

Everything in
view? Also your
production
processes?



Tradition Technology Innovation



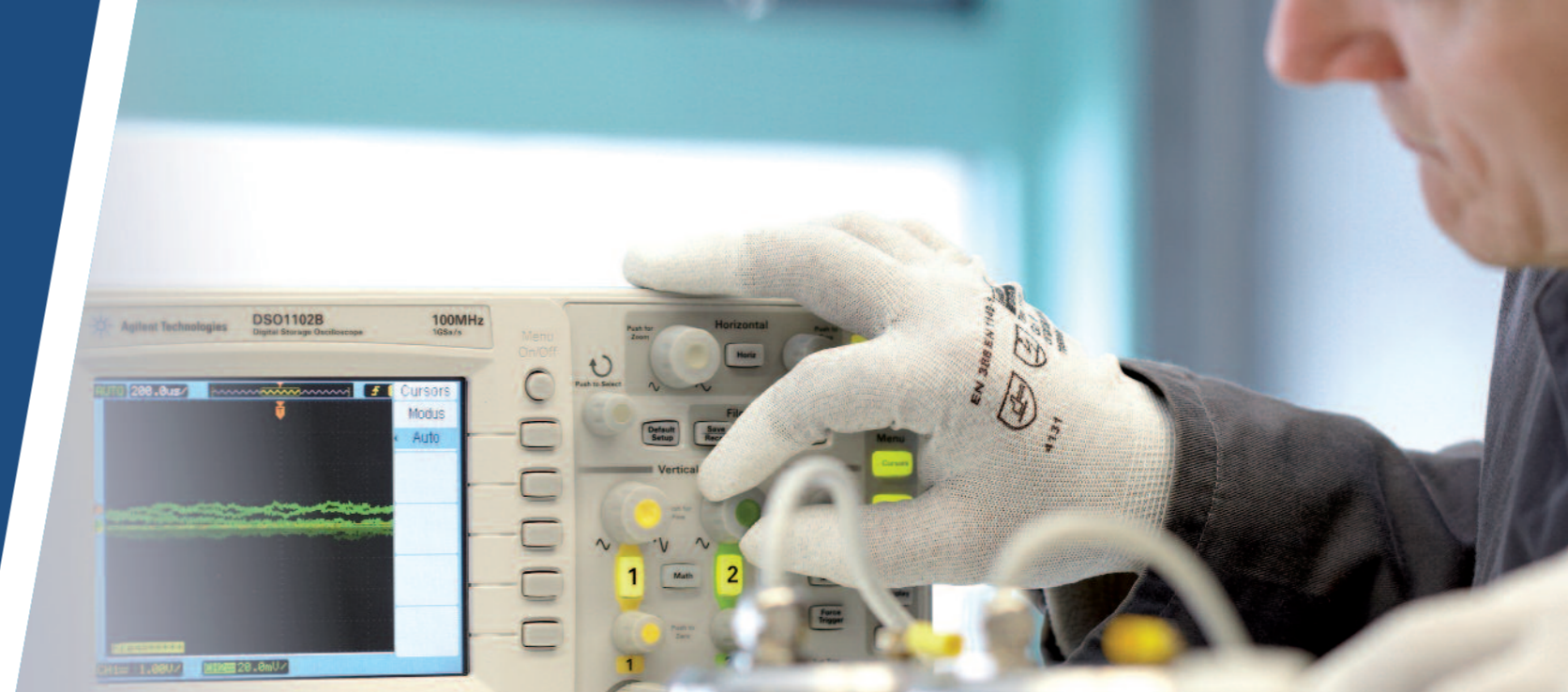
Signal converters – I/O Interfaces



Measurement systems



It starts with an idea ...



“An idea is not an end in itself. It must extend significantly beyond what already exists and must undergo the greatest possible further development”.

This guiding theme has accompanied Mütec Instruments since its founding in 1970. Our success confirms this and has led to important and incisive product developments which set benchmarks in terms of performance, quality and reliability. Mütec Instruments will provide you with special solutions even to specific problems. Thanks to the close cooperation between sales and development, we can offer our customers individual solutions which are often the basis for long-lasting customer relationships.

THE PRODUCTS

From the idea to the finished product – everything from one source – that’s the proven principle of Mütec Instruments. All developments are subject to the strictest criteria and are optimised in their performance and functionality until the desired target values have been definitively achieved. Our customers all over the world benefit from this.

THE GOAL

In future, Mütec Instruments will continue to focus on innovations and on consciously being “one step ahead”, a trait which distinguishes our products. With plenty of unique new developments, we will continue to offer our customers first-class products.

THE FUTURE

Process technology is becoming ever more complex and requires ever better measurement systems. Thanks to our proximity to the market, we constantly obtain first-hand information which we then put into practice in collaboration with our customers in the form of new products. This allows us to constantly expand our product range. Certifications and all current world standards are incorporated into our development and document the high quality standards of all Mütec Instruments devices.

LOCATION

So that we can continue to constantly optimise our development, production, sales and order processing, we have moved to our new factory in Seevetal near Hamburg. Our customers are thus presented with a prestigious building, characterised by efficient processes, modern production technologies and a high level of quality management. This has established the foundation for providing our customers with first-class solutions to problems using innovative products, which we will also continue to do in the future.

