

TFT/HBxxxPU8xyy-zzzz
TFT/HVxxxPU8yyy-zzzz

Document Ordercode: DOC/PROTOUCH_8-E

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1.0	20.02.2015	F. Liechti	Initial Release
1.1	21.05.2015	F. Liechti	Notes on batteries added.
1.2	02.12.2015	F. Liechti	Details on Power consumption and operating temperature added.

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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
I ² C	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.

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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-8 system. It provides all information needed to configure setup and program the product. For further information consult the documentation of the mounted Mainboard DOC/IPC_SL8-E.

1.5 Additional Products and Documents

1.5.1 Hardware Products

The following hardware products are useful together with this documentation:

- IPC/COMPACT-8 Documentation DOC/IPC_SL8-E

1.5.2 Software Products

There are no additional software products except operating systems:

- Operating Systems: check chapter 5.4 for a list of supported implementations.

1.5.3 Documents

For details regarding the integrated IPC see separate product documentation DOC/IPC_SL8-E.

1.6 Items delivered

1.1.1. Built-in version

- 1x TFT/HBxxxPU8yyy-zZZZ
- 1x Fixing Frame with M4x10 securing screws
- 1x Power supply connector Weidmüller BCZ 3.81/04/180F SN SW (1792970000)

1.1.2. VESA mount version

- 1x TFT/HVxxxPU8yyy-zZZZ
- 1x Power supply connector Weidmüller BCZ 3.81/04/180F SN SW (1792970000)
- 4x M4x8 securing screws for VESA100 mounting

1.7 Installation

The installation of the system is described in this documentation.

For details regarding the integrated IPC see separate product documentation DOC/IPC_SL8-E.

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 6.2). 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 are defined, developed and tested by the customer or a system-integrator for each specific application. Refer to the respective documentation for more information.

1.1.3. 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).

1.9.4 Disposal

At the end of the lifespan the FBCube products must be properly disposed. FBCube products contain a multitude of elements and must be disposed like computer parts. Some of the FBCube products contain batteries which should be properly disposed.

1.9.5 RoHS

The product of the PROTOUCH-8 family are designed and produced according to the Restriction of Hazardous Substances (RoHS) Directive (2002/95/EC).

1.9.6 WEEE

The products of the PROTOUCH-8 family are not designed ready for operation for the end-user and are not intended for consumer applications. Therefore the Waste Electrical and Electronic Equipment (WEEE) Directive (2002/96/EC) is not applicable. But users should still dispose the product properly at the end of life.

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 of 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

1.2. Introduction

1.2.1. 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.

The product is available in different screen sizes.

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

A Robust touch screen technology is used.

The product is a rugged information, display and input device that are 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 gloves or pens/stylus. Calibration of the touch screen can be easily made with the Touch driver software described in chapter 1.5.

Reliably during long and rugged periods of use and requires little care and maintenance.

The Product is available for long term.

1.2.2. 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.

1.3. Device Variants

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

Order code	Flat screen	Mounting type	Memory	CPU
TFT/HB104PU8H19-xxxxE	10.4" XGA	Flush mounting	4GB	Intel E3845 quad core 1.9GHz
TFT/HB121PU8H19-xxxxE	12.1" XGA	Flush mounting	4GB	Intel E3845 quad core 1.9GHz
TFT/HB150PU8H19-xxxxE	15.0" XGA	Flush mounting	4GB	Intel E3845 quad core 1.9GHz
TFT/HV104PU8H19-xxxxE	10.4" XGA	VESA mounting	4GB	Intel E3845 quad core 1.9GHz
TFT/HV121PU8H19-xxxxE	12.1" XGA	VESA mounting	4GB	Intel E3845 quad core 1.9GHz
TFT/HV150PU8H19-xxxxE	15.0" XGA	VESA mounting	4GB	Intel E3845 quad core 1.9GHz

Tab. 1 Projected capacitive touch panel versions

1.4. Accessories

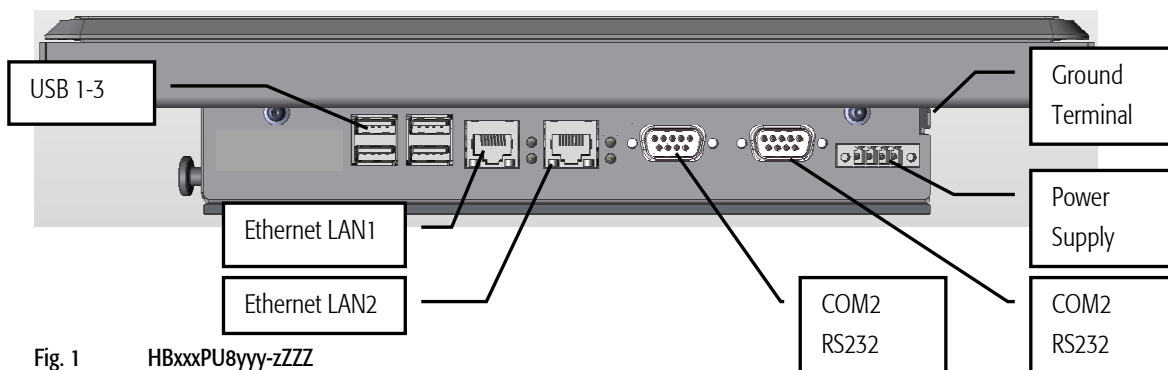
The following accessories are not necessarily supplied with the device. These parts could be ordered additionally or downloaded under www.syslogic.com:

