FLUKE®

SMARTER PHARMACEUTICAL OPERATIONS START HERE

TIME TO THINK DIFFERENTLY ABOUT FLUKE?

FLUKE.COM

The pressure to perform **never stops**

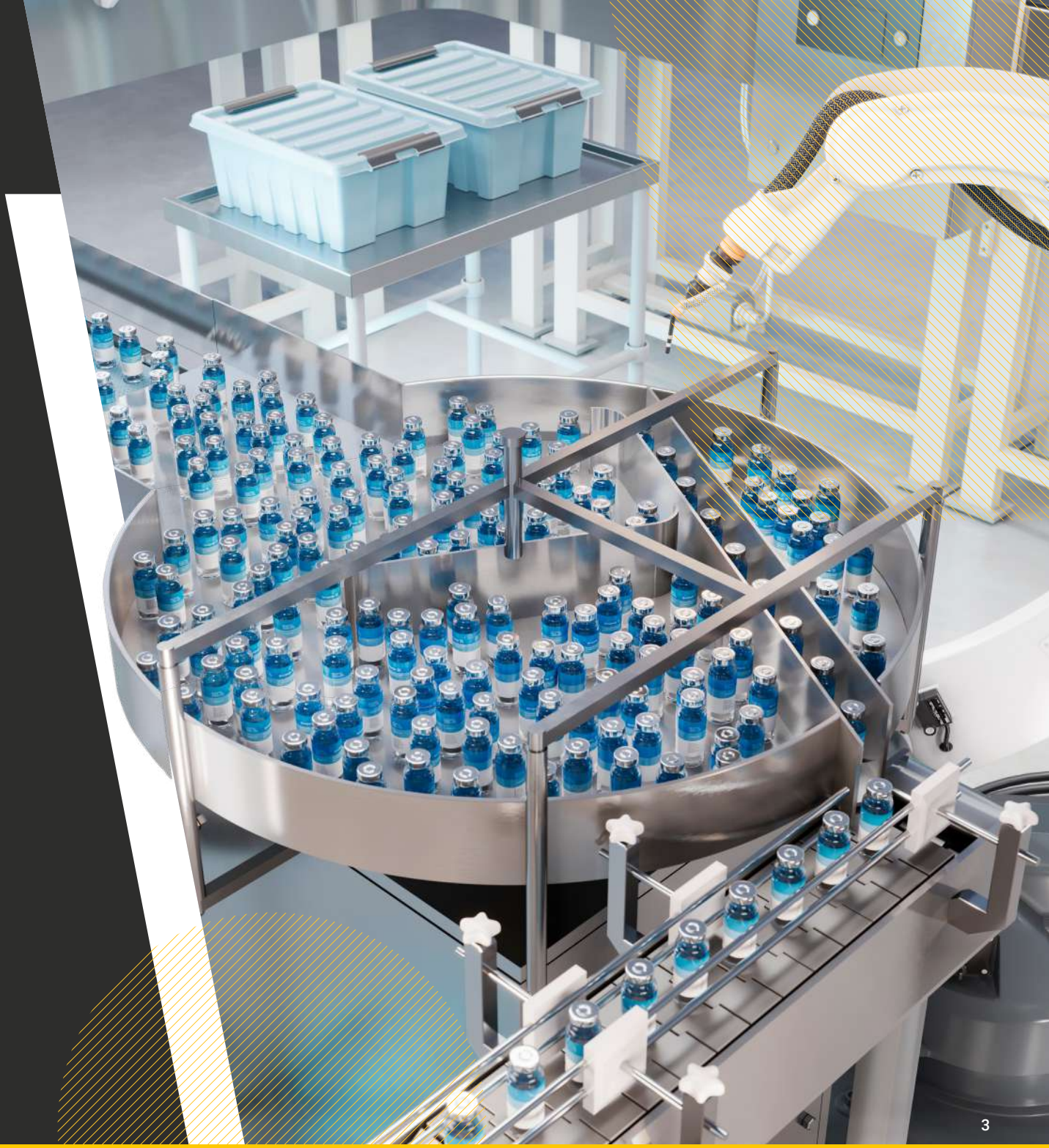
It wasn’t long ago that pharmaceutical manufacturing meant straightforward batch processes, predictable maintenance cycles, and manageable production costs. Not any longer.

