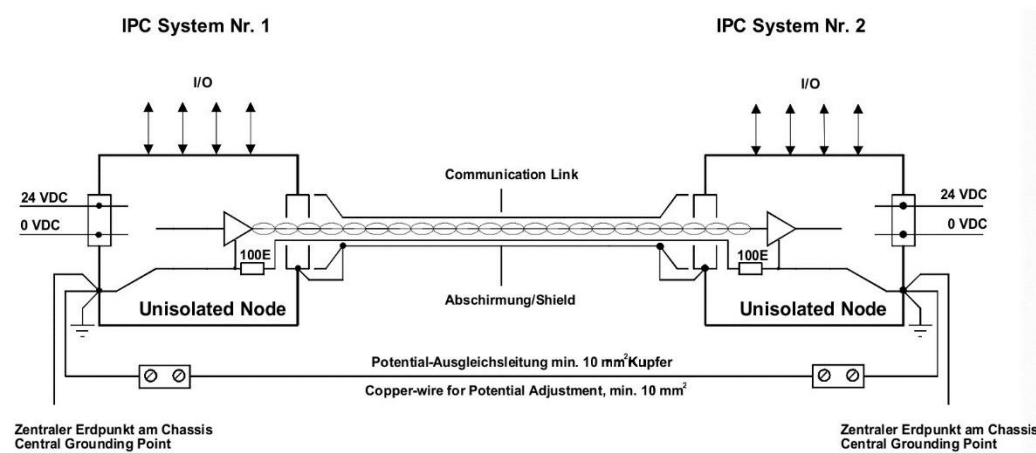


Fig. 7 Non-isolated communication link with common chassis potential

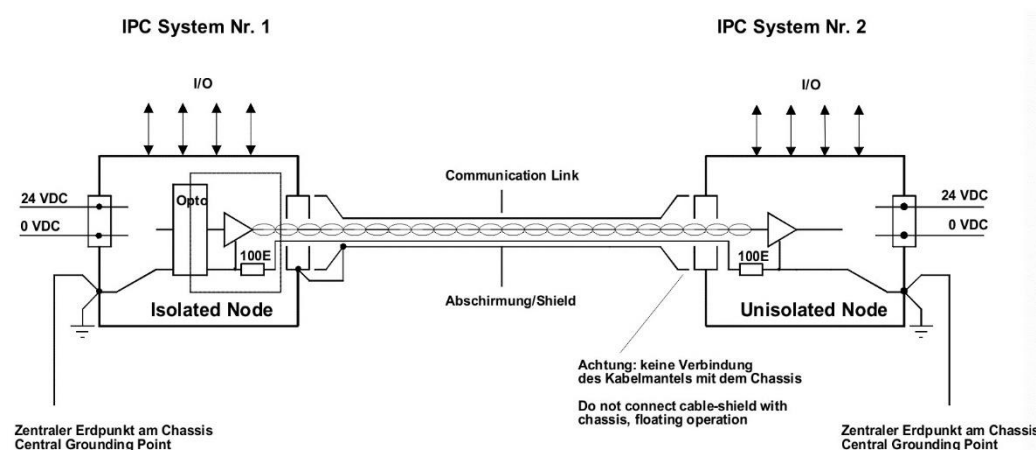


Fig. 8 Isolated communication link

4 Hardware Description

4.1 Mounting

4.1.1 TFT/HB101PR8xxx-yyyy

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/HB101PR8xxx-yyyy	259 ^{-0/+1}	178 ^{-0/+1}	max. 3	1 to 5

