HYGROPALM21/22-A

SHORT INSTRUCTION MANUAL

AIR CHIP TECHNOLOGY

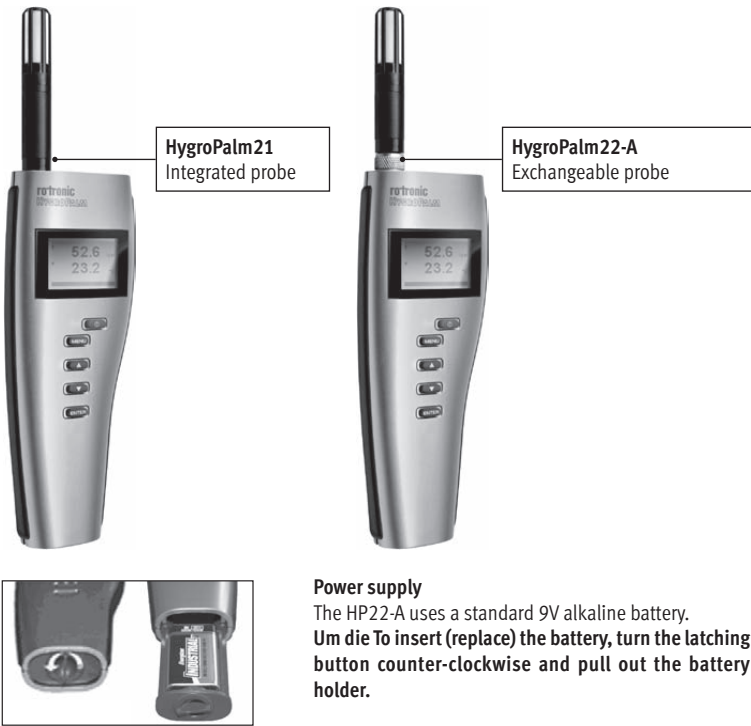### Portable humidity and temperature instrument

General description
The HygroPalm21 is a highly accurate hand-held indicator that displays relative humidity, temperature and the dew or frost point.

The HygroPalm22-A is a highly accurate hand-held indicator that displays relative humidity, temperature and a calculated parameter such as the dew or frost point.
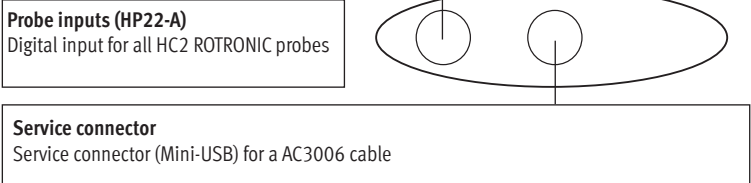
Programming
The basic settings of the devices such as display, units (Metric / English), language and probe settings will be done in the factory. Some of the settings can be changed afterwards using the HW4 Software (optional).

These short instructions are limited to a description of the main functions and installation of the device. The detailed instruction manual can be found on the internet: **www.rotronic.com**


HygroPalm21
Integrated probe

HygroPalm22-A
Exchangeable probe

Power supply
The HP22-A uses a standard 9V alkaline battery.
Um die To insert (replace) the battery, turn the latching button counter-clockwise and pull out the battery holder.

Measured Parameters	HP21	HP22-A
Humidity / Temperature	•	•
Calculated Parameters		
Dew- / Frostpoint	•	•
Wet bulb temperature (Tw)		•
Enthalpy (H)		•
Vapor concentration (Dv)		•
Specific humidity (Q)		•
Mixing ratio by weight (R)		•
Vapor concentration at saturation (Dvs		•
Vapor partial pressure (E)		•
Vapor saturation pressure (Ew		•

Connections

Probe inputs (HP22-A)
Digital input for all HC2 ROTRONIC probes

Service connector
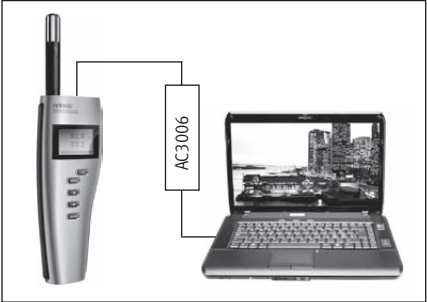Service connector (Mini-USB) for a AC3006 cable

