



## Scaling Micro P Display for Engineering Units

The Micro-P display allows two methods of programming to obtain correct engineering units:  
(a) Scale factor and offset; (b) Coordinates of 2 points.

### A) “Scale Factor & Offset” Scaling Method

#### (i) UniMeasure “PA” Series Transducers

- 1) Prior to connecting the transducer to the display, program the display for a voltage input per the Electro-Numerics manual but program the **SEtuP** function to allow scale factor and offset inputs.
  - 2) Set the **SCALE** factor to 1.0, the **OFFSt** to zero and **dEc.Pt** to dd.ddd
  - 3) On the rear of the display, carefully connect the +excitation terminal to the +Vin terminal and read the value on the display. The value should be near 10.0 VDC. Record the actual value, Vr. Disconnect +excitation from +Vin.
  - 4) Create the scale factor with the following formula:  
 $SF = 1 / ((S/1000) \times Vr)$  where S=Average Sensitivity in mV/V/unit of measurement (ie. inch, mm, etc.) from the UniMeasure calibration sheet and Vr=the reference voltage recorded above. The scale factor, SF, is in measurement units (inches, millimeters, etc) per volt.
  - 5) Reset the decimal point (**dEc.Pt**) to the number of decimal places for the application. Multiply the scale factor for the decimal place requirement per the applicable multiplier shown below.
- | <u>Decimal Place</u> | <u>Multiplier for scale factor</u> |
|----------------------|------------------------------------|
| dd.d                 | 1                                  |
| ddd.dd               | 0.1                                |
| dddd.d               | 0.01                               |
| dddd                 | 0.001                              |
- 6) Input the calculated scale factor into **SCALE**.
  - 7) Disconnect power to the display and connect the UniMeasure transducer to the display per the display connection diagram attached.
  - 8) With the transducer mounted and the wire rope extended to the desired zero position, apply power to the display and record the value displayed.
  - 9) Reprogram the **OFFSt** function with a negative offset value equal to the value recorded above for the zero position to occur with transducer position set as described in step 8 above.

#### (ii) UniMeasure “V” Series Transducer

- 1) Connect the transducer to the display per the attached diagram for velocity measurement.
- 2) Create the scale factor to display velocity in inches/minute with the following formula:
- 3)  $SF = 1 / (S/100000)$  where S=Average Sensitivity in mV/100 inch/min from the UniMeasure calibration sheet.
- 4) Program the display for a voltage input per the Electro-Numerics manual but program the **SEtuP** function to allow scale factor and offset inputs.
- 5) From the table in section (i) step 5 above, determine the decade multiplier necessary for the desired decimal point location. Multiply the scale factor by the decade multiplier.
- 6) Input the necessary decimal point location and the new scale factor derived in step 5.

### B) “Coordinates of 2 Points” Scaling Method

When the transducer is to be extended a known distance, the “Coordinates of 2 points” method may be used to program the display. Set up the display as follows:

- 1) Prior to connecting the transducer to the display, program the display with the desired parameters per the meter manual but program the **SEtuP** function to allow scale factor and offset inputs.
- 2) Set the scale factor to 1.0 and the offset to zero.
- 3) Connect the UniMeasure transducer to the display per the display connection diagram attached.
- 4) With the transducer mounted and the wire rope extended to the desired zero position, apply power to the display and record the value (Vo) displayed. Extend the wire rope of the transducer to the desired maximum position and record the value (Vmax) displayed.
- 5) Reprogram the display with the following changes:
  - a) **SEtuP** function---set for “coordinates of 2 points” scaling
  - b) **Lo in** parameter---input Vo from step 4 above.
  - c) **Lo rd** parameter---input the reading desired for the wire rope of the transducer extended to the zero position. (This value is typically zero but may be other than zero)
  - d) **Hi in** parameter---input Vmax from step 4 above.
  - e) **Hi rd** parameter---input the desired maximum reading. This is typically the known distance that the wire rope of the transducer must extend.

The display is now programmed to read in correct engineering units.

### Zeroing the Display at Any Point (Tare)

To be able to zero the display at any point using a momentary switch wired to the ‘External Reset’ connections on the back panel of the display, the value of the right most digit in the **SetuP** function must be 5 (eg. 00005).

