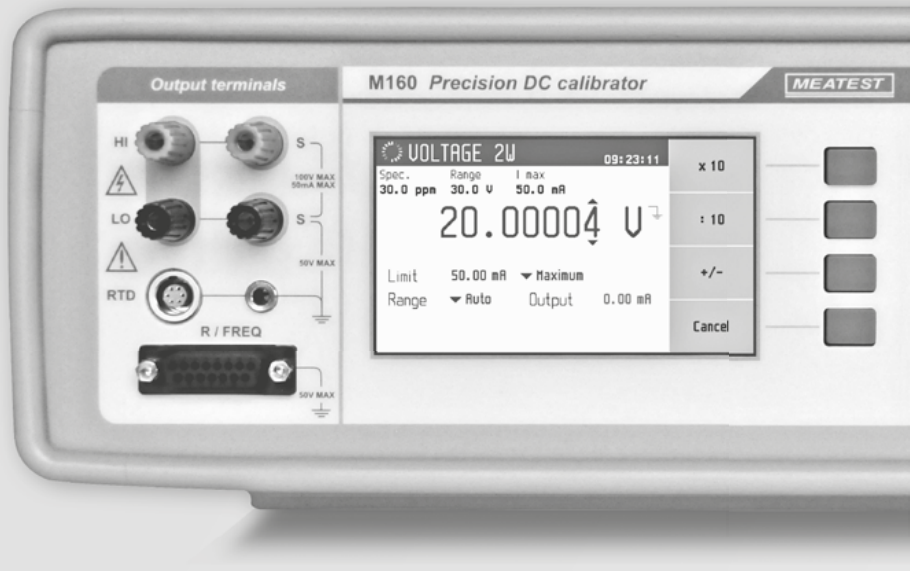


ELECTRICAL CALIBRATION

product overview



DECADES OF COMMITMENT

History of Meatest started back in early 80s when all three founders started to work together on calibrators and standards in metrology department of company Tesla. Collapse of the Soviet Union brought favourable conditions for doing business in Czech Republic once again and marked the foundation of Meatest in 1991.

With just 200 sqm of lent space, no staff and early-days ambitions the founders set about developing their own calibrators, standards and solutions for automatic calibration and eventually selling them to local customers throughout the nation.





It seemed obvious that local market was is not big enough for Meatest right from the start so we started to look for global customers in mid 90s. First success came in 1998 when agreement on delivering calibrators to Taiwanese distributor for south west Asia has been made, followed by Swiss distributor for western Europe in 2000.

2000 was a milestone for Meatest as it had to take a huge step towards its own factory in order to keep up with foreign market demand and new trends in electronics. Newly acquired space of 650 sqm was enough even for introduction of two new types of products – programmable resistance decades and magnetic flow meters.

From that time on, Meatest keeps exporting more and more, reaching some 95% in foreign exposition. Another factory floor has been built in 2006, then a brand new 600 sqm development center in 2009 and even staff numbers reached 30 in 2014.

And now it's time for you to try our time-proven technology and join our story

OUR SOLUTIONS

We strive to offer our customers great return on investment by keeping operating costs as low as possible and offering flexible solutions. Being a rather small company in metrology market we can work closely with customer feedback to create both hardware and software solutions that match everyone's exact applications even if it means creating a custom solution altogether.

MULTIFUNCTION CALIBRATORS	<ul style="list-style-type: none"> - Precision Multifunction Calibrators - Portable Multifunction Calibrators - Multifunction Process Calibrators
PROGRAMMABLE DECADES	<ul style="list-style-type: none"> - Resistance Decades - Capacitance Decades - RTD Simulators - High Voltage Resistance Decades
SPECIAL LABORATORY INSTRUMENTS	<ul style="list-style-type: none"> - Power and Energy Calibrators - High Current, Impedance Calibrators - Resistance and Capacitance Standards
CALIBRATION SOFTWARE	<ul style="list-style-type: none"> - Automated calibration - Camera readout - Calibration database
ELECTROMAGNETIC FLOW METERS	<ul style="list-style-type: none"> - Compact or with Remote Sensor - Sanitary, ATEX Compliant - Battery Operated

**Samsung, NPL, CMI, TÜV SÜD, NASA,
Telefonica, Philips, Jumo, Egston, INOR,
Weidmüller, Bourns Inc., Celesta, Iskra,
Bosch, Osram, Siemens, Honeywell, ABB,
E.ON, Skoda, Mercedes-Benz, ...**

How can we help you?

MULTIFUNCTION CALIBRATORS

Multifunction calibrators are cost-saving, all-in-one standards for calibration of electric meters including DMMs, transducers and regulators. All Meatest multifunction calibrators support computer assisted automated calibration. Full versions support additional functions like RTD simulation, resistance or power.

