Calibration WORLD

BEAMEX CORPORATE MAGAZINE • 2019

DIGITALIZATION

Calibration in a new era of production

When to calibrate
IN A WORKSHOP

CUSTOMER CASES

Lawrenceburg Power, USA
Peñoles Quimica del Rey, MX
MCI, Chile

DO MORE WITH LESS

and generate ROI with an Integrated Calibration Solution

DATA INTEGRITY

Common Pitfalls in Calibration Processes

beamex

CEO'S LETTER

Jan-Henrik Svensson
CEO, Beamex Group

I recently returned to work from my summer vacation where I pretty much did the same things that I do in my working life – collaborating and interacting with people. After networking with old and new friends, I observed that today's environment with fake news, phishing attempts and counterfeit technologies is really impacting people in becoming more distrustful in their dealings with people, technologies and data. I hence consider myself privileged being able to work in the calibration industry with genuinely trustworthy people and ethical companies. Finding this reliable community does anyhow not come as a surprise, since calibration is all about sustainability, traceability, long term stability and transparency. These should be meaningful values even for people and companies outside of the calibration industry.

Since my previous editorial, we at Beamex have increased our effort and investment in developing new technologies and assisting customers to find better ways of calibrating, streamlining processes, assuring trustable data, while at the same time ensuring that Beamex users enjoy using our technology. As a result, we have recently launched several new products and new features making our entire portfolio of calibrators documenting by default, this is yet another important milestone on our path towards being completely digital, having the ability to provide our customers with scalable and modular technologies that supports the digital transformation of the industry. In this issue of Calibration World, you can read about a few of our customers journeys and hopefully gain some inspiration for planning your own journey with us.

I truly recommend that you all subscribe to our Calibration Tips newsletter, blog or follow us on your favourite social media platform because we are working on some exiting, new technologies that we hope to share with you soon...

Enjoy your reading and remember that we very much appreciate (and need) your feedback!

CALIBRATION WORLD

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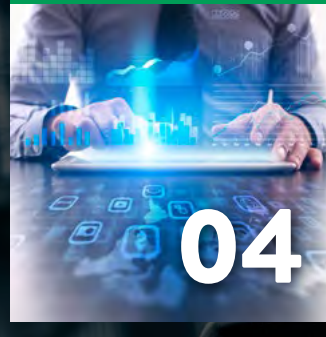


Calibration in times of

DIGITALIZATION

– a new era of production

You have probably heard of terms such as Digitilization, Industry 4.0 and Smart Factory. But what do these really mean?

BEAMEX WHITE PAPER >>

Whether on television, in newspapers or on social media, hardly a day goes by without futuristic topics such as digitalization, big data, artificial intelligence and machine learning. But futuristic? Hasn't the future already arrived?

Many users of these new technologies don't yet fully grasp them. This is completely understandable. That's why, we will gradually bring you closer to these topics and help you enter the future well informed.

WHAT WILL TOMORROW'S PROCESS INDUSTRY LOOK LIKE?

Almost everyone today owns a smartphone that, without being aware of it, is equipped with a variety of sensors and communication technologies. Worldwide, there are now 5.1 billion users of mobile devices and the number is growing at an annual rate of 4%. Whether with a smartphone or directly on your computer, you are most likely a private individual, who purchases comfortably from your sofa at home and are hardly surprised,

Are you still working with outdated technologies, or are you now also seeing a wave of modernization on the horizon?

Calibration in times of

DIGITALIZATION

– a new era of production

The fact is, many employees are worried about terms such as **machine learning**, **robotics** and **smart factories** and what will happen tomorrow. You may also be afraid that your future colleagues will be made of metal and make "blip" noises like in the award-winning Star Wars series."

There are **trends** that you should **accept**, if you can't stop them.

if it underneath the product you have selected on the website, says "Customers who bought this product were also interested in this product." At home, the future seems to have made its way long ago. Behind these platforms, hide exactly those technologies that have made your private life easier and more convenient, and these exact technologies are currently making their way into the process industry within the framework of Industry 4.0. But now, please ask yourself the question, what does your work environment look like? Are you still working with outdated technologies, or are you now also seeing a wave of modernization on the horizon?

The fact is, many employees are worried about terms such as machine learning, robotics and smart factories and what will happen tomorrow. You may also be afraid that your future colleagues will be made of metal and make "blip" noises like in the award-winning Star Wars series. Or, you may think, that you hardly will meet any people on the shop floor in the future. To take away at least some of these worries in advance, the industrial production of tomorrow, and thus the factory of the future, will rely much more on the latest information and communication technologies than it does today. And no, the "factory of the future" cannot be imagined without people. They will even play a very important role. This should be reassuring, and it is, but there is a good chance that things will change in your environment in the future. Because digital technologies in modularly organized plants of the future, will make processes flexible, the maintenance of such machines will be equally affected, as will the calibration of the growing number of process sensors that make Industry 4.0 possible in the first place. In other words, the digital factory will automatically lead to digital maintenance, and that could happen faster than you think.

So you should start to proactively prepare for a digital future, starting by getting a picture of what will change. Because the way we work in maintenance today will change. That's for sure! But what we can tell you in advance: If you work in a calibration environment, then your work will gain in importance!

Factors, that will play a role in the future, will

be explained, step by step in this and in other blogs. To start with, it is important that you understand the technologies and the important interrelationships, that lie at the basis of these digital changes. Changes that you probably already have experienced through a wide variety of media channels.

LEAVING THE COMFORT ZONE STEP BY STEP

There are trends that you should accept, if you can't stop them. For example, when the first computers came onto the market, the then CEO of one of the leading technology companies made a forecast: "I think there's a world market for maybe five computers." Maybe you're smiling while reading it, because this forecast seems completely absurd to you. At in the beginning of the computer industry, nobody really knew where this new technology would take us, but the explosion of desktop computing has changed our lives a lot. Even if you think that the role of a computer in your private environment is limited, in our modern society nothing would work without computers. By the way, the same applies to the role of the internet in our society. Was it not then to be expected that computers and above all internet technologies would sooner or later find their way into the process industry?

In the Industry 4.0 era, production is closely interlinked with information and communication technologies, making it more flexible, efficient and intelligent. There is even talk of batch size 1, which might perhaps cause a question mark, rather than an "A-ha" effect on you. Well, it's quite simple: with the expectation to meet the ever faster and more comprehensively changing customer requirements, customers expect individualized products that meet their requirements, but at prices that only series production can offer. How is that supposed to work? The answer is Industry 4.0.

Industry 4.0 has set itself this goal and offers a variety of concepts, guidelines and technologies for building new factories or retrofitting existing ones, which, thanks to modular production lines equipped with flexible automation, IT and communication technologies, make it possible for customers to choose from a variety of variants at series production prices. In addition, the interconnection of the value chain extends far beyond the manufacturing company. The entire value chain, including suppliers, is also to be connected horizontally. Connectivity even goes one step further. Thanks to connectivity, products that leave the factory should also report regularly to the manufacturer, e.g. for maintenance, and report on their status.

Nevertheless, there are big differences between the time when this already mentioned CEO ventured to forecast the world computer market and the present time. Although the term

In the Industry 4.0 era, production is closely interlinked with information and communication technologies, making it more flexible, efficient and intelligent.

Industry 4.0 – meaning the fourth industrial revolution – today causes similar social uncertainties as computers did at that time, it is decisive for the future of the process industry, especially for the manufacturing industry. Where the computer was a fundamental new technological invention, Industry 4.0 consists of composite technological components, some of which already exist as modules, but interoperability for fast and flexible "plug & play" deployment is still in its infancy. It should be noted that the first three industrial revolutions (1. steam engine, 2. assembly line , 3. automation and IT) were only subsequently classified and recognized as revolutions. In contrast, the so-called 4th Industrial Revolution is more like a controlled process, which from today's point of view takes place in the near future and is currently in the process of unfolding.

SENSORS AS KEY TECHNOLOGY

The fact that Industry 4.0 is more like a controlled process than a wild revolution is of great benefit to many participants, even though it is not possible to say exactly where the journey will lead. What we can predict, however, is that tomorrow's world will be much more digital than it is today, and that will certainly affect your work as process workers, both in production and maintenance. If you are working in calibration, the following may be particularly important to you. For the factory of the future to exist at all, smarter objects (whether machines or end products) will need to be used to orchestrate manufacturing processes according to Industry 4.0 objectives. Objects without sensors are blind and unfeeling and can neither see how they have to act in connection with other modules nor can they report their own condition to top-level systems about, for example, the need for timely and optimized maintenance to prevent costly system failures.

Sensors therefore, do not only play an important, but an essential role, in the implementation of Industry 4.0. They form the interface between the digital and the real world. Data generated by these sensors must be correctly interpreted for further processing, and they must always be of excellent quality! Industry 4.0 also means that, in the future, sensors will be used far beyond the actual production processes. They also play a role in upstream, downstream and parallel sub-processes, such as predictive maintenance. One could therefore say that without the right sensors, all higher-level systems are blind, and with incorrect measurement data, wrong decisions are made. What should hardly surprise the maintenance staff, is that the data quality of measurement data, is based on a professional and prompt calibration of the sensors.

ABOUT BEAMEX & THE AUTHOR

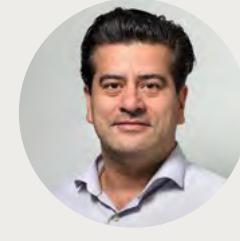
BEAMEX

Beamex has set itself the goal to find a better way to calibrate together with its customers. This also means taking a leading role in digitilization and Industry 4.0. If we have aroused your interest after reading this article, we would like to discuss this topic with you. We are very interested in exploring your current business processes regarding calibration, to provide you with concepts for a better calibration in the digital era.

THE AUTHOR

Antonio Matamala

Antonio Matamala, Country Manager at Beamex GmbH, has more than 20 years of experience in the hardware and enterprise software industry, with a strong focus on IIoT (Industrial Internet of Things) solutions.



BEAMEX
#CAL_2019

Beamex Ltd in Uk launch their first ever

CALIBRATION AWARENESS *and Learning day*

On October 9th, 2019, Beamex Ltd are launching their first ever Calibration Awareness and Learning day. The event is set to focus on all things calibration with guest speakers, interactive sessions and information surrounding the Beamex product Roadmap and developments.

The day is tightly scheduled with an insightful and educational agenda with an aim to deliver value and knowledge to all attendees. There will be guest speakers including industry experts and Beamex representatives travelling from the Beamex Headquarters and presenting seminars on topical issues and developments within the processing industry.

