

# Handheld Instruments

Measurement of humidity and temperature is essential in many production, storage, transportation, and test applications. Many processes can only be performed if humidity and temperature conditions are within a specific range. Materials and products do not perform correctly if climatic conditions are incorrect. The ROTRONIC handheld instruments are the perfect tool for portable measurements, which are the first step to define ambient conditions.

Our range of handheld instruments are highly accurate, but are easy to use and maintain. Configuration and programming is performed in the factory; however, certain models offer the possibility to alter the instrument programming to specific customer needs with user-friendly software or integrated keypad. A wide range of interchangeable probes means simple maintenance and application flexibility.

## Key features

- Accuracy and long term stability
- Interchangeable digital sensor module
- Compact, modern instruments
- Large display with good contrast
- HOLD Function
- Wide range of probes
- Battery powered

## Your benefits

- Reliable data and reduced maintenance
- Simple calibration & maintenance
- Easy to use and handle
- Clear observation of measured values
- Reliably capture of measured values
- One instrument – many applications
- Suitable for use anywhere



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# Handheld Applications



## Building Management / HVAC

Accurate and reliable thermohygrometers are needed to verify correct system performance during commissioning. Rotronic handhelds and their ability to be calibrated on-site often settles disputes about whose instrument is correct!



## Research

Many research tests must have the humidity conditions defined for the results to be accepted or considered to be reliable.



## Museums, libraries & art galleries

Conservation applications require dependable measurements and low cost of ownership. Rotronic handhelds have been a mainstay in this markets for three decades.



## Climatic test cabinets

Many products are tested over a variety of climatic conditions. The exceptionally wide measuring range of the ROTRONIC handheld units means these conditions can be easily spot checked.



## Warehouses & storage

Many products need to be stored in certain conditions to remain in good condition.



## Paper Industry

The first ROTRONIC products were developed for the paper industry, and today we have the largest world-wide sales of sword hygrometers for paper stack monitoring.



## Health and Fitness Centres, Hospitals, Classrooms

In public areas it is especially important to maintain correct humidity values to minimise health risks.



## Industrial process monitoring

The maximum measurement temperature of 200°C and the robust design of our probes means that even the most difficult process application can be checked with a ROTRONIC handheld.

# HygroPalm Series

## Humidity and Temperature Display Instrument for digital HygroClip® probes

HygroPalm represents a new generation of portable humidity/temperature instruments utilising the very latest digital technology. The advantage of digital technology is clear; highest precision is assured thanks to data transmission in a digital form, which means no signal loss over extended cable lengths and no external interference can influence measured values. Calibration data is maintained within the probe, which means there is no need to calibrate the whole system, and probes can be interchanged in seconds.



### HygroPalm 1

**Key features:**

- Handheld display unit for humidity and temperature
- Digital signal processing for maximum accuracy
- Display of dew point or wet bulb temperature
- Standard alkaline batteries used
- Interface for HygroFlex Transmitters
- One-point adjustment of probes
- Operating range probes: -50...200 °C, probe dependent

Order code:  
**HygroPalm 1** (probe must be ordered separately)



### HygroPalm 2

**Key features:**

- All functions of HygroPalm 1
- Second probe input %rh and °C
- Multiple point probe adjustment
- RS232 PC interface
- Calculation of various psychrometric parameters
- Formula Editor

Order code:  
**HygroPalm 2** (probe must be ordered separately)



### HygroPalm 3

**Key features:**

- All functions of HygroPalm 2
- Universal input for pressure, air-speed etc.
- Dynamic pressure compensation
- Bi-directional interface for HygroFlex transmitters
- Formula Editor

Order code:  
**HygroPalm 3** (probe must be ordered separately)



### PalmDock Docking Station

Benchtop docking station designed for use with all HygroPalm models for RS232\* PC interface and power connection (with external power adaptor).

\* HygroPalm 1 does not feature RS232 interface.

