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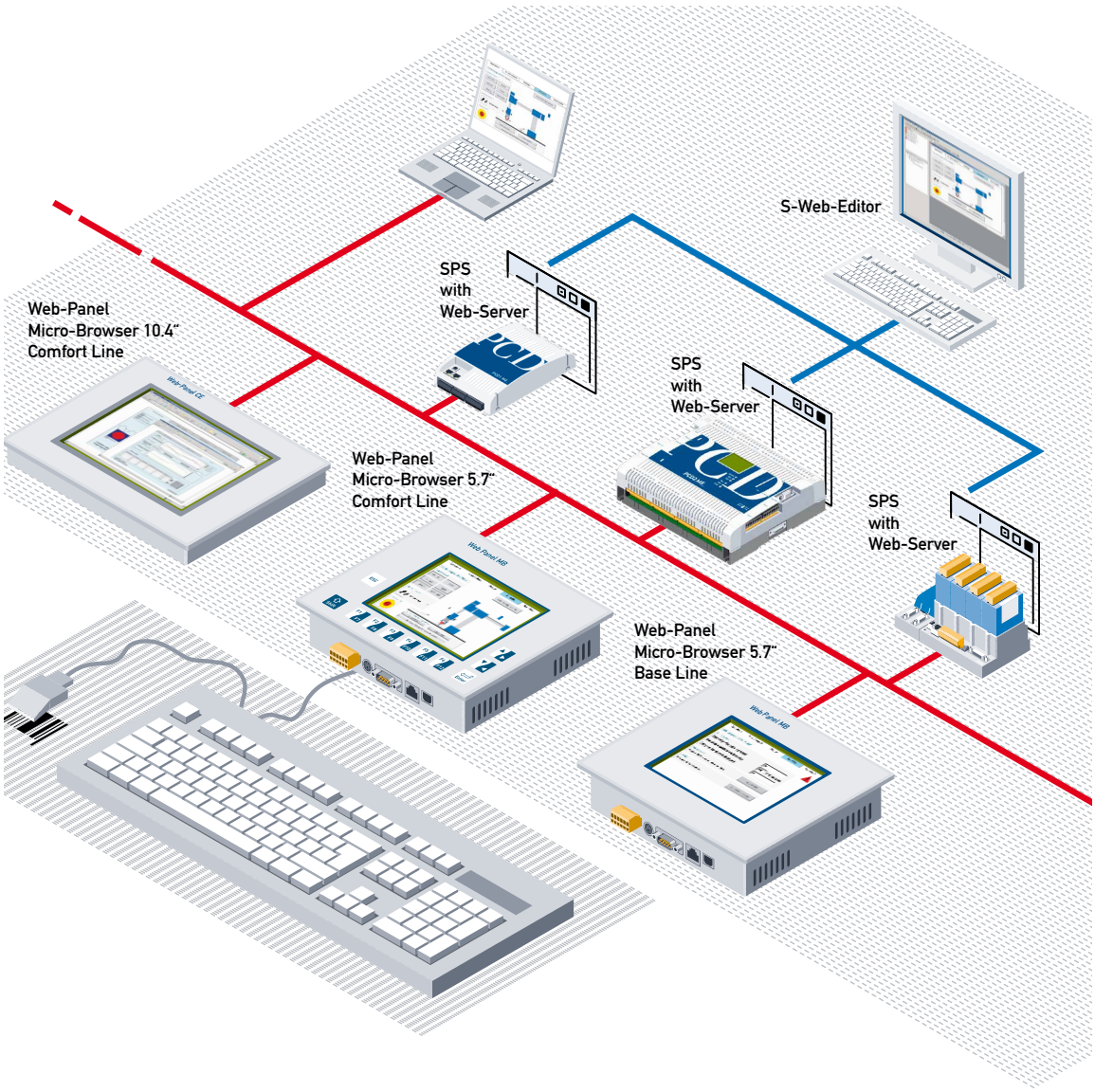
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Series PCD7.D4xx MB-Panel

Document 26/851; Edition EN11 | 2014-01-15

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0.1 Document History

Date	Version	Changes	Remarks
EN00	2007-02-01	-	Initial Edition
EN00	2007-03-02	all	Replaced pictures from CPUs with actual Design
EN00	2007-04-02	5.6.1	Replaced Word table with trough InDesign table
EN01	2007-06-27	6.4	New chapter
EN01	2007-09-13	1.5.9	**Numericpad.teq** replaced with **keypad.teq**
EN02	2007-11-26	all	Update based on FW1.08.00
EN02	2008-04-14	all	Layout for print
EN03	2008-05-08	all	Update based on additional 3.5” ESC key can be used: see chapter 7.7.3
EN04	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	all	Addition MB-Panels VGA
EN06	2010-04-30	all	Corrections
EN07	2010-12-08	chapter 1	Dimensions of the Cut-Outs
EN08	2011-01-14	all	Corrections and adaption Setup menu / Add Haptic 5.7” / Remove all concerning QVGA 3.5”
EN09	2012-02-20	1.7.4 & 3.4	Transparent communication TCP to RS-232 (ex. printer port) **(only with QVGA-Panels)**
EN10	2012-05-09 2013-05-14	7.2 7.2 2.4	- Lower storage temperature changed from –20 to –25 °C - New storage temperature –25…+70 °C - The availability changed
EN11	2013-11-18 2014-01-15	-	change of logo internet security

0.2 Brands and trademarks

Saia PCD® and Saia PG5®
are registered trademarks of Saia-Burgess Controls AG.

Technical modifications are based on the current state-of-the-art technology.

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Published in Switzerland

1 Quickstart

1.1 Introduction

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

Instructions for connecting Saia-PCD controllers to the internet



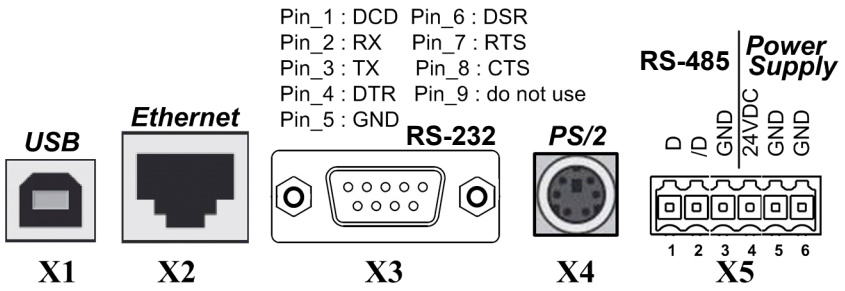
When Saia PCD controllers are connected directly to the internet, they are also a potential target of cyber attacks. For secure operation, appropriate protective measures must always be taken. PCD controllers include simple, built-in protection features. However, secure operation on the internet is only ensured if external routers are used with a firewall and encrypted VPN connections.

For more information, please refer to our support site:

www.sbc-support.com/security

1

1.2 Connectors definition



X1 = USB connector as Service Port

X2 = Ethernet RJ-45 connector as main/fast communication

X3 = RS-232 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 = RS-485/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

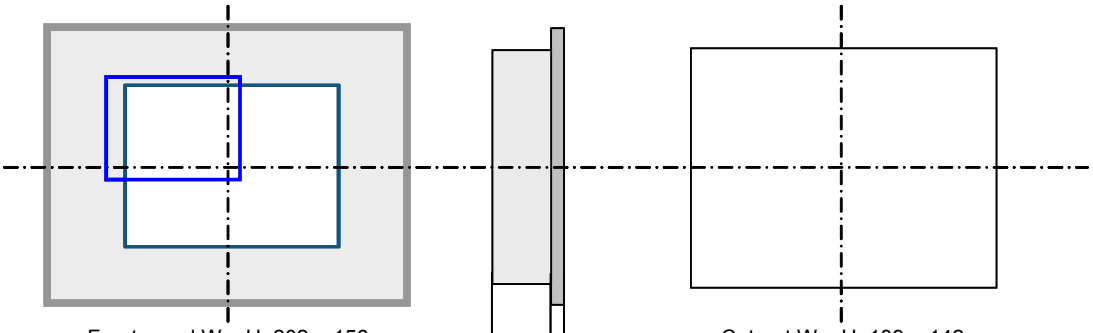
➔ 19 VAC ±15% full-wave rectified

	Current consumption:	Power without background lighting	Power with Background lighting
PCD7.D435xxxx, and PCD7.D457xxxx	max. 500 mA		
PCD7.D410xxxx	max. 600 mA	9 Watt	15 Watt

Power supply via plug-in spring connector for wires of max 1,5 mm^2.

1.4 Dimension and cut-out (all in mm)

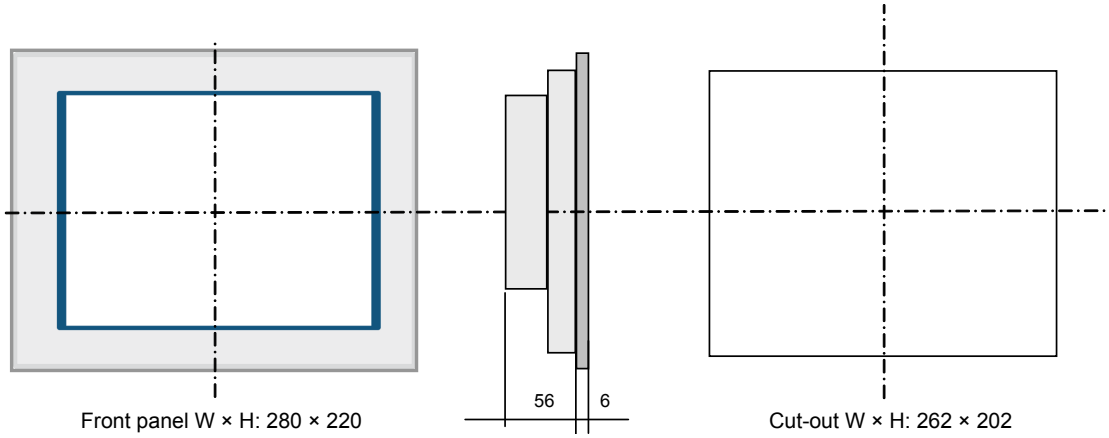
PCD7.D435xxxx, und PCD7.D457xxxx



Front panel W × H: 202 × 156
Display 5.7“ W × H: 117 × 88
Display 3.5“ W × H: 73 × 56

Cut-out W × H: 189 × 142

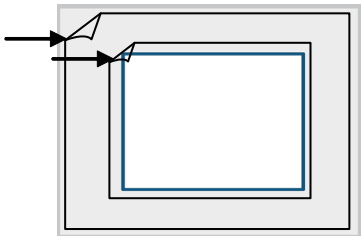
PCD7.D410VTCF



Front panel W × H: 280 × 220
Display W × H: 211 × 159

Cut-out W × H: 262 × 202

- 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.

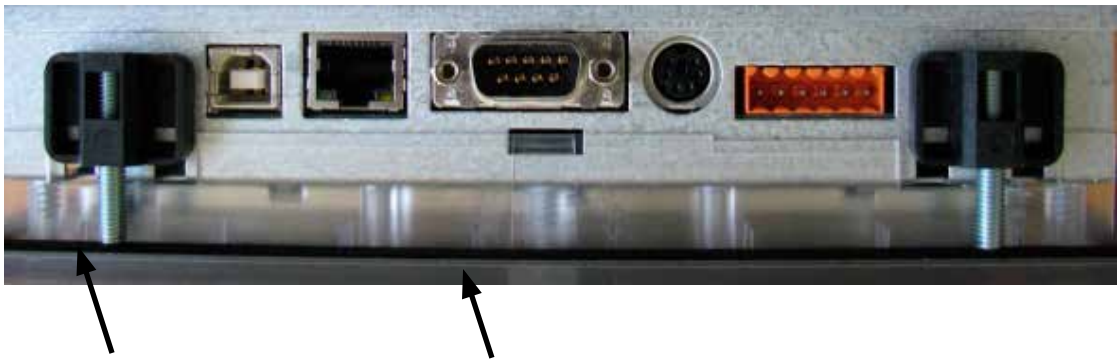
b) The screws require a hex wrench 2.5 mm.

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.



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



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



Enter key: «Enter» function



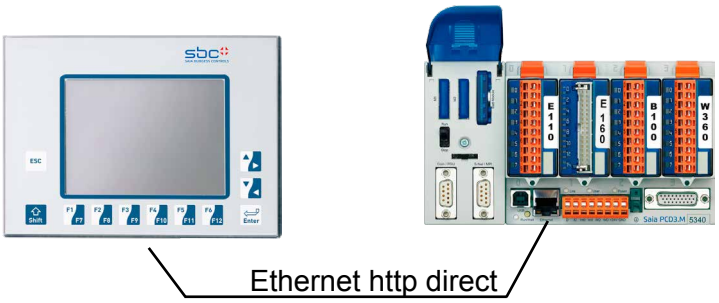
Escape key

1.7 Communication

1.7.1 HTTP direct over Ethernet RJ-45 connector

The quickest communication port is actually the Ethernet port through RJ-45 where the protocol http direct is selected. The speed is either 10 M or 100 Mbit/s after an auto-negociation 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 PCD 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 SBC 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 PCD device like PCD3.Mxxx series where the Ethernet communication connector is present.
- Using a PCD3.Mxxx PLC, define the **HW settings of the Saia PCD** device : S-Bus support must be selected together with the TCP/IP Channel where a valid IP Address is entered.

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 PCD 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

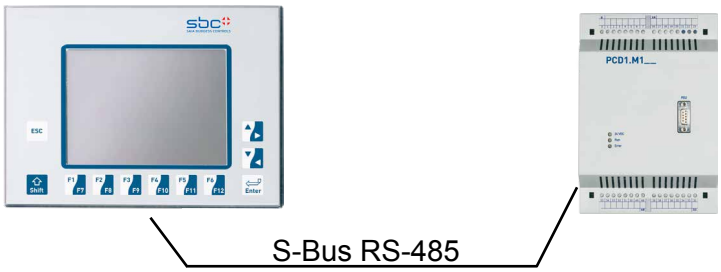
➔ Second, in the configuration Menu, enter the **Address of the start page** that corresponds to the Saia PCD IP Address, and also enter its html start page name.

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

1

1.7.2 Serial S-Bus communication over RS-485

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.

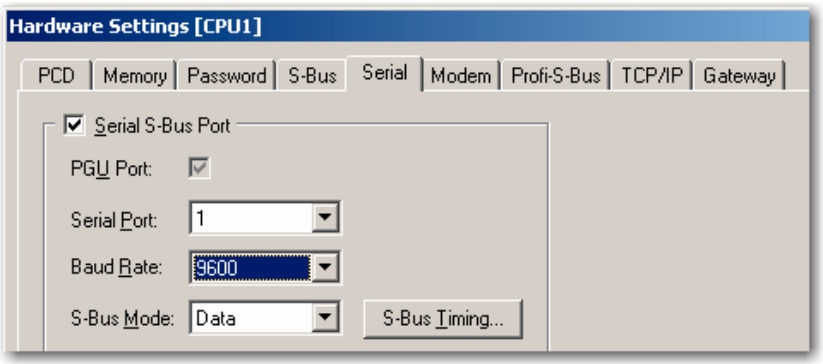


This RS-485 S-Bus connection is foreseen to be used between our PCD7.D4xx and PCD3.M3020, PCD1.M125/M135, or PCD2.M150 where «less fast» communications are acceptable.

The communication speed is limited to 115'200 bauds.

Quick test?

- Take Saia PCD 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 RS-485 port at disposal using for ex. the port#1 (together with PCD7.F110 Module).
- Then define the **HW settings** of the Saia PCD device (see PG5: SBC 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 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 (RS-485) 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.

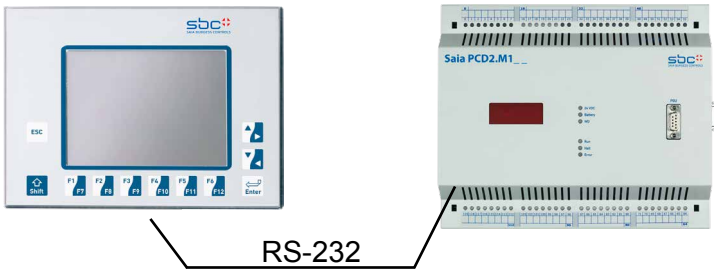
➔ Now, if your SBC PLC is also well set up, you should be able to get a **check mark** beside your connection settings. This means you are connected to the Saia PCD, but you still have to type the right **Name of Start Page** in the Menu Configuration (as shown in the Menu SBus connection settings, ex. SBUS-RS-485/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 PCD and the start page selected should be displayed on the screen. You can now navigate in your Web-pages !

1

1.7.3 Serial S-Bus communication over RS-232

This communication uses a standard RS-232 connection on the block X3.
This works only in a point to point link.

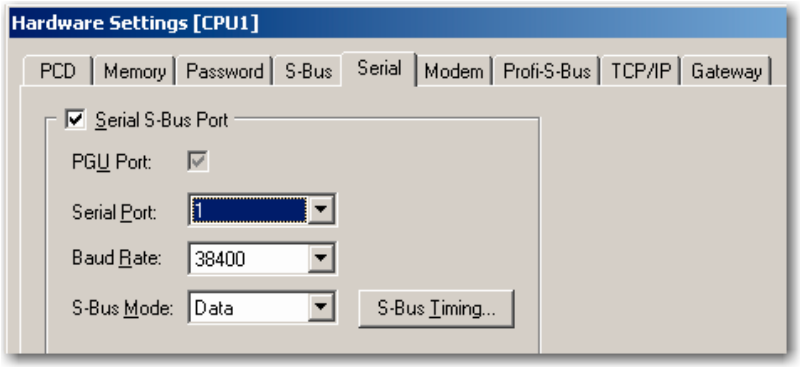


This RS-232 S-Bus connection is foreseen to be used between our PCD7.D4xx and PCD3.M3020, PCD1.M125/M135, or PCD2.M150 where «less fast» communications are acceptable.

The communication speed is limited to 115'200 bauds.

Quick test?

- Take 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 RS-232 port at disposal using for ex. the port#1 (together with PCD7.F120 Module).
- Then define the **HW settings** of the Saia PCD device (see PG5: SBC 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 (RS-232) 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 SBC 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 SBC 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).

