WESTLOCK
CONTROLS CORPORATION

Digital EPIC D430/D440/D450
For Rotary, Linear and Standard Applications
Operating Manual

1. Manual Scope

This manual contains installation, wiring, configurations and calibration instructions of the Digital EPIC D430/D440/D450 in standard applications for both rotary and linear actuators. These transmitters are microprocessor-based devices, providing both 4-20 mA signal for position feedback and digital communications via the HART® protocol for data evaluation and diagnostics.

2. Symbols Used in this Document

This symbol warns the user of possible danger. Failure to heed this warning may lead to personal injury or death and/or severe damage to equipment.

This symbol identifies information about operating the equipment in a particular manner that may damage it or result in a system failure. Failure to heed this warning can lead to total failure of the equipment or any other connected equipment.

This symbol draws attention to information that is essential for understanding the operation and/or features of the equipment.

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3. D-Epic Mounting Instructions

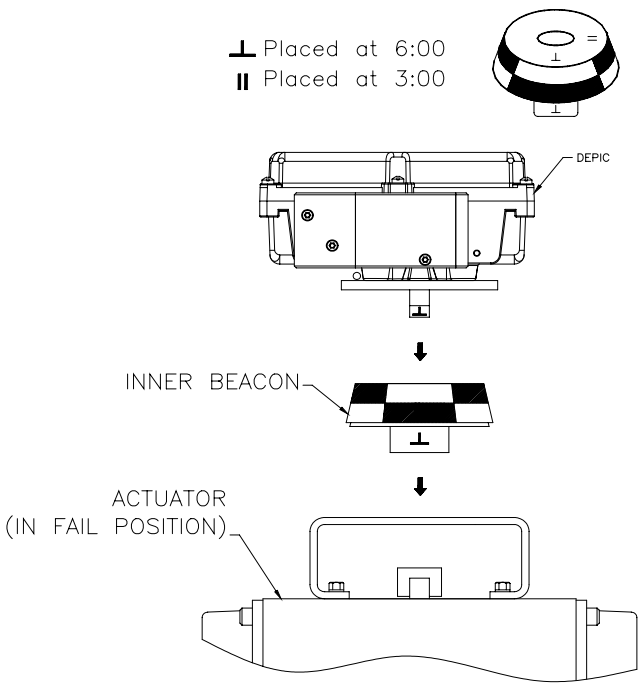
3.1 Mounting D-EPIC on a Rotary Actuator

Press fit the inner beacon to the inner beacon coupler. The inner beacon needs to be properly oriented. Use the symbols on the top of the inner beacon to orient correctly during installation as shown in Condition 1 or Condition 2 (See Figures 1 and 2 below).

Note

IMPORTANT: Condition 1 and Condition 2 show the placement of the inner beacon with respect to the positioner housing while the actuator is in the fail position.

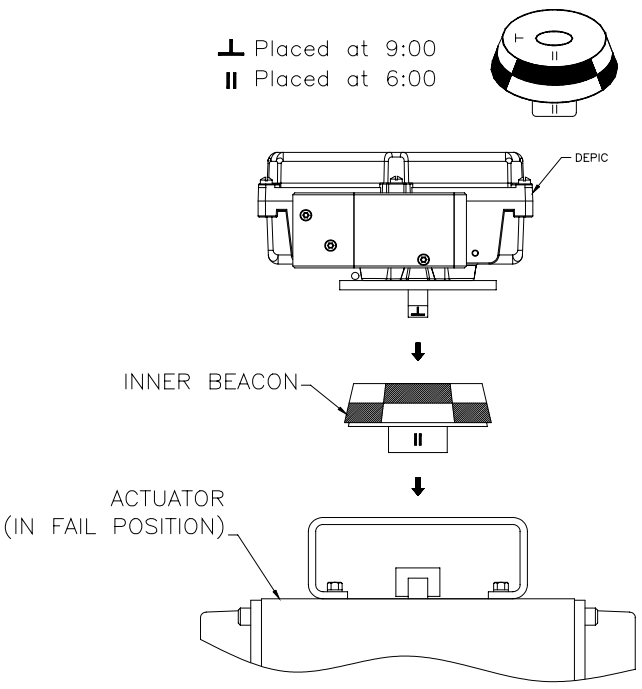
Condition 1-Actuator fails in a clockwise direction.