BENCH-TOP	<p>M142 10 ppm accuracy, widest ranges and workload coverage, built-in multimeter.</p> <p>M140 30 ppm accuracy, automatic tester function, built-in multimeter.</p>
PORTABLE	<p>M143 60 ppm accuracy, compact size and weight, wide ranges, great value for money.</p>
PROCESS	<p>M160 High accuracy industrial DC signals, designed for tough industrial conditions.</p>

Model	Voltage	Current	Power	Frequency	Impedance	TC	RTD	Accuracy
M142	1000 V	30 A	2.4 kW	20 MHz	1 G Ω , 100 μ F	✓	✓	10 ppm
M142i	1000 V	30 A	–	–	–	✓	–	10 ppm
M140	1000 V	20 A	2.4 kW	20 MHz	50 M Ω , 50 μ F	✓	✓	30 ppm
M140i	1000 V	20 A	–	–	–	✓	–	30 ppm
M143	1000 V	20 A	–	2 MHz	100 M Ω	✓	opt.	60 ppm
M143i	1000 V	2 A	–	2 MHz	100 M Ω	✓	opt.	60 ppm
M160	100 V	50 mA	–	15 kHz	300 k Ω	✓	✓	20 ppm
M160i	100 V	50 mA	–	15 kHz	–	✓	–	20 ppm

THE M142



Its 10 ppm accuracy and versatility make M142 Multifunction Calibrator an essential instrument for use in calibration laboratories or directly at measurement equipment production lines. M142 features calibration of AC/DC voltage, current and power in widest ranges in category, resistance and capacitance, TC/RTD simulation and built-in multimeter.

Large TFT display and simple interface give its user a great comfort. Further combined with Caliber© and WinQBase© software, the M142 becomes a fully automated workstation.

THE M143



Size of a notebook case, weight of just 9 kg and still a lot to offer. M143 is a cost saving solution for calibration of meters of electric quantities with basic accuracy 60 ppm which is enough for calibration of 3½ and 4½ digit multimeters. This portable calibrator can output up to 1000 V, 20 A or 100 MΩ, further offering TC and RTD temperature sensor simulation.

Model M143 works with Caliber© and WinQbase© software as well.

PROGRAMMABLE DECADES

Reference impedance standards were once huge sets of boxes that needed to be switched between manually. But as we moved into 21st century (at least Meatest did), things have changed. Welcome to the world of automated testing, one-click switching, no residual impedance and simple recalibration, where no accuracy or stability has been lost. All decades can be built into 19" rack and come with RS-232 interface as standard.

REAL RESISTANCE	<p>M6X2 Excellent accuracy, stability, resolution, 6 ms reaction time and wide range. 4W connection.</p> <p>M6X1 Designed for RTD simulation. Shorter ranges, otherwise same parameters and technology as M6x2</p>
REAL-CAPACITANCE	<p>M525 Low loss coefficient, open correction resolution from 1 pF</p>
HIGH VOLTAGE	<p>M191 1 TΩ resistance and 10 kV peak voltage, PI, DAR, PR and capacitance calibration</p> <p>M194 100 GΩ, 6 kV peak voltage and signal meter.</p> <p>M109R Cost saving, battery powered, floating mode</p>

Model	Range	Resolution	Max. Voltage	Interfaces (RS232 std.)	Accuracy
M632	1 Ω–1.2 MΩ	10 μΩ	200 Vpk	USB, GPIB, LAN	0.002 %
M642	0.1 Ω–20 MΩ	1 μΩ	200 Vpk	USB, GPIB, LAN	0.02 %
M631	16 Ω–400 kΩ	0.001 °C	200 Vpk	USB, GPIB, LAN	0.01 °C
M641	10 Ω–300 kΩ	0.01 °C	200 Vpk	USB, GPIB, LAN	0.1 °C
M525	0.1 nF–100 μF	1 pF	50 Vpk	USB, GPIB, LAN	0.25 %
M191	10 kΩ–1 TΩ	10 Ω	10000 Vpk	GPIB	0.1 %
M194	10 kΩ–100 GΩ	10 Ω	6000 Vpk	USB, GPIB, LAN	0.1 %
M109R	1 MΩ–12 GΩ	1 MΩ	5000 Vpk	—	0.1 %

THE M632



Precision Resistance Decade M632 is truly a masterpiece, providing excellent 20 ppm accuracy and less than 1 ppm/°C temperature coefficient in area of resistance calibration.

Precise resistance decade can't go without best foil resistors like those from Vishay Precision Group. Even relays available in time of M632 development were not good enough so they had to be customized by Meder to meet our high requirements.

SPECIAL LABORATORY INSTRUMENTS

Sometimes your requirements just don't fit into ordinary ranges and capabilities of multi-purpose instruments. For these cases, Meatest has few a solutions:

POWER & ENERGY CALIBRATORS

M133C 400 ppm accuracy in AC/DC power. Built-in multimeter, RS232, GPIB. Maximal output 600 V, 30 A each phase, 54 kW. Harmonic and interharmonic distortion, amplitude modulation, Dip/Swell and flicker.

HIGH CURRENT CALIBRATOR

M151 175 ppm AC/DC current source from 8 mA to 120 A. Built-in multimeter, simple recalibration, RS232, GPIB.