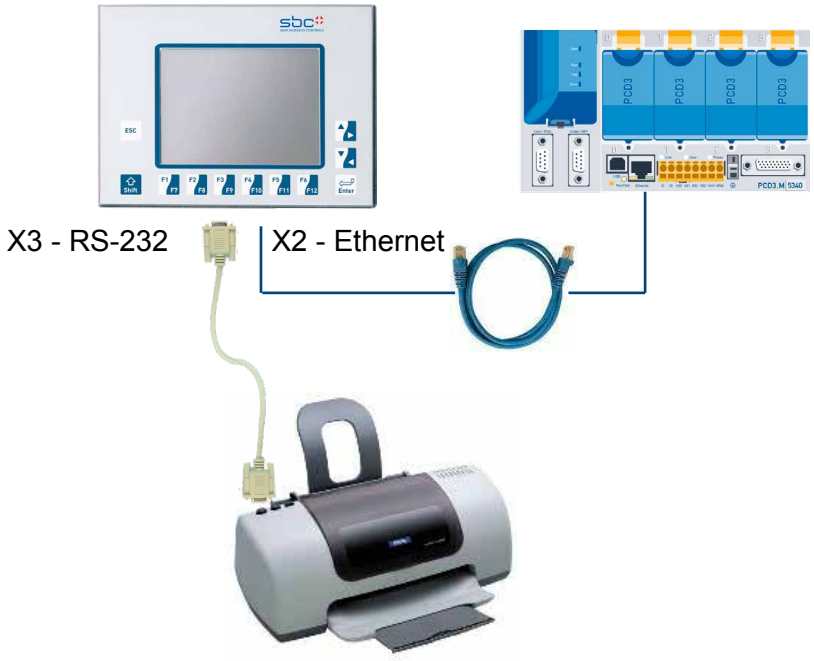
Now your MB-Panel should be connected to the Saia PCD and the start page selected should be displayed on the screen. You can now navigate in your Web-pages !

1

1.7.4 Transparent communication TCP to RS-232 (ex. printer port) (only with QVGA-Panels)

The goal of this communication is to send information from the EthernetPort «directly» to the RS-232 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 RS-232 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 RS-232 (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 (RS-232) in order adjust the communication parameter. Then you are in the menu TCP/IP RS-232.
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.

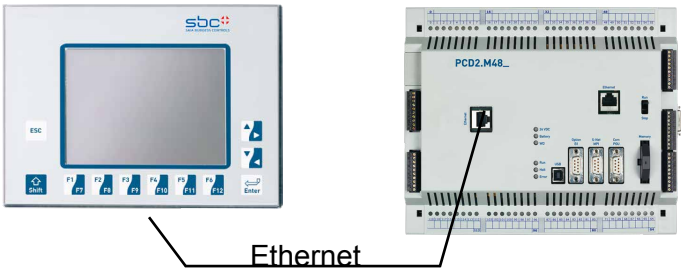
➔ Now, the texts you want to print out must be stored in the PLC, using the Call System Function (**CSF**) from the IP Library. These functions can be provided on simple request with example.

1.7.5 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 Saia 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 PCD 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 PCD as ex. PCD2.M480+PCD7.F650 on the RJ-45 Ethernet connection.
- Using a PCD2.M480 side, define the **HW settings of the Saia PCD®** 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 PCD 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 PCD and the start page selected should be displayed on the screen. You can now navigate in your Web-pages !

1.7.6 Profi-S-Net Communication on RS-485 (Port#1)

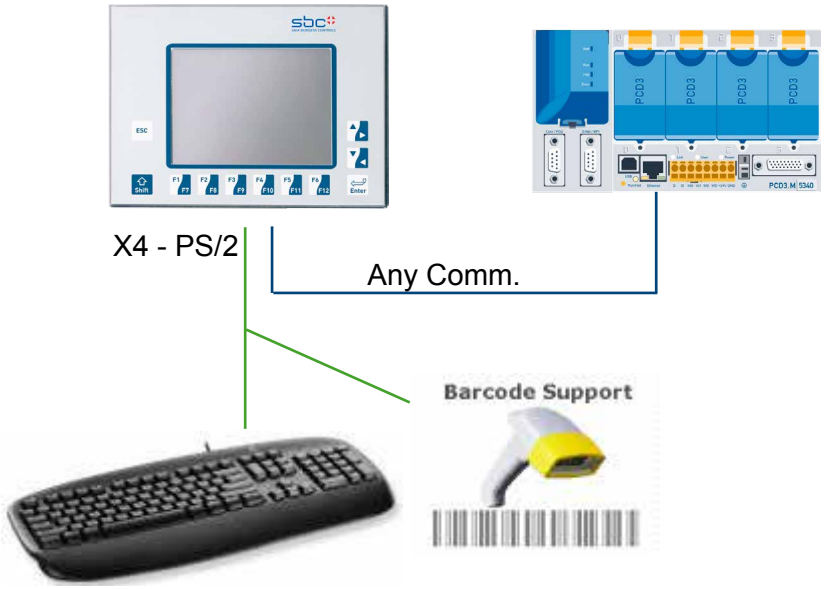
This protocol is in preparation.

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

1

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.

Another use consists to access the internal data for analyses. Future development regarding download of SBC-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 detailled 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 with QVGA MB-Panels**
  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

- **Using virtual Keyboard with VGA MB-Panels**
  See the chapter 5.11 keyboard

- 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 foregroung.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 Saia 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 RJ-45, SBUS RS-232/RS-485, USB client.

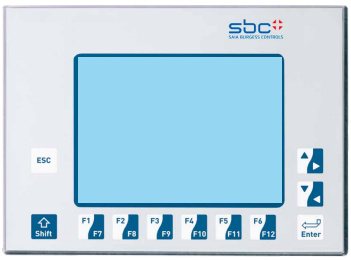


Type PCD7.D457**BT**CF **:**
➔ Panel with a LCD size 5.7", black&white FSTN, White LED Backlight.

Type PCD7.D457**ST**CF **:**
➔ 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 RJ-45, SBUS RS-232/RS-485, PS/2, USB client.

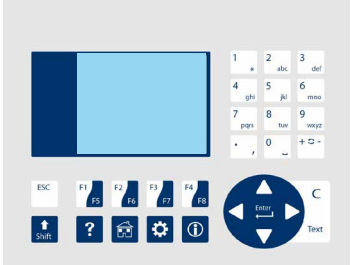


Type PCD7.D457**SM**CF **:**

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

Comfort Line MB-Panel Type 3.5":

Type PCD7.D435**TL**CF**:**
Panel with a LCD size 3.5", color TFT, White LED Backlight.
26 Front Membrane Keys, (No touchscreen), communication Ethernet RJ-45, SBUS RS-232/RS-485, PS/2.



2.1.2 VGA MB-Panels

Base Line MB-Panel 5.7":

Including Touchscreen, communication Ethernet RJ-45, S-Bus RS-232/485, USB client



Type PCD7.D457**VT**CF

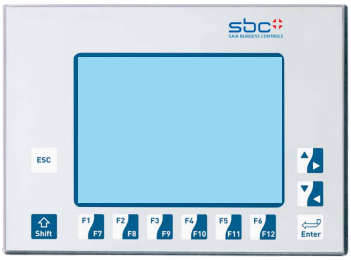
➔ Panel with LCD size 5.7" , color TFT and VGA resolution, white LED backlight.

Type PCD7.D457VTCF**H**

➔ as D457VTCF with haptic touch screen.

Comfort Line MB-Panel 5.7":

Including Touchscreen, 11front Membrane Keys, communication Ethernet RJ-45, S-Bus RS-232/485, USB client

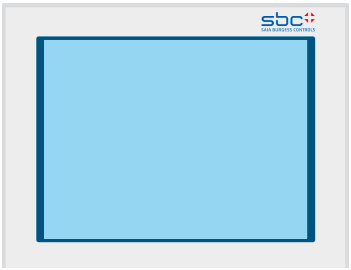


Type PCD7.D457**VM**CF :

➔ Panel with LCD size 5.7" , color TFT and VGA resolution, white LED backlight.

Base Line MB-Panel 10.4":

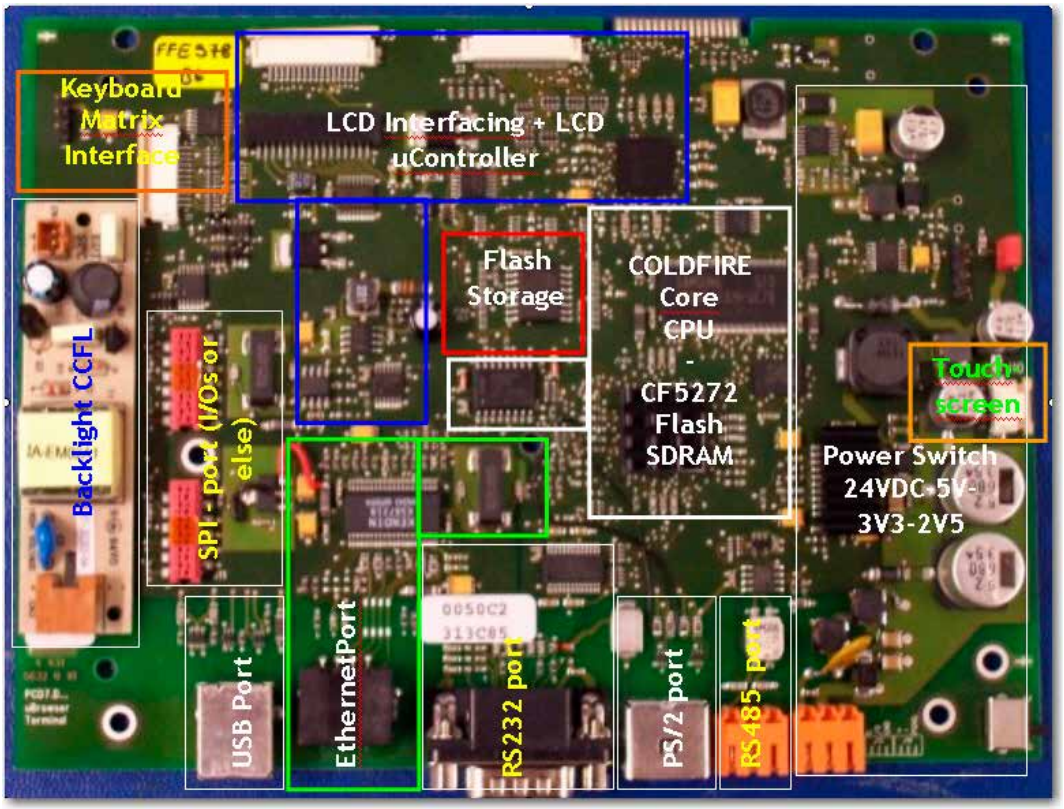
Including Touchscreen, communication Ethernet RJ-45, S-Bus RS-232/485, USB client



Type PCD7.D410**VT**CF :

➔ 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 Controls 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.D457				PCD7.D457		PCD7.D410
	BTCF [5]	STCF [5]	VTCF [5]	VTCFH [6]	SMCF [5]	VMCF [5]	VTCF
Display							
Screen: colours	16 levels of grey	256	65536	65536	256	65536	65536
Display	5,7" STN		5,7" TFT	5,7" TFT	5,7" STN	5,7" TFT	10,4" TFT
Resolution/Pixel	QVGA 320×240		VGA 640×480	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 adjustement	yes				yes		yes
Backlight	LED	CCFL	LED	LED	CCFL	LED	CCFL
Fkeys, keyboard	—				2×6 Fkeys		—
Processor	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
SD card interface	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 RS-232 [2]			—	×1 RS-232 [3]		×1 RS-232 [3]
Serial	×1 RS-485 [4]			×1 RS-485 [4]	×1 RS-485 [4]		×1 RS-485 [4]
Keyboard/barcode	—			—	×1 PS/2		×1 PS/2
Connector to external monitor	—			—	—		—
Operating System	SBC NT				SBC NT		SBC NT
Browser	SBC Micro-Browser				SBC Micro-Browser		SBC Micro-Browser
Software tools							
	—				—		—
	—				—		—
Server							
	Web-Server (HTTP D)				Web-Server (HTTP D)		Web-Server (HTTP D)
	—				—		—
	FTP-Server/File-Server				FTP-Server/File-Server		FTP-Server/File-Server
Software tool							
Communication driver	—				—		—
Graphic editor	SBC Web-Editor*				SBC Web-Editor*		SBC Web-Editor*
* using Saia PG5® resources	yes				yes		yes
Technical data							
Supply voltage	18…32 VDC				18…32 VDC		18…32 VDC
Power Consumtion (at 24 VDC)	500 mA				500 mA		600 mA
Operation temperature	0...50 °C				0...50 °C		0...50 °C
Protection class (front)	IP65				IP65		IP65
Dimensions (W×H×D) mm	202×156×42				202×156×42		280×220×56
Cut-out (W×H) mm	189×142				189×142		262×202
Accessories							
Kits for In-Wall mounting	PCD7.D457-IWS						
Kits for on-Wall mounting	PCD7.D457-0WS						

1) http direct/Ether-S-Bus
2) Serial-S-Bus
3) Serial-S-Bus and printer
4) Serial-S-Bus
5) available without SBC Logo

2.5 Interface connection

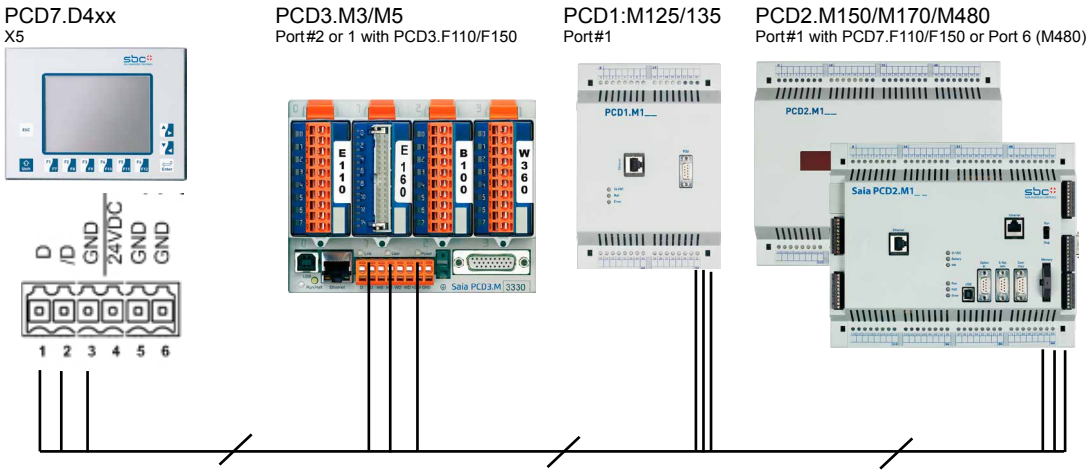
2.5.1 Ethernet port RJ-45, X2

Connection between terminal PCD7.D4xx and 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.

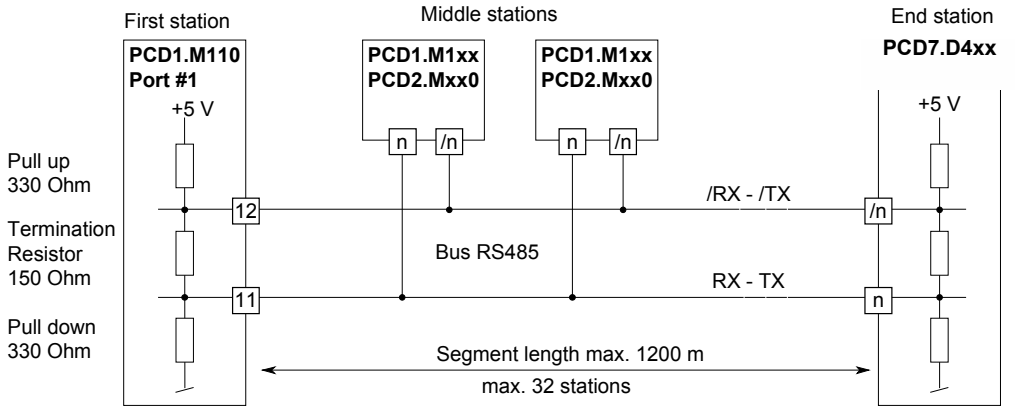
2.5.2 S-Bus on RS-485



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

Termination resistors for proper End of line

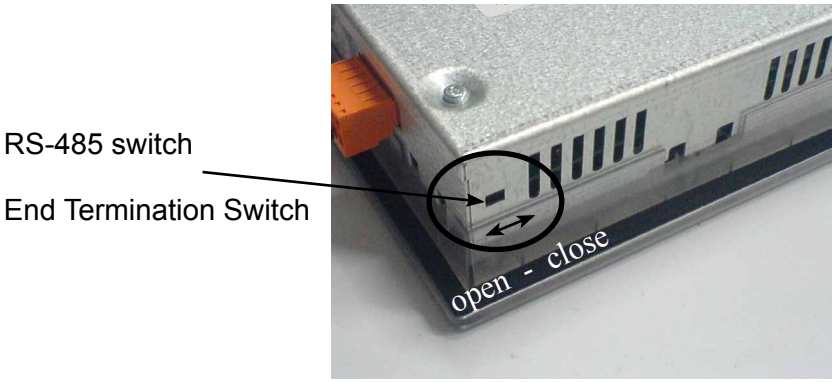
In the example below, you see a possible interconnection between terminals and PLCs. In order to avoid reflexions on the communication line please terminate the network with termination resistors. On the PCD7.D4xx, a switch is avaiable:



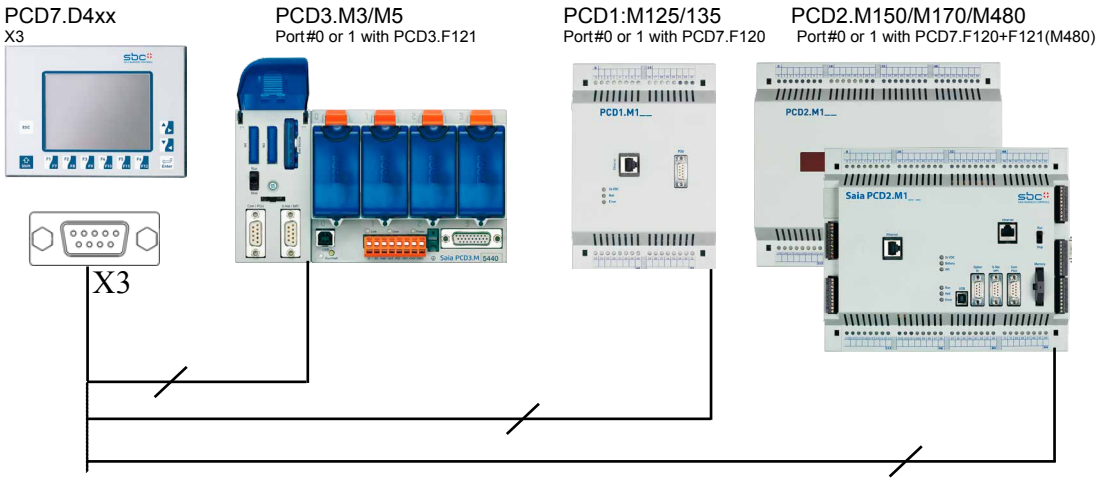
The next image shows you where it is located.

→ 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**.

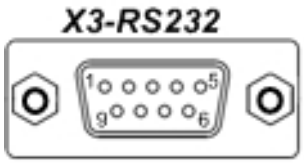


2.5.3 S-Bus on RS-232



RS-232 Point to point comm.

