

# Diode Array 7440

Process NIR Instrument



Real-time Measurement



Accurate & Precise Results



Made for Industrial Environments



Web-based User Interface

Reliable, Accurate, Real-time



# Modern on-line process sensor.

**The DA 7440** measures moisture, fat, sugar, flavorings and more in real-time. It's widely used in various food and agricultural processing applications and is used to monitor incoming ingredients and raw materials, optimize production processes and verify finished product quality. It's typically installed over conveyor belts but its flexibility allows for other options as well.

Results are easily integrated into an existing automation system. Thanks to its use of modern diode array technology the DA 7440 gives accurate and stable readings even when your products change.



## Measurement Parameters

- Moisture
- Fat
- Resin load of fibres
- Salt and spices
- Nicotine
- Fiber
- Sugars
- Protein
- And more...

## Optimize your production

The DA 7440 is successfully used to measure and control moisture and more in various processes. By accurate, real time measurements, the user can automatically or manually control drying, cooling, ingredient additions, blending or segregations, depending on current needs.

The modern DA technology automatically detects if there is product on the belt or not and handles process changes such as varying product height, colour and temperature without any undue effects on the measurement results.

## Information integration

By integrating the instrument into the SCADA system, the operator can see the results in a familiar operating environment. Further, the results are available for automated controls and reporting through a central reports system. The DA 7440 offers a range of communication options including.

- OPC DA
- Fieldbus including Profibus DP, Modbus, etc.
- Ethernet TCP/IP based Modbus/TCP & PROFINET
- Analogue outputs

Further, data can easily be downloaded from the web-based user interface for evaluation.

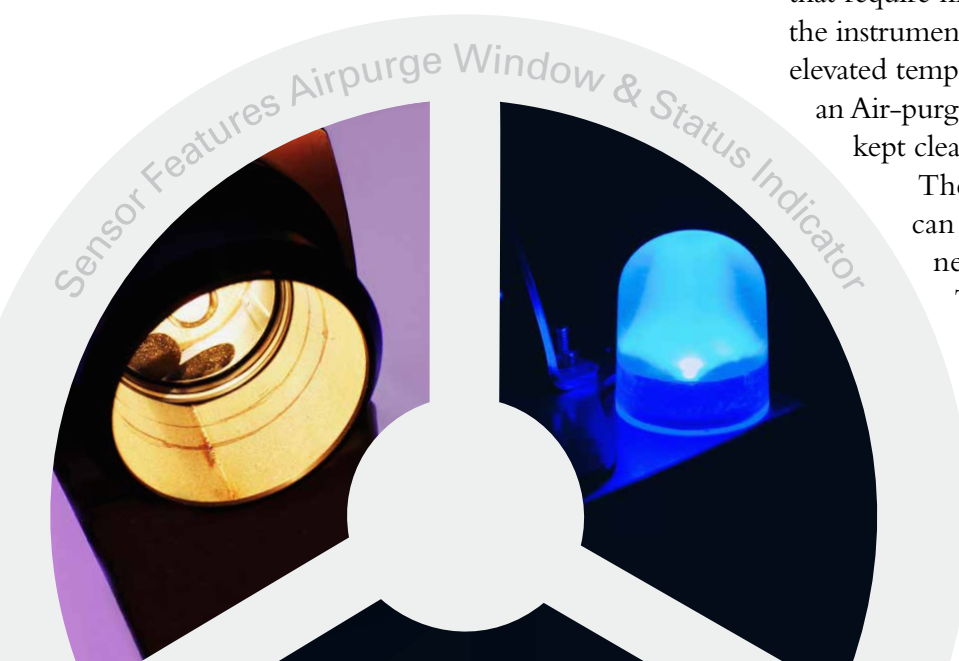


## Industrial Design

The DA 7440 is available in different models for different processes. The DA 7440 General Purpose is typically used in dry processes, whilst the DA 7440 Sanitary Design version is used in food production areas or other environments that require higher ingress protection. A cooled version of the instrument is also available for installation in areas with elevated temperatures. The Smart Sensor is equipped with an Air-purge window that ensures the sensor window is kept clean and free from contamination.

The sensor communicates over Ethernet and can be plugged straight into an existing plant network or connected to a wireless network. This connectivity reduces the need for additional cabling to be run separately.

The light indicator on the sensor indicates operating status and alarm conditions with different colors, making it easy for operators to see that everything is working as expected.







