

7 Modern Connectivity Solutions For Weighing Technology

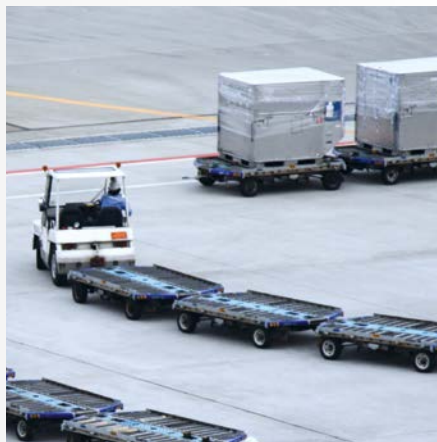
1 OPC UA and MQTT Connectivity
Assures Compliance with IIoT



2 Production Data Monitoring
On Premise and from Remote



3 Predictive Maintenance
Saves Daily Routine Checks



4 PROFINET, EtherNet/IP Connectivity
From 22 g to Thousands of Tons

5 Smart Inventory Control
Never Run out of Parts Again

Avoid Technological Disruption Stay Compliant with Industry 4.0 / IIoT

Legacy communication technology can be the bottleneck when upgrading existing equipment with state-of-the-art condition monitoring and data collection. The METTLER TOLEDO Gateway offering communication via OPC UA and MQTT standard can update existing brownfield installations to extend their profitable life.

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 is the assumed future data communication standard for Industry 4.0 / Industrial IoT.

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.

Comprehensive data security for safe cloud connectivity

Data security is a concern for communication with clouds. A web-based configuration service tool is available to configure the proxy server of the ACI400 Gateway. This allows convenient configuration and backup of security parameters. A built-in switch for the two LAN connectors further increases security.

Comprehensive parameter set dedicated for weighing

Data exchange between weighing systems and MES, ERP-System or Cloud Services can include a large variety of data types in different formats. The Gateway software from METTLER TOLEDO is designed for all common weighing applications and includes a multitude of parameters, making it superior compared to other general-purpose gateway software.



IIoT Gateway software ACI400 converter

Learn more about how to connect new and existing scales to state-of-the-art data processing.



Read More

[www.mt.com/
ind-iiot-Gateway](http://www.mt.com/ind-iiot-Gateway)



One IIoT Gateway can connect up to four scales to MES, ERP or cloud.



Backward compatible:

Connectivity via RS232 interface to connect up to four scales to MES- or ERP System or Cloud Services.



Robust:

Designed for use in production in a 34 x 115 x 82 mm housing made of aluminum die-cast.

Secure:

Equipped with separate 2GB LAN ports, separating communication between MES, ERP or Cloud on one port and weighing on the other port.

Connected During Warranty Avoid Downtime and Interventions

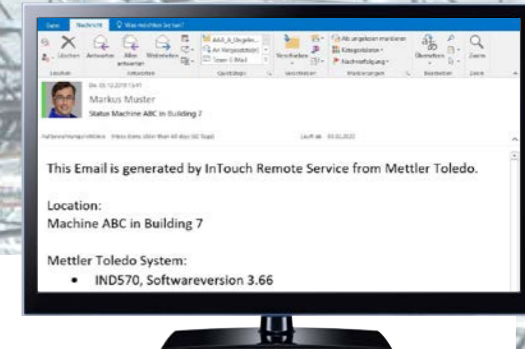
Many machine builders experience high service cost during warranty period due to unexperienced operators or simple mistakes. The new InTouch IIoT Service from METTLER TOLEDO provides condition data allowing the machine builder to avoid unnecessary on site interventions and to keep their customer's machines running at their optimal performance from the beginning.



