Product Portfolio



Portable moisture
Reel moisture profiles, running or static
On-line moisture
Reel moisture profiles, running and static
Surface and deep moisture
CIE colour plus other colour variables
On-line Brightness TAPPI R457

Pulp quality and moisture
Packaging papers
Corrugated
Black papers
Wood and peat
Soil and animal feed
Special papers

Generation 5 Software Published

NEW MODELS

Manufacturer:
Visilab Signal Technologies Oy
Sepäntie 4, FI-07230, Askola, Finland
Tel. +358-45-6354885
www.visilab.fi
sales@visilab.fi

Contact nearest representative for prices and availability. If unknown, contact Visilab directly

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FAMILY OF UNIQUE SENSORS FOR INDUSTRIAL APPLICATIONS

NEW PRODUCTS

NEW FEATURES

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MK30LP-SC

NEW MODELS, NEW OPTIONS



MK30LP integral display unit

PLEASE NOTE: ALTHOUGH NEW MODELS EMERGE OCCASIONALLY AND OLD MODELS ARE TAKEN OUT OF PRODUCTION, WE OFFER FULL SUPPORT FOR ALL SENSORS WE HAVE EVER MADE. CONTACT US FOR SERVICING, CHECKUP AND UPGRADING OPTIONS. WE ALSO GIVE A DISCOUNT FOR VINTAGE INSTRUMENTS RETURNED TO US WHEN BUYING A NEW ONE.

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Moisture - AK30 - Handheld Moisture Meter

The **model AK30** portable moisture meter offers unique features for field and laboratory use. It uses advanced infrared technology and signal processing to get best results in noise level and stability. It is handy in daily portable use and invaluable while traveling to mills abroad.



Our best-selling product ever!

- NEW
- SIMPLE TO USE
- TREND CURVES DISPLAYED
- SMALL AND HANDY
- THIS METER HAS NO COMPETITION

Surface moisture

PRODUCT HIGHLIGHTS

- applications in paper and board industry, textiles, felts, filters, minerals, sawdust, recycled fiber, waste paper, bio fuels
- surface moisture in thick samples, total moisture content in thin samples (abt. 150 micron penetration in paper products)
- fully portable and stand-alone, this is an easy to travel companion, no wire tangles
- simple to use
- a separate Start button to facilitate use in difficult conditions when acquiring data to memory
- fast response, selectable digital filtering, 5 points per second sampling
- superior stability, based on proven technology by Visilab
- operating distance: 0...7 mm or more, no contact required
- measuring area 10 mm in diameter allows for studies in small scale
- IP67 enclosure for harsh environments
- integral display and a diaphragm keyboard

VISILAB SIGNAL TECHNOLOGIES

Generation 5 Software inside

- large calibration table library (100 tables) with rapid switching
- calibration with multiple points for linearization (2 - 10 points)
- one filter option is adjustable for exceptionally slow responses when measuring conveyors and like

- Flash calibration in field conditions, just know the BW and start measuring
- automatic zeroing of the moisture reading if only the difference is important
- dry weight percent can be taken into use while measuring
- nonvolatile memory banks for holding 810 sample data series, with max 500 points per series
- autotimer sampling, statistics of values and curves displayed
- graphic trend display for recent history, data can be saved to a bank with a button press
- graphics show also retrieved data curves
- optical head is inside the box giving a good protection
- has a **PUSWIDE** skid for measuring safely over moving webs and running rolls, suitable also for corrugated and soft materials
- the old regular skid and PUS are still available while stocks last
- an optional carrying case for industrial conditions, **-CAR**. It is shockproof and water tight
- a reel number system. First edit the number, thenmeasure the reel profile. The number is sticking to that profile and is shown in the computer too if downloaded.
- banks can be averaged several at a time, the number of banks selected can be set for that
- large moisture range starting from 0 %, up to about 70 %
- five recipes of which one is selected to use and attached to memory banks when data is saved. The pertinent label is used in the PC programs for naming the resulting files with the original time stamp
- large numeric display
- a graphic display, trend curve and values, switchable with the numeric display
- colour hue of display can be adjusted for various operating modes
- colour hue of display can be adjusted to indicate crossing preset moisture levels (alarm feature)
- a marker key allows adding moisture markers while doing moisture testing on-line

- low noise level (typically < 0.02 % stddev)
- wireless communication via Bluetooth for up to 100 m distance in good conditions, also a 100 m PC Bluetooth adapter included with software. Now we are shipping a new RN41-based system which is a snap to install and use
- regular RS232 at 115 200 bauds is also available for PC's COM port. Settable for 9600 bauds too.
- the no-cost **AK30, AK30Mini** and **ATOM** programs are full data acquisition software for trend display, data archiving, manipulation, frequency analysis, etc. **AK30Mini** suits small laptops with a reduced set of features. **Advanced** is an optional licensed program with plenty of features

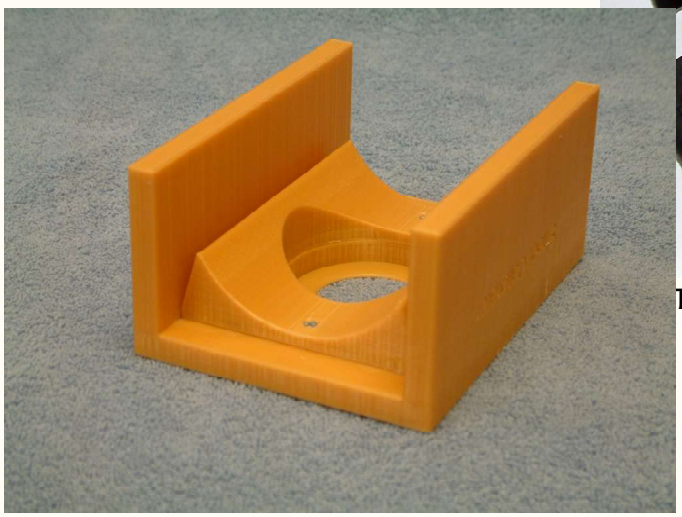
- an operating period of at least 3.5 to 4 hoursbefore recharging the battery, charge indicator LEDs
- an optional dual-battery, **-DBAT** is available at low cost offering 7 hours of continous usage
- very long service interval of 12 000 hours
- battery charger 110 - 240 VAC is included
- dimensions 180x80x100 mm, weight 500 g
- the price is very competitive and the payback time is usually short
- a plastic focusing guide under the skid. It aids in placing the meter accurately when measuring really fine structures
- An optional infrared thermometer for acquiring paper temperature profiles with moisture profiles. Both are downloaded as interleaved data and automatically extracted



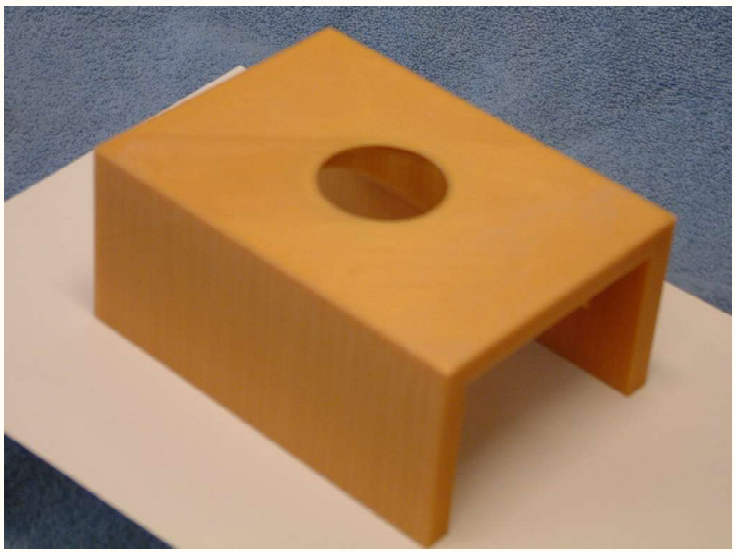
The PUSWIDE skid



The carrying case



Sheet Calibrator is a low-cost accessory facilitating measurements and calibrations of sheet material. MK30R and all other microwave sensors can benefit from it.



