

# OEM and System Integration

Weighing Components

# 20 News

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## Exceed Customer Expectations Easy Sensor Integration

**Flexibility when integrating automation is critical to your success. METTLER TOLEDO helps you improve machine performance and exceed your customers' highest expectations, because weight dramatically affects the quality of your machine output.**

### Do you have the right sensor?

When it comes to weighing in automated production environments, important properties such as readability, repeatability and sensitivity should be your top considerations. Additionally, avoid using resolution as your sole selection criteria, as this alone will not guarantee stable results or high quality.

Choose from a wide variety of smart load cell technology, including high-performance, POWERCELL® or high-precision automation sensors offering more stable results and informing you when your quality is at risk.

### Are you ready for automation?

METTLER TOLEDO sensors transmit accurate weight at very high speeds through networks such as Ethernet/IP or PROFINET. To support your integration needs, device drivers such as Siemens' GSDML and Rockwell's custom AOPs provide you with complete data and status information ensuring your system's performance.

Read on to see how working with METTLER TOLEDO technology ensures you serve your customers with ready-for-automation equipment.

**METTLER TOLEDO**

## Save Time with Easy Integration Through State-of-the-Art Connectivity

Time-consuming and complicated integration of weighing devices can be costly and frustrating. Integrating the newest METTLER TOLEDO high-precision weighing transmitters makes it simple to connect to any PLC and speed up your machines with consistent dataflow.



### CEO: Integration has never been so easy.

"Using METTLER TOLEDO, my engineers spend less time integrating, programming and commissioning our machines. This saves us money on every single project and has an impact on our overall performance."



### Engineer: Installation time is reduced up to 5 times.

"In the past we used expensive and complicated equipment. Now with ACT350 we can connect all weighing technologies, make our machines run faster and reduce our commissioning time on every installation. In the past it took us 15 to 30 minutes, now we are down to 3 to 5 minutes per installation."



### Technician: My job just became easier!

"We are excited because we can set up this equipment through the built-in web server which allows us to easily enter the IP address and get the unit to talk to a PLC. We start our commissioning using CalFREE™ or CalFREE™ Plus through the interactive display to shorten our calibration process."

