JOHNSON CONTROLS

Controls Group 507 E. Michigan Street
P.O. Box 423, Milwaukee, WI 53202
Code No. LIT-1900157

CD-Pxx-00-0 Series

Duct Mount CO_2 Transmitter

Description

Johnson Controls offers a complete line of carbon dioxide (CO_2) modules that measure and transmit CO_2 levels ranging from 0 to 2,000 parts per million [ppm]. This compact device offers a choice o f 0to 10 V or 0 to 20 mA output signals and features an optional relay output with or without a digital display. Johnson Controls CO_2 transmitters are easy to install and to operate.

The silicon-based CARBOCAP® sensor delivers high accuracy and long-term measurement stability (±100 ppm) over a five-year period without calibration. The diffusion-aspirated, single-beam, dual-wavelength sensor structure is remarkably simple. It consists of an infrared (IR) source, a sample cell, an IR detector, and a tunable interference filter that enables measurements at two wavelengths. Reference measurements made using a tunable interference filter eliminate the typical weakness of dual-beam sensors and permits shifting the optical pass band electronically. This innovative design provides precise reference readings that eliminate the typically broad deviation expected from a traditional CO_2 sensor.

Features

- stable infrared reference compensates for light-source drift
- CO_2 transmitters with DCV strategies offer a potential for 10 to 70% energy savings
- single-beam, dual-wavelength design provides superior performance compared to other technologies
- silicon, micro-machined construction provides reliable CO_2 measurement in harsh environments

Applications

The new CO_2 transmitters are easy to install, offer a full three-year warranty, and require no maintenance or field calibration. Use them

- in standalone mode
- in support of Demand Control Ventilation (DCV)
- with fresh air and Indoor Air Quality (IAQ) systems
- as part of any integrated Building Automation System (BAS)
- with rooftop air handling Economizer controls systems
- connected to Metasys® system or the AD-DME series

Specifications

CD-Pxx-00-0 Series Duct Mount CO_2 Transmitter	
Measuring Range	0 to 2,000 ppm CO_2
Accuracy at 77°F (25°C)	<±(30 ppm CO_2 + 2.0% of reading) (includes manufacturing deviation and drift). All accuracy specifications reflect testing the transmitters using high-grade, certified gases. Transmitters are intended for an altitude range of 0 to 1,969 ft (0 to 600m) above sea level without compensation. To compensate for higher altitudes, see the Johnson Controls installation instructions for this device.
Non-Linearity	<0.5% of Full Scale
Temperature Dependence of Output	<0.056% of Full Scale/F° (<0.1% of Full Scale/C°)
Long-Term Stability	<±5.0% of Full Scale/5 Years
Response Time (0 to 63%)	1 Minute
Operating Temperature Range	23 to 113°F (-5 to 45°C)
Storage Temperature Range	-4 to 158°F (-20 to 70°C)
Humidity Range	0 to 85% RH (non-condensing)
Transmitter Output Signal	**CO_2**: Jumper Selectable: 0 to 20 mA or 4 to 20 mA or 0 to 10 VDC (Default); Maximum Output Current: 25 mA; Maximum Output Voltage: 12.5 V
	Relay Output (Optional): Maximum 30 V, 0.5 A, Class 2
Recommended External Load	Current Output: Maximum 500 ohms Load Resistance Voltage Output: Minimum 1,000 ohms Load Resistance
Power Supply Range	20 to 30 VAC (18 to 30 VDC), Class 2
Power Consumption	<2.5 W Average, 4.1 VA
Warmup Time	<5 Minutes
Air Flow Range	0 to 7,500 ft/minute (0 to 2,286 m/minute)
Duct Probe Material	Duct probe meets plenum rating requirements of UL 1995, Heating and Cooling Equipment.
Housing Material	ABS Plastic
Dimensions (H x W x D)	3-1/8 x 3-3/16 x 8 in. (80 x 81 x 204 mm)
Agency Listings	UL Listed, CCN XAPX (US) and XAPX7 (Canada); EMC Directive (CE Mark), 89/336/EEC; FCC and DOC Compliant

To Order

Specify the code number in the following selection chart.

