



# Cool Freeze Gas Detector

# CO 2 -40...+40C

# CDK 2000

May.10



CDK 2000 Display



CDK 2000 Wall



CDK 2000 Duct



## Features

- Relay outputs built-in
- Different measurement ranges
- Good resistance to poisoning
- High accuracy, selectivity and reliability
- Automatic drift and temperature compensation
- 4-20mA or 2-10Vdc output signal selectable
- Reacts quickly
- Integrated heating element temperature controlled for down to -40 degree

## Technical Data

<b>Gas</b>	Carbon Dioxide (CO <sub>2</sub> )
<b>Sensor Element</b>	Two.beam infrared (NDIR)
<b>Response time</b>	t90 <30 sec.
<b>Accuracy</b>	< 2% of reading
<b>Repeatability</b>	< 2% of reading
<b>Resolution</b>	0,01Vol.%
<b>Long term zero-point drift</b>	< 2% of reading/year
<b>Long term output drift</b>	< 2% of reading/year
<b>Pressure range</b>	800-1100hPa
<b>Sensor coverage</b>	Approx.100m <sup>2</sup>
<b>Storage time</b>	Max 6 months
<b>Mounting height</b>	approx.0,6 to 0,8m above floor
<b>Output signal</b>	
(0)4-20mA	Load < 500ohm
(0)2-10Vdc	Load > 50kohm
Starting point 0/20%	Proportional, overload and short circuit proof
Relay 1	30Vac/dc, 0,5A, pot.free SPDT
Relay 2	Dito SPNO/SPNC
<b>Wiring distance</b>	Current signal cirka 500m Voltage signal cirka 200m
<b>Cable entry</b>	1 x M20
<b>Serial interface</b>	RS4819200 Baud(9600Modbus)
<b>Power supply</b>	18-28Vac/dc reverse polarity prot.
<b>Power consumption</b>	45mA, max (1,1VA) without option
<b>Analogue input</b>	4-20mA, input resistance 200ohm
<b>Expected lifetime</b>	>10 years
<b>Rec. calibration interval</b>	> 5 years
<b>Humidity range</b>	0-95%rH non-condensing
<b>Operating range</b>	Continuous -40 up to +40C
<b>Rating</b>	IP65 Protection Cl. Halogenfree
<b>Pressure range</b>	Atmospheric +/-15%
These products meet the CE-approval	

## 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 2000/5000 ppm is provided for the indoor air quality

Due to the analogue signal 4-20mA and 2-10vdc the CO<sub>2</sub> transmitter is compatible to any electronic analogue control, DDC/PLC control or automation system.

## Description

The CO<sub>2</sub> transmitter with the two beam 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.

## Ordering Codes

<b>CDK 2000</b>	0-2000ppm	(0)4-20mA/ (0)2-10Vdc
<b>CDK 2000R</b>	0-2000ppm	(0)4-20mA/ (0)2-10Vdc +relay
<b>CDK 5000</b>	0-5000ppm	(0)4-20mA/ (0)2-10Vdc
<b>CDK 5000R</b>	0-5000ppm	(0)4-20mA/ (0)2-10Vdc +relay
<b>CDK 5</b>	0-5 Vol%	(0)4-20mA/ (0)2-10Vdc
<b>CDK 5R</b>	0-5 Vol%	(0)4-20mA/ (0)2-10Vdc +relay
<b>CDK 20</b>	0-20 Vol%	(0)4-20mA/ (0)2-10Vdc
<b>CDK 20R</b>	0-20 Vol%	(0)4-20mA/ (0)2-10Vdc +relay
<b>CDK 100</b>	0-100 Vol%	(0)4-20mA/ (0)2-10Vdc
<b>CDK 100R</b>	0-100 Vol%	(0)4-20mA/ (0)2-10Vdc +relay

<b>/MOD</b>	Protocol for Modbus
<b>/CUST</b>	Protocol for customers specifications

see rear side



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## Relay Package

The two relays are activated in dependence of gas concentration.

If the gas concentration exceeds the adjusted alarm threshold, the corresponding relay switches on.

If the gas concentration falls below the threshold minus hysteresis, the relay switches off again.

The contact function for relay 2, NC (normally closed) or NO (normally open) can be selected via the jumper NO/NC.

See figure.

Relay 1 is equipped with a change-over contact.

Via the Modbus interface the two alarm thresholds and the hysteresis are freely adjustable at the PC within the measuring range.

