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1. Introduction

Various parameters of the user interfaces and visualization devices of Jetter AG (in the following referred to as displays) can be modified such as number of the display unit, protocol, contrast, brightness, baud rate, etc. These parameters are accessed via menus in the display. This application note gives an overview of modifiable parameters.

2. Overview of Parameters

The following parameters can be modified on the displays:

<table>
<thead>
<tr>
<th>Display</th>
<th>Display Unit #</th>
<th>OEM</th>
<th>Language</th>
<th>Protocol</th>
<th>Access</th>
<th>Contrast Configuration</th>
<th>Characters per line</th>
<th>LED Test</th>
<th>Info</th>
<th>Interface</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCD23</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LCD25</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LCD27</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LCD34</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LCD52</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>LCD54</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LCD9</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LCD10</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LCD12</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LCD110</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LCD16</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

X: Parameter can be modified

Table 1

The LCD17 settings are described in detail in the online help of MMIEdit. Therefore, they are not described here.
2.1. Meaning of Parameters

Display #
The user interfaces and visualization devices of Jetter AG can be operated in multi-display mode (see Application Note 002). For this purpose, the number of the display unit must be modified. This is done in a menu.

OEM
When the display is switched on, the own version number appears as well as the manufacturer of the equipment / display (OEM: Original Equipment Manufacturer). The following manufacturers can be set: Jetter, Aumann, Bautz, Neff, no name, Bartec, ASA.

Language
The language of the dialogs in the menus and submenus can be set to German or English.

Protocol
Old Jetter controllers (Mikro, PASE-E) work with the old protocol (PCOM3), new Jetter controllers (PASE-E, Delta, Nano) work with the new protocol (PCOM5).

Access
Only the LCD9, LCD10 and LCD12 displays allow to activate the parameter menu of the LCD via the key combination Shift and “.” (Shift-Period). Access can be disabled or enabled.

Contrast
The contrast of the LCD display can be modified.

Configuration
A submenu can be accessed that is intended for internal use only.

No. of characters
The number of characters in the first line can be set irrespective of the actual number of characters in the first line.

LED Test
A function test of the LEDs on the function keys is performed.

Info
Information can be requested via the display software (version number of the operating system of the display and the date when this version was created, type and serial number of the display, production week, number of resets, protocol setting, language, interface format, baud rate, interface type, access)

Interface
The interface type can be set to RS422 or open collector.
3. Accessing the LCD Parameters of the LCD23

3.1. Calling the LCD Parameter Menu

To call the LCD parameter menu, press the Enter key when switching on the display. The text LCD Parameters appears on the display. Releasing the Enter key displays the first option of the main menu (Set: display no.): Scroll through the menu by pressing the arrow keys ( and ).

3.2. Menu Structure

To select a submenu, press the Enter key ( ).

3.2.1. Submenu Set: display no.

The current number of the display unit is indicated. The following options are available:

- No.: 0 single
- No.: 1 multi
- No.: 2 multi
- No.: 3 multi
- No.: 4 multi
- No.: ESC -->

Select an option by pressing the arrow keys ( and ).

- No.: 0 single → Single display mode
- No.: 1 multi → Multi display mode, number one is assigned to the LCD23
- No.: 2 multi → Multi display mode, number two is assigned to the LCD23
- No.: 3 multi → Multi display mode, number three is assigned to the LCD23
- No.: 4 multi → Multi display mode, number four is assigned to the LCD23
- No.: ESC --> → The existing setting is accepted

Confirm the new setting and return to the main menu by pressing the Enter key ( ).

3.2.2. Submenu Set: OEM

The current OEM name is displayed. The following options are available:

- Jetter, Aumann, Bautz, Neff, no name, Bartec, ASA, ESC --> (accept existing setting)

Select a new name by pressing the arrow keys ( and ), and confirm the new setting with Enter ( ). Next, the main menu appears.

3.2.3. Submenu Set: end.

Exit the LCD parameter menu by pressing the Enter key ( ). The display now performs a restart. All modified parameters are saved.
4. Accessing the LCD Parameters of the LCD25/LCD27/LCD34

4.1. Calling the LCD Parameter Menu
To call the LCD parameter menu, press the F5 key when switching on the display. The text LCD Parameters appears on the display. Releasing the F5 key displays the first option of the main menu (Set: display no.). Scroll through the menu with the F1 and F2 keys.