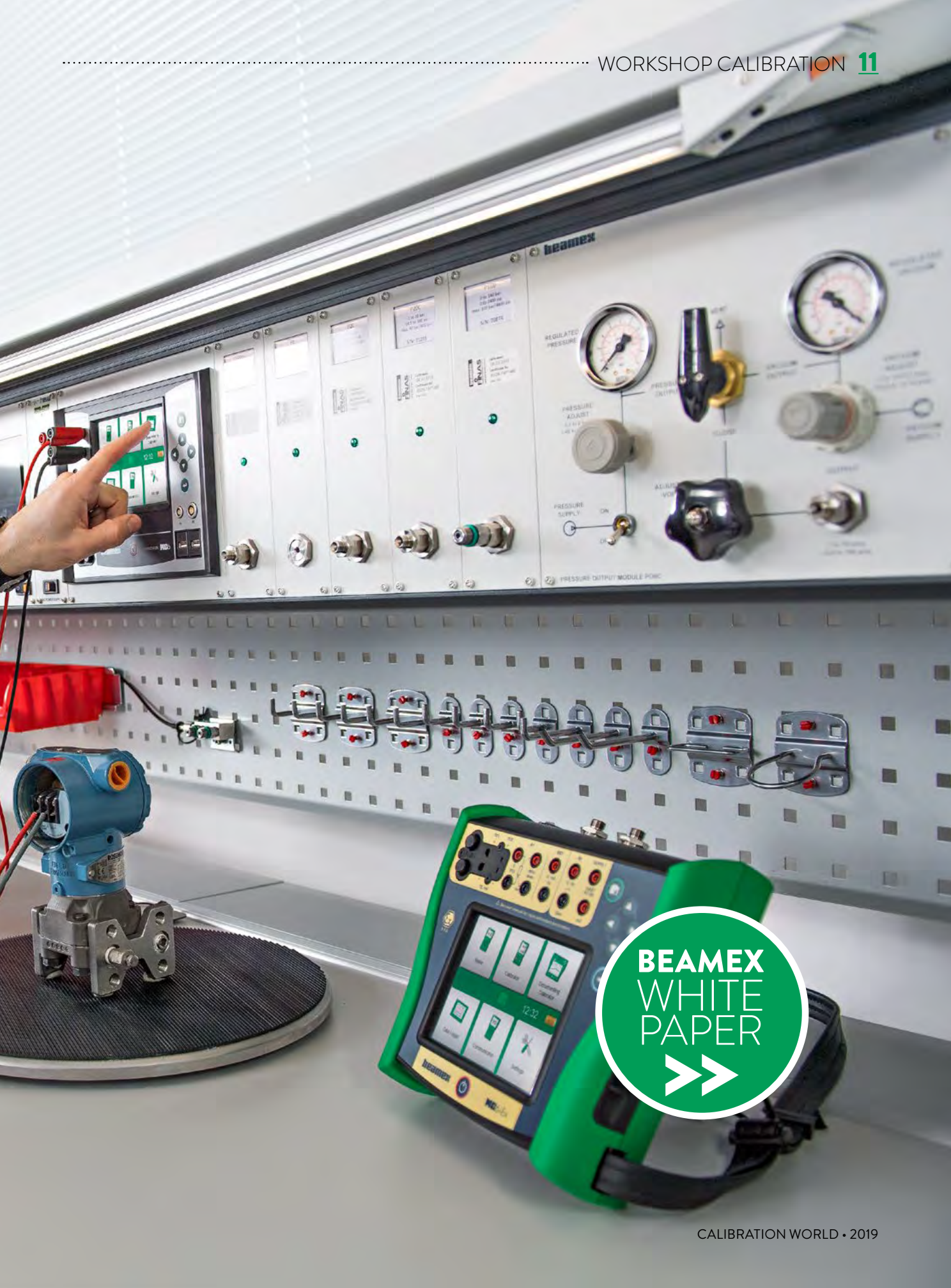
The day is based at the National Motorcycle Museum, Solihull, England, an exciting venue where complimentary access will be provided to all attendees after the full agenda for #CAL_2019 has been finalised.

The Calibration Awareness and Learning day is the first of its type, and if successful, it will continue as an annual event helping to demonstrate 'a better way to calibrate' whilst delivering value, knowledge and inspiration to those operating within our industry.

When to calibrate

IN A WORKSHOP

In today's process industry, the field instruments are often calibrated out in the field. To do so, portable calibration equipment is used.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When to calibrate

IN A WORKSHOP

Field calibration is often the best solution, but there are still various reasons why it is sometimes more convenient and effective to do calibration in a workshop. Selecting between field calibration and workshop calibration is not a black-and-white situation.

WORKSHOP CALIBRATION

The most common reasons for establishing a workshop:

1. Commissioning
2. Total uncertainty of the calibration
3. Primary standards in a workshop
4. Spare device calibration / rotating spares
5. Safety
6. Accreditation and quality system
7. Field conditions vs. workshop conditions
8. Efficiency, ergonomics, ease of use position

These two methods are not exclusive alternatives; instead, they complement each other.

Beamex has previously presented the arguments for doing calibration out in the field, but this paper will discuss some of the most common reasons for establishing a workshop and doing the calibrations, or some of them, in the workshop with dedicated workshop calibration equipment.

1. COMMISSIONING

One of the most common reasons to calibrate in a workshop is during the commissioning of a new plant, or some new parts of the plant. During the commissioning, the field equipment is not yet installed as the installation of the process equipment is not completed. The process equipment has typically already been purchased and is in storage in large quantities, waiting for installation. At that point it is very efficient to calibrate all the process equipment in the workshop before it is taken out into the field and installed. It is often faster and easier to calibrate all transmitters in the workshop prior to installation, than to calibrate them in the field after installation. Also, this saves time as the transmitters can already be calibrated before they are installed. After the transmitters are installed, there is no need to reserve any time for calibration, which is a plus because schedules are typically tight.

When installing fieldbus, other aspects also need to be taken into account. If the plan is to calibrate fieldbus transmitters and loops in the field by reading the control system readout, one needs to wait until the fieldbus and the process control system are up and running. If the equipment in the workshop is capable of calibrating fieldbus instruments, the fieldbus process instruments can be calibrated in the workshop before they are installed in the field.

2. TOTAL UNCERTAINTY OF THE CALIBRATION

The accuracy of the field instrumentation has been getting better and better during recent years, and this sets more requirements for the

calibration equipment and also for all of the calibration processes. When doing the calibration in the field, the most significant aspects of the total uncertainty often do not come from the calibration equipment but from the calibration processes and the human factors. These are more critical with some quantities than with others.

The situation changes when the calibrations are done in the workshop with equipment and conditions dedicated for calibration work. In the calibration workshop, the calibration equipment does not have to be portable, but can be workshop equipment, which often has better performance than portable equipment. Also, the environmental conditions in the workshop can be controlled, so calibrations are always performed in similar controlled conditions. And finally, the operating procedures in a workshop can be more easily written so that the calibrations are performed in a more consistent way than when done out in the field.

Therefore, doing the calibration work in the workshop can result in a more accurate calibration with less total uncertainty.

3. PRIMARY STANDARDS IN A WORKSHOP

As mentioned in the beginning, workshop calibration and field calibration complement each other. There may be higheraccuracy, non-portable calibration equipment in the workshop as the primary reference calibration equipment. With these workshop primary standards, the portable field calibrators— which are used out in the field and of which there is often a larger number— can be calibrated. This will save money and time as the calibration equipment doesn't need to be sent out for periodical recalibrations. Most of the recalibration can be done by oneself and only the primary standards will need to be sent out for recalibration.

4. SPARE DEVICE CALIBRATION / ROTATING SPARES

In some cases it is more convenient to calibrate a spare device and then replace that into the process. That is especially the case when the calibration is difficult to do in the field, or the calibration takes a very long time to perform. Of course this

The environmental conditions in the workshop can be controlled, so calibrations are always performed in similar controlled conditions

Panel-mounted, mains-operated equipment never has empty batteries that need to be charged before work.

is also the case when the device has to be sent out to a third party calibration laboratory for calibration. In case the spare device calibration is performed in-house, it is most effective to perform the calibration in a workshop that has a suitable setup always ready for use. The spare device may also be installed in the process only for the time it takes to calibrate the original instrument.

5. SAFETY

A professional calibration and service/maintenance bench in a workshop can be equipped with proper safety facilities. This includes items such as: isolation transformer, fault current protection, emergency switch, thermal overload protection, ESD protection, just to mention some. The same kind of safety mechanisms cannot be easily arranged for work performed out in the field.

Often, instead of carrying several items of calibration equipment out to the field, **it is easier** to take the small device to be calibrated to the workshop, where all calibration equipment is ready for use.

6. ACCREDITATION AND QUALITY SYSTEM

In some cases it is necessary or beneficial to apply for an accreditation for the in-house calibration service performed. It is easier to get an accreditation for the calibration work performed in a dedicated workshop than it is for field calibration. Also, the uncertainty of the calibration can be lessened when it is done in the workshop. Even if an accreditation is not necessary, it is easier to build a quality system for calibration work done in the workshop.

7. FIELD CONDITIONS VS. WORKSHOP CONDITIONS

The field conditions may sometimes be challenging to work in.

Often the field is a hazardous area that sets requirements for the calibration equipment to be used, and not all calibration equipment is suitable for hazardous areas. For example, a tem-

perature dry block cannot be used in hazardous areas, but it is still needed for temperature sensor calibration.

Often, instead of carrying several items of calibration equipment out to the field, it is easier to take the small device to be calibrated to the workshop, where all calibration equipment is ready for use.

The environmental conditions out in the field can be challenging. Going into the field may require use of protective gear and may also require a dedicated training to be completed.

There are typically more mechanical maintenance personnel on the work site who can take the device to be calibrated to the workshop, where the calibration specialists can concentrate on the calibration work.

8. EFFICIENCY, ERGONOMICS, EASE OF USE

When doing the calibration in a workshop, the work can be arranged to be much easier and much more ergonomic than the work performed out in the field. Some of these considerations include:

- All equipment is always in place and ready to be used. All connections can be readily made and ready for use.
- Panel-mounted, mains-operated equipment never has empty batteries that need to be charged before work.
- Equipment never gets lost; it is always where it should be.
- All the equipment is optimally located for an ergonomic work space. The height of the bench tables can be motor controlled so it is easy to adjust ergonomic height for any work.
- Panel-mounted automatic or manual pressure generation modules are ready for use, so there is no need to use manual pressure hand pumps.
- The workshop offers more convenient work environment for the workers. The field conditions may sometimes be very harsh to work in.

In addition to the above-listed arguments for doing the work in a workshop, there is also some calibration and maintenance work that cannot be performed out in the field. A dedicated workshop with adequate equipment in place makes the work easy and effective.