The optional infrared thermometer mounted on the side



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Moisture - AK50E - Process Moisture Meter

The **AK50E** on-line moisture meter offers new unique features. It uses the latest infrared technology and signal processing to be an ultra-stable meter and to offer a high speed.



- VERY FAST, SMALL & COMPACT
- *MOST ECONOMICAL PRICING*
- ULTRASTABLE
- VERY SMALL SPOT

Surface moisture

APPLICATIONS:

Measure moisture in fast production machines, board and paper products, textiles, felts, quality control, research studies, machine adjusting

PRODUCT HIGHLIGHTS

- an independent, on-line surface moisture meter, designed for measurements in difficult conditions
- based on latest advanced infrared technology by Visilab and new digital signal processing algorithms
- applications in paper and board industry, textiles, felts, papers, boards, printing, minerals
- **the spot size is a remarkable 12 mm in diameter** allowing for high accuracy profiler scanner work at a long distance of 250 mm
- a very high moisture sampling rate (400 Hz)
- excellent for regular on-line applications (fixed or scanner)
- good independence on gloss and many surface properties
- good independence on target angle
- unmatched for troubleshooting with frequency analysis and transient measurements
- suitable for moisture range from zero to 70 % total. Calibration at field conditions against known levels or in lab.
- extremely low noise level, an additional adjustable low-pass filter for conveyors and other rapidly varying processes
- immune to external IR radiation to very high levels
- excellent immunity to external water vapor
- precalibrated for customer samples
- simplified assembly requirements, the meter is always installed into the same angle regarding the web
- the operating distance is 250 mm with a spot of 12 mm in diam. and with at least +8 / -8 mm play, other distances and ranges are possible at request

VISILAB SIGNAL TECHNOLOGIES

Generation 5 Software inside - behaves like an AK30/40

- external interfaces which can be used simultaneously, come from a single connector:
  - RS232 for PC or RS485 for local area network (LAN) 9600/115 200 bauds, PC program support
  - two voltage outputs, one 4-20 mA, selectable range and scalable. Moisture and web temperature have their own channels, scalable separately
- the **Advanced** software supports all AK50E features. The **Advanced** software offers a many extended features and supports simultaneous use of several meters. The **Profiler** program is similar but specialized for getting CD profiles in scanner use. It will display several curves on the display and it requires minimal external logic for sensing scan starts. The free program **AK30** is a good choice for small laptops with a small display. All software are Windows 11 +/10/8/7 compatible.
- a very low power consumption, air purge is used in humid or warm (> + 35 C) conditions
- an extremely long service interval of 175 000 hours of continuous operation
- automatic adaptation to dark or absorptive surfaces, a short warm-up time of 30 s
- a very low internal noise level, six digital filter settings with varying response times (10 ms to 10 s) and passbands to match the needs in frequency analysis
- a signal quality system which can be fully used with the Advanced program. This will help in diagnosing if the windows are dirty.
- **the price is really competitive and the payback time is short**
- two year's guarantee, extendable to five years with a maintenance pack
- delivery package contains the 5 m cable for DCS conenctions and serial port, an isolated RS232 to USB coverter

Physical properties
- dimensions 270x270x120 mm without the Vortec tube, weight 3.2 kg, nose box will add some 0.7 kg
- sturdy painted Aluminum enclosure for harsh environments, sensitive parts are IP67 protected
- The box is the same as in FrontColour10

Ambient conditions
- operating -10 ... + 60 C, needs air purge if over + 35 C, overheating protection turns the meter to LowPower
- optical head is inside a box giving full protection
- fully temperature compensated, both ambient and web
- the Vortec cooler will push out the air through the bottom opening. Full working of the IR thermometer is guaranteed by measuring through a separate opening. Dust and condensation will not accumulate over any windows.

Options at request
- a power supply (-PS) with cables, connectors and a power source. Just plug in and start measuring
- an IR web thermometer
- The nose box can be made from lighter plastic like polycarbonate
- another working distance meter-to web, different cable lengths
- optional accessories: moisture standard **-STD**, pressure regulator and tubing pack **-PR** for purge, a universal holding bracket **-GPH**
- the optional **LAN232** unit supports up to eight moisture meters communicating with their own power supplies, connected via RS232
- two pilot lasers are for assisting mounting the meter at the correct working distance
- Bluetooth module pair for cable replacement with a 100 m wireless link instead of RS232 cable, connected to the USB
- a Vortec tube for cooling the meter in hot conditions

Moisture - MK30R - Handheld Moisture Meter for Thick Materials

The **model MK30R** portable moisture meter offers unique features for field and laboratory use. It uses advanced UHF radio wave technology and signal processing to get best results in noise level and stability. It is optimized for measuring thick materials, like pulp, wood, soil, textiles and is handy in daily portable use and invaluable while traveling to mills abroad.



- SIMPLE TO USE
- TREND CURVES DISPLAYED
- PENETRATES TO 35 mm
- ABLE TO MEASURE VERY HIGH MOISTURES
- THIS METER HAS NO COMPETITION
- HAS A NEW HIGHLY ADVANCED DYNAMIC MEASUREMENT ALGORITHM FOR MOISTURE ANALYSIS

PRODUCT HIGHLIGHTS

- applications in pulp, paper and board, textiles, felts, filters, recycled fiber, biofuels with fine particles, packaging papers, animal feed, peat, soil, minerals, wood, sawdust etc.
- suitable also for **corrugated** and **soft materials** and works for **reels** too
- unbeatable for **black papers**, capable of measuring **plastic plate thickness**
- moisture of thick and thin samples, moisture content in % (abt. **35 mm penetration in common materials**)
- wide moisture range starting from about 0.5 %, up to about 99 % depending on BW, up to 8 000 g/m2 water
- fully portable and stand-alone, an easy-to travel companion, no wire tangles
- fast response, selectable digital filtering, 10 or 30 points per sec sampling
- superior stability, based on radio frequency technologies (UHF)
- the price is very competitive and the payback time is usually short
- wireless data transfer

