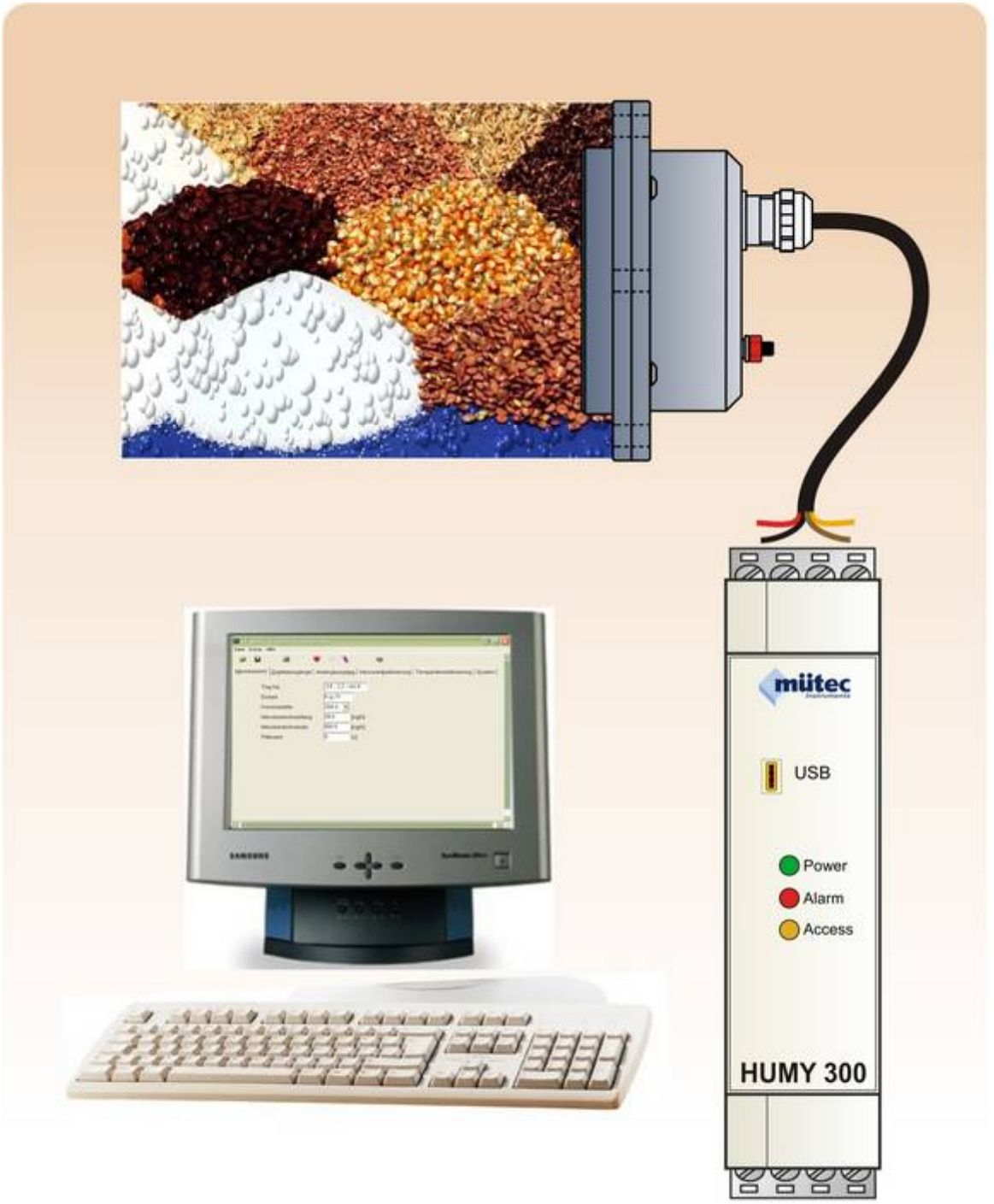
Software manual

HUMY 300

with USB- and RS485-Interface



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Software manual for HUMY 300

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Disclaimer

We have checked the content of the printed document for compliance with the described hardware and software. Nevertheless, deviations cannot be excluded and consequently we cannot assume any guarantee for complete accordance. The data in this printed document are checked regularly. Corrections and additions are made in the following version in each case. We would be grateful for any suggestions for improvement.

Contents

1 Introduction to software HUconfig-300

To be able to make settings in the HUMY 300, all electrical connections have to be provided.
The HUMY 300 electronics unit is connected to a PC via the respective port prior to starting the **HU_Config-300** program.

1.1 Starting the configuration program HUMY 300

Starting HUMY 300 via the icon HU_Config_300 on the desktop, as shown in **Fig. 1**.

