V·C·P
Ventilation Control Products

Carbon Monoxide (CO) Detectors

Premium-version

CMD-series
CMB-series
CMS-series

December 2014

CMD
Standard IP65
plastic enclosure

IP65 plastic enclosure
with LCD display
to show actual
ppm-range

IP65 plastic enclosure
with LED indicators
Power supply = Green
Low-Alarm = Yellow
High-Alarm = Red

CMS
IP55 stainless steel
enclosure

TL1 SSE
To avoid unauthorized
opening,
the stainless steel
enclosure can only
be opened by the
opening tool TL1 SSE

CMB
IP65 plastic enclosure
with duct mounting set

Options

• **Relay Pack**
  (2 alarm relays)

• ***LCD display**

• ***LED indicator**

• **Buzzer (Siren)**

• **Heater**

• **RS-485 Modbus**

  *Not for CMS

Features

• **Electrochemical sensor element**

• **(0)2-10 Vdc or (0)4-20 mA output,**
  jumper selectable

• **Measuring ranges**
  0-50   ppm
  0-100 ppm
  0-150 ppm
  0-200 ppm
  0-250 ppm
  0-300 ppm
  0-500 ppm
  0-1000 ppm
  0-2000 ppm

• **Wide supply voltage range (18-28 Vac/dc)**

• **Overload protected**

• **Reverse polarity protected**

• **Continuous monitoring**

• **Low zero point drift**

• **Positoning stable**

• **Long life sensor**

• **Modular plug-in technology**

Applications

• vehicle exhaust in parking structures
  (e.g. underground garages)
• engine repair shops
• engine test benches
• go-kart race cources
• loading bays
• tunnels
• shelters
• equipment rooms
• ventilation systems etc.

Description

CO detectors CMD, CMB and CMS-series including digital
measurement value processing and temperature
compensation for the continuous monitoring of the ambient
air to detect carbon monoxide concentrations (CO).

Comfortable calibration routine with selective access
release is integrated in the transmitter.

The CO detector CMD, CMB and CMS-series possesses
a standard analog output (0)2-10 Vdc or (0)4-20 mA.
As option RS-485 interface and 2 relays with adjustable
switching thresholds are available.

Due to the standard analog signal the CO detector is
compatible to DDC and PLC.

Ordering

Type no.	ppm range	Enclosure
CMD 050VC	0-50 ppm	IP65
CMD 100VC	0-100 ppm	IP65
CMD 150VC	0-150 ppm	IP65
CMD 200VC	0-200 ppm	IP65
CMD 300VC	0-300 ppm	IP65
CMD 400VC	0-400 ppm	IP65
CMD 500VC	0-500 ppm	IP65
CMD 1000VC	0-1000 ppm	IP65
CMD 2000VC	0-2000 ppm	IP65
CMB 050VC	0-50 ppm	IP65, duct
CMB 100VC	0-100 ppm	IP65, duct
CMB 150VC	0-150 ppm	IP65, duct
CMB 200VC	0-200 ppm	IP65, duct
CMB 300VC	0-300 ppm	IP65, duct
CMB 400VC	0-400 ppm	IP65, duct
CMB 500VC	0-500 ppm	IP65, duct
CMB 1000VC	0-1000 ppm	IP65, duct
CMB 2000VC	0-2000 ppm	IP65, duct
CMS 050VC	0-50 ppm	IP55, s/s
CMS 100VC	0-100 ppm	IP55, s/s
CMS 150VC	0-150 ppm	IP55, s/s
CMS 200VC	0-200 ppm	IP55, s/s
CMS 300VC	0-300 ppm	IP55, s/s
CMS 400VC	0-400 ppm	IP55, s/s
CMS 500VC	0-500 ppm	IP55, s/s
CMS 1000VC	0-1000 ppm	IP55, s/s
CMS 2000VC	0-2000 ppm	IP55, s/s

CMD

CMB

CMS

TL1 SSE
Tool for opening stainless steel enclosure

Options:

Type no.	Descriptions
RP2	Relay pack (2 alarm relays)
BZI	Buzzer
LCD	LCD display
LED	LED indicator
HEA	Heater
MOD	RS-485 protocol Modbus
CUS	RS-485 protocol customer-specification
SER TL2	Service tool

CMD 300VC LCD
(with and LCD display)

CMD 300VC RP2 LED
(with Relay Pack and LED indicator)

Notes:

Options LCD and LED not possible with stainless steel (s/s IP55) enclosure.

