Calibration WORLD

Winter 2012/2013

The production of the new industry benchmark Beamex MC6

Calibration in a regulatory environment

Customer success stories

CH2M Hill, US

Miami-Dade WASD, US

Bhilai Calibration Laboratory, India

CEO's Letter

The need for calibration from the viewpoint of the reliability, repeatability and accuracy of a measurement has been around for thousands of years with various requirements and 'controlling' systems. In today's calibration environment, there are basically two types of 'official' requirements for calibration: ISO standards and regulatory requirements.

The greatest difference between the two is simple – ISO standards are optional, and regulatory requirements are mandatory. One of the topics in this edition of Calibration World is calibration in a regulatory environment. A small human error or the failure of an instrument in a pharmaceuticals plant could adversely affect the health of thousands of people. This is why the manufacturing of pharmaceuticals is one of the most stringent, highly regulated industries in the world.

The third, newest and ever-increasing requirement for calibration – or more precisely, requirement for the implementation of a calibration solution – stems from the demand for higher efficiency, reliability and quality of all industrial processes. Fewer people must do more with fewer errors and less paperwork. Efficient automated calibration procedures together with the most advanced integrated solution are the best way to tackle the challenge. Beamex has partnered with Emerson in order to offer a best-in-class solution for managing calibrations. A couple of practical examples of the implementation of a modern calibration solution are covered more in detail later in this issue.

In February 2012, Beamex launched the MC6 field calibrator and communicator with very high expectations. There was a heavy focus on the MC6 and now, almost one year later, we are more than pleased with the market reaction. The MC6 product launch was planned and finalized better than ever before, our sales target for 2012 has been reached and the feedback from the market has been just astonishing! We are therefore pretty confident that we have very good running shoes on for the coming year, 2013. Read more about how this amazing product is manufactured and the process behind designing quality, accuracy, reliability and stability.

Enjoy your reading and remember that we appreciate your feedback very much – not only concerning this magazine!

Raimo Ahola
CEO, Beamex Group

Contents

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Calibration in a regu

latory environment

In areas where instrument accuracy is critical to product quality or safety, for example in process industries such as chemicals and pharmaceuticals, calibration every six months – or even more frequently – is not unusual. In such industries rigid calibration schedules are necessary in order to maintain compliance.

For process manufacturers, regular calibration of instruments is common practice. In areas where instrument accuracy is critical to product quality or safety, for example in process industries such as chemicals and pharmaceuticals, calibration every six months – or even more frequently – is not unusual. In such industries rigid calibration schedules are necessary in order to maintain compliance. Mistakes in calibration records or missed calibration tests are especially costly, as they can result in lost batches, fines, or other sanctions.

The purpose of calibration itself is to determine how accurate an instrument or sensor is. Although most instruments are very accurate these days, regulatory bodies often need to know just how inaccurate a particular instrument is and whether it drifts in and out of specified tolerance over time.

A small human error or the failure of an instrument in a pharmaceutical plant could adversely affect the health of thousands of people. This is why pharmaceutical manufacturing is one of the most stringent, highly regulated industries in the world.

Calibration in the pharmaceutical industry

A small human error or the failure of an instrument in a pharmaceutical plant could adversely affect the health of thousands of people. This is why pharmaceutical manufacturing is one of the most stringent, highly regulated industries in the world. Calibration requirements in this industry are governed by FDA (the US Food and Drug Administration) regulations. In Europe, the corresponding standards are EMEA (European Medicines Agency) and local legislation.

Process measurements are critical in order to ensure product quality. Therefore, calibrating instruments properly in a timely manner is an important aspect of ensuring that a pharmaceutical product is manufactured correctly.

FDA/EMEA regulations state that manufacturers must maintain calibration records and carry out calibration of instruments according to written, approved procedures. In addition, each instrument at the plant must have a master history record, a unique ID and all product, process and safety instruments should be physically tagged, sometimes even colour-coded.

The manufacturer must also define a calibration period and error limits for each instrument. Standards should be traceable to both national and international standards. These standards must be more accurate than the required accuracy of the equipment being calibrated. Furthermore, the personnel who carry out the calibration work must be properly trained and competent, with documented evidence of this. A documented change management system must also be implemented.

Regulations

All of the above systems and procedures should be implemented in conjunction with the following regulations: 21 CFR Part 211: "Current Good Manufacturing Practice for Finished Pharmaceuticals" and 21 CFR Part 11: "Electronic Records; Electronic Signatures" or Annex 11 in the EU GMP Guidelines.

As well as FDA/EMEA regulations, which are of course mandatory, voluntary ISO standards exist such as ISO 9001:2008. Under this standard, a company that manufactures pharmaceuticals pays a third party company to audit it to that standard, in order to ensure that it is following its quality manual and is within compliance. A set of guidelines are used to write its quality manual and other standard operating procedures (SOPs).

ISO 17025 'General requirements for the competence of testing and calibration laboratories', for example, applies to all organisations performing tests and/or calibrations, including first, second and third party laboratories, and laboratories where testing and/or calibration forms part of inspection and product certifications.

Other regulations exist that are relevant to pharmaceuticals companies. The Pharmaceutical Inspection Convention and Pharmaceutical Inspection Cooperation Scheme (PIC/S), for example, aims to improve harmonisation of Good Manufacturing Practice (GMP) standards and guidance documents.

Other standards and regulations have emerged in response to the increased use of computerised systems for documenting inspection and calibration activities. GAMP, for example, is a Community of Practice (COP) of the International Society for Pharmaceutical Engineering (ISPE), which aims to provide guidance and understanding with regard to GxP computerised systems.

The calibration process

Calibration in a typical pharmaceutical plant is critical, but is often expensive and time-consuming. Meeting all the relevant FDA/EMEA regulations and

Due to the high number of instruments and the frequency of calibrating, large amounts of calibration data is produced and archived. This data must be easily accessible, especially for audit purposes.

ISO standards is a major contributing factor here, as well as the sheer volume of instruments that need calibrating at regular intervals. Due to the high number of instruments and the frequency of calibrating, large amounts of calibration data is produced and archived. This data must be easily accessible, especially for audit purposes.

When a plant is being audited, firms that have implemented some sort of calibration management software will find that the preparation and the audit itself are much less stressful. Locating records and verifying that the system works becomes effortless when compared to traditional paper-based record keeping. Calibration management systems therefore improve plant efficiencies because the entire calibration process is streamlined and automated. Costly production downtime due to unforeseen instrument failures will also be reduced.

