User Instructions for all mini-Lignos

Before taking measurements with a mini-Ligno, the protective cap over the pins has to be removed. The cap can be placed on the other end of the meter. The cap is shaped to fit your hand for easy pin insertion. To obtain a measurement, push the pins into the wood. As soon as the on-off switch between the pins is depressed, red LEDs indicate wood moisture in percent for a wood temperature of 70^{0}F (20^{0}C). For higher or lower wood temperatures a correction table is included on page 2.3.

Wood Group Corrections: All mini-Lignos are equipped with built-in wood group corrections. The indicated moisture values are corrected for the chosen wood group. A chart for wood species and corresponding wood groups is included with the manual. Wood species with similar electrical properties are in the same wood group. For unlisted wood species Lignomat offers free of charge oven-dry tests to determine the wood group.

Performance Tests:

Step 1: When the on-off switch is depressed by hand without touching the pins, the lowest moisture value for the chosen wood group is indicated.
For mini-Ligno, mini-Ligno C, E/D, S/D or S/DC: 6%.
For mini-Ligno DX or DX/C: 4.8% in wood group 3.

Step 2: When the on-off switch is depressed by hand and both pins are touched with two fingers at the same time at least 12% should be indicated.

Step 3 optional: Lignomat offers an external test block to check calibration and operation of any Lignomat pin meter, including cable and electrode. All Lignomat meters internally check and adjust the calibration. Therefore manual recalibration is not necessary and not possible.

If steps 1, 2 or 3 fail either the battery needs to be replaced or the mini-Ligno is defective.

Battery: One 9-Volt Battery. If the LED lights get dim or step 1 and 2 described above fail, remove screw on back cover, open-up into 2 halves and replace battery.

Pins: All mini-Lignos come with 2 sets of pins #MA for a measuring depth of 3/16" (5mm) and #MB for 7/16" (10mm). The longer pins are stored inside the meter. Remove screw on back cover, open-up into 2 halves. Pins are stored in back cover on either side of the indentations for the pins. Remove and replace pins using a pair of pliers.

Electro-Magnetic Interference: If you measure close to computers, power tools or electrical wires, several LED lights may be on or the moisture readings jump. To avoid the interference, take measurements in a different location.

Static Electricity: The wood, the meter and the person holding the meter should not move while taking measurements.

Core Measurements: For core measurements at least one third of the wood needs to be penetrated. The longer mini-Ligno pins reach 7/16"(10mm) deep into a board. For core measurements in over 5/4" (30mm) lumber, make a fresh cut. Measure the end grain close to the surface and at the core with the integral mini-Ligno pins. Compare readings to detect uneven drying.

If it is not feasible to cut the wood, the core of the wood can only be reached with the external Electrode E12.

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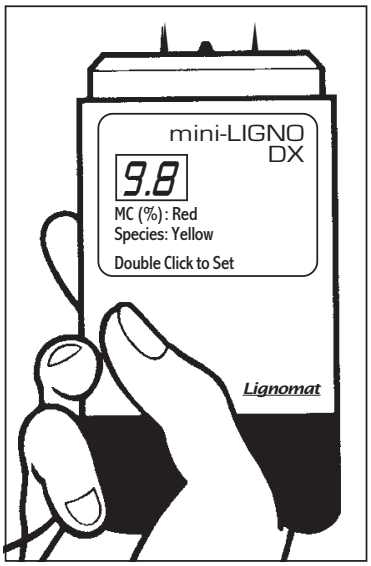
mini-Ligno DX and DX/C

For Wood:
The mini-Lignos DX and DX/C have a **Moisture Range** from approx. 5-55% dependent upon the chosen wood group. Red LEDs indicate wood moisture in percent. For moisture contents above measuring range, the highest moisture value for chosen wood group is flashing. For moisture contents below measuring range, the lowest moisture value for chosen wood group is indicated with a blinking decimal point. For example: Wood group #3: highest value is 55%, lowest value is 4.8%.