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All HygroClip2-series probes can be connected to the HygroPalm22-A probe input. A calibration of the device, after changing the probe is not necessary.
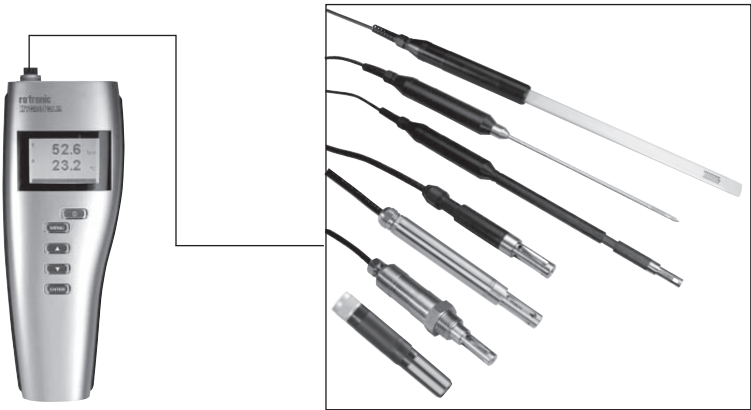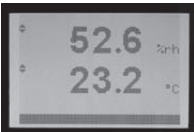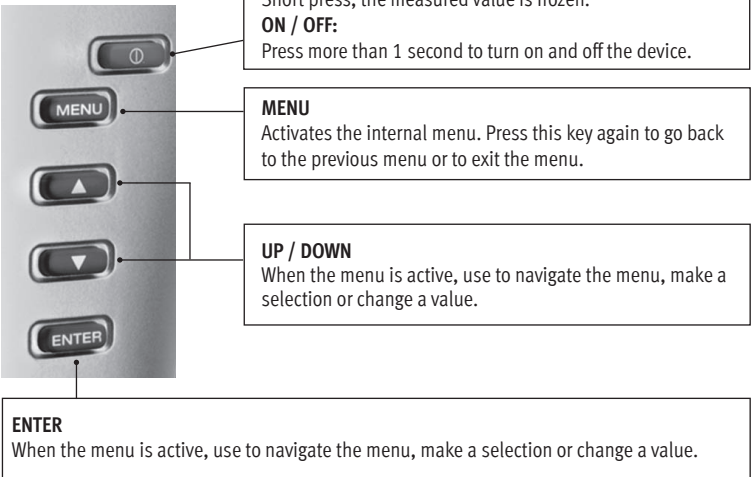

Connection to a PC or Laptop
Connect the HP21 and HP22-A via the service cable AC3006 (optional available) to a Laptop or PC. Data analysing, setting changes are done with HW4.

Functions Key

HOLD: (only HP22-A)
Short press, the measured value is frozen.
ON / OFF:
Press more than 1 second to turn on and off the device.

MENU
Activates the internal menu. Press this key again to go back to the previous menu or to exit the menu.

UP / DOWN
When the menu is active, use to navigate the menu, make a selection or change a value.

ENTER
When the menu is active, use to navigate the menu, make a selection or change a value.

Display and display modes
The LC display has a backlight which can be set to be on all the time or whenever a key is pressed. The backlight can also be disabled. Using the HP21/22 MENU › *Device Settings* › *Back Light* using the up / down buttons and confirm it with ENTER.

HP21: The first line of the display shows, depends on the settings, the humidity, dew- or frost point, on the second line the temperature.
HP22-A: The first line shows humidity, the second line the temperature and the third line the calculated value.

The display can also be configured to show a trend indicator on each line:

▲ increasing value ▼ decreasing value ▲▼ Constant value (End value is reached)

In the event of an alarm the symbol **[!]** appears to the right of the value.

