



Indigo520 Transmitter

For Vaisala Indigo-compatible probes



Features

- Supports 2 detachable measurement devices simultaneously
- Data logging of all measurement parameters
- IP66 and NEMA 4 rated metal enclosure
- 4 configurable galvanically isolated analog outputs
- 2-wire current loop analog input
- 2 relays
- Ethernet connection with web interface for remote access
- Displays measurements on the spot and transmits them to automation systems through analog signals, relays, or Modbus TCP/IP protocol

Vaisala Indigo520 transmitter is an industrial-grade, robust transmitter that accommodates 1 or 2 Vaisala Indigo-compatible probes for humidity, temperature, dew point, carbon dioxide, hydrogen peroxide, and moisture in oil measurements. The transmitter can measure barometric pressure with an additional module.

Options

- Multiple powering options: Power over Ethernet, protective extra-low voltage, and AC (mains) power
- Available with Vaisala BAROCAP® barometric pressure sensor known for its high accuracy and excellent long-term stability
- Optional non-display model with LED indicator

Variety of probe options

Indigo500 Series transmitters are the most versatile option for use with Indigo-compatible probes.

- HMP Series humidity and temperature probes
- DMP Series dew point probes
- GMP250 Series carbon dioxide probes
- HPP270 Series vaporized hydrogen peroxide probes

- MMP8 moisture in oil probe

The probes are interchangeable, self-contained measurement instruments that are easily detachable from the transmitter for calibration and maintenance. The probes are connected using a cable that can be extended with a standard instrumentation cable to allow up to 30 m (98 ft) distance between the transmitter and the probe.

Indigo500 Series transmitters can be connected to the MHT410 transmitter for display of measurement data and automation system connectivity.

Indigo500 Series transmitters can also be connected to the portable diagnostics tool Indigo80 handheld indicator.

Indigo520 transmitter can be connected to Polaris™ PR53 process refractometers for measuring liquid concentrations.

For more information on the Indigo product family, see www.vaisala.com/indigo.

Analog and digital interfaces

The Indigo520 transmitter has 4 analog channels that can be configured to mA or voltage type, and 2 configurable relays. Any of the output parameters from the connected probes can be assigned to control the analog channels and relays.

The digital output protocol is Modbus TCP/IP over Ethernet. The Ethernet connection also provides a web interface and cybersecurity that meets modern standards.

Robust design

The transmitter has a wide operating temperature range, an IP66-rated corrosion-resistant metal enclosure, and an optional touchscreen display made of strengthened (IK08) glass. The transmitter withstands commonly used cleaning chemicals, such as isopropanol and liquid H₂O₂ (30 %), and performs even in the harshest conditions.



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Technical data

Indigo-compatible probes

| Measurement type | Probe models |
|-----------------------------|--|
| Humidity and temperature | HMP1, HMP3, HMP4, HMP5, HMP7, HMP8, HMP9 |
| Temperature | TMP1 |
| Dew point | DMP5, DMP6, DMP7, DMP8 |
| Carbon dioxide | GMP251, GMP252 |
| Vaporized hydrogen peroxide | HPP271, HPP272 |
| Moisture in oil | MMP8 |

Other compatible devices

| Device or series | Models |
|---|--|
| MHT410 Moisture, Hydrogen and Temperature Transmitter | MHT410 |
| Polaris™ Process Refractometers ¹⁾ | PR53AC, PR53AP, PR53GC, PR53GP, PR53M, PR53SD, PR53W |
| Indigo80 Handheld Indicator | Indigo80 |

¹⁾ Compatible with transmitters ordered with software configuration "L" for process refractometers.

Transmitter options

| | |
|----------|---|
| Display | <ul style="list-style-type: none"> Capacitive touchscreen display No display (indicator LED)¹⁾ |
| Powering | <ul style="list-style-type: none"> Protective extra-low voltage (15 ... 35 V DC, 24 V AC ± 20%) AC (mains) power (100 ... 240 V AC 50/60 Hz) Power over Ethernet (no analog outputs or relays) |

¹⁾ Recommended when the transmitter is exposed to direct UV light, and for outdoor installations and high-humidity environments.