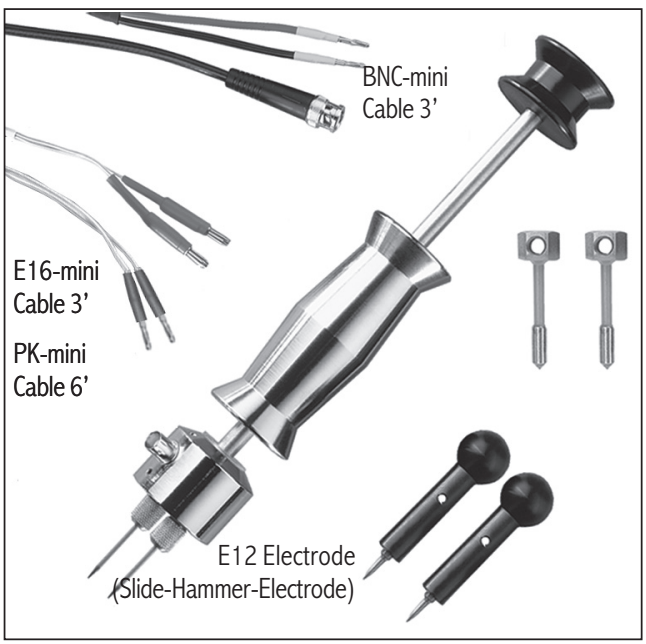
20 Wood Groups and Reference Scale:
Yellow LED's indicate setting for wood group #1 to #20 or reference scale #0. An orange specification chart lists the most common wood species and the corresponding wood group.

Check/Change Settings: Click on-off switch between pins twice and yellow LED's indicate setting. To change setting, click on-off switch again or hold switch down to start count. Change Mode is only accessible when meter is off.

Measuring Concrete and other Non-Wood Building Materials with the E16 Electrode:
For surface readings insert pins about 1/8" (3mm). For depth readings drill two holes about 3/16" (5mm) wide and approximately as deep as you want to measure. Insert pins an additional 1/8" (3mm) so that the shanks of the pins are not touching the concrete. Be sure the contact area does not change from test to test. For deeper readings you can use regular nails and touch nail head with E16-mini Cable or use insulated EL pins 7" (17.8mm).

Measuring Non-Wood Building Materials: Chose Setting #0 to access Reference Scale 0-99. Reference Scale is used to obtain comparative readings in building materials. Take measurements in dry material to establish a base value. Compare readings in test material to base value. See also bottom of page 1.5 (DX and DX/C have the same reference scale as mini-Ligno S/D and S/DC).

For soft and hard building materials (plaster, gypsum, sheet rock) use mini-Ligno DX or DX/C.
For soft and hard building materials (plaster, gypsum, sheet rock and concrete, brick, stone) use mini-Ligno DX/C with Electrode E16 and E16-mini Cable.



E12 Electrode and BNC-mini Cable for depth measurements up to 2" (50mm) deep in wood and soft building materials (drywall, gypsum, etc.). As the pins are hammered towards the core, consecutive readings indicate changes between surface and core moisture.

PK Probes and PK-mini Cable for in-kiln monitors. A convenient way of obtaining moisture readings without having to walk into a hot kiln. Pre-drill 5/32" hole and insert Probes 1 1/4" apart.

E16 Electrode and E16-mini Cable for measurement in concrete and other building materials. Standard pins EC 5/8" (15mm). Also available **EL Pins** 7" (17.8mm) for deep probing.