IMPEDANCE CALIBRATOR

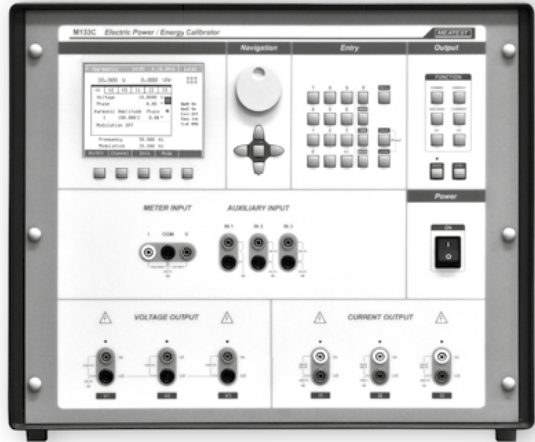
M550 100 ppm RLC programmable standard. High stability, accuracy, built-in multimeter, RS232, GPIB. Decimal values from 0.1 Ω to 100 M Ω , 10 pF to 100 μ F and 10 μ H to 10 H.

IMPEDANCE STANDARDS

MTE Fix LF standards with low temperature coefficient and time constant. Decadic resistance capacitance and simulated inductance values.

M530 Fix HF resistance standards with low frequency dependency for calibrations up to 100 MHz

THE M133C



Outstanding accuracy and resolution are quite common for Meatest instruments but the best thing about M133C is its flexibility. All three phases are completely independent and AC signal can be set up in many different ways including phase shift, frequency, harmonic and interharmonic distortion, amplitude modulation by yet another independent signal and dip/swell.

THE M550



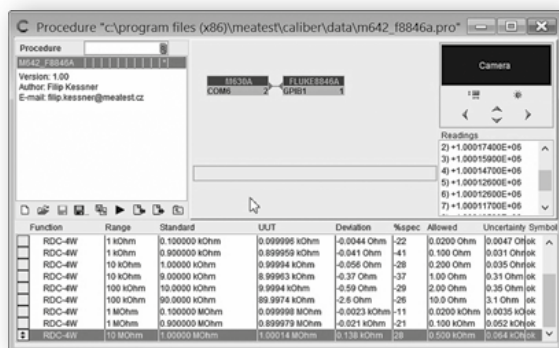
Impedance calibrator M550 has been made using the proven top-quality-parts recipe with low calculated phase shift resulting in very good accuracy, thermal independence and lasting stability.

With M550, you no longer need countless numbers of fix standards and a lot of time to calibrate your RLC meters with frequency up to 1 MHz. Just connect your RLC meter to the M550 and press start.

CALIBRATION SOFTWARE

To make your work a bit easier, Meatest has developed its own calibration software designed to work in synergy with all calibration instruments, reducing calibration times, calculating uncertainties and keeping your data organized.

CALIBER



First to help you out is Caliber, a software for automated calibration that makes setting up a calibration procedure and subsequent automated calibration a piece of cake so you can skip all the bothersome IT work and get cracking.

WINQBASE

Outputs from Caliber can be processed easily with database software WinQBase. Keeping track of your calibrator arsenal and output protocols with automatic backup are its main features.

ELECTROMAGNETIC FLOW METERS

No moving parts, robust design and accurate electronics ensure long life and sound measurements. Flow meter pipes can be customized with various liners, electrodes, flanges and pressure ratings. Meatest flow meters feature self-diagnosis and data logger.

STANDARD

M910 Multiple outputs, RS232 and RS485

M921 Improved design, accuracy, flow range and datalogger size. Temperature measurement, empty pipe detection, Modbus protocol.



**ZONE II
CERTIFIED**

Ex sensor Can be coupled with any Meatest transmitter, Approved for zone II 3G Ex nA IIC T5/T6 Gc.

BATTERY POWERED

M930 Battery lifetime up to 10 years. Empty pipe detection, optional pulse output, USB.

Model	DN Range	Flow Range	Power supply	Accuracy
M910(E)	15-800	0.1-10 m/s	115/230 V, 50/60 Hz	0.5 %
M921	15-800	0.03-12 m/s	85-264 V, 50/60 Hz	0.25 %
M930	15-300	0.1-10 m/s	Internal battery	0.5 %

CERTIFIED BUSINESS

Our quality management system is certified to ISO 9001:2015 under UKAS certification rules. All new instruments are tested and calibrated with possibility of ISO 17025 certified calibration.

MADE TO LAST

Development and instrument design in Meatest is focused on long-lasting durability. High quality components and precise manufacturing processes are key factors in cutting life-cycle costs.

INNOVATION FOCUS

Continuous development is taken very seriously in Meatest. That's why developers account for more than a quarter of all Meatest workforce.

FLEXIBLE SOLUTIONS

Nothing on market to match your requirements? Or just missing critical feature in our instruments? Share with us and together we'll surely come up with solution.

INSTRUMENTS FOR PEOPLE

Even though our instruments are complex and powerful, user interface is always clear and easy. Come to one of our events and try it yourself.

WHEREVER YOU ARE

Our representatives are at your service all over the world. Would you like to consult your solution with us? Get a quote? Training? Service? Calibration? Let us know.

AFFORDABLE CALIBRATION SOFTWARE

To make your work a bit easier, Meatest has developed a calibration software designed to work in synergy with calibration instruments not only from Meatest. Let your PC do all the hard work for you!



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