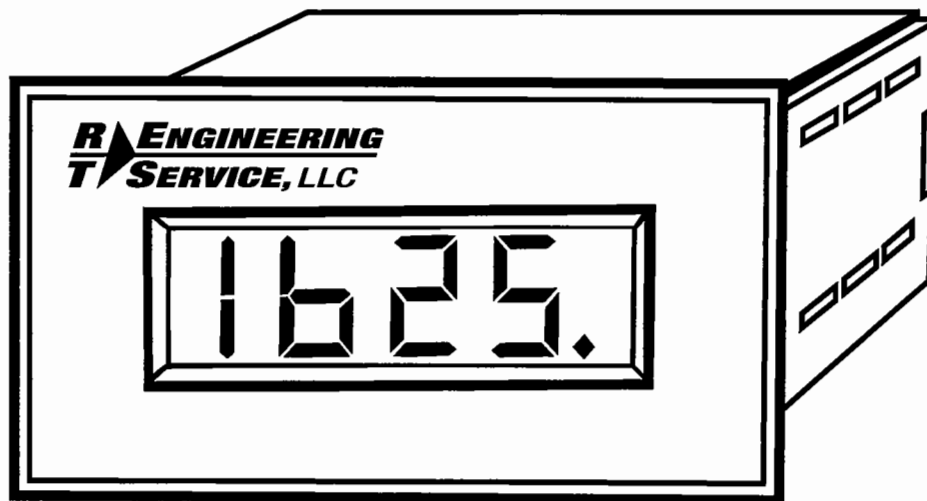


Universatile™

DIGITAL PANEL METERS



INSTALLATION, WIRING &
CALIBRATION
FOR THE
DIN35BP & DIN45BP
PANEL METERS

**R ENGINEERING
T SERVICE, LLC**



(800) 343-1182

www.rteng.com

SPECIFICATIONS

Typical Signal Inputs	- Bi-polar DC signals from: line voltage reference voltage, tachometers, force transducers (load cells), shunts, current transformers, pressure & flow transducers
Input Ranges for Full Scale Voltage Values	- (A) 50 to 500 millivolts DC - (B) 500 millivolts to 5 DC - (C) 5 volts to 50 volts DC - (D) 50 volts to 500 volts DC
Maximum Input and Overvoltage	- 10 times maximum of range or 500 volts, whichever is less
Accuracy	- .5% linear + 1 digit F.S.
Input Loading	- Range A 1K ohms - Range B 10K ohms - Range C 100K ohms - Range D 1 Meg ohms
Sampling Time	- 3 readings/second update
Response Time	- 10 seconds (zero to full scale)
Power Requirement	- 115 VAC nominal (+ 10V), 50/60 Hz, 2 watts, (230 VAC, 50/60Hz optional)
Operating Temperature	- -5 degrees C. to 50 degrees C.
Display	- DIN35BP 3.5 Active Digits (000-1999) - DIN45BP 4.5 Active Digits (0000-19999) 0.5 inch LED non-blinking. Optional decimal points at the following positions 1.8.8.8(.8) (user selectable)
Overrange	- Indication by a "1" in the most significant position with remaining display unlighted

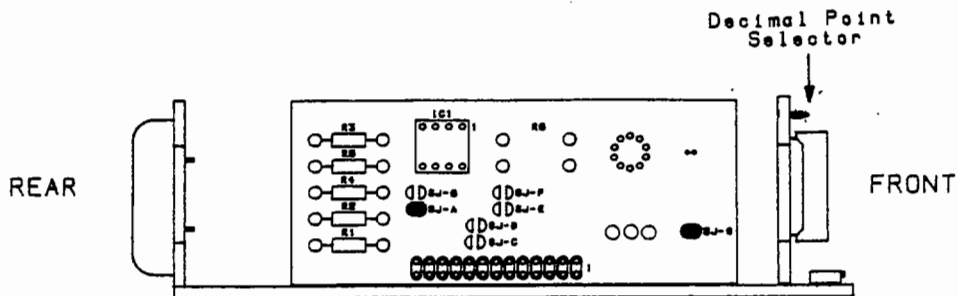
CAUTION: The common mode voltage present between the input terminals and ground (case) should never exceed 600 volts.

