Tracker MC/RH Package

Package includes everything needed for data logging moisture in wood and other solid materials and relative humidity, ambient temperature in air. Detachable cables allow to install moisture probes and RH probe in remote locations for in-wall and in-depth measurements.

One Tracker is set up for:
- 3 measuring points for wood, drywall, brick and other solid materials
- 1 RH BluePeg probe for relative humidity and temperature

Advantages

When using a data logger for long or short term monitoring, any changes in moisture and humidity are shown continuously. Handheld thermo-hygrometers and moisture meters just show at-the-moment values. Since both moisture and humidity are recorded simultaneously over time, the graph shows how changes in humidity affect the moisture content of the test material.

Description

Tracker and BL2 are the main components: The Tracker MC/RH module measures moisture and humidity and the Memo-Chip BL2 module saves the measurements. The Tracker uses state-of-the-art measuring circuitry for relative humidity, ambient temperature and moisture measurements, same as provided by the advanced Ligno-VersaTec moisture meter from Lignomat.

The package also comes with one relative humidity probe and three cables and screws for measuring moisture in wood, drywall, brick and other solid materials. If screws are not usable for the application, we offer a wide variety of pins and wood probes with the necessary cables to connect to the Tracker (see page 4).

Data Logging:

- Probes, pins, screws and RH BluePeg probe have to be installed and connected to the Tracker.
- The Memo-Chip BL2 has to be set up for a test series (using the free application from the Internet) and connected to the Tracker.
- Recording starts, once the BL2 is connected to the Tracker.

At pre-set time intervals, the BL2 initiates and saves measurements from all measuring stations connected to the Tracker. The BL2 can save up to 32 000 sets of RH and MC measurements with date and time stamp.

To download the measurements, the BL2 has to be disconnected from the Tracker and connected to a PC or tablet. Tracker and all cables can be left in place, while the BL2 is disconnected to review data on the PC. After reconnecting the BL2 to the Tracker, recording will proceed adding measurements to the same log or a new log can be started.

This 2-module system with BL2 and Tracker allows for installing probes, cables and the Tracker permanently and leaving the BL2 in an easy-to-retrieve location for intermittent data retrieval. If necessary, the RH cable between Tracker and BL2 can be made longer than 6 feet to allow the Tracker to be placed in a location far away from the BL2. The RH cable connecting Tracker and BL2 is a standard 6ft stereo cable with 3.5mm plugs.

Applications are:
- from furniture making to wood floor installations
- during storage and shipping
- from crawl space monitoring to attics
- green house moisture control
- from water damage clean-up to moisture in concrete floors
- plus monitoring ambient conditions and moisture in a home or at a customer site
- experimental testing of long term effects of moisture on building materials

Tracker MC-RH data logger for monitoring
- Relative Humidity / Temperature
- Moisture in wood, drywall and other moisture-absorbing materials
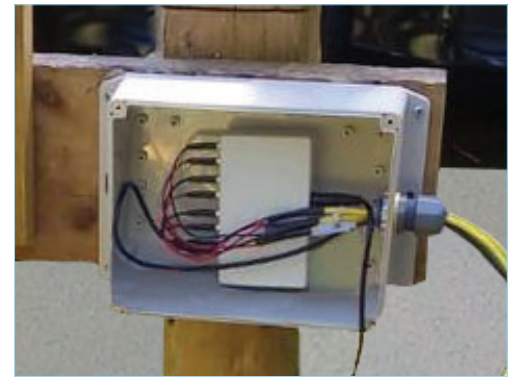
Tracker module can be mounted outside in protective box. All cable connections are protected inside the box. Photo: Test was performed to find out, how well lumber dries when left outside.

Ideal to monitor floors and keep track of changes in moisture content in relationship to the relative humidity. Measures moisture of floor planks directly with pins just like a pin meter.

Lignomat
moisture measurement

Lignomat USA LTD, 14345 NE Morris Ct., Portland OR 97230,
503-257-8957, 800-227-2105, sales@lignomat.com www.lignomat.com Page 1/5

Specifications

Tracker MC/RH Module:

The Tracker MC/RH module contains state-of-the-art measuring circuitry for
- 1 measurement of relative humidity, ambient temperature
- 3 moisture measurements of wood, drywall or other hygroscopic materials

The Tracker has 4 cable connectors in the front and 1 cable connecter in the back. Easy to use and fail-proof, all connections are plug-in connections.

The connectors in the **front** are for the measuring cables:
Three sets of 2mm jacks are for 3 cables with 2mm plugs coming from screws, probes or pins installed in the material for moisture measurements. One 3.5mm stereo jack is for a RH cable or RH adapter to connect the RH BluePeg probe for relative humidity and temperature measurements.

