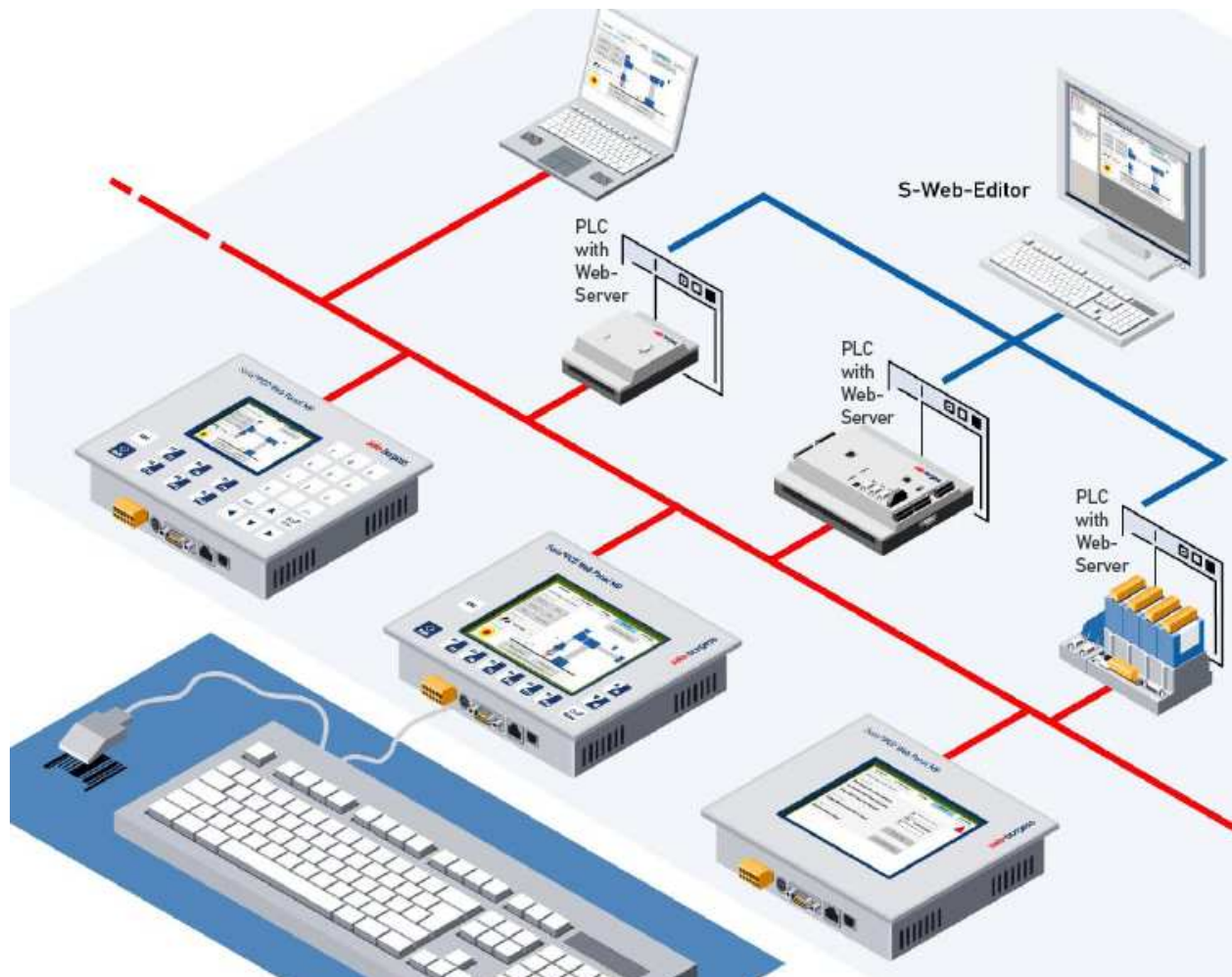


Saia®PCD Web panel with eMicroBrowser  
3.5" TFT QVGA: PCD7.D435TLCF  
5.7" STN QVGA: PCD7.D457BTCLF, D457STCF,  
D457SMCF.

## USER'S GUIDE



## REVISIONS:

| Revision Numbers | Description   | date       |
|------------------|---|------------|
| Revision 2.3     | <ul style="list-style-type: none"> <li>• Topic 3-3: Comfort Line 3.5 MB panels (Alphanumeric keyboard, Fkeys and Keys), Handling : Macro Qkey offline Alarm history .</li> <li>• Topic 5.7: Keyboard teq view: additional option regarding ability to change if keypad or alpha keypad is opened first.</li> <li>• Topic 6.10: Backup on SD card</li> <li>• Topic 6.2: Variable polling time after a period of inactivity (see parameters 3 and 4).</li> <li>• Topic 7.2: Firmware update for comfort line 3.5</li> <li>• Topic 11: Special Unicode fonts</li> <li>• Topic 13: Alphapad/keypad</li> <li>• Topic 14: Local/remote server management</li> </ul>   |            |
| Revision 2.4     | <ul style="list-style-type: none"> <li>• Topic 3-2 &amp; 12 : Info about escape key</li> </ul> Info about double points & @ for MB panel 3.5" in topic 3.3<br>Topic 5.1: add "note concerning the 3.5" "  | 10.4.08    |
| Revision 3       | <ul style="list-style-type: none"> <li>- <u>New FW</u> version 1.10.45 supporting new features of the Web Editor 5.14.27 as: Web-editor scalable function (up scaling), Moving painter object, Polygon rotation, tacho Macro, New macro dialogs (new teq format)</li> <li>- <u>Topic 5.6</u>: Depending of the FW versions, the information ③ and ④ are not displayed</li> <li>- <u>Topic 6.3</u>: information/ recommendation regarding Alarming and Trending over S-bus communication.</li> <li>- <u>New Topic 15</u>: "Recommendations" regarding: Web-editor, Wed-editor projects, Macros and handing.</li> <li>- <u>New Topic 16</u>: Alarming Macro Advance: How modifying the width of the columns of the alarm list? See also in the GettingStarted_MBPanel_QVGA_D, E and F (→ Support site)</li> </ul> | 11.02.2010 |
| Revision 4       | Add <u>topic 8.4</u> regarding some recommendation regarding file, path.<br><u>Topic 9</u> : Update uBTerminal containers list (with ftp access or not ...)<br><u>Topic 10</u> : Fonts available by default: update. Clearer  | 01.04.2010 |
| Revision 5       | Additional info regarding Font size → see the TOPIC 10  | 10.05.10   |

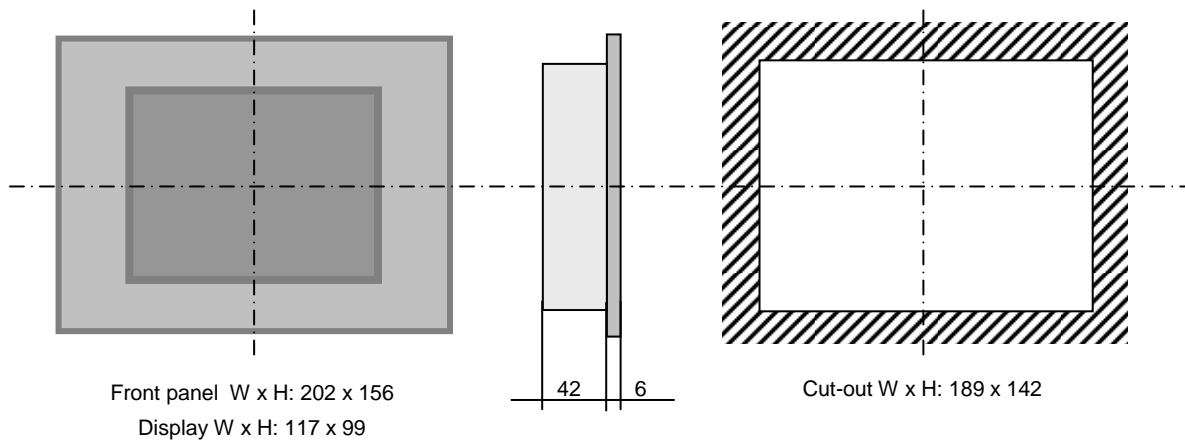
→ This document is regularly updated.

# User's guide: Saia® PCD Web panel with eMicroBrowser QVGA series

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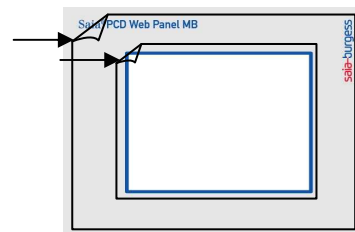
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## 1. Dimensions and cut-out (mm)



## 2. Mounting

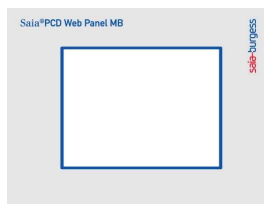
- REMOVE the 2 protective transparent films. - - - - - →
- Flush mounting by 4 brackets with grub screw M5x30
- Mounting position is horizontal.
- Ensure that the ventilation slits are positioned above and below in mounting position.
- Operation temperature: 0...50 °C (landscape position)
- Extended operation temperature → contact the PCD support.



