www.ghm-group.de



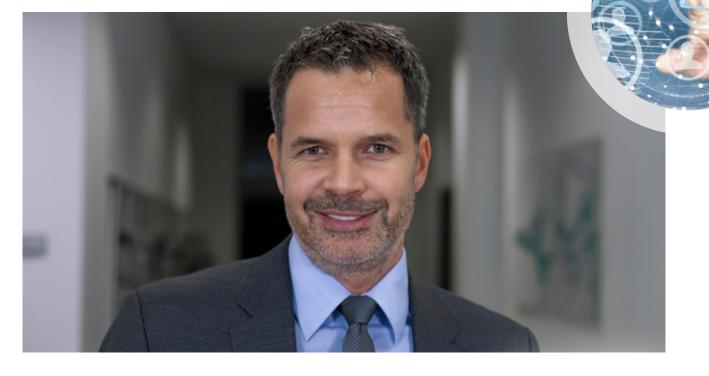


# Professional measuring technology.

Measurable success for our customers.

# Editorial. Specialists by competence.

"More than 40 experienced specialists at six Centers of Competence bring their know-how from the respective areas of expertise to bear in a multidisciplinary team that quickly and flexibly develops precisely those products or makes precisely those adaptations that meet the requirements of our customers."



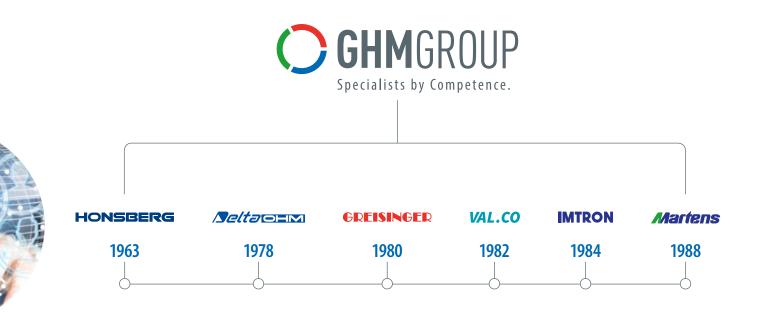
Johannes Overhues CEO GHM GROUP





Further information on www.ghm-group.de/en

# **GHM GROUP**



# Dear reader.

The GHM GROUP has stood for precision measuring and regulating technology since 1963. Our customers enjoy the expertise and experience of a corporate group that has been cautiously built from smaller, very successful measuring technology manufacturers from Germany and northern Italy.

As a medium-sized corporate group, we combine a depth of added value with a wide assortment based on more than 200 years of combined experience. From development of specialized measuring processes to the complete production of sensors and mechanical key elements to data loggers and firmware and software programming, we build measuring devices that cover a wide range of applications. The emphases of our solution are the growth areas of general machine construction, building technology, measurement data recording and communication, as well as the food production industry, meteorology and general environmental measuring technology. With a consistently focused customer orientation, modern company structures and management that can react to market developments more quickly and with a more customer-oriented approach, we combine the expertise and professionalism of our more than 330 employees with the alertness and flexibility of a highly specialized task force.

As CEO, I personally, and on behalf of all of our employees, stand behind the promise of our corporate group to realiz e customer wishes quickly, professionally and individually. After all, our customers' satisfaction is and remains the most important indicator of the quality of our solutions.

GHM GROUP – Specialists by Competence.





# Centers of Competence.



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Members of GHM GROUP: GREISINGER I HONSBERG I Martens I IMTRON I Seltaces I VAL.CO



## GREISINGER

Greisinger devotes a great deal of effort to compact designs. The specialist for hand-held devices combines technology and measurement precision in products with substance.

As a Center of Competence for measuring devices, indicators and regulators, as well as temperature sensors, Greisinger, located in Regenstauf, bundles the extensive know-how of experienced specialists under one roof. Current market trends are tracked here and taken into account in the development of new technologies.