Fig. 1

1.2 The Input Mask

Taskbar:
- File: Load configuration, Save configuration
- Extras: Read device settings, Program parameters, Program parameters and calibration, On-Line display, PC-Settings
- Help: Help, Info

Symbol bar (from left):
- Load configuration
- Save configuration
- Read device settings
- Program parameters
- On-Line display

User masks:
- Products
- Digital inputs
- Analog output
- Max-Alarm
- System

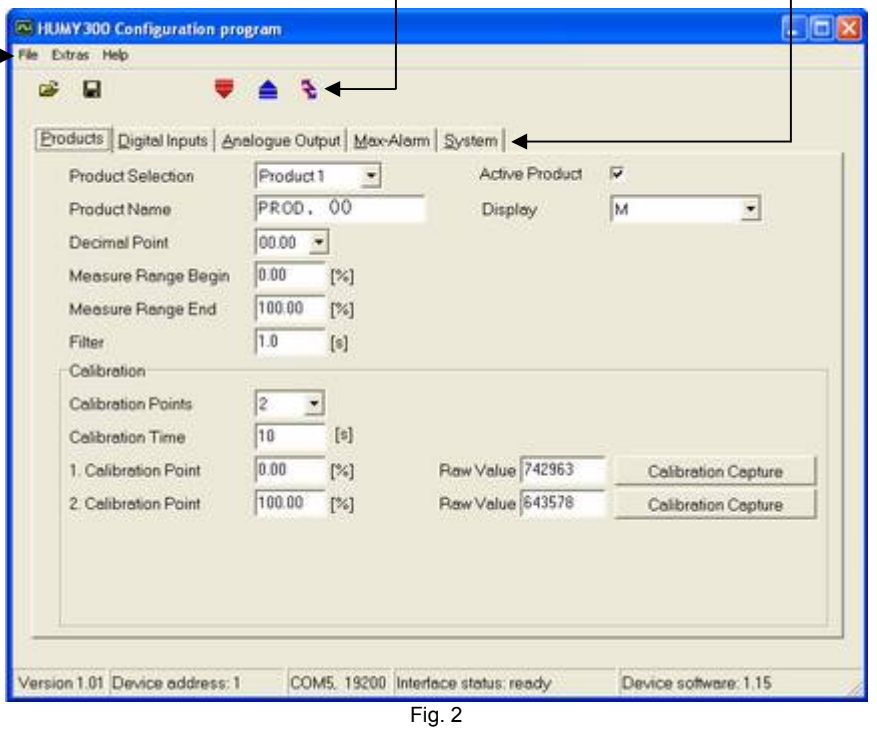

Fig. 2

1.3 Connect configuration program HUMY 300 to HUMY 300

A connection must exist between the HUMY 300 and the PC in order to use the program.

Input the interface parameters via the mask ‚Extras' => ‚PC settings' (Fig. 3).

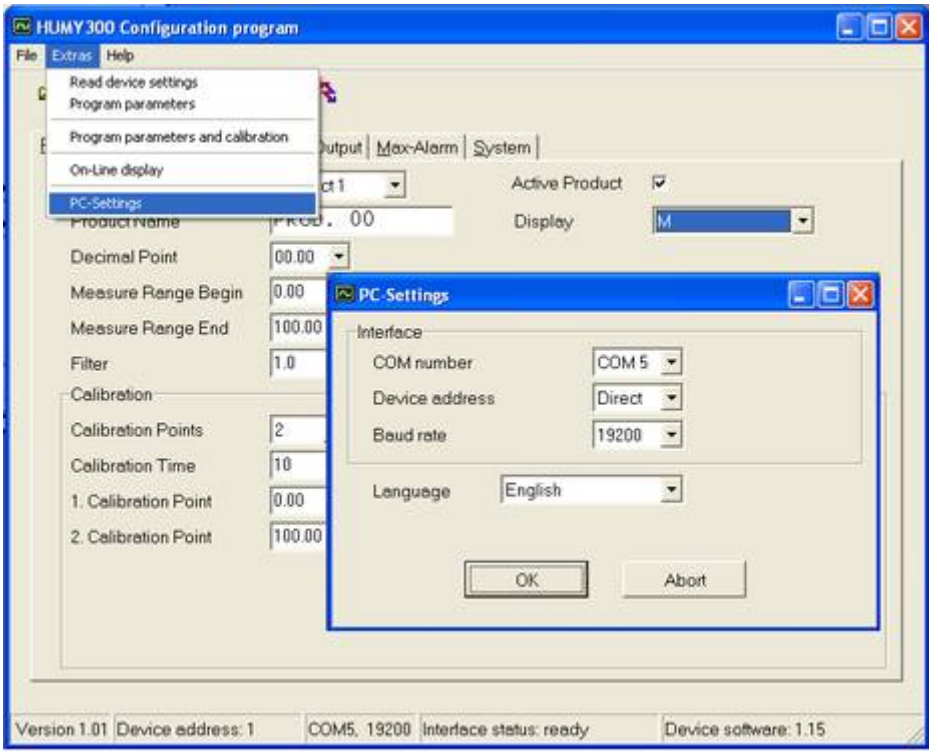

Fig. 3

You can select the following settings using a pull-down menu:

Connection	Selection of respective PC port (COM 1-4). You can see which Com port you use on the computer in the Control Panel => Device Manager.
Device address	If the connection to the PC is made via the front RS-232 port, you can select 'Direct'. If the connection is made via a network, e.g. via a PLS, you have to enter the respective device address.
Baud rate	Fixed value ‚19200'
Language	'German', 'English' and 'Italian' are available as menu languages.

Once the desired settings have been made, confirm them with 'OK'.

After you have inputted the parameters, the connection between the PC and HUMY 300 has to be set up. Two options are available for this:

1. Upper taskbar 'Extras' => 'Read device settings' (see Fig. 4) or
2. Click on the button 'Read device settings' in the symbol bar (see Fig. 5)

Fig. 4

Fig. 5

After the connection has been set up successfully, the following window appears (see Fig. 6).

Fig. 6

The connection setup is concluded by clicking on the ‘OK’ button.