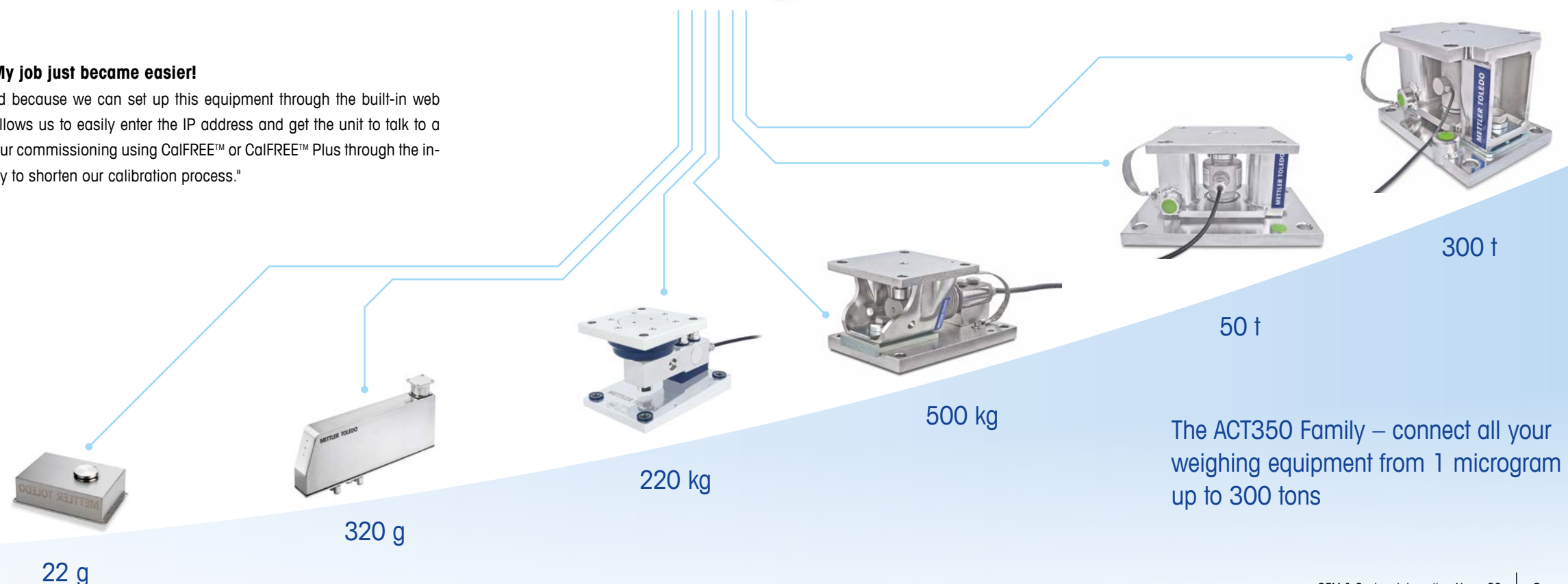


### 5 Reasons ACT350 Family is the Right Choice for Your Application:

- Standardized communication, device drivers and sample code
- Easy integration into automation systems
- Faster installation and competent support
- Extremely fast weighing
- Unique security functions

Learn more about our transmitter family

► [www.mt.com/ACT350](http://www.mt.com/ACT350)





## Don't Risk Getting Lost Navigate to the Ideal Solution

Machine builders face new challenges every day. Satisfying different needs on an end customer's site can be a challenge, especially when exporting machines worldwide. METTLER TOLEDO can help you find the perfect solution to fit all your customers' needs – and ensure you don't get lost along the way.



### Compliance with global approvals and certificates

Globally, different approvals and certifications are regulated by the legislatures of individual countries. Our products comply with the most relevant required approvals. This ensures that your machine can be exported easily.

► [www.mt.com](http://www.mt.com)



### Tailor-made for machine integration

Machine and instrument manufacturers supplying the Chemical, Food and Pharmaceutical industries need tailored weighing components. Our automated precision weigh modules offer versatile mechanical, electrical and software features for easy integration.

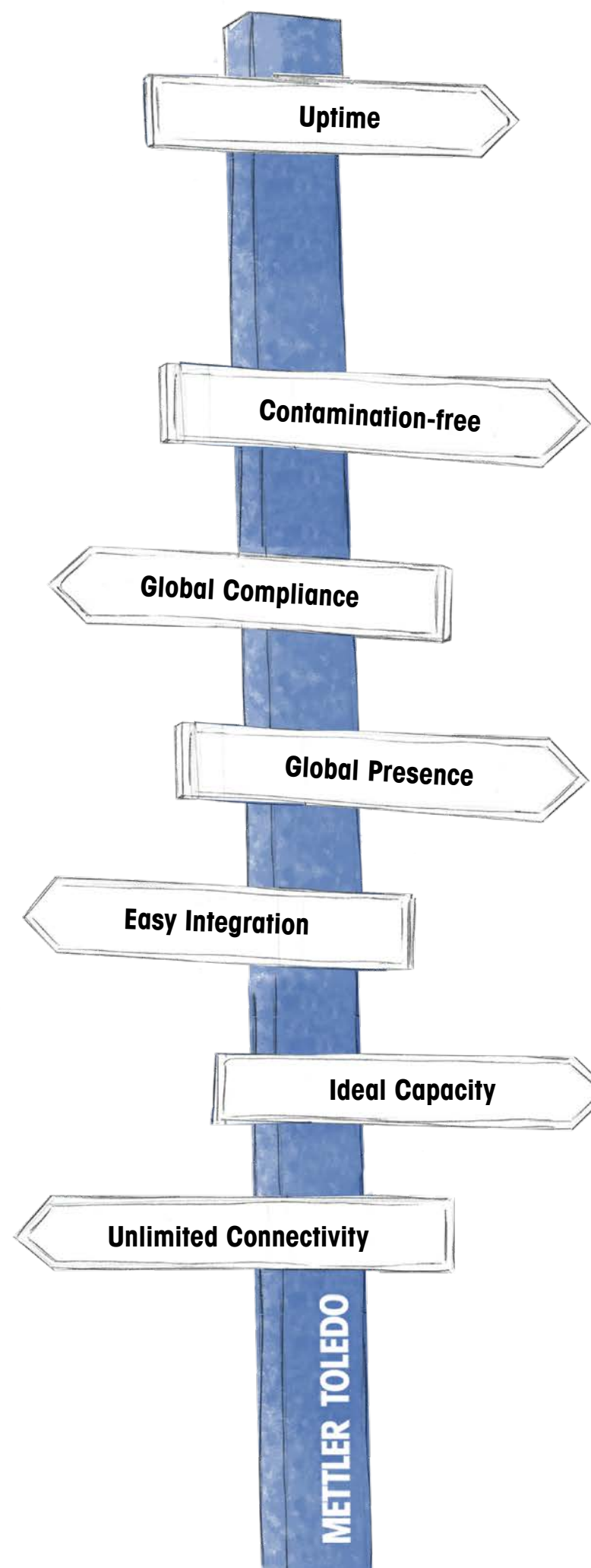
► [www.mt.com/APW](http://www.mt.com/APW)