In this regard, our traditional enterprise can build on more than 35 years of experience. Our first products – at that time the first thermometers for monitoring hay stack temperatures – precisely met the requirements of the market and formed the basis of our subsequent success. In the meantime, our product portfolio has been significantly extended: In addition to numerous measuring transducers, as well as indicators and the associated sensors, we – first and foremost – develop and produce highquality hand-held measuring devices. Originally developed for the harshest and roughest conditions of our industrial customers, we have, however, also made our devices available to a broad clientèle via the retail trade.

Over 100,000 devices delivered yearly and thousands of satisfied customers are our motivation to build ever-better measuring devices.

In our manufacturing and quality control we ensure that all machines and equipment are always state-of-the-art. As part of GHM GROUP we participate in the continuous improvement measures to further optimize our processes and procedures.

Thus, in the future we will also be capable of offering outstanding, "Made in Germany" product quality at competitive prices.







# **Measurement data made obvious.** Robust technology in a compact format.

#### **Fields of expertise**

- compact, robust and powerful hand-held measurement technology "Made in Germany"
- wide product range for a wide variety of measured values
- o application-oriented special measuring devices
- "private-label products" for customer-specific individualization
- comprehensive calibration services offered by our in-house calibration laboratory – also tailored to your specific needs. Since 2018, also including DAkkS certification according to DIN EN ISO / IEC 17025

#### Quality and standard

- One-Piece-Flow manufacturing allows for the efficient production of both standard and custom-made products at a superior level of quality
- cutting-edge manufacturing technologies guarantee that all our products are "state of the art"
- as a part of GHM's pool of developers, the Greisinger development department makes sure that your requests are swiftly turned into reality
- members of our qualified staff stand behind our quality workmanship and are your direct contacts for all matters related to the smooth implementation of your projects

#### Location focus: temperature

- hand-held devices and sensors with high system accuracy
- tailor-made sensor designs from our manufacturing organization
- price-conscious displays and regulators
- temperature sensors for hygienic applications
- solutions for hazardous areas (ATEX)

### Other focus areas

- pressure measuring technology
- water analysis
- material moisture measurement
- o gas analysis

# Hand-held measuring devices, indicators and regulators, measuring transducers and temperature sensors.



# Hand-held measuring devices

#### The GMH 5000 series – for demanding requirements in the field and at the laboratory

- waterproof and robust hand-held measuring devices
- 0 modern design
- Fflly loaded: Protective armouring, interface and lighting; some models also available with a data logger; alarm and analogue output

For measuring the following variables:

- o conductivity
- o pressure .
- o pH/Redox
- o oxygen in gases
- dissolved oxygen

#### The GMH 3000 series – quality for professionals

- highly affordable precision and functionality for professionals
- pay only for what you need: vast selection of versions and ready-to-measure sets
- 0 always ready to use thanks to enormous battery life
- For measuring the following variables:
- 0 temperature 0 oxygen in gases
- 0 pressure
  - dity
- 0 conductivity
- 0 humidity
- o pH/Redox
- o material moisture
- o dissolved oxygen
- o flow



- Pure measurement: The G 1000 series switch on and measure
- o compact, waterproof, fast and precise
- deliberate reduction to core functionality: Exceptional ease of use
- o ultra-fast measurement of core food temperature
- wide field of service and quality assurance applications

For measuring the following variables (more to come soon!):

- o temperature
- o conductivity
- o pH/Redox
- dissolved oxygen







# Indicators / regulators

- 0 universal inputs
- 0 standard signal
- o resistance
- 0 frequency
- o speed
- o counter
- 0 difference
- serial interface
- o min- and max-peak hold

## **Measuring transducers**

- 0 temperature
- 0 humidity
- o pressure
- 0 conductivity
- o redox
- о рН
- 0 O<sub>2</sub>

### **Temperature sensors**

- 0 temperature sensors are made in-house
- O available with:
  - resistance sensor PT100/PT1000
  - thermocouple
- multiple configuration options:
  - installation length
  - process connection
  - extension tube
  - connection and much more
- custom configurations are even available for small quantities

















### HONSBERG

For decades, the Center of Competence Honsberg has been considered a top address for measuring and monitoring flow, fill level and pressure in industrial applications. Dependable application engineering and the profound and innovative know-how of our product development specialists married with unsurpassed product quality and reliability have given Honsberg the tools that have turned us into a major contributor to the success of our customers and one of the best performers in the global marketplace since we started out in 1963.