VISILAB
SIGNAL TECHNOLOGIES

Generation 5 Software inside

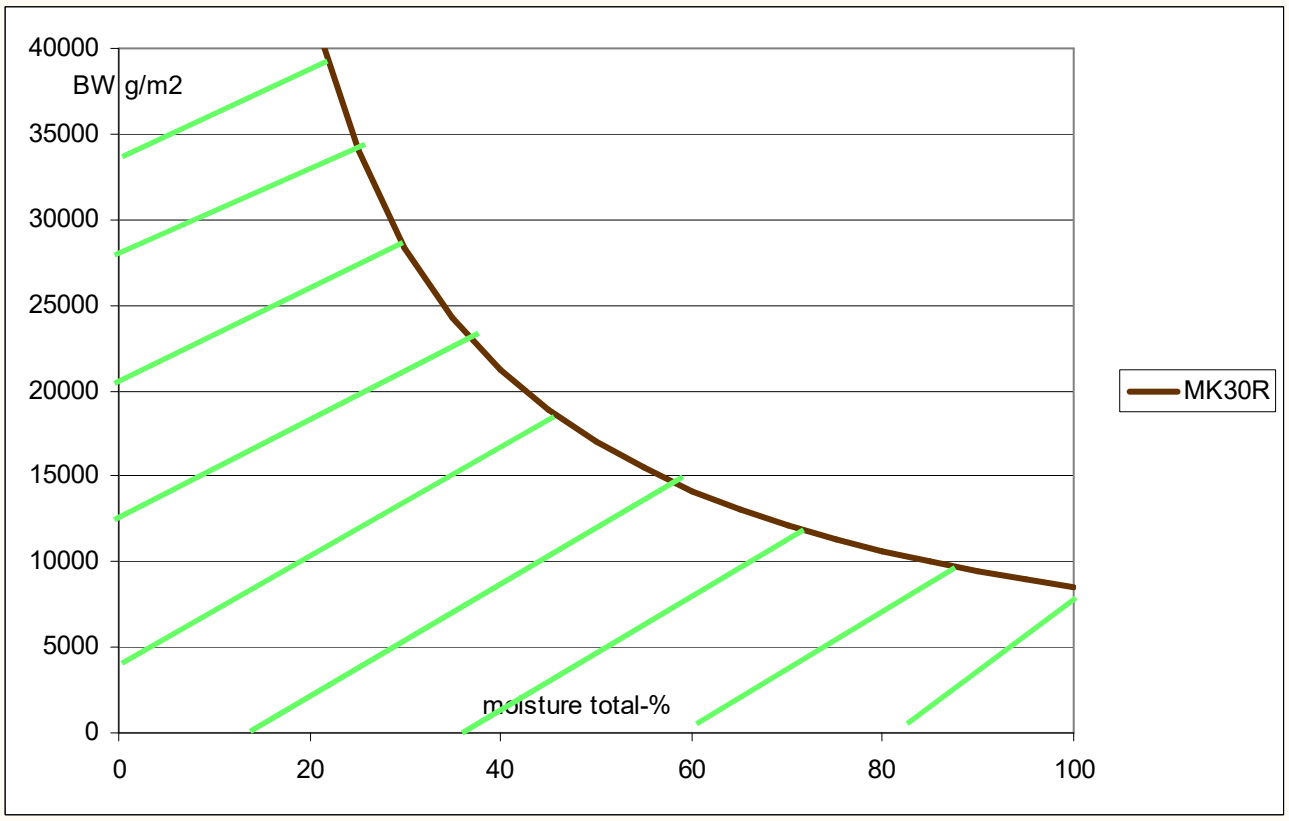
Data logging features

- operating distance: **contact required**
- measuring area 40 mm in diameter, **measuring depth to 35 mm**
- nonvolatile memory banks for holding up to 820 data series with time stamp and bank number
- each bank can contain up to 500 samples
- banks can be downloaded to a PC with the original time stamp and a selectable text label, affecting directly the resulting filename too
- infrared thermometer offering signal for a simultaneous thermal profile to be saved with the moisture profile
- banks remain for years, unless erased
- graphic trend display for recent history
- the current trend display can be saved to a new bank with a button press
- for measuring profiles of static reels there is an integral distance sensor for synchronizing measurement. The measurement is started with the button on the front panel
- autotimer sampling (adjustable sampling interval from 0.2 s and batch size 1 - 500), start with either the " + "-key or with a separate button on the front panel
- statistics of collected values
- a reel number feature is available for editing the number and then finishing the profile measurement. The reel number sticks to the profile and is shown in the PC too
- statistics can be calculated either from one series or of a preset number of series. This allows for averaging of sides of a large pulp bale
- low noise level even at high moistures
- a skid for measuring safely over moving webs and running rolls. It also ensures proper contact while measuring soft materials having a low-friction skid leaving no streaks, no ripping
- water content in % total
- contains a calibration giving g/m2 independent on BW
- calibration with multiple points for linearization (2 - 10 points)
- precalibrated for some basic materials
- five quick switching recipes for starting new measurements at regular QC positions. Calibration table and a label can be selected for each recipe
- marker key for marking a part of data series acquired
- ***Note:*** *Does not operate for materials containing significant amounts of* ***soothe****,* ***metal particles*** *or* ***Titanium oxide*** *pigment. Small amounts of soothe may be acceptable.*

Interfaces and physical properties

- an integral display and a diaphragm keyboard
- large numeric display and a graphic display, trend curve and values
- colour hue is associated with crossing preset moisture levels, high or low (alarm feature)
- charge indicator LEDs
- battery-backed clock for time stamping
- dimensions 283x141x141 mm, weight 2.0 kg
- IP65 enclosure for harsh environments
- an operating period of at least 8 hours before recharging the battery.
- battery charger for 110 - 240 VAC mains is included
- wireless communication via 100 meter Bluetooth, the Bluetooth adapter for the PC included
- the free **ATOM, AK30** and **AK30Mini** programs are data acquisition s oftware for trend display, data archiving, manipulation etc. **ATOM** has less features. **Advanced** is an optional licensed program with plenty of features.
- meter configuration can be saved, meter starts the next session like that. Temporary changes are not saved.
- calibration tables can be saved after modification, user decides if necessary
- An infrared thermometer for acquiring paper temperature profiles with moisture profiles. Both are downloaded as interleaved data and automatically extracted. The sensor is mounted inside the enclosure at time of ordering. Post-assembly is possible for earlier units getting the software upgrades at the same time.

Approximate safe operating region for MK30R



Ambient conditions

- operating +5 ... +40 C (+55 C shortly)
- fully temperature compensated
- IP65 case
- sensing surface can be cleaned if dirt accumulated
- batteries are replaced every 7 years

Options

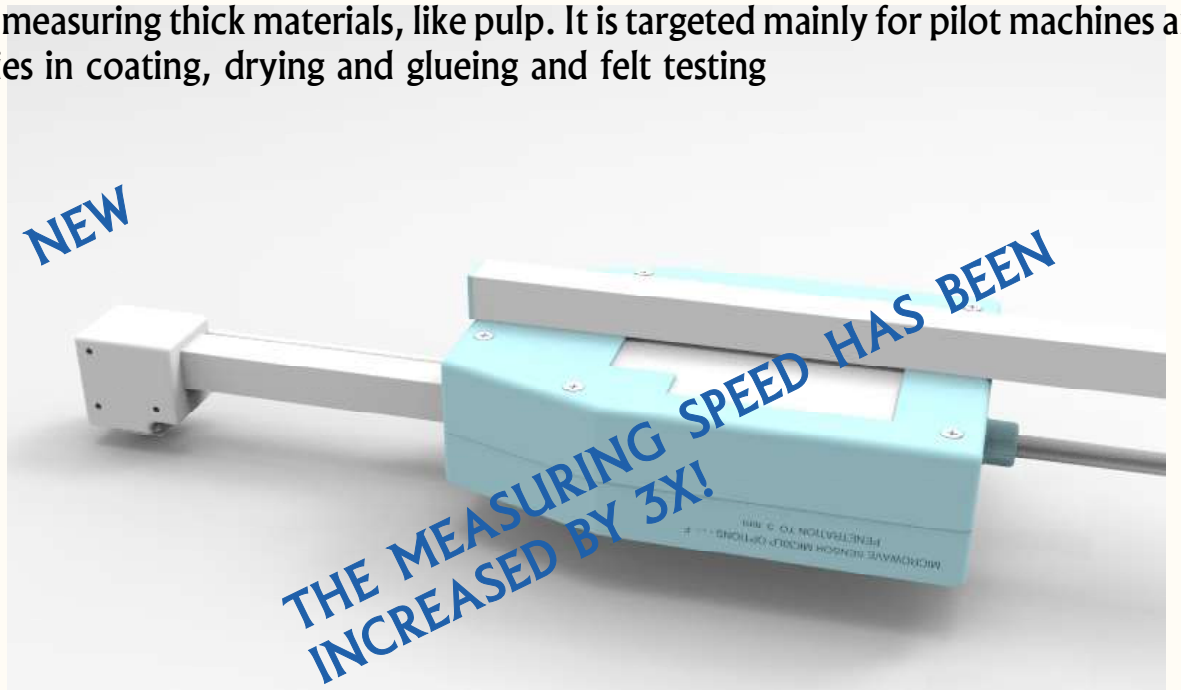
- **-MKSTD** a polymer plate for verifying the calibration in long-term use (any stable plastic will do)
- **Sheet Calibrator** is a low-cost accessory facilitating measurements and calibrations of sheet material. MK30R and all other microwave sensors can benefit from it.
- **MK30R-PF** for paper fo
  has a one meter cable.



