

# Model MK30

Portable Moisture Meter for Paper and Board Mills and for Other Fiber Products - a Wide Range of Applications



Model MK30 Compact

**A NEW PRODUCT**



Model MK30 Regular

A new meter for measuring deep into matter with radio waves - penetration about 30 mm.

This is a follower to the famous AK30 infrared portable moisture meter

Also material thickness can be measured

## APPLICATIONS IN:

- ▶ Pulp, packaging papers, corrugated and liners, printing papers
- ▶ Various other materials like felts, textiles, minerals, wood chips, sawdust, soil, peat, animal feed, wood, chipwood, sawdust
- ▶ Difficult materials, like black papers, are now easy
- ▶ Measure moisture from stacks, rolls, sheets and slow webs plus various production lines
- ▶ Suitable for plastic plate thickness and density measurement
- ▶ A simple-to use meter for laboratory and field work
- ▶ A versatile instrument with integrated features
- ▶ Pilot machines, research and paper grade studies
- ▶ Small and light, easy to travel, no cables required

What would you expect to have in your portable moisture meter for thick materials?

- A. Good reliability
- B. Simplicity of use
- C. Excellent stability
- D. Suitable interfaces for user and data transfer
- E. Good usability in requiring field conditions
- F. A sufficient penetration depth
- G. A very wide moisture range
- H. Versatility in applications

Look at what Visilab has to offer in our **MK30** portable meter

**A. Good reliability** - It is built to last. All wearing parts are carefully designed.

**B. Ease of use** - Turn the meter on and start measuring. Could it be simpler? Use either the big numeric display or the smaller graphic and numeric indicators. Measure rolls and moving webs, samples at laboratory etc. Select a recipe before measuring and saving data to better remind yourself later where the data came from.

**C. Good stability** - It is in a unique class in stability due to its highly advanced design. We can guarantee a superior long-term stability figure

**D. Interfaces** - It connects to the world with the following:  
▶ Keyboard and display with a set of three colour LCD's to get full control

of the meter and to see the moisture reading at the same time

▶ **Wireless Bluetooth to PC** with a full-featured data acquisition software **AK30, AK30Mini, ATOM**. These software have a great number of highly useful features for regular quality control, troubleshooting and special research purposes. The Bluetooth is able to operate at up to 100 meters distance from the PC. The programs follow each meter without cost (except the optional **Advanced**). Other special software will appear.

**E. Usability** - It has keys with a good feel and a tone + LED signal feedback. The three displays are visible in bad conditions with the help of coloured background lighting, a good contrast and with all necessary information visible. Its big numbers can be turned on instead of the multi display. Using MK30 is simple and straightforward. The sturdy box is IP67 rated meaning splash water proof. If it gets wet while using, wipe out water from the sensitive area and continue. It has a skid with rounded edges on its bottom to slide smoothly over soft materials, rolls and webs without leaving any streaks or wearing out. **Touching is required in all cases**. All data, calibration tables and configuration data are saved to a nonvolatile memory.

**F. Penetration** - MK30 will penetrate to about **30 mm** in most materials

**G. Moisture range** - The moisture reading is based on total percent. The range depends on the material's basis weight. For instance, for a 900 g/m2 pulp, MK30 Regular can measure over 75 % total moisture. With thin grades the range approaches 99%. See the graph in the following. The reading is indicated as total percent. The dry end will start from about 0.5 % for pulp. Thin papers will start around 2 %.

**H. Versatile** - MK30 can be used for thickness and density measurement of plastics and other solid materials (not containing water)

**I. Moisture accuracy** - The moisture reading accuracy is dependent on the moisture level and on the low level filtering used (FAST/SLOW). The calibration performed will strongly affect and so do the measuring conditions. In order to get the best results, measure with a thick layer of material with air compressed out between the layers. Strong layering of water is not supposed to exist. With SLOW: Moisture 2 - 40 % accuracy is +/-0.3% or better. 40 - 70 accuracy is +/-0.4 % or better, above that

+/-2% or better. Repeatability numbers are usually much better than these. MK30 will average the moisture of the material which it is able to “see”.

There is more than you expected..

MK30 has a measuring speed of 3 or 6 Hz which offers a good quality signal for manual use. Use either **Slow** or the slightly less accurate **Fast**. The modes are settable from the keypad.

