

Monitoring Systems and Instruments

/IN LIFE SCIENCE ENVIRONMENTS



VAISALA

Solutions for Life Science Environments

/ STABILITY CHAMBERS, WAREHOUSES, CLEANROOMS, HVAC



Continuous Monitoring System (CMS)

The Vaisala CMS is designed for FDA-regulated and critical environments and monitors multiple parameters including temperature, relative humidity, CO₂, differential pressure, light, door switches, and more. Comprising viewLinc software combined with Vaisala's VL/ SP model data loggers, the system provides redundant data protection, long-term measurement accuracy, fail-safe alarming and gap-free recording.

- Validatable software and loggers meet 21 CFR Part 11 and other regulatory requirements
- Easy connectivity to your existing network via Ethernet, PoE, WiFi, VaiNet wireless technology or any combination
- Accurate to $\pm 1\%RH$ and $\pm 0.10^{\circ}C$, with a resolution of $0.05\%RH$ and $0.02^{\circ}C$
- Web-based interface for remote monitoring
- Alarm notifications through email, text, PC display, phone, lights/audio
- Secure Audit trail and customizable reporting



Validation/Mapping System

Designed for the most demanding validation applications, the Vaisala system comprises vLog software and Vaisala's VL 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.

- High-stability internal sensors eliminate pre- and post-calibrations
- Compact data loggers are easy to place and less disruptive to normal operations than thermocouples
- 10-year battery life ensures reliable, non-stop recording
- All files are encrypted and reports are 21 CFR Part 11 compliant
- Simple-to-use vLog Software provides detailed, customizable reports
- Comprehensive IQ/OQ protocol available
- Vaisala executed validation/mapping service available



Standalone Data Logging

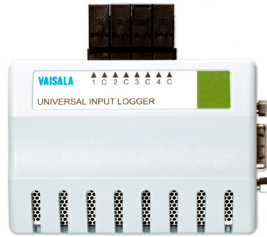
The Vaisala SP and VL series of data loggers measure and record environmental conditions in pharmaceutical warehouses, research and development labs, hospital & clinical environments and fridges, cold rooms, and ultra-low freezers. With on-board power and memory for autonomous recording, data is immune to any network or power failure. Each logger is compact, easily deployable, and adaptable for multiple inputs.

- Industry-best sensor precision and accuracy
- Available in single and multi-channel versions for logging temperature, humidity, CO₂, differential pressure, light, door switches and other variables
- Snap-in external inputs for secure probe connections
- Adjustable sample intervals with large on-board recording capacity
- NIST-traceable, A2LA accredited calibration (optional ICH calibration)
- Onsite calibration and rentals also available

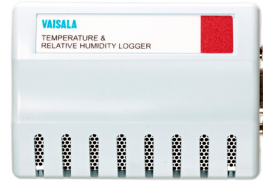
Wired Dataloggers and PoE



The vNet PoE network interface provides easy connectivity between Vaisala data loggers and your existing network. The snap-in design streamlines logger connectivity into a small footprint, eliminating wires between normally separate loggers and PoE devices as well as the cost of installing an AC power source.



The VL4000 data loggers are a simple solution for monitoring pressure, flow, level, PH, electrical properties and gas concentrations. Ideal for standalone or networked applications, this Universal Input logger connects to a PC via USB or installs to your existing network via Ethernet, vNet PoE or Wi-Fi.



The Vaisala VL2000 data loggers measure temperature and humidity, with an optional channel for an analog input. These data loggers provide the single most important feature in environmental monitoring applications: data is recorded and stored at the point of measurement.



These multi-application temperature data loggers can monitor temperatures in up to four applications across a wide range of temperatures - from ultralow temperature freezers, freezer/refrigerators and incubators.

Wireless Wi-Fi



The Vaisala HUMICAP® Humidity and Temperature Wi-Fi data logger HMT140 measures relative humidity and temperature using probe and analog signals – RTD, voltage, current loop and Boolean contacts. The battery-powered HMT140 connects easily to an existing Wi-Fi network. Options include 9-30VDC power supply, LCD display, multiple signal measurements, and fixed probe directly attached to the transmitter housing or a remote probe with different cable lengths (3/5/10 m).