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SIGNAL TECHNOLOGIES

Moisture - MK30LP - On-line Moisture Meter for Thick Materials

The **model MK30LP** moisture meter offers unique features for on-line in production and laboratory use. It has a low profileand fits to many tight places. It uses advanced UHF radio wave technology and signal processing to get best results in noise level and stability. It is optimized for measuring thick materials, like pulp. It is targeted mainly for pilot machines and research studies in coating, drying and glueing and felt testing



- LIGHTWEIGHT AND SIMPLE TO USE, A LOW-COST METER
- SMALL SENSOR HEAD
- PENETRATES TO 5 mm, AREA 10 mm IN DIAMETER
- ABLE TO MEASURE HIGH MOISTURES
- THIS METER HAS NO COMPETITION
- HAS A NEW HIGHLY ADVANCED DYNAMIC MEASUREMENT ALGORITHM FOR MOISTURE ANALYSIS

PRODUCT HIGHLIGHTS

- applications in pulp, paper and board, textiles, felts, filters, recycled fiber, packaging papers
- suitable also for **corrugated** and **soft materials**
- unbeatable for **black papers**
- moisture of thick and thin samples, moisture content in %, DRY-% or DRYNESS
- wide moisture range starting from about 2 %, up to very high moistures
- fast response, selectable digital filtering, 10 to 30 points per sec sampling
- superior stability, based on radio frequency technologies (UHF)
- data transfer via RS232/485, 4-20 mA + 2 or 5 Volt output
- a carrying case **-CARMK**. Keeps the meter protected and ready for use.

VISILAB SIGNAL TECHNOLOGIES

Generation 5 Software inside

Data logging features

- operating distance: **contact required**
- measuring area 10 mm in diamter, **measuring depth to 5 mm**
- low noise level even at high moistures
- an integral Teflon skid for measuring safely over moving webs. It also ensures proper contact while measuring soft materials having a low-friction skid leaving no streaks.
- water content in % total, calibrated often as g/m2
- calibration with multiple points for linearization (2 - 10 points)
- precalibrated for some basic materials
- ***Note:*** *Does not operate for materials containing significant amounts of* ***soothe***, ***metal particles*** *or* ***Titanium oxide*** *pigment*

Interfaces and physical properties

- dimensions 40x30x40 mm for the sensing head, 600 g
- IP67 enclosure for harsh environments
- the free **MK30LP** program is for data acquisition and trend display, data archiving, manipulation etc. It has a great number of features but has a Simple version just for measuring and analysis
- meter configuration can be saved, meter starts the next session like that. Temporary changes are not saved.
- physical interfaces:
  - RS232/RS485 for the PC program, 115 200 bauds
  - one 4-20 mA + 2 Volt analog output

Ambient conditions

- operating +10 ...+50 C
- fully temperature compensated
- IP65 case

Delivery options (3), long cables possible:

- cable to DCS analog outputs and power feed
- cable and power supply -PS with connections to laptop (RS232/USB) and DCS
- MK30R-DISP unit making it virtually identical to MK30R (refer to MK30R data sheet) with wireless communications and the sensor at a longer distance
- a display/keyboard panel fixed at the other end of the stick, making it virtually identical to MK30R (refer to MK30R data sheet) with wireless communications and the sensor at a longer distance, no battery powering

Other Options

- The meter is delivered with the cable 5 m. If a light-weight Aluminum stick of 2 m is needed, order that as well.
- Moisture standard **-STDMK** for regular checking for long-term stability
- fixed cables instead of connectors. Cable length defined by buyer.
- an extra connector for exposing the RS232 terminal connection.
- **LAN485** a communications bridge for acquiring data from up to **15** MK30LP sensors. Can be used for other general data communications via RS485. LAN485 is able to supply 24 Volt power to each sensor
- **-CARMK** a special carrying case, water tight, shock-proof
- **-MKSTD** a polymer plate for verifying the calibration in long-term use (any stable plastic will do)
- a FAST option of MK30LP will be available soon



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SIGNAL TECHNOLOGIES

Models MK30LP-CT and **MK30LP-CTB** are variants of MK30LP. They are specifically designed for measuring **extremely wet cellulose mixtures and other wet compounds with water**, from 4% dry to plain water. Their sensing areas are small at the end of a short protruding stub and mounted with a standard R1/2" fitting. The structure is self-cleaning and made of AISI316 and PTFE.

CT: - sensing area diameter 4.0 mm, microwave penetration depth to mixture 3.0 mm
CTB: - sensing area diameter 10.0 mm, microwave penetration depth to mixture 7.0 mm

CT can take 0... +105 C temperature and 1.0 +/- 1.0 bar pressure, **CTB** 1.0 +/-0.5 bar. Interfacing is identical to MK30LP. Data rates are 10 to 30 points/s

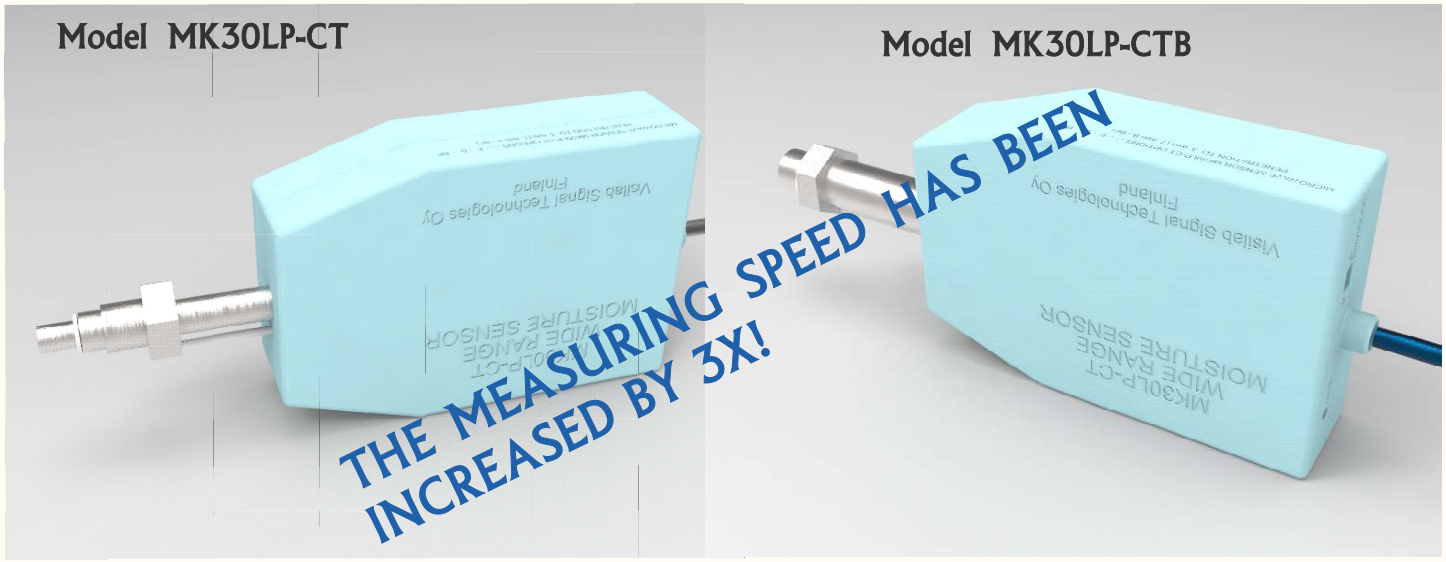
- physical interfaces:
  - RS232/RS485 for the PC program, 115 200 bauds
  - one 4-20 mA + 2 Volt analog output (or configure to 5 Volt, limited 4-20 mA)

Delivery options (3), long cables possible at extra cost:

- cable to DCS analog outputs and power feed
- cable and power supply -PS with connections to laptop (RS232/USB) and DCS
- MK30R-DISP unit making it virtually identical to MK30R (refer to MK30R data sheet) with wireless communications and the sensor at a longer distance
- a display/keyboard panel mounted on top of thie unit, making it virtually identical to MK30R (refer to MK30R data sheet) with wireless communications and the sensor at a longer distance, no battery powering
- CAR an optional special carrying case, water tight, shock-proof for one sensor with 5 m of cable

The enclosure dimensions are 112 x 173 x 45 mm, made of ABS plastic and IP67 rated. **FAST** version with a significantly higher signal throughput, otherwise identical, will be available soon as well.

