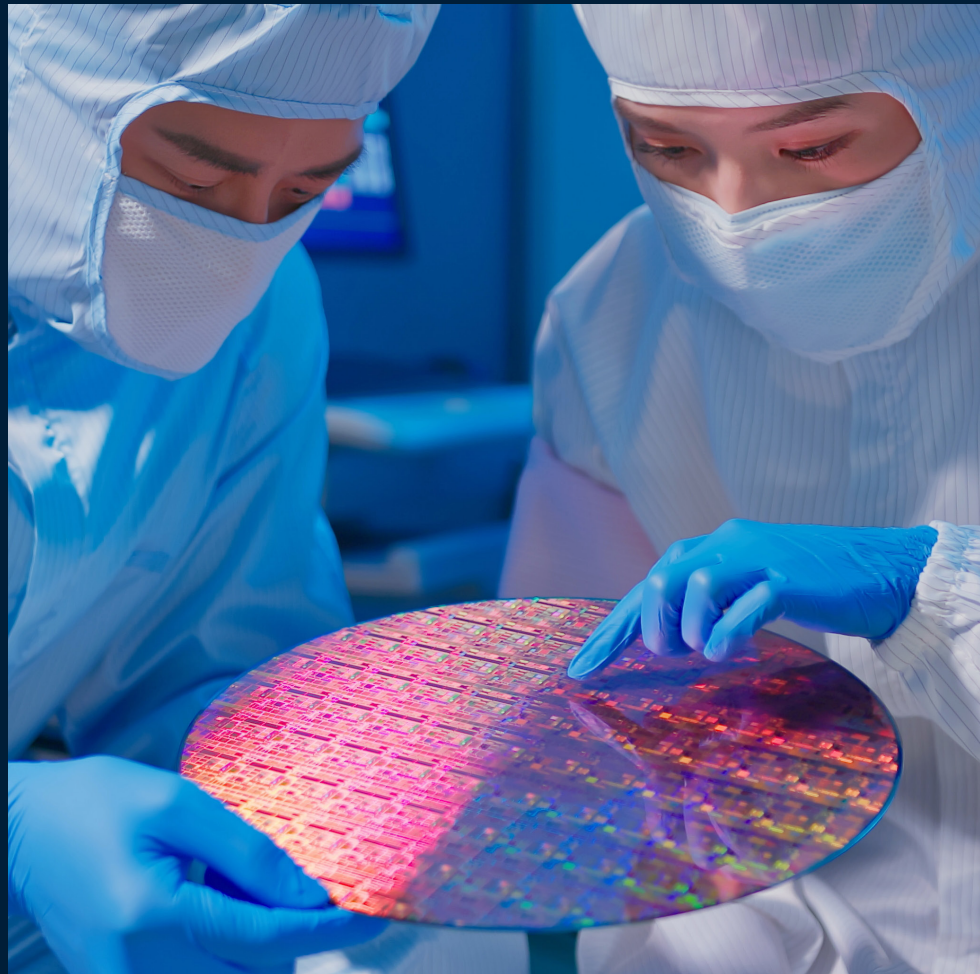


Semiconductor cleanroom and HVAC measurements

for stable control, reliable data, and consistent
yield in semiconductor manufacturing

Humidity,
temperature

Brochure



Confidence in critical environments, from first wafer to final test

RECOMMENDED APPLICATIONS:

- ISO 14644-1 Class 3-6 environmental monitoring
- Manufacturing equipment level, workstation-scale closed environments
- Lithography & critical patterning areas
- Etch & deposition tool zones
- Wafer cleaning & drying areas
- Critical storage & staging spaces
- Cleanroom recirculation & make-up air

HMP series humidity and temperature probes with Indigo transmitters

Mix and match probes and transmitters to fit your cleanroom plans



HMP1

±1.0 %rh humidity accuracy
±0.2 °C temperature accuracy
316L SS probe head, PBT body
For wall mounting with minimal cables



HMP3

±0.8 %rh humidity accuracy
±0.1 °C temperature accuracy
316L stainless steel probe head and body
General purpose for spaces, ducts, chambers, outdoor, etc