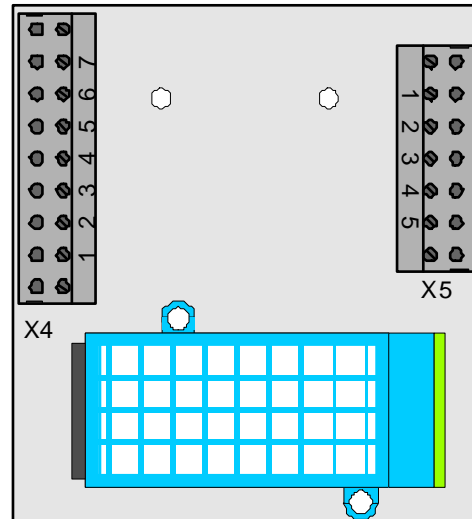
The procedure can be read from the user manual "Modbus Software".

The following parameters are factory-set for the measuring range 0-2000 ppm.

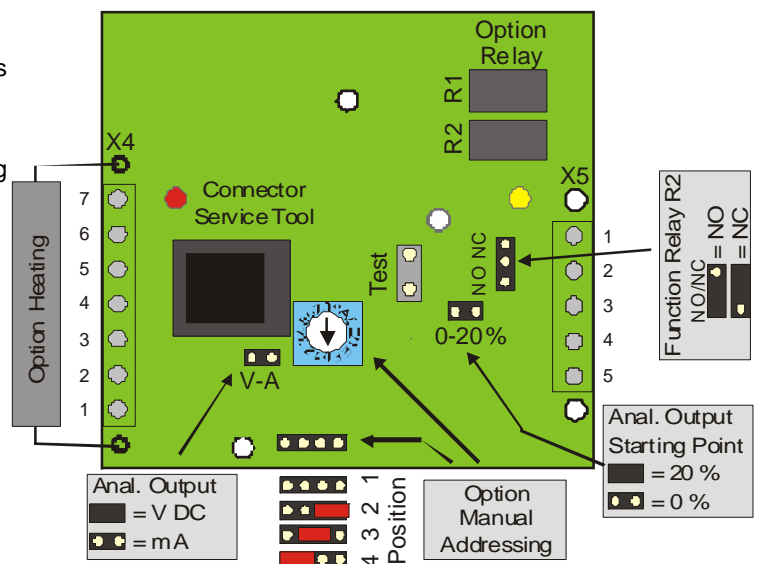
<b>0-2000ppm</b>	<b>Threshold</b>
Relay output 1	1000 ppm
Relay output 2	900 ppm
Switching hysteresis	12 ppm

<b>0-5% vol</b>	<b>Threshold</b>
Relay output 1	15000 ppm
Relay output 2	30000 ppm
Switching hysteresis	500 ppm

Terminal Block



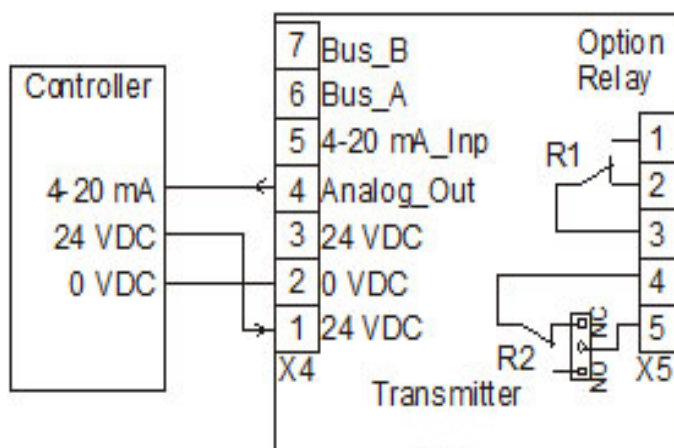
PCB-board



Selection analog output signal

Jumper 0- 20 %	Jumper V-A	Output signal
Not set	Not set	0 – 20 mA
Set	Not set	4 – 20 mA
Not set	Set	0 – 10 V
Set	Set	2 – 10 V

## Connecting Diagram



## Ordering continue

/GCD	Protocol for GCD-series
/REL	Relay pack see rear side
/DUCT	Duct Mounting
/LCD	Two lines, 16 characters each
CAL 2	Calibration Kit for Tox-transmitters
/STAIN	Enclosure of stainless steel
/AIN	4-20mA analogue input
GAS 17	Calibration gas 17 liter
REG	Pressure regulator flow adjusted to 0,5 lit/min.
Warning devices	See special datasheet
Warning signs	See special datasheet