



Faster, more precise and less expensive:

The new FIT7A digital load cell

- The heavyweight in weighing technology: HBM – the original
- Open up new market opportunities – with the FIT7A digital load cell
- Weighing technology applications: twice as many weighing processes in the multihead weigher



Valued by customers, often copied by the competition: With over 60 years of experience, HBM is a true original in the weighing technology market, radiating the power of innovation. > page 4



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Twice as many weighing processes in the multihead weigher – Using the PW22 single point load cell has proven profitable for Italian weigher manufacturer Hayssen Flexible Systems. > page 16

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*Andreas Hüllhorst
President HBM Group*

Dear Reader,

"Time is money," as they say. It would be just as appropriate in many weighing technology applications to say "Accuracy is money." Precise filling and weighing saves hard cash, especially for expensive products like food. Speed and precision codetermine cost-effectiveness and yield, especially in competitive markets.

Efficiency and return on investment

Efficient production requires the optimum combination of speed and precision. This is the only way to gain a clear competitive advantage. Every component is important, and especially the weighing technology that is used. That is the main factor in determining these fundamental parameters: How many weighing processes can be completed per minute, how precise and reliable are the results and how failsafe is the operating process? If all of that is in order and the price is right, the return on investment will follow.

Pole position in weighing technology – HBM

A reliable partner helps you overcome obstacles and master challenges. HBM provides innovative and reliable load cells for a variety of purposes including the right software and accessories.

Our sales and support staff are ready to offer advice at any time based on 60 years of experience in weighing technology helping you achieve your goals.

Achieving goals with cutting-edge technology

Innovative new products like the PW27 hygienic load cell, the first and so far, only load cell with EHEDG certification in its weight class, are typical of HBM's assortment of load cells. The new FIT7A digital load cell also stands in this tradition. Based on strain gauge technology, it achieves peak values in terms of precision and speed. It can easily perform 120 weighing processes per minute with a standard deviation of just 0.1 g for every 10 kg. And it can do all that with affordable pricing.

In this edition you will find out more about the FIT7A and other innovative new products. Give yourself a decisive competitive advantage and achieve your goal faster with HBM. Enjoy your reading!

Yours sincerely,
Andreas Hüllhorst

The heavyweight in weighing technology: HBM – the original



HBM weighing technology stands for precision, safety, dependability and quality. For over 60 years, that has been our standard, worldwide. The brand also stands for maximum innovative power and flexible, cost-effective solutions for nearly any customer need. And measurement technology products from HBM continue to set new standards. This is the reason why HBM load cells are used by market competitors as blueprints for their own products or are even counterfeited.

Users recognize genuine HBM load cells by their precise measurement results and great reliability, even under very demanding measuring and operating conditions. But the original is easy to recognize even before that: by the sticker with the hologram.

HBM weighing technology also features a wide range of high-quality load cells. That gives users several possible solutions for different measurement tasks with an extremely wide range of specifications. The cells have identical dimensions, which means they can be quickly replaced if requirements change, thus guaranteeing maximum flexibility.



Protected against counterfeits: the label with the hologram identifies genuine HBM load cells.

Identical load cell dimensions allow for flexibility, depending on the application. One example: the HLC series legal-for-trade bending beam load cell.

Examples include SP4 single point load cells, the PW15B, the hermetically encapsulated PW15AH and the hermetically encapsulated, easy-to-clean PW25, each prototypical of HBM's strengths. Or the robust and legal-for-trade bending beam load cells – HLC in B1 and B2 quality with accuracy classes C3, C4 and C6, and the less expensive versions of these insensitive ELC/BLC load cells.



continued >>

Leaders in innovation for over 60 years

Load cells are in HBM's genes – the company has been helping to shape the market for decades. A host of important innovations and accepted standards in weighing technology originated with HBM. One example of this is the Z6. After nearly four decades on the market, the bending beam load cell is still in demand due to its precision and properties.

HBM's outstanding achievements are further underscored by the PW27, the first aseptic load cell in its class, and FIT®, the first dynamic load cell without oil damping, which features excellent dynamic properties. The company further ensures that the load cells it delivers meet all specifications, even in legal-for-trade weighers, and even at -10 and +40 °C.

Main focus on customer competitiveness

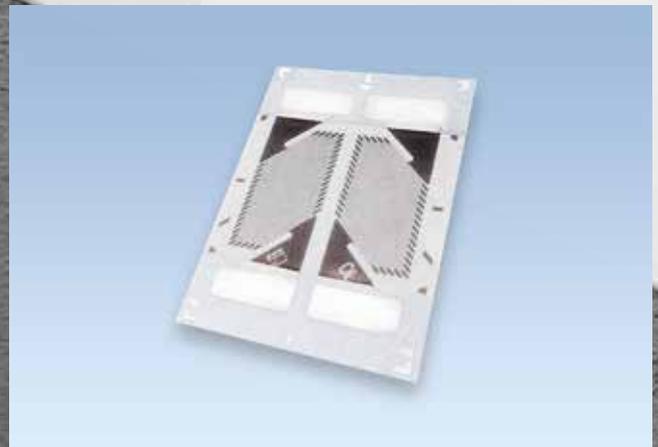
Customers want to remain competitive. That brings our attention to the cost of sensors in applications and systems. It is not just the procurement price that matters. Total Cost of Ownership also means reliability, reproducibility and global presence. HBM guarantees that. Plus a competent and focused sales team. That makes HBM the logical choice whenever service and repair represent a special challenge, so that reliable, robust products are especially in demand.