## Process Plus



Process Plus is the dedicated process instrumentation software from Perten Instruments. Process Plus is a modern and easy to use software that is built with the specific demands of the process industry in mind. The software includes a web-based user interface with both numerical and graphical displays as well as functions for setting up instrument and product specific features. Process Plus can be installed either on a dedicated PC in the junction box or on a server with automated back-up and redundancy. Process Plus is part of the Perten Plus software suite.

## Operator At-line display

Further enhancing the functionality of the system, we offer an at-line display. The large and clear screen provides at-a-glance information of actual measurement results in graphical or numerical form. The instrument status is shown with signaling and status messages, clearly showing the current status. The touch-sensitive display is also used when taking grab samples. When the sample button is pushed, the instrument tags the corresponding measurements in the instrument database for use at later validation or calibration enhancements.

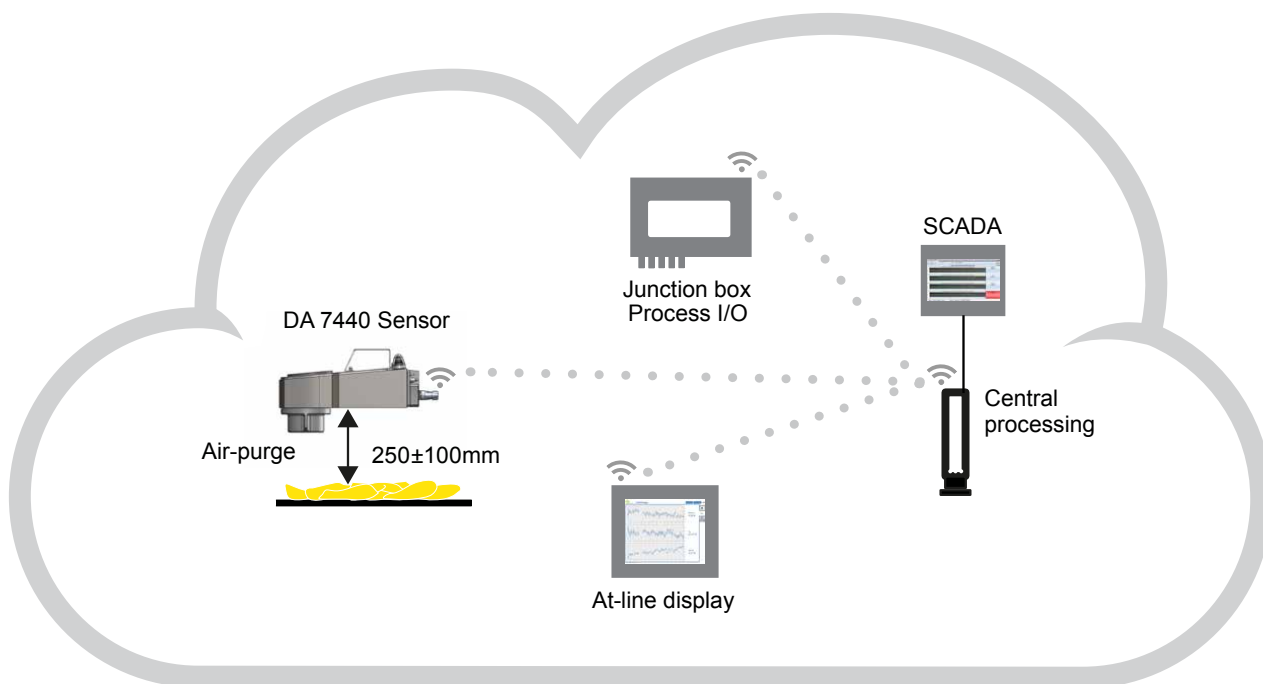
**Junction box** To ease the installation, we offer a junction box that includes:

- 24V DC power supply & UPS
- 4 port switch
- Wireless access point
- Industrial computer for Process Plus
- Gateway for Analogue output and Fieldbus interfaces
- External sample button input

The junction box is typically mounted in the vicinity of the sensor and provides a convenient way to quickly install the required supplies to the sensor.

*12" Touch screen Operator Interface*





*Multiple sensors with one processing unit is possible.*

## Modern communication infrastructure



Communication between the various system components is over Ethernet. The system is available with wired or wireless interface between sensor, central processor and peripherals. The user interface is web-based, meaning that any user can access real-time measurement information from a web-browser anywhere on the network. For example, whilst the operator is using the At-line display, the production manager can view measurements in his/her office in real time. The laboratory can, simultaneously and independently, add reference analysis results to the manual sampling report, allowing a quick and continues verification of sensor performance. This multi-user capability requires NO additional software to be installed on any computer.

