

# QPA - Online Process Analysers

Feeds

Dairy

Liquids

Powders

Edible Oils

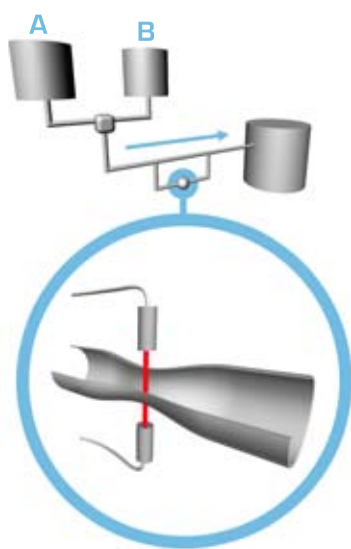
# When state of the art technology

## Our way

The QPA concept is a system that continuously monitors a process or controls key parameters so that the process becomes increasingly efficient or more productive. The systems comprise of a measuring head integrated in the process pipework connected to an FT-NIR analyser via fibre optic cable.

## Increased profit

Return on investment for such systems can be weeks in situations where high production volumes can be controlled to tighter specifications.

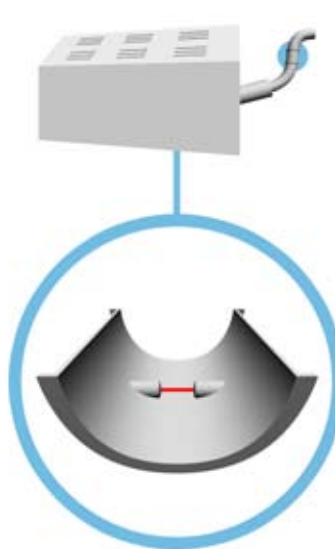


### QPAmilk

Q-Interline has designed and developed the QPAmilk concept to set new standards for online analysis and blending control of milk and whey. Cutting-edge sampling technology means several hundred litres of milk are analysed per hour and returned to the process stream. No waste is generated. The result is a more accurate prediction and analysis solution compared to systems based on mid-infrared instruments.

QPAmilk can have up to two measuring heads connected by fibre optics to the remotely placed master FT-NIR analyser. The system is simple to integrate and takes up minimal space.

QPAmilk uses no chemicals and is CIP/SIP compliant.

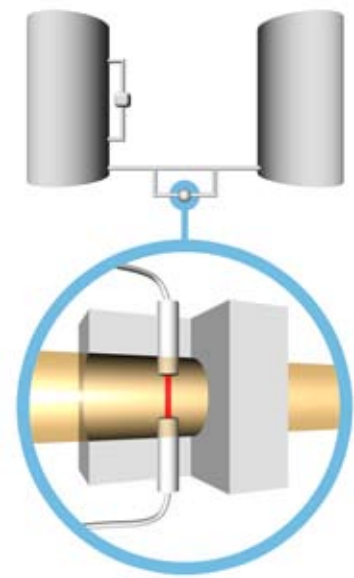


### QPAbutter

The online system QPAbutter can control the butter production process closer to moisture target values than ever before. This makes it the best investment in the butter industry to date.

QPAbutter uses the innovative Tefwin cell, which is the only cell of its kind CE marked and free from glass or sapphire parts. Only Teflon and SS316 are in contact with the product.

The sensitive detector of QPAbutter makes it possible to monitor a large volume of butter which ensures accurate and safe predictions. Two Tefwin cells can be connected to one master FT-NIR analyser.



### QPAoil

QPAoil is a system to analyse edible oils and fats online. The standard system uses a side stream loop to enable temperature stabilisation. Alternatively the system is available with immersion probes with reduced accuracy.