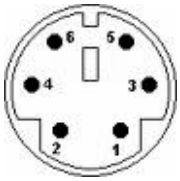
Interface **pining**:



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

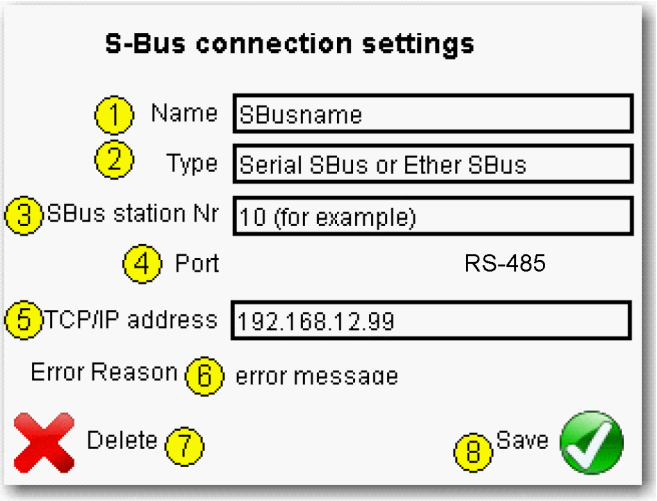
On this communication port, there is an autonegociation mode between the MB-Panel and the Ethernet switch or the PLC directly attached to. Exactly the same as defined for previoused http direct.

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):



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, 19'200, 38'400, 57'600, 115'200 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 RS-232 (TCP2RS-232) – Baudrate and Controls (only with QVGA-Panels)

Here also the user must define by 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 transfer Information transparently from the TCP/IP port to our RS-232.

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.

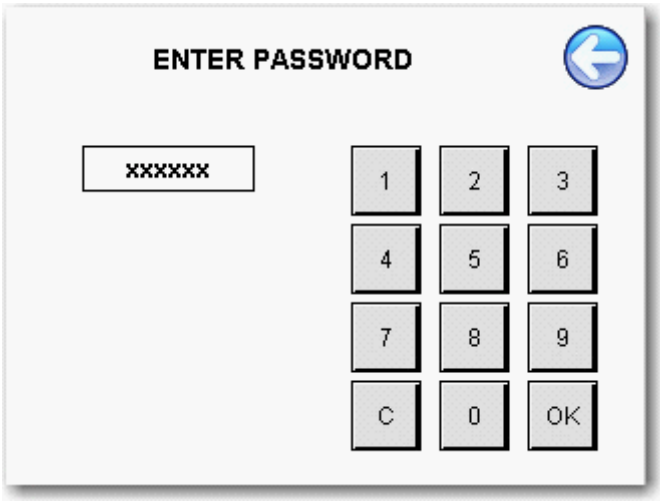
4 Setup Menu QVGA MB-Panels

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 minimum.
- 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.



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.

In all cases, confirm it with the OK keys, not with the ENTER keypad.

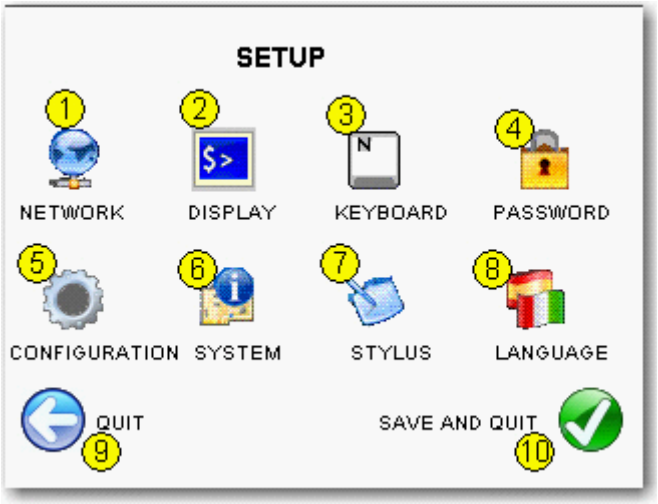
4.1.2 Title

Appears after some seconds. This time is defined in the setup page «System».



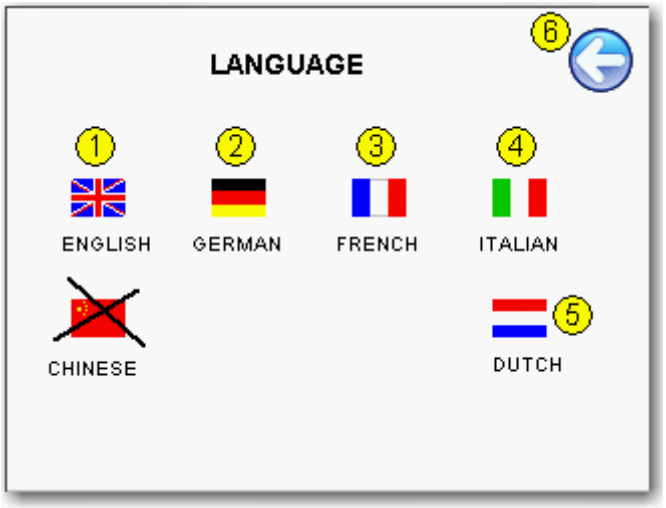
1	Titlestring	Default «uB Terminal». Can be changed in «System».
2	Firmware Version	Firmware version (read only)
3	Access to Setup Menu	Press «Enter Setup» to enter to main setup menu.

4.1.3 Setup



1	Network	Settings of the MB-Panel		
2	Display	Display settings		
3	Keyboard	PS/2 keyboard setting		
4	Password	Enter a password		
5	Configuration	Address and name of the start page		
6	System	System info + download FW		
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		

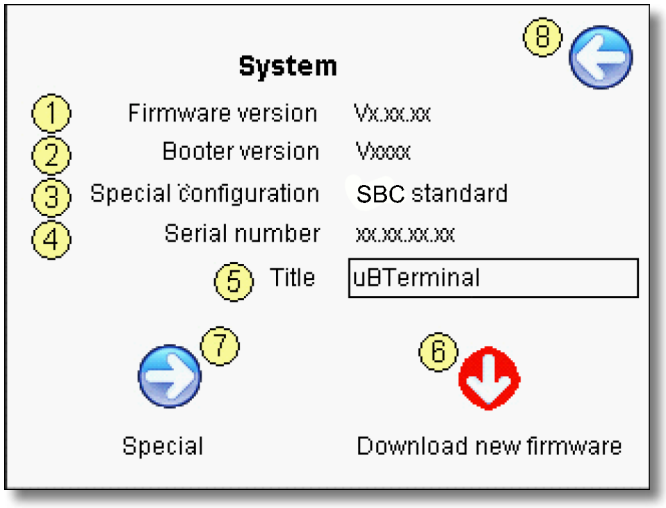
Press language (8) to choose your current language



* Chinese is not yet implemented

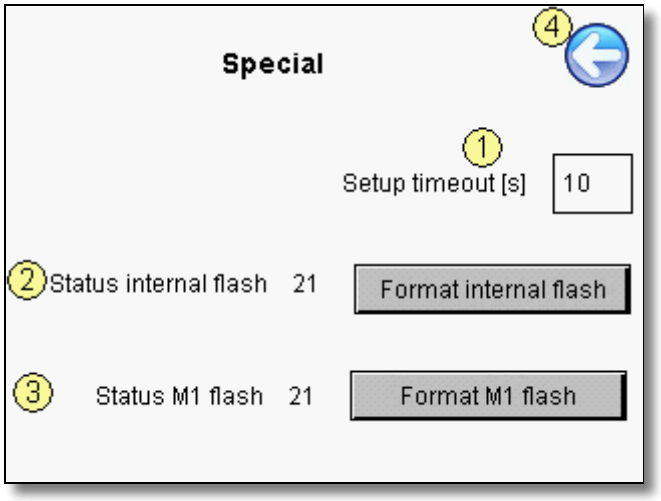
Press on the arrow ← to save the new language selected. The change is directly done afterwards.

4.1.4 System



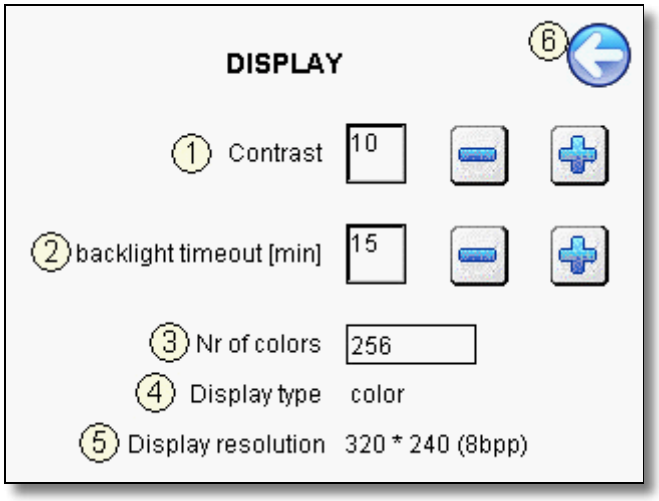
1	Firmware version	V xxxx	Firmware version (read only)
2	Booter version	V xxx	Booter version (read only)
3	Configuration	Default: SBC standard	Read only
4	Serial Nr.	xxxxxxxxxx	Serial Number: This number is unique! It can be used for product traceability
5	Title	Default: uB Terminal	This string is displayed 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 Special advanced funcion)
7	➔		Back to the main setup menu

4.1.5 Special (advanced function)



1	Setup timeout (s)	Default: 10 seconds 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

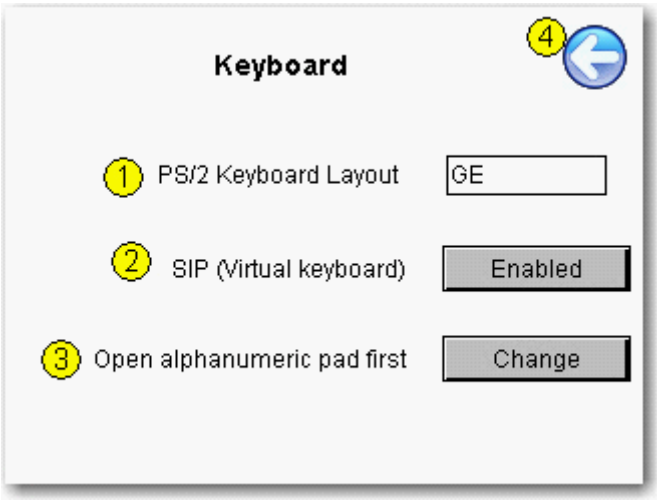
4.1.6 Display



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

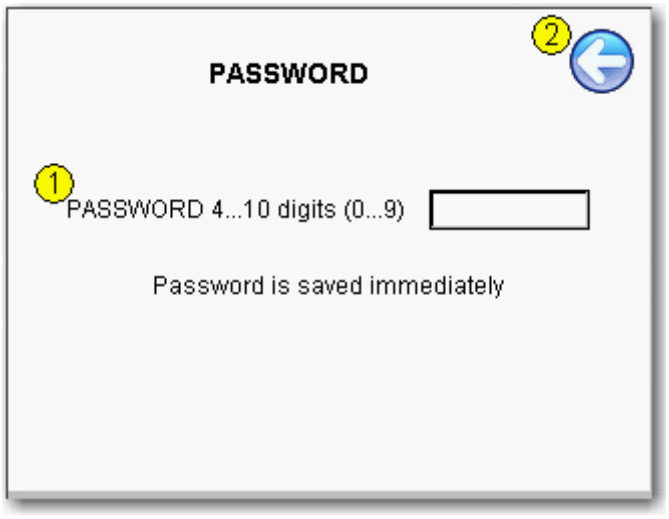
4.1.7 Keyboard/Barcode reader

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



1	PS/2 keyboard Layout	Default: GE (German)	Keyboard languages : • 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

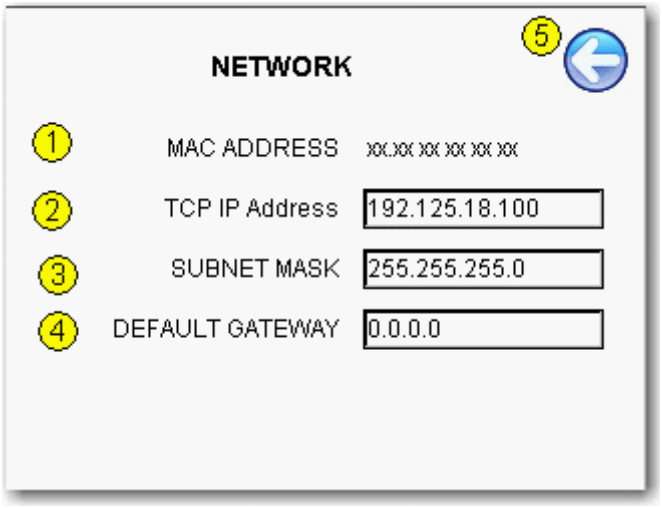
4.1.8 Password



☹ Forgot your password?
See chapter 5 «Enter Password»

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

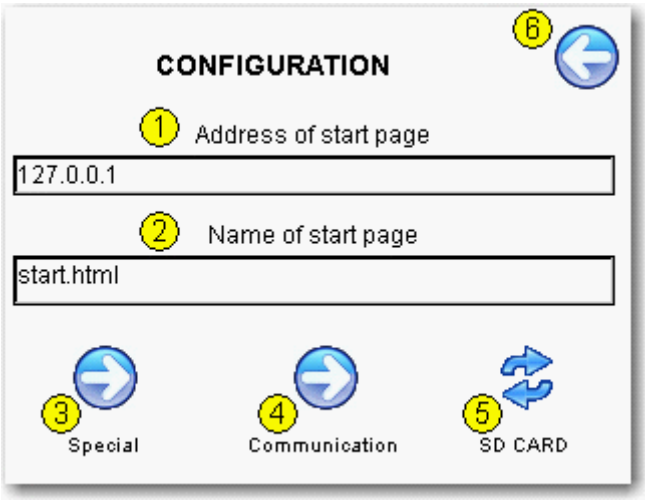
4.1.9 Network



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

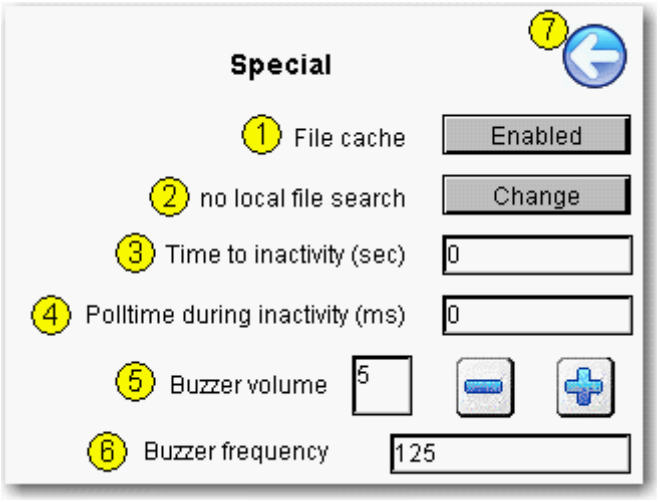
4.2 Setup Menu Configuration «step by step»

4.2.1 Configuration



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

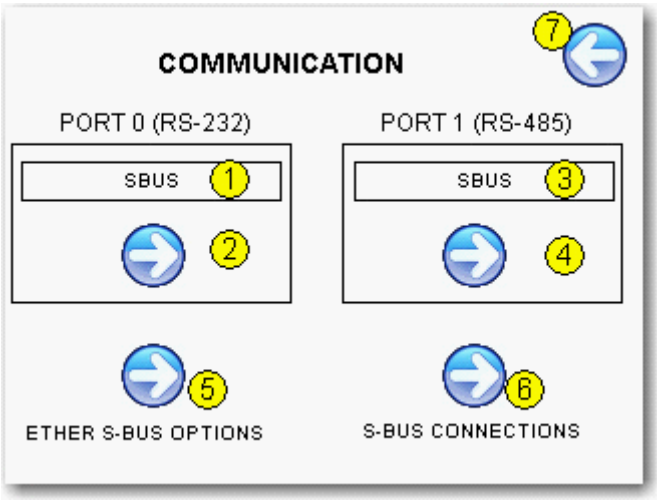
4.2.2 Special



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. 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).
4	Polltime during inactivity (ms)	Default: 0 ms	
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	

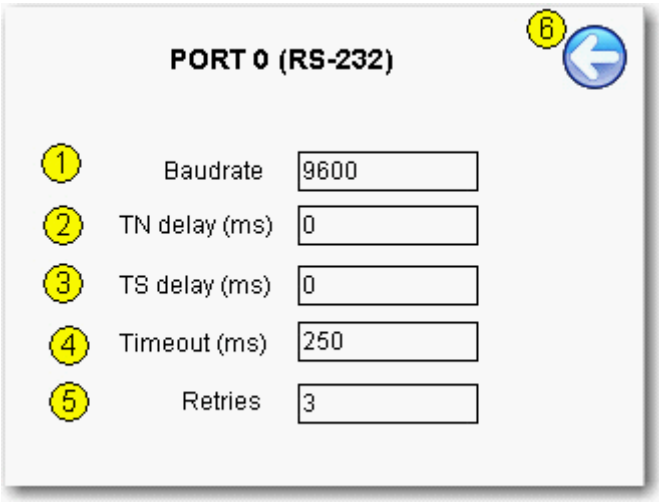
4

4.2.3 Communication



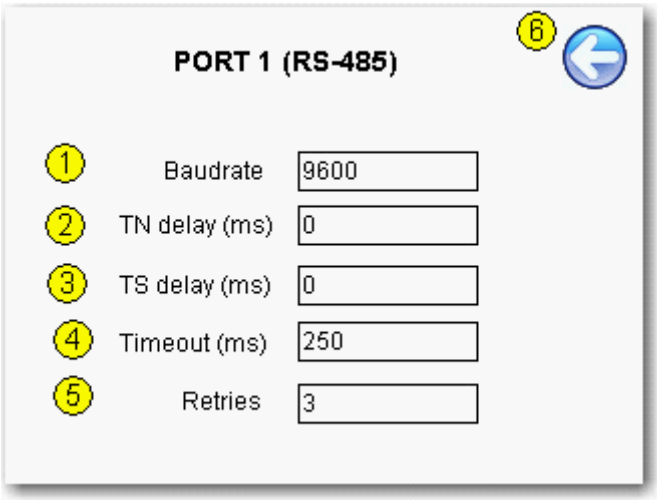
1	Port#0 (RS-232)	Default: SBUS	Port#0 (D-sub 9) - None: no S-Bus communication - SBUS: Communication Serial S-Bus RS-232 - TCP2RS232 :TCP/IP to RS-232. Using MB-Panel as gateway (for example for Printer output)	
2	Configure	Port#0	- S-Bus configuration on Port#0 - Configuration of TCP2RS232 on Port 0 (TCP2RS232 means TCP to RS-232)	
3	Port#1 (RS-485)	Default: none	Port 1 (orange spring connector no.1,2,3) - None: no S-Bus communication - SBUS: serial S-Bus RS-485 communication	
4	Configure	Port#1	S-Bus configuration on Port#1	
5	Configure	Port Ether-net	Ethernet S-Bus options	
6	Configure	S-Bus connections	Configuration of up to 16 serial or Ethernet S-Bus stations .	
7	←		Back to configuration menu	

