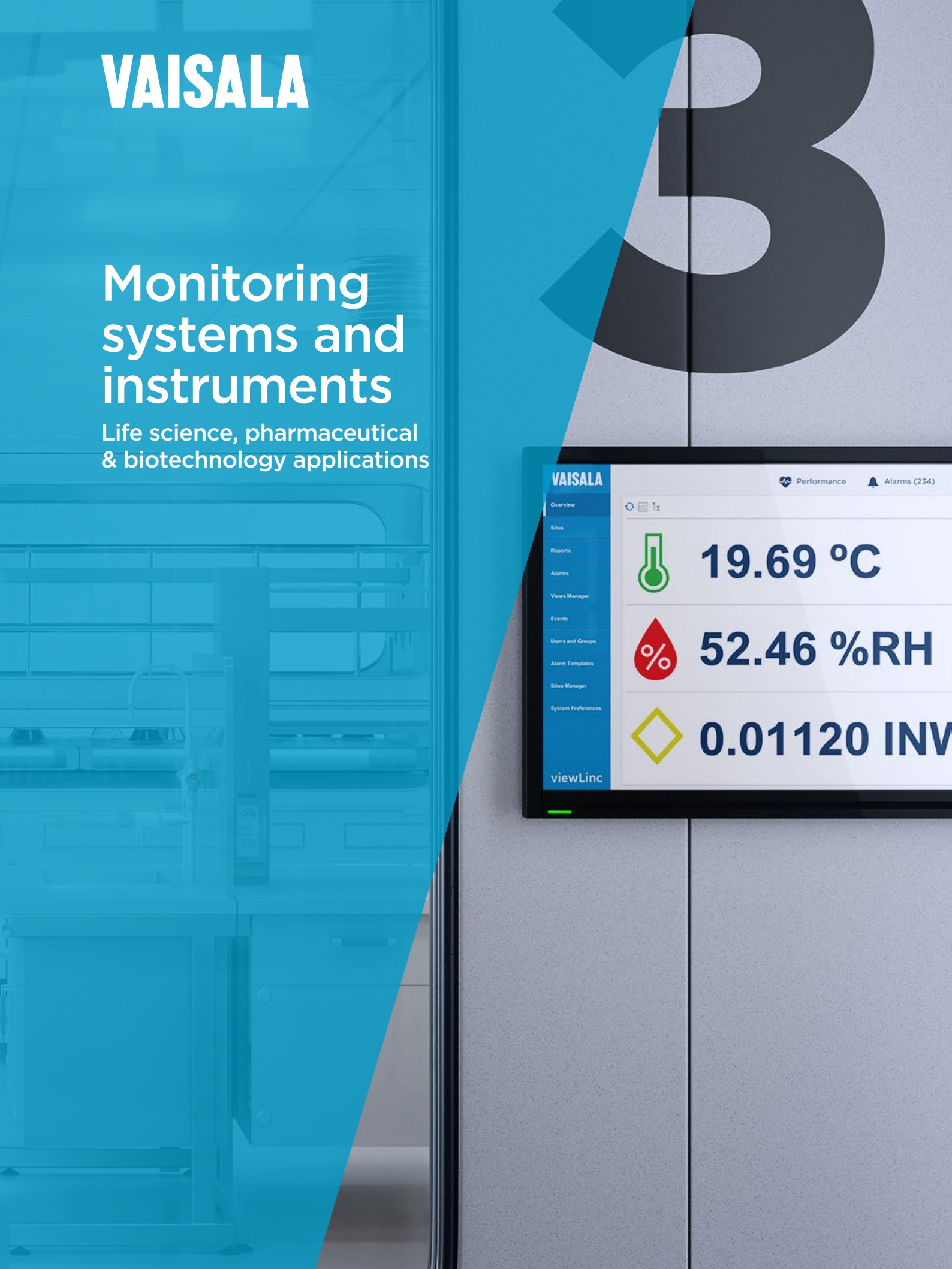
VAISALA

Monitoring systems and instruments

Life science, pharmaceutical & biotechnology applications



Monitoring & mapping: laboratories, cleanrooms, warehouses

Continuous Monitoring System (CMS)

The Vaisala viewLinc CMS is designed for GxP-regulated environments. The system combines Vaisala's viewLinc Enterprise Server software with Vaisala data loggers, smart probes, transmitters, and third-party Modbus-enabled devices.

