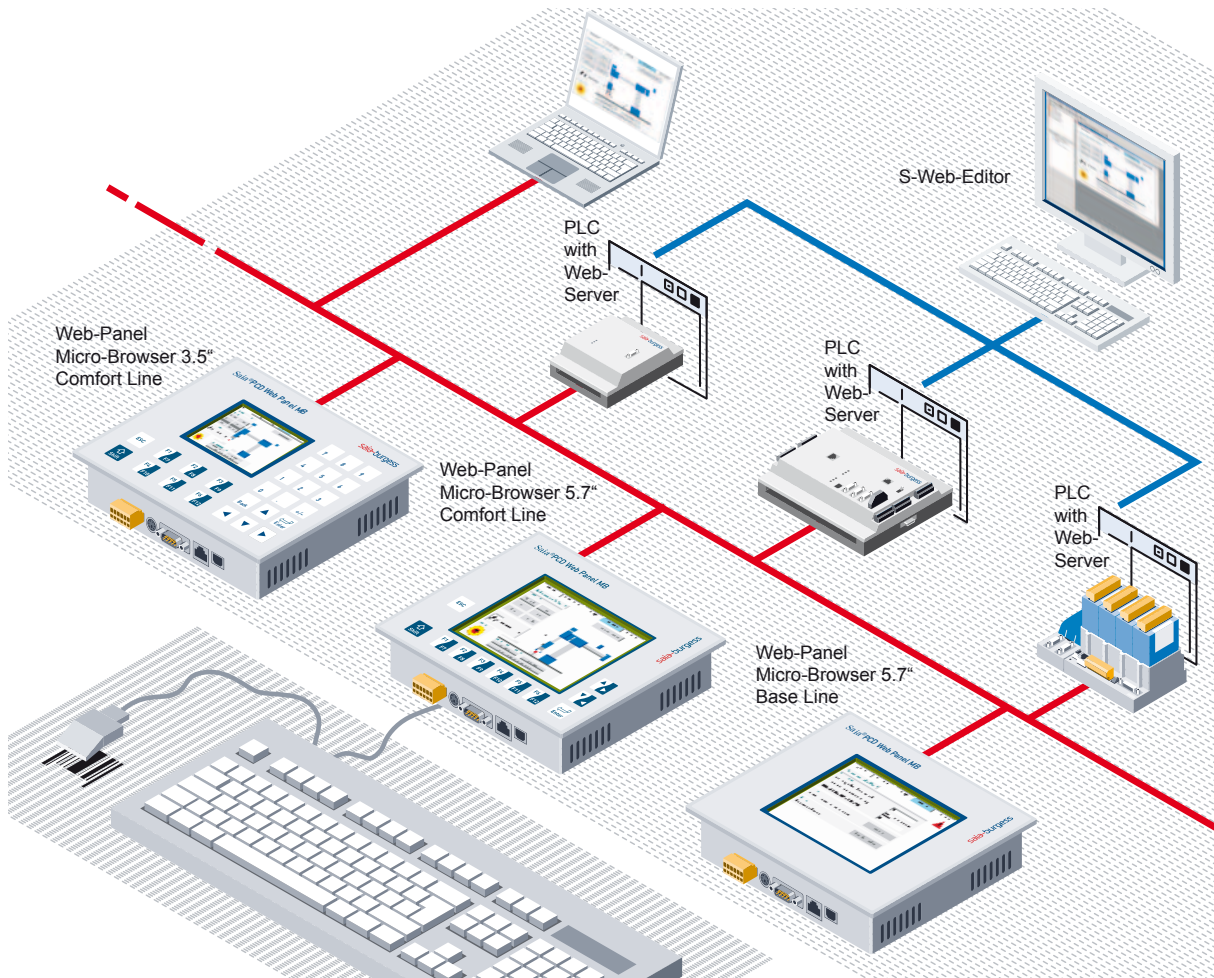


Manual:



saia-burgess
Control Systems and Components

Series PCD7.D4xx MB-Panel

Controls Division

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D Address of the Saia-Burgess company

0.1 Document-History

Edition	Modification	Publication	Changed	Remarks
EN00	01.02.2007	01.02.2007		Initial Edition
EN00	02.03.2007	02.03.2007	all	Replaced pictures from CPUs with actual Design
EN00	02.04.2007	02.04.2007	5.6.1	Replaced Word table with trough InDesign table
EN01	2007-06-27	2007-06-27	6.4	New chapter
EN01	2007-09-13	2007-09-13	1.5.9	Numericpad.teq replaced with keypad.teq
EN02	2007-11-26	2007-11-26	all	Update based on FW1.08.00
EN02	2008-04-14	2008-04-14	all	Layout for print
EN03	2008-05-08	2008-05-08	all	Update based on additional 3.5" ESC key can be used: see chapter 7.7.3
EN04	2008-04-14	2008-04-14	2.1 4.2.9	Deleted the advise for "Pilot phase" Deleted text passages in the first line of the table
EN05	2009-06-10	2009-06-24	all	Addition MB-Panels VGA
EN06	2010-04-30	2010-04-20	all	Corrections
EN07	2010-09-29	2010-09-29	chapter 1	Dimensions of the Cut-Outs

0.2 Trademarks

Saia®, Saia®PCS and Saia®PCD are registered trademarks of Saia-Burgess Controls AG

Technical modifications and changes depending on state of the art.

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1 Quickstart

1.1 Introduction

1

This manual covers the technical aspects of the PCD7.D4xx graphic terminals.

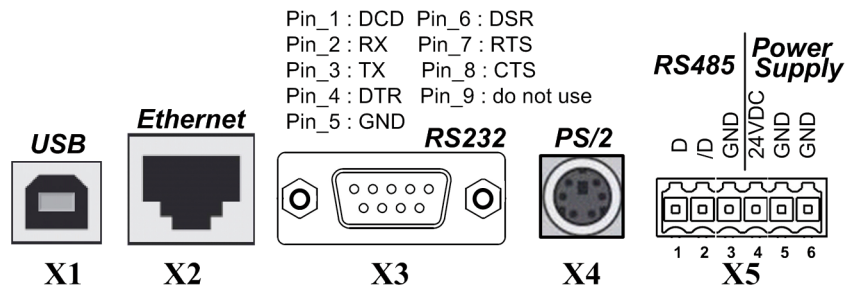
The aim of the Quickstart chapter is to talk about the essentials regarding the use and installation aspects of PCD7.D4xx components. We are talking about:

- ▶ Connectors definition
- ▶ Power supply and current consumption
- ▶ Dimensions
- ▶ Communication mode possible
- ▶ How to SETUP the QVGA MB-Panel
- ▶ How to SETUP the VGA MB-Panel

In other chapters, more details can be found about:

- ▶ Hardware
- ▶ Communication
- ▶ Software (Setup Menu STEP-by-STEP & Configuration)
- ▶ Handling, FW update ...
- ▶ Maintenance

1.2 Connectors definition



1

- X1 = USB connector as Service Port
- X2 = Ethernet RJ45 connector as main/fast communication
- X3 = RS232 D-SUB 9 poles connector as printer output or S-BUS communication
- X4 = PS/2 MiniDIN 6 poles connector as Keyboard/Barcode reader input
- X5 = RS485/Power spring connector as S-BUS comm. / Power input 24 VDC

1.3 Power supply

Connection function	Connector X5 pin no.
24 VDC	4
GND	5
GND	6

POWER REQUESTED

→ 24 VDC +30% /-20%

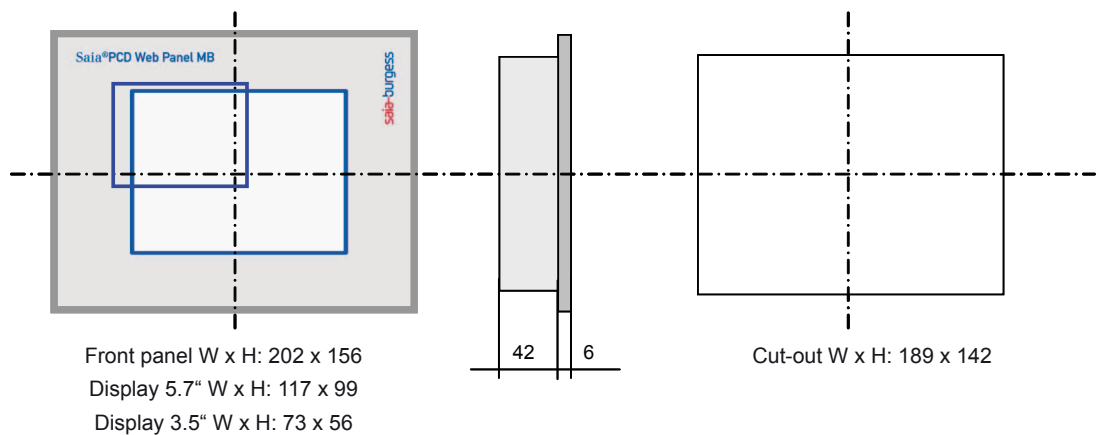
or

→19 VAC ±15% full-wave rectified

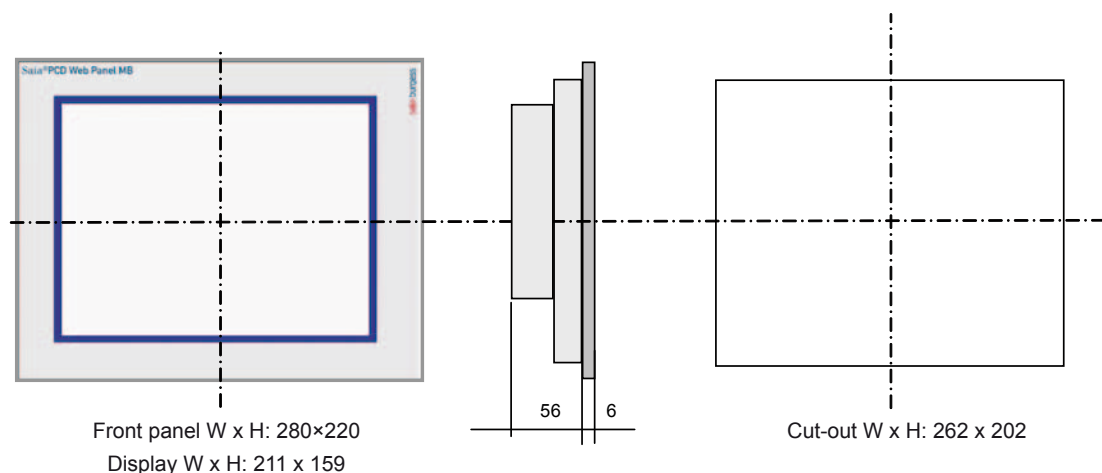
Power supply via plug-in spring connector for wires of max 1,5 mm².

1.4 Dimension and cut-out (all in mm)

PCD7.D435xxxx, and PCD7.D457xxxx

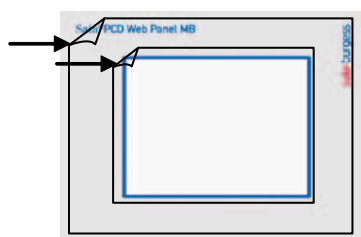


PCD7.D410VTCF



1

- REMOVE the 2 protective transparent films.



- Mounting position is horizontal
- Ensure that the ventilation slits are positioned above and below in mounting position.

1.5 Installation of the mounting brackets

- Mounting position is horizontal. CUT-OUT dimension : 189 × 142 mm or 262 × 202 mm
- Slide the unit into the cut out hole
- Make sure the ventilation slots (top of unit and both sides) are clear of any obstructions to allow air circulation.
- Install the 4 (or 6 for the 10.4") plastic mounting brackets. (2 on top of the unit and 2 on the bottom or 2 on the sides for the 10.4".) Refer to the photo below.
- Notes:
 - a) It is helpful to have somebody hold the unit from the front side of the panel while the brackets are being installed.
 - b) The screws require a hex wrench 2.5 mm.
 - c) Advance the screws in the brackets up to the point where you can still clip them onto the Microbrowser, without being obstructed by the plate.
 - d) Clip them onto the unit then advance the screws until they touch the plate.
 - e) Tighten the screws equally, but do exceed 40 Ncm.

Photograph of mounting brackets installed on the bottom of the Microbrowser.



1

Mounting
surface / wall

Front plate of
PCD7.D4xx

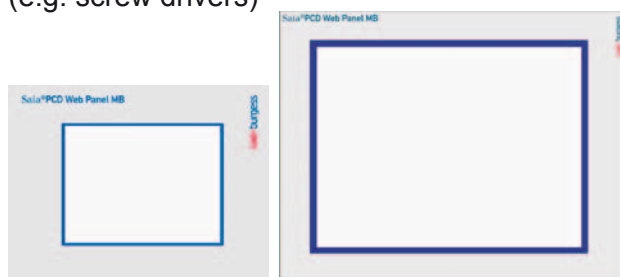
How to insure a watertight according to IP65?

- The device must be mounted on a flat surface/wall
- Practically, tighten the screws until the front plate of the PCD7.D4xx slightly touches the mounting surface/wall

1.6 Operation and handling

1.6.1 Base Line 5.7" MB-Panels and 10.4" MB-Panel

Touch-screen operated by finger or pen (stylus). Do not operate with sharp tools (e.g. screw drivers)



1.6.2 Comfort Line MB-Panels (combined touch and keypad)



- Functions F1 to F6 → directly with F key depression.
- Functions F7 to F12 → with key combination: shift + F key (programming with the web-editor: see chapter 6.7.4)



Up/down navigation. Combine with shift key for right/left navigation.

1

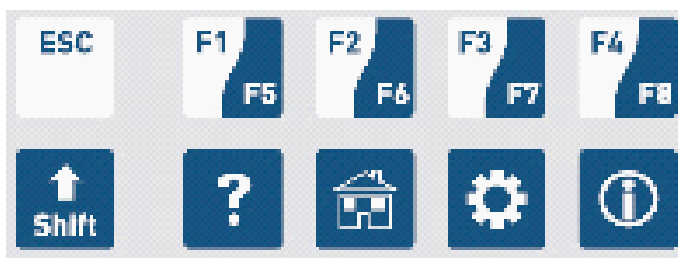
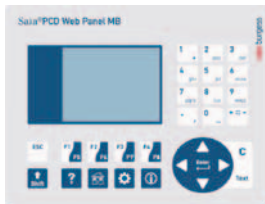


Enter key: "Enter" function



Escape key see chapter 6.7.4

1.6.3 Comfort Line 3.5 MB-Panels (Alphanumeric keyboard, Fkeys and Keys)



- Functions F1 to F4 → with key depression.
- Functions F5 to F8 → with key combination: shift + F key
- Question mark key, Home key, sprocket key and Info key → with key depression

In the web-editor, these 4 keys are corresponding to FKEY_9, FKEY_10, FKEY_11, FKEY_12. (see also the chapter 6.7.4)

**Numeric keyboard** (by default)

1 2 3 4 5 6 7 8 9 .(dot) space and sign (-)

Alphabetic keyboard (by pressing on Text)

Similar to your Mobil

* (asterisk) By depressing one time

abcABC By depressing one, two, tree, four, five, six times

deIDEL By depressing one, two, tree, four, five, six times

jklJKL By depressing one, two, tree, four, five, six times

mnoMNO By depressing one, two, tree, four, five, six times

pqrPQRS By depressing one, two, tree, four, five, six, seven, eight times

tuvTUV By depressing one, two, tree, four, five, six times

wxyzWXYZ By depressing one, two, tree, four, five, six, seven, eight times

, / . : @ (coma, slash, dot, **colon**, **@**) By depressing one, two, tree, four, five times

_ By depressing one time

C is "clear"

Nota bene: use plus/minus key and Text key as a flip/flop

1

Handling : Macro Qkey offline Alarm history

Handling "question mark key" is a particular function which is to "load the alarm list" and

The "sprocket key" is for entering in "the Alarm list"

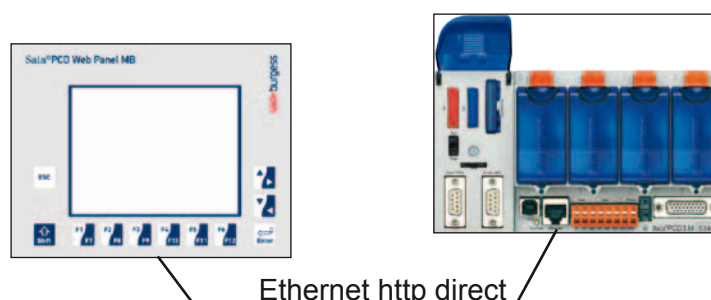
Unselect the focus of the alarm list by pressing on:

- Enter + every arrow keys
- Fkey 1, Fkey2, Fkey 3 or Fkey 4 (!!! sorting)

1.7 Communication**1.7.1 HTTP direct over Ethernet RJ45 connector**

The quickest communication port is actually the Ethernet port through RJ45 where the protocol http direct is selected. The speed is either 10 M or 100 Mbit/s after an auto-negotiation protocol with the connected device. Our MB-Panel can be used on a network Ethernet through any switch box or router.

This http connection can only be made between our PCD7.D4xx and any PCD3.M3xxx or PCD3.M5xxxx where an Ethernet connection exists:



Quick test?

- At the beginning the Saia® PLC used must have a Web program loaded in it, created with the Web-Editor (see manual [26-838 Manual Web-Editor](#)). Some examples can be asked to our SAIA Support Team or soon available on our Internet site.
- Using a Standard **CAT5 cross cable** or equally you can connect your terminal PCD7.D4xx (from block X2) to the Saia® PLC device like PCD3.Mxxx series where the Ethernet communication connector is present.
- Using a PCD3.Mxxx PLC, define the **HW settings of the Saia® PLC** device : S-Bus support must be selected together with the TCP/IP Channel where a valid IP Address is entered.

1

Setup adjustment of MB-Panel:

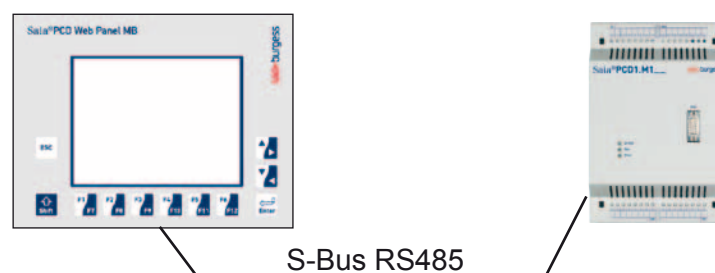
Configure the MB-Panel entering in the **Setup Menu** (refer to chapters 5 and 6):

- At first be sure you are on the same **network** subnet. For ex. if the Saia® PLC has an IP Address 192.168.12.92, give an IP Address to your terminal (in the menu Network) like 192.168.12.90 as normally the default subnet mask is set to 255.255.255.0
- Second, in the configuration Menu, enter the **Address of the start page** that corresponds to the Saia® PLC IP Address, and also enter its html start page name.

Now your MB-Panel should be connected to the Saia® PLC and the start page selected should be displayed on the screen. You can now navigate in your Web-pages !

1.7.2 Serial S-BUS communication over RS485

This communication has the advantage of using the well known communication protocol S-BUS. With its only 2 wires (+1 gnd) you can easily access to your data and display any value on the MB-Panel screen. This communication protocol lets you make a multipoint connection.



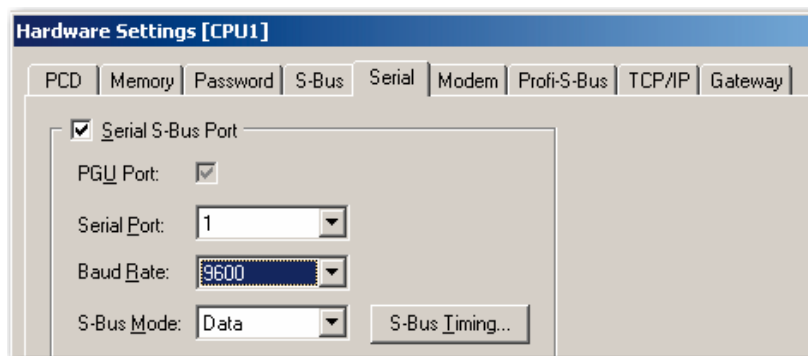
This RS485 S-Bus connection is foreseen to be used between our PCD7.D4xx and PCD3.M3020, PCD1.M125/M135, or PCD2.M150 where “less fast” communications are acceptable.

The communication speed is limited to 115'200 bauds.

Quick test?

- Take Saia® PLC PCD1.M125 for ex. and our MB-Panel PCD7.D4xx. Have a 3-wire cable (shielded is always better).
- On the side PCD1.M125 you can plug your cable onto one of the serial RS485 port at disposal using for ex. the port#1 (together with PCD7.F110 Module).
- Then define the **HW settings** of the Saia® PLC device (see PG5: Saia® Project Manager). S-Bus support must be selected. Enter a valid Station Number. Serial S-Bus Port must also be activated and configured as the following example:

1

**Setup adjustment of MB-Panel:**

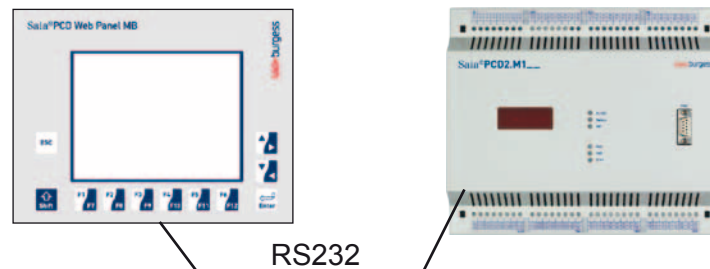
Configure now the MB-Panel entering in the Setup Menu (refer to chapters [5](#) and [6](#)):

- In the setup Menu **Configuration/Communication** click on the button Configure below Port#1 (RS485) in order to adjust the communication parameter. Here the **Baudrate** value especially should be defined and must match with the Communication Settings of the PLC connected to. Then go back to the previous page.
- Click on the **SBus connection Configure** button. Then select one of the 16 connection buttons and press ENTER.
- You can now adjust the **SBus connection settings** and define the **name**, **type** and **Station Nr** you want to access to. Be sure you saved your definition.
- Now, if your Saia PLC is also well set up, you should be able to get a **check mark** beside your connection settings. This means you are connected to the Saia® PLC, but you still have to type the right **Name of Start Page** in the Menu Configuration (as shown in the Menu SBus connection settings, ex. SBUS-RS485/start.html) and the **Address** of the start page 127.0.0.1 (dedicated to MB-Panel in S-Bus Mode).

Now your MB-Panel should be connected to the Saia® PLC and the start page selected should be displayed on the screen. You can now navigate in your Web-pages !

1.7.3 Serial S-BUS communication over RS232

This communication uses a standard RS232 connection on the block X3. This works only in a point to point link.

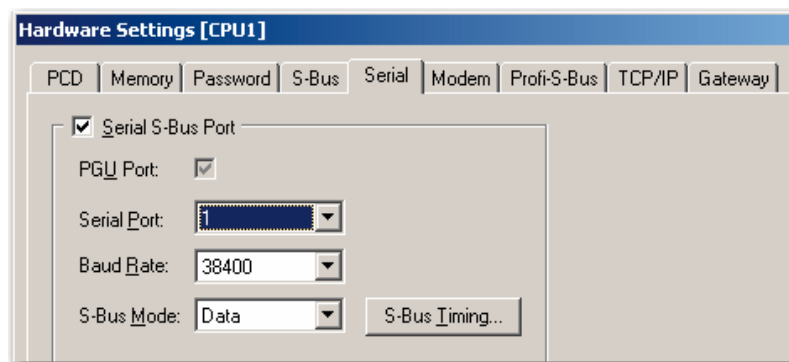


This RS232 S-Bus connection is foreseen to be used between our PCD7.D4xx and PCD3.M3020, PCD1.M125/M135, or PCD2.M150 where “less fast” communications are acceptable.

The communication speed is limited to 115'200 bauds.

Quick test?

- Take Saia®PLC PCD2.M150 for ex. and connect it to your MB-Panel PCD7.D4xx. Have a 3-wire cable (shielded is always better).
- On the side PCD2.M150 you can plug your cable onto one of the serial RS232 port at disposal using for ex. the port#1 (together with PCD7.F120 Module).
- Then define the **HW settings** of the Saia® PLC device (see PG5: Saia® Project Manager). S-Bus support must be selected. Enter a valid Station Number. Serial S-Bus Port must also be activated and configured as the following example:



Setup adjustment:

Configure now the MB-Panel entering in the Setup Menu (refer to chapters 5 and 6):

- In the setup Menu **Configuration/Communication** click on the button Configure below Port#0 (RS232) in order to adjust the communication parameter. Here the Baudrate value especially should be defined. Then go back to the previous page.
- Click on the **SBus connection Configure** button. Then select one of the 16 connection buttons and press ENTER.
- You can now adjust the **SBus connection settings** and define the name, type and Station Nr you want to access to. Be sure you saved your definition.
- Now, if your Saia PLC is also well set up, you should be able to get a **check mark** beside your connection settings. This means you are connected to the

Saia PLC, but you still have to type the right **Name of Start Page** in the Menu Configuration (as shown in the Menu SBus connection settings, ex. ET-SBUS10/start.html) and the **Address of the start page** 127.0.0.1 (dedicated to MB-Panel in S-Bus Mode).

