

D.P.E. 400 Instruction Manual

Date:	_____
Options:	_____



Technology In Control

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Changes to the DPE400

The changes to the DPE400 have mainly been brought about by the need to comply with EMO regulations which came into force on 1/1/96.

Briefly the changes required to comply to EMC are as follows;

- -Improved mains input filtering.
- -Earth screen added to transformer, earth terminal added to board.
- -Extra Decoupling capacitors fitted next to integrated circuits (IC's) and the pressure sensor.
- -Improved circuit board layout separating low voltage signals from high voltage tracks.

Whilst re-designing the board extra features were added;

- Addition of a mains input fuse.
- Additional Alarm2 fitted for use as;
 A low level / burst bag detector.
 A higher alarm setting than Alarm 1.
 A fan running detector.
- Alarm 2 can have it's switching function reversed, e.g. relay switched on with a rising pressure or switched off with a rising pressure.
- Additional Gain 2 pot and Gain 2 selector. This allows two different pressure scales to be set up, e.g. mm Wg, mbar.
- Decimal point selector
- Last digit on the display selector.

The items marked with an * should only be carried out by experienced personnel only, or specified when ordering.

A fan running output is available as a special option. This requires a signal from the fan contactor which stops the alarm relays from switching on until the fan has got up to speed. This is very useful when using the low level Alarm 2, it stops false triggering. The state of the fan contactor is indicated on the LCD display as an arrow <-.

The DPE400 as a special option can accept a 4-20mA or 1-5 V input signal. We can also supply an external sensor and 24V power supply to power the 4-20mA loop.

Slave displays are available for long distances to be linked into the 4-20mA loop, and for short distances taken directly from a row of 9 terminals at the top of the board.

Instead of the standard LCD display a backlit version is available as a special option.

SETTING UP INSTRUCTIONS FOR THE DPE400 CE

Before connecting the mains supply to the unit ensure a link has been placed in either the 230 and COM or COM 110 terminal block

Note Due to changes brought in by the EEC all mains powered equipment has had its voltage standardised. In Great Britain we use 240 volts whilst Europe uses 220 volts, it was agreed that a compromise of 230 volts would be the new EEC voltage. No country has actually changed its mains voltage, it just means that all electrical equipment must work within the range of 220 - 240 volts or 230 +/- 5%.

Connect the mains supply to the DPE400 CE ensuring Live is connected to “L” and neutral to “N”. An earth must be connected to ensure electrical safety and compliance to EMC.

If all is well a red power LED I will have illuminated and the LCD will show numbers on its display. If this is not the case turn the mains supply off and see the fault finding sheet.

The selector switch at the bottom of the board is used to display either the actual pressure or the Alarm trip point settings. Only one of these switches should be up at any time.

SELECTOR SWITCH SETTINGS

- 1 Read out (actual differential pressure).
- 2 Alarm trip level 2.
- 3 Alarm trip level 1.
- 4 High differential trip point (start sequencer cleaning).
- 5 Low differential trip point (stop sequencer cleaning).
- 6,7,8 (spare switches - not used).

ACTUAL PRESSURE READOUT / CHECKING THE DISPLAY ZERO

Select switch 1 (up).

The DPE400 CE should already be calibrated but you may have to adjust the ZERO pot so the display reads (00.). If you wish only to monitor the differential pressure leave the switch up.

SETTING THE ALARM 2 TRIP POINT

Select switch 2 (up).

With a fine blade screwdriver adjust the A2 pot positioned to the right of the LCD display fourth pot up from the bottom, until the desired trip point has been set. Return the switch to the down position. A red LED (LED 2) illuminates when the relay is energised only if the 3 pin jumper is set to position “H”, see drawing WT3134. The relay and LED operation can be reversed by changing the 3 pin jumper to position “L”.

SETTING THE ALARM 1 TRIP POINT

Select switch 3 (up).

With a fine blade screwdriver adjust the A1 pot positioned to the right of the LCD display fifth pot up from the bottom until the desired trip point has been set. Return the switch to the down position.

The alarm 1 relay energises when the pressure trip point has been reached and de-energises when the pressure drops below the trip point. A red LED (LED 3) illuminates when the relay is energised.

The High Differential trip point must always be set before the Lower trip point and it is not possible to have a Lower trip point set higher than the High trip point.

SETTING THE HIGH DIFFERENTIAL TRIP POINT

Select switch 4 (up).

With a fine blade screwdriver adjust the H pot to the left of the LCD display, sixth pot from the bottom, until the desired trip point has been set. Return the switch to the down position.

SETTING THE LOW DIFFERENTIAL TRIP POINT

Select switch 5 (up).

With a fine blade screwdriver adjust the L pot to the left of the LCD display, seventh pot from the bottom, until the desired trip point has been set. Return the switch to the down position.

The High Differential trip point brings in the Differential pressure relay and the relay will remain energised until the Lower Differential pressure trip point has been reached and then it is de-energised. A red LED (LED 4) illuminates when the relay is energised. The Differential pressure relay is intended to operate a sequencer card, controlled by either 2 or 3 wires.

CHECKING THE CALIBRATION

To check the ZERO set switch I up and adjust the ZERO pot until the display reads (00.). Ensure that both differential air pipes are removed, as this will affect the zero setting.

To check the range of the unit (GAIN 1) ensure the jumper is set to GI see drawing WT3134. Feed a known pressure into the High Differential pressure point. This corresponds to P1 on the pressure sensor.

Repeat for GAIN 2 if used.

Fault Finding Sheet DPE400 CE

1) No red LED (LED 1) lit and LCD display shows no numbers.