### Direct connectivity to the most common PLC and Cloud Protocols

Standardized interfaces allow easy communication with the most common industrial PLC networks and cloud protocols. This allows you to provide the same control algorithms. Now you can connect any type of scale and sensor to any control device.

► [www.mt.com/ind-4-0](http://www.mt.com/ind-4-0)



### Weigh module for predictive maintenance

The POWERCELL® load cell inside the PowerMount™ weigh module has an integrated microprocessor that processes weight results. It provides condition-monitoring data for maximum uptime and predictive maintenance.

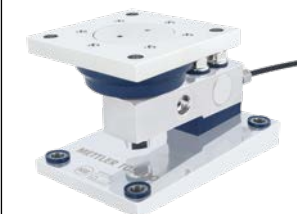
► [www.mt.com/ind-PowerMount](http://www.mt.com/ind-PowerMount)



### Certified hygienic equipment

Hygienic MultiMount™ weigh modules fulfill hygienic design requirements for minimal contamination risk and easy cleaning. Increase efficiency due to highly-polished self-draining surfaces that clean and dry easily and quickly.

► [www.mt.com/ind-SWB805](http://www.mt.com/ind-SWB805)



### More than 7,500 factory-trained experts

With our own market organizations as well as regional partners operating in most countries, we are ready to serve customers all around the globe. In total, our products and services are available in more than 100 countries.

► [www.mt.com/Service](http://www.mt.com/Service)



### The right capacity for your application

In order to provide high accuracy, you want to closely match scale capacity to load. Our comprehensive range of weighing cells covers everything from 10 grams to 300 tons with a lowest available readability of 0.001 milligram.

► [www.mt.com/industrial](http://www.mt.com/industrial)



## One Hour Less for Cleaning Speeds Up Changeover

A manufacturer of multi-head bottle filling machines for edible oil switched to new load-cell technology. It offers PROFINET, PROFIBUS DP and EtherNet/IP™ connectivity, real-time diagnostics and a design that saves more than one hour per day for thorough cleaning.

Weighing is typically used to accurately fill edible oil, sauces and other highly viscous liquids. A manufacturer producing machines operating up to 60,000 filling cycles per hour decided to switch load-cell brands to METTLER TOLEDO for higher performance.

### Superior protection, thorough cleaning

The SLP85xD family is made of stainless steel for integrated protection that guards the load cell from overload of up to 100 kilograms. It is easier to clean than the load cells from the previous supplier, which have tight gaps that are difficult to access. In addition, the

SLP85xD family has IP68/69k approved protection. Those features save more than one hour per day for cleaning and facilitate fast changeover.

### Faster installation

A multi-head filling machine includes a lot of load cells. As a result, time for configuration and optimization of load cells

matters. The computer-based APW-Link™ software offers batch configurations to save costly installation time.

