CALIBRATION LABORATORY SYSTEMS

30 YEARS OF EXPERIENCE

AUTOMATED CALIBRATION SYSTEM

Reference

Integrated calibrator

Extention card

Devices under the test

PC with calibration software

Ambient condition station

Internal Ethernet switch

Printer

Data storage
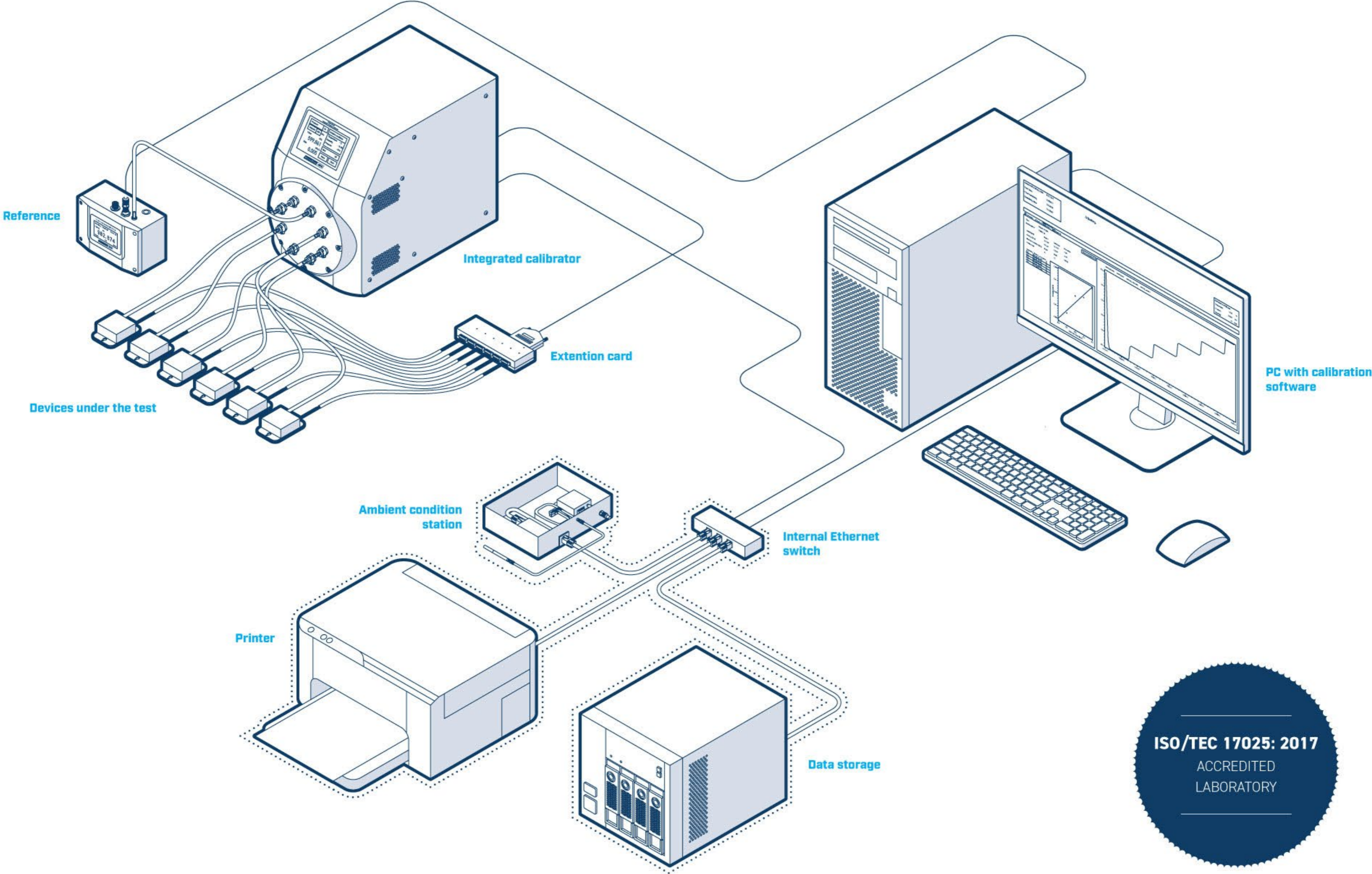
ISO/TEC 17025: 2017
ACCREDITED
LABORATORY

EXPERTS IN
METROLOGY AND CALIBRATION

Calibration solutions are a prominent part of the MicroStep-MIS product portfolio and are accredited according to the international ISO standards.

We focus on both hardware and software research and development. Our products can be used in a stationary laboratory as well as in the field. A high level of customization and the individual approach allows us to adapt the system and its components to the individual requirements and needs of the client. A high level of automatization of our system also allows a fully automatic calibration process, which minimizes errors and provides more efficiency. To achieve the most accurate and professional measurement,

it is necessary to employ a regular calibration and adjustment of the meteorological sensors.
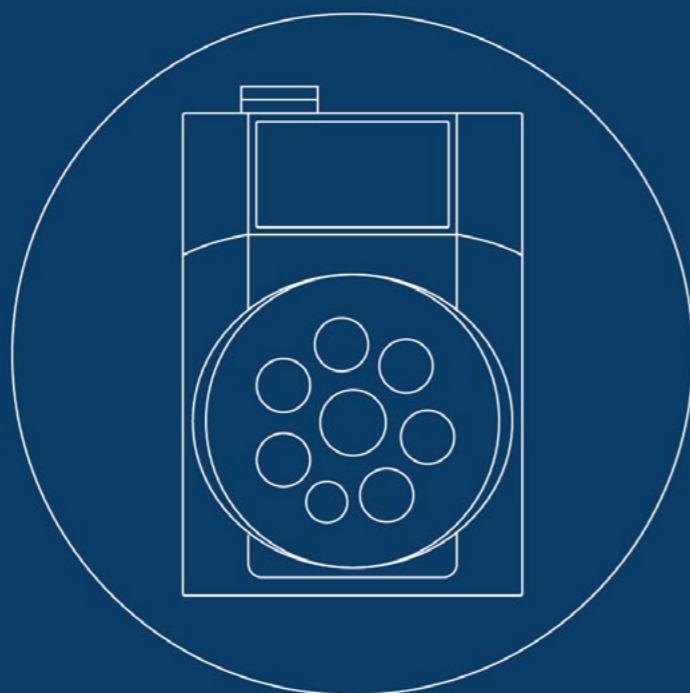
MicroStep-MIS offers a comprehensive solution for calibration laboratory, which include:
- Laboratory equipment and standards for the required quantity;
- Validated calibration method;
- Automation of calibration;
- Staff training;
- Preparation for accreditation and assistance during the accreditation process.

"*Valid observational data can be obtained only when a comprehensive quality assurance program is applied to the instruments and the network. Calibration and testing are inherent elements of a quality assurance program.*"
WMO Guide to meteorological instruments and methods of observation (the CIMO Guide)

CONTENT

HIGH LEVEL OF AUTOMATIZATION

Our calibration software IMS4 CalibLab allows a fully automatic calibration process, which minimizes errors and provides more efficiency.

15.000+
calibrated sensors since 2017

4
accredited quantities

24/7
support

OUR ACCREDITED
CALIBRATION LABORATORY

History and evolution of our laboratory

The year was 2011 and MicroStep-MIS needed to provide the output control of PT 100 thermometers, which were produced and sold to customers. To compare them at room temperature, a water bath was made, which consisted of a box full of water, where thermometers were immersed in a defined manner. After the temperature stabilized, a manual reading of the resistance of each thermometer was made and the data were processed in a spreadsheet program. Calibration certificates were produced manually as well. This was actually a completely systematic evaluation of the quality of the sensors in MicroStep-MIS.

Later in August 2014, a thermostatic bath was purchased. It allowed the calibration of thermometers in the range from -45 °C to +60 °C. Then we also bought a quality temperature standard designed for calibration laboratories, which improved the uncertainity of the measurement. We are now doing an output check of the thermometers at eleven points from -40 °C to +60 °C with uncertainty 0.06 °C. We therefore cover the entire meteorological temperature range. At the same time, it provides us with an amount of valuable data, based on which we know exactly what we are selling to the customer.

A similar process took place with other variables, such as atmospheric pressure, humidity, and since we focus on meteorology as a company, we added calibration of rain gauges.

Over time, as we gained experience, we bought and mainly developed our own equipment, standards and calibrators. We dared to complete the accreditation process according to the international standard ISO EN 17025 and since 2017 we have an accredited calibration laboratory.