Memory banks (820 of them) are for saving data with adjustable sample intervals of 0.2 s and longer. This feature is good for regular sampling either in roll measurements or in field tasks without fear of running to memory limits. Time stamp is added to each measurement automatically. Also a preselected label is attached.

Calibration - It is straightforward both in field and laboratory conditions with usual papers. The internal library can contain up to 100 tables which can be manipulated extensively in software. The linearity is good above 6 %. One will need only two to ten samples with known moistures to do the calibration. Two samples are the minimum and usually sufficient for a limited range of moisture.

What else does it have? Small things like:

A trend curve in one of the three displays is showing recent history. Its data can be saved by one key press to a memory bank. This feature is quite unique in this class of products.

A numeric display with large digits, quickly switched from trend display

A Flash calibration utility for an immediate generation of a new calibration for some material whose basis weight is known, an expert system implemented

High immunity to ambient conditions

The PC programs have features for acquiring moisture data for archiving, reporting and display and also for retrieving any saved data in the meter

A very low internal noise level in moisture signal even at high moistures

Wide moisture range (0.5.. > 99% total) depending on basis weight

A battery-backed clock for time stamps

A digital filter with three selectable passbands for noise cancellation while measuring for instance a moving conveyor. One of them is adjustable for very slow responses in special cases

Automatic conversion of total weight moisture to dry weight moisture when required, while measuring, or dryness.

Battery operation for at least 9 hours before recharging is required. Energy saving features are built-in, like sleep mode. Using Bluetooth will draw more current.

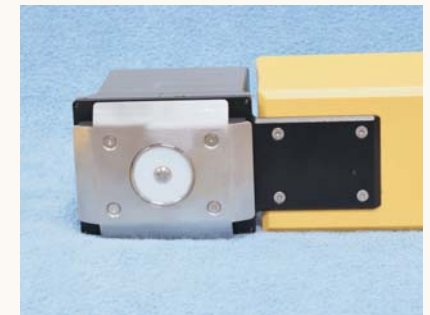
The sleep mode allows for automatically turning to Low Power mode after one hour of use. Also a similar DIM mode with a dimmed display instead of LowPower, can be selected. Touching a key will restore normal operation/display

Five recipes which include a label text field descriptor and an associated calibration. The same data is saved with each memory bank data and also downloaded to PC. The original time stamp is also included.

A highly competitive price, a quick ROI

A measuring area size of 40 mm in diameter allowing for profile studies and rather small scale phenomena

A marker to signal by a key press indicating start/end of some interesting measurement



**MK30 Regular** bottom view showing the wide skid and the sensitive area

Memory banks keep the data with the date and time stamp. Saving is done either with a single key press (present display contents, 64 points) or at regular intervals. The internal autotimer takes the samples (1 to 500 samples per bank) and it can be triggered by a key or a software command at a PC. The data may be kept in the meter for years, each with a time stamp and the label

The display background colour may change after crossing a preset high or low level (adjustable alarm feature)

The display colour changes according to various operating modes (5 of them) to help the user recognize the meter status.

There is a HOLD button to force a frozen display

**A special feature:** Data collected to memory banks can be analyzed statistically in batches. This is highly useful. It gives a simple and immediate support if one wants to average the two sides of a very thick material or make a consistent conclusion of a number of measurements made (max 64 banks for averaging)