- Order code:
- PD 1** without lock
  - PD 2** with lock
  - PalmDock-1** with HW3 Software\* & datacable, without lock
  - PalmDock-2** with HW3 Software, datacable, & lock
  - AC1207** Power adaptor

\* Further information in the chapter HW3 Software

# HygroPalm

## Feature Overview



# HygroClip Probes for HygroPalm

A range of probes for different applications are available for the HygroPalm display instruments. All probes are based on the digital HygroClip technology, and can be interchanged within seconds without need for recalibration. With special adaptor cables, even probes designed for transmitters may be used.



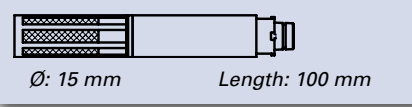
## HygroClip S/S1

Standard sensor module for humidity and temperature. A wire mesh filter provides sensor protection against dust and high air velocity. Dimensions Ø15 x 100 mm. IP rating: IP65

HygroClip S1 is specially calibrated and certified to provide measurement accuracy of ±1 %rh.

Measurement range: -40...85 °C , 0...100 %rh  
 Accuracy (S1): ±1.0 %rh, ±0.2 K (at 23 °C)  
 Accuracy: ±1.5 %rh, ±0.3 K (at 23 °C)

Order code:  
**HygroClip S1**  
**HygroClip S**

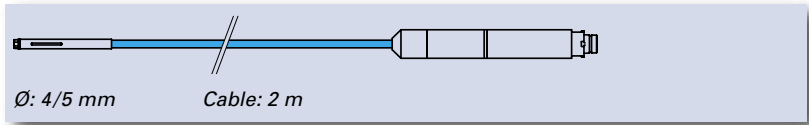


## HygroClip SC04 / SC05

4/5 mm diameter cable probe for humidity and temperature measurements in small spaces such as product & packaging testing, concrete, electronic test and climatic chambers. Cable length 2m

Measurement range: -40...100 °C , 0...100 %rh  
 Accuracy: ±1.5 %rh, ±0.3 K (at 23 °C)

Order code:  
**HygroClip SC04**      4 mmØ probe  
**HygroClip SC05**      5 mmØ probe

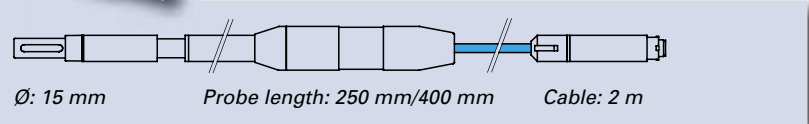


## HygroClip HK 25 /HK40

High temperature probe for measurements in ducts, dryers, climatic chambers etc. Probe length 250 or 400 mm.

Measurement range: HK25: -50...150 °C, 0...100 %rh  
 HK40: -50...200 °C, 0...100 %rh  
 Accuracy: ±1.5 %rh, ±0.3 K (at 23 °C)

Order code:  
**HygroClip HK25**      (250 mm probe, max. 150 °C)  
**HygroClip HK40**      (400 mm probe, max. 200 °C)



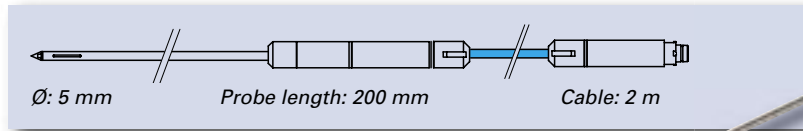
# HygroClip Probes for HygroPalm

## HygroClip SP05

Fast response 5 mm diameter insertion probe with laser cut air slots for bulk goods such as corn, wheat, & granules. Also suitable for measurements in concrete and brick. Not suitable for powders. Probe length 200 mm.

Measurement range:  $-40...85^{\circ}\text{C}$  ,  $0...100\%rh$ ,  
Accuracy:  $\pm 1.5\%rh$  ,  $\pm 0.3\text{ K}$  (at  $23^{\circ}\text{C}$ )

Order code:  
**HygroClip SP05**

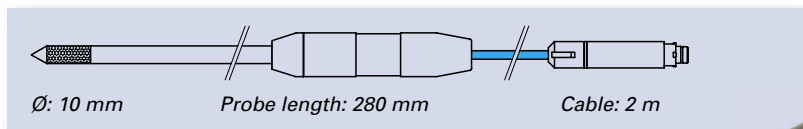


## HygroClip HP28

Robust 10 mm diameter tubular probe for measurements in bulk products such as powders & granules. Probe length 280 mm, 2 m cable, steel sinter filter.

