

Hand-held Humidity Precision Measuring Unit

HND-F



- Measuring range:
4 ... 100% weight moisture
0 ... 100% relative humidity
- Measuring accuracy
starting with $\pm 0.2\%$
- Large selection of electrodes
and accessories
- Temperature measurement
and compensation
- Serial interface,
hold function, real-time clock,
logger function
- Robust housing
IP 65, front



KOBOLD companies worldwide:

AUSTRALIA, AUSTRIA, BELGIUM, BULGARIA, CANADA, CHINA, CZECHIA, FRANCE, GERMANY, GREAT BRITAIN, HUNGARY, INDIA, INDONESIA, ITALY, MALAYSIA, MEXICO, NETHERLANDS, PERU, POLAND, REPUBLIC OF KOREA, SPAIN, SWITZERLAND, THAILAND, TUNISIA, TURKEY, USA, VIETNAM

KOBOLD Messring GmbH
Nordring 22-24
D-65719 Hofheim/Ts.
Head Office:
+49(0)6192 299-0
+49(0)6192 23398
info.de@kobold.com
www.kobold.com



Nearly all measuring tasks for the determination of weight and gas moisture can be performed with the HND-F series KOBOLD hand-held humidity measuring units. Various housing designs make it possible to find the right housing with the appropriate characteristic for every application. In addition to the large selection of humidity sensors for weight and gas moisture, measuring probes are also available for measuring air and water flow.

In the following table, all KOBOLD hand-held humidity measuring units are listed with their respective equipment characteristics to ensure fast classification. Further technical details and additional information regarding the housings can be found on the subsequent pages.

Characteristics of hand-held humidity precision measuring units of the HND-F... series

Performance characteristics		HND-F105	HND-F205	HND-F110
Material moisture		x	x	x
Gas moisture		-	-	-
Flow		-	-	-
Temperature		x	x	x
Measuring range*	Humidity	0.0-100% GM	0.0-100% GM	0.0-100% GM
	Temperature	-40.0 ... +200.0 °C		-25.0 ... +50.0 °C
	Flow	-	-	-
Accuracy**		start with $\pm 0.2\%$	start with $\pm 0.2\%$	start with $\pm 0.2\%$
Display (LCD)		2x 4-digit	2x 4-digit	2x 4-digit
Output	0-1 Volt	x	x	-
	Interface	x	x	-
Connection		BNC-plug, NiCrNi-plug type K	BNC-plug, NiCrNi-plug type K	integrated measuring pin
Min./max. value memory		-	-	-
Min./max. alarm		-	-	-
Auto-off function		x	x	x
Hold function		x	x	x
Logger function		-	x	-
Real time clock		-	x	-
Power supply	Battery	x	x	x
	External	x	x	-

*Measuring range depends upon the probe used

**Measuring unit accuracy, without taking the accuracy of the respective probe into consideration



HND-F105/205

- Material moisture measurement
- External and internal temperature measurement
- Analogue output or interface
- 494 material characteristic curves
- Humidity evaluation



HND-F110

- Material moisture measurement
- Internal temperature measurement
- Including integrated measuring pins
- 494 material characteristic curves
- Humidity evaluation

Description

The KOBOLD hand-held measuring units HND-F105/205/110 are a completely new development and offer decisive advantages in handling, user-friendliness, scope of functions, and accuracy during measuring work.

Technical Details

Measuring principle: humidity: resistive material moisture measurement in accordance with DIN EN 13183-2: 2002
temperature intern: NTC

only HND-F105/205 temperature extern: thermocouple element, NiCr-Ni (type K)

Measuring range: humidity: 0.0 ... 100% weight moisture (depending upon the respective material characteristic curve)

HND-F105/205 Temperatur: -40.0 ... +200.0 °C (-40.0 ... +392.0 °F)

HND-F110 temperature: -25.0 ... +50.0 °C (-13.0 ... +122.0 °F)

Accuracy: (at nominal temperature)
wood: ±0.2% weight moisture (deviation from the respective characteristic curve in the range 6...30%)
construct.: ±0.2% weight moisture (deviation from the resp. char. curve)
temperature (external): ±0.5% of reading ±0.3 °C

Temperature compensation: manually or automatically

Resolution: 0.1% or 0.1 °C (0.1 °F)

Display: two 4-digit LC-displays

Permissible operating temperature: -25 ... +50 °C

Storage temperature: -25 ... +70 °C

Storage humidity: 0 ... 95% rH (non-condensing)

Probe connection:
HND-F105/205 humidity: BNC
temperature: NiCr-Ni-plug that is free of thermoelectric voltage

HND-F110 two pin brackets M6 x 0.75 with 19 mm measuring pins (12 mm usable length)

Output:

only HND-F105 / 205:
0-1 V, freely scalable or serial interface (via 3-pin jack, transformer on RS232 or USB optional)

Power supply:

9 V-monobloc battery (included in the scope of delivery),
only HND-F105/205:
external 10.5 - 12 V_{DC} via jack

Material:

housing made of impact-resistant ABS plastic

Protection: IP65, front

Dimensions: 142 x 71 x 26 mm (HxWxD)

Weight: approx. 155 g (HND-F105/205)
approx. 175 g (HND-F110)