HMP9

±0.8 %rh humidity accuracy
±0.1 °C temperature accuracy
316L SS probe head, PBT body
Compact with rapid response for small spaces and ducts

MIX & MATCH



INDIGO500

Intuitive touchscreen interface
Customizable numerical and graphical views
4x analog outputs plus Modbus TCP/IP
24V, 100...240VAC, or PoE+ powering
Metal IP66 housing



INDIGO300

Simple numerical and graphical display
3x analog outputs
24V
Metal IP66 housing



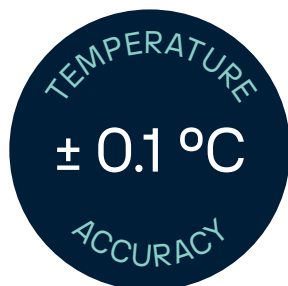
INDIGO200

Simple numerical and graphical display
3x analog outputs or Modbus RTU
24V
Plastic IP65 housing

Vaisala HMP3 for humidity and temperature measurements

Tight accuracy to support tighter environmental tolerances.

Narrow your uncertainty budget, enable more precise control strategies and more narrow process windows.



HMP3 KEY SPECIFICATIONS

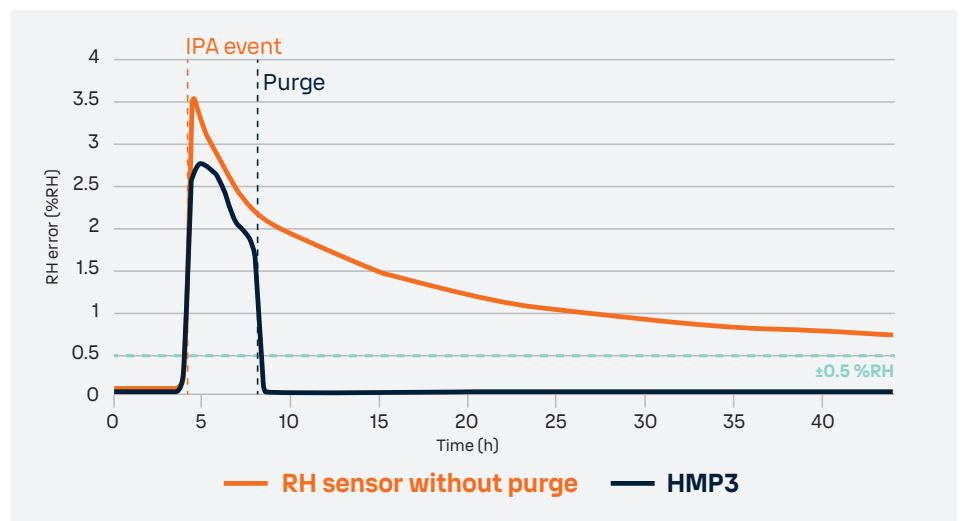
- RH range: 0...100 %rh
- RH accuracy*: ± 0.8 %rh
- RH factory calibration uncertainty*: $\leq \pm 0.8$ %rh
- Temp range: -40...+120 °C
- Temp accuracy*: ± 0.1 °C
- Temp factory calibration uncertainty*: ± 0.1 °C
- Probe construction: 316L SS
- Probe cable jacket: FEP
- Modbus RTU over RS485
- Indigo compatible

*Specified at 23 °C



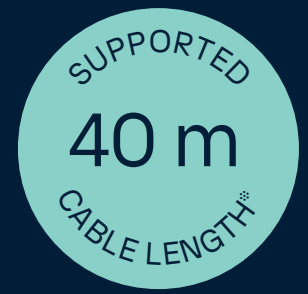
Each HMP3 probe ships with a traceable six-point humidity calibration certificate. Documented evidence of accuracy and linearity, helping you justify tighter uncertainty budgets in URS and FAT/SAT documentation by default.

