

# Monitoring systems and instruments

Life science, pharmaceutical  
& biotechnology applications



# viewLinc Continuous Monitoring Systems



## viewLinc Enterprise Server On-premises Monitoring

The viewLinc ES system is designed for GxP-regulated environments. The system supports Vaisala data loggers, smart probes, transmitters, and third-party Modbus-enabled devices.

In addition, the viewLinc ES monitoring system 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 Cloud (SaaS) Monitoring

viewLinc Cloud was developed under Vaisala's rigorous software development lifecycle to meet GxP standards. Using Computerized Software Assurance principles, it provides validated monitoring for temperature, relative humidity and carbon dioxide.

Comprehensive documentation tracks requirements through testing, scheduled releases ensure predictable change management, and a thorough risk assessment outlines any impact of software updates. With its Continuous Validation Solution, viewLinc Cloud ensures reliable and compliant monitoring while reducing your IT burden.

### viewLinc ES 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, or VaiNet wireless data loggers
- 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

### viewLinc Cloud Features and Benefits

- Continuously validated software meets 21 CFR Part 11 and Annex 11
- Plug and play connectivity with VaiNet wireless data loggers
- 7-year data-retention
- Multi-stage alarming to enable preventative actions
- Secure audit trail and customizable reporting
- Intuitive interface available in 11 languages

\*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 or obstructed 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
- Each AP10 access point can host up to 32 RFL-series data loggers; detachable probes for easy calibration
- Parameters: temperature only (2 channels), temperature and relative humidity, CO<sub>2</sub>%, with or without temperature/RH (1 - 3 channels)
- Signal strength ≥100 meters, even in obstructed environments
- Battery-powered data loggers with on-board memory provide gap-free point-of-measurement reliability



VaiNet RFL100 data logger



VDL200

## VDL200 Data Logger

The VDL200 data loggers are fast, reliable, and easy to set up. With Power over Ethernet connectivity, the VDL200 is ideal for applications where communications performance is a priority. With probe inputs for monitoring temperature, relative humidity and CO<sub>2</sub>, the VDL200 is scalable from small chambers to large installations. With an ANP115 analog input probe, VDL200 can monitor a wide range of parameters, including door contacts, pressure, flow, fluid levels, electrical properties, moisture, and gas concentrations. VDL200 is supported by both viewLinc Continuous Monitoring System and Insight PC software, allowing many field-service features, including on-site calibration.

# CAB100 Industrial Cabinet

The CAB100 provides real-time monitoring, alarming, and reporting via the viewLinc ES on-premises monitoring system. Cabinets are configurable to your application requirements, with options for differential pressure transmitters, analog inputs for connecting remote transmitters, and safety barriers to limit voltage in hazardous areas requiring intrinsically safe devices.

- viewLinc ES meets GxP, FDA 21 CFR Part 11, and EU Annex 11 requirements.
- CAB100 supports multiple sensor types for temperature, humidity, and differential pressure.
- High-accuracy measurements ensure reliable reporting.
- Large and small cabinets are available in various configurations to fit different monitoring needs.



# Vaisala Indigo products



Indigo500

## Measure with Intelligence and Insight

Designed for use with Vaisala's measurement probes, Indigo transmitters provide a simple interface for a wide range of measurements, including temperature, humidity, dew point, barometric pressure, carbon dioxide (CO<sub>2</sub>), moisture in oil, and vaporized hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>). Typical applications include compressed air, drying, incubators, cold storage, isolators, transfer hatches, and demanding HVAC such as laboratories and cleanrooms.

Vaisala's Indigo solutions include intelligent, interchangeable measurement probes, optional host devices and Vaisala's Insight PC Software. **Indigo200** series transmitters are lightweight, with three analog inputs and two relays. **Indigo300** transmitters feature a corrosion-resistant metal housing and are pre-configured for up to three analog outputs (mA, V, or both). **Indigo500** series transmitters are industrial-grade, devices that accommodate one or two probes and feature two or four analog outputs, three different input power options, and internal data logging. Ethernet connection with web interface and optional cloud connectivity with Jade Smart Cloud for remote monitoring.

Indigo transmitters provide easy visualization of data, versatile mounting options for simple installation, and plug-and-play connection with probes. Enclosures are rated IP65 (Indigo200 and Indigo300 Series); or IP66 and NEMA 4 rated (Indigo500 Series), safe for harsh environments, and resistant to dust and most chemicals. Transmitters feature local color graphical and numerical display options and connection to automation systems through analog signals, relays, Modbus TCP/IP protocol, or cloud connectivity.