Today's production environments are far more complex. Advanced AI and machine learning technologies are proliferating, regulatory demands are increasing, R&D costs are rising and margins are tighter than ever.

It's never been more important to drive down operating costs—and the pressure's on engineering and maintenance teams to deliver.

From cleanroom controls and HVAC systems to calibration, power quality, and network infrastructure— everything depends on equipment and devices that just work. Too often, teams are left managing assets reactively—with limited visibility, fragmented data, and outdated processes. All of which means that production risks are harder to manage and peak performance more difficult to sustain.

Reliability is critical. Without it, even the smartest tools and best-laid strategies fall short—and costs rise.

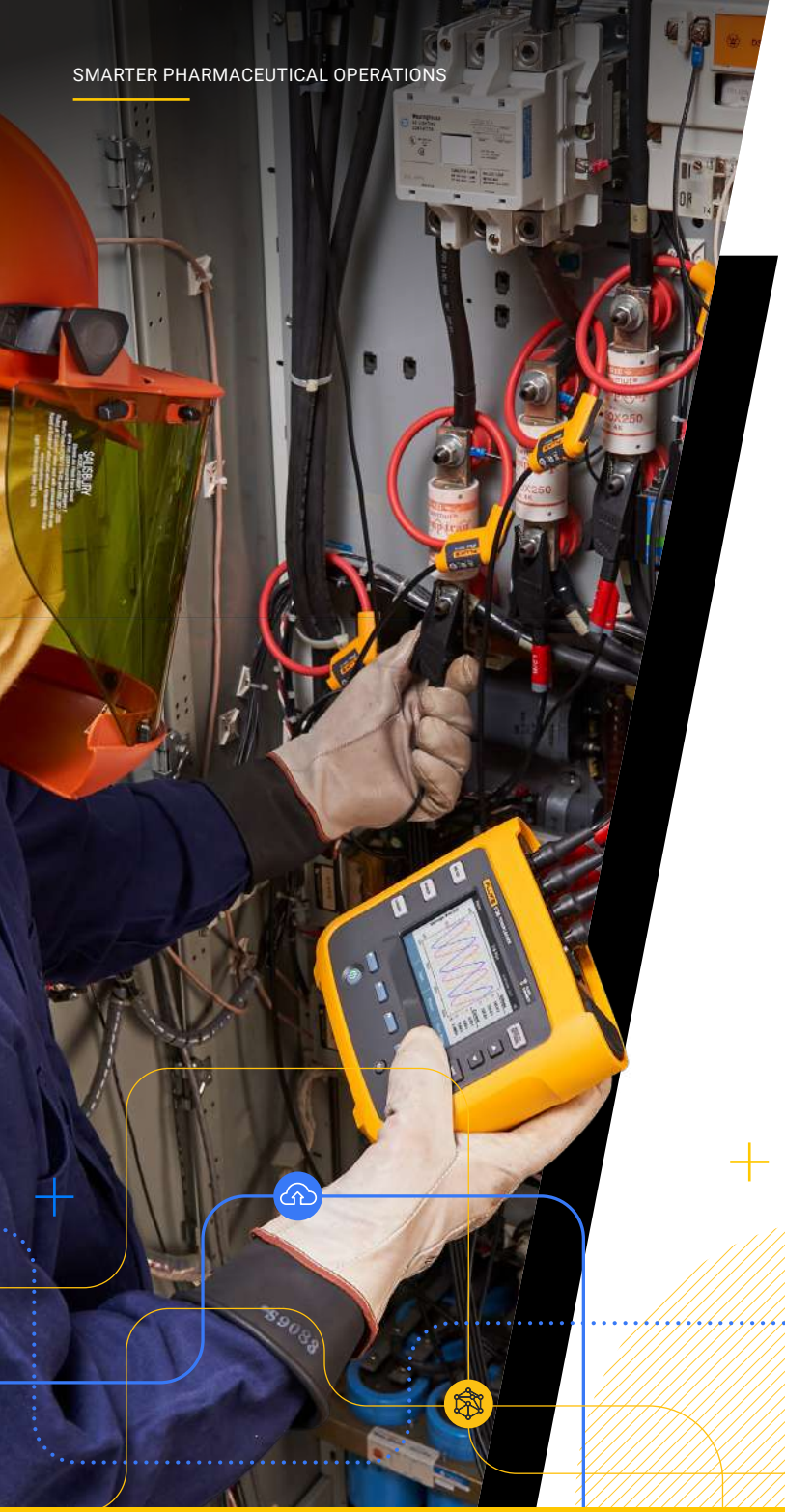


This eBook takes a practical look at the issues facing pharma manufacturing today—and what **engineering and maintenance** leaders can do about them.

From pinpointing pain points to deploying smarter, more connected solutions, it's your guide to achieving operational reliability and certainty from the ground up. And, along the way, you might see why there's more to Fluke than just the tools on your belt.

The challenges **in change**

Engineering and maintenance teams are feeling the pressure every day.



Good Manufacturing Practices (GMP) means more frequent inspections, tighter quality control and stricter documentation requirements. Corporate sustainability targets require engineers to focus more time on energy use and waste reduction daily—impacting maintenance schedules and asset selection, and how critical systems are run. HVAC alone is responsible for a huge proportion of energy costs in many pharma facilities.

Digital transformation is reshaping how your teams work every day—moving them from routine inspections and scheduled checks toward remote monitoring, sensor-driven diagnostics, and proactive, data-led interventions. This shift demands new skills, different ways of thinking, and new ways to manage daily workflows—often requiring significant cultural and practical adjustments within teams.