Success stories and references

Our main goal for the future is to supply calibration laboratories for institutes and to obtain references for the supply of complete solutions. Tajikistan, Kyrgyzstan, United Arab Emirates, Kazakhstan and Kingdom of Saudi Arabia are extremely important references for us, and we hope that this is just the beginning.

Accreditation

Our laboratory is accredited according to the standards EN 17025:2017. An accredited certificate is required in some industries and for various uses of your device. Accreditation increases the quality of calibration services being provided by MicroStep-MIS and enables us to issue internationally recognized certificates. The certification of our company was performed by the Slovak National Accreditation Service.

We are competent to carry out accredited calibration of:
- temperature,
- humidity,
- pressure,
- precipitation.

Traceability

Each calibration service provider must maintain an effective traceability chain. MicroStep-MIS ensures consistency of standards delivered through the National Metrological Institutes and accredited laboratories worldwide.

RESEARCH AND DEVELOPMENT OF HARDWARE

In calibration laboratories it is necessary to use the highest quality equipment with high accuracy, long-term stability and repeatability of measurement. If there was no equipment available on the market meeting these requirements, we developed them for the needs of a calibration laboratory.

MicroStep-MIS operates an accredited laboratory and therefore has experience with calibration laboratory needs and problems. With this experience, we approach to research and development in the field of calibration and measurement.

DEW POINT / RELATIVE HUMIDITY

Humiwell

Humidity
5% to 95 %RH

Temperature
-10 °C to +60 °C

Humiwell is a Relative Humidity Calibrator developed by MicroStep-MIS. It is everything you need to accurately calibrate your humidity sensors. Whether you use it as a benchtop device or take it to the field, Humiwell is always ready to deliver the highest accuracy just in few moments.

Wide range, fast response	Excellent stability and homogenity	Room conditions monitoring	No external devices required

Highest standards calibration laboratory
Humiwell works well with chilled mirror reference, providing fundamental measurement and low uncertainty down to 1 %RH. The temperature-stabilized chamber with a mixing fan provides a wide range of temperature and humidity conditions for your precise calibration.

The temperature range from -10 °C to +60 °C and humidity range from 5% to 95% makes Humiwell the most powerful humidity and temperature calibrator in the class. With more cooling power it achieves the setpoint faster. It is suitable for temperature / humidity cycling and temperature

characterization. Furthermore, the calibrator can be used to calibrate thermometers unsuitable for immersion in a liquid bath.

Field / Portable Version
The built-in humidity and temperature probe may be used as a reference. In such case the Humiwell is a self-sufficient compact device to perform the calibration on site. The measurement uncertainty is about two times higher, that is the trade-off for when not using the chilled mirror reference. This is the ideal setup for field calibrations.

Dew Point Mirror

We supply the reference from an external supplier MBW. Specifically, it is the MBW 473, which is a precise dew point mirror. It measures dew point and air temperature. Relative humidity is calculated from these values and shown on display. The reference is traceable, with an accredited certificate. The reference communicates via RS-232 port. In long-term tests, this reference showed the best values and appeared to be the most reliable.

Climatic Chamber

The system can be used to calibrate electronic thermo hygrometers, hair hygrometers, thermographs, hygrographs and psychrometers.

A climatic chamber creates a homogenous temperature and humidity field. Within this field instruments are compared to a reference thermo hygrometer.

Electronic thermo hygrometers can be calibrated automatically as in Liquid Bath. Multiple instruments connect to a multimeter via channel switch – Matrix. The system can handle up to 45 instruments at a time.

Instruments without electronic output can be calibrated too – the reading is taken manually by operator and entered to software.

The chambers come in several sizes. To choose the right size, consider the size and number of calibrated sensors.

ATMOSPHERIC PRESSURE
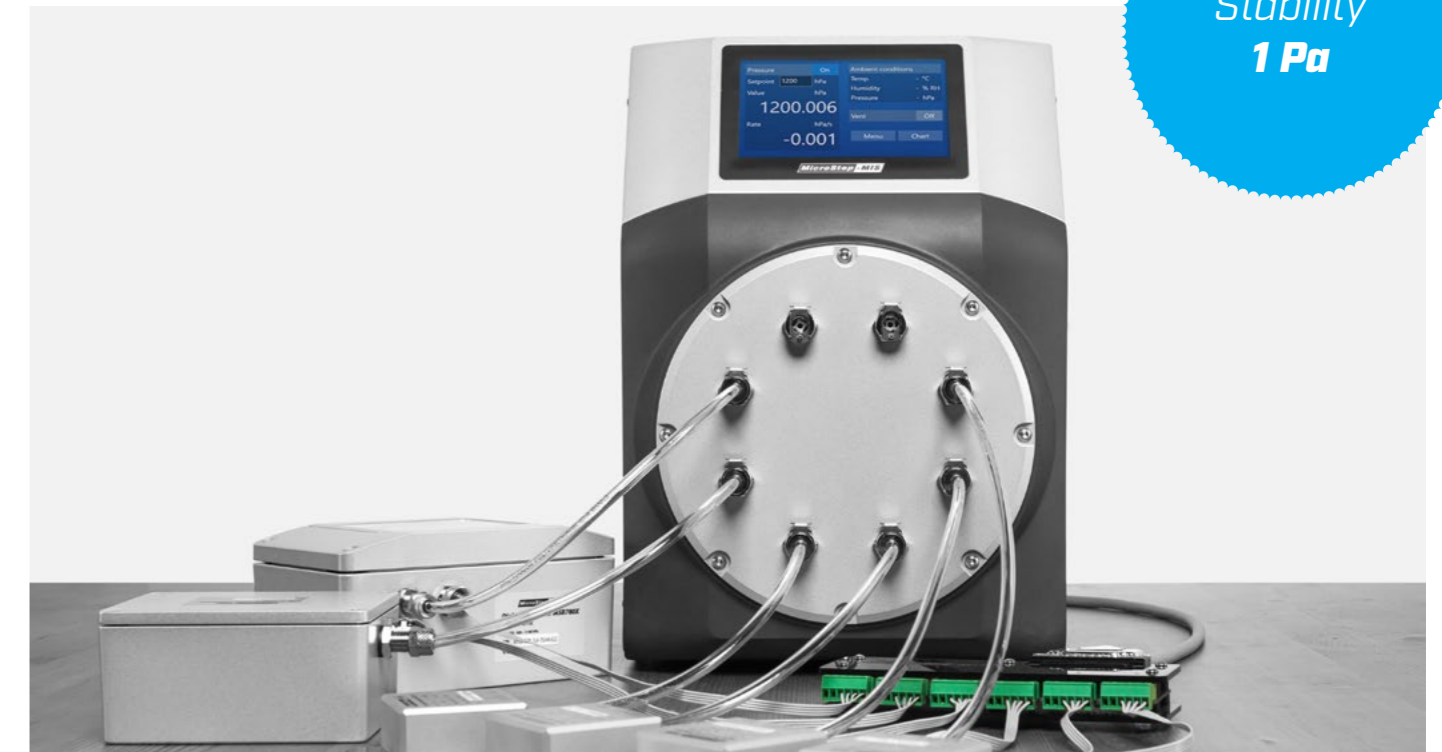
Pressurewell

Stability
1 Pa

Highly integrated pressure calibrator Pressurewell is all you need to accurately calibrate pressure sensors in one box. No need for external gas sources, compressors or vacuum pump. Everything required is already built-in, small and silent.

| Fast response | No overshoot | Room conditions monitoring | No external devices required |

Highest standards calibration laboratory
Pressurewell works well with our pressure reference (MSB780X), providing reliable measurement with low uncertainty. Sophisticated regulator algorithm provides fast response, no overshoot, high stability of the pressure setpoint.

Calibrated sensors
Several pressure sensors can be connected directly to Pressurewell using high-quality pressure connectors. The connectors have the auto-shutoff feature. Pressurewell optionally features a readout card with six inputs for sensors.

Outputs
The outputs are analog voltage, SDI-12 and 5 V UART compatible. RS-232, RS-485 and other buses may be also specified. The readout card connects to the rear panel of IPC. It solves the question of how to read the calibrated sensor values during calibration. It also saves space and reduces the number of lab PC ports.

Field / Portable Version
Pressurewell features a highly accurate, stable and reliable pressure sensor, which is used as a feedback sensor and can be used as a reference. Pressurewell contains everything you need for field calibration, including ambient sensors.