The importance of documenting calibrations

Calibrations must be traceable. Traceability is a declaration stating to which national standard a particular instrument has been compared.

The organization itself determines the monitoring and measurements to be performed, as well as the measuring devices needed to provide evidence of a product's conformity to determined standards. The organization also establishes the processes for ensuring that measurements and monitoring are carried out in a manner consistent with the monitoring and measurement requirements. However, the critical final step in any calibration process, documentation, is often neglected or overlooked because of a lack of resources, time constraints, or the pressure of everyday activities.

By using a documenting calibrator, results are automatically stored in the calibrator's memory during the calibration process. The calibration results are then transferred automatically from the calibrator's memory to a database. Users do not have to manually record the results, making the entire process much faster and less

costly. Based on the stored calibration records, companies analyze the history trend reports and can thereby optimize the calibration interval for a certain instrument. Quality and accuracy of calibration results also improve, as there are fewer mistakes due to human error. By integrating calibration software to the calibration process with documenting calibrators, companies save time and improve calibration consistency, as the calibration procedure is fully automated and paperless. Calibration reports and calibration certificates are configurable and available in a paperless electronic signature environment, compliant with the FDA's 21 CFR Part 11.

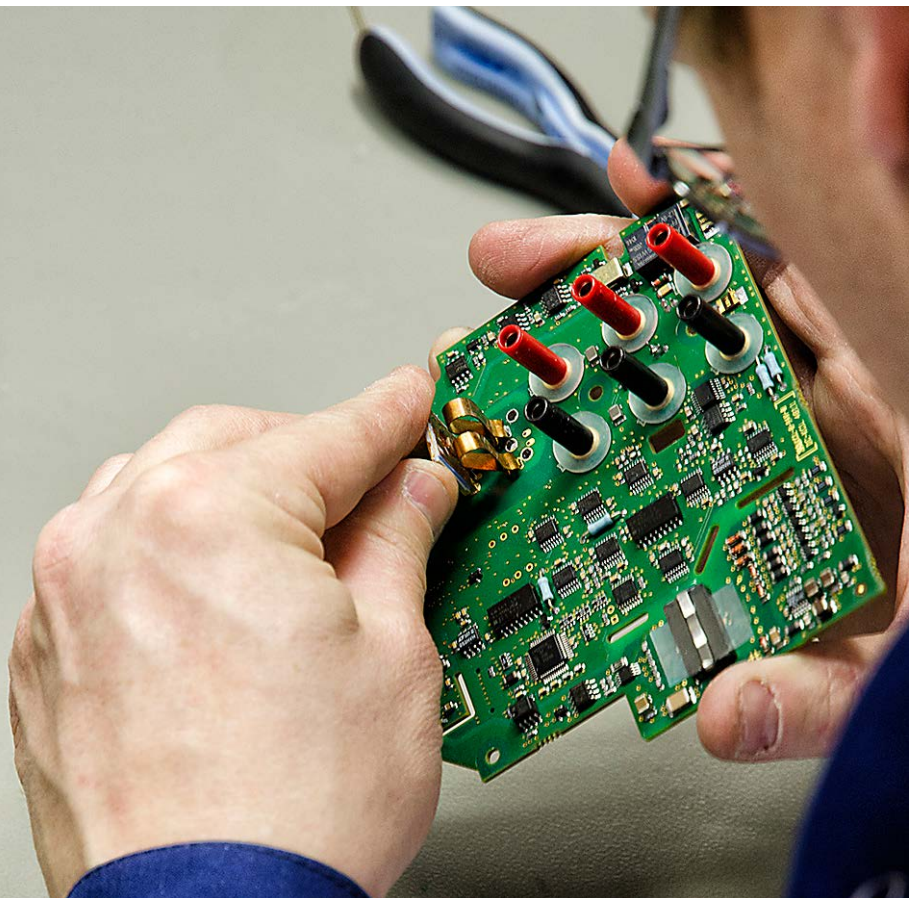
In order to ensure valid results, measuring equipment is calibrated or verified with measurement standards traceable to national or international standards at specified intervals. If no such standards exist, the basis used for calibration or verification is recorded; adjusted or re-adjusted as necessary; identified for determining the calibration status; safeguarded against adjustments that would invalidate the measurement result; protected from damage and deterioration during handling, maintenance and storage.

In addition, the organization assesses and records the validity of the previous measuring results when the equipment is found not to conform to requirements. The organization then takes appropriate action on the equipment and any product(s) affected.

THE PRODUCTION OF THE NEW Beamex

Beamex launched the MC6 advanced field calibrator and communicator in February 2012. This article takes a closer look at the production of this revolutionary product.


INDUSTRY BENCHMARK
MC6
All Terminals, Max Input: 60 VDC, 30 VAC, 100 mA



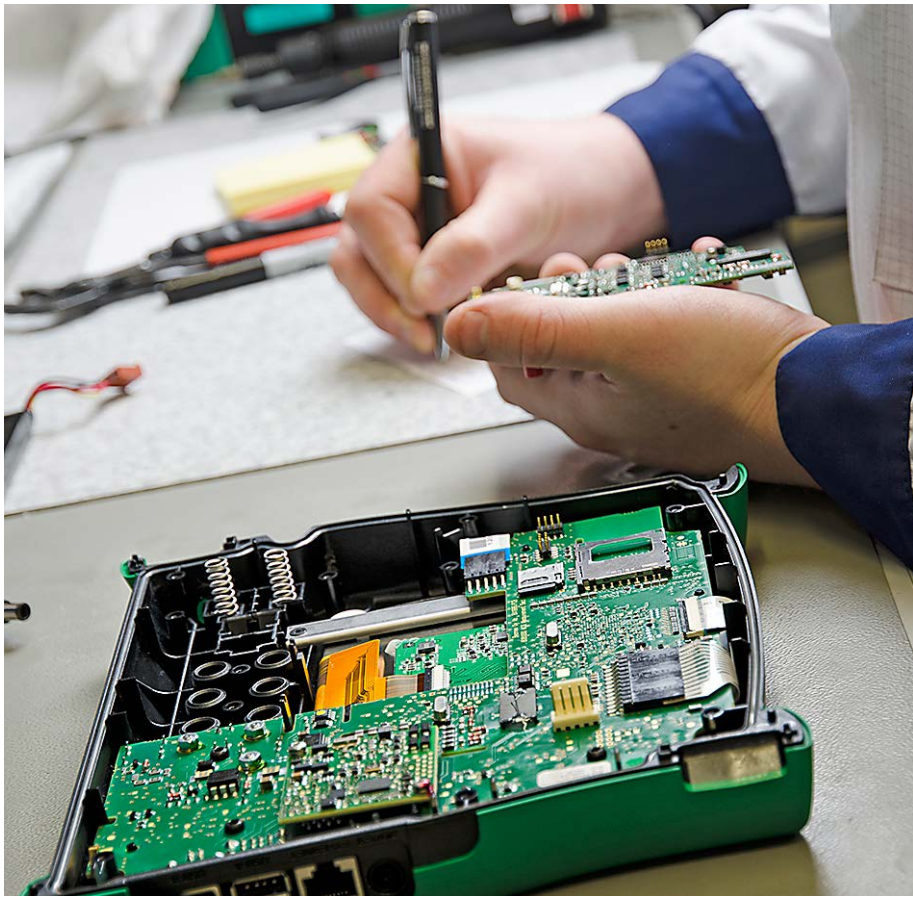
The processing industry is constantly going through changes and is influenced by several trends in industry, which naturally affect process calibration equipment. The starting point for the product development of the Beamex MC6 several years ago was the result of extensive market- and customer-related studies, customer feedback and analyses in industrial trends and competition. Hereby, the fundamental basis for the design and functionality of the new product design was formed. Beamex decided to develop a device that would be the next benchmark for measurement in industry – the Beamex MC6 advanced field calibrator and communicator.