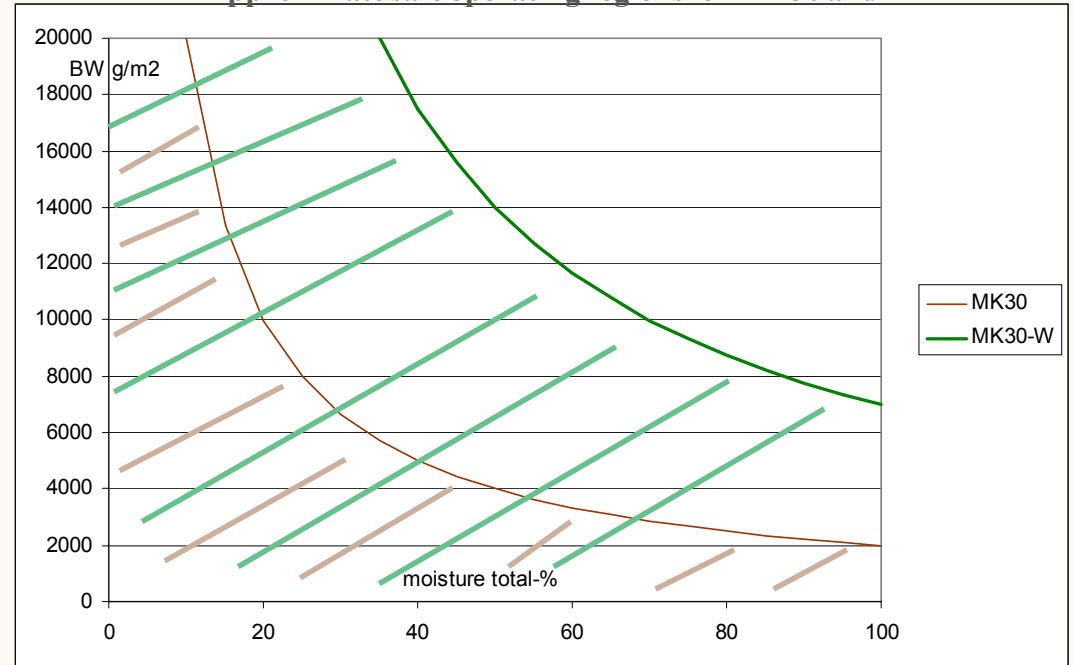
All PC software are Windows 10/8/7 compatible and for future versions too, free upgrades from our web site for easy support

All programs support downloading several memory banks at a time from the meter. The banks have the same numbering both in the meter and in the PC software. The AK30 and AK30Mini programs contain in addition a feature for **automatically** checking for new memory banks. This allows the user to download all acquired data while maintaining the Bluetooth link. When he returns to his PC, all data is already there.

The MK30 specific memory bank downloading tasks use the label of each bank to be downloaded as the main part of the new filename for easy identification. The rest of the name is made by the original date and time stamp of the measurement plus the original bank number.

French versions of AK30 and AK30Mini programs are available with

Approximate safe operating regions for MK30 and



**MK30 Regular** can be tailored for specific targets by optimizing some of its internal

quick users' guides too. Some other languages are supported in the quick guides.

Some keys are dedicated for controlling how and when the data is acquired to memory banks (see later). One can also push the Save key or saving the view on the graphics trend curve.

A special model **MK30 Compact** is available when the low end of moisture is more interesting and a smaller-sized unit is required. That can be delivered as a **-W** version suitable to the higher moistures as well.

A separate button in the handle for starting the Autotimer for saved data acquisition. The response speed is fast.

A special model **MK30-W Regular** is available for extremely high moisture applications. It is the meter with best features but is a bit more bulky than the other models

MK30 operates with safe UHF radio waves of low energy

Graph with a curve of recent signal  
 Numeric results and various information and messages  
 Optional menus, messages and dialogs