SALES PARTNERS

Mütec Instruments is the right partner for worldwide acting companies. By using our international partner network, we are able to support you around the world.



Milestones

Development, production, sales, support and service since 1970 – everything from one source!



Mütec-Headquarter in Seevetal near Hamburg



1970s

On 1 April 1970, Mütec Mess- und Regeltechnik GmbH was founded by Henrik Müller Dipl. Ing. Initially, the emphasis was on the sales of transmitters from Eurocontrol and BTG, as well as other components for measurement and control technology. 1973 then marked the start of production of the company's own measurement and control systems (control cabinets) and, a little later, the production of individual electronic devices such as transmitters, limit switches, signal converters, etc. in 19" technology.



1980s

In the early 80s, an online moisture analyser for solids was developed. HUMY100 was one of the first moisture analysers for bulk materials in Germany and was initially used in the food and chemical industries in particular. The European export of the first devices to Denmark, Holland and Spain marked the start of Mütec's internationalisation. In addition to this, the portfolio was expanded and perfected in the 19" signal converter sector in the 1980s. This included such devices as signal multipliers, integrators, relay cards, pneumatic converters, etc., as well as the very first processor-controlled devices.



1990s

In the signal converter segment, DIN rail device series established themselves increasingly alongside 19" devices in the 90s. In addition, processor-controlled transmitters with RS232 and RS485 interfaces, which could also be interconnected with signal converter networks, were being developed increasingly. The construction of the international distribution network was now being promoted on a global scale, focussing on Japan, South Africa, Brazil and the USA, amongst others. In the late 90s, Mütec developed the DuoTec-FAILSAFE interface device series (universal transmitters and power supply devices), which was certified by TÜV under DIN 19250 AK4 (later IEC61508 SIL2). These became the world's first self-monitoring failsafe-interfaces to be used in safety-related applications (functional safety) and have become standard in almost all well-known chemical works and refineries in Central Europe to this day.



2000s

In October 2000, Mütec Instruments GmbH moved to its own new production facilities in Seevetal-Ramelsloh near Hamburg. At the same time, the website was updated and the company was certified under ISO 9001:2000, in addition to many devices later being certified under ATEX and IEC61508 SIL2. Throughout this decade, the development of new devices and systems in the business area of measurement systems for bulk materials was accelerated in particular. In addition to moisture measurement, microwave sensors and systems were now developed and manufactured for flow measurement and monitoring and dust monitoring. In 2008, a high-speed thermal element transmitter for SIL2 applications was developed, which became standard in plastics manufacturing worldwide.



2010s

The SIL2 device series was expanded to include additional, particularly customer-specific or OEM models. Examples include the SIL2 differential voltage transmitters, SIL2 transmitters for very high insulation voltages, SIL2 transmitters for oxygen, etc. The measurement systems sector for bulk materials was also expanded. Particular attention should be drawn to a new microwave barrier for fill-level monitoring, dust-monitoring sensors and an expanded programme in the field of moisture measurement. In addition to the development of the product portfolio, the service segment is becoming ever more important. The focus here is on individual hardware and software developments (also taking into account certifications such as ATEX, SIL, etc. and the highest quality requirements), engineering services (control-cabinet construction for special models/products built to customer specifications), as well as start-up and test measurements of measurement systems and sensors.

Measurement systems

Moisture measurement



On application



CHEMICAL AND PHARMACEUTICAL INDUSTRY

Fertilizer, Plastics, Phosphate, Granulate, Absorber material, Melamine, Hopkalit



FOOD AND ANIMAL FOOD INDUSTRY

Grain, Rape, Sunflower Seeds, Sugar, Potato Products, Flour, Starch, Milk Powder, Yeast, Bean OIL, Casein, Gluten, Gelatine



STEEL INDUSTRY AND POWER PLANTS

Ash, Aluminium oxide, Iron, Cole, Coledust, Coke, Hydrated Lime



WOOD- AND PAPER INDUSTRY

Cellulose, Sawdust, Wood Chips, Wood Pellets



CONSTRUCTION MATERIALS INDUSTRY

Zement, Sand, Quarz, Gips, Kalksteinmehl, Bentonit, Keramik



OTHERS

Cement, Iron-II-Sulfat, Sand, Quartz, Gypsum, Hydrated Lime Powder, Bentonite, Ceramic