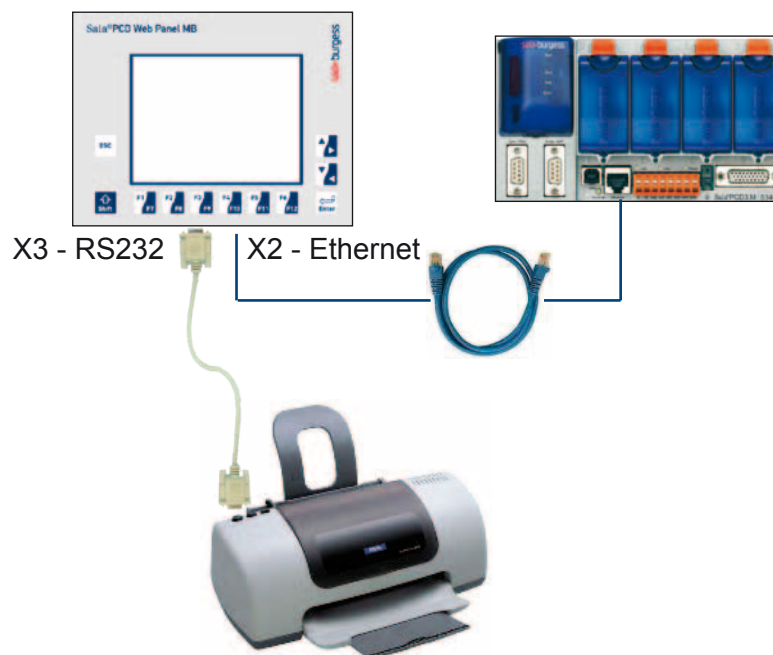
Now your MB-Panel should be connected to the Saia® PLC and the start page selected should be displayed on the screen. You can now navigate in your Web-pages !

1.7.4 Transparent communication TCP to RS232 (ex. printer port)

The goal of this communication is to send information from the EthernetPort “directly” to the RS232 port.

Why? This is an option provided to customers who want to connect a printer directly on the MB-Panel, receiving the Information packet from the PLC connected to (over the Ethernet port).

This communication uses the RS232 connection on block X3 and Ethernet connection on block X2. This is not a multipoint link.



The communication speed is limited to max 115'200 bauds on RS232 (X3) and is standard to 10/100 Mbps on Ethernet (X2).

Setup adjustment:

Configure now the MB-Panel entering in the Setup Menu:

- In the setup Menu **Configuration/Communication** click on the button Configure below Port#0 (RS232) in order adjust the communication parameter. Then you are in the menu TCP/IP RS232.

Here the channel value especially must be defined. All the other parameters must be selected and must correspond to the communication parameters set in the PLC program.

- Now, the texts you want to print out must be stored in the PLC, using the Call

System Function (**CSF**) from the IP Library. These functions can be provided on simple request with example.

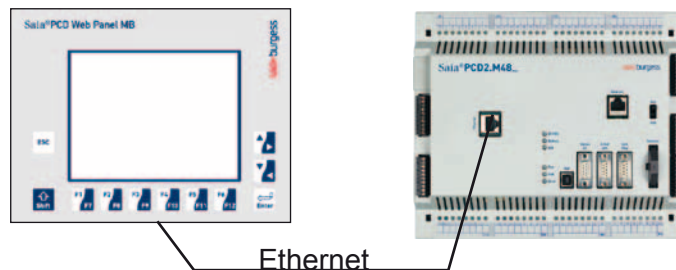
1

1.7.5 Ether-S-Bus Communication on Ethernet Port

Depending on the application you set up, you may like to use the Protocol Ether-S-Bus together with a PLC (see HW system overview for PCD type allowed)

This Ether-S-Bus connection is foreseen to be used between our PCD7.D4xx and PCD3.M3/M5, PCD1.M135+F650, PCD2.M150/M170+F650 or PCD2.M480/7+F650 where “less fast” communication is acceptable. The speed is about the same as standard S-BUS communication.

This communication is using the Ethernet port X2 where the S-Bus frames are sent over. The speed is here limited to the time taken by the S-Bus frame sent, and is therefore not adjustable.



Quick test?

- At the beginning the Saia® PLC used must have a Web program loaded in it created with the Web-Editor (help yourself with the [26-838_Manual_Web-Editor](#))
- Using a Standard **CAT5 cross cable** or equally you can connect your terminal PCD7.D4xx from block X2 to the Saia® PLC as ex. PCD2.M480+PCD7.F650 on the RJ45 Ethernet connection.
- Using a PCD2.M480 side, define the **HW settings of the Saia® PLC** device : S-Bus support and station must be selected together with the TCP/IP Channel where a valid IP Address (same subnet) is entered.

Setup adjustment:

Configure the MB-Panel entering in the **Setup Menu** (refer to chapters 5 and 6):

- At first be sure you are on the same **network** subnet. For ex. if the Saia® PLC has an IP Address 192.168.12.92, give an IP Address to your terminal (in the menu Network) like 192.168.12.90 as normally the default subnet mask is set to 255.255.255.0
- Second, enter in the Setup Menu **Configuration/Communication/** below **S-Bus Connections** and click on the button **Configure**. Press on a free button to create a new connection. Type a connection **Name**. Choose Connection Type **Ether S-Bus** in the Listbox. Enter the **S-Bus Station Nr** and **TCP/IP Address** where to connect. Then **SAVE**.
- Third, in the configuration Menu, enter the **Address of the start page** 127.0.0.1

(dedicated to MB-Panel in S-Bus Mode) and also its [html start page name](#) like for ex. ETHER-SBUS10/start.html.

Now your MB-Panel should be connected to the Saia® PLC and the start page selected should be displayed on the screen. You can now navigate in your Web-pages !

1

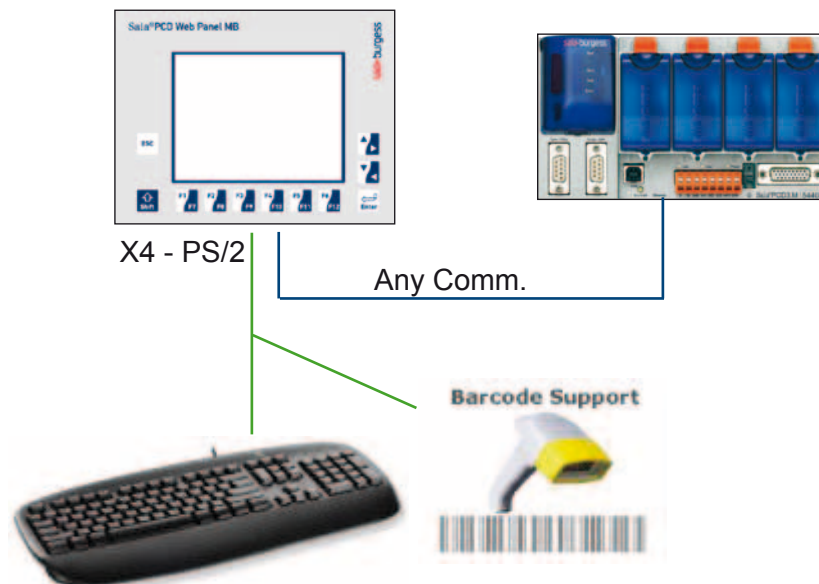
1.7.6 Profi-S-Net Communication on RS485 (Port#1)

This protocol is in preparation.

This protocol is only on PCD3.M3/M5 at the speed of 187.5 Kbit/s.

1.7.7 PS/2 Port for Keyboard or Barcode reader

Attach any PS/2 Device like a Keyboard or Barcode reader to this port and read back its content in a field, register or variable its content.



The only thing you have to do is configure which keyboard country type or Barcode reader you have at disposal. For this, just go in the Setup Menu below Keyboard and choose one of the following PS/2 Keyboard Layout in the list box.

Restrictions :

There are two restrictions here:

1. Actual keyboard 100% detected are German, US, UK, French, Swiss-German, Swiss-French. Other could be design on request.
2. Current limitation : in order to limit the power of our product, the PS/2 current limit is defined at 100 mA permanently below 5 V. Current peaks higher coming from the Barcode reader when reading a barcode are accepted but should not exceed 300 mA.

The cable used is called a Y-connection. Usual supplier of barcode reader can propose such one.

1.7.8 USB Port as Service Port

This port commonly called the service port has multiple functions.

Its main use serves to make download of new FW program (see Setup chapter 6.1)

Another use consists to access the internal data for analyses. Future development regarding download of Saia-Web pages is under consideration but no release date is actually planned.

1.7.9 Get Started with Web-Editor on MicroBrowser Panel PCD7.D4xx

A detailed documentation can be downloaded on our Internet site.

See manual [26-838_Manual_Web-Editor](#)

In order to get into the programming with our MB-Panel, there are some **little dedicated adjustment** that we have to pay attention:

- When starting as new Project, and so long no Wizard help is at disposal, you have to setup your project as follow:

- **Using virtual Keyboard**

Two ways are possible according to the “order of file search” option

- 1) No local file search

If you use the virtual Keyboard insert in the project the files `alphapad.teq` and `keypad.teq`. In this case. (this files are in the Local server of the MB-Panel under INTFLASH/WEBPAGES or under Web-editor/MBQVGATeqlib or MBVGATeqlib) Copy them in the web-editor project.

- 2) Local file search before remote

This option allows using the Virtual keyboard without inserting the `alphapad.teq` and `keypad.teq` in the project

- QVGA MB-Panels: The preloaded `Messagebox.teq`, used as error Message listing, has to be resize to our Panel Pixel size. Set it to 320 × 240 pixels.
- If you want to use a file **background.teq** or **foreground.teq**, start creating those files at first. Why? to view correctly where your object or text/field that will always(or often) be displayed are positioned on every page.
- Once your project is ready for downloading, generate the html file name you desire and make a Build Project. Afterwards in the SAIA PG5 Project Manager you have to make a Webserver Build for having all the project files in the PLC. HERE, if you just want to access the PLC with MB-Panel PCD7.D4xx and not with a PC Browser, you can **reduce the amount of data** to download by **removing the *.jar file** as the panel includes it already.

2 Hardware-System Overview

2.1 Product Range

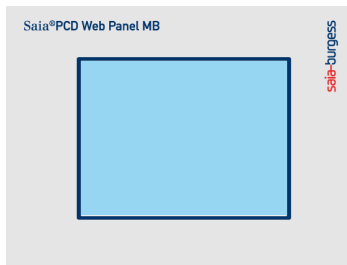
The range of MB-Panel (Micro-Browser Panel), named PCD7.D4xx, contains different Web-Panel between LCD size 3.5" and 10.4" that is adapted to the Saia®PCD range.

They have been developed for building automation and industrial applications. In combination with the program Web-Editor, an add-on tool of the PG5 programming package, they provide a simple way of displaying Web pages easily created with our Web-Editor SW. This new range consists of many different graphic displays:

2.1.1 QVGA MB-Panels

Base Line MB-Panel 5.7":

including Touchscreen, communication Ethernet RJ45, SBUS RS232/RS485, USB client.



Type PCD7.D457BTCF :

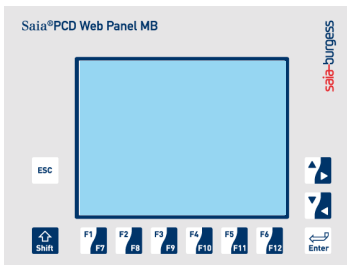
→ Panel with a LCD size 5.7", black&white FSTN, White LED Backlight.

Type PCD7.D457STCF :

→ Panel with a LCD size 5.7", color STN, CCFL Backlight.

Comfort Line MB-Panel 5.7":

including Touchscreen, 11 Front Membrane Keys, communication Ethernet RJ45, SBUS RS232/RS485, PS/2, USB client.



Type PCD7.D457SMCF :

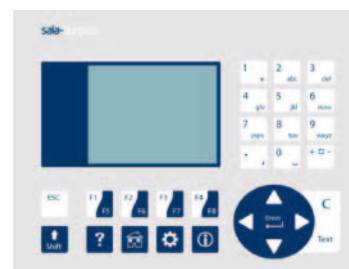
→ Panel with a LCD size 5.7", color STN, CCFL Backlight.

Comfort Line MB-Panel Type 3.5":

Type PCD7.D435TLCF:

Panel with a LCD size 3.5", color TFT, White LED Backlight.

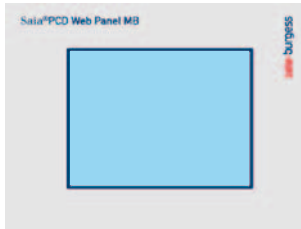
26 Front Membrane Keys, (No touchscreen), communication Ethernet RJ45, SBUS RS232/RS485, PS/2.



2.1.2 VGA MB-Panels

Base Line MB-Panel 5.7”:

Including Touchscreen, communication Ethernet RJ45, S-Bus RS232/485, USB client



Type PCD7.D457VTCF

→ Panel with LCD size 5.7 “ , color TFT and VGA resolution, white LED backlight.

Comfort Line MB-Panel 5.7”:

Including Touchscreen, 11front Membrane Keys, communication Ethernet RJ45, S-Bus RS232/485, USB client

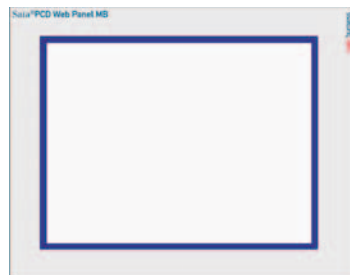


Type PCD7.D457VMCF :

→ Panel with LCD size 5.7 “ , color TFT and VGA resolution, white LED backlight.

Base Line MB-Panel 10.4”:

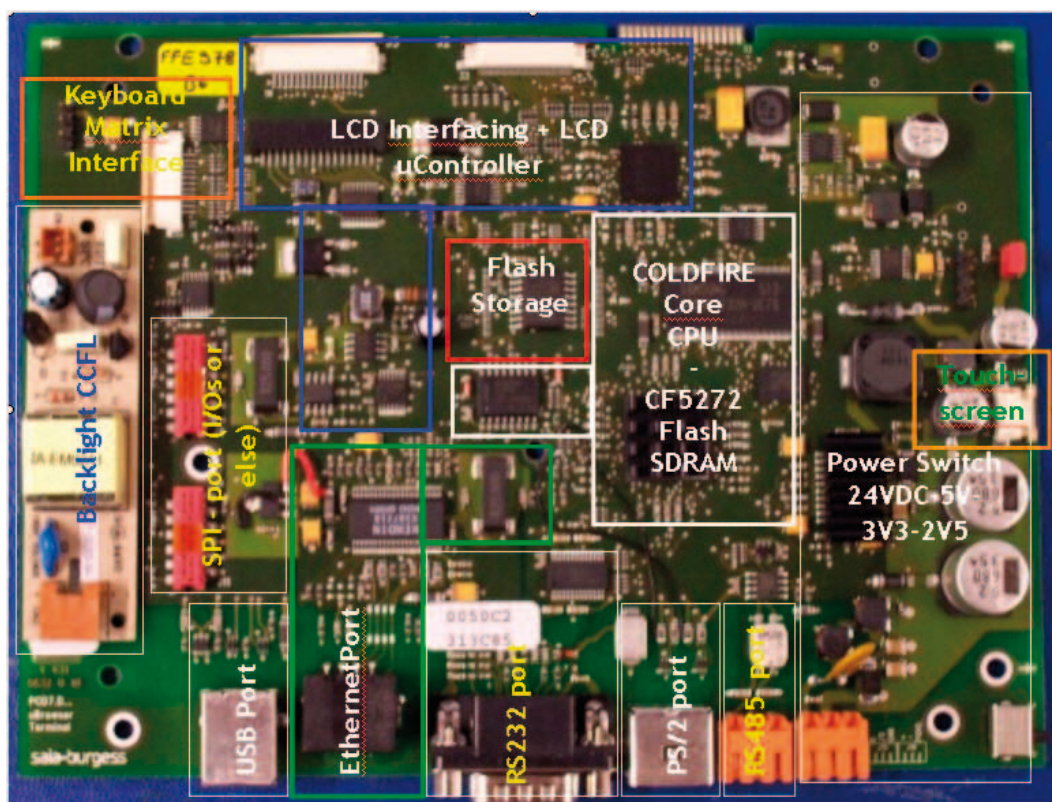
Including Touchscreen, communication Ethernet RJ45, S-Bus RS232/485, USB client



Type PCD7.D410VTCF :

→ Panel with LCD size 10.4 “ , color TFT and VGA resolution, CCFL backlight.

2.2 Hardware PCB Bloc view



2.3 Custom/OEM Range

Different OEM Model can be asked using the same HW Base Platform. Below are two examples:



or



For each standard type, a polyester foil with the type and the Saia-Burgess logo covers the whole front side.

Upon request:

- Special labelling can be foreseen
- Special design (own logo) can be realized and placed on the front-panel.

2.4 Technical Data



	PCD7.D435 TLCF	BTCF ⁵⁾	PCD7.D457 STCF ⁵⁾	VTCF ^{5) 6)}	PCD7.D457 SMCF ⁵⁾	VMCF ^{5) 6)}	PCD7.D410 VTCF ⁶⁾
Display							
Screen: colours	256 colours	16 levels of grey	256	65536	256	65536	65536
Display	3.5" TFT	5.7" STN		5.7" TFT	5.7" STN	5.7" TFT	10.4" TFT
Resolution/Pixel	QVGA 320×240	QVGA 320×240		VGA 640×480	QVGA 320×240	VGA 640×480	VGA 640×480
Touch screen	—	Resistive touch screen			Resistive touch screen		Resistive touch screen 4-wire
Contrast adjustment	yes	yes			yes		yes
Backlight	LED	LED	CCFL	LED	CCFL	LED	CCFL
Fkeys, keyboard	12 Fkeys + keyboard	—			2×6 Fkeys		—
Processor	Coldfire	Coldfire			Coldfire		Coldfire
RAM	—	—			—		—
CFC card slot internal	—	—			—		—
CFC card slot external	—	—			—		—
Memory for local web server	4 MB Flash	4 MB Flash			4 MB Flash		4 MB Flash
SD card interface	Option	Option			Option		Option
Interfaces							
Ethernet 10/100 M	×1 RJ45 ¹⁾	×1 RJ45 ¹⁾			×1 RJ45 ¹⁾		×1 RJ45 ¹⁾
USB 12 M	×1 client	×1 client			×1 client		×1 client
Serial (D-Sub9)	×1 RS232 ³⁾	×1 RS232 ²⁾			×1 RS232 ³⁾		×1 RS232 ³⁾
Serial	×1 RS485 ⁴⁾	×1 RS485 ⁴⁾			×1 RS485 ⁴⁾		×1 RS485 ⁴⁾
Keyboard/barcode	×1 PS/2	—			×1 PS/2		×1 PS/2
Connector to external monitor	—	—			—		—
Operating System	Saia®NT	Saia®NT			Saia®NT		Saia®NT
Browser	Saia®Micro-Browser	Saia®Micro-Browser			Saia®Micro-Browser		Saia®Micro-Browser
Software tools							
	—	—			—		—
	—	—			—		—
Server							
	Web-Server (HTTP D)	Web-Server (HTTP D)			Web-Server (HTTP D)		Web-Server (HTTP D)
	—	—			—		—
	FTP-Server/File-Server	FTP-Server/File-Server			FTP-Server/File-Server		FTP-Server/File-Server
Software tool							
Communication driver	—	—			—		—
Graphic editor	Saia®Web-Editor*	Saia®Web-Editor*			Saia®Web-Editor*		Saia®Web-Editor*
* using PG5 resources	yes	yes			yes		yes
Technical data							
Supply voltage	18...32 VDC	18...32 VDC			18...32 VDC		18...32 VDC
Power Consumption (at 24 VDC)	500 mA	500 mA			500 mA		600 mA
Operation temperature	0...50 °C	0...50 °C			0...50 °C		0...50 °C
Protection class (front)	IP65	IP65			IP65		IP65
Dimensions (W×H×D) mm	202×156×42	202×156×42			202×156×42		280×220×56
Cut-out (W×H) mm	189×142	189×142			189×142		262×202
Accessories							
Kits for In-Wall mounting		PCD7.D457-IWS					
Kits for on-Wall mounting		PCD7.D457-OWS					

¹⁾ http direct/Ether-S-Bus⁴⁾ Serial-S-Bus²⁾ Serial-S-Bus⁵⁾ available without Saia®Logo³⁾ Serial-S-Bus and printer

2.5 Interface connection

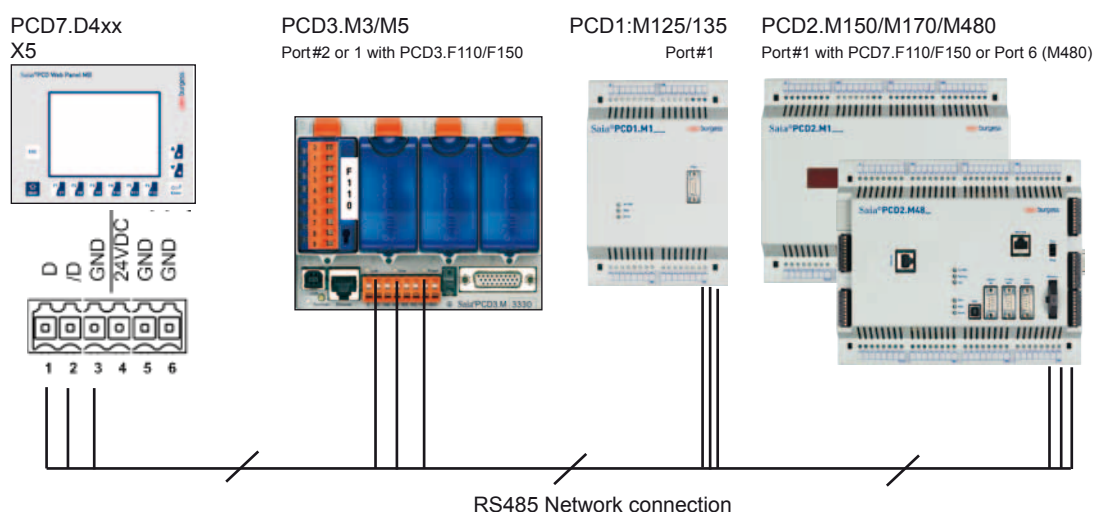
2.5.1 Ethernet port RJ45, X2

Connection between terminal PCD7.D4xx and Saia® PLCs PCD1.M135, PCD2.M150, PCD2.M170 and PCD2.M480 can be made.



You can use a Standard or CAT5 “crossed” Ethernet cable equally when using the X2 Port in http direct or Ether-S-Bus. To multiple the network connections, please use Fast Ethernet Switch 10/100 Mbps resp. through a Router.

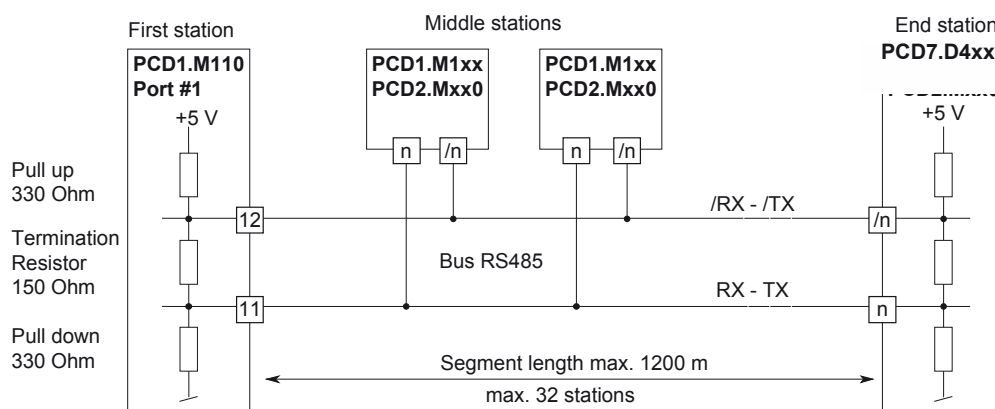
2.5.2 S-Bus on RS485



Pining nr of each PLC connected is defined in their dedicated manual.

Termination resistors for proper End of line

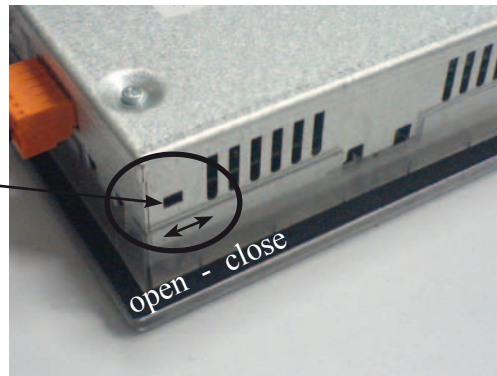
In the example below, you see a possible interconnection between terminals and PLCs. In order to avoid reflexions on the communication line please terminate the network with termination resistors. On the PCD7.D4xx, a switch is available:



The next image shows you where it is located.

