

# Package V2-KM

## Applications

Before installing resilient floor coverings, the moisture in concrete slabs should be tested to avoid floor covering failure. The floor covering industry recommends the RH in-situ probe method for concrete moisture testing.

Complete moisture measuring kit for inspections of floor covering failures. Measures moisture in floor coverings and sub floors and tests concrete moisture with RH in-situ probes.

## Advantages

The versatile, accurate Ligno-VersaTec incorporates multiple functions and delivers absolute reliability for many years of usage.

It is your best choice for a **pin – pinless – RH combination meter**.

The Package V2-KM includes the Ligno-VersaTec for pinless measurements, the E-12 slide hammer electrode for pin measurements and accessories for RH in-situ measurements of concrete moisture with **re-usable RH probes**. Pin mode usage can be optimized by adding the E14-V electrode. Pkg V24-KM

## Description

The V2-KM package offers four measuring technologies to detect moisture levels within the building envelope, including measurements of concrete slabs in preparation for installing resilient floor coverings. Also used when inspecting floor covering failures.

- **Pinless** mode: materials can be checked fast and easy, scanning along the surface.
- **Pin** measurements: The E12 electrode is used for in-depth measurements
- **In-situ** probe testing: Included are standard accessories for in-situ moisture testing of concrete slabs.
- **Thermo-hygrometer**: With RH BluePeg probe and RH adapter, the VersaTec can be used as a precision, fast-acting thermo-hygrometer....

The **pinless mode** in the Ligno-VersaTec is set to measure 1/4" and 3/4" deep, using separate sets of calibrations for each measuring depth. Pinless mode in the VersaTec allows fast and easy measurements of flat materials up to 3/4" deep. If the material is not flat, or measurements should reach deeper and differences between surface and core moisture have to be measured, the Electrode E12 should be used to accomplish those tasks.

## In-situ probe testing of concrete

The V2-KM package contains accessories needed for RH testing:

- 1 RH Bluepeg probe (option 5 or 10 RH probes)
- 10 sleeves with caps
- 1 RH-CC cable and 1 brush (drill bit is not included)
- 1 RH Adapter connector VersaTec to RH BluePeg to use as thermo-hygrometer

Design of equipment and test procedure are governed by the 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 an RH cable is connected. Plug in and read, that's what our customers like.

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

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- Multi-function meter with
- VersaTec by itself as pinless, dual-depth
  - Pin electrode E12 for **depth measurements**
  - RH accessories for **in-situ concrete testing**
  - RH probe, adapter for Thermo-Hygrometer



Slide-hammer to pin-point moisture distribution from surface to core, from floor to sub floor. For quality control, for restoration jobs, when installing, inspecting floors.



Lignomat's RH BluePeg system for in-situ RH concrete moisture testing, conforms to ASTM F2170 with reusable probes.

**Electrode E12:** The E12 is designed to measure from the surface to 2" deep (with DB pins). All E12 pins are insulated and measure only at the tip. The slide hammer helps inserting and removing the pins. As pins are hammered into the material, consecutive readings show the moisture distribution within the material at every depth level the pins are driven to. The ability to measure a moisture gradient is one of the main reasons for our customers to use the electrode E12, even though the Ligno-VersaTec by itself can take moisture measurements at two depth levels 1/4" and 3/4" deep in pinless mode.

**Wood:** Taking numerous readings as pins are inserted, indicate if a moisture gradient exists or if the wood is dry throughout the core. Making sure wood is evenly dried is the best assurance for quality wood products. The thicker the wood, the more important core readings become. When inspecting wood floors, using the E12 gives you a tool to assess moisture distribution through floor planks into the sub floor without having to remove any floor planks. No other tool can achieve the same measuring accuracy at a defined depth.

**Restoration:** The moisture in structural components even behind wall coverings can be checked with the electrode E12. When assessing water damage, the pins of the E12 can be driven to different depth levels and thus indicate how far water has been absorbed or if there is still residual moisture inside the structure after drying. Insulated pins can measure dry material behind wet surfaces.

We recommend adding the electrode E14-V (Package V24-M), if the round head of the E12 cannot reach the area to be measured or you need to measure deeper than 2".

### Meter Specifications

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

Measuring Range:

- Wood: 5-99% (pin)
- Gypsum, Sheetrock, Wall Boards: 0-7%
- Reference Scale: 0-99

Display: Resolution: 0.1 for all values

### Species Corrections

over 170 settings to correct for:

- domestic and tropical wood species
- bamboos, vertical, horizontal and strand
- OSB and wood-based panel products
- gypsum, drywall, wall boards interior, exterior, and water resistant (%)

3 Reference scales for building materials including concrete

**Operation:** Working with the Ligno-VersaTec is simple with clearly marked push buttons. Meter fits comfortable in your hand for pin and pinless readings.

### Functions: Pin and Pinless Mode

Push SET repeatedly to dial settings for species, wood temperature and measuring depth.

Change settings with up and down keys.

Push READ to obtain moisture measurements.

Instrument stays on for 3 minutes, then turns itself off.

At any time you can change from pin mode to scan mode by depressing up or down button

When the RH BluePeg is connected, the meter automatically switches to RH mode. No

further set-up is necessary.

