

FOSS

ProceScan™ 2

Real-time process control
for improved milk standardization



ANALYTICS BEYOND MEASURE



GET MORE VALUE FROM YOUR MILK

Getting the composition of fat, protein, total solids, solids non fat and lactose as close to targets as possible has always been essential to make the most of raw materials and secure quality and profit. In this context, milk standardization is the backbone of process control for any dairy.

While standardizing closer to targets to ensure a profitable business is as critical as ever, the dairy industry is rapidly moving towards industry 4.0 with a focus on turning analytical data into actionable insights that give you automated control and full overview of your production. Automated and connected processes provide dairies with the data to make better decisions to optimize the process, meet targets, improve yield and ensure final product composition. At the same time, automation enables a more sustainable production by making the most of valuable raw materials.

FOSS has pioneered the development of dairy process solutions with +65 years of experience and has strong partnerships with industry leading end-to-end dairy process providers ensuring seamless installation and integration of your process solution. In terms of ongoing support, FOSS has a global network of certified support engineers ready to keep your analytical solution running at peak performance for maximum productivity, payback and profit.

Detect. React. Detect. React.

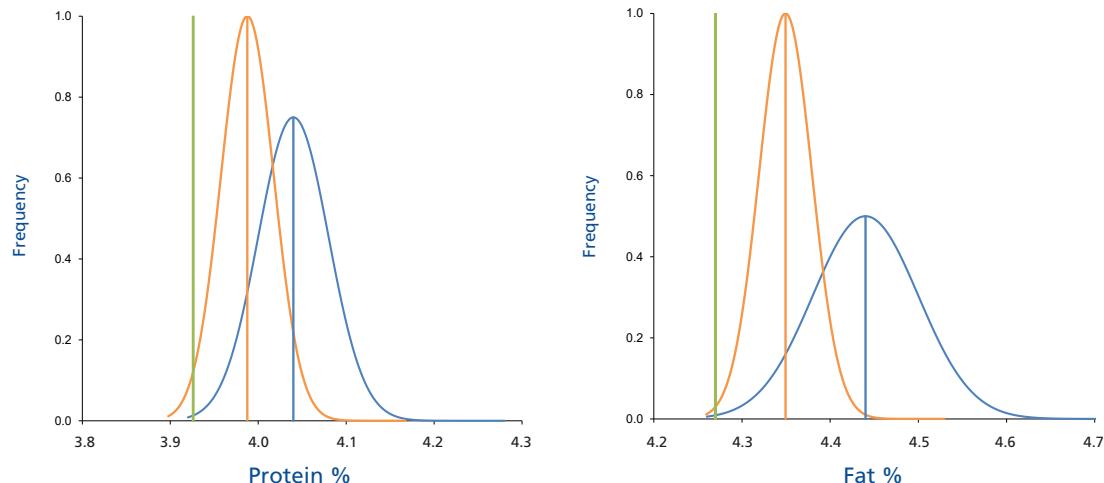
That's automated process control

Automated process control is the key to profitability. Reliable, real-time data about product composition every 10 seconds, combined with subsequent control, can reduce variation between batches considerably and help you bring your production even closer to target values.

Profit improvement

Move your targets closer to specification

- Product specification
- Production variation and mean today
- New production variation and mean

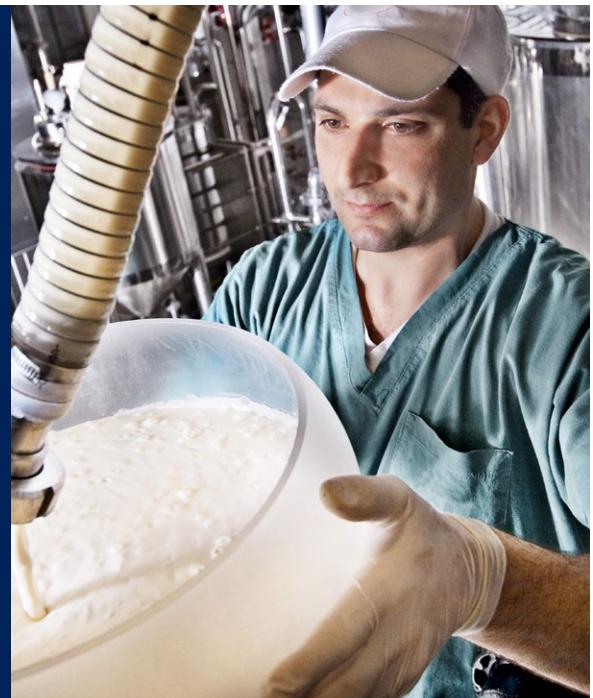


Reduce the protein and fat variation in your standardized products and optimize the average value for increased yield and profit. On-line results integrated in intelligent PID loops will reduce your variation significantly and enable you to move your targets closer to specifications.

