

Sensors and regulators



Sensor applications

Building Management Systems (BMS) require accurate, reliable and long term stable measurement components. ATAL instruments for temperature, relative humidity, barometric pressure and CO₂ measurement are an integral part of modern, high performance building automation solutions, ensuring energy efficiency, indoor air quality and operational reliability.

Industrial applications are characterized by high capital investment and continuous cost pressure driven by increasing market competition. ATAL understands these challenges and delivers robust, precise and highly reliable sensors and transmitters that combine long term stability with an excellent price performance ratio.

Meteorology focuses on the study of atmospheric processes and is essential for many fields of human activity, including transportation, agriculture, environmental monitoring and defense. These applications require sensitive and accurate instruments with a wide dynamic range and exceptional long term stability. ATAL sensors fully meet these requirements. In combination with radiation shields, they form a reliable basis for long term weather stations used in climate and air quality monitoring.

Food industry and retail environments, such as production areas, storage facilities and supermarkets, require continuous monitoring of critical environmental parameters in accordance with HACCP regulations. ATAL sensors and transducers are ideally suited for these applications. When combined with OnlineSensor monitoring systems, they enable comprehensive solutions for data acquisition, recording, analysis and alarm management.

Healthcare facilities and laboratories operate under strictly controlled and sterile conditions. ATAL sensors are designed to perform reliably in these demanding environments, supporting accurate monitoring of temperature, CO₂ concentration and other critical parameters in compliance with **GLP** and **GMP** regulations.



Measured values

Temperature is measured using an RTD **Pt1000 sensor (3850 ppm)**. A wide range of Pt1000 probes with different lengths and constructions can be connected to the transmitters. Measured values can be displayed in **°C or °F**, depending on the sensor configuration.

Relative humidity is measured using a state of the art **capacitive polymer sensor**, providing excellent long term calibration stability and high resistance to water and condensation. Transmitters are available in versions suitable for **pressurized applications up to 25 bar**.

Computed humidity values

In addition to direct measurements, the devices can calculate and output derived humidity parameters such as **dew point temperature, absolute humidity, specific humidity, mixing ratio and specific enthalpy**.

Barometric pressure transmitters are equipped with a **high accuracy absolute pressure sensor**, ensuring excellent long term stability. Display indication and output units are user selectable and include **hPa, kPa, mbar, mmHg, inHg, inH₂O, PSI and oz/in²**.

Carbon dioxide concentration (CO₂)

A multi point CO₂ and temperature calibration process ensures high measurement accuracy over the **entire operating temperature range**, which is essential for process control and outdoor applications. The **dual wavelength NDIR CO₂ sensing technology** automatically compensates for ageing effects. The CO₂ module is highly resistant to contamination, enabling **maintenance free operation and outstanding long term stability**.

Binary inputs

Selected devices are equipped with **up to three binary inputs** for connecting external signals such as smoke detectors, flood sensors, glass break detectors or door contacts. The inputs support **voltage free contacts, open collector outputs or two state voltage signals**.



Sensors and regulators with serial (and relay) outputs

Sensors and regulators for temperature, relative humidity, barometric pressure and CO₂ concentration convert measured values into digital serial outputs via RS485 or RS232 interfaces. These devices support the Modbus RTU communication protocol as well as protocols compatible with the Advantech ADAM standard. Via serial communication, measured values can be read and selected device parameters can be configured. Settings can be adjusted either directly via the integrated keypad or remotely from a connected computer.

The microprocessor based design ensures excellent long term stability, flexible user configuration and built in fault indication. This concept allows users to individually select the measurement range for each output. In addition, the devices support the calculation and output of computed humidity values, such as dew point temperature, absolute humidity, specific humidity, mixing ratio and specific enthalpy. For humidity measurement, a state of the art capacitive polymer sensor is used, providing outstanding long term calibration stability and high resistance to water and condensation. The devices are designed for air measurement in non aggressive environments.

Device models:

Programmable industrial regulators with relay output and serial output (RS485 / RS232)



Advantages:

- Three two state (binary) inputs
- Three two state (binary) inputs
- Integrated keypad for configuration and settings
- Acoustic and visual alarm indication

Programmable sensors with serial output and without relay outputs



Advantages:

- Compact design
- Probe lengths up to **700 mm**
- Device versions with **Lumberg connector** for easy connection and disconnection
- External probes with cable lengths up to **4 metres**

Programmable industrial regulators

Programmable industrial regulators are designed for two state control of applications such as heating, ventilation, humidification and dehumidification. The devices are equipped with two relay outputs that can be used for alarm signalling or for controlling external equipment. Each relay can be freely assigned to any measured or computed value. Parameters such as switching limits, delay, hysteresis and audible alarm can be individually configured.

The regulators are available with:

- **Power relay outputs** rated at **250 VAC / 8 A**
- **Low voltage relay outputs** rated at **50 V / 2 A**

Devices with low voltage relay outputs can optionally be equipped with RS485 or RS232 serial communication. In addition, these regulators feature three binary inputs for the detection of two state events such as water leakage, smoke detection, glass break detection or door contacts.