Digital Barometer MSB780X

Solid-state transducer

FEDERAL AGENCY FOR TECHNICAL REGULATION AND METROLOGY
CERTIFIED
ROSSTANDART

Digital Barometer MSB780X
charging.. 00:00:00   State: OK
P [hPa]   PT:
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Graph   1/3   Menu
MicroStep-MIS

As a reference we use digital barometer MSB780X developed and manufactured by MicroStep-MIS. It is designed for use in professional metrological, meteorological and aviation applications requiring reliable and highly accurate measurement, fast dynamic response, and advanced long-term stability.
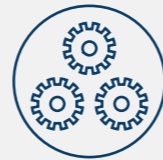
| Fully temperature compensated | Excellent total accuracy 0.15 hPa | Typical long-term stability better than 0.05 hPa/year | Digital output | 1 to 3 transducers |

The sensor is a solid-state transducer where the frequency of oscillation is dependent on the density of the air inside. The sensor has superior accuracy and long-term stability in comparison with silicon capacitive transducer-based technology.

Digital Barometer MSB780 is built to withstand even the most challenging environmental conditions, which are often faced in various environmental monitoring applications. Barometer MSB780 is a low power consumption microprocessor controlled sensor suitable also for solar and battery powered applications. Barometer is operable in temperature range from -50 °C to +80 °C. The excitation range is from 5 to 35 V DC. MSB780 is a robust product made of durable hardware components enclosed in heavy-duty metal IP66 enclosure.
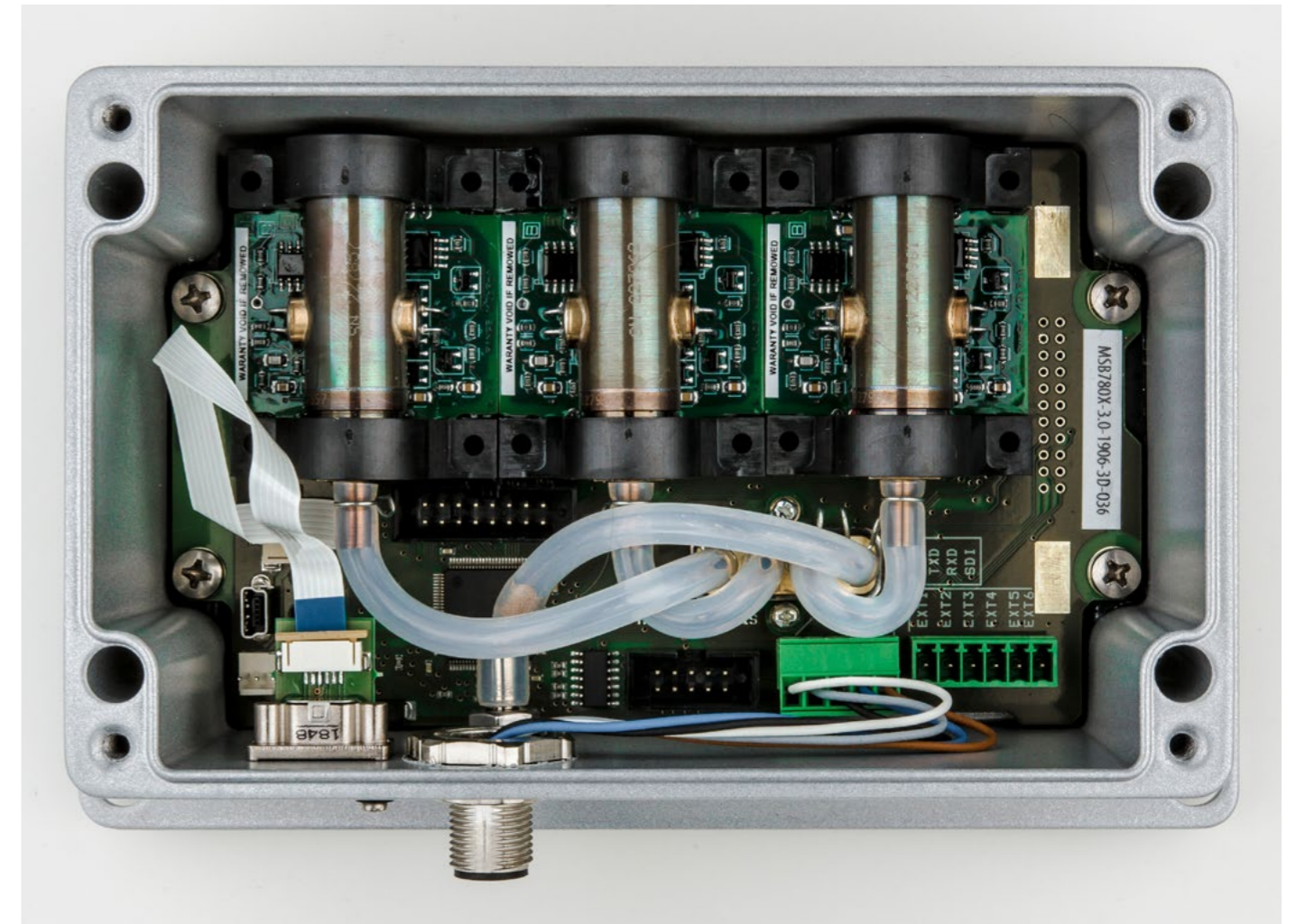
The vibrating cylinder technology enabled the birth of a barometer of premium quality. A solid-state transducer implemented in the Digital Barometer MSB780X offers world-class parameters.

A transducer installed in the Digital Barometer MSB780X operates on a principle of a vibrating cylinder. The natural frequency of the cylinder oscillation depends upon the applied pressure inside. The vibrating cylinder is embedded in a vacuum housing and the inside of the cylinder is connected to an air source. The use of high-elasticity and low hysteretic materials results in a highly stable and high-resolution measurement method. Classed as a "vibrating element" sensor, the device presents exceptional measurement performance by virtue of its operating mechanism.

TEMPERATURE

Liquid Bath

The system can be used to calibrate electronic and glass thermometers. A liquid thermostatic bath creates a homogeneous temperature field. Within this field thermometers are compared to a reference thermometer. A platinum resistance thermometer is used as a reference. We automate the calibration process where possible. The software controls the bath temperature and takes readings from the reference thermometer.

Resistance thermometers; PT-100s or thermistors can be calibrated automatically. Multiple thermometers connect to a multimeter via channel switch – Matrix. The system can handle up to 45 resistance thermometers at a time. Actual maximum number of sensors depends on their size and the size of the bath. Liquid-in-glass thermometers can be calibrated too - the reading is taken manually by operator and entered.

Temperature Well

Calibration baths are the most stable and uniform temperature sources available, but they aren't a good fit for some solutions. The size of a bath limits its portability, and bath fluids can easily spill and give off vapors. Cool Field Metrology Well is a great alternative.

The Cool Field Metrology Well is smaller and lighter than the bath, making it easy to transport. In addition, since it does not use heat transfer fluids, the whole calibration is much cleaner. The Well cooling and heating times are faster than a calibration bath.

It has a wide temperature range (-95 to 140 °C) to cover the coldest and warmest temperatures required in meteorological applications. It offers great temperature stability for consistent, accurate results.

This wide temperature range allows it to be used for various applications in-lab or on-location calibration of RTDs, thermocouples, thermometers, and sensors used with process control and so on.

The CoolField Metrology Well can be equipped with a "process" option that features 4-20 mA connectors, a reference thermometer input, 4-wire PRT / RTD.