- For instance, for a milk powder or cheese producer, keeping the variation of fat and protein content in milk as low as 0.01-0.02 %, makes it possible to reduce the give-away of expensive fat and protein by a factor of 10, depending on the starting point.

What can you measure with ProcessScan™ 2

- Protein and fat/protein control in cheese milk
- Fat and solids control in milk for powder production
- Fat and solids control in condensed milk
- Fat and SNF control in consumer milk
- Fat and protein control in whey
- Protein and solids control in WPC/MPC
- High fat milk control in special dairy products





Introducing ProcesScan™ 2: **MAKE EVERY DROP COUNT**

ProcesScan™ 2 is a fully automated, on-line FTIR process control solution for standardization of milk and liquid dairy products with superior accuracy and speed. Installed in the production process, where the milk is standardized in the liquid phase, ProcesScan 2 offers a best-in-class solution for continuous and simultaneous analysis of milk composition parameters such as protein, fat, total solids, solids non fat, and lactose.

Turn analytical data into actionable insights

Bringing FTIR technology directly into the production line ensures reliable data, giving dairy processors an accurate picture of what is going on inside the process. Fast, accurate and continuous measurements allow process adjustments to be made in real-time, thereby securing optimal process control.

With ProcesScan 2 you can improve your product consistency and yield, reduce production variation, make the most of your raw materials, and reduce the risk of error. Simply hit your targets

again and again to improve margins, streamline production and run a more profitable business.

On top of this, ProcesScan 2 is supported by state-of-the-art digital capabilities giving you unrivalled, automated process control. Instrument standardization combined with ready to use global calibrations means that ProcesScan 2 is up and running within a few days with only minor adjustments needed to get started, and going forward, calibration maintenance is minimal.

Streamline your production and get:

- Consistent quality with best-in-class milk standardization for cheese, powder and consumer milk production.
- Unrivalled, automated process control with proven FTIR technology from MilkoScan™ FT3.
- Hit your targets every time with analysis results every 10 seconds (WPC/MPC 20 seconds).
- Measurement performance at a superior level compared to other process solutions.

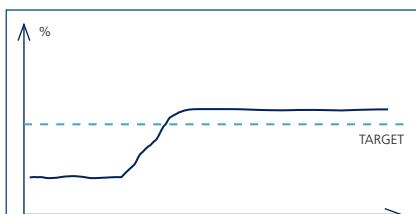
HOW TO IMPROVE YOUR PRODUCTION

Achieve better batch performance with real-time data linked to advanced control loops.

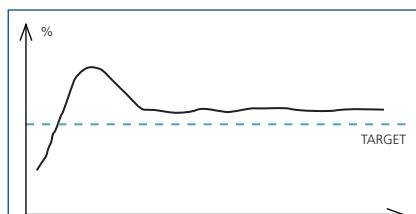
This leads to better use of expensive raw materials as well as significantly improved efficiency and return of investment.

- Save time and labor spent on post-standardization
- Eliminate inaccuracy from unrepresentative batch sampling
- Reduce requirements for holding tank capacity
- Improve production output and product consistency

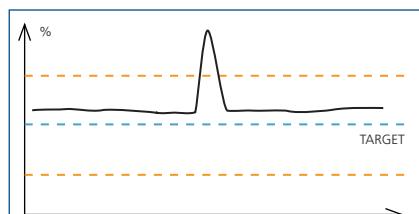
Automatic process control with ProcesScan™ 2:



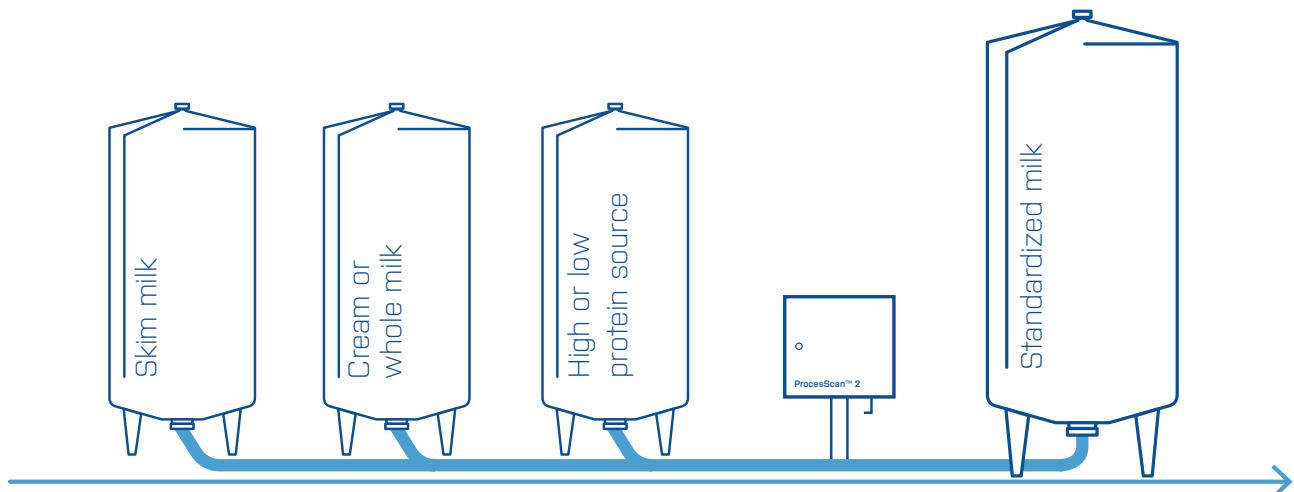
Production closer to target.



Reduce start-up variation.



React in real-time on results out of spec.



Parameters:

- Fat
- Protein
- Lactose
- Total solids (TS)
- Solids non fat (SNF)

Installation point:

- Continuous real-time sampling close to the mixer
- Close to the blending unit to validate and adjust final fat, protein, and total solids
- Flow blending or off the separator standardization

A dedicated process solution:

- 3-A approved process connection
- EHEDG compliant
- Fully CIP compatible
- IP56 classified



HIT YOUR TARGETS WITH CONTINUOUS FTIR ANALYSIS

A lot of dairies today are running mass balance standardization, where all raw materials are measured in batches on a MilkoScan™ or similar and mixed to meet target values based on these results.

Even with a highly accurate bench top analyzer, measurements are less frequent and do not provide continuous analysis data. This means that fluctuations in composition are adjusted periodically rather than in real-time and the risk of giving away expensive raw materials can be a challenge.

At the same time, testing with bench methods, either at-line or in a laboratory setting, involves

carrying samples back and forth for testing and waiting for results. This reduces your ability to act quickly on process changes, leading to an increased risk of incorrect results due to human error. Together, these factors lead to a higher variation than what is possible with a process solution providing real-time results and an automated process regulation system.

Increasing the number of samples allows you to reduce the measurement uncertainty, reduce the variation in your process and produce closer to product specifications. At the same time, you can free up time for busy staff to do other tasks.

STREAMLINE YOUR PROCESS CONTROL

Unrivalled sensitivity and accuracy based on FTIR technology makes ProcesScan™ 2 ideal for milk standardization in processes with variations in raw material batches and frequent recipe changes.

But what makes it so accurate? Constant and representative sampling combined with high frequency on-line analysis ensures accurate and representative results and allows you to bring your milk standardization closer to specified targets.

- Make better use of raw materials and improve margins.
- Ensure stable final product quality by continuously measuring levels of fat, protein, total solids, solids non fat and lactose.
- Detect changes in your production process in real-time.
- Measure manual samples directly to avoid sampling errors during validation of instrument performance or when optimizing calibrations.



PROCESSCAN™ 2
IS BASED ON MORE THAN
25 YEARS OF EXPERIENCE
WITH ON-LINE FTIR



MOVE THE GOLD STANDARD INTO YOUR PROCESS

ProcesScan™ 2 uses the same best-in-class Fourier Transform Infrared (FTIR) technology for milk standardization as the renowned MilkoScan™ FT3 that has become a gold standard in the dairy industry. Armed with reliable real-time data you can improve the efficiency of your standardization for an immediate payback in terms of improved consistency and yield.