Email Notifications

Avoid access into your factory as option

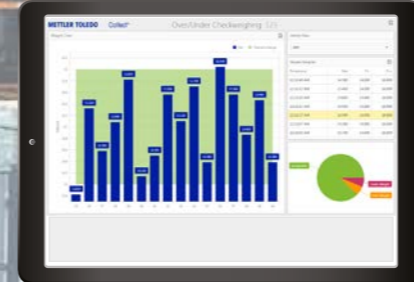
Notification of events, machine-condition and predictive maintenance instructions may be transferred by a simple email to avoid any downward communication between InTouch IIoT Service and production weighing equipment. This facilitates acceptance of remote service by the customer's IT department.



Peace of Mind

Dashboard for production data

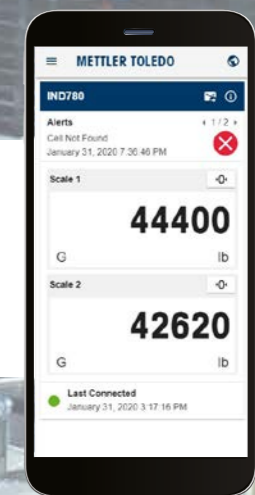
InTouch IIoT Service brings a new perspective to your processes by graphically representing process data and enabling you to make informed business decisions.



Remote Support

Device data for condition monitoring and remote support

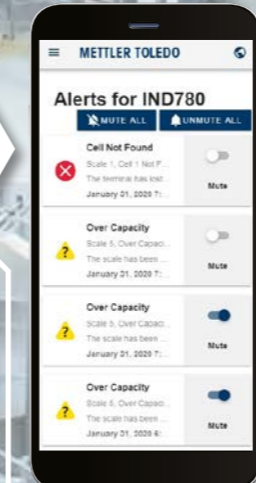
InTouch provides scale condition information to you, the machine manufacturer, so that you always know what is happening on site.



Remote Monitoring

Device data at the place of action and everywhere else

InTouch provides live weight data, scale condition on mobile devices so the user's operators and maintenance personnel have access to all relevant information.



InTouch Digital Service

Use on-site and remote service to avoid unnecessary interventions while increasing your customer's satisfaction with your newly installed equipment



Watch the Video

www.mt.com/ind-intouch

Technology to Find the Right Balance

Digitization to Optimize Air Cargo Transport

Background: Consumer trends in e-commerce are rapidly changing, and customers expect their packages to arrive faster than ever. For this reason, the ability to offer shorter delivery times is a key differentiator. One logistics company updated their operational flow with METTLER TOLEDO solutions for weighing and connectivity, and saw immediate results.

► www.mt.com/GWP



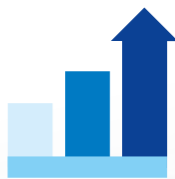
The challenge

The company ships several hundred containers from dozens of different hubs per day with air-freight. At these hubs, operators load each container manually with countless parcels in numerous different sizes. Operators were left to guess their way through the loading process, leading to containers that were unbalanced in weight. In addition, they were not able to capture key details for future load planning or trend analysis.



The solution

METTLER TOLEDO designed a customized weighing platform in the exact dimensions of the air-freight containers. These custom scale platforms included POWERCELL load cells and IND570 terminals. These products worked together to detect uneven load distributions. The system alerts operators when a container is being loaded unevenly. In addition, ACI400 edge devices collect all relevant data and send it directly to the customers cloud.



The result

Since installing the custom scale solution, the customer has noted several benefits. Operators are able to load containers faster, as they get live feedback on the center of gravity, making it easy to evenly distribute weight. In addition, since connecting to the ACI400 they are able to share valuable information from hub to hub. This enables management to see potential for improvements, and more accurately plan for the future.



Data Integration White Paper

Learn how to successfully implement weighing equipment into PLC/ERP/Cloud Systems.



Read More

www.mt.com/IND-data-integration

Smart solutions for connectivity in logistics



ACI400
Edge Device



Cloud connectivity via MQTT to AWS Cloud

The ACI400 IIoT Edge connects scales to AWS Cloud. The device includes an OPC UA Server and several MQTT Clients for the ability to connect to MES, ERP or Cloud Systems.

