

Model MK30R

A new meter for measuring deep into matter with radio waves - penetration 30 mm or more

MK30R has new revolutionary capabilities

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

Model MK30R

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

Main Features and Applications:

- ➤ Pulp, packaging papers, corrugated, liners, printing papers, tissue, newspaper, special papers, black papers, nonwoven
- ➤ Various other materials like felts, textiles, minerals, wood chips, sawdust, soil, peat, animal feed, wood, chipwood, sawdust
- ➤ Pilot machines, research and paper grade studies, QC, machine adjustments
- ➤ Measure moisture from stacks, rolls, sheets and slow webs plus various production lines, rotating and static reels
- ➤ Precisely matching cross profiles of static reels is a new feature
- ➤ A simple-to use meter for laboratory and field work
- ➤ A versatile instrument with everything integrated, at the touch of a button
- ➤ Handy structure with two grips, easy to travel, no cables required
- ➤ Wireless communications, long battery life, rechargeable
- ➤ Extremely wide moisture range

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 the user and data transfer
E. Good usability in requiring field conditions
F. An exceptional penetration depth
G. An extremely wide moisture range
H. Versatility in applications

Look at what Visilab has to offer in our new **MK30R** 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. You can measure also the cross profiles with an accurate match of position. You grab the handles, press the measuring head on the surface and see the moisture reading on the display. You can also acquire a time series of a running web or get the cross profile of a reel, running or static, saved to memory for later use.

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**).

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 MK30R 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, ripping or wearing out. **Touching is required in all cases.** All data, calibration tables and configuration data are saved to a nonvolatile memory. If the configuration is modified it is not automatically saved to prevent mistakes and to keep the meter intact if there are many users.

F. Penetration - MK30R will penetrate to about **35 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, MK30R can measure to over 95 % 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 1 - 2 % for pulp. Thin papers will start around 2 %.

H. Versatile - MK30R 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. 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. Moisture level 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. MK30R will average the moisture of the material which it is able to "see".

There is more than you expected..

MK30R has a measuring speed of 15 or 40 Hz which offers a good quality signal for manual use.

The new addition is the infrared thermometer whose data is saved with the moisture profile, giving thus both profiles for the laptop. Its presence in the profile can be turned off when not needed.

Memory banks (810 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 reel 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 (recipe). The data can be either a time series or a cross profile selected by a switch. The sampling interval can be adjusted much shorter too.

A reel number feature making it possible to edit first the reel number and then measure the profile. The number is carried further to the computer if downloaded and sticking to the particular profile.

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 10 %. 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.

MK30R has an integral distance sensor used in measuring cross profiles of static reels. The data points are then accurately synchronized

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

A sheet / web measurement calibration included for measuring any paper between 30 g/m2 to 400 g/m2 giving **water content g/m2**

The PC programs have features for acquiring moisture data for archiving, reporting and display and also for retrieving any saved data in the meter. They can be used for automatically downloading every new moisture profile obtained while working at the production line.

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

Wide moisture range (2.. > 99% total) depending on basis weight. Some very dense fibre products can be measured down to 0.5%

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 8 hours before recharging is required. Energy saving features are built-in, like sleep mode. Using Bluetooth wireless 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. In cross-profile measurements the meter can sense a distance increment of 20 mm synchronizing the measurements for a profile.

Memory banks keep the data with the date and time stamp and recipe information. Saving is done either with a single key press (present display contents, 64 points) or at regular intervals set by the user. 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 interval between the sample series data is either in time set by the user or a distance of 20 mm when the cross profile is taken into use