SUMMARY COMPARISON

WORKSHOP VS. FIELD CALIBRATION

There are also many reasons to perform the calibration out in the field. Some of the main arguments for calibration in the field are listed below, as well as a simple comparison for the arguments for both scenarios: workshop and field calibration.

In practice, workshop calibration and field calibration are not things that one chooses between. In most cases, depending on the case, both are used for effective results.

Below, some of the most common arguments for doing calibration in the field are presented:

- Enables calibration of the whole measurement loop in one go, from the beginning to the end, i.e. from the process sensor to the control system reading.
- The calibration is performed in actual process conditions.
- Eliminates the need for removal and re-installation of the instrument to be calibrated.
- If the easy access for calibration has been taken into account in the installation of the process instrument, the calibration can be done quickly and easily.
- Modern portable documenting calibrators help to make the field calibration very effective. And to summarize, a condensed list of the arguments for workshop calibration explained in more detail earlier in this paper:
- Performing calibration in the workshop during commissioning phase.
- Pursuit of better accuracy / less uncertainty.
- Use of primary standards in the workshop to calibrate the portable working standards in house.
- Spare device / rotating spares calibration in workshop.
- Safety issues can be more easily taken care of in workshop.
- Accreditation for the calibration workshop.
- Efficiency, ergonomics, ease and many other similar practical reasons.

BEAMEX CALIBRATION SOLUTIONS

help standardize processes and save costs

LAWRENCEBURG POWER, LLC, USA

Ron Cash, Senior Combined Cycle Tech at the **Lawrenceburg Energy Facility**, was the visionary that led the maintenance department to streamline their calibration processes, automate documentation and standardize tools.

Thus far, the results have included the retirement of 80 measurement standards which saves them $18,000 annually in recertification costs, implementation of a paperless system that is intuitive and easy to learn, improved data integrity and reliability, exposure of shortfalls in calibration of mission-critical instrumentation, and time savings of up to 50% on calibration work.

Ron explains, "I took over the instrument calibration duties without any instrument calibration experience. Our program was a mess to say the least. We were still using paper and pen for our calibration reports. I started looking at

calibration reports and talking to others who performed calibrations in the past and realized that everyone completed the phases of the process differently. I found all these issues to be a huge problem that could end up costing the company money. With the permission of the Plant Manager, I purchased two Beamex MC6 documenting calibrators, two external modules and the CMX software. And the rest is how legends begin."

ABOUT THE LAWRENCEBURG ENERGY FACILITY

Lawrenceburg Power, LLC is a wholly-owned subsidiary of Lightstone Generation, and Lightstone Generation in turn is a joint venture of the Blackstone Group LP and ArcLight Capital Partners LLC. The Lawrenceburg facility which began commercial operation in 2004, is a combined cycle 4X2 (Four GE 7FA Combustion Turbines and Two GE D11 Steam Turbines) nominal 1,186MW gas-fired power plant located in Lawrenceburg, Indiana.

THE SITUATION

Prior to implementing the Beamex integrated calibration solution the plant's labor-intensive calibration process began with paper-based procedures from a simple Microsoft Access database. Based on a manual review and assessment of the calibrations to be completed, a tool set would then be assembled from the vast inventory of test equipment the plant maintained such as gauges, meters, decade boxes, etc. Execution of the calibration required the technician to manage the multiple pieces of equipment while referring to the printed calibration procedures, determining pass/fail status, and recording the results on the hard copy document. The documents served as the permanent record and were eventually stored in a physical filing cabinet.

Although this system worked, Ron noticed several problems. User controls were non-existent leading to questionable data integrity, a lack of standardization caused inconsistent work results, and there were clerical errors associated with hand-written records and the paper-based workflow. The work was also very time consuming and introduced the opportunity for many process uncertainties. The final straw was a costly delay on unit start-up when they did not have the resources to competently calibrate multivariable transmitters which proved to be particularly challenging to calibrate.

EASILY EXECUTING A BIG VISION

Like Ron, the technicians in the maintenance department are all multi-craft and responsible for a wide responsibility of daily tasks, including instrument calibration. For this reason and the sheer amount of instrumentation they manage, comprised of approximately 3,600 pieces of instrumentation, 300 of which that are critical calibrations during outages, they needed a data management system that was easy to use and implement. As Ron explains, "It's like the Geico commercial. I wanted a system that was so easy – even Ron Cash could do it."

The Lawrenceburg facility is a 1,186MW gas-fired power plant located in Lawrenceburg, Indiana.

Furthermore, Ron wanted to standardize tools and reduce the considerable amount of equipment required to be used and maintained. Ensuring NIST traceability was an absolute requirement and had to be easily enforced. To improve data integrity, he aimed to minimize the opportunities to "cheat the system" or "pencil whip." He also sought a solution that would provide a professional calibration certificate, audit trail and provide analytics of the results, such as data trending and hysteresis errors.

Ron found the Beamex integrated calibration solution on YouTube and recognized this system would meet all the requirements—ease of use, standardization, automated workflow and high data integrity.

> "Thus far, the results have included the retirement of 80 measurement standards which **saves them $18,000** annually in recertification costs and **time savings of up to 50%** on calibration work."

Maintenance Superintendent, Dustin Ketchem (left) and Combined Cycle Tech, Ron Cash (right).

THE RESULTS

Ron summarizes, "The amount of equipment required to perform calibrations in the field has dropped from an average of 5 to 1 due to the built-in modules and 80 standards have been retired due to the multifunction capabilities of the MC6. No matter who uses the system, the work is performed and results are recorded in the same manner inside of CMX, which creates a more reliable system and high data confidence."

Ron was able to integrate some of his existing standards with the Beamex technology, for instance a HART Scientific temperature dry-block that he used with the MC6 to automate temperature calibrations. From using a more accurate system, they found that many of their switches and drum levels were out of tolerance, which could have caused an emergency outage and cost the plant at a minimum, thousands of dollars and into the millions, if not resolved quickly. Finally, the inability to calibrate multivariable transmitters, which proved to be extremely costly previously, was completely resolved with the capability to make all the required measurements with the multifunctionality of the MC6.

CASE STORY IN BRIEF

LAWRENCEBURG POWER

THE RESULTS

Lawrenceburg Power, LLC, USA

- The amount of equipment required to perform calibrations in the field has dropped from an average of 5 to 1 due to the built-in modules and 80 standards have been retired due to the multifunction capabilities of the MC6.
- The work is performed and results are recorded in the same manner inside of CMX, which creates a more reliable system and high data confidence.
- From using a more accurate system, Lawrenceburg Power found that many of their switches and drum levels were out of tolerance, which could have caused an emergency outage and cost the plant at a minimum, thousands of dollars and into the millions, if not resolved quickly.
- The inability to calibrate multivariable transmitters, which proved to be extremely costly previously, was completely resolved with the capability to make all the required measurements with the multifunctionality of the MC6.

BEAMEX SOLUTION

- Beamex MC6 calibrator and communicator
- Beamex CMX calibration software
- Beamex EXT pressure modules
- Beamex professional services training

CALIBRATION BEST PRACTICES
LEARNING EVENT

Beamex to host a two-day

LEARNING EVENT ACE 2019

BEAMEX - ANNUAL CALIBRATION EXCHANGE

Beamex is excited to host the Annual Calibration Exchange (ACE) to be held Wednesday and Thursday September 18–19th at the University of New Orleans in New Orleans, Louisiana, USA.

The event will explore the latest insights, trends and best practices for process plant managers, engineers and technicians seeking to improve calibration safety, efficiency reliability and quality. Experts with a combined 100+ years of calibration experience will discuss day-to-day challenges and how best to solve them through new and innovative strategies and advances in calibration technology—all designed to save time while achieving quality metrics and improving safety. Attendees will benefit from a highly interactive learning approach, providing the practical skills and know-how needed to improve daily maintenance processes and tasks.

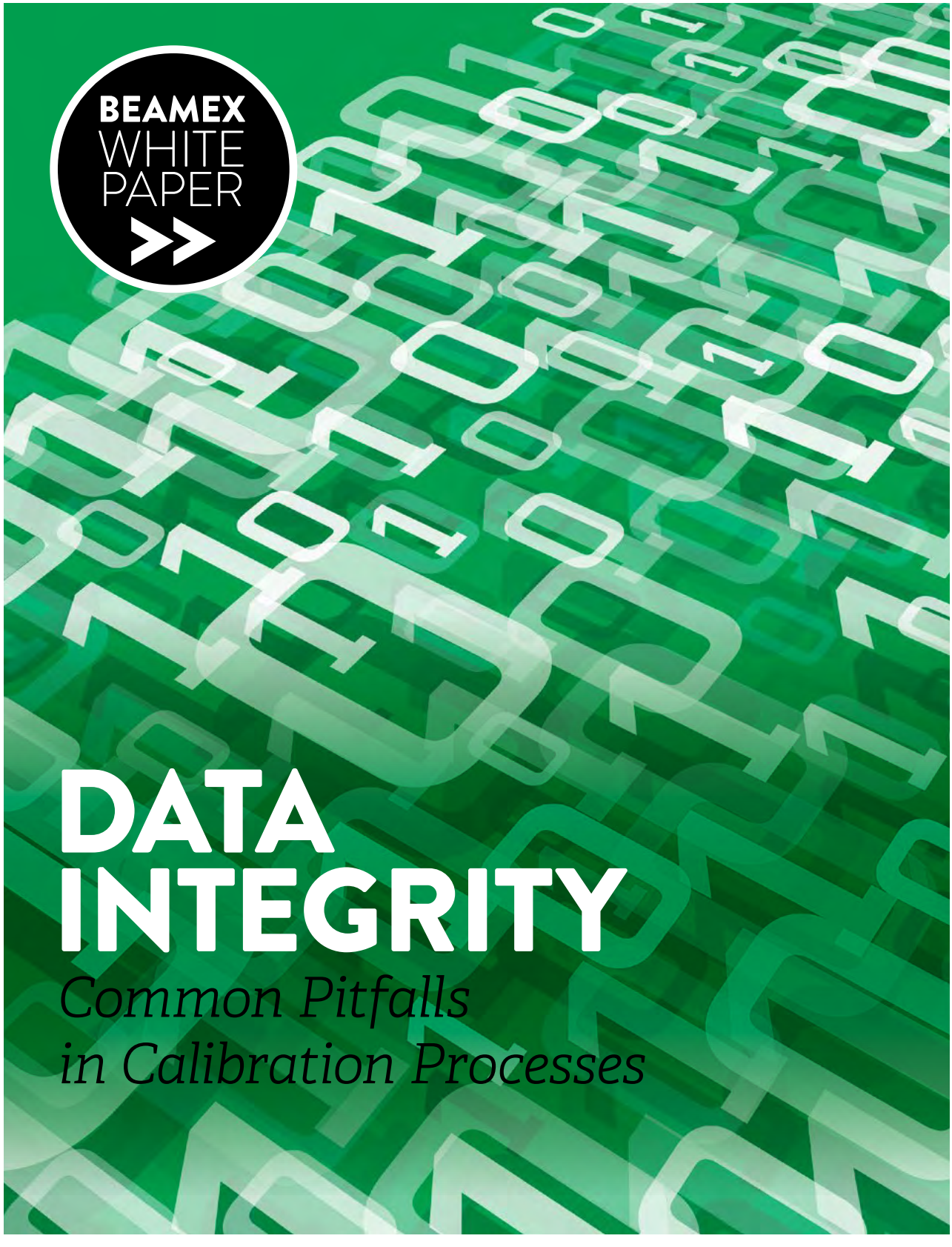
The days of personalized instruction includes:

- Open discussions of the best calibration practices and how to perform complex calibrations
- Strategies for eliminating calibration paperwork and ensuring data integrity
- Hands-on multivariable transmitter calibration workshop
- Calibration competitions with prizes

Registration includes access to all presentations, a networking event and breakfast and lunch. To reserve your spot and view more details, visit the event website:

https://resources.beamex.com/annual-calibration-exchange

UNIVERSITY OF **SEPT. 18–19th** NEW ORLEANS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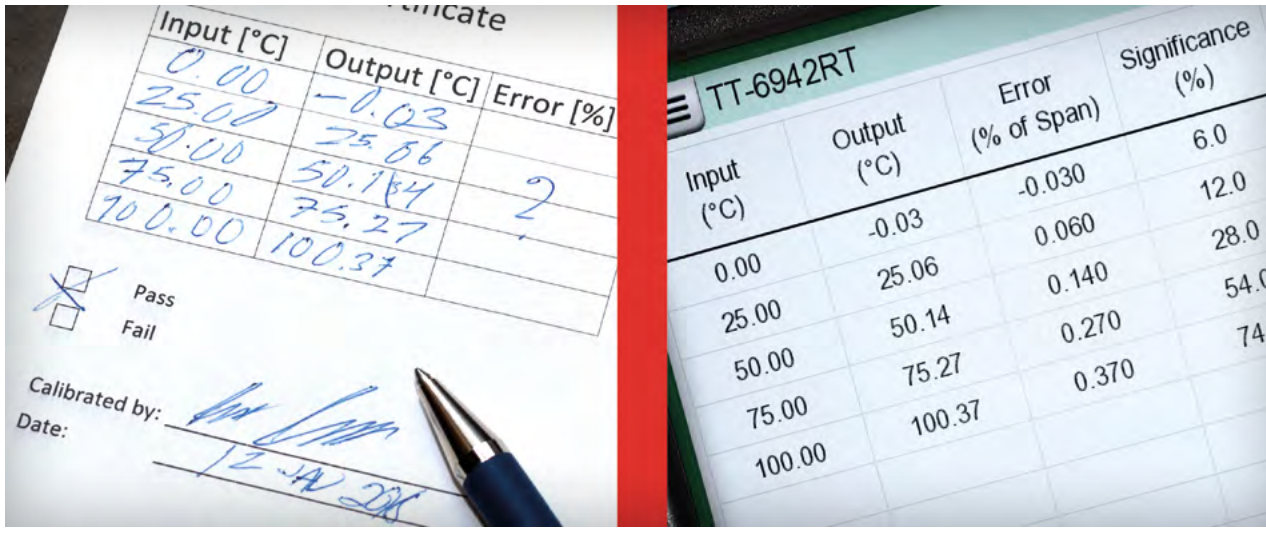


Whether the calibration process is fully paper-based, or partially utilizing documenting calibrators, or even fully paperless, there are places in calibration processes where **data integrity** most commonly is jeopardized and needs special attention.

DATA INTEGRITY IN BRIEF

In one sentence: Data integrity is the maintenance of, and the assurance of the accuracy and consistency of the data over its entire life-cycle.

Although the Data Integrity is already a pretty old concept, it has become more acute recently due to new regulation guidelines (from FDA, MHRA, and EMA) and auditors have started to pay more attention to data integrity.

ALCOA and ALCOA Plus are the key acronyms of Data Integrity. Learn more about these acronyms and other general information on data integrity in the Beamex blog post titled Data Integrity in Calibration Processes.

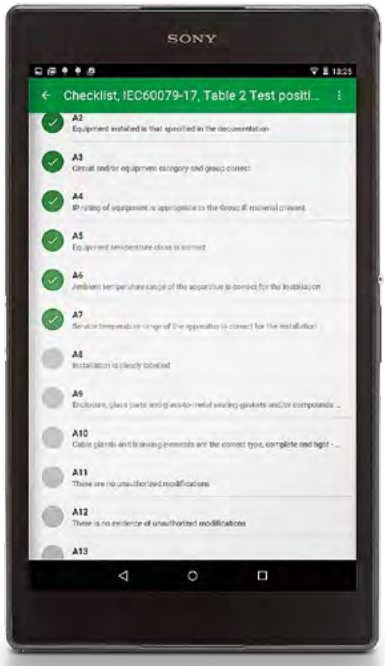
WHAT ARE THE MOST COMMON DATA INTEGRITY PITFALLS?

Let's look at a normal calibration process in a pharmaceutical process plant and list some possible and most common places for data integrity issues. It does not matter if the calibration process is fully paper-based or paperless, similar issues need to be taken care of anyhow, either by a manual process or an automated system. Also, data integrity issues are similar in other industries, not only in pharmaceutical.

Data integrity is the maintenance of, and the assurance of the accuracy and consistency of the data over its entire life-cycle.

Some important aspects to be considered include, but not limited to, the following:

- User rights and passwords for any system is one obvious consideration. Every user needs to have the proper user rights and he needs to be authenticated by the system for access.
- Some FDA warning letters indicate that there have been shared passwords, which is, of course, not acceptable.
- An audit trail in an electronic system that keeps track of any modifications and records who did what with the help of an electronic signature that is required for any changes.
- In any kind of system, it should not be possible to delete, undo, redo or tamper with a single calibration point or the full calibration cycle, without a trace. It may be tempting to delete a calibration point or the whole result, if it was not good enough and try to redo it, but the original data of any calibration event needs to be recorded as it was originally witnessed. Of course, several calibration repeats can be done, if that is specified in the SOP, but none of the points/repeats representing the original data should be deleted. In a paper based system, it may be difficult to fully control that, but also some electronic calibration systems allow the user to delete a bad calibration result and allow him to do it again until he achieves a satisfying result.



- It must not be possible to edit, modify or tamper any original calibration data after it has been recorded, no matter what kind of system it is.
- It must not be possible to backdate any actions, neither accidentally or by falsifying the date and time. It may be tempting to backdate a calibration, in case you forgot to do it in time. In a paper-based system, it is difficult to control that you write the correct date, but also some electronic systems don't have proper control of the date/time settings. Certainly, some users may have the rights to backdate a calibration date, for example in the case when a standard has been sent out for calibration and the calibration date is updated when the unit is received.

With an electronic system, it is typically very easy to search/find the older records.

- A manual paper-based system may always have issues, such as a risk for typing errors, false interpretations of poor handwriting, loss of papers, etc. Often you look at a reading of a measuring device and write that reading on paper and then later type that result from paper into an electronic system. There are many places for typing errors in that kind of system and it is also time-consuming to do multiple manual data inputs. Modern electronic documenting calibration equipment will save the measurement results into its memory and transfer the result automatically into a computerized system for archiving, without any manual steps in between.
- All calibration records need to be archived and sometimes you need to analyze the older results and compare them with the new results. In case of a paper archive, this can be a really big job. With an electronic system, it is typically very easy to search/find the older records.

OUTSOURCED CALIBRATION

Often some part of calibration work is outsourced to an external company. When calibration is outsourced you don't typically have the same full control of the calibration process, as you have with internal calibrations, so it is a more uncontrolled process. In terms of data integrity, any part of the calibration work carried out by external resources should naturally follow the same principles as the internal calibration processes. If you send out a process instrument to an external calibration laboratory and get it back with a calibration certificate, you don't have the same knowledge and control on how the calibration process was actually completed. Many of the calibration service companies don't follow the same rules, regulations and good practices as, for example, pharmaceutical companies do. Certainly, if the pharmaceutical companies are outsourcing calibration work, they normally do audit the service companies. In some cases, external service companies can access the calibration system/software of a pharmaceutical company and work in the same way as internal workers.

BEAMEX CALIBRATION SOLUTION

For years, we have worked with multiple pharmaceutical customers and together we have recently enhanced our calibration solution to fulfill the updated regulatory requirements and the requirements and wishes of the customers. Already in the past, the Beamex calibration solution fulfilled the requirements of 21 CFR Part 11 and relevant regulations.

Now with our latest enhancements, the Beamex calibration solution further lowers the risk of ALCOA violations by identifying users on off-line mobile devices with their electronic signature and secures off-line data against potential data tampering. These mobile off-line devices include our MC6 and MC6-Ex portable documenting multifunction calibrators, and our bMobile 2.0 application for tablets and mobile phones. With the latest version of the Beamex calibration solution, including the Beamex CMX calibration management software, you can safely use these mobile devices to comply with the updated regulation in the future.

Now with our latest enhancements, the Beamex calibration solution further lowers the risk of **ALCOA violations** by identifying users on off-line mobile devices with their electronic signature and secures off-line data against potential data tampering.

Beamex CENTRiCAL

A better way for workshop calibration

Why workshop calibration?

- During the commissioning phase, it is easier to calibrate all instruments in workshop before installation.
- Workshop conditions enables better accuracy for calibrations.
- Workshop offers an easy way for calibration for spare devices and rotational spares.
- Convenient environment and safer to work in workshop.
- Efficiency, ergonomics, ease of work, and many other practical reasons.

beamex
A BETTER WAY TO CALIBRATE

www.beamex.com
info@beamex.com

BEAMEX
CASE STORY

Peñoles Quimica del Rey deploy GAME-CHANGING *technology for their Calibration Process*

PEÑOLES QUIMICA DEL REY, MEXICO

Peñoles Quimica del Rey, the Latin-American based intermediary, operates within the **metallurgical-mining** and **chemical industries** and are part of the Peñoles Group, the second largest Mexican mining company and the first Mexican producer of gold, zinc, lead and silver.

In 1997, Quimica's Specialties and Epsom Salt plants started up.