Employing a staff of 70 at the location Remscheid, Honsberg engineers and produces measuring and monitoring equipment for the process variables of flow, fill level and pressure as well as for temperature and filtration, focusing on aqueous liquids and oils as well as air and gases. Our wide selection of existing product technologies that offer mechanical, electromechanical and electronic functionalities has put us in the position to match our customers with the perfect solutions to their specific measurement challenges – and include such services as application-oriented product adaptation and design-in. ISO-certified QA management, powerful on-site manufacturing technology, assembly stations with order-specific one-piece-flow production and state-of-the-art Kanban logistics, integrated materials handling and an extensive array of test and inspection stations have laid the professional groundwork necessary to deliver pristine product quality and ensure a dependable supply chain.

These factors have made Honsberg an esteemed and trusted supply partner for global players operating in a multitude of industries including machine tools, medical technology, agricultural engineering, environmental engineering, construction machinery, industrial cleaning technology, thermal process technology, refrigeration, power plants, plastics machinery, mining technology, food technology and many others. Breaking new ground, the intelligent sensors engineered by Honsberg at the field level satisfy the requirements of the mega trend Industry 4.0 and pave the way for the next generation of industrial applications.







# Measuring technology made to order. Customer-specific solutions for professional users.

#### **Fields of expertise**

- Fluid measuring technology for:
  - Machinery and plant construction
  - Farming and construction machinery
  - Mining
  - Medical technology
  - Food technology
  - Power generation
  - Process technology
- Monitoring cooling and lubrication circuits
- Monitoring hydraulic systems
- Measuring technology for dosing applications
- Products cover the measuring variables of: flow / flow rate, pressure, temperature, fill level
- Measuring medium: water, oils and gases
- Flow measurement and monitoring based on various principles
  - Spinner/turbine
  - Piston
  - Magnetic-inductive
  - Paddle
  - Thermal (calorimetry)
  - Vortex
  - Gear / spindle (volumetric)
  - Dynamic diaphragm
  - Fluid conditioning by fluid technology

### Typical product characteristics

- Robust design for harsh ambient conditions in industrial environments
- Wear-free design for long years of use
- Modular device design for a high degree of adaptability to customer requirements
- O High pressure resistance
- Explosion protection according to ATEX
- Quality "Made in Germany"

#### A location as standard for quality

- O Development and production under one roof
- Tailored solutions can be engineered even in small quantities
- Optimal adaptation of the measuring technology to the customer's specific requirements
- Exceptional degree of flexibility thanks to just-in-time production
- Short delivery times thanks to standardised production even for special devices
- O Qualified application consulting
- Unparalleled expertise thanks to a staff with long years of experience in the relevant industries

# Flow measurement.





### **Flow measuring**

#### Flow measuring with spinners and turbines: Types RR/RT

- 0 simple and reliable functional principle
- 0 linear characteristic curve
- multi-function signal outputs

#### Flow measuring with a dynamic diaphragm: Type XF

- 0 lowest tendency to contamination
- next to no friction effects, providing for minimum wear and low pressure loss
- o service-friendly
- modular system allows for a high number of possible material combinations
- space-saving: sSuitable for use in any piping configuration



# Oil volume measurement with gear and spindle technology:

### Types VHS / VHZ

- maximum measurement stability thanks to viscosity dependence
- easy to install thanks to comparatively light and compact design
- bi-directional operation and measurement possible

#### Flow monitoring/measuring with piston inline: Type HD2K/OMNI

- parameters can be set up on site
- measurements stabilized in the event of viscosity fluctuations
- 0 backlit graphics LCD display for perfect readability
- o robust full metal housing, pressure-proof up to 500 bar





# Flow measuring

#### Flow monitor paddle: Type UB1

- powerful microswitch with gold-plating for small currents
- suitable for loads exerted by ferritic media thanks to hermetic separation from the medium
- with TÜV certification for compliance with safety requirements
- economical monitoring solution for large nominal pipe widths

#### Thermal flow measurement: Type OMNI-F

- 0 no moving parts in the medium
- o no wear
- o minimum pressure loss
- O Ccn be read and parameterized at the measuring point
- medium temperatures up to + 120 °C
- o pressure-proof up to 200 bar