HUMY 3000

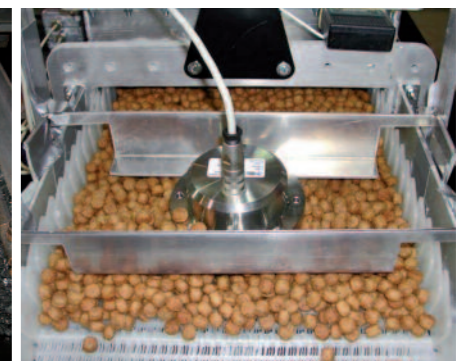
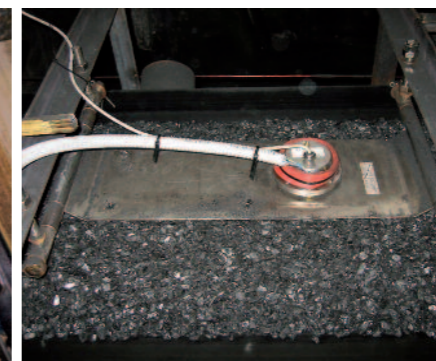
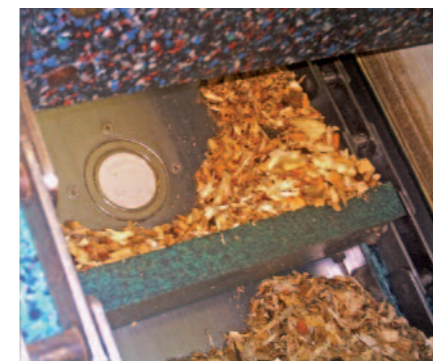
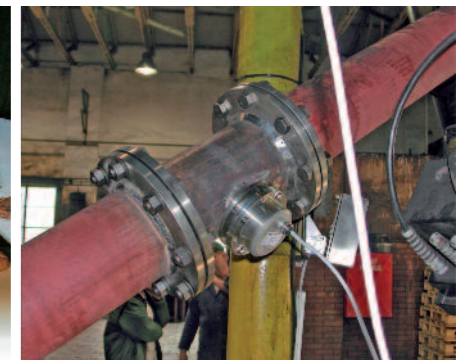
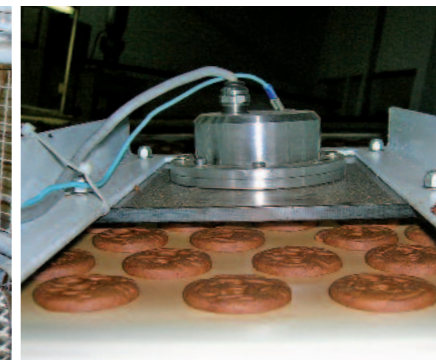


The HUMY 3000 is successfully used for moisture measurement in many processes, including for sugar, tobacco, grain, malt, flour, coal, sand, wood chips, dried fodder, fertiliser, powder, dyes, plastic granulate, etc. Conveyor belts, screw conveyors, silos, hoppers, etc. are particularly suitable installation locations. In-line moisture measurement is also possible in batch processes.

The fast measuring process with a high resolution allows a quick and easy calibration and accuracy of up to 0.1%. In addition to an automatic temperature compensation and ageing drift, the self-monitoring device also has an integrated data logger, digital output and alarm outputs, and much more. For product- or process changes, different parameters can be stored for up to 24 products or product groups.

- No samples necessary for the laboratory
- Energy savings during drying
- For automatic humidifying
- Simple, fast and affordable Installation and calibration
- Very short pay-back periods
- Improvement of product quality

- High level of operational reliability thanks to sturdy probe
- Continuous monitoring and reporting with integrated data logger
- High measurement speed and selective sensitivity
- More than 0.1% accuracy (depending on the product)
- Optional ATEX-Version for zone 20 and zone 2



Measurement systems

Mass flow measurement



On application



CHEMICAL AND PHARMACEUTICAL INDUSTRY

Fertilizer, Plastics, Phosphate, Granulate, Absorber material, Melamine, Hopkalit



FOOD AND ANIMAL FOOD INDUSTRY

Grain, Rape, Sunflower Seeds, Sugar, Potato Products, Flour, Starch, Milk Powder, Yeast, Bean OIL, Casein, Gluten, Gelatine



STEEL INDUSTRY AND POWER PLANTS

Ash, Aluminium oxide, Iron, Cole, Coledust, Coke, Hydrated Lime



WOOD- AND PAPER INDUSTRY

Cellulose, Sawdust, Wood Chips, Wood Pellets



CONSTRUCTION MATERIALS INDUSTRY

Cement, Iron-II-Sulfat, Sand, Quartz, Gypsum, Hydrated Lime Powder, Bentonite, Ceramic



OTHERS

Tobacco, Nuts, Coffee and Cacao beans, Biscuits, Cotton, Leather, Spices, Blossoms, Seminal