Left its mark on the weighing technology market: the Z6 load cell.



PW27 – the first aseptic single point load cell in its class



The heart of every load cell: strain gauges

Important innovations, now and in the future

HBM will continue to invest in developing and producing its own strain gauges and new application possibilities. This strategy is justified by consistent success. Single point load cells PW25 and PW27 point the way. Exactly like the brand new FIT7A digital load cell and HLC bending beam load cell in accuracy class C6, made of premium stainless steel. And even the classic Z6 still has many years of reliable service.

■ www.hbm.com/weighing



*A synonym for precision, safety,
dependability and quality for over 60 years.
Weighing technology from HBM*



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“FIT7A combines an affordable component price with top accuracy. That makes it possible to develop completely new kinds of machines.”

Bernd Knöll,
Product and Application Manager
HBM

FIT® for the future: FIT7A digital load cell opens up new market opportunities for checkweigher manufacturers

For dynamic weighing processes, manufacturers of checkweighers, sorting and packaging machines usually use load cells based on electromagnetic force compensation. Now the component manufacturer HBM is presenting an innovative model with a completely new sensor: the FIT7A, based on strain gauge technology. The digital load cell wins top grades in terms of precision, speed and component costs. HBM has created a stir in the dynamic weighing market with this innovation. Checkweigher manufacturers now have high-quality components available at a less expensive price to develop competitive new product lines.

continued >>

Top grades for FIT7A in precision and speed

The FIT7A digital load cell achieves peak values in terms of precision and speed previously unknown in SG* technology. With a standard deviation of up to 0.1 g at a maximum capacity of 10 kg, FIT7A can handle up to 180 weighing processes per minute. The FIT7A firmware features extensive trigger and filter functions, which allows it to determine precise weighing results. The user-friendly interface of the new PanelX control software simplifies the analysis of static and dynamic behavior of the weighing system. The PanelX software included with delivery is used to adjust settings and parameters. Together with its attractive component prices, the FIT7A provides manufacturers of checkweighers, sorting and packaging machines the opportunity to open up completely new market segments.

Lower component price without compromising quality

Another advantage of the innovative new load cells is their pricing: A SG-based load cell like the FIT7A is up to 60% less expensive than load cells based on electromagnetic force compensation. This difference makes it possible for machine manufacturers to stay competitive and therefore potentially help you reach new market segments not obtainable before.

Such as in price-sensitive target groups that have continually growing minimum requirements for precision and quality. The FIT7A digital load cell is ideally suited as a component for dynamic weighing processes. The new product is especially impressive in checkweighers, cutting machines, packaging and sorting machines due to its strengths – typical for SG technology – such as robustness, as well as the operating temperature range and reliability. The FIT7A is available in nominal (rated) measuring ranges from 3 kg to 75 kg. The FIT7A is part of a completely new generation of SG load cells for dynamic weighing.

Ideal for starting, making changes or upgrading

Manufacturers intending to offer their own checkweighers or packaging machines for the first time will benefit especially from a powerful package consisting of the FIT7A and matching software. For customers already using FIT/1 load cells, the identical geometry of the new digital load cell means it will be easy to make the change. All they need to do is replace the load cell. There is no need to redesign the system.



The FIT7A PanelX software provides a user-friendly interface with extensive adjustment and analysis functions.

* = Strain gauge

The new generation of digital load cells

The FIT7A is part of a new generation of digital load cells. Both the established FIT/5A and the new PW15iA single point load cell are compatible with the innovative PanelX software and PAD 4000A

digital transducer electronics. They all guarantee digital speed and precision combined with convenient operation thanks to the latest software technology.

■ www.hbm.com/fit7



The geometry of the FIT7A load cell is identical to the familiar FIT/1 type series of HBM – they can simply be replaced without having to redesign the system.

Is your load cell still in working order? Test it and see!

To make sure your load cell is still working properly, you can test it using simple means.