Regulators with relay outputs Page 6 - 7

- Measured values: temperature, relative humidity, computed humidity values and CO₂ concentration
- Versions with integrated probe (stem), external probe on cable, or external probe for pressurised environments up to 2.5 MPa



Regulators with power relay outputs Page 6 - 7

- Measured values: temperature, relative humidity and computed humidity values
- Versions with integrated probe (stem), external probe on cable, or external probe for pressurised environments up to 2.5 MPa
- Power relay outputs: 250 VAC / 8 A



Regulators with binary inputs, relay output and serial output (RS485 / RS232) Page 8 - 11

- Measured values: temperature, relative humidity, computed humidity values and CO₂ concentration
- Versions with integrated probe (stem), external probe on cable, or external probe for pressurised environments up to 2.5 MPa
- Binary inputs for two state signals

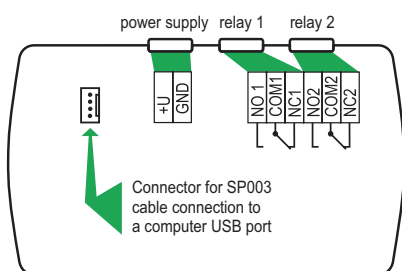


Programmable industrial regulators (with relay and power relay output)

Regulators with relay and power relay outputs

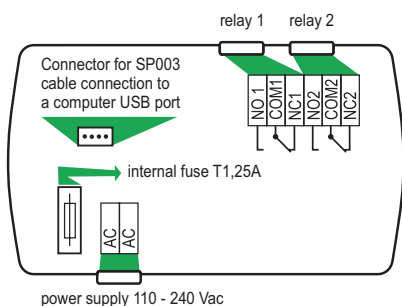
Programmable industrial regulators with relay outputs are designed for measuring temperature, relative humidity and CO₂ concentration in chemically non aggressive environments. They are used for alarm signalling and for the control of external devices. The devices are available in wall mounted and duct mounted versions, as well as with external cable probes. Regulators equipped with power relay outputs are powered by AC 110 to 240 V, allowing direct control of external power circuits without the need for additional contactors.

Wiring diagram - regulator with low voltage relay output



Both relay outputs can be configured via the integrated keypad or remotely from a connected computer. The relay contacts are normally open (NO); when an alarm condition occurs, the contact is closed.

Electrical wiring of regulator with power relay output.



STR-10x devices are equipped with three cable glands on the top, one of which is factory sealed. An additional cable gland at the bottom is provided for power supply connection

Computed humidity values

Specific humidity

Accuracy: $\pm 2,1$ g/kg
at ambient
temperature $T < 35$ °C
Range: 0 to 550 g/kg

Dew point temperature

Accuracy: $\pm 1,5$ °C at ambient
temperature $T < 25$ °C and
relative humidity RH > 30 %,
for more details see manual.
Range: -60 to +80 °C (-76 to 176 °F)

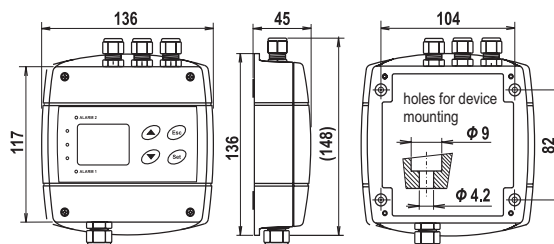
Absolute humidity

Accuracy: $\pm 1,5$ g/m³
at ambient temperature
 $T < 25$ °C for more
details see manual.
Range: 0 to 400 g/m³

Measured values

SENSOR MODEL WITH	2x Relay
	2x Relay 250 Vac/8 A
Temperature	Range
	Accuracy
Relative humidity	Range (without condensation)
	Accuracy in range of 5 to 95 % at 23 °C
CO ₂	Range
	Accuracy at 25 °C and pressure of 1013 hPa
Two-state inputs	
Computed humidity values	
Supply voltage for device with 50 V relay	
Supply voltage for regulators with power relay 250 Vac / 8 A	
Relay outputs - max. switching voltage 50 V / max. current 2 A / max. power 60 VA	
Relay outputs 230 Vac / 8 A - max. switching voltage 250 V / max. current 8 A / max. power 2000 VA/AC, 192 W/DC	
Recommended calibration interval	
Protection class of the case with electronics	
Protection of the RH/CO ₂ sensors	
Temperature operating range of the case with electronics	
Temperature operating range of the measuring elements	
Humidity operating range (without condensation)	
Barometric pressure operating range	
Weight device with 2 x relay / 2 x relay 250 Vac/8 A	

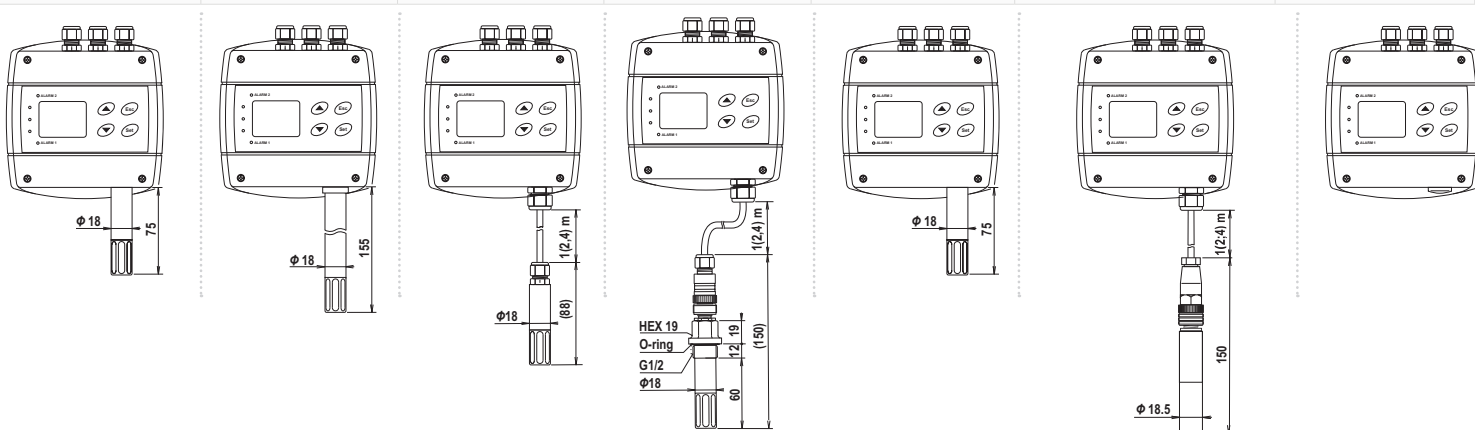
*Custom range 10 000 ppm for extra fee. Accuracy $\pm (100 \text{ ppm} + 5 \% \text{ of measured value})$.



