XDI (win)-15/30J (win)

TOXIC/OXYGEN - TRANSMITTER (PCB 337)



Electrochemical cells

Technical Sheet ref C1882B

C

Setting up a pre calibrated Transmitter (Cell replacement)

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 B3
- Using a digital mV meter measure across test pins TP2/3 and adjust Zero pot RV2 until LED D9 goes green for 4mA (zero) = 4mV (sensor bridge zero) see B9
- 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.

Fig. 1

TP1

Select sink/source)

Select sink/sourc

Power supply

15 to 30Vdc 24v nominal

Outputs

Requires

3 wire 4~20mA Direct (WPY)

4 wire CANbus (Addressable) 4~20mA (Y)

Relays Low alarm SPCO

(when fitted) High alarm SPCO 0.5A @ 30Vdc

Fault alarm SPCO

Inhibit option during servicing

Logging Intervals – variable time

Roll over/stop

Storage – 2,880 readings USB A to USB micro B cable

PC or laptop (dedicated)

GDS Terminal (download from GDS website)

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

- 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.)
- When in clean air the sensor bridge is zeroed by adjusting zero pot until LED D9 is Green.
- 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.
- 7. Select COM Port Note each new sensor connected to requires a new COM Port to be connected to.
- 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.

- 9. Then press (Z) on the PC to zero the reading.
- 10. 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.
- When using a PC press (S) to enter span mode and using (H) or (L) adjust the reading. Note This adjusts the mA reading on TP2/3 when adjusted.
- 12. Press (space) to exit span and then (X) to exit the calibration
- 13. 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.
- 14. If the sensor is fitted with a display adjust the contrast using
- 15. Remove J1 test link for normal operation, (this does not need to be removed when used as an Addressable sensor)
- 16. Ensure J17 address link is removed (this is only used when changing address from the alarm panel).
- On completion and when used as an addressable sensor, future calibrations may be carried out at the Combi alarm page!

NOTE: Oxygen cells only use the P+ and Y terminals J 14. To adjust for the 'Zero' it is normal practice to disconnect the green connector on J 14 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 instead of a PC can be achieved. See over.

See Reverse for Full list of GDS Terminal Commands

В

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Electrochemical cells

Technical Sheet ref C1882B

Flam %LEL

OHLDFI

-*--*-Gas val = 35.6

GDS Terminal Commands

Command

Set CAN address

= Select gas type Z = Zero

S = SpanH and L change reading

Enter calibration date

Toggle auto zero

H = Set high alarm L = Set low alarm

O = Set over range alarm = List command

= Exit calibration mode Initialise this sensor

= Alarm direction = Range N = Decimal points

Edit user gas text Toggle deadband

Toggle fault Input Select Input

= Local Relay Setup

= View gas log

% = Clear gas log = Log interval log

Space Bar = Enter Data / Load Data W = Set 4-20mA output

* = Togale Baud Rate

Use

Sets the CAN address Select the gas type from a list Press when no gas on sensor to give zero Use when calibration gas applied,

Enter the calibration date

Auto zero is ON or OFF, small drift is cleared

Sets the high alarm threshold Sets the low alarm threshold Sets the over range alarm threshold List these commands on screen

Exit this PC mode

Use on new PCB to set gas type to Flam

Sets rising or falling alarms Allows a change in maximum value Toggles between 1 and 2 decimal places

Choose gas description Deadband of 2.5% can be on or off External fault input contact can be disabled

Used to select the input from between Input J6 to input J14

Used to change the function of the 3rd relay from

Fault to Over-Range

From current log, display how many historical readings to display, up to 2880

Set all 2880 log readings to 0.00 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)

Used to load sensor information after connecting to GDS Terminal

Adjusts the digital 4-20mA Output values Switches the Baud rate between 20kBits and 40kBits

Using magnets or push buttons (set up) continued

Removing both magnets as instructed on the LCD presents the first part of this multi menu which is ZERO. With no gas present use the left magnet to increase the reading and the right magnet to decrease to achieve a zero reading on the display. A timer is displayed on the LCD and when this reaches 0, the next menu is displayed. This timer is 15 seconds approximately and is reset back each time a magnet is near, timeout can be speeded up by placing a magnet near to the centre position.

SPAN is the next part of the menu and gas should be applied to the sensor

The left magnet increases the gain and the right magnet reduces gain. The actual sensor value can be seen on the display to rise or fall respectively.

LOW ALARM is the next menu and left and right magnets increase and decrease this value.

HIGH ALARM is next followed by OVER RANGE alarm.

The direction of the alarms is displayed as ^ for rising and v for falling but these can be changed using left and right magnets together.

An example of continuous data output to the PC from a Flammable 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

Ε

I shows that this sensor has its alarms inhibited

under the OHL 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

'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.

Using magnets or push buttons (set up)

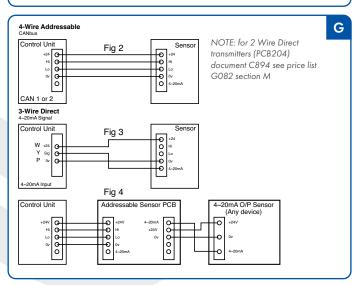
The Combi sensors which have an LCD display fitted also incorporate 3 reed switches which can be activated using external magnets through the glass window of the flameproof XDIwin enclosure. These magnets do not act instantly and have to be in close proximity to L, M and R on the front display for a few seconds to activate a software setup

The left magnet enters the Auto zero ON or OFF menu. This allows small drift changes in the sensor to be compensated for but is not operational when the sensor readings are greater than 5% of full scale. Therefore auto zero is inactive when a larger gas reading is present. When the remove magnets message appears, move the left magnet away and then the display shows if auto zero is ON or OFF. The left magnet puts auto zero ON and the right magnet turns it OFF. With no magnets present, the display will return to normal after a few seconds timeout.

The right magnet allows the CAN address of the sensor to be changed. When the ADDRESS menu is displayed with a prompt to remove the magnet, and then the display shows the address and that the right magnet decreases it whilst the left magnet will increase it. This is then stored in internal non volatile memory and the display will automatically revert to normal operation.

The centre magnet is used to inhibit the sensor. As with the left and right magnet functions the display requests that you remove the magnet and then the state of the inhibit appears on the LCD. The left magnet then puts the sensor into inhibit whilst the right magnet removes it. An amber LED on the front panel under the LCD flashes when the sensor is inhibited. When all magnets are removed, the display will revert to normal operation.

The left and right magnets together allow the calibration menu to be used.







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