Tab. 9 TFT/HB101PR8xxx-yyyy Mounting dimensions

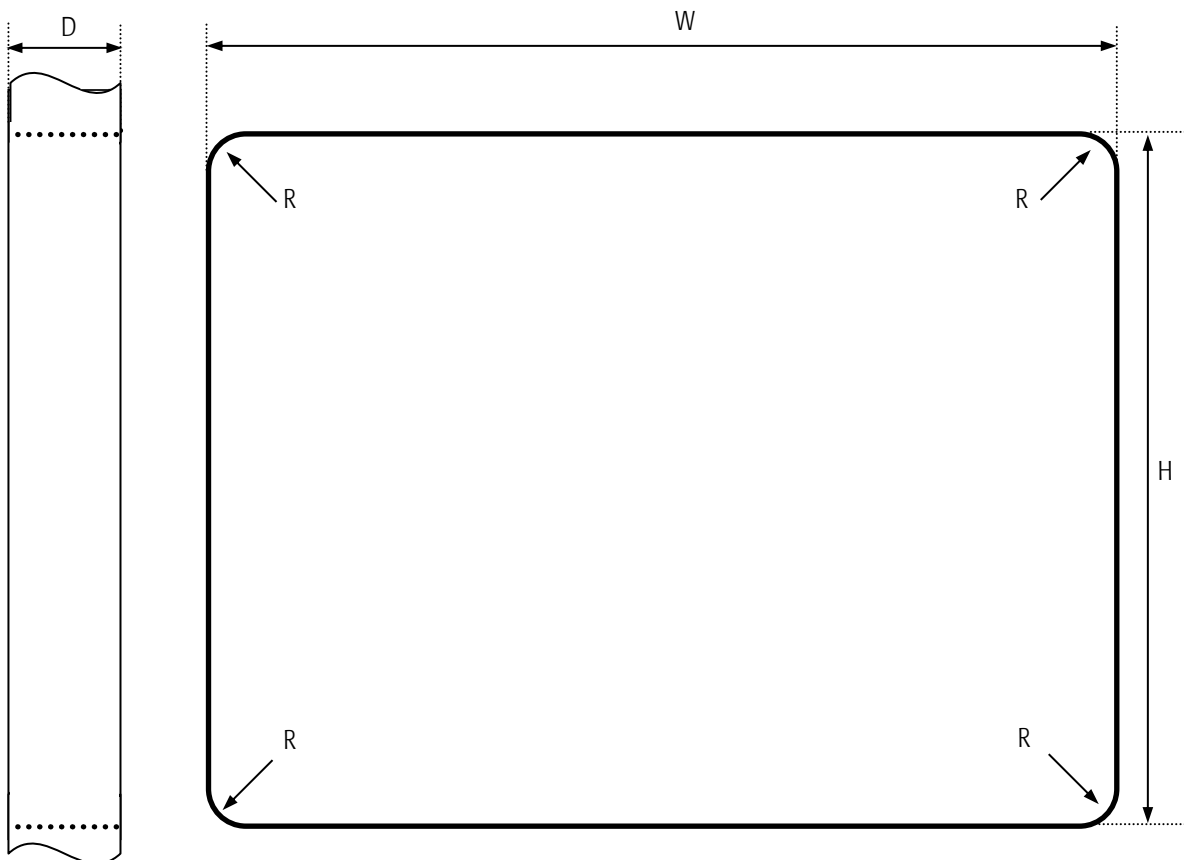


Fig. 9 Required Cut out HB101PR8xxx-yyyy



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.