Scope of functions

- **Hold function:** »freezing« of the current value
- **Auto-hold:** autom. freezing of a constant measured value
- **Sort:** limitation of the material selection to max. 8 favorites
- **Automatic-off function:** 1...120 min (can be deactivated)
- **Individual humidity evaluation:** wet/moist/dry
- **Saved weight moisture of 494 materials**

Additional functions with model HND-F205

- **Logger function:** manual 99 datasets, cyclic 9999 datasets; adjustable cycle time: 1 min ... h
- **Real-time clock:** time with day, month and year
- **User characteristic curves:** 4 (freely programmable)

Order Details

Order-no.	Housing design
HND-F105	For material moisture, standard
HND-F205	For material moisture with additional functions (see technical details)
HND-F110	For material moisture (with integrated measuring pins)

Suitable probe and accessories see pages 5-6




Humidity measurement probes for HND-F105/205/110

Cable HND-Z051/-Z056 for connection of probe with measuring unit must be ordered as a separate position!


Order-no.	Probe type	
HND-FF01	Hollow hammer electrode	
HND-FF02	Impact electrode	
HND-FF03	Modified impact electrode with HND-FF02-front and handle	
HND-FF04	Measuring sticks 300 mm long (pair) for woodchips, excelsior, paper, etc. (for screwing onto HND-FF03)	
HND-FF05	Brush probe (pair), short, for depths of up to approx. 100 mm	
HND-FF06	Brush probe (pair), long, for depths of up to approx. 300 mm	
HND-FF07	Roller sensor for surface measurement continuous sheets made of paper, textiles, etc.	
HND-FF09	Flat electrode (for screed, paper, etc.)	
HND-FF10*	Floating external NiCr-Ni-temperature probes	
HND-FF11	Sensor for surface measurement of paper, textiles, etc.	
HND-FF12	Wood moisture set, contents: HND-Z023 / -Z051 / -Z053 / -FF02 / -FF10	
HND-FF13	Wood and construction moisture set, contents: HND-Z023 / -Z051 / -Z052 / -Z053 / -FF02 / -FF04 / -FF05 / -FF10	
HND-FF14	Injection probe 43 cm (without temperature sensor) for measurement up to a depth of 40 cm, incl. 1 m connection cable. Suitable for: wood chips, wood wool, straw, hay, grain, saw dust, etc.	

* Not for HND-F110

Humidity measurement probes for HND-F105/205/110 (continuation)

Order-no.	Probe type	
HND-FF15	Injection probe 110 cm (without temperature sensor) for measurement up to a depth of 107 cm, incl. 1 m connection cable. Suitable for: wood chips, wood wool, straw, hay, grain, saw dust, etc.	
HND-FF16	Injection probe 43 cm (with temperature sensor) for measurement up to a depth of 40 cm, incl. 1 m connection cable. Suitable for: wood chips, wood wool, straw, hay, grain, saw dust, etc.	
HND-FF17	Injection probe 110 cm (with temperature sensor) for measurement up to a depth of 107 cm, incl. 1 m connection cable. Suitable for: wood chips, wood wool, straw, hay, grain, saw dust, etc.	

Probe for humidity and temperature measurement for HND-F215

HND-FF31	<p>Temperature/moisture probe, calibrated and completely replaceable Messbereich: humidity 0.0...100.0 rH, temperature -40.0...120.0 °C Accuracy: humidity ±2.5% rH linearity, temperature ±0.5 °C Sensors: capacitive polymer probes / Pt 1000 1/3 DIN Operating temperature: handle / electronics -25...+60 °C, Sensor head and tube -40...+60 °C (short-term +120 °C) Dimensions: probe Ø 14 x 119 mm, handle Ø 19 x 135 mm, 1 m cable</p>	
----------	---	---



Accessories for precision humidity measuring units HND-F and probe HND-FF

Order-no.	Description
HND-Z002*	Plug power supply unit (220/240 V _{AC} , 50/60 Hz), 10,5 V _{DC} / 10 mA
HND-Z015	Protective housing bag, nappa leather, with cut-out for 1x round / 1x square sensor connection
HND-Z021**	Case with recess (275 x 229 x 83 mm)
HND-Z022**	Universal case with egg crate foam (275 x 229 x 83 mm)
HND-Z023**	Large case with recess (394 x 294 x 106 mm)
HND-Z031*	Interface converter on RS232, galvanically isolated
HND-Z032*	Interface converter on USB, galvanically isolated
HND-Z033*	Adapter RS 232 converter on USB-interface
HND-Z034	Windows software for setting, data read-out, and printing of the data of housings of the HND- series with logger function
BUS-S20M	Software for recording measurement data on a computer, for instruments of the HND-series without logger function
HND-Z051	Measuring cable (BNC on 2 x banana plugs) approximately 1 m long, for HND-F105/205
HND-Z052	100 ml conductivity paste for surface measurement and depth measurement in masonry, screed, etc. using brush probes
HND-Z053	Steel pins (3 units each 12 mm, 16 mm, and 25 mm long)
HND-Z054	Surface measuring caps (pair) for screwing onto HND-FF02/03
HND-Z055	Replacement sensor element for HND-FF11
HND-Z056	Measuring cable (2 x banana plugs, on 2 x banana plugs), length approx. 1 m, including plug adapter for HND-F110 (not for HND-FF08 and HND-FF10)
HND-Z057	Replacement measuring pins (10 units) for HND-F110
HND-Z058	Testing adapter

* Not for HND-F110

** Observe instrument dimensions

More accessories on request