Measurement range:  $-40...85^{\circ}\text{C}$  ,  $0...100\%rh$   
Accuracy:  $\pm 1.5\%rh$  ,  $\pm 0.3\text{ K}$  (at  $23^{\circ}\text{C}$ )

Order code:  
**HygroClip HP28**

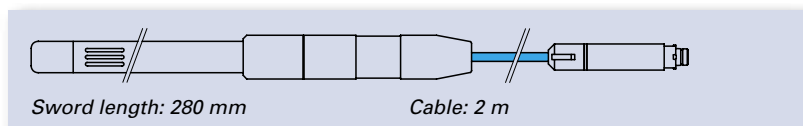


## HygroClip HS28 Sword Probe

For measurements in paper stacks/rolls. Lightweight, yet robust aluminium blade for fast temperature and humidity equilibrium. Blade 280 x 18 x 4 mm.

Measuring range:  $-40...85^{\circ}\text{C}$  ,  $0...100\%rh$   
Accuracy:  $\pm 1.5\%rh$  ,  $\pm 0.3\text{ K}$  (at  $23^{\circ}\text{C}$ )

Order code:  
**HygroClip HS28**



# Handheld Sets and Accessories

Measuring instruments often need to be transported around site, and in some cases from building to building. We have created a series of handheld measurement sets which securely contain most commonly used standard equipment and accessories. Carry cases are also useful for storing instruments when not in use, and help to maintain long-term stability by protecting the units from climatic variations or contamination in storage conditions.



## HygroPalm 1 Set

- Consists of:**
- HygroPalm 1 Handheld Instrument
  - HygroClip-S probe
  - Calibration device ER15, fitting for HygroClip-S
  - Humidity standards 50 %rh EA50-SCS
  - Robust carrying case AC1116
- Order code:**  
**HygroPalm 1-Set**
- Suitable for:**  
HVAC technicians, supervisors

## HygroPalm 2-Set-HS28

- Consists of:**
- HygroPalm 2 Handheld Instrument
  - HygroClip-HS28 probe
  - Calibration device EGS, fitting for HygroClip-HS28
  - Humidity standards 50 %rh EA50-SCS
  - Robust carrying case AC1117
  - Software HW3
  - Connection Cable
- Order code:**  
**HygroPalm 2-Set-HS28**
- Suitable for:**  
Paper processing industry, any user of cut-sheet material

## HygroPalm 3-Set-PC

- Consists of:**
- HygroPalm 3 Handheld Instrument
  - HygroClip S probe
  - Calibration device ER15, fitting for HygroClip-S
  - Humidity standards 50 %rh EA50-SCS
  - Robust carrying case AC1116
  - Software HW3
  - Connection Cable AC1622
- Order code:**  
**HygroPalm 3-Set-PC**
- Suitable for:**  
Users who want to record measured values on a PC and calibrate their probes.

## Temperature adaptor for Pt100 probes

The HygroPalm can also handle Pt100 probes with standard Binder connector, see page 89 for a range of compatible Pt100 probes.

**Order code:**  
**HygroClip-TH100-B5**

## Windspeed probe Mini Air6 Micro

Mini Air 6 can be connected to HygroPalm 2 & 3 types as well as to data loggers and industrial transmitters.

Measuring range: 0.5 – 20 m/s  
 Temperature range: -10...80°C  
 Output signal: 0 – 2.0 V  
 Head-Size: Ø11 x 15 x 165 mm  
 Cable length: 5 m

**Order code:**  
**MiniAir6 Micro 20M/s**

Other windspeed probes available on request

The GTS is a classic ROTRONIC product which has stood the test on time. It was designed specifically for the measurement of humidity and temperature within stacks of paper, cardboard or any other cut-sheet material. The robust design in combination with updated electronics make the GTS the most popular instrument for paper and card applications.

