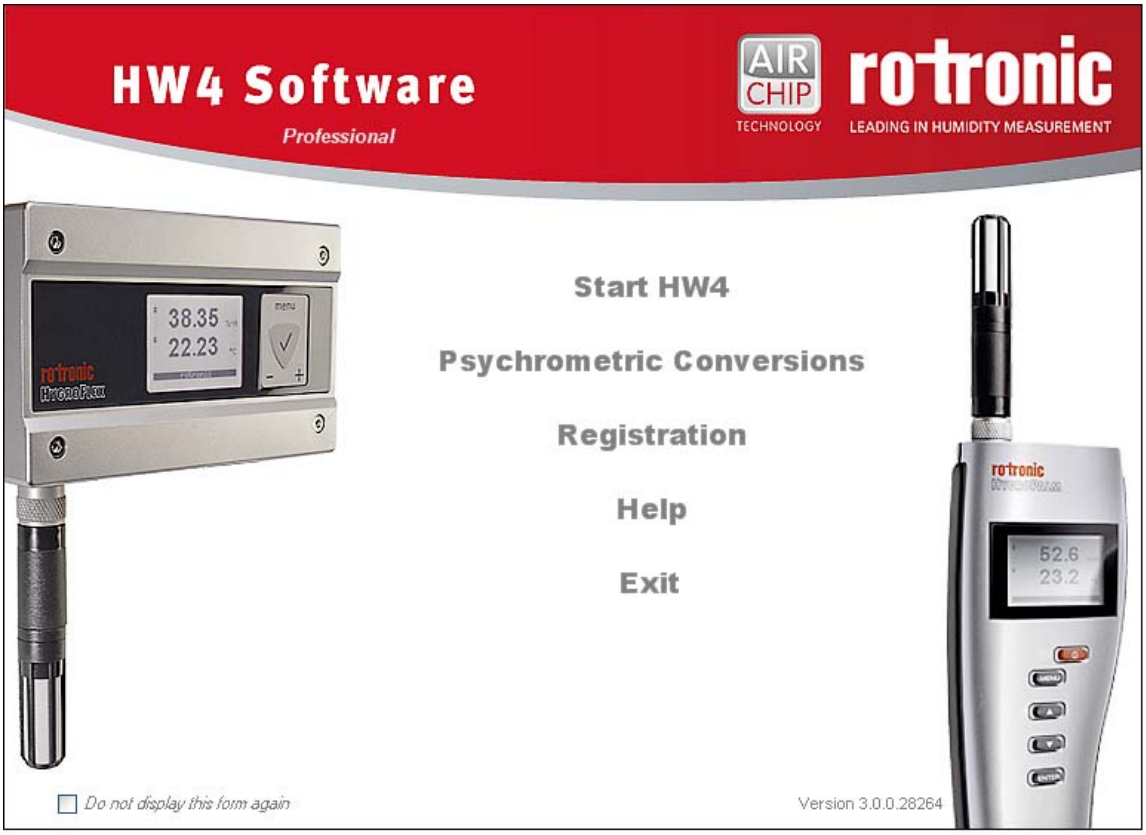
HW4 Software version 3

Device Manager
Legacy Transmitters and Indicators



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1 ORGANIZATION OF THE HW4 MANUALS

The HW4 manuals are organized in separate books so as to limit the size of the individual documents. A list of the HW4 manuals is provided in document **E-M-HW4v3-DIR**

HW4 Manuals	Contents
HW4 Main Book	General software description Installation, start-up and settings Device connection methods Functions common to all devices used with HW4
Device Specific Functions 1 (separate book for each device type or model)	Legacy devices (original HygroClip technology): o HygroLog NT data logger o HygroFlex 2, HygroFlex 3 and M3 transmitters o HygroLab 2 and HygroLab 3 bench indicators o HygroPalm 2 and HygroPalm 3 portable indicators o HygroClip DI digital interface o HygroClip Alarm programmable logic o HygroStat MB Device Manager (device configuration) and other device specific functions
Probe Adjustment 1	Humidity and temperature adjustment function common to all legacy devices (original HygroClip technology)
Device Specific Functions 2 (separate book for each device type or model)	Devices based on the AirChip 3000 technology: o HygroClip 2 (HC2) probes o HF3 transmitters and thermo-hygrostats o HF4 transmitters o HF5 transmitters o HF6 transmitters o HF7 transmitters o HL20 and HL21 data loggers o HP21, HP22 and HP23 hand-held indicators o Custom designed OEM products Device Manager (device configuration) and AirChip 3000 functions
Probe Adjustment 2	Humidity and temperature adjustment function common to all devices based on the AirChip 3000 technology
Data Recording Function	Data recording function common to all devices based on the AirChip 3000 technology

Both the HW4 manuals (software) and device specific manuals (hardware) are available on the HW4 CD. The manuals can also be downloaded from several of the ROTRONIC web sites.

2 OVERVIEW

This section of the HW4 manual covers only the HW4 functions that are unique to the following transmitters and indicators:

- HygroFlex 2, HygroFlex 3 and M3 transmitters (same icon in device tree)
- HygroLab 2 and HygroLab 3 bench indicators
- HygroPalm 2 and HygroPalm 3 portable indicators

HW4 functions that are not device dependent are covered in document E-IN-HW4v3-Main.