4.2.4 Configuration Port #0 (RS-232) Serial S-Bus



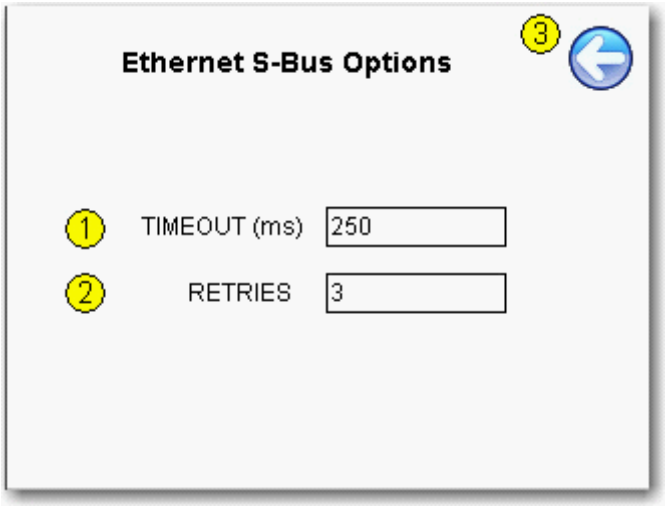
1	Baudrate	Default: 9600	Adjustment: from 1200 to 115'200
2	TN Delay (ms)	Default: 0	-
3	TS Delay (ms)	Default: 0	-
4	Timeout (ms)	Default and standard: 250	S-Bus configuration
5	Retries	Default: 3	Number of attempts: try + retries
6	←		Back to communication menu

4.2.5 Configuration Port#1 (RS-485) Serial S-Bus



1	Baudrate	Default: 9600	Adjustment: from 1200 to 115'200
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

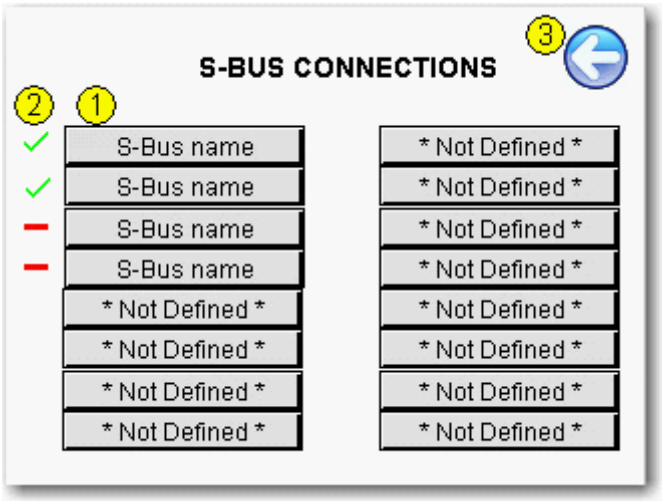
4.2.6 Ether S-Bus Configuration



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

4.2.7 S-Bus Connection

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

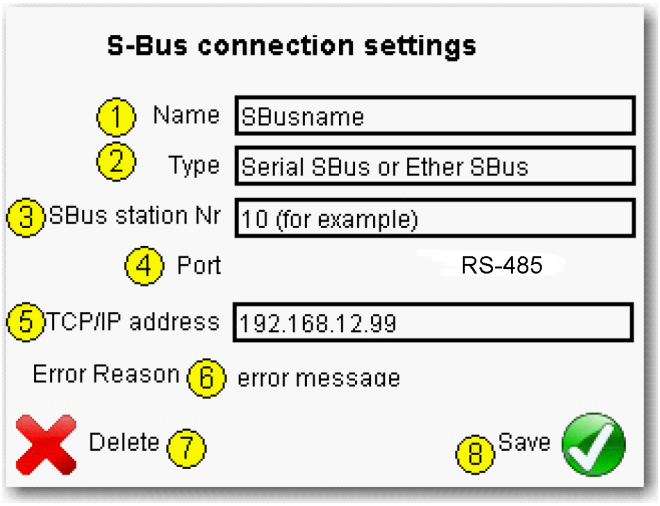


1	S-Bus name	Default: none	Entering all connection setting of each station:
2	S-Bus communication status	Default: none	Status of communication ✓ = communication OK – = communication error
3	←		Back to communication menu

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 Saia PCD firmware does not support this mode

4.2.8 S-Bus Connection Settings



⑥Potential 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 Saia PCD® firmware does not support this mode

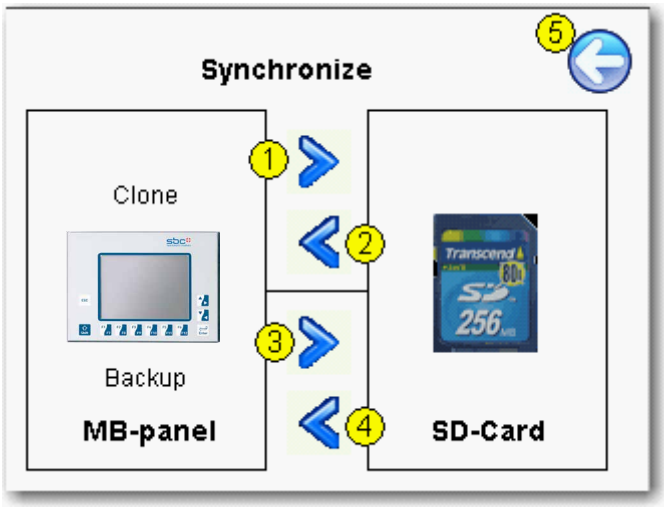
1	Name	Default: *not defined*	Enter a name for the S-Bus station. Maximum 20 characters with no spaces or special characters	
2	Type	Default: none	Appears only if S-Bus name is defined. ■ Serial SBus ■ Ether SBus	
3	S-Bus station no.	Default: 0	Appears only if S-Bus name is defined. ➔ N.B. This is the S-Bus station number: 0 to 255	
4	Port	Default: 0	Appears only if Serial S Bus is selected. ■ Port 0 (RS-232) ■ Port 1 (RS-485)	See ⑥
5	TCP/IP address	Default: 0	Appears only if Ether S Bus is selected. Enter the IP address of the station	See ⑥
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	

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:

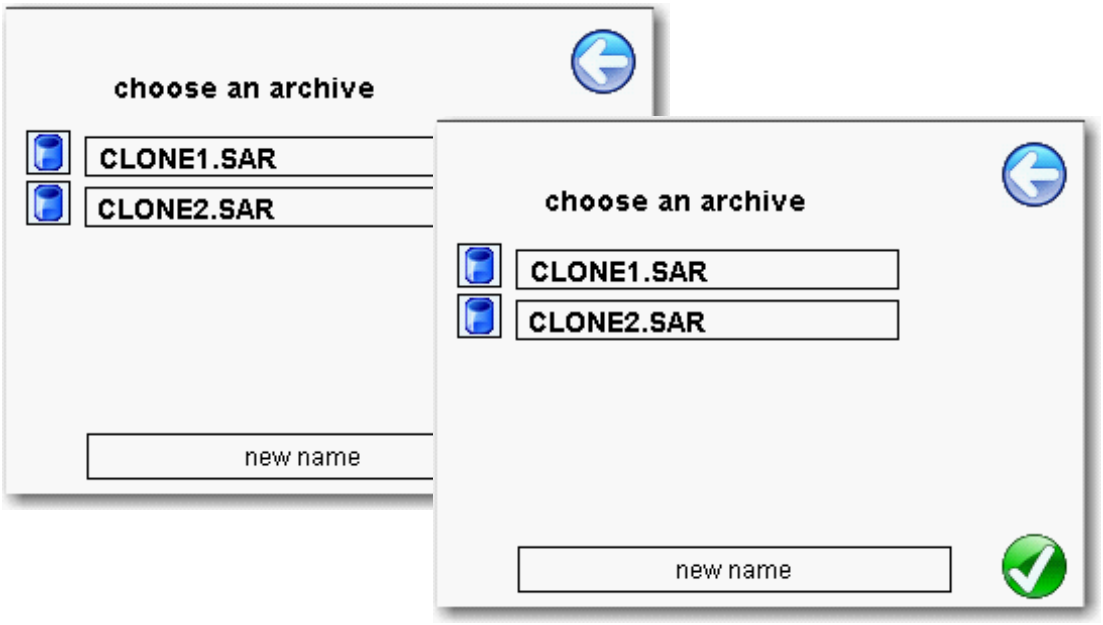


Clone: Copy or restore image of «INTFLASH» or «M1_FLASH» onto or from a archive file (.SAR format)

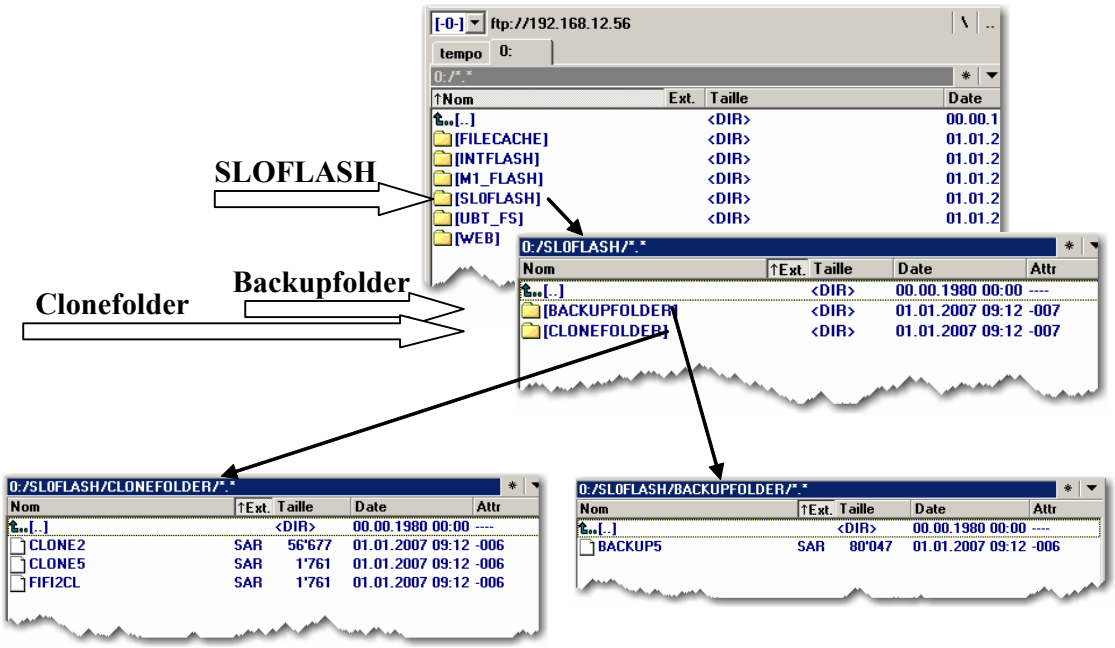
Backup: Copy/restore all the files contained in the M1_FLASH/WEBPAGES onto or from an archive file (.SAR format)

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 (SBC Archiv)
5	➔		Back to the configuration menu

Restoring choose in the lists



FTP access to cloning and backup folders



BE CAREFULL! case sensitive

SBC 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.

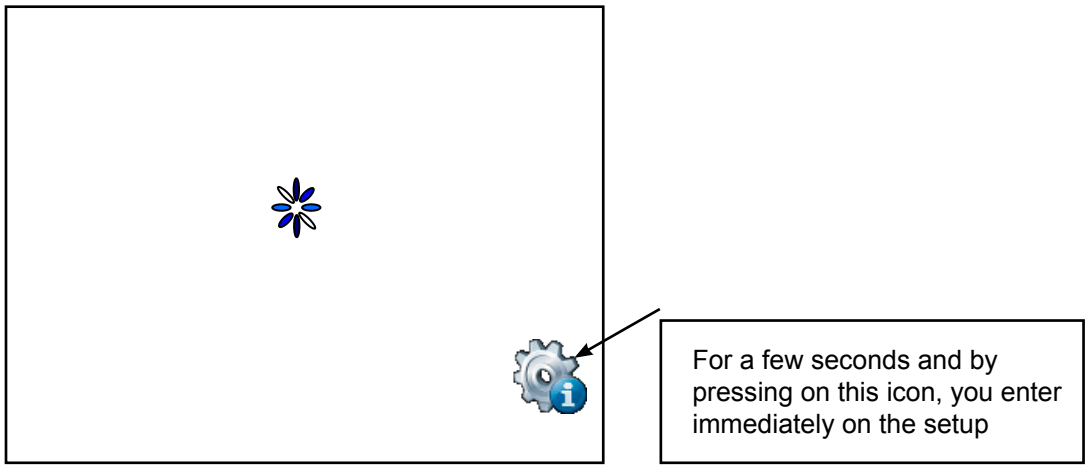
5 Setup Menu VGA MB-Panels

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 minimum for PCD7.D457 VTCF, D457 VMCF, D410 VTCF and FW 1.12.15 minimum for PCD7.D457 VTCFH.

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.

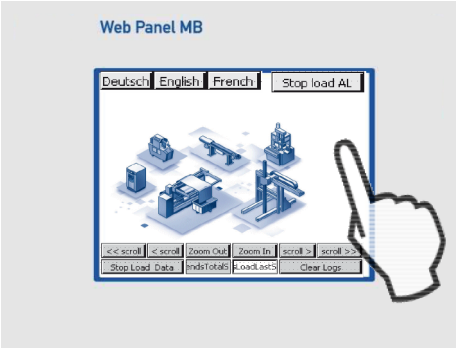


= Animated Icon for «please wait, activity in progress, loading»

Custom your start page: See chapter 5.9.1 «Intro Screen»

5.2 Setup Menu

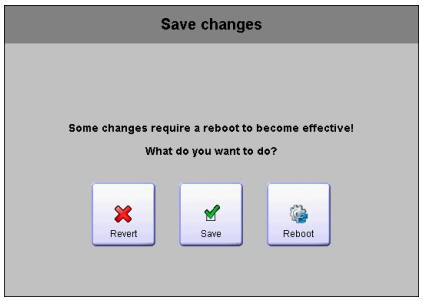
➔ By pressing at any time and anywhere (except on the buttons areas) during 4 seconds
➔ By pressing on an Icon at start
➔ SETUP menu contains an ON-LINE Help (press help icons)



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.

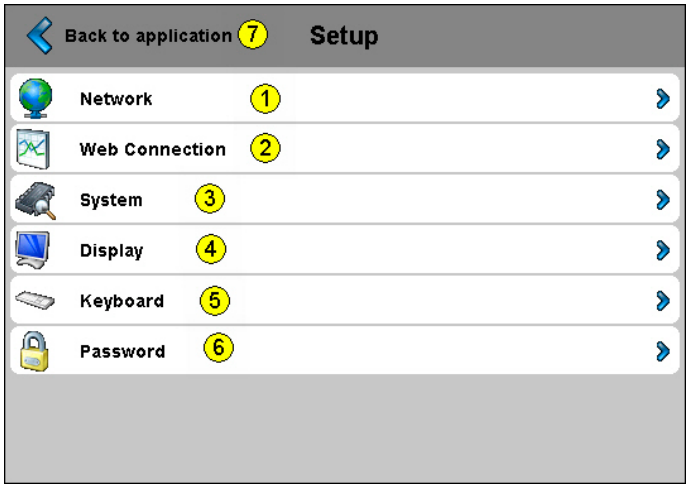
5.4 Save and quit



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

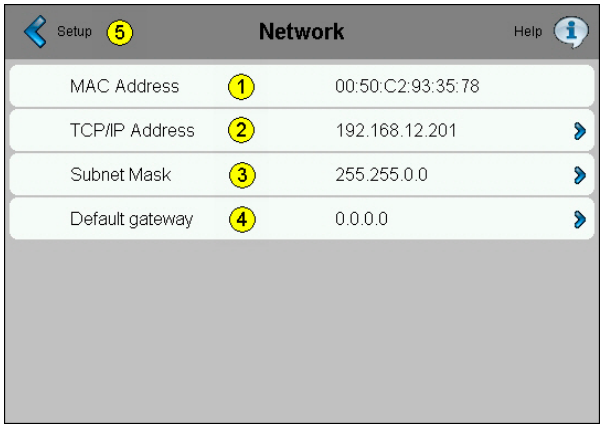
5.5 SETUP screen

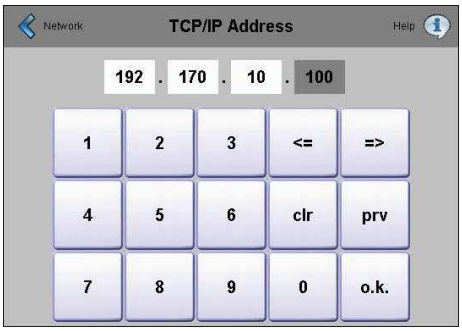
Setup screen is the first screen that appears by entering in the setup menu.