For all the automated advances, skilled engineers are still required. But here, perennial skills shortages and resource constraints only add to maintenance headaches. Smaller teams must manage increasingly sophisticated equipment, intensifying the demand for tools that are intuitive, connected, and capable of proactive, predictive maintenance.

Above all, there's the continuing need to reduce downtime. Unplanned equipment outages significantly impact productivity, batch quality, and compliance adherence. And they cost pharmaceutical manufacturers millions each year. Not that we need to tell you that.

Meeting today's demands means evolving how maintenance works—less reactive troubleshooting, more proactive management, and addressing problems in an integrated way rather than in isolation.

Put it another way, improving asset reliability saves time and money. And that's what Fluke is here to help you do.

Five **key operational issues** impacting pharma

1 Stricter compliance demands.

Evolving regulations require precise, continuous monitoring and clearer documentation.

2 Sustainability pressures.

Energy use, waste management, and emissions tracking are now daily operational realities.

3 Skills and resource constraints.

Leaner teams are managing more complex requirements, driving a need for intuitive, automated tools.

4 Digital transformation opportunities.

Manual methods may be a liability but embedding digital tools and leveraging real-time data can be a culture shock.

5 Eliminating downtime.

Unplanned disruptions remain costly and common. Proactive, predictive maintenance is critical.

The role of **asset reliability**

Precision, performance, and regulatory peace of mind.

Reliability isn't just about preventing equipment failures—it's about transforming the way your teams work, boosting performance, and turning compliance into a competitive advantage. Done well, proactive asset reliability reduces maintenance costs, simplifies audits, improves uptime, and frees skilled personnel from constant firefighting.