### Magnetic-inductive flow measurement: Types FIS / MID1

- high measurement accuracy
- no moving parts in the medium
- o no wear
- 0 minimum pressure loss

### Capacitive fill level measurement: Type LCC

- for non-conductive liquids (e.g. fuel, lubricating oil)
- form can be adapted to the application
- o turbulent surfaces can be hidden via filters
- signal behaviour parameters can be adjusted within broad limits









### MARTENS

Sensors are the sensory organs of industrial production. This sense is sharpened at our Center of Competence Martens. The GHM GROUP develops its special feel for measurement precision and the inclusion of customer-specific requests.

When the task at hand is the measuring, controlling and regulating of processes, we provide you with precisely the suitable technology. At our Center of Competence Martens in Barsbüttel, near Hamburg, we develop and produce robust and reliable components for the demanding process and industrial technology. In this regard, the seal of quality "Made in Germany" not only characterizes the quality of our technical solutions, it equally stands for the innovative strength of the enterprise. There is good reason why the delivery and manufacturing programme ranges from digital indicators, to measuring transducers and evaluating devices, and extends to sensors – the entire spectrum of modern analysis and industrial measuring technology.

We satisfy customer-specific requirements with especially adapted devices. The resulting versatility of our products is reflected in a broad range of applications: From building technology to plant engineering, to the food and pharmaceutical industry, our products measure, control and regulate countless technical processes. Virtually any physical variable can be measured, recorded and evaluated. And one significant variable can be materially felt: The quality. We consider care to be the most important additional material, of which our products are manufactured.







# **Measurable high quality.** Fast solutions through innovative technology.

#### **Fields of expertise**

- industrial measuring and automation technology proven millions of times over
- standardized and certified products in accordance with EN61508 (SIL), ATEX, EN14597
- decades of experience in conductivity and pH value measurement
- sensors with hygienic design, some of which including FDA and / or EHEDG certificate
- specially designed controllers for multifunctional use across a wide range of applications
- customer-specific versions available in every unit count
- fast delivery thanks to extensive vertical range of in-house manufacture
- 0 large number of measuring variables
- process adaptation with superior flexibility: Weld-on nozzle, female thread, TriClamp, milk tube connection, VARIVENT<sup>®</sup>, PVC-U fittings, immersion cells

# Measuring and controlling in accordance with all rules of the art and the laws of physics

- control cabinet devices
- 0 indicators
- 0 multifunction regulator
- O sensor systems and process adaptation

# Control cabinet devices, safety-related assemblies, automation technology, indicators and sensors.





# **Control cabinet devices**

- massive selection of isolating amplifiers and measuring transducers – some of which are available as ATEX versions
- fast and reliable commissioning thanks to easy-tograsp operating concepts
- O custom characteristic curves
- time and material-saving installation thanks to highly advanced system technology
- 0 diverse range of measuring variables:
  - voltage AC/DC
  - current AC/DC
  - power
  - frequency
  - temperature (Pt100, Pt1000, thermocouples, NTC)
  - standard signals
  - esistance (linear or potentiometric)

# Safety-related assemblies

- temperature and safety-temperature related limiters according to EN14597 for monitoring of thermal processor systems
- o for switch panel installation or top-hat rail mounting
- safety temperature limiter with SIL 2 and ATEX approval
- wide range of limit value switches with SIL 2 and ATEX certification
- isolation monitor according to EN61557-8 for monitoring IT networks



# Automation technology

- data loggers, process computers, PID controllers, multifunctional controllers, isolation recorder with built-in configurable sequential control
- o integrated process simulation









# Indicators

- dramatically reduced configuration times thanks to designs that are tailored to the measured variable
- with limit value and measuring transducer function
- control panel installation housing or IP65 field housing with a rugged, shock-resistant design
- feed from an external source or from the current loop
- o in part, with integrated or mounted sensor
- for switch panel or wall installation or head mounting on the sensor
- wide range of measuring variables, e.g.:
  - tank content (fixed or configurable tank shape)
     speed
    - speed
  - productivity
  - counter
  - voltage AC/DC
  - current AC/DC
  - flow
  - standard signals
  - BCD
  - conductivity
  - pH value