Selection Chart

Code Number	Description
CD-P00-00-0	Duct Mount CO_2 Transmitter
CD-PR0-00-0	Duct Mount CO_2 Transmitter with Relay

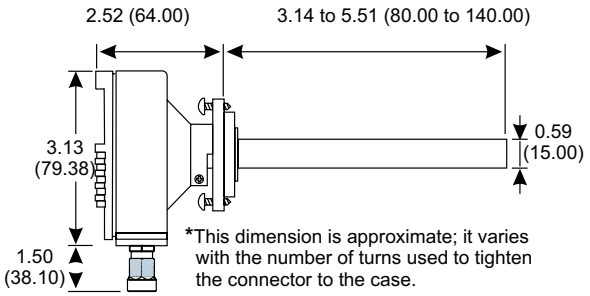
Accessories

Code Number	Description
ACC-CD-S	Relay Setpoint Software Kit; includes software and interface cable to reset the On and Off relay setpoints for CD-PR0-00-0
Y65T31-0	Multiple Primary Transformer, 40 VA, 120/208/230 V Primary, 24 V Class 2 Secondary with Screw Terminals: Foot Mounting or 4 x 4 in. (101.6 x 101.6 mm) Plate

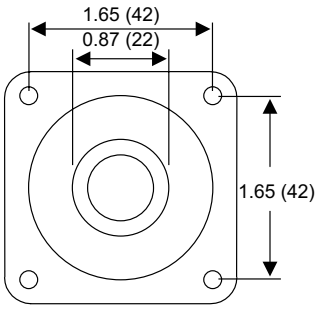
Repair Parts

Code Number	Description
ACC-CD-R	Relay Output Module for use in CD-PR0-00-0
ACC-CD-CFK1	Conduit Adaptor Kit

CD-Pxx-00-0 Series Duct Mount CO_2 Transmitter (Continued)



Transmitter Dimensions, in. (mm)



Mounting Flange Dimensions, in. (mm)

JOHNSON CONTROLS

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P.O. Box 423, Milwaukee, WI 53202
Code No. LIT-1900159

CD-Wxx-00-0 Series

Wall Mount CO_2 Transmitter

Description

Johnson Controls offers a complete line of carbon dioxide (CO_2) modules that measure and transmit CO_2 levels ranging from 0 to 2,000 parts per million [ppm]. This compact device offers a choice of 0 to 10 V or 0 to 20 mA output signals and features an optional relay output with or without a digital display. Johnson Controls CO_2 transmitters are easy to install and to operate.

The silicon-based CARBOCAP® sensor delivers high accuracy and long-term measurement stability (±100 ppm) over a five-year period without calibration. The diffusion-aspirated, single-beam, dual-wavelength sensor structure is remarkably simple. It consists of an infrared (IR) source, a sample cell, an IR detector, and a tunable interference filter that enables measurements at two wavelengths. Reference measurements made using a tunable interference filter eliminate the typical weakness of dual-beam sensors and permits shifting the optical pass band electronically. This innovative design provides precise reference readings that eliminate the typically broad deviation expected from a traditional CO_2 sensor.

Features

- stable infrared reference compensates for light-source drift.
- CO_2 transmitters with DCV strategies offer a potential for 1 0 t o70% energy savings
- single-beam, dual-wavelength design provides superior performance compared to other technologies
- silicon, micro-machined construction provides reliable CO_2 measurement in duct environments
- high thermal stability with negligible airflow dependence

Applications

The new CO_2 transmitters are easy to install, offer a full three-year warranty, and require no maintenance or field calibration. Use them

- in standalone mode
- in support of Demand Control Ventilation (DCV)
- with fresh air and Indoor Air Quality (IAQ) systems
- as part of any integrated Building Automation System (BAS)
- with rooftop air handling Economizer controls systems
- connected to Metasys® system or the AD-DME series

To Order

Specify the code number in the following selection chart.

