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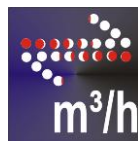**Operating Instructions**

Software UCOM VTP

**for configuring Höntzsch transducers
for flow rate sensors Exactflow II**

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Preface

The UCOM VTP software is designed for configuring Höntzsch transducers for flow rate sensors Exactflow II and for recording data.

The values displayed can be stored as LOG files (ASCII files) for any length of time. Stored data can be read-in at any time using the import function in a spreadsheet or a database. Stored data can be edited using the text editor.

Transducers with serial interface RS232 are connected using the programming adapter or the RS232 data cable either directly to a serial COM port on the PC or via a USB RS232 converter with a USB connection. Drivers must be installed if using a USB RS232 converter. First insert the CD provided with the converter and then plug the cable into the USB port on the PC. Installation follows in two stages, "Recognition of new hardware" twice, see also the instructions in the subfolder „USB RS232 Converter Cable" on the CD.

1   First Steps

1   Before configuration can begin ensure that PC and transducer are connected using the RS232 data cable or programming adapter, or, when using a HART protocol modem, this is to be connected to the closed 4-20 mA load circuit with a total working resistance of between 250 and 500 Ohm.
The transducer is powered either by the mains adapter supplied with the programming adapter, or, when using RS232 data cable or HART interface, on the supply voltage terminals (pay attention to type plate: 24 VDC or 230 VAC).
Programming follows via the RS232 or HART interface.
A USB to RS232 converter or a HART protocol USB modem is necessary when using the USB interface.
USB units must be assigned to a COM port number in the system software. The largest COM port number available is 16.

2   Start UCOM VTP programme.

3   To connect transducers see menu "connect automatically" or "connect manually".

4   To read data from the transducer see menu "read data".

5   Data in the left input fields can now be modified.
Using the "save==>>" button the value in the left of the "input field" is saved in the transducer processing unit and then displayed on the right in "stored values". A help text appears if the cursor remains on an input field for longer than a few seconds.

6   If new parameter values have been saved to the transducer the "CCS" = Clear Check Sum must be administrated either by closing the UCOM VTP programme, by pressing the "CCS" button or "File – Exit" or menu "disconnect", before disconnecting the data cable and the power supply from the transducer. (See under "Function Buttons"). In this way, a new parameter check sum is saved in the transducer, without which the analog output sends an error message.

2 Menu

File - open
Opens stored LOG files in a text editor.

File - print
This menu item enables the parameters saved in the unit to be printed as well as a measuring point identifier by creating the parameter in text form. The files are saved in the sub-folder "protocols".

File - exit
Shuts down the connection to the transducer and exits the programme.
The "CCS" = "save new parameter check sum" function is carried out and must be confirmed with "ok" (see "Function Buttons" below).

Connect (automatic or manual)
The menu function "connect automatically" scans the available COM ports automatically (this takes a few seconds) and displays the available Höntzsch transducers in a window for selection of interface. Once the selection has been made a connection via the chosen COM port is made using the "Resume" button.
(Note: scanning the COM ports can take more than 30 seconds if multiple interface cards with COM ports are installed in the data processor).
Should "connect automatically" result in a conflict between equipment because the COM ports are scanned automatically, the menu item "connect manually" can be used to manually select the COM port and be re-connected with "Resume".
An active connection is displayed in the status line. The above settings must be checked should a connection error arise.

Disconnect
Disconnects the transducer.
The "CCS" = "save new parameter check sum" function is carried out and confirmed with "ok". (See "Function Buttons" below).

Read data
Reads all stored parameters and displays them on the main form.
Parameter reading values 'X' in red field are not available.

3 Display Fields

Parameter set list no.
Displays the number of the used parameter set list.

Serial number
Displays the serial number of the transducer. Transducer type and software version appear in the centre of the status line.

4 Input Fields

Numerical values can be entered or selected using the input fields on the left of the parameter pages.
By pressing the "Save==>>" button the value on the left in the "input field" is saved to the transducer processing unit and is then displayed on the right in the field "stored values".

Process value
(Bottom left above status line) click on a parameter in an alphabetical parameter list to jump directly to the "input field" of the parameter.

Analog output - terminal value 1
4 ... 20 mA / 0 ... 10 V = 0 ... x m/s

Terminal value x of the high-precision analog output is configurable. Output variable is either flow rate or mass flow.

Note:
Parameter must be entered as flow velocity value.

Analog output - terminal value 2

4 ... 20 mA / 0 ... 10 V = 0 ... x
Terminal value x of the analog output with short time constants is configurable. Output variable is either flow rate or mass flow.

Note:
Parameter must be entered as flow velocity value.