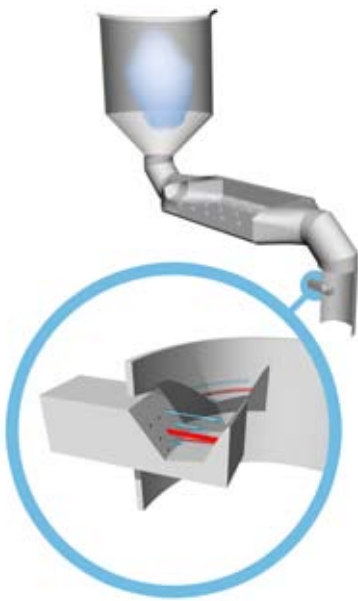
Utilising the QPAoil system the production process can be greatly optimised. Online analysis of the chemical functionality means the process can be stopped at the optimum time and so free valuable time for the next batch.

QPAoil provides a very competitive pay-back time. The unique ability to operate using the same calibration models as the at-line corresponding LipidQuant FT-NIR system means installation and startup is minimised to a few days. Only one model set has to be updated and validated, and the maintenance costs are very low.

# Quality and sampling go hand in hand

## QPA online system benefits

- The latest advanced FT-NIR technology results in exceptional spectroscopic quality
- Use of correct sampling theory ensures very high analysis repeatability and accuracy
- The integration of the measuring head in the process pipework provides constant production trending and monitoring
- The configuration of the online system for process line control makes it possible to attain tighter process tolerances
- The unique ability to operate using the same calibration models as the at-line corresponding analyser
- The powerful automation software suite FTSW100 makes it easy to control all aspects of sampling systems
- The direct and safe way for a customer to move from challenge to solution with resulting higher yields and greater profits

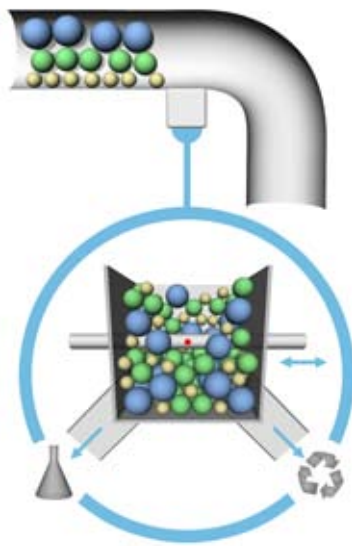


### QPApowder

The QPApowder system is designed to analyse fine and homogenous powders in a falling stream.. The exceptional sampling device ensures that the falling stream is sampled correctly and the highly accurate analytical results can be trusted to control the process tighter than ever resulting in higher yields.

QPApowder provides a very competitive payback time. The unique ability to operate using the same calibration models as the at-line corresponding AgriQuant FT-NIR system means installation and startup is minimised to a few days. Only one model set has to be updated and validated, and the maintenance costs are very low.

A maximum of 4 or 8 probes on a single analyser (application dependant) makes the price per measuring point attractive.



### QPAfeed

QPAfeed is a unique online concept for the feed industry. With brand new sampling technology, QPAfeed can analyse coarse and heterogeneous sample types such as raw feedstuff.

The QPAfeed sampling design captures a representative sample from the process and allows it to settle naturally prior to analysis. The captured sample is returned to the process or collected. This design means superior correlation between the FT-NIR analysis and laboratory reference analysis resulting in more accurate calibration and validation.

Up to four probe systems can be connected to one master analyser. The unique combination of FT-NIR technology and the moving side view probe creates a low noise, high quality spectrum.



### Representative sampling

All Q-Interline systems use representative sampling concepts.

Analysis results are a more accurate estimation of what is happening in a process.

QPA systems will track the process more precisely and improve the possibility of more refined process control.

# FTSW100 Automation Software

FTSW100 is a powerful automation software suite to control all aspects of sampling systems, successful acquisition of spectral data, associated calculations and reporting to user and central control systems in the factory. With this software, developed by world renowned control system supplier ABB, Q-Interline's QPA systems gain significant benefits in terms of a professional user interface and strong connectivity options.

The FTSW100 software is exceptionally easy to use and has highly intuitive and user-friendly tools available at the application configuration level to make setting up as simple as possible. A visual configuration explorer allows complete setup without programming. The operator has access to all relevant information via seven pages that are easily selected in the lower section of the screen.