Cool Field Metrology Well conforms with EURAMET CG-13 guidelines for best measurement practices for temperature block calibrators. As a result, you can be assured that specifications for accuracy, stability, axial (vertical) uniformity, radial (well-to-well) uniformity, loading, and hysteresis have been thoroughly and carefully defined and tested.
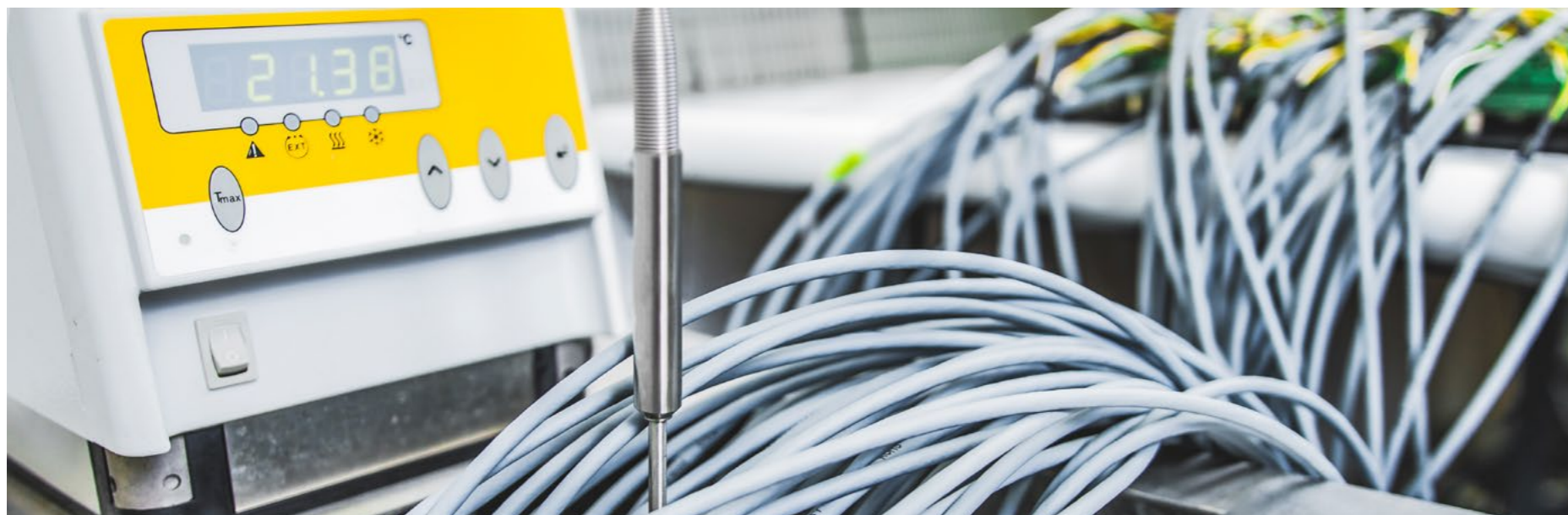
PT 100

The reference thermometer is a precise platinum resistance thermometer. It comes with ITS-90 coefficients, which must be used to calculate temperature from its resistance. The calibration software performs this calculation. The resistance is measured by a precise multimeter, or a dedicated readout.

PRECIPITATION

Tipping Bucket Rain Gauge

The portable device enables field testing of tipping bucket rain gauges.

This system can be used for calibration in the laboratory or on-location and it is used for semi-automatic calibration of tipping bucket rain gauges. The accurate time and the number of tips are fully counted via supplied electronics.

During the calibration, the calibrated rain gauge stays in place and is out of order only for the time necessary for the calibration to run.

Calibration software IMS4 CalibLab software guides the user through calibration in several steps.

All-in-one case

Weighing Rain Gauge

The weighing rain gauge is an exceptional sensor for measuring all kinds of precipitation in a wide range of temperatures and weather conditions. The advantages of this type of gauge over tipping buckets are that it does not underestimate intense rain, and it can measure other forms of precipitation, including rain, hail, and snow.

It co-operates with the CalibLab software via several kinds of communications (RS-485, SDI-12) all of which can be connected to a PC or laptop via USB cable using MicroStep-MIS manufactured converters.

The calibration is performed using traceably calibrated weights, therefore the method does not require water. It can be done in the calibration laboratory or on-site outdoors.

WIND SPEED AND DIRECTION

Field Calibration System for Wind Transmitter and Wind Vane

Portable device
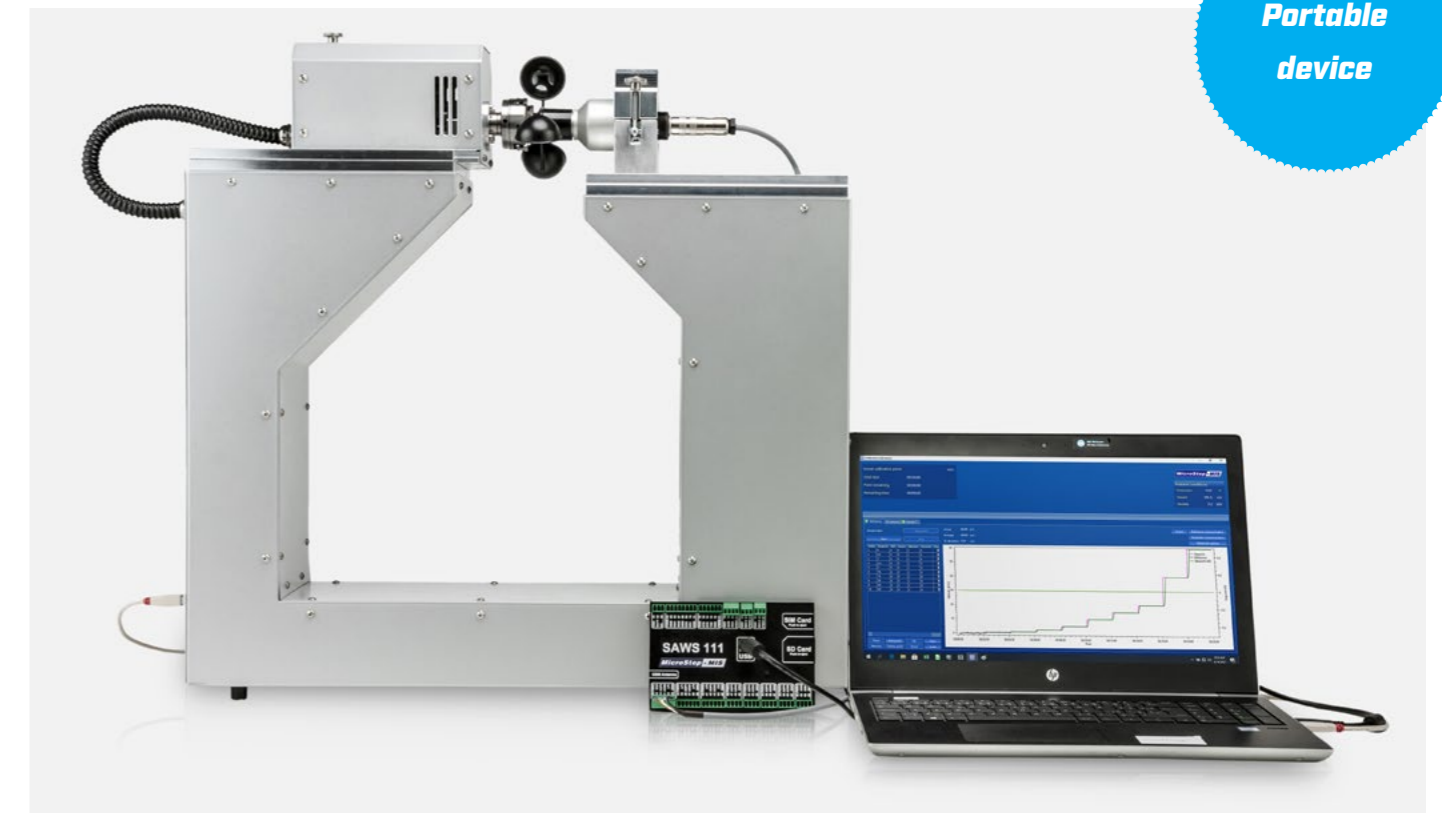
For calibration purposes, which must be performed on-site, we have developed a calibration system to calibrate the direction and test the speed of the wind.

The system is perfectly portable in a solid Peli suitcase. At the calibration site, simply unpack it, connect it to the laptop, mount in the sensor, and calibrate.

The anemometer calibrator provides an accurate way to rotate the anemometer shaft at a known speed and in precisely defined positions.

Speed of rotation range is from 5 rpm to 15 000 rpm with resolution 0,1 m/s   The calibrator provides also calibration of mechanical wind direction sensor by range 0-360° with resolution 0,01°.

On-site calibration is fully automatic and controlled by the IMS4 CalibLab calibration software. The evaluation of calibration results and the subsequent printing of the calibration certificate is performed by the software as well.

