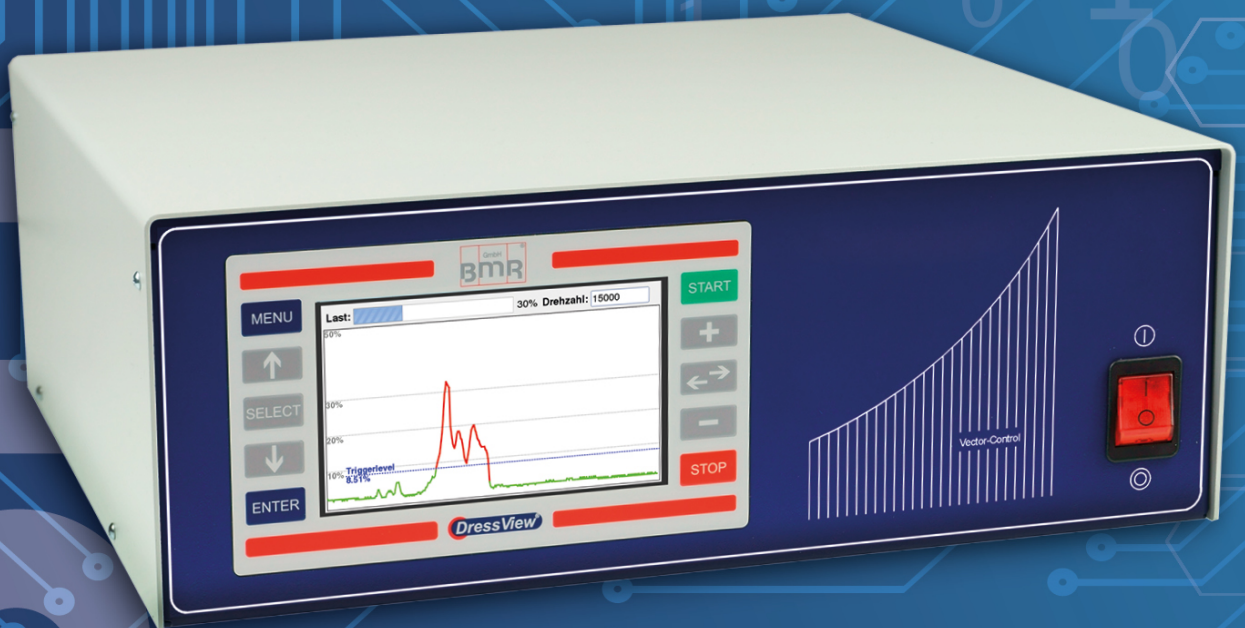




The Sign of Quality  
Made in Germany

# DressView®

Abrichtsysteme  
Dressing Systems





**HIGH QUALITY**

**100%**

**MADE IN  
GERMANY**



**EXCELLENT SERVICE**

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Issue March 2017

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## 1 Introduction - Overview

In the abrasive industry grinding tools are worn or dull after a certain process time and cannot thus guarantee the precision in machining. In this case, they must be brought in form or sharpened again, which is called "dressing".

This dressing is generally a very important feature because it is controlling directly the quality of the product but on the other hand a lot of process time is lost. The goal is to produce always the most accurate surface precision and simultaneously remove as little material as possible.

When dressing, there are two basic methods, first the use of stationary dressing tools and second the use of rotating tools.

For highest accuracy mostly the latter method is used, and is supported for reconsideration increasing the precision usually also through the use of sensor systems subject. In this case, sensors are installed in the spindle that are connected to an additional electronic evaluation system.

The **DressView**<sup>®</sup> system is a completely new and innovative system and takes a different path. It works without sensors and yet allows process precisions of 1- 2 microns, and is thus in a similar capacity range as sensor-prone systems.

The **DressView**<sup>®</sup> system of BMR works together with frequency converters of BMR and dressing spindles in mounting 33mm to 72mm and is available in two different versions and performance classes. For capacities up to 3 kW its available as DressView-0303 and for lower power ratings up to 400VA as DressView-0200. Moreover, both versions are also available in two versions even as a desktop unit and also as cabinet solution.

The integrated solution in a desktop version includes the drive and the DressView system along with the LCD so it is immediately ready for connection.

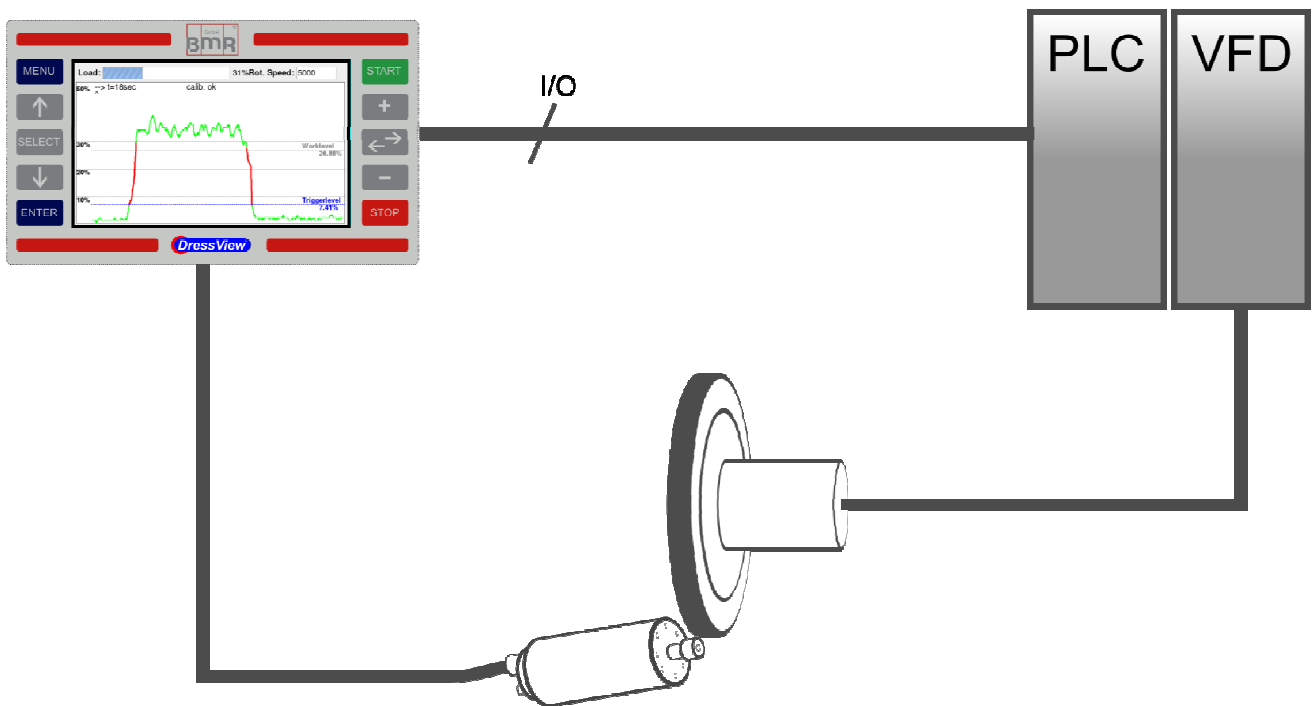
The separate version as DressView-SSE is particularly suitable for use in control cabinets. Here the BMR drive and the DressView dock for **DressView**<sup>®</sup> is then installed. All signals from and to the PLC are wired here and DressView display can be mounted directly on the machine. Only a slim cable as "umbilical cord" is then connected with the docking station and the drive.

A characteristic control signal is derived, and graphically presented on a LCD display from the operation of the spindle. For signal output to the PLC in each case a limit value for signal detection and, in addition, a higher one can be set to a potential crash detection.

The DressView<sup>®</sup> system is easily operated and adjusted via laterally arranged membrane keys. Various settings can be made for the dressing process, such as the afterglow of last measurement processes as silhouettes, the time base of the representation or the scaling of the display

For communication with the PLC 3 digital inputs, 3 digital outputs and one analog output are available. About them the system can be started and the current status are displayed. The analog output is directly from the measurement signal of the dressing.