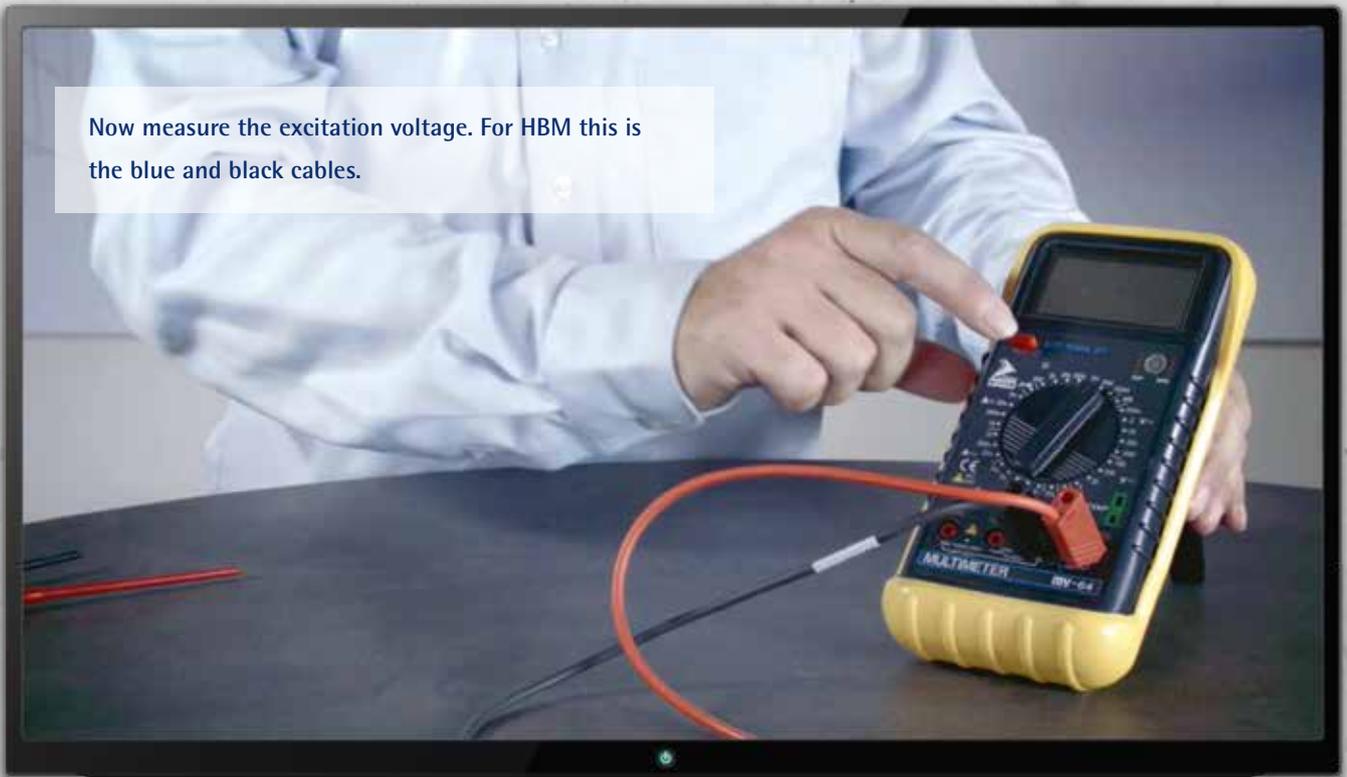
To do this you will need ▶ the load cell ▶ a multimeter ▶ a 9V battery

▶ Measuring the resistances

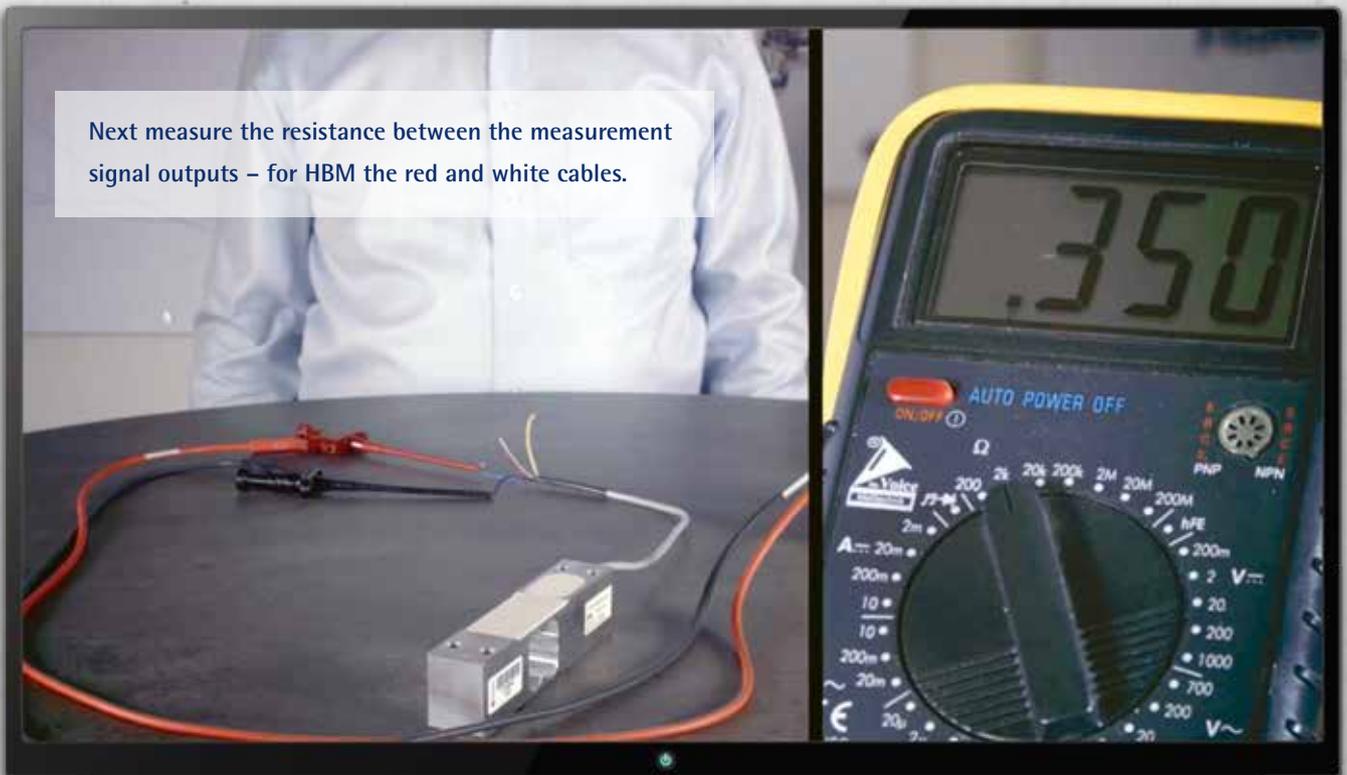
The very first thing to do is measure the resistances of the excitation voltages and measurement signal. In this way you can test whether all the connections in the load cell are correct and the resistance is within the permissible tolerance range. For more detailed information on the tolerance range see the data sheet.



