RS Components

OPERATING INSTRUCTIONS

Digitron Instrumentation

WARRANTY

This instrument has been carefully assembled and tested, and is warranted against faulty workmanship and materials for 12 months from the date of purchase. During the warranty period any defective instrument will be repaired or replaced at our discretion. This warranty does not cover damage or failure resulting from misuse or accident. Modification, adjustment or any alteration to the internal arrangement of the instrument apart from those covered in this operating instruction shall absolve us from any liability in respect of the instrument. Any instrument to be repaired should be forwarded to us carriage paid and at the owner's risk. A brief description of the fault should be included.

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INTRODUCTION

The 440 Series comprises of the:

V445/448	Input 0-5V and 0-10V, 24V excitation (1-6V and 1-11V with offset)
P445/448	Input 0-100mV, 10V excitation
A445/448	Input 0-20 or 4-20mA, 24V excitation

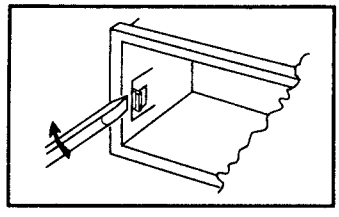
It is important to establish which type of instrument you have as this operating instruction covers all three types. They are designated V445/448, P445/448 and A445/448 respectively.

PANEL FITTING

The instrument is designed to fit in a panel cut out measuring 92 x 45mm (+1.0mm - 0.0mm). The panel should be between 1.5 and 3.5mm thick. The instrument is fitted by sliding it into the aperture and pressing firmly home into position.

REMOVAL OF CASE FROM PANEL

Before the instrument can be removed from the panel, the connectors **must** be unplugged from the rear of the panel.



1. Ensure that the power is disconnected.
2. Remove the front window by gently levering with a small screwdriver on the slot on the lower edge of the window.
3. Use a screwdriver to release the clamping arms by slightly bending back the lugs as shown below whilst gently pulling the case forward.

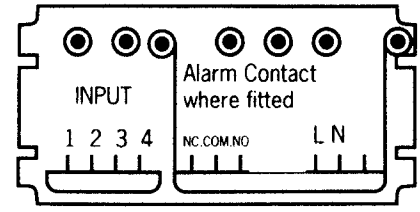
REMOVAL OF PCB FROM CASE

Remove connections from rear of the instrument. Tap instrument (face down) into the palm of the hand. If it does not slide out it can be pushed out by gentle pressure from the rear on the terminal pins. Do **not** use a screwdriver to prise out the circuit board.

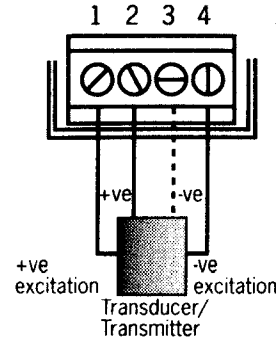
Note: Ensure that plugs are refitted correctly.

WIRING

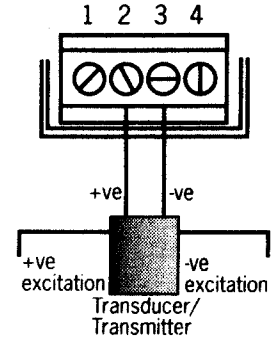
All connections should be made using the supplied terminal connectors only. These slide on to the appropriate terminal pins.



SENSOR INPUT V440/P440 SERIES



Powered from instrument

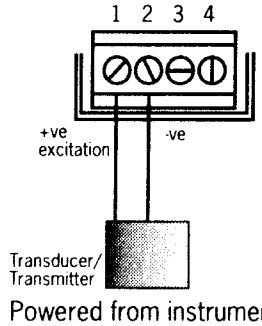


Using external supply

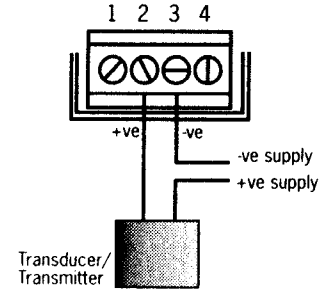
1 +ve excitation 2 +ve input 3 -ve input 4 -ve excitation

Note: Use screened cable when connecting a sensor to the V440 Series to minimise the effect of noise pick up. When powering transducers from the V440 Series, only three wire types can be used and terminal 3 is not used.

SENSOR INPUT A440 SERIES



Powered from instrument



Using external supply

If a repeater/s is connected in series with the +ve supply to the sensor, the total voltage drop must not exceed the available excitation voltage.