Specifications

		CD-Wxx-00-0 Wall Mount CO_2 Transmitter
Measuring Range		0 to 2,000 ppm CO_2
Accuracy at 77°F (25°C)		<±(30 ppm CO_2 + 2.0% of reading) (includes manufacturing deviation and drift). All accuracy specifications reflect testing the transmitters using high-grade, certified gases. Transmitters are intended for an altitude range of 0 to 1,969 ft (0 to 600m) above sea level without compensation. To compensate for higher altitudes, see the Johnson Controls installation instructions for this device.
Non-Linearity		<1.0% of Full Scale
Temperature Dependence of Output		<0.056% of Full Scale/F° (<0.1% of Full Scale/C°)
Long-Term Stability		<±5.0% of Full Scale/5 Years
Response Time (0 to 63%)		1 Minute
Operating Temperature Range		23 to 113°F (-5 to 45°C)
Storage Temperature Range		-4 to 158°F (-20 to 70°C)
Humidity Range		0 to 85% RH (non-condensing)
Trans-mitter Output Signal	**CO_2**	Jumper Selectable: 0 to 20 mA or 4 to 20 mA or 0 to 10 VDC (Default) Maximum Output Current: 25 mA; Maximum Output Voltage: 12.5 V
	Analog Temperature Module (Optional)	Linear 0 to 10 VDC for 32 to 122°F (0 to 50°C)
	Relay Output (Optional)	Maximum 30 V, 0.5 A, Class 2
Resolution of CO_2 Output		10 ppm (CD-WRD-00-0 only)
Recommended External Load		Current Output: Maximum 500 ohms Load Resistance Voltage Output: Minimum 1,000 ohms Load Resistance
Power Supply Range		20 to 30 VAC (18 to 30 VDC), Class 2
Power Consumption		<2.5 W Average, 4.1 VA
Warmup Time		< 5 Minutes for CO_2 Measurement < 30 Minutes for Temperature Measurement
Housing Material		ABS Plastic
Dimensions (H x W x D)		3-5/32 x 4-9/32 1-3/8 in. (80 x 108.5 x 35 mm)
Agency Listings		UL Listed, CCN XAPX (US) and XAPX7 (Canada); EMC Directive (CE Mark), 89/336/EEC; FCC and DOC Compliant

Selection Chart

Code Number	Description
CD-WA0-00-0	Transmitter with Analog Temperature Output
CD-WR0-00-0	Transmitter with Relay
CD-WRD-00-0	Transmitter with Relay and Display

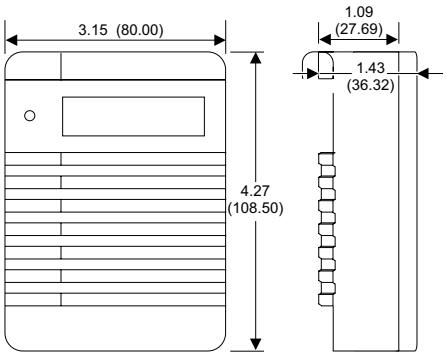
Accessories

Code Number	Description
ACC-CD-S	Relay Setpoint Software Kit; includes software and interface cable to reset the On and Off relay setpoints for CD-WR0-00-0 or CD-WRD-00-0
Y65T31-0	Multiple Primary Transformer, 40 VA, 120/208/230 V Primary, 24 V Class 2 Secondary with Screw Terminals: Foot Mounting or 4 x4 in. (101.6 x 101.6 mm) Plate

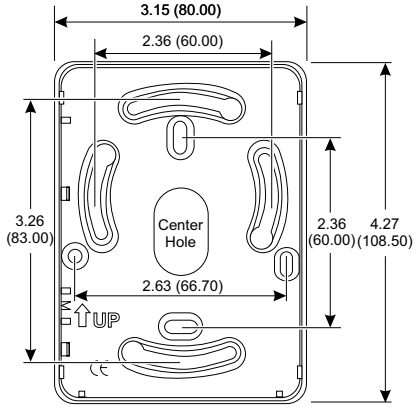
Repair Parts

Code Number	Description
ACC-CD-A	Analog Temperature Module for CD-WA0-00-0 Only
ACC-DWCLIP-0	Drywall Spring-clip Mounting Kit
ACC-CD-DR	Replacement Relay and Display Module for CD-WRD-00-0 Only
ACC-CD-R	Relay Output Module for CD-WR0-00-0

CD-Wxx-00-0 Series Wall Mount CO2 Transmitter (Continued)



Cover Dimensions, in. (mm)



Wall Mount Base Dimensions, in .(mm)

Code No. LIT-1900399
Issued September 12, 2008

CD-W00-00-1

Wall Mount CO_2 Transmitter

Description

Johnson Controls offers a Carbon Dioxide (CO_2) transmitter for measuring and transmitting CO_2 levels, ranging from 0 to 2,000 parts per million (ppm), within Heating, Ventilating, and Air Conditioning (HVAC) CO_2 applications. Specific HVAC CO_2 applications include Demand Control Ventilation (DCV), fresh air and Indoor Air Quality (IAQ), and rooftop air handling Economizer controls systems.