The specifications required not only a multifunctional calibrator with extremely high accuracy, but also a communicator. It needed to be able to perform calibration for pressure, temperature and various electrical signals, as well as communicate with HART, FOUNDATION Fieldbus and Profibus PA instruments. Another significant factor throughout the product development was to make the calibrator user-friendly, as high technology and multifunctional products are often complicated to use. The specifications and requirements for this product are very demanding, and the Beamex MC6 certainly gives a new meaning to the words quality, reliability, stability and accuracy.

The Beamex R&D department put down major resources in analyzing critical components related to accuracy and long-term stability.

Designing quality

A major part of a test equipment's quality is designed during the research and development phase. No matter how good the production process is, it cannot improve a bad design. Decisions made in the development phase regarding usability, accuracy and stability are crucial. The Beamex R&D department put down major resources



in analyzing critical components related to accuracy and long-term stability.

Reliability and stability

A calibrator like the Beamex MC6 contains an extensive number of various components. Once all of the components have been received in house, the most critical of them are aged and temperature cycled according to R&D specifications.

Thereafter, the components are soldered to the printed circuit boards. Then various tests are performed to verify the proper operation of the boards.

The aging and temperature cycling of components and boards serve two main purposes. Firstly, if an electronic component is defective in some way, it tends to break at the onset of using it. By aging the component, it breaks before being delivered to the customer. Secondly, the aging of an electronic component reduces its tendency to drift and improves its long term stability, especially in analog electronic circuits used in test equipment.

Aging and thermal cycling improves the reliability and long-term stability of the device.

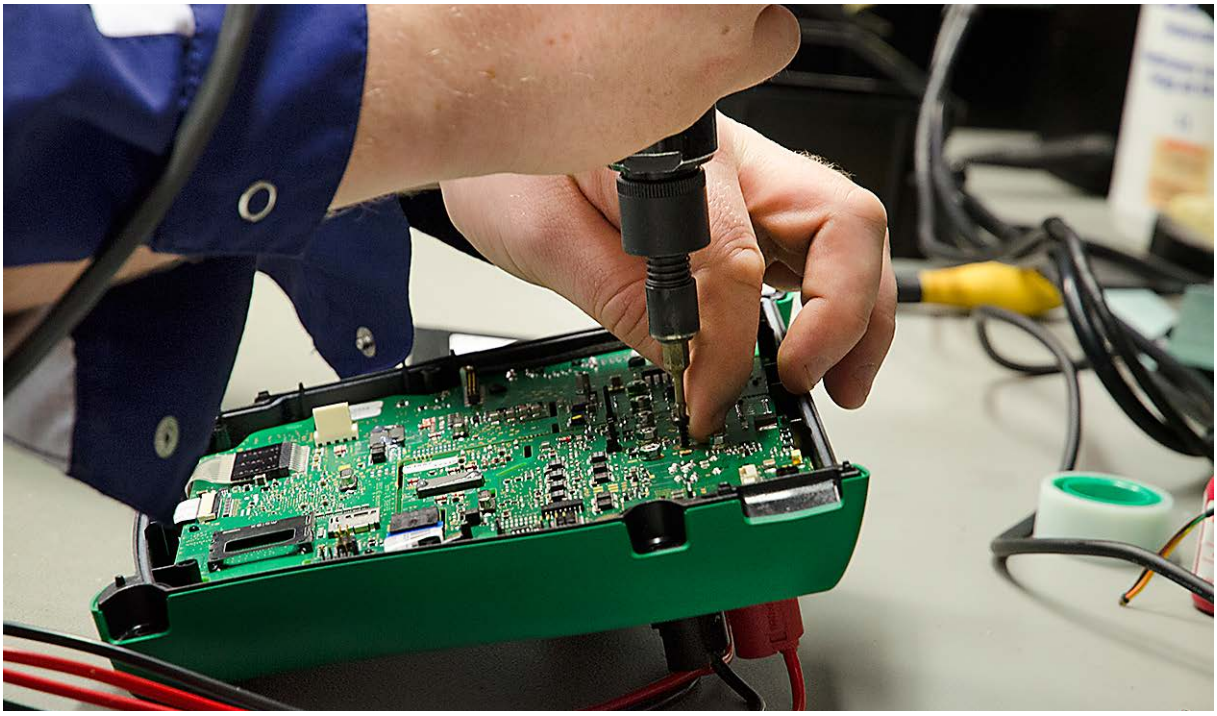
Aging and thermal cycling improves the reliability and long-term stability of the device.