The application areas are for instance in biomass processing, food products, cellulosic textile processing, pulp processing for new materials, like textile fibres and medicine, animal feed processing. All areas where a wet mass needs to be inspected continuously or in batches down to rather dry mass. These can be mounted in pipes and vessels for measuring the flowing masses water content or dry weight. The sensors can be fixed to the process or used as handheld to check the levels at many points in the process. **They are also able to measure water content in various types of oil.**





Case variants for MK30LPCT/CTB



Available versions

Model	Variant D	F	DISP	AL	ABS	Notes
MK30R	-	*	-	-	-	contains the features integrated
MK30LP	*	*	*	-	*	
MK30LPCT	*	*	*	*	*	
MK30LPCTB	*	*	*	*	*	
MK30LP-CUBE	*	*	*	-	-	AISI box, -D attached to the box wall
MK30LP-SC	*	*	*	*	*	Scanner use

The -D version is K67 case by default, K60 case if -F version too. "-" = not available, "*" = available

Model MK30LP-CUBE a variant of MK30LP with the cavity 40 mm in diameter and penetration of 35 mm. The same interfacing and cable options apply for it as the MK30LP. Requires external powering. Below a picture of **MK30LP-SC** aimed for scanner use. It has similar parameters as MK30LP and dimensions 220x75x112 mm. Fixing by four bolts. This requires touching the web/felt with the hardened tip.





Moisture - AK40GW - On-Line Moisture Meter

The **AK40GW** moisture meter is a new highly economical solution to cover those points of the process which were uneconomical before.



THE ECONOMY MODEL

Surface moisture

- FOR COST CRITICAL APPLICATIONS
- THE SENSING HEAD IS AT THE END OF 300 MM TUBES AND VERY SMALL FOR TIGHT SPACES
- SIMPLE TO INSTALL AND USE
- INTEGRAL KEYBOARD AND DISPLAY FOR FIELD CONFIGURATION
- LOW WEIGHT AND SMALL SIZE

PRODUCT HIGHLIGHTS

- applications in paper and board industry, textiles, felts, filters, minerals, sawdust, recycled fiber, waste paper
- the meter is targeted for "easy" spots of the paper and board machines. It will work at more difficult positions and at high moistures but keeping it there clean may become too challenging.
- surface moisture in thick papers, total moisture content in thin samples (abt. 150 microns penetration in paper products)
- simple to use

- fast response, selectable digital filtering, 5 points per second sampling
- superior stability, based on the proven ultrastable technology by Visilab, revision S
- operating distance: 5...15 mm or more, no contact required
- measuring area 10 mm in diameter allows for profiles in small scale if put to a scanner
- IP67 enclosure for harsh environments, air purge both for the box and the skid under the meter
- integral display and a diaphragm keyboard, can be located either outside or inside the box under the hinged cover. This allows unique field operation of the meter without any other tools or PC's. It is easy to configure the meter when needed.
- large calibration table library (100 tables) with rapid switching
- calibration with multiple points for linearization
- one filter option is adjustable for exceptionally slow responses when measuring conveyors and like
- nonvolatile memory banks for holding 810 sample data series, with max 500 points per series
- autotimer sampling, statistics for collected values

VISILAB SIGNAL TECHNOLOGIES

Generation 5 Software inside - behaves like an AK30/40

- graphic trend display for recent history, data can be saved to a bank with a button press
- graphics show also retrieved data curves
- optical head is inside the box giving a good protection
- has an optional infrared thermometer for obtaining the web temperature, on the display and through one analog channel
- Flash calibration in field conditions, just know the BW and start measuring
- automatic zeroing of the moisture reading if only the difference is important

- banks can be averaged several at a time, number of banks can be set for that
- large moisture range starting from 0%, up to about 70%
- a numeric display
- a graphic display, trend curve and values, switchable with the numeric display
- colour hue of display can be adjusted for various operating modes
- colour hue of display can be adjusted to indicate crossing preset moisture levels (alarm feature)
- the meter has a sleep timer. If the meter keyboard is not touched, it can be dimmed after one hour or the meter can be put to energy saving mode (LowPower mode) with no measuring. Also DIM mode is available where the display becomes dimmed after one hour but otherwise the meter continues operation
- a marker key allows adding moisture markers while doing moisture testing on-line

- low noise level (typically < 0.03 % stddev)
- three analog signals for DCS: Two 0..5 V signals for moisture and temperature and one 4-20 mA for the moisture
- wireless communication via Bluetooth for up to 100 m distance in good conditions, also a 100 m PC Bluetooth adapter included with software. Now we are shipping a new RN41-based system which is a snap to install and use
- regular RS232 at 9600 bauds is also available for PC's COM port, up to 40 meters cables
- the no-cost **AK30, AK30Mini** and **ATOM** programs are full data acquisition software for trend display, data archiving, manipulation, frequency analysis, etc. **Mini** version suits small laptops with a reduced set of features. **Advanced** is an optional licensed program with plenty of features. New AK40-specific programs may be published later and they are available for everyone.
- the optional **LAN232** unit supports up to eight moisture meters with their own power supplies connected
- very long service interval of 200 000 hours, only the battery needs replacement after every five years if actively needed.
- Power supply **-PS**, 24 V with a 7 m cable 110 - 240VAC is included (on-line models), battery charger with cables (portable model)
- a very low power consumption max 3 W
- tube length can be selected at time or ordering to 150 / 200 / 300 mm

- the price is better than competitive and the payback time is short if moisture quality has any value at all

FrontColour 5 - On-line Brightness Meter



TAPPI Brightness

NEW VERSION WITH NEW ALGO-RITHMS AND ELECTRONICS

- Designed for pulp and paper products and other solid and fiber materials
- Installed to many positions in production machines
- Simple to use, accurate readings, excellent stability
- Light weight
- An integrated system, requirements of CIE 1964 10° geometry and TAPPI R457 Brightness complied with the measurement at a distance of **200 mm**
- DCS interfaces: serial RS232, USB, two analogs
- Wide Brightness range, no UV excitation for fluorescence effects
- Data logging and analysis features
- Suits on-line, laboratory and field, QC and research to get real-time data from the process
- Single-point or scanner use

NEW VERSION WITH A WINNER PRICING

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Generation 5 Software inside - behaves like an AK30/40

Main Features of FrontColour 5

- applications in pulp and paper industry, textiles, felts, recycled fiber, packaging papers and liners, plastics
- TAPPI Brightness according to CIE 1964 10° geometry, 0° /45° illumination/measurement
- simple to use but has useful features for advanced work
- for single-point or scanner use in on-line QC measurements
- wide Brightness range starting from 0 up to about 150, calibrated at 100 units, works fine even near zero
- self-consistent, power supply included, ready to start
- fast response, selectable digital filtering, 10 points per sec sampling and updating of data
- applies special LED and signal processing technology for getting the fastest and most stable response
- superior stability, based on proven technology of Visilab
- the price is very competitive and the payback time is usually short
- other geometries can be tailored according to customer needs

Data logging features

- operating distance: 200 +/-4 mm
- measuring area 35 mm in diameter
- high immunity to external light radiation, web speed and surface texture
- memory bank for holding up to 500 sample data points, up to 820 banks, can be downloaded to a PC for reporting and archiving
- autotimer sampling (adjustable sampling interval and batch size), also an external hardwired trigger
- extremely low noise level (typically < 0.02 BU stddev)
- calibration with multiple points for linearization (2 - 10 points)
- very low power consumption (< 5 W), no water cooling, cool air purge to the outside is sufficient in difficult conditions

Ambient conditions

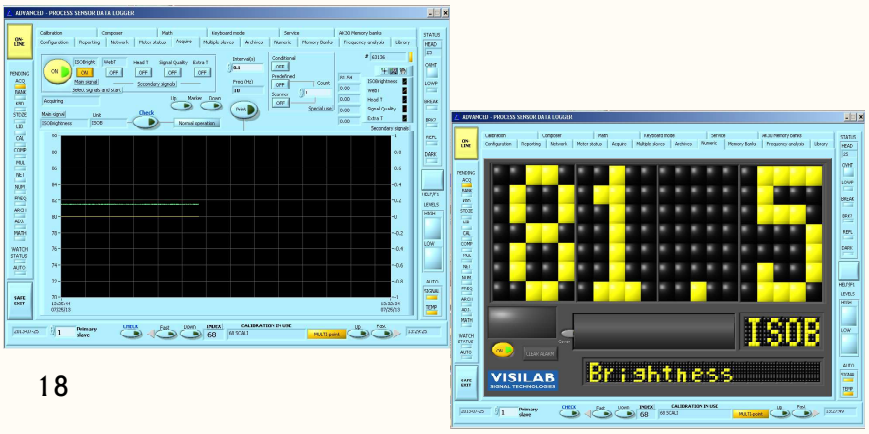
- operating -10 ...+50 C, needs air purge if over +45 C
- fully temperature compensated
- IP67 case
- optical windows can be cleaned if water condensation or dust
- long service interval 150 000 h