1.4 The Taskbar ‚File’

1.4.1 Save configuration

It is recommended to create a backup file after every change in the configuration data in the HUMY 300 or after every calibration of the sensor.

Fig. 7

To save the new setting, click on the button ‘Save configuration’. The window on the left appears to save the configuration file.

Enter the desired name in the field ‘File name’.

Then click on the button ‘Save’.

The file is saved with the designated name in the manually set-up target directory.

1.4.2 Load configuration

If required, e.g. in the case of data loss or product group changes, you can load stored files and input them in the HUMY 300 again.

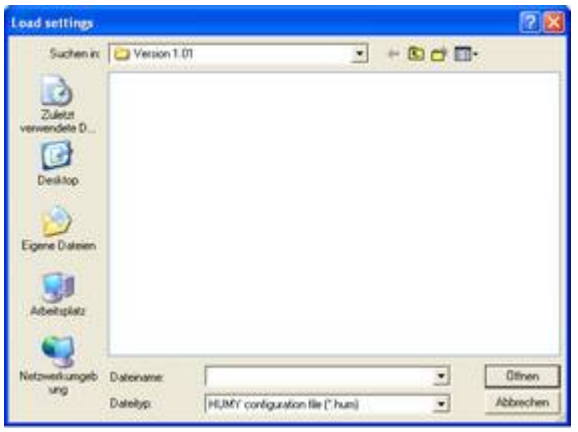

Fig. 8

In the event of data loss or use of other product groups, the files stored under **Save configuration file** can be loaded in **HU_config-300** at any time. The loaded file must be transferred to the HUMY 300 by means of the switch ‘Program parameters’.

Enter the file name looked for in the field ‘File name’.

Confirm the selection with the button **Open**. Then the selected file is available.

1.5 The Taskbar ‚Extras'

1.5.1 Read device settings

Serves to activate a connection of the software "HUMY 300" to the HUMY 300 (see 1.3).

1.5.2 Program parameters

If one of the variables is changed in the user interface of the software, this is **not** yet stored in the HUMY 3019 system. You have to do this manually via the button 'Program parameters' or using the blue arrow symbol in the symbol bar. Confirm the following confirmation prompt with 'OK' to start transfer of the data.

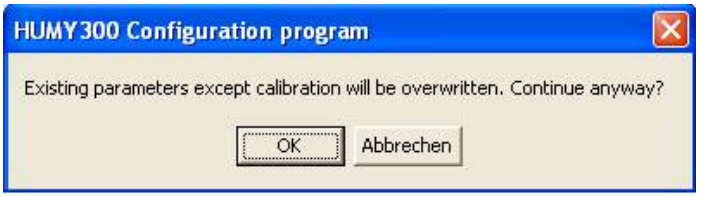

Fig. 9

When the data have been transferred successfully, the procedure is concluded by confirming with the 'OK' button in the following window:

Fig. 10

A change in the calibration values **cannot** be saved in this process.

1.5.3 Program parameters and calibration

If one of the variables of the calibration has been changed in the user interface, it has to be added manually to the Humy 300. This is done by using the button 'Program parameters and calibration'. Confirm the following confirmation prompt with 'OK' for successful transfer of the data.

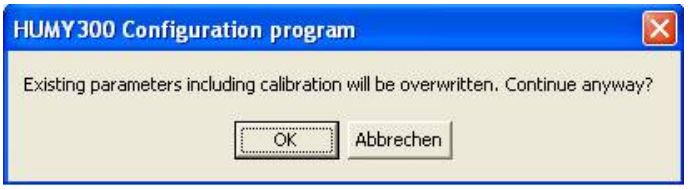

Fig. 11

The following window then confirms successful transfer of the data:

Fig. 12

1.5.4 On-Line display

Use the function **Online display** to call up the current measured values.
After selection of the button 'Online display' the following values can be taken from the mask:

Product: Name of the product

Measured value: Current measured value

Temperature: Current sample temperature

Raw value: Current measured raw value

Output: Current mA value of variable

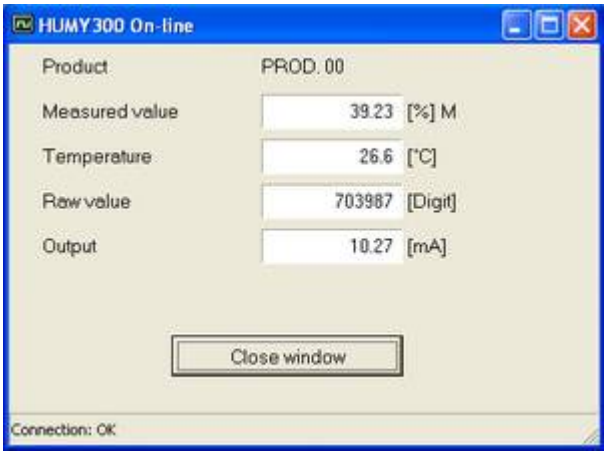

Fig. 13

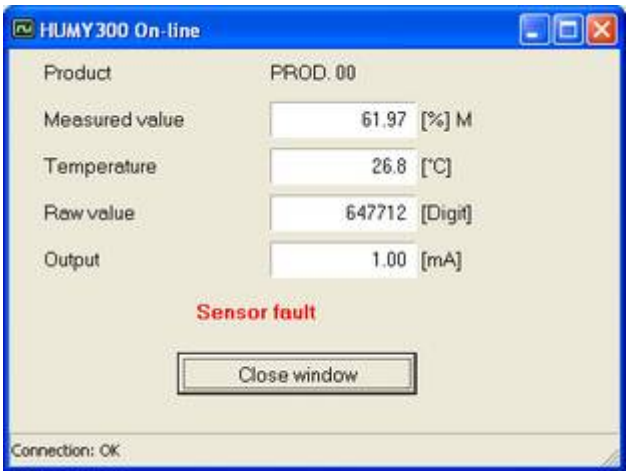

Fig. 14

A sensor or transfer error is indicated in the online mask with **Sensor fault** (Fig. 14).