## GTS – for paper and cardboard stacks

- Display of relative humidity or temperature
- Simple one button operation
- Auto power off function
- Low-battery indicator

Order code:  
**GTS**



## GTS – Set-Measurement set for cut-sheet material

### includes:

- GTS instrument
- Robust carrying case
- Calibration device EGS
- Humidity standards EA50-SCS (5 ampoules 50 %rh with SCS certificate)
- Adjustment tool

Order code:  
**GTS-Set**



## Carrying case for GTS, without instrument

Order code:  
**AC1102** Case (without accessories)

## A1 for air measurement

Another classic design which we retain thanks to continuing demand from our customers.

- Reference probe for relative humidity and temperature
- Integrated climate probe with adjustable position
- Large, clear display
- Simple operation
- Hold function
- Auto power off
- Battery status indicator
- Battery or accumulator operation
- Temperature Display in °C or °F

Order code:  
**A1**



## Accessories for the A1

- Robust and handy carry case for A1 instruments plus accessories.
- Calibration device EGL (see page 98)
- Calibration standards (see page 97)

Order code:  
**AC1115** Case (without accessories)



# Technical Data Summary

Features	HygroPalm 1	HygroPalm 2	HygroPalm 3	A1	GTS
Humidity sensor Hygromer® Temperature sensor	HygroClip-S probes with Hygromer® AC-1 Sensor Pt100 1/3 DIN			AC-1 Pt100 B	
Probe connections (combined %rh/°C)	1	2		Integrated probe	
Signal input	1 digital	2 digital	2 digital or 4 analogue		
Third party probe input	No		0...2.5 V		
Supply for 3 <sup>rd</sup> party probe	No		9 V / 10 mA	No	
RS232 Interface	No	Yes		No	
Display Humidity Temperature	3-line alphanumeric LCD			3-digit LCD 3 ½ digit LCD	3-digit LCD (% rh or ° C)
Display units	% rh, °C, °F, calculated param.		Freely select.	% rh, °C, °F	% rh, °C, °F
Resolution	0.1% rh / 0.1 °C			0.1% rh / 0.1 °C	0.1% rh / 0.1 °C

## Probe adjustment

1 point % rh, °C	By Keypad		By potentiometer
4-point % rh, 2 point °C	No	By Keypad and Software	
3-point % rh, T min./Tmax.	N/A		
2-point % rh, Tmin / Tmax	N/A		35 / 80 / 10 % 35 / 80 %

## Calculation & unit display

Dew-point and wet bulb temperature	Yes			No
Full psychrometric calculation	No	Yes		No
Pressure compensation of calculated values	No adjustment	manually with Software	dynamically with pressure probe input	No
Humidity displayed in Aw units	No		Yes	No
Formula Editor	No	Yes		No

## Remote Transmitter Control

Transmitter adjustment	No	Yes		No
Transmitter adjustment against reference probe	No	Yes		No
Transmitter measurement display	Yes			No
Transmitter status display	No	Yes		No

## Operating ranges of electronics

Humidity/Temperature	0...100 %rh, non condensing / -10...60 °C		0...100 %rh -10...50 °C
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## Measuring ranges

Measuring ranges (probes)	Probe dependent 0...100 %rh / -50...200 °C	5...99.9 %rh / -25...75 °C	5...99.9 %rh -10...50 °C
Accuracy at 23 °C	±1.5 %rh / ±0.3 K		±1.5 %rh / (±2.5 <15%>90%) ±0.3 K
Reproducibility	< 0.5 %rh / < 0.1 K		
Long Term Stability	< 1 %rh / Year		

