

# CD-2xx-E00-00

## Wall Mount CO<sub>2</sub> and Temperature Transmitter

### Product Bulletin

Johnson Controls offers a Carbon Dioxide (CO<sub>2</sub>) and Temperature (T) wall mount transmitter for measuring the CO<sub>2</sub> levels and the relevant temperature within Heating, Ventilation and Air Conditioning (HAVC) applications.

The CD-2xx Series incorporates a single beam dual wavelength NDIR CO<sub>2</sub> sensor, which compensates for ageing effects, is highly insensitive to pollution and offers outstanding long term stability.

A multiple point CO<sub>2</sub> and T factory adjustment procedure leads to excellent CO<sub>2</sub> measurement accuracy over the entire T working range.

This compact wall-mounted device produces 0 to 10 V or 4 to 20 mA signals.

It is designed to work:

- in stand-alone mode
- as part of any integrated Building Automation System (BAS)

This new CO<sub>2</sub> transmitter is easy to install and requires no maintenance or field calibration.



### Features

- **Power Supply 15...35 VDC / 24 VAC**  
Flexible application
- **0...10V or 4...20mA CO<sub>2</sub> and Temperature Output**  
Suitable for a wider range of applications
- **Models with Display**  
Easy-to-read display using international icons. Alternating CO<sub>2</sub> / T
- **Snap-on Enclosure**  
Allows a quick and easy mounting of the device and saves installation costs
- **Outstanding long-term stability**  
No maintenance is required.
- **CO<sub>2</sub> Factory Calibration Certificate**  
Each product is calibrated against factory standards traceable to international standard units

## Calibration Certificate

Each sensor is delivered with a Calibration Certificate which certifies that the product is manufactured in compliance with the latest technical standards.

All used materials and components have passed the quality assurance system. Manufacturing, calibration and quality testing are performed according to the Quality Assurance System.

The products are calibrated against factory standards traceable to international standards units administrated by the national metrology institutes like NIST, PTB, NBL, BEV or other recognized national standard laboratories.

For engineering samples and repair parts extent of certification is restricted to test result only.



### WERKSZEUGNIS NACH DIN EN 10204 - 2.2

**Test report according to DIN EN 10204 - 2.2**  
**Relevé de contrôle selon DIN EN 10204 - 2.2**

Zertifikat Nr. / Certificate No / Certificat N°.: C90456123

Type / Model / Modèle: CD-221-E00-00

Gegenstand / Object / Objet: CO2 / TEMPERATURE TRANSMITTER

Serien Nummer / Serial Number / Numéro de série: 1513150000155A

Hiermit bestätigen wir, dass die angeführten Erzeugnisse unter Verwendung einwandfreier Werkstoffe nach dem Stand der Technik gefertigt wurden. Produktion, Kalibrierung und Qualitätsprüfung werden im Rahmen der Qualitätssicherungsmaßnahmen überwacht. Die Erzeugnisse werden gegen Werksstandards kalibriert, welche auf internationale Standardeinheiten, verwaltet von den nationalen metrologischen Instituten wie NIST, PTB, NPL, BEV oder anderen anerkannten nationalen Standard Labors, rückführbar sind. Bei Entwicklungsmustern und Reparaturteilen bezieht sich die Bescheinigung ausschließlich auf das Prüfergebnis.

*We herewith certify that above listed products are manufactured in compliance with the latest technical standards. All used materials and components have passed the quality assurance system. Manufacturing, calibration and quality testing are performed according to the Quality Assurance System.*

*The products are calibrated against factory standards traceable to international standard units administrated by the national metrology institutes like NIST, PTB, NBL, BEV or other recognized national standard laboratories.*

*For engineering samples and repair parts extent of certification is restricted to test results only.*

*Nous certifions par la présente que les produits ci-dessus mentionnés sont fabriqués selon les règles de l'art avec l'utilisation de matériaux de qualité. La fabrication, la calibration et le contrôle qualité des produits sont exécutées conformément au système d'assurance qualité. Les produits sont étalonnés par rapport à des étalons de travail dont la traçabilité est rattachée aux étalons internationaux, administrés par les instituts de métrologie tel que le NIST, PTB, NBL, BEV, COFRAC ou d'autres laboratoires de référence reconnus. Pour les échantillons ou prototypes et les pièces de réparation, la validité du certificat est restreinte aux seuls résultats de tests.*