Temperature + relative humidity				Temperature + relative humidity + CO ₂	CO ₂	
STR-102	STR -102-230V	STR -104	STR -104P	STRE-102	STRE-104	STRE-101DR
STR-102-230V	-	STR-104-230V	STR-104-230V	-	-	-
-30 to +80 °C	-30 to +125 °C	-30 to +105 °C	-30 to +105 °C	-30 to +80 °C	-	-
± 0,4 °C	± 0,4 °C	± 0,4 °C	± 0,4 °C	± 0,4 °C	-	-
0 to 100 % RH	0 to 100 % RH	0 to 100 % RH	0 to 100 % RH	0 to 100 % RH	-	-
±2,5 % RH	±2,5 % RH	±2,5 % RH	±2,5 % RH	±2,5 % RH	-	-
-	-	-	-	0 to 2000 ppm*	0 to 10000 ppm	0 to 2000 ppm*
-	-	-	-	± (50 ppm +2 % of measured value)	± (100 ppm +5 % of measured value)	± (50 ppm +2 % of measured value)
NO	NO	NO	NO	NO	NO	NO
YES	YES	YES	YES	YES	NO	NO

9-30 Vdc

110 - 240 Vac, 50 - 60 Hz	-	110 - 240 Vac, 50 - 60 Hz	110 - 240 Vac, 50 - 60 Hz	-	-	-
STR-102	STR -102-230V	STR -104	STR -104P	STRE-102	STRE-104	STRE-101DR
STR-102-230V	-	STR-104-230V	STR-104-230V	-	-	-
1 year	1 year	1 year	1 year	5 years	5 years CO ₂ / 1 year RH/ 2 years temperature	5 years
IP 65	IP 65	IP 65	IP 65	IP 30	IP 65	IP 30
IP 40 / -	IP 40 / -	IP 40 / -	IP 40 / -	IP 40 / IP 30	- / IP 65	- / IP 30
-30 to +80 °C	-30 to +80 °C	-30 to +80 °C	-30 to +80 °C	-30 to +60 °C	-30 to +80 °C	-30 to +60 °C
-30 to +80 °C	-30 to +125 °C	-30 to +105 °C	-30 to +105 °C	-30 to +80 °C	-	-
0 to 100 % RH	0 to 100 % RH	0 to 100 % RH	0 to 100 % RH	5 to 95 % RH	0 to 100 % RH	5 to 95 % RH
-	-	-	Up to 2,5 MPa	850 to 1100 hPa	850 to 1100 hPa	850 to 1100 hPa
350 g / 420 g	420 g	400 (440,520) g	450 (490, 570) g	350 g	420 (450,510) g	330 g



Mixing ratio

Accuracy: ± 2,2 g/kg
at ambient
temperature T < 35 °C
Range: 0 to 995 g/kg

Specific enthalpy

Accuracy: ± 3 kJ/kg at ambient
temperature T < 35 °C
Range: 0 to 995 kJ/kg

Programmable **industry** regulators

Regulators with Two State Inputs, Relay Output, and Serial RS485/RS232

These regulators provide real-time monitoring of temperature (°C/°F), relative humidity in non aggressive air, atmospheric pressure, CO₂ concentration, and include three binary inputs for two state signal detection.

Measured temperature and humidity can be recalculated into dew point, absolute humidity, specific humidity, mixing ratio, and specific enthalpy.

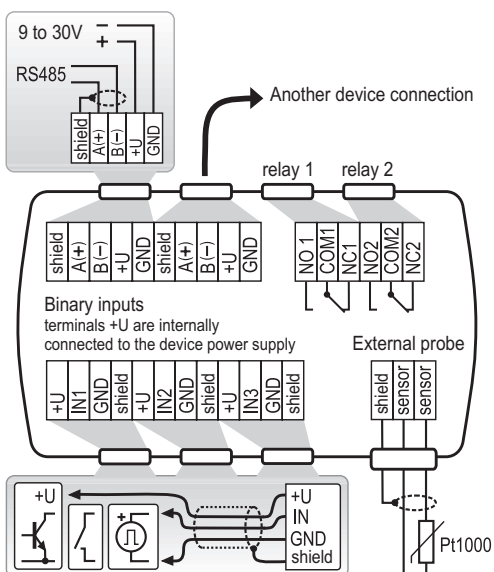
Users can configure altitude compensation (offset) and select the preferred pressure unit: hPa, kPa, mbar, mmHg, inHg, inH₂O, PSI, or oz/in². The regulator housing is made of durable plastic with integrated connection terminals. The temperature and humidity sensors are protected by a stainless-steel mesh filter. The CO₂ sensor may be mounted internally or in an external cable probe.

The RS485 output is galvanically isolated from the power circuitry to ensure stable operation in RS485 networks. The RS232 output is not galvanically isolated.

The device supports Modbus RTU and Advantech ADAM compatible protocols; the protocol is user selectable. Through the serial interface, users can read measurement values and modify device configuration. The instrument always operates in slave mode, responding only to queries from a master device.