### Advantages

- Accurate and precise results for all products
- Web-based user Interface
- Easily integrated into SCADA



## Diode Array 7440

Process NIR Instrument

**Calibrations** In difference to instruments that use only a few NIR wavelengths to make the measurement, the Diode Array technology captures a complete part of the NIR spectra. This facilitates the use of modern calibration techniques such as PLS, the proprietary HR or ANN. Perten offers ready-to-use calibrations for all important parameters and continued support for the calibrations. Alternatively, the customer can chose to develop and maintain PLS calibrations, using third party software, the Unscrambler® from Camo.

**Support** Managing ones assets in order to ensure optimum performance becomes more and more profitable. Perten offers a range of affordable support packages to ensure your instrument keeps performing as new, year after year. The support includes calibration maintenance and up-dates, replacement of certain consumables as well as software updates.

## Specifications

**Temperature range:** 0°C - 40°C, 0-60° with optional cooler

**Ingress protection:** IP65 or IP69k

**Humidity:** 50% RH  $\pm$ 30%

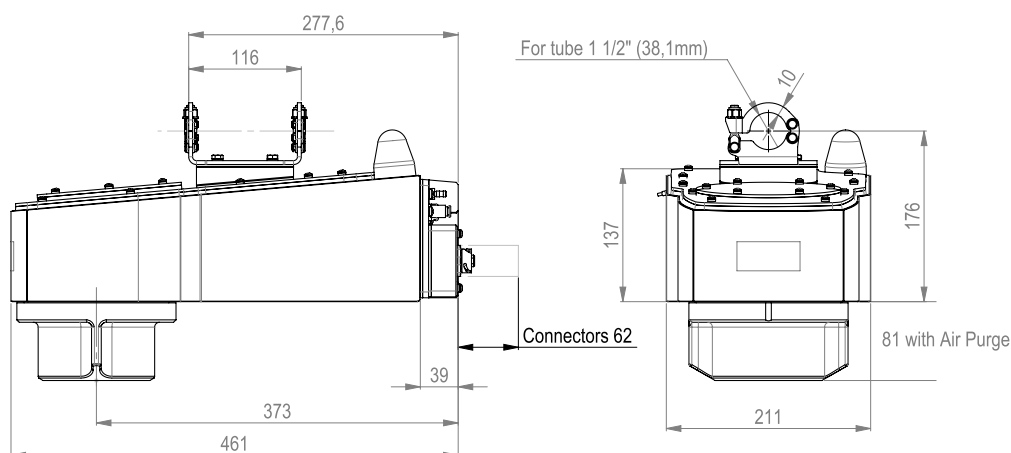
**Mounting:** 38 mm diameter

**Power:** 230V AC 50-60 Hz to the junction box.

**Network:** Ethernet/TCP-IP 100/100 Mbps network to sensor, cabinet and at-line display

**Compressed air for air purge:** 3 bar, 6 mm diameter.

**Flow rate:** 30-60 l/min.



# Diode Array 7440 SD

Process NIR Instrument



All types of Snack Foods



Fat, Moisture, Salinity



Industrial, Sanitary Design



Web-based User Interface

Reliable, Accurate, Real-time



# Pointing your process in the right direction.

**The DA 7440** measures fat, moisture, salinity and more in snack food processing.

*Thanks to the Diode Array technology, the DA 7440 is an instrument that measures correctly even if you change batch, processing conditions or raw materials. The Diode Array technology enables us to provide sophisticated yet easy-to-use calibrations that provide accurate measurements using only one calibration for all your products. The instrument measures continuously and in real time, and the results are easily integrated into an existing automation system.*

*The DA 7440 sets new industry standards.*



**Chips**



## Measurement Parameters

- Fat
- Moisture
- Salinity



**Baked snacks**





## Optimize the frying process

Measuring in real time after the fryer and before packaging, the instrument can be used to automatically control the process and optimize the moisture and fat content. Running the process at its optimum saves money by optimizing the use of raw materials, increasing output and reducing scrap. The continuous measurement and control also results in a more uniform end-product that is sure to meet the specifications.

## Information integration

By integrating the instrument into the SCADA system, the operator can see the results in a familiar operating environment. Further, the results are available for automated controls and reporting through a central reports system. The DA 7440 offers a range of communication options including.

- OPC DA
- Fieldbus including Profibus DP, Modbus, etc.
- Ethernet TCP/IP based Modbus/TCP & PROFINET
- Analogue outputs

Further, data can easily be downloaded from the web-based user interface for evaluation.