3 DEVICE MANAGER

The following devices can be used together with HW4, provided that the firmware version of the device is 4.0a or higher:

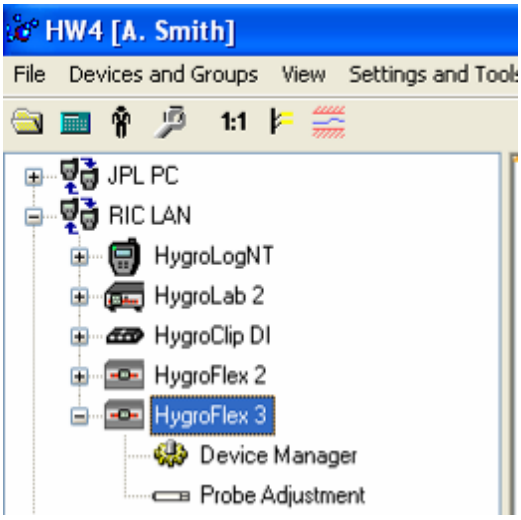
- Indicators : HygroPalm (with docking station only) and HygroLab
- Transmitters : M3 (only as RS-485 slave) and HygroFlex

The functions available for these devices are illustrated here, using the example of the HygroFlex 3.

NOTE:

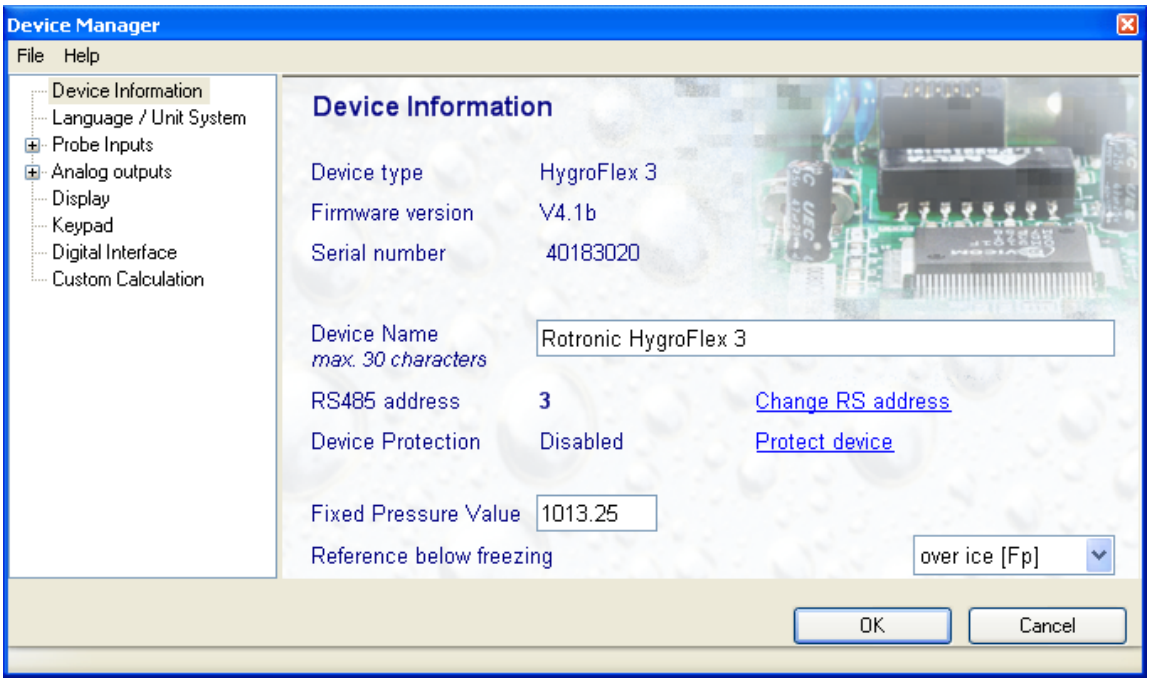
- HygroFlex 1, HygroLab 1, HygroPalm 1 and HygroPalm 0: these devices can be connected to the COM port of a PC only for configuration purposes with HW4. Connecting the HygroPalm 1 or HygroPalm 0 to a PC requires a PalmDock docking station.

- Device Manager always shows the maximum number of configuration options that are available with a specific type of device. All configuration options are not necessarily applicable to all versions of a device type. When configuring a device, the configuration options that do not apply can be safely ignored.



To open the Device manager form, click with the mouse on Device Manager. The Device Manager form is used to configure the HygroFlex 3 and to read instrument specific information.

When Device Manager is started, it automatically interrogates the instrument and downloads its current configuration.



The different forms that are available within the Device Manager form are listed in a tree located on the left pane of the form. To select a form, click on it with the left mouse button.

3.1 *Device Manager Menu Bar*

The Device manager menu bar is located at the top of the form.