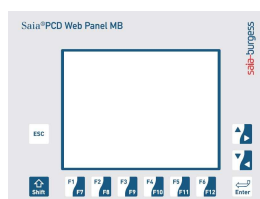
## 3. Operation and handling

### 3.1. Base Line MB panels

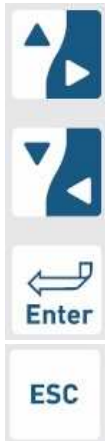
Touch-screen operated by finger or pen (stylus) . Do not operate with sharp tools (e.g. screw drivers)



### 3.2. Comfort Line 5.7 MB panels (combined touch and keypad)



Functions F1 to F6 → directly with F key depression.  
Functions F7 to F12 → with key combination: shift + F key  
(programming with the web-editor: see topic 12)



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

Enter key: "Enter" function

Escape key → programming with the web-editor: see topic 12

### 3.3. Comfort Line 3.5 MB panels (Alphanumeric keyboard, Fkeys and Keys)



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

(In the web-editor, these 4 keys are corresponding to FKEY\_9, FKEY\_10, FKEY\_11, FKEY\_12. (see also the section 12)



#### Numeric keyboard (by default)

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

#### Alphabetic keyboard (by pressing on Text)

Similar to your Mobil

- \* (asterisk) By depressing one time
- abcABC By pressing one, two, tree, four, five, six times
- deIDEL By pressing one, two, tree, four, five, six times
- jkIJKL By pressing one, two, tree, four, five, six times
- mnoMNO By pressing one, two, tree, four, five, six times
- pqrPQRS By pressing one, two, tree, four, five, six, seven, eight times
- tuvTUV By pressing one, two, tree, four, five, six times
- wxyzWXYZ By pressing one, two, tree, four, five, six, seven, eight times
- , / . : @ (coma, slash, dot, **colon**, @) By pressing one, two, tree, four and five times)
- \_ By pressing one time
- C is "clear "

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

### Handling : Macro Qkey offline Alarm history

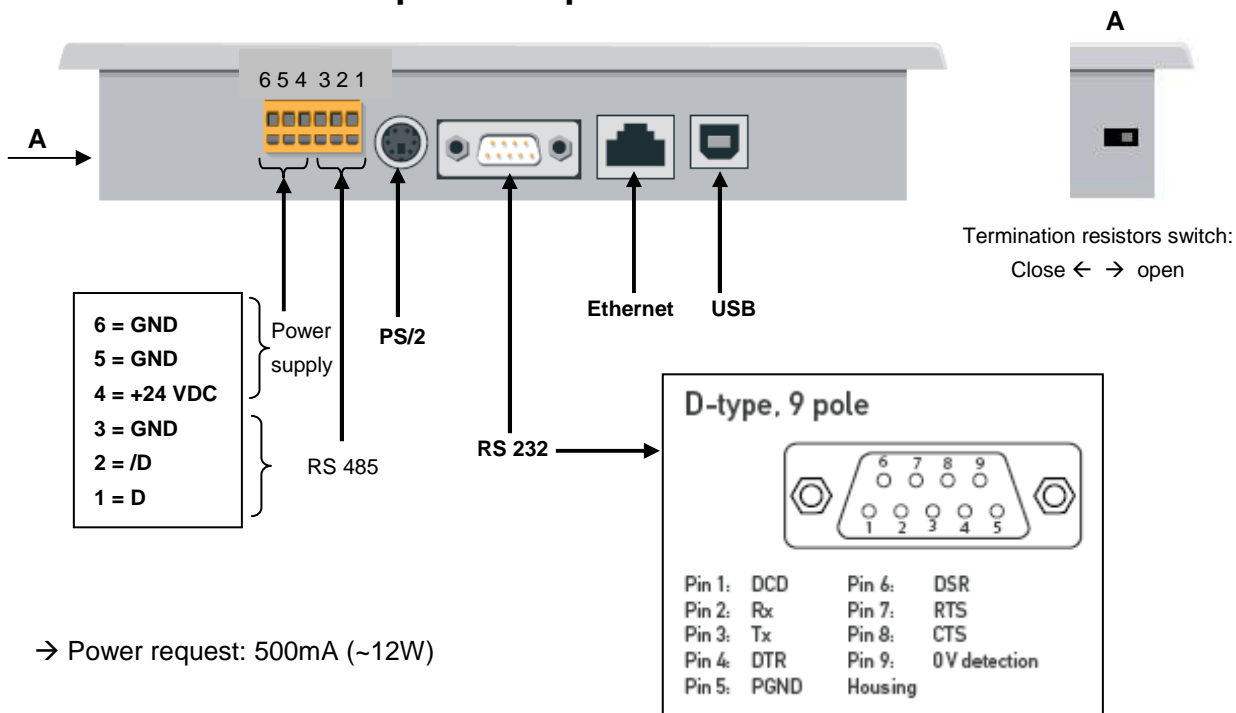
Handling "question mark key" is a particular function which is to "load the alarm list" and

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

Unselect the focus of the alarm list by pressing on:

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

## 4. Connections and power request



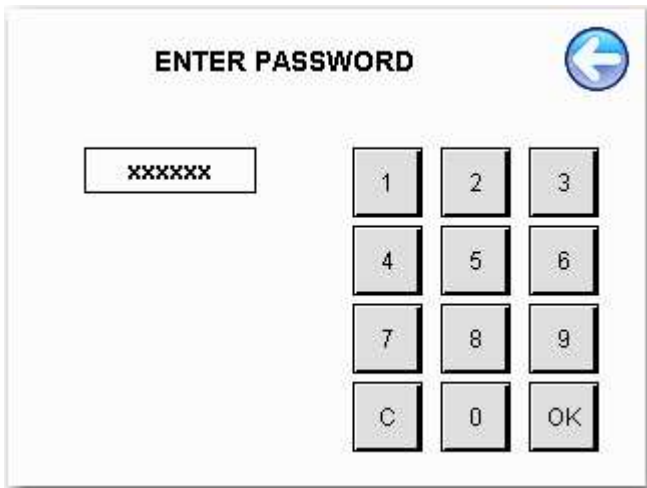
|               |                   |  |
|---------------|-------------------|--|
| Power Supply  | Gnd (-) / 24V (+) | Spring connector, 6-pole, in combination with RS-485 communication |
| Communication | PS/2              | Standard Mini DIN6 (external keyboard /barcode reader )            |
|               | RS232             | D-type 9   |
|               | Ethernet          | RJ 45 with LED control   |
|               | USB               | Standard USB slave   |
|               | RS485             | Spring connector, 6-pole, in combination with power supply         |

## 5. Setup menu: parameter setting step-by-step

This section describes the menu structure of eMicroBrowser panels.

### 5.1. Password

MB panels from the PCD7.D4 xxxx 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. See section 5.7 for instructions on how to enter a password.

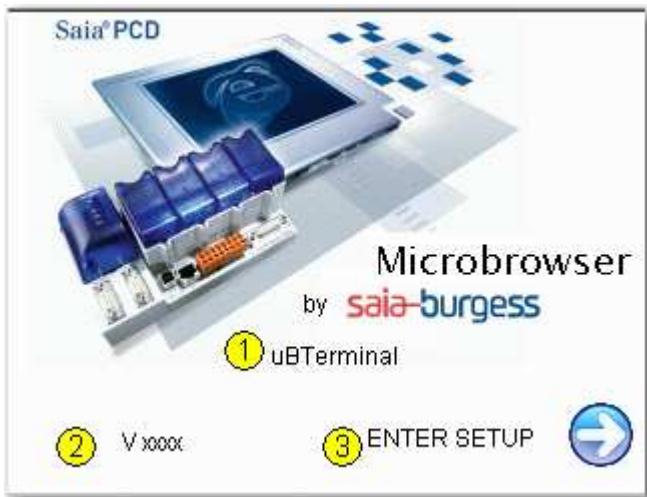


#### Note concerning 3.5" MB panel (PCD7.D435xxxx)

→ You can enter password directly with numeric keypads (right side of the screen) or by selecting the keys of the numeric virtual keyboard. In this case, use the arrow keys and the enter key. BUT in all case, confirm it with the **OK keys**, NOT with the ENTER keypad.

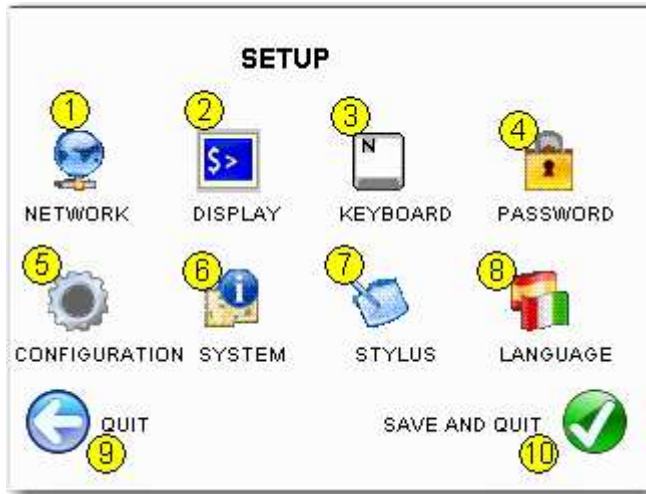
### 5.2. Title

The title screen is displayed for a few seconds. The timeout for this is defined in setup page "System" (see section 5.4).



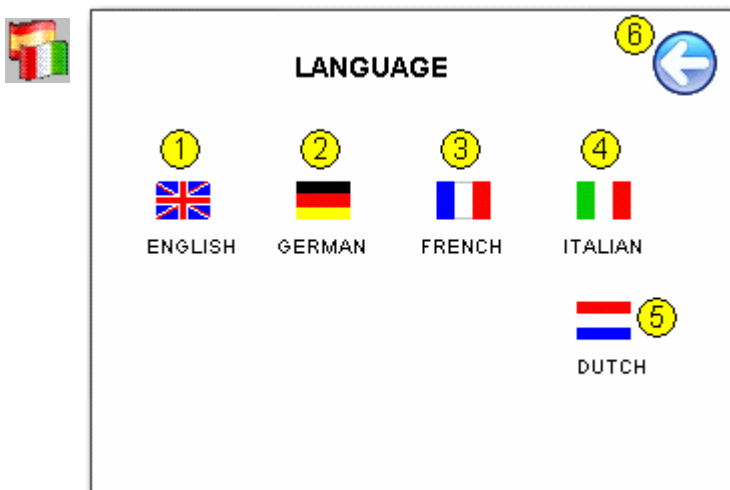
|   |                      |   |
|---|----------------------|---|
| 1 | Title string         | Default is "uB Terminal". This can be changed in "Connection Settings" (see section xxxx) |
| 2 | Firmware Version     | Firmware version (read only)  |
| 3 | Access to Setup Menu | → Press "Enter Setup" to enter to main setup menu (section 5.3)                           |

### 5.3. Setup



|    |               |                                    |                                       |     |
|----|---------------|------------------------------------|---------------------------------------|-----|
| 1  | Network       | MB panel settings                  | See section                           | 5.8 |
| 2  | Display       | Display settings                   | See section                           | 5.5 |
| 3  | Keyboard      | PS/2 keyboard settings             | See section                           | 5.6 |
| 4  | Password      | Enter a password                   | See section                           | 5.8 |
| 5  | Configuration | Address and name of the start page | See section                           | 6.1 |
| 6  | System        | System info + download FW          | See section                           | 5.4 |
| 7  | Stylus        | Re-calibration                     | Use carefully a stylus or a fine pen. |     |
| 8  | Language      | Setup language                     | Included in this section              | 5.3 |
| 9  | Quit          | Quit without saving                |                                       |     |
| 10 | Save & quit   | Save and quit                      |                                       |     |

Press language (8) to choose operator language.