► www.mt.com/ACI400-iiot-edge



IND570 Terminal
for POWERCELL®

Weighing terminals with advanced alerts

The IND570 PDX, in combination with SLC611D POWERCELL Load Cells can monitor load distribution platforms to detect if the center of gravity is within the set tolerance.

► www.mt.com/powerdeck



Optimize Production Yield Monitor Efficiency from Anywhere

When manually preparing meat, poultry or fish, efficient process control doesn't need to be complicated. An India-based poultry and fish producer invested in basic data collection and visualization software and now benefits from high product traceability, less waste and optimized procedures.

Last year, an India-based poultry and seafood producer installed METTLER TOLEDO ICS bench scales throughout three poultry production areas. By combining these scales with Collect+™ data collection software, the company can monitor results on multiple dashboards, track operator efficiency, analyze yields and improve product traceability. The system is delivering impressive results and providing guidance for further process optimization.



Improve traceability: Monitor goods-in

In the entrance zone, all incoming chickens are weighed, controlled and classified before being sent to the packaging zone. The dashboard for this area indicates:

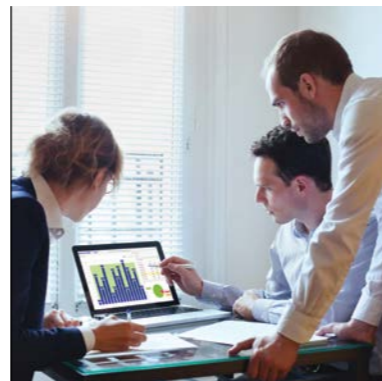
- Product data
- Weighing results
- Incoming totals



Versatile material dispensing

In the packaging zone, the chickens are prepared according to retailer specifications. The chickens are either wrapped completely or cut and portioned into trays. Operators can control and monitor:

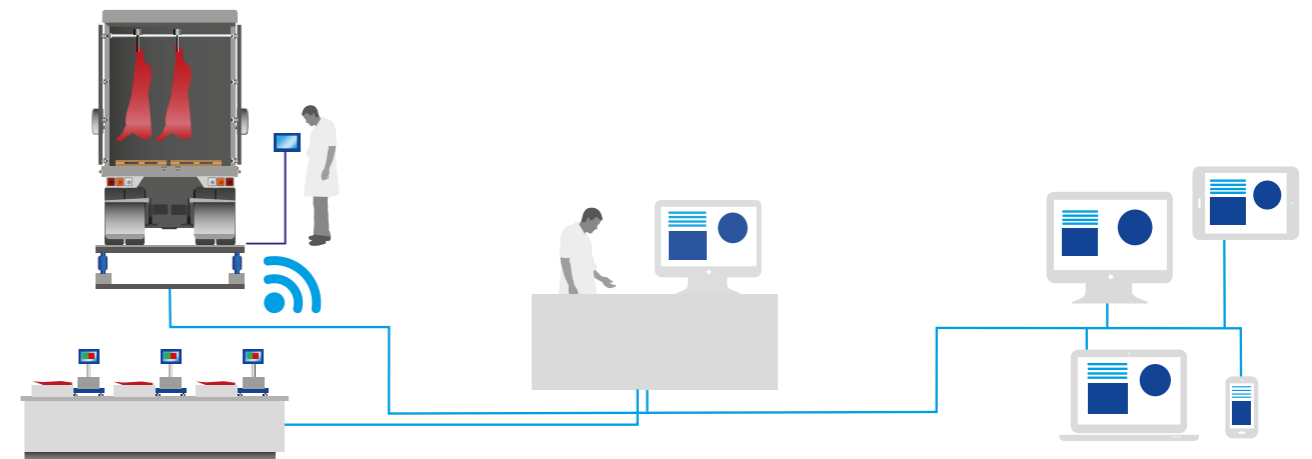
- Overfilling amounts
- Average net filling
- Operator packaging speed