Wind tunnel
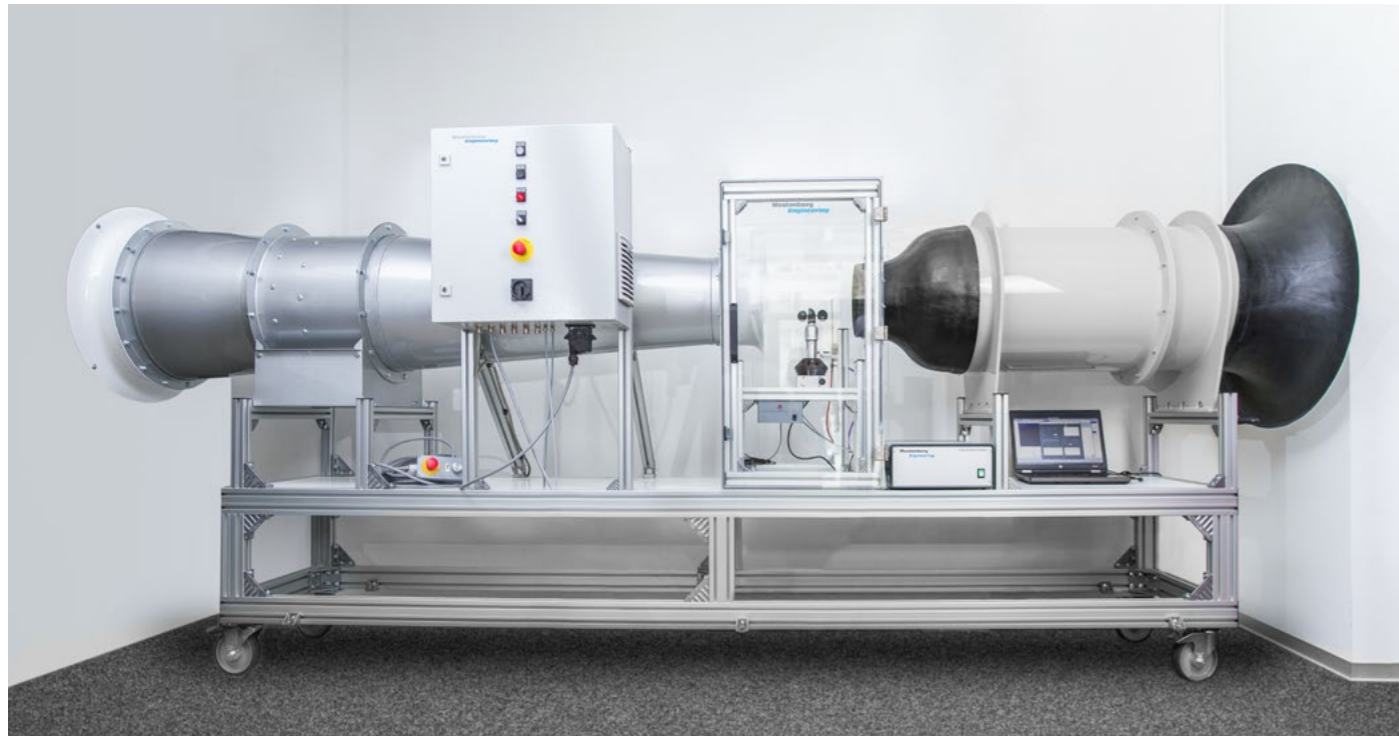
The system can be used to calibrate the wind speed and wind direction of an ultrasonic anemometer, cup wind speed transmitter, and wind vane. A wind tunnel creates a homogenous airflow.

The calibration process is automated where possible. The software controls the Wind tunnel airflow and sensor rotation, takes readings from the reference, and values from the calibrated anemometer. The system allows calibration of instruments without electronic output too – the reading is taken and submitted into the system manually by an operator.

Wind speed
For Wind speed calibrations the wind tunnel provides a stable measurement of up to 80 m/s. The short times required to reach the required speed in the tunnels mean that you won't have to wait long for your work.

Wind direction with automatic rotary table
The calibration system also includes calibration of the wind direction. The added value of our solution is the rotary table, which allows the calibration of the direction in wind tunnels. Thanks to the precise manufacturing and drive of

the stepper motor, the high sensitivity, and accuracy of this turntable are ensured. Wind direction calibration works in the full range of 360° with a step of 0.1°.

It works independently of the tunnel and therefore it is possible to calibrate the wind direction at different airflow intensities. Of course, everything is implemented in our calibration software IMS4 CalibLab and thus easy operation via the user interface is ensured.

Reference (Pitot tube)
As a reference the data from a pitot tube is used. It comes with coefficients, which must be used to calculate wind speed from pressure difference in the measurement chamber. The pressure difference is measured by a precise pressure gauge and the calibration software performs calculations.

Calibrated anemometer
We can easily connect all types of anemometers to our calibration system, using standard peripherals (USB, RS-422, RS-485, RS-232) or a logger directly to a computer.

VISIBILITY

Calibration Kit

Visibility and Present Weather sensors are used around the World in many meteorological applications. They are often used as a part of national weather networks or as components in aviation and road weather monitoring systems. Therefore, each visibility and present weather sensor must be regularly calibrated or adjusted if necessary.

The Calibration Kit allows the calibration of all current visibility and present weather sensors to be checked and adjusted in the field. The kit includes a bracket to allow the calibration plaque mounting arm to be fitted to the sensor.

The visibility calibration plaque is supplied in a protective carrying case and includes the plaque of a known visibility value as well as a set of 3, zero reference optical blanking plugs. These calibration plaques can be fitted to any Biral SWS, RWS, or VPF sensor and utilize the special mounting points on each sensor's housing to install them correctly. Each calibration plaque is ascribed calibration values (EXCO) and an equivalent visibility value (MOR) at its point of manufacture. These values are traceable to the reference transmissometer.

If the sensor fails the calibration check, then it may be calibrated following the calibration routine as detailed in the user manual. The calibration process can be carried out on-site in around 20 minutes without the need to return the sensor to a calibration facility. Thus, saving time whilst maintaining the operational efficiency of the connected systems.

MicroStep-MIS provides a complete solution for calibration of your visibility sensors consisting of the visibility calibration kit, portable and battery-operated field standard with a data logger, and the calibration software IMS4 CalibLab.

INFRARED TEMPERATURE

Blackbody target

Whether you're using infrared pyrometers, you need good calibration standards to verify their accuracy. These IR calibrators provide stable blackbody targets for calibrating noncontact IR thermometers from −30 °C to 150 °C.

The calibration process is automated where possible. The software controls the infrared target temperature, takes readings from the reference, and values from the calibrated IR thermometer. The system allows calibration of instruments without electronic output too – the reading is taken and submitted into the system manually by an operator.

For IR calibrations above normal ambient, the infrared calibrator provides a stable measurement surface up to 150 °C. Short heating and cooling times mean you won't have to wait long to get your work done. If you're calibrating IR thermometers or guns at cold temperatures, you can. With solid-state cooling technology, this new IR calibrator reaches −30 °C in normal ambient conditions. With a conveniently located dry gas fitting on the front bezel, ice build-up on the target can be avoided.
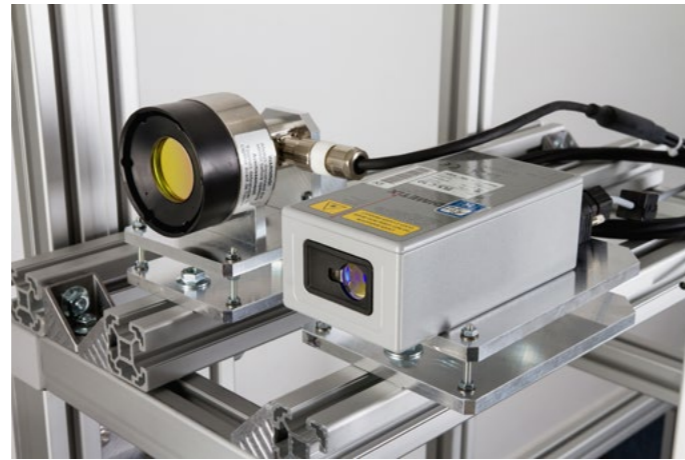
The Infrared Thermometer Calibrator is small enough to use in the field and accurate enough to use in the lab. We can supply accredited target calibration.

DISTANCE

Calibration System for Distance Sensors

The calibration system for distance sensors is designed to allow the calibration of devices such as ultrasonic water level sensors, snow height sensors, radar water level sensors, and laser snow height sensors with high measurement accuracy.