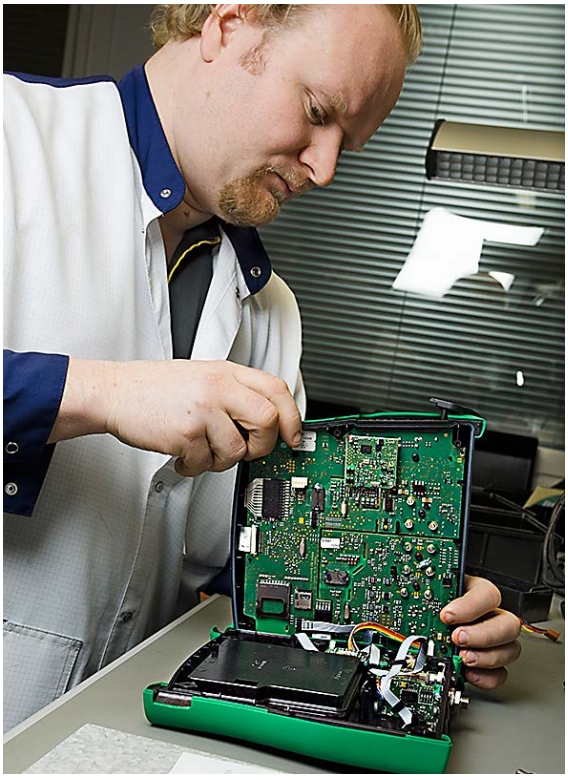
Accuracy

All electronic components tend to have some amount of temperature dependency. This means that when the temperature of the environment changes, the value/behavior of the component changes as well. Predicting the total impact of temperature dependence on all of the components is difficult, as test equipment has an extensive number of components. Also, it would be impossible to design a product without any temperature dependency.

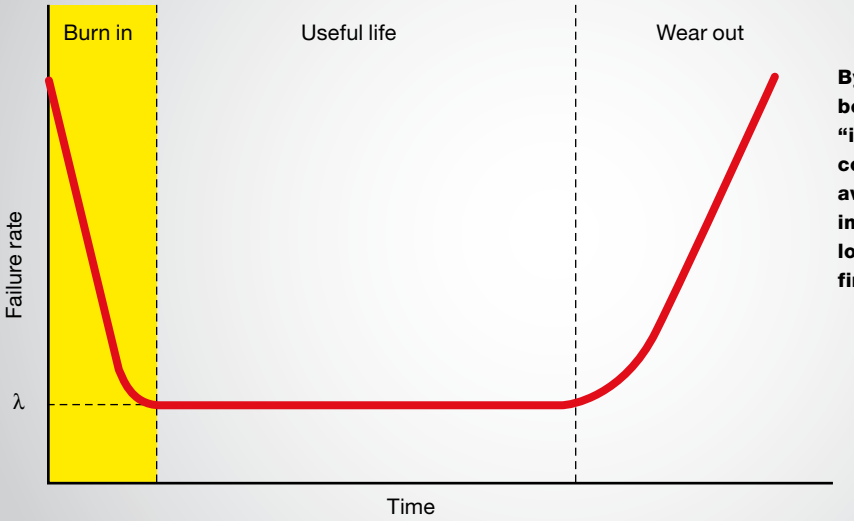
When the MC6 measurement modules are manufactured and tested, they are calibrated in several different temperatures across the operating temperature range of the device. This

Beamex MC6





TYPICAL "BATHTUB AGING CURVE" OF AN ELECTRONIC COMPONENT



By aging the components before installation the "infant mortality" of components can be avoided. This process improves the reliability and long-term stability of the final product.

test will indicate the temperature behavior of each individual unit. Only units meeting the specifications in every temperature, will proceed forward in the production process. This assures that when the calibrator is in use, no matter what the temperature of the environment is, the calibrator will always have the best accuracy.

Tailor-made according to the customer's requirements

When all of the components, parts and modules are manufactured, tested, aged, cycled, characterized and calibrated, the actual assembling of the product begins.

Beamex has educated and trained its production personnel for many years. Some of the technicians in Beamex production have over 20 years of experience in building precision calibration equipment.

All Beamex calibrators are modular niche products and every order is tailor-made according to the customer's requirements. The calibrators cannot, therefore, be mass produced and/or stocked.

When the calibrator is in use, no matter what the temperature of the environment is, the calibrator will always have the best accuracy.

Each MC6 is assembled by one and the same person throughout the entire production process. The technician is responsible for installing the correct modules, different options and software program. This person also ensures that quality remains at its utmost throughout the entire production process. The final stage in the manufacturing process consists of quality testing, final calibration and printing of the calibration certificate, also performed by this same technician.

Before the product is packed and shipped, a final visual test for quality is performed to assure that the product was made according to the customer's specifications.

Beamex quality system and calibration laboratory accreditation

Every Beamex calibrator is manufactured at the Beamex manufacturing premises in Pietarsaari, Finland. Beamex also has its own accredited laboratory, where all the tests, calibrations and re-calibration services are done. Beamex has over forty years of experience in providing calibration services, and our laboratory was granted accreditation in 1993. Beamex quality system is accredited according to ISO 9001 and ISO 17025.

CH2M Hill, US

CH2M Hill develops valuable calibration process for a massive PROFIBUS

BASF, a German-based chemical maker, began construction on a new resins plant in the beginning of 2008. Located in Wyandotte, Michigan, US, the facility was created to produce the Joncryl product range. Joncryl is the trade name for several hundred different polymers that are used in the coatings industry.

BASF selected CH2M Hill as their agency to engineer, procure, and manage the project. At the time of construction, it was the largest PROFIBUS PA installation in North America. Today this plant contains over 3,300 PROFIBUS PA devices on over 250 segments. Over 200,000 tons per annum of polymers, oligomers, and resin cuts, are produced and primarily supply to the printing industry.

Jim Garrison, a CH2M Hill I&C Engineer, played a major role in organizing and creating the calibration process for the plant. When CH2M Hill began designing the calibration and commissioning program, two primary considerations guided their decision. The first was the need for a device that was separate from the distributed control system (DCS), to enable proper monitoring of the PA segments. Jim had to ensure the instruments were wired in accordance with the segment drawing. This was important for several reasons, with the primary reason being the ability to allow verification of segment accuracy before the DCS system was on site. The second capability that molded their decision was the need for a device with the functionality to set or modify an instrument's PA address in the field without needing a laptop and an external power supply.

Robust functionality results in major time savings

Jim and his team conducted a thorough search for a device which could perform key tasks.

"The only one on the market we found capable of the desired functionality was the Beamex MC5 multifunction calibrator with PROFIBUS PA communication," Jim says.

Although, he was confident in the MC5's ability to function properly, to be absolutely certain, he contacted Beamex. Ned Espy, Technical Director at Beamex Inc., came to CH2M Hill with a unit.