Now measure the excitation voltage. For HBM this is the blue and black cables.

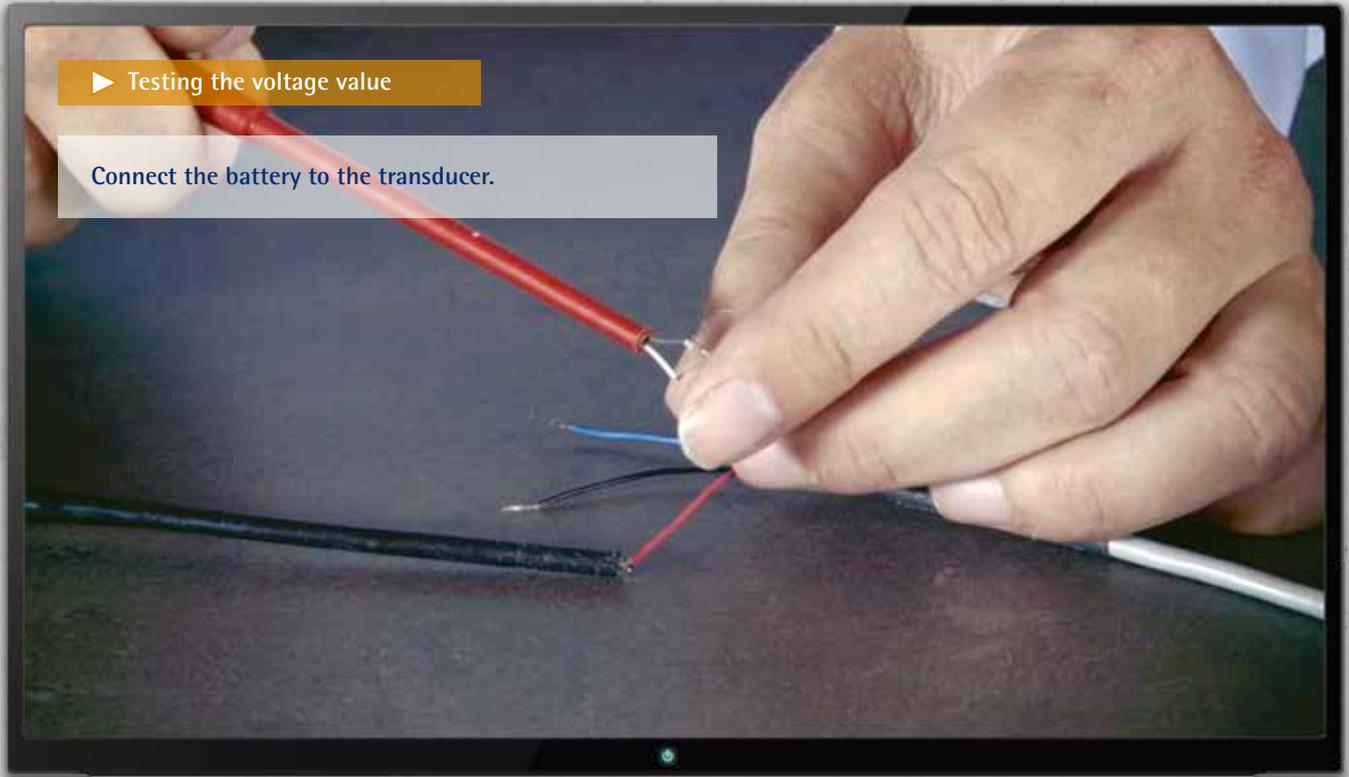


Next measure the resistance between the measurement signal outputs – for HBM the red and white cables.