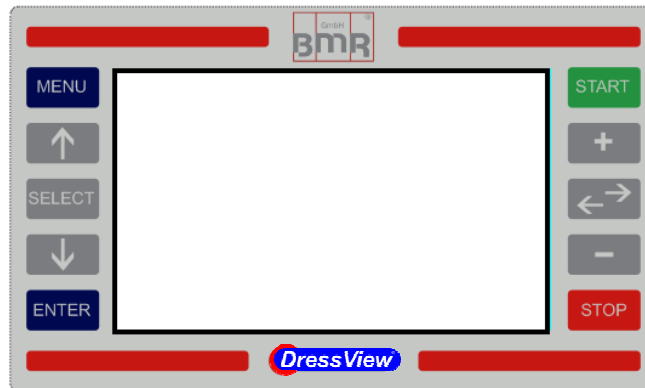
With this system it is BMR succeeded in creating a bridge between the existing concepts and to combine the best of both worlds. It is a system with a very high resolution with modest cost and low follow-up costs because standard spindles can be used, because the spindle is the sensor.



## 2 Key Functions

### Display Control

1  
2  
3  
4  
5



### Spindle Control

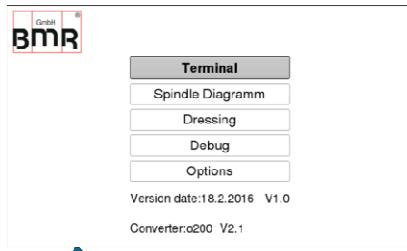
6  
7  
8  
9  
10

Number	Key	Function
1	MENU	jump one level ahead , back, Open menu
2	↑	Increase value or shifts up (graph menu)
3	SELECT	Jump to the next selectable item
4	↓	Reduce value or shifts down (graph menu)
5	ENTER	confirms a selection
6	START	Spindle Start
7	+	To increase speed of spindle
8	↔	Selects digit, where speed value is to be changed (100, 1.000 or 10.000 digit)
9	-	To reduce speed of spindle
10	STOP	Spindle Stop

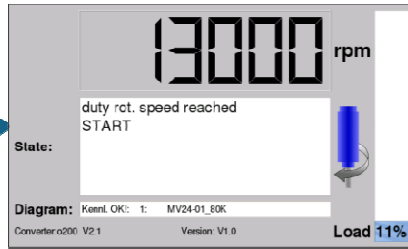
In case it is not selected the Terminal- or Dressing Menu, there is the possibility to jump back to the Terminal Menu with the keys of "Spindle Control" in order to start, stop the spindle or change it's rotational speed

### 3 Menu Structure

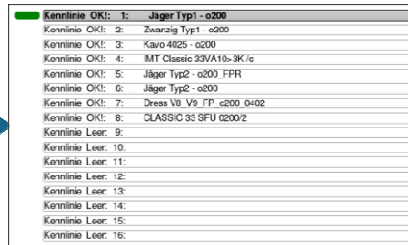
Main Menu



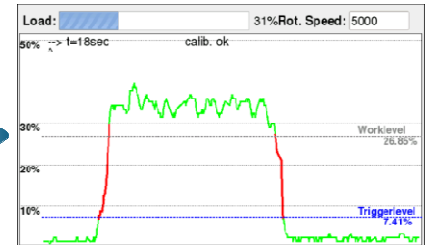
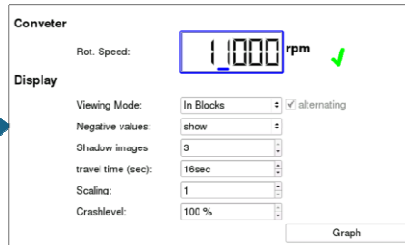
Terminal-Menu