Accessories		
Order code	Type designation	Description
TouchDriver	Touch driver software	Touch driver software for Windows 9x / Me / 2000 / XP / 7 / Embedded

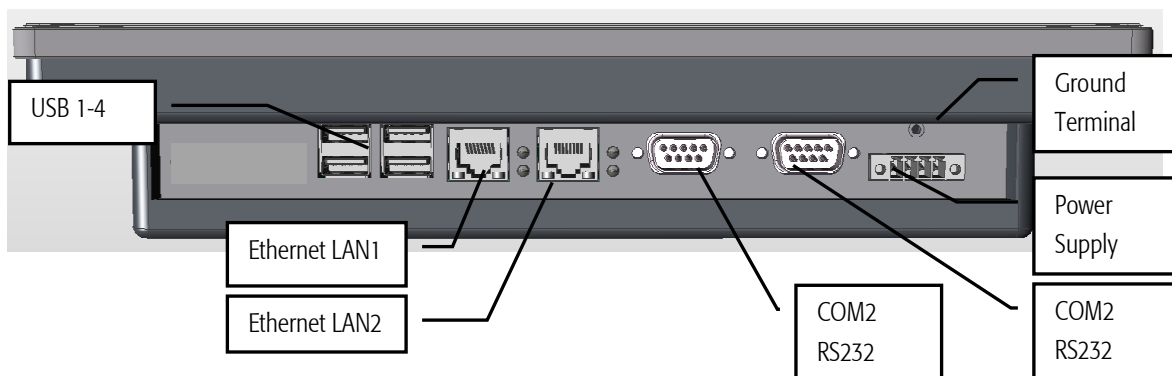
Tab. 2 Projected capacitive touch panel accessories

2.1 Features

1.4.1. HBxxxPU8yyy-zZZZ



1.4.2. HVxxxPU8yyy-zZZZ



1.4.3. Power supply

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



Power Supply requirements:

- The power supply used must fulfil surge protections 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	+24VDC_AUX	VAUX	Additional, permanent power supply
2	Fail/Remote on/off	PF	Power fail input
3	+24VDC	VDC	+10V..+30V
4	GND	GND	GND (/shield)



Tab. 3 Power supply connector P1 (1x4 pin)

For normal operation the external power supply has to be connected to the pins 3 (+24VDC) and 4 (GND) of the connector P1. Pin 1 (+24VDC_AUX) is used to extend battery life time if the device main power is disabled. Pin 2 is used as an input for either a power fail on remote on/off signal.

1.4.4. System Interfaces

For details regarding the integrated IPC interfaces see separate product documentation DOC/COMPACT8-SL-E.

1.4.5. System Interfaces

For details regarding the integrated IPC interfaces see separate product documentation DOC/COMPACT8-SL-E.

1.5. Touch Screen

All devices use a DMC Touch Sensor with an EETI chipset. If the native operating system does not provide required features, install EETI eGalax Touch driver.

1.5.1. 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, 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. Which means you can operate the touch screen with more than one finger for drawing or selecting.



The calibration should be carried out with a touch stylus in order to ensure the optimum functioning of the touch screen.

1.5.2. Using On Screen Keyboard (OSK) with Windows7

When using the On Screen Keyboard (OSK) for Tablet Computer TabTip.exe under Windows 7 you need to use the original Windows7 driver that is automatically installed instead of the separate touch driver provided by Syslogic to allow TabTip.exe to work properly.

If you use TabTip.exe in Windows7 instead of OSK.exe you will benefit from some comfort features like automatic activation of the OnScreenKeyboard when you activate a text input field.

Note:

If you need to use the special features provided by separate touch driver provides you can use OSK.exe instead of TabTip.exe. But the automatic activation of the On Screen Keyboard when you activate a text input field will not work.

1.5.3. Touch screen calibration using Windows 7 touch driver

To calibrate the touch using the Windows7 with the Windows touch driver execute the following steps:

1. Tap the Start button, Control Panel and then Hardware and Sound.
2. Select Tablet PC Settings, then Calibrate the screen for pen or touch input.
3. On the Display tab select Calibrate located in the section Display Options. Follow the on-screen instructions to calibrate the touch screen.

1.5.4. Cleaning the glass front

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



Even the touch controller is optimized to detect cleaning it may happen that input are generated. Prevent unwanted and potentially dangerous actions while the front is being cleaned.

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

1.5.5. 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!

2.2 Display brightness

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

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. If required contact manufacturer's sales.