### Real-time diagnostics

Fully automatic multi-head filling machines are one part in a multi-step process. Such automated production and packaging lines don't cope well with

unplanned repair stops. The SLP85xD family provides real-time diagnostics information that can warn of upcoming problems and allow preventive maintenance. The load cell status is always under control, either by watching/supervising the LEDs on the load cell or via the message transmitted to the PLC.

### Algorithm for fast filling

The on-board microprocessor of the load cell offers an option with a filling algorithm to control five digital outputs. This allows the load cell to control the dosing device of the filling head for fast and accurate filling. It also saves labor and material for connecting the filling heads with the PLC.

### Communication with PLC

The new SLP85xD family of load cells has the most common network technologies on board. It supports future technology with its industrial Ethernet-based PROFINET IO RT and EtherNet/IP network technologies. Easy integration with the new Standard Automation Interface Command Set reduces complexity and programmer time. For legacy applications, it still offers PROFIBUS DP.

### SLP85xD Load Cell

Capacity: 10 kg or 20 kg

Readability: 1 g or 2 g

Operating temperature:

-10 °C to 50 °C

IP protection: IP68/69K

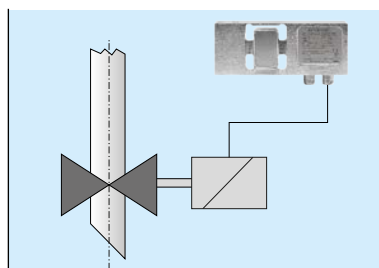
Material: Stainless steel

Digital inputs: 3 limit switches

Digital outputs: 5 cut-off points

Interfaces: PROFINET®,  
PROFIBUS® DP, EtherNet/IP™

► [www.mt.com/SLP85xD](http://www.mt.com/SLP85xD)



### Digital outputs

Digital input and output plus a microprocessor with filling algorithm on the load cell offer the possibility to control the dosing device to speed up filling.



### Overload protection

The load cell is protected from overload in the event of handling device malfunction or mistakes during installation up to 100 kg.



### Connectivity

All fieldbus-related electronics for communication are incorporated inside the weigh module. Just plug in and communicate.



## Powerful CO<sub>2</sub> Measurement Solution for Analog and Digital Benchtop Bioreactors

Monitoring dissolved CO<sub>2</sub> in cell culturing normally involves time-consuming use of a blood gas analyzer. METTLER TOLEDO's solution combines convenient, in situ CO<sub>2</sub> measurement with the power of digital technology – even on analog biocontrollers.

### The importance of CO<sub>2</sub> control

In mammalian cell culturing, the measurement and control of dissolved CO<sub>2</sub> is becoming increasingly common. Controlling CO<sub>2</sub> is important as excess levels can be toxic to the cells and can also affect the quality of protein products. More specifically, as aerobic mammalian cells grow they consume nutrients and O<sub>2</sub> and excrete CO<sub>2</sub>, ammonia and lactic acid. As cells continue to proliferate, the concentration of excreted byproducts increases and can lead to an overall drop in pH which is unfavorable for further cell growth.

### In situ CO<sub>2</sub> monitoring

The InPro® 5000i sensor allows for the accurate measurement and control of dissolved CO<sub>2</sub> in biopharmaceutical applications from benchtop reactors to full-scale production. The sensor's measuring technology is based on the Severinghaus principle of potentiometric CO<sub>2</sub> measurement which has been widely accepted for almost 50 years. The high surface finish of the stainless steel shaft prevents contamination and the sensor is fully sterilizable either in situ or in an autoclave. The design of the membrane dramatically reduces full

service time to just minutes. The interior body, a high-performance pH electrode, can easily be replaced on site.

Intelligent Sensor Management (ISM®) features in the digital InPro 5000i include advanced diagnostics that continuously evaluate sensor "health" and predict when servicing will be required. However, most biocontrollers are not able to accept digital sensors, so METTLER TOLEDO has developed a sensor-mount transmitter that converts the InPro 5000i's digital signal to analog while still allowing access to the features of ISM.