The mA value for the analog output jumps to the previously parameterized alarm value.
All other measured values are frozen when there is an error and thus do not change any more.

Error elimination:
Check cable and terminal connections and possibly restart the system.

1.5.5 PC-Settings

Serves the purpose of making port settings and selecting the menu language (see 1.3).

2 The User Masks

2.1 Products

The main mask ‘Products’ consists of two subcategories: product-settings and calibration. The first step is to select the respective product. The system offers the option of saving and retrieving 24 products. The respective products are referenced via the following pull-down button.

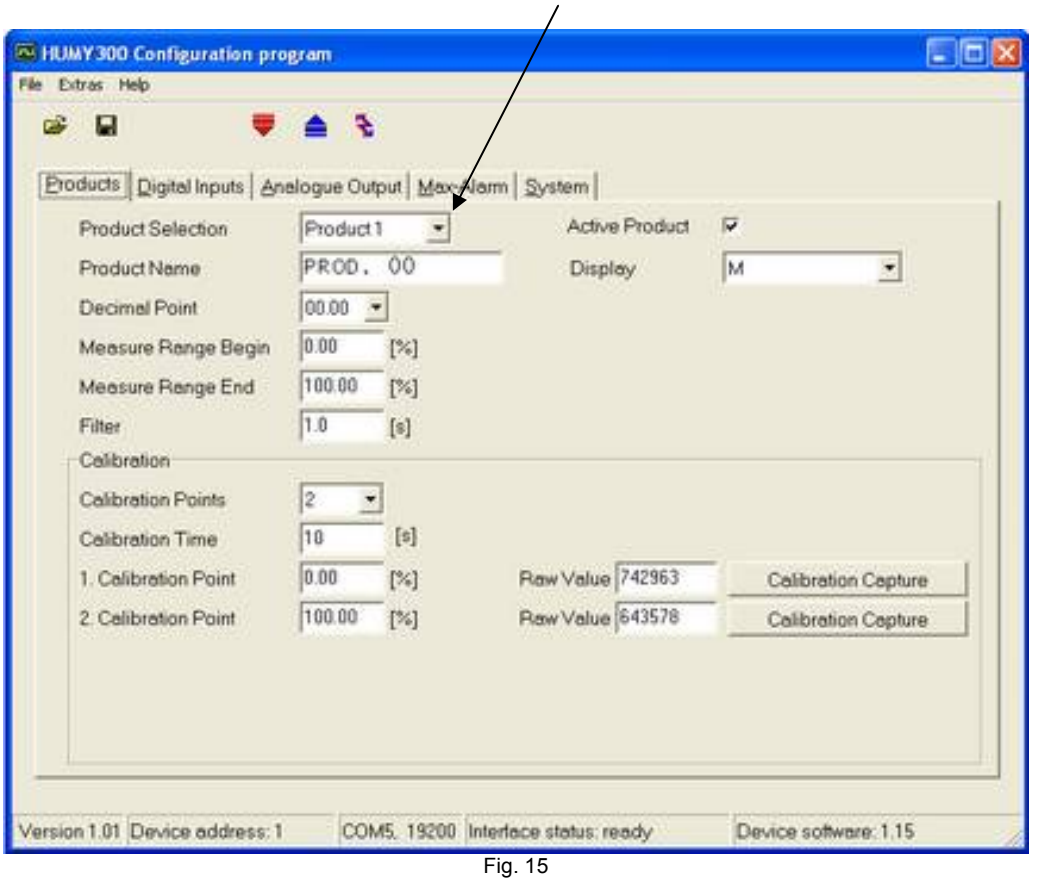

Fig. 15

In the first field ‘Product Name’ it is possible to manually store the type of product, the batch or a random designation for the product.

In the pull-down menu ‘Display’ you can select the desired indication value. The selection options here are

M => moisture
DS => dehydrated substance
H2O => water content

The indication accuracy is specified in the pull-down menu ‘Decimal place’. Up to three decimal places are possible here.

‘Measure Range Begin’ and ‘Measure Range End’, on the other hand, make it possible to limit the required measuring range. Limiting the measuring range (e.g. 30% - 50% RS) results in a higher resolution of the measurement. This, in turn, leads to greater measuring accuracy.

The ‘Filter’ represents the time period used for mean-value generation. Several measuring points are recorded and averaged within a second. This results in continuous mean-value generation that is updated every second.

IMPORTANT: After every setting in the respective mask the data must be transferred to the Humy 300 system using the 'Program parameters' button! Otherwise there is a risk of losing the settings (see 1.5.2)!

If all product settings are done, you are able to start the calibration.

A good and exact calibration is absolutely necessary to achieve high measuring accuracy. First of all, you have to specify the number of calibration points. In most cases 2 calibration points are adequate; in this case linear behaviour is assumed (see Figs. 16 & 17).