4.2. Menu Structure

```
Set: display no.  Set: OEM  Set: end.
```

To select a submenu, press the F5 key.

4.2.1. Submenu Set: display no.
The current number of the display unit is indicated. The following options are available:

```
No.: 0 single  No.: 1 multi  No.: 2 multi  No.: 3 multi  No.: 4 multi  No.: ESC -->
```

Select an option by pressing the F1 and F2 keys.

- No.: 0 single → Single display mode
- No.: 1 multi → Multi display mode, number one is assigned to the LCD25/LCD27/LCD34
- No.: 2 multi → Multi display mode, number two is assigned to the LCD25/LCD27/LCD34
- No.: 3 multi → Multi display mode, number three is assigned to the LCD25/LCD27/LCD34
- No.: 4 multi → Multi display mode, number four is assigned to the LCD25/LCD27/LCD34
- No.: ESC --> → The existing setting is accepted

Confirm the new setting and return to the main menu by pressing the F5 key.

4.2.2. Submenu Set: OEM
The current OEM name is displayed. The following options are available:

- Jetter, Aumann, Bautz, Neff, no name, Bartec, ASA, ESC --> (accept existing setting)

Select a new name by pressing the F1 and F2 keys and confirm by pressing the F5 key. Next, the main menu appears.

4.2.3. Submenu Set: end.
Exit the LCD parameter menu by pressing the F5 key. The display now performs a restart. All modified parameters are saved.
5. Accessing the LCD Parameters of the LCD52/LCD54

5.1. Calling the LCD Parameter Menu

To call the LCD parameter menu, press the Enter key (akin) when switching on the display. The text LCD Parameters appears on the display. Relasing the Enter key displays the first option of the main menu (Set: display no.). Scroll through the menu by pressing keys 4 (cursor left) and 6 (cursor right).

5.2. Menu Structure

To select a submenu, press the Enter key (akin).

5.2.1. Submenu: Set :display no.

The current number of the display unit is indicated. The following options are available:

Select an option by pressing keys 4 and 6.

- No.: 0 single ➞ Single display mode
- No.: 1 multi ➞ Multi display mode, number one is assigned to the LCD52/LCD54
- No.: 2 multi ➞ Multi display mode, number two is assigned to the LCD52/LCD54
- No.: 3 multi ➞ Multi display mode, number three is assigned to the LCD52/LCD54
- No.: 4 multi ➞ Multi display mode, number four is assigned to the LCD52/LCD54
- No.: ESC --> ➞ The existing setting is accepted

Confirm the new setting and return to the main menu by pressing the Enter key (akin).

5.2.2. Submenu Set: OEM

The current OEM name is displayed. The following options are available:

Jetter, Aumann, Bautz, Neff, no name, Bartec, ASA, ESC --> (accept existing setting)

Select a new name by pressing keys 4 and 6. Confirm with Enter (akin). Next, the main menu appears.

5.2.3. Submenu Set: Contrast

The current contrast setting is displayed. Modify the contrast by pressing keys 4 and 6 (min. value: 0, very bright; max. value: 30, very dark). Set a standard value of 20 (display can be read clearly) by pressing the C key. Confirm the new setting and return to the main menu by pressing the Enter key (akin).

5.2.4. Submenu: Set: end.

Exit the LCD parameter menu by pressing the Enter key (akin). The display now performs a restart. All modified parameters are saved.
6. Accessing the LCD Parameters of the LCD9/LCD10

6.1. Calling the LCD Parameter Menu
To call the LCD parameter menu, press the **shift key** when switching on the display. If the display has already been switched on and access is enabled (see chapter 6.2.6), press the **shift and “.” keys** (**shift-period**) simultaneously. The text *LCD-9 Parameters* appears on the display. Releasing the **shift key** displays the main menu.

6.2. Menu Structure
- **F1**: Language
- **F2**: Protocol and setting the number of the display unit (only when PCOM5 is selected)
- **Shift-F2**: LED Test
- **F3**: OEM
- **Shift-F3**: Information is requested via display-software
- **F4**: Access
- **F9**: Configuration
- **F12**: Exit the LCD parameter menu

The contrast is set via a potentiometer on the rear of the display.

6.2.1. F1 Submenu: *Language*
The current language is displayed. Select German or English by pressing the **arrow keys on the right side**. Confirm the new setting and return to the main menu by pressing the **Enter key**.