For warning buzzer BZI, additional relay pack RP2 is needed.

For LED indicator, additional relay pack RP2 is needed.

Advise the thresholds for Low-and-High alarm when ordering relay pack RP2.

LCD Display (LCD) in combination with
Relay pack (RP2) and Buzzer (BZI) not available.
Order CMC type when these combinations are required.

LCD Display (LCD) in combination with Relay pack (RP2) not available.
Order CMC type when these combinations are required.

LCD Display (LCD) in comibnation with Buzzer (BZI) not available.
Order CMC type when these combinations are required.

Order example:
CMD 300VC RP2
CO detector, (0)2-10 Vdc or (0)4-20 mA, 0-300 ppm
Relay pack (2 alarm relays)
Alarm relay 1: (advise threshold)
Alarm relay 2: (advise threshold)

Important notes before ordering:

The recommended storage life is up to 6 months unpowered,

Carbon Monoxide (CO) detectors are manufactured on request.

As the storage life for Carbon Monoxide (CO) detectors is up to 6 months unpowered we want pre-payment before process the order to production department, this to avoid any cancellation of order.

Delivery time is normally 4 weeks after receipt of payment.

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Technical data

Sensor element	Electrochemical, diffusion
Accuracy	+/- 3 ppm
Repeatability	+/- 3% of reading
Long term output drift	< 5% signal loss/year
Response time	t90 < 50 seconds
Sensor life expectancy	5 years, normal operation enviroment
Sensor coverage	400 m2 (recommended)
Mounting height	1.5 above floor
Output	(0)2-10 Vdc, load < 50 Kohm, (0)4-20 mA, load < 500 ohm, overload and short circuit proof
Power supply	18-28 Vac/dc, (reverse polarity protected)
Power consumption	22 mA, max. (0.6 VA)

Humidity range

Continuous:	15 to 90% non-condensing
Short time:	0 to 95% non-condensing

Temperature range

Continuous:	-10 to +50°C
Short time:	-20 to +50°C

Storage temperature	+5 to +50°C
Pressure range	Atmospheric ± 10%
Cable entry	M20

Enlcosure/Protection

CMD	Plastic IP65
CMB	Plastic IP65 for duct
CMS	Stainless steel IP55

Dimensions

CMD	H130 x W94 x D57 mm
CMB	H130 x W94 x D57 mm
CMS	H113 x W135 x D45 mm excluding cable entry

Weight

CMD	300 g
CMB	350 g
CMS	500 g

Guidlines	EMC_ Directive 2004/108/EC EN 61010-1:2010 ANSI/UL 61010-1 CAN/CSA-C22.2 No. 61010-1 CE

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Built-in options

Relay output

Alarm relay 1	30 Vac/dc 0.5 A, potential-free, SPDT
Alarm relay 2	30 Vac/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)
Frequency	3.5 kHz
Power consumption	30 mA, max. 0.8 VA.

LCD Display

LCD	Two lines, 16 characters each
Power consumption	10 mA, max. 0.3 VA

LED indicator

Green-Yellow-Red	Supply, low alarm, high alarm
Power consumption	10 mA, max. 0.3 VA

Heater

Temperature controlled	+3°C +/-2°C
Ambient temperature	-40°C
Power consumption	0.3A; 7.5 VA

Side Warning Devices / External Devices
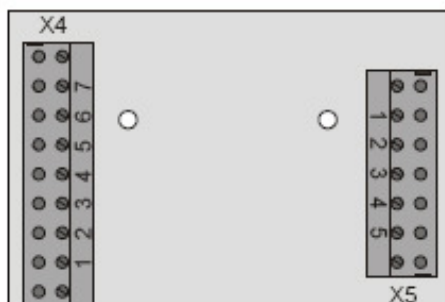See separate datasheet Side Warning Devices / External Devices