File

- **Open:** opens the device configuration directory specified in the HW4 Settings Form - File Locations Tab - and displays all available device configuration files (extension .DAT). Any device configuration file that was previously saved can be opened to quickly configure an instrument. If so desired, any directory and any file type may be opened.
- **Save As:** saves the current configuration to a file (extension .DAT) in the device configuration directory specified in the HW4 Settings Form - File Locations Tab. If so desired, any directory and any file type may be specified.
- **Exit:** exits Device Manager

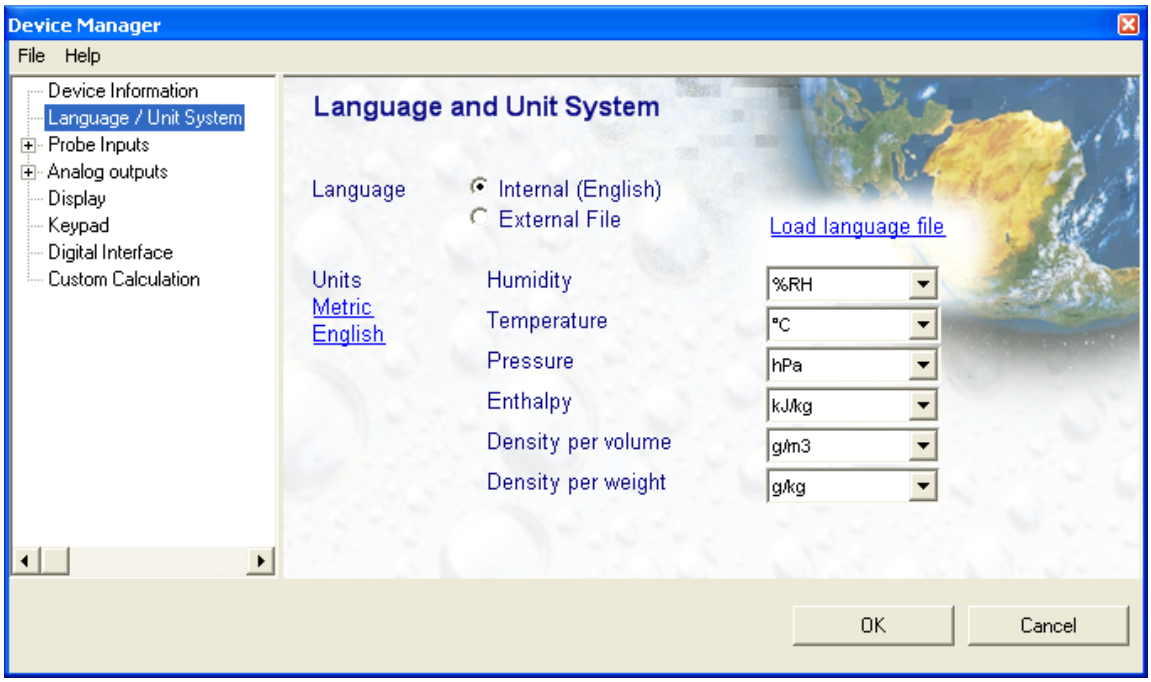
3.2 *Device Information*

- **Device name**: this text will be displayed next to the instrument model information. As far as possible use a unique device name.
- **RS485 address**: click on the underlined link to change the instrument address to be used in conjunction with an RS-485 network (multi-drop). Each network address should be unique and within the values of 0 to 63. Note: the default factory RS-485 address is 0. Unless necessary, do not manually modify this address. HW4 will automatically change the RS-485 address of the device, if so required.
- **Device Protection**: this function is available from firmware version 4.1b. For a description, see document E-IN-HW4v2.1-Main

- **Fixed pressure value**: enter here the value of the fixed pressure value that will be used by the HygroFlex when calculating parameters such as the mixing ratio (the HygroFlex can be also configured to read pressure from an analog probe). Note that this numerical value should be consistent with the pressure unit that was selected under **Language / Unit System**.

- **Reference below freezing**: select here whether the HygroFlex should provide the dew point or the frost point for values below freezing.

3.3 *Language / Unit System*



- **Language**: click on the underlined link to change the language used in the device local menus and files to one of the available languages. The link opens the folder where the language files are located (these files have the extension .LNG as in English.LNG). To change the language, simply click on the appropriate file.

- **Units**: use the underlined links to the right of the form to globally change the unit system used by the instrument. If the unit system offers several choices such as In Hg or PSI for pressure, choose a unit by left clicking on the arrow to the right of each text box.

  Humidity: the symbol to be used after the % symbol (RH) should be typed in the text box.

  Note: the units selected for density per volume and density per weight also apply to vapor concentration and specific humidity.

  IMPORTANT: when changing the unit system used by the instrument, be sure to also change the numerical value of the fixed pressure to be consistent with the new unit system (see Device Information). Neglecting to do so will result in an error on the value of any parameter that uses barometric pressure as a calculation input.

