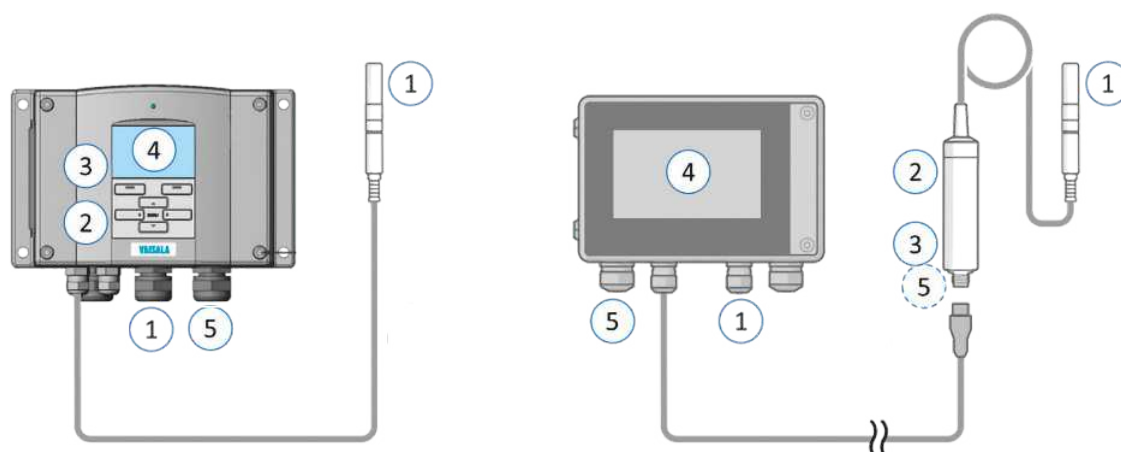


Comparison of Vaisala combined pressure, humidity and temperature instruments for demanding industrial applications

The most significant difference – Interchangeable probes

The new Indigo520 with barometric pressure module is built upon the same measurement technology as its predecessor the PTU300. The BAROCAP® modules of these two platforms are the same. The most significant and widely desired feature in this new platform is the interchangeability of the smart probes. Many functionalities that were traditionally built inside in the transmitter, have moved out to the Smart Probe, allowing for field swapping and cross functional designs(configurations). The following picture illustrates the basic functionalities of the measurement instrument.



1. Physical measurements – Probe head and pressure port

Both of the platforms, the PTU300 and the new Indigo smart probes are built upon the proven HUMICAP® and BAROCAP® performance. Probe head structures, filters and installation accessories are fully compatible, meaning that for example the HMP7 humidity probe fits to the same process connection as the PTU307 probe. The pressure module is inside the transmitter with a pressure port at the bottom of the housing.

2. Signal conditioning

Vaisala HUMICAP is a capacitive thin film polymer sensor and it is always accompanied by resistive temperature measurement. These electrical quantities must be properly conditioned in order to obtain a high-quality measurement signal. In the PTU300 platform, this conditioning is made inside the transmitter housing. This approach results in the probe being a permanent part of the transmitter and cannot be separated without comprising the measurement reliability. For the Indigo smart probes this signal conditioning

happens in the probe body, and therefore is not tied to the transmitter.

3. Analog-Digital converter

Conditioned analog signals are converted into digital format. At this stage, the measurement signals can be further processed by adding various factors such as linearization, pressure model, calibrations factors, etc. to reveal the physical quantities of interest. This can be, for example, relative humidity and temperature or, it might be some other calculated

humidity parameter, such as dew point temperature. For the new Indigo smart probes, this conversion takes place in the probe body, and therefore these probes can be used independently without the need for a transmitter at all. Measurement readings directly from the probes are available in digital Modbus RTU format.

4. HMI – Human-Machine interface

The need for a local display and interactivity with the instrument depends on each specific application. Oftentimes the user interface is a valuable tool, for example in the case of a process failure or if there is a need for local troubleshooting. The PTU300 transmitters can be ordered with or without a local user interface. The Indigo platform offers the choice for either a standalone smart probe without a local user interface, or the option to connect to an Indigo transmitter

5. M₂M - System interfaces

Often these measurements are used for process control. Connection to the system can be either an analog signal, for example 4 ... 20 mA, 0 ... 10 V, or digital, for example Modbus RTU. The output of an Indigo compatible probe is limited to digital Modbus RTU only, but the interface selection can be widely extended by connecting to an Indigo transmitter. The Indigo520 transmitter offers ethernet connectivity with Modbus TCP/IP communication protocol and a browser-based user interface on top of the traditional analog outputs and relay outputs.

MEASUREMENT PERFORMANCE AND SPECIFICATIONS			
	HMP Probe	PTU300	Additional information
RH specified accuracy	0.8 %RH	1.0 %RH	At 20 °C
Temperature specified accuracy	0.1 °C	0.2 °C	At 20 °C
Sensor purge	Optional	Optional	
Probe heating	Optional for HMP7	Optional for PTU307	
Latest generation HUMICAP R2 sensor	Standard	Optional	
Replaceable HUMICAP sensor	Optional for HMP3	Optional for PTU301 & PTU303	

FEATURES AND FUNCTIONALITIES

	Indigo520	PTU300
Probe connection	M12 5-pin cable	Fixed cable
Barometer modules	Optional: 1 module	Configurable: 1 or 2 module(s)
Pressure measurement range	500 ... 1100 hPa	Configurable: 500 ... 1100 hPa, 50 ... 1100 hPa
Pressure accuracy	±0.15 hPa (Class A)	Configurable: ±0.15 hPa (Class A) ±0.25 hPa (Class B)
Display	Optional	Optional
Human-machine interface	* Touch screen	* Keypad
Connectivity to PC	RJ45-ethernet cable + built-in web server	USB-cable + terminal program e.g. putty
Analog outputs	Indigo520: 4 outputs	2 outputs (3rd optional)
Relays	2 relays	Optional
Analog inputs	4 ...20 mA analog input	-
Digital communication	Modbus TCP/IP, OPC/UA	RS-232 standard, RS-485 optional Modbus RTU, Serial protocol
Galvanically isolated signal	Standard	Optional
Operating temperature	-40 ... +60 °C *-20 ... +55 °C	-40 ... +60 °C * 0 ... +60 °C
IP rating	IP66	IP66, *IP65
Operating voltage	Configurable in order phase: 15 ... 35 VDC / 24 VAC, 100 ... 240 VAC, PoE+	Configurable in order phase: 10 ... 35 VDC / 24 VAC, 100 ... 240 VAC
Signal and supply voltage connections	Screw terminals with configurable cable glands and conduit fittings	Screw terminals with configurable cable glands and conduit fittings
Datalogging	Standard	Optional

*With display