Electrical Wiring – RS485 Serial Output

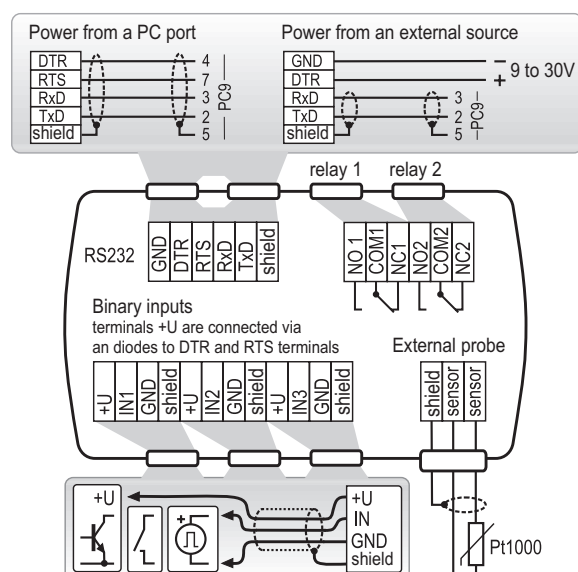
To additional devices on the bus



Electrical Wiring – RS232 Serial Output

Binary inputs

Terminals +U are connected via diodes to the DTR and RTS terminals.



Note: CO₂ sensors cannot be powered from the communication port.

Terminal for power and signal RS485/RS232

Provides power connection and serial communication interface. See electrical wiring for details.

Relay

Equipped with two relay outputs for alarm or control functions.

Each relay can be assigned any input value, and supports configuration of limit, delay, hysteresis, acoustic alarm, and relay state via Modbus.

Keypad - Two relay outputs can be fully configured via the keypad.

Input value assignment, limits, hysteresis, delay and audible alarm can be set directly.

LED indicators

Three LEDs indicate the state of the binary inputs. Two additional LEDs (ALARM 1 and ALARM 2) indicate alarm conditions and relay status.

Acoustic alarm - An active alarm can be muted by pressing ESC. This function can be disabled; in that case the acoustic alarm remains active for the full alarm duration.

Three binary inputs - Inputs are not galvanically isolated. Terminals +U are internally connected to the device power supply and provide the same voltage level.

Design - Sensor elements may be integrated into the housing or connected via a cable up to four meters. External probes can be supplied in versions suitable for pressures up to 25 bar.

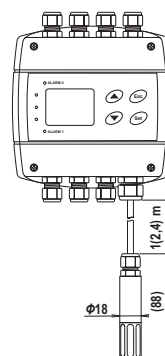
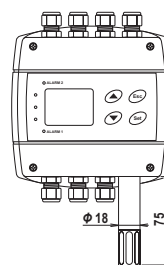
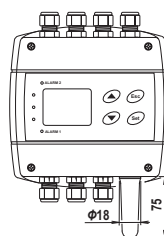
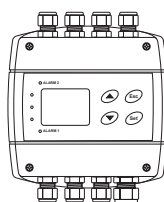


Programmable industrial regulators

Regulators with relay outputs and RS485/RS232 communication

Measured values		Temperature		Temperature + relative humidity	Temperature
SENSOR MODEL WITH	2x Relay + RS485	ST485-101E	ST485-101	STR485-102	STR485-104
	2x Relay + RS232	STR485-104	-	-	STR232-104
Temperature	Range	-200 to +600 °C	-30 to +80 °C	-30 to +80 °C	-30 to +105 °C
	Accuracy	± 0,2 °C (without probe)	± 0,4 °C	± 0,4 °C	± 0,4 °C
Relative humidity	Range (without condensation)	-	-	0 to 100 % RH	0 to 100 % RH
	Accuracy in range of 5 to 95 % at 23 °C	-	-	± 2,5 % RH	± 2,5 % RH
Atm. pressure	Range	-	-	-	-
	Accuracy	-	-	-	-
CO ₂	Range	-	-	-	-
	Accuracy at 25 °C and pressure of 1013 hPa	-	-	-	-
Two-state inputs		YES	YES	YES	YES
Computed humidity values		NO	NO	YES	YES
Supply voltage for device with relay		9-30 V			
Relay outputs		Max. switching voltage 50 V / max. current 1 A / max. power 60 VA			
Recommended calibration interval		2 years	2 years	1 year	1 year
Protection class of the case with electronics		IP 65	IP 65	IP 65	IP 65
Protection of the RH and atm. pressure / CO ₂ sensors		-	-	IP 40 / -	IP 40 / IP 30
Temperature operating range of the case with electronics		-30 to +80 °C	-30 to +80 °C	-30 to +80 °C	-30 to +60 °C
Temperature operating range of the measuring element		-	-30 to +80 °C	-30 to +80 °C	-30 to +105 °C
Humidity operating range (without condensation)		0 to 100 % RH	0 to 100 % RH	0 to 100 % RH	0 to 100 % RH
Barometric pressure operating range		-	-	-	-

* Custom range 10 000 ppm for extra fee. Accuracy ± (100 ppm+5 % of measured value).



Calculated humidity parameters

Specific humidity

Accuracy: ± 2,1 g/kg
at ambient
temperature T < 35 °C
Range: 0 to 550 g/kg

Dew point temperature

Accuracy: ± 1,5 °C at ambient
temperature T < 25 °C and
relative humidity RH > 30 %,
for more details see manual.
Range: -60 to +80 °C (-76 to 176 °F)

Absolute humidity

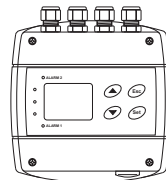
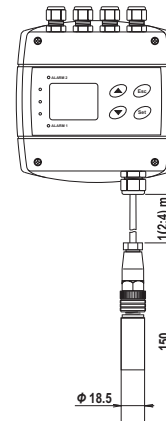
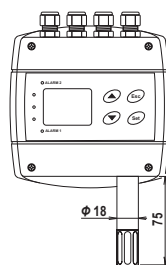
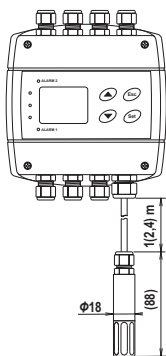
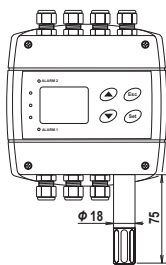
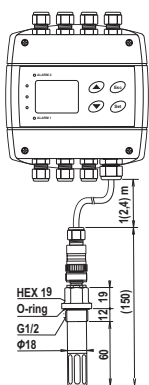
Accuracy: ± 1,5 g/m³
at ambient temperature
T < 25 °C for more
details see manual.
Range: 0 to 400 g/m³