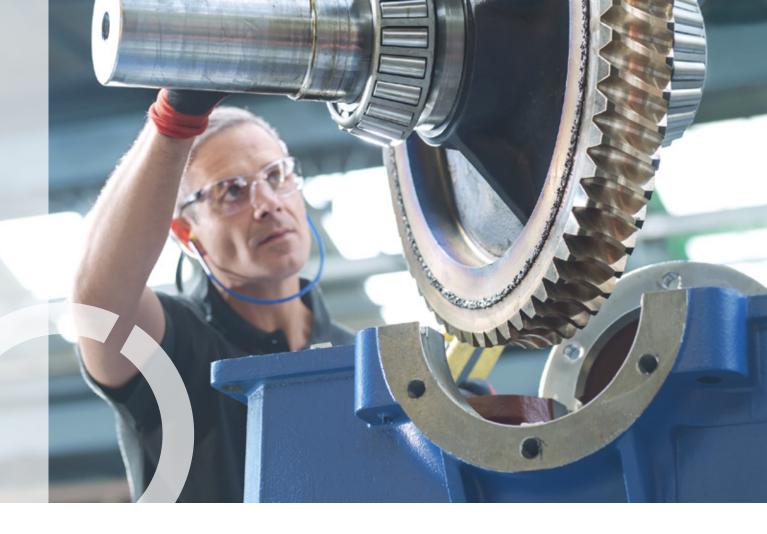
### Sensors

- precise and industrial and hygienic sensors with a hygienic design (FDA, EHEDG) measuring fill level, limit level, flow, pressure, temperature and turbidity
- temperature measurement without intervening in the process thanks to clamp-on sensor mounted on the pipe
- 2-pole and 4-pole conductivity measuring cells, suitable for use in ultra-pure water, waste water and abrasive chemicals
- process adaptation with superior flexibility: Welding in, imperial threads, TriClamp, milk tube screw coupling, VARIVENT<sup>®</sup>









## **IMTRON**

When quality is on the test stand, Imtron is the partner of choice. The specialist for stationary and mobile testing procedures assures activity in the power and automotive industries with components and systems.

As a manufacturer of metrological components for industrial applications the Imtron brand stands for a Center of Competence that has become one of the most wellknown providers in the market. We manufacture systems for the processing and acquisition of physical parameters. Regardless of whether these are metrological parameters, such as pressure, temperature and distance, or angles, current or torque – with precision and reliability our metrological components and system solutions have made their way to the top echelons of German and international technology enterprises.

Not least, implementation by customers, such as ZF, Rheinmetall, Bosch, the Schaeffler Group and the VW Group of Daimler confirms the outstanding quality and reliability of our solutions. Our hardware and software provide important data and facts concerning all measured parameters, on stationary test stands of the automotive industry, and in mobile applications for test runs and test flights. They provide important data for power management with seamless monitoring for solar power plants and wind farms. The Center of Competence is committed with all its energy to metrological excellence on site at our customer's facilities.







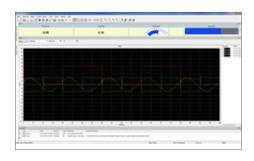
# Data that is checked for reliability. Metrological solutions at the highest level.

### **Fields of expertise**

- O quick and high-precision isolating amplifiers
- o long-term experience in measurement data recording
- modular system technology for individual adaptation to the application
- modern network technology for integration into Industry 4.0 concepts
- precise, low-noise and universal signal conditioning for a wide variety of sensors
- analogue and digital signal filtering for interference suppression
- galvanic isolation for avoidance of measurement problems
- O quick digital data acquisition
- o development of customer-specific solutions

# Measurement data recording with SIQUAD, TSA series, calibration and testing.





# **SIQUAD** series

### **Highly cost-optimized**

High-quality, universal and modular computer-controlled system.