6.2.2. F2 Submenu: *Protocol*
The current protocol setting is displayed. The following protocols are available:

```
JETTER PASE-E V5.x Multi
P-SPS ab Okt. 1991
PCOM5 ab 96
Auto PCOM3/91-PCOM5/96
```

(ab = starting from)
Select an option by pressing the **arrow keys on the right side**. When you select the PCOM5 protocol, you need to enter the number of the display unit. The values range from zero (single display mode) to four (multi display mode). A number unequal zero represents the number of the display unit in multi display mode. Confirm the new setting and return to the main menu by pressing the **Enter key**.

6.2.3. Shift-F2 Submenu: *LED Test*
Switch the LEDs on the function keys on/off by pressing **function keys F1 through F12**. Exit the submenu and return to the main menu by pressing the **Enter key**.

6.2.4. F3 Submenu: *OEM*
The current OEM name is displayed. The following options are available:

Jetter, Aumann, Bautz, Neff, no name, Bartec, ASA

Select a new name by pressing the **arrow keys on the right side** and confirm with **Enter**. If you want to return to the previous name, clear the new selection by pressing the **C key**. Next, the main menu appears.
6.2.5. Shift-F3 Submenu: *Info*

*Software* is displayed for a short time only. Next, the following information is displayed:

- Version number of the operating system of the display and the date when this version was created
- Type and serial number of the display
- Production week
- Number of resets
- Protocol setting
- Language
- Interface format (standard: 8E1)
- Baud rate (standard: 9600)
- Interface type (standard: open collector)
- Access (standard: access possible)

Advance from one item to the next by pressing the *Enter key*. Abortion is not possible. This function only serves to display information. Modifications are not possible.

6.2.6. F4 Submenu: *Access*

LCDs 9 and 10 offer the possibility to access the LCD parameter menu by pressing the key combination *Shift-“.”* (*shift-period*) but only when the LCD is switched on. This access can be disabled or enabled in this submenu by pressing the *arrow keys on the right side*.

6.2.7. F9 Submenu: *Configuration*

A submenu can be accessed that is intended for internal use only.

6.2.8. F12 Submenu: *end*

Exit the LCD parameter menu by pressing the *F12 key*. The display now performs a restart. All modified parameters are saved.
7. Accessing the LCD Parameters of the LCD12

7.1. Calling the LCD Parameter Menu
To call the LCD parameter menu, press the **shift key** when switching on the display. If the display has already been switched on and access is enabled (see chapter 7.2.7), press the **shift and “.” keys** (shift-period) simultaneously. The text **LCD-12 Parameters** appears on the display. Releasing the **shift key** displays the main menu.

7.2. Menu Structure
- **F1**: Language
- **Shift-F1**: Contrast setting
- **F2**: Protocol and setting the number of the display unit (only when PCOM5 is selected)
- **Shift-F2**: Number of characters per line
- **F3**: OEM
- **Shift-F3**: Information is requested via display-software
- **F4**: Access
- **Shift-F4**: Configuration
- **R**: Exit the LCD parameter menu

The contrast is set via a potentiometer on the rear of the display.

7.2.1. F1 Submenu: Language
The current language is displayed. Select German or English by pressing the **arrow keys**. Confirm the new setting and return to the main menu by pressing the **Enter key**.

7.2.2. Shift-F1 Submenu: Contrast Setting
The current contrast setting is displayed. Set the value between zero (very bright) and one hundred (very dark) by pressing the **arrow keys** and confirm the setting with **Enter**. If you want to return to the previous value, clear the new value by pressing the **C key**. Next, the main menu appears.

7.2.3. F2 Submenu: Protocol
The current protocol setting is displayed. The following protocols are available:

```
P: SPS ab 92  PCOM5 ab 96  Auto
```

(\text{ab = starting from})

Select an option by pressing the **arrow keys**.
When you select the PCOM5 protocol, you need to enter the number of the display unit. Select an option by pressing the **arrow keys**. The values range from zero (single display mode) to four (multi display mode). A number unequal zero represents the number of the display unit in multi display mode.
Confirm the new setting and return to the main menu by pressing the **Enter key**.