+ relative humidity	Temperature + relative humidity + atm. pressure		Temperature + relative humidity + CO ₂	CO ₂	
STR485-104P	STRP485-104	-	AT-VLS-102DRS	AT-VLS-101DRS-10K	AT-VLS-101DRS
STR232-104P	-	-	-	AT-VLS-101DRS-232-10K	AT-VLS-101DRS232
-30 to +105 °C	-30 to +80 °C	-30 to +105 °C	-30 to +80 °C	-	-
± 0,4 °C	± 0,4 °C	± 0,4 °C	± 0,4 °C	-	-
0 to 100 % RH	-0 to 100 % RH	0 to 100 % RH	0 to 100 % RH	-	-
± 2,5 % RH	± 2,5 % RH	± 2,5 % RH	± 2,5 % RH	-	-
-	600 to 1100 hPa	600 to 1100 hPa	-	-	-
-	± 1,3 hPa	± 1,3 hPa	-	-	-
-	-	-	0 to 2000 ppm*	0 to 10000 ppm	0 to 2000 ppm*
-	-	-	± (50 ppm + 2% of measured value)	± (100 ppm + 5 % of measured value)	± (50 ppm + 2 % of measured value)
YES	YES	YES	NO	NO	NO
YES	YES	YES	YES	NO	NO

9-30 V

Max. switching voltage 50 V / max. current 1 A / max. power 60 VA

1 year	1 year	1 year	5 years CO ₂ / 1 year RH / 2 years temperature	5 years	5 years
IP 65	IP 54	IP 54	IP 30	IP 60	IP 30
- / IP 65	- / IP 30	IP 40 / -	IP 40 / IP 30	- / IP 65	- / IP 30
-30 to +80 °C	-30 to +80 °C	-30 to +80 °C	-30 to +60 °C	-30 to +80 °C	-30 to +60 °C
-30 to +105 °C	-30 to +80 °C	-30 to +105 °C	-30 to +80 °C	-40 to +60 °C	-
0 to 100 % RH	0 to 100 % RH	0 to 100 % RH	5 to 95 % RH	0 to 100 % RH	5 to 95 % RH
up to 2,5 MPa	600 to 1100 hPa	600 to 1100 hPa	850 to 1100 hPa	850 to 1100 hPa	850 to 1100 hPa