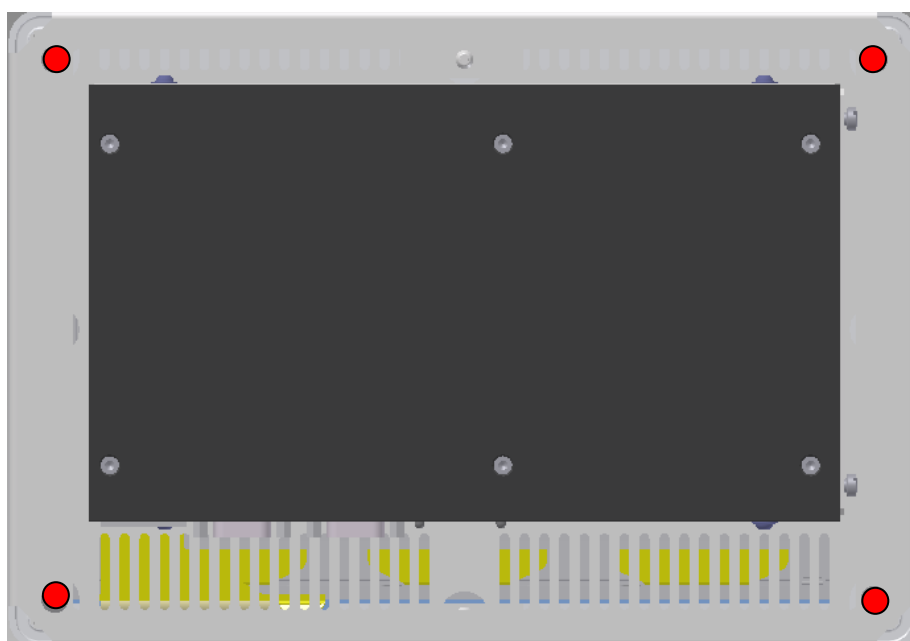


Fig. 10 Screws to hold the mounting Frame

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.

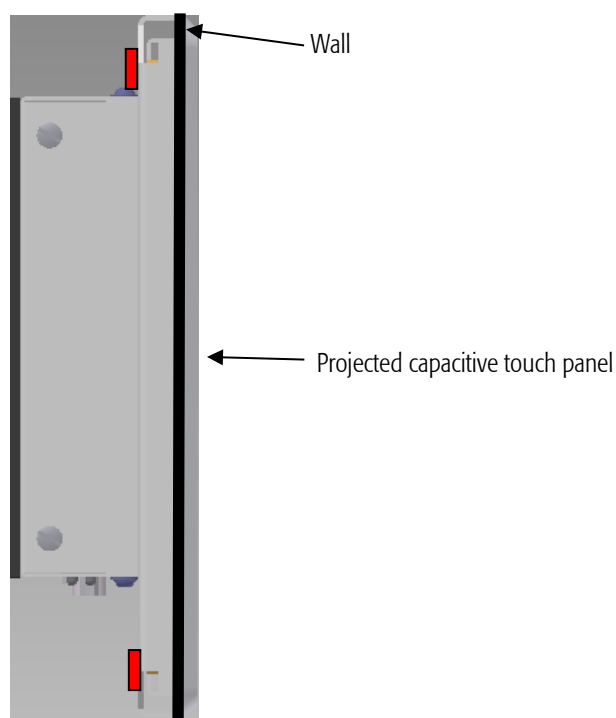


Fig. 11 Fully installed PROTOUCH-WIDE-R

5 Technical Data

5.1 General Electrical Data (based on Compact8 IPC)

Important Note



Do not operate the PROTOUCH-WIDE-R 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
general parameters					
power supply voltage	Vcc	-0.5		30	Vdc
isolations					
power supply to chassis (AC, 60s, 500m a.s.l., Ta=25°C) ⁽¹⁾		500			Vrms
power supply to logic (AC, 60s, 500m a.s.l., Ta=25°C) ⁽¹⁾		500			Vrms
isolation Ethernet to chassis (AC, 60s, 500m a.s.l., Ta=25°C) ⁽¹⁾		500			Vrms
isolation Ethernet to logic (AC, 60s, 500m a.s.l., Ta=25°C) ⁽¹⁾		500			Vrms
creepage distances:					
power supply to chassis/logic ¹		1.0			mm
temperature range					
storage temperature range	Tst	-30		80	°C

Tab. 10 General Absolute Maximum Ratings

Recommended Operating Conditions

Parameter	Symbol	min	nom	max	
internal logic supply voltage	Vcc	10	12/24	30	Vdc
Battery backup voltage	Vbatt	2.7	3.0	3.3	V
operating temperature range	Ta	-30 ²		65 ³	°C
Operating humidity (not condensing)	Rh	8		90	%
USB 2.0 Supply Current	Iusb2			500	mA
USB 3.0 Supply Current	Iusb3			1000	mA

Tab. 11 General Recommended Operating Conditions

¹ chassis and logic ground are connected

² Cold start up: -20°C

³ depending on specific use case; see 5.4

Maximum cable length

Interface	Maximum Length	Comment
RS232 ⁴	<30m	
USB 2.0 ⁴	<3m	
USB 3.0 ⁴	<3m	
Ethernet ⁴	<100m	

Tab. 12 Maximum cable length

Electrical Characteristics

(over recommended operating range, unless otherwise noted)