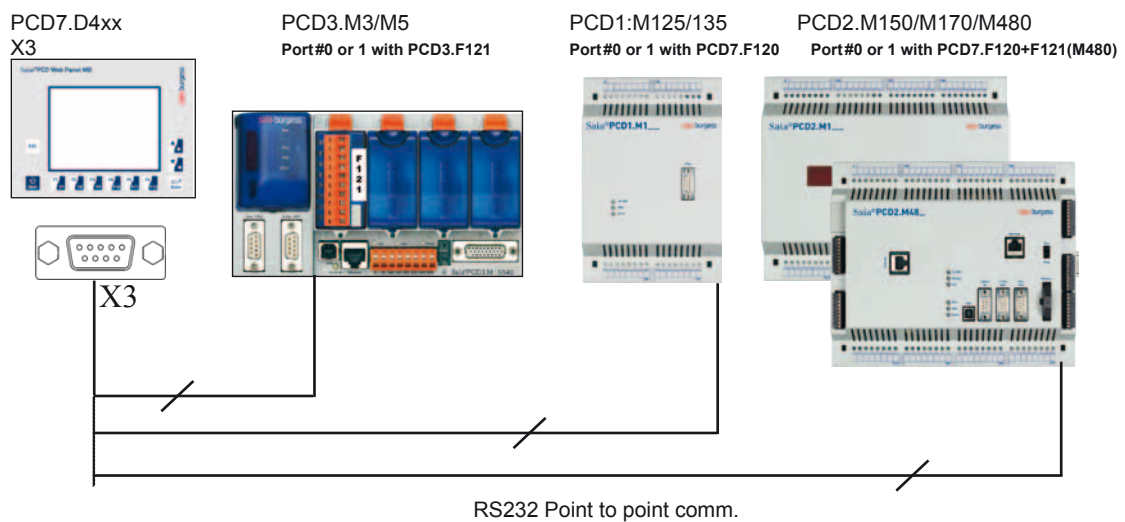
- When the switch is placed on the **top position**, the network is **closed**.
- When the switch is placed on the **bottom position**, the network is **open**.

RS485 switch
End Termination Switch

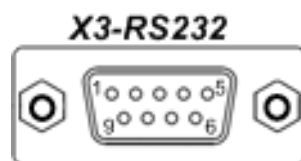


2

2.5.3 S-Bus on RS232



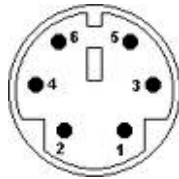
Interface **pining**:



Pin_1 : DCD Pin_6 : DSR
Pin_2 : RX Pin_7 : RTS
Pin_3 : TX Pin_8 : CTS
Pin_4 : DTR Pin_9 : do not use
Pin_5 : GND

2.5.4 PS/2 Interface

This interface uses a standard MiniDIN connector 6-pin as follow :



Pin 1:	PS2/Data
Pin 2,6:	n.c.
Pin 3:	GND
Pin 4:	+5 V
Pin 5:	PS2/Clock

What can we connect to?

Instead of using the virtual Keyboard from the MB-Panel, you can use this interface to branch a [PS/2 Keyboard](#) or a [Barcode reader](#) or simply BOTH together connected on a Y cable special.

If you only want to use this external keyboard/barcode, it is better to disable a function called SIP (Virtual Keyboard) in the Setup Menu/Configuration/Special/. Normally, on MB-Panel where a Touchscreen is taking place, this SIP function is always enabled.

When using a Y connection with both keyboard and barcode reader, you must be careful to use each device separately not simultaneously.

2.5.5 USB Service Interface

Standard cable from the market, type Master to Slave can be used.

This interface is only use for service purpose (like a FW update), but not for any other communication.

3 Communication mode setting

3.1 Http direct – Baudrate and Controls

On this communication port, there is an autonegociation mode between the MB-Panel and the Ethernet switch or the PLC directly attached to. This mode will defined himself the speed rate 10 Mbps or 100 Mbps. For sure the max speed rate at 100 Mbps is better.

3.2 Ether S-Bus – Baudrate and Controls

On this communication port, there is an autonegociation mode between the MB-Panel and the Ethernet switch or the PLC directly attached to. Exactly the same as defined for previous http direct. (see chapter)

But here the frame streaming is slower than http because it is based on S-Bus frames. These frames are automatically defined and the user has no possibility to change them.

The only [parameters adjustable](#) are accessible under the Setup Menu/Configuration/Communication/Ether S-Bus Options-Configure:

- the timeout in ms to get an answer from the station connected to and
- the number of retries to be connected

Otherwise here below an example of the setup page S-Bus Connection Settings when Ether S-Bus is needed (example of S-Bus connection settings with QVGA MB-Panels):

S-Bus connection settings

1 Name SBusname

2 Type Serial SBus or Ether SBus

3 SBus station Nr 10 (for example)

4 Port RS485

5 TCP/IP address 192.168.12.99

Error Reason 6 error message

7 Delete 8 Save

3.3 S-Bus – Baudrate and Controls

Here the user must defined himself the communication speed he wants to setup. For this, you must adjust the Baudrate in the Setup Menu/Configuration/Communication Port#0 or 1 - Configure :

Possible Baudrate : 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bps

Please ask our support to help you set-up the more efficient communication speed in your network configuration. It can be sometimes useful to reduce the baudrate in order to save the PLC ressources for other applications.

Other parameter cab also be set like TN Delay, TS Delay,Timeout or Retries.

3.4 Printer port TCP to RS232 (TCP2RS232) – Baudrate and Controls

Here also the user must defined himself the communication speed he wants to setup. Added to that the frame format must be defined : Parity bit, Data bits, Stop bit, Handshake should correspond to the printer communication.

A connection timeout can also be set-up.

Important parameter to be defined is the TCP/IP port you will use to tranfer Information transparently from the TCP/IP port to our RS232.

Demo program can be asked on request.

3.5 PS/2 port

No special settings to do, a part from the keyboad language.

3.6 USB port (client)

Fully USB port compatible with USB 1.1 specifications.

Full Speed: 12 Mbits.

No adjusment is necessary.

4 Setup Menu QVGA MB-Panels

4.1 Setup Menu Parameters «Step by Step»

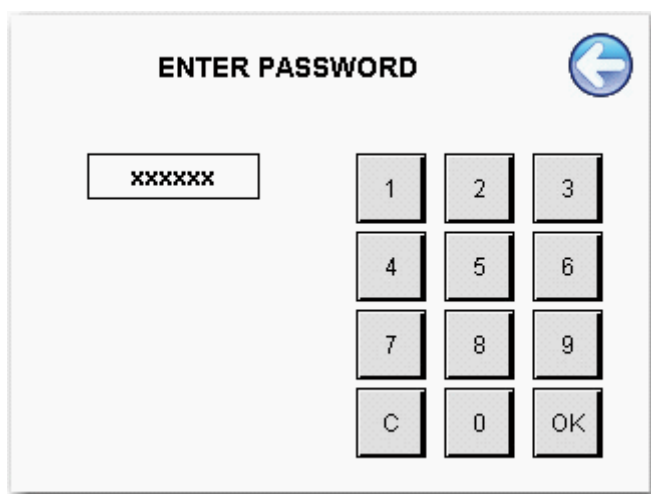
- This chapter describes the „Menu structure“ of the QVGA eMicroBrowser Panels, based on FW Version 1.10.45.
- Entering in the setup menu by pressing on the icon “enter setup”.

4.1.1 Password

MB-Panel PCD7.D4xx series is delivery without setup password.

If a password is defined to enter in the Setup Menu, you must enter the correct password and press OK

How entering a password? See chapter



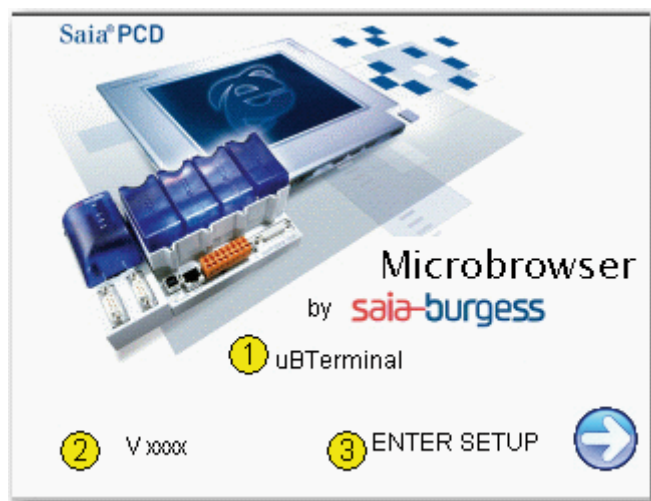
Note concerning 3.5" MB-Panel (PCD7.D435xxxx)

→ You can enter password directly with numeric keypads (right side of the screen) or by selecting the keys of the numeric virtual keyboard (Soft input Panel of the window ENTER PASSWORD). In this case, use the arrow keys and ENTER keypad.

BUT in all cases, confirm it with the OK keys, NOT with the ENTER keypad.

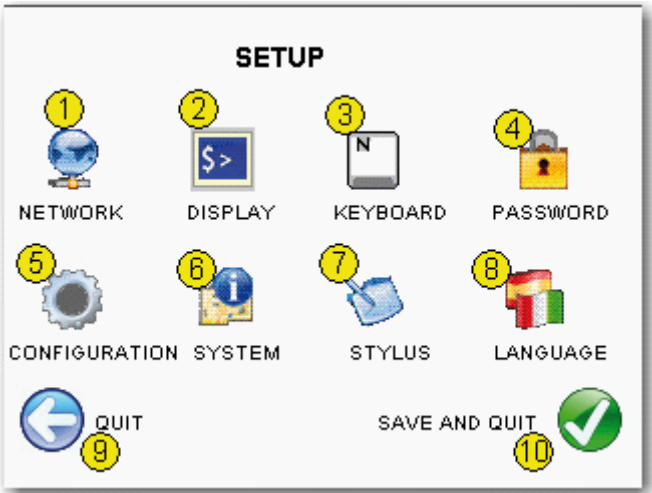
4.1.2 Title

Comes after some seconds. This time is defined in the setup page “System” in chapter



1	Titlestring	Default „uB Terminal“. Can be changed in „System“ (see chapter).
2	Firmware Version	Firmware version (read only)
3	Access to Setup Menu	Press „Enter Setup“ to enter to main setup menu (chapter)

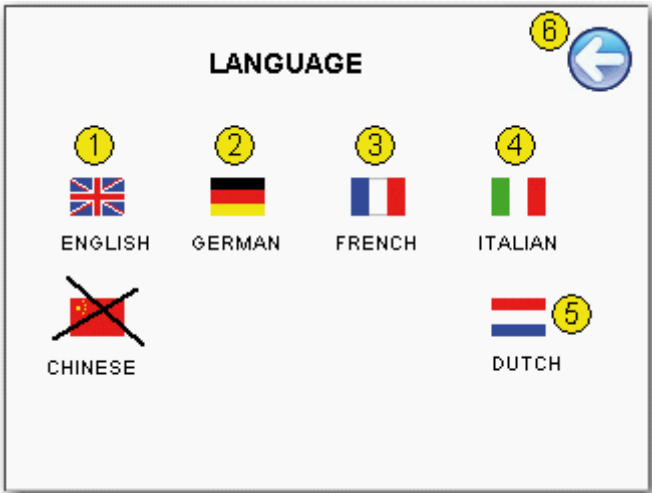
4.1.3 Setup



4

1	Network	Settings of the MB-Panel	See chapter	
2	Display	Display settings	See chapter	
3	Keyboard	PS/2 keyboard setting	See chapter	
4	Password	Enter a password	See chapter	
5	Configuration	Address and name of the start page	See chapter	
6	System	System info + download FW	See chapter	
7	Stylus	Re-calibration	Use carefully a plastic stylus or a fine pen	
8	Language	Setup language	see here below	
9	Quit	Quit without saving		
10	Save & quit	Save and quit		

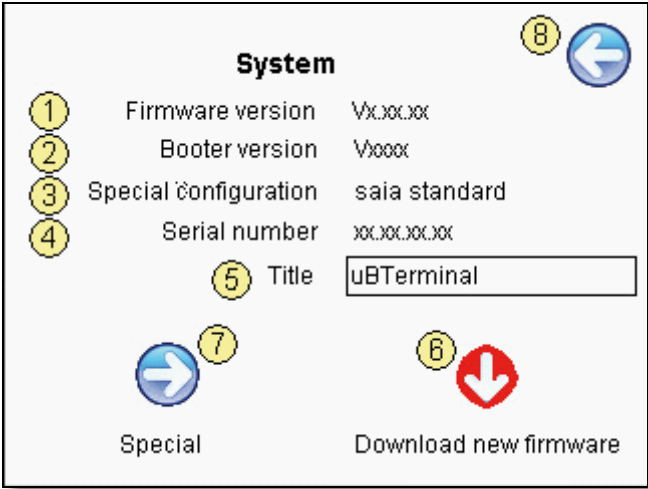
Press language (8) to choose your current language



* Chinese is not yet implemented

Press on the arrow “←” to save the new language selected. The change is directly done afterwards.

4.1.4 System



4

1	Firmware version	V xxxx	Firmware version (read only)
2	Booter version	V xxx	Booter version (read only)
3	Configuration	Default: Saia standard	Read only
4	Serial Nr.	xxxxxxxxxx	Serial Number: This number is unique! It can be used for product traceability
5	Title	Default: uB Terminal	This string is displayed on the title page (→ Title)
6	Download new FW		Press ↓ and confirm the message: "Do you really want to download new firmware?"
8	→		Special (chapter 4.1.5)
7	←		Back to the main setup menu (chapter 4.1.3)

4.1.5 Special (advanced function)

4

1	Setup timeout (s)	Default: 10 seconds i Minimum: 3 seconds	The title page is displayed for this amount of time. If set at "0", the title page will not be called.
2	Format internal flash (!! Advanced function)	Default status 21 (green) → Device OK ; Filesyst OK.	Advanced function with message of confirmation: "Do you really want to reformat the internal flash completely? All configuration data will be reset and the MB-Panel will reboot afterwards!" Status 21 (green): Device OK; Filesyst OK Status 22 (red): Device OK; Filesyst ERROR * Status 23 (yellow): Device OK; Filesyst under Construction Status 24 (yellow): Device OK; Filesyst under Compression. * reformat once again. Formatting duration: ~ 15 sec.
3	Format M1 flash (!! Advanced function)	Default status 21 (green) → Device OK ; Filesyst OK.	Advanced function with message of confirmation: "Do you really want to reformat the M1 flash completely?" Status 21 (green): Device OK; Filesyst OK Status 22 (red): Device OK; Filesyst ERROR * Status 23 (yellow): Device OK; Filesyst under Construction Status 24 (yellow): Device OK; Filesyst under Compression. * reformat once again Formatting duration: ~ 2 minutes.
4	←	xxxxxxxxxx	Back to the System (chapter 4.1.3)

4.1.6 Display

DISPLAY

① Contrast 10 [–] [+]

② backlight timeout [min] 15 [–] [+]

③ Nr of colors 256

④ Display type color

⑤ Display resolution 320 * 240 (8bpp)

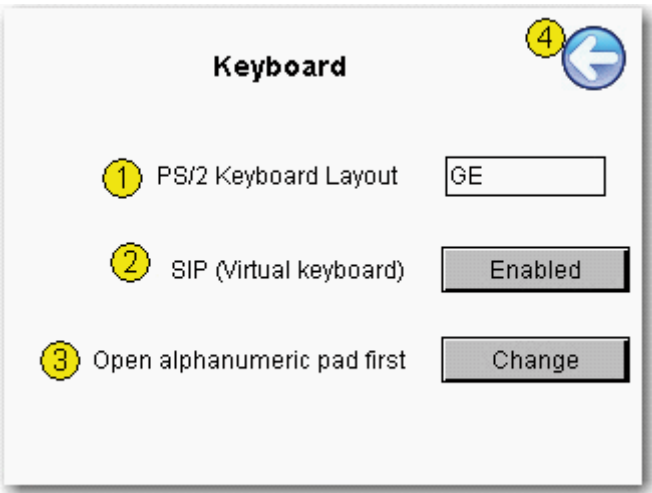
⑥ [←]

4

1	Contrast	default: 10	Adjustment between 0 to 21 by pressing on – and + buttons
2	Backlight timeout (min)	default: 15 min.	The backlight turns off if neither the touch-screen nor any keys are pressed during this time. The backlight reactivates as soon as the blank screen or keys are pressed. Adjustable by pressing – and + buttons
3	Nr of Colors	256 16	Color Display : 256 Mono Display : 16 or 4 level of grey
4	Display type		Color or Mono (Read only)
5	Display resolution	Def. 320 × 240	Nbr of pixel (Read only)
6	←		Back to the main setup menu (chapter 4.1.3)

4.1.7 Keyboard/Barcode reader

For external keyboard or barcode reader. (Mini Din 6 with standard pin-assignment)



4

1	PS/2 kyeboard Layout	Default: GE (German)	Keyboard languages : <ul style="list-style-type: none">• GE (German)• US (English US)• UK (English UK)• FR (French)• CH-GE (Swiss German)• CH-FR (Swiss French)
2	SIP Enable / Disable	Default: Enabled	Enable/Disable SIP (S oft I nput P anel). Virtual keyboards
3	Numeric/ Alphanumeric	Default: alphanumeric pad is opened in first	By pressing on change you can choose: Virtual alphanumeric pad or Virtual Numeric pad is opened in first. (!!! save & quit)
4	←		Back to the main setup menu (chapter 4.1.3)

4.1.8 Password


2

1

PASSWORD

PASSWORD 4...10 digits (0...9)

Password is saved immediately

 Forgot your password !
→ see chapter 5.21

4

1	Password	Default: no password	!!! Only numerical !!!
2	←		Save and Back to the main setup menu (setup 4.1.3)

4.1.9 Network

5

1

MAC ADDRESS

xx.xx xx xx xx xx

2

TCP IP Address

192.125.18.100

3

SUBNET MASK

255.255.255.0

4

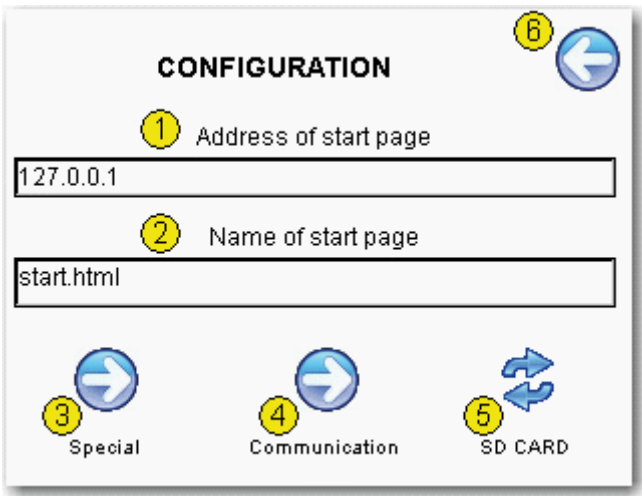
DEFAULT GATEWAY

0.0.0.0

1	MAC address	As information	For information (read only)
2	TCP/IP Address	Default: 127.0.0.1	IP address of the MB-Panel
3	Subnet mask	Default: 255.255.255.0	
4	Default gateway	Default: 0.0.0.0	
5	←		Save and return to main setup menu (chapter 4.1.3)

4.2 Setup Menu Configuration “step by step”

4.2.1 Configuration



1	Address of the start page	Default:127.0.0.1 (Proxy address)	IP address of the PCD
2	Name of the start page	Default:Start.html	html page generated by the web editor project
3	Special	Advanced configuration	See chapter 4.2.2
4	Communication	S-Bus / Ether-S-Bus communication	See chapter 4.2.3
5	SD-card	Appear only if SD-card is installed	See chapter 4.2.9
6	←	Back to configuration menu	See chapter 4.1.3

4.2.2 Special

Special

① File cache

② no local file search

③ Time to inactivity (sec)

④ Polltime during inactivity (ms)

⑤ Buzzer volume

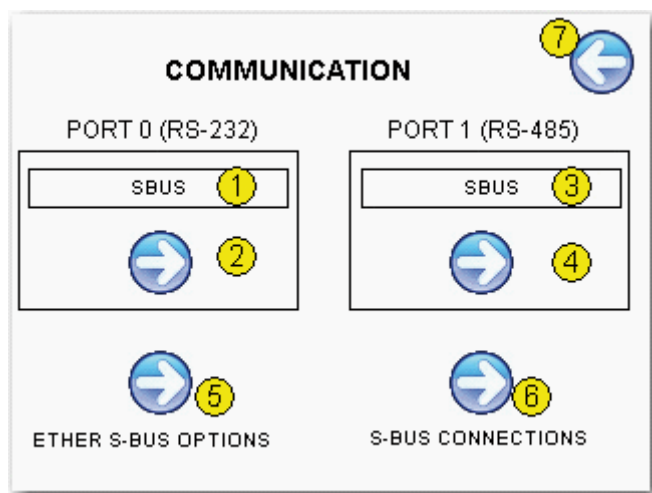
⑥ Buzzer frequency

⑦

4

1	File cache	Default: Enabled In normal operation, the file cache should always be enabled.	The file cache can be enabled/disabled. Disabling is only useful for projects in development, in order to see the visible change in files cached.
2	Local & remote server	Default: „no local file search“	„No local file search“ means that no files (.teq or .gif) will be searched in the local server (= uBrowser server). „Local file search before remote“ means that files (.teq or .gif) will be searched in the local server before searching in the PLC server. „Local file search after remote“ means that files (.teq or .gif) will be searched in the remote server before searching in the local server (MB-Panel) With additional SD-card, files will be searched first in M1_FLASH (embedded 4MB flash), then in SLOFLASH (SD-card flash).
3	Time to inactivity (sec)	Default: 0 sec	Time parameters.
4	Polltime during inactivity (ms)	Default: 0 ms	Especially useful for MB-Panels in Network application. After a period of inactivity (parameter 3) of the panel, the numbers of request can be reduced from the refresh time value (project configuration parameter) to the polling time (parameter 4).
5/6	Buzzer Volume & Frequency	Default: Vol = 0 Freq. = 125 Hz	- Volume: Duty cycle adjustment between 0 to 20 (0 = silence) - Frequency: Adjustment possible between: 125 to 8000.
7	←	Back to config. menu	See chapter 4.2.1

4.2.3 Communication



4

1	Port#0 (RS232)	Default: SBUS	Port#0 (D-sub 9) - None: no S-Bus communication - SBUS: Communication Serial S-Bus RS232 - TCP2RS232 :TCP/IP to RS232. Using MB-Panel as gateway (for example for Printer output)	
2	Configure	Port#0	- S-Bus configuration on Port#0 - Configuration of TCP2RS232 on Port 0 (TCP2RS232 means TCP to RS232)	See chapter 4.2.4
3	Port#1(RS485)	Default: none	Port 1 (orange spring connector no.1,2,3) - None: no S-Bus communication - SBUS: serial S-Bus RS485 communication	
4	Configure	Port#1	S-Bus configuration on Port#1	See chapter 4.2.5
5	Configure	Port Ethernet	Ethernet S-Bus options	See chapter 4.2.6
6	Configure	S-Bus connections	Configuration of up to 16 serial or Ethernet S-Bus stations .	See chapters 4.2.7 and 4.2.8
7	←		Back to configuration menu	See chapter 4.2.1

4.2.4 Configuration Port#0 (RS232) Serial S-Bus

PORT 0 (RS-232)

① Baudrate

② TN delay (ms)

③ TS delay (ms)

④ Timeout (ms)

⑤ Retries

⑥

1	Baudrate	Default: 9600	Adjustment :from 1200 to 115200
2	TN Delay (ms)	Default: 0	-
3	TS Delay (ms)	Default: 0	-
4	Timeout (ms)	Default and standard: 250	S-Bus configuration
5	Retries	Default: 3	Number of attempts: try + retries
6	←		Back to communication menu (see chapter 4.2.3)

4.2.5 Configuration Port#1 (RS485) Serial S-Bus

PORT 1 (RS-485)

① Baudrate

② TN delay (ms)

③ TS delay (ms)

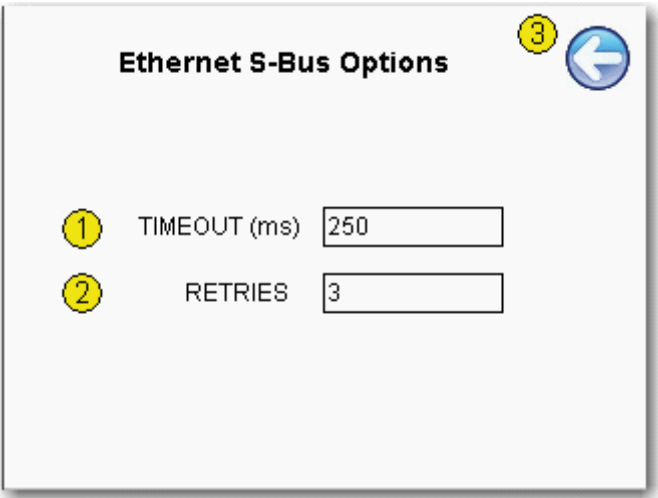
④ Timeout (ms)

⑤ Retries

⑥

1	Baudrate	Default: 9600	Adjustment :from 1200 to 115200
2	TN Delay (ms)	Default: 0	S-Bus configuration
3	TS Delay (ms)	Default: 0	S-Bus configuration
4	Timeout (ms)	Default and standard: 250	S-Bus configuration
5	Retries	Default: 3	Number of attempts: try + retries
6	←		Back to communication menu (see chapter 4.2.3)