Peñoles Quimica del Rey maintain their domestic leadership by supplying 56% of the national magnesium sulphate market and are the largest Sodium Sulfate plant in the Western Hemisphere. Despite strong competition, the company are ranked third in the world in terms of their installed capacity of sodium sulphate which is used for the production of detergents, glass and paper.

THE HISTORY OF PEÑOLES QUIMICA DEL REY

In March 1964, Quimica's production of Sodium Sulphate began with a capacity of 60,000 tons per year, and in 1970, Quimica started the production of Magnesium Oxide with a capacity of 30,000 tons per year.

In 1967, the project of the Dolomite mine in Esmeralda Coahuila was started, and in June 1969, operations began with an approximate capacity of 650 tons of dolomite per day to supply the Magnesium oxide plant. In 1997, Quimica's Specialties and Epsom Salt plants started up.

From 1964 to 2001, different extensions and modifications were made to the facilities of Peñoles Química del Rey to reach a production rate of 480,000 tons per year of Dolomite to supply the Magnesium Oxide plant, 620,000 tons per year of Sodium Sulphate, 100,000 tons per year of Magnesium oxide, 5,000 tons of Magnesium Specialties and 30,000 tons of Epsom salt.

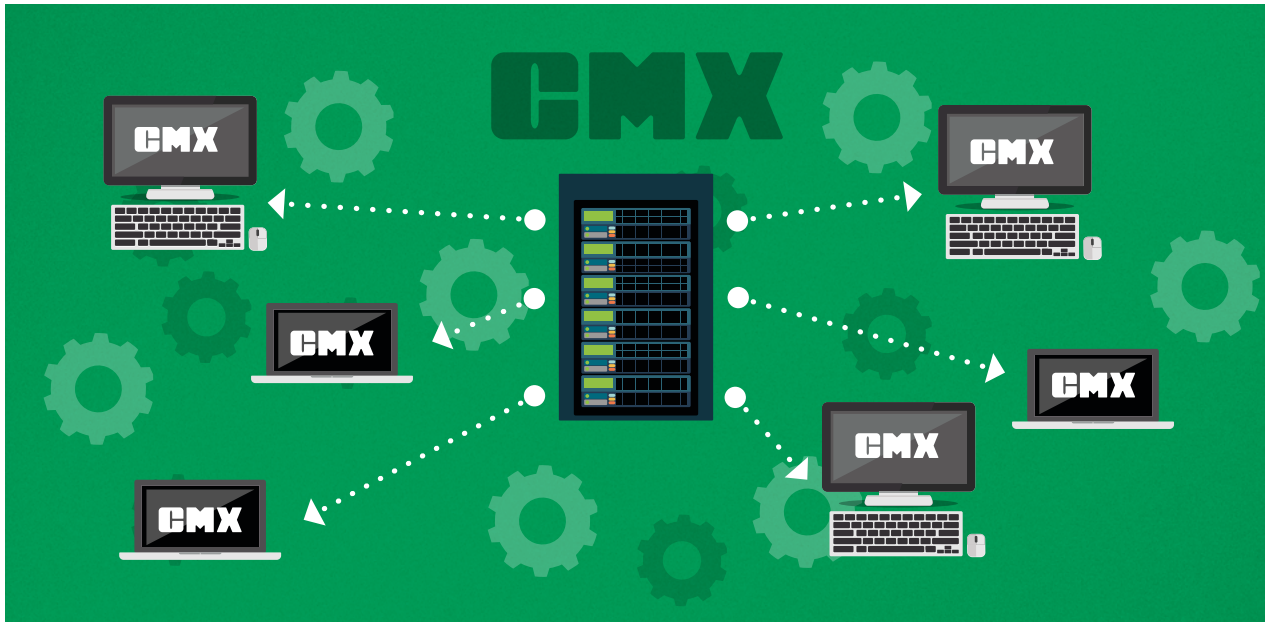
Now Peñoles Química del Rey has a modern and controllable system of skilled labor and technology to obtain quality products to supply the world market.

QUALITY-CONTROLLED PRODUCTION PROCESS

Peñoles Quimica del Rey pride their success on maintaining quality-controlled processes, "excellence of people" and "ethical leading". With a dedicated instrumentation department consisting of 26 people and a mission statement dedicated to providing high quality products, the production process at the plant is ensured to remain in optimal conditions with precise readings at all times.

> The Beamex MC6 is a truly functional piece of equipment that **helps us to perform calibrations** with just a single piece of equipment required. Being a field communicator with great precision makes it a great tool for our technicians.

Accuracy and precision during the production stages aligns the company view that "a better decision can be made at any time" and "if you cannot measure it, you cannot improve it!" Roberto Lopez, the Supervisor of Instrumentation Department at Peñoles Quimica del Rey, goes on to say,



CMX is now an integral part of Peñoles Quimica del Rey calibration process.

"Calibration plays a fundamental role in ensuring that our business objectives are fulfilled, measurements are accurate and controlled processes are in place. The precision of the measurements in the different stages of production determines the quality; if we have inaccurate measurements we will have low quality products, but if the measurements remain accurate and correct, we will continue to supply high quality products."

ENHANCING PROCESSES WITH DOCUMENTING CAPABILITIES

One of the core principals in the decision-making process for Peñoles Quimica del Rey was inevitably to find an accurate calibrator, but one which also featured documenting functionality and a supporting software solution to aid the process. The Beamex MC6 calibrator was rendered an appropriate choice of equipment for the company along with CMX, the Calibration Management Software, to help compliment and streamline the process. Lopez commented on the deployment: "Due to the great versatility of the CMX Calibration Software, it helps us in the planning, management, analysis and documentation stages, ensuring that we work in a safe and efficient way. The Beamex MC6 is a truly functional piece of equipment that helps us to perform calibrations with just a single piece of equipment required. Being a field communicator with great precision makes it a great tool for our technicians."

Furthermore, Peñoles Quimica del Rey cover a range of physical and chemical variables such as flow, pressure, temperature, level, electrical pulses, conductivity, Ph, O2 and CO2. In the search for new calibration equipment, it was fundamental that the calibrator provided the compatibility to communicate with smart transmitters and that there are continuous updates of the Device Descriptor libraries.

DIGITALISATION AND SOFTWARE INTEGRATION

Prior to rolling out with the Beamex product solution, Peñoles Quimica del Rey trialled the equipment and discovered that the time taken to complete the calibration was reduced by two hours. Automatic calibrations using the Beamex POCs and Temperature Blocks, in addition to the automatically generated documentation produced through CMX and the MC6, has made huge time savings for the company and has significantly enhanced efficiency and productivity within the department.

CMX is now an integral part of Peñoles Quimica del Rey calibration process. Calibrations are performed in accordance to their annual maintenance plan CMMS, Maximo, and Performance Management software, Meridium. The Work Orders raised in Maximo are integrated into CMX

> Calibration plays **a fundamental role** in ensuring that our business objectives are fulfilled, measurements are accurate and controlled processes are in place."

which provides necessary information on the instrument and process required for calibration. Guidance is provided throughout the procedure indicated by the MC6 and once complete, measurements are uploaded into their CMX software for reference.

The implementation of the Calibration Management software has digitalised the process for Peñoles Quimica del Rey, aligning their business policies by enabling strict maintenance of documentation. CMX has provided a secure repository for measurement data and provides a window into calibration history complying with the ISO 9001 and 14001 regulations.

Furthermore, the CMX software has helped Peñoles Quimica del Rey to plan and organise their maintenance procedures by providing calibration 'trends' and a history of results to estimate the next recommended calibration according to the instruments' reading history.

The accurate measurements provided with the MC6 in parallel with the integrated software solution continues to help Peñoles Quimica del Rey produce a high-quality product, it reduces the waste of raw materials, cuts costs and reduces their carbon footprint.

OVERALL EXPERIENCE

Peñoles Quimica del Rey had a number of business requirements and expectations when seeking new calibration equipment. After using Beamex for a number of months, they were asked if they were happy with their decision; Lopez commented, "We are truly gratified with our decision. The impact the equipment has made has surpassed our initial expectations and has become a game-changer in our calibration process. Streamlining the process has made huge time savings, enhanced efficiency, maintenance, improved productivity, but fundamentally, it has helped us to achieve our business principals and continue with the delivery of our high-quality products."

KEY POINTS & EQUIPMENT

SUMMARY

KEY POINTS:

- Quimica's calibration process was taking too long, so they sought new equipment and technology.
- Priding themselves on the quality of their products, Quimica employ strict routines and procedures for instrument maintenance.
- Accurate Measurements during the production process is pivotal to the quality of the products Quimica produce.
- Since deploying Beamex's software solution and rolling out with the Beameax MC6 calibrators, Quimica's calibration process has been halved.
- The Beamex CMX software solution has helped to streamline processes for Quimica.
- The integration of their CMMS, Maximo, with the CMX software has become an integral part of their maintenance plan and has streamlined their calibration process.
- Quimica are delighted with their decision and the implementation of their new equipment has been a game-changer.

QUIMICA'S BEAMEX CALIBRATION EQUIPMENT AND QUANTITY:

- x5 MC6's Field Calibrator with Hart and FF protocol.
- x2 MC5´s Field Calibrator with Hart and FF protocol.
- x2 External pressure modules (EXT600 and EXT10mD).
- x2 POC6's.
- x2 POC8's.
- x1 PGPH, 1 PGV, 1 PGXH and 1 PGM Pumps.
- x1 FB660 Series field temperature block.
- Beamex CMX Professional

DO MORE WITH LESS

and generate ROI with an Integrated Calibration Solution

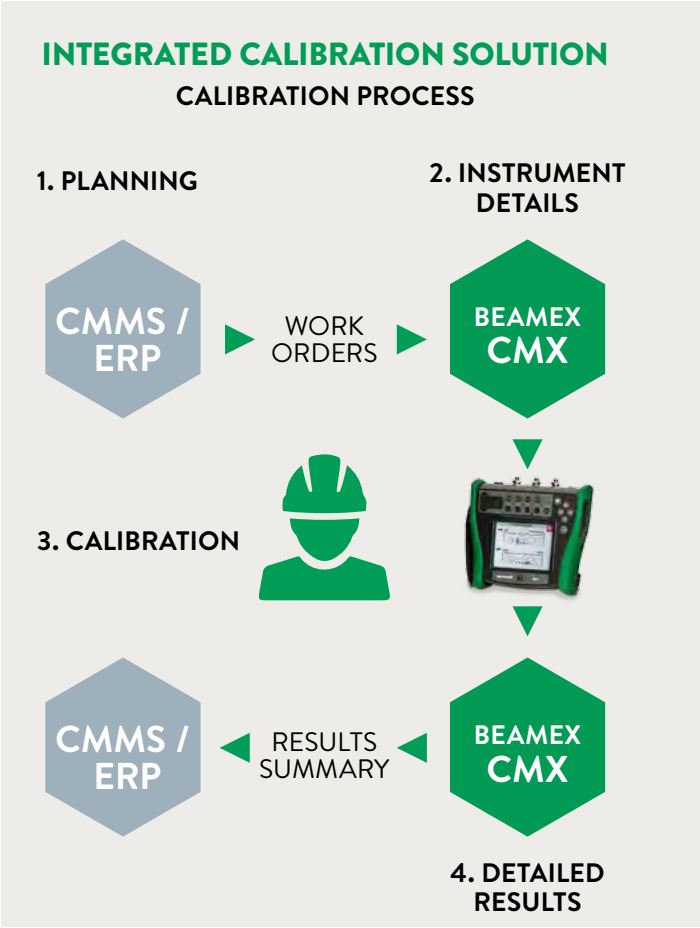
Process instrument calibration is just one of the many maintenance related activities in a process plant. The last thing you want to do is to have your limited resources wasting time performing unnecessary calibrations or using time-consuming, ineffective calibration procedures.


