

# Package BW-KS

## Applications

The BW-KS package is designed for inspection, construction, restoration and water damage repair jobs. Three tasks can be accomplished:

1. Using as a dual-depth pinless meter, accurate percentage and search mode.
- 2. Concrete moisture testing using in-situ RH BluePeg probes**
3. Using as a precision Thermo-Hygrometer

Lignomat's RH BluePeg system is designed to measure moisture in concrete complying with ASTM standard F2170.

## Advantages

Wood moisture, concrete moisture and the humidity in air can all be measured with the Ligno-DuoTec BW. All three parameters need to be known before determining whether or not it is safe to install resilient floor coverings or coatings.

### 1. Ligno-DuoTec BW

The meter provides for **pinless** moisture measurements and relative humidity measurements. It has more than 90 correction settings for measuring domestic and tropical wood species, gypsum and different types of wall boards, bamboo and panel products. Relative scales are included for concrete (ASTM F2659), cementitious materials and different types of engineered panels.

To activate the **RH** mode, plug the RH Thermo-Hygro probe into the top of the meter.

The DuoTec pinless mode allows fast and easy measurements of flat materials up to 1/4" or 3/4" deep, using separate sets of calibrations for each measuring depth.

- If the material is not flat, or measurements should reach deeper and show differences between surface and core, choose the Ligno-VersaTec and the **pin** Electrode E12 or E14V to accomplish those tasks.

### 2. In-situ probe testing of concrete moisture:

The BW-KS package contains accessories needed for RH testing:

1 RH Bluepeg probe, 10 sleeves with caps, 1 RH-CC cable, 1 brush (drill bit not included). Design of equipment and test procedure are governed by ASTM standard F2170. Lignomat's RH BluePeg system complies with the latest F2170 standard.

After drilling, cleaning and setting the sleeve, the RH BluePeg probe easily drops into the sleeve. The cap fits perfectly and is as flat as can be. The cable connection is provided by a simple, fail-proof 3.5mm stereo plug. No pin alignment of the cable needs to be fitted and no set-up of the meter is necessary. The meter switches into RH mode as soon as a RH cable is connected. Plug in and read, that's what our customers like. See page 4.

The display shows the measured RH and temperature value and the RH Probe number. The RH probe number is an individual number 1-999 to allow keeping track of probe measurements and location during testing.

Lignomat offers 1.8" and 3" long sleeves.

- RH in-situ accessories listed page 3.
- Advantages of Lignomat's RH system see page 4.

### 3. Using BW-KS as Thermo-Hygrometer:

At any time the RH BluePeg probe can be connected to the Ligno-DuoTec BW to obtain measurements for relative humidity, ambient temperature, dew point temperature and grains per pound: **RH, Temp, DewT, GPP**. The RH probe is more than qualified for the task with precision accuracy and a fast response time.

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Pinless, dual-depth moisture and RH meter with accessories for **in-situ concrete testing**.



**1.** Using as a wood moisture meter. Can measure concrete with reference scale.



**2.** Concrete moisture testing with in-situ RH probes. RH-CC Cable used to read RH probe in sleeve. Easy-to-read VersaTec meter. The red caps are used to mark sleeves with probes.



**3.** Using as precision thermo-hygrometer. Check EMC chart. for MC-RH relationship.

## Ligno-DuoTec BW Meter and RH BluePeg Specifications

Calibration Stability for pinless mode: The Ligno-DuoTec BW has proven to be a trustworthy meter when measuring moisture. The calibration is checked internally before each measurement and if necessary, automatically adjusted. These "background checks" before measurements assure calibration consistency for every reading for Lignomat's pinless meters. Manual re-calibration by the customer is not necessary. Lignomat offers an external calibration check block TS for scan and TP for pin to confirm the accuracy of the meter.

A pinless advantage: Pinless meters from Lignomat measure lower moisture contents than pin meters. A feature specifically valued by the flooring industry in areas with low relative humidity and high desert climate zones.