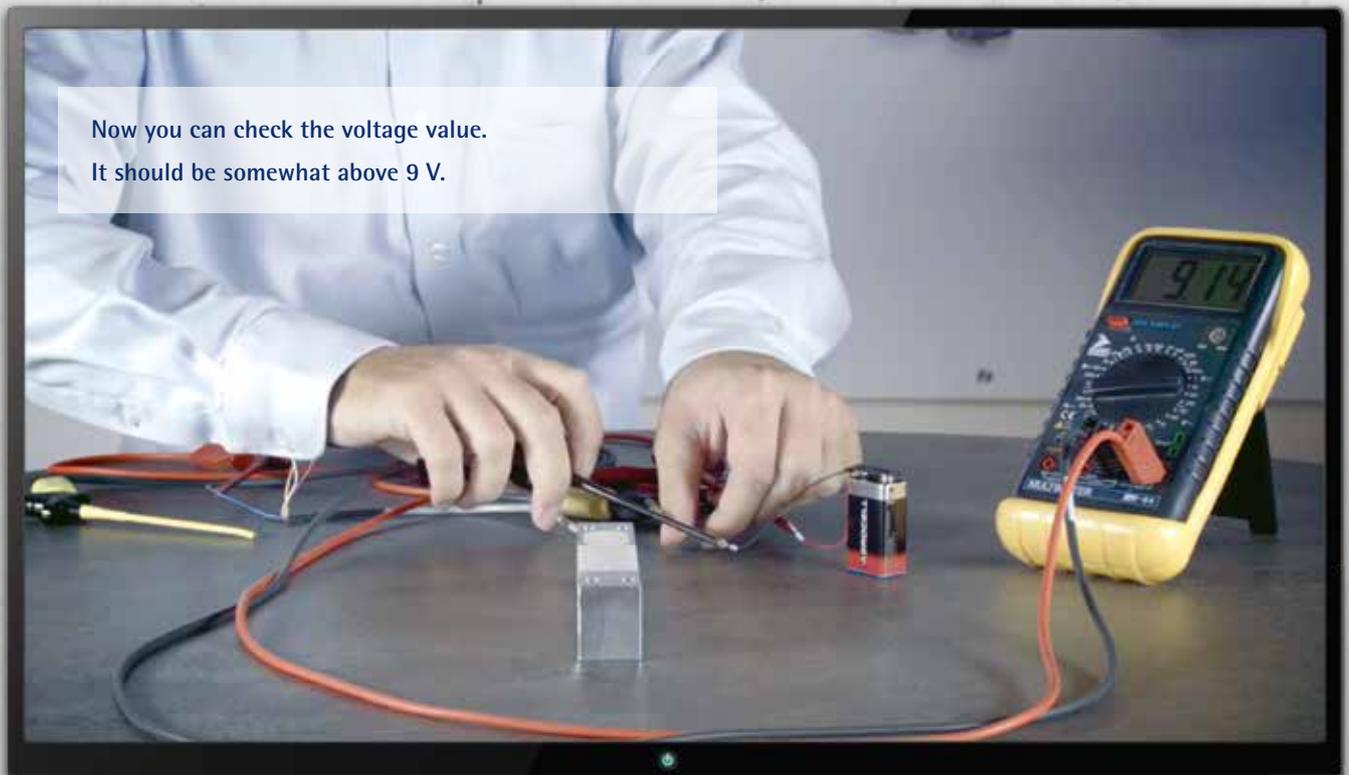


▶ Testing the voltage value

Connect the battery to the transducer.



Now you can check the voltage value.
It should be somewhat above 9 V.



▶ Loading the load cell

Now start the measurement and load the load cell with weight. If the load cell is still operational, the signal will rise to the load value and then drop back to the starting point.



You can perform this simple test of a load cell's functionality with many different types of load cells.



You can find the video for this article at

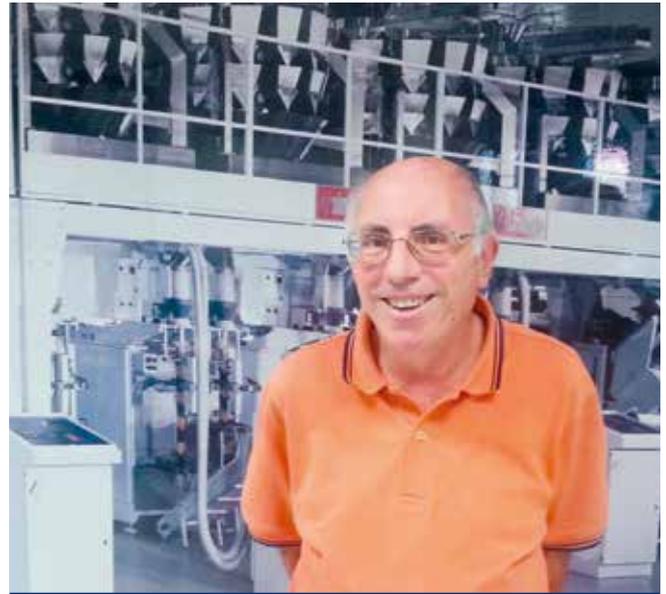
■ www.hbm.com/wt-videos

Twice as many weighing processes in the multihead weigher

HBM developed the PW22 single point load cell in collaboration with Hayssen Flexible Systems, manufacturer of linear, batching and multihead weighers combined with vertical packaging machines in Italy in 2006. HBM was responsible for the production of different prototypes and certification of the load cell as well as industrial manufacturing in several measuring ranges. The load cell continues to be successful, allowing for twice as many weighing processes.

“The PW22 meets all requirements in terms of accuracy, speed and temperature stability.”

Francesco Renzulli,
Head of the Measurements department at Hayssen Flexible Systems



Specially developed for use in multihead weighers:

Hayssen Flexible Systems, previously Simionato, had high requirements for the properties of the load cell: "The PW22 load cell was specially developed by Hayssen Flexible Systems and HBM for RCW Simweight type multihead weighers. It meets all requirements of the international OIML recommendation R60 in terms of accuracy, speed and temperature stability," explains Francesco Renzulli, head of the Measurements Department.

But the load cell had to meet other requirements beyond those of Hayssen Flexible Systems. Compliance with OIML criteria was also required. The OIML recommendation contains specifications a load cell must meet to satisfy the requirements for static and automatic weighing systems. The PW22 load cell was certified by one of the best known accredited laboratories in Europe, which also has a reputation as one of the strictest in terms of meeting requirements.

PW22 for dynamic weighing

PW22 load cells from HBM are extremely competitive products, offering the very highest accuracy in comparison to other load cells available on the market and certified to OIML R60. With a minimum load cell verification interval of 0.5 g at a maximum capacity of 6 kg, the load cell guarantees 12,000 true display points. This high sensitivity means that a multihead weigher can be approved with a scale division of +/-0.5 g.

The Research and Development department at Hayssen Flexible Systems also tested settling times (display speed and stability); they were only half as long as the competition's load cells. These high display speeds mean that multihead weighers equipped with PW22 load cells are able to perform twice as many weighing processes as other models available on the market. Equally important was the test in the temperature chamber. It confirmed that the zero point and amplification drift meet the requirements of OIML R61-1.