A. Initial Set Up: Decimal Point Position

Prior to installing and wiring the DIN series indicator one customer selection must be made inside the meter.

To do this first remove the Bezel. The Bezel is removed by spreading apart the red tabs at the rear of the Indicator (either side of the terminal strip) and then pulling the Bezel away from the front of the Indicator. Next remove the two phillips head screws in the upper corners at the rear of the Indicator. The Indicator PCB assembly should now slide out of the case.

Locate the Decimal Point Selector from the drawing below:



Position the decimal point per the drawing that is located toward the end of the manual.

Re-insert the circuit board back into the meter case.

CAUTION: Be sure the sticker with the meter model number is on the top relative to the display.

Replace the two phillips head screws, but do not re-install the Bezel at this time.

B. Installation

Refer to the drawing located toward the end of this manual for the meter dimensions and mounting hole cut out sizing information.

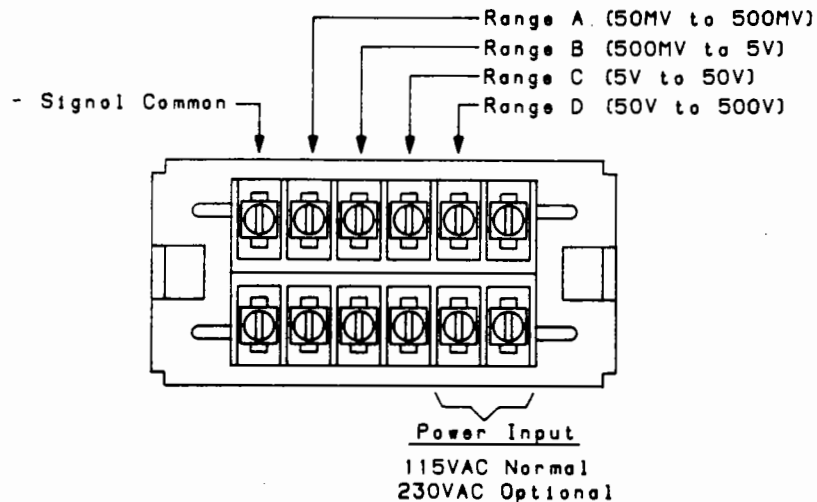
The meter, when inserted into the mounting hole, will usually be retained into place by the four latching fingers on the case's sides. For some installations when the cut out is slightly oversized, the panel material is unusually thin, or there is vibration or other need for extra security, a supplemental mounting kit is available from the manufacturer.

C. Wiring

Determine the full scale voltage value that you will be applying to the meter input.

Example: If the input to the meter will be 0-90 volts, the full scale voltage value is 90 Volts.

Depending on which of the 4 ranges encompasses your specific full scale voltage value, connect the input leads as illustrated below.



Following the earlier example from above, we would wire for Range D.

Observe polarity for DC signals.

It is best to use shielded cable for signal input. Connect the shield to signal common at the meter end but leave the other end floating and insulated via electrical tape.

If the full scale voltage value isn't known, use Range D. Attempt calibration and see if you can get a high enough reading on the display. If not, move down to the next lower range and try again

Although this unit has been tested for peak operational voltage insulation integrity both between input terminals and input to case, we recommend that on input voltages greater than 200 volts RMS a 100K ohm 1/2 watt metal film resistor be placed in series with each leg of the input signal wires. This is solely for protection of the signal device in the event of a fault to ground or short within the meter itself.

D. Calibration

Refer to the indicator calibration diagram for the location and function of the calibration controls. Allow the meter about a 5 minute warm up before calibration.

With the signal source at its minimum input value, use the DC zero control to zero meter. Then set the signal to its maximum value and use the coarse and fine scale adjustment potentiometers to adjust the display to the reading you desire.

These adjustments are interactive and may require repetition until you get repeatable results.

Check the readings with the signal source at the 50%, 25%, and 75% of full scale points. This will confirm how well your measurement system is tracking.

Replace the Bezel.