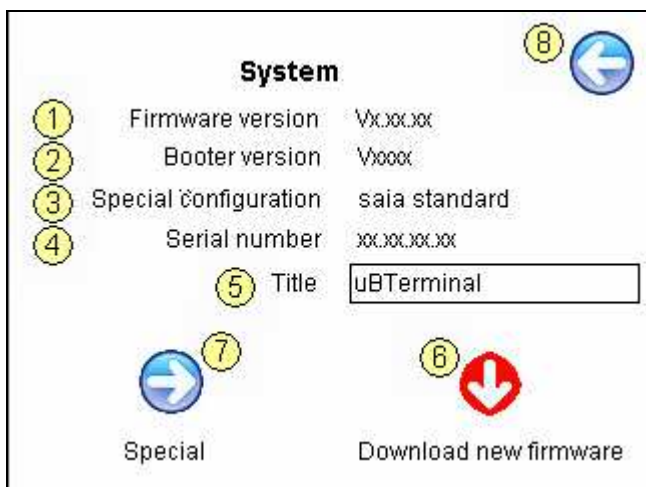


|   |         |   |
|---|---------|---|
| 1 | English | Setup in English                                      |
| 2 | German  | Setup in German                                       |
| 3 | French  | Setup in French                                       |
| 4 | Italian | Setup in Italian                                      |
| 5 | Dutch   | Setup in Dutch  |
| 6 | ←       | Save the language and return to main setup menu (5.3) |



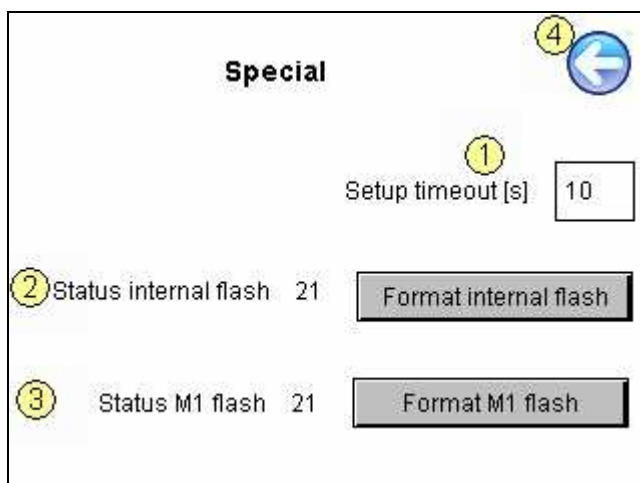


## 5.4. System



|   |                  |                        |  |
|---|------------------|------------------------|--|
| 1 | Firmware version | V xxxx                 | Firmware version (read only)   |
| 2 | Booter version   | V xxx                  | Booter version (read only)   |
| 3 | Configuration    | Default: Saia standard | Read only  |
| 4 | Serial Nr.       | xxxxxxxxxx             | Serial Number: This number is unique! It can be used for product traceability. |
| 5 | Title            | Default: uB Terminal   | This string is displayed on the title page (→ Title)                           |
| 6 | Download new FW  |                        | Press  and confirm the message: "Do you really want to download new firmware?" |
| 7 | →                |                        | Special (section 5.5)  |
| 8 | ←                |                        | Back to the main setup menu (section 5.3)                                      |

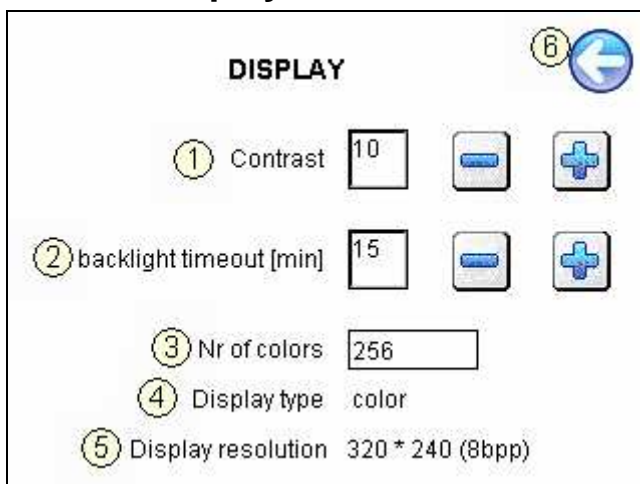
## 5.5. Special (advanced function)



|   |  |   |   |
|---|--|---|---|
| 1 | Setup timeout (s)                            | Default:<br>10 seconds<br>① Minimum: 3 seconds                  | The title page is displayed for this amount of time.<br>If set at "0", the user program will not be called.   |
| 2 | Format internal flash (!! Advanced function) | Default status<br>21 (green) →<br>Device OK ;<br>Filesystem OK. | <u>Advanced function</u> 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!"<br>Status 21 (green): Device OK; Filesystem OK<br>Status 22 (red): Device OK; Filesystem ERROR *<br>Status 23 (yellow): Device OK; Filesystem under Construction<br>Status 24 (yellow): Device OK; Filesystem under Compression.<br>* reformat once again.<br>Formatting duration: ~ 15 sec. |
| 3 | Format M1 flash (!! Advanced function)       | Default status<br>21 (green) →<br>Device OK ;<br>Filesystem OK. | Advanced function with message of confirmation: "Do you really want to reformat the M1 flash completely?"<br>Status 21 (green): Device OK; Filesystem OK<br>Status 22 (red): Device OK; Filesystem ERROR *<br>Status 23 (yellow): Device OK; Filesystem under Construction<br>Status 24 (yellow): Device OK; Filesystem under Compression.<br>* reformat once again<br>Formatting duration: ~ 2 minutes.  |
| 4 | ←  |   | Back to the System (section 5.4)  |



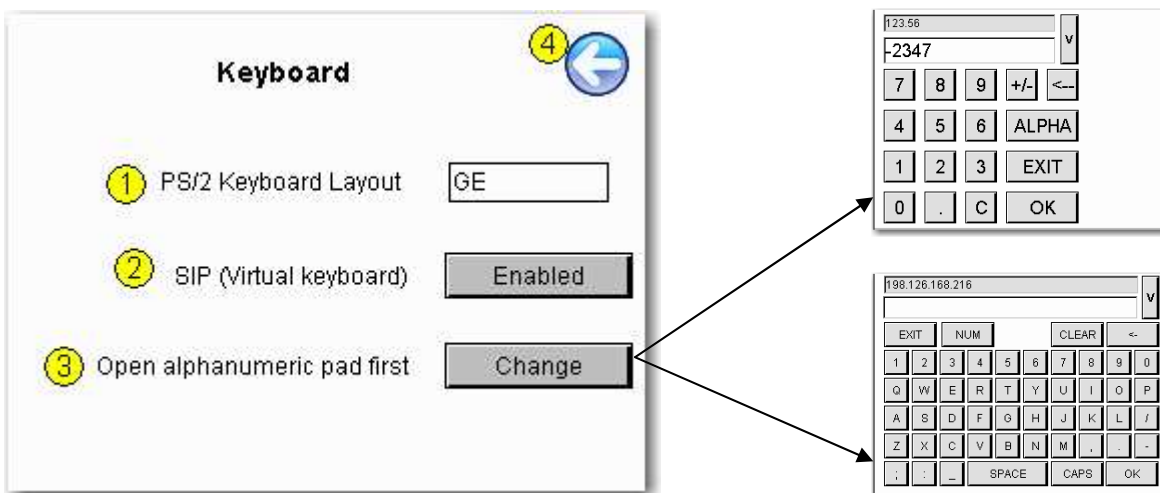
## 5.6. Display



|   |                         |                    |   |
|---|-------------------------|--------------------|---|
| 1 | Contrast                | Default:10         | Adjustable between 0 and 21 by pressing – and + buttons   |
| 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 by pressing – and + buttons. |
| 3 | Nr of Colors            | 256<br>16          | Color Display : 256<br>Mono Display : 16 or 4 level of grey   |
| 4 | Display type            |                    | Color or Mono (Read only)   |
| 5 | Display resolution      | Def.320 x 240      | Nbr of pixel (Read only)  |
| 4 | ←                       |                    | Back to the main setup menu (section 5.3)   |



## 5.7. Keyboard (PS/2 or virtual keyboard)



|   |                       |   |   |
|---|-----------------------|---|---|
| 1 | PS/2 keyboard layout  | Default: GE (German)                            | PS/2 External Keyboard languages<br>GE (German) or US (English US) or UK (English UK) or FR (French) CH-GE (Swiss German) or CH-FR (Swiss French) |
| 2 | SIP Enable / Disable  | Default: Enabled                                | Enable/Disable SIP ( <b>S</b> oft <b>I</b> nterface <b>P</b> anel).<br>Virtual keyboards  |
| 3 | Numeric/ Alphanumeric | Default: alphanumeric<br>pad is opened in first | By pressing on change you can choose:<br>Virtual alphanumeric pad or Virtual Numeric<br>pad is opened in first. (!!! save & quit)                 |
| 4 | ←                     |   | Back to the main setup menu (section 5.3)   |

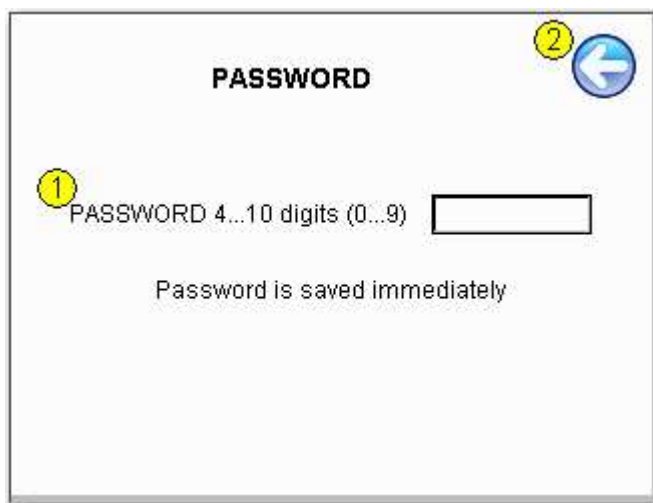


## 5.8. Password

### Password definition.

The password becomes active immediately after entry (numeric password only).