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

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

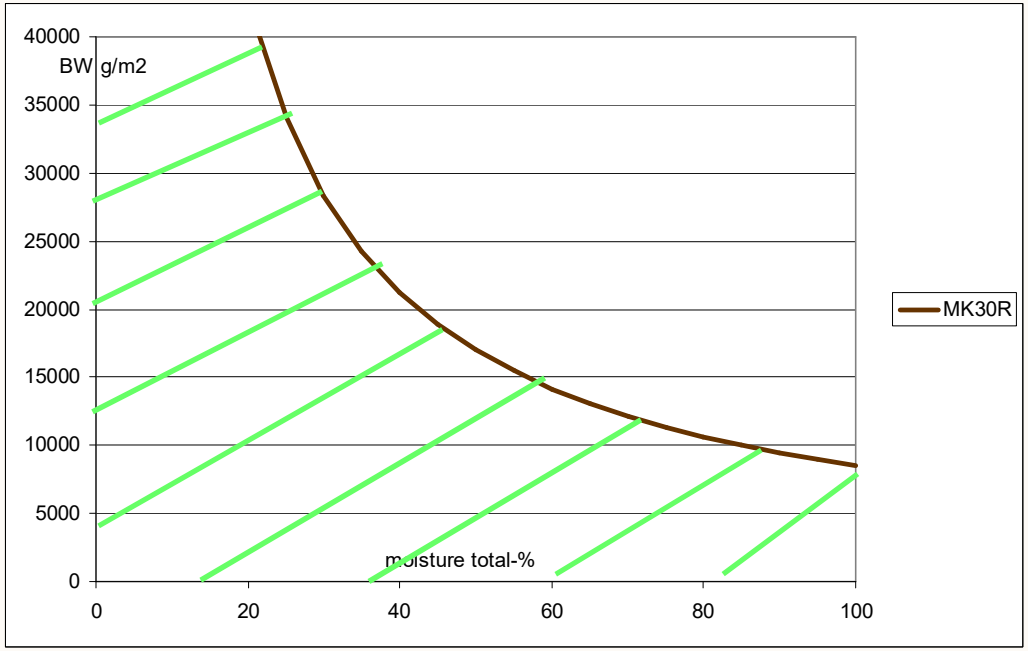
The display colour changes according to various operating modes (5 of them) to help the user recognize the meter status. When the Autotimer is started the center display will change colour.

There is a HOLD button to force a frozen display (the Logo)

The data obtained into memory banks are kept for later downloading to a PC for archiving, further analysis and reporting. One can also analyze each bank's statistics by selecting the bank and pressing the Stat's button. The representative curve is also displayed.

A special feature: Data collected to memory banks can be analyzed

Approximate safe operating region for MK30R



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)

MK30R has a microwave cavity being usable at extreme moistures up to 8 000 g/m2 of water.

All PC software are Windows 11+/10/8/7 compatible and for future versions too, free upgrades from our web site for easy support. They are all **common** with our other infrared moisture meter products (AK30/ 40GW).

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

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automatically checking for new memory banks. This allows the user to perform measurements and the program will download all acquired data while maintaining the Bluetooth link. When he returns to his PC, all data is already there.

The 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.

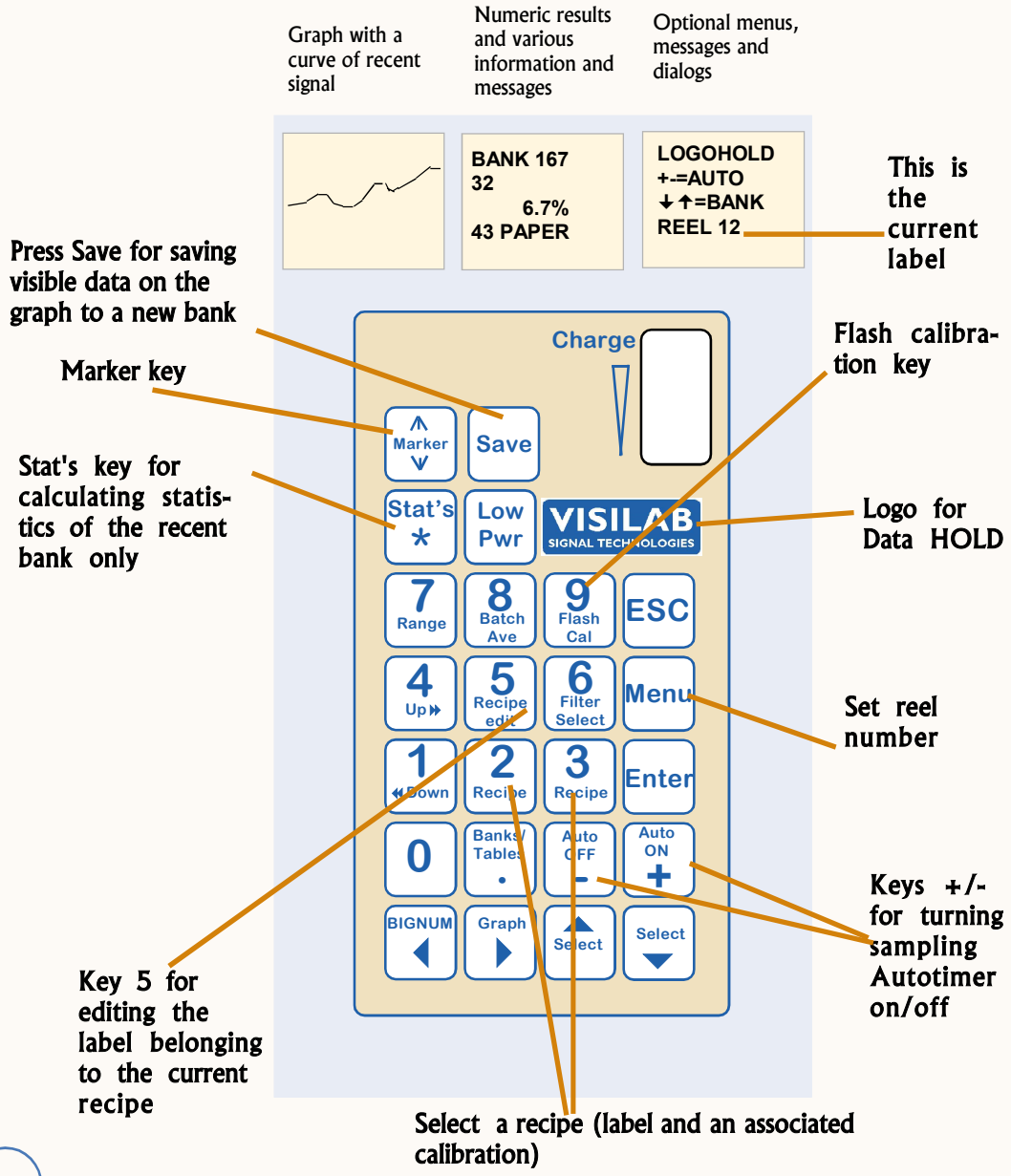
French versions of AK30 and AK30Mini programs are available with quick users' guides too. Some other languages are supported in the quick guides.