Practical advice for measuring humidity
The most common source of error when measuring relative humidity is a difference between the temperature of the probe and the temperature of the environment. At a humidity condition of 50 %RH, a temperature difference of 1°C results in an error of 3 %RH on relative humidity.
When using the HP21/22 hand-held indicator, it is good practice to monitor the display for temperature stability. The probe should be given sufficient time to equilibrate with the environment to be measured. The larger the initial temperature difference between the probe and the environment to be measured, the more time temperature equilibration requires. This time can be shortened, and errors avoided, by using the probe configuration that fits best for your application. In extreme situations, condensation may occur on the sensors when the probe is colder than the environment. As long as the humidity / temperature limits of the humidity sensor are not exceeded, condensation does not alter the calibration of the sensor. However, the sensor has to dry out before it can provide a valid measurement. Non-moving air is an excellent insulator. When there is no air movement, surprising differences in temperature and humidity can be noted over short distances. Air movement at the probe generally results in measurements that are both faster and more accurate.

Changing the parameters shown on the display
The temperature unit of the HP21 (°C or °F) HP22-A (metric or English) can be changed from the keypad MENU › *Device Settings* › *Unit*.
• Relative humidity and temperature
• Dew / frost point and temperature (HP21)
• Relative humidity, temperature and calculated parameter (HP22-A)

Note HP22-A: As soon the calculated value is shown in the display, the parameter can be changed by using the UP / DOWN bottons

Changing the units
The temperature unit of the HP21 (°C or °F) HP22-A (metric or English) can be changed from the keypad MENU › *Device Settings* › *Unit*.
• Press the MENU key to show the internal menu on the display
• With the menu item Settings highlighted, press the ENTER key
• With the menu item Unit highlighted, press the ENTER key
• Use the UP or DOWN key to change the temperature unit as desired

Press the MENU key twice to exit the menu and return the HP21 to normal operation

Low battery indicator
When the battery is down to about 20% of its initial charge, "Low Battery" appears at the bottom of the display.

Periodic calibration check of the probe
Both the PT100 RTD temperature sensor used in the probe and associated electronics are very stable and should not require any calibration after the initial factory adjustment. Long term stability of the ROTRONIC Hygromer® humidity sensor is typically better than 1 %RH per year. For maximum accuracy, calibration of the probe should be verified every 6 to 12 months. Applications where the probe is exposed to significant pollution may require more frequent verifications.

Menu structure (English language file)

MAIN MENU	SELECTIONS / INFORMATION	NOTES
Device Settings		
Units	Metric / English	
Back Light	Key Press / On / Off	Display backlight mode
Contrast (HP22-A)		LC display contrast adjustment
Trend (HP22-A)	On / Off	Trend indication on the display
Device Information		
Version	Firmware version	
Serial Nbr	Serial number	
Address	RS-485 address	
Type	Device type	
Name	Device name	User defined
Sensor Test (HP21)	Humidity sensor status	Off / Good / SQ-Tuned / Bad

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Probe Information (HP22 only)

Version	Firmware version	
Serial Nbr	Serial number	
Address	RS-485 address	
Name	Device name	User defined
SensorTest	Humidity sensor status	Off / Good / SQ-Tuned / Bad
Record	On / Off	Data recording by the probe (max. 2000 values)
Humidity Adjust		
RefValue	Humidity reference value	±0.1 %RH steps
Acquired (HP22-A)		Number of cal. points in probe memory
‹Acquire› (HP22-A)		Save cal. point to probe memory
‹Delete› (HP22-A)		Erases all calibration points
‹Adjust› (HP21)		Effect depends on number of calibration points
‹Adjust› (HP22-A)		1-point adjustment only (offset)
Temperature Adjust		
RefValue	Temperature reference value	±0.1 °C steps
‹Adjust›		1-point adjustment only (offset)

Technical data
Battery type: 9 V alkaline

Measuring range HP21
Humidity / accuracy: 0...100 %RH / ±1.0 %RH @ 23 °C
Long term stability: ‹1 %RH/year
Temperature / accuracy: −10...60 °C / ±0.2 °C @ 23 °C
Long term stability: ‹0.1 °C/year
Maximum air velocity at probe: 20 m/s

Measuring range HP22-A
Humidity and temperature: Depends on the probe

Environmental limits
Storage and transit: −20...70 °C / 0...100 %RH, non condensing
Operating limits at electronics: −10...60 °C / 0...100 %RH, non condensing

Dimensions: 270 x 70 x 30 mm
Weight: About 200 gr.