BEAMEX
WHITE
PAPER

DO MORE WITH LESS

and generate ROI with an Integrated Calibration Solution

You need to make sure that **all critical calibrations are completed**, ensuring the site stays running efficiently with minimal downtime, product quality is maintained, while the plant remains regulatory and safety compliant, and audit-ready.



Most often you can't just go and hire an army of external calibration specialists, so you need to get more done with your existing resources.

In this article, let's examine at what an "Integrated Calibration Solution" is and how it can help you with your challenges – make your calibration process more effective, save time and money and improve the quality and integrity of the results. We will also discuss how it can quickly generate a great return your investment.

If any of that sounds interesting to you, please continue reading ...

IMPROVE THE WHOLE CALIBRATION PROCESS WITH AN INTEGRATED CALIBRATION SOLUTION

It is not enough to just buy some new calibration equipment or calibration software - that does not make your calibration process leaner and more effective. Instead, you should analyze at all the steps of your calibration process, and with the help of a suitable solution and expertise, find ways to improve the whole calibration process.

Let's quickly look at a typical calibration process from the beginning to the end and explore how an integrated system could help:

1. Typically, work is planned, and work orders are created in the maintenance management system. With an integrated solution, these work orders move automatically and digitally from the maintenance management system to the calibration software. There is no need to print work orders and distribute them manually.

2. The necessary calibration details are handled by the dedicated calibration software and it sends the work orders to the mobile calibration equipment. Again, this happens digitally.

3. While the technicians are out in the field performing the calibration activities, the results are automatically stored in the mobile devices, and users signs off the results using an electronic signature. From the mobile device the results are automatically transferred back to the calibration software to save and analyze.

4. Once the work orders are completed, the calibration software automatically sends an acknowledgement to the maintenance management software and work orders are closed.

So, the whole process is paperless and there is no need for manual entry of data at any point. This makes the process far more effective and saves time. This also helps minimize mistakes typically related with manual data entry, so it improves the quality and integrity of the calibration data. Furthermore, calibration results are safely stored and easily accessible in the calibration software for review for example in case of audits and for analysis purposes.

As mentioned, improving the calibration process is not just about buying some new equipment or software, but the project should also include improvement of the whole calibration process together with the new tools supporting it. Implementing a new process is a project with a formal implementation plan, ensuring that the new system/process is adopted by the users.

THE KEY BENEFITS OF AN INTEGRATED CALIBRATION SOLUTION

Here are listed some of the key benefits of an integrated calibration solution:

Improve operation efficiency – do more with less

Automate calibrations and calibration documentation. Eliminate all manual entry steps in the calibration process. Use multifunctional tools to carry less equipment in the field and lower equipment life-cycle costs.

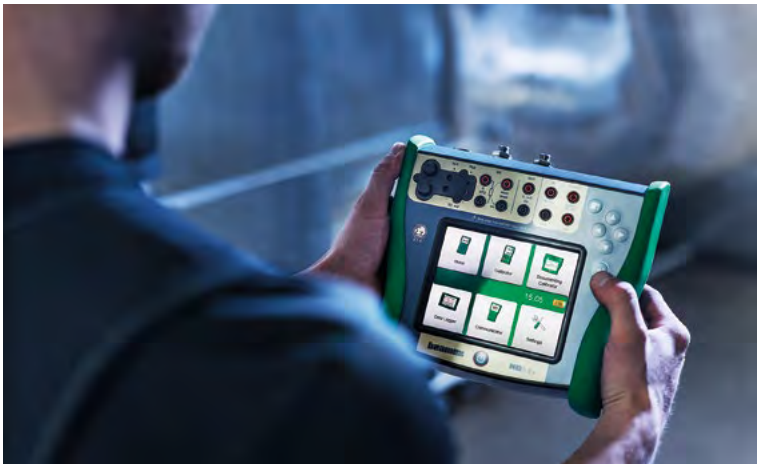
Save time and reduce costs – get a great ROI

With automated processes, get more done in shorter time. Don't waste time on unnecessary calibrations. Let the data from the system guide you to determine the most important calibrations at appropriate intervals.

Improve quality

With electronic documentation, avoid all errors in manual entry, transcriptions and Pass / Fail calculations.

The necessary calibration details are handled by the dedicated calibration software and it sends the work orders to the mobile calibration equipment.



Use multifunctional tools to carry less equipment in the field and lower equipment life-cycle costs.

Guides non-experienced users

Let the system guide even your non-experienced users to perform like professionals.

Avoid system failures and out-of-tolerance risks

Use a calibration system that automatically ensures you meet required tolerance limits, to avoid system downtime and expensive out-of-tolerance situations.

Be compliant

Use a system that helps you meet regulations and internal standards of excellence.

Ensure safety

Ensure safety of the plant workers, and customers, using a calibration system that helps you navigate through safety critical calibrations.

Safeguard the integrity of calibration data

Use a calibration system that ensures the integrity of the calibration data with automatic electronic data storage and transfer and relevant user authorization.

Make audits and access data easy

Use a system that makes it easy to locate any record an auditor asks for.

Use a calibration system that automatically ensures **you meet required tolerance limits**, to avoid system downtime and expensive out-of-tolerance situations.

CUSTOMER TESTIMONIALS

Here are just a few testimonials on what the users have said about the **Beamex Integrated Calibration Solution**

"With the Beamex integrated calibration solution, the plant has experienced a dramatic time savings and implemented a more reliable calibration strategy while realizing a 100% return on investment in the first year. Using the Beamex tools for pressure calibrations has decreased the time it takes to conduct the calibration procedure itself in the field by over 80%."

DC Water, Washington, D.C., USA

"Time is of the essence during an outage and the Beamex Integrated Calibration Solution allows technicians to maximize the amount of work accomplished in the shortest amount of time, while effectively performing vital tasks and managing workflows."

Senior Control Engineer, Alabama Power, USA

"After the incorporation of Beamex's integrated calibration solutions, calibrations that would take all day are now performed in a couple hours."

E&I Technician, Monsanto, USA

"With this software integration project, we were able to realize a significant return on investment during the first unit overhaul. It's unusual, since ROI on software projects is usually nonexistent at first."

Business Analyst, Salt River Project, USA

"After implementing the Beamex CMX calibration management system, GSK will be able to eliminate 21,000 sheets of printed paper on a yearly basis, as the entire flow of data occurs electronically, from measurement to signing and archiving."

GlaxoSmithKline Ltd, Ireland

RELATED ARTICLES

DO MORE WITH LESS

If you like this article, you could also like these articles in Beamex blog:

- Data Integrity in Calibration Processes
- How to implement calibration software
- The key aspects of building a calibration system business case
- Top 5 reasons why companies update their calibration systems
- How a modern calibration process improves power plant performance
- How often should instruments be calibrated?

BEAMEX
CASE STORY

Beamex helps MCI Chile to offer

COMPLETE & HIGH-QUALITY

service to their customers

MANTENCIÓN Y CONTROL INDUSTRIAL SPA, CHILE

MCI is a specialist company in maintenance of process control, located in the district of Los Angeles in Chile, dedicated to the provision of **maintenance services** and **industrial control** of client companies.

They ensure that the quality of industrial maintenance and control services offered meets the needs and expectations of customers.

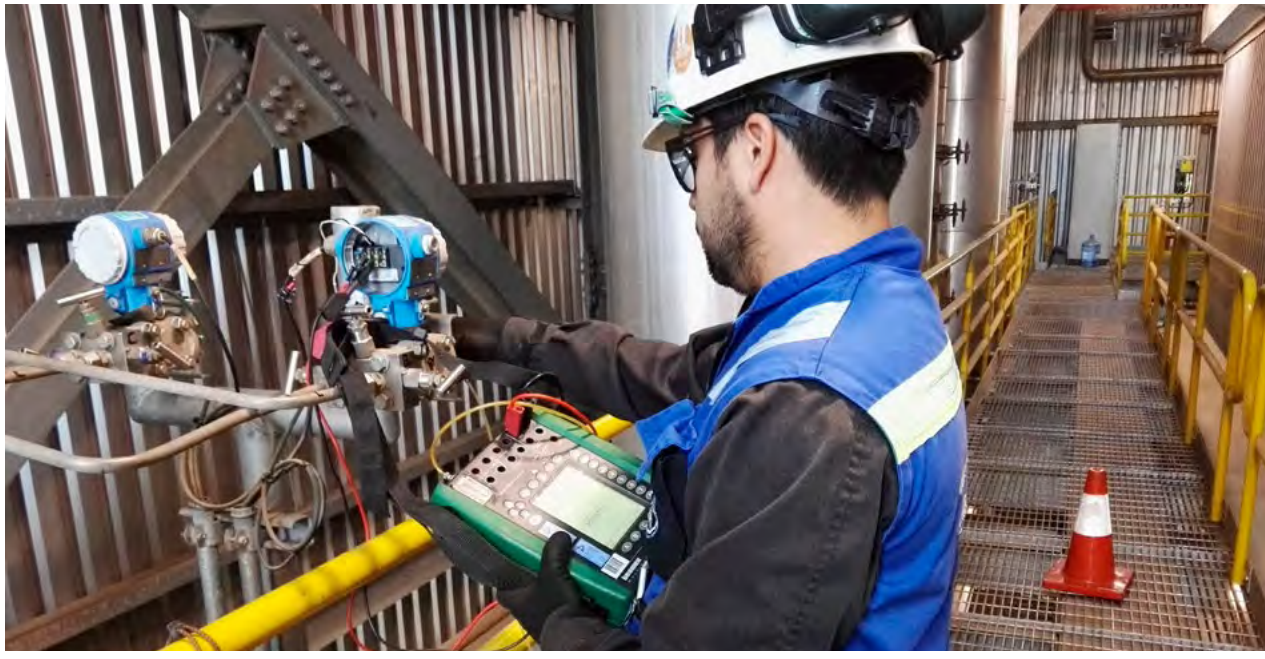
"To have a highly qualified team, with specialized equipment and tools to deal with the maintenance and calibration services to our customers in the principal companies in Pulp & Paper, Power & Energy and Metals & Mining. We focus on providing a high-level service to ensure the total satisfaction of our customers." says Pablo Coronado, General Manager at the MCI.