MF 3000

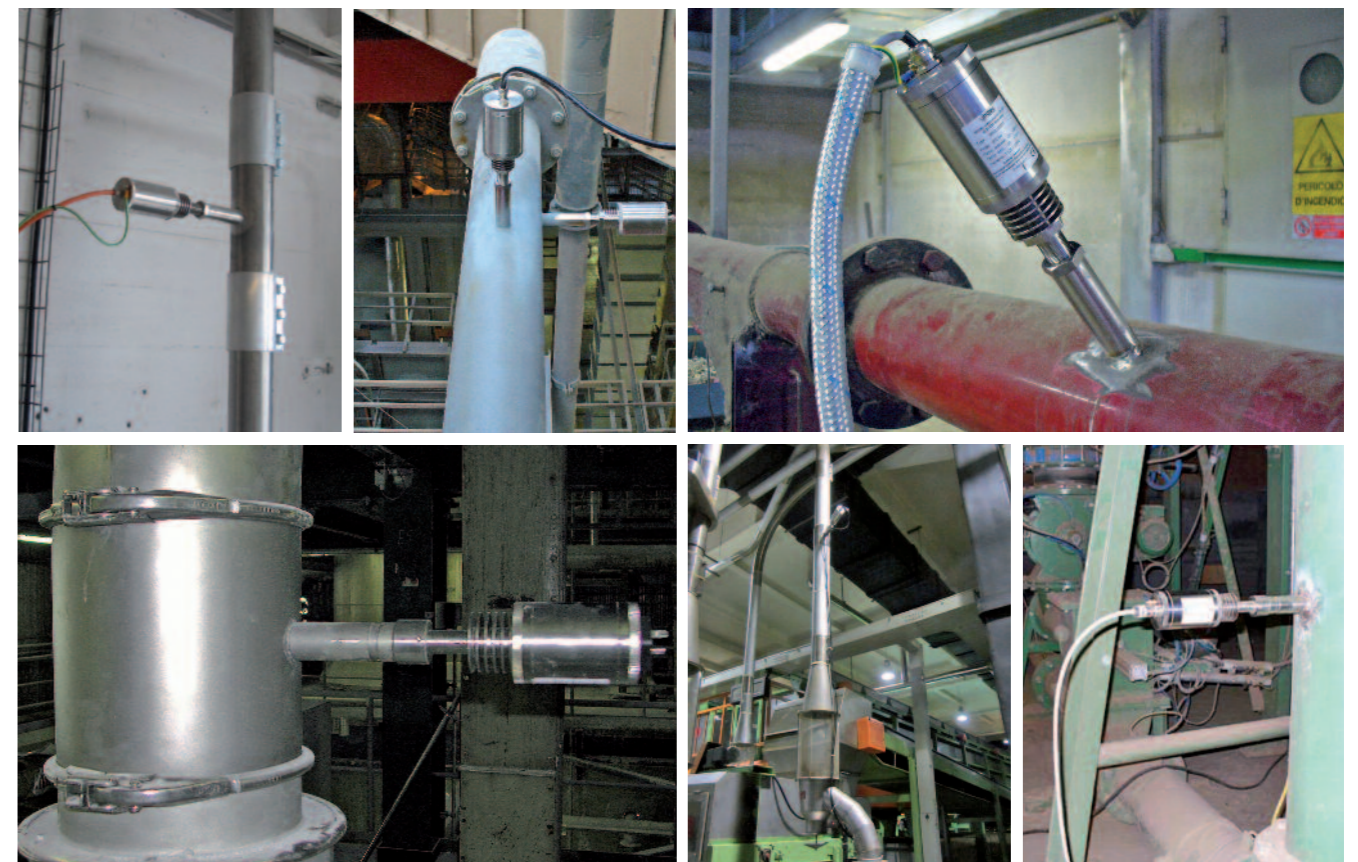


The MF 3000 is equipped with the newest microwave technology and is used to measure the flow of quantities of solids in metallic pipes. All powders, dust, pellets and granules can be measured reproducibly, from a few kg/h up to several t/h. The MF 3000 is suitable for inline measurements in pneumatic pipelines or in free-fall.

The measurement process of the MF 3000 is based on the physical principle of the Doppler effect. The mass flow-rate is determined by evaluating the frequency and amplitude changes during the measurement process. Resting particles, such as deposits, do not influence the measurement.

- For all pneumatic conveying and free-fall processes
- For all bulk materials, from a few kg/h to several t/h
- IN-LINE measurement without weighing
- No fittings in the pipe; flush interior installation
- Simple, low-cost installation & start-up
- Adjustable sensitivity for very small and very large pipe diameters

- Galvanically separated RS485 interface for PLS connection
- Independent of static charging
- Limit-value monitoring with alarm output
- Robuste Edelstahlausführung, abrasions- und wartungsfrei
- Sturdy, stainless-steel construction, abrasion- and maintenance free
- HT450-version for temperature up to 450° C
- Higher temperature versions on request
- ATEX version for zone 20 and zone 2



Moisture measurement

Flow monitoring
Level monitoring



Flow monitoring FS 510M

These devices can be used for the early recognition of flow disturbances in the transport of powders, dust, pellets and granules. This can reliably prevent problems caused by blockages, an absence of material or system failures, for instance.

The measurement process of the FlowSwitch 510M is based on the physical principle of the Doppler effect. This device can reliably prevent problems caused by blockages, an absence of material or system failures, for instance.

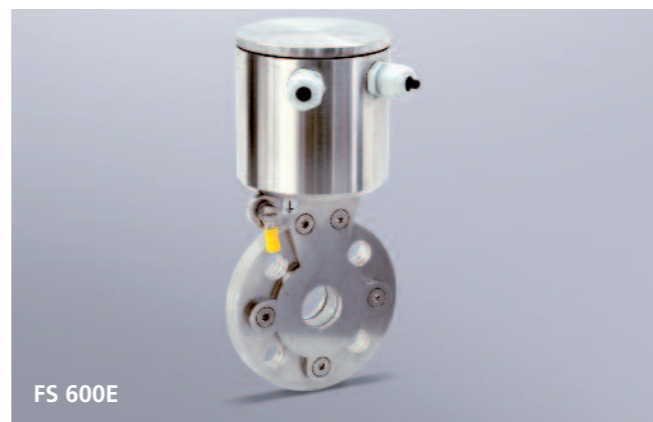
FS 600E

Der Durchsatzwächter FlowSwitch 600E dient zur Überwachung von Feststoffströmen in Rohrleitungen, wie z.B. bei pneumatischen Förderanlagen oder Fallstrecken im Durchsatzbereich von wenigen g/h bis zu vielen t/h.