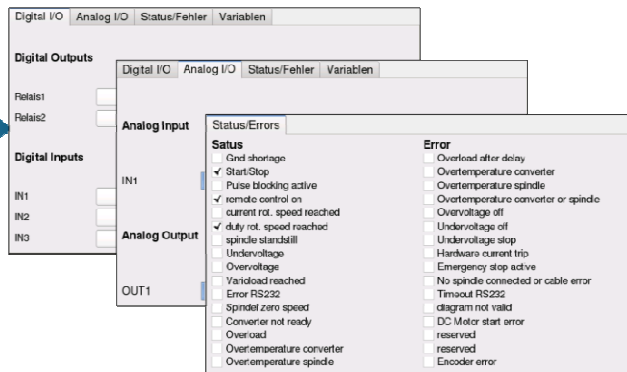
Spindle Characteristics



Dressing-Menu



Debug-Menu

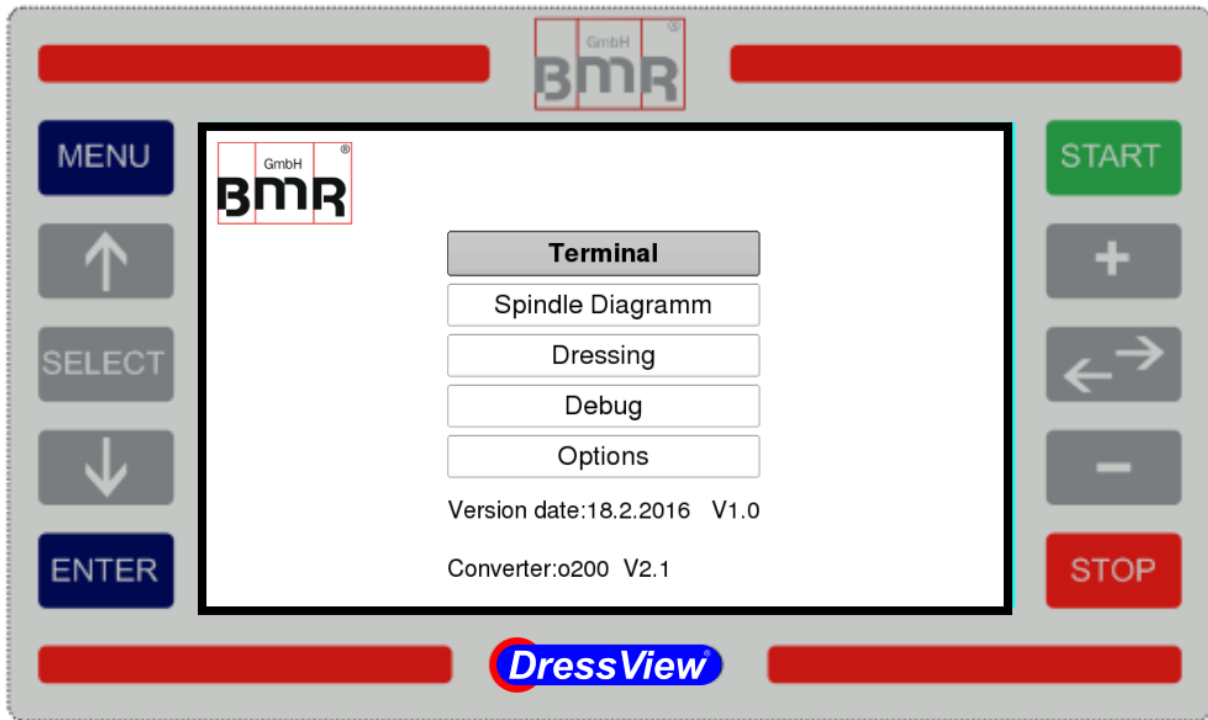


Setup-Menu





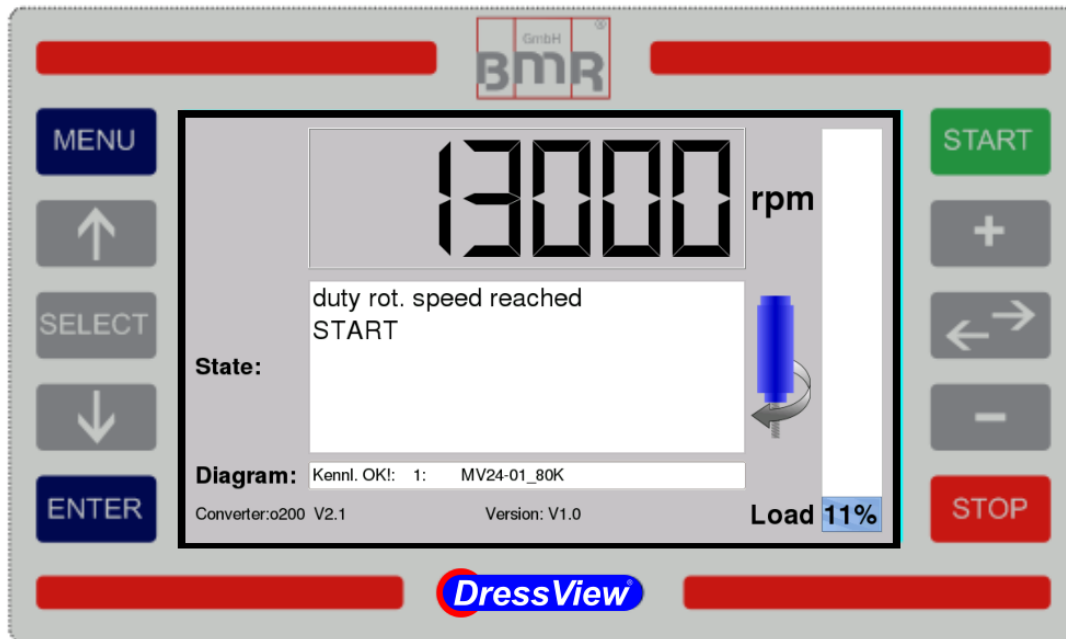
### 3.1 Main Menu



In the Main Menu all functions of the *DressView*<sup>®</sup>-system can be accessed. Moreover it shows the date and number of version, the type of converter being connected and it's number of firmware version.

This menu can be accessed by actuating the **MENU**-key one or several times.

## 3.2 Terminal-Menu



The Terminal-Menu is the window where all basic functions of the converter can be controlled. With the Keys "**START**", "**STOP**", "+", "-" and "**double arrow**" it is possible, to start and stop the spindle and to set up it's rotational speed. Furthermore the current status messages of the converter are displayed, such as selected characteristic, direction of rotation and load status. If an error appears it will be displayed in the status area, whose background then turns red.

### 3.2.1 Adjusting the rotational speed of the spindle

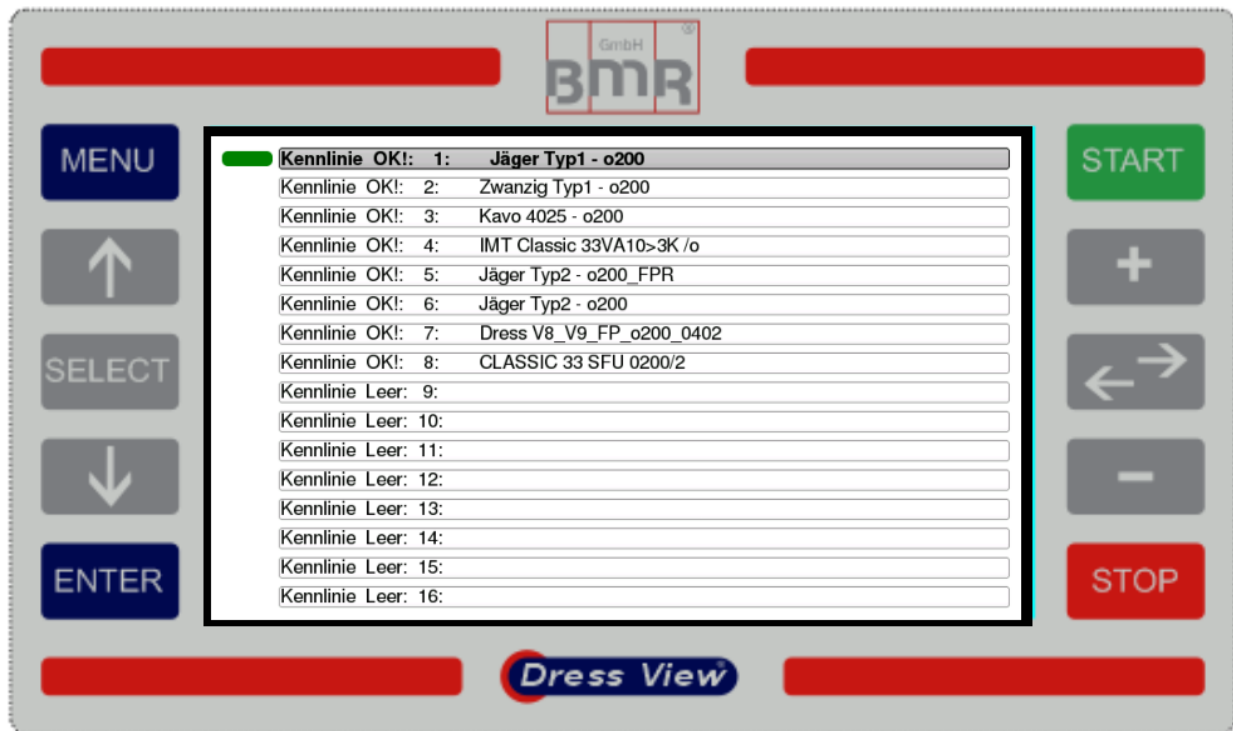
Adjusting the rotational speed is carried out with the "+" and "-" spindle control keys located to the right of the display. The speed will not change with the first hit, for safety reasons, but enables the function.

After that, the background colour of this field changes into white. Additionally the range of speed being possible with this spindle is displayed in the **Status**-field

With pressing on "+" or "-" the digit being indicated with a blue underscore can be adjusted. The selection of the according digit in the range of 100, 1.000 or 10.000 value can be carried out with the Double arrow-key.

**Enter** confirms this setting and applies the rotational speed

### 3.3 Characteristic-Menu



To change the current selected spindle characteristic or list all available characteristics, it has to be moved to the Main-Menu by pressing **MENU**. Being there, it has to be navigated with the **SELECT** or **Arrow Keys** to the point "**Characteristic Selection**" and confirmed with **ENTER**.

After that, a list of all characteristics being stored in the converter will be uploaded and displayed. The current selected characteristic is marked with a **green box**.

#### 3.3.1 Selection of a characteristic

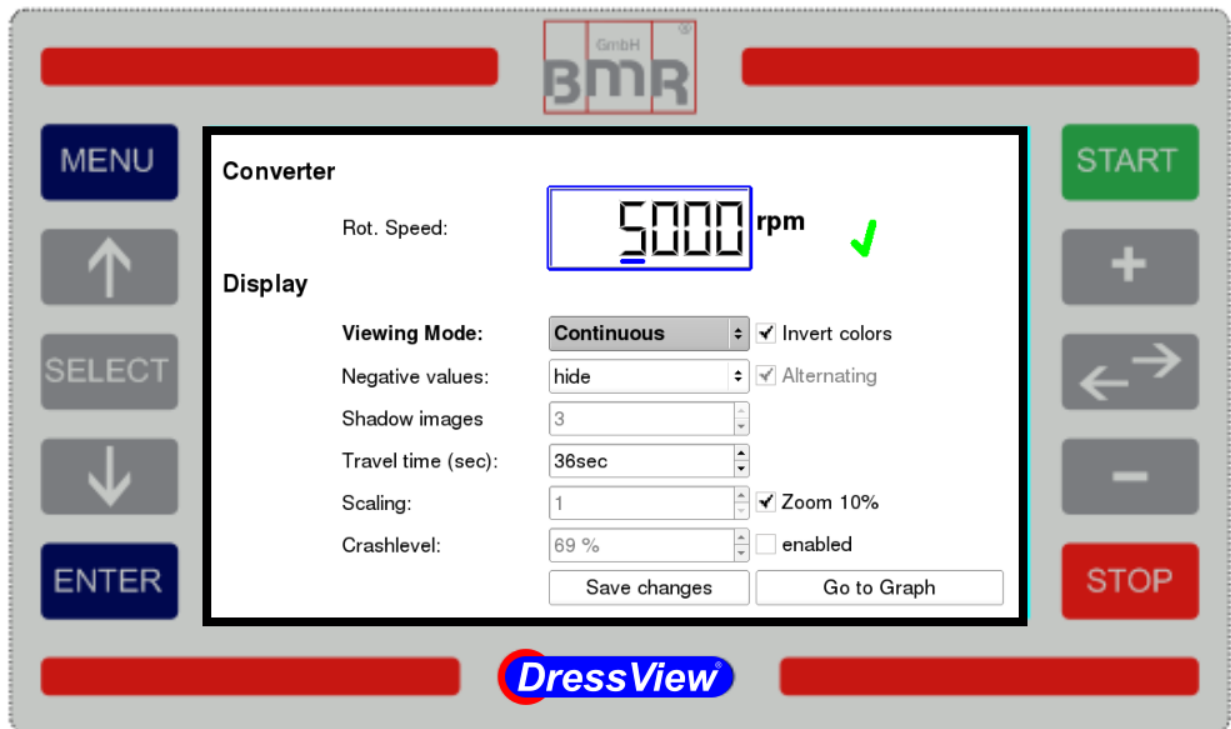
To select a certain characteristic to be used in the inverter, in the characteristics menu it has to be moved to the respective characteristic with the **Arrow** or **SELECT** Keys and finally this selection has to be confirmed with **ENTER**.