## Industrial Design

The DA 7440 SD is designed to be installed in food production areas and meet the particular demands of this environment. The Sanitary Design (SD) housing is easy to clean, is made of stainless steel with high ingress protection (IP 69 k) and the cabling is kept to an absolute minimum, all in order to be suited for food production areas. The Smart Sensor is equipped with an Air-purge window that ensures the sensor window is kept clean and free from contamination.

The sensor communicates over Ethernet and can be plugged straight into an existing plant network or connected to a wireless network. This connectivity reduces the need for additional cabling to be run separately.

The light indicator on the sensor indicates operating status and alarm conditions with different colors, making it easy for operators to see that everything is working as expected.





## Process Plus



Process Plus is the dedicated process instrumentation software from Perten Instruments. Process Plus is a modern and easy to use software that is built with the specific demands of the process industry in mind. The software includes a web-based user interface with both numerical and graphical displays as well as functions for setting up instrument and product specific features. Process Plus can be installed either on a dedicated PC on the network or on a server with automated back-up and redundancy. Process Plus is part of the Perten Plus software suite.

## Operator At-line display

Further enhancing the functionality of the instrument, we offer an at-line display. The large and clear screen provides at-a-glance information of actual measurement results in graphical or numerical form. The instrument status is shown with signaling and status messages, clearly showing the current status. The touch-sensitive display is also used when taking grab samples. When the sample button is pushed, the instrument tags the corresponding measurements in the instrument database for use at later validation or calibration enhancements.

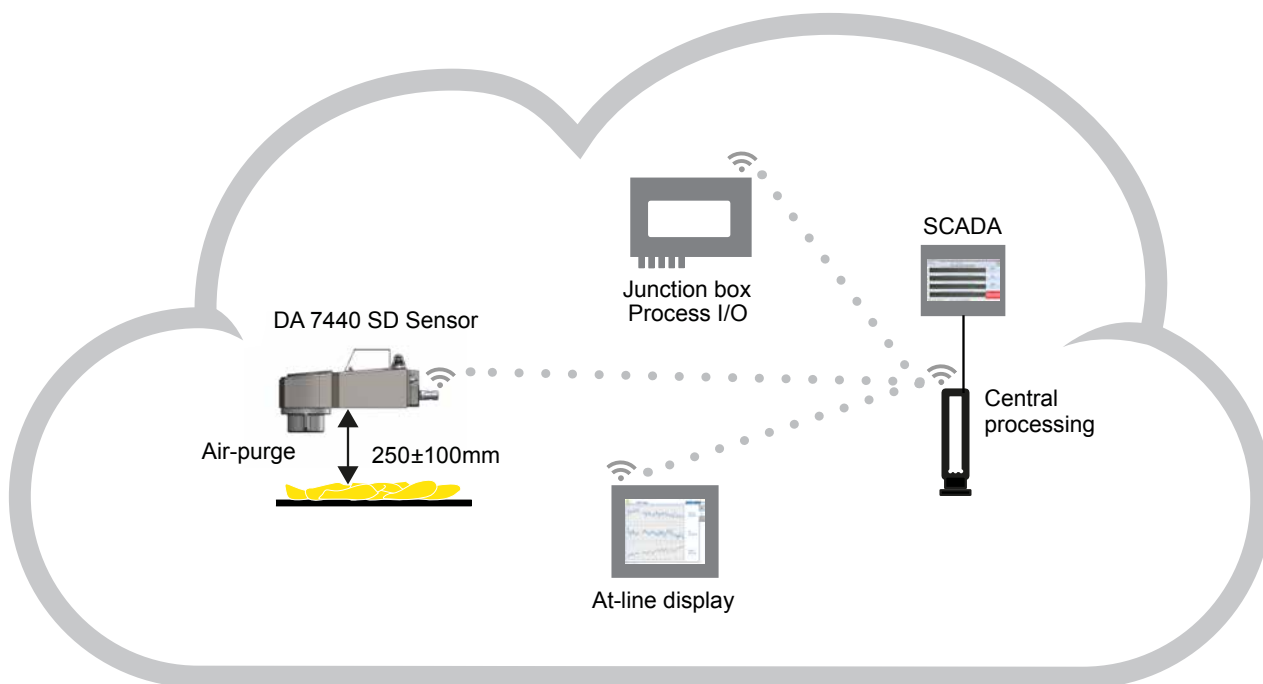
**Junction box** To ease the installation, we offer a junction box that includes:

- 24V DC power supply
- 4 port switch
- Wireless access point
- Gateway for Analogue output and Fieldbus interfaces
- External sample button input

The junction box is typically mounted in the vicinity of the sensor and provides a convenient way to quickly install the required supplies to the sensor.