7.2.4. Shift-F2 Submenu: Number of characters per line
The first line of the LCD12 has 16 characters. The LCD12 can be set in a way that the first line behaves as if it had 24 characters. This allows that the display can be operated with control systems that were previously connected to displays with 2 x 24 characters. Characters 17 to 24 will then get lost.
To set at which character the second line is to start, press the two **arrow keys**:
at character 17 (the first line has 16 characters) or at character 25 (the first line has 24 characters).
7.2.5. F3 Submenu: OEM

The current OEM name is displayed. The following options are available:

Jetter, Aumann, Bautz, Neff, no name, Bartec, ASA

Select a new name by pressing the arrow keys and confirm with Enter. If you want to return to the previous name, clear the new name by pressing the C key. Next, the main menu appears.

7.2.6. Shift-F3 Submenu: Info

Software is displayed for a short time only. Next, the following information is displayed:

- Version number of the operating system of the display and the date when this version was created
- Type and serial number of the display
- Production week
- Number of resets
- Protocol setting
- Language
- Interface format (standard: 8E1)
- Baud rate (standard: 9600)
- Interface type (standard: open collector)
- Access (standard: access possible)

Advance from one item to the next by pressing the Enter key. Abortion is not possible. This function only serves to display information. Modifications are not possible.

7.2.7. F4 Submenu: Access

The LCD12 offers the possibility to access the LCD parameter menu by pressing the key combination Shift-. (shift-period) but only when the LCD is switched on. This access can be disabled or enabled in this submenu with the two arrow keys.

7.2.8. Shift-F4 Submenu: Configuration

A submenu can be accessed that is intended for internal use only.

7.2.9. R Submenu: end

Exit the LCD parameter menu by pressing the R key. The display now performs a restart. All modified parameters are saved.
8. Accessing the LCD Parameters of the LCD110

The LCD110 can be operated both with a RS422 interface and with an open collector interface. Therefore, the interface type need not be changed.

8.1. Calling the LCD Parameter Menu

To call the LCD parameter menu, press the F5 key when switching on the display. The text LCD Parameters appears on the display. Releasing the F5 key displays the first option of the main menu (Set: display no.). Scroll through the menu with the F1 and F2 keys.

8.2. Menu Structure

8.2.1. Submenu Set: display no.

The current number of the display unit is indicated. The following options are available:

Select an option with the F1 and F2 keys.

No.: 0 single ➔ Single display mode
No.: 1 multi ➔ Multi display mode, number one is assigned to the LCD52/LCD54
No.: 2 multi ➔ Multi display mode, number two is assigned to the LCD52/LCD54
No.: 3 multi ➔ Multi display mode, number three is assigned to the LCD52/LCD54
No.: 4 multi ➔ Multi display mode, number four is assigned to the LCD52/LCD54
No.: ESC --> ➔ The existing setting is accepted

Confirm the new setting and return to the main menu by pressing the F5 key.

8.2.2. Submenu Set: OEM

The current OEM name is displayed. The following options are available:

Jetter, Aumann, Bautz, Neff, no name, Bartec, ASA, ESC --> (accept existing setting)

Select a new name with the F1 and F2 keys and confirm by pressing the F5 key. Next, the main menu appears.

8.2.3. Submenu Set: char/line

The LCD110 has 20 characters per line and serves as replacement for the LCD11, which is not available anymore and had 21 characters per line. If the LCD110 was directly used as replacement for the LCD11, the 21st character would appear in the second line and the entire text of the second line would be shifted to the left by one character. To avoid this, the LCD can be set in such a manner that the first line behaves as if it had 21 characters. In this case, the 21st character gets lost.
In the Set submenu: char/line, the current number of characters per line is indicated first. The following options are available:

- **Char: 20 char/line**
- **Char: 21 char/line**
- **Char: ESC -->**

Select a new number of lines by pressing the **F1 and F2 keys** and confirm by pressing the **F5 key**. **ESC -->** cancels the new setting and returns to the previous setting. Next, the main menu appears again.

### 8.2.4. Submenu Set: protocol

The current protocol setting is displayed. The following protocols are available:

- **Prot: PCOM5 (new)**
- **Prot: PCOM3 (old)**
- **Prot: ESC -->**

Select a new protocol by pressing the **F1 and F2 keys** and confirm by pressing the **F5 key**. **ESC -->** cancels the new setting and returns to the previous setting. Next, the main menu appears again.

### 8.2.5. Submenu Set: end

Exit the LCD parameter menu by pressing the **F5 key**. The display now performs a restart. All modified parameters are saved.