4-channel SIQUAD universal amplifier for a multitude of different sensors with 24-bit AD converter and up to 20 kS/s scanning rate per channel

- sensor-specific SIQUAD amplifiers for DMS, voltage, current, temperature, IEPE / ICP<sup>®</sup> sensors and frequency generators
- inserts for Analogue Out and Digital IO and for the integration of CAN devices
- o isolated inputs
- analogue and digital signal outputs
- o ethernet and CAN interface
- all channels are recorded with chronological synchronization



# **SIQUAD Compact series**

#### Universal, independent and compact

- o individual, universal or sensor-specific amplifiers
   (1, 2, 4, 8, 16 channels) for decentralised measurement data recording
- o isolated inputs
- O digital signal processing and filtering
- o signal output via CAN bus or Ethernet
- various housing versions for increased flexibility





# **TSA** series

#### **Isolated with filters**

Mounting rail modules for potential-free, low-noise signal conversion, condition and linking.

- high-precision isolating amplifiers for suppression of interference and prevention of earth loops
- pre-configured modules ensure quicker commissioning with reduced programming work
- galvanic isolation of power and signal electronics provides protection of downstream electronics
- inputs for standard signals and for DMS bridges,
   DC signals, potentiometers, temperature sensors,
   ICP<sup>®</sup> sensors as well as speed and pulse generators.
- standard outputs for current and voltage
- interchangeable filters of the 4<sup>th</sup> (8<sup>th</sup>) order for interference suppression
- high bandwidth of up to 30 kHz for processing rapid signals
- optional second output for signal duplication



## **Calibrating and testing**

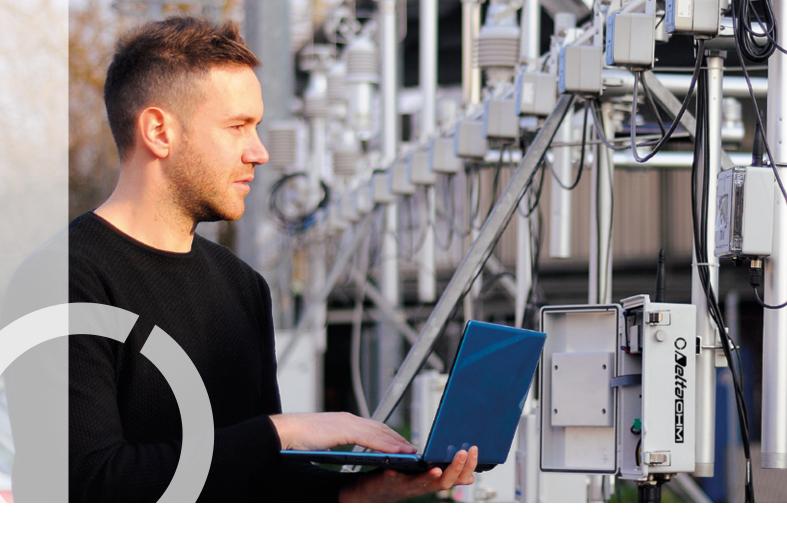
#### **Universal simulator GHM-SIM-1**

- highly versatile hand-held device for simulating voltage, current, thermocouples, Pt100, DMS bridges and frequencies and for measuring voltage and current
- ideal for commissioning, maintenance and troubleshooting

#### **Calibrators for DMS measuring amplifiers**

- O as a hand-held device or with IEEE488 interface
- o bridge resistances of 120, 350, and 1000 Ohm
- detuning values of 0.1 to 50/250 mV/V
- $\circ$  accuracy  $\pm 0.02\%$





### **DELTA OHM**

The man is the measure. In no area is this more evident than in environmental measuring technology. Delta OHM is the specialist within the GHM GROUP for this purpose. Delta OHM develops devices with an emphasis on people and nature.

In no other area can the collected data take on such a decisive role as in the field of environmental measuring technology. At our Center of Competence Delta OHM, which is located in Padua (near Venice), we have been dedicating ourselves for 40 years to offering a product portfolio of unrivalled quality and to working on the development of sustainable components for use in the field of meteorology. The tool that is paramount to this endeavour is our scientific know-how.

Our product range is comprised of measuring instruments, wireless data loggers as well as environmental and weather stations for capturing acoustic information, vibrations, micro-climate data, air quality CO-CO<sub>2</sub>, water analysis, relative humidity, wind speed, photometry, radiometry, light, temperature and pressure. With this core competence Delta OHM has earned an outstanding international reputation in the area of developing and producing electronic measuring devices and has advanced to one of the leading businesses in the field of meteorology.