2.2.1 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 changes to quit

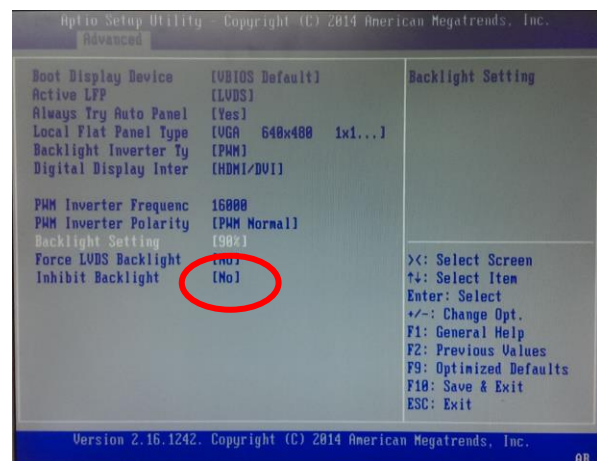
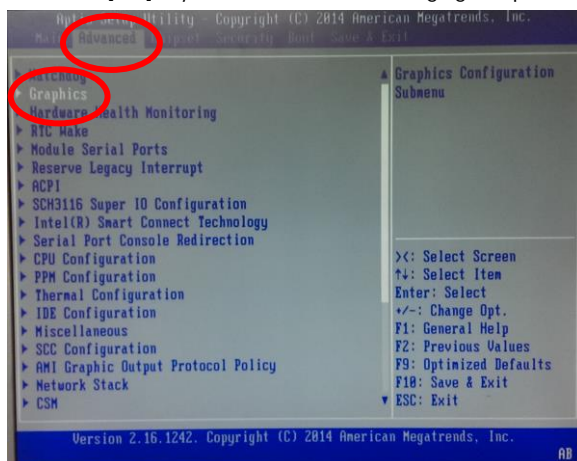


Fig. 3 Modify default value of backlight

2.3 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.

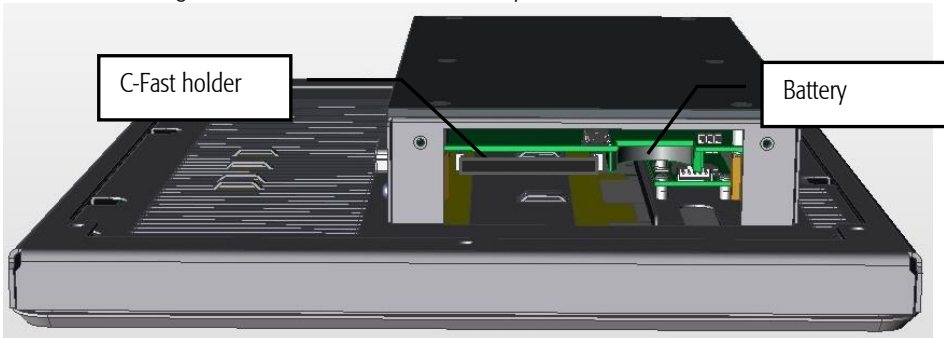
2.3.1 Removing Service Cover

TFT/HBxxxPU8yyy-zZZZ

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



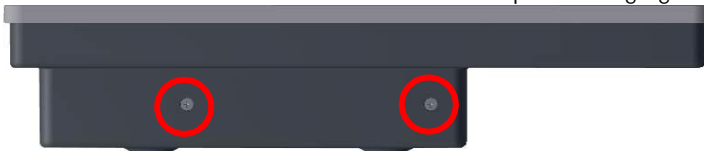
3. After removing the cover the C-Fast and the battery slot are accessible.



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

TFT/HVxxxPU8yyy-zZZZ

1. To remove the Service Cover remove the two Philips screws highlighted in red and remove the cover.



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



3. Please install the Service Cover before operating the Projected Capacitive Touch Panel.

2.3.2 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 around the rear case of the device