"The only one on the market we found capable of the desired functionality was the Beamex MC5 multifunction calibrator with PROFIBUS PA communication," Jim says.

Together, they were able to test and confirm that the CH2M Hill testing concept would work. The concept developed for testing each segment is the following:

1. The installation electricians would install, wire, and perform continuity checks for all required wiring, hardware, and instrumentation for a segment including termination of the home run cables to the PA Couplers.

2. After installation was complete the checkout team would, segment by segment, connect one home run cable to the 24VDC fieldbus compatible power supply in the cabinet and connect the other home run cable to the MC5's PROFIBUS modem.

3. The checkout team (composed

Marcella Dupuis, Project Engineer, uses an MC5 to calibrate one of 3,300 PROFIBUS PA devices.

PA installation at BASF

of 2-3 people in radio contact) would split up with one person remaining at the panel with the MC5 and the segment drawing and the others in the field. The person with the MC5 would generate a "live list" and verify that the PA addresses of all devices listed on the segment drawing appeared in the list.

4. The member in the field would disconnect the PA cable from an instrument on the segment. The member at the MC5 would verify that the address that disappeared from the "live list" matched the address of the instrument that was disconnected in accordance with the segment drawing. The removed device would then be reconnected and the team would proceed to the next instrument.

5. Once the segment had been verified, the home run cables were reconnected to their PA couplers.

This process was done prior to complete loop checks with the DCS being conducted to ensure all devices were addressed correctly and connected to the correct segment. While this may seem duplicative, since a full DCS to device loop check verified much of the same information, they found that it made the full loop checks much faster and troubleshooting much easier since they already verified device addressing and the accuracy and integrity of the wiring from the coupler to the field device.

"I would estimate the savings in troubleshooting time and gain in loop check efficiency to be on the order of several man-weeks," Jim states.

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During instances when they needed to move a device from one segment to another, the MC5 was also utilized. When this occurred, it frequently required the technician to change the address of the instrument, to avoid addressing conflicts with devices on the new segment. Since the MC5 can also provide power to an instrument, they were able to simply disconnect the instrument from the field distribution box and connect the MC5 to the device's spur cable. Then, communication with the device and modification of the address from an easily accessible location prior to connecting the device to the new segment was completed. The cost and effort savings from this capability was substantial as well.

All in all, CH2M Hill utilized the Beamex MC5 to save money and time, and increase efficiency for the largest installation of PROFIBUS in North America.

SOLUTION

Description

- Beamex MC5 multifunction calibrator with PROFIBUS PA communication option

Main Benefits

- Robust functionality
- Major time savings
- Versatility
- Ease of use

Miami-Dade WASD, US

Efficient automated calibration procedures at Miami-Dade WASD

One of the largest public utilities in the United States, the Miami-Dade Water and Sewer Department (WASD), a department of Miami-Dade County, provides direct service to more than 420,000 customers and employs more than 2,500 workers. In addition, the department provides water and wastewater service to the unincorporated areas of Miami-Dade County, wholesale water service to 15 municipalities and wholesale wastewater service to 12 municipalities. The department draws approximately 347 million gallons of water every day from the Biscayne Aquifer for consumer use. Currently, the annual operating revenues of are in excess of $546 million.

A big responsibility

The body weight of a human is more than two thirds water. Without consuming water, death would be certain after a few days. In Miami-Dade, water is everywhere, but no one should take access to clean, fresh water for granted, as it is imperative to survival. Needless to say, Miami-Dade WASD has a big responsibility to its 2.3 million population.

Accurate calibration is vital to the entire operation. Plant instrument technicians calibrate flow, level, pressure, temperature, analytical, and safety leak detection instrumentation. Calibration accomplishes several crucial activities at Miami-Dade WASD:

- Ensures optimal performance of instruments, allowing the highest standard of water treatment
- Creates a safe environment for personnel and produces a quality product for consumers
- Meets industry regulations by providing data traceability and accountability

Raul Novoa and Julio R. Hernandez are calibrating pressure using MC6 and CMX.

Maintaining quality and lowering risks

The plant instrument technicians must calibrate to maintain the plant's measurement equipment. When instruments are functioning at optimal performance, it ensures quality and an efficient water treatment process. In turn, they are able to provide the best water treatment possible.

The risks of not calibrating instruments could have detrimental effects on the treatment of the drinking water. For instance, chemical dosing levels for disinfecting are adjusted based on flow measurements taken from the incoming raw water wells. The water softening process is also affected, which includes the pH level. Even small errors over time will affect the quality of the treatment. Level instruments calibrations affect how Miami-Dade WASD manages the chemical inventory. Proper calibration of instruments creates a safe environment for personnel and minimizes risks. If an instrument is not functioning properly, the equipment is unreliable; and the entire process could be jeopardized. Incorrect measurements could endanger lives, putting the technicians and customers in harm's way.

Accurate data documentation provides full traceability and accountability to federal, state and local agencies and wholesale water customers. As with any drinking water treatment facility, Miami-Dade WASD reports to several government agencies that monitor the effect of human health and environmental impact. For example,

Miami-Dade WASD has experienced at least a 50% efficiency improvement to their calibration procedures.

the South Florida Water Management District monitors how much ground water is drawn from the Biscayne Aquifer. Miami-Dade WASD is required to calibrate the entire well and plant raw water flow meters, which measure how much water is drawn from the aquifer. To minimize impact and still meet the needs of the community, limits or caps have been applied. Miami-Dade WASD is required to submit calibration certificates and report the total amount drawn.

A complete solution

Julio R. Hernandez, a Plant Instrument Technician at Miami-Dade WASD, was in search of the best calibration equipment in the industry, that could streamline calibration and documentation methods, while standardizing the equipment used. He needed multifunction, documenting, robust, and easy to use calibrators.

"Prior to using Beamex equipment, our old documenting needed to be updated. It was not anything we could standardize on. We began looking at software and found another brand. The software looked robust, but needed to be customized. We wanted something that organized data like a windows explorer type of environment. In conversations with the local Beamex distributor, we mentioned we were looking for better calibration software. The Beamex distributor demoed their products and the rest is history," Julio describes.

Today, Miami-Dade WASD utilizes the Beamex MC5 multifunctional documenting calibrators and CMX professional calibration management software, part of the Beamex integrated calibration solution. The MC5s calibrate the most important plant instruments. CMX is integrated with Miami-Dade WASD's maintenance management software, Infor EAM Enterprise edition, to schedule, perform maintenance and document results.