4.2.6 Ether S-Bus Configuration

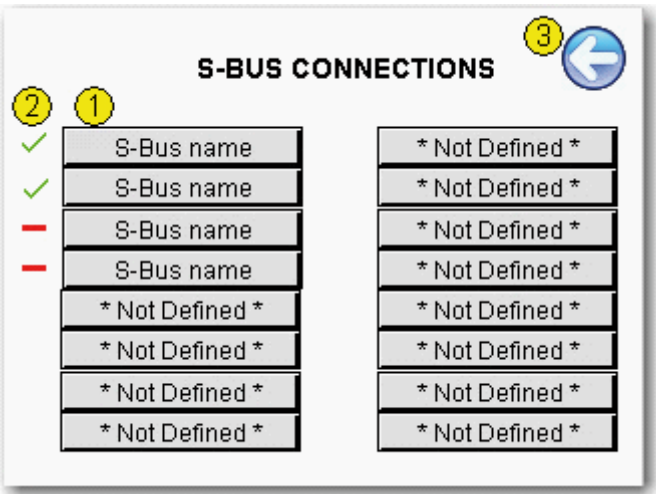


4

1	Timeout (ms)	Default and standard: 250	S-Bus configuration
2	Retries	Default: 3	Number of attempts: try + retries
3	←		Back to communication menu (see chapter 4.2.3)

4.2.7 S-Bus Connection

This page lets you defining 16 S-Bus different S-Bus connections resp. stations



4

1	S-Bus name	Default: none	Entering all connection setting of each station:
2	S-Bus communication status	Default: none	Status of communication ✓ = communication OK - = communication error
3	←		Back to communication menu

If the connection doesn't work, here below some potential sources of errors:

- Bad cabling. Most current error.
- Bad grounding. Can cause damage to the interface !
- Connection to the wrong serial line.
- Incompatible transmission speed.
- Slave station not assigned.
- Slave station not started.
- Slave address mismatch.
- Defective interface (sender and/or receiver).
- The PCD firmware does not support this mode

4.2.8 S-Bus Connection Settings

S-Bus connection settings

① Name



② Type

③ SBus station Nr

④ Port

⑤ TCP/IP address

Error Reason ⑥ error message

 Delete ⑦  Save ⑧

Ⓒ Potential source of communication error

List of error reasons:

- Bad cabling. Most common error.
- Bad grounding. Can cause damage to the interface!
- Connection to the wrong serial line.
- Incompatible transmission speed.
- Slave station not assigned.
- Slave station not started.
- Slave address mismatch.
- Defective interface (sender and/or receiver).
- The PCD firmware does not support this mode

4

1	Name	Default: *not defined*	Enter a name for the S-Bus station. Maximum 20 characters <u>with no spaces or special characters</u>	
2	Type	Default: none	Appears only if S-Bus name is defined. - Serial SBus - Ether SBus	
3	S-Bus station no.	Default: 0	Appears only if S-Bus name is defined. N.B. This is the S-Bus station number: 0 to 255	
4	Port	Default: 0	Appears only if Serial S Bus is selected. - Port 0 (RS232) - Port 1 (RS485)	See Ⓒ
5	TCP/IP address	Default: 0	Appears only if Ether S Bus is selected. Enter the IP address of the station	See Ⓒ
6	Error reason	Default: none	List of error reasons: Timeout Web Server busy Slave not ready No Web Server Retry Expired Out of sequence SBus Timeout SBus NAK Rcv Failed Snd Failed General Error	See list of error reasons above
7	Delete		Delete parameters	
8	Save		Save parameters and return to S-Bus connections	See chapter 4.2.7

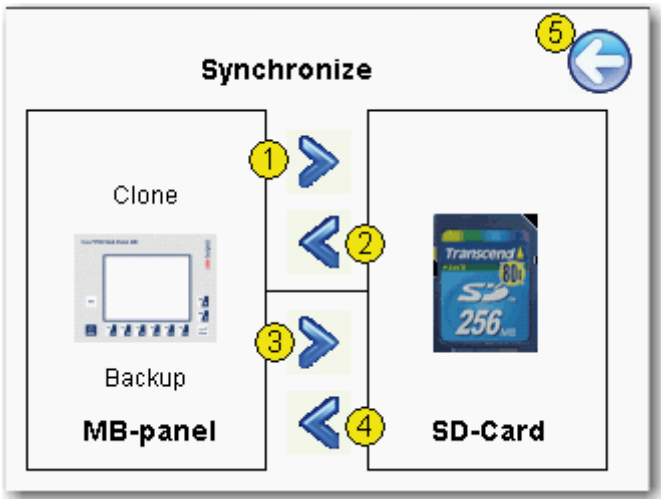
4.2.9 Option, SD-Card Memory PCD7.RD4-SD

A new accessory module PCD7.RD4-SD is currently developed.
This lets you have from 256 MB or higher additional Memory. This is useful for big projects that need to be loaded locally.

Cloning and backup functions allow to copy (or restore) files from the FTP server of the MB-Panel onto the SD-Card (if it is installed on the MB-Panel)

This next view appears only if the SD-Card holder is installed:

4

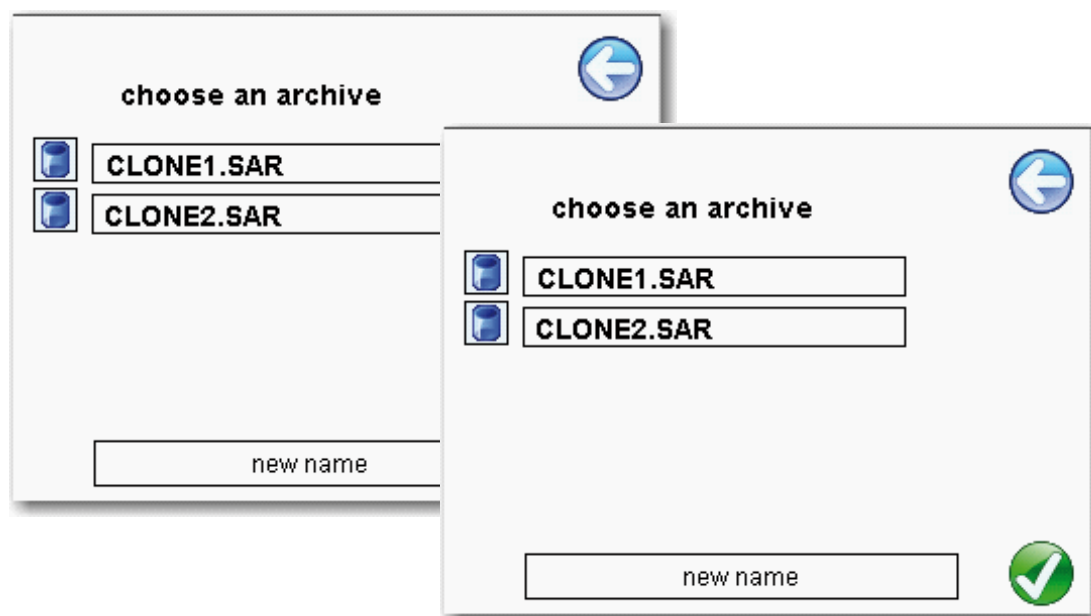


Clone: Copy or restore image of “INTFLASH” or “M1_FLASH” onto or from a archive file (.SAR format)

Backup: Copy/restore all the files contained in the M1_FLASH/WEBPAGES onto or from an archive file (.SAR format)

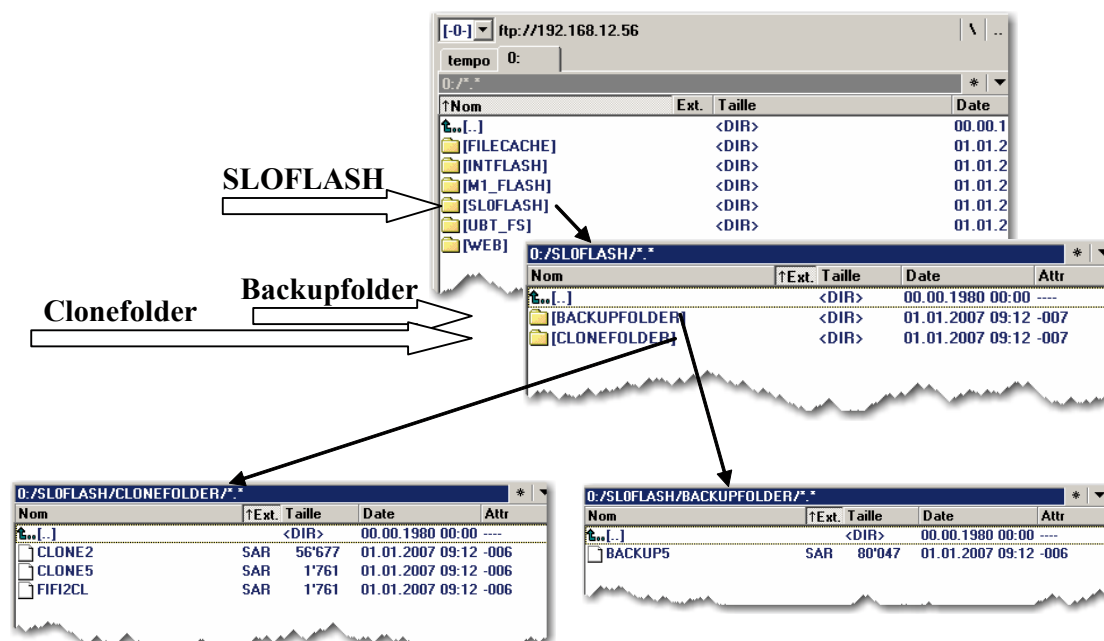
1/2	➔ ➔	Cloning: Copy or restore	Copy content of “INTFLASH” and “M1_FLASH” onto SD_Card (.SAR format archive file) or restore* content of cloning archive file to “INTFLASH” and “M1_FLASH”
3/4	➔ ➔	Backup: Copy or restore	Copy content of “M1_FLASH/WEBPAGES” onto SD_Card (.SAR format archive file) or restore content of backup archive file to “M1_FLASH/WEBPAGES” Condition: /webpages must be not empty
	Archive name		Name: 20 characters max with no spaces or spec. charact. Cloning and backup files are the same extension format: .SAR (Saia ARchiv)
5	➔		Back to the configuration menu (see chapter 4.2.1)

Restoring choose in the lists



4

FTP access to cloning and backup folders



BE CAREFULL ! case sensitive

Saia filesystem does not support file names in ANSI characters but only ASCII characters (code 0 to 127).

The names of .teq, .itq, .html, .gif, .bft and .csv files, which should be copy in the M1_FLASH or SLOFLASH, must be write with ASCII characters without spaces and the maximum number of characters (extension figure included) is 24.

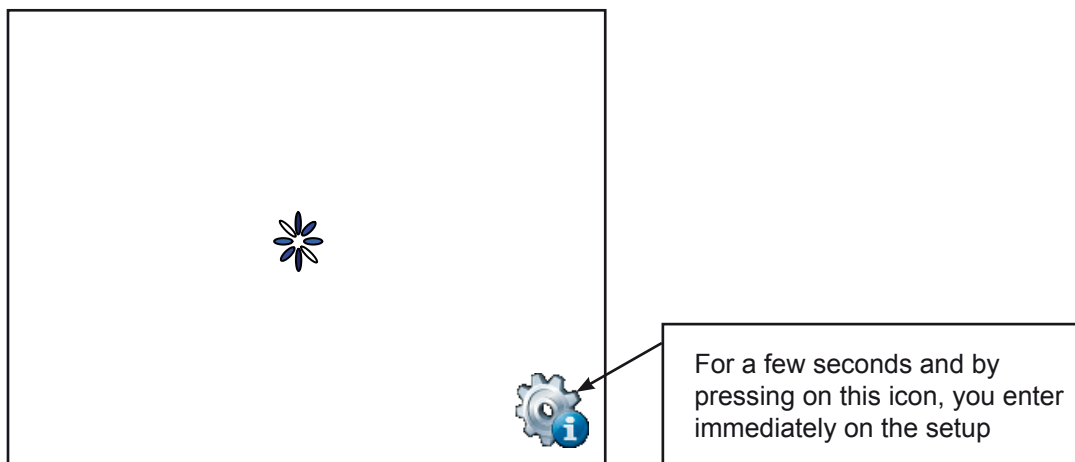
5 Setup Menu VGA MB-Panels


5.1 Setup Menu Parameters «Step by Step»

- This chapter describes the “Menu structure of the VGA eMicrobrowser Panels, based on the FW version 1.12.11.

Title

The title screen is displayed for a few seconds. It is the first screen that appears after a power ON. The Welcome text and the splash image are defined in → system / intro screen (chapter 5.9.1)

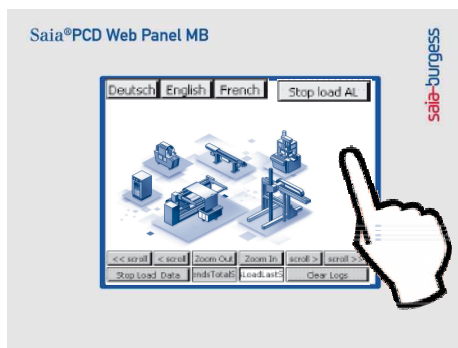


 = Animated Icon for “please wait, activity in progress, loading”

Custom your start page: See chapter 5.9.1

5.2 Setup Menu

- By pressing at any time and anywhere (except on the buttons areas) during 4 seconds
- By pressing on an Icon at start (see chapter 5.1)
- SETUP menu contains an ON-LINE Help (press help icons)

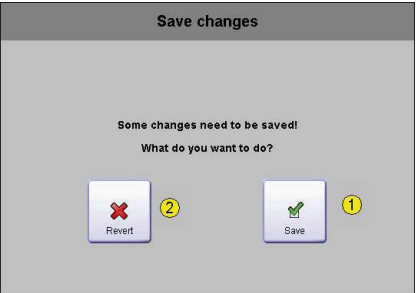


5.3 Password

MB-Panels from the PCD7.D4xxx series are delivered without a Setup password. However, if a password has subsequently been defined for access to the Setup menu, you will have to enter the correct password and confirm it with OK.

Setting password see chapter 5.12

5.4 Save and quit

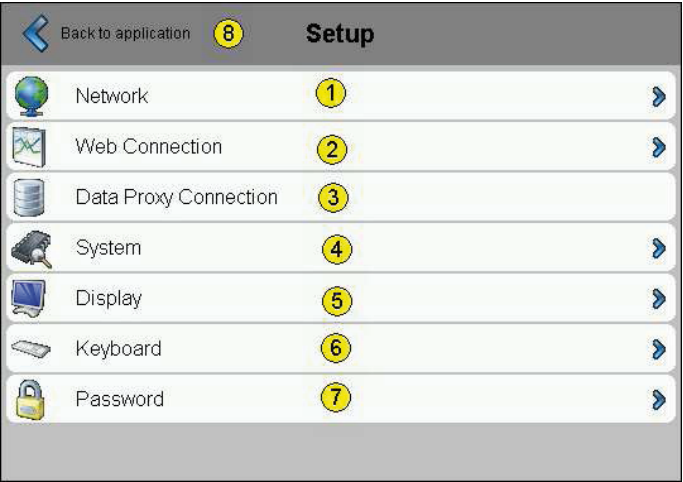


5

By changing one or several parameters, you must confirm that you want to save or not the new parameters.

5.5 SETUP screen

Setup screen is the first screen that appears by entering in the setup menu.



1	Network	MB-Panel settings	See chapter	5.6
2	Web connection	Configuration of the Web connection	See chapter	5.7
3	Data proxy Connection	Not yet implemented		
4	System	Info/settings/special/FW download and reboot	See chapter	5.8
5	Display	Display settings	See chapter	5.10
6	Keyboard	PS/2 keyboard settings	See chapter	5.11
7	Password	Enter a password	See chapter	5.12
8	Back to application	Back to application		

5.6 Network

Setup 5

Network

Help

MAC Address	1	00:50:C2:93:35:78	
TCP/IP Address	2	192.168.12.201	>
Subnet Mask	3	255.255.0.0	>
Default gateway	4	0.0.0.0	>

Network

TCP/IP Address

Help

192 . 170 . 10 . 100

1	2	3	<=	=>
4	5	6	clr	prv
7	8	9	0	o.k.

5

1	Mac Adress	Read only	For information
2	TCP/IP Address	Read/write	IP address of the MB-Panel
3	Subnet Mask	Read/write	Subnet Mask IP address
4	Default gateway	Read/write	Default gateway IP address
5	Setup		Return the main setup menu

5.7 Web connection

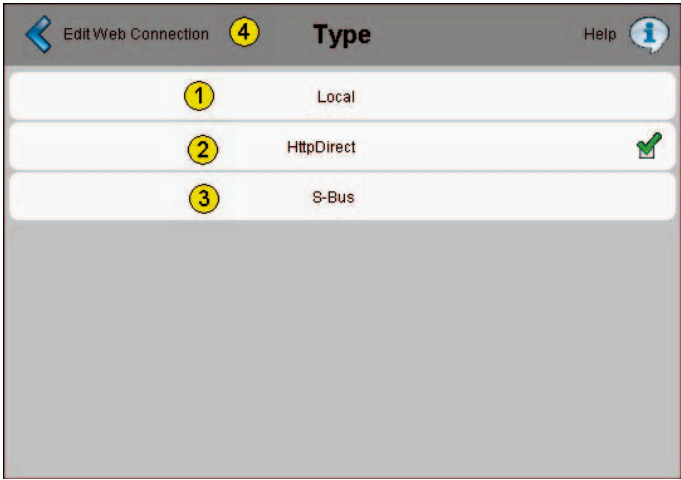
Setup 5

Edit Web Connection

Start Page	start.html	1	>
Path	directconnect	2	>
Type	HttpDirect	3	>
Parameter		4	>

1	Start page	Default start page name of the web project	Start.html (default)
2	Path	Name of the connection (free name). If S-Bus connection, S-Bus name without proxy address 127.0.0.1	-
3	Type	Type of connection	HttpDirect (default)
4	Parameter	Parameters of the connection	-
5	Setup	Return to the main setup menu	

5.7.1 TYPE of connection

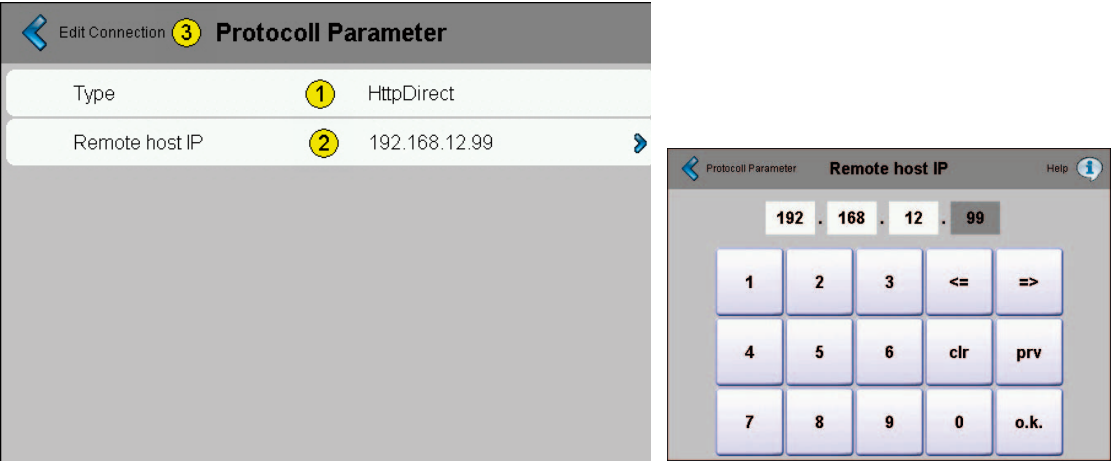


5

1	Local	No connection with any PCD The connection is to the local IP address 127.0.0.1
2	Httpdirect	http direct connection (Ethernet only)
3	S-Bus	S-bus connection (serial or Ethernet)
4	Edit web connection	Return to the web connection

5.7.2 Parameters of a Httpdirect connection

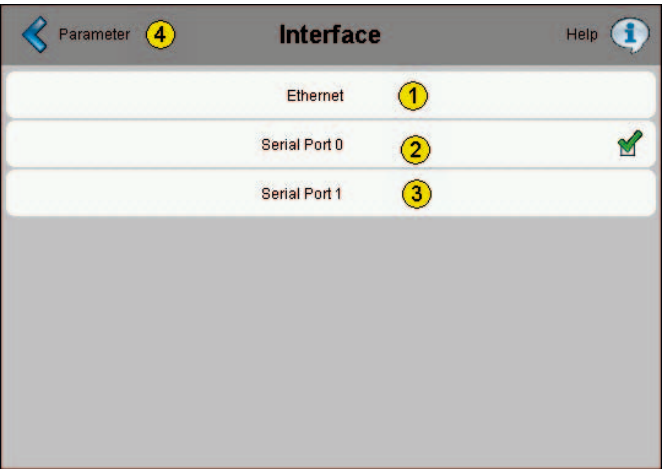
For external keyboard or barcode reader. (Mini Din 6 with standard pin-assignment)



5

1	Remote host IP	Address of the remote PCD	127.0.0.1 (default)
2	Edit web connection		

5.7.3 Type of S-bus Interface connection



1	Ethernet	Ether-Sbus connection
2	Serial port 0	Serial S-bus connection Port 0 RS232 (D-Sub 9)
3	Serial port 1	Serial S-bus connection Port 1 RS485 (orange spring connector no.1,2,3)
4	Parameter	Return to parameter menu

5.7.4 Parameters of Ether-S-bus connection

Edit Web Connection 8 Parameter	
Type	S-Bus
Interface	Serial Port 0 1
Remote S-Bus Address	1 2
Baudrate	9600 3
Timeout	250 4
Retries	3 5
TN Delay	0 6
TS Delay	0 7

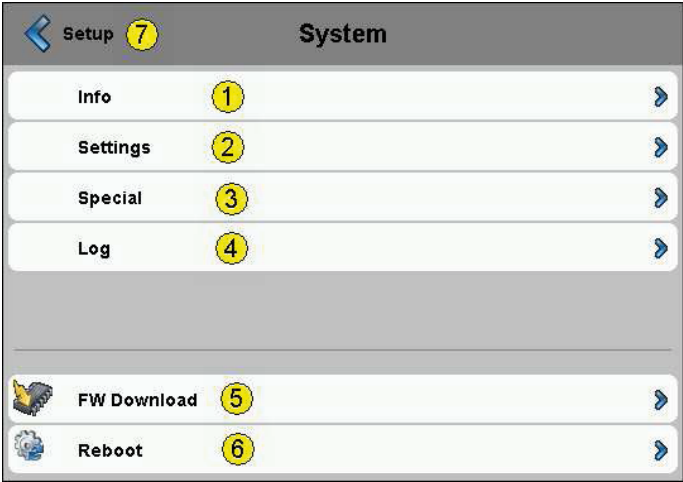
Type	S-Bus	Read only
1 Interface	Ethernet	Ethernet S-bus connection
2 Remote S-Bus Address	1 (default) Up to 253	S-bus address of the PCD
3 Remote IP Address	xx.xx.xx.xx	IP address of the PCD
4 Timeout (ms)	Default 600 (100 to 2000)	S-bus timeout
5 Retries	Default: 5 (1 to 20)	Number of attempts: try + retries
Edit Web connection		Back to web connection menu

5.7.5 Parameters of Serial S-bus connection

Edit Web Connection 8 Parameter	
Type	S-Bus
Interface	Serial Port 0 1
Remote S-Bus Address	1 2
Baudrate	9600 3
Timeout	250 4
Retries	3 5
TN Delay	0 6
TS Delay	0 7

Type	S-Bus	Read only
1 Interface	Serial Port 0 (or 1)	Serial S-bus connection
2 Remote S-Bus Address	1 (default) Up to 253	S-bus address of the PCD
3 Baudrate	9600 KBits/s (default) 1200-2400-4800-9600-19200- 38400-57600-115200	Selection of the communication Baudrate
4 Timeout (ms)	Default 250 (100 to 2000)	S-bus timeout
5 Retries	Default: 3 (1 to 20)	Number of attempts: try + retries
TN delay	TurN around = 0 (default)	Advanced S-Bus parameter
TS delay	Setup Time = 0 (default)	Advanced S-Bus parameter
6 Edit Web connection		Back to web connection menu