Vaisala offers optional documentation and services, including: IQOQ) protocols, a GxP documentation package to help you implement your system according to GAMP guidance, and services for field calibration, installation, and validation in selected regions.

viewLinc CMS Features and Benefits

- Validatable software and data loggers meet 21 CFR Part 11 and Annex 11
- Simple installation & validation, with optional IQOQ protocols
- Easy network connectivity with Ethernet, PoE, Wi-Fi, or VaiNet wireless technology
- Web-based interface for remote monitoring
- Alarm notifications through email, text, phone, PC display, signal tower and annunciator
- Secure audit trail and customizable reporting
- viewLinc validated monitoring data can integrate with other systems via Vaisala's OPC UA or the viewLinc API
- Allows inputs from Modbus-enabled devices

Validation/Mapping System

Designed for the most demanding validation applications, the Vaisala mapping system comprises vLog software and Vaisala's data loggers for downloading, displaying, analyzing and reporting. Fully encrypted and validatable, vLog produces tabular and graphical reports that are easy to customize to your documentation needs.

Validation/Mapping system Features and Benefits

- Stable and reliable hardware minimize sensor accuracy drift
- Compact data loggers are easy to place and less disruptive to operations
- Easy-to-use vLog software provides detailed, customizable reports
- Comprehensive IQ/OQ protocol available
- Three levels of security to control access: Windows, domain level, and local account authentication
- Security status of data on reports for compliance with 21 CFR Part 11/Annex 11
- Audit trail ensures all system actions are recorded

**The viewLinc Enterprise Server includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (openssl.org)*

viewLinc data loggers

VaiNet Wireless RFL100 Data Loggers

Vaisala's proprietary VaiNet wireless technology is based on the LoRa® spread spectrum modulation technique. VaiNet provides low power, long range, secure data transmission that is extremely reliable in complex environments.

- RFL-series data loggers and AP10 network access points eliminate the need for repeaters
- Set-up is easy; access points are pre-programmed to establish communication with RFL100 data loggers
- RFL-series data loggers feature detachable probes for easy calibration
- Parameters: temperature only, temperature and relative humidity, CO_2%, with or without temperature/RH
- Signal strength ≥100 meters, even in obstructed environments
- Battery-powered data loggers with on-board memory provide gap-free measurement reliability

VaiNet RFL 100 data logger

DL-series data loggers

DL1016 temperature data loggers

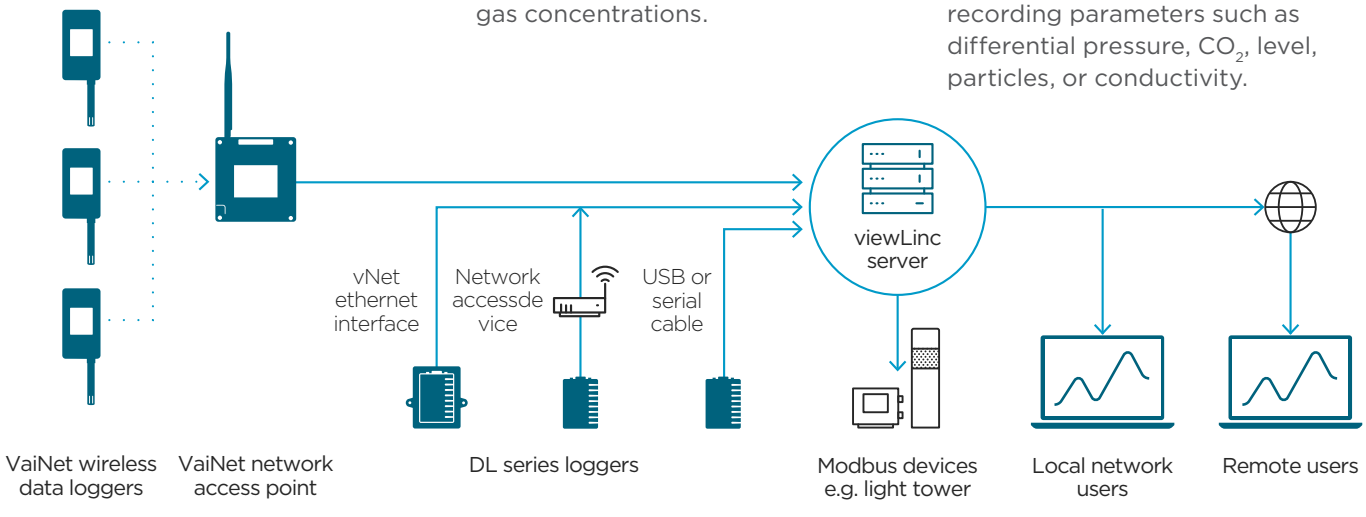
The DL1016 and DL1000 series temperature data loggers have up to four channels and a wide temperature measurement range.