> "Our customers are emblematic companies in each of their industrial segments, and part of their production is intended for the world market, so these products are required to meet high quality standards where **metrology has an important role**."

CALIBRATION AT THE MCI'S TECHNICAL LOGISTIC DEPARTMENT AND TECHNICIAN UNIT

MCI is a Maintenance and Calibration service company, attending the principal companies into the Pulp & Paper, Power & Energy and recently, Metals & Mining sectors, in all the Chilean geography, from North to South of the country. The company develops its tasks in the Technical Logistic Department into the Technician Unit.

MCI's mission is to meet the needs of customers while maintaining high standards of service, always seeking innovation, always taking care of the balance with the environment, valuing the



MCI calibrates multi-brand transmitters for pressure, flow, level and temperature as well as switch, indicators and valves, among others.

development of human resources as a primary factor of success and strengthening the development of its employees.

THE IMPORTANCE OF HIGH-QUALITY CALIBRATION

The MCI Instrumentation Department includes ten specialized technicians on a permanent contract and around fourteen technicians with a temporary contract. Their maintenance service uses the latest technology in calibration equipment with the best metrological level and they operate as a metrological verification supplier to the plant's process instrumentation in all industrial segments attended across the country.

When Pablo is asked about how many calibrations is done on a yearly basis, he answers "Near to 6,000 calibrations per year, this year we want to increase the number of calibrations, so we invested in two new MC6 calibrators."

Part of the MCI strategy is to always seek the latest innovations, "a step forward" and offer complete and high-quality service to their customers. MCI believes that quality is one of the most important things to reach success. Their business strategy highlights the significance of their operational functions including calibration.

"It is significant to our company to certify the calibrations in their real environment. Calibration of the plant's process instrumentation is an important maintenance activity."

We commit to verify the correct operation of our customers' control loops, to ensure the best performance of the whole control system, improving the production process to guarantee safe and reliable process measures", says Pablo Coronado about their main objectives.

"It is significant to our company to **certify the calibrations** in their real environment. Calibration of the plant's process instrumentation is an important maintenance activity."

VERSATILE, AUTONOMY AND MULTIFUNCTIONAL CAPABILITY FIELD CALIBRATION

The calibration needs and requirements of MCI is not only defined by their high-quality standards, but also their customers' needs and expectations; it is their priority to fulfil customer needs. Pablo explains "Our customers are emblematic companies in each of their industrial segments, and part of their production is intended for the world market, so these products are required to meet high quality standards where metrology has an important role. Therefore, the Beamex calibrators have become fundamental in our calibration process due to their accuracy, versatility, reliability and efficiency."

MCI calibrates multi-brand transmitters for pressure, flow, level and temperature as well as switch, indicators and valves, among others. Calibration is organized mainly so that they

follow the planification of customers, which in most of the cases is within the maintenance framework agreement. Based on technical scope of the bid, they define the specific necessity of their customers.

Calibrators that are used by MCI need to adhere to specific requirements. These requirements are speed, versatility, accuracy, portability, autonomy and ruggedness to the heavy field duty service to fulfill their commitments.

A BETTER WAY WITH BEAMEX – GOOD AND PROFESSIONAL APPEARANCE FOR MCI'S CUSTOMERS

When asking Pablo why MCI chose Beamex, his answer is straight and clearly thought out, "For its high performance, accuracy, portability, ruggedness to the field, as well as its multi range capacity due to multifunctional features. The main benefits of using Beamex products are versatility, autonomy and multifunctional capability."

The exact benefits that MCI have been achieving using Beamex calibrators are closely related to their field of business. The implementation of the Beamex calibrators have enabled MCI to fulfil their clients' expectations and perform a number of calibrations in a timely and efficient manner.

From MCI's point of view, another benefit is the provision of multifunctional equipment and the improvements made to their calibration process. "It is the best way to calibrate." Pablo says. He also continues to summarize their overall experience with Beamex calibrators "The best experience, Beamex help us to offer a good and professional appearance in front of our customers."

CASE STORY IN BRIEF

MCI CHILE

MANTENCIÓN Y CONTROL INDUSTRIAL SPA
LOS ANGELES, CHILE

BEAMEX SOLUTION

- Two Beamex MC6 calibrators and communicators, external modules for 250 and 160 bar
- Four Beamex MC5 calibrators and communicators
- Several pumps

MAIN BENEFITS

- Accuracy, versatility, autonomy and multifunctional capability
- Ability to certify calibrations in real field environment
- Able to help customer to improve their production process to guarantee safe

LATEST NEWS

BEAMEX IPRT-300 INDUSTRIAL TEMPERATURE PROBE

BEAMEX LAUNCHES A ROBUST INDUSTRIAL, GENERAL PURPOSE Pt100 TEMPERATURE PROBE

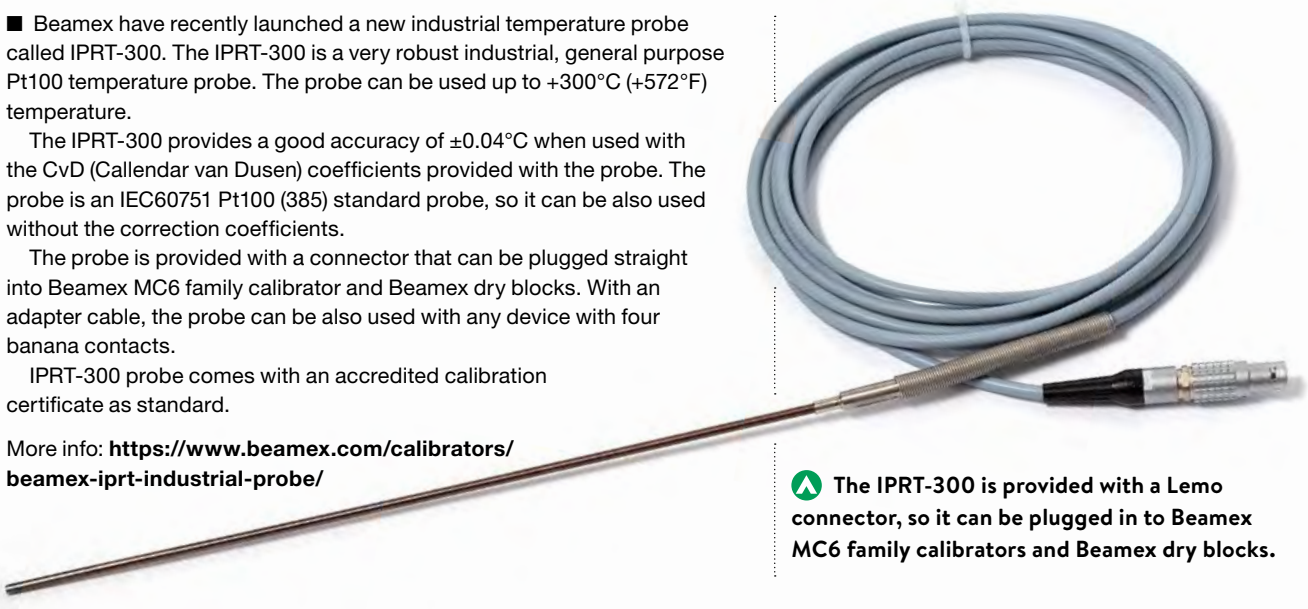
■ Beamex have recently launched a new industrial temperature probe called IPRT-300. The IPRT-300 is a very robust industrial, general purpose Pt100 temperature probe. The probe can be used up to +300°C (+572°F) temperature.

The IPRT-300 provides a good accuracy of ±0.04°C when used with the CvD (Callendar van Dusen) coefficients provided with the probe. The probe is an IEC60751 Pt100 (385) standard probe, so it can be also used without the correction coefficients.

The probe is provided with a connector that can be plugged straight into Beamex MC6 family calibrator and Beamex dry blocks. With an adapter cable, the probe can be also used with any device with four banana contacts.

IPRT-300 probe comes with an accredited calibration certificate as standard.

More info: **https://www.beamex.com/calibrators/beamex-iprt-industrial-probe/**



The IPRT-300 is provided with a Lemo connector, so it can be plugged in to Beamex MC6 family calibrators and Beamex dry blocks.

New partner for PORTUGAL

■ Beamex is happy to announce that we have appointed a new sales distributor for Portugal.

Plaxus was established in 2011 and it is a technology spin-off that grew essentially from an earlier installation company. Their main activity is to automate processes and increase safety and productivity.

The contract was signed in Pietarsaari on 7th of June when David Pires and his team visited Beamex.

We welcome Plexus to the Beamex family!

FOR MORE NEWS & INFORMATION VISIT
www.beamex.com

BEAMEX INTRODUCES CENTRiCAL
A BETTER WAY TO PERFORM CALIBRATIONS IN A WORKSHOP

BEAMEX CENTRICAL – A CENTRAL PLACE FOR ALL YOUR CALIBRATIONS

■ Even though process instruments are often calibrated in the field with portable calibration equipment, there are situations when it is more effective and convenient to perform calibrations in a workshop. “The new Beamex CENTRiCAL calibration bench reflects the result of decades of experience providing workshop calibration solutions to the industrial process industry,” describes Beamex Sales Director Juha Salimäki. “A standard yet configurable solution, the Beamex CENTRiCAL workbench represents the latest technology which combines ease of use, versatility, ergonomics and provides a better way to perform calibrations in a workshop,” he continues.

The new Beamex CENTRiCAL workbench is easy to configure to suit individual requirements while the standard electrostatic discharge (ESD) protection offers electrical safety measures as a standard. Each CENTRiCAL workbench is supplied with accredited calibration certificates to ensure quality and traceability. The Beamex CENTRiCAL workbench is available with superb ergonomics via motorized height control, or as a fixed height bench. A straight bench as well as corner modules are available to meet user needs. A trolley-based design is also available for mobile solutions.