FS 700E

Der Staubwächter FlowSwitch 700E dient zur Detektion von Fehlfunktionen an Filtern, die z.B. durch Riss oder Montagefehler auftreten. Durch das triboelektrische Messprinzip können zuverlässig Staubdurchbrüche erkannt werden.

- The right measurement principle for every application
- Adjustable sensitivity
- From a few g/h to several t/h
- For pipes, conveyors, screw conveyors, silos, etc.
- Compact designs guarantee easy installation



Level monitoring LC 510M

The LevelCheck 510M microwave barrier is used to monitor limit levels of solids in silos, containers, storage tanks, pipe systems, etc.

Additional applications include: blockage reports, counting piece goods, or positioning objects. The systems are certified up to ATEX Zone 20 and optionally authorised up to a process pressure of 25 bar.

The measurement process of the LevelCheck 510M is based on the newest microwave technology, whereby the transmitter sends out a microwave signal which is analysed by the opposite receiver. Material which builds up within this field attenuates its signal effect, and this is then converted into a switching procedure. The measurement is contactless.

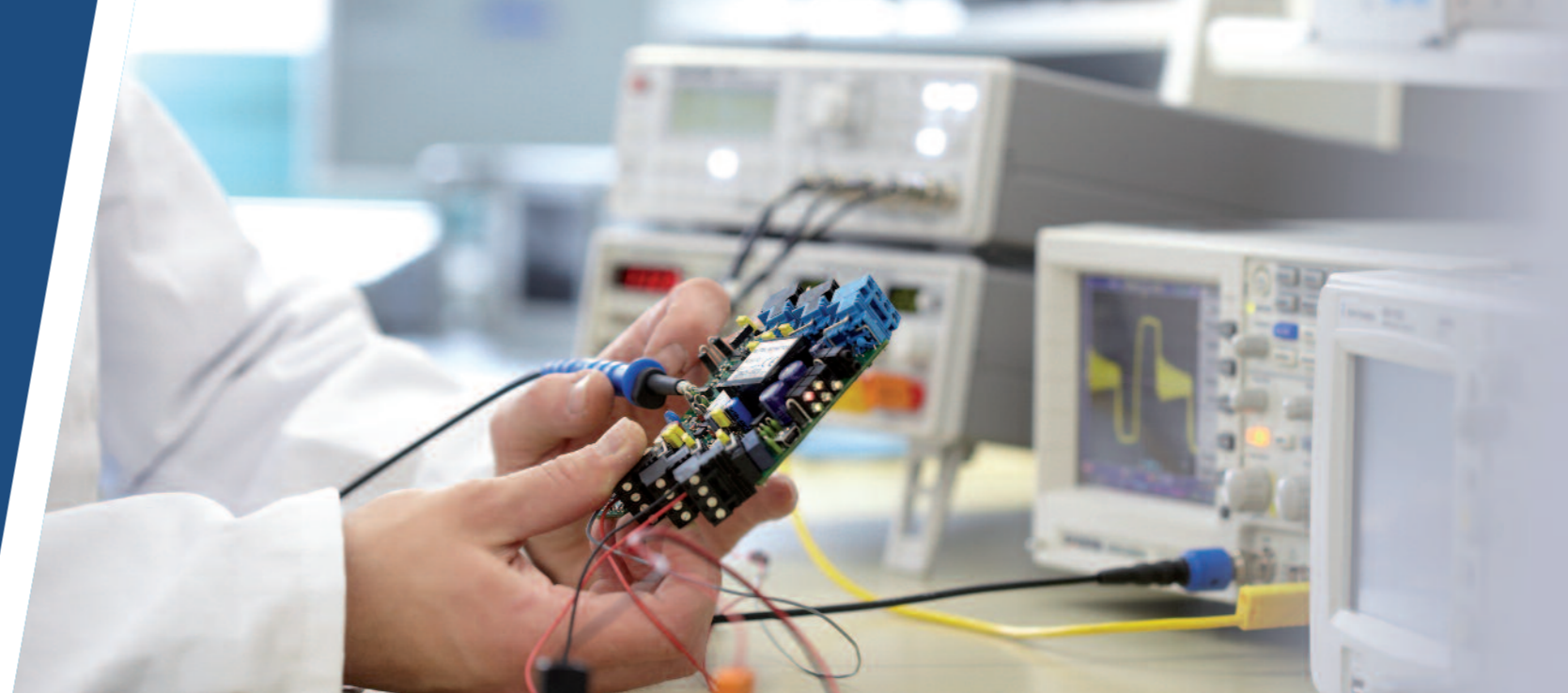
The sensitivity, signal attenuation and signal hysteresis of the microwave barrier can easily be set continuously and precisely using the bar graph display. This allows for a variable determination of the switching point or a switching process for different process parameters.