→ !! Recommendation: Write the password on a slip of paper before entering the password.



**Forgot your password:** → see section 8

|   |          |                      |  |
|---|----------|----------------------|--|
| 1 | Password | Default: no password | Only numerical                                   |
| 2 | ←        |                      | Save and return to main setup menu (section 5.3) |



## 5.9. Network

|   |                 |                        |  |
|---|-----------------|------------------------|--|
| 1 | MAC address     |                        | For information ( read only)                   |
| 2 | TCP/IP Address  | Default:               | 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 (sect. 5.3) |

## 6. Setup menu: configuration step-by-step

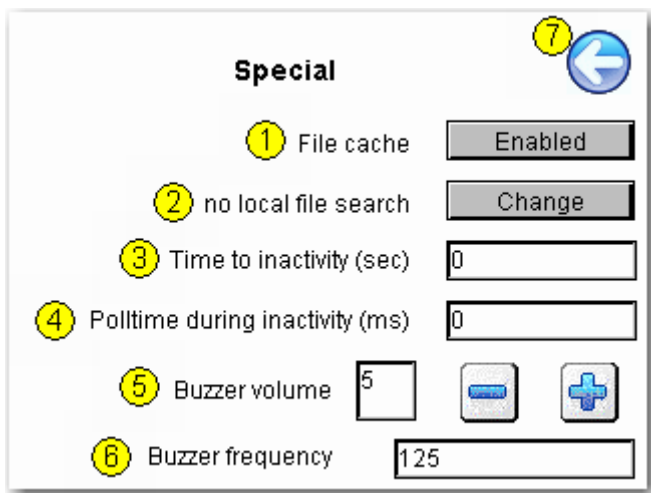


### 6.1. Configuration

|   |                       |   |   |
|---|-----------------------|---|---|
| 1 | Address of start page | Default:127.0.0.1 (proxy address)           | IP address of the PCD                     |
| 2 | Name of start page    | Default:Start.html                          | html page generated by web editor project |
| 3 | Special               | Advanced configuration                      | See section 6.2                           |
| 4 | Communication         | S-Bus / Ether-S-Bus communication           | See section 6.3                           |
| 5 | SD-card               | <i>Appears only if SD-card is installed</i> | See section 6.1                           |
| 6 | ←                     | Back to main setup menu                     | See section 5.3                           |



## 6.2. Special



|     |                                 |   |  |
|-----|---------------------------------|---|--|
| 1   | File cache                      | Default: Enabled<br>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:<br>"no local file search"  | "No local file search" means that no files (.teq or .gif) will be searched in the local server (= uBrowser server).<br>"Local file search before remote" means that files (.teq or .gif) will be searched in the local server before searching in the PLC server.<br>"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)<br>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.<br>Especially useful for MB panels in Network application.<br>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:<br>Vol = 125Hz   | - Volume: duty cycle adjustable from 0 to 20 ( 0 = silence)<br>- Frequency: adjustable from 125 to 8000.   |
| 7   | ←                               | Back to configuration menu  | See section 6.1  |

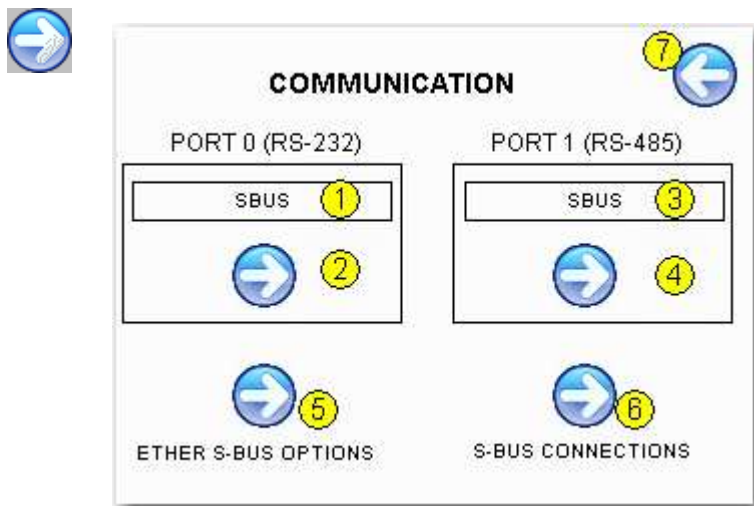
### 6.3. Communication (S-Bus)

**General info:** Http direct communication through Ethernet is **RECOMMENDED** in all cases.

**Information regarding S-Bus communication:**

- Alarming and trending over Serial S-bus or Ether-S-bus communication is proved "Slow" and is therefore not recommended.
- The minimal recommended Baud rate for alarming and trending over Serial S-bus communication with PCD3, PCD2.M5x40 and new PCD1.M2x20 is 57.6 kBd. (115 kBd is still better and 38.4 kBd it's working nevertheless)
- Don't use the alarming over serial S-Bus in the following cases:
  - RS 232: baud rates 19200 and 9600
  - RS 485: baud rate 9600
  - With a long list of alarms

**- The topics 6.3 → 6.9 are reserved in case of S-bus communication (serial and Ethernet)**



|   |                |                   |   |                    |
|---|----------------|-------------------|---|--------------------|
| 1 | Port 0 (RS232) | Default: SBUS     | Port 0 (D-type 9)<br>- None: no S-Bus communication<br>- SBUS: serial S-Bus RS 232 communication<br>- TCP2RS232: TCP/IP to RS 232.<br>Using MB panel as gateway ( for example for printer output) |                    |
| 2 | Configure      | Port 0            | - S-Bus configuration on Port 0<br>- Configuration of TCP2RS232 on Port 0 (TCP2RS232 means TCP to RS232)  | See 6.4<br>See 6.6 |
| 3 | Port 1(RS485)  | Default: none     | Port 1 (orange spring connector no.1,2,3)<br>- None: no S-Bus communication<br>- SBUS: serial S-Bus RS 485 communication  |                    |
| 4 | Configure      | Port 1            | S-Bus configuration on Port 1   | See 6.5            |
| 5 | Configure      | Port Ethernet     | Ethernet S-Bus options  | See 6.7            |
| 6 | Configure      | S-Bus connections | Configuration of up to 16 serial or Ethernet S-Bus stations.  | See 6.8            |
| 7 | ←              |                   | Back to configuration menu  | See 6.1            |

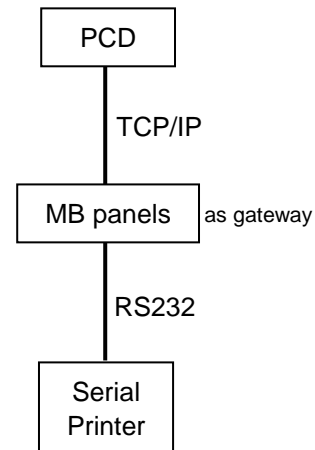
## 6.4. Configuration Port 0 (RS 232) in Serial S-Bus

|   |               |                           |   |
|---|---------------|---------------------------|---|
| 1 | Baud rate     | Default: 9600             | Adjustable from 1200 to 115200                  |
| 2 | TN Delay (ms) | Default: 0                | -   |
| 3 | TS Delay (ms) | Default: 0                | -   |
| 4 | Timeout (ms)  | Default and standard: 250 | S-Bus configuration                             |
| 5 | Retries       | Default: 3                | Number of attempts: try + retries               |
| 6 | ←             |                           | Back to communication menu<br>(see section 6.3) |

## 6.5. Configuration Port 1 (RS 485) in Serial S-Bus

|   |               |                           |   |
|---|---------------|---------------------------|---|
| 1 | Baud rate     | Default: 9600             | Adjustable from 1200 to 115200                  |
| 2 | TN Delay (ms) | Default: 0                | S-Bus configuration                             |
| 3 | TS Delay (ms) | Default: 0                | S-Bus configuration                             |
| 4 | Timeout (ms)  | Default and standard: 250 | S-Bus configuration                             |
| 5 | Retries       | Default: 3                | Number of attempts: try + retries               |
| 6 | ←             |                           | Back to communication menu<br>(see section 6.3) |

## 6.6. TCP/IP to RS-232 (MB panel as Gateway)



|   |              |               |   |
|---|--------------|---------------|---|
| 1 | TCP/IP Port  | Default: 2500 | UDP port. Avoid using reserved port numbers (i.e. between 0 and 1023) |
| 2 | Baud rate    | Default: 9600 | Adjustable from 1200 to 115200  |
| 3 | Parity bit   | Default: none | No parity, even or odd  |
| 4 | Handshake    | Default: none | No handshake or RTS/CTS   |
| 5 | Timeout (ms) | Default 10    |   |
| 6 | Data bit     | Default: 8    | 8 or 7  |
| 7 | Stop bit     | Default: 1    | 1 or 2  |
| 8 | ←            |               | Back to communication menu (see section 6.3)                          |