Mixing ratio

Accuracy: ± 2,2 g/kg
at ambient
temperature T < 35 °C
Range: 0 to 995 g/kg

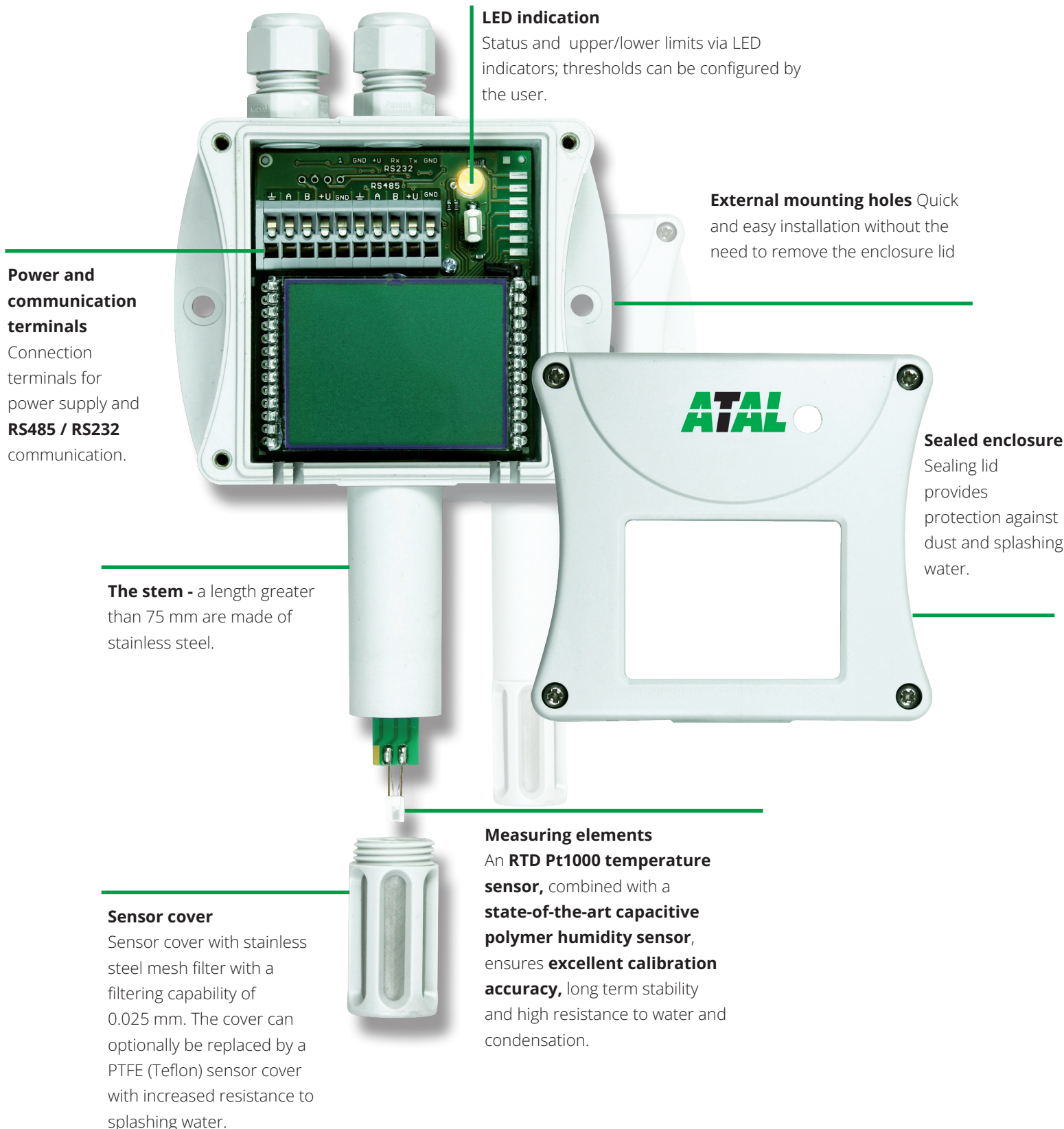
Specific enthalpy

Accuracy: ± 3 kJ/kg at ambient
temperature T < 35 °C
Range: 0 to 995 kJ/kg

Programmable **sensors**

Programmable sensors with serial output (RS485 / RS232)

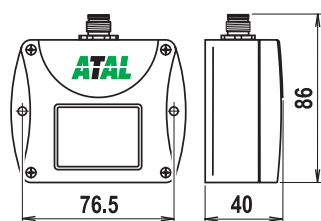
Programmable sensors and transmitters with RS485 and RS232 serial outputs are designed to measure temperature, relative humidity, barometric pressure and CO₂ concentration in non aggressive environments. The devices are available in wall mounted and duct mounted versions, as well as with external cable probes.



Wiring Diagrams

Models with watertight male connector

These models features a watertight Lumberg connector (IP67), providing quick and reliable connection and disconnection of the output cable.



Female Lumberg connection for sensor with RS232 output

pin	RS232
1	RTS
2	RxD
3	TxD
4	GND



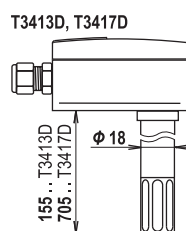
Female Lumberg connection for sensor with RS485 output

pin	RS485
1	+U
2	A
3	B
4	GND

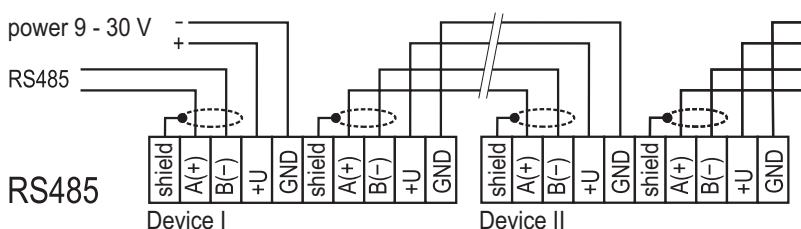


Models TRAD-xxx

The probe is oriented perpendicular to the enclosure

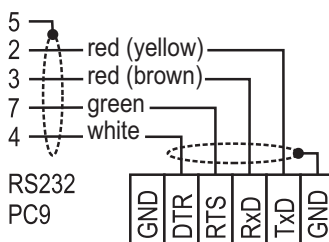


Electrical wiring of sensor with serial output RS485

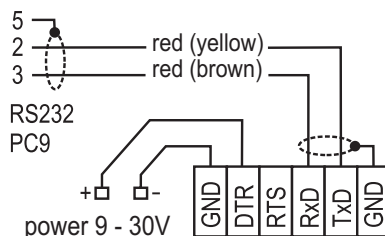


Electrical wiring of sensor with serial output RS232

Supply from communication port



Supply from communication port



Note:

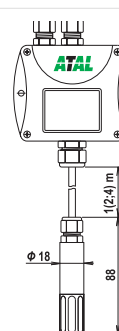
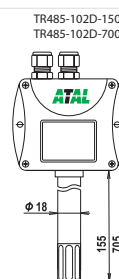
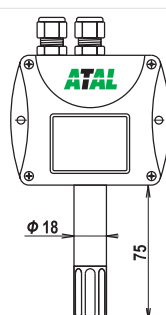
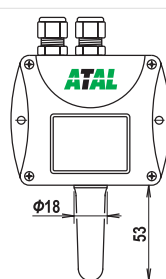
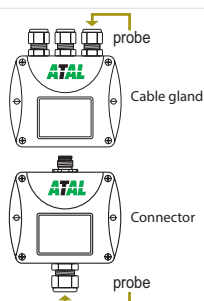
CO₂ sensor models cannot be powered via the communication port.

The transmitter circuitry is galvanically isolated from the power circuitry to prevent interference in the RS485 network. The RS232 serial output is not galvanically isolated.

Supported communication protocols include Modbus RTU and an Advantech ADAM compatible protocol, selectable by the user. Serial communication allows reading of measured values and modification of device settings. The instrument operates exclusively in slave mode.