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 separate button on the front panel for starting the Autotimer for data acquisition and followed by saving to a new bank. The response speed is fast. Using the +/- keys will lead to the same effect.

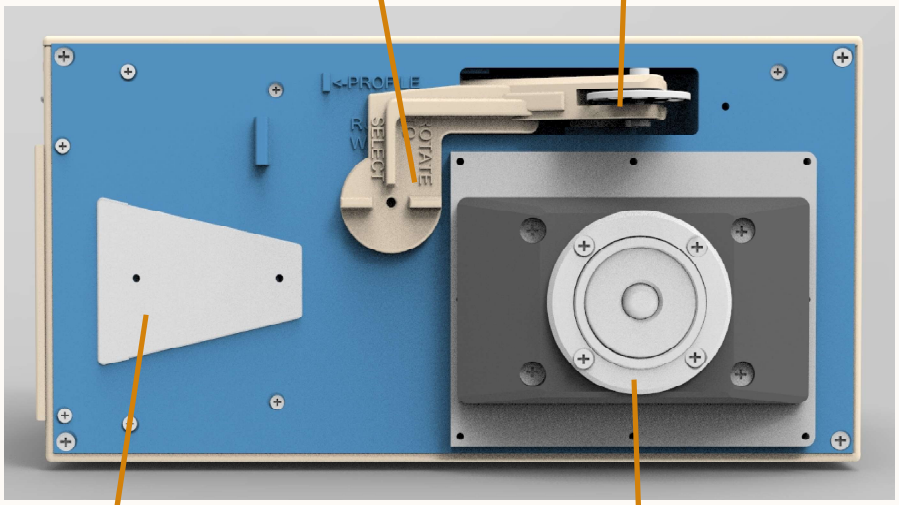


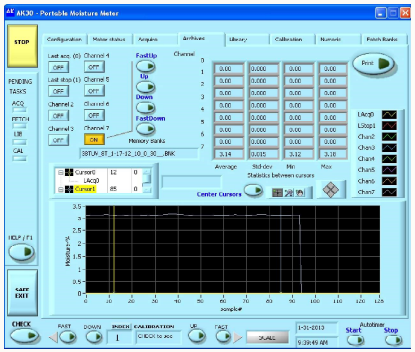
If a long time series is needed, the PC program's Acquire task can be started, the meter brought to the site and placed against the surface. The program will obtain data at a preset time interval in the PC program as long as is necessary, saving everything for the future analyses, while the user is holding



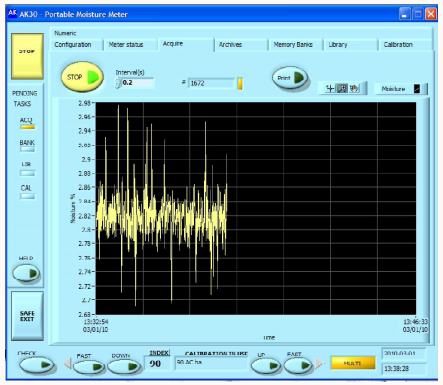
the meter in place.