TFT/HBxxxPU8yyy-zZZZ

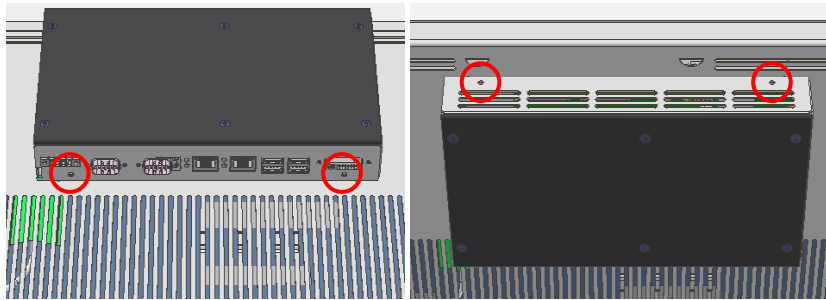


Fig. 4 Remove rear case of TFT/HBxxxPU8yyy-zZZZ devices

TFT/HVxxxPU8yyy-zZZZ

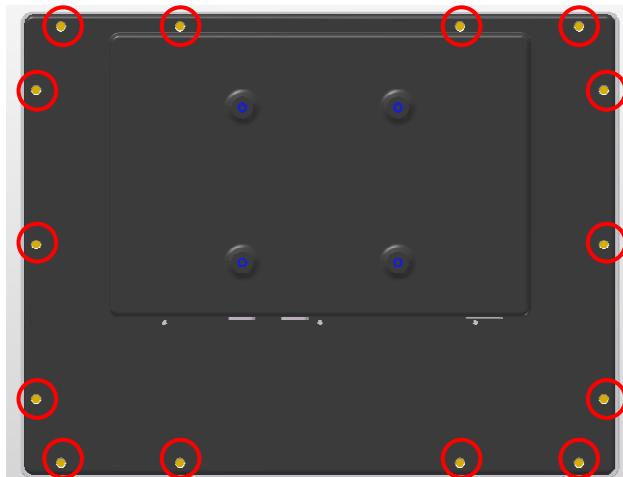


Fig. 5 Remove rear case of TFT/HVxxxPU8yyy-zZZZ devices

3. Carefully remove rear case (keep clear 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.

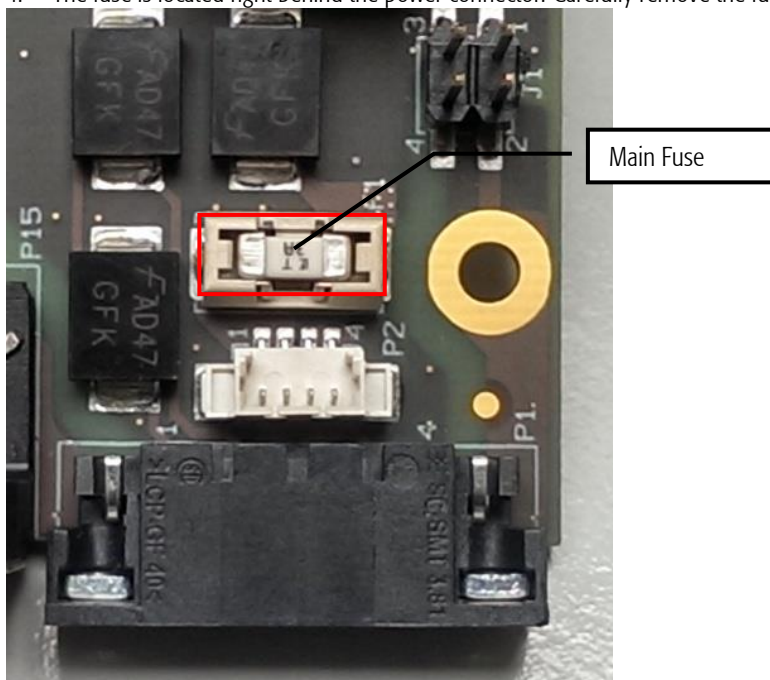


Fig. 6 Open side view with Reset button, battery and CFAST

For further information on how to replace the battery please contact the manufacturer.

3 Hardware Description

3.1 Overview

For details regarding the integrated IPC see separate product documentation **DOC/COMPACT7-SLE**.

3.2 Mounting

3.2.1 TFT/HBxxxPU8yyy-zZZZ

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/HB104PU8x16-xxx	271 ^{-0/+2}	217 ^{-0/+2}	Max. 3mm	1 to 5
TFT/HB121PU8x16-xxx	316 ^{-0/+2}	258 ^{-0/+2}		
TFT/HB150PU8x16-xxx	378 ^{-0/+2}	295 ^{-0/+2}		

Tab. 4 TFT/HBxxxPU8x16-xxx Mounting dimensions

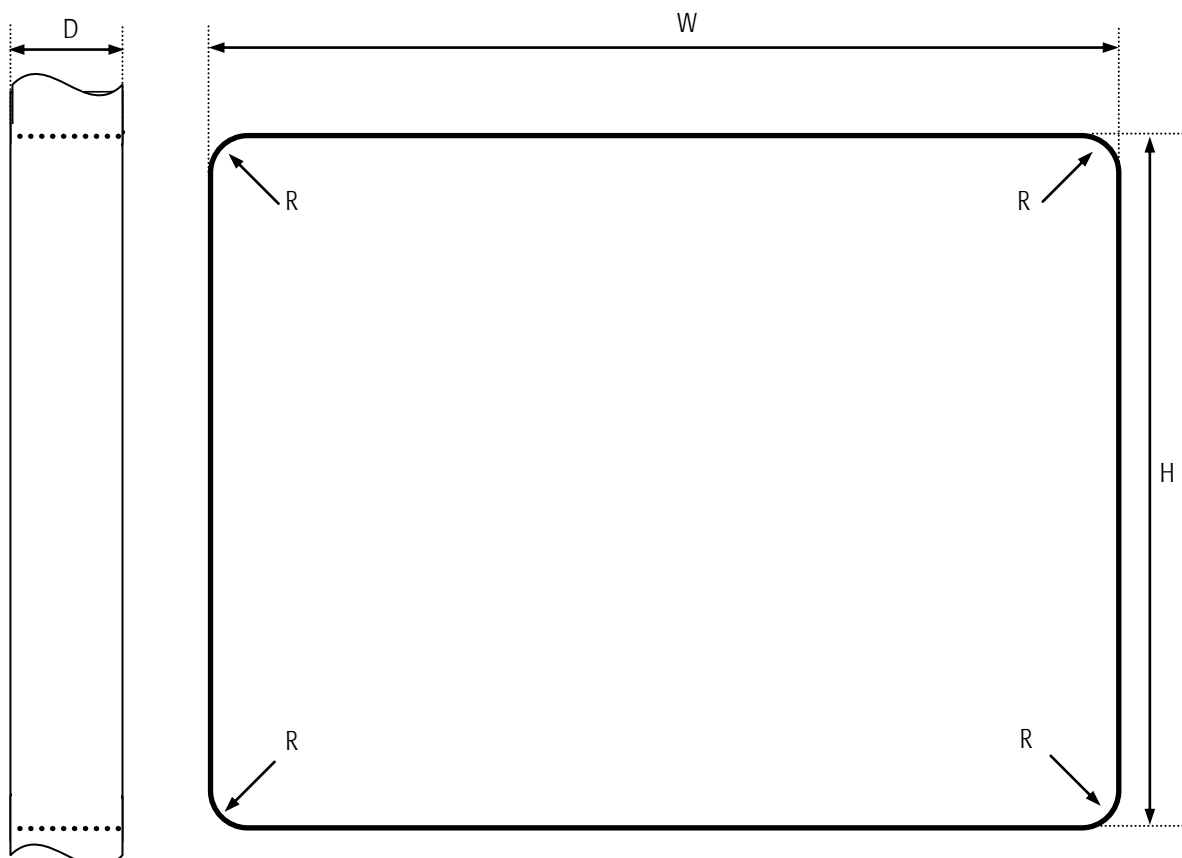


Fig. 7 Required Cut out HVxxxPU7F16-xxx



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.