## Insight PC Software

Field calibration is a quick way to verify measurement accuracy. With Indigo-compatible probes, calibration can be performed using Vaisala's free 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, and parameter backup copy. Data can be exported to a spreadsheet. Insight software is downloadable at: [www.vaisala.com/insight](http://www.vaisala.com/insight).



Indigo200



Indigo300

# Demanding HVAC and cleanrooms



## TMT120/130 temperature transmitters

Vaisala's **TMT120 and TMT130 wide-range temperature transmitters** provide accurate, reliable measurements with an easy-to-swap probe. Ideal for fridges, freezers, walk-in cold rooms, LN2 and cryogenic storage, ultra-low and controlled rate freezers.

- $\pm 0.1$  °C ( $\pm 0.18$  °F) accuracy
- Analog output options 0...10 V / 4...20 mA (loop powered)
- Probe is fixed to transmitter with a cable, available in 0.5 m and 3 m lengths.
- Measurement range -196...+150 °C (-320 to...+302 °F)
- Traceable calibration certificate included
- Models: TMT120 (current output), TMT130 (voltage output)



## 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
- 3 pressure ranges (Pa and INWC)
- Accessible zero and span adjustment potentiometers
- ¼" brass tubing connections
- LED status indicator
- Traceable calibration to national standards (certificate included)
- Dedicated models for regulated environments & air handling systems
- Measurements traceable to international standards



## HMT120/130 humidity and temperature transmitters

The Vaisala **HUMICAP® HMT120/130 Humidity and Temperature Transmitters** were designed specifically for clean rooms with rounded edges for easy cleaning. Several models available: wall-mounted, duct-mounted with a kit, or outdoors with a shield.

- Interchangeable remote or local probes
- Analog output options 0...10 V / 4...20 mA (loop powered)
- Removable probe for easy field calibration
- Optional LCD display and easy USB connectivity to PC
- Multiple parameters: dew point/frost point, wet bulb, enthalpy, absolute humidity, mixing ratio
- Traceable calibration (certificate included)
- Models: TMT120 (current output), TMT130 (voltage output)

## Vaisala HUMICAP® HMW90

measures relative humidity and temperature in indoor environments. The HMW90 features 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 easily on walls or ducts for monitoring HVAC applications.

# Industrial drying & compressed air



**Indigo520 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 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  $-80^{\circ}\text{C}$  ( $-112^{\circ}\text{F}$ )
- 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 numerous applications.

Features:

- Temperature range optimized for processes ranging from  $-70 \dots +180^{\circ}\text{C}$  ( $-94 \dots +356^{\circ}\text{F}$ ) and humidity 0...100%
- Purge cycles for chemical contaminants
- Probe warming in near-condensing conditions for long-term measurement stability

## Dew point Measurement Solutions

- Simplified spot-checking with Indigo80 handheld indicator and DMP80 probe
- 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 be used with various Vaisala DRYCAP® dew point instruments



**Indigo80 Meter, DMP80 Probe, DSC74 Sample Cell with quick connect**



**DMT143 Probe with optional sample cell**

# 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<sub>2</sub>O<sub>2</sub> 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.

- 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 Indigo201

## 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 zones 0 and 20
- Compliance certificates: IECEx, FM Ex, ATEX, CML, NEPSI, KC Ex, CSA and UKEX



HMT370EX with HMP378 Probe



# 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<sub>2</sub> devices are ideal as a reference measurement. The GMP80P portable carbon dioxide probe with pump enables spot-checking and CO<sub>2</sub> sampling from active incubators (see page 9)



Indigo80 with GMP251 carbon dioxide probe and HMP110 humidity and temperature probe. The HMP110 probe offers measurement accuracy from  $\pm 1.0$  °C and  $\pm 1.5$  %RH (0... 90 %RH) with higher accuracies available. The GMP251 CO<sub>2</sub> probe provides accuracy from  $\pm 0.1$  %CO<sub>2</sub> 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<sub>2</sub> probe

- Can be used as a standalone instrument or with Indigo transmitters
- For accurate percentage-level CO<sub>2</sub> measurements in demanding applications
- Measurement range of 0... 20% CO<sub>2</sub>
- Operating range -40... +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... +80°C, 0... 100% RH
- Voltage and digital output options
- Detachable cable with standard M8 connector
- Options: dew point calculation, RS485 digital output, temperature only version HMP110T



# Portables & Handhelds



Indigo80 handheld device with GMP80P pump & tubing

Vaisala's portable solutions provide a reliable and precise way to spot-check and calibrate measurements in life science environments. Designed for versatility, Vaisala handheld meters support a wide range of parameters, including humidity, dew point, CO<sub>2</sub>, and vaporized hydrogen peroxide. Graphical displays enhance usability by enabling real-time monitoring of measurement stabilization, ensuring accuracy and consistency.