*12" Touch screen Operator Interface*





*Multiple sensors with one processing unit is possible.*

## Modern communication infrastructure



Communication between the various system components is over Ethernet. The system is available with wired or wireless interface between sensor, central processor and peripherals. The user interface is web-based, meaning that any user can access real-time measurement information from a web-browser anywhere on the network. For example, whilst the operator is using the At-line display, the product manager can view measurements in his office in real time. The laboratory can, simultaneously and independently, add reference analysis results to the manual sampling report, allowing a quick and continuous verification of sensor performance. This multi-user capability requires NO additional software to be installed on any computer.

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- **Web-based user Interface**
- **Easily integrated into SCADA**

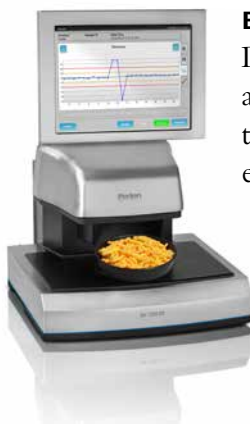


# Diode Array 7440 SD

Process NIR Instrument

**Calibrations** In difference to instruments that use only a few NIR wavelengths to make the measurement, the Diode Array technology captures a complete part of the NIR spectra. This facilitates the use of modern calibration techniques such as PLS or the proprietary HR method. Perten offers ready-to-use calibrations for all important parameters and continued support for the calibrations. Alternatively, the customer can chose to develop and maintain PLS calibrations, using third party software, the Unscrambler® from Camo.

**Support** Managing ones assets in order to ensure optimum performance becomes more and more profitable. Perten offers a range of affordable support packages to ensure your instrument keeps performing as new, year after year. The support includes calibration maintenance and up-dates, replacement of certain consumables as well as software updates.



**Bench-Top Analysis** The DA 7440 is complemented by the DA 7250 bench-top analyzer. The DA 7250 can accurately analyze raw materials, semi-finished products and end-products taken from production in 6 seconds. The instrument is very easy to use and can confidently be operated by production personnel as well as laboratory technicians. Thanks to the open face dish sample presentation, there is no sample preparation required and the required clean-up is minimal. The DA 7250 and the DA 7440 uses similar software so operators can easily use both models without the need for extensive training.

**RVA** The RVA measures the viscosity of materials during heating and mixing. Use it to characterize ingredients, intermediates and finished products to optimize final quality.

**TVT** Texture Analyzer measure texture on a wide range of products. A fast and simple test to determine performance and quality characteristics.

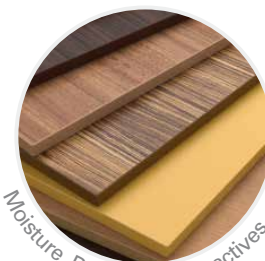


# Diode Array 7440

Process NIR Instrument



Real-time Measurements



Moisture, Resin load, Extractives, pH



Non-contact Measurement



Web-based User Interface

Reliable, Accurate, Real-time

**Perten**  
INSTRUMENTS





# Pointing your process in the right direction.

**The DA 7440** sets new industry standards. The DA 7440 measures important parameters during production of wood based panels accurately and in real-time.

*The DA 7440 is based on decades of NIR experience and built with state of the art technology. The DA 7440 is an instrument you can rely on that measures correctly even if you change batch, processing conditions or raw materials. The Diode Array technology enables us to supply sophisticated yet easy-to-use calibrations that provide accurate measurements with a minimum of user intervention.*

Wood based panels



Board

## Measurement Parameters

- Moisture for incoming raw materials and throughout the process
- Chips/fiber resin load
- Extractives content
- Surface moisture and resin load in lamination and coating

Fiber



Chips



## Optimize the production process

The DA 7440 is typically used to control moisture, wood chemistry and resin load. Measuring in real time after the dryer and throughout the process, gives the user excellent control over process and the product quality.