Size: 4.75"L X 2.5"W X 1"H

Measuring Range:

- Wood: 5-60%, dependent upon wood species, lower for hard woods, less accurate above fiber saturation point at about 25%.
- Gypsum, Sheetrock, Wall Boards (water resistant, interior, exterior): 0-7%
- 3 Reference scales including a scale for concrete: 0-99

Display: Resolution: 0.1% for entire range

Automatic calibration check

Built-in 3.5mm stereo connector for RH Thermo-Hygro probe

### Species Corrections

over 90 settings to correct for:

- domestic and tropical wood species
- bamboos, vertical, horizontal and strand
- laminates and wood-based panel products

4 Scales in (%) for gypsum, drywall, wall boards (water resistant, interior, exterior)

1 Reference Scale for concrete and other building materials,

- for identification of moisture levels in Search and Compare Mode

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### Specifications RH BluePeg Probe:

RH: +/-2% (10-90%), +/-3% below 10%, above 90%

T: +/- 0.5°F (32-120°F), +/- 1°F (5-32°F and 120-160°F) Response time 8 sec.

Resolution for RH and T: 0.1% and 0.1°, entire range

Meter connection via RH adapter or RH cable.

Note: Off-the-shelf thermo-hygrometers usually come with an accuracy rating of  $\pm 5\%$  for relative humidity and  $\pm 2^\circ\text{F}$  for temperature.

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### Package Includes

1 Ligno-DuoTec BW meter with connector for RH probes / RH cables

1 9V battery

1 laminated wood group card and 1 instruction manual

1 RH BluePeg probe

1 RH adapter, short plug for thermo-hygrometer mode

1 RH-CC cable with sleeve seal plug, can also be used for remote RH measurements

10 RH sleeves standard length 1.8"

1 brush

1 case S (optional pouch)



Lignomat's in-situ probe system is easy to use and easy to read with the Ligno-DuoTec BW. For advantages see page 4.



RH accessories include:

- BluePeg Probe
- RH Cable, Adapter
- RH Sleeves

All RH in-situ probe accessories are listed on page 3.



RH BluePeg system gives accurate and reliable measurements for concrete moisture levels. Ask for floor manufacturers requirements to find permissible RH range for measurement. Measures moisture where it counts, even when the slab is covered..

## Accessories Concrete Moisture Testing **with in-situ probes** compliant with ASTM F2170F



1. RH BluPeg probes

### 1. RH BluePeg Probe (#RH-B):

The RH BluePeg probe measures relative humidity and ambient temperature. Readings are obtained at the Ligno-VersaTec, Ligno-DuoTec BW, LignoTec RH or Data logger BL2:

- for measuring ambient conditions
- for obtaining measurements from in-situ probes for concrete moisture testing.

Packaged as single, 3, 5, 10, 20 units.

Red caps are supplied with the multiple packs to mark sleeves, which contain an RH Probe,

When using the RH probes for in-situ testing, the ASTM standard requires testing the accuracy of the probes before reusing them. For on-site and in-office checking we offer salt solutions. We also offer to test the probes free of charge during the first year.



2. RH Sleeves 1.8" and 3"

### 2. RH Sleeves with Caps (#RH-S):

Sleeves are the liners for the test holes, drilled with a 5/8" drill bit. The cap seals the opening. Sleeves can be cut to the required depth. See ASTM F2170 standard for depth requirements.

Sleeves 1.8" available in packs of 20, 50, 100.

Sleeves 3" available in packs of 10,50,100.

Use Depth Adapter (3) for long sleeves and Top Extender (\$) for shortened sleeves.



3. Depth Adapter over 2.4"

### 3. RH Depth-Adapter (#RH-DA):

For sleeves over 2.4" deep we recommend to use Depth-Adapter to make it easier to connect the cable when the probe is further down inside the sleeve. Available as 1 unit and pack 5 units.

### 4. RH Top-Extender (#RH-EX):

The RH BluePeg probe sticks out over the surface of the concrete, when the sleeve is less than 1.6" long. The top-extendors cover the probe during the test and allow using the CC cable the same way as in the sleeve.