2-point-calibration linear behavior:

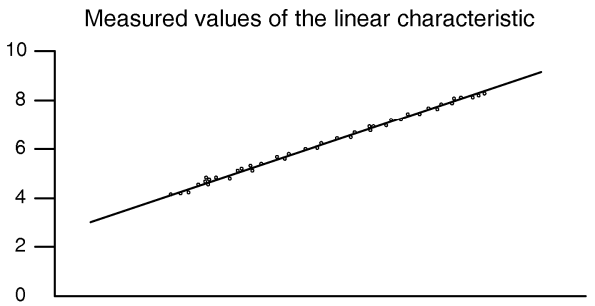

Fig. 16

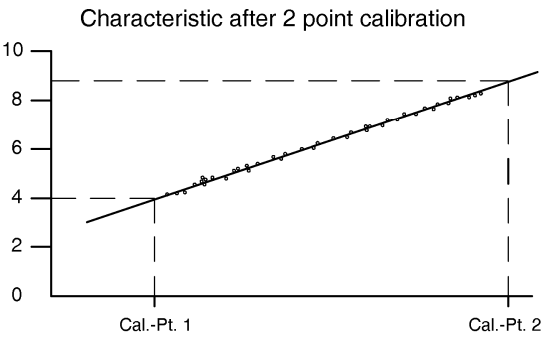

Fig. 17

3-point-calibration linear behavior:

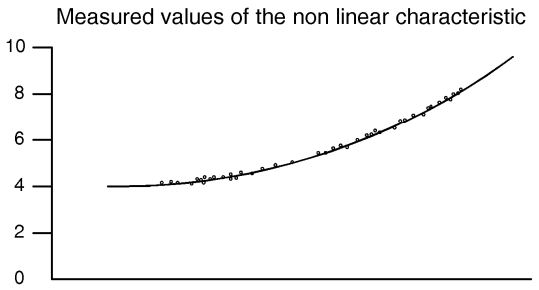

Fig. 18

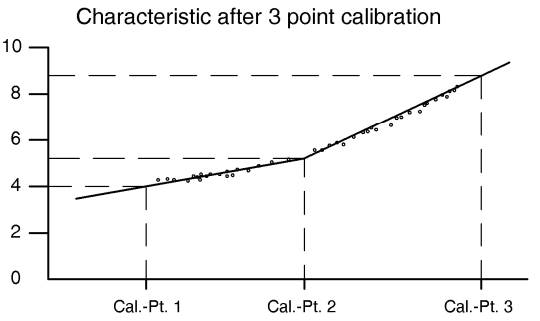

Fig. 19

The next step is to specify the calibration time. This may vary depending on the process. The factory setting of 10 seconds can be adapted to the process in this step.

The 1st calibration point:

After specifying the number of calibration points and/or the calibration time, you can start the actual calibration.
To do so, click on the button 'Calibration capture' at the '1st calibration point', then the window below opens and calibration begins:

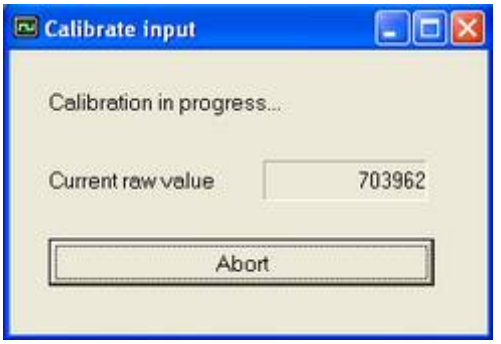

Fig. 20

IMPORTANT: For the purpose of allocation of the measured raw values sampling has to take place during the calibration process. These samples must be taken near or behind the sensor.

The 6-digit measured raw value is displayed after successful calibration. This value is the calculated mean value of all raw values measured during the calibration.

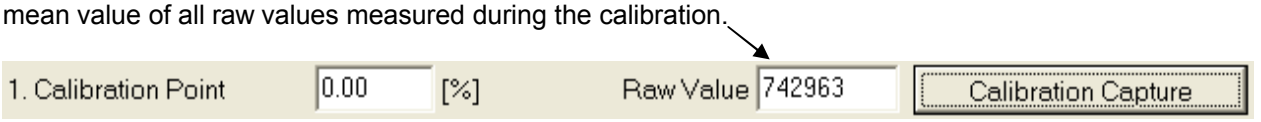

Fig. 21

The samples taken during the calibration process are now subjected to moisture determination in the laboratory. The resulting values are also combined to form a mean value. The moisture value determined in the laboratory is now manually allocated to the '1st calibration point'. This means the first calibration point has been defined.

The second calibration point is determined as described under 'The 1st calibration point'.

IMPORTANT: After every setting in the calibration mask the data must be transferred to the Humy 300 system using the 'Program parameters and calibration' button! Otherwise there is a risk of losing the settings (see 1.5.3)!