HOLD function is available for measuring in places, where the display cannot be seen or when taking photos of the display.

Display shows moisture percentage, wood species, wood temperature (only pin) and depth settings (only pinless).

**RH Mode:** As soon as the RH BluePeg probe is connected to the Ligno-VersaTec with RH cables or RH adapter, the meter is in RH mode and indicates relative humidity, temperature, DPT, GPP.



The electrode E12 has a slide hammer to insert and extract pins easily. For measurements up to 2" deep.



**Pinless mode:** fast and easy moisture checking of lumber and flat boards. Domestic and tropical woods, wood floors, engineered products, bamboo.



**RH mode - Thermo-Hygrometer:** RH Adapter is used to connect RH BluePeg probe to meter.

## Electrode E12 Specifications

Weight 3.5 lbs. Length without pins 12".

A cable connector (BNC) is mounted at the head of the electrode.

A BNC cable (3ft) to connect electrode E12 to Ligno-VersaTec is included in the V2-11M

**E12 pins** are teflon coated to only measure at the tip and come in three options:

- DZ Pins insulated, measuring depth 1"
- DA Pins insulated, measuring depth 1.5"
- DB Pins insulated, measuring depth 2"

1 pair DZ pins and 1 pair DA pins are included in the package. DB Pins not included.

The **RH BluePeg probe** uses a single micro-chip humidity and temperature sensor, factory calibrated to NIST standards. A NIST certificate can be found on this web page in the Document tab. During the first year we offer to check the accuracy of the probe calibration three times at no extra cost. This is helpful for our customers, who use the RH probes for in-situ concrete testing, because ASTM regulations require a calibration check when the **probes are being re-used**.

### Specifications:

Relative Humidity	0% to 99%: Resolution for entire range is 0.1% ±2% for 10 to 90% ±3% for 0 to 10% ±3% for 90 to 99.9%
Ambient Temperature	5°F to 160°F: Resolution for entire range is 0.1°F (0.1°C) 32°F to 120°F, ±0.5°F (0°C to 50°C, ±0.3°C) 5°F to 32°F, ±1°F (-15°C to 0°C, ±0.5°C) 120°F to 160°F, ±1°F (50°C to 70°C, ±0.5°C)
DPT	- 17.8°F to 160°F (Dew Point Temperature)
GPP	0-99.9 (Grains per Pound)
Size	Ø 0.5 inches (1.27cm), length 1.35 inches (3.8cm) Multiple slots for air circulation around RH sensing element
Connection	Easy-to-connect 3.5 mm stereo connectors.  RH probe comes with 3.5mm stereo jack. RH adapter and RH cables come with 3.5 mm stereo plugs on both ends to connect RH BluePeg probe to meters or data loggers.

Calibration Calibration Salts for 33 and 75% RH available. During the first year Lignomat checks the calibration three times at no charge.

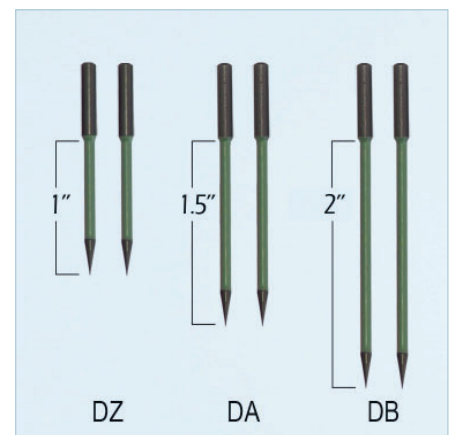
All Lignomat meters come with a 2 year warranty. Accessories have one year warranty. Battery and pins are excluded.

### Package Includes

- 1 Ligno-VersaTec meter with 9V battery, laminated wood group card, instruction manual, built in connector for assortment of external electrodes and in-kiln probes (Adapter H)
- 1 Slide-hammer electrode E12, 1 pair pins DZ 1" and 1 pair pins DA 1.5", teflon-coated
- 1 BNC cable for E12
- 1 Case M
- **RH Accessories**
  - 1 or 5 or 10 RH BluePeg probes
  - 10 Sleeves with caps standard 1.8"
  - 1 RH adapter, direct plug-in for Ligno-VersaTec and RH probe
  - 1 RH concrete cable with seal plug to measure RH, while the RH probe is in the sleeve
  - 1 Brush to clean the hole after drilling



Teflon coated pins measure only at the tip. The E12 is the only tool to measure moisture at a defined depth.



Pins for E12: DZ, DA, DB pins can only be used with the Electrode E12. DB pins need to be ordered separately, not included in package.



RH accessories include:  
- BluePeg Probe  
- RH Cable, Adapter  
- RH Sleeves



# 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 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.

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 temperature.



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. During 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 in place during the time moisture readings are obtained. After the readings the cable is un-plugged and removed. Cable can be unplugged without taking the BluePeg probe out of the sleeve for further testing. Cable is also used to remove the RH BluePeg plug from the sleeve after the test is completed. RH plug can be used for further testing, check calibration rule ASTM F2170 for multiple use probes.

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-VersaTec 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 (Ligno-VersaTec, Ligno-DuoTec BW, Ligno-Tec RH) show

- relative humidity
- temperature
- dew point temperature
- grains per pound.