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Wood Temperature Correction Chart

WOOD TEMP.		INDICATED MOISTURE CONTENT IN PERCENT																							
°C	°F	4	5	6	7	8	9	10	(11)	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
0	32	6	7	8.5	9.5	11	12	13	14.5	15.5	16.5	17.5	18.5	20	21	22	23	24	25	26	27	28	29.5	31	32
5	(41)	5.5	6.5	7	9	10.5	11.5	12.5	(14)	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29.5	30.5
10	50	5	6	7.5	8.5	10	11	12	13.5	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
15	59	4.5	5.5	7	8	9	10	11.5	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
20	68	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
25	77	3.5	4.5	6	7	8	9	10.5	10.5	11.5	12.5	13.5	14.5	15.5	16.5	17.5	18.5	19.5	20.5	21	22	23	24	25	26
30	86	3	4	5.5	6.5	7.5	8.5	9.5	10	11	12	13	14	15	16	17	18	19	19.5	20	21	22	23	23.5	24.5
35	95	2.5	3.5	5	6	7	8	9	9.5	10	11.5	12.5	13.5	14.5	15.5	16.5	17	18	18.5	19	20	21	21.5	22.5	23.5
40	104	2	3.5	4.5	5.5	6.5	7	8.5	9	9.5	10.5	11.5	12.5	13.5	14.5	15.5	16	17	17.5	18	19	20	20.5	21	22
45	113	1.5	2.5	4	5	6	6.5	8	8.5	9	10	11	12	13	14	15	15.5	16.5	17	17.5	18	19	20	20.5	21
50	122	1	2	3.5	4.5	5.5	6.5	7.5	8	8.5	9.5	10.5	11.5	12.5	13.5	14.5	15	16	16	16.5	17.5	18.5	18.5	19	20
55	131	0.5	1.5	3	4	5	6	7	7.5	8	9	109	11	12	12.5	13.5	14.5	15	15.5	16	17	17.5	18	18.5	19.5
60	140		1.5	2.5	3.5	4.5	5.5	6.5	7	8	8.5	9.5	10.5	11	11.5	12.5	13.5	14	14.5	15	16	16.5	17.5	18	18.5

WOOD TEMP.		INDICATED MOISTURE CONTENT IN PERCENT												
°C	°F	28	29	30	31	32	33	34	35	36	37	38	39	40
0	32	33	34.5	36	37	38.5	40	41.5	42.5	43.5	44.5	46	47	47
5	41	31.5	33	34	35	37	38.5	39.5	41	41.5	42.5	44	45	45
10	50	30	31	32.5	33.5	35	36.5	37.5	39	40	41	42	43	43
15	59	29	30.5	31	32	34.5	35	36	37	38	39	40	41	41
20	68	28	29	30	31	32	33	34	35	37	37	38	39	39
25	77	27	28	29	30	31.5	31.5	32.5	33.5	34.5	35.5	36.5	37.5	37.5
30	86	25.5	26.5	27.5	28.5	29	30	31	32	33	34	35	36	36
35	95	24.5	25.5	26	26.5	28	29.5	29.5	30.5	31.5	32.5	33.5	34.5	34.5
40	104	23	24	24.5	25	26	27	28	29	30	31	32	33	33
45	113	22	23	23.5	24	25.5	26	27	28	29	30	31	32	32
50	122	21	22	22.5	23	24.5	25.5	26	27.5	28	29	30	31	31
55	131	20	21	21.5	22.5	23.5	24.5	25.5	26.5	27.5	28	29	30	30
60	140	19.5	20.5	21	22	22.5	23.5	24.5	25.5	26.5	27	28	29	29

EXAMPLE:
FOR AN INDICATED MOISTURE READING OF (11)%
TAKEN WITH A MINI-LIGNO
AT A WOOD TEMPERATURE OF (41) °F,
THE ACTUAL MOISTURE VALUE IS (14)% .

If using the correction chart is too time consuming, Lignomat offers moisture meters with built-in wood temperature corrections. The following meters indicate moisture values internally corrected for chosen wood group and chosen wood temperature: mini-Master HT or HTC, Lignometer KF or KC, Ligno-DuoTec F or C.

For info call **1-800-227-2105**

*** The mini-Lignos are calibrated for a wood temperature of 70°F (20°C)**
For wood temperature over 80°F and under 60°F we recommend using this chart.

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