WHY CALIBRATE IN A WORKSHOP?

In today’s process industry, the field instruments are often calibrated out in the field where portable calibration equipment is used. Field calibration is often the best solution, but there are still various reasons why it is still sometimes more convenient and effective to do calibration in a workshop, for example: during a commissioning phase, it is easier and faster to calibrate the process instruments in a workshop before installing them into the process. It is also more efficient to calibrate spare devices and rotational spares in a workshop. Better accuracy can also be achieved when the calibration is performed in controlled conditions using dedicated, high-accuracy workshop calibration equipment. In the event of harsh or even dangerous field conditions, calibration in a well-designed workshop with equipment ready for use is ergonomic and practical. Workshop calibration can also compliment field calibration.

AUTOMATED AND PAPERLESS CALIBRATION

“Combining the Beamex CENTRiCAL together with software, hardware and calibration expertise form an automated and paperless digital calibration solution. This solution can cut the time spent on calibration by up to 50%; it saves money while at the same time improves the reliability of calibration records,” Mr. Salimäki concludes.

LATEST NEWS

BEAMEX STRENGTHENS ITS OPERATIONS IN CHINA

■ **Jose Roberto Guaranha** joined Beamex on June 1st 2019 as Sales Director responsible for Latin America and Asian regions. Despite achieving an Engineering degree in electronics, his focus has always been International Business Development. After obtaining a Master's degree in France, the Metrology world became the landscape in his career. Initially in charge of a calibration laboratory, he started to guide his steps towards a more "face- to- face" role with customers, spending more than ten years working for a pressure balance French manufacturer as a Sales Manager, developing calibration solutions in different continents.

Attraction to globalization brought Roberto to eastern frontiers. After a year in Singapore, he settled in China for 5 years. "I realized how doing business can differ around the world", Roberto explains, "some markets are focused on processes, others on objectives and others on benefits."

With continuous innovation, businesses can hugely adapt and benefit with the latest technological developments. Here is where Beamex can bring great contributions to the Chinese market. The combination of high-end multifunction process calibrators and highly integrated mobile software is becoming a need in the industry, especially in China. There is a lot of room for development and Beamex can help by making calibration processes easier and more reliable.

Despite the latest economic slowdown, China is a multimillion market for calibration, and Beamex is building up efforts there. "We have marked our presence in the pharma, food & beverage and power businesses, but we understand that having a greener industry is a top priority for the Chinese government, so why not improve the calibration efficiency in clean energy generation and in waste power plants?" asks Roberto.

> "I realized how doing business can **differ around the world**, some markets are focused on processes, others on objectives and others on benefits."

Beamex has a representative office in Shanghai, which will soon become a Chinese based operation. Counting with Chinese speaking personnel also within its headquarters in Finland, Beamex China is hiring new talents who will participate in this exciting journey.

SHORT BIO

Jose Roberto Guaranha was born in Brazil and has obtained a French citizenship. He has lived in Brazil, Spain, France, Singapore and China. He speaks Portuguese, Spanish, English, French and some basic Chinese. He studied engineering at Instituto Tecnologico de Aeronautica (ITA) in Brazil and achieved a Master's degree in Industrial Quality from Institut Superieur de Mecanique (Supmeca) in France.
Roberto and his wife are currently living in Finland until the next expatriation, "I like to be on the move" he explains!

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GO PAPERLESS WITH MC2 CALIBRATOR

BEAMEX UPGRADES ITS MC2 INTO A DOCUMENTING CALIBRATOR

BEAMEX IS PROUD to announce that all new Beamex MC2 calibrators will automatically be documenting calibrators from now on.

"It is our passion and commitment to create 'a better way to calibrate' for the Global Process Industry; we are happy to announce that all new Beamex MC2 calibrators will now feature documenting functionality" says Jan-Henrick Svensson, CEO of the Beamex Group.

Existing MC2 calibrators with serial number higher than 13,000 can be upgraded free of charge to become a documenting calibrator. The upgrade is carried out with a simple firmware update that can be downloaded from Beamex web site.

WHAT IS A DOCUMENTING CALIBRATOR AND WHY WOULD YOU USE ONE?

Beamex's documenting calibrators communicate with the Beamex calibration software which stores calibration results into its own memory, providing a paperless and digitalized calibration process. This eliminates error-prone, manual data entry which saves time, money and enhances the quality of calibration results.

TRY OUT YOUR MC2 WITH BEAMEX LOGICAL

You can use the upgraded Beamex MC2 to communicate with Beamex LOGiCAL, an advanced, free of charge, cloud-based calibration certificate software, providing an easy and cost-effective way to create calibration certificates. Learn more on LOGiCAL and start using it today at:
https://www.beamex.com/software/logical-calibration-software/

DOCUMENTING MC2 CALIBRATOR

> It is our passion and commitment to create **'a better way to calibrate'** for the global process industry.

LATEST NEWS

BEAMEX EXPANDS WITH NEW SUBSIDIARY IN CANADA

> Opening a new subsidiary **in Canada** means that we can put **our customers at the forefront** and provide first-hand support whilst targeting a new market with great potential."

BEAMEX IS DELIGHTED TO ANNOUNCE THE EXPANSION OF ITS SERVICES INTO THE CANADIAN MARKET

■ Beamex Calibration Solutions Ltd., the new subsidiary, will help to build greater relationships with existing Beamex customers whilst establishing a new presence and strengthening Beamex brand awareness.

At the end of 2018, the decision to put greater emphasis on the Canadian market became a key element in the growth strategy to help support Beamex's growing presence in North America. "There is an established process and engineering industry in Canada covering the core industries that we operate in such as Pharma, Oil & Gas, Power & Energy and Mining. We see a lot of synergies and interesting business opportunities here", Tom Sonntag President of Beamex Canada describes.

Tom Sonntag President of Beamex Canada.

In the past, Canada was covered by the Beamex office in US and the distributor SRP Control Systems Ltd.. Although the selected distributor complimented Beamex development and services, the Beamex growth-strategy and inclining market share in Canada rendered it necessary to implement a forward-thinking and strategic development plan to align the growing requirements. "The planning and strategy stages of the expansion was seamlessly executed with the help of 'Business Finland' and 'Doing Business in Canada', both intermediaries dedicated to support businesses internationalise their brand and services and invest in Canada", Mr Tom Sonntag continues.

"Opening a new subsidiary in Canada means that we can put our customers at the forefront and provide first-hand support whilst targeting a new market with great potential. Areas of Canada will now be overseen by a dedicated Sales Team to ensure that necessary support requirements are being fulfilled and there is a seamless transition during the deployment of new Beamex products and services", Jan-Henrik Svensson, CEO of the Beamex Group comments.

Office location was inevitably a fundamental factor in the mix with the decision to set-base in Toronto, Ontario. Central to Canada. Toronto also has an accessible airport and a slight cross-over in time zones with that of the Beamex Headquarters, situated in Finland. "When visiting Canada, in order to establish the Beamex subsidiary, I discovered a lot of similarities between the Finnish and Canadian culture, mentality, core values and the climate. I often met Canadians with Finnish origin says Mr Sonntag with a smile on his face, himself being a Finn. The new subsidiary is set to be fully operational within the next two months once the recruitment process has been fulfilled.

CALIBRATION SEMINAR FOR PHARMACEUTICAL COMPANIES

COPENHAGEN, DENMARK

In March 2019, Beamex arranged a Calibration Seminar for a group of participants from different Pharmaceutical companies based in Denmark.

■ Over the years Beamex has arranged and held many different calibration seminars around the world. Every seminar is customized to fit the group of participants attending, but the general aim of seminars like these, is to teach the participants about the importance of measurements and calibration in their industry.

These seminars are meant for companies and people who want to increase their calibration knowledge, efficiency and quality. We generally recommend the seminars to anyone who is currently considering enhancing their calibration process, using or actively considering the use of Beamex calibrators, software and services. The seminars offer a great opportunity to hear industry best practices, ask questions and directly discuss with our experts present. It also provides the chance share experiences, calibration best practices and real-life cases within the group.

In March 2019, Beamex arranged a Calibration Seminar for a group of participants from different Pharmaceutical companies based in Denmark. The one-day seminar was planned carefully to enable an efficient day of presentations and discussion and to ensure the participants got the most of their day away from work.

The day started off with some presentations; the first presentation was touching on paperless calibration where typical factory environments, challenges and calibration processes were presented. Emphasis was also put on understanding the value of measurements and the information collected, how it is possible to optimize processes and eventually move towards paperless calibration.

The seminar participants in Copenhagen also got to take part of a presentation on regulatory requirements and data integrity. As a pharmaceutical manufacturer, a comprehensive calibration solution that complies with stringent industry regulations is more or less inevitable. This hot topic was also presented and discussed further during the one-day event.

Ken Bjorke Vejbaek from Bavarian Nordic presented why and how a modern state of the art calibration solution was deployed at the Bavarin Nordic facility. He also explained more in detail how the deployment was carried out directly from the calibration department. (More details on Bavarin Nordics deployment process and their experience on working with Beamex can be seen in a video on our YouTube channel @BeamexCalibration.)

Seminars like these are also a good way of experiencing Beamex products and their capabilities hands on. Following the different presentations and discussions at the event, there was a calibration workshop. The workshop offered a great opportunity for the participants to try hands-on and see how the calibration of instruments, for example, can document and provide a paperless and automated experience adhering to the current regulations and guidelines, which had been discussed earlier in the day. The workshop also offered the chance to ask more practical questions to the Beamex experts at hand.

The overall feeling from the day was very positive and we believe that all the participants left the seminar with some new information and inspiration.

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Beamex's social media channels and the web page provide a lot of insightful and fun information. Make sure not to miss out on funny "Heikki the engineer" videos, product releases, Beamex in its' business environment and whatever we are up to! Follow us on all social media channels, subscribe to our monthly newsletter "Calibration Tips" and be sure not miss the pre-information about new product releases by subscribing to our "Product News" newsletter!

100,000+

times, has our most popular blog post been read

22,000+

Facebook followers

40+

years of calibration experience

> ***As an avid reader of your white papers I enjoy and welcome your experience within the industry.***

> ***An excellent, educative, easy-to-understand video covering key topics of calibration and trimming of pressure transmitters.***

> ***Thank you for describing and explaining data integrity in such a clear, easy to understand, way.***

> ***Thanks, all these topics discussed under calibration are full of knowledge specially for instrument/automation engineers.***

> ***Great information. This is very useful information. Thanks for sharing this information. Keep posting and keep sharing like this.***

> ***Thank you Heikki. This is one of the best guides on weighing scales calibration I've read. It is very detailed and enlightening. Thank you very much.***

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