- The newest microwave technology
- Transmitter and receiver with active self-monitoring
- Probe identification via addressing
- Adjustable, sensitivity, hysteresis, filter time
- Measurement possible through plastic, glass and all non-conductive materials
- Compact design guarantees easy installation
- Level and status display via LEDs and LED bar graph display
- Optionally up to a process pressure of 25 bar
- For limit level detection (in silos, containers, pipes), positioning objects or counting functions



Signal converters

Rail devices



SIL2-Universal measuring transmitter MTP 200-TE

Universal measuring transmitter in DuoTec-Failsafe Technology with self-monitoring
Certified according to IEC 61508 SIL2
Input: Resistor and Pt100 with 2-, 3- and 4-wire switch all kind of thermo elements, current, voltage
Output: 0/4-20 mA, 1-5/0-10 VDC
3 individually adjustable limit values (2 relays contact outputs, 1 transistor output)
1 service alarm
Safe galvanical separation between auxiliary energy, input and output
Executed on Namur recommendation NE 21
RS 485 bus connection via mounting rail bus connector
PC-connection via MÜTEC interface cable at the front
Configuration ON-LINE by MÜTEC-WINSMART software
Auxiliary energy: 24VDC/AC
Form of construction: DIN-Rail mounting, DIN EN 50022

OPTION "IEXA": Input II (1) G Ex ia IIC, (zone 0)

SIL2-Transmitter power supply MSK 200-TE

1-channel measuring transmitter supply unit in DuoTec-Failsafe Technology with self-monitoring for the supply of 2-wire transmitters
Certified according to IEC 61508 SIL2
Output: 0/4-20 mA, 1-5/0-10 VDC
3 individually adjustable limit values (2 relays contact outputs, 1 transistor output)
1 service alarm
Safe galvanical separation between auxiliary energy, input and output
Executed on Namur recommendation NE 21
HART-protocol sockets at the front
RS 485 bus connection via mounting rail bus connector
PC-connection via MÜTEC interface cable at the front
Configuration ON-LINE by MÜTEC-WINSMART software
Auxiliary energy: 24VDC/AC
Form of construction: DIN-Rail mounting, DIN EN 50022

OPTION "IEXA": Input II (1) G EEx ia IIC, (zone 0)

High speed SIL2-thermocouple transmitter MTP 300i SIL

High speed thermocouple transmitter
Response time 2 ms (optional 38 ms)
Certified according to IEC 61508 SIL2
Input II 2 (1) G Ex ib [ia] IIC T4
Input: several thermocouple types, optional 2 thermocouples
Output: 4-20 mA
Safe galvanical separation between input and output
2-wire-technology
Green LED for signal indication
Error indication according to NAMUR NE 43
Form of construction: DIN-Rail mounting, DIN EN 50022 (width 22.5 mm)

More devices

In addition to the standard DIN rail devices, we also manufacture a wide range of signal-converter variants which are suitable for various measurement tasks and are generally certified under ATEX and SIL2. Examples of these include high-speed transmitters, transmitters for high insulation voltages, transmitters for oxygen, etc.