Depending on the type of converter, it will be carried out a reset on the converter, which takes around 3s. Within this time no further setup is possible

## 3.4 Dressing-Menu

In case it is intended to carry out a dressing with the system, it has to be moved from the current window to the Main-Menu with the **MENU**-Key and the menu point **Dressing** to be selected. From there it is entered the **DressView®**-configuration menu.

### 3.4.1 DressView-Configuration menu



In the **DressView®**-Configuration menu all basic settings of the dressing window can be set up being required in advance for dressing operation. All settings will be saved and after reentering automatically reloaded.

#### 3.4.1.1 Adjusting the rotational speed

With pressing on "+" or "-" the digit being indicated with a blue underscore can be adjusted. The selection of the according digit in the range of 100, 1.000 or 10.000 value can be carried out with the Double arrow-key.

**START**, **Save-Button** or leaving the window confirms this setting and applies the rotational speed

In case that the current setting is equal to the setting of the converter, along side of the speed field will be placed a **check symbol** in green and the READY output OUT1 is switched to LOW. Precondition for entering the Ready state again, is carrying out a calibration while the spindle is running with pressing on **SELECT** or by remote.

### 3.4.1.2 Display mode / changing the function

The display mode field can be entered with pressing on the **SELECT**-key. The respective setting between "Continuous", "In Blocks" or "Controlled" can be selected with ↑ and ↓

Display Mode	Behaviour	Use
Continuous	The display runs continuously. In case the graph exceeds the trigger level, it is output on OUT3	Manual operation
In Blocks	The display runs continuously. As soon as the graph reaches the display border, it restarts and continues. Possibility for enabling shadow lines for the last 3 graphs. Output function same as with Continuous mode.	Semi automatized procedure with fixed time base and constant feed
Controlled	Similar to "InBlocks". Display starts if a start signal is detected at IN3. As soon as a further signal is detected, the graph runs back or restarts, even if the display border is not reached, yet.(siehe 2.4.1.3)	Full automatized operation

### 3.4.1.3 Alternating

This option is only available in "Controlled" Mode.

In case it is selected, the graph runs from left to right and reverses the direction with reaching the display border or with repetition of the start signal.

It is displayed the direction of movement and if display is active or in a wait state. (see 2.4.2).

#### **3.4.1.4 Invert colors**

This checkbox inverts the colors of the dressing window. The background color changes to black respectively dark grey and the text color to white.

#### **3.4.1.5 Negative values**

This Option could set to "show" and "hide".

At counter direction dressing the option "hide" should be chosen, because only positive values occur. If the values falls below 0% (through omission of a coolant jet or prolonged running of the spindle), the line is limited to 0%.

At synchronous dressing, the option "show" can be selected, as there only negative values can occur during the dressing process. Important here is zeroing at idle, but with restricting factors such as Coolant jets. (see 3.4.2.1)

#### **3.4.1.6 Shadow or Ghost images**

This function is only available in the display modes "In Blocks" and "Controlled"

Up to 3 previous graphs can be displayed as gray lines behind the current colored one. With reaching the number of lines being setup, the oldest line is deleted.

#### **3.4.1.7 Time base**

This is the setting of the time which the regulation value takes to run on the display once (see 2.4.2) , equal to the feed rate of the dressing spindle across the grinding tool. The default value is 10s and can be adjusted between 3 to 60s.

#### **3.4.1.8 Automatic scaling the time base**

The system has the possibility, to adjust the time base of the display according to the feed rate across the work space of the workpiece.

To achieve this, the "Controlled" mode has to be selected and the work space has to be covered in the teach-in mode one time.

The teach-in mode is activated with applying a HI-signal to the inputs IN2 and IN3 simultaneously, and as start point is defined as the left border of the display.

As soon as this signal is switched to LO, it marks the end of the work space and defines the elapsed time as right hand border.

Now the width of the display is calibrated according to the elapsed time of feeding across the work space.

### 3.4.1.9 Scaling

With this setting it is possible, to spread the display range of the dressing display  
 By default this value is 1, representing a display range of 0-100%

Scaling	Value
1	0 - 100 %
2	0 - 50 %
3	0 - 35 %
4	0 - 25 %
5	0 - 20 %
6	0 - 15 %

**Important:** The accuracy is not affected by this, but it is simply spread the measurement value

Higher values of scaling give the opportunity to setup the trigger level with a finer grade

### 3.4.1.10 Zoom 10%

If Zoom 10% is selected, the scaling option turns gray and is disabled for interaction.

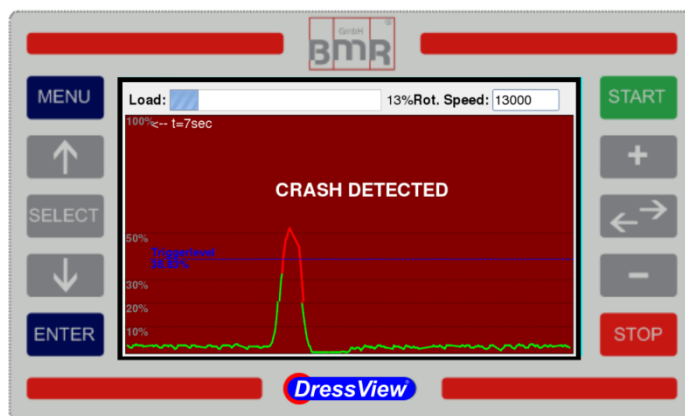
Now the dressing scaling is very sensitive in the range till 10%. From there till 50% its damped to fit on the screen.

This setting is suitable for very precise contact detection followed by a fast dressing process, but also if a universal setting for different working processes in one go is needed.



### 3.4.1.11 Crash level

The Crash level is the value where the **DressView**® system detects a crash event because of machine or operating failures.



This value can be adjusted in the range from 0 to 100% of the measure value

This function is not activated at once with moving to the dressing window (see 2.4.1.9), but only after having carried out a calibration (see 2.4.2.1).

As soon as the system has detected that the measure value has exceeded the crash level, the display will be coloured into red and the message "Crash detected" is displayed.

Additionally the **READY-** output **OUT1** is switched to LOW

### **Acknowledging of the event**

The error message can be acknowledged by several possibilities:

1. Stopping the spindle with **STOP**-Key or applying a signal on input **IN1**
2. Actuating the **ENTER**-Key

### **Important**

With acknowledging the error message with the **ENTER**-Key the **READY-** output **OUT1** is switched immediately on HIGH. A recalibration is not necessary

In difference to acknowledging with **STOP** or via **IN1**, where the spindle stops, it has to be carried out a calibration as usual after a restart.

### **3.4.1.12 enabled**

Activates or deactivates the crashdetection.

### **3.4.1.13 Save changes**

Immediately after a value was changed, the "Save changes" button appears. When selecting the button with SELEC and activate it with ENTER, all data will be stored in the device and will be available after power off. The data will also be saved, if you leave this window.