1	Network	MB-Panel settings	
2	Web connection	Configuration of the Web connection	
3	System	Info/settings/special/FW download and reboot	
4	Display	Display settings	
5	Keyboard	Virtual Keyboard and PS2 settings	
6	Password	Enter a password	
7	Back to application	Back to application	

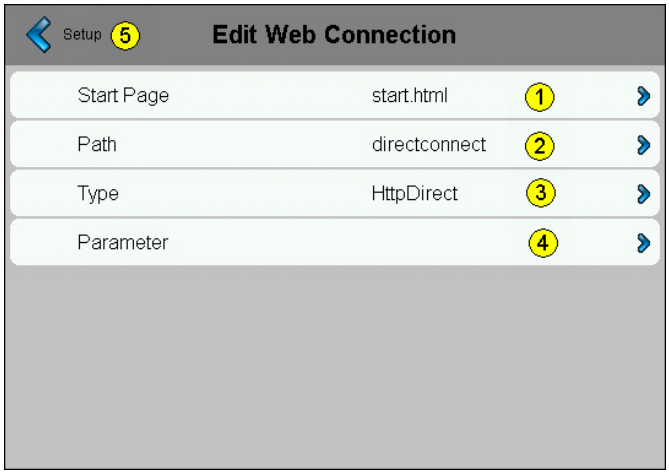
5.6 Network





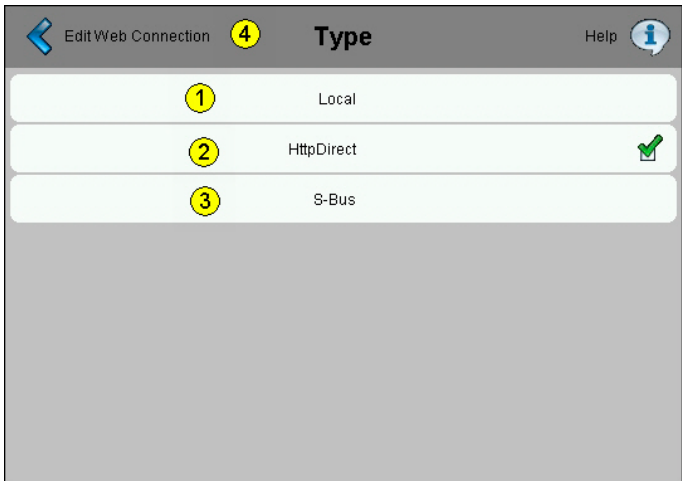
1	Mac Adress	Read only	For information
2	TCP/IP Address	Read/write	IP address of the MB-Panel
3	Subnet Mask	Read/write	Subnet Mask IP address
4	Default gateway	Read/write	Default gateway IP address
5	Setup		Return the main setup menu

5.7 Web connection



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	

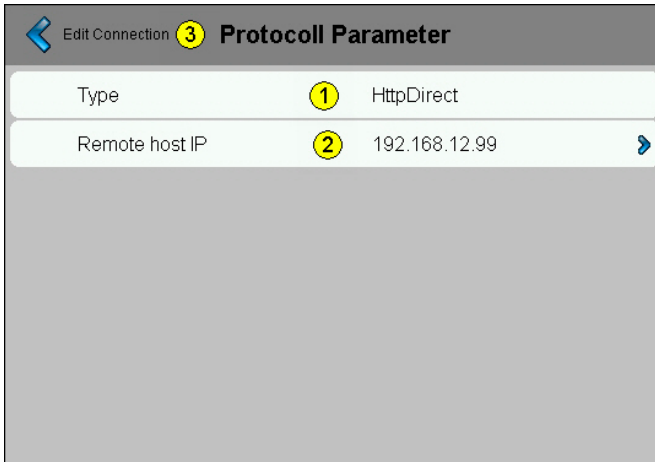
5.7.1 TYPE of connection

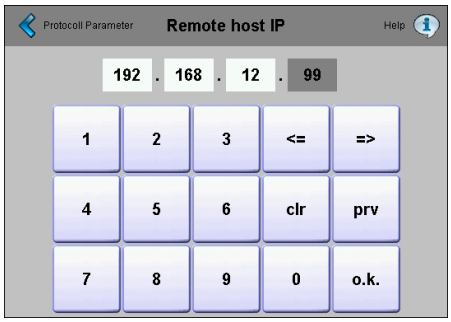


1	Local	No connection with any Saia PCD The connection is to the local IP address 127.0.0.1
2	Httpdirect	http direct connection (Ethernet only)
3	S-Bus	S-Bus connection (serial or Ethernet)
4	Edit web connection	Return to the web connection

5.7.2 Parameters of a Httpdirect connection

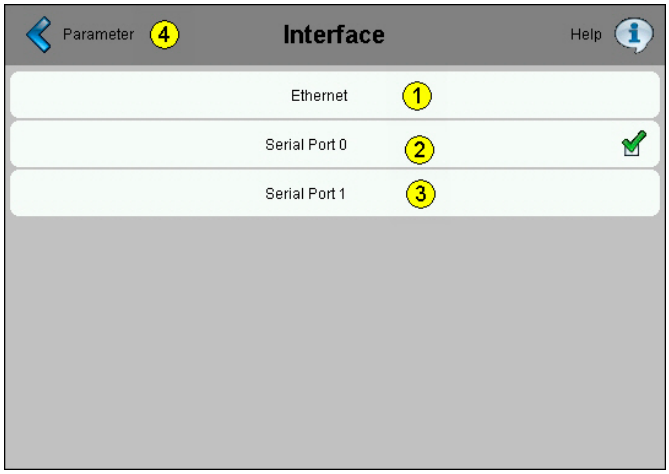
For external keyboard or barcode reader. (Mini DIN 6 with standard pin-assignment)





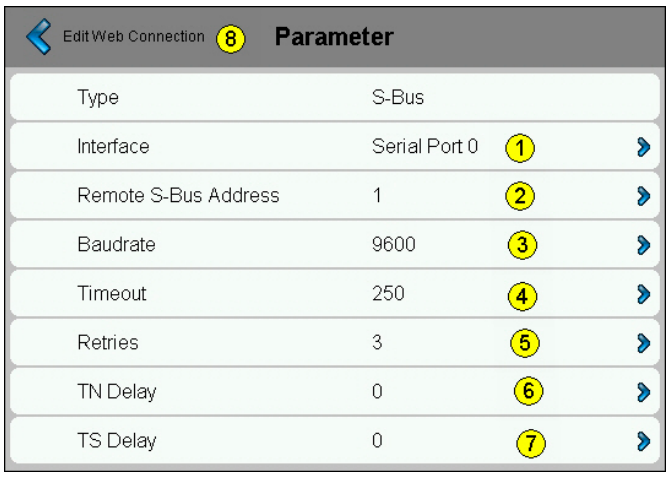
1	Remote host IP	Address of the remote Saia PCD	127.0.0.1 (default)
2	Edit web connection		

5.7.3 Type of S-Bus Interface connection



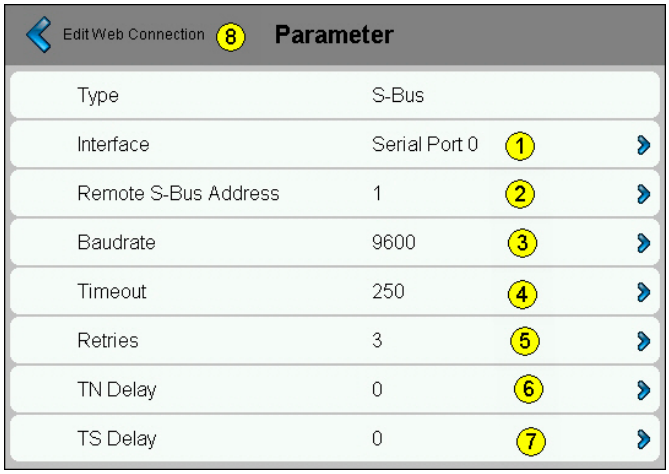
1	Ethernet	Ether-S-Bus connection
2	Serial port 0	Serial S-Bus connection Port 0 RS-232 (D-Sub 9)
3	Serial port 1	Serial S-Bus connection Port 1 RS-485 (orange spring connector no.1,2,3)
4	Parameter	Return to parameter menu

5.7.4 Parameters of Ether-S-Bus connection



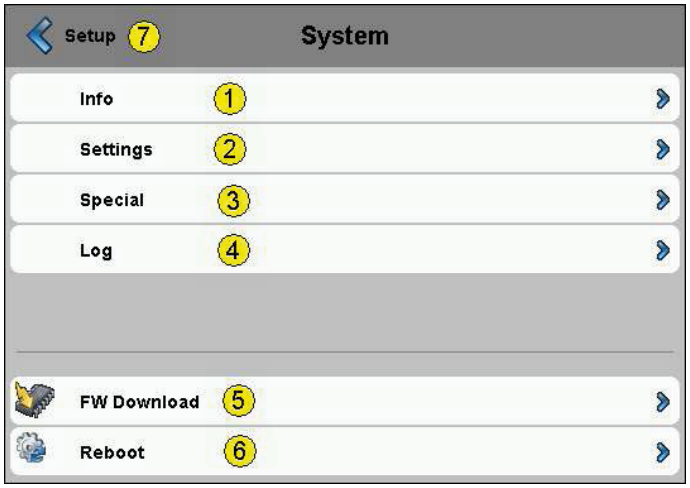
	Type	S-Bus	Read only
1	Interface	Ethernet	Ethernet S-Bus connection
2	Remote S-Bus Address	1 (default) up to 253	S-Bus address of the Saia PCD
3	Remote IP Address	xx.xx.xx.xx	IP address of the Saia PCD
4	Timeout (ms)	Default 600 (100 to 2000)	S-Bus timeout
5	Retries	Default: 5 (1 to 20)	Number of attempts: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

5.7.5 Parameters of Serial S-Bus connection



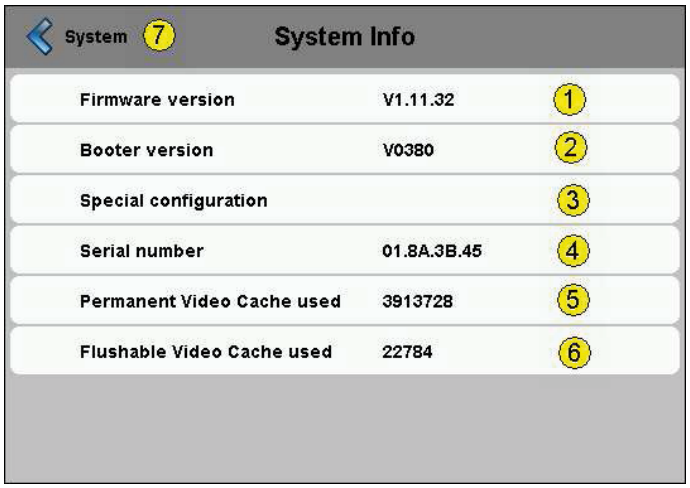
	Type	S-Bus	Read only
1	Interface	Serial Port 0 (or 1)	Serial S-Bus connection
2	Remote S-Bus Address	1 (default) Up to 253	S-Bus address of the Saia PCD
3	Baudrate	9600 KBits/s (default) 1200-2400-4800-9600-19'200-38'400-57'600-115'200	Selection of the conmunication Baudrate
4	Timeout (ms)	Default 250 (100 to 2000)	S-Bus timeout
5	Retries	Default: 3 (1 to 20)	Number of attempts: try + retries
	TN delay	TurN arround = 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



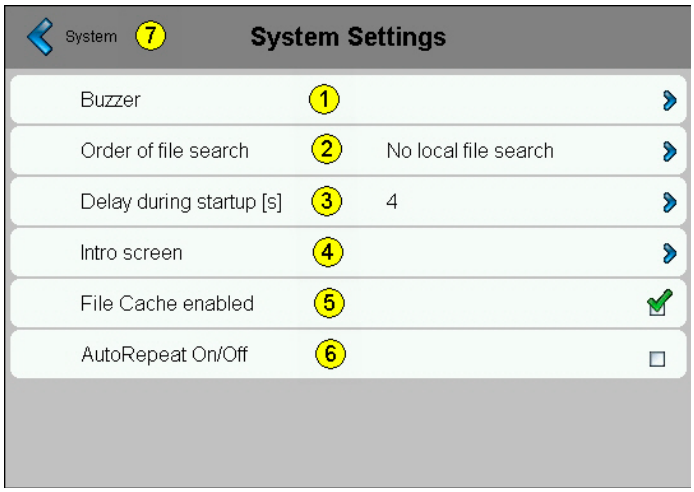
1	Info	System info (FW , booter versions…)
2	Settings	Concern: buzzer, order of file search, startup timeout, infoscreen, file cache, autorepeat.
3	Special	Reset parameters, format M1_flash and Intflash.
4	Log	Overview log.txt
5	FW Download	Select mode of downloading
6	Reboot	Reboot MB panels (with confirmation).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

5.8.1 System info



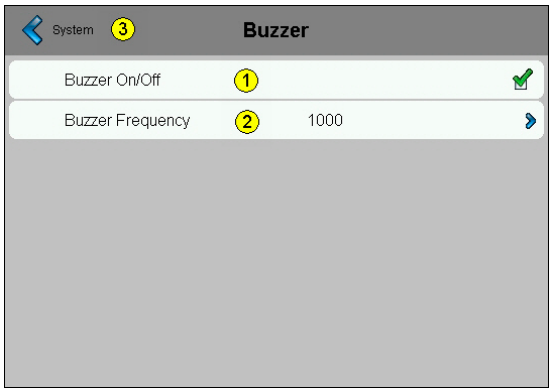
1	Firmware version	V xxxxxxx	Firmware version of the MB-Panel (Read only)
2	Booter version	V xxxxxxx	Booter version of the MB-Panel (Read only)
3	Special config		Customising product (Read only)
4	Serial number	xx.xx . xxx	Serial number of the panel. This number is unique and it can be used for product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

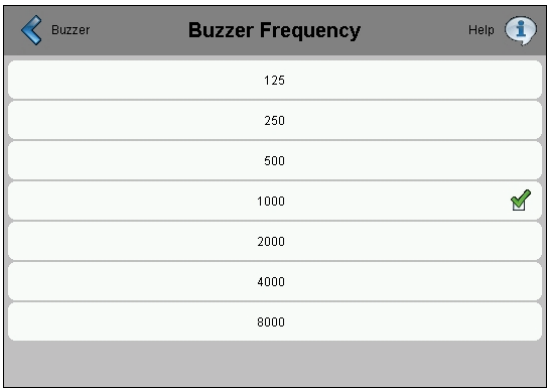
5.8.2 Settings



1	Buzzer	On / Off / frequency		
2	Order of file search	Local / remote files		
3	Delay during Startup (s)	4 (default) Min: 0 & Max:15		
4	Intro screen	Entry welcome text and splash image		
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		

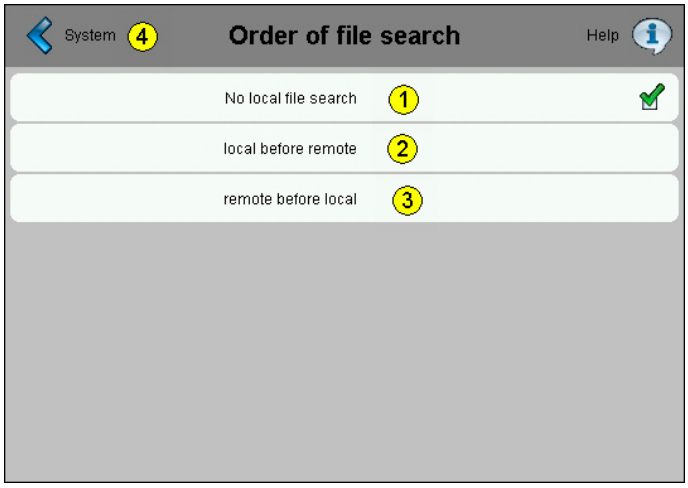
5.8.3 Buzzer





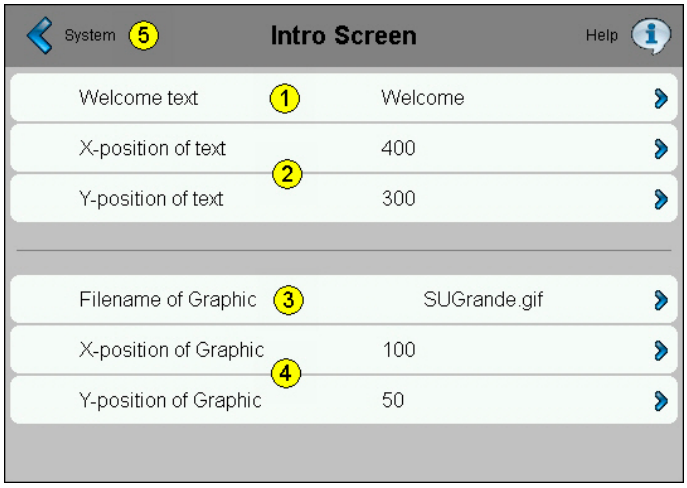
1	Buzzer on/off	Default is on	Change by pressing once
2	Buzzer Frequency	Default is 1000	Select between 125 and 8000 Hz
3	System		Return to system page

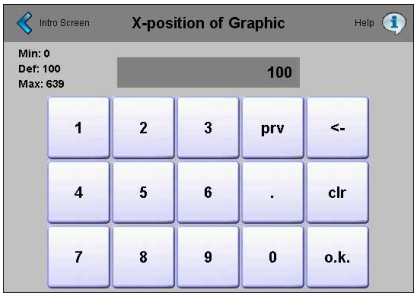
5.9 Order of file search

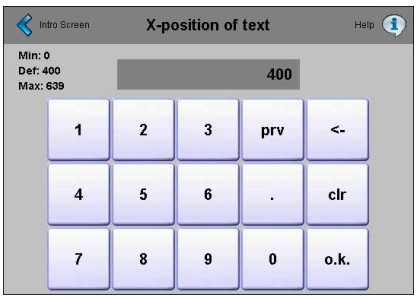


1	No local file search	Default	«No local file search» means that no files (.teq or .gif) will be searched in the local server (= uBrowser server).
2	Local before remote		«Local file search before remote» means that files (.teq or .gif) will be searched in the local server before searching in the PLC 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

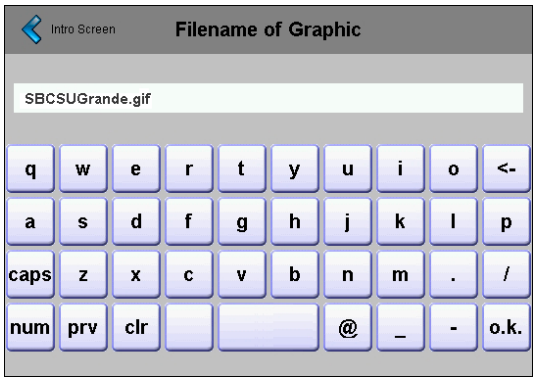
5.9.1 Intro screen





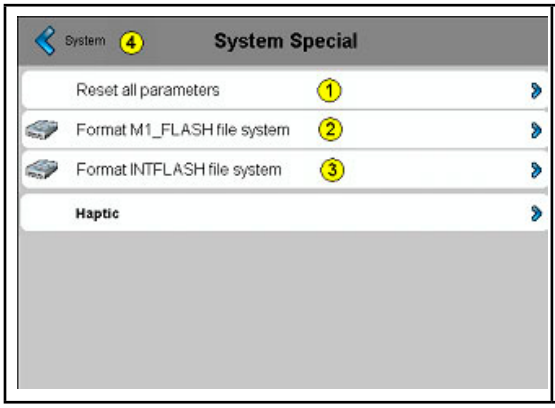






1	Welcome text	Default: Welcome	Free welcome text
2	X position of text	Default X= 400 pixel	Value between 0 and 639
2	Y position of text	Default Y= 300 pixel	Value between 0 and 479
3	Filename of Graphic	SBCSUGrande.gif	Gif file
4	X position of Graphic	Default X= 100 pixel	Value between 0 and 639
4	Y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

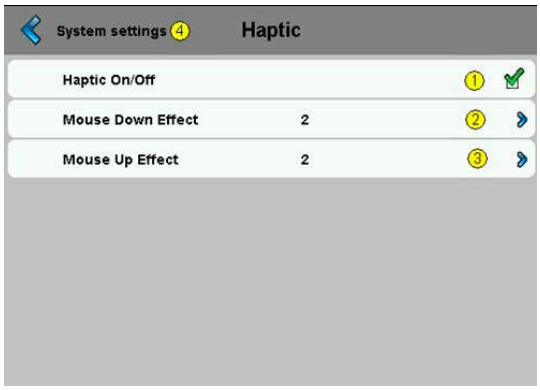
5.9.2 System Special (advanced and haptic)



→ Only for Haptic MB panel VTCFH
Warning! S-Bus on Port 0 will not work if haptic is enabled - see the section 5.9.2.1

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

5.9.2.1 Haptic version (PCD7.D457VTCFH)



1	Haptic On/off	Default: On	Change by pressing once
2	Mouse Down Effect	Default: 8	Mouse down effect → number 1 to 27, which are configured globally and apply to the buttons only
3	Mouse Up Effect	Default: 2	Mouse Up effect → number 1 to 27, which are configured globally and apply to the buttons only
4	System settings		Return to system settings page

The haptic-enabled HMI device will come with a library of haptic effects. Which effect is denoted by a numeric value, starting from 1. The total number of effects available has not been defined and will vary for different hardware. The effects index described here will be exposed by the firmware to the Microbrowser/Web Editor. The firmware will be responsible for managing the effects library, such that the haptic effect for each number remains consistent over different hardware versions.