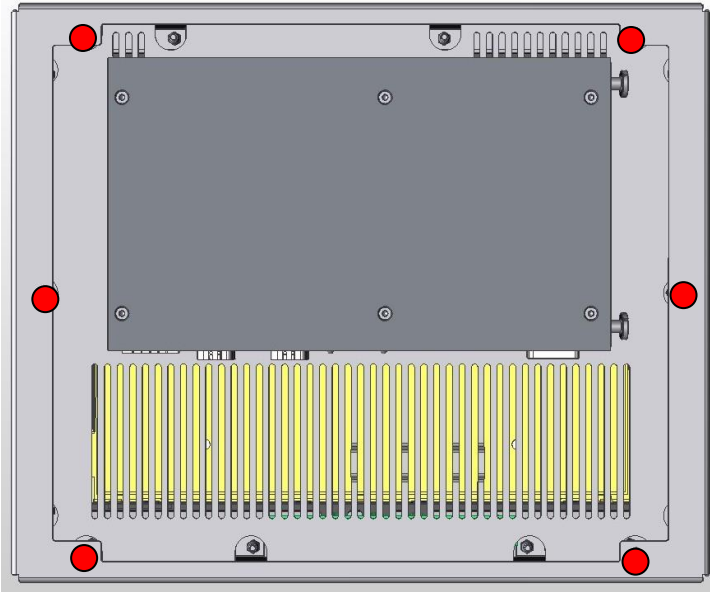
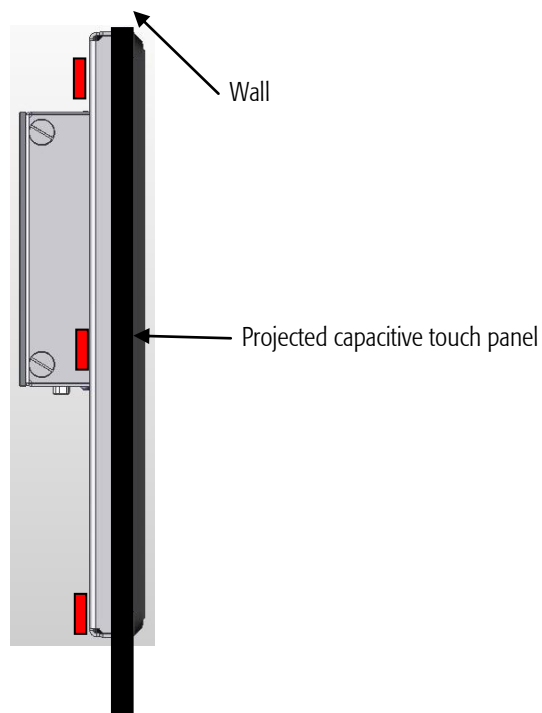


Fig. 8 Screws to hold the mounting Frame

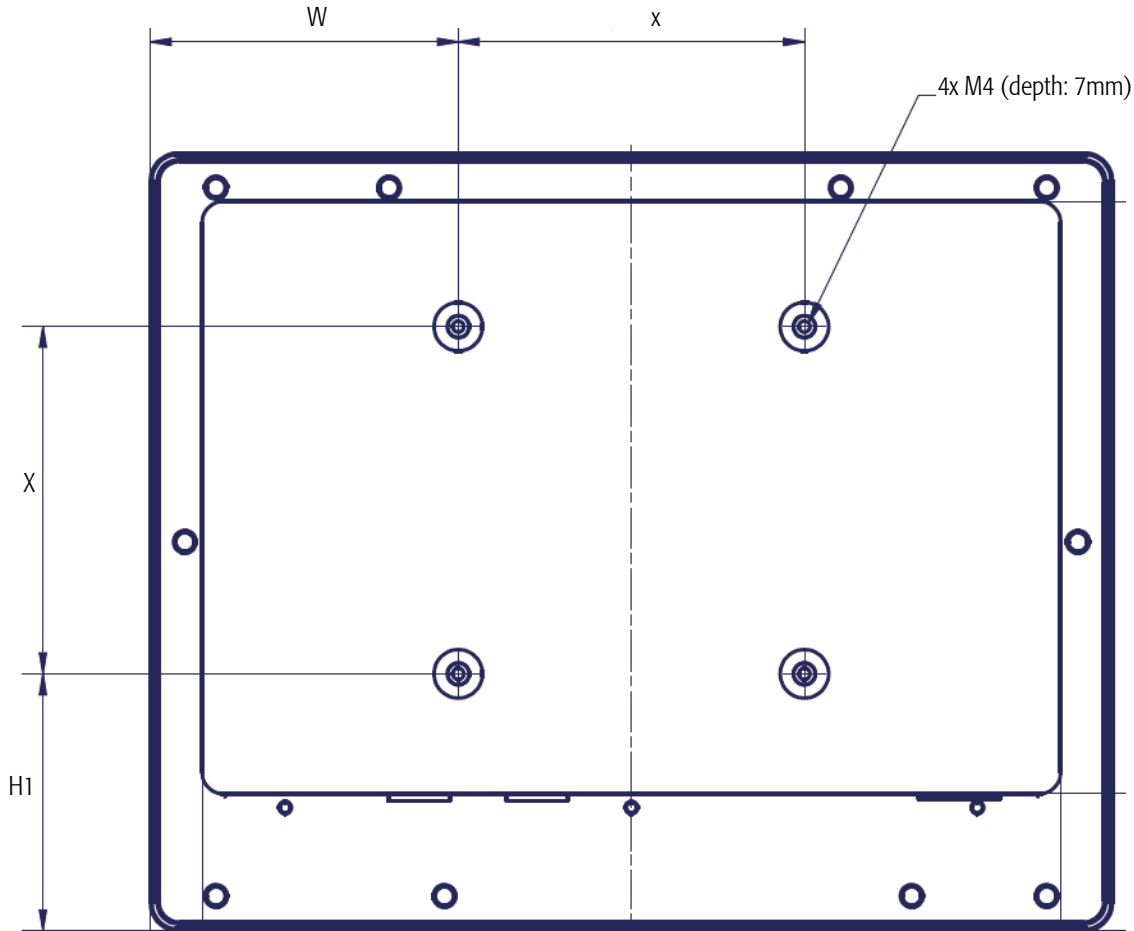
3. Insert the projected capacitive touch panel from the front into the cut out and make sure that the sealing fits properly.
4. Reattach the mounting frame and fix it into place by reattaching the screws highlighted in red. Required torque: 1.3Nm
5. The product is now installed properly.