"A maintenance management software system can record and archive work performed, but it will never be very suitable for calibration-specific tasks," Julio explains. The maintenance management software is designed to manage all the other aspects of maintaining an industrial facility, but does not typically provide the in depth tool for managing calibration.

"Beamex does not cover just the equipment, but provides excellent software to complement the instruments. The software is very robust, reliable with great features, which are easy to use," Julio explains.

Overall, Miami-Dade WASD and their technicians benefit from a simplified, standardized calibration program. The combination of multifunctional documenting calibrators and CMX calibration software has automated the entire process. Miami-Dade WASD has experienced at least a 50% efficiency improvement to their calibration procedures. For the department, the system has formed a documenting system that can be shared on a network; provide better reporting, and a standardized, secure format. The quality of calibrations has increased as errors have been minimized.

"Beamex is a very complete calibration specific company, with excellent products, factory support and training. Beamex does not cover just the equipment, but provides excellent software to complement the instruments. The software is very robust, reliable with great features, which are easy to use," Julio explains.

SOLUTION

Description
- Beamex MC5 multifunctional documenting calibrators
- CMX professional calibration management software

Main benefits
- Major improvements in efficiency
- Traceability and accountability
- Safety
- Enhanced quality
- Robust and reliable software
- Integrated system

Plans for growth

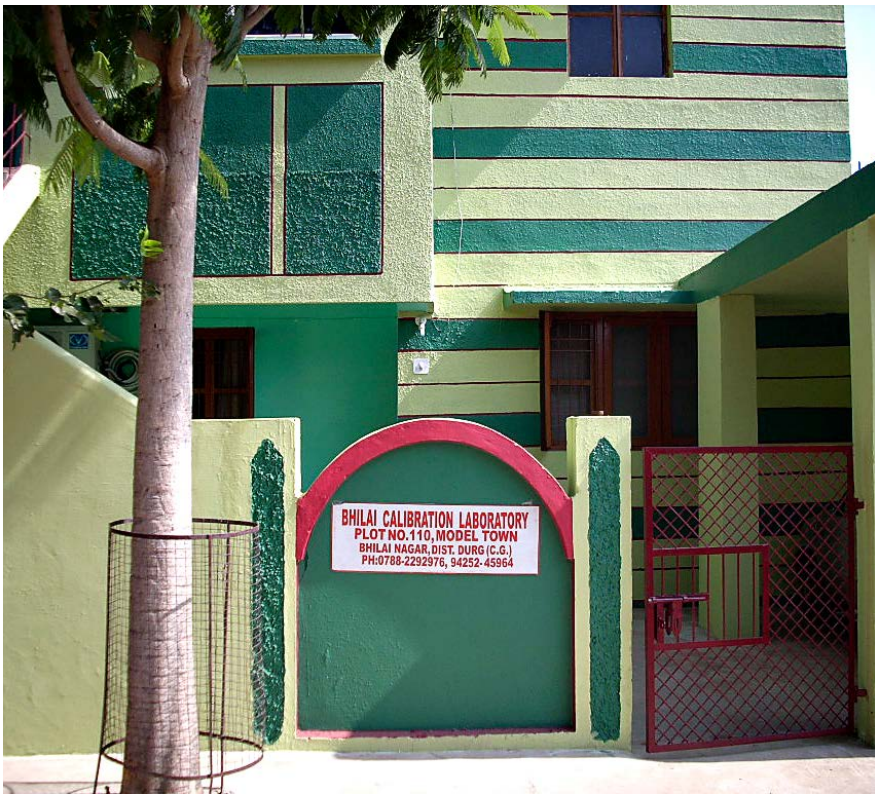
The ultimate goal of the entire calibration program at Miami-Dade WASD is implementation in all treatment plants, instrument shops and some meter calibration shops. Today, there is only one facility that has not utilized the Beamex integrated calibration solution. Julio notes, "We still have some more work to do, as our department is growing and not all plants are using it to the full extent yet. The overall experience has been positive."He expects that CMX will be deployed at the last plant within the next six months and it will be used extensively. Julio also looks forward to purchasing the new Beamex MC6 advanced field calibrator and communicator in the near future.

Bhilai Calibration Laboratory, Ind

Bhilai Calibration Laboratory offers high-accuracy calibration services

Bhilai Calibration Laboratory was founded in January 2006. The laboratory offers calibration services for measuring instruments within mechanical/electro, technical and thermal field. Calibrations can be performed either on site or in a laboratory. The company's main customers are power plants, cement plants, steel plants, edible oils plants, LPG bottling plants and filling stations, Indian oil depots, railway wagon repair shops, the medical sector and calibration and testing laboratories. Ajay Jagdale, founder and CEO of Bhilai Calibration Laboratory says, "Our strategy is to provide quality, quantity and timely services, as our services are directly related to the quality of the customer's output process quality."

Ajay Jagdale has 25 years of experience in calibration. "When I started the calibration of process control instruments, we used local calibrators. I had seen a product demo made by Beamex and planned to use only Beamex calibrators when I founded my laboratory. In 2006 I purchased the Beamex MC2 and MC5 with all of the accessories, such as pressure pumps and vacuum pumps. In May 2010, our lab received NABL Accreditation. Thanks to Beamex calibrators, we have been able to reduce the uncertainty of measurement by 25–30 times," Mr Jagdale says.



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Staying competitive by following quality regulations

To be competitive on the market, quality and cost-control can be effectively maintained with the help of preventive and corrective actions. This makes the periodic calibration of measuring instruments an essential part of work. "Calibration is the process where we find the nearest true value of the unit being calibrated, with the help of skilled personnel as well as an efficient and valid method.

Calibration is very important as it affects the customer's output process quality," Mr Jagdale explains. To be able to offer high accuracy and reduce the uncertainty of measurements to the customers, Bhilai Calibration Laboratory follows the ISO/IEC/IS 17025:2005 guidelines.

Calibrations are also planned each year according to the National Accreditation Board for Testing and Calibration Laboratories (NABL)* guidelines. NABL acts as the accreditation body for testing and calibration laboratories in India. At Bhilai Calibration Laboratory, an annual improvement plan regarding calibrations is implemented to achieve set annual targets and to document all calibration records. A retention period for all records is maintained as stated in the NABL guidelines.