Features

- DCV strategies — offer potential for 10 to 70% energy savings
- Vaisala CARBOCAP® single-beam, dual-wavelength design — provides superior performance compared to other technologies
- CARBOCAP silicon, micro-machined construction — provides reliable CO2 measurement in room environments
- offers 5 years of reliable calibration
- stable infrared reference — compensates for light-source drift

Applications

This compact wall-mounted device produces 0 to 10 V and 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_2 transmitter is easy to install, offers a full 3-year warranty, and requires no maintenance or field calibration.

Repair Information

If the CD-W00-00-1 Wall Mount CO_2 Transmitter fails to operate within its specifications, replace the unit. For a replacement CO_2 transmitter, contact the nearest Johnson Controls® representative. Refer to the *CD-W00-00-1 Wall Mount CO_2 Transmitter Product Bulletin (LIT-12011187)* for important product application information.

CD-W00-00-1 Wall Mount CO_2 Transmitter

Selection Chart

Product Code Number	Description
CD-W00-00-1	Wall Mount CO_2 Transmitter

Accessories

Product Code Number	Description
ACC-DWCLIP-0	Drywall Spring-Clip Mounting Kit
Y65T31-0	Multiple Primary Transformer, 40 VA, 120/208/240 V Primary, 24 V Class 2 Secondary with Screw Terminals: Foot Mounting or 4 x 4 in. (100 x 100 mm) Plate

Technical Specifications

CD-W00-00-1 Wall Mount CO_2 Transmitter		
Measuring Range		0 to 2,000 ppm CO_2
Accuracy at 77°F (25°C)		±[50 ppm + 3.0% of reading] (includes calibration uncertainty, repeatability, and non-linearity). All accuracy specifications reflect the testing of the transmitter using high-grade certified gases. The transmitter is intended for an altitude range of 0 to 2,000 ft (0 to 600 m) above sea level without compensation.
Temperature Dependence of Output		-0.35% of reading/°C, typical (may vary between individual units)
Long-Term Stability		<5.0% of Full Scale/5 Years
Response Time (0 to 63%)		1 Minute
Operating Temperature Range		23 to 113°F (-5 to 45°C)
Storage Temperature Range		-4 to 158°F (-20 to 70°C)
Humidity Range		0 to 85% RH (noncondensing), 85°F (29°C) maximum dew point
Transmitter CO_2 Output Signal		4 to 20 mA or 0 to 10 VDC; Maximum Output Current: 25 mA; Maximum Output Voltage: 12.5 V
Resolution of Analog Outputs		2.5 ppm CO_2
Recommended External Load		Current Output: Maximum 500 ohms Load Resistance; Voltage Output: Minimum 1,000 ohms Load Resistance
Power Supply Range		20 to 30 VAC (18 to 30 VDC), Class 2
Power Consumption		<2.0 W Average, excluding current output consumption
Current Consumption		150 mA peak (70 mA average)
Warm-Up Time		<1 Minute; <10 Minutes for Full Specification
Dimensions (H x W x D)		4-23/32 x 3-5/32 x 1-7/32 in. (120 x 80 x 31 mm)
Shipping Weight		0.26 lb (117 g)
Compliance	**United States**	UL Listed, File E27734, CCN XAPX, UL 873, Temperature Indicating and Regulating Equipment, FCC Compliant to CFR 47, Part 15, Subpart B, Class A
	Canada	UL Listed, File E27734, CCN XAPX7, CAN/CSA C22.2 No. 24, Temperature Indicating and Regulating Equipment. Industry Canada Compliant, ICES-003
	Europe	CE Mark, EMC Directive 89/336/EEC, in accordance with EN 61326-1:1997 + Am1:1998 + Am2:2001 + Am3:2003, Electrical equipment for measurement, control, and laboratory use – EMC requirements – Minimum requirements