DL4000 universal input data logger

The DL4000 Universal Input data logger is a simple solution for recording and monitoring pressure, flow, fluid level, pH, electrical properties, moisture and gas concentrations.

DL2000 relative humidity and temperature data logger

The DL2000 data logger combines internal temperature and relative humidity sensors with optional external channels for current or voltage inputs for recording parameters such as differential pressure, CO_2, level, particles, or conductivity.



Vaisala Indigo products

Measure with Intelligence and Insight

Designed for use with Vaisala's smart probes, Indigo transmitters provide a simple interface for a wide range of measurements, including temperature, humidity, dew point, barometric pressure, carbon dioxide (CO_2), moisture in oil, and vaporized hydrogen peroxide (H_2O_2). Typical applications include compressed air drying, incubators, cold storage, isolators, transfer hatches, and demanding HVAC such as animal laboratories and housing.

The Vaisala Indigo family includes intelligent, interchangeable measurement probes, optional host devices and Vaisala's Insight PC Software. **Indigo 200** series transmitters are lightweight, easy-to-install host devices for Vaisala Indigo-compatible probes. **Indigo300** transmitters feature a corrosion-resistant metal housing and are pre-configured for up to three analog outputs (mA, V, or both). **Indigo 500** series transmitters are industrial-grade, robust devices that accommodate up to two Vaisala Indigo-compatible probes.

Indigo transmitters provide easy visualization of data, versatile mounting options for simple installation, and plug-and-play connection with probes. Enclosures are rated IP65 (Indigo 200 and Indigo300 Series); or IP66 and NEMA 4 rated (Indigo 500 Series), safe for harsh environments, and resistant to dust and most chemicals. Transmitters feature local display options and connection to automation systems through analog signals, relays, or Modbus TCP/IP protocol.

Insight PC Software

Field calibration is a quick way to check and verify measurement accuracy. With Indigo compatible probes, calibration can be performed using Vaisala's Insight PC software. Insight software automatically detects and connects to up to six probes. The software provides an intuitive graphical user interface, easy access to diagnostics data and device-specific advanced features, such as event logs, parameter backup copy, or electronic copies of calibration certificates. Data can be exported to a spreadsheet. Insight software is downloadable at: www.vaisala.com/insight.

Indigo 500 Series Transmitters for Humidity, Temperature, Dew Point, Barometric Pressure, Moisture in Oil, CO_2 and H_2O_2 probes

Indigo 300 Series Transmitters for Humidity, Temperature, Dew Point, Moisture in Oil, CO_2 and H_2O_2 probes

Incubators

Incubators require precise control of temperature, relative humidity and carbon dioxide. The patented Vaisala CARBOCAP® carbon dioxide sensor has become a standard for use in incubators. With excellent long-term stability, Vaisala CO_2 devices are ideal as a reference measurement. Each sensor features built-in temperature/pressure compensations and operates reliably in high humidity environments.

Indigo80 with GMP251 carbon dioxide probe and HMP110 humidity and temperature probe. The HMP110 probe offers measurement accuracy from ±1.0 °C and ±1.5 %RH (0–90 %RH) with higher accuracies available. The GMP251 CO_2 probe provides accuracy from ±0.1 %CO_2 depending on operating conditions.

Indigo80 Handheld Indicator

Ideal for spot-checking, process monitoring, calibrating, and adjusting Vaisala Indigo-compatible probes and transmitters, the Indigo80 enables measurements for multiple parameters.