Connected diagnostics, predictive analytics, and digitally integrated processes mean your teams can spot risks early, plan maintenance efficiently, and respond confidently—before small issues become costly disruptions. Clear, real-time insights deliver measurable gains in productivity, safety, energy efficiency, and regulatory compliance.

In other words, reliability is now central to operational excellence. Instead of a daily struggle, maintenance becomes the foundation for stable, predictable, and profitable manufacturing operations.

5 quick checks to **boost reliability**

1. Use condition-monitoring tools—like thermal imaging, acoustic sensors, or vibration analysis—to get real-time data and proactively predict equipment failures.
2. Maintain fully digital calibration records to ensure accuracy, easy traceability, and straightforward audit-readiness.
3. Develop proactive maintenance routines to spot and prevent potential issues before they become critical—to reduce downtime and maintenance costs.
4. Ensure monitoring systems provide actionable, real-time insights that help engineers make fast, informed, data-driven decisions.
5. Embed performance metrics to measure improvements in uptime, safety, energy efficiency, and compliance to highlight the success of reliability strategies.

Practical answers for today's **toughest challenges**

Fluke has long been recognized for delivering the tools that keep pharma manufacturing moving—precise, rugged, built to last.
But today, we're a lot more than that.

From power quality to calibration to thermal and acoustic imaging, condition monitoring and more, Fluke is expanding what's possible. So your engineering and maintenance teams can work safer, smarter, and more sustainably.

Whatever the challenge—protecting uptime, staying compliant, managing energy use, safeguarding cleanroom environments—Fluke brings the practical answers your teams need to keep operations resilient and ready for the future.

1 Power management

Stable, high-quality power isn't just convenient—it's critical. Voltage fluctuations, interruptions, or electrical faults risk product quality, production continuity, and more. Fluke's advanced power quality analyzers, energy loggers, and clamp meters quickly pinpoint and diagnose power quality issues. With real-time insights, your teams can identify risks, avoid disruptions, and keep critical systems powered up.

Key benefits

- Identify and address power issues early, protecting uptime and batch consistency.
- Precisely measure and optimize energy usage, supporting sustainability and reducing operational costs.
- Simplify regulatory compliance through traceable power quality data.

2 Calibration

Calibration accuracy underpins compliance, product safety, and productivity. Fluke's precise, digitally integrated calibration tools provide full traceability, reduce manual errors, and simplify record-keeping—transforming calibration from an audit risk into a clear operational advantage. From documenting process calibrators to multifunction instruments, Fluke solutions ensure your site meets strict calibration requirements with ease.

Key benefits

- Accurate, repeatable calibration processes, reducing compliance risks.
- Digitally integrated records that streamline audits and regulatory documentation.
- Reliable calibration performance, ensuring consistent product quality.

3 Networking and connectivity

Fluke Networks provides advanced cable testing, fiber-optic certification, and troubleshooting tools, ensuring robust, secure network performance across your manufacturing environment. This reliable connectivity is the foundation for precise real-time monitoring, accurate data capture, and seamless digital integration across production-critical systems.

Key benefits

- Quickly identify and resolve network issues, minimizing downtime risks.
- Ensure stable, secure data flow, critical for real-time monitoring and digital documentation.
- Maintain compliance and integrity of production data through robust network reliability.

4 Acoustic imaging

Fluke acoustic imaging tools make it easy to identify leaks and equipment faults early—without interrupting production or entering sensitive areas. These intuitive devices precisely pinpoint compressed air leaks, vacuum leaks, or electrical partial discharge, allowing your teams to respond proactively and efficiently. Reducing waste and energy costs becomes straightforward and practical, rather than complicated and disruptive.

Key benefits

- Rapidly detect leaks and electrical faults without shutting down production.
- Quickly reduce energy waste and operating costs.
- Enhance safety by pinpointing electrical risks early.