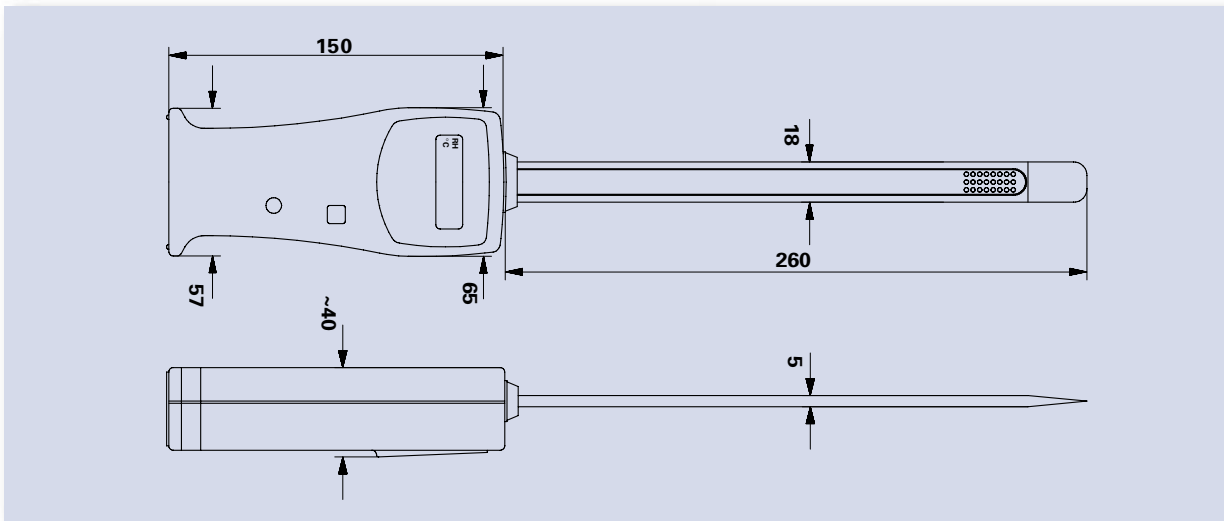
## Power Supply

9 V PP3 alkaline battery	Yes			
9V Accumulator	Yes	No	Yes	
230 V External supply voltage	Optional, only with Docking Station		No	

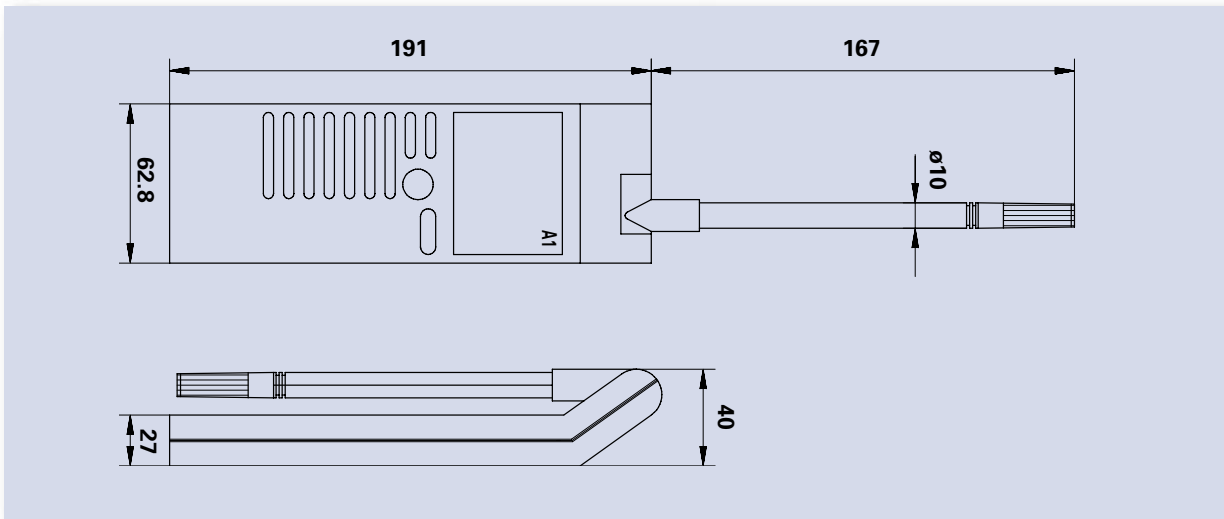
Type of enclosure / IP Rating	IP 50			
Housing material	ABS			
Dimensions in mm	295 x 70 x 35		190 x 63 x 26	420 x 70 x 40
Weight	ca. 200 g		ca. 170 g	ca. 400 g

# Dimensional Diagrams

## GTS



## A1



## HygroPalm