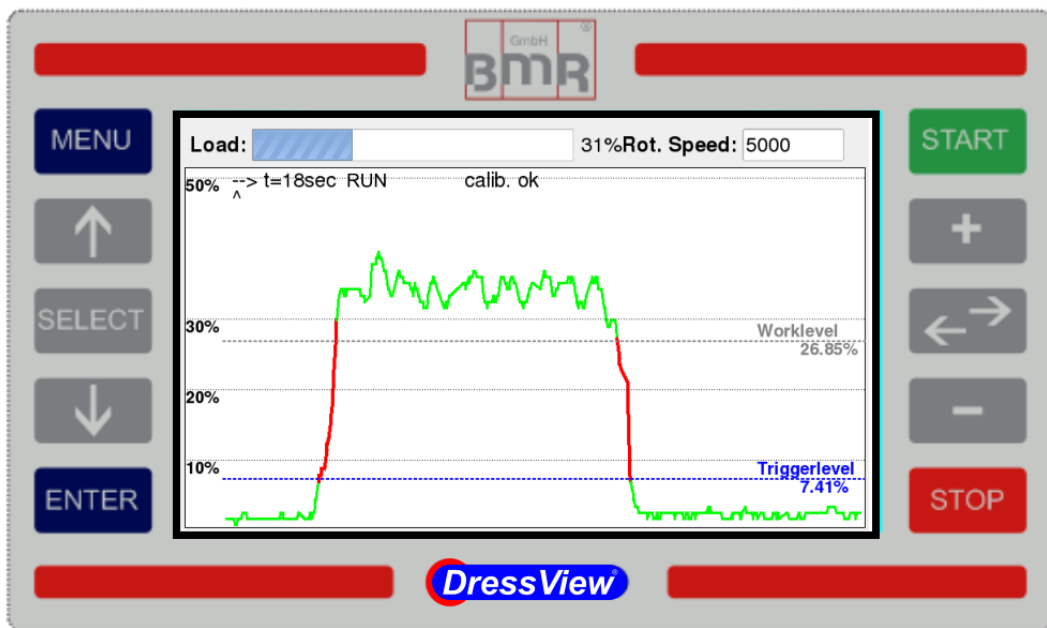
### **3.4.1.14 Graph-Button**

After entering the Graph-Button (see Pic. 2.4.1) and pressing **ENTER** the Dressing-Menu is opened, where the **DressView**<sup>®</sup> regulation value is displayed as graphic.

By leaving this menu, all the selected settings are stored.



### 3.4.2 Dressing



The Dressing window shows:

**Load:** Displaying the current load of the converter

**Rotational speed:** current setting of the rotational speed

(--> / <--): Feed direction via the screen.

( ^ / v ): Arrow direction indicates whether it hold the value in positiv ( ^ ) or negative territory ( v ). Negative values are achieved at synchronous dressing, since there the dressing spindle can be accelerated.

**t:** Time base of the display representing the feed time (see 2.4.1.4) Additionally displaying the feed direction and the indication of "RUN" or "STOP" state ( in "Controlled mode, only)

**Spindlestate:** "Standstill"  
"Starting"/"Stopping"  
"rpm OK"

**Calibrationstatus:** "calib. ok" or "not calib." indicates whether the system has been zeroed/calibrated or not.

**Worklevel:** Thresold above which the dressing process takes place

**Trigger level:** Level which represents contact detection (see 2.4.2.1)  
*Grafic:* Graph, which draws the regulation value of the converter as measure of its load state

### 3.4.2.1 Basics

In advance of the dressing operation the items below have to be regarded:

1. **Starting the spindle**  
After a long time standstill of the spindle, it has to be carried out a warm up procedure according its specifications (min. 10 Min)
2. **System calibration (Zeroing) with SELECT or IN2**  
Important: This has to be carried out after every change of speed and in advance of feeding across the grinding wheel to be dressed, by using the **SELECT**-key or input **IN2**. If coolant is sprayed onto the dressing spindle while dressing, this must also be calibrated out.
3. Adjusting the **Trigger- and Worklevel** to the required value with **↑** and **↓** keys

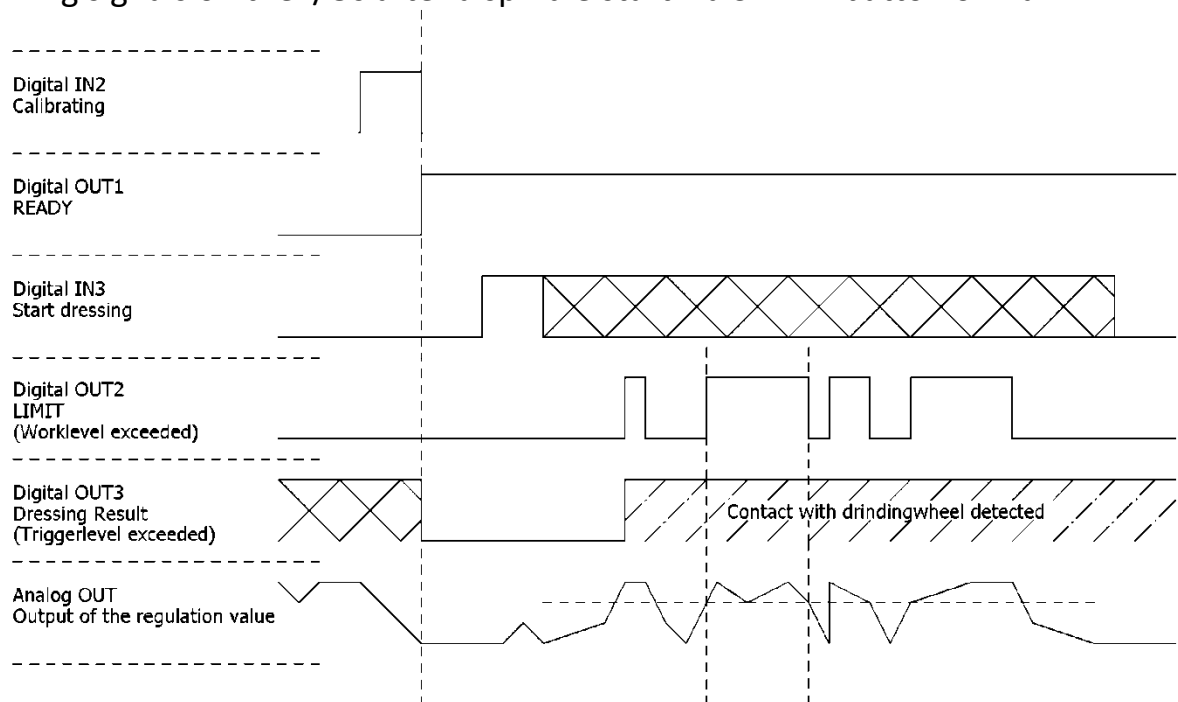
If the dressing spindle is strained (comes into contact with the grinding wheel), the regulation value of the converter increases accordingly. In case the load increases further, it may exceed the **Trigger level**.

The **Trigger level** represents a threshold, where the system detects a cutting event and the **worklevel** which helps to qualify the dressing result. This level has to be adjusted and setup by the operator according to the application .

As soon as the Trigger level is exceeded, the **regulation value graph** beyond the limit changes the colour from green to red or from grey to black in case of shadow images are activated.

### 3.4.2.2 Behaviour of the inputs and outputs

In case that the system is operated in the "Controlled" mode, it needs/delivers the following signals on the I/Os after a spindle start via **START**-button or via **IN1**:



After the speed is confirmed, this is indicated with a green check-symbol in the speed field of the Configuration-window.

With the **SELECT**-key or by remote via **IN2** the system is calibrated (zeroed). By this the output **OUT3** is resetted also, which might has been set by a previous dressing cycle.

After that, the system is ready for a dressing cycle, which is indicated at the output **OUT1** as a LOW state.

With applying a HI to **IN3**, the system starts drawing the regulation value. The display continues drawing, even if **IN3** is reset, but as soon as the border of the display is reached, it will stop.

If **IN3** is set again while drawing is active, it restarts drawing or it changes the direction of drawing in case the **Alternating** mode is selected (siehe 2.4.1.3).