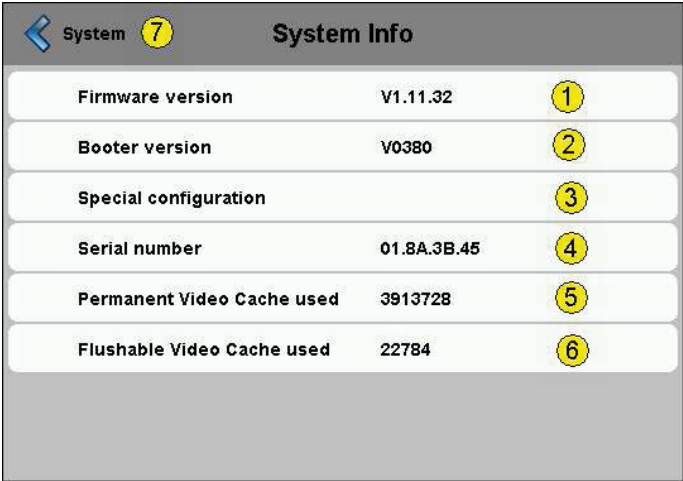
5.8 System



5

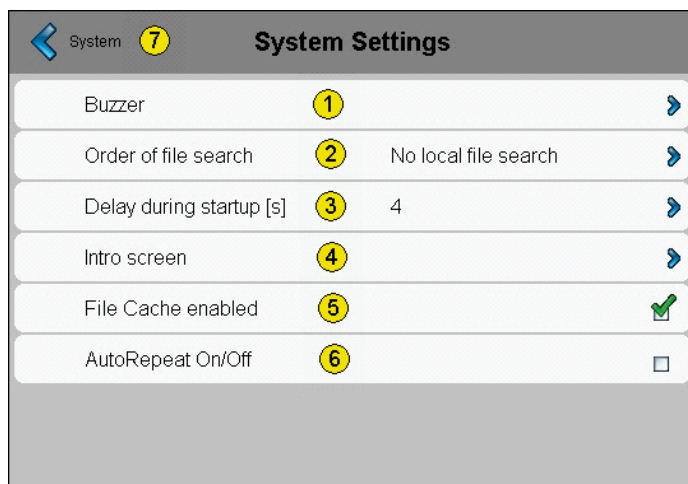
1	Info	System info (FW , booter versions...)	see chapter	5.8.1
2	Settings	Concern: buzzer, order of file search, startup timeout, infoscreen, file cache, Autorepeat.	see chapter	5.8.2
3	Special	Reset parameters, Format M1_flash and Intflash.	see chapter	5.9.2
4	Log	Overview log.txt	see chapter	5.9.3
5	FW Download	Select mode of downloading	see chapter	5.13
6	Reboot	Reboot MB panels (with confirmation)	Like a power OFF and ON, but without any HW switching	5.14
7	Setup	Return the main setup menu		

5.8.1 Sytem info



1	Firmware version	V xxxxxx	Firmware version of the MB-Panel (Read only)
2	Booter version	V xxxxxx	Booter version of the MB-Panel (Read only)
3	Special config		Customising product (Read only)
4	Serial number	xx.xx . xxx	Serial number of the panel. This number is unique and it can be used for product traceability (Read only)
5	System		

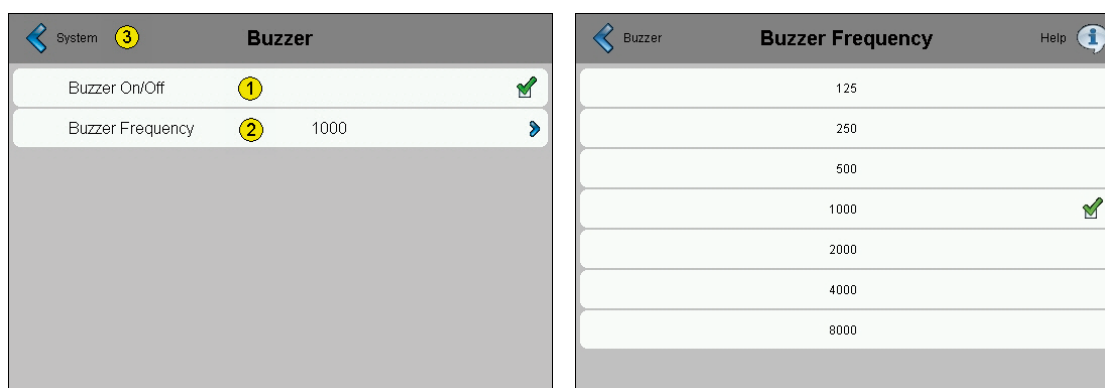
5.8.2 Settings



5

1	Buzzer	On / Off / frequency	See chapter	5.8.3
2	Order of file search	Local / remote files	See chapter	5.9
3	Delay during Startup (s)	4 (default) Min: 0 & Max:15		5.9.1
4	Intro screen	Entry welcome text and splash image	See chapter	
5	File Cache enabled	Default: Enabled In normal operation, the file cache should always be enabled.	The file cache can be enabled/disabled. Disabling is particularly useful for projects in development in order to see the visible change in files cached.	
6	Autorepeat on/off	Select/unselect	Autorepeat behaves similar to the autorepeat feature of a keyboard but just uses the touch screen.	
	Setup	Return the main setup menu		

5.8.3 Buzzer



1	Buzzer on/off	Default is on	Change by pressing once
2	Buzzer Frequency	Default is 1000	Select between 125 and 8000 Hz
3	System		Return to system page

5.9 Order of file search

5

1	No local file search	Default	„No local file search“ means that no files (.teq or .gif) will be searched in the local server (= uBrowser server).
2	Local before remote		„Local file search before remote“ means that files (.teq or .gif) will be searched in the local server before searching in the PLC server. With additional SD-card, files will be searched first in M1_FLASH (embedded 4MB flash), then in SLOFLASH (SD-card flash).
3	Remote before local		„Local file search after remote“ means that files (.teq or .gif) will be searched in the remote server before searching in the local server (MB-Panel)
	System		Return to system page

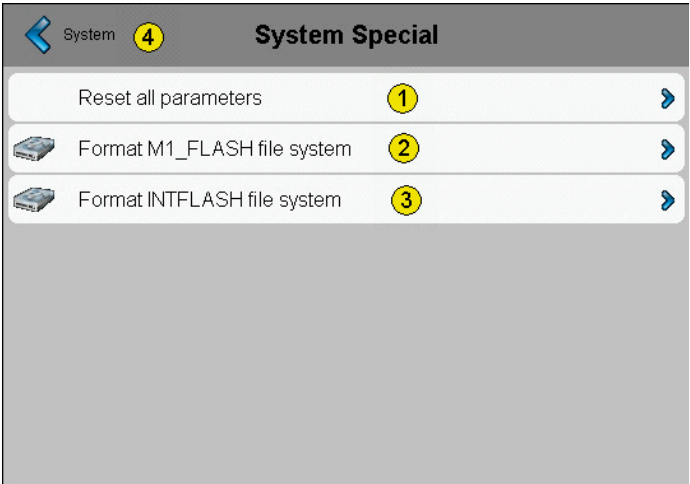
5.9.1 Intro screen



1	Welcome text	Default: Welcome	Free welcome text
2	X position of text	Default X= 400 pixel	Value between 0 and 639
2	Y position of text	Default Y= 300 pixel	Value between 0 and 479
3	Filename of Graphic	SaiaSUGrande.gif	Gif file
4	X position of Graphic	Default X= 100 pixel	Value between 0 and 639
4	Y position of Graphic	Default Y= 50 pixel	Value between 0 and 479
5	System		

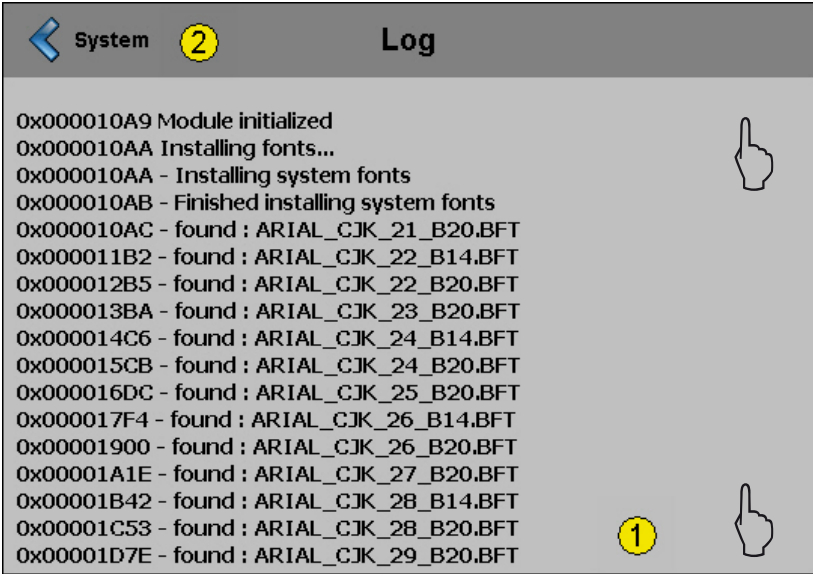
5

5.9.2 System Special (advanced)



1	Reset all parameters	This command allows to reset all parameters to the default values
2	Format M1_FLASH file system	Advanced function with this message of confirmation: “Do you really want to format the M1 flash?” This command erases flash and creates files system. When format is Ok. Return to the sytem menu (see 4)
3	Format INTFLASH file system	Advanced function with this message of confirmation: “Do you really want to format Intflash?” Be carefull you lose all the parameters of configuration, s-bus and MBterminal, Including the calibration. The panel reboots automatically.
4	System	Return to the system menu

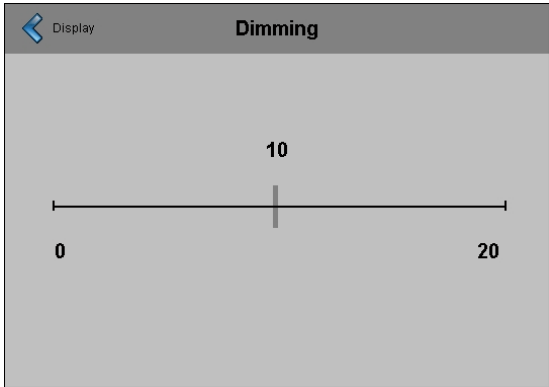
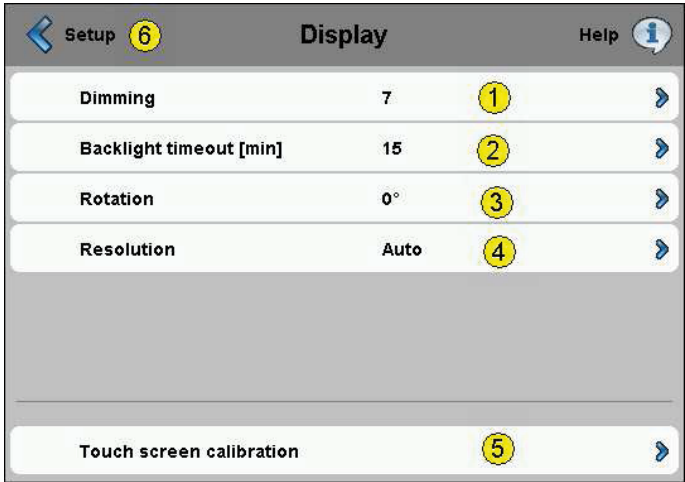
5.9.3 Log



5

1	LOG.TXT/Read only	Glance over the list by pressing on the touch. That allows controlling, for example, if the fonts are found. At the back page: Info regarding the errors. Access to log.txt via FTP: uBT_FS/LOG.TXT
2	System	Return to the system menu

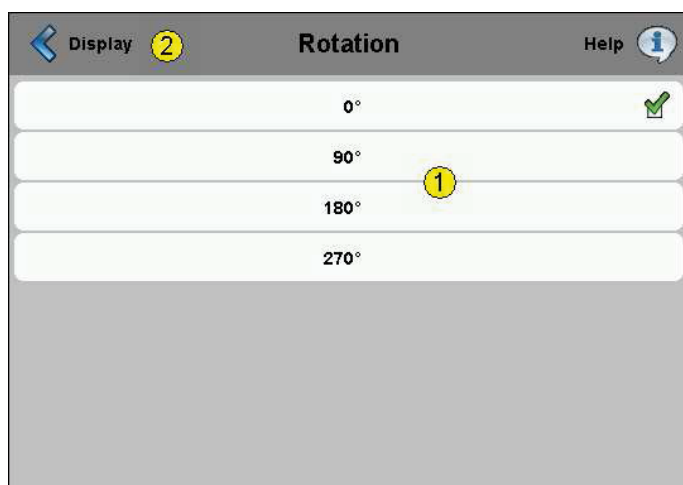
5.10 Display



1	Dimming	Default: 10	Adjustable between 0 and 20	
2	Backlight timeout (min)	Default: 15 minutes	The backlight turns off if neither the touch-screen nor any keys are pressed during this time. The backlight reactivates as soon as the blank screen or keys are pressed. Adjustable between 0 and 5000.	
3	Rotation	Default: 0°	Landscape portrait	chapt. 5.10.1
4	Resolution	Default: Auto	Auto, VGA or QVGA resolution	chapt. 5.10.2
5	Touch screen calibration	Re-calibration	Use carefully a styus or a fine pen	
6	Setup		Return to the main setup menu	

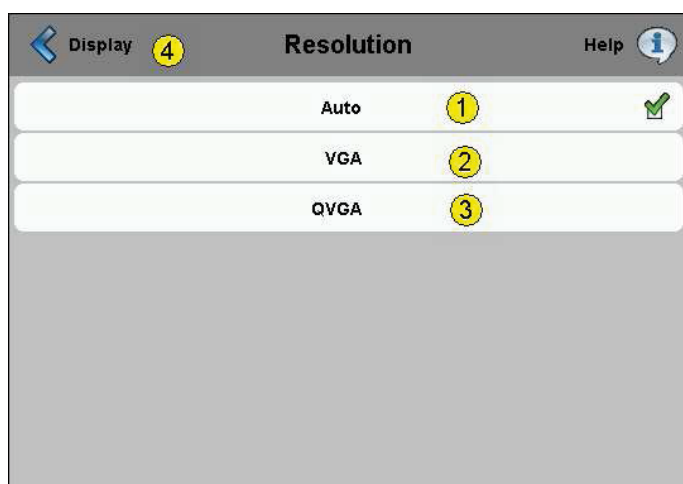
5.10.1 Rotation

5



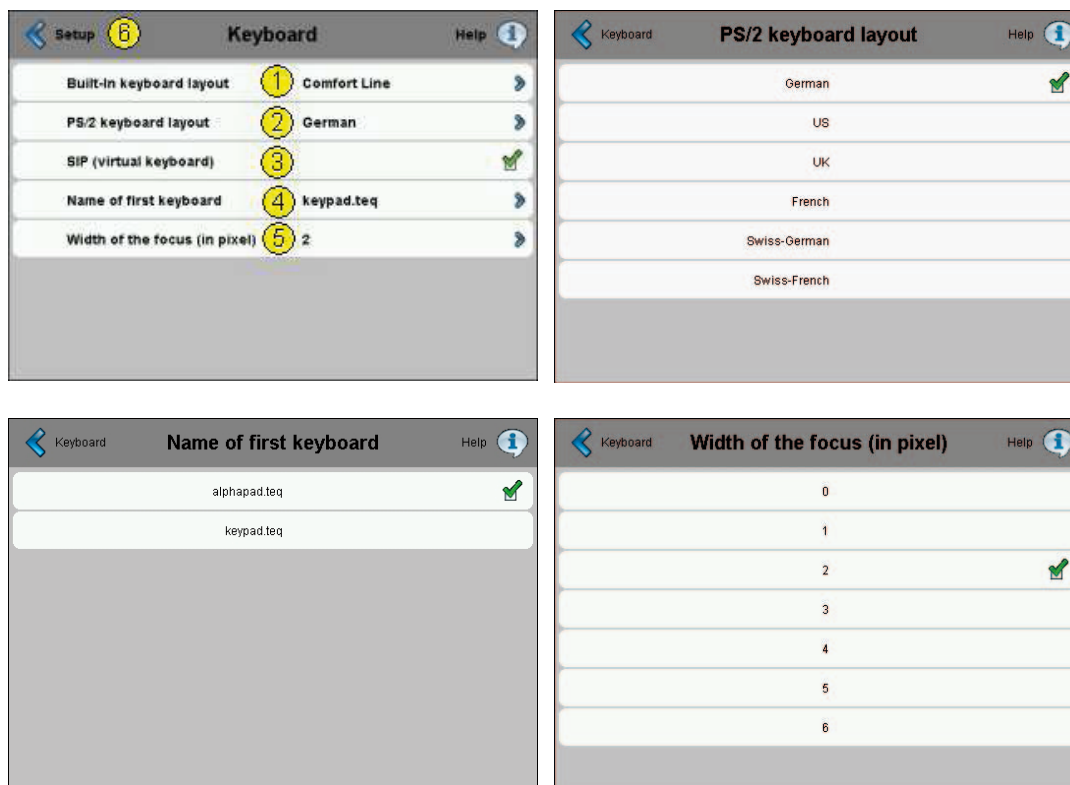
1	0°, 90°, 180°, 270°	Default: 0°	Change the orientation landscape to portrait and inverted
2	Display		Return to display menu

5.10.2 Resolution



1	Auto	Default	The panel tries to determine the resolution of each teq.
2	VGA		All teq's are displayed with VGA resolution
3	QVGA		All teq's are displayed with QVGA resolution
4	Display		Return to display menu

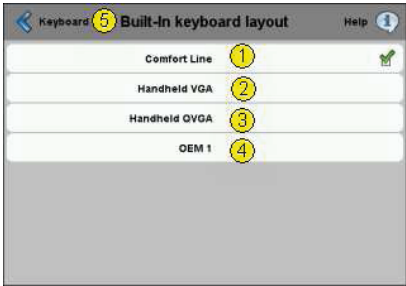
5.11 Keyboard



5

1	Build-in keyboard layout		
2	PS/2 keyboard layout	Default: GE (German)	PS/2 External Keyboard languages GE (German) or US (English US) or UK (English UK) or FR (French) CH-GE (Swiss German) or CH-FR (Swiss French)
3	SIP (virtual keyboard)	Default: Enabled	Enable/Disable SIP (Soft Input Panel). Virtual keyboards
4	Name of the first keyboard	Default: Alphapad.teq, alphanumeric keyboard is opened in first	You can choose: Alphapad.teq or keypad.teq in first. (respectively alphanumeric or Numeric keyboard)
5	Width of the focus (in pixel)	Default is 2 pixel	Selection between 0 to 6 pixel. A border is drawn around the currently active button or edit field. The width of this border is controlled by the property and is measured in pixel. If a width of 0 is selected no border is drawn. This is useful if only touch screen operation is used.
6	Setup		Return to the main setup menu

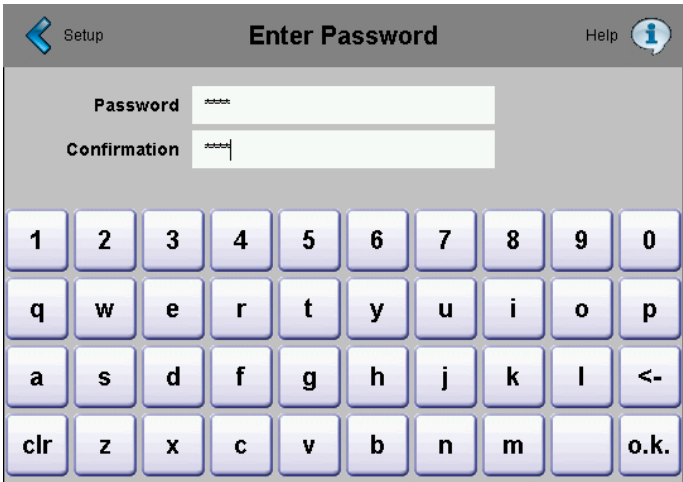
5.11.1 Build-in keyboard layout



1	Comfort line	Keyboard layout VGA MB panel with keys/Fkeys
2	Handheld VGA	Keyboard layout VGA Handheld.
3	Handheld QVGA	Keyboard layout QVGA Handheld. (old version)
4	OEM 1	Customer specific
5	Keyboard	Return to the keyboard menu

5

5.12 Enter Password



Setting a password

Alpha, numeric or alphanumeric password is possible (maximum characters = 32 , spaces included)

If setting a password, a confirmation is required.

If setting a new password, a confirmation is required and if the entered phrases do no match, the old password is retained.

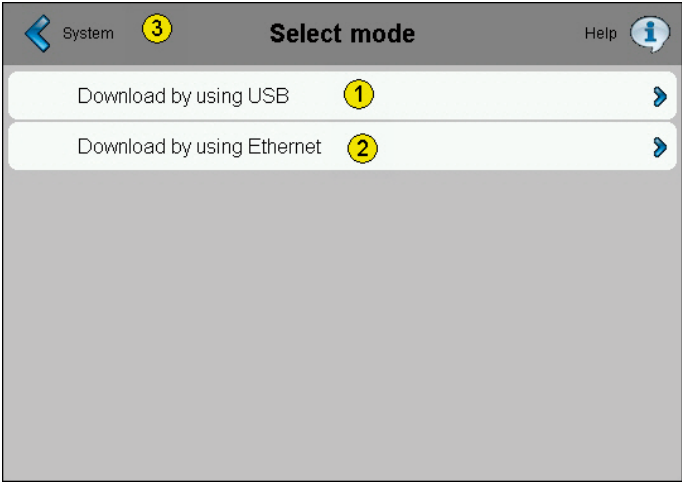
If you want to remove password protection, just enter and confirm no characters

⊗ Forgot your password ➔ delete the passwd.dat file (FTP connexion) it's all

0:/INTFLASH/CONFIG/*.*				
Nom	Ext.	Taille	↓Date	Attr.
[..]		<RÉP>	00.00.1980 00:00---	
CONFIG	BCK	591	01.01.2008 09:12-006	
CONFIG	TXT	591	01.01.2008 09:12-006	
PASSWD	DAT	64	01.01.2008 09:12-006	
SBUS	TXT	34	01.01.2008 09:12-006	
TSPPOINTS	DAT	48	01.01.2008 09:12-006	
UBTERMINAL	BCK	2'841	01.01.2008 09:12-006	
UBTERMINAL	TXT	2'841	01.01.2008 09:12-006	

5.13 Firmware Download (MB-Panel side)

5




1	Download by using USB	
2	Download by using Ethernet	
3	System	Return to system page


5.13.1 FW Download by USB



1	Download by using USB	Hit the download button to put the MB-Panel into download mode. After a successful update of the FW, the MB-Panel will restart automatically.
2	Select mode	Return to the Firmware select mode page

5.13.2 FW Download by Ethernet


 Select mode **5** FW Download by Ethernet


Help 


TCP/IP Address **1**192.168.12.201

Subnet Mask **2**255.255.0.0

S-Bus Station **3**10



 Download **4**




5

1	TCP/IP address	Read only	
2	Subnet Mask	Read only	
3	S-Bus station	Read/write	You may change the S-Bus station number before hitting the download to put the MB-Panel into download mode. After a successful update of the FW, the MB-Panel will restart automatically.
4	Download		Hit the download button to put the MB-Panel into download mode. After a successful update of the FW, the MB-Panel will restart automatically.
5	Select mode		Return to the Firmware select mode page

5.14 Reboot MB-Panel

Like a power OFF and ON, but without any HW switching

 System **Reboot MB-Panel**

Do you really want to reboot this MB-Panel ?

Reboot

6 Update & special settings

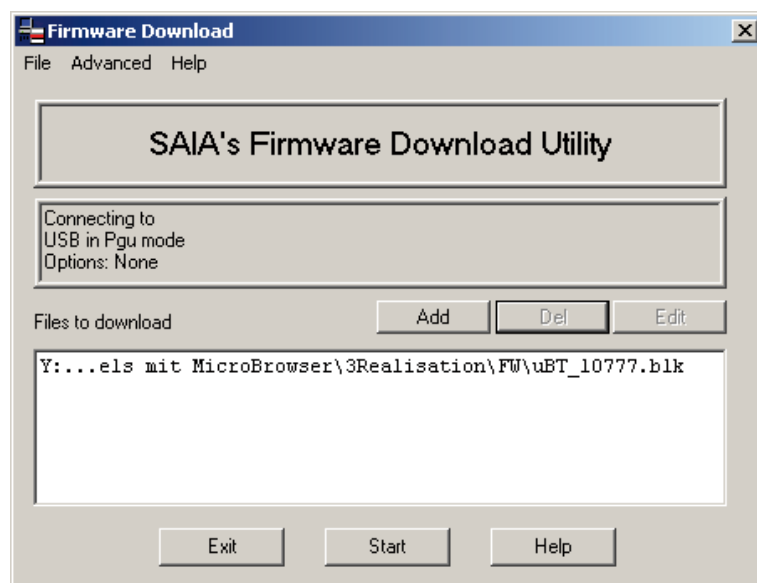
6.1 Firmware Update

On every MB-Panel with HW version A or higher, the FW can be updated. For this plug a USB cable on the MB-Panel and connect it to a PC or Laptop where our FW Download tool is recorded.

A Saia based PG5 SW-tool is provided. You can either start it through our PG5 SW or with a FW Installer that you can find on our Internet Support page.