Measurement performance

| Barometric pressure (optional module) | |
|---|---|
| Pressure range | 500 ... 1100 hPa |
| Class A: | |
| Linearity | ±0.05 hPa |
| Hysteresis | ±0.03 hPa |
| Repeatability | ±0.03 hPa |
| Calibration uncertainty | ±0.07 hPa |
| Accuracy at +20 °C / +68 °F | ±0.10 hPa |
| Temperature dependence | ±0.1 hPa |
| Total accuracy (-40 ... +60 °C / -40 ... +140 °F) | ±0.15 hPa |
| Long-term stability/year | ±0.1 hPa |
| Response time (100 % response): | |
| One sensor | 2 s |
| Pressure units | hPa, mbar, kPa, Pa, inHg, mmH2O, mmHg, torr, psia |

Mechanical specifications

| | |
|-------------------------|---|
| UL 50E (NEMA) rating | NEMA 4 |
| Housing classification | IK08, DIN EN ISO 11997-1: Cycle B (VDA 621-415) |
| Housing material | AlSi10Mg (DIN 1725) |
| Display window material | Strengthened glass (IK08) |
| Weight | 1.5 kg (3.3 lb) |
| Dimensions (H × W × D) | 142 × 182 × 67 mm (5.63 × 7.17 × 2.64 in) |

Cable diameters for cable glands

| | |
|-----------------------------------|-----------------------------------|
| M20×1.5 glands | 5.0 ... 9.0 mm (0.20 ... 0.31 in) |
| M20×1.5 glands with split bushing | 7 mm (0.28 in) |
| M16×1.5 glands | 2.0 ... 6.0 mm (0.08 ... 0.24 in) |

Operating environment

| | |
|---|----------------------------------|
| For use in wet locations | Yes |
| Operating humidity | 0 ... 100 %RH |
| Maximum operating altitude, AC (mains) power | 3000 m (9843 ft) |
| Maximum operating altitude, protective extra-low voltage (PELV) and Power over Ethernet (PoE) | 4000 m (13 123 ft) |
| IP rating | IP66 ¹⁾ |
| Operating temperature | |
| With display | -20 ... +55 °C (-4 ... +131 °F) |
| Without display | -40 ... +60 °C (-40 ... +140 °F) |
| Without display with barometer module | -40 ... +55 °C (-40 ... +131 °F) |
| Storage temperature | |
| With display | -30 ... +60 °C (-22 ... +158 °F) |
| Without display | -40 ... +60 °C (-40 ... +140 °F) |

¹⁾ Evaluated by Eurofins, not by UL.

User interfaces

| | |
|--------------------------------------|--|
| User interfaces | Web interface for remote use, optional touchscreen display |
| Supported languages | English, Chinese, French, German, Japanese, Spanish |
| Optional display | 5" capacitive touchscreen |
| Integrated data logging capabilities | Non-volatile memory, at least 10 years' storage with 24 h interval logging |



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Inputs and outputs

Operating power ¹⁾

| | |
|---|---|
| Protective extra-low voltage (PELV) version | 15 ... 35 V DC, 24 V AC $\pm 20\%$ 50/60 Hz, max. current 2 A (power supply is galvanically isolated) Fuse size for power supply: 3 A Isolation voltage: 500 V AC, 1000 V DC |
| PELV power cable temp. rating | $\geq +80\text{ }^{\circ}\text{C}$ (+176 $^{\circ}\text{F}$) |
| AC (mains) power version | 100 ... 240 V AC 50/60 Hz, max. current 1 A (power supply is galvanically isolated) Fuse size for power supply: 10 A Isolation voltage: 1500 V AC |
| Power over Ethernet version | Power over Ethernet (PoE) IEEE 802.3at Type 2 Class 4 Max. current 600 mA, max. power consumption 25.5 W Isolation voltage: 500 V AC, 1000 V DC |

Typical current consumption at +20 °C (+68 °F) (U_{in} 24 V DC) ²⁾

| | |
|---|---------------------|
| Base consumption (no display, analog outputs, or communication) | 50 mA |
| With display | + 60 mA |
| With voltage analog output | < 2 mA per channel |
| With current analog output | + 21 mA per channel |
| With relays | + 9 mA per relay |
| With Ethernet cable connected | + 15 mA |
| With barometer module | + 5 mA |

Analog input

| | |
|---------------------|---|
| Available ranges | 4 ... 20 mA |
| Resolution | 6 μA |
| Display resolution | 0.01 mA |
| Accuracy | $\pm 0.05\text{ mA}$ |
| Input impedances | 200 Ω |
| Isolation | Isolated from power supply |
| Overload protection | 40 mA max. (reverse polarity protected) |

Analog outputs

| | |
|---|---|
| Number of analog outputs | 4 |
| Isolation | Isolated from power supply |
| Selectable voltage output types | 0 ... 1 V, 0 ... 5 V, 0 ... 10 V, scalable |
| Selectable current output types | 4 ... 20 mA, 0 ... 20 mA, scalable |
| Max. wire size | 2.5 mm ² (14 AWG) |
| Accuracy of analog outputs at +20 °C (+68 °F) | $\pm 0.05\%$ full scale |
| Temperature dependence | $\pm 0.005\%$ / $^{\circ}\text{C}$ full scale |
| External loads: | |
| Current outputs | $R_L < 500\ \Omega$ |
| 0 ... 1 V output | $R_L > 2\ \text{k}\Omega$ |
| 0 ... 5 V and 0 ... 10 V outputs | $R_L > 10\ \text{k}\Omega$ |

Relay outputs

| | |
|--|------------------------------|
| Number and type of relays | 2 pcs, SPDT |
| Max. switching power, current, voltage | 30 W, 1 A, 40 V DC / 28 V AC |
| Max. wire size in PELV version | 2.5 mm ² (14 AWG) |
| Max. wire size in AC (mains) version | 1.5 mm ² (16 AWG) |

Ethernet interface

| | |
|---------------------|---|
| Supported standards | 10BASE-T, 100BASE-TX |
| Connector | 8P8C (RJ45) |
| Supported protocols | Modbus TCP/IP (port 502), HTTPS (port 8443) |

¹⁾ The power supply option is selected when ordering the transmitter.