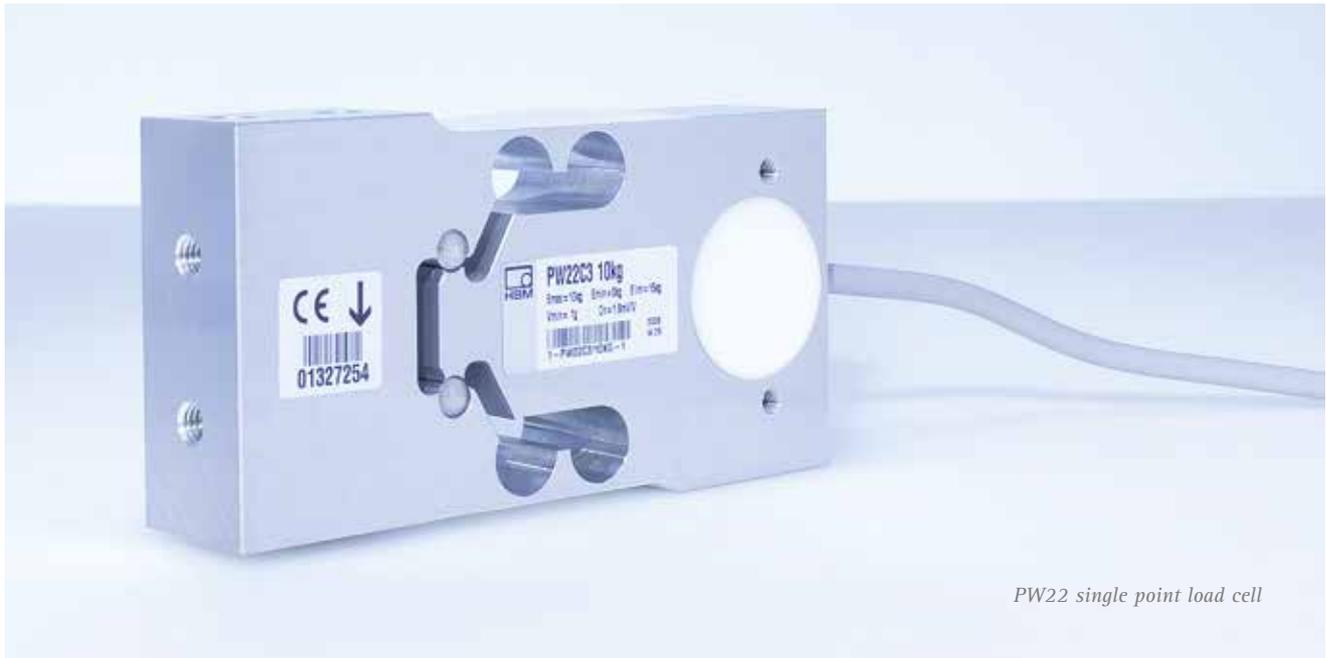
Additional certifications will follow

In addition to certification by the German National Metrology Institute, the PW22 was also tested by accredited laboratories (EU-ROTEST and CERMET) as part of all measurement tests for approval

of the type Simweight multihead weighers and the new ATOM series. The RCW will also be certified soon according to the Measuring Instruments Directive (MID).



The PW22 single point load cell was developed by HBM especially for use in multihead weighers of type RCW Simweight from Hayssen Flexible Systems.



PW22 single point load cell



Hayssen Flexible Systems

Hayssen Flexible Systems is recognized worldwide as one of the leading providers of products and services related to FFS technology (Form Fill Seal). The company's fast, innovative and flexible vertical (VFFS) and horizontal (HFFS) packaging machines are used for filling and packaging thousands of different types of foodstuffs and a wide range of other products in retail, industry and other organizations. Hayssen Flexible Systems, with headquarters in South Carolina, USA, has other production and development locations in the USA, Great Britain and Italy. Hayssen Flexible Systems is a company of the Barry-Wehmiller Group, the largest corporate group in the western world in packaging automation.

■ www.hayssen.com

NEW AT HBM

Z16

Weighing tensile loads in the tons range precisely

Designed for maximum capacities of 7.5 and 15 metric tons, the new robust Z16 tensile load cell achieves accuracy classes D1 and C3. The stainless steel load cell can be connected to threaded rods with M36x3 external thread to simplify installation with optionally available adapters (with internal thread). The Z16 achieves degree of protection IP68 and IP69K.



PW15iA

Optimized for dynamic applications

The PW15iA digital single point load cell in accuracy class C3 is used for fast digital filtering and scaling of the measurement signal, making it ideally suited for use in dynamic weighing. Made of stainless steel and hermetically welded, the PW15iA load cell achieves degree of protection IP68/IP69K. In comparison to predecessor models, it also has digital inputs and outputs.



FIT7A

New generation of load cells for dynamic weighing

The innovative FIT7A sensor is based on strain gauge technology and makes it possible for manufacturers of checkweighers, sorting and packaging machines to develop competitive new product lines. With considerably more economical component costs, high precision and fast processing speed, the FIT7A has created a stir in the market for dynamic weighing.



Z6

Now also with a maximum capacity of 30 kg

The new maximum capacity makes it possible to implement even very small weighing ranges with increased protection against overload. The Z6/30kg currently achieves accuracy classes D1 and C3.



PAD 4000A

Proven for reliable weatherproof control

It brings digital precision into process control weighing applications, even in harsh environments: the new PAD 4000A digital transducer electronics. Protected in its housing made of high-grade stainless steel to degree of protection IP68/IP69K, the PAD 4000A reliably digitizes the signals of analog load cells, force transducers and all SG-based sensors, even in difficult ambient conditions.

