



PolyGard®

Carbon Dioxide CO₂ Transmitter ADT-83 1164 with IR Sensor

CO₂ transmitter with infrared sensor for the continuous monitoring of the ambient air to detect carbon dioxide concentrations. The infrared measuring method with integrated temperature and drift compensation stands for highest accuracy, selectivity and reliability despite of the calibration interval of 5 years. The ADT-83 possesses a standard analog output (0) 4- 20 mA or (0) 2- 10 V DC, and an RS-485 interface. 2 relays with adjustable switching thresholds are available as option.

APPLICATION

For detecting leakages in refrigeration plants with carbon dioxide as refrigerant, and also within a wide range of commercial and industrial applications. The measuring range 2000 ppm is provided for the indoor air quality control. Due to the standard analog signal and the RS-485 serial interface the CO₂ transmitter is compatible to the PolyGard gas controller series by MSR-E as well as to any other controllers or automation systems.

FEATURES

- Infrared gas sensor (NDIR)
- High accuracy, selectivity and reliability
- Automatic drift and temperature compensation
- Good resistance to poisoning
- Life expectancy > 15 years
- Maintenance periods 5 years
- Comfortable calibration with selective access release
- Alternative: Simple exchange of the sensor unit uncalibrated <> calibrated
- Reverse polarity protected, overload and short-circuit proof
- (0) 4 - 20 mA / (0) 2 – 10V analog signal output selectable
- Serial interface RS-485
- IP65 protected
- Housing fire-resistant according to UL 94V2
- Modular plug-in technology
- Manual addressing for RS-485 mode (optional)
- Approved according to EN 61010-1; ANSI/UL 61010 1; CAN/CSA-C22.2 No. 61010-1
- Relay output (optional)
- Integrated buzzer (optional)
- LED flashlight (optional)
- LCD display (optional)
- LED status display (optional)



Standard Housing





PolyGard®

Carbon Dioxide CO₂ Transmitter ADT-83 1164 IR Sensor

SPECIFICATIONS

General sensor performance

Detected gas	Carbon dioxide (CO ₂)
Sensor element	Infrared (NDIR)
Measuring ranges (2)	0- 2000 ppm to 0 – 5 vol %
Accuracy	< 10 % of measured value
Measuring interval	2 sec.
Response time	t ₉₀ < 120 sec
Temperature range	-35 °C to + 40 °C (-31 °F to 104 °F)
Pressure range	Atmospheric ± 30 % (interference + 1,6 % on measured value per kPa)
Humidity range	0 – 95 % RH non-condensing
Life expectancy	> 15 years
Recommended calibration interval	5 years
Storage temperature	0 °C to 50 °C (32 °F to 122 °F)
Storage time	Max. 6 months

Electrical

Power supply	18 - 28 V DC/AC, reverse polarity protected
Power consumption (without options)	45 mA, max. (1.1 VA)

Output signal

Analog output signal	(0) 4 – 20 mA, load ≤ 500 Ω,
Selectable: Current / tension	(0) 2 - 10 V, load ≥ 50 k Ω,
Starting point 0 / 20 %	proportional, overload and short-circuit proof

Serial interface

Transceiver	RS 485 / 19200 Baud (9600 at Mod_Bus)
-------------	---------------------------------------

Physical characteristics

Enclosure plastic type A*	Polycarbonate
Flammability	UL 94 V2
Enclosure colour	RAL 7032 (light grey)
Dimensions (W x H x D)	94 x 130 x 57 mm (3.7 x 5.12 x 2.24 inch.)
Weight	Approx. 0.5 kg (1.1 lbs.)
Protection class	IP 65
Installation	Wall mounting
Cable entry	Standard 1 x M 20
Wire connection	Screw type terminal, 0.25 - 2.5 mm ² (24 - 14 AWG)
Wire distance	Current signal: ca. 500 m (1500 ft) Voltage signal: ca. 200 m (600 ft.)

Guidelines

EMC Directives 2014/30/EU
EN 61010-1:2010
ANSI/UL 61010-1
CAN/CSA-C22.2 No. 61010-1
CE

Warranty

One year on material (without sensor)





PolyGard®

Carbon Dioxide CO₂ Transmitter ADT-83 1164 IR Sensor

Options

Relay output	
Alarm relay 1	30 V AC/DC, 0.5 A, potential-free, SPDT
Alarm relay 2	30 V AC/DC, 0.5 A, potential-free, SPNO/SPNC
Power consumption	30 mA, (max 0.8 VA)
Warning buzzer	
Acoustic pressure	85 dB (distance 300 mm) (1 ft)
Frequency	3.5 kHz
Power consumption	30 mA, (max 0.8 VA)
LCD Display	
LCD	Two lines, each 16 characters
Power consumption	10 mA, (max 0.3 VA)
LED Indicator	
Green-yellow-red	Power supply, Low Alarm, High Alarm
Power consumption	10 mA, (max. 0.3 VA)