- Log up to a month's worth of measurement data
- USB-C interface for data uploads and battery charging
- Multilingual, menu-based user interface available in 10 languages
- View live measurement data as numbers or graphs

Vaisala CARBOCAP® GMP251 CO_2 probe

- Can be used as a standalone instrument or with Indigo transmitters
- Measurement range of 0-20% CO_2
- Operating range -40 to +60°C with built-in temperature compensation
- Sensor heating to prevent condensation
- Calibration certificate included

Vaisala HUMICAP® HMP110 humidity and temperature probe

- Can be used as a standalone instrument or with a transmitter
- Measurement range of -40 to +80°C, 0 - 100% RH
- Voltage and digital output options

Demanding HVAC and cleanrooms

CAB100 Industrial Cabinets

The CAB100 is designed for continuous monitoring in cleanrooms and industrial areas. The cabinets provide centralized integration of transmitters with the viewLinc continuous monitoring system software. A simple, pre-configured instrument panel for monitoring humidity, temperature, differential pressure and many other parameters, the CAB100 is configurable to your application requirements. Options include large or small size cabinets, analog inputs for remote transmitters, and safety barriers for areas that require Intrinsically Safe devices. Cabinet devices can be changed or expanded as needed.

PDT101 differential pressure transmitter

The PDT101 differential pressure transmitter is designed for demanding cleanroom applications. The sensor integrates with the viewLinc monitoring system and the CAB100 industrial cabinets to monitor pressure differentials in regulated environments. Ideal for high-performance cleanrooms.

- Available with voltage output (3-wire) or current output (2-wire)
- DIN rail, panel or wall mountable
- 2 pressure ranges (Pa and in H_2O)
- Accessible zero and span adjustment potentiometers
- ¼" brass tubing connections
- LED status indicator
- Traceable calibration to national standards (certificate included)

HMT120/130 Humidity and Temperature Transmitter

The Vaisala **HUMICAP®** **HMT120/130** Humidity and Temperature Transmitters were designed specifically for clean rooms with rounded edges for easy wipe down. They can be mounted on a wall, or with a remote probe for measurement in ducts.

- Interchangeable remote or local probes
- 2-wire loop-powered or 3-wire voltage output configurations
- Removable probe for easy field calibration
- Optional LCD display and easy USB connectivity to PC
- Wall-mounted or remote options available

Vaisala HUMICAP® HMW90
Series of wall-mount transmitters measure relative humidity and temperature in indoor, non-washdown areas. The HMW90 is a flexible product family with a variety of options and features, both analog and digital output models are available. The sensors are exceptionally easy to configure, install, and adjust in the field. Calculated parameters include temperature dew point, enthalpy, and wet bulb temperature

HMW90 Humidity and Temperature Transmitter

HMD60 Humidity and Temperature Transmitter

Vaisala **HUMICAP® HMD60** Humidity and Temperature Transmitters mount in ducts for monitoring HVAC applications.

Industrial drying & compressed air

Indigo 520 Transmitter

Dew point and temperature probe DMP8

Ideal for applications like tablet coating, fluid bed dryers, and dry rooms, the Vaisala HUMICAP® and DRYCAP® sensor technologies offer many solutions to reliably measure humidity, temperature and/or dew point and barometric pressure. With our newest Indigo family of products, probes can be used independently or combined with a transmitter for additional capabilities.

The DRYCAP® products provide stable measurement in extremely dry conditions such as in compressed air, glove boxes, and dry rooms. Features include:

- Dew point range down to -80°C (-112°F)
- Fittings for elevated pressure up to 725 psia
- Patented auto-calibration technology allows for calibration intervals up to two years

The HUMICAP® products provide exceptional stability over a wide range of temperature and humidity conditions, making them ideal for applications such as tablet coating and fluid bed dryers. Features include:

- Temperature range optimized for processes ranging from -70 ...+180°C (-94...+356°F) and humidity 0...100%
- Purge cycles for chemical contaminants

* Probe warming in near-condensing conditions for long-term measurement stability

Transmitter INDIGO-compatible probes & sampling cells

Vaisala sample cells are compatible with several dew point measurement instruments:

- Spot-checking with the Vaisala Indigo80 handheld indicator in combination with DMP80
- Inline process measurement with Vaisala DRYCAP® dew point probe DMP7
- Original equipment manufacturing with Vaisala DRYCAP® dew point probes DMT132, DMT143, DMT143L, DPT146, and DMT152
- Sample cells can also be used with various previous generation Vaisala DRYCAP® dew point instruments such as DM70, DMT142, DMT242, DMT347, and DMT348

DMCOIL

DSC74B
Dewpoint-sampling Cells

Bio-decontamination & sterilization

Hydrogen Peroxide Vapor Bio-Decontamination

The HPP270 series probes use PEROXCAP® technology to provide repeatable, stable, and accurate measurements in isolator, transfer hatch, and room bio-decontaminations. The basic probe option HPP271 measures H_2O_2 vapor concentration (ppm) and dew point, the HPP272 measures hydrogen peroxide vapor concentration, temperature, and humidity (relative saturation and relative humidity), dew point, and vapor pressure. For use as a standalone probe or with Indigo transmitters.