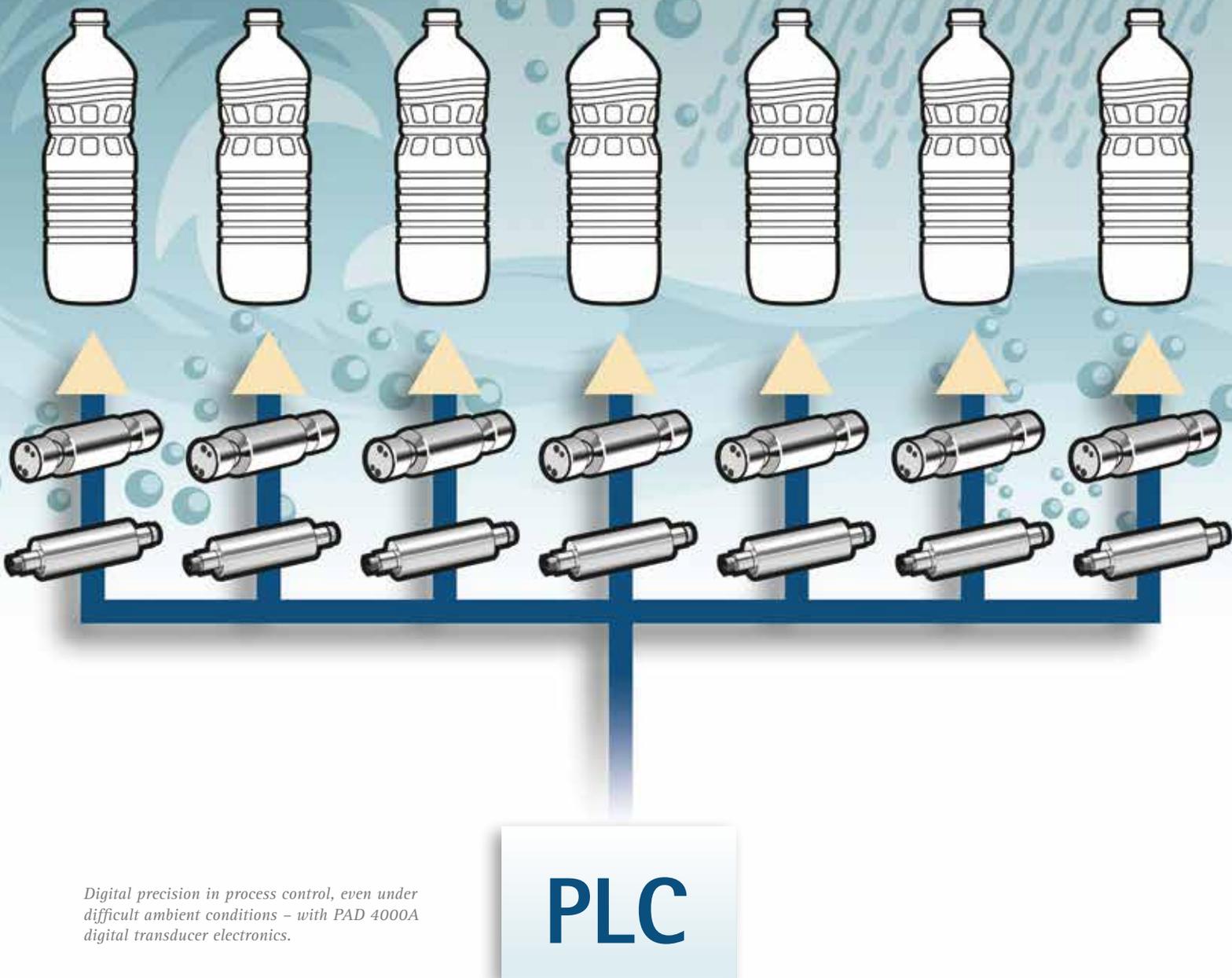
C16/M

For weighing very heavy weights

In steel works and for weighing silos – C16/M is now also available for especially heavy loads up to 400 metric tons. This pendulum load cell is legal-for-trade and achieves degree of protection IP68. Solid results in accordance with accuracy class D1 are guaranteed.



Proven for reliable weatherproof control: PAD 4000A digital transducer electronics



Digital precision in process control, even under difficult ambient conditions – with PAD 4000A digital transducer electronics.

PLC

Bringing digital precision into process control weighing applications, even in harsh environments: the new PAD 4000A digital transducer electronics. Protected in its housing made of high-grade stainless steel to degree of protection IP68/IP69K, the PAD 4000A reliably digitizes the signals of analog load cells and force transducers, even in difficult ambient conditions.



PAD 4000A digital transducer electronics are optionally available with a connection cable.

Fast and exact – for filling and control applications

Due to their robust nature, the digital transducer electronics are used for example in filling systems for weatherproof control. The PAD 4000A is optionally available with a connection cable and robust M12 plug connections as well as a cable in hygiene design. The P versions of various HBM load cells can be connected here easily.

Two freely programmable digital I/Os are also available for filling and control applications. That makes the PAD 4000A optimally suited for connecting robust SG* load cells such as the PW15P or hygienic load cells like the PW27.

Maximum precision – even with jerking movements

With a measurement resolution for 2 mV/V of up to 1,000,000 digits and complete measurement signal conditioning including optional or automatic filtering, precision is guaranteed, even with faults due to vibrations.