### 5. RH Cable for in-situ Concrete Test (#RH-CC):

The RH-CC cable is a standard 3.5mm stereo cable 6ft long. One end is equipped with a sleeve-seat-plug. The plug is used to keep the probe in place while taking measurements and to un-plug the cable without having to take the probe out of the sleeve, which would disturb the acclimation.



4. Top Extender for short sleeves

### 6. RH Salt-solution for 75% Accuracy Check: (#RH-T75)

The salt bottle (75%) is used to check the accuracy of RH probes before reusing, see ASTM standard F2170. Bottle has fittings for RH BluePeg probes and includes RH-CB cable.

7. **Brush (#RH-BR):** Cleaning brush with round tip to brush off loose particles after drilling.

8. **Vacuum Attachment (#RH-V):** Removes dust and loose particles after drilling and brushing.

9: **RH Adapter (#RH-A):** Short connection between probe and meter. The RH adapter is mainly used instead of the cable, when measuring relative humidity and ambient temperatures of air.



5. RH-CC cable for in-situ test



6. Salt Solution 75% Test



7. Brush



8. Vacuum Attachment



9. RH Adapter thermo-hygrometer

## Advantages of Lignomat's in-situ RH Probe, **RH BluePeg System** Acomplies with ASTM F2170F



We have designed a user-friendly, reliable system which complies with the ASTM standard F2170 . The **RH BluePeg probes** use a single microchip, factory calibrated to NIST standards. The RH BluePeg Probes comply with the latest ASTM standard for F2170.

The RH BluePeg probes are retrievable and reusable.

For checking calibration accuracy, the ASTM standard has to be followed. For on-site and in-your office testing we offer a salt-solution bottle to check for 75%, a test allowed by the ASTM standard to check in-situ RH probe accuracy before re-using the probes. For the first year, Lignomat offers to check the probe calibration three times at no charge.



Note: The Lignomats system allows easy tracking of RH probes. Each probe shows its own 3-digit number every time the display is activated for readings.

### **Better sealing, easier-to-place sleeves, adaptable to any length up to 3”:**

Lignomat's sleeves have feathered fins along the entire length, which provide an excellent seal. The lip of the sleeve covers the area around the concrete hole and provides an effective barrier for any air escaping, because the lip is part of the sleeve. At the bottom of the sleeve is a movable cylinder, which places the RH Probe every time as required by ASTM F 2170, even if the hole is slightly too deep. Standard sleeves require no cutting.

Longer sleeves are available 3”. The sleeves can be cut to any depth required.

- If the sleeves are over 2.4” long, we recommend the RH depth-adapter for easier cable connections. (#RH-DA)
- Shorter sleeves may need the top-extender. The top-extender covers the rh probe and plugs into the sleeve to seal during the 24-hour waiting period. (#RH-EX)



### **Better sealing, flatter caps:**

Lignomat's caps come with an O-ring to absolutely seal the sleeves. The caps are flat and do not interfere with any traffic around the test area.



### **Fast connection:**

A fail-proof, easy-connect 3.5mm stereo plug is used to connect RH probes with the RH meters. No twisting, turning or setting-up an instrument for readings. No pin arrangements need to be fitted. We use a standard 3.5mm stereo cable. The cable comes with a seal-plug, which is pressed into the top of the sleeve and keeps the cable during the time moisture readings are obtained. After the readings the cable is un-plugged and removed.

**Most accurate testing:** Our Meter instantly shows the RH and temperature values.

The resolution on Lignomat's RH meters is 0.1, 0.1%, 0.1°. No guessing or rounding up. The large numbers on the display are easy to read from with the meter, which you are holding in your hand.



**Thermo-hygrometer:** The Ligno-DuoTec BW meter can also be used as a thermo-hygrometer. For that application, the short RH adapter comes in handy, the RH adapter is included with every package. All RH meters from Lignomat show relative humidity, temperature, dew