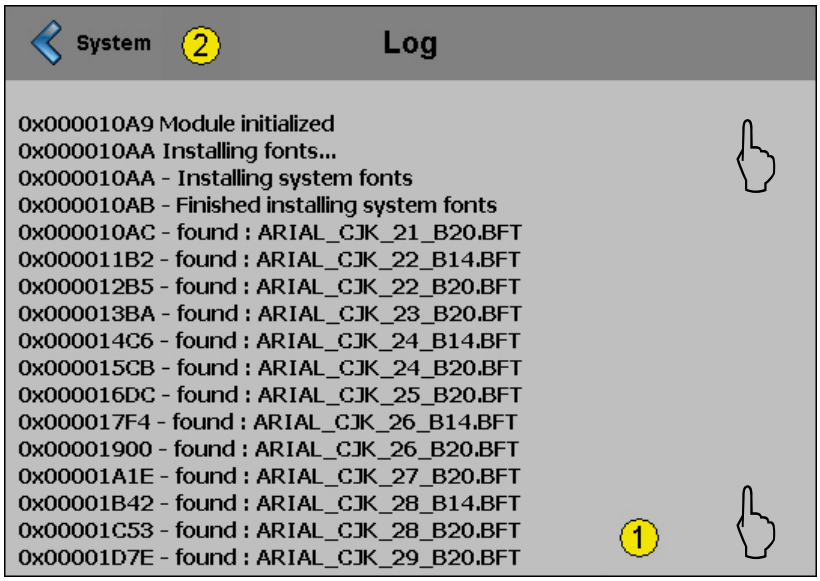
- Effect 0 – no effect
- Effect 1 – 6: Various clicks to simulate button presses
- Effect 7 – 9: Various buzzes to simulate alarms
- Effect 10 – 15: Effects gradually increasing in amplitude and duration
- Effect 16: Spring effect
- Effect 17: Thud effect
- Effect 18 – 19: double click
- Effect 20 – 27: Various special effects
- Effect 28 or greater: Don't use it (no effect)

− Mouse down effect is the very most sensitive effect. Mouse up effect can be omitted in most case.

− Effect numbers 6 to 9, 20, 22, 24 and 27 are the stronger effect numbers.

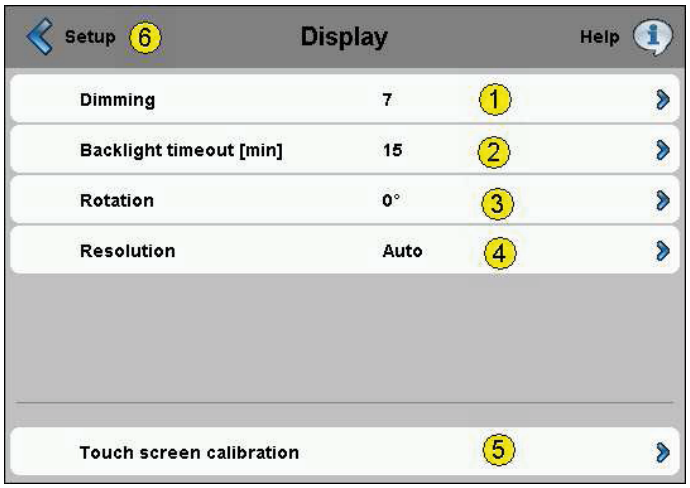
Please see the appendix D for detailed wave form and duration of each effect

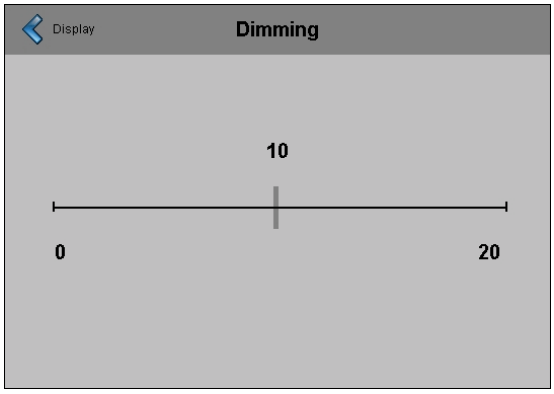
5.9.3 Log

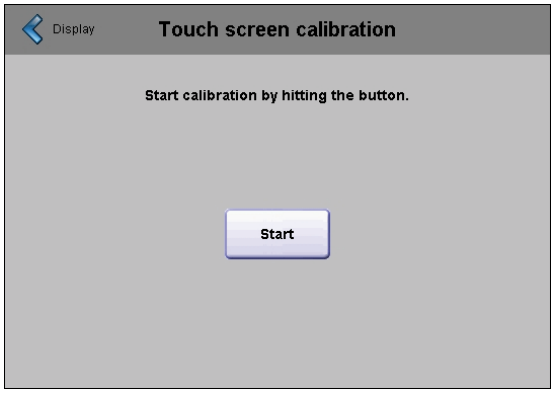


1	LOG.TXT/Read only	Glance over the list by pressing on the touch. That allows controlling, for example, if the fonts are found. At the back page: Info regarding the errors. Access to log.txt via FTP: uBT_FS/LOG.TXT
2	System	Return to the system menu

5.10 Display

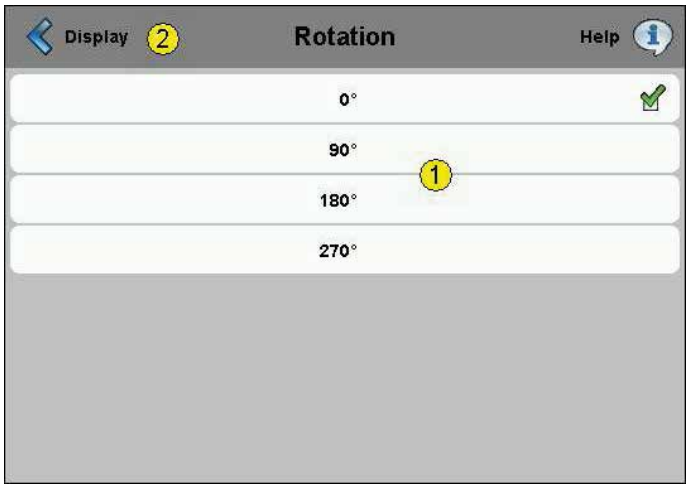






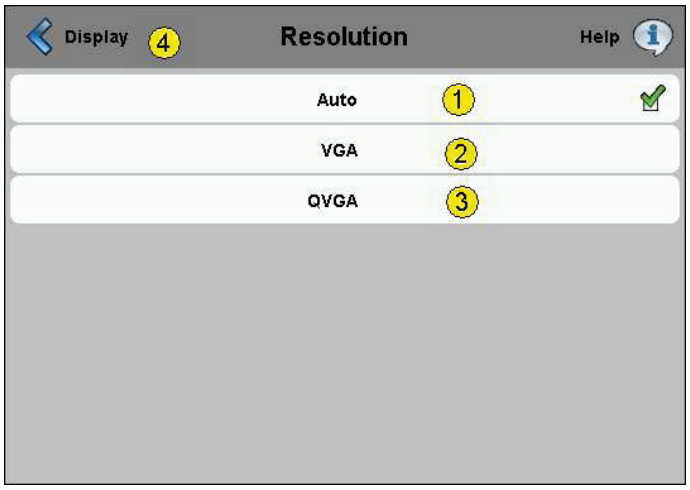
1	Dimming	Default: 10	Adjustable between 0 and 20
2	Backlight timeout (min)	Default: 15 minutes	The backlight turns off if neither the touch-screen nor any keys are pressed during this time. The backlight reactivates as soon as the blank screen or keys are pressed. Adjustable between 0 and 5000.
3	Rotation	Default: 0°	Landscape portrait
4	Resolution	Default: Auto	Auto, VGA or QVGA resolution
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



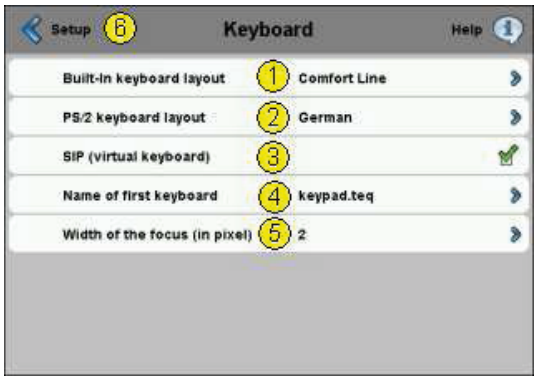
1	0°, 90°, 180°, 270°	Defualt: 0°	Change the orientation landscape to portrait and inverted
2	Display		Return to display menu

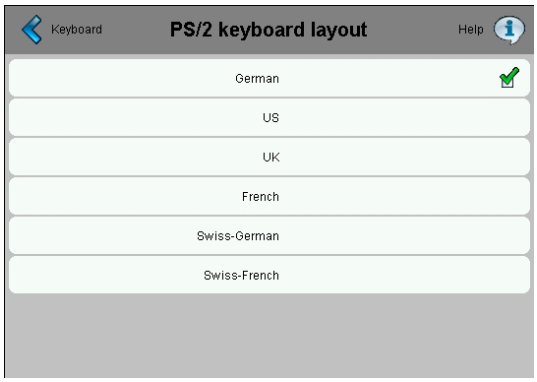
5.10.2 Resolution

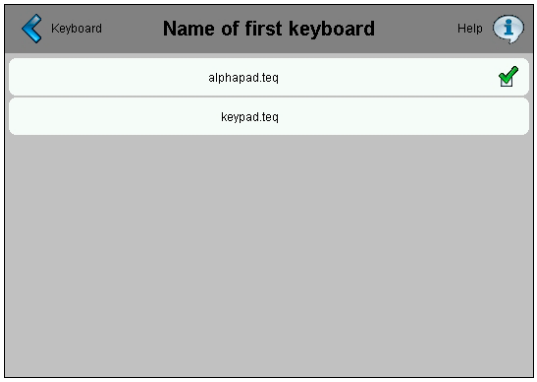


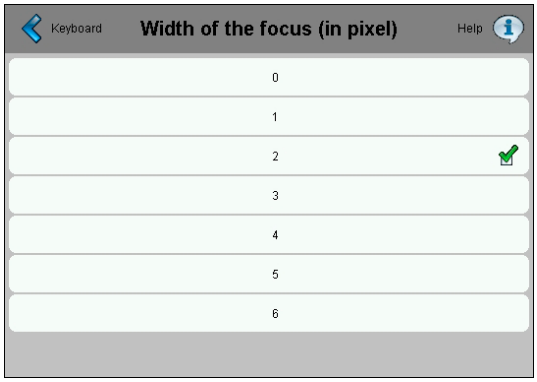
1	Auto	Default	The panel tries to determine the resolution of each teq.
2	VGA		All teq's are displayed with VGA resolution
3	QVGA		All teq's are displayed with QVGA resolution
4	Display		Return to display menu

5.11 Keyboard



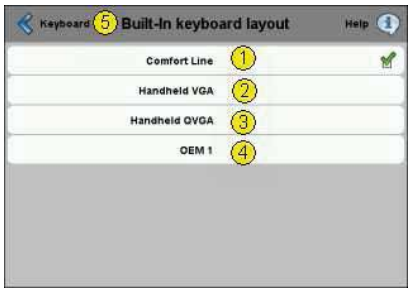






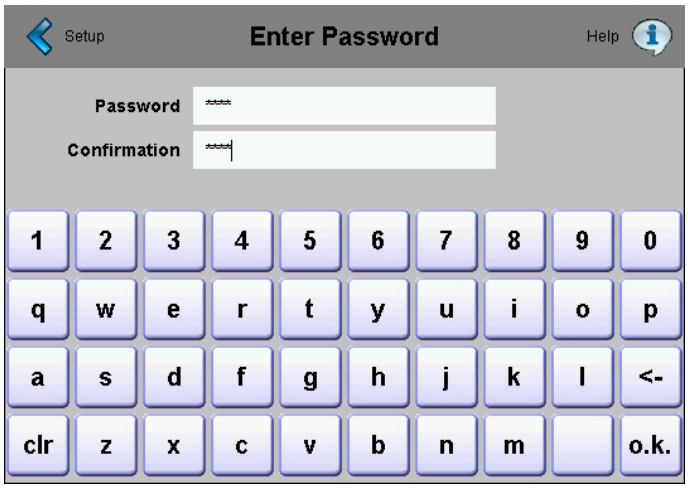
1	Build-in keyboard layout		
2	PS/2 keyboard layout	Default: GE (German)	PS/2 External Keyboard languages GE (German) or US (English US) or UK (English UK) or FR (French) CH-GE (Swiss German) or CH-FR (Swiss French)
3	SIP (virtual keyboard)	Default: Enabled	Enable/Disable SIP (Soft Input Panel). Virtual 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

5.12 Enter Password



Setting a password

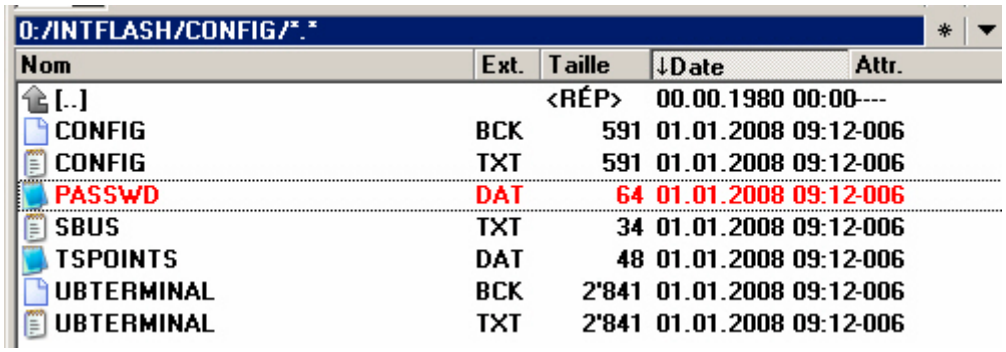
Alpha, numeric or alphanumeric password is possible (maximum characters = 32 , spaces included)

If setting a password, a confirmation is required.

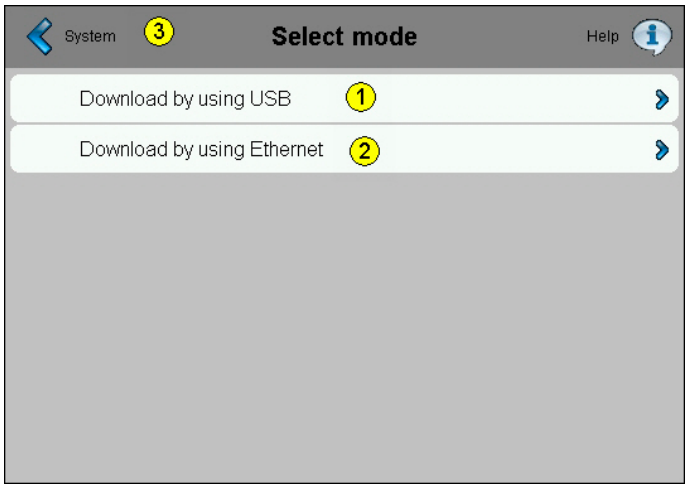
If setting a new password, a confirmation is required and if the entered phrases do no match, the old password is retained.

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

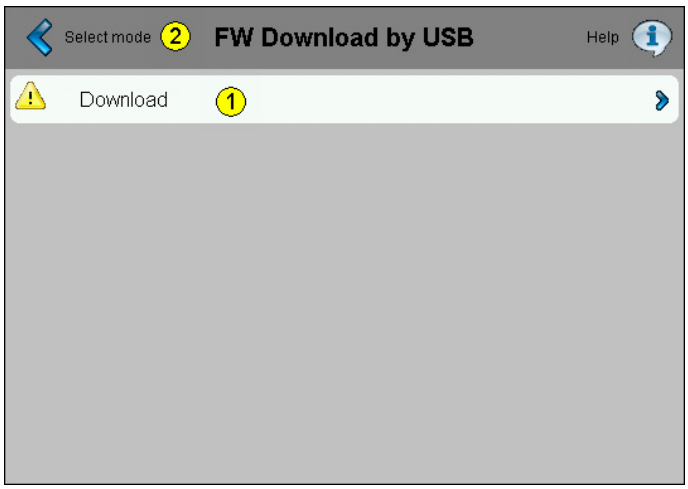


5.13 Firmware Download (MB-Panel side)



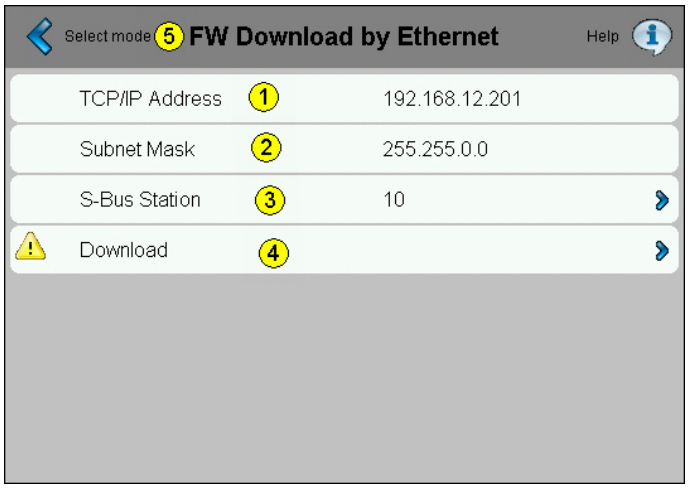
1	Download by using USB	
2	Download by using Ethernet	
3	System	Return to system page