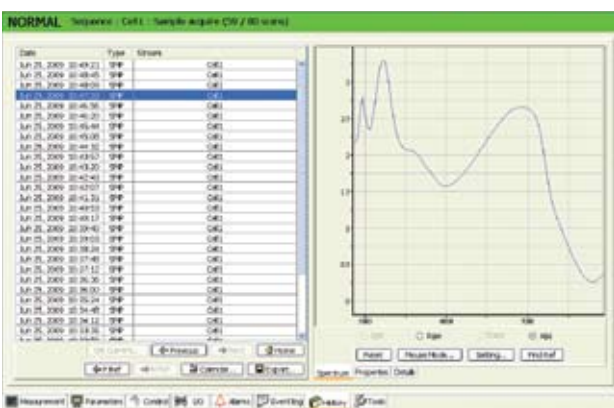
All measurements, events and operator actions are tracked in a full audit log for traceability and diagnostic purposes. Last results and trends can be followed on the main screen and the simple configuration and colour coding facilitate overview and security. Other screens provide real-time access to communication status and alarms.

The persons in charge of calibration and system maintenance have access to all spectral data and details related to the chemometric calculations for historical data on the history screen.



## Measurement screen:

Analytical results can be displayed on both absolute and relative scales.



## History screen:

Left: The measurements collected by the application are listed chronologically.

Each measurement is identified with date and time of collection, type of measurement and the analysis stream.

Right: The absorbance spectrum for the selected measurement is displayed.

The selected spectrum can be viewed as absorbance, interferogram, raw or transmittance.

## Input/output and communication

By means of discrete signals (mA, Volt and CanBus modules), OPC client/server and Modbus FTSW100 has a wide range of options for communication with external systems: Central servers, operators, peripheral units and visual alarms.

FTSW100 supports industry standard communication links, such as Modbus (with fully user-configurable addresses) and OPC, to control systems.

# Technical Specifications

## System Integration

The QPA systems withstand large variations in temperature, dust load, vibration and water splashing. They are highly customised and Q-Interline can provide system integration into most environments.

## FT Technology

The master analyser used for QPA systems is powered by ABB Bomem FT-NIR technology. FT-NIR (Fourier Transform Near Infrared) measures the entire spectrum of the sample instantly. This technique generates a large amount of high-quality spectral data, which makes it possible to analyse not only principle components such as fat, moisture and protein, but also minor spectral features related to highly valuable information about the product or process.

It is the ABB FT technology combined with the innovative Q-Interline sampling devices that makes calibration models fly seamlessly from at-line systems to on-line systems which result in huge savings on calibration effort, manpower and laboratory resources.

	<b>QPAmilk</b> 30 sec. *	<b>QPAbutter</b> 40 sec. *	<b>QPAoil</b> 30 sec. *	<b>QPApowder</b> 20 sec. *	<b>QPAfeed</b> 60-120 sec. *
<b>Water/moisture</b> - Range % - Accuracy - Repeatability		14-18 0.1 0.05	0-0.5 0.05 0.01	2-7 0.12 0.03	5-15 0.4 0.1
<b>Fat</b> - Range % - Accuracy - Repeatability	0-6 0.05 0.03	78-83 0.1 0.05		0.5-30 0.8 0.07	2-15 0.4 0.15
<b>Protein</b> - Range % - Accuracy - Repeatability	2-5 0.05 0.03			15-30 0.08-0.4 0.06	10-40 0.6 0.2
<b>Salt</b> - Range % - Accuracy - Repeatability		0-2 0.05 0.01			0.6-1.2 0.07 -
<b>IV</b> - Range % - Accuracy - Repeatability			0-190 0.2-0.9 0.2		
<b>%Trans</b> - Range % - Accuracy - Repeatability			0-60 0.7-1.6 0.5		
<b>Acid</b> - Range % - Accuracy - Repeatability			200-450 1.2 0.15		
<b>FFA</b> - Range % - Accuracy - Repeatability			0.5-10 0.15 0.05		

\* = measuring time

# Q-Interline – your knowledge partner

Q-Interline is dedicated to spectroscopy. For over a decade, we have developed, produced and marketed spectroscopy-based analysis equipment for quality and process control. We work hard to provide our customers with spectroscopy that makes a difference. We offer courses, maintenance agreements, calibration support and user group meetings for our customers.