Parameter	Symbol	min	typ	max	Unit
general parameters					
Power Consumption TFT/HB101PR8G13-yyy ⁵ , Brightness 100%	Ptot		15		W
Power Consumption TFT/HB101PR8G13-yyy ⁶ , Brightness 70%	Ptot		13		W
Power Consumption TFT/HB101PR8G13-yyy ⁷ , Brightness 30%	Ptot		10		W
Power Consumption TFT/HB101PR8H19-yyy ⁸ , Brightness 100%	Ptot		20		W
Power Consumption TFT/HB101PR8H19-yyy ⁹ , Brightness 70%	Ptot		18		W
Power Consumption TFT/HB101PR8H19-yyy ¹⁰ , Brightness 30%	Ptot		15		W
power fail / remote on/off					
inactive state	PFhigh	10		Vcc	V
active state	PFlow	-0.5		1.5	V
RTC backup battery					
Vbatt loading (Vcc=off)	Ibat(off)		4	5	uA
Vbatt loading (Vcc=on)	Ibat(on)		2	4	uA
Backup time with new CR2450N battery (Ta=25°C)	t(rtcbup)	6	7		years
Backup time with new CR2450N battery (Ta=50°C)	t(rtcbup)	3	3.5		years
Backup time with new CR2477N battery (Ta=25°C)	t(rtcbup)	8	9		years
Backup time with new CR2477N battery (Ta=50°C)	t(rtcbup)	3.5	4		years
LOWBAT* trip point		2.35	2.5	2.65	V
VRT trip point (RTC Valid RAM and Time Flag)			1.3		V

Tab. 13 General Electrical Characteristics

⁴ Do not connect to lines directly leaving a building without additional safety measures

⁵ 2 x ETH, 50%Cpu load, 100% Backlight, ~850cd/m²

⁶ 2 x ETH, 50%Cpu load, 70% Backlight, ~600cd/m²

⁷ 2 x ETH, 50%Cpu load, 30% Backlight, ~250cd/m²

⁸ 2 x ETH, 50%Cpu load, 100% Backlight, ~850cd/m²

⁹ 2 x ETH, 50%Cpu load, 70% Backlight, ~600cd/m²

¹⁰ 2 x ETH, 50%Cpu load, 30% Backlight, ~250cd/m²

Switching Characteristics (nominal conditions)

Parameter	Symbol	min	nom	max	
processor clock (TFT/HB101PR8G13-yyyy)	fcpu		1.33		GHz
processor clock (TFT/HB101PR8H19-yyyy)	fcpu		1.91		GHz
Watchdog timeout (short period)	Tw	70	100	140	ms
Watchdog timeout (long period)	Tw	0.7	1	1.3	s
Timer base clock	ftimer		1.19318		MHz
Timer base clock accuracy				+/-100	ppm
Timer base clock aging				+/-5	ppm/year
Real Time Clock base clock	frtc		32.768		kHz
Real Time Clock accuracy (25°C)				+/-20	ppm
Real Time Clock temperature coefficient				-0.04	ppm/(°C) ²
Real Time Clock aging				+/-3	ppm/year
LCD inverter brightness PWM base clock	fpwm		200		Hz

Tab. 14 General Switching Characteristics

5.2 EMI / EMC Specification

The PROTOUCH-WIDE-R system fulfills the following standards:

Emission: EN55032 / CISPR 32 Class A

Immunity: EN55035 / CISPR 35 Class A

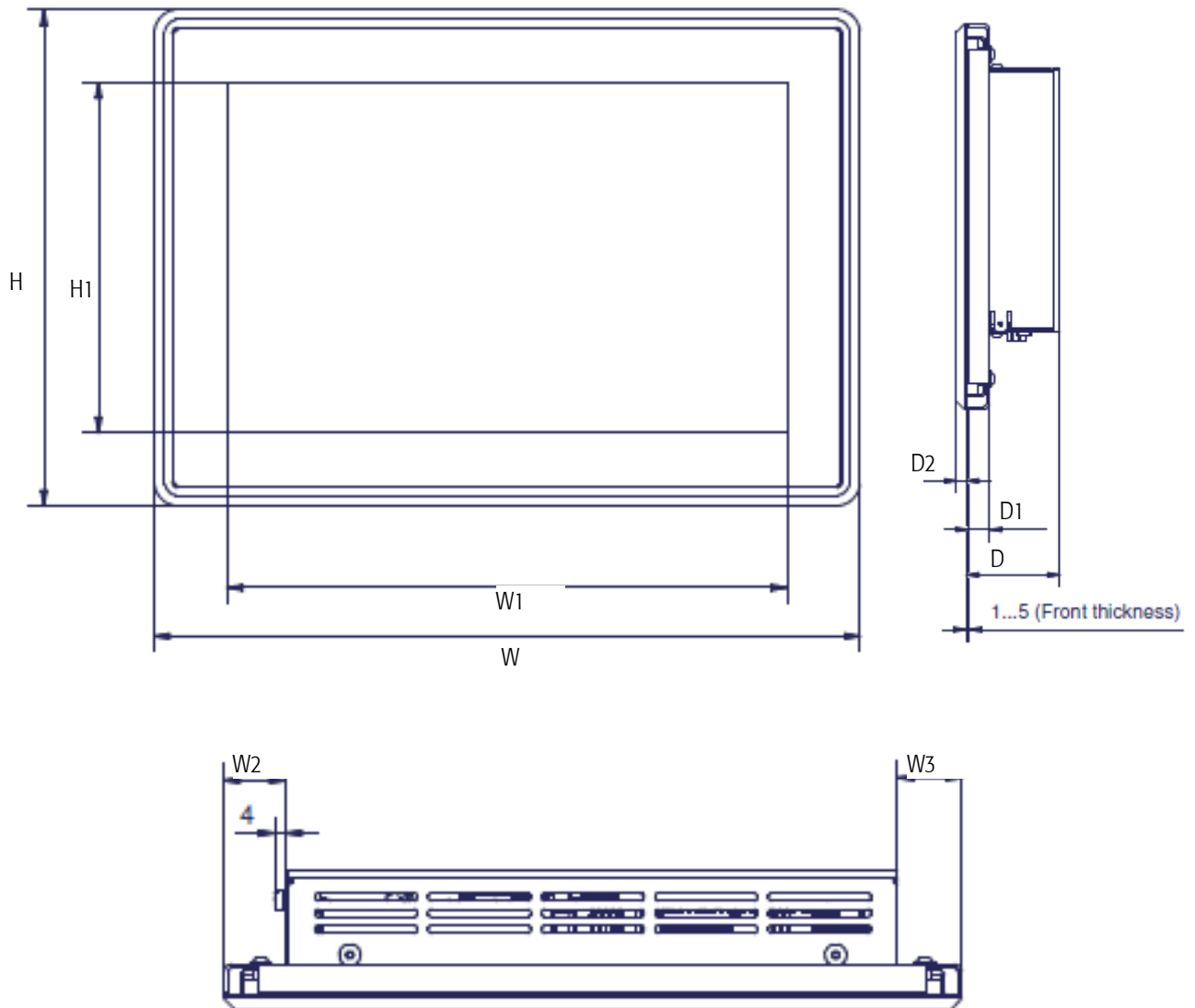


Important Note

The PROTOUCH-WIDE-R system is a class A system for industrial applications. It is not indented for use in residential or home applications.

5.3 Mechanical Data

5.3.1 HB101PU8xxx-yyyy



Device	W [mm]	W1 [mm]	W2 [mm]	W3 [mm]	H [mm]	H1[mm]	D[mm]	D1 [mm]	D2 [mm]
TFT/HB101PR8xxx-yyyy	273.7	216.96	23	24	192.3	135.6	51.5	10.5	5

Tab. 15 HB101PR8xxx-yyyy dimensions

5.4 Use cases

To give an idea on how to operate the device in good condition several use cases have been defined to help system integrators choose the best way on how to install the PROTOUCH-WIDE-R

Mounting position	CPU load	GPU load	Backlight dimming	Display on-time	Airflow through device	max. ambient temperature
90°	30%	20%	100% (~850cd/m ²)	all the time	1m/s	55°C
90°	30%	20%	50% (~425cd/m ²)	all the time	1m/s	58°C
90°	30%	20%	100% (~850cd/m ²)	all the time	2.5m/s	60°C
90°	30%	20%	50% (~425cd/m ²)	all the time	2.5m/s	65°C
90°	30%	20%	20% (~170cd/m ²)	5min on/10min off	none	60°C



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

Operation at $70 \pm 0.5^\circ\text{C}$ inside temperature is only possible during 240 consecutive hours.

