

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

FLAMMABLE – TRANSMITTER (PCB326)

Catalytic / Semiconductor / PID cells

Technical Sheet ref C1883Av.1

Power supply

15 to 30Vdc 24v nominal

Outputs

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

Relays	Low alarm	SPCO	
	High alarm	SPCO	0.5A @ 30Vdc
	Fault alarm	SPCO	

Inhibit option during servicing

Logging Intervals – variable time
Roll over/stop
Storage – 2,880 readings

Requires USB A to USB Micro B Cable
PC or laptop (dedicated)
GDS Terminal (download from GDS website)

Set up procedure:

New sensors are supplied ready to connect to the system.

The following procedure is for full set up and where the sensor cell has been replaced - only sections 4, 5, 7, 11 and 13 need to be carried out.

1. Insert jumpers J10 and J9 position SO for 4-20mA source output.
2. Turn sensor voltage potentiometer anti-clockwise (minimum voltage).
3. Connect sensor to J14 terminal W-white Y-yellow P-pink.
4. Connect 24V + and 0V to J2, short the 4~20mA terminal by inserting test link at J1.
5. Measure the sensor voltage at TP5 (0v) and TP8 (SV) and adjust by turning the 'Sensor Voltage' pot for the correct reading
 - a. (Standard Sensor – Prime 1/2/3 = 4Vdc) DO NOT EXCEED THE REQUIRED VOLTAGE OTHERWISE PERMANENT DAMAGE WILL OCCUR
 - b. See sensor supply table
6. Rotate Gain pot fully anti-clockwise (minimum span.)
7. When in clean air the sensor bridge is zeroed by adjusting zero pot until LED D9 is Green
8. 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.
9. Select COM Port – Note each new sensor connected to requires a new COM Port to be connected to.
10. Press 'Space Bar' loads sensor information. Ensure jumper J12 is fitted before programming and initialise the sensor using (C) calibration mode.
11. Using a digital mV meter measure across test pins TP2/3 and adjust Zero pot until LED D9 goes green for 4mA (zero) = 4mV.
12. Then press (Z) on the PC to zero the reading.
13. Apply a known test gas to the sensor (56% LEL = 2.5% vol methane) for 1 minute at a flow rate of 1 litre to give a 13mA = 13mV across test pins TP2/3, adjust gain pot for correct mV reading.
14. When using a PC press (S) to enter span mode and using (H) or (L) adjust the reading to 56% LEL. Note – This adjusts the mA reading on TP2/3 when adjusted.
15. Press (space) to exit span and then (X) to exit the calibration mode.

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

I shows that this sensor has its alarms inhibited

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

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 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.

Command

A = Set CAN address
G = Select gas type
Z = Zero
S = Span
 H and L change reading
D = Enter calibration date
Y = Toggle auto zero
H = Set high alarm
L = Set low alarm
O = Set over range alarm
P = List command
X = Exit calibration mode
\$ = Initialise this sensor
U = Alarm direction
R = Range
N = Decimal points
E = Edit user gas text
B = Toggle deadband
F = Toggle fault Input
= Normally energised

V = View gas log

% = Clear gas log

I = Log interval log

Space Bar = Enters Data

W = Set 4-20mA output

* = Toggle Baud Rate 20kBits/40kbits

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
Low /high alarm relays and fault relay can be made normally energised
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)

16. 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.*

17. If front panel display board is fitted via connector J5 and U12 adjust contrast for LCD contrast.

18. Remove J1 test link for normal operation, (this does not need to be removed when used as an Addressable sensor)

19. Ensure J12 address link is removed (this is only used when changing address from the alarm panel).

20. On completion and when used as an addressable sensor, future calibrations may be carried out at the Combi alarm panel.

Using magnets (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 function.**

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.

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 at this time.

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.

Sensor cell supply table

CAT300A	2v/300mA	SS10	2v/175mA
CAT170A	2v/175mA	CAT335A	2.5v/335mA
SEM-1	4v/170mA	CAT335B	2.5v/335mA
GDS PRIME	4v/70mA	CAT100A	2v/100mA
CAT335C	2.5v/335mA	CAT165	2.2v/165mA
THE300A	2v/300mA	PID	5.0V