#### Rückführbare Standards / Traceable Standards / Etalons raccordés

CO2 Referenz / CO2 reference / CO2 de référence	Test gas CL.1 DIN EN ISO 6141
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#### Prüfergebnis / Test result / Résultat de mesure

	Oppm	1000ppm
Justiert / Adjusted / Ajusté	✓	✓

Die angeführten Daten sind gültig, unter den angegebenen Bedingungen, zum Zeitpunkt der Messung und nehmen Bezug auf die angegebenen Standards und verwendeten Messeinrichtungen.

*The calibrated values are valid under above conditions only at the time of measurement and are referenced to marked reference and working standards.*

*Les valeurs de calibration sont valides selon les conditions spécifiées ci-dessus au moment de la mesure et font référence aux spécifications et aux systèmes de mesure utilisés.*

Techniker / Technician / Technicien

Geprüft / Supervised / Vérification

## Installation

The installation of electrical wiring must conform to local codes and should be carried out by authorized personnel only. Users should ensure that all Johnson Controls products are used safely and without risk to health or property.

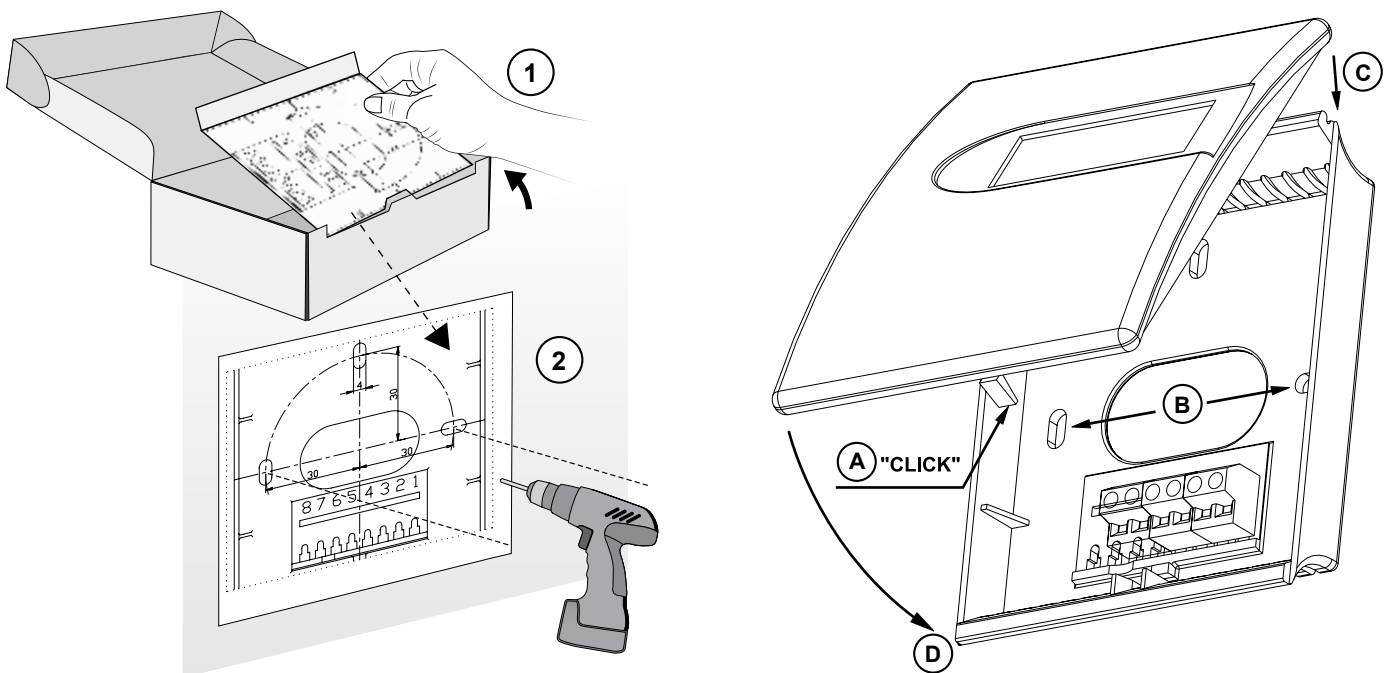
The CD-2xx series CO<sub>2</sub> and Temperature sensors are intended to provide input to equipment under normal operating conditions. Where failure or malfunction of an CD-2xx series sensors could lead to an abnormal operating condition that could cause personal injury or damage to the equipment or other property, other devices (limit or safety controls) or systems (alarm or supervisory) intended to warn of, or protect against, failure or malfunction of the CD-2xx sensors must be incorporated into and maintained as part of the control system.