Fast, easy quality control

Production managers monitor the results and obtain an overview of process efficiency in the goods entry or packaging zones. Yield analysis dashboards include:

- Operator efficiency
- Yield analysis
- Order fulfillment status



Collect+

- Receive weighing data from all installed measuring devices in the goods entry or production zone
- Online results are refreshed every five seconds

Publish and share

- View results on any PC or mobile device
- Tailor your dashboard according to your needs
- Share the dashboard with colleagues

Visualize

- Production output
- Production forecasts
- Worker efficiency
- Quality data
- Yield analysis

Collect+ Monitors Work Efficiency

Collect+ is a new data-collection software that captures weight and process data from every scale in production, including third-party weighing devices. Collect+ is updated every five seconds, providing both automated and manual production insights online. You can use this weighing data for quality initiatives, process optimization and production control.

► www.mt.com/collectplus



Skip Daily Checks When Relying on Predictive Maintenance

Daily inspections for safety-relevant weighing equipment in a logistics hub are costly. Weigh modules with predictive maintenance features provide permanent condition monitoring that detects performance decreases without delay.

Shipping documents include declaration of weight. Many logistics hub operators use this information to determine the storage location and to avoid overload of shelves. However, warehouse operators typically don't trust the documentation and perform their own weight check before passing pallets and boxes to the automated warehouse system.

Predictive maintenance reduces ongoing effort

A logistics hub operator decided to abandon unreliable daily preventa-

tive maintenance checks at the end of every work shift for the safety-relevant weighing stations. He upgraded the existing weigh modules with traditional analog load cells to PowerMount™ weigh modules with POWERCELL® load cells, the new load cells from METTLER TOLEDO. These load cells feature integrated microprocessors that perform continuous condition monitoring to provide predictive maintenance information. They immediately detect debris that falls from pallets and obstructs the free motion of the scales. The load

cells also immediately detect damage from careless pallet placement onto the conveyor scale by forklift trucks.

Fast and easy installation

Our service engineer simply replaced the old weigh modules with PowerMount™ weigh modules. The cables were easy to install into existing conduits because of plug-and-play connectors and availability of pre-configured cables with different lengths. Junction boxes to connect individual weigh modules were not required anymore because the POWERCELL®

inside the PowerMount can be daisy-chain connected and the length of the cables doesn't matter.

Cost savings and even more reliability

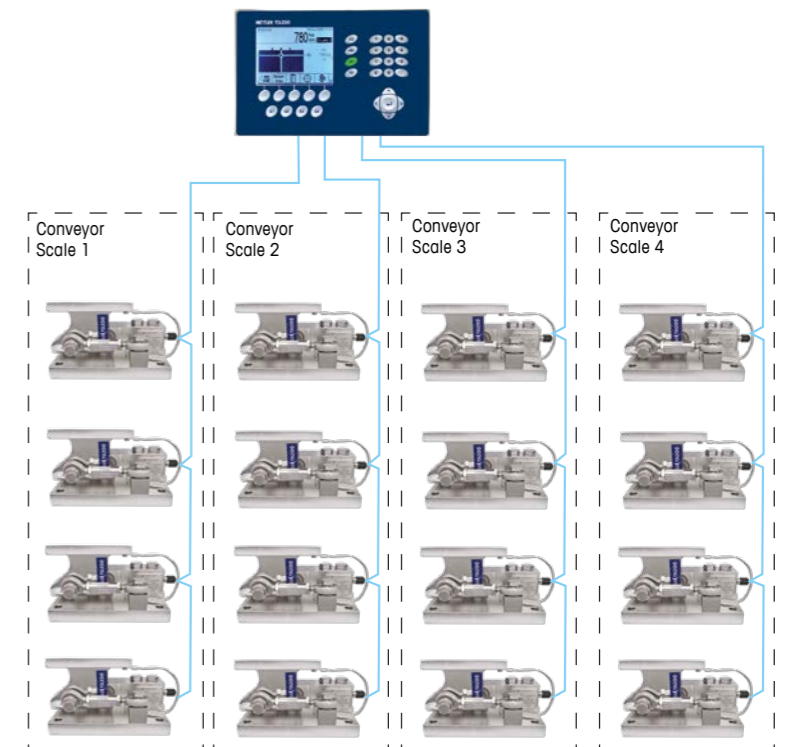
The logistics operator saved the cost and effort of daily inspections that were not always executed because of heavy workloads and a lack of understanding about why it was necessary on the part of some employees. The hub operator also saved the frequent training sessions for the inspection team because of high turnover among workers. In addition, they now have the capability of analyzing the error log file to identify which forklift driver stresses the conveyor so they can provide additional training to prevent unnecessary scale wear and tear and prolong the life of their investment.