For this the temperature sensor on the RSL8 board can be used; see board documentation for details

6 Firmware

6.1 Software Structure

The x86 CPU board based PC/104 system is based on the following software structure:

BIOS (Basic Input/Output System)

- Power On Self Test (POST)
 - Initialization of standard peripheral devices
 - Boot procedure for the Operating System
- Note :** Refer to the BIOS documentation for detailed information

OS (Operating System)

- Initialization of additional peripheral devices
 - Start procedure for the Application Programs
- Note :** Refer to the OS documentation for detailed information

Application Programs

- Initialization of RSL8 system, communications and external devices
 - Start procedure for the Control Tasks
- Note :** Refer to the Application Programs documentation for detailed information

6.2 Firmware Functions

The RSL8 board is setup with BIOS firmware. Some standard PC/AT peripheral devices (e.g. Keyboard/Mouse, Serial Ports, SATA interface) are directly supported by the BIOS, BIOS extensions and Operating Systems. Some peripheral devices (e.g. Ethernet) are directly supported by standard communication software (e.g. TCP/IP stacks, TCP packet drivers) others need special programming according to the freely available sample software (e.g. Watchdog). Please refer to the appropriate documentation for detailed information.

6.3 Application Programming Interface (API)

The RSL8 system does not contain any special API beside the installed BIOS. Refer to the BIOS and Operating System documentation for API specifications.

7 Product Revision History

7.1 Hardware

This paragraph lists the different hardware revisions of the PROTOUCH-WIDE-R 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. 16. Please contact the manufacturer's technical support for upgrade options.

Board Identification (see product label)	Product Revision	Remarks
TFT/HB101PR8G13-N142E	#1.0	
TFT/HB101PR8H19-N142E	#1.0	

Tab. 16 Hardware Revision State

7.2 Firmware

This paragraph lists the different firmware versions of the PROTOUCH-WIDE-R 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.

Board Identification (see product label)	BIOS Version	Build Date	Remarks
TFT/HB101PR8G13-N142E #1.0	L1R021BA	09.03.2018	
TFT/HB101PR8H19-N142E #1.0	L2R021BA	09.03.2018	

Tab. 17 Firmware Revision State

7.3 Errata

This paragraph lists some important errata of the current RSL8 boards to enable workarounds in user software. Additional errata might be present, but a workaround is already implemented in the BIOS. It is important therefore that neither the application software nor the operating systems reprograms the processor chipset's configuration registers.

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

Additional errata of the processor chipset can be found at:

<https://www.intel.com/content/dam/www/public/us/en/documents/specification-updates/atom-e3800-family-spec-update.pdf>

IOCHCK#/Watchdog-NMI bug (not working)	
Problem	When Watchdog is configured to activate an NMI or signal IOCHCK# on PC/104 interface is activated, the NMI service routine is not called.
Implication	IOCHCK#/Watchdog-NMI not usable.
Workaround	none.
Correction	This bug might be a BIOS problem and will be corrected in a future BIOS release.
SDCard Interface bug (not working with some SDCard types)	
Problem	The Intel processor chipset contains several issues in SD and SDIO Hostcontroller which can disturb normal operation of the SDCard interface.
Implication	Some SDCard types will not work reliable.
Workaround	Some of the issues have already been solved by a BIOS workaround, some are dependent on OS drivers and some are not fixable. Check with Syslogic for a list of working SDCard types.
Correction	Some of the issues might be solved by new BIOS and/or OS driver releases, but some are not fixable.
Squealing sound	
Problem	Problem with the PWM dimming of the display
Implication	At some brightness levels a squealing sound might occur
Workaround	Change brightness
Correction	Solved in revision 1.0



Important Note

This document always covers the latest product revision listed in Tab. 16
 Please contact the manufacturers technical support for upgrade options.

8 Manufacturer Information

8.1 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

8.2 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.