## Display Setup Parameters

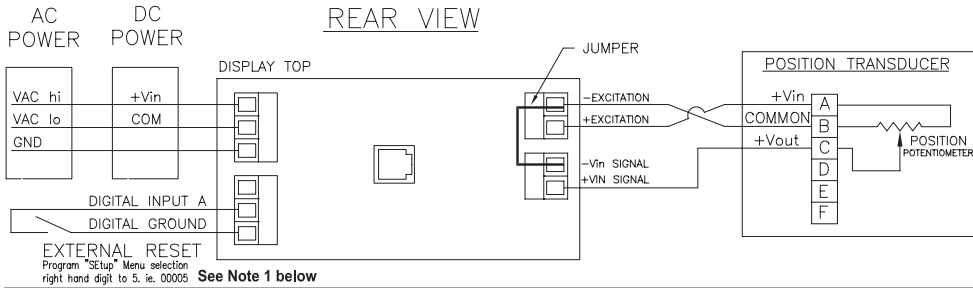
Date \_\_\_\_\_

Model No.: \_\_\_\_\_

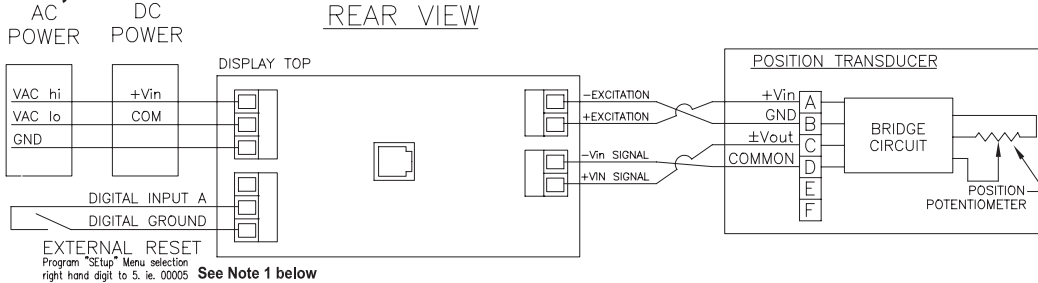
Serial Number \_\_\_\_\_

<u>Menu Key</u>	<u>Digit Select Key</u>	<u>Value Select Setting</u>
InPut	dcU	2.0U
	dcU	20.0U
	dcA	20.0a
SEtuP	00000	_____
ConFG	00000	_____
FiLtr	00000	_____
dEc.Pt	d.dddd	_____
SCALE	0.0000	_____
OFFSt	0.0000	_____
Lo in	0.0000	_____
Lo rd	0.0000	_____
Hi In	0.0000	_____
Hi rd	0.0000	_____
ALSEt	00000	_____
dEU1b	00000	_____
dEU2b	00000	_____
AnSet	00	_____
An Lo	0.0000	_____
An Hi	0.0000	_____
Ser_1	000	_____
Ser 2	0000	_____
Loc 1	00000	_____
Loc 2	0000	_____
Loc 3	0000	_____

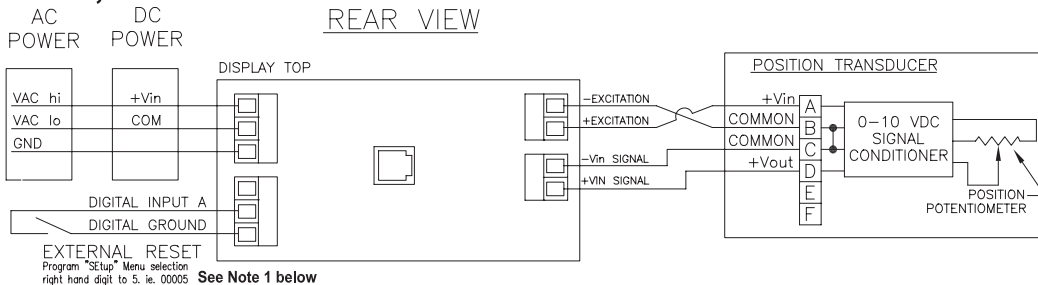
### PA, LX-PA, JX-PA, HX-PA



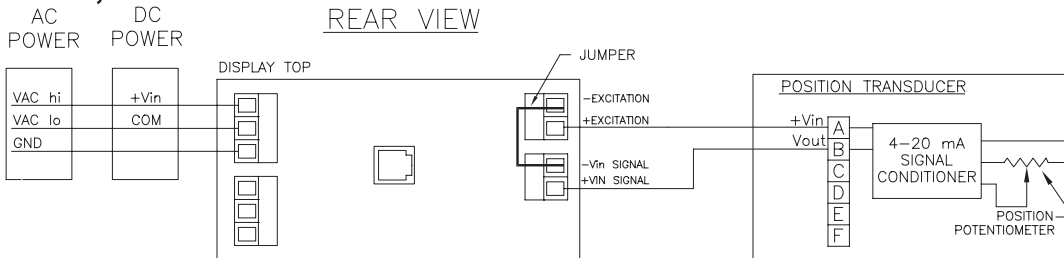
### PB, HX-PB



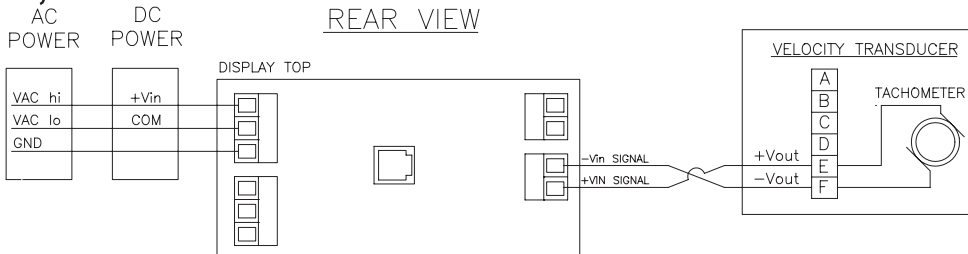
### P510, HX-P510



### P420, HX-P420



### V, HX-V



**Note 1:** The external reset is a "tare" function. The display will default to the original zero position if the meter is reset or if power is interrupted.

**CAUTION:** Before applying electrical power, check the label of the Micro-P display to determine the correct input voltage and type.

# DISPLAY

## DIMENSIONAL INFORMATION