BANK 167  
32  
6.7%  
43 PAPER

LOGO HOLD  
+/-=AUTO  
↓↑=BANK  
REEL 12

This is the current label

Press Save for saving visible data on the graph to a new bank

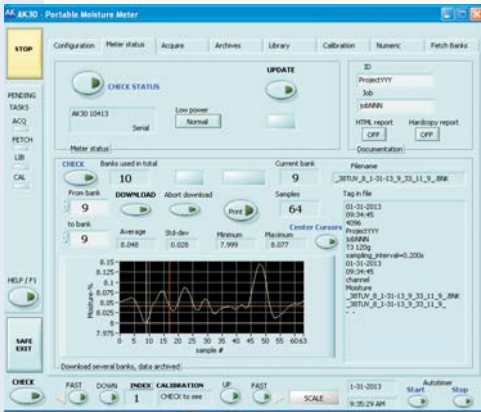
Marker key

Stat's key for calculating statistics of the recent bank only

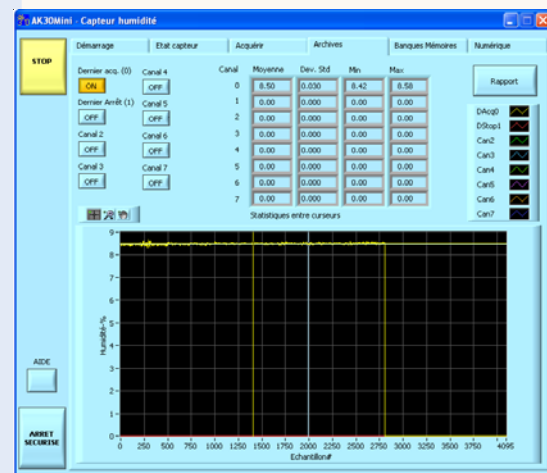
Flash calibration key

Logo for Data HOLD

Memory banks for collecting and archiving data can be downloaded to AK30 and AK30Mini



Key 5 for editing the label belonging to the current recipe



Archives tasks in AK30 and AK30Mini

Charge

Marker Save

Stat's \* Low Pwr VISILAB SIGNAL TECHNOLOGIES

7 Range 8 Batch Ave 9 Flash Cal ESC

4 Up >> 5 Recipe edit 6 Filter Select Menu

1 << Down 2 Recipe 3 Recipe Enter

0 Bank / Table Auto OFF Auto ON +

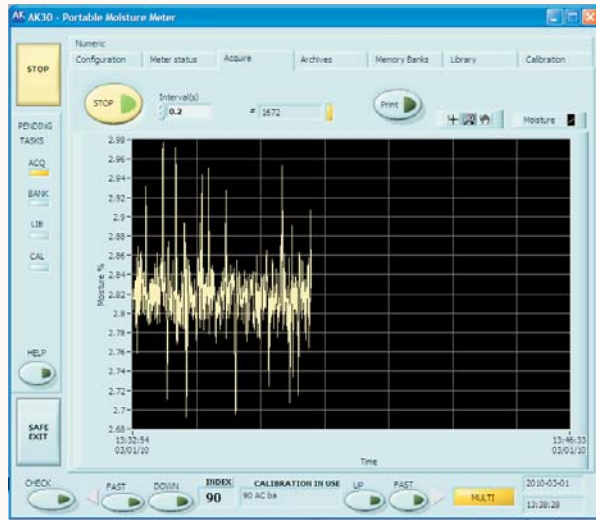
BIGNUM Graph Select Select

Keys +/- for turning sampling Autotimer on/off

Select a recipe (label and an associated calibration)

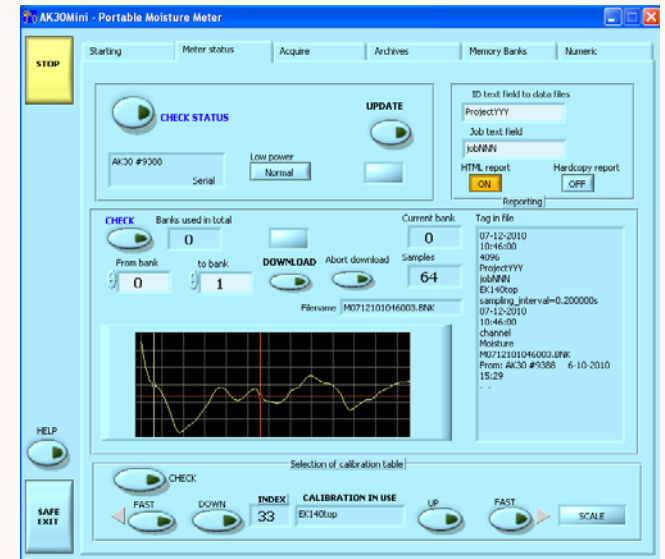


Note: MK30 is **not** able to measure materials which contain significant amounts of **soothe, metal particles or Titanium oxide**. The readings may become erroneous.