Optional accessories

- a PS power supply unit
- a Bluetooth pair for a wireless link
- reflectance standard
- an RS232-to USB isolated converter to be connected to the PC USB, with a serial RS232 cable of 5 m
- license for the Advanced program

Interfaces and physical properties

- dimensions 270x270x120 mm, weight 2.90 kg
- sturdy IP67 enclosure (same as FrontColour10 box)
- analog outputs for Brightness and temperature
- regular RS232 via cable at 9600/115200 for PC's COM port, USB
- the free **AK30 PC** programs are data acquisition software for trend display, reporting, data archiving, manipulation
- when the meter configuration is saved, meter starts the next session like that



FrontColour10 - On-line Colour Meter



Colour

- Used for plastics, pulp, pigments and paints, printing, papers, most solid materials
- Installed to many positions in production machines
- Simple to use, accurate readings, excellent stability
- Small size, light weight
- A self-contained system, latest DSP technology is used for signal processing
- Measurement by CIE 1964 10°
  Illuminant: A / C / D50 / D55 / D65 (default) / D75
  Colour system CIE L*a*b*, CIE Lv' and CIE Lu*v*
- Gives common colour variables and TAPPI R457 brightness plus more
- One sensing head
- USB, RS232, analog outputs 5 V (4) and 4-20 mA (1)
- Conforms to CIE 15:2004 and CIE 176:2006 requirements
- Reel counter
- Self-calibrating while running

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Main Features

- targeted for QC, testing and research, applications in pulp, paper and board industry, textiles, felts, pigments, plastics, minerals, paints and coatings
- analyzing X, Y, Z, chromaticity coordinates x,y,z - CIE L*a*b*, L(u')v' and L*u*v*, Yellowness J, TAPPI brightness R457, CIE whiteness W, CIE Tint, colour difference dE* (for dL*, da*, db*), v', u*, v*, chromaticity, hue, saturation. Also a special Primary reflectance data R(lambda) is obtained. Geometry is 0° /45° CIE 1964 10° observer, D65, A, C, D50, D55 or D75 illuminants
- uses a CCD spectrometer as a detector for analyzing the spectra, the architecture compensates against the light source and other variations. The spectrometer resolution is about 1.6 nm. A category B device
- superior stability, based on proven technology of Visilab
- several DCS interfaces for transferring the results in on-line systems
- in laboratory the FrontColour program can be used via USB/RS232/Bluetooth, all data for archival, statistics and reporting
- spot size 8.75 mm in diameter allows small-scale measurements, size dictated by standards and distance
- LED light source with wideband excitation of 400 - 760 nm and a separate UV excitation 390 - 420 nm is user adjustable
- operating distance: 50 mm one headed observation
- the FrontColour program allows continuous data acquisition on-line with various displays and archiving, diagnostics, statistics etc. All meter features and calibration procedures are made via the PC program
- extremely long service interval - designed to run 24/7
- runs automatically without any computers. PC can be used for data acquisition and configuration. The operating mode (illuminator etc.) is changed with the PC

Data logging features

- all DCS analog interfaces are updated once per sec minimum, raw speed 2 / sec
- external reel number counter switch input with automatic counter increment
- data acquisition speed 2 points /s minimum for all variables, output 2 points/s to interfaces

Interfaces and physical properties

- **analog outputs** 0..5 V (4) for any output variable, 4-20 mA (1), both scalable
- **USB** for a PC directly in the box
- regular **RS232** via cable at 9600 (max. 40 m) or 115200 (max. 5 m) via RS232/USB converter
- an **input** for incrementing the reel counter (TTL type closing switch)
- operating voltage 24 V 15 W max
- dimensions 120x270x270 mm, weight 3.5 kg
- IP67 enclosure for harsh environments
- power supply unit for 110 - 240 VAC mains is included. It has connectors for DCS interfaces
- Mounting by four holes on the top face, M10 or M8
- Observation window near one end of the bottom plate
- the **Frontcolour** is a free program with plenty of features, belongs to the instrument, operating in Windows 11/10/ 8/7 64 bit versions. It has graphic displays for incoming data, a big number display, recipe system for optimizing small colour differences etc. It has a special colour display for tracking a* b* variatioons in the process. A fine tune possibility for L*a*b* is available with files for settings. The program comes as two separate ones. One is for configuring the colour meter and the other one is for data acquisition.

Ambient conditions

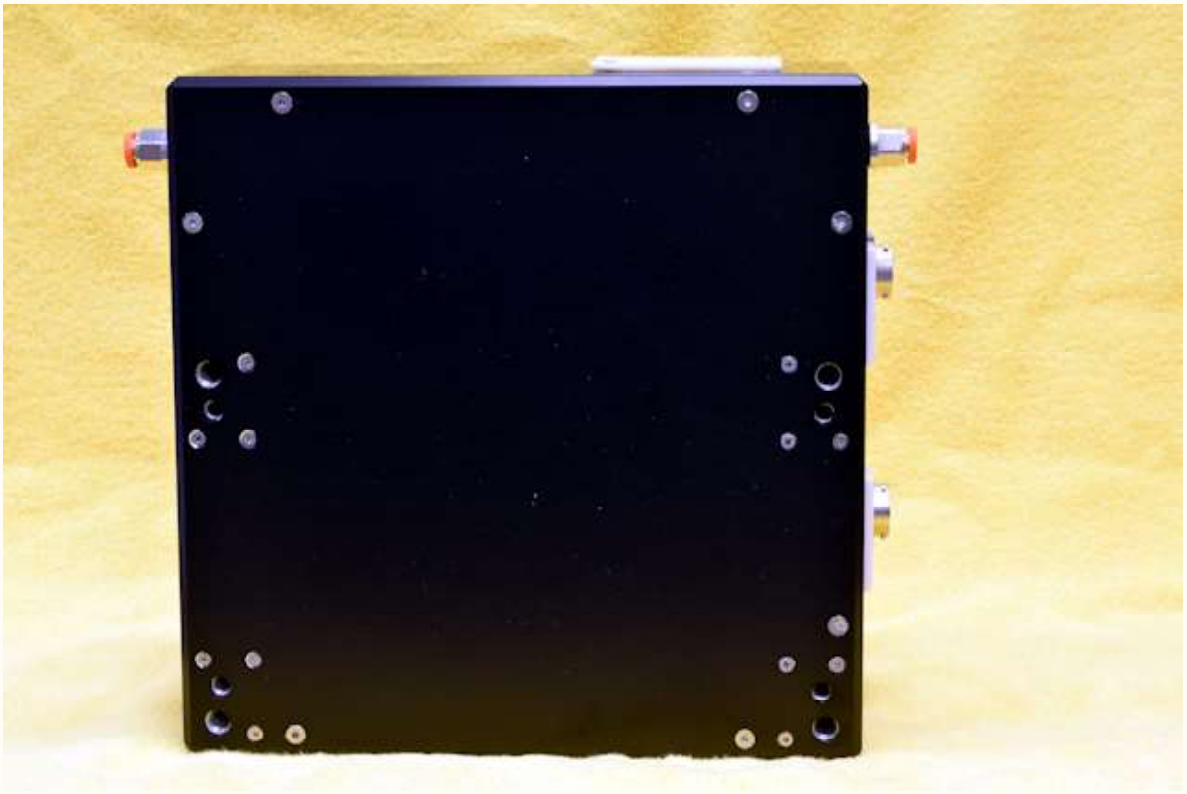
- operating +5 ...+60 C with air purge
- overheating protection turns the meter to LowPower
- fully temperature compensated
- IP67 case, purge air to both case and window / skid
- optical windows can be cleaned if water condensation or dust, air purge used for keeping it clean