For touch screen Comfort and base lines 5.7" and 10.4"

Only one .blk file to download is necessary uBT_xxxxxx. blk

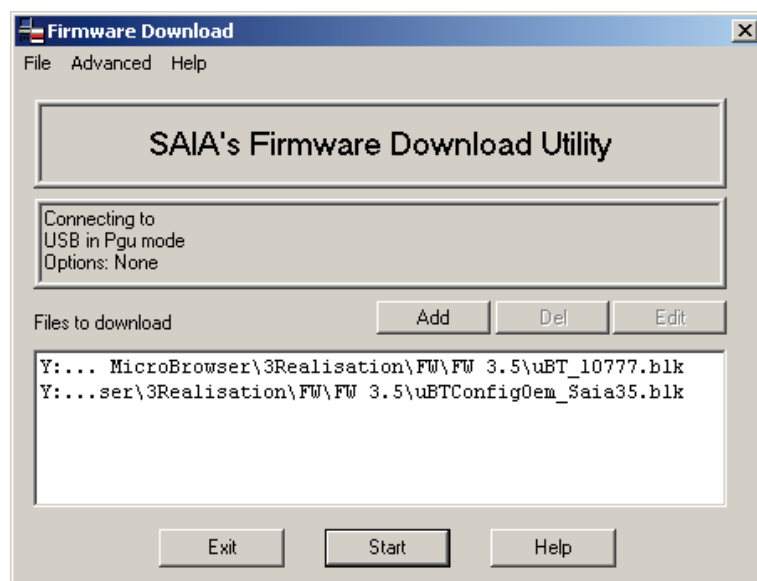


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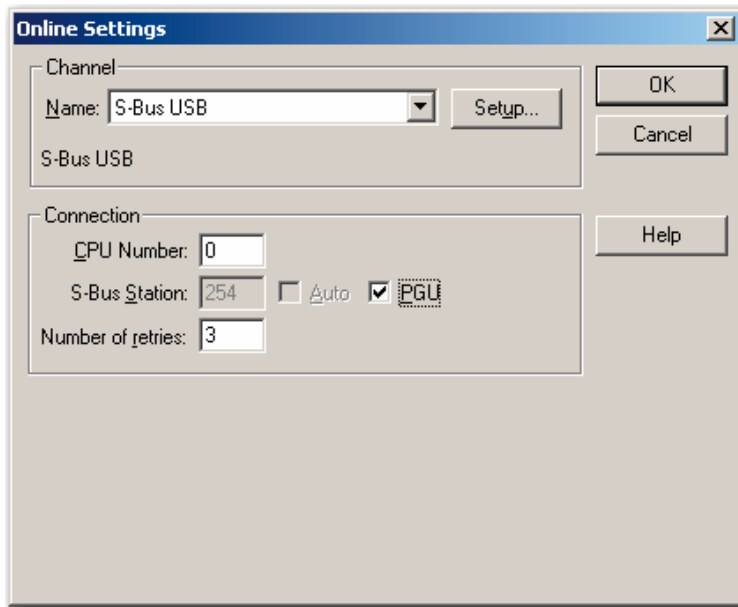
For Comfort line 3.5" (with alphanumeric keyboard, Fkeys and keys and without touch screen)

Two .blk files are necessary. Order in not sensitive.

Start the Firmware download, both will be downloaded automatically.



If the connection is not written USB in PGU/Auto mode, go in menu File/online settings and adjust the connection to USB port as follow:



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Update von Booter file:

Please only use our “Installer Package” as this operation is not common

The best way to make the FW Download is to :

1. Start your FW download tool and configure it, as explained.
2. Power on the MB-Panel, with the USB cable REMOVED
3. Once the Panel is powered, you'll see a Bar named “Enter in Setup Menu” (see Chapter 1.2). Activate it by pressing on the Touchscreen or with the Enter Button.
4. Go in the Setup Menu System/Download FW and press OK !
5. The green LED must flash at a regular frequency of about 3 flashes per sec.
6. NOW you are able to connect the USB Cable on the MB-Panel and to press Start on the FW Dowload tool.

REMARK:

If you stop or loose the communication during that procedure, the system won't show you again any display. It is then normal because the FW Flash Memory is erased at the beginning of the procedure. Please retry the same steps without this time chapters 3 and 4.

If the green LED doesn't light as described, then do the following added step:

- A. Power off the MB-Panel
- B. On the Top of the Back Cover there is a hole of 3mm diameter. Inside you'll find a button. Take a fine pen or a little screwdriver and press continously (hold it) on that button. Here below the position of that **reset button**:



C. Then at the same time Power ON the MB-Panel. Wait about 3-4 sec. until the LED is flashing. Then go back to upper chapter 5.

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ATTENTION: the named *.blk file corresponds to a full FW file. Use only files provided by SAIA-Burgess Controls SA and for a Panel PCD7.D4xx.

Downgrade to old FW version:

A downgrade to an old version can be done. The download of the FW Booter is not required. For this operation, either use the Installer provided (if existing) or just load the FW file (ex. uBT_V1002_Saia.blk) you need. If you are not sure about this operation please contact our Support Call Center.

6.2 Reset / Device Back to default parameters

The reset button from previous chapter 6.0 can also be used in some special cases to make a full reset of the MB-Panel and to restore the default parameters set from the manufacturer.

When can this function be useful?

When doing a FTP connection to the local server, it can be that you did copy in wrong directory the local file desired. Or may be you did erase inadvertently some files needed for the Setup Menu display.

The most known Error is when the display is writing : **“uBTerminal not found”** and the screen stays for a while without changing the page displayed.

In that case do the following steps :

1. Power off the MB-Panel
2. On the Top of the Back Cover, activate the reset button (see previous chapter) by holding it
3. At the same time, power on the MB-Panel. After about 5 seconds, the buzzer is switched on and its frequency is increasing.
4. Once the sound (resp. frequency) of the buzzer is stabilized, after about 10 seconds, you can release the reset button and wait.

The waiting time can last between 1 or 2 minutes. In that time the FW does rebuild the whole memory organization and recover every necessary default files.

At the end the MB-Panel will do an [automatic reboot](#) and ask you for a [new Touch-screen calibration](#). Calibrate it and your system will be fully restored.

The position of that [reset button](#) is shown in chapter 6.1

6.3 Contrast Adjustment

Our LCDs Supplier have some Tolerance due to a Visual quality check in their Manufacturing due also to the temperature. Added to that the different component's tolerance plays also a role.

Even that, the pixels brightness is directly dependent from the temperature. Therefore, actually, it is better to adjust the contrast settings manually once the panel is working at its most frequent temperature.

Especially on the Black&White Panel where no automatic temperature adjustment is actually done, the user must be aware.

6.4 Backlight Control

As described in chapters 4.1.6 and 5.10 a Backlight timeout can be set.

This function helps you saving energy. When the Backlight is deactivated, you save about 3/4 Watts. That is not negligible. Not only, the Backlight **lifetime** is saved resp. increased.

CCFL and LED backlight.

According to the types of MB-Panels, the backlight technology is CCFL or LED

Types	Backlighting
PCD7.D435TLCF	LED
PCD7.D457BTCF	LED
PCD7.D457STCF	CCFL
PCD7.D457SMCF	CCFL
PCD7.D457VTCF	LED
PCD7.D457VMCF	LED
PCD7.D410VTCF	CCFL

With CCFL Backlight (Cold Cathode Fluorescent Light), which is similar to a standard "Neon" tube light, a gas powers the light under AC voltage which is provided by an inverter circuit. When it is cold the gas doesn't start as easily as in normal temperature conditions. It is why with cold temperature the number of Backlight switching must be reduced in order to save the lifetime.

LED backlighting (light-emitting diodes) is most commonly used in small LCD panels. The light is usually colored, although white LED backlighting is becoming more common. Dimming is easier than with CCFL backlight.

Backlight Lifetime?

The **typical** (@25°C) backlight lifetime is defined around 50 Khrs.

That means more than 5 years permanently switch on. **BUT**, we can quickly reduce (divided by 2 or more) this value if the operating temperature is about 10 °C or less, especially with CCFL Backlight type. The user or programmer must be aware of the Backlight timeout if he wants to increase the lifetime.

6.5 Recognized Fonts of the MB-Panel PCD7.D4xx

Supported basic fonts

The user can put any font indication in the request code.

The font can be pre-defined and supported by default, specially loaded, or not loaded at all. Also pre-defined fonts can be overloaded by other font definitions at wish.

The pre-defined fonts are:

Default fonts available for QVGA MB-Panels

Font and font style	Character Size
Arial	10, 12, 16
Arial Bold	14, 20
Courier New	10, 12, 16
Courier New Bold	14, 20
Tahoma	10, 12, 16
Tahoma Bold	14, 20

Default fonts available for VGA MB-Panels

Font and font style	Character Size
Arial	10, 12, 16, 20, 24, 36
Arial Bold	14, 20, 24, 36
Courier New	12, 16, 20
Courier New Bold	14, 20
Tahoma	12, 16, 20, 24
Tahoma Bold	14, 20, 24

If you do not pay attention at the text font and style you use in Web-Editor, you take the risk to display undesired characters. Here below the little translation table of some common Font and style:

Font and font style	Character Size
Arial 8 Arial 20	Arial 10 Arial Bold 20
Arial Bold 12 Arial Bold 24	Arial 12 Arial 12
<i>Arial 12 Italic</i>	Arial 12
Arial 12 Bold Italic	Arial 12
Courier New Bold 10	Courier New 10
Tahoma 8 Tahoma 20	Tahoma 10 Tahoma Bold 20
Tahoma Bold 16	Tahoma 16
Lucida Calligraphy 12	Arial 12

* The size property of the font is not the vertical pixel size of the used text area fields. The height of the used text area for a font is the given font size with typ.3 or 4 pixel added.

The width of the used text area for a font is typ. 2/3 of the given font size. The font width is normally varying. Fixed widths are found only at special fonts like Courier.

6.6 Special Unicode fonts

6.6.1 General

The user is able to provide additional fonts to satisfy his requirements regarding the languages he is using or regarding special fonts/style/size which are not standard in the MB-Panel (see chapter).

Examples of languages: Russian, Greek, Chinese, Japanese

Examples of fonts: Comic sans MS, Charleworth, Book Antica, Century, Trebuchet, Verdana

This is done through the use of Unicode font files (.btf) , which are being generated and provided by Saia-Burgess. The firmware searches at the following locations for the font files:

M1_FLASH:/FONT

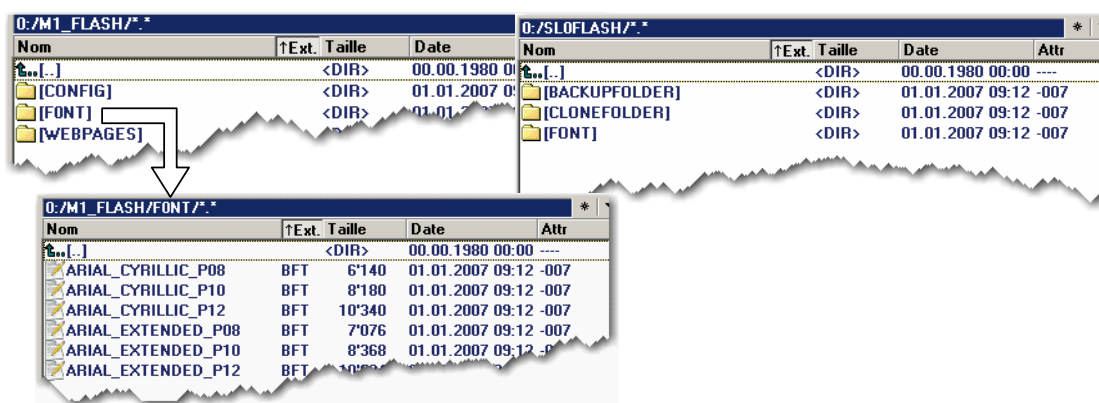
SL0FLASH:/FONT (in the case of SD card is installed)

INTFLASH:/FONT

A font file contains the data for one continuous range of characters. In case one needs for example Greek and Cyrillic two files should be loaded, one containing the Greek alphabet, the other one containing the Cyrillic characters.

The size of a font file must not exceed 128 KBytes.

If a font file is found it is registered. It is possible to register a maximum of 65 different files. As soon as a character is needed, the font file will be opened and the data of the character retrieved. These data will be cached for later reuse.



- Font file name: 24 ASCII characters max without spaces (extension file included)
- Font files installation: By copying the files via a FTP connection to the FTP server of the MB-Panel.
- Chinese fonts: size 12 is the minimum size readable.

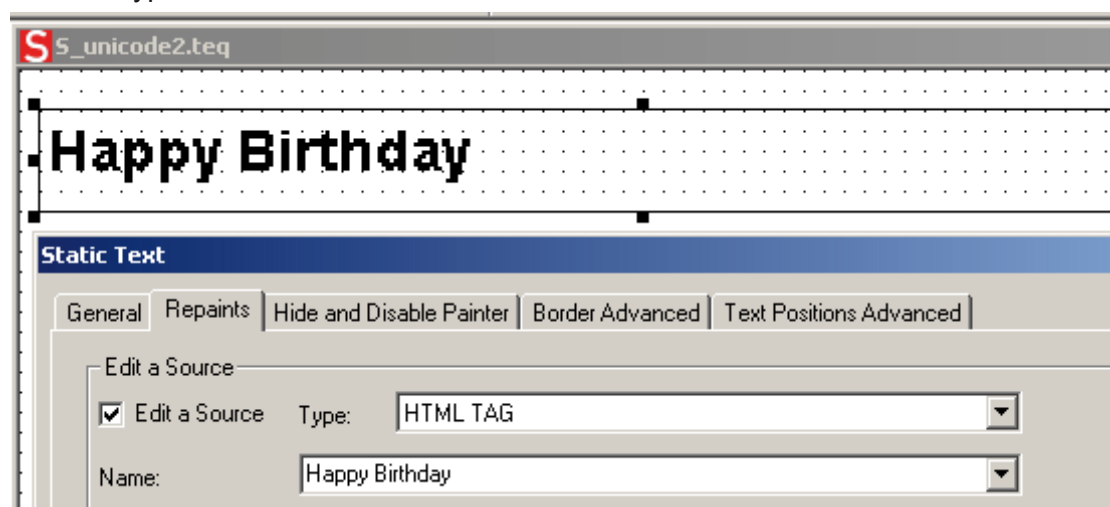
6.6.2 Multilanguages: example

→ Change a language by pressing on a button (set variable on mouse down)
Basic example is a translation of Happy Birthday in “Czech” in using “HTML TAG” type.

The “Czech” language needs extended European characters which are downloadable from sbc-support site in restricted area.

What's the drill?

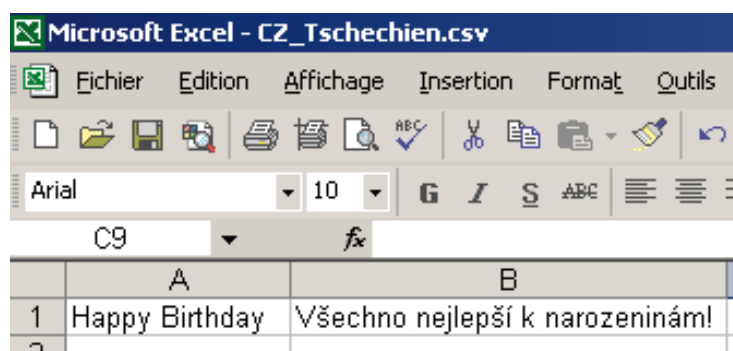
- 1) The Unicode Font(s).bft file(s) with extended European characters must be copied under ... /FONT (see the above topic 6.1.1)
- 2) Web-editor: Edit a static text with the text “Happy Birthday” and chose the “HTML TAG” type.



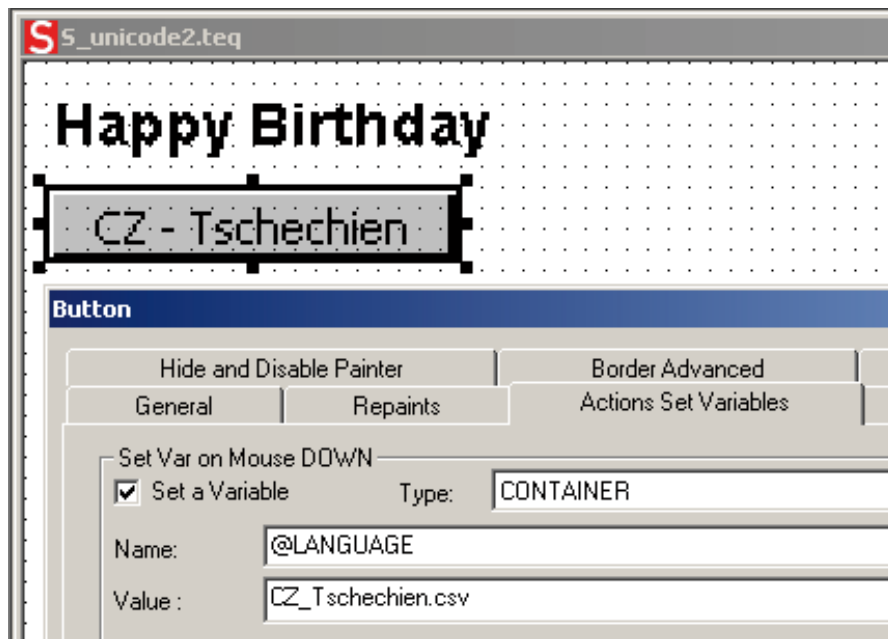
Remark regarding “Text positions Advanced Tab”: When using exotic characters (like Katakana, Chinese ..) it is recommended to keep the default text positions (not centered, not justified)

- 3) Create an excel file and write in the first column the word in English “Happy Birthday”. Be careful: “case sensitive” and in the second column the translation: “Všechno nejlepší k narozeninám”

Save the file with .txt Unicode format (.txt Unicode format is into the list of excel saving format) then change manually the .txt format by .csv (it is possible to change the format afterward in Windows® Explorer).



- 4) Web-editor: create a button with the following “Actions Set variables” parameters: type is “container”, name is “@LANGUAGE” then the Unicode .csv file.



- 5) Attention: Copy (by ftp) the Unicode .csv file (or files if several languages→as many languages as many .csv files) under M1_flash/ Webpages/...
Job done

6.6.3 Interpretation of wrong fonts (types, sizes or styles)

A) QVGA Panel

In case a font is unknown a search is performed using the following strategy:

1. same name, same style, changing size
2. same name, plain, changing size
3. Arial, same style, changing size
4. Arial, plain, changing size

The last search is guaranteed to yield a result, because of the built in Arial fonts. The substitution of a font with another font is reported in the log file.

In case a character is unknown, the following search algorithm is used:

1. Arial, same style, changing size
2. Arial, plain, changing size

If none of the above described searches yields a positive result a square is displayed.

B) VGA Panel

1. Arial, same style, keep size
2. Arial, plain, keep size

If this size does not exist for Arial :

3. Same font name, same style, reduce size to the next best
4. Same font name, plain, reduce size to the next best

If a smaller font does not exist for this font name:

5. Arial, same style, reduce size to the next best
6. Arial, plain, reduce size to the next best

If a smaller font also does not exist for Arial:

7. Arial, same style or plain ,use the smallest available size

The substitution of a font with a other font is reported in the log file (see the section 5.9.3)

6.6.4 Web-editor

The Unicode character set is available:

- by using the source type "HTML tag" in the web editor and via a .CSV file.
- by entering the text as a "string" directly in the web editor, in this case, it is not necessary to use .CSV files. In this case don't import Web-Editor project which was compiled with a Microsoft Windows using Unicode characters set A to another Microsoft Windows using Unicode characters set B.)

6.7 Special internal Functions

6.7.1 Container variables for QVGA MB-Panels

Container variables, available to the user, are included in the firmware of these terminals. Containers let the application program exchange information with the firmware.

All container variables have the prefix «uBT_».

Caution: case sensitive !!!

Container Variable (source HN)	FTP Config option	Description
uBT_ Version	Read only	Read only: Used firmware version
uBT_DisType	Read only	The container is Not active
uBT_BooTerVersion	Read only	Read only: Used firmware booter version
uBT_SerialNumber	Read only	Read only: Serial number
uBT_DispResolution	-	Display resolution: x→x axis [pixels] example: 320 y→y axis [pixels] example: 240 z→colour depth per pixel (bits per pixel) example: 8
uBT_IsTSPresent	-	Read only, Yes/No .TouchScreen present or not.
uBT_SDCardPresent	-	Read only. 0: SD not available/ not found, 1: available / found.Note: The local file search order is - Cache (if enabled) - Internal flash - M1 Flash - SD Flash, with SD Flash always as last option
uBT_IsConfigChanged	-	Read ,0' →Configuration unchanged Read ,1' →Configuration is changed
uBT_RestoreConfig	-	Write ,1' →Last saved configuration is restored
uBT_SaveConfig	-	Write ,1' →Current configuration is saved. When IPAddr, SubNetMask or Default Gateway is changed, the terminal has to be restarted.
uBT_EnableCache	R/W	For all files except image files: Read/Write 0→Cache is disabled. Each file is loaded every time. Read/Write 1→Cache is enabled. A loaded file will, if present, be taken from the cache. When switched off, or at an URL jump, cache files are deleted. When switched on, files get cached as soon as they are requested over the current page view. Note: Image files (GIF files) are decompressed and cached in a separate video cache that is always active. This video cache is only cleared at URL jumps or at cache out of space use.

Container Variable (source HN)	FTP Config option	Description
uBT_LocalFileSearch	R/W	Read/Write 0→No local file search. Each file is loaded from the local cache or remote. Read/Write 1→Local file search with local before remote. Read/Write 2→Local file search with remote before local. At active cache a file will be loaded, if present, from the cache in all cases. A switch of these settings at run time may first be fully effective after an URL jump and should be used with care.
uBT_DoLcdCalib	-	If touchscreen is present Read/Write, 1→a recalibration is executed.
uBT_LcdContrast	R/W	Read/Write: Contrast value (0...20). !!!! A lower value puts the brightness up . In earlier QVGA prototypes Firmware versions container uBT_LcdContrastPwm, range value 0...255 has been used that does the same. This container is still supported in QVGA FW 1.10.45, but will be removed in future versions. Please use uBT_LcdContrast to guarantee future working. Do not mix the use uBT_LcdContrast and uBT_LcdContrast Pwm in one project as this may lead to unwanted results.
uBT_BackLight	no	Read/Write 1, 0→Remote backlight control OFF The backlight is switched OFF if the control is '1' before. Any touch on the screen switches the backlight on again. Read/Write 0, 1→Remote backlight control ON The backlight is switched ON if the control is '0' before. The backlight may switch off afterwards again after a time out. For remote control over PPO↔container coupling only. The use in the Button and Edit painters is not supported.
uBT_BackLight Timeout	R/W	Read/Write timeout in minutes. If no user action is registered during this time, the backlight is switched off. Any touch on the screen switches it on again. If the value is 0 the backlight time out supervisory is inactive. A switched on back light is kept switched on forever in that case.
uBT_TCPIPAddr	no	Read/Write TCP/IP address of terminal (own address) within the used subnet. Modification forces a restart. FTP connections are lost.
uBT_SubNetMask	no	Read/Write Subnetmask of the terminal. Modification enforces new restart. FTP connections are lost.
uBT_DefaultGateway	no	Read/Write Default Gateway of the terminal. Modification enforces new restart. FTP connections are lost.

Container Variable (source HN)	FTP Config option	Description
uBT_EnableSIP	R/W	Read/Write SIP→Select Soft Input Panel (keyboard on the screen) Write 0→SIP is disabled. Virtual keyboards are disabled. Write 1→SIP is enabled. Virtual keyboards (alphapad.teq and keypad.teq) are enabled.
uBT_FirstPadName	R/W	File name entry for an alternative virtual keyboard file as replacement for alphapad.teq at local file use. At local file use alphapad.teq from the setup menu (from INTFLASH/WEB) is used by default. The alternative file—that must be named otherwise than alphapad.teq—can be placed in M1 or SD flash over FTP, or included in the stored web project in the remote server. The maximum number of characters (file extension with dot included) is 24.
uBT_BuzzVol	R/W	Read/Write buzzer volume setting (0...20). This sets the volume of the acoustic signal at the use of the touch function of the touch panel. As pulse width modulation is used to control the volume this setting has an influence on the sensed pitch of the alarm. Volume 0 setting switches it off.
uBT_BuzzFreqIndex	R/W	Read/write buzzer frequency selection (0...6). This equals to 125, 250, 500, 1000, 2000, 4000, 8000 Hz setting. This sets the pitch of the acoustic signal at the use of the touch function of the touch panel.
uBT_AlarmStart **	no	Write a value to start or stop the pulsed acoustic alarm. The acoustic alarm can be started with a setting of the interval time (0...30000 ms) of the pulsed signal. (30000 = 30 s) A 50% duty cycle is used with pulse time equal to pause time. If already running a renewed setting is ignored. Setting it to 0 however switches it off immediately. The alarm also stops by any touch on the screen.
uBT_AlarmFrequency **	R/W	Frequency setting of the acoustic alarm (Hz) (Rounded down to 125, 250, 500, 1000, 2000, 4000, 8000) Use this before starting the alarm. Renewed setting during running alarm will be first used at the next start of the alarm.
uBT_AlarmVolume **	R/W	Acoustic alarm volume setting (value 0...20) 20 = 100% As pulse width modulation is used to control the volume this setting has an influence on the sensed pitch of the alarm. Use this before starting the alarm. Renewed setting during running alarm will be first used at the next start of the alarm.

* Parameter access over FTP using the configuration file in INTFLASH, INFLASH/CONFIG/CONFIG.DAT.

The settings can be read over a file read of this file over FTP.

Overwriting the file over FTP causes the terminal to take all changes that are given within the file.

To use FTP an Ethernet connection is required.

Do not use write access on the container from the application and over FTP at the same time. This may lead to undefined results.

** Acoustic alarm: New feature for QVGA FW 1.10.45 upwards. Button and Edit painter use is supported. See also the Appendix A2 of the manual 26/851 V6

6.7.2 Container variables for VGA MB-Panels

Container variables, available to the user, are included in the firmware of these terminals.

Containers let the application program exchange information with the firmware. All container variables have the prefix „uBT_“.