Profile factor PF
The profile factor for measuring tubes is 1.000 and may not be changed, as flow rate calibration was carried out using this value

Pressure sensor 4 mA (abs)
Integral starting value of the absolute pressure sensor in hPa

Pressure sensor 20 mA (abs)
Integral terminal value of the absolute pressure sensor in hPa

Pipe inside diameter
Enter the inside diameter in mm to calculate the quantity for pulse output or with optional LCD to display flow rate and quantity.

Time constant + 3sec
The time constant affecting the output values at the analog output can be set in a range from 4 ... 99 seconds.
High time constants with strong fluctuations of flow velocity cause a smoothing of the output signal.

Switching pulse / limit value
Input for the effect of the digital output as pulse output for quantity counting or as limit value for volume flow or mass flow.
Available are:

00000=pulse output for quantity   for quantity counting
00001=limit value V or M   limit for volume flow or mass flow

Limit value

(Only relevant if switching pulse / limit value selection 00001=limit value)
Limit value input. If the measured value is less than the limit value, the digital output is inactive (relay off); if the measured value is greater than the limit value, the digital output is active (relay on).

<u>m³ (cbm) / x kg per pulse</u>
(Only relevant if switching pulse / limit value / … selection 00000 = pulse output quantity counting or optional LCD)

Maximum pulse frequency is 1 Hz = 1 pulse per second = 3600 pulses per hour.

Reasonable values for m³ (cbm) per pulse are:
       1 m³   per pulse = 00001 for flow rates up to 3600 m³/h
       10 m³   per pulse = 00010 for flow rates up to 36000 m³/h
       100 m³   per pulse = 00100 for flow rates up to 360000 m³/h
       1000 m³ per pulse = 01000 for flow rates up to 3600000 m³/h

<u>Example</u>:
Recording consumption with an external pulse counter.

With a constant flow rate of 400 m³/h, the counter delivers 400 pulses with a setting of 00001 per hour, i.e. one pulse every 9 seconds.
With a constant flow rate of 400 m³/h and a setting of 00002, the transducer would deliver 1 pulse per 2 m³, i.e. only 200 pulses per hour.

Standard pressure (abs)
Indicates the standard pressure in hPa required for the norm basis.

Standard temperature
Indicates the standard temperature required for the norm basis. Input/output is in Kelvin. Use the adjacent button for the computer for input in grade Celsius.

Standard density for mass flow
To display mass flow in kg/h the applicable standard density is required in addition to the actual flow velocity and the measurement cross section.

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5 Pairs of values

To determine the connection between output frequency and flow velocity, up to 60 pairs of values can be logged for volumetric calibration of vortex measuring tubes VA Di.

Number of pairs of values
Indicates how many pairs have been saved. 0 ... 60 pairs may be chosen, depending on software.

Pair of values
Index field for selection of pair of values xx (01 up to number of pairs), the value of which is shown subjacent after selection.

Flow rate

Flow rate (e.g. provided with an x-factor) of the selected pair of values. The indicated value always includes a decimal place. For example, a flow rate of 99.5 m³/h results in a value to be entered/displayed of 995.

h-value

Frequency value of the selected pair of values.

Print pairs of values
This button generates a list of all saved pairs as a text file, which can be printed or saved.

6 Function Buttons

Function Button "CCS"

Bottom right above the status line: "CCS" = "Clear Check Sum".
This function sets a new check sum for checking the parameter storage and must be applied when a parameter has been changed so that the analog output does not release an error and must be confirmed with "Ok".
The "CCS" function follows automatically when quitting UCOM VTP and after "Disconnect".

Note:
After changing parameters always shut down the UCOM VTP programme first or press "Disconnect" before disconnecting the transducer from the power supply and the data connection, thus ensuring that a new parameter check sum has been saved and that the unit functions correctly with the new settings.

Function Button "CLR"
This button is for checking connection to the instrument. With an existing connection, a click on the "CLR" button is confirmed with "Ok".

7 Measured Values

The current measured value is displayed in the top half of the main form. Switching between m³/h, Nm³/h and kg/h is possible.

Record

The UCOM VTP software has the facility to save measured data at fixed intervals using the "Record" button. A value between 1 ... 60 seconds can be entered here. Data is then saved depending on the time interval setting, approx. every 1 ... 60 s. Press the "Stop" button to complete recording.
Data record number, measured value, unit, date, time can be viewed and saved using the "File" button.

Processing the records
All files are saved in ASCII format and can be opened using the text editors.
Records can be processed at any time using the import function of a database or spreadsheet.

<u>Note:</u>
During measurement, (time interval not 0), no parameters can be read or stored. Set time interval to 0 for release of reading or saving parameters.