The sensors are compared with a reference - laser telemeter. An important part of the system is a sliding bench made of aluminum profiles, that slides on rails. At the end of the measuring path there is an aluminum plate from which the laser and the devices under the test are reflected. As we strive to make all of the processes in a laboratory as automated as possible, this calibration system is fully automated and integrated into the calibration software. Whole calibration process from the initialization of the laser to the certificate generation is done automatically by the software. Devices without electronic output can also be calibrated - the reading is taken manually by the operator and then entered into the software. Customer can choose a distance range, if required up to 500 m.

Calibration System for Pressure-based Water Level Sensors

The system can be used to calibrate water level instruments based on hydrostatic pressure measurement - submersible water level sensors and bubblers. It uses a gauge pressure generator with a built-in reference sensor.

An automated pressure controller simulates water depth by creating a stable pressure difference against the ambient atmosphere. Calibrated sensors are connected by dedicated tubing and flanges professionally designed to create an air-tight homogeneous pressure. The reading of the sensors is compared to a reference pressure sensor. We automate the calibration process where possible. The software controls the controller pressure and takes readings from the reference pressure sensor. Electronic water level sensors can be calibrated automatically.

Multiple instruments connect to a data collection system via channel switch – Matrix. The system can handle up to 45 instruments at a time. Actual maximum number of instruments depends on their size, air supply and power supply requirements. Instruments that are not hermetic during measurement (bubblers) cannot be calibrated in parallel. Default calibration range is from 0 m to 70 m of water level (gauge pressure up to 700 bar). Contact us, if you require other ranges.

DEVICES INCREASING THE COMFORT OF USE

Matrix
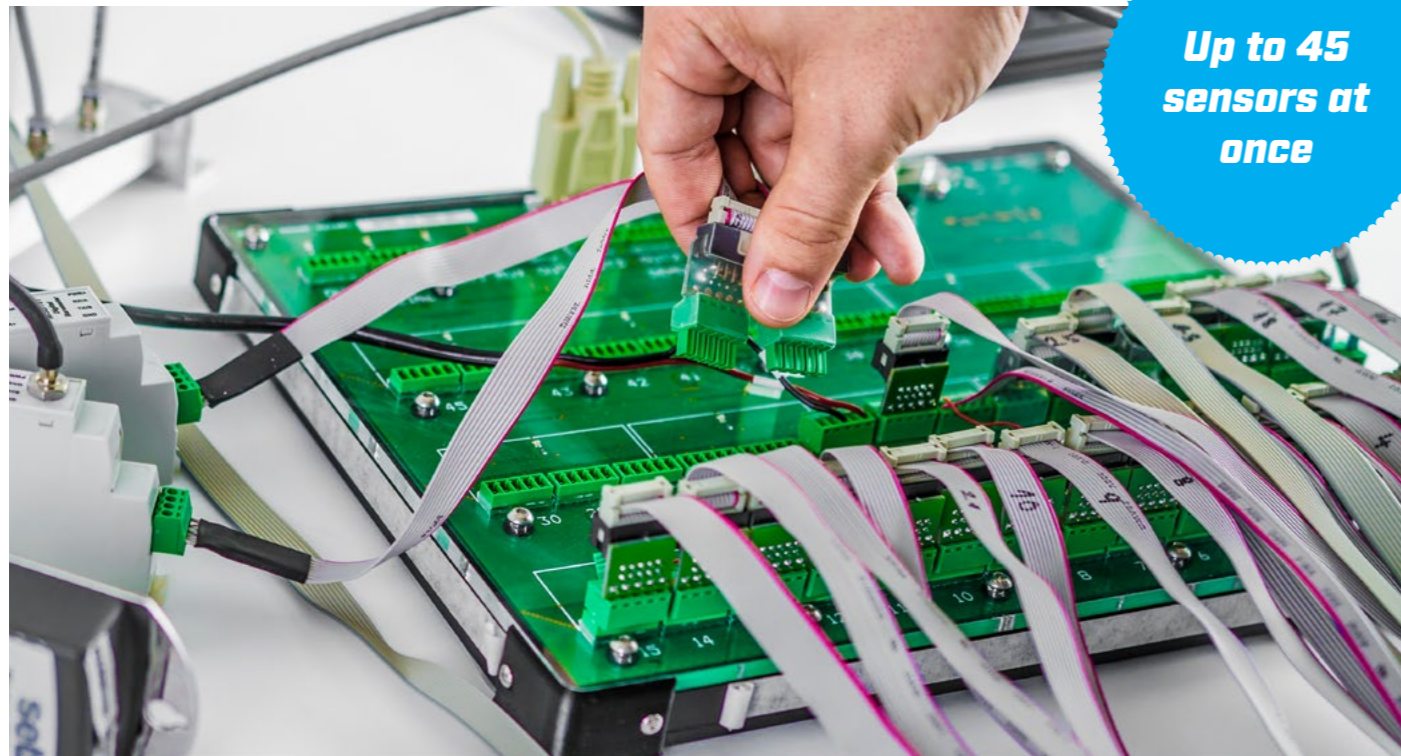
Up to 45 sensors at once

If you need to automatically calibrate more than 6 sensors simultaneously we have a solution for you. Matrix is an array of signal relays capable of switching 45 four-wire channels or 15 twelve-wire channels. It is designed to calibrate multiple electronic sensors.

Thanks to signal relays the signal passing through Matrix is undisturbed, unmodified and it is suitable for both -

analog and digital lines such as UART, SDI-12, RS-232, RS-485 etc.

Matrix is controlled by simple commands transmitted via RS-232 interface. It works well with MicroStep-MIS' IMS4 CalibLab software for calibration and adjustment automation.

Manifold

Unused ports remain shut

The Manifold is a solution for connecting more sensors to the pressure distribution of Pressurewell. It uses automatic shut-off pressure connector types, making it easy to connect any number of sensors to the system, whilst the unused

ports remain shut. Dimensions, number of pressure ports, spacing between the ports, type of pressure port connector and other properties can be designed according to individual requirements.

Calibrator Extension Card
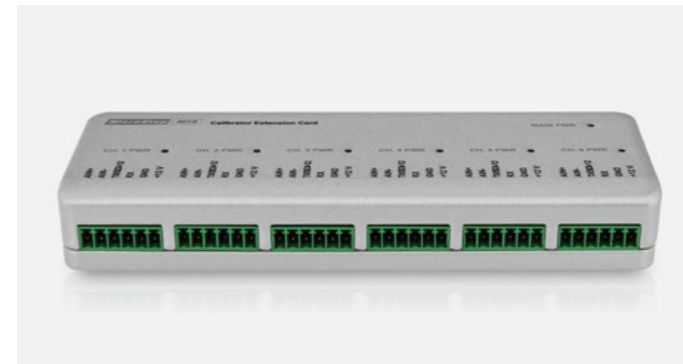
UART, SDI-12 RS-485, RS-232 Analog

Calibrator Extension Card developed and manufactured by MicroStep-MIS is designed for direct connecting sensors to a calibrator.

The Calibrator Extension Card is a useful device enabling the user to communicate with any sensor simply using our calibrators. It is designed to substitute complicated, big, and expensive loggers with a small and simple device. Calibrator Extension Card can connect 6 standard sensors, that communicate via Uart, SDI-12, or analog. Using the RS-485 or RS-232 to Uart converter, it is possible to connect almost all commercially sold devices. The Card can supply

the sensors with up to 12 V. The Calibrator Extension Card does not need any power supply and it is connected to a calibrator by SPI line that ensures data flow and power supply of connected sensors and the card itself.

Entering commands and reading responses is also done through the calibrator (Pressurewell or Humiwell). With such a connection, there is no need to use additional equipment and it is suitable for use in the field.

The activity of the channels is indicated by LEDs. After power-up, Card is ready to work. No settings are required.

Ambient Station

In calibration laboratory, the ambient conditions must be monitored. The ambient station enables measuring ambient temperature, relative humidity, and atmospheric pressure during the calibration.

The Ambient server uses an MSB 181 to measure the atmospheric pressure. The temperature and relative humidity are measured using RHT175 and it is all in a compact box.

The Ambient station communicates via the RJ45 LAN interface.