3.4 *Probe Inputs*

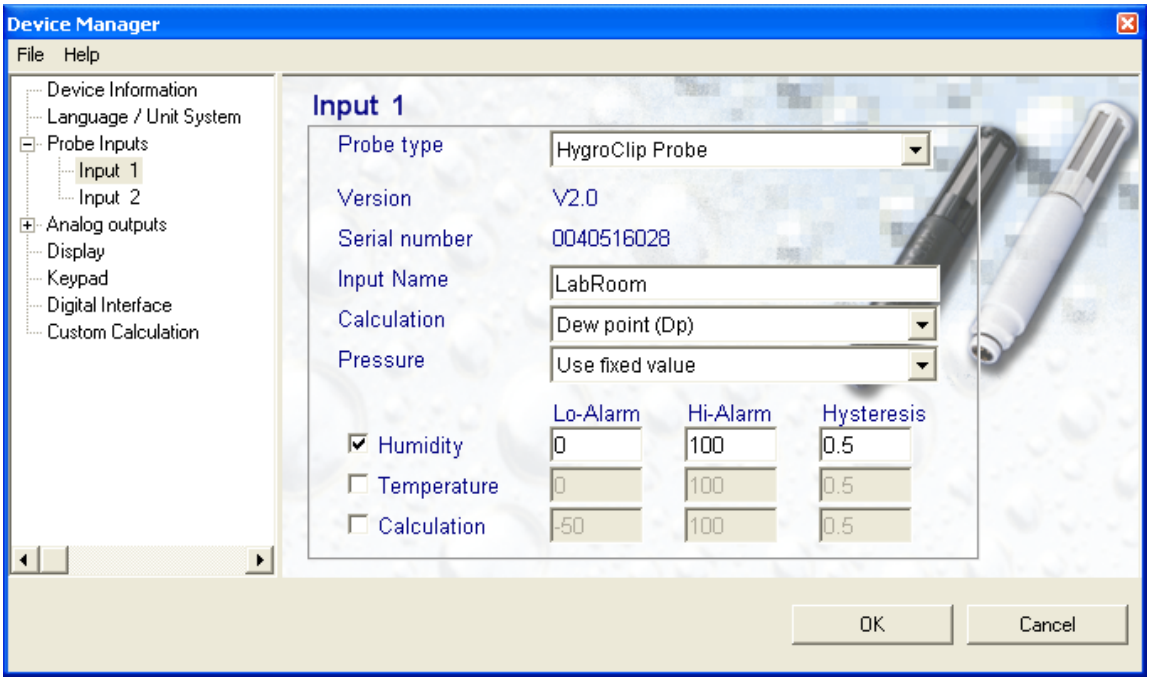
Clicking on the plus sign to the left of “Probe Inputs” expands the tree and displays input 1 and input 2 (optional input). Both inputs are listed regardless of whether or not they do exist on the actual transmitter. Selections made in the View tab (HW4 main screen) have no effect.

The following probe types may be used:

- HygroClip probe
- Analog humidity-temperature probe [1]
- Analog probe [1]
- Pressure probe [1]

[1] Must be compatible with the requirements specified in the HygroFlex instruction manual.

3.4.1 Probe type: HygroClip



- **Probe type:** select from the pull down menu (click on the arrow)

- **Input Name**: use a maximum of 12 characters

- **Calculation**: left click on the arrow to the right of the list box and select the parameter to be calculated by the HygroFlex for this particular probe. This is also the calculated parameter that HW4 will display for this probe

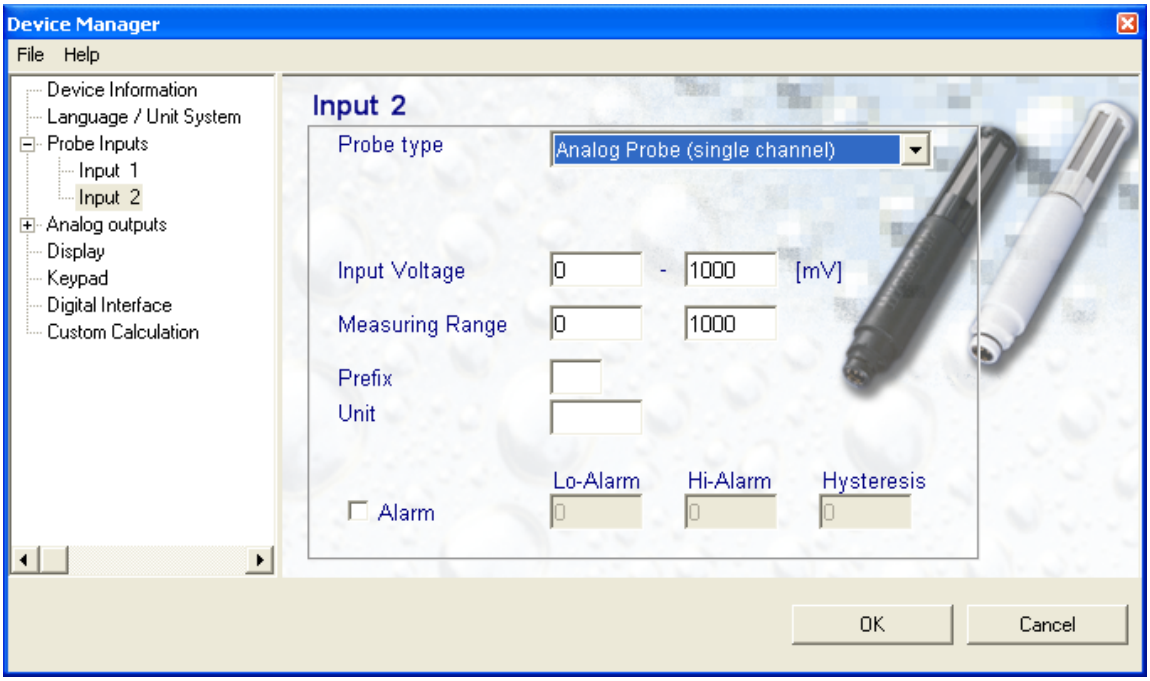
  Dew point (Dp): for values below freezing, the HygroFlex will calculate either the dew point or the frost point, depending on the selection made under Device Information. Both the HygroFlex and HW4 will display either the symbol Dp or the symbol Fp. The symbol Fp indicates that any value below freezing is

a frost point as opposed to a dew point. When selected, the symbol Fp is also be displayed for values above freezing. This of course is to be understood as being the same as dew point.