E. SERVICE NOTES

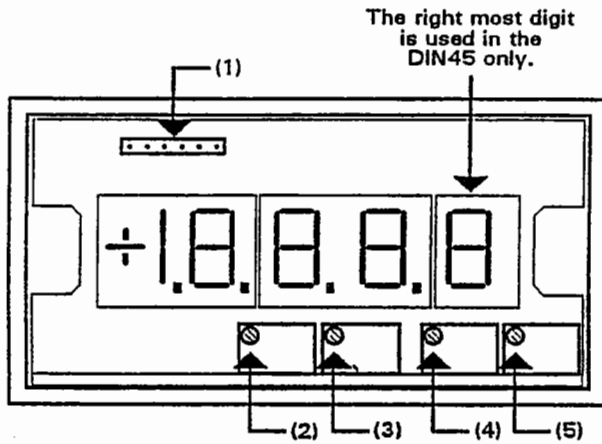
1. A display of a "1" in the most significant position with the remaining display unlighted indicates an overscale reading and requires recalibration via the "course" and "fine" scale potentiometer and/or a new range selection (Refer to Section C).
2. As with any piece of electronic equipment, care is recommended in handling and applying voltages. For further information or service contact:

R.T. Engineering Service
65 Maple Street
Mansfield, Ma. 02048
1-800-372-2123 (MA)
1-800-343-1182 (Outside MA)

DECIMAL POINT SELECTION & INDICATOR CALIBRATION

DECIMAL POSITIONS

Shown looking from inside
Meter Toward Front



(1) Decimal Select Pins

Positions	DIN35	DIN45
	1888.	1888.8
	188.8	188.88
	1888	18888
	18.88	18.888
	1.888	1.8888

- (2) Multi-turn "course" scale adjustment potentiometer.
- (3) Multi-turn "fine" scale adjustment potentiometer.
- (4) Zero adjustment potentiometer for DC input signals.
- (5) No Function.

WARRANTY

R. T. Engineering Service, LLC (R.T.E.) warrants this equipment against defects in materials or workmanship for a period of two (2) years from date of shipment.

Standard products manufactured by R.T.E. are warranted to be free from defects in workmanship and material for a period of two years from date of shipment, and products which are defective in workmanship or material will be repaired or replaced, at the option of R.T.E., at no charge to the buyer. Final determination as to whether a product is actually defective rests with R.T.E.

Any product found to be defective should be returned, transportation prepaid by buyer, to R.T.E at the above address. This warranty will not apply to any product which has been subjected to misuse, negligence, or accident; or misapplied; or modified or repaired by unauthorized persons; or improperly installed. R.T.E. cannot assume responsibility or accept invoices for unauthorized repairs to its components, even though defective. Any modification made internal or external to the meter may void this warranty as will opening the meter enclosure.

The foregoing warranty is exclusive and in lieu of all other warranties expressed or implied, including but not limited to any warranty of merchantability or of fitness for a particular purpose. R. T. Engineering shall not be liable for consequential damages of any kind.

The aforementioned provisions do not extend the original warranty period of any article which has been either repaired or replaced by R. T. Engineering.