Fast, reliable and stable calibration

Beamex calibrators offer quick, reliable and stable calibration. At Bhilai Calibration Laboratory, the Beamex MC2 and MC5 are used regularly for in house and on site calibrations, covering most of the parameters given in the calibrators. Process control instruments related to pressure, temp, vacuum and electro-technology are calibrated.

ia

Mr. C. SURYANARAYAN from BCL is calibrating HART transmitter using MC5.

Calibration is very important as it affects the customer's output process quality," Mr Jagdale explains.

"Thanks to the features available in the Beamex MC5, we are able to fulfil our customers' requirements. The MC5 is one of the best instruments in our laboratory and our staff find it very user-friendly as well. We need a complete list of manufacturers of smart transmitters with HART protocol in the MC5, so that we easily can choose and save time during calibration," Mr Jagdale explains.

Thanks to quick, accurate and stable calibration, Bhilai Calibration Laboratory has been able to considerably reduce time used for calibration and labor costs per day.

The calibration results are very close to the true value and the TUR (test uncertainty ratio) is suitable for transmitter calibration, as the uncertainty of measurement has been remarkably reduced. Working professionally has increased the number of customers by 60 % every year so far, and the growth in turnover nearly reaches the same percentage. "Our customers appreciate accurate calibration on site," Mr Jagdale summarizes.

Working professionally has increased the number of customers by 60 % every year so far, and the growth in turnover nearly reaches the same percentage.

SOLUTION

Description

- Beamex MC2 multifunction calibrator
- Beamex MC5 multifunction calibrator with HART communication option
- Pumps
- Accessories

Main benefits

- Enhanced accuracy
- Efficient and valid calibration method
- Fast, reliable and stabile calibration

* The National Accreditation Board for Testing and Calibration Laboratories (NABL) is an autonomous body under the aegis of the Department of Science & Technology, Government of India, and is registered under the Societies Act 1860. NABL has been established with the objective to provide the government, industrial associations and industry in general with a scheme for third-party assessment of the quality and technical competence of testing and calibration laboratories. The government of India has authorized NABL as the accreditation body for testing and calibration laboratories. Source: http://www.nabl-india.org/index.php?option=com_co nten t&view=article&id=138&Itemid=72.

Beamex MCS200 workstation

a modular solution for calibration workshops and testing

■ Beamex recently introduced a new modular calibration system, MCS200. It is a modular test and calibration system for workshops and laboratories. The ESD protected MCS200 system is a safe and ergonomic solution for demanding environments, from the harsh conditions of offshore platforms to the delicate requirements of electronic testing and maintenance.

The MCS200 includes calibration modules for pressure, temperature, electrical signals and frequency for periodic calibration of process instruments. HART, FOUNDATION Fieldbus and Profibus PA instruments can also be calibrated with the MCS200.

For test and maintenance tasks, the MCS200 features variable and fixed AC and DC supplies, 3-phase power supplies, soldering/de-soldering stations, digital multi-meters and oscilloscopes, frequency generators/ frequency counters, decade boxes, and other equipment.

Paperless and automated calibration

Integrated with Beamex POC6 automatic pressure controller and Beamex FB/MB temperature block, the MCS200 enables fully automated pressure and temperature calibration. Together with Beamex CMX software the MCS200 offers a completely paperless calibration solution.

The MCS200 offers efficient and ergonomic possibilities for the maintenance of process instruments. The system can be tailor-made to fit our customers' requirements. Beamex offers services in planning, specifying and installing the ideal workshop solution.

Construction

The MCS200 workstation includes a table frame consisting of two high legs with slots for fixing the tabletop and module rack, both of which are height adjustable. LED lighting and four AC socket outlets under the panel are included as standard. Extra lighting and sockets are available. The MCS200 can also be fitted to a wide range of accessories such as shelves, racks for CPU or dry block, extra lighting, drawer units and tool cabinets. Fixing the rail under a tabletop enables practical installation of accessories and also allows moving them horizontally.

Target groups

- Plants that are unable to perform pressure/temperature/electrical calibrations in the field from time to time
- Plants that need to have various instruments and equipment nearby and ready to use when performing calibrations
- Plants looking to achieve time and cost savings by having a central, efficient and ergonomic place for carrying out versatile maintenance and calibration tasks

Benefits

- Ergonomic and efficient calibration and maintenance facility
- Modules can easily be removed for service
- Support for HART, Foundation Fieldbus H1 and Profibus PA
- Paperless calibration – seamless integration with Beamex CMX calibration software.
- Fully automated pressure calibration –communicates with Beamex POC6 automatic pressure controller
- Fully automated temperature calibration – communicates with Beamex FB/MB temperature blocks

Emerson and Beamex combine expertise

with advanced calibration and asset management package

■ Beamex and Emerson have partnered to offer a best-in-class solution for managing calibrations, called Calibration Excellence. This solution delivers the benefits of a complete automation asset management and premier calibration management functionality in an integrated solution.

Calibration Excellence enables companies to streamline calibration work processes and decrease time spent on each calibration. Electronic workflows provide a paperless system where calculation errors and transcription mistakes are eliminated. In addition, all calibration information is automatically recorded to ensure the accuracy and validity of as found/as left records. Automated records make compliance audits easier and also can provide the data needed to justify extending the period between calibrations. Customizable calibration reports improve analysis and documentation of asset status. Furthermore, the solution enables manufacturers to comply with industry regulations such as ISO 9001:2000, 21 CFR Part 11, and IEC 61511.

The Calibration Excellence solution includes Beamex's CMX calibration software, Emerson's AMS Device Manager and the AMS Suite Calibration Connector—which provides a communication link between AMS Device Manager and CMX.

Integrating the calibration management system with plant asset management streamlines the calibration work processes and brings various benefits.

Benefits

- Streamline work processes to reduce time spent on calibrations
- Eliminate calculation and transcription errors with electronic workflows
- Automate documentation for regulatory compliance
- Plan calibration intervals based on historical sensor drift trends
- View overall asset health combined with calibration history

An integrated solution

Using the Calibration Excellence solution integrates asset management and calibration management software environments. The AMS Suite Calibration Connector links the two platforms to create a single database for calibration records. With the AMS Suite Calibration Connector, it is easy to transfer data between AMS Device Manager and CMX. Since all the device information pre-exists in AMS Device Manager, there is no need to manually re-enter it in CMX. Even if a device is replaced or reconfigured in AMS Device Manager, the new information is automatically transferred to CMX. Through the integrated connection, device information is always synchronized, making it easier to manage calibrations and ensuring that information is always up-to-date.