The connector in the **back** is a 3.5mm stereo jack to connect the Tracker to the Memo-Chip BL2 via a RH cable or adapter.

Size: 4" x 2.5" x 1" (10cm x 6.4cm x 2.6cm)
No battery needed, measurements are initiated and recorded by the BL2 Memo-Chip.

Tracker contains measuring circuitry for RH and MC: Front shows plug-ins for 3 moisture measuring cables and 1 RH cable.

Moisture Measurements:

Tracker MC/RH can measure moisture in wood, drywall and other hygroscopic materials. Accuracy of measurements is comparable with the most advanced moisture meter from Lignomat, the Ligno-VersaTec.
Measuring range for wood moisture: 5-99.9%
Tracker has a built-in temperature probe for wood temperature corrections.

Final moisture values, which appear in graph and log on PC are corrected for:
- wood temperature as measured by the Tracker.
- wood species as selected when the BL2 is set up for the test.
- drywall settings and reference scales as selected when the BL2 is set up for the test.
- Resolution: 0.1 for all values.

3 sets of SS screws and 3 LP-mini cables 3 ft long are included in the Tracker MC/RH Package. For more options, see page 3.

Memo-chip BL2 initiates and saves moisture and humidity measurements. Readings need to be downloaded to a PC intermittently or at the end of the test.

Relative Humidity Measurements:

Size of RH BluePeg probe: Ø 0.5" (1.3cm), length 1.35" (3.3cm)
The RH BluePeg probe uses a single microchip, factory calibrated to NIST standard.
Applications: Measuring ambient conditions and in-situ moisture testing in concrete.

Measuring range for relative humidity: 0-99.9%
Accuracy for RH: ± 2% for 10% - 90%, ± 3% for below 10% and above 90%.

Measuring range for temperature: 5^0F to 160^0F (-15^0C to 70^0C).
Accuracy for Temperature:
+/-0.5^0F for 32^0F to 120^0F (+/-0.3^0C for 0^0C - 50^0C)
+/-1^0F for below 32^0F and above 120^0 F (+/-0.5^0C for below 0^0 C and above 50^0 C).

SS screws with LP-mini cables are part of Tracker package. For other options see next page.

Memo-Chip BL2 Module
– Interval 30 sec – 24 hrs, 32000 data sets
– Out of range LED indicators and audible alarms, for low and high ranges
– Time stamp and date for each measurement

Lithium Battery, exchangeable, rated for 8 years
Size: 1"x1.25"x4" (2.5cm x 3cm x 10cm)
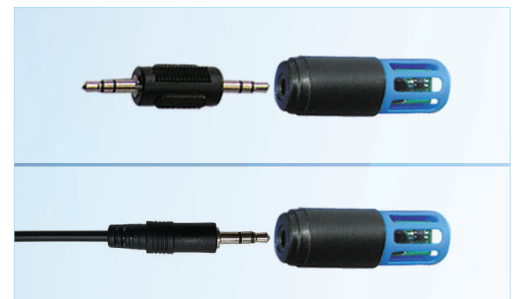Built-in connectors for USB and RH cable or RH adapter

Connection for RH BLuePeg probe with short RH adapter or RH cable for remote measurements.

PK probes, EL pins, EG pins and screws
to monitor moisture conditions with
moisture meters, data loggers and wireless transmitters.

EL Pins 7.5"
can be shortened
to any length
required 7" to 0.5"

Stainless steel
screws

EG Pins
0.75"

Washer

Standoff
5/16"
1/8"

Standoff
5/16"
3/8"

PK-H cables and PK-mini cables
to connect PK probes

LP-H, LP-Hf, LP-mini Cable
with loops (inner dia.5/32")
to connect EL and EG pins,
and screws.

PK Probes measuring depth
1/2", 3/4", 1", 1 1/2", 2 3/4"