1.5.6. TFT/HVxxxPU8yyy-zZZZ

All TFT/HvxxxPU8yyy-zZZZ 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 crew. The crew 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/HV104PU8yyy-zZZZ	100	89	74
TFT/HV121PU8yyy-zZZZ	100	111.5	102
TFT/HV150PU8yyy-zZZZ	100	142.5	139

Tab. 5 HVxxxPU8x16-xxx 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

4 Technical Data

4.1 General Electrical Data

Important Note

Do not operate the COMPACT base board outside of the recommended operating conditions. Otherwise lifetime and performance will degrade. Operating the board outside of the absolute maximum ratings may damage the hardware.

Absolute Maximum Ratings (over free air temperature range)

Parameter	Symbol	min	nom	max	Unit
isolation logic to chassis (AC, 60s, 500m a.s.l., Ta=25°C)				0	Vrms
Isolation Ethernet to logic (AC, 60s, 500m asl, Ta=25°C)		500			Vrms
creepage distance logic to chassis and PCB boarder		0.5			mm
creepage distance Ethernet to logic		1.0			mm
creepage distance Ethernet to chassis and PCB boarder		1.0			mm
storage temperature range	Tst	-40		85	°C

Tab. 6 General Absolute Maximum Ratings

Recommended Operating Conditions

Parameter	Symbol	min	nom	max	
internal logic supply voltage	Vcc	9	12/24	30	Vdc
operating free-air temperature range ¹	Ta	-25		65	°C
operating free-air temperature range ²	Ta	-25		70	°C
Cold start temperature range	Ta	-20		70	°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. 7 General Recommended Operating Conditions

Electrical Characteristics

(over recommended operating range, unless otherwise noted)

Parameter	Symbol	min	typ	max	Unit
logic supply current	Icc	tbd	tbd		mA
Battery backup voltage	Vbatt	2.7	3.0	3.3	V
Low Battery trip point	Vbatmin	2.35	2.5	2.65	V
Power Consumption TFT/HV104PU8yyy-zZZZ ³	Ptot		13		W
Power Consumption TFT/HV121PU8yyy-zZZZ ⁴	Ptot		16		W
Power Consumption TFT/HV150PU8yyy-zZZZ ⁵	Ptot		16		W

Tab. 8 General Electrical Characteristics

¹ 50% CPU Load, 2 x GBit Ethernet connected, 100% Backlight, Ptot<14W (10"), Ptot<17W (12", 15")

² 25% CPU Load, 2 x GBit Ethernet connected, 80% Backlight on 5min, 10min off, Average Ptot<13W (10"), Ptot<16W (12", 15")

³ 2 x ETH, 50%Cpu load, 100% Backlight

⁴ 2 x ETH, 50%Cpu load, 100% Backlight

⁵ 2 x ETH, 50%Cpu load, 100% Backlight

Maximum cable length

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

Tab. 9 Maximum cable length

Switching Characteristics (nominal conditions)

Parameter	Symbol	min	nom	max	
processor clock (TFT/HxxxPU8G13-zZZZ)	fcpu		1.33		GHz
processor clock (TFT/HxxxPU8H19-zZZZ)	fcpu		1.91		GHz
UART base clock	fuart		1.8459		MHz
COM1/2/3/4 baud rate				115.2	kbaud
Watchdog timeout (short period)	Tw	70	100	140	ms
Watchdog timeout (long period)	Tw	1.0	1.6	2.25	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		16		kHz

Tab. 10 General Switching Characteristics

4.2 EMI / EMC Specification

The SL8 system fulfills the following standards:

Emission: EN55011 / CISPR 11 Class A

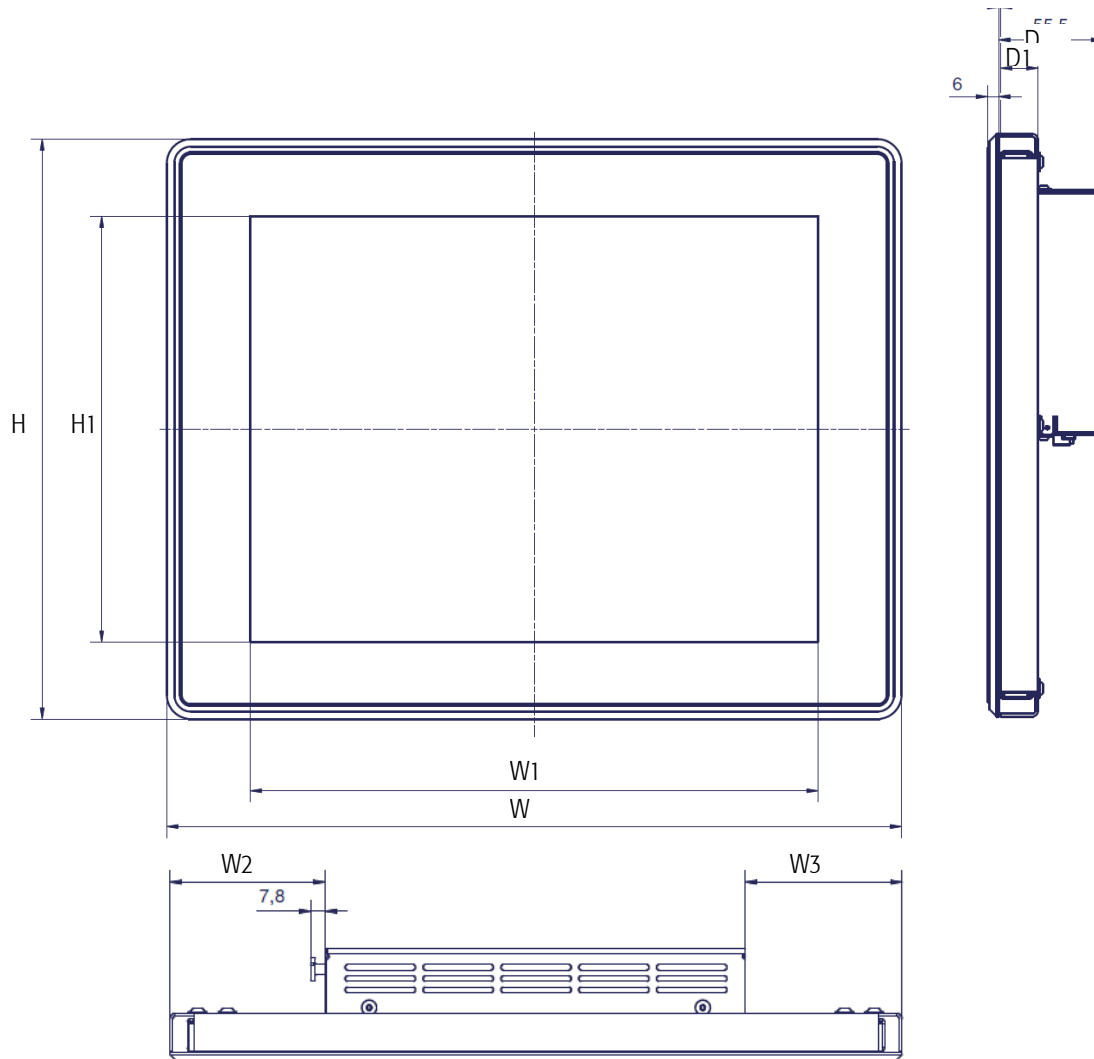
Immunity: EN61000-6-2 Class A

Important Note

The PROTOUCH-8 system is a class A system for industrial applications. It is not indented for use in residential or home applications.