Through the IMS4 CalibLab software, the maximum / minimum values of pressure, relative humidity, and temperature automatically get to the calibration certificate.
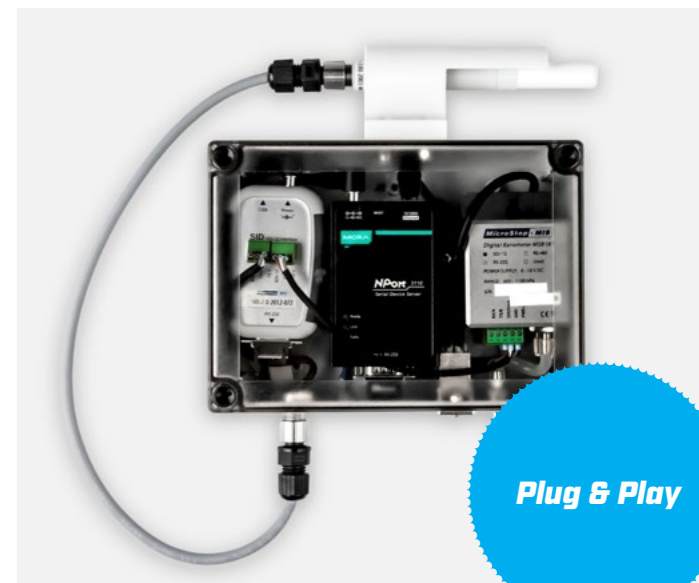
Plug & Play

REFERENCES

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"The MicroStep-MIS team delivered us a calibration laboratory for humidity calibration, including the IMS4 CalibLab software, and we are completely satisfied with the products and support we receive."
Lukáš Ježek, Metrological Laboratory of the Military Geographical and Hydrometeorological Office, Czech Republic

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"Calibration is both attractive and highly adaptable. It really saves me time and effort. Calibration is exactly what our business has been lacking."
Alexander Marchenko, Kazhydromet, Kazakhstan

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"Calibration devices and software from MicroStep-MIS fully meet our requirements for calibration of temperature, atmospheric pressure, and relative humidity while complying with international standards. We are very satisfied with the products, their reliability, and the support of the MicroStep-MIS team."
Muhammad Haroon, National center of meteorology, UAE

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RESEARCH AND DEVELOPMENT OF SOFTWARE

MicroStep-MIS introduces the IMS4 CalibLab, a complex, intuitive, easy to use, and flexible calibration software, which can be easily installed in any laboratory. IMS4 CalibLab is user-friendly and provides a wizard guide with pictures of how to connect calibrated sensors to the system and setup the calibration equipment. Sensors with digital output often provide the possibility of reading-out their serial number. Laboratory conditions like temperature, relative humidity, and pressure, are automatically recorded. IMS4 CalibLab calculates measurement uncertainty according to the Guide to the Expression of Uncertainty in Measurement (GUM). The calculation is fully configurable. After finishing the calibration process the calibration results are stored in the database. The calibration certificate and label sticker are printed just by pressing a button.

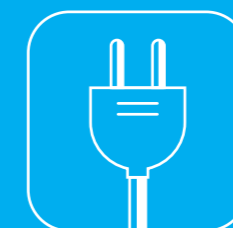**Temperature**   **Wind Speed and Direction**   **Atmospheric Pressure**

Solar Radiation   **Precipitation**   **Relative Humidity**

Electrical Quantities

IMS4 CALIBLAB

Possible adjustment of the sensors

Intuitive user guidance

Supports sensors from other manufacturers

Automatic calibration, uncertainty calculation, certificate generation

Unified architecture for all calibrations

Measurement

Temperature

Wind speed & wind direction

Atmospheric Pressure

Precipitation

Relative humidity dew point

Other quantities

Data storage

Plotting of charts

Monitoring during calibration

Calculation of uncertainties

Alerts

Calibration report

Print certificate

Print stickers

Third-party sensors

IMS4 CalibLab brings the possibility to calibrate relative humidity, barometric pressure, temperature, wind sensors, and much more, using a unified and modular software, supporting multiple calibration chambers and devices, enabling calibration of almost any sensor on the market automatically, quickly, and reliably. IMS4 CalibLab can also integrate third-party sensors.

Automatization

Reading of the instrument values and data processing is fully automatic. Thanks to this fact, it is possible to read more values and minimize the measurement uncertainty. The measurement process does not require any attention after setup. The end of the calibration process or possible error is announced by a sound signal. The progress of the calibration process may be controlled remotely via a computer network.

Adjustment

The calibration itself does not make your measurement results better. To keep the accuracy of the network over time, it is also necessary to adjust the sensors to remove the long-term drift effect. Fortunately, with many existing digital sensors the adjustment can be done automatically. The calculation is fully configurable. IMS4 CalibLab is capable of automatic adjustment of the sensors. Adjustment is done in several predefined calibration points, two ways of entering the corrections are supported (on the fly, or at once after the whole process). Results of the adjustment can be automatically verified by ongoing calibration, which is also documented by a calibration certificate.
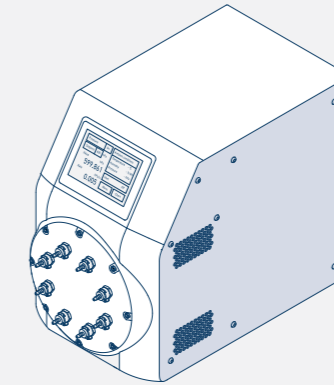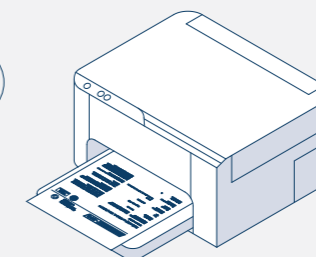
View communication button

Tabs for sensors

Calibration / Adjusting

Information about calibration

Ambient conditions

Progress bar

Actual reading from reference and probe

Chart legend

Table of measured values

Chart of measured corrections

Real time chart

Filter tools

Records

Total number of records

Page

Send to printer

Export to PDF

Export to Word

Calibration results in the chart (allow multiple selection)

Edit the certificate template

Create report in .csv format

Database

MicroStep-MIS CalibLab database is addressing the needs of the institutes to store high volumes of long-term data. This way of storing data allows you to monitor long-term trends and stability of devices and access data from any authorized computer. The database is automatically backed up and saved.

User Interface

The software guides the user through the calibration set up in several steps. The software can read serial numbers from certain (digital) sensor types. Preconfigured sensor types include specific calculation of uncertainty, corrections, and other formulas. A graphic user interface (GUI) allows the user to configure a new type of sensor. A list of setpoints can be edited, saved, or loaded and scans the readings from all devices under the test. The system evaluates the readings for stability, calculates mean values, and uncertainty. In case of any problem, an error is readily indicated. After the process goes through all setpoints, the results are stored in a database.

You can generate certificates for all devices under the test by one click. The certificate is generated from a template. The IMS4 CalibLab comes with the ISO 17025 compliant templates in the English language, but the user can modify or edit the templates to fit the national, industry, or other applicable standards.

The database of calibrations holds the history of calibrations from the whole calibration laboratory in one place. You can browse it by quantity, year, sensor type, serial number, etc. Looking for a calibration history of a certain instrument is fast. The builtin database browser allows the online tabular and graphical view of multiple certificates. The software supports export to .csv, .odt, .xml and .pdf formats.
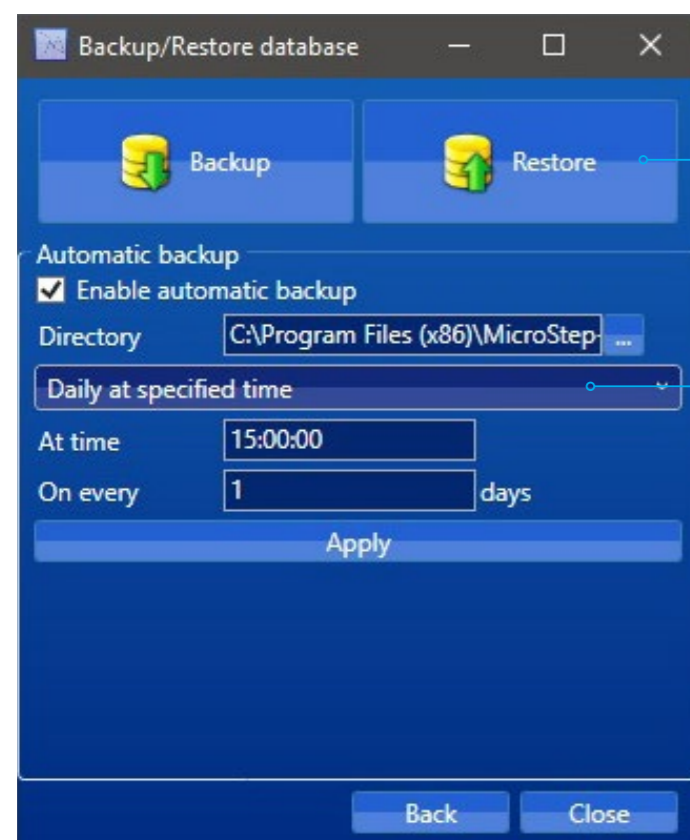
It performs:

- continuous measurement;
- data collection from connected probes and reference;
- data processing (quality control, recalculations);
- archiving;
- provides the user with the real-time screen with current data;
- displaying data in the form of charts;
- export data into Microsoft Excel / OpenOffice;
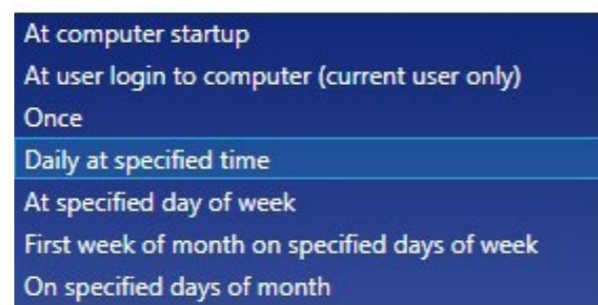- automatically create a certificate as needed.