- **Pressure**: left click on the arrow to the right of the list box and select which barometric pressure will be used by the HygroFlex to compute parameters such as wet-bulb, mixing ratio, etc. The HygroFlex can be ordered with a second probe input configured to read the analog signal from a pressure probe.

- **Alarm**: alarm conditions can be defined for humidity, temperature and the calculated parameter. Values that are below the low alarm value or above the high alarm value will trigger an alarm. A value can be specified for the alarm function hysteresis. This value is used for both the low and the high alarm. To trigger an alarm only in the event that a probe is missing, disconnected or not transmitting data, simply enable the alarm for one of the parameters and set the Hi and Lo values to the range of the probe (for example 0 and 100 for humidity). All versions of HW4 will show an out-of-limits value alarm in red on the monitor screen. HW4 Professional can also be configured (HW4 global settings - Alarm settings tab) to display an alarm table and generate a report whenever an out-of-limits condition occurs.

3.4.2 Probe type: Analog Probe (single channel)

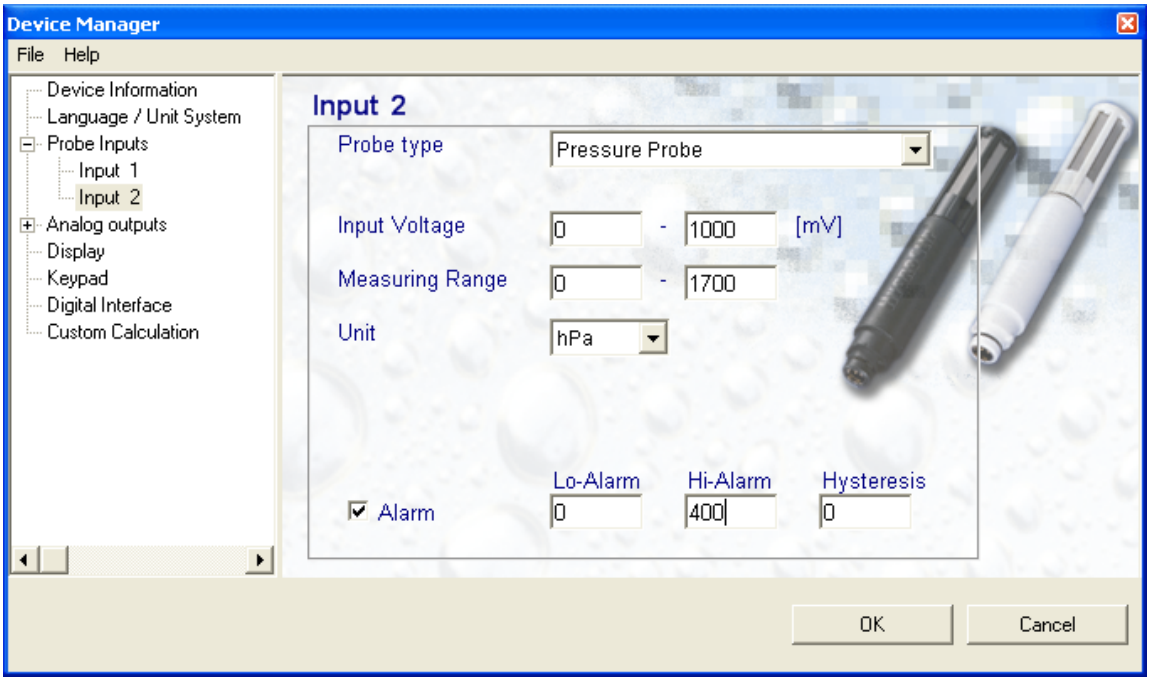


Specify the range of the input voltage (**in mV**), the measuring range of the probe, the symbol to be used on the HygroFlex display (Prefix) and the engineering unit of the parameter measured by the probe. Alarm values can be entered in the same manner as for a HygroClip probe.

Note: In the HW4 main menu bar, use **View - Column Headers** and enable the item "**Value 1**" in order to see data from the probe in the Current Values tab (do this both in Device View mode and in Device View mode).

3.4.3 Probe type: Pressure probe

The pressure probe is a particular case of the single channel analog probe. The difference is that the choice of unit symbols is limited to commonly used pressure units. The signal from the pressure probe can be used as an input by another probe input (input 1) when calculating a psychrometric parameter that depends on the value of barometric pressure. See example below:

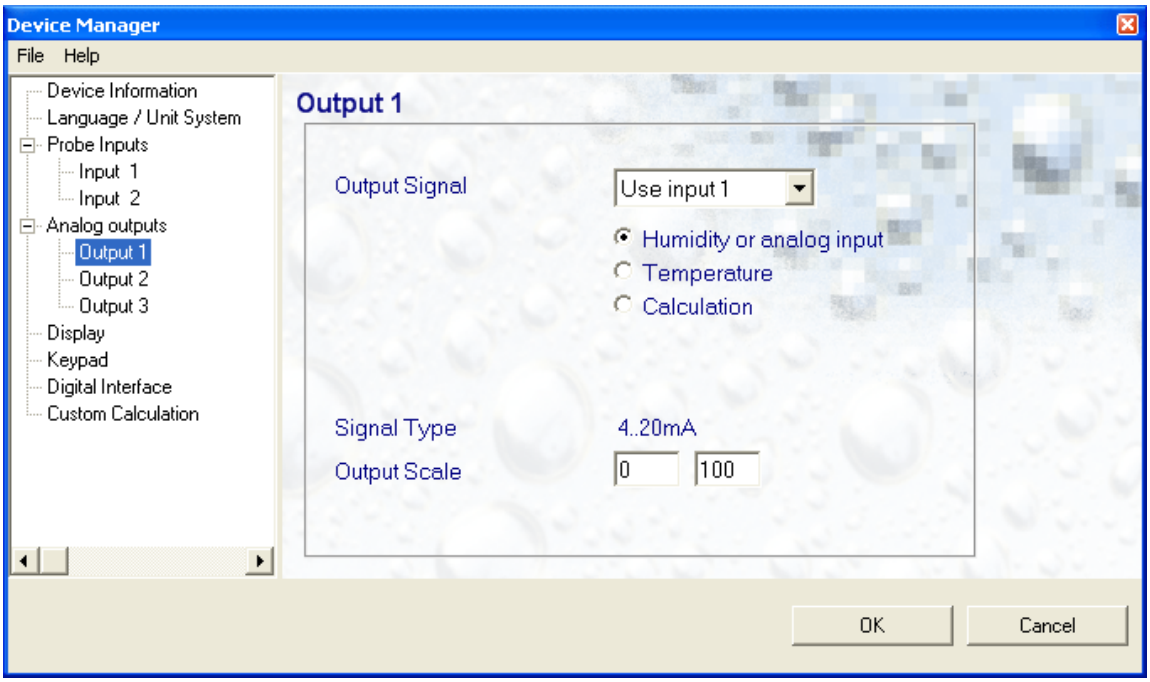


Specify the range of the input voltage (**in mV**), the measuring range of the probe and the engineering unit used by the probe (this may be different from the selection made under Language / Unit System). Alarm values can be entered in the same manner as for a HygroClip probe.

Note: In the HW4 main menu bar, use **View - Column Headers** and enable the item "**Analog In**" in order to see data from the probe in the Current Values tab (do this both in Device View mode and in Group View mode).

3.5 *Analog Outputs*

The HygroFlex 3 features 3 analog outputs. Each output can be configured individually.



- **Output Signal:** select from the pull down menu (click on the arrow) to associate a probe input - or a custom calculation - with the analog output.

  When selecting a probe input, specify which parameter should be used to generate the analog output signal: humidity, temperature or calculated parameter (such as dew point, as defined under Probe Inputs).

  Note: if so desired, the same parameter may be used for more than one analog output signal

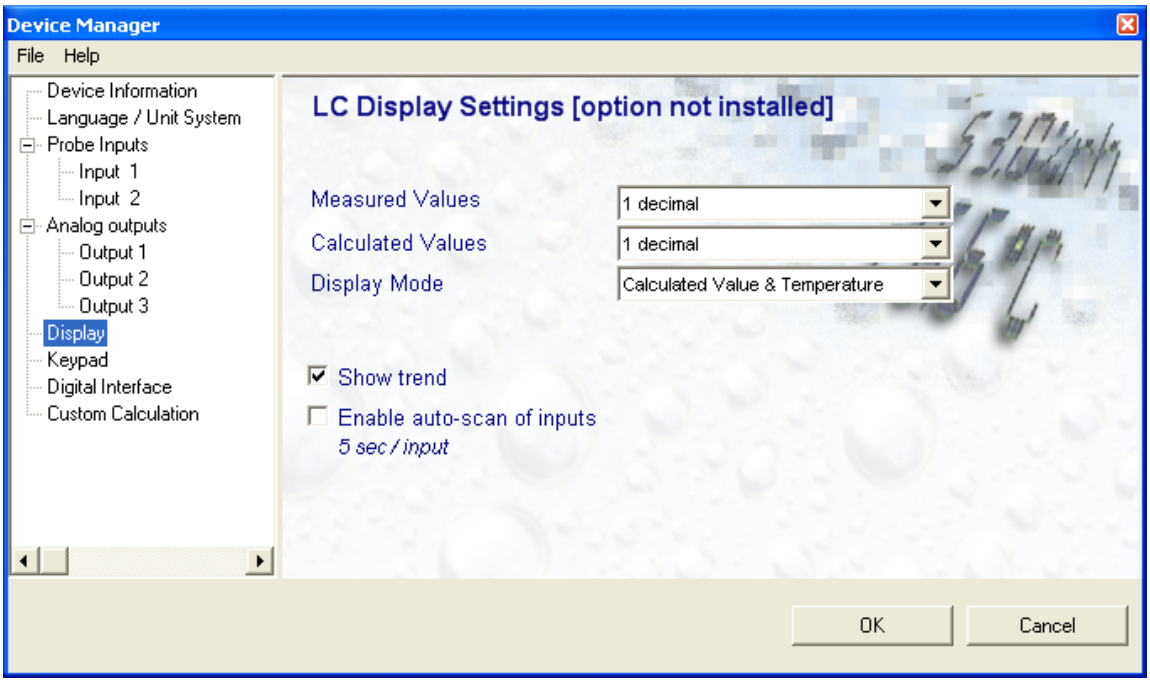
- **Signal Type**: this is purely informative and cannot be changed here. To change the signal type (4…20mA, 0…5V, etc.) the position of a number of jumpers must be changed on the PCB of the HygroFlex (see separate HygroFlex manual).