Be careful, these functions are “case sensitive”

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Config file entry	Container (Source HN 10.03.10)	Type	Default	Min Value Min Length	Max Value Max Length	Description
R/W	uBT_AlarmFrequency *	Decimal value String	1000	125	8000	Frequency setting of the acoustic alarm (Hz) (Rounded down to 125, 250, 500, 1000, 2000, 4000, 8000) Use this before starting the alarm. Renewed setting during running alarm will be first used at the next start of the alarm.
no	uBT_AlarmStart *	Decimal value string	0	0	30000: 30 s	Write a value to start or stop the pulsed acoustic alarm. The acoustic alarm can be started with a setting of the interval time (0...30000 ms) of the pulsed signal. A 50% duty cycle is used with pulse time equal to pause time. If already running a renewed setting is ignored. Setting it to 0 however switches it off immediately. The alarm also stops by any touch on the screen.
R/W	uBT_AlarmVolume *	Decimal value string	10	0	20: 100%	Acoustic alarm volume setting (0...20). As pulse width modulation is used to control the volume this setting has an influence on the sensed pitch of the alarm. Use this before starting the alarm. Renewed setting during running alarm will be first used at the next start of the alarm.
R/W	uBT_AutoRepeat	Boolean value string	0	0	1	At Soft Input Panel SIP (keyboard on the screen) use: SIP Key board: Autorepeat on(1), off (0)

* Acoustic Alarm: see also the Appendix B of the manual 26/851

Config file entry	Container (Source HN 10.03.10)	Type	Default	Min Value Min Length	Max Value Max Length	Description
no	uBT_Backlight	Boolean value string	1	0	1	Read/Write 1, 0 → Remote backlight control OFF The backlight is switched OFF if the control is '1' before. Any touch on the screen switches the backlight on again. Read/Write 0, 1 → Remote backlight control ON The backlight is switched ON if the control is '0' before. The backlight may switch off afterwards again after a time out. For remote control over PPO ↔ container coupling only. The use in the Button and Edit painters is not supported.
no	uBT_BackLightOn (added at FW version 1.12.11 upwards) **	Boolean value string	1	0	1	Direct control of the back light at a write to this container (1: On, 0: off). It returns the status of the back light at read back. The container is set with the activation of the backlight at the touch of the screen, and reset with the switch of of the backlight after a switch off of the backlight over uBT_BackLightTimeout. It can be used for remote monitoring and remote control over PPO ↔ container coupling, local user control on the terminal over the Button painter (Mouse down, Mouse up), and locally used over the Edit box painter in the Web project.
R/W	uBT_BackLight-Timeout	Decimal value string	15	0	5000	Time (min) after which the backlight switches off. At any touch of the screen, or at a switch on over container, the back light switches on and the count down restarts. If the value is 0 the backlight time out supervisory is inactive. A switched on back light is kept switched on forever in that case.
Read only	uBT_BooterVersion	ANSI text string	Current version string	0	8	Firmware booter version Read only string
	uBT_BuzzFreq	ANSI text string	500	125	8000	Frequency setting of the acoustic beep at touch (125,250,500,1000, 2000,4000,8000)
R/W	uBT_BuzzOnOff	Boolean value string	1(On)	0	1	Acoustic beep at touch on/off

** BackupLightOn: see also the Appendix C of the manual 26/851

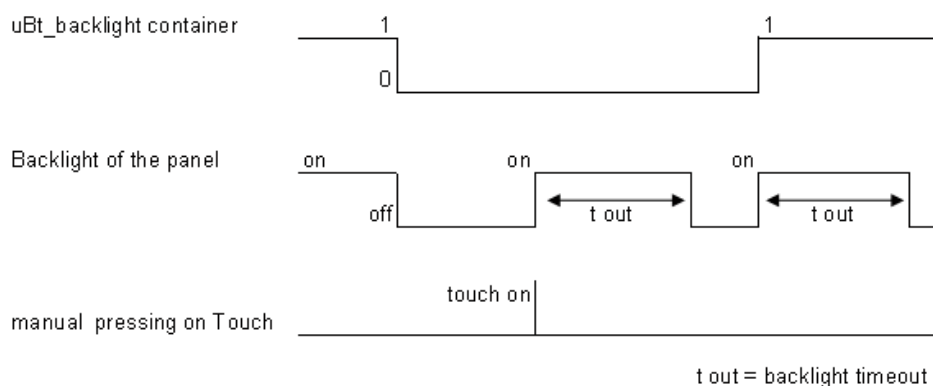
Config file entry	Container (Source HN 10.03.10)	Type	Default	Min Value Min Length	Max Value Max Length	Description
R/W	uBT_BuzzVol	Decimal enumerated value string	0 : OFF	0	20: 100%	Read/write buzzer volume setting (0...20). This sets the volume of the acoustic signal at the use of the touch function of the touch panel. As pulse width modulation is used to control the volume this setting has an influence on the sensed pitch of the alarm. Volume 0 setting switches it off.
Read only	uBT_ConfigType	ANSI text string	Current Config Type	0	24	Configuration Type Read only string
Read only R/W	uBT_ConfigVersion uBT_DefaultGateway	ANSI text string IP address string	Current Config Version 0x00000000	0 *	4 *	The container is not active Read only string Read/Write IP address of the gateway within the used subnet (forced setting, default override). 0 setting deactivates this forced setting. With 0 setting, depending on the used router, external addresses that are outside the subnet can not be reached. Modifications force a restart. FTP connections are lost with that.
no	uBT_DispResolution	ANSI text string	<Screenwidth> <Screenheight> <Color-depth>	0	16	Resolution information Read only string
yes	uBT_DisplayRotation	UTF8 1) !!! text string	0° (0x30 C2 B0)	0°	270°	Rotation 0°,90°,180°,270° Modifications force a restart. FTP connections are lost with that. !!!! 1) FTP client may not support direct display of UTF8. The display is rotated 'as such' with part of the screen possibly not displayed—also in the auto scale mode. If up scaling is active the scaling from the non rotated display is kept at rotation. Rotated screens take the calibration on non rotated screens. To calibrate the screen please return to non-rotated use.

Config file entry	Container (Source HN 10.03.10)	Type	Default	Min Value Min Length	Max Value Max Length	Description
R/W	uBT_EnableCache	Boolean value string	1 (enabled)	0	1	File cache use (1), 0 no file cache for all non-image visualization files. Files first are cached the moment they are used. The cache is the place where files are searched first, independent of local file use settings. The cache is cleared at start-up and at URL jumps. Image files are decompressed and cached in a separate video cache that is always active. This video cache is cleared at start-up and URL jumps and at too much data loaded, in which case all required files are reloaded and decompressed again.
R/W	uBT_EnableSIP	Boolean value string	1 (enabled)	0	1	Read/Write SIP à Select Soft Input Panel (keyboard on the screen) Write 0 à SIP is disabled. Virtual keyboards are disabled. Write 1 à SIP is enabled. Virtual keyboards (alphapad.teq and keypad.teq) are enabled.
R/W	uBT_FirstPad-Name	Decimal enumerated value string	alphapad.teq	1	24	File name entry for an alternative virtual keyboard file as replacement for alphapad.teq at local file use. At local file use alphapad.teq from the setup menu (from INTFLASH/WEB) is used by default. The alternative file—that must be named otherwise than alphapad.teq—can be placed in M1 or SD flash over FTP, or included in the stored web project in the remote server. The maximum number of characters (file extension with dot included) is 24.
no	uBT_FlashStatus	Decimal value string	0	0	255	M1 Flash status 20: Device present, no file system 21: Device present, file system OK 22: Device present, error at file system creation 23: Device present, busy creating file system 24: Device present, busy with flash sector based compression -1: Unknown error
R/W	uBT_FocusBorder-Width	Decimal value string	2	0	5	On the Edit and Button Painter visualization a rectangle focus frame is drawn to indicate its activation. This setting is used for the object focus frame line width (pixel): 1-5 0 switches the focus off.

Config file entry	Container (Source HN 10.03.10)	Type	Default	Min Value Min Length	Max Value Max Length	Description
R/W	uBT_InactivityPoll-Time	ANSI text string	0	0	5	Touch / Keyboard inactivity supervisory selection (1), at 0 off. Used for a switch to a less frequent touch / keyboard entry polling mode.
no	uBT_IntFlashStatus	Decimal value string	0	0	255	Internal Flash status status20: Device present, no file system 21: Device present, file system OK 22: Device present, error at file system creation 23: Device present, busy creating file system 24: Device present, busy with flash sector based compression -1: Unknown error
R/W	uBT_IntroGraphic-Name	ANSI text string	SaiaS-UGrande.gif	0	20	Intro Graphic
R/W	uBT_IntroGraphicXPos	Decimal value string	100	0	639	Intro Graphic position (Horizontal position from the left)
R/W	uBT_IntroGraphicYPos	Decimal value string	50	0	479	Intro Graphic position (Vertical position, downwards from the top)
R/W	uBT_IntroText	ANSI text string	Welcome	0	32	Intro text
R/W	uBT_IntroTextX-Pos	Decimal value string	350	0	639	Intro text position (Horizontal position from the left)
R/W	uBT_IntroTextY-Pos	Decimal value string	300	0	479	Intro text position (Vertical position, downwards from the top)
R/W	uBT_IPAddr	IP address string	0xC0 A8 0C 5A: 192.168.12.90	*	*	Read/Write TCP/IP address of terminal (own address) within the used subnet.* Modification forces a restart. FTP connections are lost.
no	uBT_IsTSPresent	Decimal value string	Current value	0	255	Touch screen detected (1). If 0 the calibration at start-up has / will be skipped
no	uBT_LastKeyEvent	ANSI text string		0	32	The container is not active. Last key event code
no	uBT_LastKeyEventUp	ANSI text string		0	32	The container is not active. Last key up event code
R/W	uBT_LcdContrast	Decimal value string	10	0	20: 100%	Contrast dimming / Backlight brightness setting (0:20). A higher value puts the brightness up.

Config file entry	Container (Source HN 10.03.10)	Type	Default	Min Value Min Length	Max Value Max Length	Description
R/W	uBT_LocalFile-Search	Decimal enumerated value string	Local before remote (1)	0	2	Select local filesearch mode 0: no local file use 1: use local files before remote 2: use remote files before local The local search order is fixed, in order of use: - Video cache (image only) - File cache (if enabled) - Internal Flash - M1_Flash - SD Card Flash if used
no	uBT_MACAddr	ANSI text string		0	20	Own MAC address (read only)
no	uBT_MultiKey-Value	ANSI text string	0	0	1	The container is not active External SIP Keyboard multi key indication (1). At 0 no actual multi key active
R/W	uBT_SbusAddr	Decimal value string	10	0	253	Own Sbus address
R/W	uBT_ScaleMode	Decimal enumerated value string	Auto (0)	0	2	Upscale mode setting Auto (0): Smaller views are automatically adjusted to the terminal screen size on a view by view base. QVGA views are expanded to full screen use on VGA terminals (horizontal and vertical two fold expansion with pixel doubling). VGA (1): Forced setting to VGA without up-scaling of smaller views. This switches the up-scaling off on VGA terminals. QVGA (2): Forced up-scaling with pixel doubling on VGA terminals. The setting gets effective at the next view jump or URL jump, or after restart.
R/W	uBT_SecondsToInactivity	ANSI text string	0	0	5	The container is not active Touch / Keyboard inactivity supervisory time (Sec) This can be used for a switch to a less frequent touch / keyboard entry polling mode.
Read only	uBT_SerialNumber	ANSI text string		0	12	Serial Number (read only)
no	uBT_Setup	Boolean value string	0	0	1	The container is not active. A setting to 1 cause the terminal to pop up and jump in the setup menu.
R/W	uBT_SubNetMask	IP address string	0xFF FF FF 00	*	*	Read/Write subnet mask of the subnet that is used by the terminal. * Modification forces a restart. FTP connections are lost.
Read only	uBT_Version	ANSI text string	Current version string	0	32	Firmware version Read only string

6.7.3 uBT_BackLight container diagram



6

6.7.4 Function KEYS Access

When you have Function Keys on your Panel (Comfort line version), you can define which action you want to give to your F-Keys

HOW to program these in the Web-Editor Project?

A. Open a *.teq page

As normally this F-Keys should be reached every time, like the Help or the Back Home functions, it makes sense to place these F-Keys in the file "Background.teq" that is always active. The name can be changed, but it has to be selected after in the Project Configuration settings.

B. Where to position the F-Key button?

If you don't want to see the F-Key buttons, go in the "background.teq", go in teq view configuration and enlarge the pixel size. The buttons corresponding to the F-Keys can be placed into the enlarged area. In this case, they are invisible on the screen panel.

(Example with MB-Panels: standard size is 320×240 , enlarged size is 320×280). It won't cause an error, it will just display your design on 320×240 pixels.

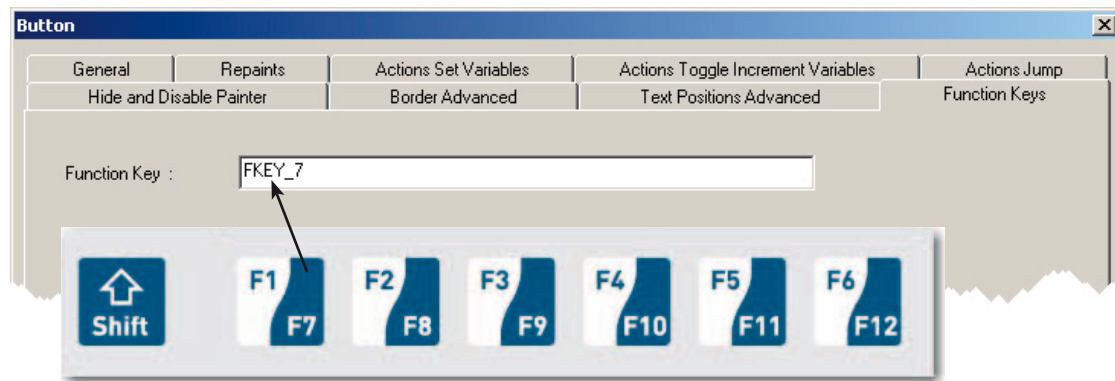
C. Button Selection

Place a button in the *.teq view and open the Function keys Tab.



D. Define Action

Double-click on the Button in your *.teq file and select the sub-menu Function Keys:



Use the syntax: FKEY_# where # is the F-Key number and also ESC (see Chapter 1.6.3). Be careful: „case sensitive“.

Now your F-Key button has a defined action.

6

6.8 Special internal Functions

An internal serial Flash is always equipped. Its capacity is defined at 4 MBytes.

Goal of this added memory?

When you use slow communication speed, the transfer of data takes time from the PLC to the MB-Panel. A possibility consist of loading locally the project files *.teq and *.gif, created for the Web-Server in PLC, using this internal 4 MBytes memory flash.

How to access the files locally in the internal memory?

Different art to access these files can be defined in the Setup Menu Configuration/Advanced. The button “Change” can be switched to “[Local file search before or after remote](#)”.

How to store the project files in this memory?

Making an FTP connection, the internal memory system will show you a sub-directory called M1_Flash.

- If you want to store your common files that should be the same on every PLC on the network, then store them under subdirectory [M1_Flash/WEBPAGES](#).
- If you want to store your files [dedicated](#) that for an access from only one PLC on the network, then store them like that:

--> for a “Http connection” under subdirectory M1_Flash/WEBPAGES/[TCPIPAd-](#)
[dress](#) where “[TCPIPAddress](#)” is written as this example: 192_168_12_92.

--> for “SBUS” or “ETHER-SBUS connection” under subdirectory M1_Flash/
WEBPAGES/[SBUSorETHER-SBUS_](#)
[Name](#) where “[SBUSorETHER-SBUS_](#)
[Name](#)” is the Station Name defined in the Setup connection settings.

6.9 FTP connection

You can access internal Memory system making a FTP connection PC to MB-Panel using the TCP/IP Address set in the Panel.

BE CAREFUL: you can destroy some data and then loose the control of your panel if you erase some important files.

When you make a FTP connection, username and password are required. Please ask our support to get in.

6.10 List of Message-Box messages

Messages	Remarks
Out of memory in Ramdisk	May appear if a file (most commonly a .gif) is too large. VGA MB panel: < 256 Kb (see also section 6.11)
Language	
Failed to parse .csv	No memory is available to parse a .csv file.
LR: out of memory! or out of memory for language resource	No memory is available to parse a .csv file. or the total size memory used is > 512 kbytes (see also section 6.11)
Failed to initialize LR heap!	The memory for the .csv file will be initialized every time a file is parsed. This message means it has failed.
Memory	
Failed to initialize heap 1	On the heap1 the painter objects and the list of current PPO's are allocated. This heap will be erased after each .teq jump
Out of memory in heap 1	the total size memory used by the painters is > 512 Kbytes (see also the section 6.11)
Failed to initialize heap 2	On the heap 2 container variables, HTML tags and trending data are stored. This heap will be initialized on every URL jump.
Out of memory in heap 2	The total size memory used by the html tags and containers variable > 768 Kbytes. Most probable cause for this message is that too many trends are active. (see also section ...) → Can appears in case of online and offline trends. The memory requirement must be calculated before using trends Example: In case of the Update period of process points (web-editor parameter) = 1000 milliseconds (store time in sec) x (total nber of trends) x (Size of one Data point → 28 Bytes) < ~ 750 Kbytes 1800 sec x 12 trends x 28 Bytes = `600 Kbytes + size memory used by html tags
Out of memory in heap 3	the total size memory used by the offline trend and HD log > 1024 kbytes (see also section 6.11)
Object	
Maximum number of object reached!	The maximum amount of objects (like buttons, rectangles etc) in one .teq view has been exceeded. Maximum object = 512 → See also the definition of an object in section 10
PPO	
Order Values on remote host has failed!	Ordering of the list of current PPO's on the remote host has failed.
ReadFile on remote host has failed!	Periodic polling of PPO's has failed.
Communication	
buffer OVF in Spider_fileReadln()!	During loading of a file more data has been received than the buffer will hold.
Range is null!	The calculation of the range of a bar graph has been faulty.
TCR	
value out of range !	The min/max limits of a TCR value have been exceeded.
value out of default range !	The value of a TCR is not valid, for example "aa" for hour.
TEQ	
Reading UTF string failed;	Probably the end of the file was reached during reading of a string.
Painter	

FV: buffer OVF in readln()!	<p>Probably the number of characters in a Multline object has been exceeded, This message can appear in two cases:</p> <p>1) Case one is regarding the .csv file If one entry (line) of a .csv file is bigger than 128 bytes Info one: If .csv file is in ASCII code (1 byte per character) total entry (line) 128 characters If .csv file is in Unicode/UTF-16 (2 bytes per character) total entry (line) 64 characters</p> <p>2) Case two is regarding the .TCR file If one entry (line) bigger than 128 bytes. Info two: the file itself may be bigger...</p>
-----------------------------	--

6.11 Error messages advanced for the VGA MB Pannel

Advanced: These following messages * can appear:

If size memories used by the gif files, the painters, the html tags and containers var, the online trending and HD log, the language resources (.csv files) are too big.

Some uBT_parameters must be adapted by changing values in the file uBTeminall.txt under :/INTFLASH/CONFIG/ (and over a ftp connection)

After modification the Panel has to be restart.

Recommendations:

We advise not to have the maximum value in first time and try with the medium value because if we increased all the memories to max. values it might create big problems and decrease significantly the performances.

Error messages *	Defaults values	Mid values	Max values
- out of memory in ramdisk	256 kbytes	384 kbytes	512 kbytes
- out of memory in heap 1	512 kbytes	1024 kbytes	2048 kbytes
- out of memory in heap 2	768 kbytes	2048 kbytes	4096 kbytes
- out of memory in heap 3	1024 kbytes	2048 kbytes	4096 kbytes
- out of memory for language resource (or LR: out of memory)	512 kbytes	768 kbytes	1024 kbytes

7 Handling

7.1 Touchscreen Glas

As the touchscreen is a type resistive, you can start an event by pressing on the screen with a finger or with any pen. BUT don't use any sharpen edge pen otherwise the Touchscreen could be definitely damage!!

The pressure to activate an event is predefined and not adjustable. When pressing on the touchscreen (or on any membrane key), the buzzer is directly and shortly switch on (if volume is not 0).

Never hit the touchscreen with hard strength, as a glas is used to support the 2 Touchscreen layers.

7.2 Temperature

7

Please respect the temperature value when operating and in storage.

operation temperature: 0 °C...+50 °C

storage temperature: -20 °C...+60 °C

It will help keeping the lifetime of your panel. See detailed information in chapters 4.1.6 or 5.10 and 6.4.

7.3 Fix the Panel

Mount the MB-Panel with the 4 fixation part from the bag. See chapter 1.5.

7.4 Information about LCDs used in the MB-Panel Display

Precautions

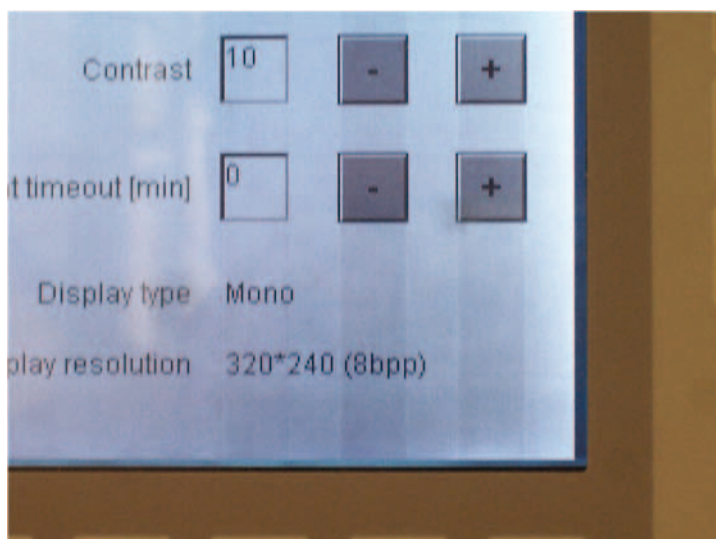
- The liquid inside the LCD contains an irritant. If some of this liquid makes contact with your skin, immediately wash the affected area with running water for a minimum of 15 minutes.
- If the liquid from inside the LCD gets into your eyes, rinse your eyes with running water for 15 minutes and then consult a doctor.

LCD characteristics

- The tone and brightness of each MB-Panel Display is an individual characteristic and can be slightly different from one display to the other.
- At some contrast settings or with some images, flickering or differences in the brightness levels may appear.
- When viewing an MB-Panel display from an angle which is outside of the specified viewing angle, colours could appear differently, and depending on what is being displayed, may not be visible at all. The viewing angle for the MB-Panel Display is as follows: Draw a line perpendicular to the display, from the center of the display. From the center chapter using this line as a reference, you can go 40° in each direction.
- On some MB-Panels with a monochrome display, you may see an isolated black or white spot. This happens when a pixel stays permanently on (white) or permanently off. (black). A pixel with this state may or may not be seen depending on what is being displayed.
- Displaying the same image for a long period of time could result in traces of that image appearing when another image is displayed. To correct this, turn off the unit for at least 10 seconds and then power the unit back on.
- From around the sides of some screen images, lines or streaks may appear. (Also known as "Crosstalk") Note: If the unit has just been powered up, let it stabilize for 30 minutes. After this adjust the contrast. This should minimize if not eliminate the lines/streaks completely.

Example of Crosstalk

The lines/streaks coming from around the edges of the + / - Buttons is referred to as "Crosstalk"



8 Maintenance

8.1 Care

These panels have been designed for maintenance-free continuous operation.

Recommendations for cleaning the front layer of the MB-Panels.

The use of abrasive cleaners and/or cleaning implements that may damage or scratch the front layer should be avoided !

- Use denatured alcohol and apply it with a clean soft rag.
- Final use clean water with a clean soft rag (recommended)
- When cleaning, make sure that no liquids of any kind get inside the panel.

Resistance to chemical substances according to DIN42115:

Chemical substances	PCD7.D435xxxx/ D457xxxx	PCD7.D410xxxx
Alcohol	✓	NT
Acid solution (Low concentration)	✓	NT
Alkaline solution (Low concentration)	✓	NT
Esters	✓	NT
Gasoline / Petrol	✓	NT
Ketone	✓	NT
Cleaning agents	✓	✓

NT = Not Tested

9 Drywall mounting set for MB-Panels

The microbrowser panels are not just for mounting in the control cabinet: they also look very good in the

office or living-room, or mounted on a wall.

We recommend you to use the PCD7.D457VTCF (VGA) instead of the QVGA for the following reasons:

- Access to the Setup menu without switch OFF then ON the panel
- Firmware download over Ethernet

Reference of in-wall kit for solid wall mounting: **PCD7.D457-IWS**

Additional fixation set (4 pieces) for cavity wall mounting: **4 121 4910 0**

Reference of the manual 26/863

On-Wall mounting kit for 5.7" is in preparation

10 General recommendations

10.1 Recommendations for QVGA panels

In the “Project configurations”

- Don't forget to select the default font that will be the most used in the project.