Your strictest bays demand instruments you never have to second-guess



Tackle drift caused by IPA wipe-downs and other chemicals with HMP3's sensor purge function which actively clears contamination, keeping accuracy stable between calibrations

The HMP probes work with your setup



Analog, Modbus TCP/IP, Modbus RTU. Power with 24 V, PoE+, or mains.



		HMP PROBE	INDIGO200 SERIES TRANSMITTERS		INDIGO300 TRANSMITTER	INDIGO500 SERIES TRANSMITTER	
FEATURE			INDIGO201	INDIGO202		INDIGO510	INDIGO520
COMMUNICATION	DISPLAY	No	Color LCD display or Non-display with LED indicator	Color LCD display	Color LCD display or Non-display with LED indicator	Color touchscreen display or Non-display with LED indicator	Touchscreen display or Non-display with LED indicator
	DIGITAL COMMUNICATION	RS-485, Modbus RTU	Service use only	RS-485, Modbus RTU	Service use only	Modbus TCP/IP	Modbus TCP/IP
	ANALOG OUTPUTS	No	3 pcs	No	3 pcs (pre-configured)	2 pcs	4 pcs
	RELAY OUTPUTS	No	2 pcs	2 pcs	No	No	2 pcs
	ANALOG INPUT	No	No	No	No	No	1 pc
POWERING	POWER SUPPLY	15 ... 30 VDC (or by transmitter)	24V	24V	24V	24V	24V, 100...240 VAC, and PoE+
	GALVANICALLY ISOLATED	No	No	No	No	Yes	Yes
CONSTRUCTION	HOUSING MATERIAL	HMP probe head: metal, HMP3 body: metal, HMP1/9 body: plastic	Plastic	Plastic	Metal, plastic display	Metal, glass display	Metal, glass display
	INGRESS PROTECTION	HMP3: IP66, HMP9: IP65, HMP1: IP50 (excluding sensor and filter head)	IP65	IP65	IP66	IP66, NEMA4	IP66, NEMA4

*Long probe cable lengths supported up to **40 meters** total. EMC compliant per EN 61326-1 for industrial environments.

Indigo transmitters add features on top of the HMP measurement performance

SWAPPABLE PROBES

- Detach for multipoint calibration.
- Connect a calibrated spare.
- No rewiring. No power-down.

MAKE EVERY CLEANROOM ENTRY COUNT DATA AVAILABLE RIGHT WHERE DECISIONS ARE MADE

- Expose drifting conditions.
- Check calibration dates.
- Confirm sensor, alarm, and output status.



The Indigo500's intuitive touchscreen interface makes commissioning fast and frustration-free, even with the transmitter outside the cleanroom.



Configure and test output signals and scaling directly from the transmitter

- no configuration software
- no laptop
- no guesswork

Select your preferred calibration workflow. We support it.

Swap probes without downtime.
Verify in the field. Perform calibration adjustments.
Send to our ISO/IEC 17025 labs when you need it.



Humidity and temperature handhelds



INDIGO80 + HMP80

- ±0.8 %rh humidity accuracy
- ±0.1 °C temperature accuracy
- Powerful and intuitive interface
- Enables field calibration and adjustment of Indigo-compatible probes and transmitters
- Traceable ISO 9001 or 17025 calibration

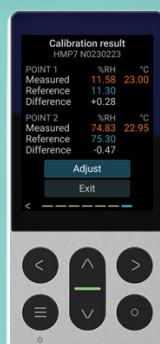


HM40

- ±1.5 %rh humidity accuracy
- ±0.1 or 0.2 °C temperature accuracy
- Simple, user-friendly interface
- Compact and convenient
- Traceable ISO 9001 or 17025 calibration

SUPPORT FOR IN-HOUSE CALIBRATION

Indigo80 Handheld Indicator and Insight PC Software provide interfaces for single and multi-point calibration and adjustments. HMK15 Salt Calibration Kit enables users to easily create multiple stable humidity conditions.



