



## *AT-VLI-101DRS*

Quick start Manual

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## PRODUCT DESCRIPTION

**Programmable transmitters** with RS232 or RS485 serial interface are designed for measurement of temperature and relative humidity of air and for measurement of CO<sub>2</sub> concentration in air. Transmitters can be used in a chemical non-aggressive environment.

**The CO<sub>2</sub> concentration** is measured using the maintenance free sensor. The unique patented auto-calibration procedure compensates aging of the sensing element and guarantees outstanding high reliability and long-term stability.

**Digital conception with microprocessor** allows to determine the other computed humidity values, like dew point temperature, absolute humidity, specific humidity, mixing ratio and specific enthalpy. Measured and calculated values are displayed on a two-line LCD display. The visual indication of the CO<sub>2</sub> concentration is provided by three-color LED. Devices support Modbus RTU protocol, protocol compatible with standard Advantech-ADAM, ARION protocol and communication with HWg-Poseidon devices. For setting of all parameters including limits of CO<sub>2</sub> LED indication you can use *TSensor* software (see [www.atal.nl](http://www.atal.nl)).

**Durable plastic case** from ABS contains electronic and connection terminals. For easy connection/disconnection of the output cable is used AT-VLI-10XXXL version with Lumberg connector (IP67) instead of a cable glands.

type *	output	measured values	construction	mounting	galvanic isolated output
AT-VLI-101DRS232RS232		CO <sub>2</sub>	ambient air	wall	no
AT-VLI-101DRS RS485		CO <sub>2</sub>	ambient air	wall	yes
AT-VLI-104DRS232RS232		CO <sub>2</sub>	probe on cable	wall	no
AT-VLI-104DRS RS485		CO <sub>2</sub>	probe on cable	wall	yes
AT-VLI-102DRS232RS232		T + RH + CO <sub>2</sub> + CV	ambient air	wall	no
AT-VLI-102DRS RS485		T + RH + CO <sub>2</sub> + CV	ambient air	wall	yes
AT-VLI-106DRS232RS232		T + RH + CO <sub>2</sub> + CV	probes on cable	wall	no
AT-VLI-106DRS RS485		T + RH + CO <sub>2</sub> + CV	probes on cable	wall	yes

AT-VLI-10XXXZ are custom - specified devices values

T...temperature, RH...relative humidity, CO<sub>2</sub>...concentration CO<sub>2</sub> in air, CV...computed values

## INSTALLATION AND OPERATION

Attach the transmitter on a flat surface with two screws or bolts. Pay attention to mounting of the devices and probes, because incorrect choice of working position or measuring point could adversely affect accuracy and long-term stability of measured values.

The transmitters AT-VLI-10XDRS232 with serial interface RS232 are supplied with communication cable equipped with connector. For connection of transmitters AT-VLI-10XDRS with RS485 output there is recommended to use shielded twisted cable with maximal length 1200 m. The cable must be located at indoor rooms.

The connecting terminals are accessible after unscrewing the four screws in the corners of transmitter and removing the lid. The cables (external diameter 3 to 6.5 mm) with wire cross-section from 0.14 to 1.5 mm<sup>2</sup> pass through the released glands and connect wires according to diagram. Tighten glands and screw the lid. For AT-VLI-10XXXL devices connection it is recommended to use shielded cable (external diameter 3 to 6.5 mm) with wire cross-section max. 0.75 mm<sup>2</sup>. All cables should be located as far as possible from potential interference sources.

After switching the device starts internal test. During this time (about 20 s) LCD display shows **----** instead of CO<sub>2</sub> concentration value.

Devices don't require special maintenance. We recommend you periodical calibration for validation of measurement accuracy.

## COMMUNICATION PROTOCOLS AND ERROR STATES

Description of communication protocols you can download from [www.atal.nl](http://www.atal.nl). Device setting from the manufacturer is **ModBus RTU**, address **1**, communication speed **9600 Bd** (no parity, 2 stop bits).

Device continuously checks its state during operation and if an error appears, it is displayed relevant code: **Err 1** - measured value (except the CO<sub>2</sub> concentration) or calculated value is over the upper limit, **Err 2** - measured or calculated value is below the lower limit or CO<sub>2</sub> concentration measurement error occurred, **Err 0**, **Err 3** and **Err 4** - it is a serious error, please contact distributor of the device.

## SAFETY INSTRUCTIONS



- Don't use and don't store the relative humidity probe without a sensor cover.
- Temperature and humidity sensors have not to be exposed to direct contact with water and other liquids.
- It is not recommended to use the humidity transmitters for long time under condensation conditions.
- Take care when unscrewing the filter cap as the sensor element could be damaged.
- The regulator must be turned on for at least 24 hours in order to start the automatic calibration of the CO<sub>2</sub> sensor
- Don't connect or disconnect transmitter while power supply voltage is on.
- Installation, electrical connection and commissioning should be performed by qualified personnel only.
- Devices contain electronic components, it needs to liquidate them according to legal requirements.

\*\*\* It is recommended to switch off the LCD display at ambient temperature above 70°C.