ORDER INFORMATION

ADT-83-1164- X- XXXXXXXXXX

Version

- 1XXXXXXXXX Relay output²
- X1XXXXXXXXX Warning buzzer int.
- X2XXXXXXXXX Flashlight (LED)
- X3XXXXXXXXX Warning buzzer and flashlight
- XXXX1XXXXX RS - 485 protocol for DGC-05 series
- XXXX2XXXXX RS - 485 protocol ModBUS
- XXXX3XXXXX RS - 485 protocol customers' specifications
- XXXXX2XXX Manual calibration
- XXXXX4XXX Manual calibration / addressing
- XXXXXX1XX LCD display³
- XXXXXX2XX LED status indicator^{2,3}
- XXXXXXX1 Factory calibration 0 – 2000 ppm
- XXXXXXX2 Factory calibration 0 – 5 Vol. %

Housing¹

- A Plastic enclosure

¹ See Data sheet "PolyGard ADT Enclosure"

² Please indicate thresholds for low and high alarm when ordering.

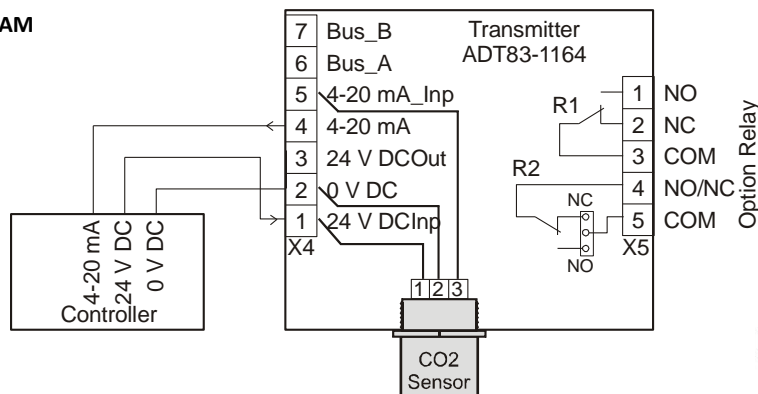
³ Not in connection with option Relay or RS-485 interface

EXAMPLE:

Carbon dioxide IR transmitter, plastic housing, manual calibration, factory calibration 0 – 5 Vol%

Ordering number: ADT-83-1164-A-000002002

CONNECTION DIAGRAM





PolyGard®

Refrig. Gas Transmitter ADT-43-20XX with SC Sensor

ORDERING INFORMATION

ADT-43-20 XX- X- XXXXXXXXXX

Version

- 1XXXXXXXX Relay output²
- X1XXXXXXXX Warning buzzer int.
- X2XXXXXXXX Flashlight (LED)
- X3XXXXXXXX Warning buzzer and flashlight
- XX1XXXXXXXX Heating
- XXX1XXXXX RS - 485 protocol for DGC-05 series
- XXX2XXXXX RS - 485 protocol for ModBUS
- XXX3XXXXX RS - 485 protocol for customers' specifications
- XXXX2XXX Manual calibration
- XXXX4XXX Manual calibration / addressing
- XXXX5XXX Manual calibration / tool addressing
- XXXXX1XX LCD display³
- XXXXX2XX LED status display^{2,3}
- XXXXXX1X 4 - 20 mA analog-input
- XXXXXXX1 Factory calibration 20 – 300 ppm
- XXXXXXX2 Factory calibration 20 – 2000 ppm

Enclosure¹

- A Plastic enclosure
- B Duct mounting
- 5 Stainless steel

Refrigerant gas type⁴

- 2061 R 23
- 2070 R 22
- 2071 R 401a
- 2072 R 401b
- 2073 R 402a
- 2074 R 402b
- 2075 R 408a
- 2076 R 409a
- 2077 R 134a
- 2078 R 404a
- 2079 R 416a
- 2080 R 407c
- 2069 R 507
- 2068 R 410a
- 2067 R 411a
- 2064 R 123
- 2059 R 12
- 2084 R 417a
- 2087 R 452a

¹ See Data sheet "PolyGard ADT Enclosure"

² Please indicate thresholds for low and high alarm when ordering.

³ Not in connection with stainless steel housing, not in connection with option Relay or RS-485 interface

⁴ The sensors partially have a cross-sensitivity to other gases due to the measuring principle. More information on request.

EXAMPLE

Refrigerant gas transmitter R134a, stainless steel housing, manual calibration / tool addressing, range 20- 2000 ppm

Order Number: ADT-43-2077-5-00005002