- **Output Scale**: enter the numerical values that should correspond to the lower and upper limits of the analog output signal

  Example:

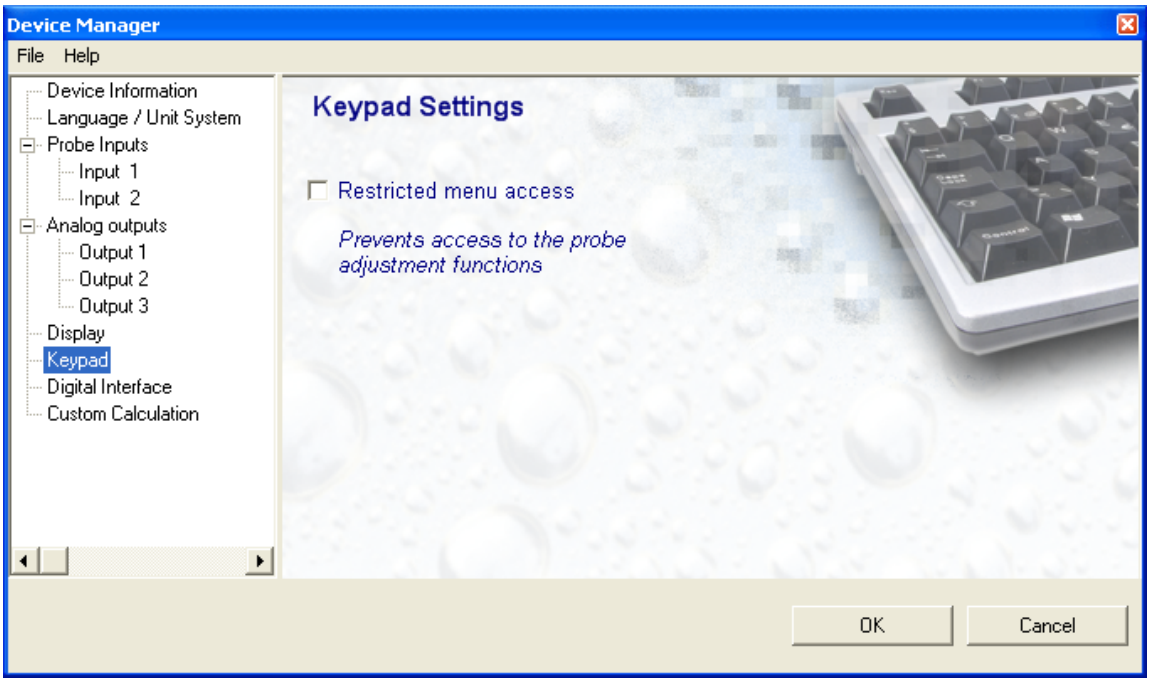
  - Parameter for the analog output signal = humidity (%RH)
  - Output scale: enter 0 and 100 for a full scale output (4…20mA = 0…100%RH)
    or 50 and 100 for a partial scale output (4…20mA = 50…100%RH)

3.6 *Display*



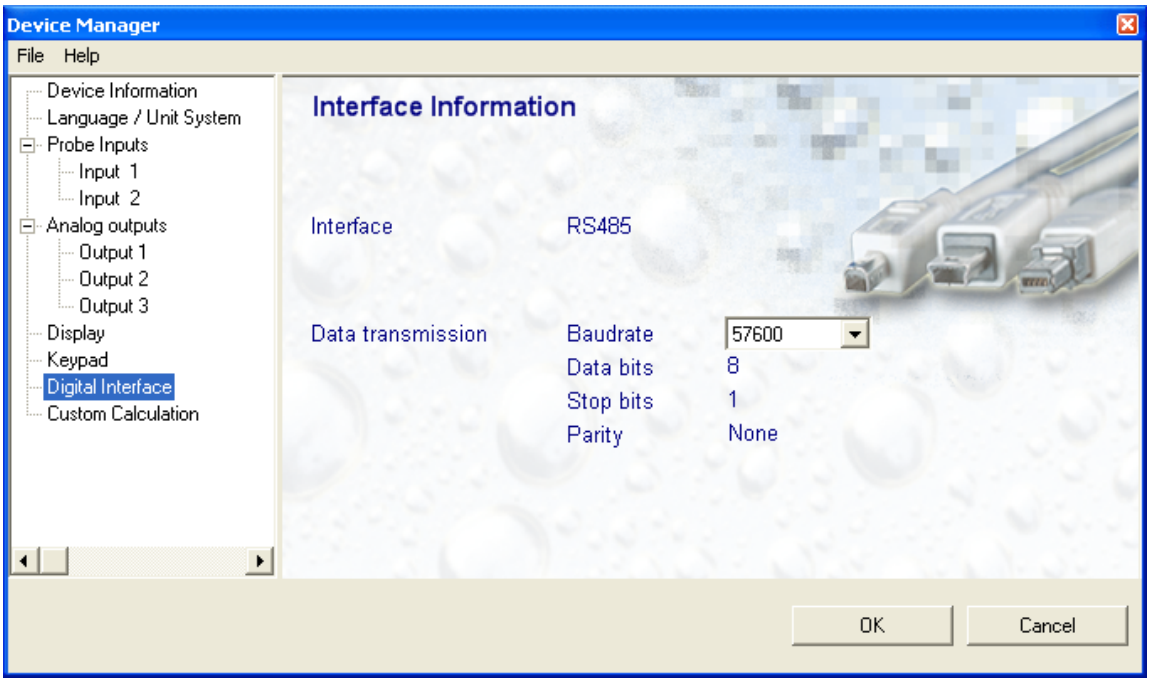
- **Measured values**: left click on the arrow to the right of the list box and select the number of decimals to be used by the optional display for directly measured values such as humidity, temperature, pressure, etc.
- **Calculated Values**: left click on the arrow to the right of the list box and select the number of decimals to be used by the optional display for calculated values such as dew point, custom calculation, etc.
- **Display mode**: left click on the arrow to the right of the list box and select the type of contents for the optional display of the HygroFlex.
- **Show trend**: when this box is checked a trend indicator appears on the optional display to the left of the measured values and calculated parameter. This indicator shows if the values are increasing, decreasing or stable. When the trend indicator is enabled, symbols such as Dp (for dew point) are no longer shown on the display).
- **Enable auto-scan of probe inputs**: check this box to make the display automatically switch between probe inputs every 5 seconds.