## Mounting

**Opening the housing:** Press pin **A** until cover can be opened.

**Installation:** Mount housing on wall with screws through therefore designated holes **B**.

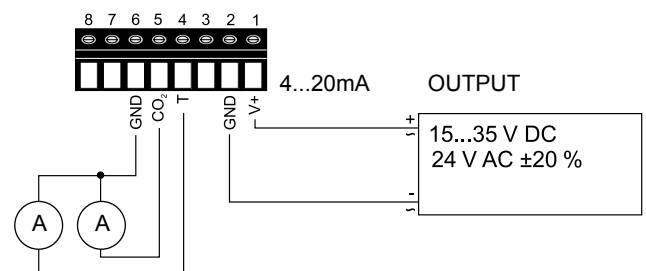
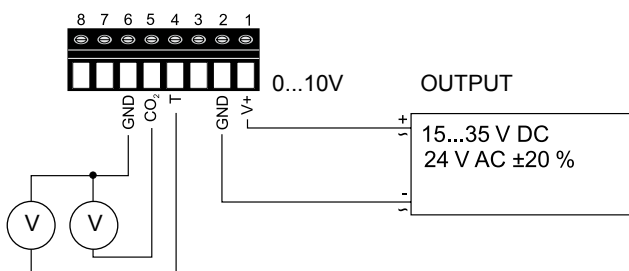
**Closing the housing:** Set cover into flute **C** and move it to direction **D** until pin **A** snaps in.