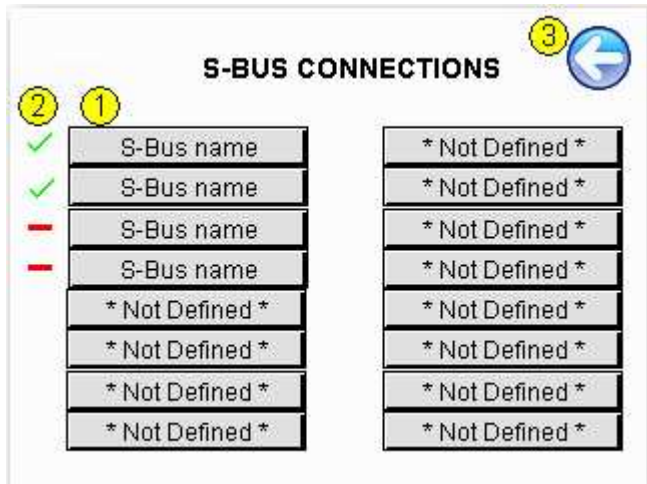
## 6.7. Ethernet S-bus configuration

|   |              |                           |  |
|---|--------------|---------------------------|--|
| 1 | Timeout (ms) | Default and standard: 250 | S-Bus configuration                          |
| 2 | Retries      | Default: 3                | Number of attempts: try + retries            |
| 3 | ←            |                           | Back to communication menu (see section 6.3) |



## 6.8. S-Bus connections

Up to 16 serial or Ethernet S-Bus connecting stations can be predefined.



|   |                            |               |  |  |
|---|----------------------------|---------------|--|--|
| 1 | S-Bus name                 | Default: none | Enter all connection settings for each station.                            | See S-bus connection settings in section 6.9 |
| 2 | S-Bus communication status | Default: none | Status of communication<br>✓ = communication OK<br>- = communication error |  |
| 3 | ←                          |               | Back to communication menu   | See section 6.3                              |

## 6.9. S-Bus connection settings

**S-Bus connection settings**

① Name



② Type

③ SBus station Nr

④ Port

⑤ TCP/IP address

Error Reason ⑥ error message

 Delete ⑦  Save ⑧

### ⑥ Potential source of communication error

#### List of error reasons:

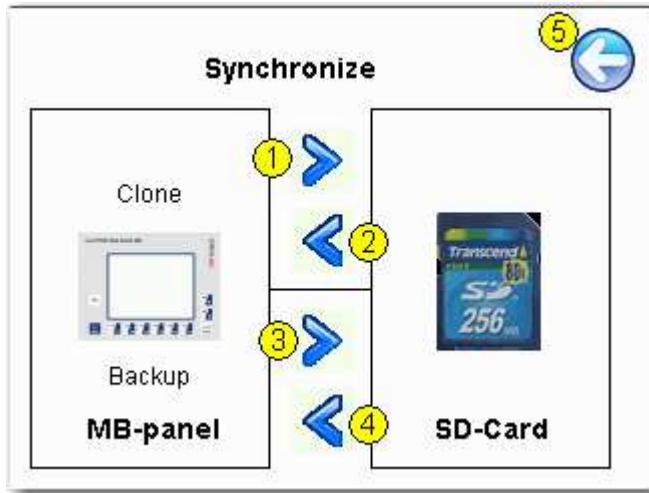
- Bad cabling. Most common error.
- Bad grounding. Can cause damage to the interface!
- Connection to the wrong serial line.
- Incompatible transmission speed.
- Slave station not assigned.
- Slave station not started.
- Slave address mismatch.
- Defective interface (sender and/or receiver).
- The PCD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

|   |                   |                           |   |                                 |
|---|-------------------|---------------------------|---|---------------------------------|
| 1 | Name              | Default:<br>*not defined* | Enter a name for the S-Bus station.<br>Maximum 20 characters <u>with no spaces or special characters</u>  |                                 |
| 2 | Type              | Default: none             | Appears only if S-Bus name is defined.<br>- Serial SBus<br>- Ether SBus   |                                 |
| 3 | S-Bus station no. | Default: 0                | Appears only if S-Bus name is defined.<br>N.B. This is the S-Bus station number:<br>0 to 255  |                                 |
| 4 | Port              | Default: 0                | Appears only if Serial S Bus is selected.<br>- Port 0 (RS 232)<br>- Port 1 (RS 485)   | See ③                           |
| 5 | TCP/IP address    | Default: 0                | Appears only if Ether S Bus is selected.<br>Enter the IP address of the station   | See ③                           |
| 6 | Error reason      | Default: none             | List of error reasons:<br>Timeout                      Web Server busy<br>Slave not ready              No Web Server<br>Retry Expired                Out of sequence<br>SBus Timeout                SBus NAK<br>Rcv Failed                    Snd Failed<br>General Error | See list of error reasons above |
| 7 | Delete            |                           | Delete parameters   |                                 |
| 8 | Save              |                           | Save parameters and return to S-Bus connections   | See section 6.8                 |



## 6.10. Cloning and backup

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)

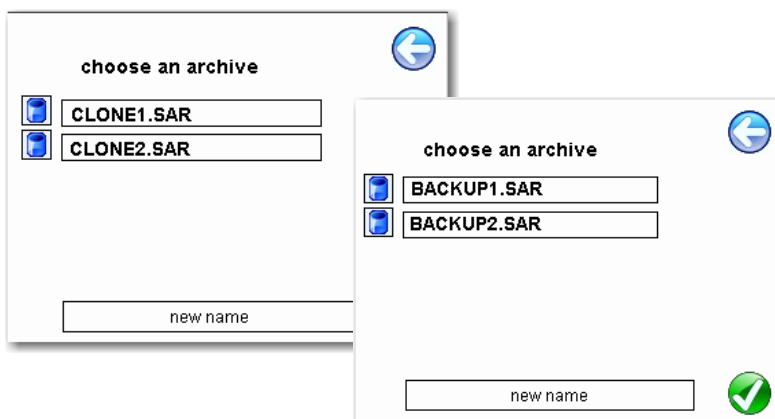


**Clone:** Copy or restore image of "INTFLASH" and "M1\_FLASH" onto or from a archive file (.SAR format)

**Backup:** Copy/restore all the files contained in the M1\_FLASH/WEBPAGES onto or from an archive file (.SAR format)

|     |              |                                |  |
|-----|--------------|--------------------------------|--|
| 1/2 | →<br>←       | Cloning:<br>Copy or<br>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"<br>*Before each restoring, the internal flash is reformatted! |
| 3/4 | →<br>←       | backup<br>Copy or<br>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"<br><u>Condition:</u> /webpages must be not empty                            |
|     | Archive name |                                | Name: 20 characters max with no spaces or spec. charact.<br>Cloning and backup files are the same extension format: .SAR (Saia ARchiv)   |
| 5   | ←            |                                | Back to the configuration menu (see section 6.1)   |

**Restoring** → choose in the lists



## 7. Firmware Update

Firmware can be updated.

The microBrowser panels must be connected to the PC via its USB.

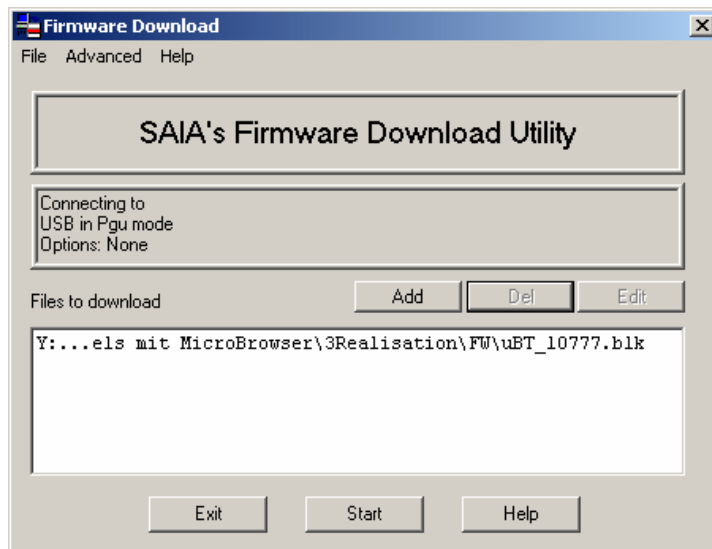
Then select "Firmware Download" from the terminal settings menu (see section 5.4).

Start the firmware downloader in the PG5 programming tool.

### 7.1. For Comfort and base lines 5.7”

Only one .blk file to download is necessary

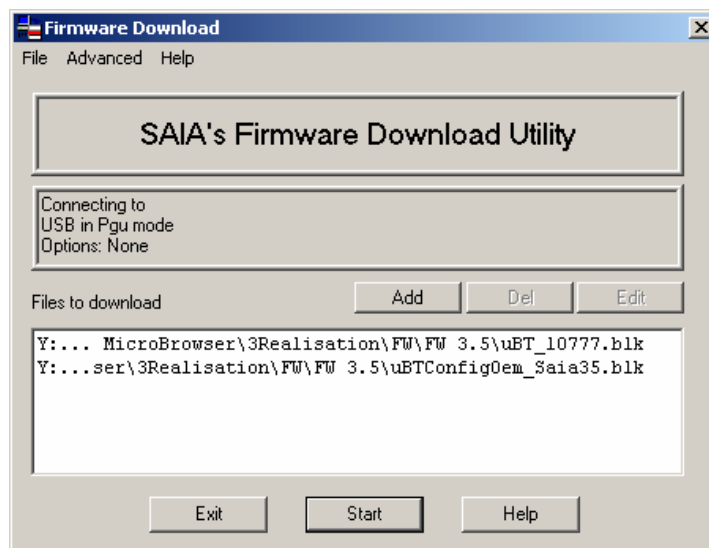
uBT\_XXXXXX.blk



### 7.2. For Comfort line 3.5”

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

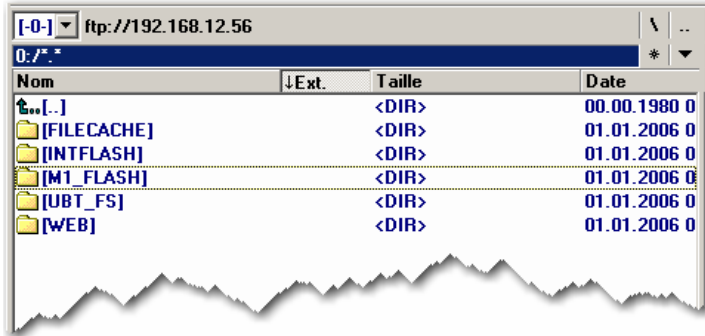
Start the Firmware download, both will be downloaded automatically.