### 9. Accessing the LCD Parameters of the LCD16

#### 9.1. Calling the LCD Parameter Menu

To call the LCD parameter menu, press the **F5 key** when switching on the display. The text **LCD-16 Parameters** appears on the display. Releasing the **F5 key** displays the main menu.
9.2. Menu Structure

- **F1: Language**
  - F1: ESC
  - F2/F3: Select
  - F5: Save

- **F1: Interface/Mode**
  - F1: Interface
  - F2/F3: Select
  - F5: Save

- **F2: Configuration**
  - F2: OEM
    - F2/F3: Select
    - F5: Save

  - F3: Baudrate
    - F2/F3: Select
    - F5: Return

  - **F2: Interface**
    - F1: ESC
    - F2/F3: Select
    - F5: Save

  - **F3: Brightness**
    - F1: ESC
    - F2/F3: Change
    - F5: Save

  - **F4: Contrast**
    - F1: ESC
    - F2/F3: Adjust
    - F5: Save

- **F4: Setup**
  - F4: Protocol
    - F2/F3: Select
    - F5: Save

- **F5: End**
  - F5: Return
9.2.1. F1 Submenu: Language

The current language is displayed. Select German or English by pressing the F2 and F3 keys. If you want to return to the previous setting, cancel the new setting by pressing the F1 key. Confirm the new setting and return to the main menu by pressing the F5 key.

9.2.2. F1 Submenu: Protocol

The current protocol is displayed. Select one of the following protocols by pressing the F2 and F3 keys:

<table>
<thead>
<tr>
<th>Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-SPS ab 92</td>
</tr>
<tr>
<td>PCOM5 ab 98</td>
</tr>
<tr>
<td>Auto PCOM3/91-PCOM5996</td>
</tr>
</tbody>
</table>

If you want to return to the previous protocol, cancel the new setting by pressing the F1 key. Confirm the new setting by pressing the F5 key and return to the F1 submenu Interface/Mode.

9.2.3. F2 Submenu: Interface

The current interface setting is displayed. Select one of the following interfaces by pressing the F2 and F3 keys:

<table>
<thead>
<tr>
<th>Interface</th>
</tr>
</thead>
<tbody>
<tr>
<td>open collector</td>
</tr>
<tr>
<td>V24 - 1</td>
</tr>
<tr>
<td>V24 - 2</td>
</tr>
<tr>
<td>RS422</td>
</tr>
<tr>
<td>RS485</td>
</tr>
</tbody>
</table>

If you want to return to the previous interface setting, cancel the new setting by pressing the F1 key. Confirm the new setting and return to the F1 submenu Interface/Mode by pressing the F5 key.

9.2.4. F3 Submenu: Baud Rate

The current baud rate is displayed. Select one of the following baud rates by pressing the F2 and F3 keys:

- 300
- 600
- 1200
- 2400
- 4800
- 9600
- 19200
- 38400

If you want to return to the previous baud rate, cancel the new setting by pressing the F1 key. Confirm the new setting and return to the F1 submenu Interface/Mode by pressing the F5 key.

9.2.5. F2 Submenu: OEM

The current OEM name is displayed. Select one of the following OEM names by pressing the F2 and F3 keys:

Jetter, Aumann, Bautz, Neff, no name, Bartec, ASA
If you want to return to the previous name, cancel the new name by pressing the F1 key. Confirm the new setting and return to the F2 submenu Configuration by pressing the F5 key.

9.2.6. F4 Submenu: Setup

The two F1 submenus: KBD1 and F2: INC1 are intended for internal use only. In the F3 submenu LED Test, the LEDs on the function keys can be switched on/off by pressing function keys F1 through F5. Exit the submenu and return to the F4 submenu Setup by pressing the F5 key.

9.2.7. F3 Submenu: Brightness

The current brightness of the background lighting is displayed. The brightness can be set between zero (no background lighting) and hundred percent (full background lighting) by pressing the F2 and F3 keys. If you want to return to the previous brightness, cancel the new setting by pressing the F1 key. Confirm the new setting and return to the main menu by pressing the F5 key.

9.2.8. F4 Submenu: Contrast

The current contrast value is displayed. The contrast can be set between zero and fifty by pressing the F2 and F3 keys. If you want to return to the previous contrast value, cancel the new setting by pressing the F1 key. Confirm the new setting and return to the main menu by pressing the F5 key.

9.2.9. F5 Submenu: End

Exit the LCD parameter menu by pressing the F5 key. The display now performs a reset. All modified parameters are saved.