Basic settings

If you order the software, we will deliver it fully configured for your needs. Nevertheless, we are aware that in the process of use there will be situations when it is necessary to make changes in the settings, and with that in mind, we have made the basic settings user-friendly as well.

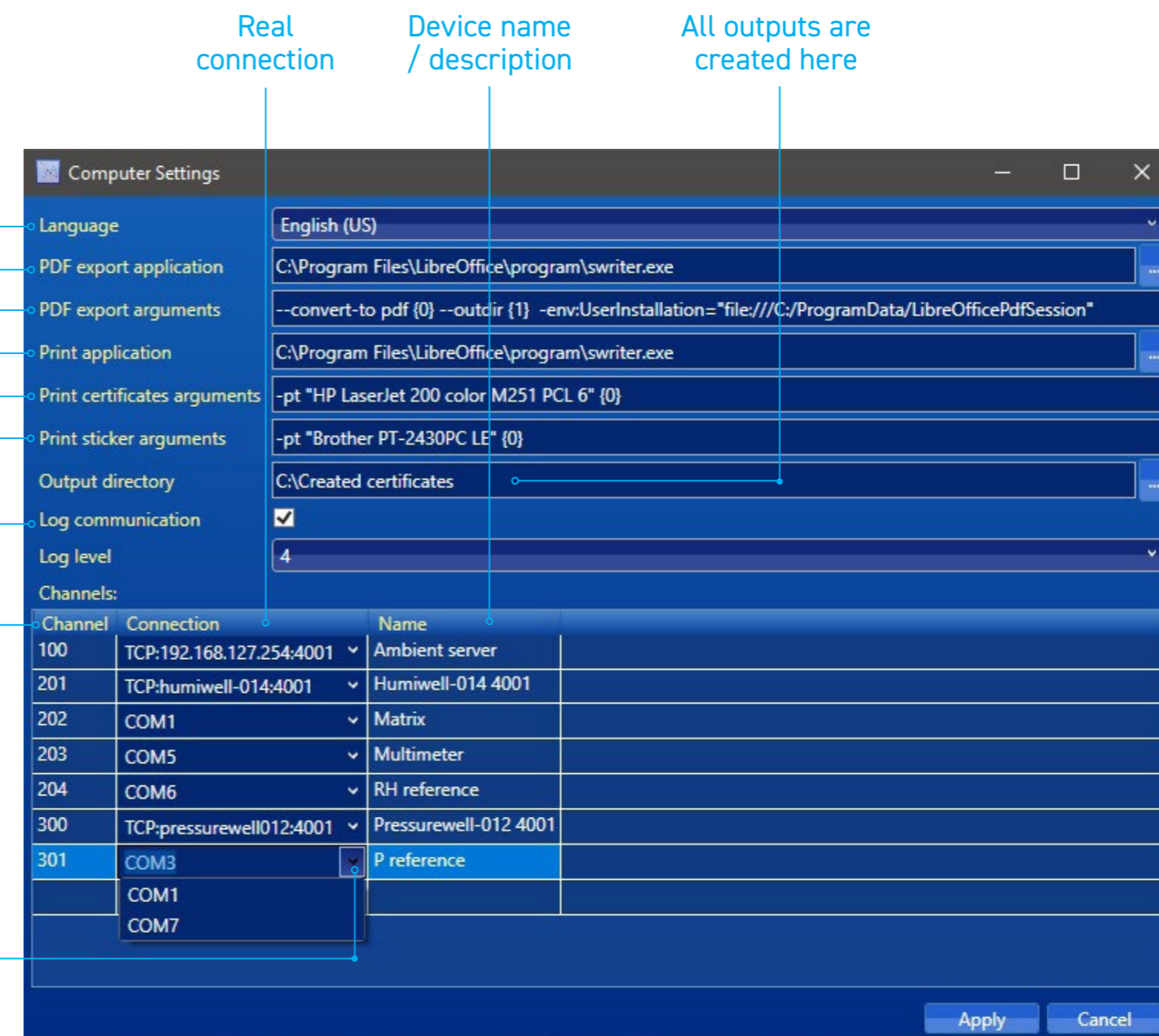At the top of the screen, we can see the language and output settings (certificates).

At the bottom, there are communication settings with individual devices. Each device has its own channel. The channel is used to identify the device in the software. The main advantage of this is that the channel remains fixed. If the COM port or IP address of the device changes, just select a new port or device address and the system will work again. You will appreciate this when installing the software on another computer (in case of failure of the old one), where all you have to do is install the backup and set up the connection to the devices.

Real connection · **Device name / description** · **All outputs are created here**

Computer Settings

Setting	Value
Language	English (US)
PDF export application	C:\Program Files\LibreOffice\program\swriter.exe
PDF export arguments	--convert-to pdf {0} --outdir {1} -env:UserInstallation="file:///C:/ProgramData/LibreOfficePdfSession"
Print application	C:\Program Files\LibreOffice\program\swriter.exe
Print certificates arguments	-pt "HP LaserJet 200 color M251 PCL 6" {0}
Print sticker arguments	-pt "Brother PT-2430PC LE" {0}
Output directory	C:\Created certificates
Log communication	☑
Log level	4

Channels:

Channel	Connection	Name
100	TCP:192.168.127.254:4001	Ambient server
201	TCP:humiwell-014:4001	Humiwell-014 4001
202	COM1	Matrix
203	COM5	Multimeter
204	COM6	RH reference
300	TCP:pressurewell012:4001	Pressurewell-012 4001
301	COM3	P reference
	COM1	
	COM7	

Apply · Cancel

- **Language setting**
- **PDF printer settings**
- **Printer settings**
- **Enable device communication log**
- **Channel Nr.**
- **Connected port list**

Backup/Restore database

Backup · Restore — **Find backup file and restore**

Automatic backup
☑ Enable automatic backup
Directory C:\Program Files (x86)\MicroStep-
Daily at specified time
At time 15:00:00
On every 1 days
Apply
Back · Close

At computer startup
At user login to computer (current user only)
Once
Daily at specified time
At specified day of week
First week of month on specified days of week
On specified days of month

The whole database can be backed-up or restored by a simple click of a button. There is also a provision of automatic periodic back-up.

IMS4 CalibLab comes by default in English language version, but was already localized into other languages including the non-Latin scripts (Russian)

TRAINING

Not only the calibration equipment and standards must be of high quality, but the engineers and technicians of a calibration laboratory must be well trained in basic metrology and the use of calibration devices and measurement standards. MicroStep-MIS provides training engineers and technicians in basic metrology and the use of calibration devices and measurement standards.

The basis of such training is an introduction to the issue and clarification of the basic principles of calibration. Furthermore, knowledge about specific quantities and methods of their calibration will be passed on. Another part of the training is the calibration demonstration itself and the way of working with devices and software.

The training is completed by handing over the certificate to the training participants.

All our supplied laboratories are designed in accordance with the requirements of ISO 17025. Thanks to many years of experience in implementation ISO 17025, we can even prepare the customer for the accreditation.

This training is intended for:

Head of the Laboratory

Technical Director

Quality Manager

Technician

The trainers from Microstep-MIS are experienced metrologists with many years of experience.

180+

talented and dedicated professionals working together

ISO Quality Certified Company

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SNAS
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TÜV SÜD
ISO 14001
ISO 9001
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