## 8. Local files / local server

From FW xxxxx, the structure of the local server has been changed to make it like a Windows CE server. FTP is the only way of accessing its internal structure (ftp access: user name and password).

ftp:// IP address



FILECACHE : Cache memory ⇒ 1 MB RAM

INTFLASH : FW ⇒ 2 MB flash contains:  
 setup configurations  
 settings  
 keypad map  
 calibration  
 password **forgot your password !** → delete the passwd.dat file

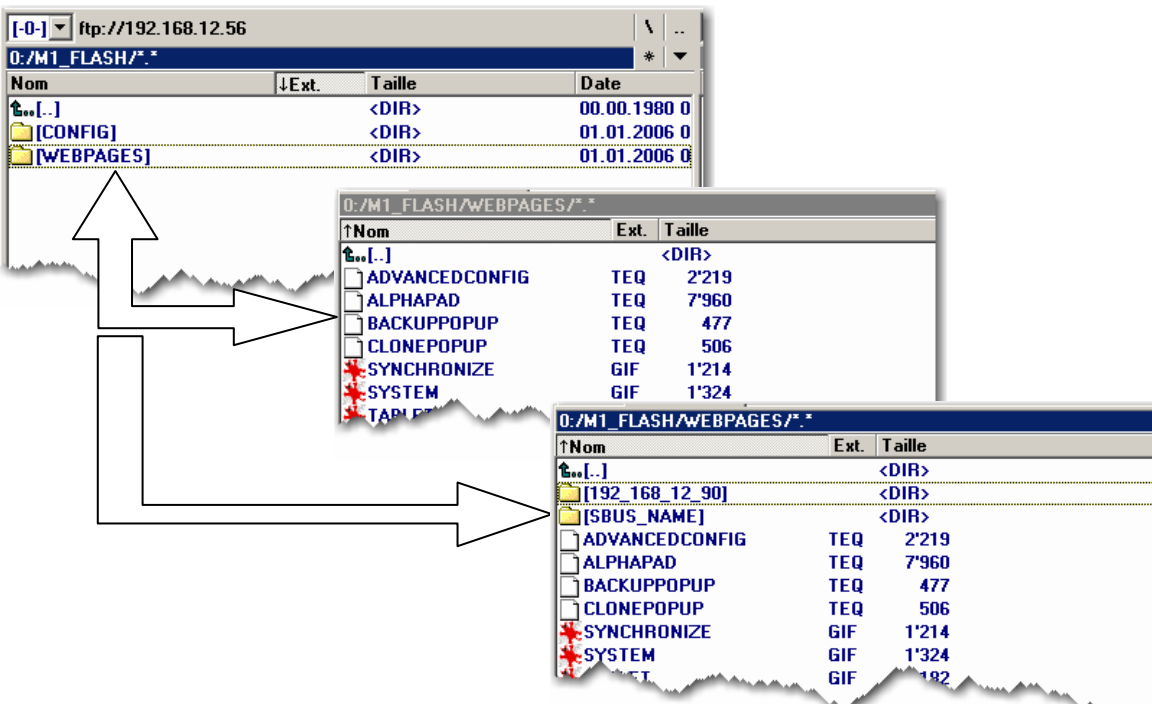
M1\_FLASH : ⇒ 4 MB flash

UBT\_FS : for internal usage

WEB : for internal usage

### 8.1. Structure of M1\_FLASH

ftp:// IP address / M1\_FLASH



## 8.2. Copy to M1\_FLASH (local FTP server)

Copy all common files (.teq + .gif ) to M1\_FLASH/WEBPAGES

Copy all dedicated files (.teq + .gif ) to M1\_FLASH/WEBPAGES, into the respective sub-directories.  
 Each dedicated station has its own sub-directory.

→ Name of files: maximum 24 ASCII characters without spaces, format name included.

Sub-directory names reflect communication type:

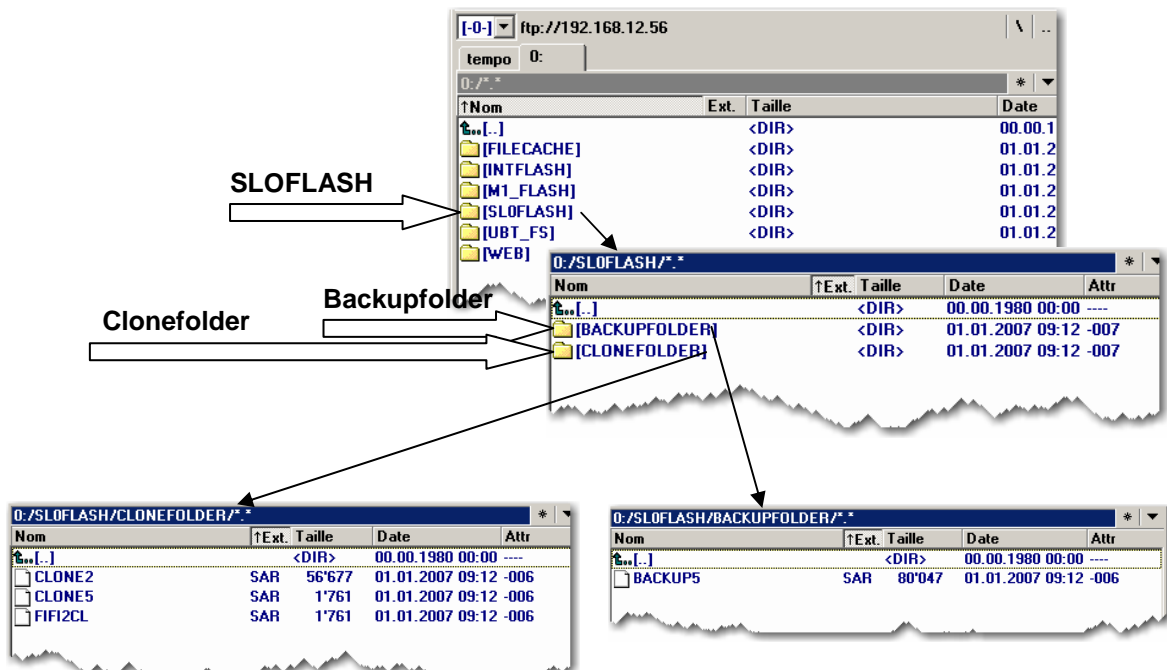
- SBus communication → SBus name of station (e.g.: Station\_trans1)
- http direct communication → IP address of station, but with "underlines" instead of "dots"  
 (e.g.: IP address 192.168.12.90 becomes 192\_168\_12\_90)

N.B.: When local server use involves copying .teq or .gif files to it (or even .itq, .csv and .html files), you must build (web builder) .tcr at the minimum, because it contains all the PPO data.

Remember to change the setup option from "No local file search" to "Local file search before remote".

## 8.3. Copy to SD\_Card . Local memory

FTP access to cloning and backup folders



## 8.4. Recommendations for file and path

Saia filesystem does not support file names in ANSI characters but only ASCII characters (code 0 to 127). The names of .teq, itq, html .gif .bft and .csv files, which should be copy in the M1\_FLASH or SLOFLASH, must be write with ASCII characters without spaces and the maximum number of characters (extension figure included) is 24.

### Details about URL strings

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

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

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

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

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

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

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

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

## 9. uBTerminal containers

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



|                             |     |  |
|-----------------------------|-----|--|
| <b>uBT_LocalFileSearch</b>  | R/W | <p>Read/Write 0 → No local file search.<br/>                 Each file is loaded from the local cache or remote.<br/>                 Read/Write 1 → Local file search with local before remote.<br/>                 Read/Write 2 → Local file search with remote before local.<br/>                 At active cache a file will be loaded, if present, from the cache in all cases.<br/>                 A switch of these settings at run time may first be fully effective after an URL jump and should be used with care.</p>   |
| <b>uBT_DoLcdCalib</b>       | -   | <p>If TouchScreen present<br/>                 Read/write 1 → a recalibration is executed.</p>   |
| <b>uBT_LcdContrast</b>      | R/W | <p>Read/write: Contrast value (0 ... 20).<br/>                 !!!! A <b>Lower</b> value puts the brightness <b>up</b>.<br/>                 In earlier QVGA prototypes Firmware versions container <b>uBT_LcdContrastPwm</b>, 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.<br/>                 Please use <b>uBT_LcdContrast</b> to guarantee future working.<br/>                 Do not mix the use uBT_LcdContrast and uBT_LcdContrast Pwm use in one project as this may lead to unwanted results.</p>    |
| <b>uBT_BackLight</b>        | no  | <p>Read/write1, 0 → Remote backlight control OFF<br/>                 The backlight is switched OFF if the control is '1' before.<br/>                 Any touch on the screen switches the backlight on again.<br/>                 Read/write 0,1 → Remote backlight control ON<br/>                 The backlight is switched ON if the control is '0' before.<br/>                 The backlight may switch off afterwards again after a time out.<br/>                 For remote control over PPO &lt;-&gt; container coupling only.<br/> <i>The use in the Button and Edit painters is not supported.</i></p> |
| <b>uBT_BackLightTimeout</b> | R/W | <p>Read/write timeout in minutes.<br/>                 If no user action is registered during this time, the backlight is switched off. Any touch on the screen switches it on again.<br/>                 If the value is 0 the backlight time out supervisory is inactive.<br/>                 A switched on back light is kept switched on forever in that case.</p>   |
| <b>uBT_TCPIPAddr</b>        | no  | <p>Read/write TCP/IP address of terminal (own address) within the used subnet.<br/>                 Modification forces a restart. FTP connections are lost.</p>   |
| <b>uBT_SubNetMask</b>       | no  | <p>Read/write subnet mask of the subnet that is used by the terminal.<br/>                 Modification forces a restart. FTP connections are lost.</p>  |
| <b>uBT_DefaultGateway</b>   | no  | <p>Read/write default gateway of the subnet that is used by the terminal.<br/>                 Modification forces a restart. FTP connections are lost.</p>  |
| <b>uBT_EnableSIP</b>        | R/W | <p>Read/write SIP → Select Soft Input Panel (keyboard on the screen)<br/>                 Write 0 → SIP is disabled. Virtual keyboards are disabled.<br/>                 Write 1 → SIP is enabled. Virtual keyboards (alphapad.teq and keypad.teq) are enabled.</p>   |