As soon as the Trigger-level is exceeded, **OUT2** is set and at the first time of this event **OUT3** is set additionally.

**Hint:** If operating in the modes "**Continuously**" and "**In Blocks**" there is no output for "**Dressing result**" on **OUT3**, because it cannot be decided if a new dressing cycle is initiated. Additionally there is no reaction on signals at input **IN3** "**Dressing start**".

### 3.5 Debug-Menu

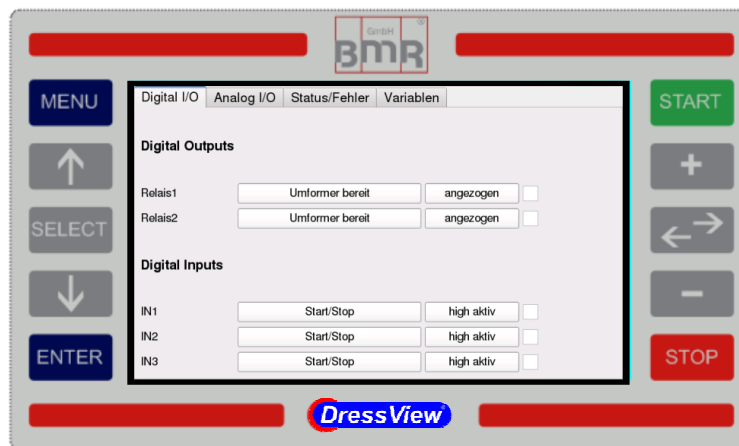
The debug menu gives the opportunity to read out and check several parameters of the spindle controlling converter. This is helpful in case of troubleshooting or checking a connected PLC.

The parameters are:

1. Digital inputs and outputs
2. Anloge inputs and outputs
3. Status- and error messages

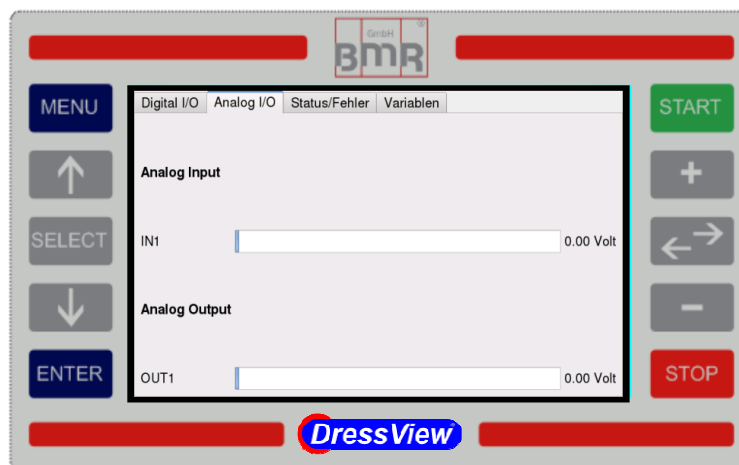
With the **SELECT**-key it can be switched between the 3 tabs alternately.

#### 3.5.1 Digital inputs and outputs



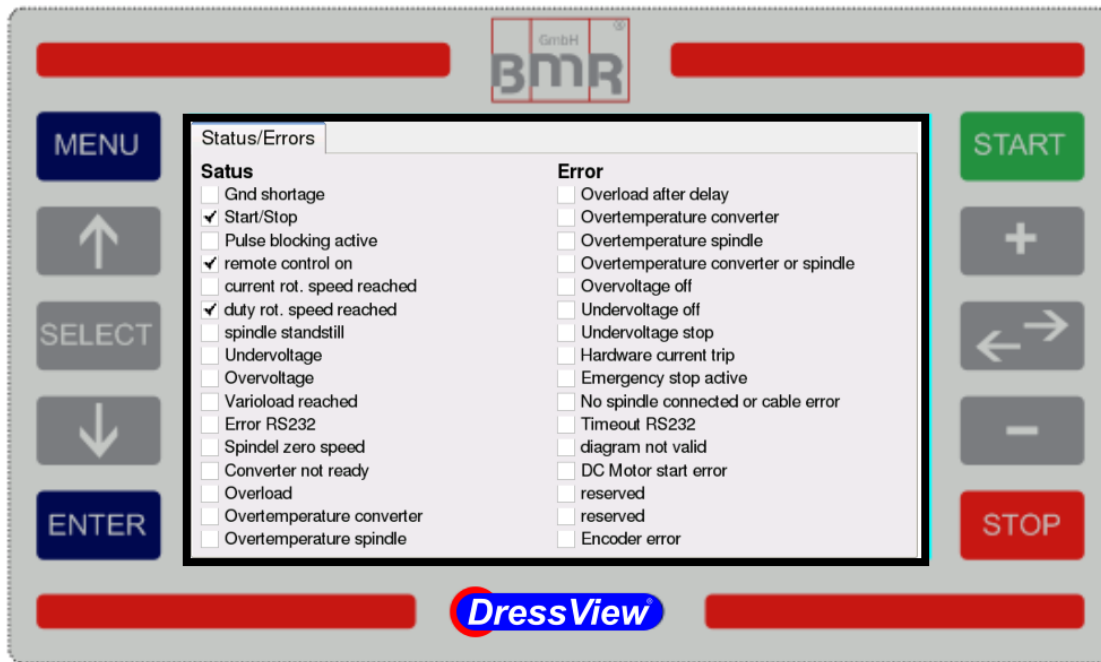
This window displays all digital I/Os of the converter with it's function and it's current state. (this window will be provided by a later update)

#### 3.5.2 Analogue inputs and outputs



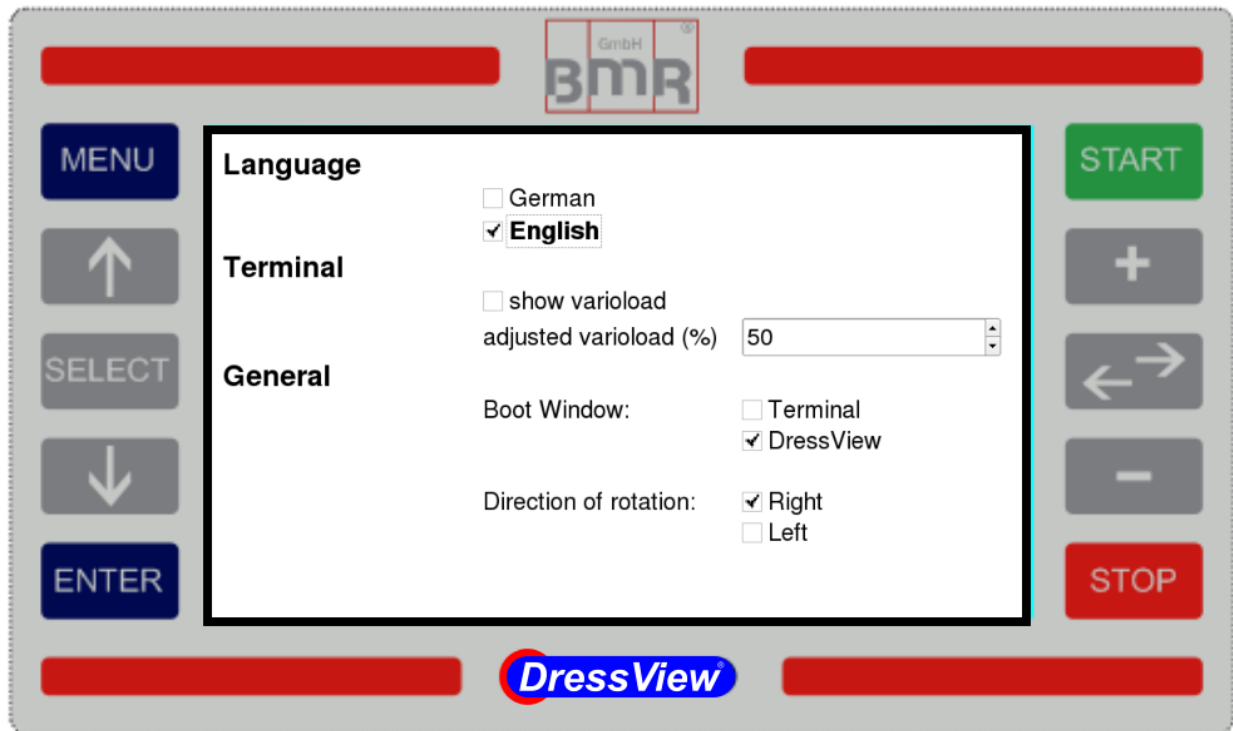
This window displays all analogue I/Os of the converter with it's function and it's current state as bargraph and numerical with it's voltage. (this window will be provided by a later update)

### 3.5.3 Status- and error messages



This window displays a list of status and error flags

## 3.6 Setup menu



In this window all basic settings can be made, such as system language and the setup and display of the Vario-load function of the converter and the Boot window.