A PURPOSE BUILT PROCESS SOLUTION

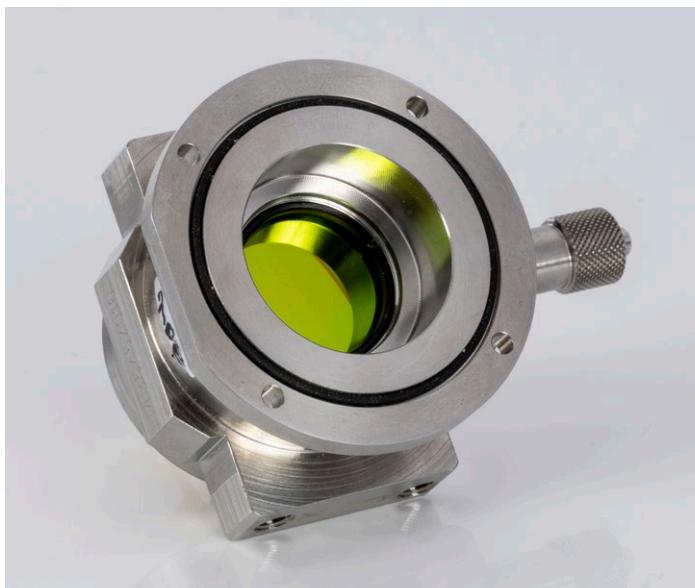
ProceScan™ 2 is a purpose built on-line FTIR unit for reliable analysis operations, providing determination of fat, protein, lactose, solids and other components with a precision second to none. Sampling and tests are performed automatically every 10 seconds with no risk of operator error.

- The FTIR interferometer scans the full mid-infrared spectrum so that analyzing new products and parameters is only a matter of calibration development. Based on the spectra, a qualification model can be made to monitor that the product in the pipe meets specifications.
- Housed in a protective case, the interferometer is insensitive to temperature and humidity making it ideal for use directly in the harsh conditions found in the production plant and the cleaning procedures employed.
- The sensor is designed so that free air in the process line does not affect performance. No other process sensor concept measures the main parameters as accurately as ProceScan 2.
- ProceScan 2 complies with international standards such as AAC (Association of Analytical Chemists) and IDF (International Dairy Federation).

Made for the dairy production environments

The ProceScan 2 hardware is built for solid performance with CIP ensuring top performance with minimal maintenance. Adding to this, the specially designed diamond cuvette is backed by a 10 year guarantee, contributing to consistently high performance at a low cost.

- Purpose built sensor to meet sanitary standards and withstand a rough production environment.
- Stainless-steel cabinet sealed according to IP56.
- Designed to tolerate vibrations and large variations in humidity and temperature.
- Possible to CIP clean the unit together with CIP cleaning of the process.
- Hygiene design standards, 3-A approved and EHEDG compliant.
- Low weight and small footprint to fit in various production set-ups.

