

IND780 Q.i.IMPACT



IND780 Q.i.IMPACT™

Material Feed Measurement
and Cut-Off Control System



Fast, flexible and sophisticated
The next generation of optimized feed control

METTLER TOLEDO

Optimize Your Batching, Blending and Filling Control Operations

Strategy for success

Success in the increasingly competitive manufacturing business takes more than the latest technology or equipment. It requires a strategy that can increase efficiencies, reduce costs and generate profits — constantly and consistently. For manufacturing facilities that use batching, blending or filling control systems, that strategy for success is **Q.i**.

Q.i is the innovative METTLER TOLEDO® Material Feed Measurement & Cut-Off Control System. **Q.i**:

- Enhances batching, blending and filling control systems
- Increases material transfer speed
- Improves material feed accuracy
- Reduces manufacturing waste
- Measures and sustains performance and improvement
- Increases profitability and competitiveness

Features and functions

At the heart of Q.i is a set of **patented algorithms** exclusive to METTLER TOLEDO®. These PAC (Predictive Adaptive Control) algorithms build a real-time mathematical model of the material transfer process for each material path. They then automatically learn and compensate for natural process variations in each active material transfer, constantly updating and predicting the precise adjustment required to yield the most accurate material cutoff for every material transfer.

Thanks to the advanced control provided by the PAC algorithms, complex multi-speed systems are unnecessary. Q.i's single-speed feed control provides **fast and accurate feed control** regardless of the type of material or intricacy of the recipe.

By removing the slow-feed control step included in more complex multi-speed control systems, Q.i delivers significantly shorter material transfer time, **increasing manufacturing throughput in real world applications by up to 30%**, and **improving material transfer cut-off repeatability by up to 90%** compared to previously deployed systems.* Raw material waste is reduced, which in turn lowers raw material costs. Q.i also reduces equipment design engineering, maintenance, spare parts inventory and overall capital costs.

The IND780 Q.i IMPACT terminal takes advantage of a **distributed control architecture** to coordinate measurement devices and manage the entire time-critical material transfer process from the batching, blending or filling system's controller. The Q.i 780 terminal is **easily integrated** with leading PLC and DCS platforms through one of its control system fieldbus option cards.

* Based on results achieved by a major US-based consumer goods manufacturer.

Markets

- Food
- Beverage
- Chemical
- Specialty Chemical
- Pharmaceutical
- Others

Measurement Devices

- Scales and Load Cell Systems
- Flow Meters

Raw Materials

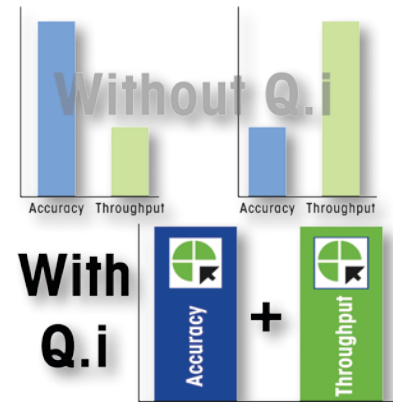
- Granules
- Powders
- Liquids
- Slurries



Q.iIMPACT™

Who benefits?

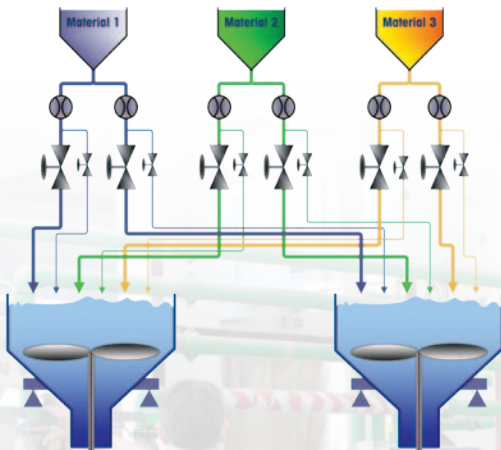
Production	Shorter start-up and product change-over times, fewer operator touches, up to 30% increase in throughput
Engineering	Simplified system design. Scalable, unparalleled material transfer functionality assured, regardless of PLC/DCS platform
Quality	Improve feed accuracy up to 90% for more consistent batches, reduced rework
Purchasing	Optimized product yield, better management of material variations between suppliers, reduced spare parts inventory
Management	Unequaled growth strategy, optimized asset utilization. Competitiveness – bringing a superior product quicker to market adds up to increased market share and profitability



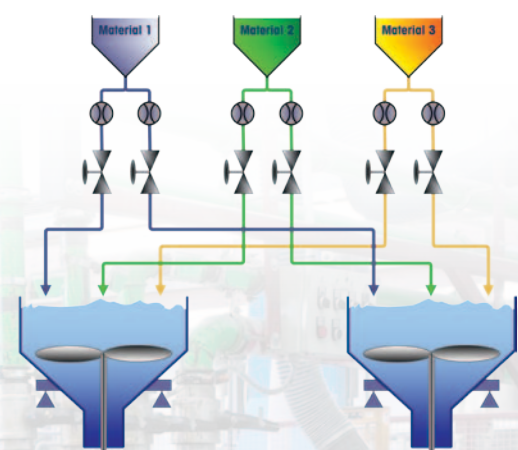
Less equipment, faster material delivery, accurate and repeatable cut-off control

Compare Q.i's single-speed, on-off control (right) to a more complex, multi-speed system (left). Fewer system components mean lower initial costs, better long-term reliability and simplified repair. Combine this simplicity with Q.i's improved feed accuracy and reduced material transfer time, and you have a winning formula.

