XDI (win)–15/30J (win)

TOXIC/OXYGEN GAS SENSOR – TRANSMITTER

Electrochemical cells – Oxygen/Toxic gases
Transmitter: PCB 337 | Software version: V2.2.5 → | Single magnet setup

Technical Sheet ref C1882Cv1
Doc No. 194D28C

Reference documents

C1144 Equipment Installation Guidelines
C1770 Wiring & Terminations for Sensors and Panels
G973 Gas Sensor Locations
C1548 Aspirated Sensor

Sensors

The positioning of sensors depends upon the type of gas to be monitored and its density with respect to air. See G973

Heavier than air gases
(Carbon Dioxide, Hydrogen Sulphide) –
locate at 15 to 20 cm from floor level.

Lighter than air gases
(Ammonia, Hydrogen Cyanide) –
locate at 5 to 10cm from the ceiling.

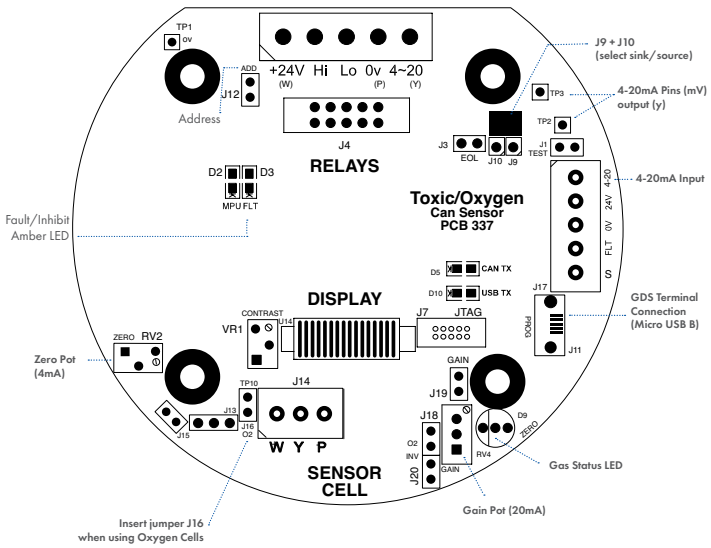
All equipment should be mounted away from direct heat and in accordance with its IP rating.

Cell replacement / transmitter calibration — A

New sensors are supplied ready to connect to the system with all jumpers inserted. This procedure shows how to recalibrate as part of a routine maintenance or cell replacement.

1. If bench testing the PCB see section E3
2. Using a digital mV meter measure across test pins TP2/3 and adjust Zero pot RV2 (course adjust) until LED D9 goes green for 4mA (zero) = 4mV (sensor bridge zero)
3. Apply a known test gas to the sensor (e.g. 100ppm CO) for 1 minute at a flow rate of 1 litre to give a 13mA = 11mV across test pins TP2/3, adjust gain pot RV4 for correct mV reading.
4. For display and relay set up see sections B or E

Fig. 1 Transmitter



Setting/adjusting using display board push buttons or single magnet — B

On power up the unit will be inhibited for a 120 second warm up period displayed as a countdown on the display (this may be overridden by pressing 1).

Carry out procedure A. To access the menu press 2 (equipment SN will be displayed) followed by the entry code 231, pressing 1 or 3 will allow travel through the menu and adjustment of settings, pressing 2 enables access into the selected menu field and on completion pressing 2 will confirm your selection.

Menu

1. Exit
2. Inhibit – relays and 4~20mA signal output to 2mA
3. Address – CANbus sensor address (Combi)
4. Zero/span (fine adjust)
5. Alarm levels set – valve/direction (rising/falling)
6. Exit
7. Delay to alarm (relays) 0~255s
8. Relay off delay 0~255s
   Default setting 0 seconds
9. Normally energised/de-energised relays
   Default setting de-energised
10. LED/relay test
11. Exit
12. Set 4 and 20mA output – calibrate
13. Display gas reading decimal point setting
14. Gas type selection
15. Gas range select
16. Exit
17. Dead band setting, OFF, Display only, full signal ± 2.5% of scale reading. Default setting OFF
18. Relay operation select – relay 1, 2, 3
19. Select mA input signal fault trip level (toxic/oxygen 4~20mA input only). Default setting 2.5mA
20. Software version / product serial number

Power supply — C

15 to 30Vdc 24v nominal
Initial power ON – 120s inhibit warm up period

Outputs

3 wire 4~20mA (Direct)/4 wire CANbus (Addressable)

Logging	Intervals – variable time Roll over/stop Storage – 2,880 readings
Requires	USB A to USB micro B cable *(GDS part No. 160-511)* PC or laptop (dedicated) **GDS Terminal** **(download from GDS website)**
Options	3 Relays SPCO 3A (none inductive) @ 30vDC