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

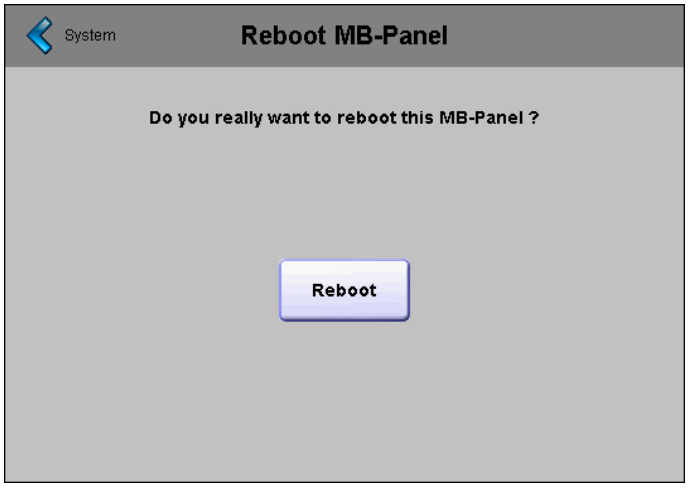
5.13.2 FW Download by Ethernet



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



6 Update & special settings

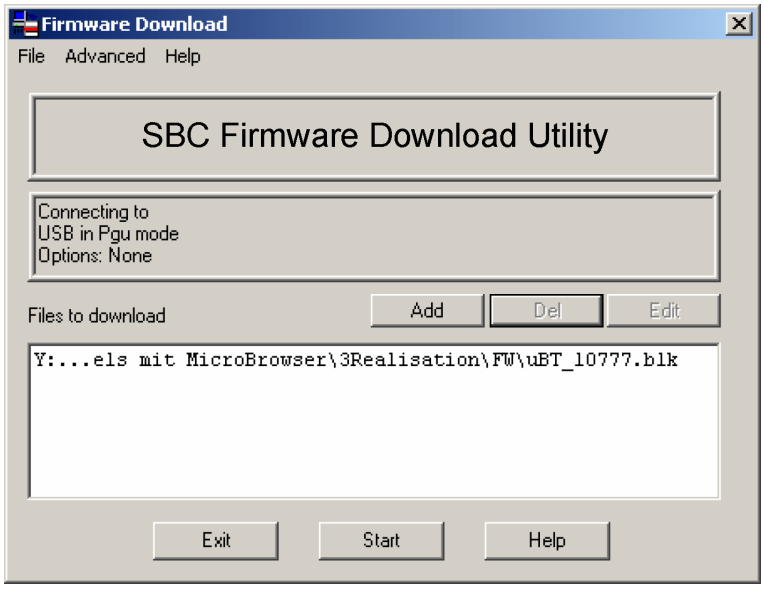
6.1 Firmware Update

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

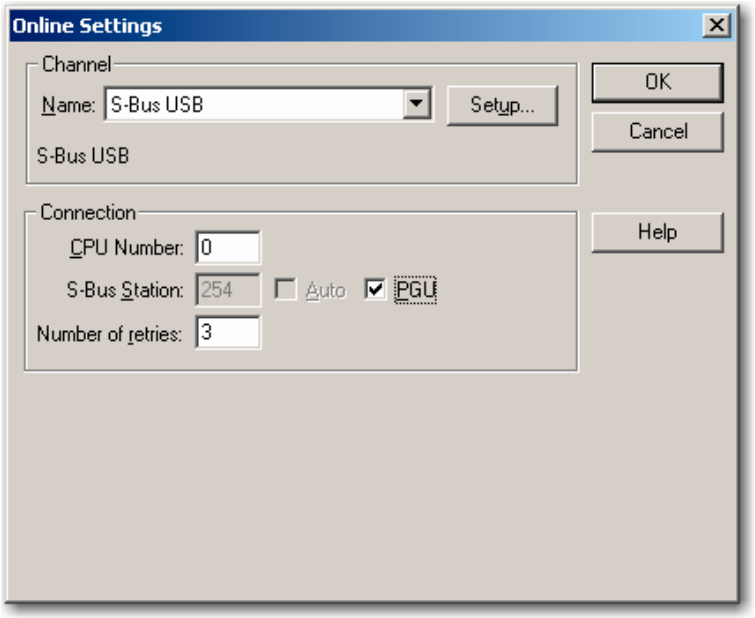
For touch screen Comfort and base lines 5.7" and 10.4"

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



Start the Firmware download, it 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:



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». 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 flashs 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 3 mm 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.

ATTENTION: the named *blk file corresponds to a full FW file. Use only files provided by Saia Burgess Controls 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_SBC.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 previoused 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 **Touchscreen calibration**. Calibrate it and your system will be fully restored.

The position of that **reset button** is shown in the chapter «Firmware Update» above.

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

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.D457BTCF	LED
PCD7.D457STCF	CCFL
PCD7.D457SMCF	CCFL
PCD7.D457VTCF(H)	LED
PCD7.D457VMCF	LED
PCD7.D410VTCF	CCFL / New is LED

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 the 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:

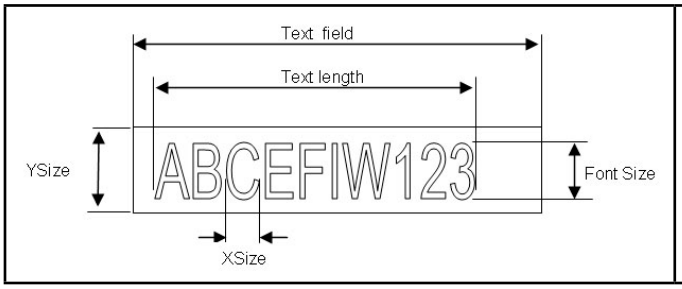
Default fonts available for QVGA MB-Panels

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**

Calculation of reserved margins regarding:
Simple text box, multiline text box, edits box text field and button with text.



Definitions:
Font size: size of the character (font size in pixel)
YSize: size of the painter (in pixel)
XSize: width of one character
Text length: length of an one line text.
Text field: length of the painter

General recommendation regarding the Text field
It is recommended to use text fields that are up to 20% larger than the size that is displayed in the editor. For very precise text field length, you can also use the table below min xSize and max xSize.

General recommendation regarding the Ysize in comparison with the font size and style
The rule is generally that text in written WITHIN the outline that is INWARD drawn - so the outline subtracts twice from the available height & width.
At Button and editor box use a 2 pixel shading is added (on the inside of the outline at buttons, on the outside at edit box functions).

The text field on the edit box is currently still written on the whole area and will be overwritten with the outline and 3D shading at outline use if chosen too big. The button text field is written on the inside is correctly written within, as with the simple text box and (new for the firmware) multiline text box use.

The added margins to be reckoned with are:

- simple and multiline text boxes: 2 x outline width + 1
- buttons: 2 x outline width + 5
- edit fields : 2 x outline width + 5

	Fontsize	ySize	min xSize	max xSize
Arial	36	41	7	36
Arial	24	28	7	24
Arial	20	23	6	20
Arial	16	19	3	16
Arial	12	15	3	12
Arial	10	12	3	10
Arial Bold	36	41	9	35
Arial Bold	24	28	7	23
Arial Bold	20	23	6	20
Arial Bold	14	16	4	15
CourierNew	20	23	12	12
CourierNew	16	19	10	10
CourierNew	12	14	7	7
CourierNew	10	12	6	6
CourierNew Bold	20	23	12	12
CourierNew Bold	14	17	8	8
Tahoma	24	29	5	24
Tahoma	20	25	4	20
Tahoma	16	20	4	16
Tahoma	12	15	4	12
Tahoma	10	13	3	10
Tahoma Bold	24	29	7	29
Tahoma Bold	20	25	6	24
Tahoma Bold	14	17	4	17

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.

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 Controls. The firmware searches at the following locations for the font files:

M1_FLASH:/FONT

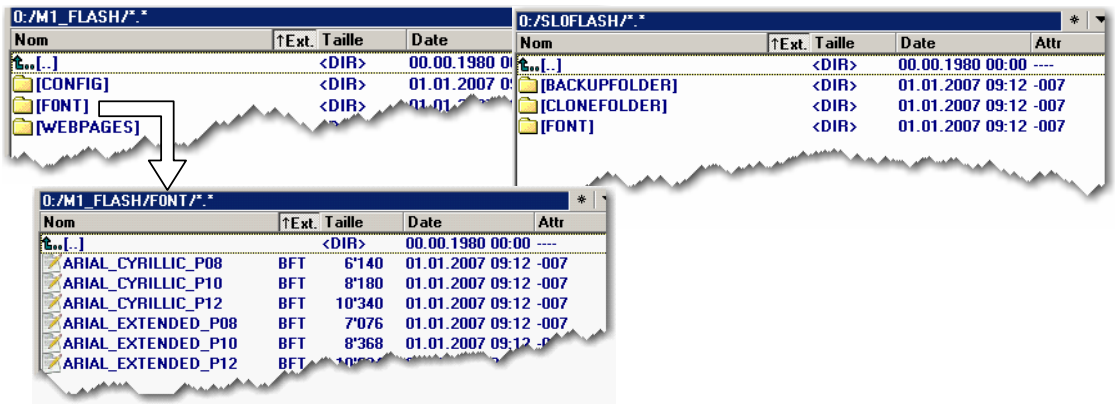
SL0FLASH:/FONT (in the case of SD card is installed)

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

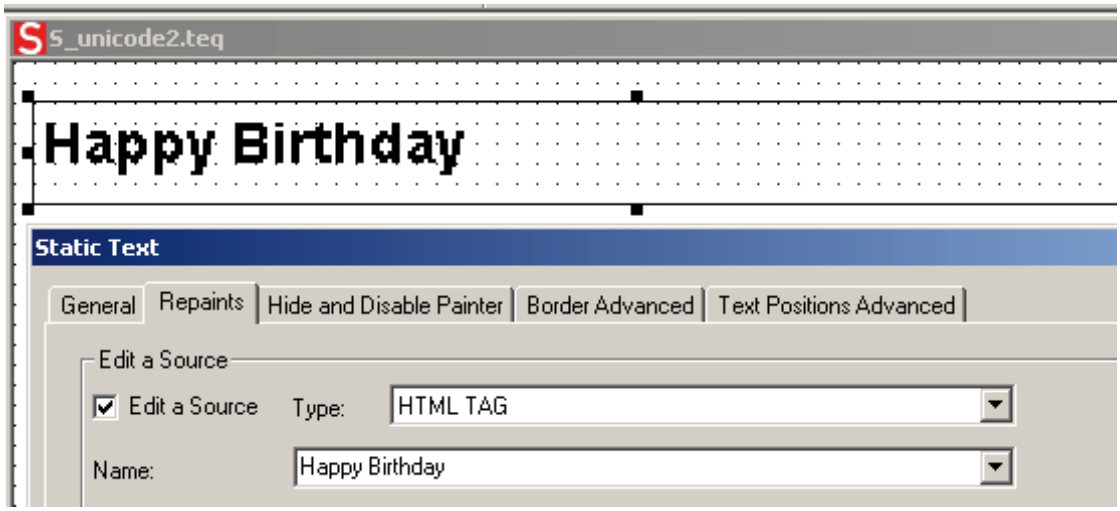
Change a language by pressing on a button (set variable on mouse down)
Basic example is a translation of Happy Birthday in «Czech» in using «HTML TAG» type.

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

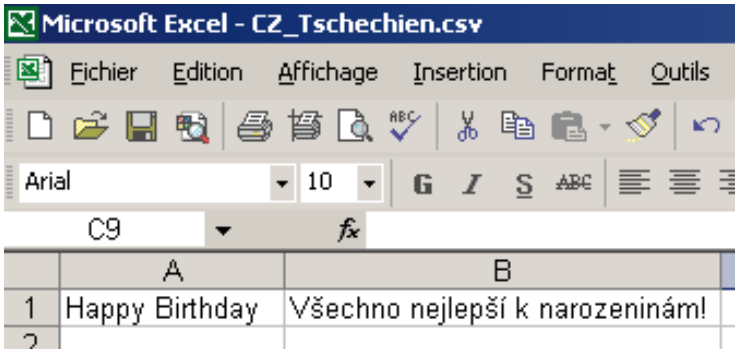
2) Web-editor: Edit a static text with the text «Happy Birthday» and chose the «HTML TAG» type.



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» them 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)

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.

6.6.4 Web-editor

The Unicode character set ais 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_DispType	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/Write1, 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 pain ter use is supported. See also the Appendix B.

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»

It might be that the version of this manual does not correspond with the Up-to-date version of the user's guide which is the references document regarding this list of container variable. If you have a malfunction or a doubt regarding this list, we recommend using the reference list (in english) of the user's guide 26-858 E (up-to-date version is on the support site) which is more regulary updated.

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

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/Write1, 0→Remote backlight control OFF The backlight is switched OFF if the control is '1' before. Any touch on the screen switches the back-light 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: 0n, 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_BooterVer-sion	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

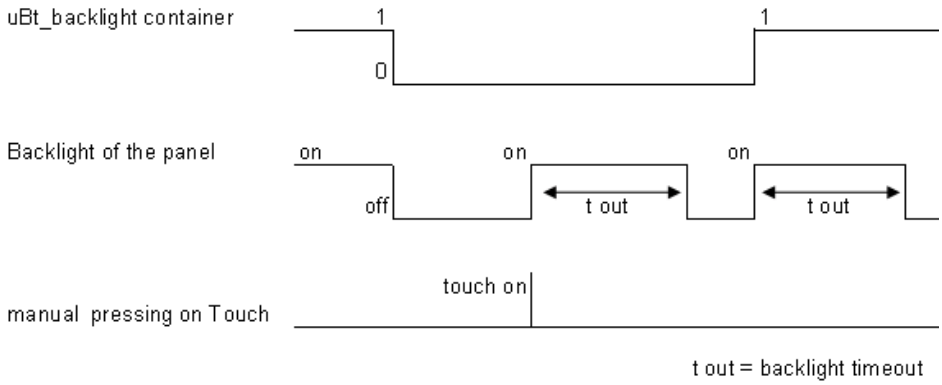
Config file entry	Container (Source HN 10.03.10)	Type	Default	Min Value Min Length	Max Value Max Length	Description
R/W	uBT_BuzzVol	Decimal enumerated value string	0 : OFF	0	20: 100%	Read/write buzzer volume setting (0…20). This sets the volume of the acoustic signal at the use of the touch function 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	uBT_ConfigVersion	ANSI text string	Current Config Version	0	4	The container is not active Read only string
R/W	uBT_DefaultGateway	IP address string	0x00000000	*	*	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> <Colordepth>	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 key-pad.teq) are enabled.
R/W	uBT_FirstPad-Name	Decimal enumer-ated 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 char-acters (file extension with dot included) is 24.
no	uBT_FlashStatus	Decimal value string	0	0	255	M1 Flash 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_FocusBorder-Width	Decimal value string	2	0	5	On the Edit and Button Painter vis-ualization a rectangle focus frame is drawn to indicate it's 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 inactivaty super-visory selection (1), at 0 off. Used for a switch to a less frequent touch / keyboard entry polling mode.
no	uBT_IntFlashSta-tus	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	SBCSUG-rande.gif	0	20	Intro Graphic
R/W	uBT_IntroGraph-icXPos	Decimal value string	100	0	639	Intro Graphic position (Horizontal position from the left)
R/W	uBT_IntroGraphi-cYPos	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 scipped
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 enumer-ated 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 enumer-ated value string	Auto (0)	0	2	Upscale mode setting Auto (0): Smaller views are auto-matically 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_SecondsToIn-activity	ANSI text string	0	0	5	The container is not active Touch / Keyboard inactivity supervi-sory 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



6.7.4 Additional uBTerminal containers for «Haptic» panel

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 names	FTP access	Range	Default	Description
uBT_HapticOn	yes	-	1	Careful: Never change (in all case) the default value (1) of this container.
uBT_HapticEnable	no	0 or 1	1	If set to 1, haptic effects are enabled. If set to 0, haptic effects are disabled. Can be changed dynamically from the Web Project.
uBT_HapticMouseDownEffect	yes	0 to 27	1	Defines the effect that is played when the user presses a BUTTON object.
uBT_HapticMouseUpEffect	yes	0 to 27	1	Defines the effect that is played when the user releases a BUTTON object.
uBT_HapticRepeatEffect	no	0 to 27	1	Defines the effect that is played when the user presses and holds a BUTTON object. The effect is repeated according to the «uBT_HapticRepeatPeriod». Stops when the user releases the BUTTON object.
uBT_HapticRepeatPeriod	no	10 to 3000ms	300ms	Defines the time between each «uBT_HapticRepeatEffect». All values are in millisecond.

Important points:

When programming the haptic effects, there are two important points which you should be aware of:

1. The above Container variables above apply to ALL BUTTON objects,
2. The Container variables are evaluated at the time the haptic effect plays.

These two points means that the Web Project programmer has to take care of the state of the variables. In order to simplify the programming, we suggest the following programming method.

6.7.5 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.

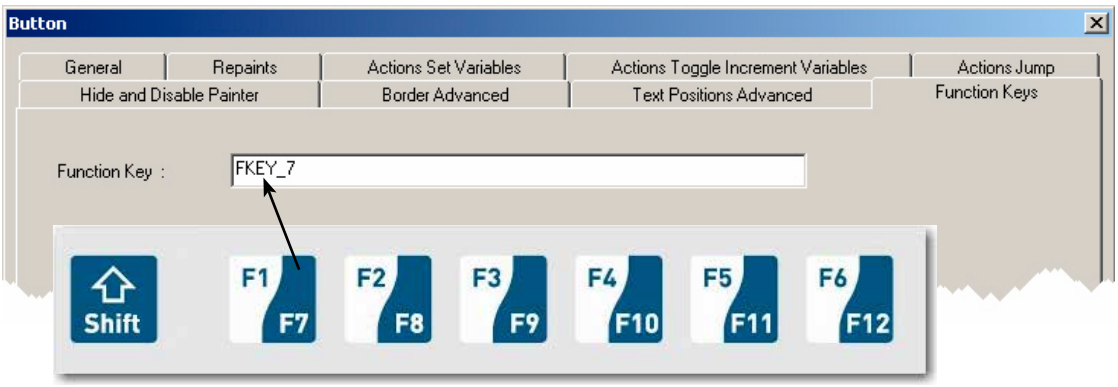
C. Button Selection

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.

6.8 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/ *TCPIPAddress* 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 to many trends are active. → 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, foe 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()!	Probably the number of characters in a Multline object has been exceeded, This message can appear in two cases: 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 2) Case two is regarding the .TCR file If one entry (line) bigger than 128 bytes (128 characters, space included). Info two: the file itself may be bigger...

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

Please respect the temperature value when operating and in storage.

operation temperature: 0 ºC…+50 ºC

storage temperature: –25 ºC…+70 ºC

It will help keeping the lifetime of your panel.