Trusted by metrologists and calibration technicians, Vaisala's handheld meters feature an intuitive multilingual interface, a variety of accessories, and a wide selection of easily detachable probes. These portable devices deliver the flexibility and performance needed for demanding life science applications.



## Indigo80 Handheld Indicator

Indigo80 handheld indicator can be used with Indigo probes and Indigo transmitters. In addition, it can be also used with other compatible products, including the HMT370EX intrinsically safe transmitter for hazardous areas and Polaris refractometers for liquid measurement spot checking.

With interchangeable probes, optional M8 or M12 connectors, probe handle models, standard USB-C interface for charging and accessing data, and data logging capability, the Indigo80 is a versatile and powerful device.



## Indigo-compatible Probes

For critical parameters like carbon dioxide, temperature, relative humidity, dew point and vH<sub>2</sub>O<sub>2</sub>, Vaisala provides a portable measurement solution.

- GMP251 Carbon Dioxide Probe for %-level measurements
- HPP270 series probes for vaporized hydrogen peroxide
- TMP115 and TMP1 for temperature.
- Numerous HMP and DMP probes for a wide range of humidity and dewpoint conditions
- Convenient probe handle options for Indigo80: DMP80, HMP80. Optional handles & hangers for GMP250 CO<sub>2</sub> probes.



## GMP80P CO<sub>2</sub> Probe with Pump

The GMP80P combines intelligent CO<sub>2</sub> measurement with pump- aspirated sampling. Ideal for spot-checking demanding CO<sub>2</sub> incubators applications where accurate %-level CO<sub>2</sub> measurement is required.



Optional Indigo80 carrying case

# Life cycle services for instrument longevity



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 with four world-class service centers and local field service options.

## Calibration Services:

Our service centers in Boston, Helsinki, Beijing, Tokyo and Paris provide ISO 9001 calibrations for humidity, dew point, pressure, hydrogen peroxide, carbon dioxide, barometric pressure, and temperature, and ISO/IEC 17025 accredited calibrations for humidity, dew point, pressure, carbon dioxide, barometric pressure, and temperature.

### FIELD & PROJECT SERVICES

Our skilled technicians can visit your site to perform services such as system installation, validation, and expansion. Leverage our expertise for on-site maintenance and repairs, probe swapping, preventive and scheduled maintenance, and end user training.

#### SERVICE CENTER CALIBRATION

ISO 9001 or Accredited ISO/IEC 17025 calibration performed at Vaisala's calibration laboratories

Wide calibration ranges and options

Multiple calibration points

Adjustment included and repair services available as an option

Includes calibration certificate with as-found and as-left results

#### ON-SITE CALIBRATION

ISO 9001 or Accredited ISO/IEC 17025 calibration performed on-site by Vaisala experts

Single and multi-point calibration options

No system downtime or lost data

Carefree and convenient – saves in-house resources

Includes calibration certificate with as-found and as-left results



Visit our online store at [store.vaisala.com](https://store.vaisala.com)

Contact Vaisala HelpDesk: [www.vaisala.com/en/support-portal](https://www.vaisala.com/en/support-portal)

# Monitoring Systems & Instruments



Humidity



Temperature



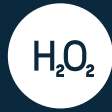
Moisture in Oil

HUMICAP®  
probes



Carbon  
Dioxide

CARBOCAP®  
probes



Hydrogen  
Peroxide

PEROXCAP®  
probes



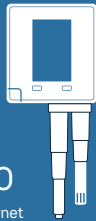
Liquid  
Concentration

POLARIS™  
refractometers



Dew  
Point

DRYCAP®  
probes



VDL200

Power over Ethernet  
Data Loggers



RFL100

VaiNet Wireless Data loggers



Indigo500 Series

dual-probe connectivity, metal enclosure



Indigo300

single-probe connectivity/  
metal enclosure



Indigo200 Series

single-probe connectivity/  
PC-ABS plastic enclosure



Indigo80

portable indicator



Jade Smart  
Cloud



viewLinc  
Cloud



viewLinc  
Enterprise Server



Insight PC  
Software (free)

**VAISALA**  
[www.vaisala.com](http://www.vaisala.com)



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