|                              |     |  |
|------------------------------|-----|--|
| <b>uBT_FirstPadName</b>      | R/W | File name entry for an alternative virtual keyboard file as replacement for alphapad.teq at local file use.<br>At local file use alphapad.teq from the setup menu (from INTFLASH/WEB) is used by default.<br>The alternative file – that must be named otherwise than alphapad.teq - can be placed in M1 or SD flash (see Chap.13) over FTP, or included in the stored web project in the remote server.<br>The maximum number of characters (file extension with dot included) is 24. |
| <b>uBT_BuzzVol</b>           | R/W | Read/write buzzer volume setting (0 ... 20).<br>This sets the volume of the acoustic signal at the use of the touch function of the touch panel.<br>As pulse width modulation is used to control the volume this setting has an influence on the sensed pitch of the alarm.<br>Volume 0 setting switches it off.   |
| <b>uBT_BuzzFreqIndex</b>     | R/W | Read/write buzzer frequency selection (0 ... 6).<br>This equals to 125, 250, 500, 1000, 2000,4000,8000 Hz setting.<br>This sets the pitch of the acoustic signal at the use of the touch function of the touch panel.  |
| <b>uBT_AlarmStart **</b>     | no  | Write a value to start or stop the pulsed acoustic alarm.<br>The acoustic alarm can be started with a setting of the interval time (0 ..30000 mSec) of the pulsed signal. (30000 = 30 sec)<br>A 50% duty cycle is used with pulse time equal to pause time.<br>If already running a renewed setting is ignored.<br>Setting it to 0 however switches it off immediately.<br><b>The alarm also stops by any touch on the screen.</b>   |
| <b>uBT_AlarmFrequency **</b> | R/W | Frequency setting of the acoustic alarm (Hz)<br>(Rounded down to 125,250,500,1000,2000,4000,8000)<br>Use this before starting the alarm.<br>Renewed setting during running alarm will be first used at the next start of the alarm.  |
| <b>uBT_AlarmVolume **</b>    | R/W | Acoustic alarm volume setting (value 0 ... 20) 20 = 100%<br>As pulse width modulation is used to control the volume this setting has an influence on the sensed pitch of the alarm.<br>Use this before starting the alarm.<br>Renewed setting during running alarm will be first used at the next start of the alarm.  |

\*: Parameter access over FTP using the configuration file in INTFLASH, INFLASH/CONFIG/CONFIG.DAT.  
 The settings can be read over a file read of this file over FTP.  
 Overwriting the file over FTP causes the terminal to take all changes that are given within the file.  
 To use FTP an Ethernet connection is required.  
**Do not use write access on the container from the application and over FTP at the same time.**  
 This may lead to undefined results.

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

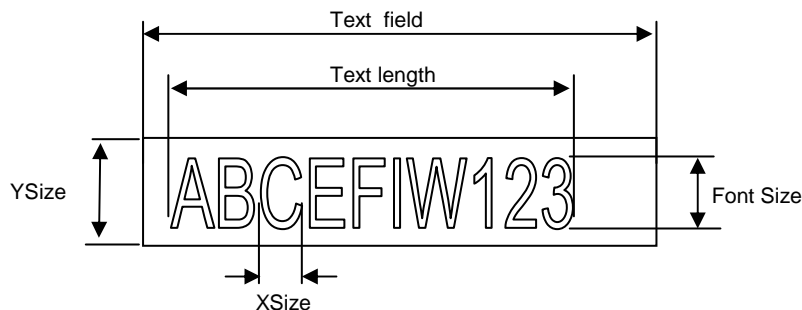
## 10. Fonts available by default

The pre-defined fonts are:

| Fonts and font style | Font Sizes |    |    |    |    |
|----------------------|------------|----|----|----|----|
|                      | 10         | 12 | 14 | 16 | 20 |
| Arial                | x          | x  |    | x  |    |
| Arial Bold           |            |    | x  |    | x  |
| Courier New          | x          | x  |    | x  |    |
| Courier New Bold     |            |    | x  |    | x  |
| Tahoma               | x          | x  |    | x  |    |
| Tahoma Bold          |            |    | x  |    | x  |

### Calculation of reserved margin regarding:

Simple text box, multiline text box, edit 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 is 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 margin 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           | 16       | 19    | 3         | 16        |
| Arial           | 12       | 15    | 3         | 12        |
| Arial           | 10       | 12    | 3         | 10        |
| Arial Bold      | 20       | 23    | 6         | 20        |
| Arial Bold      | 14       | 16    | 4         | 15        |
| 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          | 16       | 20    | 4         | 16        |
| Tahoma          | 12       | 15    | 4         | 12        |
| Tahoma          | 10       | 13    | 3         | 10        |
| Tahoma Bold     | 20       | 25    | 6         | 24        |
| Tahoma Bold     | 14       | 17    | 4         | 17        |

## 11. Special Fonts and Unicode Fonts

### 11.1. Generality

The user is able to provide additional fonts to satisfy his requirements regarding the languages he is using or regarding special fonts/style/size which are not standard in the MB panel (see topic 10).

Examples of languages: Russian, Greek, Chinese, Japanese, Korean

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

All the fonts can be combined with different sizes: 10,12,14 ... or styles: plain (or regular), bold ...

Arial font could be recommended to be sure to cover all the characters. This is especially for languages using a lot of characters as the Chinese.

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

M1\_FLASH/FONT

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

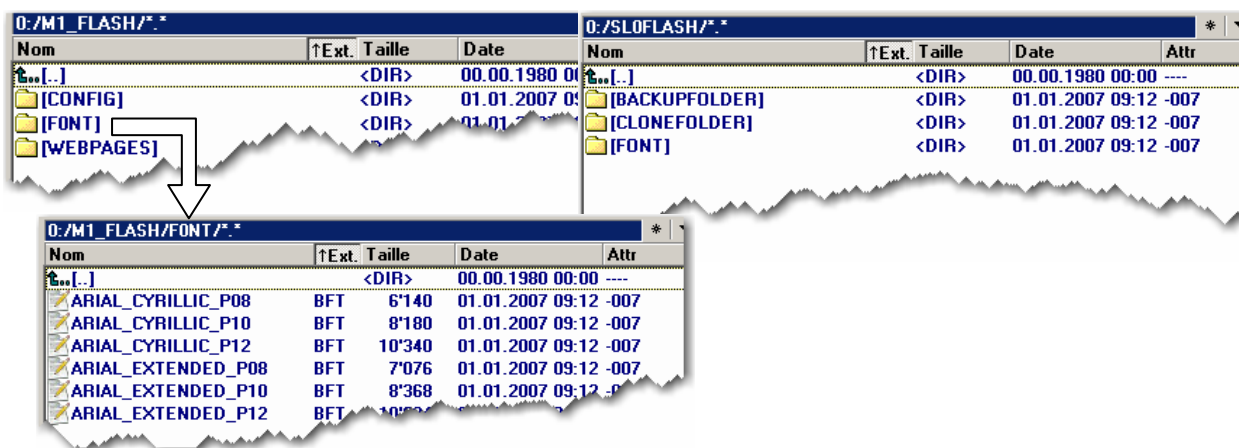
INTFLASH/FONT (not recommended. Intflash is for internal usage)

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.

(There are several files to cover the Chinese, Japanese and Korean languages)

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.

## 11.2. Interpretation of wrong Unicode types, sizes or styles

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

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

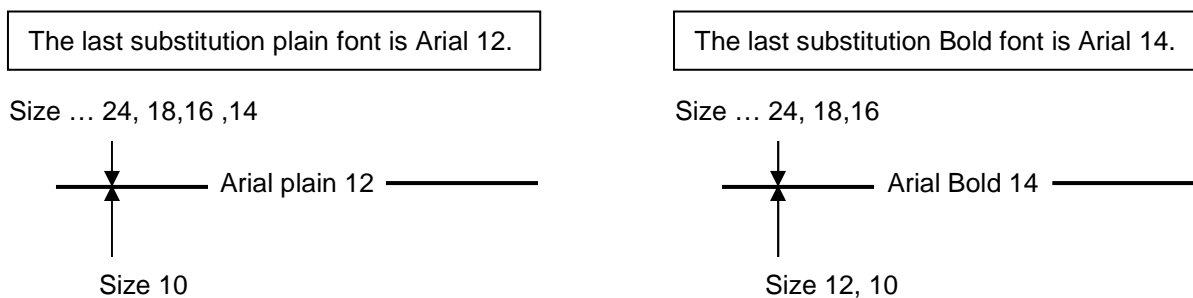
The last search is guaranteed to yield a result, because of the built in Arial fonts. The substitution of a font with a other font is reported in the log file.

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

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

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

Last level of substitution.