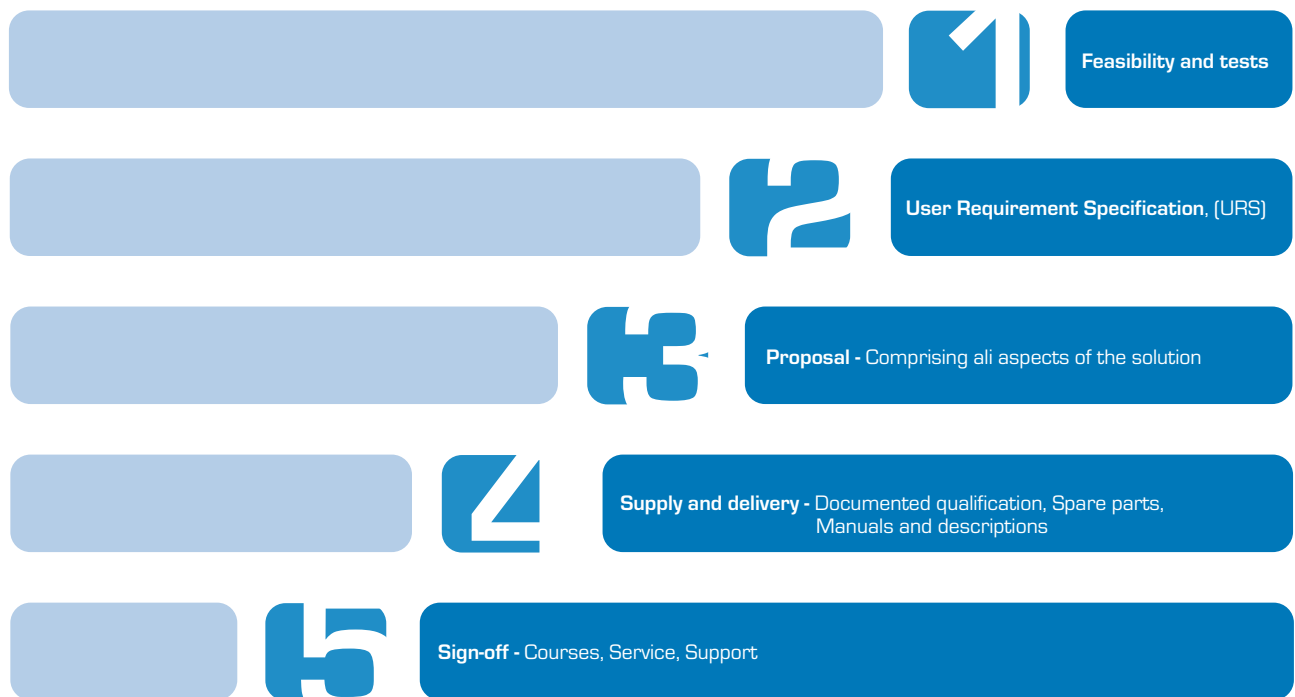
## Highly sophisticated technology combined with dynamic knowledge

Our spectroscopy equipment, accessories and software are based on advanced technology platforms. So we do not have to worry about optics, but focus 100 per cent on tailoring an optimum solution for sampling and ease of use for our customers – and can still provide you with the best technology on the market. With this combination we believe you are in good hands.

## 25 million analysis results per year

Our customers tell us that know-how and experience make the difference. Hundreds of installations in laboratory and process sites and an estimated 25 million analysis results generated annually on Q-Interline instruments speaks for itself. We increase our knowledge every day. A knowledge that we are eager to share with our customers.

## OUR PROJECT FLOW :



The Q-Interline project flow is the best way to fulfil your needs.

### Q-Interline A/S

Københavnsvej 261  
DK-4000 Roskilde

Phone: +45 4675 7046

Fax: +45 4675 7096

E-mail: [info@q-interline.com](mailto:info@q-interline.com)

Web: [www.q-interline.com](http://www.q-interline.com)