In addition to reducing the time taken to set up the CMX system, this integration ensures that the calibration test procedure details match the actual transmitter under test. The use of documenting calibrators to execute test procedures further reduces the risk of human error, saving time and improving calibration consistency.

Calibration is one aspect of asset health. Having calibration data integrated within an overall asset management system provides you the full view of factors affecting a given asset's health, enabling you to make smart decisions on maintaining all of your assets.

"As more and more industries require some form of regulatory compliance around calibration, this integration enables our users to optimize their calibration practices without introducing risk. The partnership between Emerson and Beamex pairs two leaders in calibration to deliver a more robust calibration solution to the market," says Ron Martin, vice president/general manager of Emerson's Asset Optimization and Lifecycle Care.

News

Beamex award winner

in Processing Magazine's 2012 Breakthrough Products of the Year competition

■ The Breakthrough Products of the Year awards, arranged by Processing Magazine, recognize products, technologies and services that made significant contributions in the process industries within the last year, and are expected to impact the industry for years to come. The Breakthrough Products awards are meant, at least in part, to provide needed recognition, while providing technology backgrounders, case use examples and other information about product, technology and service solutions.

The majority of the 2012 Breakthrough Product winners are North American and European mid-sized equipment and instrumentation makers that have been suppliers to the process industries over many decades. "These companies tend to be very engineering focused and are constantly called upon to supply their solutions in novel configurations and settings, while keeping pace with a host of new computing and software developments. Their ingenuity and innovation in doing so delivers results for their clients and deserves recognition" says Processing Editorial Director Kevin Parker. Thanks to these companies, the process industries continue to improve in productivity, environmental stewardship and safety.

"The Breakthrough Products award to Beamex and the MC6 advanced field calibrator and communicator is well deserved and speaks to the extensive research and development that preceded its introduction, says Processing Editorial Director Kevin Parker. As such the solution addresses process industry trends that include the need for more measurements and more accurate field measurements, the automation of procedures and the need to reduce equipment costs."

In acceptance, Greg Sumners President at Beamex Inc. replied, "We are so honored to receive this award. Having this recognition for the thought leadership of our development teams, highlights Beamex commitment as the world leading provider of integrated calibration solutions."

Calibration certificates on USB drive

■ The service for calibration certificates has been extended and is now available in pdf format on a USB drive. This additional service is marked as an optional accessory "9050420 Calibration certificates on USB drive" in the Beamex pricelist.

In the event calibration certificates are requested in pdf format and distributed by e-mail, they will be referred to as the same additional service as mentioned above. Please note that the calibration certificates on paper will still be sent out with every new calibrator purchase or re-calibration service.

Encouraging a paperless environment by providing calibration certificates in a digital format instead of on paper is an important step in the right direction.

Beamex MCS200 workstation

a modular solution for calibration workshops and testing

The MCS200 offers efficient and ergonomic possibilities for the maintenance of process instruments. The system can be tailor-made to fit our customers' requirements. Beamex offers services in planning, specifying and installing the ideal workshop solution.

Benefits:

- Ergonomic and efficient calibration and maintenance facility
- Modules can easily be removed for service
- Support for HART, Foundation Fieldbus H1 and Profibus PA
- Paperless calibration - seamless integration with Beamex CMX calibration software
- Fully automated pressure calibration
  - communicates with Beamex POC6 automatic pressure controller
- Fully automated temperature calibration
  - communicates with Beamex FB / MB temperature blocks

beamex
WORLD-CLASS CALIBRATION SOLUTIONS®

www.beamex.com
info@beamex.com

Reduce costs and improve quality of calibration

Beamex documenting calibrators and software form an automated paperless calibration system.

97% say that using Beamex products has improved the quality of their calibration system.

9 out of 10 customers say that using Beamex products has resulted in cost-savings.

Beamex customer survey 2012

The heart of the Beamex integrated calibration solution is a powerful combination of calibration hardware: pressure, temperature and multifunction calibrators, automatic temperature blocks, automatic pressure regulators and Beamex CMX calibration management software. Facilitating seamless lines of data flow, from maintenance management systems to calibration technicians and back, the Beamex integrated calibration solution has proved its success again and again.

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Beamex in brief

Beamex is a leading worldwide provider of calibration solutions that meet even the most demanding requirements of process instrumentation. Beamex offers a comprehensive range of products and services — from portable calibrators to workstations, calibration accessories, calibration software, industry-specific solutions and professional services. Through Beamex's partner network, our products and services are available in more than 60 countries.

Learn more about Beamex products and services
www.beamex.com

Brochures, product demonstrations and quotations
info@beamex.com
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Contact: pamela.skytte@beamex.com

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Please visit www.beamex.com
or send an e-mail to info@beamex.com

Beamex products and services

Portable calibrators
Beamex's range of portable MC calibrators for field calibration is known for accuracy, versatility and meeting both high and uncompromised quality standards.
- MC6 advanced field calibrator and communicator
- MC5 multifunction calibrator
- MC5-IS intrinsically safe multifunction calibrator
- MC2 series
- MC4 documenting process calibrator
- MC2-IS intrinsically safe multifunction calibrator
- FB/MB temperature dry blocks

Workstations
A workstation can be considered ideal when most of the maintenance and calibration tasks are performed in the workshop.
- MCS200 workstation
- MCS100 workstation
- MC5P calibration host module

Accessories
Beamex's calibration accessories complete your investment in calibration equipment.
- External pressure modules
- Calibration hand-pumps
- Spare parts

Calibration software
Plan, manage and document all your calibrations efficiently and safely using Beamex's calibration software.
- CMX light
- CMX professional
- CMX enterprise

Professional services
An essential part of a complete calibration solution is professional services — service and re-calibration, installation and training, software support, validation services and integration services.
- Re-calibration and service
- Installation and training
- Software service agreement (SSA)
- Validation services (pharmaceutical industry)
- Integration services



The impossible made possible: combining advanced functionality with ease-of-use

Beamex MC6 advanced field calibrator and communicator

Touch-screen, 5.7" color-display with a user-friendly interface. Light-weight, robust (IP65) and long operating time. One device, five different operational modes: meter, calibrator, documenting calibrator, data logger and full multi-bus field communicator. Pressure, electrical, temperature and frequency signals. HART, Profibus PA, Foundation Fieldbus H1. Seamless communication with calibration software for paperless calibration management.

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Read more at www.beamex.com

Portable calibrators
Workstations
Calibration software
Professional services
Industry solutions

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