Optional accessories

- wireless communication via 100 meter Bluetooth, the dongle for the PC included
- USB extension lead 3 m
- Spectralon reflectance standard, NIST traceable
- colour standard set, NIST traceable
- wavelength calibration light source
- laser pointers for aiding in accurate positioning while installing in requiring conditions
- a dust cover for more difficult conditions
- holders are available for flat samples, reflectance standards, colour tiles, wavelength calibrators. They facilitate checkup and laboratory operations a lot

FrontColour 10 back panel for connections to power supply, communications, analog signals and USB. Top right corner has a quick connect for air purge



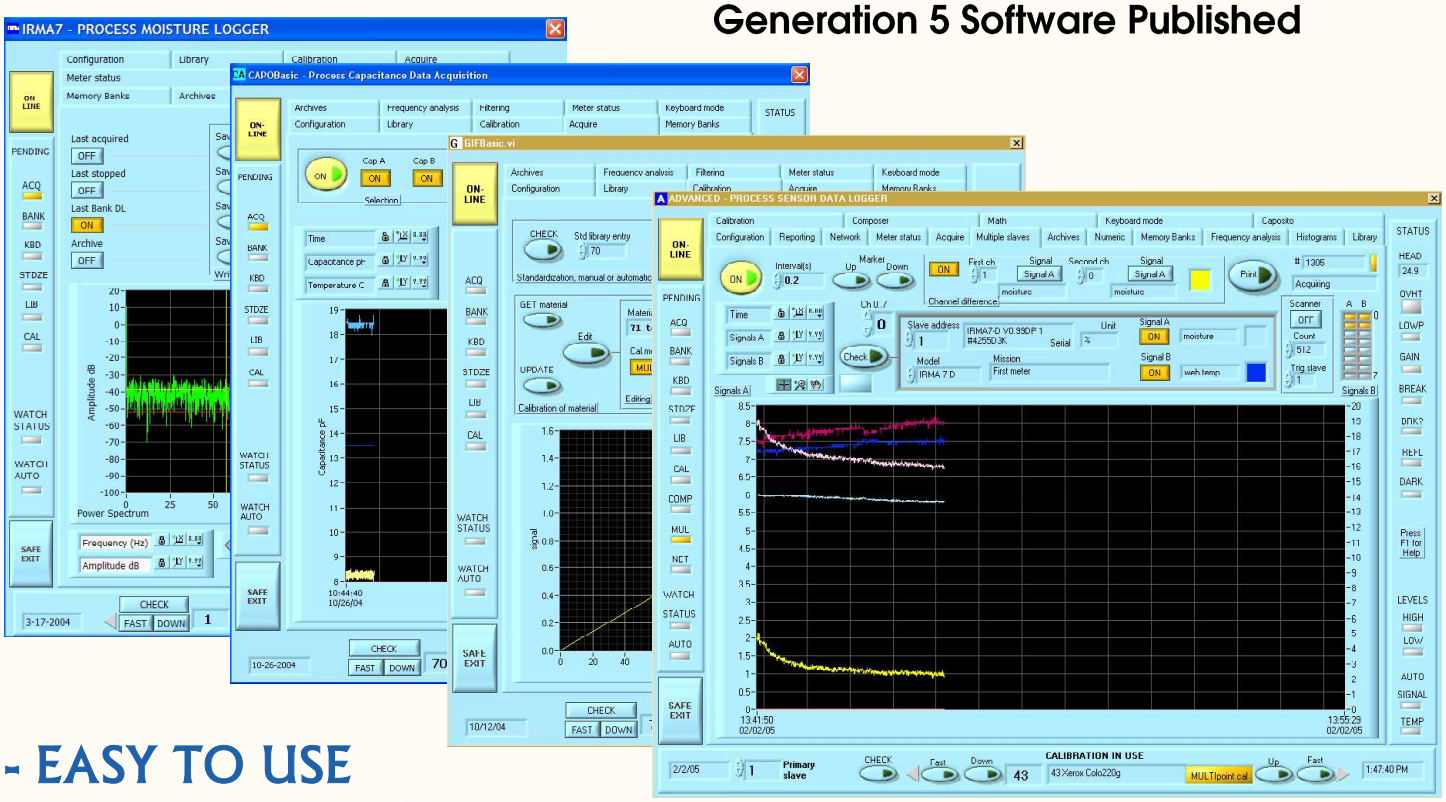


Mounting holes on the top panel. Four M10 threads plus four M8.

Software - Data Logging for Process Sensors

The **Mini, Basic** and **Advanced** software represent latest software technology. They apply smart multitasking and signal processing to obtain the maximum amount of useful data out of your process sensors.

Generation 5 Software Published



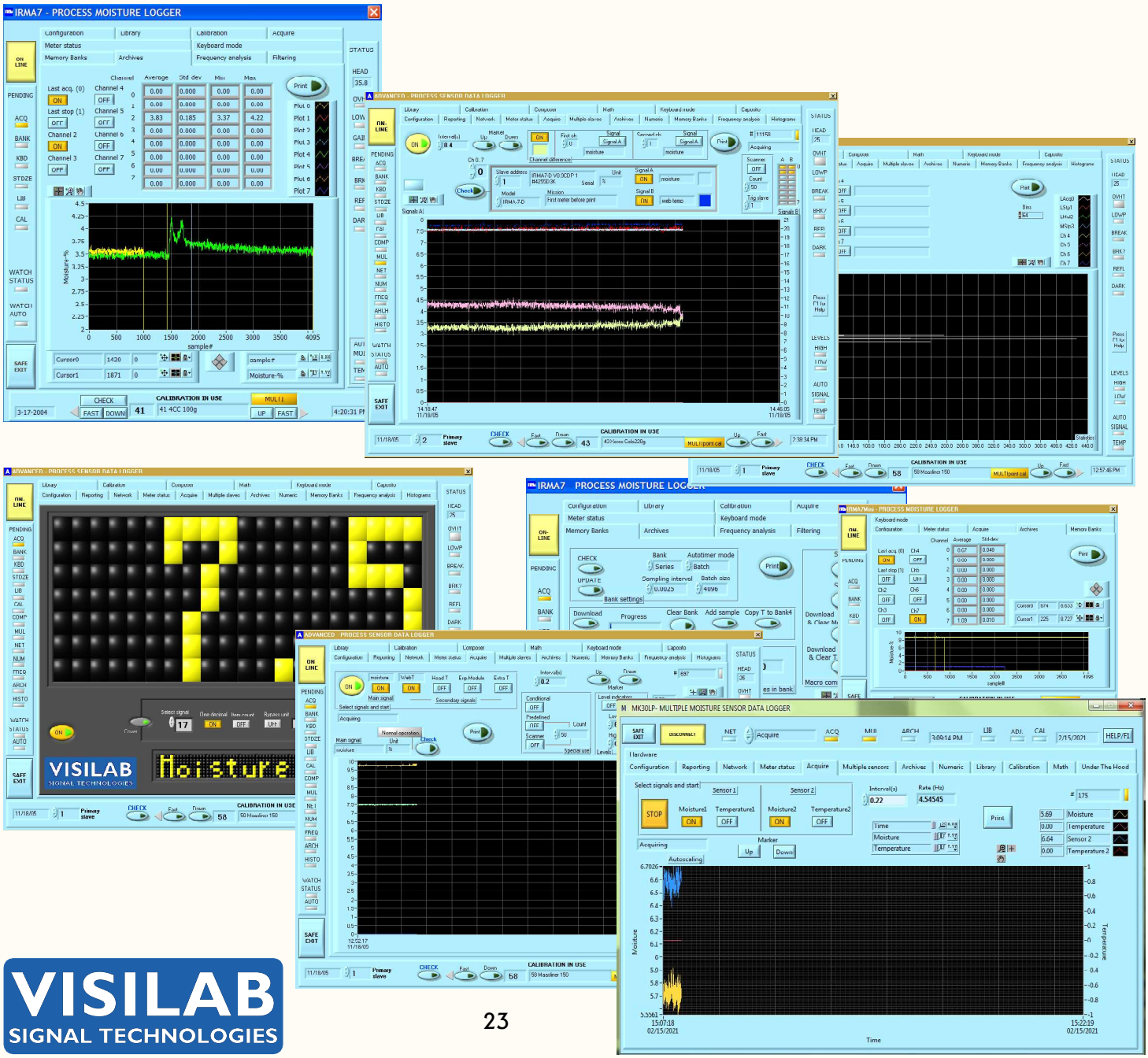
- EASY TO USE
- EXCELLENT GRAPHICS
- COMPLETE ARCHIVING
- SCANNER SUPPORT
- SPECIAL VERSIONS AVAILABLE