## Information integration

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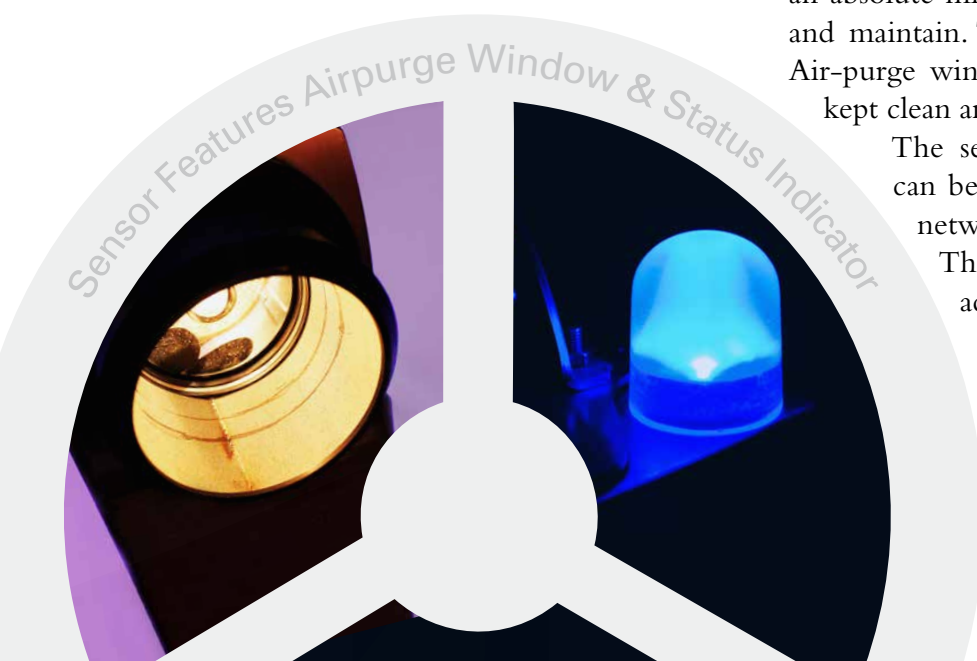


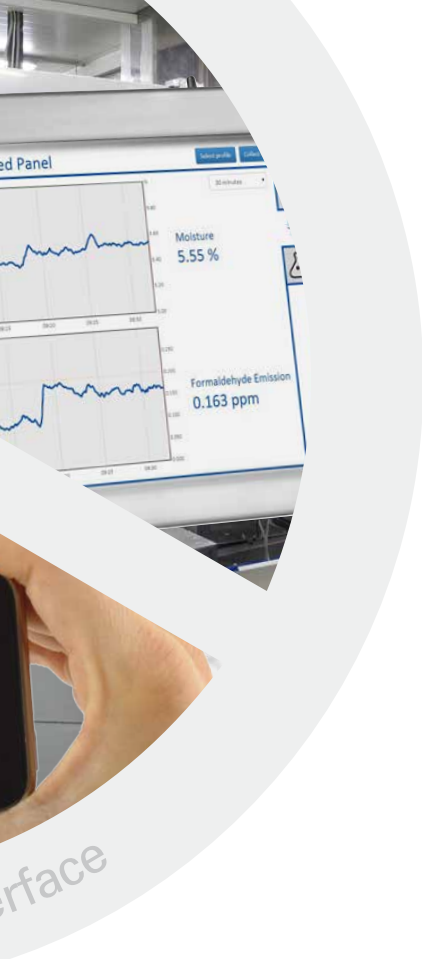
## Industrial Design

The DA 7440 is designed to be installed in industrial production areas and meet the particular demands of this environment. The stainless steel housing has high ingress protection, integral mounts and the cabling is kept to an absolute minimum, all in order to be easy to install and maintain. The Smart Sensor is equipped with an Air-purge window that ensures the sensor window is kept clean and free from contamination.

The sensor communicates over Ethernet and can be plugged straight in to an existing plant network or connected to a wireless network. This connectivity reduces the need for additional cabling to be run separately.