► www.mt.com/SWB605-oe
► www.mt.com/SWC615-oe

The IND780-PDX Weighing Terminal with TraxEM™

software constantly monitors loads cells, records errors and alerts the user prior to serious trouble.

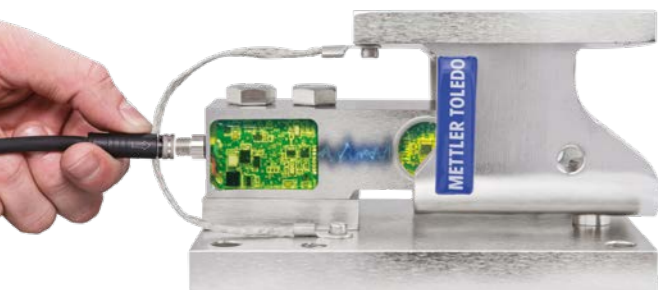
► www.mt.com/IND780



Weigh Module for Predictive Maintenance

The POWERCELL® load cell inside the PowerMount™ weigh module has an integrated microprocessor that processes weight result. It can be daisy-chained with other weigh modules directly to the weighing terminal.

► www.mt.com/ind-powermount



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."



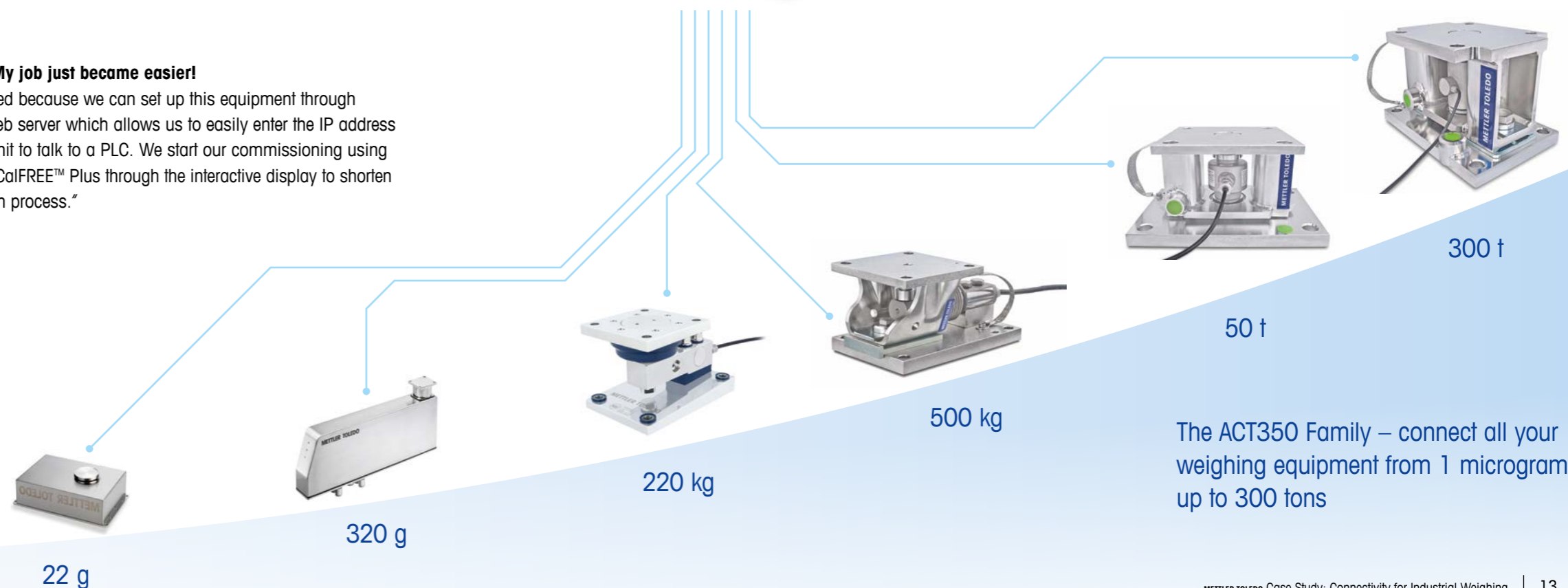
Technician: My job just became easier!
"We are excited because we can set up this equipment through the built-in web server which allows us to easily enter the IP address and get the unit to talk to a PLC. We start our commissioning using CalFREE™ or CalFREE™ Plus through the interactive display to shorten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