Moisture acquisition in AK30 program

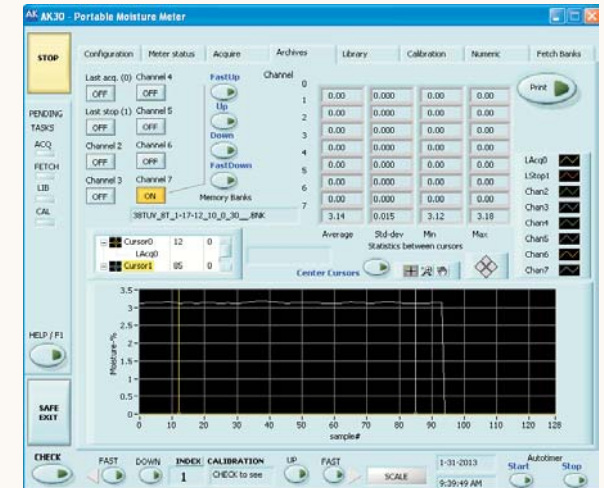
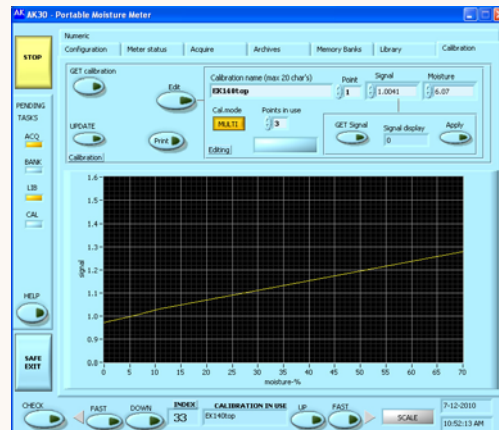
Meter Status page in AK30Mini where one can download a great number of memory banks from the meter after selecting them. This feature is in all other software too. All programs have a big numeric display too.



A numeric display, typical for all software

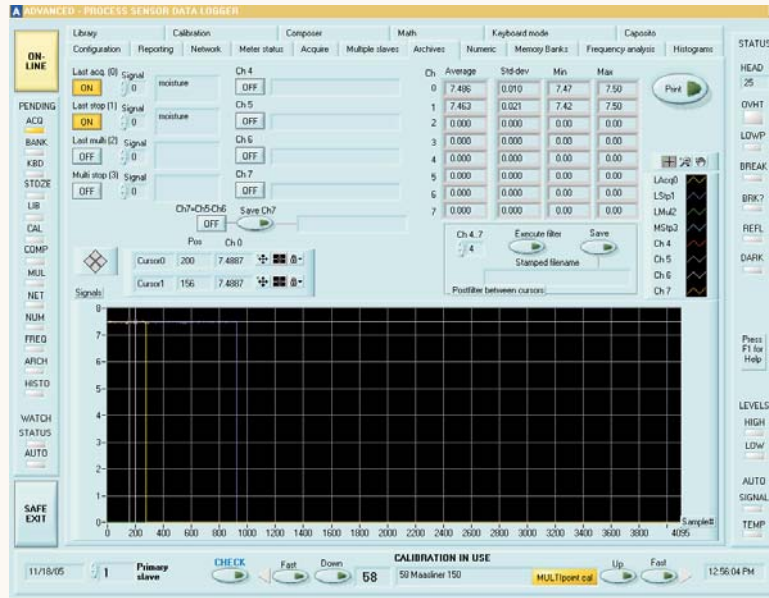


Calibration task in AK30



Are these specifications sufficient for you?

Now, what is keeping you from asking for more data and an offer?



Archives task in **Advanced** program. It has file retrieval, incoming signals, piecwise filtering of data, statistics, channel difference calculation etc., all on the same page at the touch of your mouse. This program is for a more advanced user who wants to analyze more data and handle calibrations with ease etc.

MK30 is the best portable moisture meter for thick materials there is:

- Goes really deep into matter
- Simplest to use, practical features
- Lowest cost, small and most compact
- Contains a large number of useful features for practical work in QC and research
- Easy-to use support software
- A large number of field applications
- Wireless communication with a PC
- A problem-free traveling companion when crossing borders
- Versatility in applications
- Has a few models for optimal suitability for each user

**Portable moisture meters** made by Visilab Signal Technologies have been sold to a large variety of applications since 1994: From paper and machine research to troubleshooting and regular quality control and rough field use. The applications range from SC, board and newspaper to nonwoven, fabrics, note papers, special papers, sawdust and wood chips and printing. They have been used frequently in research studies made by universities and research institutions in addition. Also on-line coat weight applications have been completed.

Find latest news and other up-to date material on our web pages:

[www.visilab.fi](http://www.visilab.fi)

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