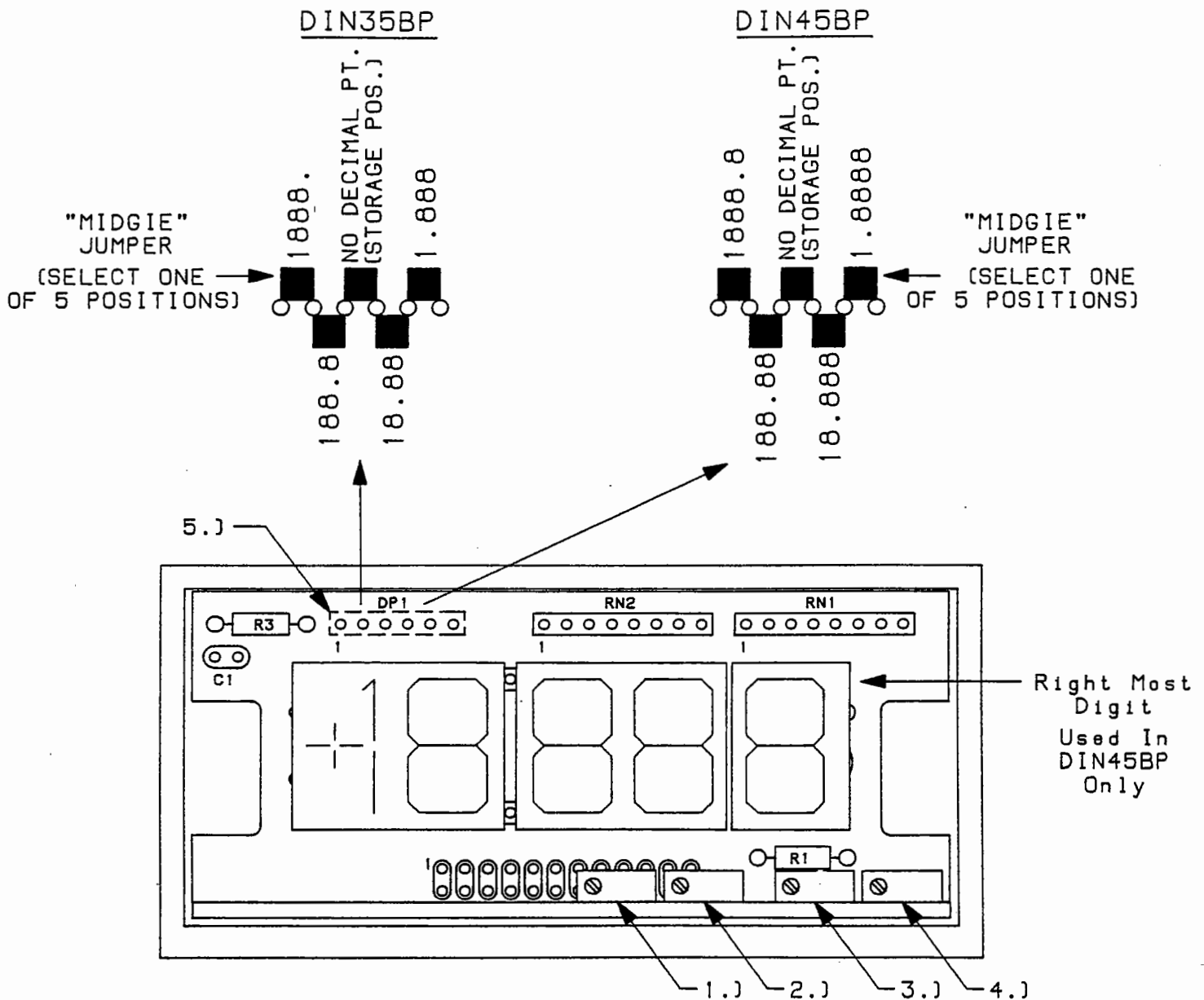
DO
NOT
USE

NEXT 2
SHEETS

DECIMAL POINT SELECTION & INDICATOR CALIBRATION

DECIMAL POSITIONS

Shown looking from inside
Meter Toward Front



FRONT OF METER WITH LEXAN BEZEL REMOVED.

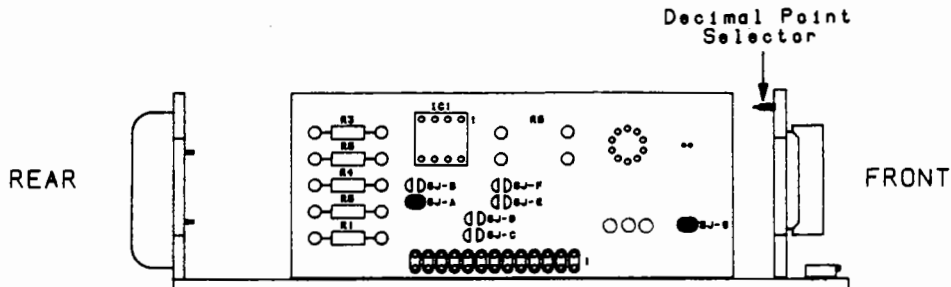
- 1.) Multi-turn "course" scale adjustment potentiometer.
- 2.) Multi-turn "fine" scale adjustment potentiometer.
- 3.) DC Zero Potentiometer
- 4.) No Function
- 5.) Decimal select pins. (Located Inside of Meter)

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