Vaisala HUMICAP® Humidity and Temperature Wi-Fi data logger HMT140

Incubators

Incubators require precise control of temperature, relative humidity and carbon dioxide. Due to its highly reliable design, the patented Vaisala CARBOCAP® carbon dioxide sensor has become a standard for use in incubators. Reference measurement ensures excellent long-term stability, operates reliably in high humidity environments and has temperature and pressure compensations.



Vaisala CARBOCAP® Carbon Dioxide GMP251 probe and Indigo 201 transmitter

NEW GMP251 CO₂ intelligent probe, with 2nd generation CARBOCAP® technology:

- Probe can be used as a standalone instrument
- Direct outputs of current, voltage or digital signals
- Measurement range of 0 to 20% CO₂
- Temperature operating range -40 to +60 °C
- Built-in temperature compensation
- Sensor heated to prevent condensation
- Calibration certificate included

NEW industrial Indigo 201 transmitter for use with GMP251

- Flexible fixed or remote probe versions
- IP65 rated enclosure with or without display
- Display can be set to numerical or numerical/graphical
- Current, voltage or digital output signals
- 2 user configurable relays
- Probes are interchangeable with transmitter
- User-friendly wireless configuration using any smartphone, tablet or PC



Vaisala HUMICAP® Humidity and Temperature OEM modules

- HMM100, HMP60 and HMP110
- Measurement range of -70 to +180 °C
- Full 0 to 100% relative humidity range
- Current, voltage and digital output options



Portable Meters for CO₂, RH + Temperature

- HM70 for Relative humidity and Temperature
- GM70 for CO₂ measurement
- CO₂ and RH/T probes can be used simultaneously
- For spot checking and/or field calibration
- Probe can be directly placed in the incubator
- Available with CO₂ pump option to draw a sample without opening incubator



GMP231 withstands high temperature sterilization

- Probe is durable during heat sterilization up to 180°C
- Full temperature and pressure compensation.
- Sensor head heated for condensation prevention
- Designed for OEM applications with custom installations available

Stability Room/Environmental Chambers

The Vaisala HUMICAP® family of instruments offers hundreds of configurations to measure humidity, temperature and/or dewpoint in virtually any test condition.

- $\pm 1\%$ RH accuracy (NIST certificate included)
- Exceptional stability over a wide range of temperatures and humidities
- Easy to calibrate
 - on-site, one point calibration
- Unique warmed probe for near- condensing conditions
- Special sensor for dry rooms



Vaisala HUMICAP® Humidity and Temperature Series HMT330 for excellent performance.

Tablet Coaters/Fluid Bed Dryers

Tablet coating depends on an energy balance that can be disrupted if the water vapor content of the process air is not held at a specific and constant level. The Vaisala HUMICAP® and DRYCAP® family of instruments offers hundreds of configurations to reliably measure humidity, temperature and/or dewpoint.

- Exceptional stability over a wide range of temperatures and humidities
- Intrinsically safe instruments for hazardous environments
- Vaisala DRYCAP® Dewpoint Transmitter DMT345 has a unique probe design that allows the direct measurement of dewpoint in dry air at high temperatures without any sampling apparatus



Vaisala DRYCAP® Dewpoint Transmitter DMT345

Demanding HVAC & Harsh Conditions

Instruments used for monitoring conditions in harsh environments must be easy to maintain and have minimum downtime. Vaisala HUMICAP® HMD60Y Humidity and Temperature Transmitters mount easily on walls or ducts for monitoring HVAC applications. The Vaisala HUMICAP® HMT120/130 Humidity and Temperature Transmitters are resistant to dust and chemicals and can be mounted outdoors using a Vaisala installation kit.