### M100 SM

- Single-channel transmitter for biocontrollers
- Allows analog biocontrollers to accept digital sensors
- Two configurable 4/20 mA outputs
- Modbus RTU digital interface
- [www.mt.com/M100](http://www.mt.com/M100)



### iSense

- Intuitive software records sensor maintenance and history for FDA and GMP compliance
- Guides operators through sensor maintenance tasks
- iMonitor screen uses simple color coding to display sensor "health"
- Available in mobile version for smartphones
- [www.mt.com/iSense](http://www.mt.com/iSense)

### InPro 5000i

- In situ measurement of dissolved CO<sub>2</sub>
- Autoclavable and steam sterilizable
- Long lasting and easy to maintain membranes
- Advanced predictive diagnostics
- [www.mt.com/InPro5000i](http://www.mt.com/InPro5000i)

### Add digital technology to analog biocontrollers

The M100 SM is a single-channel transmitter for the connection on biocontrollers of CO<sub>2</sub>, pH and amperometric or optical DO ISM sensors. It provides an easy way of bringing the benefits of digital sensors to analog biocontrollers. Traffic light color coded alarms increase process safety by providing a visual signal on sensor condition. The transmitter also has a Bluetooth interface which is compatible with the mobile version of METTLER TOLEDO's iSense™ software. This means that ISM diagnostics can be accessed at any time from a smartphone. Diagnostics and other sensor data can also be sent as an email.

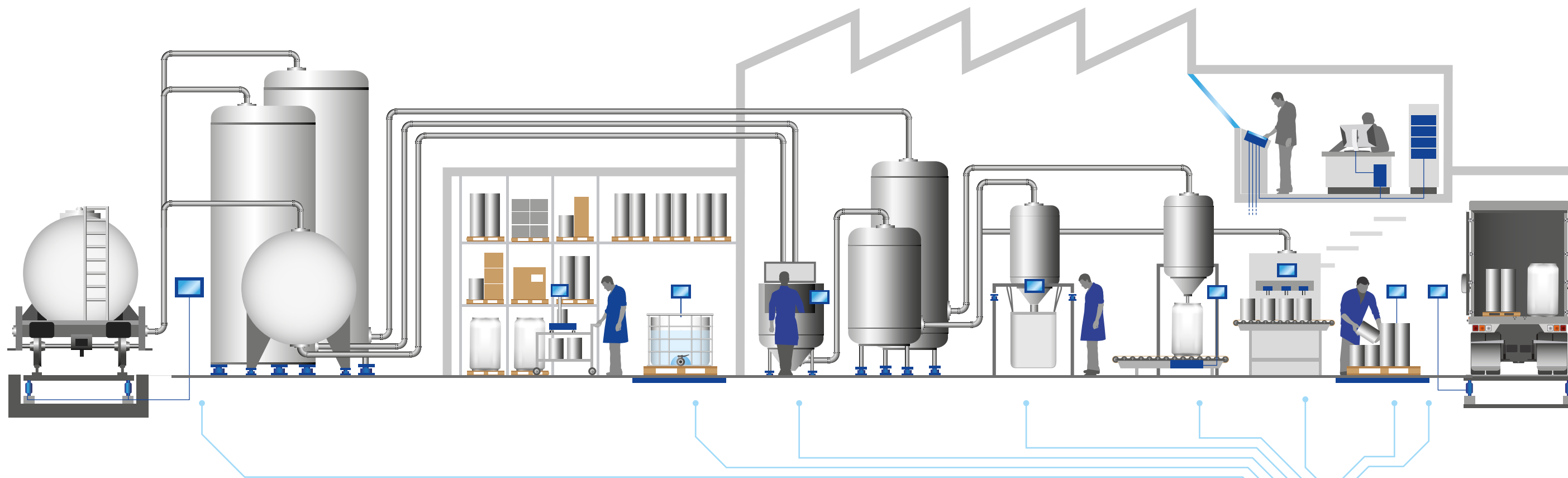
### Electronic signatures

CFR-compliant iSense completes the solution. iSense is a software tool for PCs that provides full control of managing ISM sensors and their maintenance. It supports electronic records and signatures to enable compliance with 21 CFR Part 11 and GMP Annex 11. iSense there-

fore reduces workload and human error by eliminating the need for manual record keeping relating to sensor use on biocontrollers in R&D and PD facilities.