2.2 Digital Inputs

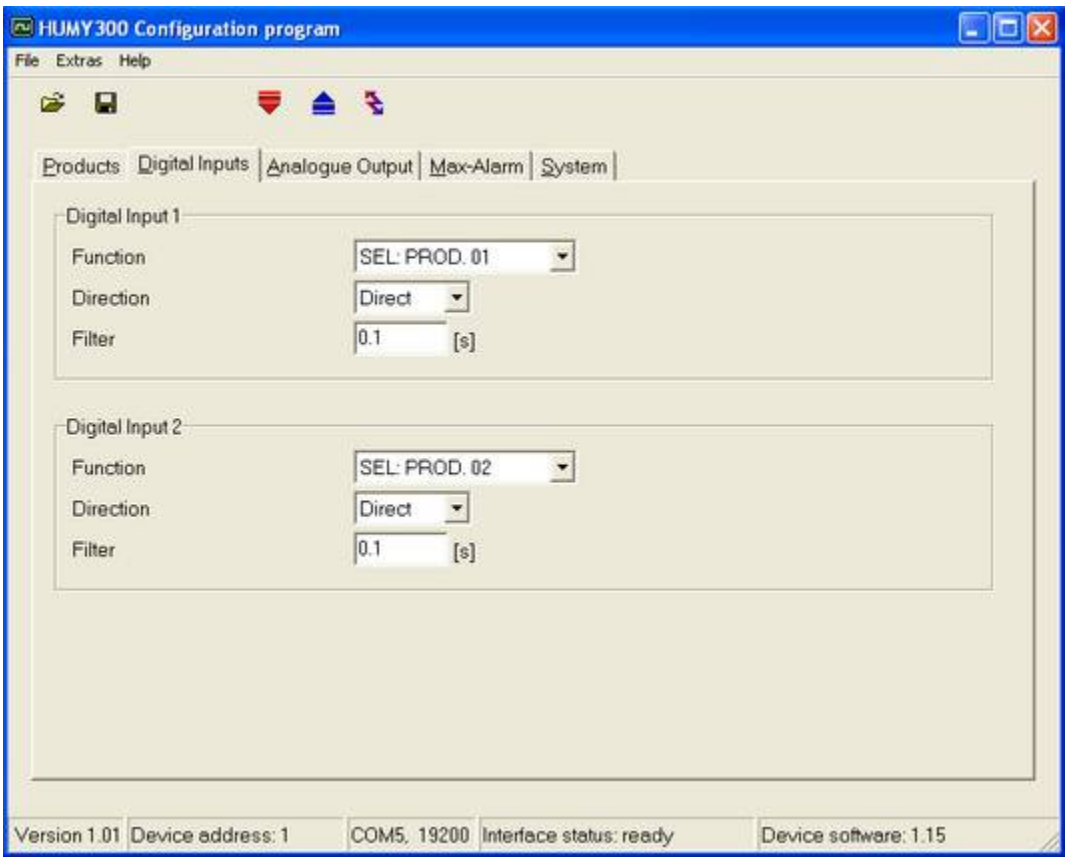

Fig. 22

The HUMY 300 has two digital inputs. Different functions can be performed when the inputs are connected and activated. The digital inputs have to be connected to a control signal of 0 volts or 10 to 24 volts DC. The following functions are available:

Measurment STOP: This stops the measurement and freezes the value last indicated. That means this value is retained until continuation of the measurement.
Application e.g. for batch processes, temporarily no product at the sensor and start-stop controls for collecting devices.

Filter RESET: This resets the mean value. To form a mean value for the moisture, you have to set a filter time at the configuration level PRODUCTS. If, however, the instantaneous value should be indicated, the function Filter RESET is carried out.

Batch Mode: This results in indication of the mean value of a batch.
Application e.g. for bottling plants.
A receptacle is filled with a product. Moisture measurement is activated at the start of the filling process and deactivated after the stop. The moisture measuring device calculates the mean moisture value of the bottled product after the end of the filling process.

Sel.: This changes over from one product to another.
Application in the case of product change or product replacement. This also includes changes in grain size and a fundamental change in material.

IMPORTANT: After every setting in the respective mask the data must be transferred to the Humy 300 system using the 'Program parameters' button!
Otherwise there is a risk of losing the settings (see 1.5.2)!

