F. Taking Measurements.

1. Calibrate device – if last calibration was proceeded more than half hour ago, start to calibrate the unit again, next,
2. Arrange a portion of material:
   - close the hasp valve at the funnel bottom,
   - fill up the attached funnel in two possible ways,
     - if the quantity of substance is given in Gramms, weigh the proper quantity at the attached scale,
     - if the quantity of substance is given without Gramms, fill up the funnel fully,
   - place the funnel over the meter measuring cavity,
   - open the funnel by shifting the hasp valve at the bottom,
   - let the measured substance to laxly bundle in to the measuring cavity,
   - do not shake the unit,
3. Select the actual range of measured material [**<**] or [**>**],
4. Start measurement process [**%**], the unit will take the moisture content measurement.
5. Read out the measured moisture value from display.
6. The sample scales to use with arranging the portion of measured material:

G. Charging.

1. When device find out that batteries are old or to weak - at the Display will be shown text "**Empty Battery**" This is the time to change batteries.
2. To change batteries, unscrew the cover from the bottom of the device. Replace batteries with new ones and screw the cover back. Just after replacing batteries the Super CHTM2 is ready to work.

Made in Poland by ASONIK
http://www.asonik.eu
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Super CHTM2-15k

The device for measuring moisture content in grain, seed and bulky materials.

Measured materials:

Wheat, Rye, Triticale, Barley, Oats, Rape, Maize, Vetch, Field Pea, Pea, Field Bean, Lupines, Pine, Spruce, Beech, Oak, Larch, Wild Fir, Fir, Pinus Nigra, Corn groats, Corn flour, Wheat flour, Semolina, Wheat brans, Rye brans, Noodle groats, Noodle, Flaked Oats, Flaked Wheats, Flaked Rye, Cocoa Corn, Flaked Corn, Corn grits, Onion seeds, Green Coffee, Borage, Nigella, Thistle, Carrot seeds, Radish seeds, Parsley seeds, Powder Milk, Sawdust, Rice, Black Tea CTC, Manna, Pumpkin seeds, Spinach seeds, Bean, Cress seeds, Lettuce seeds, Beet seeds, Scorzonera seeds, Cucurbita seeds, Sunflower seeds, Chicory seeds, Fennel seeds, Capsicum seeds, Tomato seeds, Cabbage seeds, Celery seeds, Broad Bean, Dahlia seeds, Aster seeds, Marguerite seeds, Cucumber seeds, Zinnia seeds, Pansy seeds, Cornflower seeds, Larkspur seeds, Phacelia seeds, Radish seeds, Bean, Beet seeds, Grass seeds, Clover seeds, Alfalfa seeds, Timothy seeds, Canary grass, Millet, Barley Malt, Brewery Barley, Naked Oats, Fined Barley, Buckwheat, Groats, Chestnuts, Black Bean, Mung Bean, Okra, Vetch, Soybean, Flax, Potato Starch, Walnuts, Sorghum, Aubergine, CuSO4, Quartz sand, TEST, etc. on request...

A. Technical specification of Super CHTM2

1. Super CHTM2 set: Super CHTM2 unit, user manual and ABS case.
2. Super CHTM2 makes indirectly identification of measured materials moisture by examination of their properties in hi frequency electromagnetic field.
3. Device construction and way of working is an original solution made by our company and reported in Patent Office.
4. **Measured samples of different materials are to be homogeneous, that mean material suppose not to be a mixture of different types either contain contamination.**
   Measured samples should have natural humidity, without parasites, signs of fermentation either mould. Portions of the material shouldn't become overheated or covered with water as a reason of extended temperature difference.
   Not concerning over named rules may cause an incorrect results measured by the device.
5. Super CHTM2 is dedicated for measuring moisture in volume (150ml) portions of material in full spectrum of occurrence humidity. The full funnel volume corresponds to full measuring cavity volume.
6. Super CHTM2 contain micro controller based on Microchip micro controller, this unit regulate measuring process and calibration. We used very effective process of memory of characteristics test based on method CRC16 ($x^0+x^5+x^{12}+x^{16}$). Error test procedures disable possibility of impropriate measuring in case of any device failure or characteristics memory error.
7. The results of moisture identification appears on OLED Graphic Display after 3 seconds starting from pushing the "**%**" button.
8. Repeatability error of moisture identification less then : ±0.1%
9. Accuracy of moisture identification corresponds to the second class of portable electrical moisture meters (ISO 7700/1984) (check of calibration of moisture meters), but in many cases the measurement error is less then requirements of second class moisture meters.
10. Maximum ambient temperature :-10 °C up +40 °C.
11. Maximum storage temperature :-20 °C up +50 °C.
12. Measuring cavity is made from acid-proof steel: PN-OH18N9.
13. Super CHTM2 is charged by 4 x R3 (AAA size) Cells.
    Batteries are placed in special box on the bottom of the device.
14. The Number of gets down to work (4 x LR3 battery or 4 x AAA NiMH) is about 1000.
15. Measure Meter cover is made up from ABS material.
16. The Super CHTM2 is equipped with esthetical, atmospheric, dust and dirt influence resistant keyboard panel and OLED Graphic Display.

B. Preparation for Measure:

Device is ready to work just after placing batteries in to the container at the bottom of the meter. Pushing any button causes wake up of device, what is signalised by number of recent used range shown on Display.
The device turn off automatically:

- after 10 seconds of inactivity
- after 5 just after moisture identification or calibration

C. Choice proper range for measured sample.

Every use of device is showed on Display by printing number of recently used range. Expected type of measured material is connected with corresponding range number.
To change the measuring range - push the [**<**] button to decrease range or push the [**>**] button to increase the present range number. The list of all ranges is shown at the Super CHTM2 front label.
The range "**0**" is dedicated for device calibration.

D. Calibration of the device.

Calibration is a precondition of proper using of Super CHTM2. This is necessary procedure to keep expected precision of measuring results. Calibration eliminates deviation in measuring caused by grimy measuring cavity, getting older of the device, different atmospheric conditions. Calibration have to be performed **always with empty** measuring cavity.
To calibrate the device, just measure the humidity of **empty** measuring cavity.
*Procedure of calibration: select, using [<]&[>] buttons, range "**0**" than push button [%].*
After 3 seconds at LCD will be shown "**ready for measurement**" *tag which mean that device is calibrated and ready to measure.*

E. Bluetooth interface.

1. The built in Bluetooth interface let the user to:
   a. modify the number of measuring ranges,
   b. remove the existing measured materials calibrations data,
   c. add the available measured materials calibrations data,
   d. add the new measured materials calibrations data,
   e. change the names of ranges,
   f. change the language of names and commands
2. To work with BT interface the user need to use the PC with built in BT and the free available software from: www.asonik.eu/zip/chtm-bt.zip.
3. To modify all options from "b" to "f" the user have to contact with manufacturer by e-mail: asonik@asonik.pl.
   The option "a" is possible to modify by yourself.