



AT-VLI-104DA

Quick start Manual

ATAL B.V.
Ampèrestraat 35-37
NL-1446 TR PURMEREND

Postbus 783
NL-1440 AT PURMEREND

T (+31) 0299 630 610
F (+31) 0299 630 611

E info@atal.nl
I www.atal.nl

PRODUCT DESCRIPTION

Programmable transmitters with 4 – 20mA or 0 - 10V output are designed for measurement of CO₂ concentration in air. Devices are available in ambient air version or with probe on a cable and they can be used in a chemical non-aggressive environment.

The CO₂ 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.

Measured values are displayed on a two-line LCD display. The device is also equipped with three-color LED for visual indication of the CO₂ concentration. Using *TSensor* software (see www.atal.nl) you can set up measuring range of device output, measurement mode of CO₂ concentration and limits of CO₂ LED indication. For device connection to PC is used USB adapter ATS-AC20 (optional accessories).

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 instead of a cable gland.

type *	output	measured value	construction	mounting
AT-VLI-101DA	4 - 20mA	CO ₂	ambient air	wall
AT-VLI-104DA	0 - 10V	CO ₂	ambient air	wall
AT-VLI-101DV	4 - 20mA	CO ₂	probe on cable	wall
AT-VLI-104DV	0 – 10V	CO ₂	probe on cable	wall

* models marked AT-VLI-10xxxZ are custom - specified devices

INSTALLATION AND OPERATION

Attach the transmitter on a flat surface with two screws or bolts. Unpack the external CO₂ probe and connect it to the device. Then place the probe into the measured environment. Pay attention to device mounting, because incorrect choice of working position or measuring point could adversely affect accuracy and long-term stability of measured values.

The connecting terminal is accessible after unscrewing the four screws in the corners of the case and removing the lid. Pass the connecting cable through released gland and connect the wires according to diagram. Tighten gland and screw the lid.

For device connection it is recommended to use shielded cable (external diameter 4 to 8mm) with wire cross-section 0.14 to 1.5 mm². Maximum cable length of the current loop is 1200m, maximum voltage output cable length is 15m. For AT-VLI-10xxxL devices it is recommended to use shielded cable (external diameter 3 to 6.5 mm) with wire cross-section max. 0.75 mm². All cables should be located as far as possible from potential interference sources.

The internal test starts after switching the device. During this time (about 20 s) LCD display shows **----** instead of CO₂ concentration value.

Devices don't require special operation and maintenance. We recommend you periodic calibration for measurement accuracy validation.

ERROR STATES

Device continuously checks its state during operation and if an error appears, it is displayed relevant code:

Err 2 - CO₂ concentration measurement error occurred

Err 0, Err 3 and Err 4 - it is a serious error, please contact distributor of the device

SAFETY INSTRUCTIONS



- The regulator must be turned on for at least 24 hours in order to start the automatic calibration of the CO₂ sensor
- Don't connect or disconnect transmitter and transducer 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.

Technical specifications

Device type	AT-VLI-101DA	AT-VLI-101DV	AT-VLI-102DA	AT-VLI-102DV															
Analog output	4 - 20 mA	0 - 10 V	4 - 20 mA	0 - 10 V															
Supply voltage	9 - 30 Vdc	15 - 30 Vdc	9 - 30 Vdc	15 - 30 Vdc															
Output in case of error	< 3.8mA or > 24mA	< -0.1V or > 10.5V	< 3.8mA nebo > 24mA	< -0.1V nebo > 10.5V															
CO ₂ concentration measuring range *	0 to 2000 ppm	0 to 2000 ppm	0 to 10 000 ppm	0 to 10 000 ppm															
Accuracy of CO ₂ concentration measurement at 25°C and 1013 hPa	± (50ppm+2% of measured value)	± (50ppm+2% of measured value)	± (100ppm+5% of measured value)	± (100ppm+5% of measured value)															
Temperature dependence of CO ₂ concentration measurement at 0 to 50°C	typ. 2 ppm CO ₂ /°C	typ. 2 ppm CO ₂ /°C	typ. 2 ppm CO ₂ /°C	typ. 2 ppm CO ₂ /°C															
Recommended calibration interval	5 years	5 years	5 years	5 years															
Protection class of the case with electronics	IP30	IP30	IP65	IP65															
Protection class of the CO ₂ probe	—	—	IP65	IP65															
Temperature operating range of the case with electronics	-30 to +60°C	-30 to +60°C	-30 to +80°C	-30 to +80°C															
Temperature operating range of the CO ₂ probe	—	—	-40 to +60°C	-40 to +60°C															
Humidity operating range (environment without condensation)	5 to 95%RH	5 to 95%RH	0 to 100%RH	0 to 100%RH															
Humidity operating range (environment without condensation)	850 to 1100 hPa	850 to 1100 hPa	850 to 1100hPa	850 to 1100hPa															
Atmospheric pressure operating range	any position	any position	any position	any position															
Mounting position	—	—	—	—															
Storage temperature range (5 to 95%RH, no condensation, atmospheric pressure 700 to 1100 hPa)	-40 to +60°C	-40 to +60°C	-40 to +60°C	-40 to +60°C															
Electromagnetic compatibility according to	EN 61326-1, EN 55011	EN 61326-1, EN 55011	EN 61326-1, EN 55011	EN 61326-1, EN 55011															
Weight	150 g	150 g	250 (280, 340) g	250 (280, 340) g															
Dimensions [mm]																			
Electrical wiring	<p>Output 0 - 10 V</p> <p>Output 4 - 20 mA galvanically isolated</p> <p>Output 4 - 20 mA galvanically non-isolated</p> <p>Rmax[Ω] = 50*Uss2[V] - 450</p> <p>Rmax[Ω] = 50*Uss1[V] - 450</p> <p>xxxxxL transmitter version female Lumberg connection</p> <table border="1"> <tr> <td>pin</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>4-20mA</td> <td>+U</td> <td>+I</td> <td>-I</td> <td>GND</td> </tr> <tr> <td>0-10V</td> <td>+U</td> <td>Uout</td> <td>GND</td> <td>GND</td> </tr> </table>				pin	1	2	3	4	4-20mA	+U	+I	-I	GND	0-10V	+U	Uout	GND	GND
pin	1	2	3	4															
4-20mA	+U	+I	-I	GND															
0-10V	+U	Uout	GND	GND															

* LED indication (preset by manufacturer): **green** (0 to 1000 ppm), **yellow** (1000 to 1200 ppm), **red** (1200 to 2000/10000 ppm)