- a) Check fuse F1, if blown replace with a 1A slow blow
- b) Check that there is a mains supply to the DPE400 CE.
- c) If a remote display is connected to the top terminals, remove it, and see if the red LED or display comes on.

If none of the above, return to WT Products for repair.

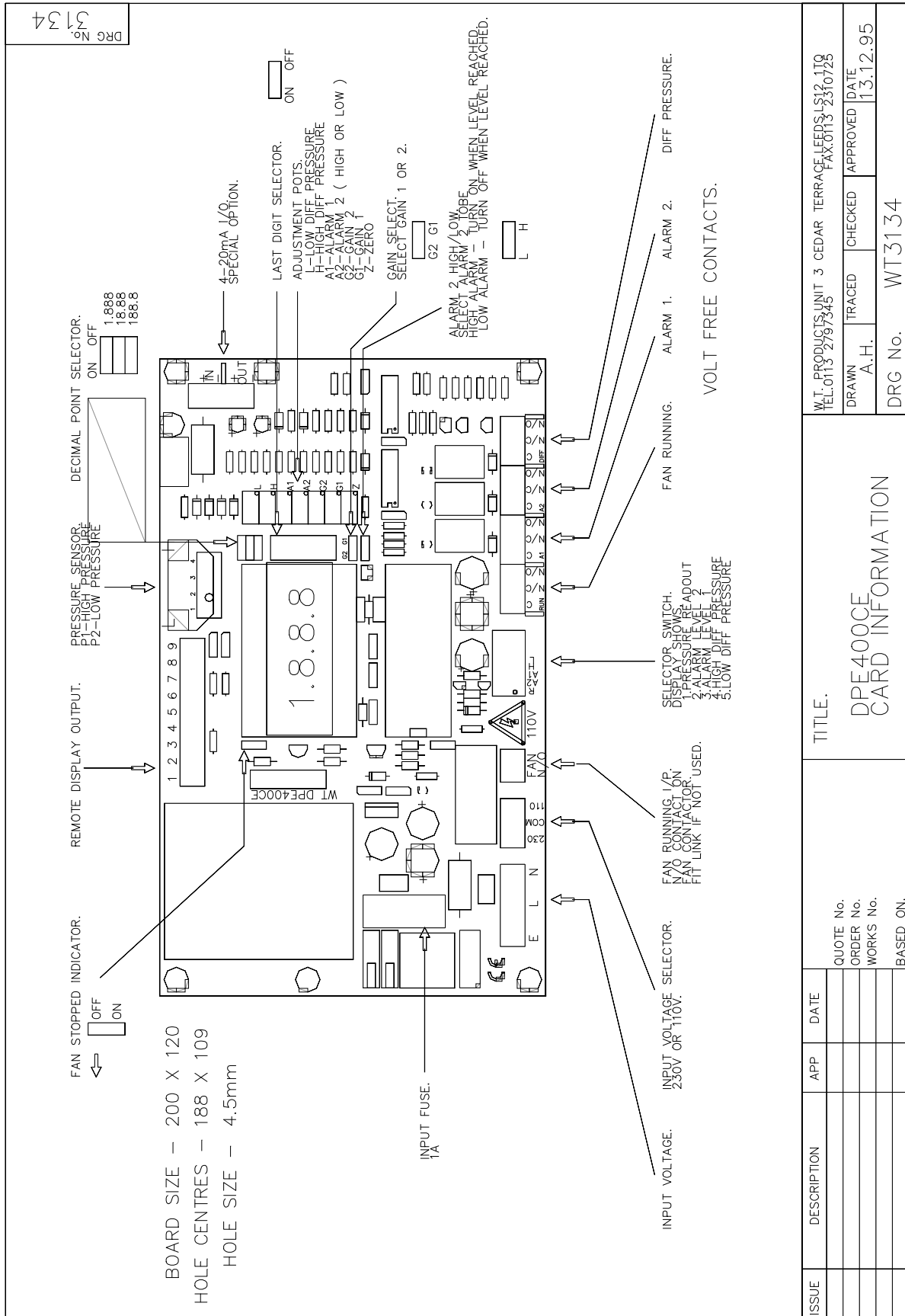
2) When using the DPE400 CE in a 4-20mA loop the display reads -50 or -5.0 and adjusting the Zero pot has very little effect.

- a) A component in the current loop is wired in reverse i.e. +/- have been crossed over on either the power supply, pressure sensor or on any external equipment wired into the loop e.g. PLC's or plotters.
- b) There is a break in the loop somewhere.

The unit must be recalibrated if the zero has been adjusted. This involves feeding in a 4mA signal and adjusting the display to read (00.).

3) The LCD display shows (1 .).

- a) This is an over-range condition, check that the switch bank has one up and all other switches are down.
- b) Remove differential air pipes and check display reads (00.). If not check that the Gain 1 pot has not been adjusted and that the Gain jumper is set to G1.
- c) If the display reduces to (00.) then the differential pressure has exceeded the range of the DPE400 CE. Contact WT Products for help on selecting a new pressure range. Or, if qualified, carry out a full recalibration.
- d) If the display still reads (1.) it is probably a faulty chip on the board. The unit should be returned to WT Products for repair.



ISSUE	DESCRIPTION	APP	DATE	TITLE.			
				DPE400CE CARD INFORMATION			
				W.T. PRODUCTS UNIT 3 CEDAR TERRACE LEEDS LS12 1TQ TEL: 0113 2797345 FAX: 0113 2310725			
				DRAWN A.H.	TRACED	CHECKED	APPROVED DATE 13.12.95
				DRG No. WT3134			