²⁾ For the current consumption of the connected measurement device, see the device's documentation, available at docs.vaisala.com.

Compliance

| | |
|-------------------------------------|---|
| EU directives and regulations | EMC Directive (2014/30/EU) Low Voltage Directive (2014/35/EU) RoHS Directive (2011/65/EU) amended by 2015/863 |
| Electromagnetic compatibility (EMC) | IEC/EN 61326-1, industrial environment CISPR 32 / EN 55032, Class B |
| Electrical safety | IEC/EN 61010-1 |
| Type approvals | DNV GL certificate no. TAA000032M |
| Compliance marks | CE, China RoHS, FCC, RCM, UKCA |
| Listing marks | UL Listed (USA and Canada) |
| FCC compliance | FCC Part 15, Class B |



Accessories

| | |
|---------------------------------------|-------------|
| Adapter plate | DRW252186SP |
| Installation kit for pole or pipeline | 215108 |
| Installation kit with weather shield | 215109 |
| Indigo500 Spatter guard | |

Probe connection cables

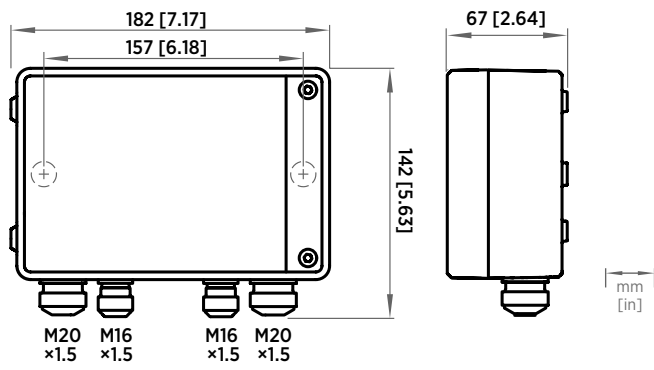
| | |
|--|-----------------|
| Probe connection cable, 0.3 m (approx. 12 in), open end ¹⁾ | CBL210896-03MSP |
| Probe connection cable, 1 m (approx. 3 ft 3 in), open end ¹⁾ | CBL210896-1MSP |
| Probe connection cable, 3 m (approx. 9 ft 10 in), open end ¹⁾ | CBL210896-3MSP |
| Probe connection cable, 5 m (approx. 16 ft 5 in), open end ¹⁾ | CBL210896-5MSP |
| Probe connection cable, 10 m (approx. 32 ft 10 in), open end ¹⁾ | CBL210896-10MSP |

¹⁾ The usable length outside of the transmitter enclosure is approx. 0.1 m (4 in) shorter than the total length of the cable.

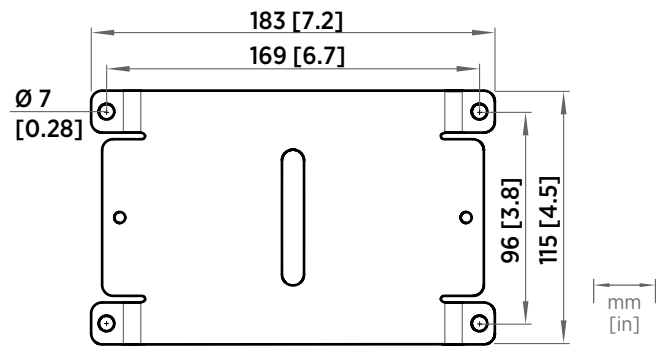
Spare parts

| | |
|---|-------------|
| Cable gland, M20x1.5, 5.0 ... 9.0 mm (0.20 ... 0.35 in) | ASM213670SP |
| Cable gland with split bushing, M20x1.5 ¹⁾ | 262632SP |
| Cable gland, M16x1.5, 2.0 ... 6.0 mm (0.08 ... 0.24 in) | ASM213671SP |
| Conduit fitting, M20x1.5 for NPT1/2" conduit | 214780SP |

¹⁾ With 7-mm (0.28 in) hole for cable and 14-mm (0.55 in) hole for 8P8C (RJ45) connector to pass through.



Indigo520 dimensions and lead-through sizes



Indigo500 adapter plate dimensions



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