In the web-editor project

- It is recommended to use text fields that are up to 20% larger than the size that is displayed in the editor
- IMasterSaia5_xx_xx.jar is not necessary to display web page on a MB panel
- At the minimum the .tcr file is the only one file which must be build in the web server project (.wsp), all the other file of the project can be copied in the flash (PLC or local M1_flash of the MB panel) under Mx_flash/webpages/
- gif file < 150 Kbytes and if possible < 320 and < 240 pixel (one pixel free around)
- add Unicode fonts→check in the list: <http://www.sbc-support.ch>→them Product info→HMI→Web-Panel PCD7.D4xxx→ Additional information for Sales Companies (restricted Area)
- You don't find the right font in the list→Contact the PCD support in Murten. We are willing to help you
- Maximum of objects (painters) by page is 256 (512 for VGA panels)
- Function “Scalable” Project configuration→scalable html: Define HTMLs that resize the HMI during runtime according to a defined factor. Scale your HMI up to 200% for example without need to change your TEQ-Views. MicroBrowser will resize the TEQ-Views at runtime if you type in the URL of your new ‘scalable’ HTML file instead of your standard HTML.
Examples: Factor 2.000000 means 200% of 320×240 which is 640×480
Factor < 1 (< 100%) is not recommended for application using MB panels
- Macros: For alarming and trending, use only specific Q_ series macros (for MB 5.7 QVGA colors) and Q_KEY series macros (for MB 3.5 QVGA). Only Q_offline trend macro without “save to file” is available.

10

Definition of an object in the web-editor

- An object is a static text, a multiline label, a line, a rectangle, an ellipse, a polygon, an edit box, a button, or a bargraph. The macros contain many objects.

Some rules regarding gif image

- The three time items at the image display on the MB panel are:
 1. The repaint from video cache
 2. The decompression into the video cache at URL jump and after startup (nearly linear with the number of pixels)
 3. The file transfer time over the link if not local
- Better is 1 bigger picture (max 150 Kbytes) than 2 with the same sum-size
- Better is to use x time the same picture (in the same project) because it will be transferred , decompressed and stored in video cache only once
For example: put it in the common background teq

Handling

- Touch screen: the basic material of the touch screen is the glass. Don't use screwdriver or hard tool to touch the touch. Touch only with the finger or a special "touch pen stylus"
- Key-pads (for comfort line) : the tactile sensation being obtained by pressing a metal dome 12 mm. Don't use screwdriver or hard tool to press on it. Press the key-pads with the finger only. Number of actions = 4...5 Millions
- Advanced: use the right tool to process to a hardware reset (see the manual). Don't use a paper clip or a needle. Use a drill $\varnothing 3$ and press softly on the micro-switch.

10.1.1 Recommendations for file and path

Saia filesystem does not support file names in ANSI characters but only ASCII characters (code 0 to 127).

The names of .teq, .itq, .html, .gif, .bft and .csv files, which should be copy in the M1_FLASH or SLOFLASH, must be write with ASCII characters without spaces and the maximum number of characters (extension figure included) is 24.

Details about URL strings

ASCII codes include the following character symbols
(code 32 – 127: 32: space, 127: backspace)

```

_!"#$%&'()*+,-./0123456789:;<=>?
@ABCDEFGHIJKLMNPOQRSTUVWXYZ[^\_
`abcdefghijklmnopqrstuvwxyz{|}~

```

In URL strings, reserved character are defined according to RFC 2396

```
reserved = ";" | "/" | "?" | ":" | "@" | "&" | "=" | "+" | "$" | ",",
```

These are not generally supported as user string character in direct URL entries and should be avoided as such.

These symbols may have special use. As noted, the slash is use for internal path redirection.

For example, the ':' is used as special control character for port definitions.

This means that these symbols can not be used in file names either.

10.2 Recommendations for VGA panels

In the “Project configurations”

- Don't forget to select the default font that will be the most used in the project.

In the web-editor project

- It is recommended to use text fields that are up to 20% larger than the size that is displayed in the editor
- IMasterSaia5_xx_xx.jar is not necessary to display web page on a MB panel
- At the minimum the .tcr file is the only one file which must be build in the web server project (.wsp), all the other file of the project can be copied in the flash (PLC or local M1_flash of the MB panel) under Mx_flash/webpages/
- gif file <250 Kbytes and max 638 x 478 pixel (one pixel free around)
- add Unicode fonts→check in the list: <http://www.sbc-support.ch>→them Product info→ HMI→Web-Panel PCD7.D4xx→Additional information for Sales Companies (restricted Area)
- You don't find the right font in the list→Contact the PCD support in Murten. We are willing to help you
- MB VGA panels don't support yet “Online trends macros” (they are not correct time stamp)
- Calculation of the memory requirement see the section ...
- Maximum of objects (painters) by page is 512 objects (VGA Panels) and 256 (QVGA panels)
- Number of PPOs per page: tested→320 registers or 500 Flags
- Project configuration→scalable html: Define HTMLs that resize the HMI during runtime according to a defined factor. Scale your HMI up to 200% for example without need to change your TEQ-Views. MicroBrowser will resize the TEQ-Views at runtime if you type in the URL of your new 'scalable' HTML file instead of your standard HTML. Examples: Factor 2.000000 means 200% of 640×480 which is 1280×960 Factor < 1 (< 100%) is not recommended for application using MB panels.

10

Definition of an object in the web-editor

- An object is a static text, a multiline label, a line, a rectangle, an ellipse, a polygon, an edit box, a button, or a bargraph. The macros contain many objects (offline trend contains 44 objects)

Some rules regarding gif image

- The three time items at the image display on the MB panel are:
 1. The repaint from video cache
 2. The decompression into the video cache at URL jump and after startup (nearly linear with the number of pixels)
 3. The file transfer time over the link if not local
- Better is 1 bigger picture (max 250 Kbytes) than 2 with the same sum-size
- Better is to use x time the same picture (in the same project) because it will be transferred , decompressed and stored in video cache only once.

For example: put it in the common background teq

Handling

- Touch screen: the basic material of the touch screen is the glass. Don't use screwdriver or hard tool to touch the touch. Touch only with the finger or a special "touch pen stylus"
- Key-pads (for comfort line) : the tactile sensation being obtained by pressing a metal dome 12 mm. Don't use screwdriver or hard tool to press on it. Press the key-pads only with the finger
- Advanced: use the right tool to process to a hardware reset (section ...). Don't use a paper clip or a needle. Use a drill Ø3 and press softly on the microswitch.

10.2.1 Error messages advanced for the VGA MB Pannel

Advanced: These following messages * can appear:

If size memories used by the gif files, the painters, the html tags and containers var, the online trending and HD log, the language resources (.csv files) are too big.

Some uBT_parameters must be adapted by changing values in the file uBTeminall.txt under :/INTFLASH/CONFIG/ (and over a ftp connection)

After modification the Panel has to be restart.

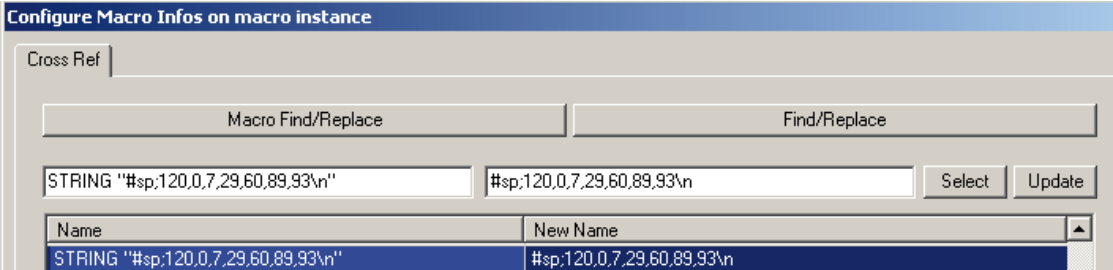
Recommendations:

We advise not to have the maximum value in first time and try with the medium value because if we increased all the memories to max. values it might create big problems and decrease significantly the performances.

Error messages *	Defaults values	Mid values	Max values
- out of memory in ramdisk	256 kbytes	384 kbytes	512 kbytes
- out of memory in heap 1	512 kbytes	1024 kbytes	2048 kbytes
- out of memory in heap 2	768 kbytes	2048 kbytes	4096 kbytes
- out of memory in heap 3	1024 kbytes	2048 kbytes	4096 kbytes
- out of memory for language resource (or LR: out of memory)	512 kbytes	768 kbytes	1024 kbytes

10.3 Alarming Macros Advanced

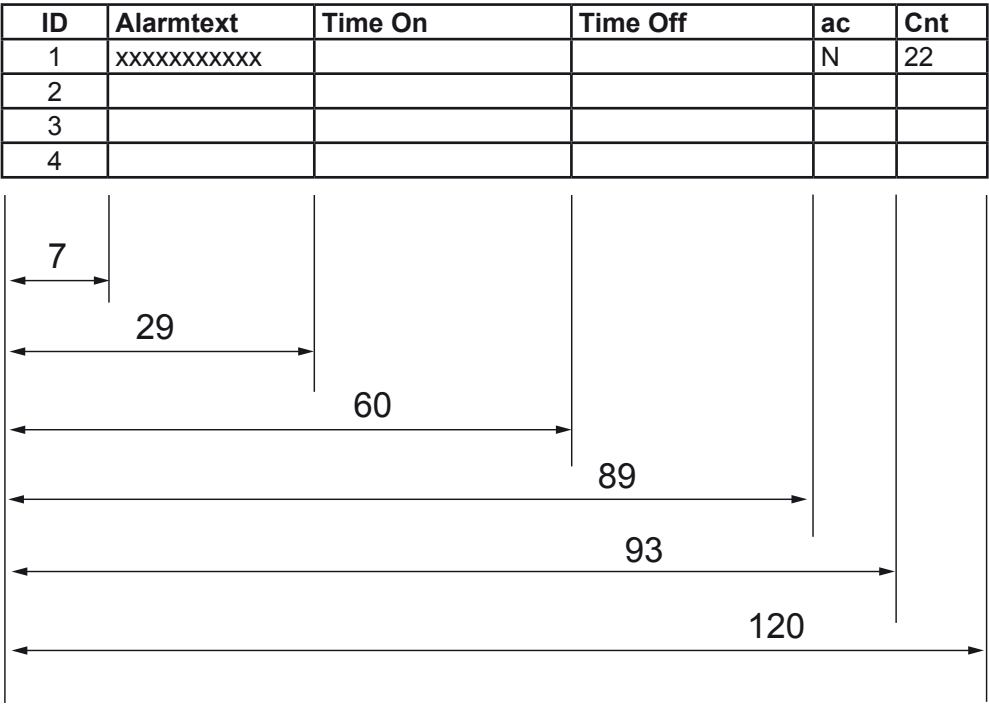
How changing the width of the columns of the alarm list?
Example with the “Q_MacrAlarmingDefonline”
Clic on the macro and select the Cross reference Tab then the Following STRING



The widths of each columns were optimized according to the size of the screen and the number of pixel (QVGA = 240). However, we can adapt the width of each column and also make “invisible” a column.
Be careful! The values are not “absolute values”. You can proceed step by step by increasing a value and decreasing an other one, then control the changing on your MB panel before you proceed any further.
You can save the new “Customized macro “ with your own name.
Attention→:Do not change the head of the string #sp;120,0 and the end \n. Change only the intermediate values






10

MB panel screen



A Appendix

A.1 Icons

	In manuals, this symbol refers the reader to further information in this manual or other manuals or technical information documents. As a rule there is no direct link to such documents.
	This symbol warns the reader of the risk to components from electrostatic discharges caused by touch. Recommendation: at least touch the Minus of the system (cabinet of PGU connector) before coming in contact with the electronic parts. Better is to use a grounding wrist strap with its cable attached to the Minus of the system.
	This sign accompanies instructions that must always be followed.
	Explanations beside this sign are valid only for the Saia-Burgess PCD Classic series.
	Explanations beside this sign are valid only for the Saia-Burgess PCD xx7 series.

B QVGA and VGA MB-Panels Acoustic Alarm

B.1 Introduction

Added to the configurable 'beeper' feature that is used as acoustic confirmation for touch screen activation, a special pulsed acoustic alarm option has been added.

For acoustic alarm indication the following three containers have been added:

Config file entry	Container	Type	Default	Min. Value	Max. Value	Description
R/W	uBT_Alarm-Frequency	Decimal Value String	1000	125	8000	Frequency setting of the acoustic alarm (Hz) (Rounded down to 125, 250, 500, 1000, 2000, 4000, 8000) Use this before starting the alarm. Renewed setting during running alarm will be first used at the next start of the alarm.
No	uBT_Alarm-Start	Decimal value string	0	0	30000 (= 30 s)	Write a value to start or stop the pulsed acoustic alarm. The acoustic alarm can be started with a setting of the interval time (0 ..30000 mSec) of the pulsed signal. A 50% duty cycle is used with pulse time equal to pause time. If already running a renewed setting is ignored. Setting it to 0 however switches it off immediately. The alarm also stops by any touch on the screen.
R/W	uBT_Alarm-Volume	Decimal value string	10 (50%)	0	20 (100%)	Acoustic alarm volume setting (0 ... 20). As pulse width modulation is used to control the volume this setting has an influence on the sensed pitch of the alarm. Use this before starting the alarm. Renewed setting during running alarm will be first used at the next start of the alarm.

The containers can be linked to a PPO – in such way allowing remote control of the acoustic alarm.

Alarm Volume parameter

The alarm volume parameter sets the duty cycle of the pulsed alarm signal.

At 0% it's off, at 100% it is continuously on (no pulsing).

The setting is used the moment the alarm is switched on.

Changes during a running alarm will not be used until the next following alarm activation.

The setting can be changed in the Web client using the PPO to container write macros, in the Web client over painter / teq refresh triggered painter properties including button use, or it can be changed over a FTP rewrite in the configuration file.

Alarm Frequency parameter

The alarm frequency parameter sets the frequency of the 'beeper' during the active pulse periods of the pulsed alarm signal.

If set to low in respect to the pulse-width nothing will be heard.

The setting is used only at the moment the alarm is switched on.

Changes during a running alarm will not be used until the next following alarm activation.

The setting can be changed in the Web client using the PPO to container write macros, in the Web client over painter / teq refresh triggered painter properties including button use, or it can be changed over a FTP rewrite in the configuration file.

Interval time parameter

The interval time is the pulse repetition time period.

At for example 50% duty cycle interval time setting to 200 leads to 100 mSec off, 100 mSec on pulsing.

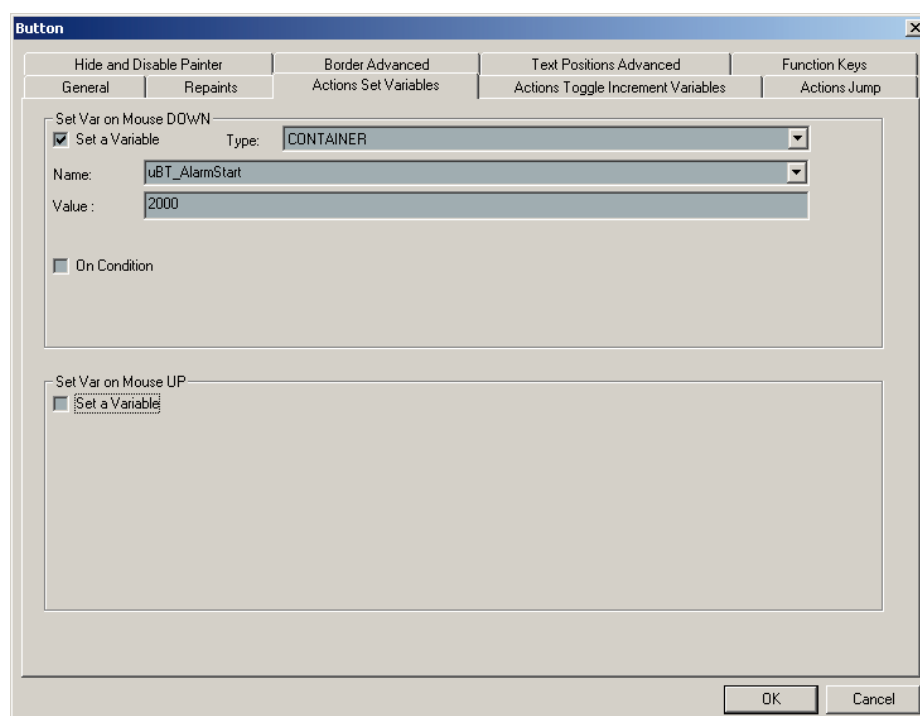
During the 'pulse on' period the frequency should be set sufficiently high to hear something.

Setting the interval time to 0 switches the acoustic alarm off.

The setting can be changed using in the Web client the PPO to container write macros.

If used on a button it can be set on the button down or button up event.

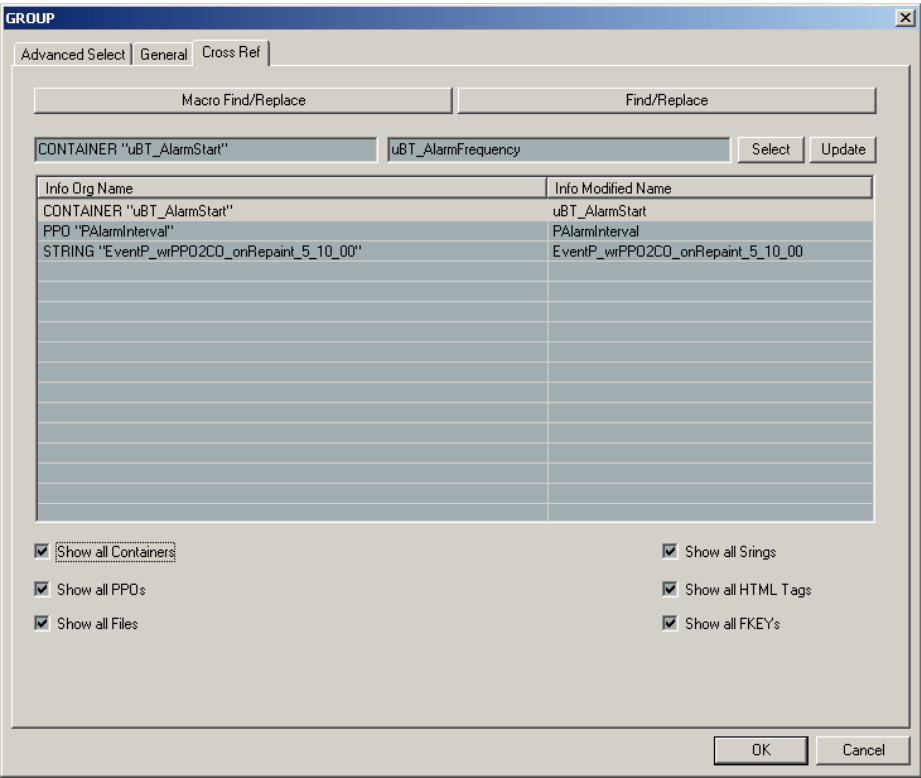
If the Container write is set on the button down event, at a button touch the acoustic alarm first will switch off the current buzzer / beep action and restart the next one with the actual volume and frequency setting as has been set at this moment.



Note:

If on the same view the macro “wr_PPO2CO-on_Repaint“ is used the preceding button use will be (near) ineffective as at each repaint the PPO value will be taken and override it again.

Example with in this case Register “PAlarmInterval”
(Symbol to be defined in the PG5 symbol editor as global)
(Remark also: Use Search / Update in this screen to define it and the PPO Initialization button to define the type as DEC):



B.2 Using the uBT_AlarmStart container

Writing to the uBT_AlarmStart container is handled as follows

Writing value.	At acoustic Alarm off	At acoustic Alarm on with FW Version 1.08.52 QVGA (First release)	At acoustic Alarm on with FW Version later than 1.08.52 on the QVGA. (Ticket #818)
0 (1)	Acoustic Alarm remains off	Acoustic Alarm switches off	Acoustic Alarm switches off
2...30000	Acoustic Alarm switches on with given interval time and latest given in frequency and volume(duty cycle).	Acoustic Alarm tries to switch to the given interval time and latest given in frequency and volume(duty cycle). This may lead to unexpected behaviour in some cases.	Acoustic Alarm remains running with the current setting. This remains so until the screen is touched or value 0 is written.

B

Using the uBT_AlarmStart container

> 30000	Acoustic Alarm switches on with 30 s interval time and latest given in frequency and volume(duty cycle).	Acoustic Alarm tries to switch to the given interval time and latest given in frequency and volume(duty cycle). This may lead to unexpected behaviour in some cases.	Acoustic Alarm remains running with the current setting. This remains so until the screen is touched or value 0 is written.
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Readback of the uBT_AlarmStart container

The uBT_AlarmStart container will reflect the last set interval time.

If the screen is touched the acoustic alarm is switched off but the setting of the uBT_AlarmStart container is kept in QVGA 1.08.52. It is reset to 0 in later versions (Ticket #818).

In these versions now the read-back of the uBT_AlarmStart container can be used to read the acoustic alarm off state on the PCD server using container -PPO coupling

C VGA MB-Panel BacklightOn use

C.1 Introduction

The PCD7D4xx VGA Terminal allows the use of adjustable “BackLightOn”.

The following is supported:

- Back light intensity setting in 20 steps using the contrast setting in the setup menu.
This includes full dark to maximum intensity setting
- Back light intensity adjustment at run time using client/ browser based access over an internal data control parameter (container **uBT_Contrast**).
This overrides the setup settings
- Automatic **back light on** switching at touch down on the screen.
Not adjustable
- Automatic **back light off** switching after a configurable time-out in the setup menu
- Back light off timer adjustment at run time using client/ browser based access over an internal data control parameter (container **uBT_BackLightTimeout**)
This overrides the setup settings. A setting to 0 switches this automatic switching off
- Back light on/off control at run time using client/ browser based access over an internal data control parameter (container **uBT_BackLightOn**).
The setting gets overridden by a touch down on any place on the screen (switching on) and by the LCD Backlight timer timeout (switching off).

Note that at higher BackLight setting with **uBT_Contrast**, the **light intensity** gets higher.
This actually reduces the sensed contrast.

Note:

uBT_BackLightOn is added in VGA FW 1.12.11 upwards.

For compatibility reason another container **uBT_BackLight** is kept in.

This container however can NOT be used with buttons and edit boxes.

It can be used for **remote back light control over PPO**.

It reflects the remote control state, not the actual back light state.

Switching the back light on:

A write from '0' to '1' to this container switches the back light on.

If the container is '1' before however nothing happens in that case.

Switching the back light off:

A write from '1' to '0' to this container switches the back light off.

If the container is '0' before however nothing happens in that case.

To get a defined behaviour it is recommended to use always a two toggle sequence writing '1','0' to switch it off and '0','1' to switch it on.

For new applications it is recommended to use **uBT_BackLightOn** instead that can be used directly.

C.2 Use of the uBT_BackLightOn container

uBT_BackLightOn container use in buttons

The container can be used on a button using the set action option.

Examples with screen on:

- Down off only (set to 0): The screen will go black at the touch down at stay black at the release. At the next touch on whatever place it will be up again
- Down off / Up on (set to 0, 1): The screen will go black at the touch down and return at the release.
- Up off: The screen will go black at the release. At the next touch on whatever place it will be up again.

Examples with screen off:

- Down on only (set to 1): The screen will return at the touch as with touching on all places on the screen
- Down off / Up on (set to 0, 1): The screen will stay black at the touch down and return at the release
- Up off: The screen will return at the touch down and go black at the release. At the next touch on whatever place it will be up again.

The container setting gets overridden by a touch down on any place on the screen (switching on) and by the LCD Backlight timer timeout (switching off) in parallel with the executed action

The overwritten value will NOT be directly valid / shown at read backs in the current teq view by other paint objects or macros.

The read backs /will be valid, and the corresponding handling on the painter objects executed, in the next following teq view refresh from the start on at this refresh. This will be for all painter objects in this view.

uBT_BackLightOn container use with Edit box

The container can be set in an edit box and the corresponding action is directly done in the current teq view handling.

The container setting gets overridden by a touch down on any place on the screen (switching on) and by the LCD Backlight timer timeout (switching off) in parallel with the executed action

The overwritten value will NOT be directly valid / shown at read backs in the current teq view by other paint objects or macros.

The read backs /will be valid, and the corresponding handling on the painter objects executed, in the next following teq view refresh from the start on at this refresh. This will be for all painter objects in this view.

uBT_BackLightOn container use in combination with PPO access

Using the container↔PPO macros a PLC can remotely control and supervise the backlight on/off function.

Using the PPO to Container Macro for the uBT_BackLightOn control the following is found:

- Writing a PDP / PPO change in the connecting PLC will be registered by the polling of the Web Client using teq view refresh cycles of typical 0.6 to 2 Sec. Directly on reception and copying in the container over the Macro the corresponding action is directly done in the current teq view handling
- The overwritten value will NOT be directly valid / shown at read backs in the current teq view by other paint objects or macros including the container to PPO macro that may

be used for a read back / write back in the PLC

The read backs /will first be valid, and the corresponding handling in the painter objects executed, in the next following teq view refresh from the start of it. In this way it will be valid for all painter objects in this view in one go

- The container setting gets **overridden** by a touch down on any place on the screen (switching on) and by the LCD back light timer timeout (switching off) in parallel with the executed action.

Also at this:

The overwritten value will NOT be directly valid / shown at read backs in the current teq view by other paint objects or macros including the container to PPO macro that may be used for a read back / write back in the PLC.

The read backs /will first be valid, and the corresponding handling in the painter objects executed, in the next following teq view refresh from the start of it. In this way it will be valid for all painter objects in this view in one go.

This means that other programmed actions – including an indication or setting that is done at a switch to display off or on – always are done with one screen refresh delay.

This means also that display on / off settings read / write backs also run with at least one teq view refresh time cycle delay.

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