### One technology from start to finish

The combination of the InPro 5000i CO<sub>2</sub> sensor, M100 SM and iSense means the advantages of using the same technology and ISM can be gained from R&D through to the production environment.



## Be Ready for New Business Models Comply with Future Data Management

**OPC UA and MQTT are the new communication standards for non-time-critical data with ERP or cloud-based services. We offer edge-computing gateways to connect new products and the installed base that also reduce data traffic on the network.**

### Adopting the technology to be ready for the future

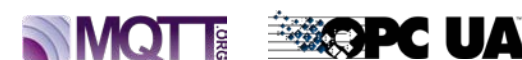
Users of weighing technology take different routes to implement future-oriented technologies into their production processes. Early adopters are either very optimistic or they see a fast return on investment and start directly with cloud-based asset management and sophisticated predictive maintenance. Others just introduce OPC UA connectivity for in-house horizontal data exchange to be ready for services in the future. METTLER TOLEDO serves both user groups and most needs in between with reliable gateway solutions.

### Open platform communications unified architecture (OPC UA)

OPC UA is a hardware- and software-independent interoperability standard for data exchange between devices from multiple vendors. It's assumed future data communication standards inside companies for Industry 4.0 / Industrial IoT. However, it can't substitute fast, real-time technologies such as PROFINET or EtherNet/IP. The OPC Foundation manages collaboration between users, vendors and consortia to define companion specifications to facilitate integration of devices from different vendors. METTLER TOLEDO is an OPC Foundation member.

### Message queuing telemetry transport (MQTT)

This popular messaging protocol is designed for connections with remote locations. MQTT offers three different qualities of service to assure delivery without duplication. The technology is popular with many customers as it is easy to implement on simple devices and requires little memory. Most recently, this messaging protocol has been used for connecting company networks with external off-premise clouds – a simple yet powerful solution.



### Upgrading Installed Base to Modern Communication

The METTLER TOLEDO Edge-Computing Gateway offers OPC UA and MQTT connectivity to upgrade existing bench, portable and floor scales to these modern communication technologies. The gateway can connect one or more existing or new METTLER TOLEDO weighing devices to networks using OPC UA / MQTT technology.

► [www.mt.com/ind-cloud-gateways](http://www.mt.com/ind-cloud-gateways)

### Integrating weighing process data

See how to transfer weighing process data to higher level cloud, MES or ERP systems to make processes more transparent and efficient.

► [www.mt.com/ind-weight-to-cloud](http://www.mt.com/ind-weight-to-cloud)





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### How to stay within specifications

An out-of-spec batch can be extremely costly and lead to frustrated customers. See how POWERCELL® technology can help your customers avoid costly out-of-spec batches and rework, and protect your brand.

► [www.mt.com/ind-In-Specification-Batches](http://www.mt.com/ind-In-Specification-Batches)



### Faster tank calibration

Tank calibration often consists of a time-consuming shutdown, expensive tank cleaning, and the hassle of water or test-weight calibration – until now. See how RapidCal™ works 3 times faster than the alternative.

► [www.mt.com/ind-Fast-Tank-Calibration](http://www.mt.com/ind-Fast-Tank-Calibration)



### Extreme weigh module testing

METTLER TOLEDO weigh modules are safe and accurate from 3 kilograms up to 300 tons. This comprehensive range of extensively tested weighing equipment helps you to find the right tank scale for your customer. See how robust these weigh modules are.

► [www.mt.com/ind-Safe-Tank-Scale](http://www.mt.com/ind-Safe-Tank-Scale)

Visit our YouTube Channel:

► [www.mt.com/ind-youtube](http://www.mt.com/ind-youtube)



#### METTLER TOLEDO Group

Industrial Division

Local contact: [www.mt.com/contacts](http://www.mt.com/contacts)

Subject to technical changes

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