Loop nuts with caps
to secure cable to
EL and EG pins
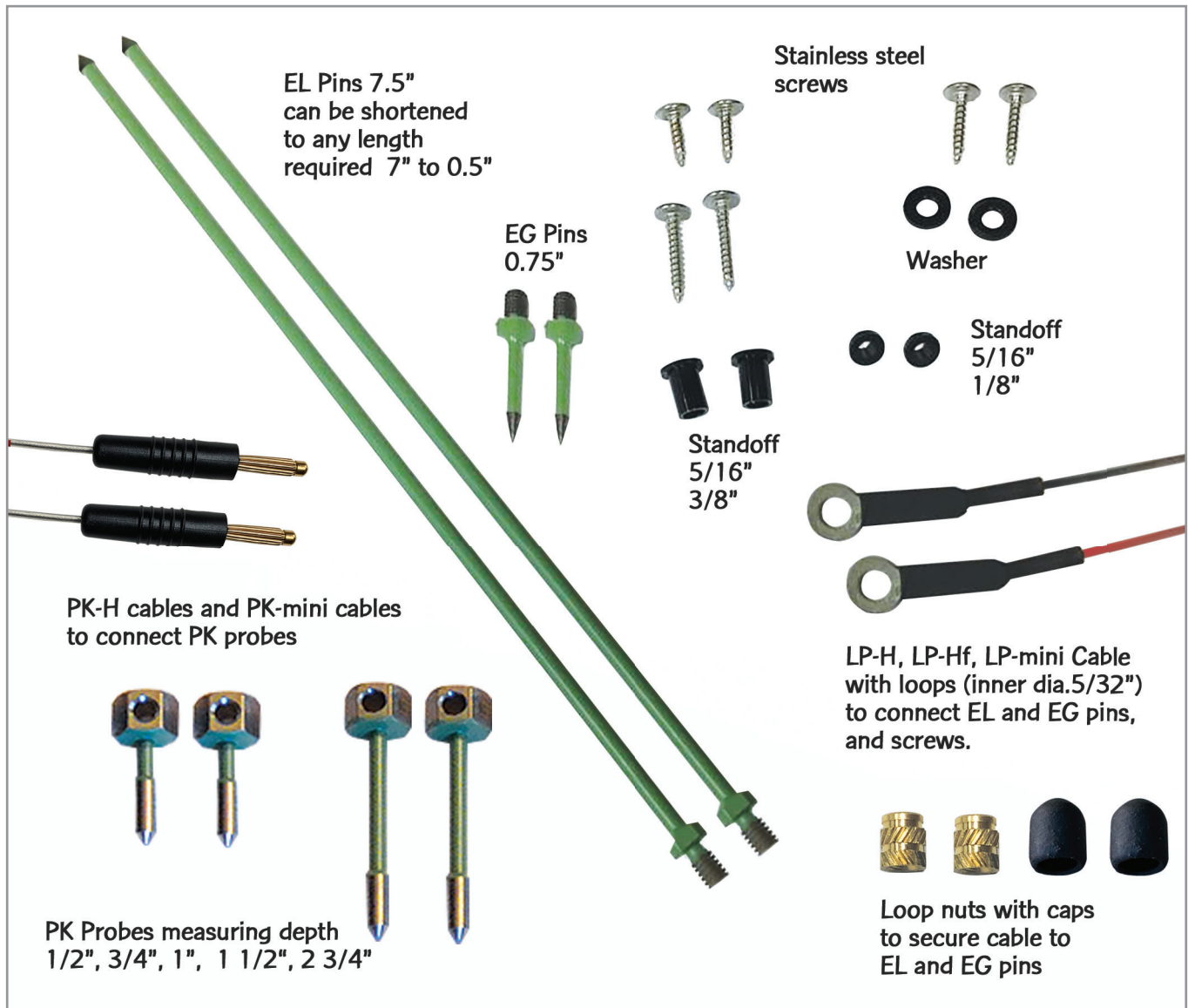
To connect EL and EG pins and stainless steel screws:
LP-H cable with loops and 4mm plugs connects to Ligno-VersaTec and Lignometer K via Adapter H.
LP-Hf cable with loops and 4mm jacks connects to MC transmitter (transmitter wires have 4mm plugs).
LP-mini-cable with loops and 2mm plugs connects to mini-Ligno DX/C, S/DC, MD/C and **Tracker MC-RH**.