This unique scientific flair for the environment is deeply ingrained in our company's DNA.







# **Innovative solutions for natural data.** Maximum precision in environmental measuring technology.

#### Inspired by the environment

Delta OHM engineers and manufactures a comprehensive range of meteorological equipment designed for measuring wind speed, wind direction, precipitation, barometric pressure, humidity, radiation and temperature. What is more, Delta OHM's portfolio also comprises an exhaustive selection of professional measurement and control devices such as transmitters, sensors, data loggers and hand-held devices.

#### Safe, precise and stable instruments

The calibration center at Delta OHM is comprised of six state-of-the-art laboratories who employ technology that is on the leading edge of the industry, which has earned them both ISO 17025 certification and has made them part of the international accreditation system ILAC-MRA (ilac-MRA ACCREDIA LAT N°124). Our laboratories have been certified for the following physical variables: temperature, humidity, pressure, air speed, acoustics, photometry and radiometry.

#### High-tech for ultimate performance

• The design of our equipment is geared towards affording the user low maintenance and measurements of superior precision. Reliable and traceable in accordance with the strictest standards and recommendations for technical design issued by the WMO (World Meteorological Organization).

#### Green measuring technology

- o temperature and humidity sensor
- o wireless data logger
- o pyranometer
- o anemometer





# Environmental technology.







# Meteorological solutions for precise and dependable measurements of all relevant variables

- meteorological instruments, developed at our own R&D department in accordance with WMO recommendations
- wide selection of sensors capable of capturing all relevant measurements: temperature, pressure, humidity, precipitation, wind speed and direction, solar radiation and carbon dioxide
- high precision and exact measurements gauged at our own calibration centre, which has been certified in accordance with ISO 17025
- extensive experience and expertise in developing and manufacturing complete weather stations
- smart design for long-lasting and consistent performance as well as low maintenance requirements
- all-inclusive data logging system capable of storing data in the cloud

# Wireless data logging systems

- fully wireless system that includes all measuring principles
- o suitable for both indoor and outdoor use
- can be combined with any type of measuring signal
- software for the pharmaceutical market, including CRF21 Part 11
- measuring technology specifically designed for monitoring clean rooms
- o data storage in the cloud or a local database

# Industrial transmitters

- robust, accurate and reliable transmitters as integral parts of automatic systems or PLCs
- analogue outputs or digital communication
- o engineered for process conditions
- possible measurements: temperature, humidity and derived values, pressure, air speed, light, and CO<sub>2</sub>





# Hand-held devices and data loggers

- o developed for industrial use
- o robust housing
- possible measurements: temperature, humidity, pressure, air speed, light, CO, CO<sub>2</sub>, pH value and conductivity, dissolved oxygen, and turbidity

# Occupational health and safety

- extensive range of products designed to record and analyse environmental conditions at the workplace
- measuring equipment conforms to global standards and regulations intended to ensure worker protection
- sound level meters (Class 1 and 2) noise sources, calibrators and software for data analysis
- cibration testers, software for data analysis, and calibrators
- photometric and radiometric instruments and probes for measuring light
- non-coherent optical radiation according to 2006/25/EC
- WBGT, PMV / PPD heat load and comfort measurement (ISO 7726 / ISO 7730)
- 0 recording of air quality in interior rooms

# **Calibration laboratories**

- o fully certified calibration laboratories ISO 17025
- traceable in accordance with international standards
- certification for temperature, humidity, pressure, sound, wind speed (in two wind tunnels) and a fully equipped calibration facility for photometryradiometry measurements (the only one in Italy)





# VAL.CO

Founded in 1982, the Val.co corporation quickly made a name for themselves as a specialist in the industry of measuring and fill level measuring technology. The quality and dependability of their products allowed Val.co to rapidly solidify their market position and evolve – over the course of only a few years – into a key yardstick for the industry in the areas of fill level measuring technology as well as flow and temperature monitoring.