The ACT350 Family – connect all your weighing equipment from 1 microgram up to 300 tons

Never Run out of Parts Again

SmartShelf Simplifies Inventory Control

Weighing sensors are the perfect tool to monitor inventory levels remotely. Integrate them into shelves, racks and industrial vending machines and have continuous visibility into stock levels for easy supply-chain optimization.

► www.mt.com/remote-inventory

Weight-based inventory control for lean operations

Weighing pads offer installation that is flexible to the needs in your operation, whether you are integrating the sensors into shelves, mobile point-of-use racks or vending machines. These solutions allow remote access and visibility to your actual inventory levels. Combined with digital connectivity for easy integration into existing ERP networks, they help you to track inventory levels, find savings potential and discover improvement opportunities for your lean efforts.

1 SmartShelf: Complete shelves offer maximum simplicity

A complete SmartShelf system offers maximum simplicity due to having the weighing pads directly integrated into your shelf. Individually query the weight per all bins for current stock levels. The setup offers:

- a shelf, the integrated weighing pads and individual A/D converters for each weighing pad
- full flexibility for weighing with a weighing range of 8 kg weighing pad to 1000 kg floor platform

2 SmartShelf: Weighing pads offer maximum flexibility

Build weighing pads into an existing shelf system, where not every bin or container in the shelf requires control by weight or build individual scales for integration into shelf systems or machines. This setup is fully equipped to ensure easy integration and maximum flexibility:

- load cell with housing for overload protection, scale board and mounting assembly
- full flexibility for weighing with a weighing range from 2 kg to 20 kg

3 Inventory management software: Track all parts in your network

Full tracking of stock levels and usage is possible with the SmartShelf and weighing pads system. Simply connect the system described in boxes 1 or 2 to a PC for data exchange and analysis. Custom inventory management software can keep track of your stock levels while saving you time and money with exact inventory numbers.



Less Expensive PLC Connection Ring Topology for Reliability

A new weight transmitter for PLC connectivity now includes two industrial Ethernet ports, which can be used to connect to a redundant-ring topology with PROFINET IO or EtherNet/IP. This provides even higher reliability and more efficient wiring as it does not require a switch when several devices are connected.



The ACT350 weight transmitter for very fast and accurate weighing offers:

- 800 filtered-weight values per second to PLC System
- Display and keyboard for weight display and configuration
- Legal-for-trade accuracy of 6,000e OIML and 5,000d NTEP
- Dual-port PLC connectivity eliminates need for Ethernet switch
- Media Redundancy Protocol (MRP) standard for PROFINET®
- Device Level Ring (DLR) standard for EtherNet/IP™



DeviceNet™



Watch our video about PLC connectivity

► www.mt.com/ind-video-PLC-integration-oe

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