GDS Terminal Commands

D

Command	Use
A = Set CAN address	Sets the CAN address
G = Select gas type	Select the gas type from a list
Z = Zero	Press when no gas on sensor to give zero
S = Span H and L change reading	Use when calibration gas applied,
D = Enter calibration date	Enter the calibration date
Y = Toggle auto zero	Auto zero is ON or OFF, small drift is cleared
H = Set high alarm	Sets the high alarm threshold
L = Set low alarm	Sets the low alarm threshold
O = Set over range alarm	Sets the over range alarm threshold
P = List command	List these commands on screen
X = Exit calibration mode	Exit this PC mode
$ = Initialise this sensor	Use on new PCB to set gas type to Flam
U = Alarm direction	Sets rising or falling alarms
R = Range	Allows a change in maximum value
N = Decimal points	Toggles between 1 and 2 decimal places
E = Edit user gas text	Choose gas description
B = Toggle deadband	Deadband of 2.5% can be on or off
F = Toggle fault Input	External fault input contact can be disabled
K = Select Input	Used to select the input from between Input J6 to input J14 (Toxic Only)
# = Local Relay Setup	Used to change the function of the 3rd relay from Fault to Over-Range
V = View gas log	From current log, display how many historical readings to display, up to 2880
% = Clear gas log	Set all 2880 log readings to 0.00
I = Log interval log	Choose how many seconds between each reading and whether the log will roll over or stop at 2880 (60 second interval and 2880 readings = 48 hours)
Space Bar = Enter Data / Load Data	Used to load sensor information after connecting to GDS Terminal
W = Set 4-20mA output	Adjusts the digital 4-20mA Output values
* = Toggle Baud Rate	Switches the Baud rate between 20kBits and 40kBits.

Setting up a new transmitter utilising GDS Terminal (download from GDS website)

E

1. Insert jumpers J10 and J9 position SO for 4-20mA source output.
2. Connect sensor to J14 terminal W-white Y-yellow P-pink.
3. For bench setup only – connect 24V + and 0V to J2, connect jumper to J1 (4~20mA output test load) remove after set up.
4. Rotate Gain pot fully anti-clockwise (minimum span.)
5. Switch on – 120s warm up inhibit period.
6. When in clean air the sensor bridge is zeroed by adjusting zero pot until LED D9 is Green.
7. Connect PC to sensor via GDS terminal using USB-A to USB Micro-B cable at 4800 baud connected to J11. The terminal output screen shows continuous data output/ commands and allows input from the PC keyboard.
8. Select COM Port – Note each new sensor connected to requires a new COM Port to be connected to.
9. Press 'Space Bar' loads sensor information. Ensure jumper J17 is fitted before programming. Press (C) to enter Calibration Mode, and Press ($) to initialize the sensor.
   To update firmware contact GDS.
   Press W to set 4-20mA parameters, use (L) and (H) to adjust 4mA, Press 'Space' to set, use (L) and (H) to adjust the 20mA, press 'Space' to set.
10. Then press (Z) on the PC to zero the reading.
11. Apply a known test gas to the sensor (e.g. 100ppm CO) for 1 minute at a flow rate of 1 litre to give (e.g 12mV = 12mA) across test pins TP2/3, adjust gain pot for correct mV reading.
12. When using a PC press (S) to enter span mode and using (H) or (L) adjust the reading. Note – This adjusts the mA output reading on TP2/3.
13. Press (space) to exit span and then (X) to exit the calibration mode.

E

14. Connect the sensor to a Combi alarm panel and ensure that it reports in correctly. *Note: Fit the end of line (EOL) link J3 if the sensor is to be installed at the end of the sensor cable.*
15. If the sensor is fitted with a display – adjust the contrast using 'VR1' pot.
16. Remove J1 test link for normal operation, (this does not need to be removed when used as an Addressable sensor)
17. Ensure J17 address link is removed (this is only used when changing address from the alarm panel).
18. On completion and when used as an addressable sensor, future calibrations may be carried out at the Combi alarm panel.

NOTE: Oxygen cells only use the P+ and Y terminals J14.
To adjust for the 'Zero' it is normal practice to disconnect the green connector on J14 and adjust the Zero pot until LED D9 is green and 4mA across TP2/TP3. When the cell is reconnected in air at 20.9%Vol oxygen the span can be adjusted for 17.4mA reading across the same test pins using the gain pot. If an LCD option is fitted then calibration and other settings using magnets/switches instead of a PC can be achieved. See section B

See section D for Full list of GDS Terminal Commands

F

An example of continuous data output to the PC from a sensor is shown below and is the format for all gas types.

O, **H** and **L** represent the Over Range High and Low alarms respectively.

D indicates if a duplicate address is detected

F indicates a fault present

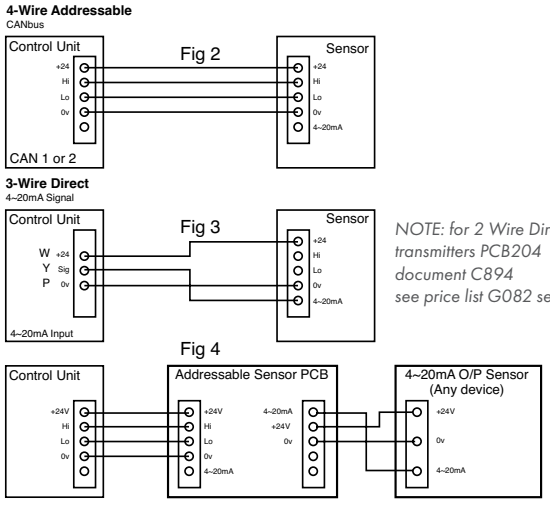
I shows that this sensor has its alarms inhibited

```
Flam %LEL
OHLDFI
^^v
-*--*-Gas val = 35.6
```

under the **O H L** the ^ ^ v represent the direction of the alarms. **L** is falling and **H** and **O** are rising. A(*) under the letter(s) OHLDFI represents a detected state so in this example the sensor would be in high alarm and a fault present.

'Gas val 35.6' represents the value of the gas present at the sensor head. Pressing (R) on the PC causes a reset to occur. Gas type with address and serial number are then output to the PC together with alarms and calibration date. A full command list via PC is available by pressing the letter (P) which will relist on the PC.

G



NOTE: for 2 Wire Direct (W/Y) transmitters PCB204 document C894 see price list G082 section M

ISO 9001
ISO 14001
ISO 45001
INTEGRATED MANAGEMENT

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