2.3 Analog Output

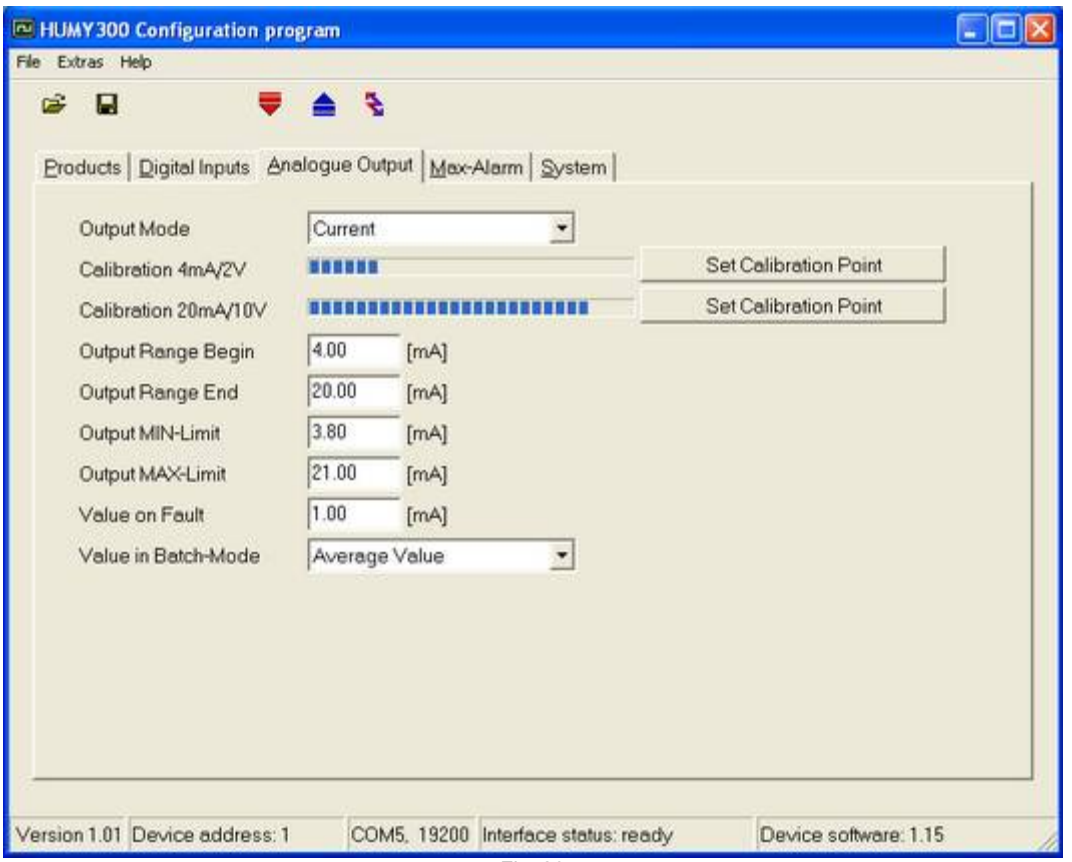

Fig. 23

The (measuring) range and the mA values (or V) of the analog outputs are defined in the main mask ‘Analog outputs’. “Current” or “voltage” can be selected as the output signal via a pull-down menu.

One analog outputs is available. These mA output is freely adjustable. An appropriate measuring device has to be connected to the respective output terminals for correct adjustment of the mA values.

To calibrate the analog outputs, select in the mask ‘Set calibration point’.
Now you can set the analog outputs with the help of the user interface as follows:

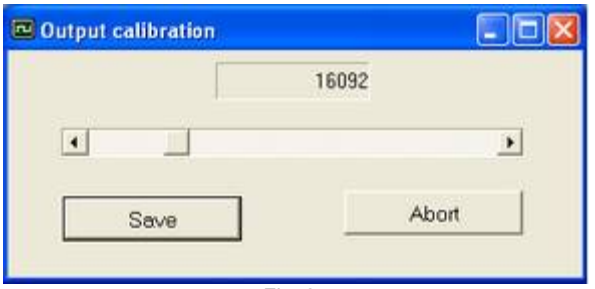

Fig. 24

By means of the controller, you can increase the value (shift controller to the left) or reduce the value (shift controller to the right). After setting the correct value, you have to click on the ‘Save’ button. Now the set value has been accepted by the program.

After adjustment of the output signals you now still have to specify the (measuring) ranges. The default setting for concentration here is 4-20 mA, but a measuring range of 0-20 mA is also possible.

MIN and MAX limits as well as the output signal in the event of a malfunction can be freely defined.

The analog output for moisture offers an additional function for batch processes. In this case you can select via the pull-down button whether the mean value or the current value should be used in the calculation.

IMPORTANT: After every setting in the respective mask the data must be transferred to the Humy 300 system using the 'Program parameters' button! Otherwise there is a risk of losing the settings (see 1.5.2)!