MTP 200ia-TE



MSK 200-TE

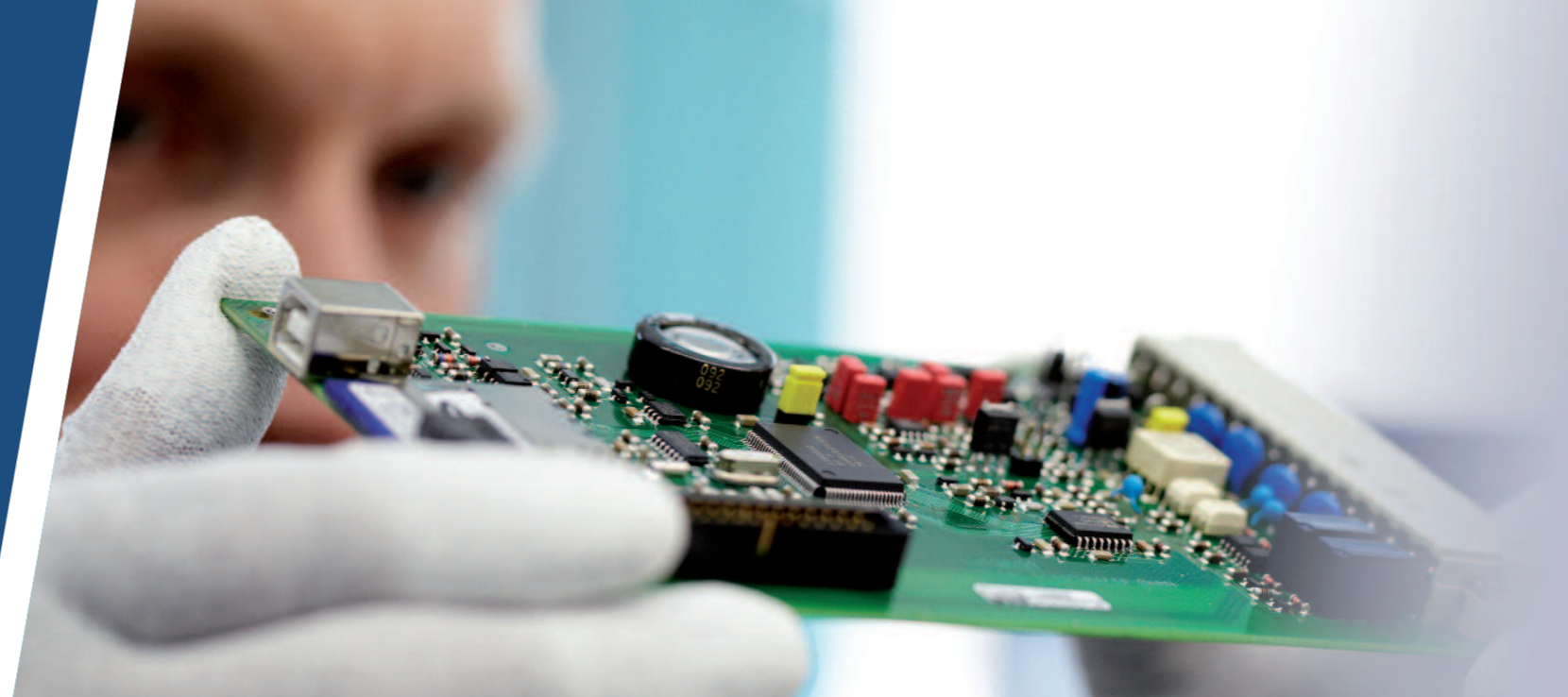


MTP 300i SIL



Signal converters

19"-rack mounted devices



SIL2-Universal measuring transmitter MTP 200-E

Universal measuring transmitter in DuoTec-Failsafe Technology with self-monitoring
Certified according to IEC 61508 SIL2
Input: Resistor and Pt100 with 2-, 3- and 4-wire switch all kind of thermo elements, current, voltage
Output: 0/4-20 mA, 1-5/0-10 VDC
4 individually adjustable limit values
(2 relays contact outputs, 2 transistor output)
1 service alarm
Safe galvanical separation between auxiliary energy, input and output
Executed on Namur recommendation NE 21
RS 485-interface at the edge of the measuring device
PC-connection via MÜTEC interface cable at the front
Configuration ON-LINE by MÜTEC-WINSMART software
Auxiliary energy: 24VDC/AC
Form of construction: 19", 4TE, 3HE

OPTION "IEXA": Input II (1) G Ex ia IIC, (zone 0)



MTP 200ia-E

SIL2-Transmitter power supply MSK 200-E

1-channel measuring transmitter supply unit in DuoTec-Failsafe Technology with self-monitoring for the supply of 2-wire transmitters
Certified according to IEC 61508 SIL2
Output: 0/4-20 mA, 1-5/0-10 VDC
4 individually adjustable limit values
(2 relays contact outputs, 2 transistor output)
1 service alarm
Safe galvanical separation between auxiliary energy, input and output
Executed on Namur recommendation NE 21
HART-protocol sockets at the front
RS 485-interface at the edge of the measuring device
PC-connection via MÜTEC interface cable at the front
Configuration ON-LINE by MÜTEC-WINSMART software
Auxiliary energy: 24VDC/AC
Form of construction: 19", 4TE, 3HE

OPTION "IEXA": Input II (1) G Ex ia IIC, (zone 0)



MSK 200ia-E

Power Supply Isolator MSI 222i

2-channel power supply isolator for a galvanic separated supply of 2-wire-transmitters in intrinsically safe areas
Pin-compatible to MC33-22Ex0-i from Turck
Intrinsically safe power supply circuit II (1) G Ex ia Ga IIC, (zone 0)
Output: 4-20 mA
Safe galvanic isolation of all supply circuit among each other and from auxiliary energy
Signal response time < 10 ms
Linearity error < 0.04% v. E.
Temperature influence ≤ 0.005 %/K
Auxiliary energy 24 VDC
Form of construction: 19", 4TE, 3HE



MSI 222i

More devices

Over the decades Mütec has developed and manufactured 19" signal converters for almost any measurement task. This has led to a wide range of products in the 19" segment, with different variants of transmitters, power supply devices, limit cards, signal multipliers, relay cards, etc.

In addition, we also manufacture a wide range of devices which are pin-compatible with Hartmann & Braun, Turck, or BTG, for instance, or redesign or modify devices in accordance with a given pinning.



Signal converters

Relative humidity Special solutions / development



Relative humidity

HITY 2000

The HITY 2000 and the HITY 2000wt uses impedance measurement as a measurement principle. In contrast to traditional capacitive measurement, this technique is characterised by an extremely high resistance to chemically aggressive gases and a high long-term stability, with a service life of up to five years, depending on the measured medium. The response speed of the sensor in the event of fluctuations in moisture is exceptionally fast.