Programmable sensors with serial output without relay RS485/RS232

Measured values		Temperature		Temperature + relative humidity		
SENSOR MODEL WITH	RS485	TE485-102D	TE485-101D	TR485-102D	TR485-103D-150 TR485-103D-700	TR485-104D
	RS232	TE232-102D	TE232-101D	TR232-102D	TR232-103D-150	TR232-104D
Temperature	Range	-200 to +600 °C	-30 to +80 °C	-30 to +80 °C	-30 to +125 °C	-30 to +105 °C
	Accuracy	± 0,2 °C (without probe)	± 0,4 °C	± 0,4 °C	± 0,4 °C	± 0,4 °C
Relative humidity	Range (without condensation)	-	-	0 to 100 % RH	0 to 100 % RH	0 to 100 % RH
	Accuracy in range of 5 to 95% at 23 °C	-	-	± 2,5 % RH	± 2,5 % RH	± 2,5 % RH
Atm. pressure	Range	-	-	-	-	-
	Accuracy	-	-	-	-	-
CO ₂	Range	-	-	-	-	-
	Accuracy at 25 °C and pressure of 1013 hPa	-	-	-	-	-
Computed humidity values		NO	NO	YES	YES	YES
Supply voltage		9-30 V				
Recommended calibration interval		2 years	2 years	1 year	1 year	1 year
Protection class of the case with electronics		IP 65	IP 65	IP 65	IP 65	IP 65
Protection of the RH and atm. pressure / CO ₂ sensors		-	-	IP 40 / -	IP 40 / -	IP 40 / -
Temperature operating range of the case		-30 to +80 °C	-30 to +80 °C	-30 to +80 °C	-30 to +80 °C	-30 to +80 °C
Temperature operating range of the measuring element		-	-30 to +80 °C	-30 to +80 °C	-30 to +125 °C	-30 to +105 °C
Humidity operating range (without condensation)		0 to 100 % RH	0 to 100 % RH	0 to 100 % RH	0 to 100 % RH	0 to 100 % RH
Barometric pressure operating range		-	-	-	-	-



Computed humidity values

Specific humidity

Accuracy: ± 2,1 g/kg
at ambient
temperature T < 35 °C
Range: 0 to 550 g/kg

Dew point temperature

Accuracy: ±1,5°C at ambient
temperature T<25°C and
relative humidity RH>30%,
for more details see manual.
Range: -60 to +80 °C (-76 to 176 °F)

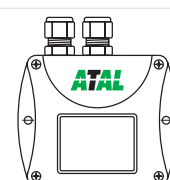
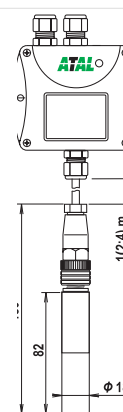
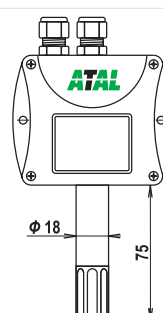
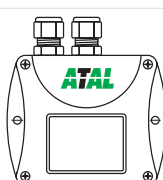
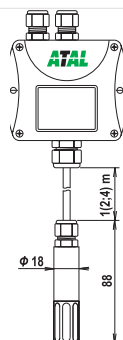
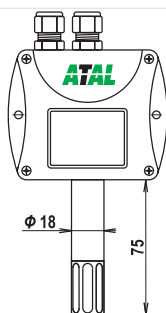
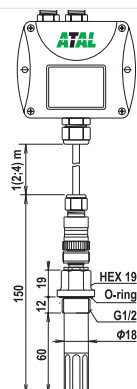
Absolute humidity

Accuracy: ± 1,5 g/m³
at ambient temperature
T < 25 °C for more
details see manual.
Range: 0 to 400 g/m³

Temperature + relative humidity	Temperature + relative humidity + atm. pressure		Atm. pressure	Temperature + relative humidity + CO ₂	CO ₂	
TR485-104DP	TRP485-102D	TRP485-104D	P485-101D	AT-VLI-102DRS	AT-VLI-104DRS	AT-VLI-101DRS
TR232-104DP	TRP232-102D	TRP232-104D	P232-101D	AT-VLI-102DRS232	AT-VLI-104DRS232	AT-VLI-101DRS232
-30 to +105 °C	-30 to +80 °C	-30 to +105 °C	-	-30 to +80 °C	-	-
± 0,4 °C	± 0,4 °C	± 0,4 °C	-	± 0,4 °C	-	-
0 to 100 % RH	-0 to 100 % RH	0 to 100 % RH	-	0 to 100 % RH	-	-
± 2,5 % RH	± 2,5 % RH	± 2,5 % RH	-	± 2,5 % RH	-	-
-	600 to 1100 hPa	600 to 1100 hPa	600 to 1100 hPa	-	-	-
-	± 1,3 hPa	± 1,3 hPa	-	-	-	-
-	-	-	-	0 to 2000 ppm*	0 to 10000 ppm	0 to 2000 ppm*
-	-	-	-	± (50 ppm +2% of measured value)	± (100 ppm +5% of measured value)	± (50 ppm +2% of measured value)
YES	YES	YES	NO	YES	NO	NO

9-30 Vdc

1 year	1 year	1 year	1 year	5 years CO ₂ / 1 year RH/ 2 years temperature	5 years	5 years
IP 65	IP 54	IP 54	IP 54	IP 30	IP 65	IP 30
IP 40 / -	IP 40 / -	IP 40 / -	- / -	IP 40 / IP 30	- / IP 65	- / IP 30
-30 to +80 °C	-30 to +80 °C	-30 to +80 °C	-30 to +80 °C	-30 to +60 °C	-30 to +80 °C	-30 to +80 °C
-30 to +105 °C	-30 to +80 °C	-30 to +105 °C	-	-30 to +80 °C	-40 to +60 °C	-
0 to 100 % RH	0 to 100 % RH	0 to 100 % RH	0 to 100 % RH	5 to 95 % RH	0 to 100 % RH	5 to 95 % RH
up to 2,5 MPa	600 to 1100 hPa	600 to 1100 hPa	600 to 1100 hPa	850 to 1100 hPa	850 to 1100 hPa	850 to 1100 hPa



* Custom range 10 000 ppm for extra fee. Accuracy ± (100 ppm+5 % of measured value).