### 3.6.1 System language

For changing the system language, the desired language has to be selected with the **SELECT**-key. After confirming with **ENTER** the system reboots and jumps into the selected start window. (see 2.6.3)

### 3.6.2 Settings for the Terminal menu

#### 3.6.2.1 Display of Vario-load

In the status window of the Terminal menu it can be displayed the "Varioload reached" event. Because this is not relevant for the normal operation, it is possible to activate or deactivate it.

#### 3.6.2.2 Value of Vario-load

In this window the threshold of the vario-load can be defined in percent of the load value.

### 3.6.3 General settings

#### 3.6.3.1 Boot window

specifies into which window should be booted after power on.

- Terminal - window: For manual operation
- DressView - window: is suitable, in case if the device is operated in the controlled mode and it should be used with same settings as before. By this an automatic operation with a PLC is possible.

#### 3.6.3.2 Direction of rotation

Here it is determined in which direction to rotate the spindle. If the rotational direction is set via a digital input, the direction which is selected in this window is overridden.

#### 3.6.3.3 Update

When choosing "Update" the software reboots itself and search for an attached update-qualified USB stick which contains a newer firmware as the device itself.

If a update-qualified USB stick is detected, a message box appears, which shows the version date of the newer firmware as well as the version date of the device. Now you have the option to cancel this message box when pressing "ENTER" or choose "OK" when pressing "SELECT", "Arrow up" or "Arrow down". If "OK" is chosen and you press "ENTER" the update process starts. The software immediately restarts with the newer firmware.

#### Update-qualified USB stick and Firmware

A preconfigured and update-qualified USB stick with the latest firmware can be ordered from us at a charge.

As a second option you have the possibility to create your own update-qualified USB stick. This stick must fulfill the following criteria:

Name: BMR

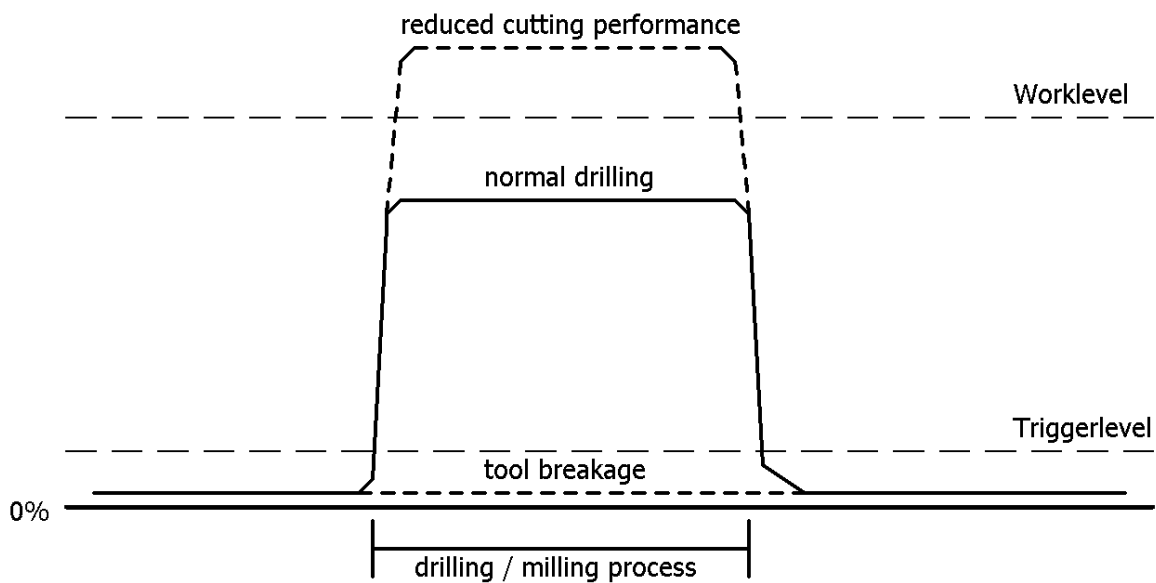
File format: ext2,ext3,ext4 or MS-DOS-FAT

The latest firmware is available from us by request. You can then download it to your USB stick, which then you have to plug into the USB jack on the back of the desktop device or direct at the **DressView** Operating Terminal.

## 4 Use of the system in the drilling / milling

The System can, in addition to the dressing, also very easy be used in mechanized drilling and milling. The added value that results from this is that thus cutting power reduction, as well as a fracture of the drill /cutter can be detected. Especially in automated operation this offers an opportunity to detect if a tool slowly dull, or is just broken.

For this purpose also the dressing menu must be called and the "in blocks" or "controlled" display mode can be set.

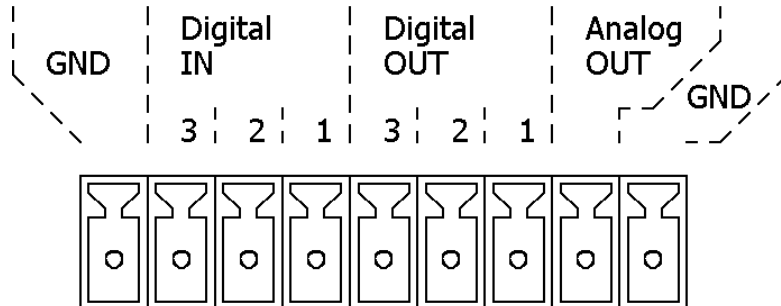




## 5 DressView®-specific inputs and outputs

The **DressView**® specific interface is located on the back side of **DressView 0200** or **DressView 0303** and at the front panel of **DressView SSE**.

It is realized with a pluggable screw terminal. It's functions are described in 2.4.2.2



PIN	Function	Description	Type
GND		Ground	
Digital IN 3	Dressing start	starts drawing the regulation value into the dressing graph in "Controlled" mode	
Digital IN 2	Zeroing	Zeroing or Calibration of the system	
Digital IN 1	Spindle start	Start spindle in Dressing menu	
Digital OUT 3	Dressing result	delivers depending on usage a result for cutting detection or for dressing	Open Collector-output 45V/0,5A
Digital OUT 2	Limit	Delivers a HI-signal when exceeding the trigger level during activated dressing	Open Collector-output 45V/0,5A
Digital OUT 1	Ready	Indicates, if the system is ready or if it is on error	Open Collector-output 45V/0,5A
Analog OUT	Regulation value	Analogue value, corresponding to the graph line in the dressing window	
GND		Ground	

## 6 USB-Interface

Each DressView device (SSE or Desktop) always includes a USB Interface. About this the respective built-up, or the connected inverter can be configured directly by PC (SFU-Terminal).

If a PC is connected via USB, the following message appears on the display of DressView: "PC-connection detected. DressView is not active while a PC is connected."

As the text says, the DressView is idle long like a PC connection exists. After disconnecting the connection but all functions are at your disposal immediately.

## 7 Connection

A representation of the signals shown in section 3.4.2.2 can be used when connecting.

### 7.1 Connecting the SSE-Systeme

The SSE-Systeme, consisting of the DressView SSE and the Operating Terminal has to be connected via the provided cable. All data signals and the power supply is connected to the SSE-Device. The DressView SSE is the communication interface between the machine, BMR converter and DressView Operating Terminal.