Loop nuts need to be ordered separately for EG and EL pins.
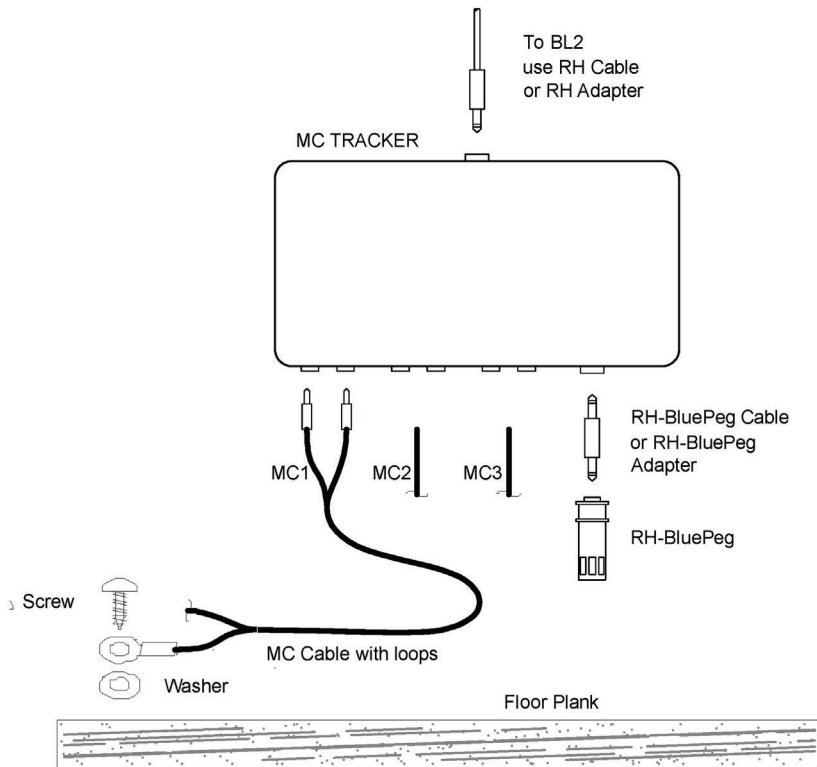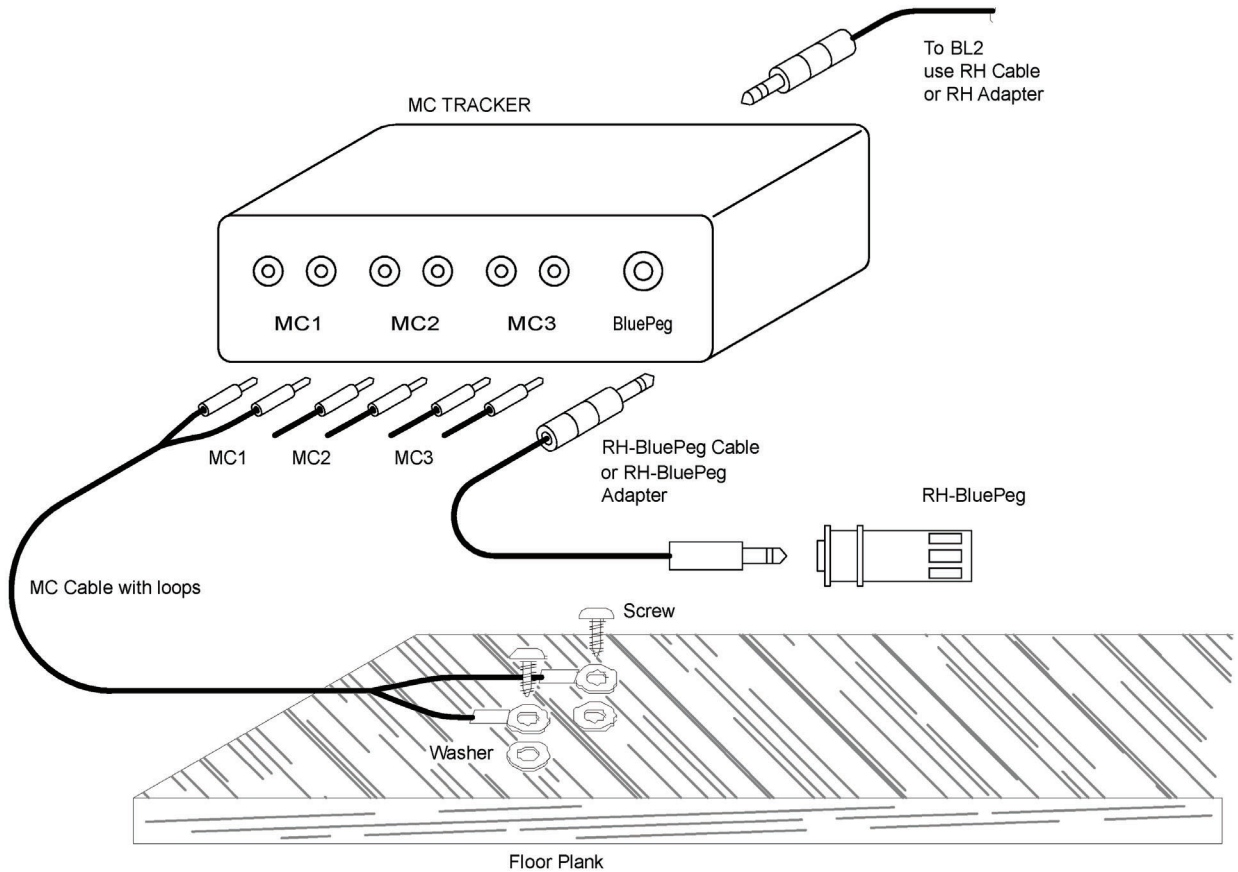EL pins can be shortened to any length between 7" and 1/2" long.