- Superior long-term stability and repeatability
- Traceable calibration certificate
- Corrosion-resistant stainless steel probe housing (IP65)
- Integrable with control systems
- Excellent long-term stability and negligible hysteresis

Vaisala PEROXCAP® HPP272 with Indigo 202

HMT370EX with HMP378 Probe

Intrinsically Safe Humidity and Temperature Transmitter HMT370EX with HMP378 Probe

- HMT370EX Series Intrinsically Safe Humidity and Temperature Transmitters can be used in a variety of ETO gas mixtures
- Measures humidity and temperature, dew point, mixing ratio, absolute humidity and wet bulb temperature
- Safe operation with the entire transmitter in hazardous areas
- Features high accuracy, excellent long-term stability and negligible hysteresis

Liquid concentration measurements

Polaris process refractometer installation

The Polaris Process Refractometer provides inline concentration measurements for a wide range of applications, such as Active Pharmaceutical Ingredients (API), vitamins, herbal-based medicine, vaccines, penicillin as well as medical protective wear, wound dressings, and medical implants manufacturing.

Measure Brix and other liquid concentrations with instant productivity and material gains, and simplified process operation and control.

The Vaisala Polaris Process Refractometer works in every process condition from stable to demanding, in high process temperatures, and in sticky processes. It is also compatible with clean-in-place (CIP) and sanitation-in-place (SIP) systems. Connectivity options include mA, HART, and Modbus RTU as a standard.

Features:

- Reliable optical concentration measurements with refractive index
- Brix, Total Solids, Oechsle, Baume, Plato, and more than 500 concentration curves
- 3-A and EHEDG certified
- 3-A and Type N sanitary couplings
- Measurement not affected by bubbles, particles, suspended solids, or color
- Various flow cells available
- Indigo520-compatible
- Built-in 4 ... 20 mA and Modbus RTU outputs

In-line measurement of refractive index can help to immediately identify problems during scale-up and to reduce development time.

Vaisala PR53AC

Life cycle services

As a manufacturer, Vaisala is dedicated to offering comprehensive customer care throughout the entire life cycle of your measurement devices and systems. Using our calibration services is the most convenient way to ensure your measurement data is accurate and your calibration records are compliant. Calibration options are available 24/7 from our online store. We are at your service worldwide with four global service centers and local field service options.

Life Cycle Services:

- **Training services**
- **Maintenance and repair**
- **Instrument modernization**
- **Extended warranty**
- **Technical support**
- **Calibration services**

Calibration Services:

- In compliance with ISO/IEC 17025 and ISO 9001 requirements
- Customized calibration points upon request
- Functional testing
- Traceable calibration
- Accuracy adjustment as needed
- Probe filter replacement as needed
- Calibration certificate with as-found and as-left results
- Service report

Original factory calibration performed on new Instruments

In compliance with ISO 9001 requirements

Predefined calibration points

Calibration for regulated Industries and reference Instruments

In compliance with ISO/IEC 17025 requirements

Predefined/selectable calibration points

Configurable calibration for customer-specific needs

In compliance with ISO 9001 requirements

Selectable calibration points

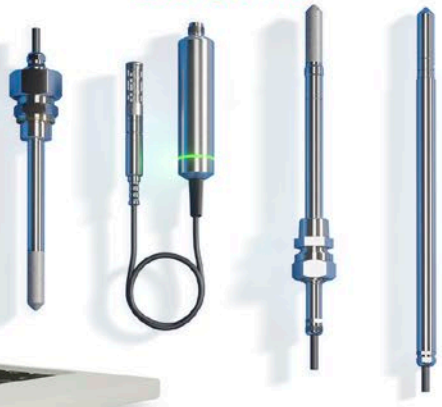
Visit our online store at store.vaisala.com

Contact Vaisala HelpDesk: www.vaisala.com/en/support-portal

Monitoring Systems & Instruments

viewLinc Software

Dew point



Indigo 200

Data loggers

Carbon dioxide

Humidity and temperature

Moisture in oil

Hydrogen peroxide vapor

Indigo 80

Insight PC Software

Indigo 500

www.vaisala.com