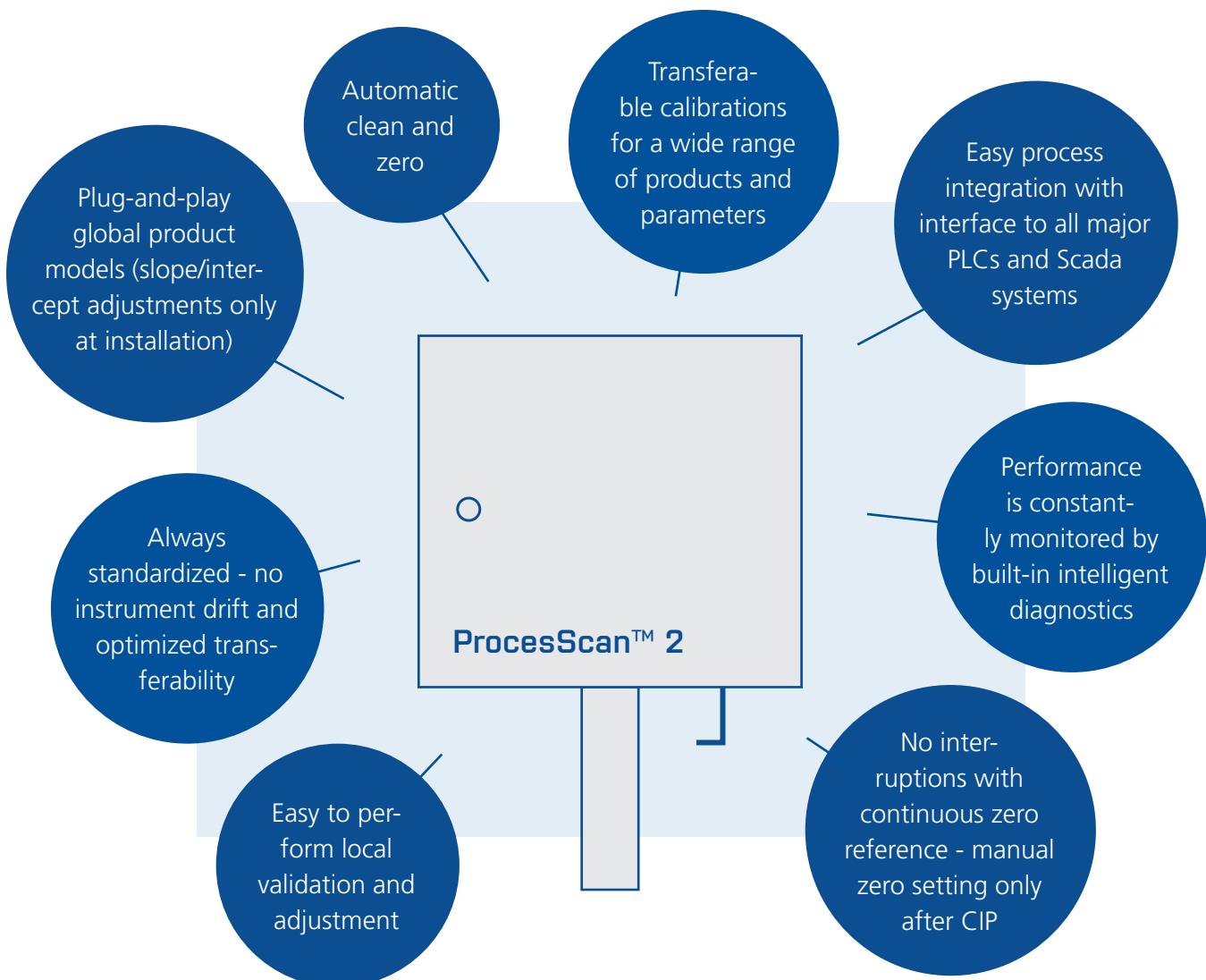


The purpose built ProceScan™ 2 sensor is fully integrable in all CIP routines due to a diamond cuvette and a very robust flow system

- Not subject to wear and tear
- Withstands cleaning (CIP liquids)
- No clogging with multi-way flushing
- High performance at a low cost

PREDICTABLE PERFORMANCE MADE EASY

Get your ProcesScan™ 2 up and running in no time with ready to use global calibration models based on extensive FOSS chemometrics knowledge and data collection built-up over many decades. The robustness of these calibration models means that very limited calibration work is needed, at installation. At the same time, ProcesScan 2 is factory standardized and has no drift. This means that your process instrument always delivers the same high level of measurement stability and ensures identical performance across multiple instruments.



Flexible and easy operations

Simplified and automated procedures add flexibility to your daily operations. ProcesScan™ 2 is designed with ease of use, as well as reduced maintenance and handling of consumables in mind. This frees up your staff to concentrate on other tasks. At the same time, minimal use of reagents allows for safer and more sustainable operations.

- Minimal use of reagents and automatic dispensing of liquids used for cleaning the sensor.
- Manual pipette for easy entry of calibration or pilot/instrument check samples.
- No maintenance or handling of consumables by the operator.

Eliminate the risk of error with performance validation

Performance validation allows you to validate your ProcesScan 2 predictions using a FOSS

benchtop analyzer such as the MilkoScan™ FT3, without any manual entry of data.

Automatic registration of sample data from the ProcesScan 2 and benchtop analyzer respectively eliminates the risk of error and secures optimal performance. The matched results are saved via cloud and are ready for evaluation and reporting using digital services. Results and commands for remote control of the sensor are automatically exchanged via PLC/SCADA highways or DDE link.