4.3 Mechanical Data

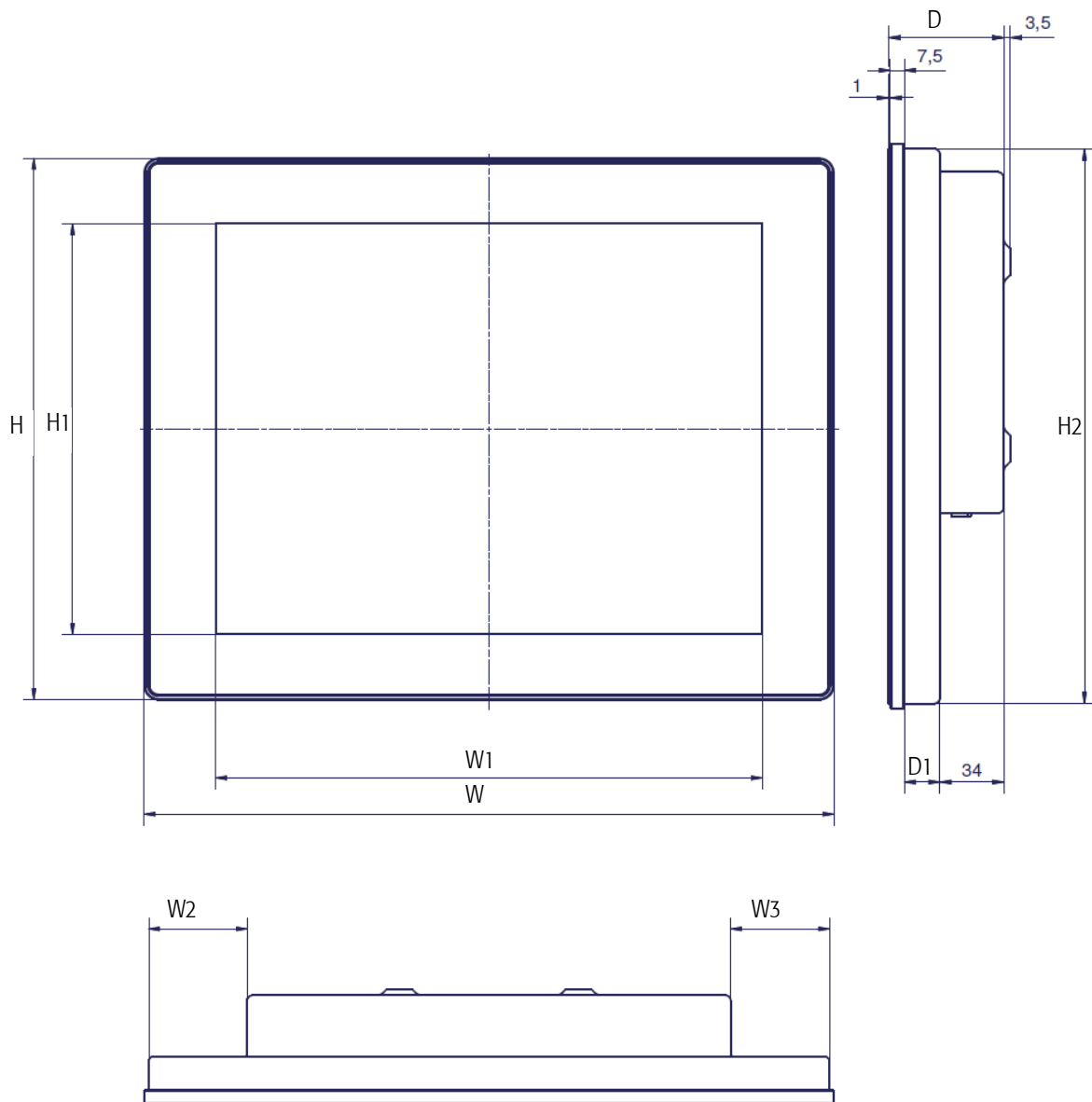
4.3.1 HBxxxPU8yyy-zZZZ



Device	W [mm]	W1 [mm]	W2 [mm]	W3 [mm]	H [mm]	H1[mm]	D[mm]	D1 [mm]
TFT/HB104PU8yyy-zZZZ	288	212.2	30.2	31.2	234	159.4	53.5	18
TFT/HB121PU8yyy-zZZZ	333	246.76	52.7	53.7	275	185.32	53.5	18
TFT/HB150PU8yyy-zZZZ	395	305.1	83.7	84.7	312	229.1	55.5	20

Tab. 11 HBxxxPU8yyy-zZZZ dimensions

4.3.2 HVxxxPU8yyy-zZZZ



Device #	W [mm]	W1 [mm]	W2 [mm]	W3 [mm]	H [mm]	H1 [mm]	H2 [mm]	D1 [mm]	D2 [mm]
TFT/HV104PU8yyy-zZZZ	278	212.2	12.5	12.5	224	159.4	219	58.5	16
TFT/HV121PU8yyy-zZZZ	323	246.76	24	24	265	185.32	260	58.5	16
TFT/HV150PU8yyy-zZZZ	385	305.1	55	55	302	229.1	297	61.5	18

Tab. 12 HVxxxPU8x16-xxx dimensions

5 Firmware

5.1 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 SL8 system, communications and external devices
- Start procedure for the Control Tasks

Note : Refer to the Application Programs documentation for detailed information

5.2 Firmware Functions

The SL8 board is setup with BIOS firmware. Some standard PC/AT peripheral devices (e.g. VGA, 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 IPC/IOCOMSW-1A (e.g. Watchdog). Please refer to the appropriate documentation for detailed information.

5.3 Application Programming Interface (API)

The SL8 system does not contain any special API beside the installed BIOS. Refer to the BIOS and Operating System documentation for API specifications.

5.4 Supported Operating System

Syslogic offers and supports the following operating Systems.

Operating System	Product	Remark
Windows Embedded Standard 7 P 32Bit	WINESTD7P-8A-32	
Windows Embedded Standard 7 P 64Bit	WINESTD7P-8A-64	
Linux Debian 7 32Bit	DEBIAN-7A-32	
Linux Debian 7 64Bit	DEBIAN-7A-64	

Tab. 13 Supported Operating Systems

6 Product Revision History

6.1 Hardware

This paragraph lists the different hardware revisions of the COMPACT base boards 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.

Important Note

This document always covers the newest product revision listed in Tab. 12. Please contact the manufacturer's technical support for upgrade options.

Board Identification (see product label)	Product Revision	Revision ID Register	Remarks
TFT/HB104PU8H19-A102E	#1.0	01H	Original Release
TFT/HB121PU8H19-A102E	#1.0	01H	Original Release
TFT/HB150PU8H19-A102E	#1.0	01H	Original Release
TFT/HV104PU8H19-A102E	#1.0	01H	Original Release
TFT/HV121PU8H19-A102E	#1.0	01H	Original Release
TFT/HV150PU8H19-A102E	#1.0	01H	Original Release

Tab. 14 Hardware Revision State

6.2 Hardware Erratas

This paragraph lists some important erratas of the current SL8 boards to enable workarounds in user software. Additional erratas might be present but a workaround 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 erratas (boards with revision #0) are not listed here. Contact Syslogic technical support for prototype board information.

6.3 Firmware

There is currently no errata information available.

Important Note

This document always covers the latest product revision listed in .
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 a fax or 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:

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