7.3 Fix the Panel

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

7.4 Information about LCDs used in the MB-Panel Display

Precautions

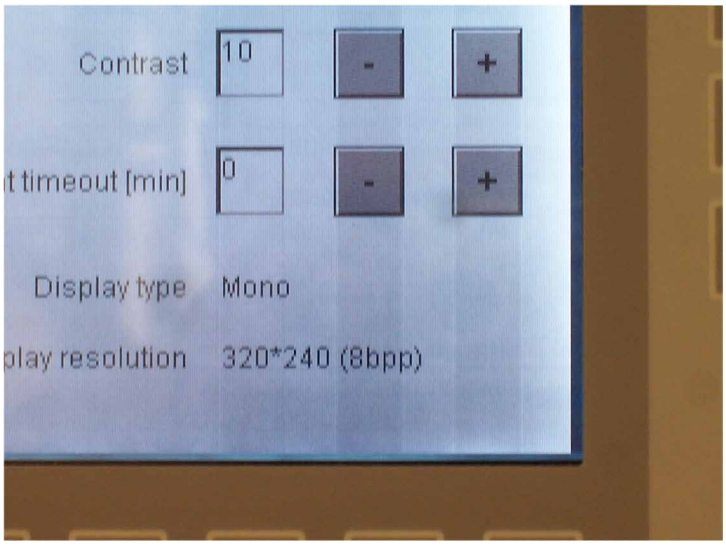
- The liquid inside the LCD contains an irritant. If some of this liquid makes contact with your skin, immediately wash the affected area with running water for a minimum of 15 minutes.
- If the liquid from inside the LCD gets into your eyes, rinse your eyes with running water for 15 minutes and then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

Drywall mounting set

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 5.7 MB panel solid wall mounting: PCD7.D457-IWS
  Additional fixation set (4 pieces) for cavity wall mounting: 4 121 4910 0
- Reference of on-wall kit for 5.7 MB panel wall mounting: PCD7.D457-OWS
- Reference of in-wall kit for 10.4 MB panel wall mounting: PCD7.D410-IWS
- Reference of on-wall kit for 10.4 MB panel wall mounting: PCD7.D410-OWS

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
- IMasterSBC5_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 builded 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.com→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 Saia 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.

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 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 Ø 3 and press softly on the micro-switch.

10.1.1 Recommendations for file and path

SBC 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:;<=>?
@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_
`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
- IMasterSBC5_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 builded 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.com →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 Saia 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.

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 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. Don't use a paper clip or a needle. Use a drill ⦸3 and press softly on the microswitch.

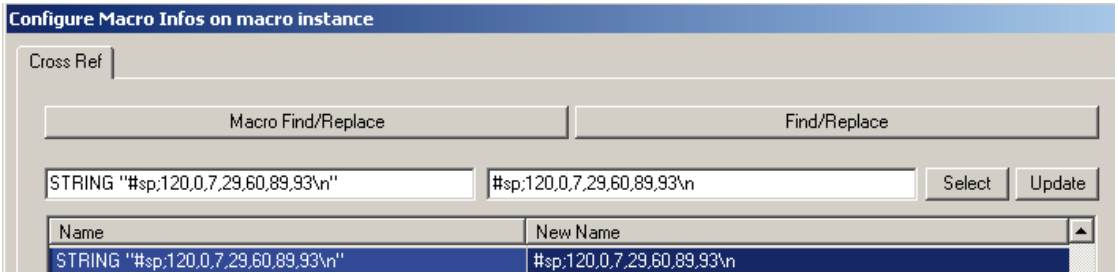
10.2.1 Error messages advanced for the VGA MB Pannel

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

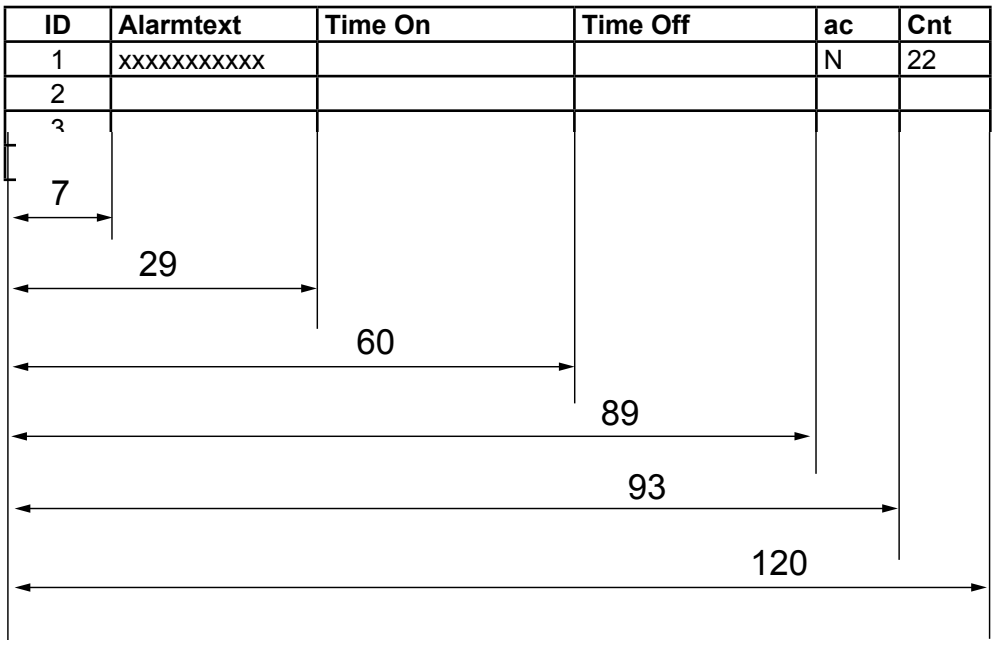
How changing the width of the columns of the alarm list?
Example with the «Q_MacrAlarmingDefonline»
Clic on the macro and select the Cross reference Tab then the Following STRING



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:** Before coming into contact with electrical components, you should at least touch the Minus of the system (cabinet of PGU connector). It is better to use a grounding wrist strap with its cable permanently 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 PCD Classic series.
	Explanations beside this sign are valid only for the Saia 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 ms) of the pulsed signal. A 50% duty cycle is used with pulse time equal to pause time. If already running a re-newed setting is ignored. Setting it to 0 however switches it off immedi-ately. 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 modula-tion 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.

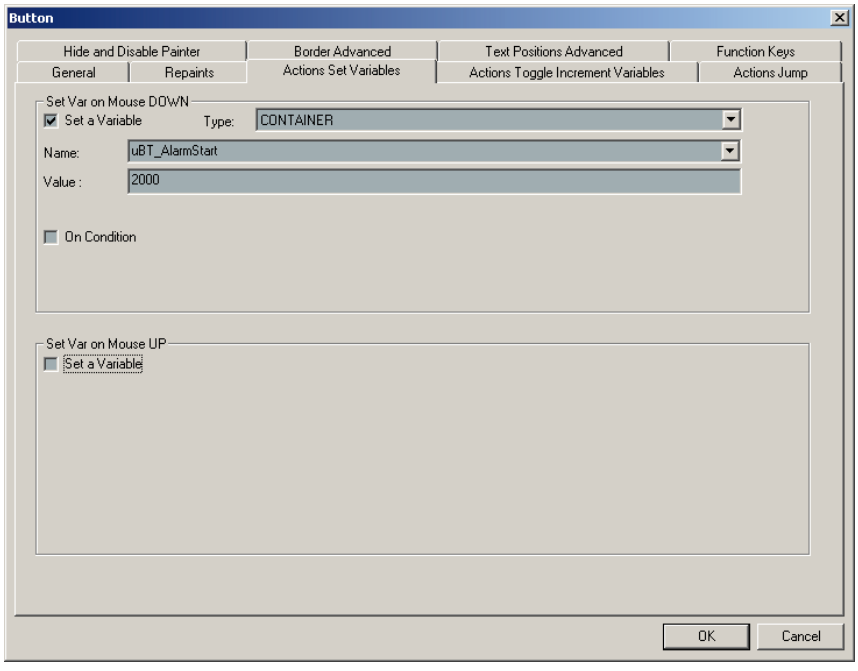
Alarm Frequency parameter

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.

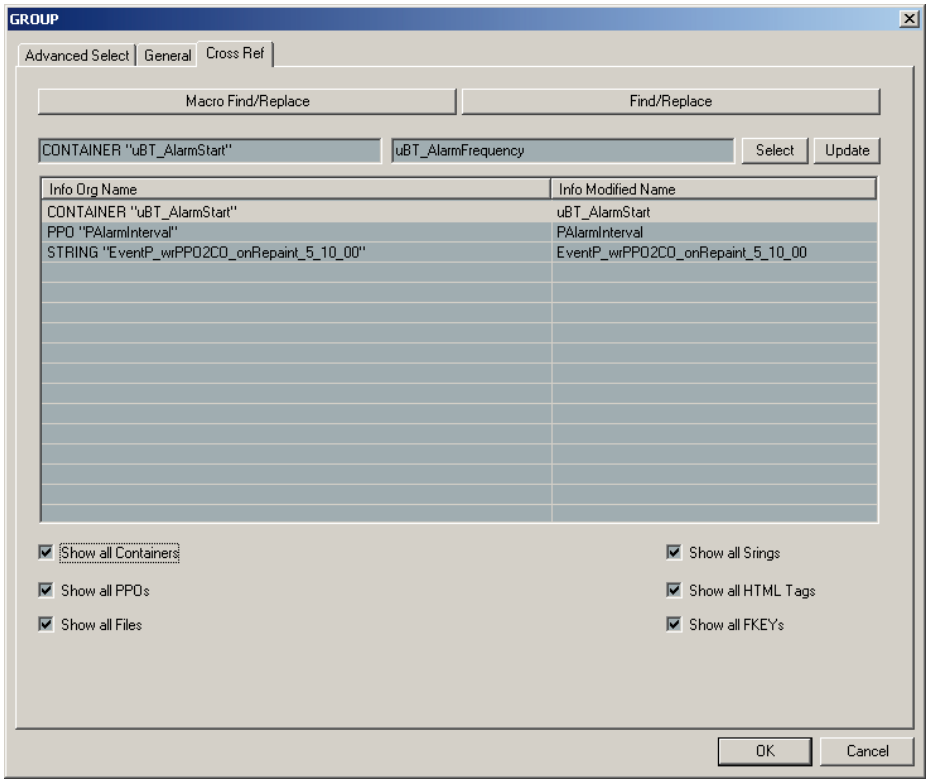


B

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 Saia 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

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.
> 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.

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 Saia PCD server using container -PPO coupling

B

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 BackIlght 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.

C

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 BackIlght 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 BackIlght 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.

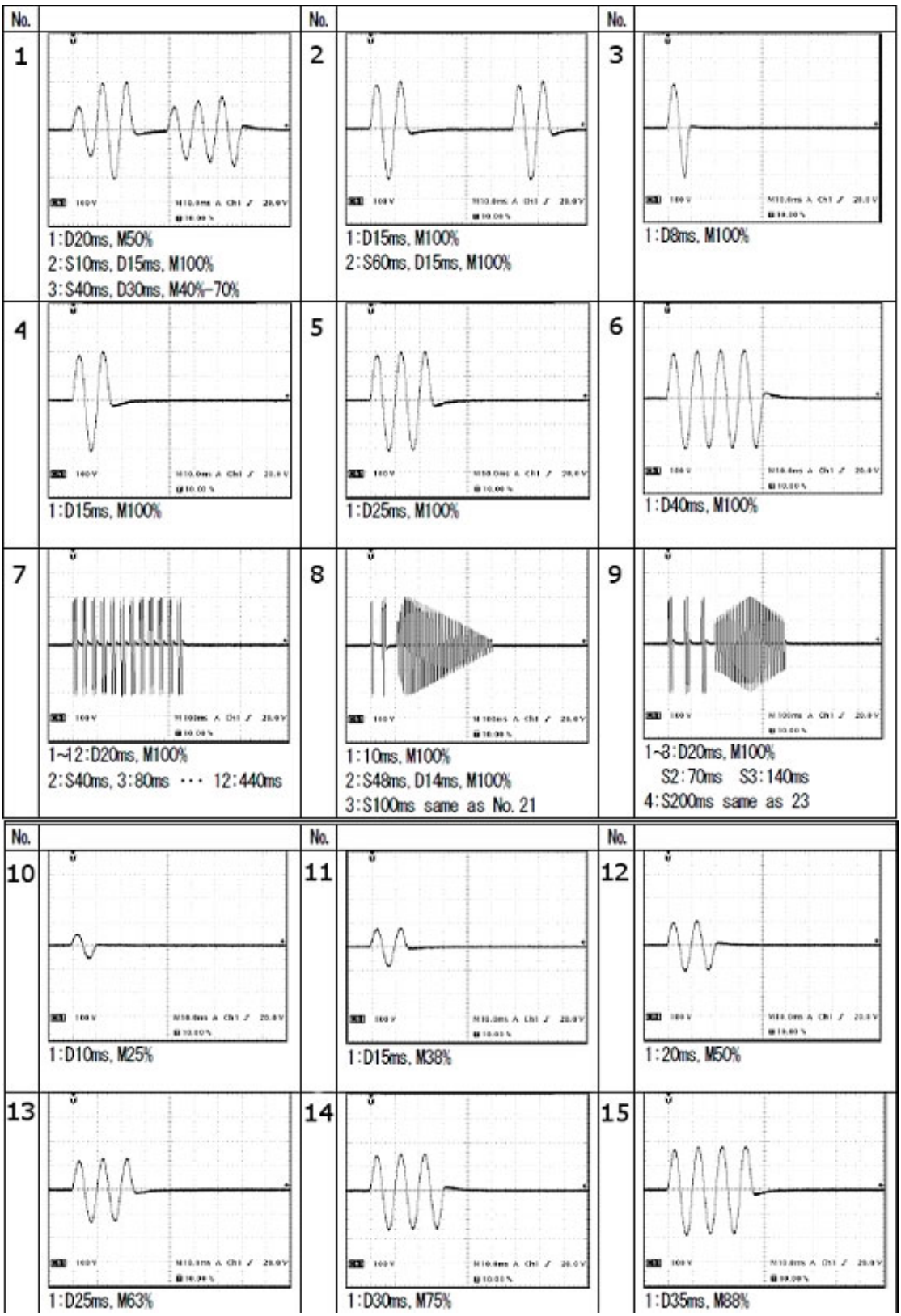
  The read backs /will first be valid, and the corresponding handling in the painter objects executed, in the next following teq view refresh from the start of it. In this way it will be valid for all painter objects in this view in one go.

  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.

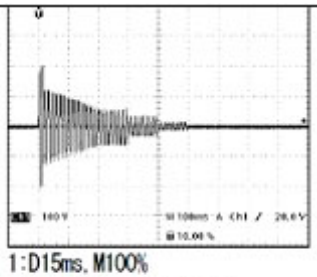
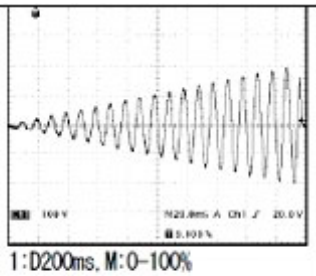
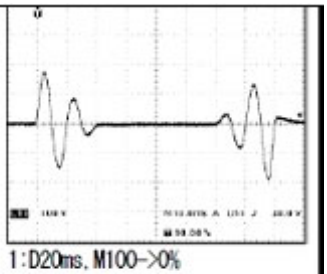
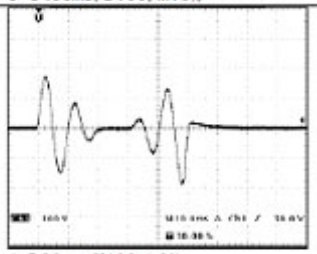
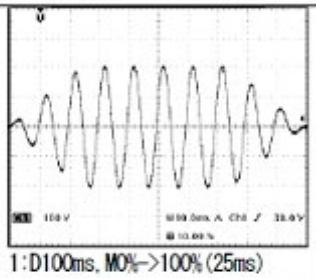
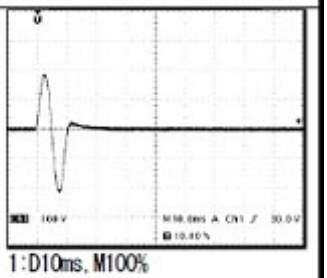
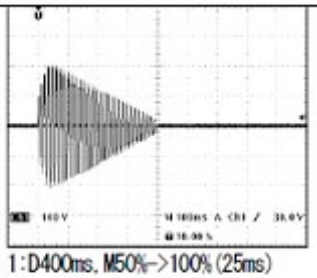
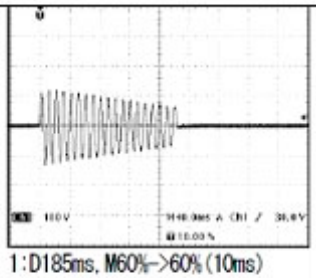
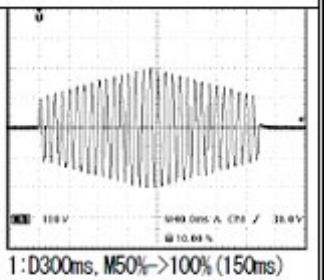
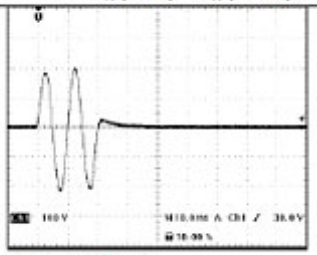
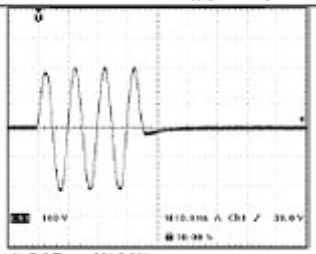
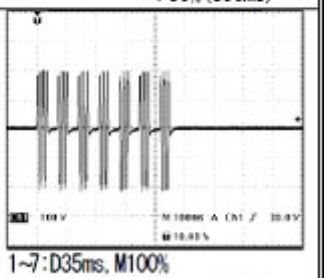
C

D Haptic Effects

D = duration in milliseconds
M = magnitude
S = start time in milliseconds



D

16		17	
1:D15ms, M100% 2:S15ms same as No. 22 3:S200ms, D100, M30% 4:S300ms, D100, M15% 5:S400ms, D100, M10%		1:D200ms, M:0-100%	
18		19	
1:D20ms, M100->0% 2:S60ms, D20ms, M0->100%		1:D20ms, M100->0% 2:S30ms, D20ms, M0->100%	
20		21	
1:D100ms, M0%->100%(25ms) ->100%(75ms)->0%(100ms)		1:D10ms, M100%	
No.		No.		No.	
22		23		24	
1:D400ms, M50%->100%(25ms) ->100%(50ms)->0%(400ms)		1:D185ms, M60%->60%(10ms) ->30%(185ms)		1:D300ms, M50%->100%(150ms) ->50%(300ms)	
25		26		27	
1:D20ms, M100%		1:D35ms, M100%		1~7:D35ms, M100% 2:S70ms, 3:140ms ·· 7:420ms	

D

E Contact

Saia-Burgess Controls AG
Bahnhofstrasse 18
3280 Murten
Switzerland

Phone ..... +41 26 672 72 72
Fax..... +41 26 672 74 99

Email support: ..... support@saia-pcd.com
Supportsite: ..... www.sbc-support.com
SBC site: ..... www.saia-pcd.com
International Represetatives &
SBC Sales Companies: ..... www.saia-pcd.com/contact

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Service Après-Vente
Bahnhofstrasse 18
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E

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