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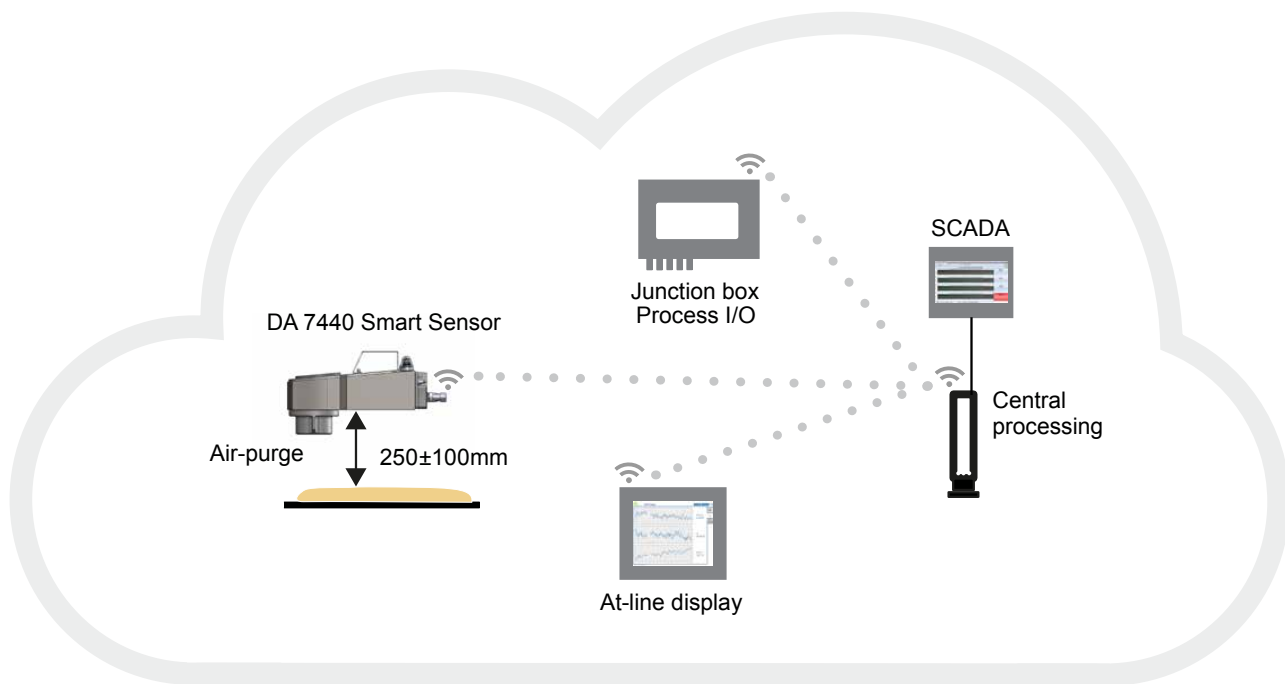
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## Modern communication infrastructure



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### Advantage

- Accurate and precise results for all products
- Web-based user Interface
- Easily integrated in to SCADA



## Diode Array 7440

Process NIR Instrument





**Calibrations** In difference to instruments that use only a few NIR wavelengths to make the measurement, the Diode Array technology captures a complete part of the NIR spectra. This facilitates the use of modern calibration techniques such as PLS or the proprietary HR method. Perten offers ready-to-use calibrations for all important parameters and continued support for the calibrations. Alternatively, the customer can chose to develop and maintain PLS calibrations, using third party software, the Unscrambler® from Camo.

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**Bench-Top Analysis** The DA 7440 is complemented by the DA 7250 bench-top analyzer. The DA 7250 can accurately analyze samples taken from production in 6 seconds. The instrument is very easy to use and can confidently be operated by production personnel as well as laboratory technicians. Thanks to the open face dish sample presentation, there is no sample preparation required and the required clean-up is minimal. The DA 7250 and the DA 7440 use similar software so operators can easily use both models without the need for extensive training.



# Diode Array 7440 T

Process NIR Instrument



Real-time Measurement



Moisture, Nicotine, Sugar & more



Industrial Design



Web-based User Interface

Reliable, Accurate, Real-time

**Perten**  
INSTRUMENTS



# Pointing your process in the right direction.

**The DA 7440** *measures moisture, nicotine, sugars, temperature and more in GLT and primary processing.*

*Thanks to the Diode Array technology, the DA 7440 is an instrument that measures correctly even if you change batch, processing conditions or raw materials. The Diode Array technology enables us to provide sophisticated yet easy-to-use calibrations that provide accurate measurements using only one calibration for all your products. The instrument measures continuously and in real time, and the results are easily integrated in to an existing automation system.*

*The DA 7440 sets new industry standards.*



## Measurement Parameters

- Moisture
- Nicotine
- Sugar
- Temperature
- And more...



## Optimize leaf roasting, conditioning, blending and drying

The DA 7440 can be used both at GLT and throughout the primary processing. The DA 7440 is ideally placed after conditioning, drying, blending or other critical process steps. The instrument measures oven-moisture, nicotine, sugar, temperature and more in real time. The accurate measurement can easily be integrated in control loops for optimizing the process and for documenting the quality of the product.