5 Thermal imaging

Thermal imaging transforms predictive maintenance from theory into practice. Fluke's rugged, intuitive thermal cameras rapidly detect overheating, mechanical wear, or insulation issues. Your teams can safely and proactively spot problems in critical equipment, HVAC systems, electrical panels, or production lines—long before they become serious faults. It's a practical, visual approach that significantly reduces downtime risks and maintenance costs.

Key benefits

- Identify potential faults early and safely, without disrupting operations.
- Improve predictive maintenance, reducing reactive downtime and costs.
- Clearly document thermal profiles for compliance and maintenance audits.

6 Condition monitoring

Condition monitoring is your operational early-warning system, turning reactive maintenance into proactive reliability. Fluke's connected condition-monitoring solutions offer real-time diagnostics on vibration, temperature, and equipment performance—providing clear, actionable insights. Your teams get advance warnings of developing issues, enabling well-planned, proactive interventions instead of costly, disruptive repairs.

Key benefits

- Continuous monitoring of critical assets, reducing unplanned downtime.
- Transition from reactive maintenance to proactive reliability management.
- Improved operational certainty through real-time, predictive insights.

Building on trust, **shaping the future**

For more than 75 years, Fluke has stood behind critical industries, helping your operations stay productive, compliant, and safe—no matter how complex the challenges. But trust isn't built solely on heritage or past successes; it comes from consistently solving tough operational problems and actively shaping what's next, right alongside your teams.

Safety is fundamental. Every tool and solution Fluke develops is specifically designed for the demanding environments your teams face. Solutions like thermal imaging let you diagnose equipment issues safely and from a distance—helping prevent incidents, reduce downtime, and minimize operational risks. Here at Fluke, we're all about the outcomes: protecting people, products, and processes—not just adding features.

Innovation at Fluke is driven directly by your real-world challenges. Advanced tools and connected systems simplify workflows, translating diagnostic insights into immediate actions that reduce downtime, errors, and complexity. This streamlined approach means fewer interruptions, less risk, and more reliable results. So your teams can achieve consistently higher operational standards.

With operations facing sustainability pressures, Fluke actively supports your energy efficiency and environmental goals. Precision-aligned, properly maintained equipment reduces waste, cuts emissions, and significantly lowers energy costs. Efficient machinery not only boosts performance but also accelerates progress toward your targets—visibly demonstrating your commitment to continuous improvement.

These core commitments—safety, innovation, and efficiency—aren't just concepts at Fluke. They're the daily practices and clear standards that shape how we support your operations today and help you confidently navigate the future.

Our commitment is anchored in **three core values**:

Safety

Protecting people, processes, and products with rigorous testing, trusted accuracy, and tools designed for the highest-risk environments.

Innovation

Solving real-world challenges through customer-driven engineering—from smarter diagnostics to connected workflows that make complex work simpler.

Energy and efficiency leadership

Supporting industries as they modernize and decarbonise, helping sites meet sustainability goals without compromising reliability or compliance.

Smarter factories. Cleaner energy. **Bigger ambitions.**

Pharma's moving forward—towards data-driven decisions, leaner operations, and more efficient ways of working. But the fundamentals never change: operational certainty, regulatory compliance, and the continuous drive for reliable performance.

Your operations face significant change—and significant opportunity. Regulatory standards, sustainability goals, and digital transformation demands are evolving quickly. Navigating these successfully demands more than reactive tactics; it requires practical solutions, reliable insights, and proactive management.

Operational reliability isn't just about managing risk—it offers genuine strategic advantage. From precise calibration to stable power systems, predictive maintenance to advanced thermal and acoustic diagnostics, solutions exist today to help your site confidently meet tomorrow's challenges.

Fluke is committed to being more than your trusted tool provider. Our approach—anchored in safety, innovation, and efficiency—helps your operations become more resilient, sustainable, and compliant, without adding complexity or disruption. We're here to help you transform operational reliability from tactical necessity into strategic strength.

Think you know Fluke?
Take another look—we might surprise you.

To find out more:

forms.fluke.com/process-manufacturing-2025