SERVICE CENTER CALIBRATION



Return to factory-new performance with functional testing, calibration and adjustment, and optional as-found data, customized calibration points, and ISO 17025 accreditation

CALIBRATION PROGRAMS



Calibration Care to standardize and simplify routine services Vaisala Circular for calibration plus storage and logistics for larger probe fleets

Maintaining traceable calibration is easy with Vaisala

For the most demanding applications, our ISO 9001 and ISO/IEC 17025 accredited service centers in Finland, Boston (Americas), China, and Japan combine advanced equipment with expert metrologists to secure long-term measurement stability and lower lifecycle cost.



Origo

For OSAT and semiconductor back-end cleanrooms, such as display and electronics module assembly, and other ISO 7–8 clean areas*.

One platform. One wiring approach. One integration story whether your BAS speaks analog, Modbus RTU, or BACnet. Loop-powered and 3-wire options mean Origo fits into existing infrastructure without rewiring.

Origo10 transmitters are available as two main models with several output options.

ORIGO10A

RH, T, CO₂, Td
3 x analog output
(4...20mA, 0...5/10V)
Modbus RTU
BACnet MS/TP
Relay output option
Binary input option
Two-probe option

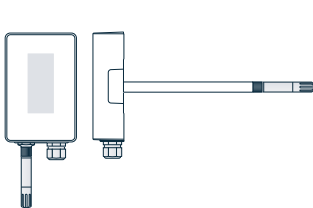
ORIGO10L

RH, T
2 x analog output
(4...20mA,
loop powered)

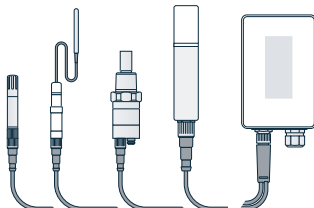


*Recommended probe configuration: stainless steel probe with ± 1 %RH accuracy.

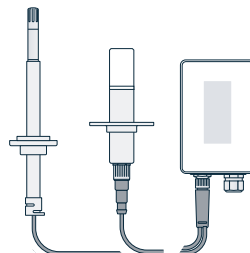
RANGE OF PRODUCT CONFIGURATIONS



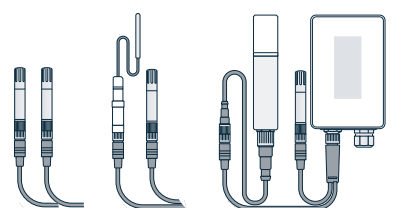
Wall-mount and
duct-mount models



Wall-mount models with
cable-attached probe



Wall-mount models with
cable-attached probe and
duct installation accessory



Wall-mount models with splitter
cable and cable-attached probes

Cleanrooms in assembly and testing, display, and general electronics manufacturing



PLASTIC OR STAINLESS STEEL

Choose the probe construction and performance to match your application needs.



HUMIDITY ACCURACY

temp
only

± 1.0
%rh

± 1.5
%rh

± 2.0
%rh

± 3.0
%rh

CALIBRATION CERTIFICATE

5 point
0...95 %rh

3 point
0...95 %rh

3 point
0...75 %rh

No
certificate

Beyond cleanroom, your HVAC still has to perform



ORIGO10

Simple numerical and graphical display
Up to 3x analog outputs
Modbus RTU, BACnet MS/TP
Loop-powered or 3 wire options, 24V
Plastic IP65 housing
Choice of connected compact probe



XMP10

$\pm 1, 1.5, 2$ or 3% rh accuracy
 ± 0.1 or $0.2\text{ }^{\circ}\text{C}$ temperature accuracy (output dependent)
Plastic and 316L stainless steel probe options
2x voltage outputs or Modbus RTU Origo10 compatible

RECOMMENDED APPLICATIONS:

- Support zones
- Offices
- Control rooms
- Server rooms & fab data centers
- General facility HVAC



HMD60

$\pm 1.5\%$ rh humidity accuracy
 $\pm 0.1\text{ }^{\circ}\text{C}$ temperature accuracy
2x current or voltage outputs
Modbus RTU, BACnet MS/TP
Loop-powered and 3 wire options, 24V
Metal IP66 housing