2.4 MAX-Alarme

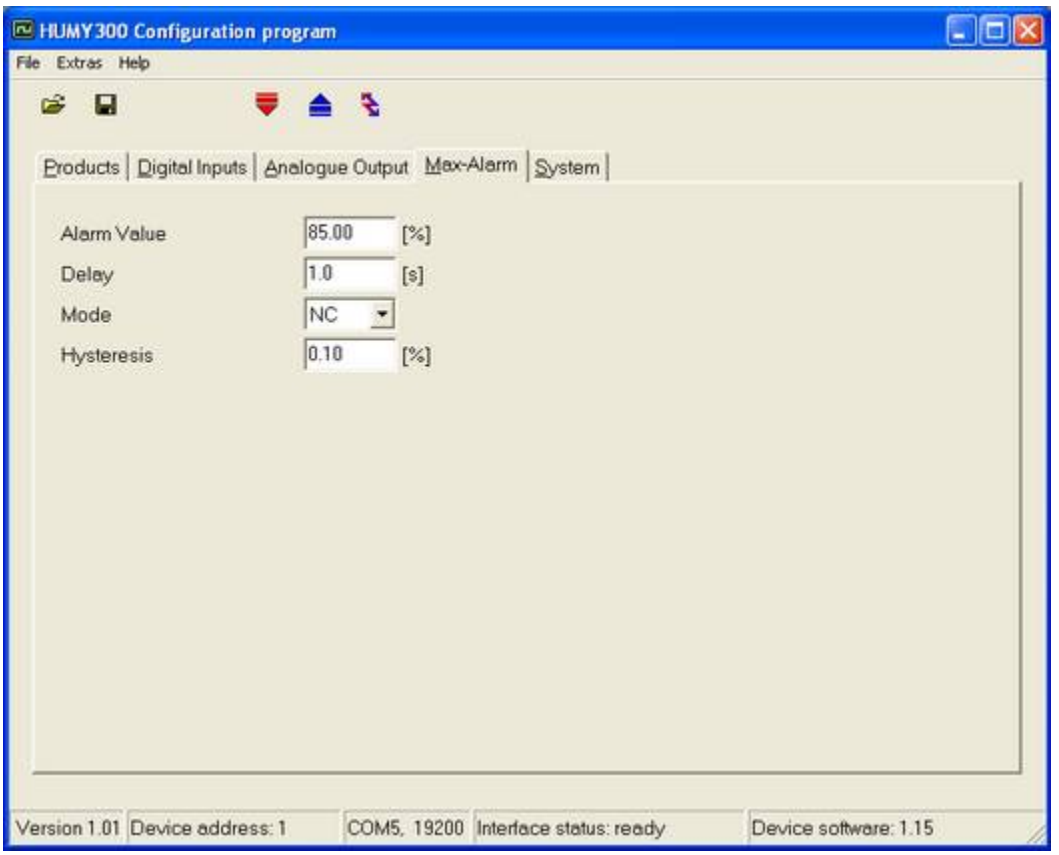

Fig. 25

In the first field the alarm value is freely definable.

The ‘delay’ describes the desired delay the system needs to complete the switching process. This is intended to avoid changeable “switching” of the switch.

Example: In Fig. 25 the MAX alarm is set to 85% and the alarm delay to 1 second. If the respective value drops below the alarm value, switching of the alarm does not take place until after another control value after one second.

In the work mode you can set the desired relay contact via the pull-down button. In this case the available option is either normally opened (NO) or normally closed current (NC).

The alarm hysteresis describes the desired delay of the switching process. In this case, however, reference is made to the desired percentage deviation from the alarm value. It is intended to avoid changeable “switching” of the switch.

Example: In Fig. 25 the MAX alarm is set to 85% and the alarm hysteresis to 0.1%. The alarm is thus not triggered until 84,915 or switched off until 85,085.

IMPORTANT: After every setting in the respective mask the data must be transferred to the Humy 300 system using the ‘Program parameters’ button! Otherwise there is a risk of losing the settings (see 1.5.2)!

2.5 System

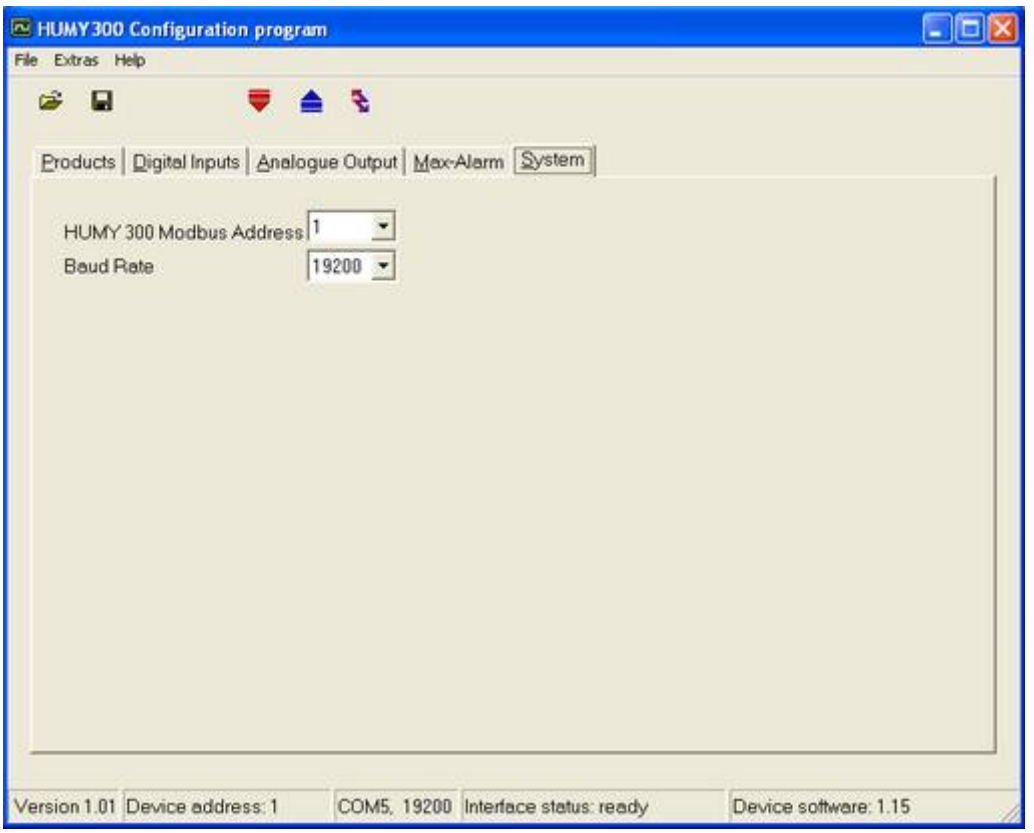

Fig. 26

Modbus Address The addresses 1 to 255 are available as identifier for HUMY300 and can be assigned to the device by means of the PC setup program.
The HUMY300 always has the address 1 as default value.

Baud Rate The transfer speed of the RS232 and RS485 port in the HUMY300 is determined by the parameterizable baud rate.
The following values are available for this purpose: 2400, 4800, 9600 and 1920 bps.

Attention: If the baud rate set as the default value at 19200 bps is changed to another value with the help of the PC setup program, this parameter change does not take effect in the device until after disconnection of the power supply.

Communication

The parameterization for the baud rate and the device address have to be identical on both sides in order to start communication between PC and HUMY300.
If a baud rate and/or address does not conform with the default values, this means they have to be looked for to enable communication with the PC program and in the worst case 1020 attempts would be necessary for this purpose (see 1.3).