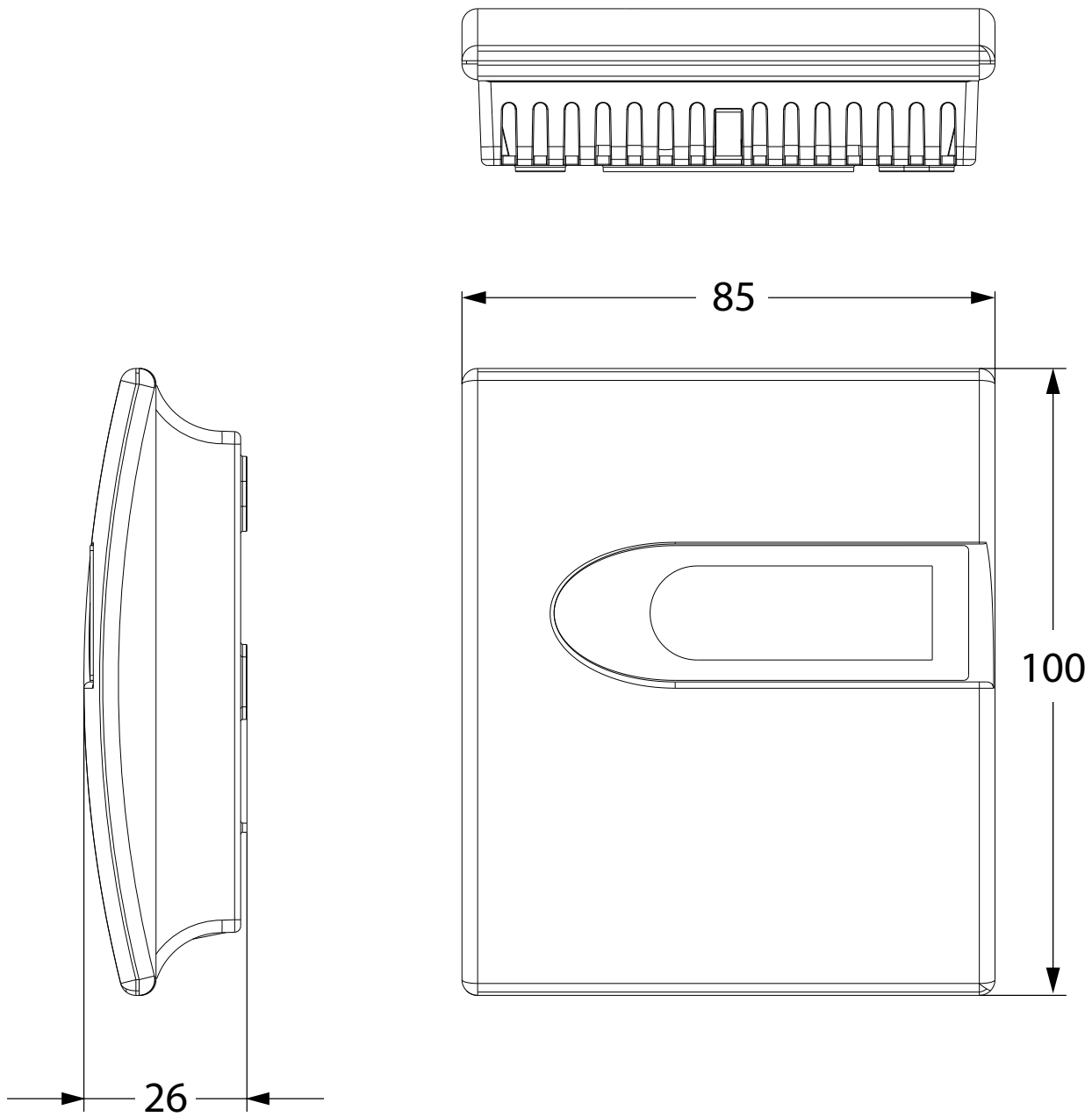


## Wiring

For wiring follow the instructions below:

- All wiring must be in accordance with local regulations and national rules.
- Do not attempt field repairs. If the transmitter is not operating properly, even though it is wired correctly, it should be replaced.



**Dimensions (in mm)**

## Ordering Codes

Item Code	CO <sub>2</sub> Output	CO <sub>2</sub> Working Range	Temperature Output	Temperature Working Range	Display	Calibration Certificate
CD-200-E00-00	0...10V	0...2000 ppm	0...10V	0...50 °C	-	X
CD-201-E00-00					X	X
CD-220-E00-00	4...20mA		4...20mA		-	X
CD-221-E00-00					X	X

## Technical Specification

### Measuring values CO<sub>2</sub>

Measurement principle	Dual Wavelength Non-Dispersive Infrared Technology (NDIR)
Working range	0...2000
Accuracy at 25 °C (77 °F) and 1013 mbar	0...2000 ppm < ± (50 ppm + 2% of measuring value)
Response time T <sup>63</sup>	typ. 110 s
Temperature dependence	typ. 1 ppm CO <sub>2</sub> / °C (-20...45 °C) (-4...113 °F)

### Temperature

Accuracy at 20 °C (68 °F) (UV = 24 V DC and RL = 250)	±0.3 °C (±0.54 °F) voltage output / ±0.7 °C (±1.26 °F) current output
Working Range	0...50 °C

### Outputs Analogue

0-10 V -1 mA < IL < 1 mA  
4-20 mA R<sub>L</sub> < 500 Ohm

### General

Supply voltage	24 V AC ±20 % 15-35 V DC
Current Consumption Analogue	typ. 14 mA + output current; peak 0.3 A for 0.3 s
Housing (polycarbonate)	EU Version: UL94HB approved
Protection class	IP30
Display	LC display: alternating CO <sub>2</sub> / T
Electrical connection	screw terminals max. 1.5 mm <sup>2</sup> (AWG16)
Electromagnetic compatibility	EN61326-1 EN61326-2-3 FCC Part 15 ICES-003 ClassB
Operating / Storage / Ranges	0...90 %RH (non condensing) / -20...60 °C (-4...140 °F)

### CE Conformity

Johnson Controls, Inc., declares that these products are in compliance with the essential requirements and other relevant provisions of the EMC Directive 2004/108/EC.

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.