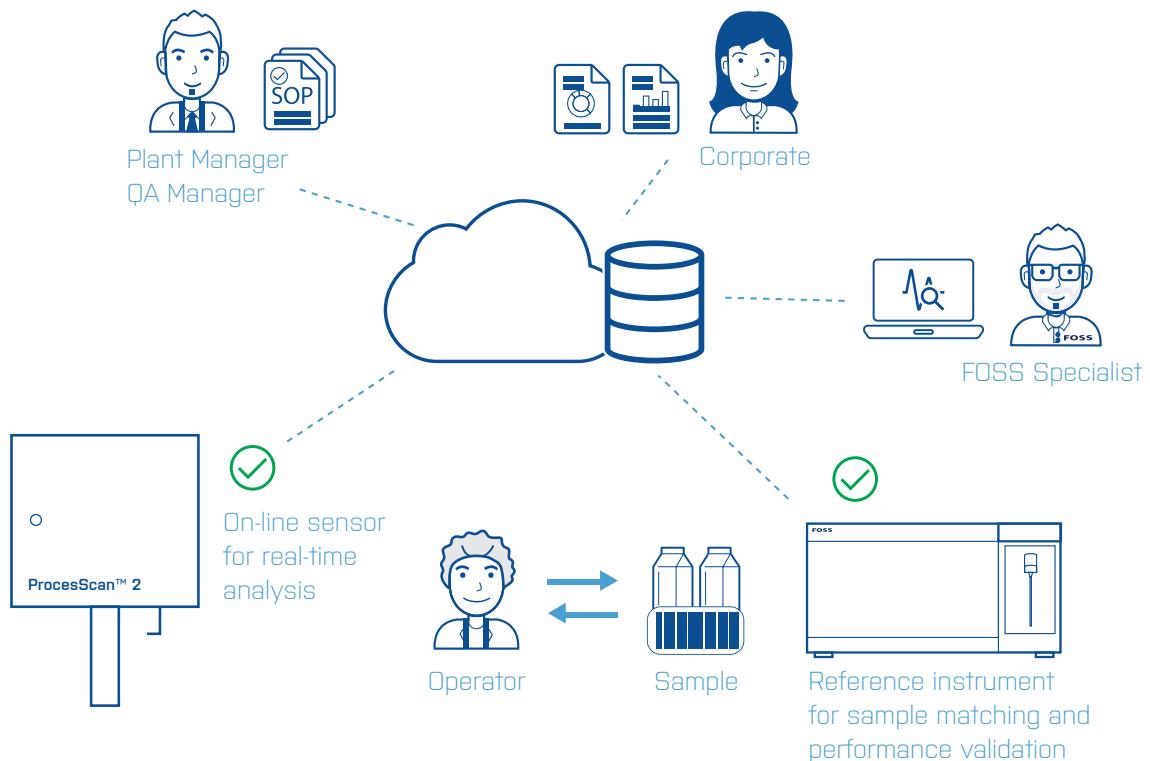
FOSS instrument management tools provide you with an overview of your sample ID and results from both benchtop and the process sensor on one page. The overview facilitates efficient surveillance of calibration performance and any necessary adjustments through pre-planned instrument and calibration reports.



EFFICIENT OPERATIONS SUPPORTED BY CONNECTED SERVICES

With any process analysis solution, you are effectively putting your production in the hands of technology. ProceScan™ 2 is supported by best-in-class digital capabilities that provide an overview of your analytical data across individual or whole populations of instruments, helping to ensure optimal analytical performance and uptime.

Assisted by device management tools you can monitor and manage your ProceScan 2 units from a single desktop, for example, when making calibration adjustments or proactively planning maintenance cycles for optimal uptime. This can be done from anywhere in the world from any PC.



Get high uptime and reduce cost

Protect your investment and secure uptime with a total service solution that ensures consistent performance day in, day out and year after year. SmartCare™ service and support plans offer the option of preventative maintenance for maximum uptime and minimized repair costs. Safeguard uptime with SmartCare services and use device management tools for efficient management of instruments and easy access to data.

- Remote service and diagnostics securing exceptional performance and uptime.
- Shorter installation, commissioning and integration time, supported by effective procedures.
- Customizable service programmes offering a range of options to suit your business.

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July 2023. GB