External flash light

External buzzer
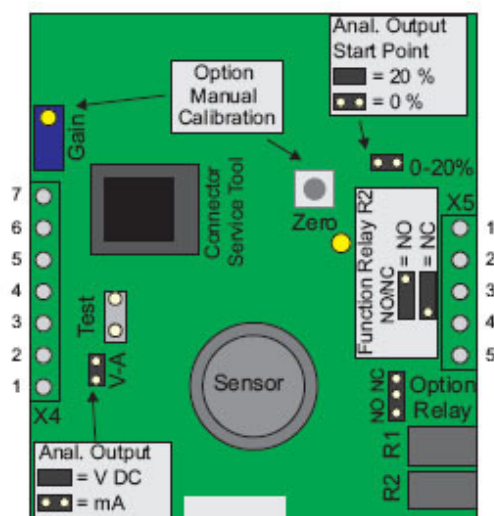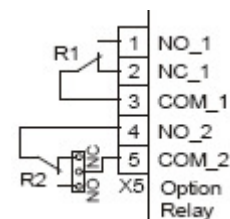
External flash light and buzzer

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Terminal Block

PCB

Wiring

7	Bus_B
6	Bus_A
5	4-20 mA input
4	0-10 Vdc or 4-20 mA output
3	24 Vdc out
2	Ground
1	24 Vac/dc

Output 0-10 Vdc or 4-20 mA is jumper selectable on pcb.

Power supply can be 24 Vac or 24 Vdc
for both 0-10 Vdc output and 4-20 mA output.

4-20 mA output is 2-wire (loop) connection on terminals 1 and 4.

0-10 Vdc is 3-wire connection on terminals 1, 2 and 4.

Relay outputs are options.

Wire connection on screw terminal min 0.25 mm2 and max 2.5 mm2

Wire distance:
500m for 4-20 mA output and 200 m for 0-10 Vdc output.

Cross sensitivity*	Concentration (ppm)	Reaction (ppm)
Acetone, C_3H_26O	1000	0
Acetylene, C_2H_2	40	80
Ammonia, NH_3	100	0
Carbon Dioxide, CO_2	5000	0
Chlorine, Cl_2	2	0
Ethanol, C_2H_5OH	2000	5
Hydrogen, H_2	100	20
Hydrogen Sulphide, H_2S	25	0
Iso Propanol, C_3H_8O	200	0
Nitric Oxide, NO	50	8
Nitrogen Dioxide, NO_2	50	-1,0
Sulphur Dioxide, SO_2	50	< 0,5

* The table doesn't claim to be complete.
Other gases, too, can have an influence on
the sensitivity.

The mentioned cross sensitivity data are
only reference values valid for new sensors.

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PERFECT SOLUTIONS IN GAS DETECTION

GAS ALARM SYSTEMS

Energy savings in Parking Garages = Money Box

There is a large number of parking garages in which the ventilation fans run continuously.

Installation of carbon monoxide detectors in air conditioning and ventilation systems should be high on the list of energy saving measures for any project containing an enclosed parking garage.

CMD and CMS wall types:

Sensor coverage	400 m2 (recommended)
Mounting height	1.5 tm above floor

CMD

CMS

CMB duct type

Gas inlet	Via a sampling pipe/ connection tube
Flow speed	Min. 5000 m/h, Max. 20,000 m/h
Duct diameter (ca.)	Min. 0.1 m, max. 1.0 m
Length of sampling pipe	250 mm, adaptable to the duct diameter by cutting to lengths: 192, 133 or 77 mm
Tube length	2 x 1000 mm
Mounting	Arrow at the sampling set in flow direction. Always mount in the middle of the duct. Keep a minimum distance of 1000 mm to duct bends etc.

CMB

We reserve the right to make changes in our products without any notice which may effect the accuracy of the information contained in this leaflet.