MK30R operates with safe UHF radio waves of low energy

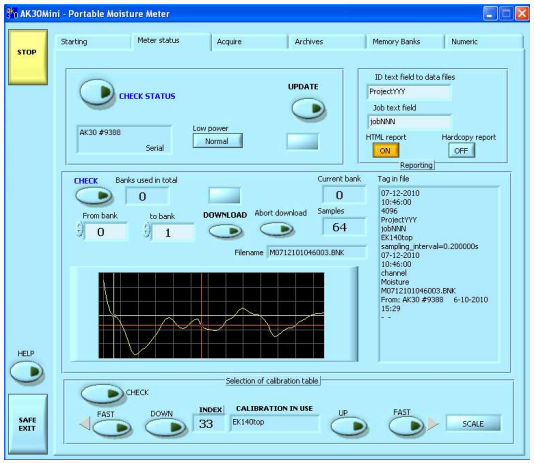




Archives tasks in AK30 and AK30Mini



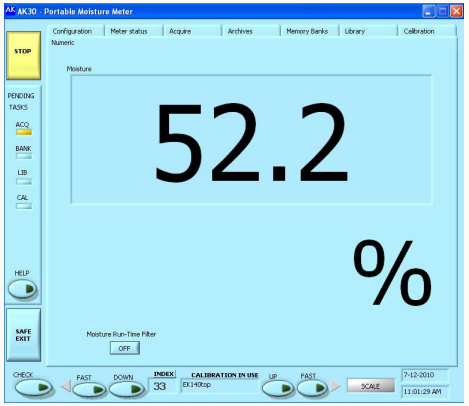
Moisture acquisition in AK30 program



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.

The ATOM program is very similar but is simplified, focusing mostly on downloading profiles form the meter

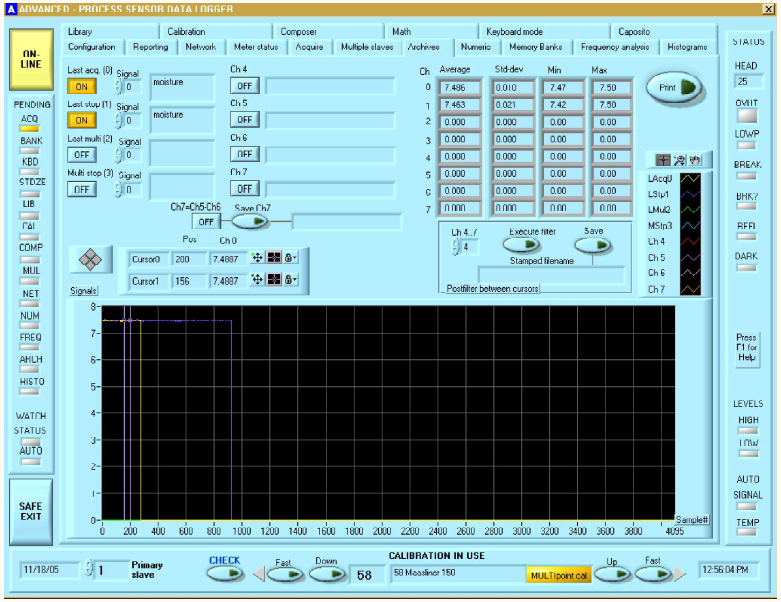
A numeric display, typical for all software



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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, piecewise filtering of data, statistics, channel difference calculation, frequency analysis, various data post-operations, mathematics 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.

MK30R is the best portable moisture meter for thick and thin materials there is:

- ➤ Goes really deep into matter with an extremely wide moisture range
- ➤ 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
- ➤ Can do both running and static reel profile measurements

As an alternative, our famous **AK30** based on infrared radiation and is smaller in size and capable of measuring surface moisture to 150 microns.

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.

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

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