The PanelX analysis software is available for setting functions and analyzing measurement signals. The transducer electronics can be conveniently integrated into networks using RS485, CANOpen and DeviceNet interfaces.

■ www.hbm.com/pad



* = Strain gauge

Forming tires at a high quality level: weighing technology as a central monitoring mechanism

Founded in Korea in 1960, tire manufacturer Kumho Tire has developed into a global brand that stands for top quality. HBM load cells check the tire weight in production to ensure the quality of the final product.

Bringing together the semi-finished units for the forming process in the forming drum is one of the critical processes for the entire tire manufacturing process. The tire is formed in a "green case" and prepared for the hardening process that follows.

Determining the tire weight in the green case

In collaboration with HBM, weigher manufacturer Scale-Tron developed a weighing solution for Kumho. The HBM SP4M load cell is used to determine the tire weight: Each green case is weighed using a weighing system consisting of four load cells connected with the central system via a VKK terminal box.

Higher quality level for final products

For a long time Scale-Tron used load cells from internal production. But high failure rates and low reliability forced them to rethink. "Quality in production always has highest priority for our customers, so our weighing system – as the central control instrument – must also have the highest possible quality. Since we switched to HBM, the system as a whole is much more stable and we have raised the quality of final products to a new level," explains Yoo Young-Seok, CEO of Scale-Tron.

■ www.hbm.com/scale-tron



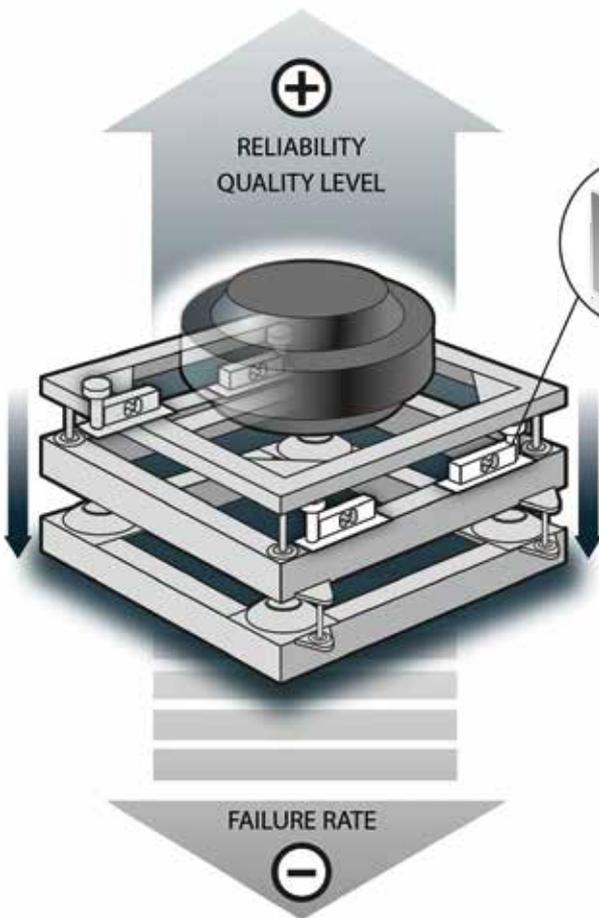
Green case: Semi-finished units are combined here for the molding process in the molding drum.



Weighing process for checking tire quality in the green case

“High failure rates and low reliability forced the customer to rethink. The SP4M load cell has proven itself as a central control instrument, ensuring production at a higher quality level for the customer.”

Timo Ren,
International Product Manager
HBM



SP4M single point load cell



Weigher with HBM SP4M load cell and VKK junction box

More reliability and lower failure rates –
HBM weighing technology optimizes the production process.



ATEX directive 2014/34/EU: What's new?

After several years of preliminary work, the European Commission has now published the new ATEX directive 2014/34/EU – yet some questions remain unanswered. In this article HBM Product Manager Reiner Schrod gives you an assessment of the new ATEX directive:

The new ATEX directive 2014/34/EU was published some time ago. There are only a few changes for manufacturers of explosion-proof equipment, as

- **the essential safety and health requirements for explosion-proof equipment have not changed**
- **the conformity assessment procedures are also unchanged**
- **all harmonized EN600xx standards continue to apply under the new directive.**



“There are only a few changes for manufacturers of explosion-proof equipment with the new ATEX directive 2014/34/EU. But the sphere of participants has been expanded.”

Reiner Schrod
Product Manager for Weighing Technology
HBM

What is meant by "make available to the market"?

There have been some changes such as the new ATEX directive also lists obligations for additional economic operators, specifically for importers and dealers. The expression "make available to the market" was defined so as to include more than just "manufacturing" or "placing in circulation." In addition to manufacturers, the new definition also refers to importers and dealers, but also – and this is the critical point – to anyone operating independently to produce explosion-proof equipment from components, assemblies or other internally manufactured or purchased individual parts.

Thus one truly new aspect is that with ATEX directive 2014/34/EU, the sphere of participants (dealers, importers, independent producers) has been expanded within the field of application.

From EC to EU:

Declaration of Conformity unchanged

The fact that in the future the EC declaration of conformity will be called the EU declaration of conformity and the EC type examination the EU type examination is simply an adjustment in the European nomenclature as part of the wide-reaching NLF* project.

Requirements for manufacturers of explosion-proof products will also continue without any significant changes after April 20, 2016, as all certificates issued under the old ATEX directive 94/9/EC will still be fully valid.

* New legislative framework for marketing of products

ATEX markings explained interactively at

■ www.hbm.com/atex

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