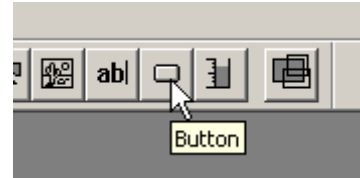
## 11.3. Web-editor

The Unicode characters set are available:

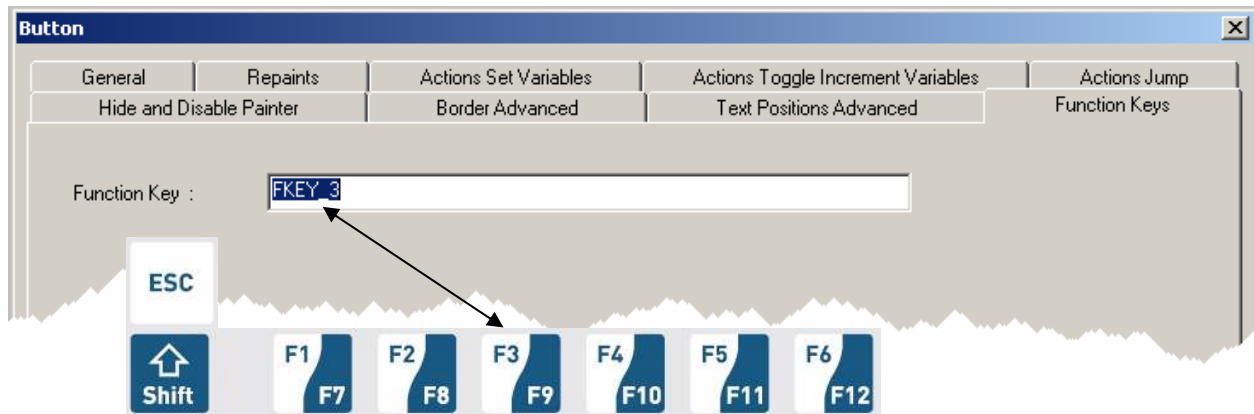
- by using the source type “HTML tag” in the web editor and via a .CSV file.
- by entering directly the text as a “string” in the web editor , in this case “Not necessary to use .CSV files. In this case doesn’t import Web-Editor project which was compiled with a Microsoft Windows using Unicode characters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

## 12. Programming function keys for web panels with Fkeypads

Place a button on the view and open the function keys tab.  
 Use the syntax: **FKEY\_1, FKEY\_2 ... FKEY\_12, ...and ESC**  
 The number of buttons depends on how many Fkeys you want to use.  
 N.B.: case sensitive.



Example: With the comfort line MB panel, 12 function keys are available.



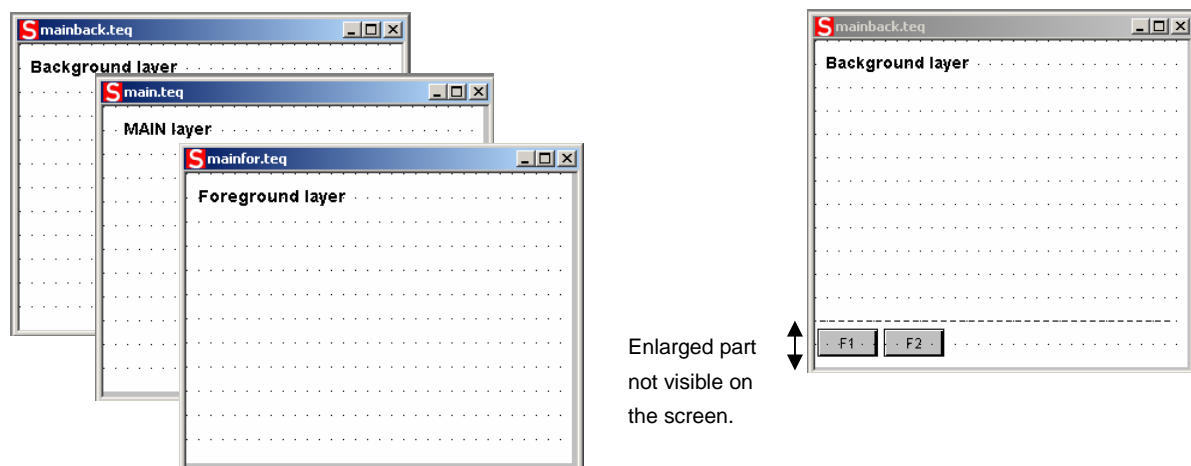
Do not use the “Hide Painter” command to hide the button.

A button hidden in this way will, in fact, be briefly visible on-screen when the page is changing.  
 We advise you to place the buttons on an enlarged part of the background layer.

Further detail:

Use the advanced features of TEQ views.

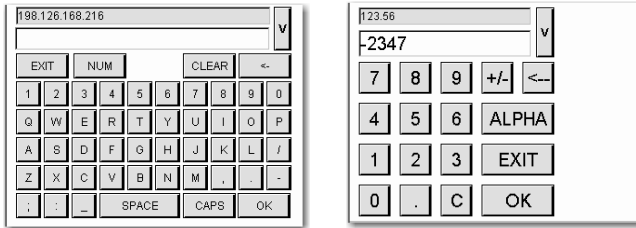
One TEQ view can be made with three different layers. Each layer can be edited separately by the user. At runtime, the three layers will merge into one view.



### What's the drill?

Create a background TEQ and enlarge it. Buttons corresponding to the Fkeys can be placed in the enlarged area. In this way, they will be invisible on the screen panel.  
 (Example with MB panels: standard size is 320 x 240 , enlarged size is 320 x 280).

### 13. Alphapad/ keypad



How to display the ALPHAPAD.TEQ and KEYPAD.TEQ views?

1) Default option SIP enables ( see topic 5.7) must be selected in the setup menu  
 Then add, in your web editor project, the files: ALPHAPAD.TEQ and KEYPAD.TEQ.  
 These files are under ... \ Web Editor 5\_13\_00\ QVGATeqlib\ ...

or

2) Default option SIP enables ( see topic 5.7) + the option "Local file search before remote" (see topic 6.2) must be selected. In this case, the ALPHAPAD.TEQ and KEYPAD.teq witch are used in the setup menu will be displayed. (for information, these files are under :/INTFLASH/WEBPAGES/.)

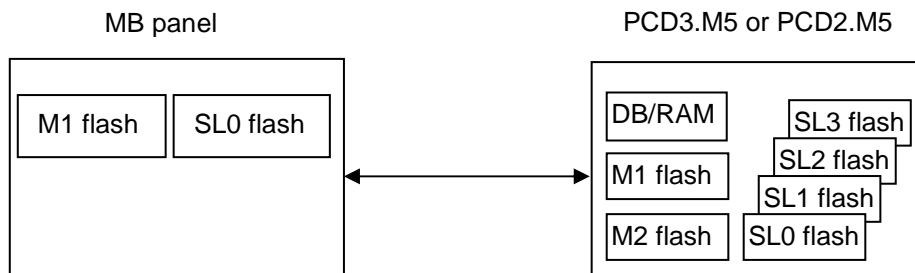
Combination of 1) and 2) → ALPHAPAD.TEQ and KEYPAD which are in the local server will are used. (see the topic 14)

### 14. General info: Local / remote server management

In the setup menu of the Micro-Browser the search order for web files can be set as follows:

- No local file search → Web files are search in the PCD web server only
- local file search before remote → first search in MB panel server
- local file search after remote → first search in PCD server

PCD3.M5 / PCD2.M5



The web files can be stored in the different memories devices. The search order within the same PCD is as follows:

- MB panel: M1 → SL0
- PCD3.M5: DB/RAM → M2 → M1 → SL0 → SL1 → SL2 → SL3
- PCD2.M5: DB/RAM → M2 → M1 (→ SL0 → SL1 → SL2 → SL3 in preparation)

## 15. Recommendations

### 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. Detail: see the TOPIC 10.
- IMasterSaia5\_xx\_xx.jar is not necessary to display web page on a MB panel.
- At the minimum the .tcr file is the only one file which must be 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.ch> → them Product info → HMI → Web-Panel PCD7.D4xxx → Additional information for Sales Companies (restricted Area)
- You don't find the right font in the list → Contact the PCD support in Murten. We are willing to help you.
- Maximum of objects (painters) by page is 256 (512 for VGA panels)
- Function "Scalable" Project configuration → scalable html: Define HTMLs that resize the HMI during runtime according to a defined factor. Scale your HMI up to 200% for example without need to change your TEQ-Views. MicroBrowser will resize the TEQ-Views at runtime if you type in the URL of your new 'scalable' HTML file instead of your standard HTML.  
Examples: Factor 2.000000 means 200% of 320 x 240 which is 640x480  
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  $\varnothing 3$  and press softly on the micro-switch.

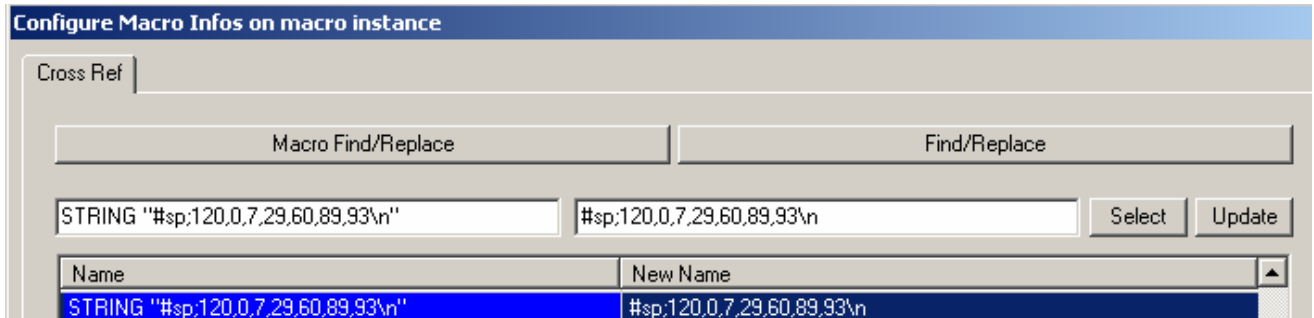


## 16. Alarming Macros Advanced

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

### MB panel screen

| ID | Alarmtext           | Time On | Time Off | ac | Cnt |
|----|---------------------|---------|----------|----|-----|
| 1  | xxxxxxxxxxxxxxxxxxx |         |          | N  | 22  |
| 2  |                     |         |          |    |     |
| 3  |                     |         |          |    |     |
| 4  |                     |         |          |    |     |