3.7 *Keypad*



Restricted menu access: check this box to prevent tampering with the probes. Access to all probe adjustment functions from the local keypad of the HygroFlex is blocked out.

3.8 *Digital Interface*



This form is used to select the RS-232 / RS-485 baud rate between 57600 and 19200. Other data cannot be changed from within the form. Generally, use a baud rate of 19200 when you plan on connecting more than 2 or 3 HygroFlex transmitters and similar devices to an RS-485 multi-drop.

IMPORTANT:

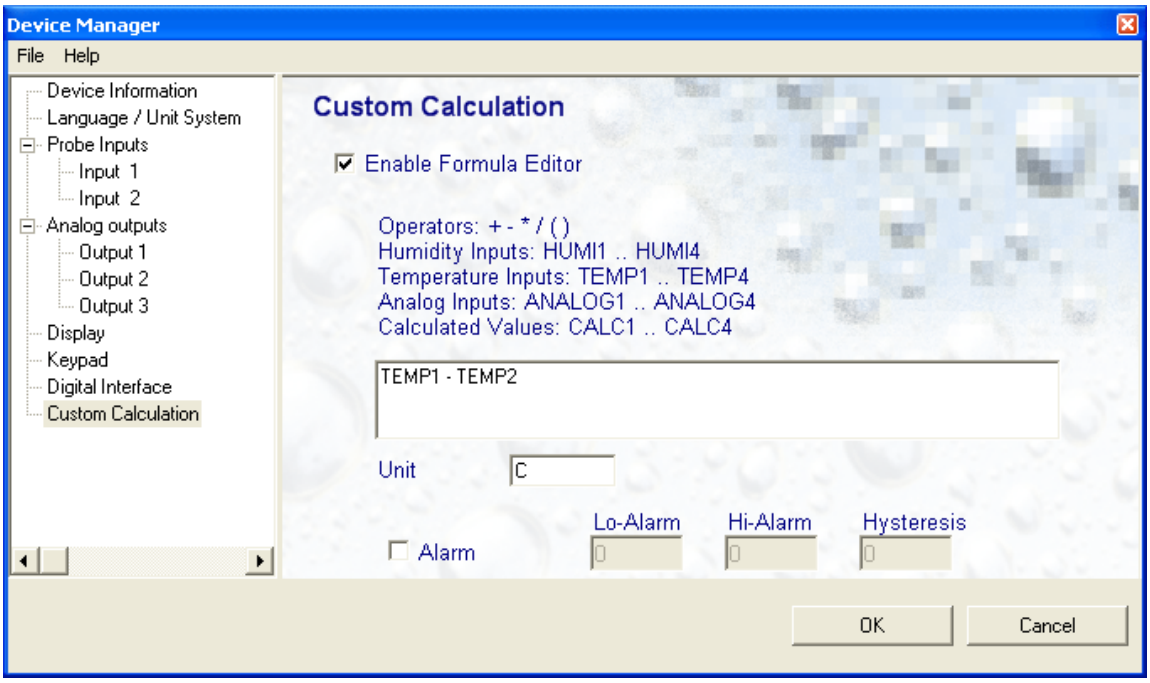
To ensure backward compatibility with the ROTRONIC HW3 software, set the baud rate to 19200

All instruments within the same RS-485 multi-drop should use the same baud rate. Communication within the RS-485 multi-drop will not work when instruments are configured with different baud rates.

Models with Ethernet (TCP/IP) interface: after changing the baud rate in Device Manager, you should also reflect the change in the configuration of the internal Digi International module used by the device to connect to the LAN. See: **Changing the baud rate of an Ethernet device** in document E-IN-HW4v2.1-Main.

3.9 *Custom Calculation*

The HygroFlex 3 allows defining a simple custom calculation such as the temperature difference between two probes connected to the HygroFlex.



To define a custom calculation, click on the check box next to Enable Formula Editor.

Enter a custom formula in the text box. The parameters that can be used for a custom calculation and the operators are defined directly on the form. The above example illustrates a custom calculation consisting in the temperature difference between probe 1 and probe 2.

Specify the unit symbol to be shown on the HygroFlex display.

Alarm values can be entered in the same manner as for a HygroClip probe.

4 DOCUMENT RELEASES

Release	Software Ver.	Date	Notes
_10	3.0.0	Jun. 18, 2010	Original release