- Interchangeable remote or local probe
- 2-wire loop-powered or 3-wire voltage output configurations
- Interchangeable probe for easy field calibration
- Optional LCD display
- Easy USB connectivity to PC for maintenance
- Wall-mounted or remote probe
- Constant output probe available
- Optional radiation shield and enclosure



Vaisala HUMICAP® Duct Mount Humidity and Temperature Transmitters HMD60Y and HMT 120/130 Series.

Cleanrooms

The Vaisala BAROCAP® Combined Pressure, Humidity and Temperature Transmitter PTU300 is an ideal choice for monitoring cleanrooms and other controlled environments where measurements must be recorded and maintained.

- One instrument provides three high performance measurements
- Choice of humidity probe configurations
- Optional redundant pressure sensors for ultimate reliability
- Graphical display for observing measurement trends locally



Vaisala BAROCAP® Combined Pressure, Humidity and Temperature Transmitter PTU300

Compressed Air Dewpoint

Vaisala DRYCAP® sensor technology provides stable dewpoint measurement in compressed air down to -80 °C (-112 °F) dewpoint at pressures up to 280 psig. Patented auto-calibration technology maintains measurement performance for up to two years.

- Fast response time
- Unique hand-held for field use
- Highly stable over time

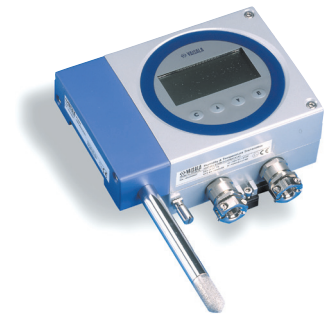


Vaisala DRYCAP® Dewpoint Transmitter family of products.

ETO Sterilization

Vaisala HUMICAP® Relative Humidity Sensors are chemically resistant to ethylene oxide and have been used successfully in a variety of ETO gas mixtures.

- HMT368 measures in 100% ETO
- Intrinsically safe
- Interchangeable probes for easy calibration
- Vaisala HUMICAP® Humidity and Temperature Transmitter HMT338 for lower concentrations of ETO
- Sensor regain feature maintains long-term stability
- Sealed probes can withstand vacuum



Vaisala HUMICAP® Intrinsically Safe Humidity and Temperature Transmitter HMT368

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Calibration and Repair

Vaisala's best-in-class measurement instruments provide the highest accuracy and precision across all types of applications. But even the highest performing measurement instruments drift over time. Drift can be caused by dirt and chemicals in the ambient air or simply by temperature changes. Regular calibration protects against incremental sensor drift and verifies that units are operating within the given specifications. Choosing the right calibration laboratory and service supplier can be as important for lifetime accuracy and reliability as the initial selection of the instrument.

Vaisala Service Calibration Includes:

- Calibration at Vaisala pre-selected points or customer-selected points within the instrument's measurement range
- Instrument adjustment
- Traceability to industry recognized standards
- Calibration certificate
- Service report
- Wearing parts
- Functionality testing according to manufacturer specification



We offer calibration services accredited by the world's leading accreditation authorities. ISO/IEC 17025 is the international standard used to accredit testing and calibration laboratories for measured quantities.

Premium and Calibration Care Agreements

As your instrument provider, we want to make sure that your instruments get the best possible care and you get the best possible value from your investment. For that reason we are offering two service options; Premium Care and Calibration Care.



Calibration Care

Calibration Care is a multi-year calibration agreement with several benefits compared to single purchases of services, from discounted cost to priority service.



Premium Care

Premium Care protects your investment. If your product is damaged or broken for any reason, return it to us and we will repair or replace it free of charge. It's that simple.

Benefits	Calibration Care	Premium Care
Customer loyalty discounted pricing	✓	✓
No price changes during the multi-year agreement	✓	✓
Calibration settings pre-registered for efficient processing of all service orders	✓	✓
Free shipping, both to and from Vaisala	✓	✓
Priority handling of your order	✓	✓
Non-standard or special calibration requirements available	✓	✓
Full service with repairs and maintenance included		✓



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