Our Center of Comptenece Val.co uses their base in Sant'llario Milanese near Milan to draft, engineer and manufacture all of their products.

At present, the company employs a staff of 35 who collaborate in perfect tandem and drive themselves with utmost motivation to achieve the company's corporate objectives. The greatest strengths of the company lie in the profound expertise and dynamic of their sales staff and in the know-how and experience of their team of technicians.

Conceiving and designing all of their production facilities, machines and test benches in-house, the company can guarantee that their products will deliver the highest possible quality and reliability. The quality management system applied by Val.co is certified in accordance with ISO 9001.

All operational processes in the areas of inventory management, warehousing, production, control, sales and distribution are controlled by the AS400 operating system. The interaction between the system and the high bay warehouse optimizes the supply to the production department, ensuring that the components match the processing specifications and that inventories are always up to date.

Val.co has been supplying their products to a variety of industries with tremendous success – including systems for industrial processes, for storing mineral oil products, for refineries, lubrication systems, cooling equipment as well as electricity generation plants and galvanic systems, for the beverage industry, etc.

The unceasing modernisation and further development of their production and production management technology have made Val.co's operations fit for the fourth industrial revolution, the so-called Industry 4.0.







# **Monitoring and measuring liquid levels.** Custom models tailored to customer needs.

#### Areas of application

- o fill level monitoring in tanks/ containers
- refineries with warehouses
- power producers
- machinery for agriculture
- wine and beverage industry
- o oil hydraulic systems
- o galvanic systems
- shipping sector and cooling towers
- 0 central lubrication systems and water treatment plants
- sensor technology: floating, conductive, capacitive, and optical

#### Measuring technology

- O resistors with reed chain, magnetostrictive, ultrasound
- main liquids and treated products: water, oil, diesel oil, petrol, solvents, milk, beverages, solids, powder, and granulates

#### Types

- o magnetic float, reed contact
- 0 magnetic float, resistance sensor with reed chain

- magnetic float, magnetostrictive component
- static probe, conductive electrodes
- o static probe, optical infrared sensor
- mechanical, rotating paddles, synchronous gear motor

#### **Product characteristics**

- robust construction for industrial processes and heavy duty use
- o maintenance-free
- hermetically sealed, replaceable electrical module
- long service life of the electrical and mechanical components
- design tailored to the customer's requirements
- models for high-pressure and high-temperature applications
- models with ATEX explosion protection certificate (EXd and EXia), EAC certificate or approval for use in shipping in accordance with the RINA Italian marine standards

# Fill level and flow.



# Limit level monitoring with float: SIMPLE product family

- for floor and cover installation
- simple and reliable functional principle
- o space-saving
- wide range of possible materials
- temperature resistance up to + 180 °C
- o also available as ATEX 1G Exia IIC T6 models



# Limit level monitoring for several levels: MULTIPOINT product family

- for vertical installation
- for tank heights of up to 6 m and for capturing 6 different levels
- wide range of possible materials



# Limit level monitoring with lateral installation: Product family MULTIPOINT - L

- free choice of installation position
- 0 monitoring of up to 6 fill levels
- pressure-resistant up to 50 bar



# **Product family SIMPLE – ML**

- o free choice of installation from the inside or the outside
- wide array of possible applications at media temperatures of up to + 130 °C
- vast number of material combination options





# Continuous fill level measurement with resistance chain or magnetostrictive systems: LINEAR product family

- high resolution starting at 5 mm for superior measuring accuracy
- optimum measurement reading with on-site display
- 0 measuring lengths of up to 6 m

# Flow monitoring with piston inline: FCM product family

- robust brass housing
- 0 free choice of vertical or horizontal position
- o service-friendly
- 0 outstanding price-performance ratio

# Flow indicator with integrated turbine: VISION product family

- 0 robust brass or plastic housing
- 0 for bi-directional flow
- 0 sight glass, pressure-resistant up to 30 bar
- o simple assembly

# Signal measuring transducer with digital display: MULTISIGNAL product family

- o programmable measurement data
- 0 up to 6 relay outputs
- 0 LED alarm signal
- signal inputs for current, voltage, frequency or resistance
- signal outputs as current or voltage (V)
- o display backlit











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