- High-quality sensor
- Long service life
- High level of accuracy
- Chemically resistant to many aggressive gases
- Rarely recalibration



Special solutions / development

Since the firm was founded in 1970, Mütec has been developing, producing and distributing components and systems for industrial measurement and automation technology (in particular for safety-related applications). With our expert knowledge, we implement innovative hardware and software for intelligent safety-oriented interfaces, taking into account various technologies and explosion protection requirements.

Mütec can draw on a broad product portfolio in the signal converter/interface sector, which has been developed and modernised constantly over the course of decades. This has led to high-quality, high-tech products, some of which have unique selling points worldwide.

For safety-oriented applications in particular, software developments are elaborate and sophisticated and required a great deal of experience and expertise. Under the standard IEC61508, all steps must therefore be described in detail and presented in a transparent and comprehensible way. Thanks to our many years of development experience and good contacts at various certification authorities, we are able to carry out complete developments, including certifications, quickly, flexibly and affordably.

CERTIFICATION / SIL ANALYSIS ACCORDING TO IEC61508/61511

The standards IEC 61508 and IEC 61511 are becoming ever more important for safety-oriented instrumentation in the process industry. Our SIL-certified DuoTec devices MSK200 and MTP200 were the world's first TÜV-certified interfaces for safety-oriented applications, and allow customers to build SIL2 and SIL3 Safety Loops. We offer a SIL analysis service in conjunction with our TÜV-accredited partner, Risknowlogy, and we support our customers in SIL calculations, verification, loop design and more.



Development & Design

Customized products / OEM Service for bulk material systems



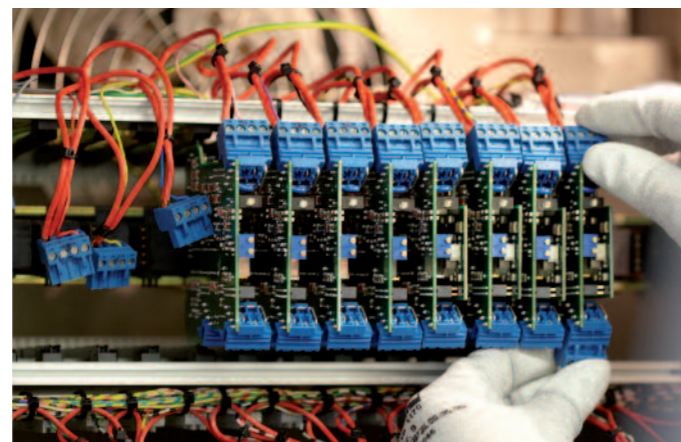
Customized products / OEM

We develop and manufacture products based on your own individual requirements and wishes. Thanks to our considerable depth of production, we are able to respond to customer wishes or to make adjustments quickly and flexibly. An experienced team of developers competently and efficiently implements even complex requirements, whilst taking into account the highest quality standards and certifications (e.g. ATEX and SIL).

At Mütec, all products are manufactured with the greatest depth of production, i.e. the circuit boards are FITTED with components using the company's own automatic placement machines and then go through the appropriate soldering machines or soldering baths. Final assembly and quality controls are performed by highly-trained and experienced professionals. In accordance with our ISO9001:2008, ATEX and SIL2 certificates, we set the highest quality standards for our products. Modern testing equipment and climate chambers are used to this end. Every product undergoes at least 24 hours in a climate chamber with pre-defined temperature conditions, and the measurement results are recorded with data loggers.

Examples of customized and OEM products:

- High speed SIL2 thermocouple transmitter with 2ms response time
- SIL2 oxygen transmitter
- SIL2 differential voltage transmitter
- SIL2 transmitters for very high insulation voltages
- Moisture probe for the concrete industry
- High-temperature flow measurement device for bulk materials up to 750°C
- Bulk material flow switch with 4-20mA output



Service for bulk material systems

Consulting / On-site Service

At Mütec, you will have a contact person who will accompany you from your initial contact right through to a successful measurement. This also includes a personal consultation on site. Measurement systems for bulk goods are used in many processes for almost all solid materials. Installation locations are often pipelines, conveyor belts, screw conveyors, silos, hoppers, etc. Our experienced service engineers are familiar with bulk-material systems and conveyor processes and can generally draw on reference projects, thus simplifying the search for the right installation location and facilitating statements on measurement accuracy, even in advance.

On-site test measurements / Rent

Want to know whether the moisture or flow rate of your bulk materials can be measured? We can carry out a proficient test measurement on your process and/or make our measurement devices available for rent. This will give you the assurance that you will achieve optimum measurement results and sustainably improve your process.

Material analyses/ Pilot-plant test measurements

Bulk materials have a wide range of properties and structures. Send us a sample of your bulk material and we can perform extensive material analyses at our premises to determine the measurement properties of the bulk material. In addition, we have a comprehensively equipped pilot plant at our disposal, where we can reconstruct your process conditions and are thus able to make statements about the quality of a measurement.

Start-up

Experienced staff can put the measurement system into service in your system or in your process. A variety of different measurement tasks always requires an adjustment of the measurement system to the specific product and application. To be able to achieve the best possible measurement result, the support of experienced technician is useful. Our employees perform all of the work involved in the start-up quickly and professionally.





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