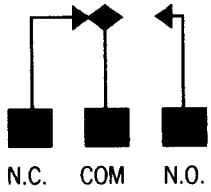
RELAY CONNECTIONS (V448, A448 & P448 ONLY)

These instruments have a control relay with a rating of 5 amps at 250V ac and 30V dc for resistive loads. Connection is shown on the rear label and should be made using the supplied terminal block.

These ratings should not be exceeded and an external contactor should be used for high power or 3 phase requirements.

A red light (LED) on the front of the unit will be illuminated when the relay is activated.

WARNING: The rear cover should always be fitted.



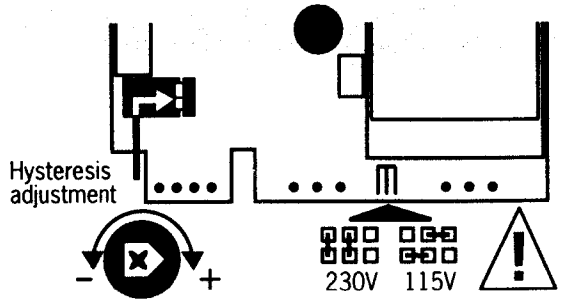
When relay is not energised:
N.C. = Normally Closed
COM = Common
N.O. = Normally Open

POWER SUPPLY CONNECTION

The supply should be wired to the terminal connector and fitted to the appropriate position as shown on the label fitted to the rear of the instrument. The cable should be clamped into position using the clamping arms provided.

POWER SUPPLY SELECTION

These instruments are designed to operate from either a 115V 50Hz/60Hz or 230V 50/60Hz ac, which can be selected by moving the links as shown below (after first removing the circuit board from the case).



HYSTERESIS

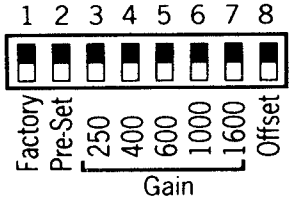
The hysteresis is factory preset to ±2 counts. It should only be adjusted by qualified and trained staff, and using a small insulated screwdriver as indicated above. It should not be carried out while the instrument is powered up. The hysteresis potentiometer can be accessed via the lower side vent on the side of the instrument. Hysteresis may be adjusted by ±1 count up to ±10 counts.

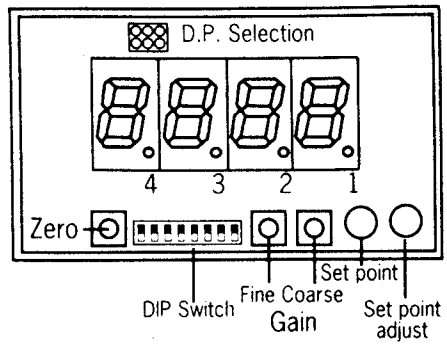
SET POINT ADJUSTMENT

Hold in the set point button and adjust the set point potentiometer for the required number of counts as indicated by the display.

DIP SWITCH

There is an 8 way DIP switch that is used to set up various options as indicated by the diagram below: the option is selected when the switch is up.





GAIN SELECTION

Switches 3 to 7 are used with the coarse and fine potentiometers to adjust the gain. A full description of the setting of these switches with the gain potentiometers is given under Calibration Adjustment.

Note: With switches 3 to 7 off, the full scale gain is 1999.

ZERO POTENTIOMETER

This provides a nominal ±10% offset adjustment.

OFFSET

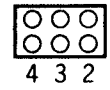
V440 SERIES

This removes a 1V dc offset so that the unit can be used with certain types of transducers/transmitters which give an output from 1V to 6V and 1V to 11V.

A440 SERIES

This sets the range to either 0-20mA when the switch is down or 4-20mA when the switch is up.

DECIMAL POINT SELECTION



This is selected with the jumper provided and can be moved to positions 4, 3, or 2 on the display. Do not fit a link if no decimal point is required.

CALIBRATION ADJUSTMENT

You may wish to re-calibrate the zero and gain of the instrument with its sensor, to give an improved system accuracy. This should only be attempted by qualified trained staff.

To re-calibrate, remove front window. Allow to stabilise for 30 minutes after power up. Select the approximate full scale reading required by setting one DIP switch 3 to 7.

Connect the transducer/transmitter with no load. Adjust the zero potentiometer for a reading of zero. Load the transducer with a known stimulus of at least half the maximum full scale reading. Adjust the coarse and fine potentiometers for the desired reading.

Remove the stimulus and check the zero again. If the zero potentiometer has to be adjusted, again re-apply the known stimulus and if necessary readjust the coarse and fine potentiometers.

It may be necessary to repeat these adjustments several times as there is some interaction.

Note: Even if the 1V offset has been added, the display should still be adjusted for zero with no stimulus.