PRODUCT HIGHLIGHTS

- data logging software using the PC's asynchronous serial port and the **IRMA-7** packet protocol
- acquires sensor signals for display, further processing and archiving. Web temperature, head temperature, extra temperature and expansion module signal are available depending on model and accessories
- programs support all **AK30/AK40GW/AK50E/MK30R/MK30LP** moisture meter models and their variants, including all vintage models of the IRMA-7 series.
- very easy to use, just press a few buttons and complete data acquisition routines with automatic saving is started with continuous data display with automatic scaling
- multitasking program structure. Most tasks and operations can be performed at the same time
- all of meter's features can be used efficiently, including the memory banks, calibration tables, autotimers and high measuring speed
- sampling interval adjustable from 0.01 s to 32 000 s for trend displays
- archiving of all data to spreadsheet format, also Excel, Datalog, Active-X and LVM file formats are available
- frequency analysis for current incoming data and for archived and downloaded bank data. This is a very useful tool for finding moisture or other signal oscillations and for identifying their causes. It now contains a cylinder diameter/felt length library to save the PM features for later diagnostics

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- data files can be retrieved and displayed with statistics information
- reporting to printer with high quality graphics. HTML report files can be generated.
- status indicators for meter overheating, web break and suspected break are useful for daily quality control work
- indicators for too reflective or too dark surfaces, indicators for crossed high and low levels
- calibration and meter standardization routines
- support for simple scanner data acquisition in Acquire and Multiple slaves tasks. Requires an external trigger for each scan start.
- can be safely left running for months, data is automatically saved into date-time coded files
- calibration library and single material manipulation with graphical display of each entry
- fast advanced signal processing in filtering, frequency analysis and displays
- the **Profiler** program is specialized for **scanner** operation but can be used successfully for other moisture signal acquisition tasks. The same license as the **Advanced** is applied and they are installed at the same time
- the **Advanced** program supports the use of several meters simultaneously and has a number of additional features not found in the **AK30** program, like Composer expert system, channel difference calculation in real-time and as a postoperation too, Mathematics page, Numeric display page, postfiltering (three options) of archive files, global commands and Network operations. Autostart feature makes it possible to run it in



unmanned systems for data acquisition. Other features are identical to those in **Simple** programs except the advanced program has a wider graphical display. Advanced has now a special feature called Automatic Fine Tune for automatically adjusting a calibration. The Advanced software fully supports all old sensors and meters manufactured by Visilab. The latest version has a meter diagnostic section for checking the meter and diagnosing if something is wrong. The license fee covers the Moisture Profiler program too and other available licensed software not mentioned here. The Colour program has its own small fee.

- the **AK30Mini** program is a minimized version of **AK30** having a smaller subset of features. The **ATOM** program is the simplest program targeted for getting the moisture profiles from the meter.
- all programs can be upgraded via internet with no cost, just download a ZIP file, extract it and install it.
- all programs can work with LAN232 bridging unit transparently.
- user's guide in English
- Most software support the three data transmission speeds: NORMAL 9600 and **TOP SPEED 115 200** bauds (default). AK30 and AK30Mini have speeds of 9600 and 115200 bauds (TOP SPEED). They all immediately support the operation through a Bluetooth COM port in the PC. We offer Bluetooth modules for all meter and sensor models for both ends of the link. Refer to the accessories page. The **MK30LP** software have optional speeds 9 600 / 115 200 / 187 500 / 230 400 / 500 000 bauds. They can be set via the program MK30LP.
- All software operate in 64-bit Windows 11 + / 10 / 8 / 7 and future versions.
- **ATLINK** and **ATLINKMini** are for using various tailored systems delivered by Visilab and several other products whose embedded software Visilab has designed. These programs act as ANSI terminals for easy text-based management and data transmission. They can be used for many other purposes too.
- The new program is **ATOM**. It is designed for retrieving moisture/temperature profiles from the portable meters
- the **MK30LP** and **MK30LPSimple** programs are for the model **MK30LP** and its variants (Simple having a smaller subset of features). They are in the same program package.

- The programs are now combined to bundles for simplicity:
  - **AK30** contains **AK30Mini**, **Moisture**, **ATOM** and their French versions
  - FrontColour10 contains the **FrontColourConfig** and **FrontColour** programs
  - the **Advanced** contains the **Profiler**
  - **MK30LP** has the **MK30LPSimple**
  - **Atlink** has the **AtlinkMini** too

  Installation of one bundle is sufficient to start using the programs in it

NOTES:

- The **Moisture** program is available at a small one-time fee. It is designed for AK30/AK40GW meters but will work for AK50E too. The ATOM program is similar but simpler and focusing mostly on downloading profiles
- the **Advanced** program is licensed with an economical single-time payment. It covers the **Profiler** program as well and in the future, all other licensed programs. So it is a one-time shopping
- **the programs are for 64 bit operating systems** but Visilab can provide the same programs for 32-bit operating Windows 7/8/10/11 + systems. The 32 bit programs work in Windows 11 fine.

Cross reference table for applicability of each PC program with various products

Program	Product/Model: AK30/AK40GW/MK30R FrontColour 5	AK50E	MK30LP	MK30LP-DISP	FC10
Advanced, Profiler	perfect	perfect	not perfect	perfect	not suitable
AK30, AK30Mini, ATOM	perfect	perfect	not perfect	perfect	not suitable
MK30LP, MK30LPSimple	not perfect	not perfec t	perfect	not perfect	not suitable
FrontColour, FrontColourConfig	not suitable	not suitable	not suitable	not suitable	perfect

Using an incorrect program for acquiring data is not dangerous. Some less important features are hidden and signals have incorrect labels. Some program have the Keyboard mode and thus all lower level product features and configurations are available.

Notes: The **FrontColour 10** colour meter has its own software which for natural reasons is not compatible with the moisture meters. The data is highly complex and contains a large number of signals. Therefore this product is incompatible with the others.

Generation 5 software is now used in **AK30/AK50E/40GW/MK30R and FrontColour5 meters** and also on **MK30LP variants**. The former are best used with the **AK30** program package and the **Advanced** package. The latter is mainly used by the **MK30LP** package for best usability and results. All this means that the meters delivered as Generation 5 units will have their internal software compatible with Generation 5 and the PC programs V5 are such as well. All old meters will still work at least 90% of the tasks. Acquisition of moisture and temperature signals should work as before.

Accessories - for Process Sensors

The following devices are useful for the instruments displayed in this publication. We do have other accessories available in addition to these.

The **LAN485** unit for creating a local area network based on the regular RS485, supports up to 30 sensors simultaneously, at 9600 / 115 200 / 187 500 / 230 400 / 500 00 bauds. It also supplies 24 Volt power to each sensor.

The **LAN232** unit for creating a local area network based on the regular serial port RS232, supports up to eight sensors simultaneously at 9600 or 115 200 bauds

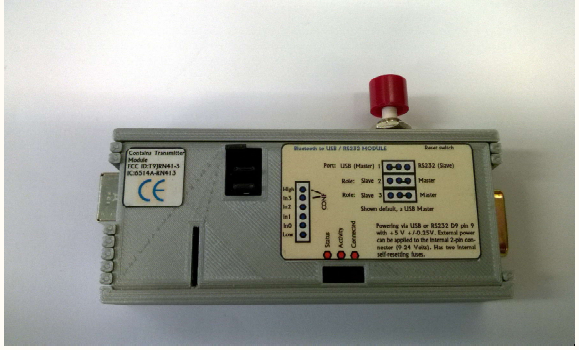


For various products:



A power supply unit **-PS.** This supply is used for all FrontColour, MK30LP-CUBE, MK30LP-CT, MK30R-PX and AK50E models. It has a connector for a standard optical sensor for installing a triggering system. It has two voltage output connectors.

BTUSBRN41 , wireless data transmission links to all meters and sensors with a 100 m range.



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