Traditional Multi-speed Material Transfer Control



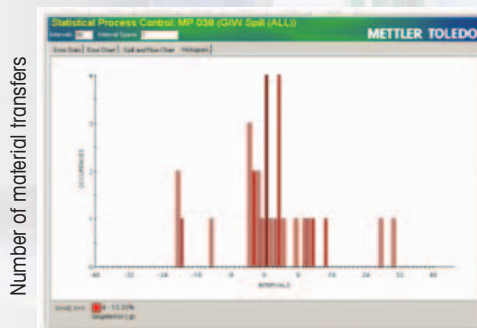
Q.i Single-speed, On-Off Material Transfer Control



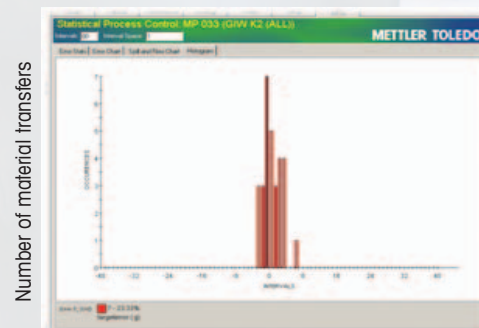
Tighten tolerances to previously unattainable levels

Q.i recognizes that every process is different, and constantly adapts to naturally-occurring variability in each material transfer. Because of this, Q.i offers meaningful, quantifiable improvements in control. With the tighter control Q.i offers, targets can be reduced without risking unacceptable under-fills or permitting costly over-fills. Because less material is used, less is wasted, and overall costs are reduced. The graphs below illustrate actual material transfer data – contrast the wide distribution in material feed variation in the example at left with the **tight, consistent results** shown after Q.iIMPACT Predictive Adaptive Control is implemented.

Without Q.i Predictive Adaptive Control

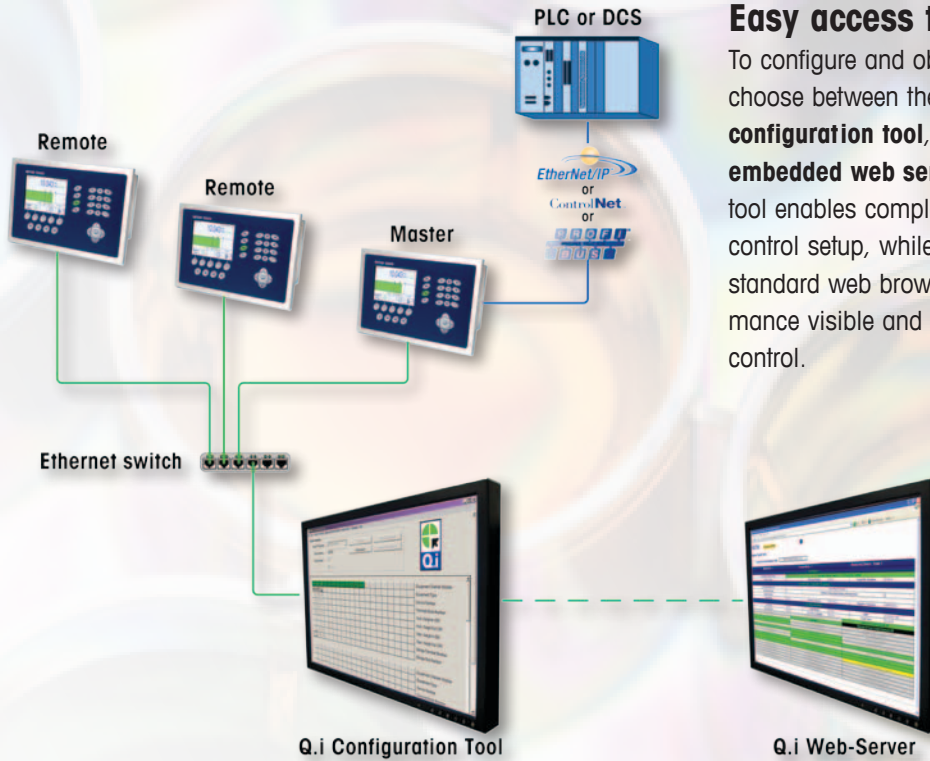


With Q.i Predictive Adaptive Control



IND780 Q.iIMPACT Terminal clustering

As many as twenty Q.i 780 terminals can be clustered on a single network, allowing for configurations of a few or a few hundred scales and flow meters.



Easy access to control and data

To configure and observe Q.iIMPACT operation, choose between the dedicated **PC-based Q.i configuration tool**, and the Q.i 780 terminal's **embedded web server**. The Q.i configuration tool enables complete access to material transfer control setup, while the web server works in a standard web browser to make system performance visible and allows basic operational control.

IND780 Q.iIMPACT Terminal

This powerful terminal is equipped with an easy-to-read color screen, and is available in enclosures for harsh environments and for panel-mounting.



Q.i365 Sustains Results

The Q.i system can include **Q.i365**, a combination of production management tools and predictive/preventive diagnostics.

The **Q.i365** software tracks the material transfer processes. The collected material transfer control system data can be used for statistical, diagnostic and operational purposes. Identify and resolve issues before they disrupt production.



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