Mixing ratio

Accuracy: ±2,2g/kg
at ambient
temperature T < 35°C
Range: 0 to 995 g/kg

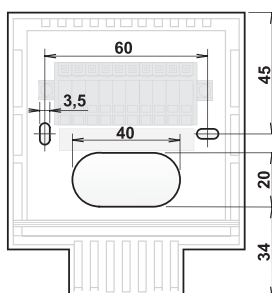
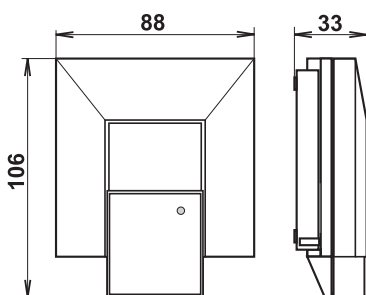
Specific enthalpy

Accuracy: ±3kJ/kg at
ambient temperature T < 25°C
Range: 0 to 995 kJ/kg

Interior design

Programmable sensors with serial output (RS485 / RS232)

Programmable transmitters with RS485 or RS232 serial interfaces are designed to measure temperature, relative humidity, barometric pressure and CO₂ concentration in interior applications, including building energy management and HVAC systems. The devices are designed for easy installation in standard flush mounted wiring boxes, making them ideally suited for indoor environments where a discreet and integrated installation is required. These sensors support the Modbus RTU communication protocol as well as protocols compatible with the Advantech ADAM standard.



Measured values		Temperature	Temperature + relative humidity	Temperature + CO	Atm. pressure
SENSOR MODEL	Output 4 - 20 mA	TEA-105D	TRA-105D	AT-VLI-105DV	PA-105D
	Output 0 - 10 V	TEV-105D	TRV-105D	AT-VLI-105DV	PV-105D
Temperature	Range	-10 to +50 °C	-10 to +50 °C	-10 to +50 °C	-
	Accuracy	± 0,5 °C	± 0,5 °C	± 0,5 °C	-
Relative humidity	Range	-	5 to 95 % RH	-	-
	Accuracy in range 5-60 % at 23 °C	-	±2,5 % RH	-	-
	Accuracy in range 60-95 % at 23 °C	-	±3 % RH	-	-
Atmospheric pressure	Range	-	-	-	600 to 1100 hPa
	Accuracy	-	-	-	± 1,3 hPa
CO ₂ **	Range	-	-	0 to 2000 ppm*	-
	Accuracy	-	-	± (50 ppm + 2 % of measured value)	-
Computed values		NO	YES	NO	NO
Protection class of the casewith electronics		IP20			

Specific humidity

Accuracy: ± 2,1 g/kg
at ambient
temperature T < 35 °C
Range: 0 to 550 g/kg

Dew point temperature

Accuracy: ±1,5°C at ambi-
ent temperature T<25°C
and relative humidity
RH>30%, for more details
see manual. Range: -60 to
+80 °C (-76 to 176 °F)

Absolute humidity

Accuracy: ± 1,5 g/m³
at ambient temperature
T < 25 °C for more
details see manual.
Range: 0 to 400 g/m³

Mixing ratio

Accuracy: ± 2,2 g/kg
at ambient
temperature T < 35 °C
Range: 0 to 995 g/
kg

Specific enthalpy

Accuracy: ± 3kJ/kg
at ambient
temperature T < 25 °C
Range: 0 to 995 kJ/kg

Optional accessories

Mounting accessories



ATS-AC11 – right-angled stainless steel flange.



ATS-AC10 – plastic flat circular flange.



K1427 – female connector ELKA for TxxxL transmitters with male connector Lumberg for easy connection/disconnection of the output. IP67 protection.



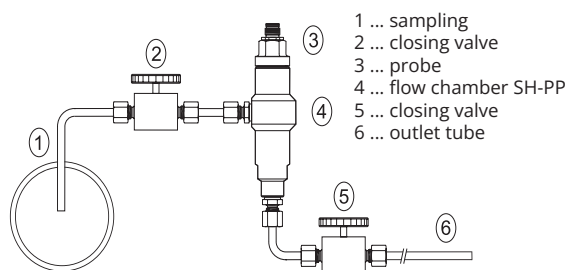
SP004 – plastic gland for direct mounting of the humidity probe to a 29 mm diameter hole.



ATS-AC22 – external probes holder for wall mounting.



SH-PP – flow chamber for compressed air measurement up to 25 bar - stainless steel DIN 1.4301 inlet and outlet connection - G1/8 thread humidity probe connection - G1/2 thread screw-coupling not included.



Calibration

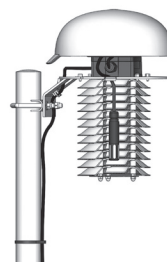


ATXV-AC15 – vessel for adjustment and calibration of humidity.

ATXV-AC16 – set of humidity standards 10 % RH with 5 application pads.

ATXV-AC17 – set of humidity standards 80 % RH with 5 application pads.

Protection of sensors



Cometeo F8100 – radiation shield.

Detectors



ATS-AC32 – optical smoke detector.



SP008 – AC voltage presence sensor.



ATS-AC12G – grey sensor cover with filter from stainless steel mesh, filtering ability 0.025 mm.

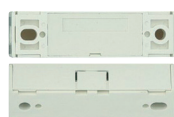
ATS-AC12B – black sensor cover with filter from stainless steel mesh, filtering ability 0.025 mm.

ATXV-AC19 – sintered bronze sensor cover. Filtering ability 0.025 mm.

ATS-AC12P – teflon (PTFE) sensor cover (white colour), with increased resistance against splashing water, non-absorbent surface, does not rust. Porous size 25 µm. Temperature range -40 °C to +125 °C.



LD-12 – water leakage detector.



SA200A – magnetic door contact.

Power supply



A1510 – Ac/dc adapter 12 V/ 450 mA stabilized.

JS-20 – P.I.R. motion detector is for interior protection. It detects object movement having human body temperature. The signal from the sensor is electronically analyzed. This ensures that the detector provides excellent sensitivity and false alarms are basically eliminated.

Communication



MP022 – converter USB/RS485 for USB port at the PC side which is powered from computer USB interface.



MP006 – RS232/USB converter for communication with the PC via USB port.





Your distributor

Hitma B.V.

hitma-instrumentatie.nl
+31(0)297-514 833