## Information integration

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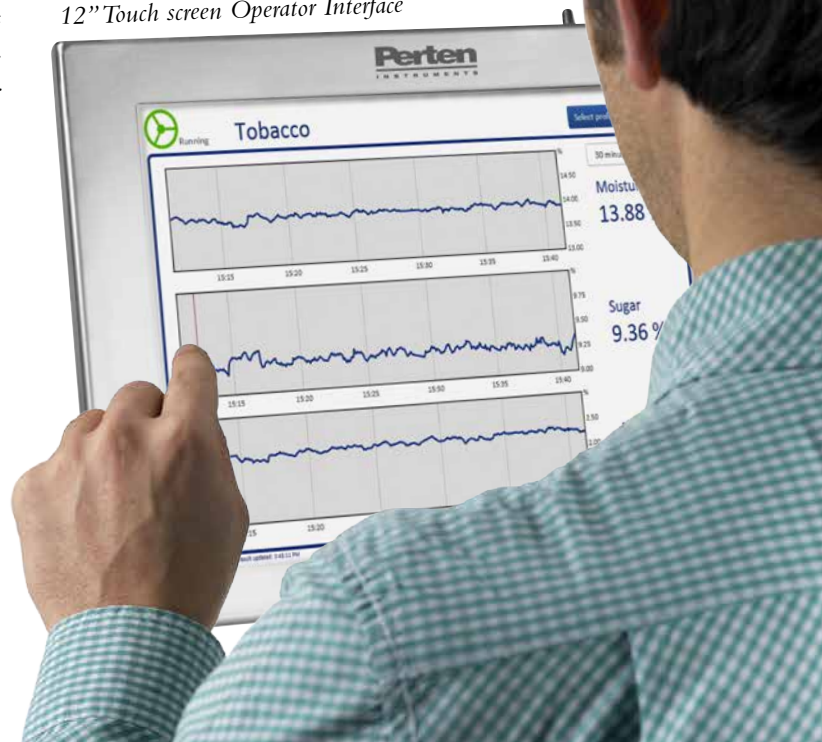
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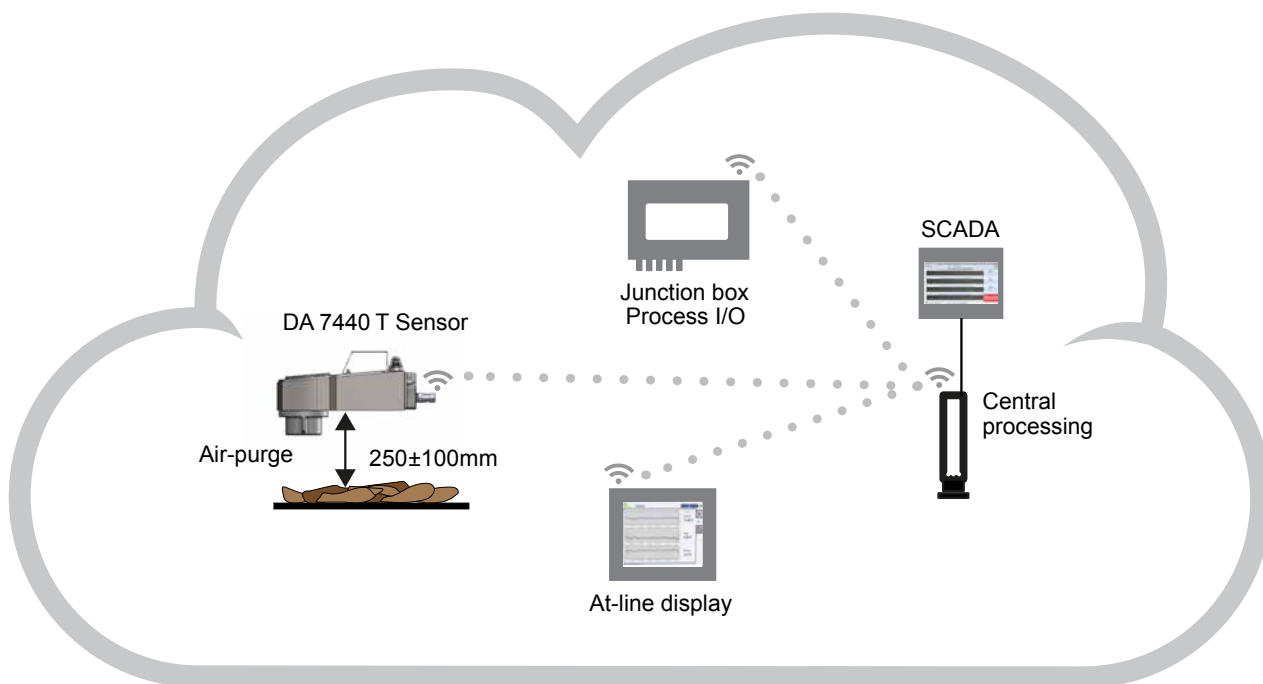
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