HMDW90

$\pm 1.7\%$ rh humidity accuracy
 $\pm 0.2\text{ }^{\circ}\text{C}$ temperature accuracy
2x current or voltage outputs
Modbus RTU
Loop-powered and 3 wire options, 24V
Plastic IP30 housing
Optional display window



HMDW110

$\pm 2.0\%$ rh accuracy
 $\pm 0.2\text{ }^{\circ}\text{C}$ temperature accuracy
Wall, duct, and outdoor models
2x current outputs and Modbus RTU
Loop-powered, 24V
Plastic IP65 housing

For energy efficiency, safety, and comfort

Air handling units, office floors, utility chases,
and server rooms never see the wafer, but they
keep fabs and OSATs running.

Vaisala's room, duct, and outdoor transmitters deliver
cost-effective, stable measurements for large-scale HVAC projects
– from new buildings and pilots to expansions and retrofits.



From the AHU to the etch chamber with one measurement partner

ADDITIONAL MEASUREMENT SOLUTIONS FOR TOOLS, UTILITIES, AND PROCESS CHEMISTRY



DMP7 AND DMP8

Dew point and temperature probe

Purge cycle optimization
Tool process gas delivery systems
Vacuum load locks and transfer chambers



DMT153

Ultra-low dew point transmitter

UHP nitrogen and inert gas distribution
Bulk gas storage and buffering vessel dry-down
Critical process tool gas inlets



HMT370EX

Intrinsically safe humidity and temperature transmitter

Photoresist and solvent mixing rooms
Flammable chemical storage and distribution
Exhaust systems in hazardous zones



INDIGO520

Transmitter with optional barometer module

Fab environmental monitoring
Lithography applications
Ambient reference for vacuum tools



VAISALA POLARIS PR53M

Liquid concentration process refractometer

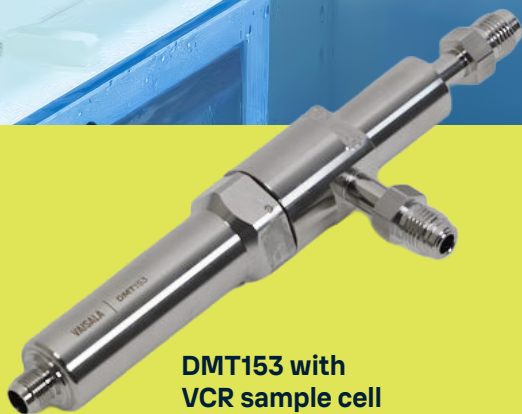
Wet etching processes
Bulk chemical mixing and delivery systems
CMP slurry composition and dilution monitoring



HMP7

Humidity and temperature probe

High-humidity wafer cleaning tools
High-temp cure and bake processes
HAST and reliability test chambers

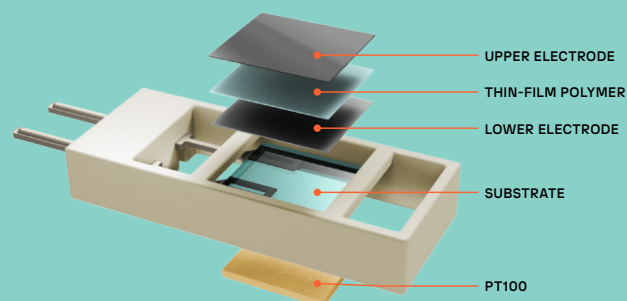


**DMT153 with
VCR sample cell**

Vaisala instruments cover measurement challenges in fab operations from trace moisture detection in critical tools to wet chemistry monitoring.

Over 50 years ago, Vaisala pioneered the world's first thin-film capacitive polymer humidity sensor, the HUMICAP. Since then, this measurement principle has become an industry standard – but our sensor technology has never stood still.

Decades of continuous R&D, rigorous testing, and field experience in the harshest environments mean Vaisala's latest sensors still set the benchmark for stability, chemical resistance, and long-term reliability.



50
YEARS

The original pioneer
in thin-film polymer
humidity sensing



Relentless sensor R&D
to stay at the leading
edge of humidity
performance



Full design and
manufacturing control
from wafer to probe

VAISALA

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