**SFU I/O:** looped through digital an analog In- and outputs of the connected SFU0200

**SFU 0200:** Connection port to SFU0200

**SFU 0303:** RS232 Connection plug for connecting the SFU0303

**DressView OT:** Plug for the connection cable to the DressView Operating Terminal

**I/O Interface:** Interface as specified in section 5.

**USB:** Possibility to configure the connected BMR converter with the SFU-Terminal via PC.

**Power supply:** 24VDC 2.5A



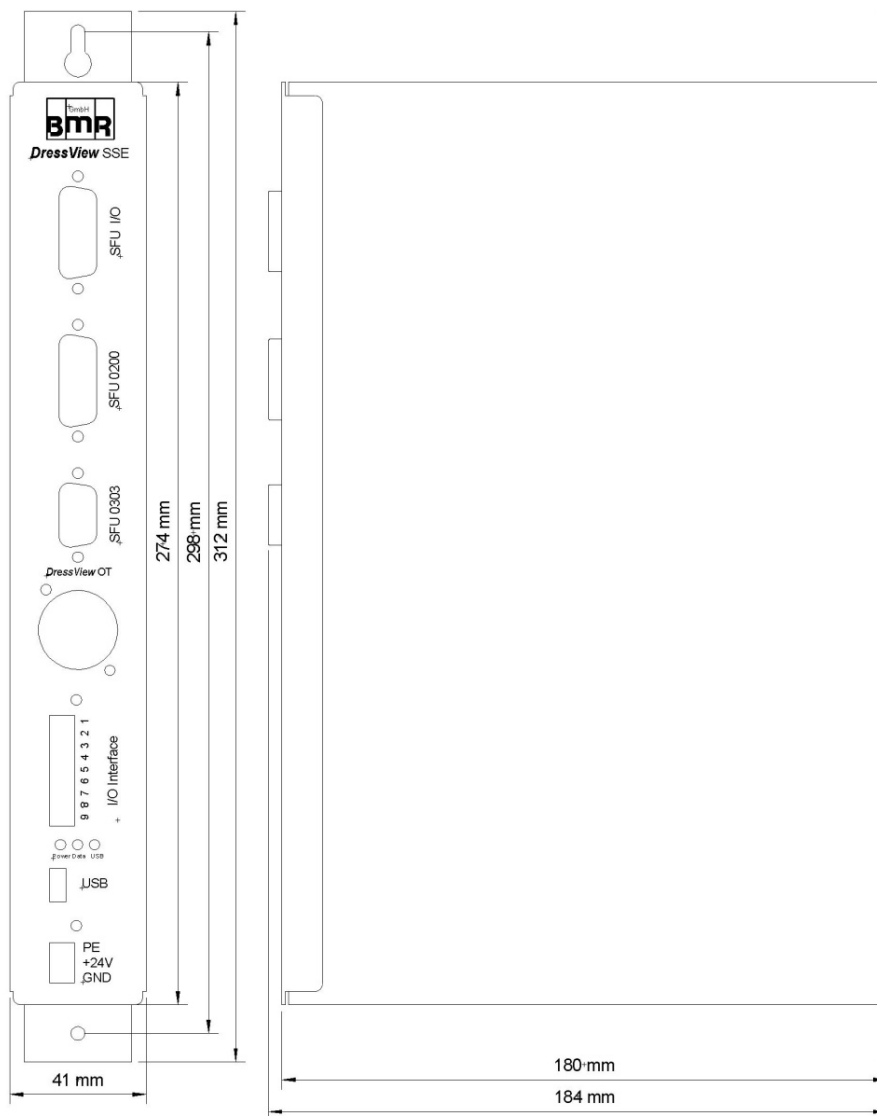
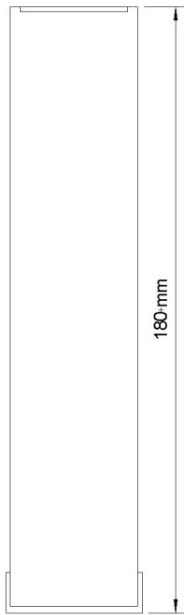
## **8 Delivery contents**

The DressView® system from BMR works only with frequency converters from BMR and dressing spindles in mounting 33mm to 72mm.

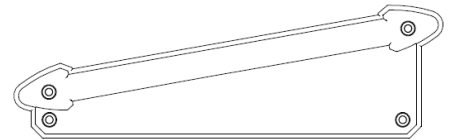
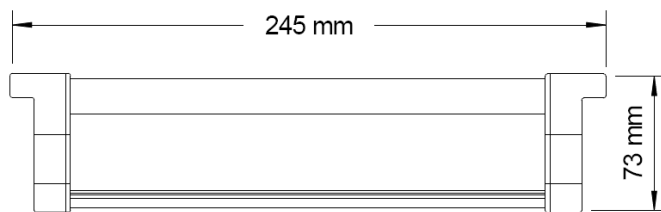
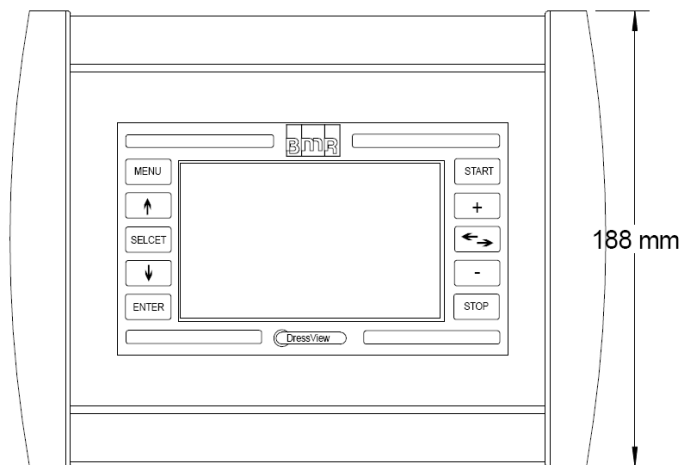
It is always supplied as a unit consisting of the DressView unit and a dressing spindle. When ordering, therefore, the desired spindle size and also the type of dressing tool must be specified.

## 9 Dimensions and Mounting

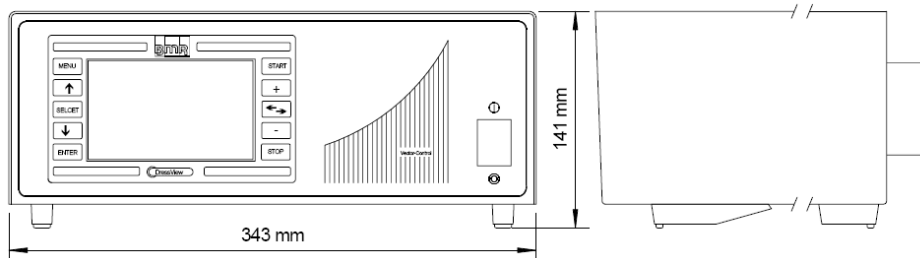
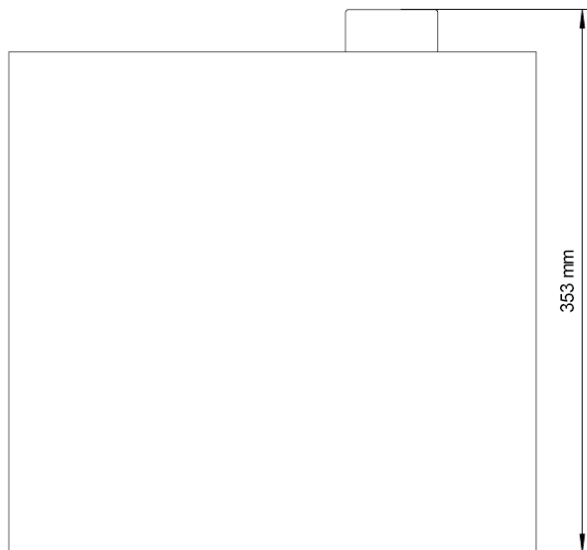
### SSE



## Operating Terminal



## Desktop



# OUR QUALITY COMMITMENT

<b>100%</b>	<b>„Made in Germany“</b>
<b>100%</b>	<b>precision</b>
<b>100%</b>	<b>reliability</b>
<b>100%</b>	<b>support</b>
<b>100%</b>	<b>flexibility</b>



**Subject to technical alterations.  
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