To connect PK probes:
PK-H cable with 4mm plugs on both ends connects to Ligno-VersaTec and Lignometer K via Adapter H
PK-mini cable with 4mm and 2mm plugs connects to mini-Ligno DX/C, S/DC, MD/C and **Tracker MC-RH**.

Schematics for Tracker MC/RH

To BL2
use RH Cable
or RH Adapter

MC TRACKER

MC1   MC2   MC3   BluePeg

MC1   MC2   MC3

RH-BluePeg Cable
or RH-BluePeg
Adapter

RH-BluePeg

MC Cable with loops

Screw

Washer

Floor Plank

To BL2
use RH Cable
or RH Adapter

MC TRACKER

MC1   MC2   MC3

RH-BluePeg Cable
or RH-BluePeg
Adapter

RH-BluePeg

Screw

Washer

MC Cable with loops

Floor Plank

Operation:

- Download the software
- Set the wood group at the
  Settings drop down window
- Set the time intervals
- Place the wood screws
  1"- 1 1/4" apart (3cm)
- Connect cables as shown
  in diagram

- If more species or material
  corrections are needed
  contact Lignomat.

Lignomat *moisture measurement*

Lignomat USA LTD, 14345 NE Morris Ct., Portland OR 97230,
503-257-8957, 800-227-2105, sales@lignomat.com   www.lignomat.com   Page 4/5

EMC: Relative Humidity and Wood Moisture Content

From the US Dept. of Agriculture Wood Handbook, "Wood as an Engineering Material"
Humidity recommendations range from **30% – 50%** in a building.
Temperature recommendations range from **60°F – 80°F** in a building.
If ambient conditions stay within these recommendations, the moisture content of wood stays between 6% and 9% and the amount of expansion and contraction of wood is limited.

Examples:
(1) Lumber at 7.7% will not change its moisture content if kept at 40% relative humidity and a temperature of 70°F.
(2) Conditions in a warehouse are 60% relative humidity at 50°F. If dry wood is left in the warehouse for an extended period of time, the wood will pick up moisture until a moisture content of 11.2% is reached, regardless of wood species and initial moisture content.

EMC Table

T		Relative Humidity																		
°C	°F	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95
-1	30	1.4	2.6	3.7	4.6	5.5	6.3	7.1	7.8	8.7	9.5	10.4	11.3	12.4	13.5	14.9	16.5	18.5	21.0	24.3
4	40	1.4	2.6	3.7	4.6	5.5	6.3	7.1	7.8	8.7	9.5	10.4	11.3	12.4	13.5	14.9	16.5	18.5	21.0	24.3
10	50	1.4	2.6	3.6	4.6	5.5	6.3	7.1	7.9	8.7	9.5	10.3	11.2	12.3	13.4	14.8	16.4	18.4	20.9	24.3
16	60	1.3	2.5	3.6	4.6	5.4	6.2	7.0	7.8	8.6	9.4	10.2	11.1	12.1	13.3	14.6	16.2	18.2	20.7	24.1
21	70	1.3	2.5	3.5	4.5	5.4	6.2	6.9	7.7	8.5	9.2	10.1	11.0	12.0	13.1	14.4	16.0	17.9	20.5	23.9
27	80	1.3	2.4	3.5	4.4	5.3	6.1	6.8	7.6	8.3	9.1	9.6	10.8	11.7	12.9	14.2	15.7	17.7	20.2	23.6
32	90	1.2	2.3	3.4	4.3	5.1	5.9	6.7	7.4	8.1	8.9	9.7	10.5	11.5	12.6	13.9	15.4	17.3	19.8	23.3
38	100	1.2	2.3	3.3	4.2	5.0	5.8	6.5	7.2	7.9	8.7	9.5	10.3	11.2	12.3	13.6	15.1	17.0	19.5	22.9
43	110	1.1	2.2	3.2	4.0	4.9	5.6	6.3	7.0	7.7	8.5	9.2	10.0	11.0	12.0	13.2	14.7	16.6	19.1	22.5
49	120	1.1	2.1	3.0	3.9	4.7	5.4	6.1	6.8	7.5	8.2	8.9	9.8	10.7	11.7	12.9	14.4	16.2	18.6	22.0

The values shown in the table above represent moisture content of wood in %