IMPORTANT NOTE: INNER BEACON "⊥" AND UNIT SENSOR "⊥" NEED TO BE ALIGNED

Figure 1

Condition 2-Actuator fails in a counter clockwise direction.



IMPORTANT NOTE: INNER BEACON "II" AND UNIT SENSOR "⊥" NEED TO BE ALIGNED

Figure 2

3.2 Mounting the D-EPIC on a Linear Actuator

3.2.1 To Center the D-EPIC:

3.2.1.1 Stroke the actuator to its upper limit and place a mark on the actuator's yoke that lines up with the red arrow on the magnet assembly.

3.2.1.2 Stroke the actuator to its lower limit and place a mark on the actuator's yoke that lines up with the red arrow on the magnet assembly.

3.2.1.3 Place a third mark on the yoke centered between the upper and lower limit marks.

3.2.1.4 Lastly, mount the D-EPIC to the bracket so that the conduit entry faces away from the diaphragm or cylinder (See Figure 1).

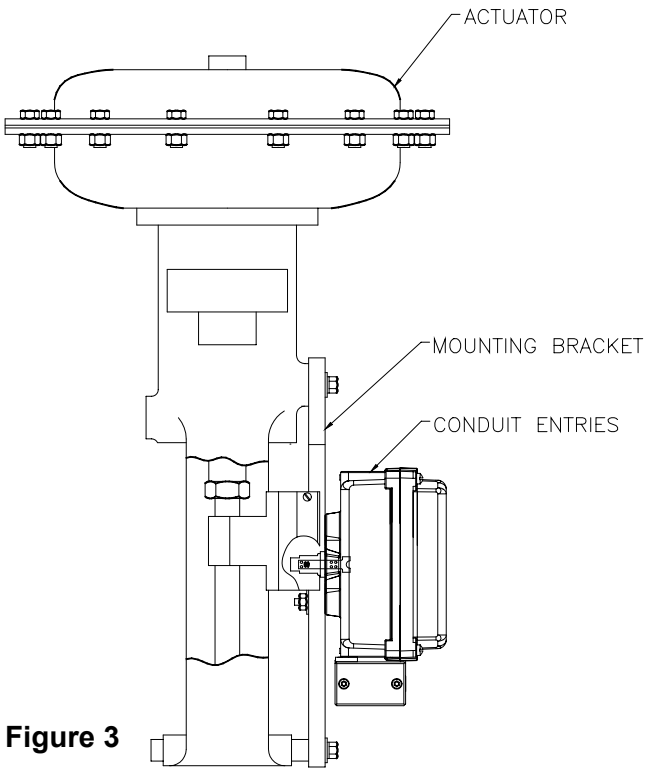


Figure 3

Note

NOTE: For Fisher actuators model 657 & 667 sizes 34 thru 70, Westlock Controls supplies a slotted mounting kit, to ease the mounting process. This will allow the user to easily center the positioner sensor between the limits of the magnet assembly's stroke.

4. D-EPIC Wiring Instructions

All wiring must be in accordance with National Electrical Code (ANSI-NFPA-70) for the appropriate area classifications.

All wiring must be in accordance with National Electrical Code (ANSI-NFPA-70) for area classifications. The valve monitors are approved as nonincendive for Class I, Division 2, Groups A,B,C and D, T4, Class II, Division 2, Groups F and G, Class III, Division 1 and 2, indoor/outdoor (NEMA type 4X), hazardous locations.

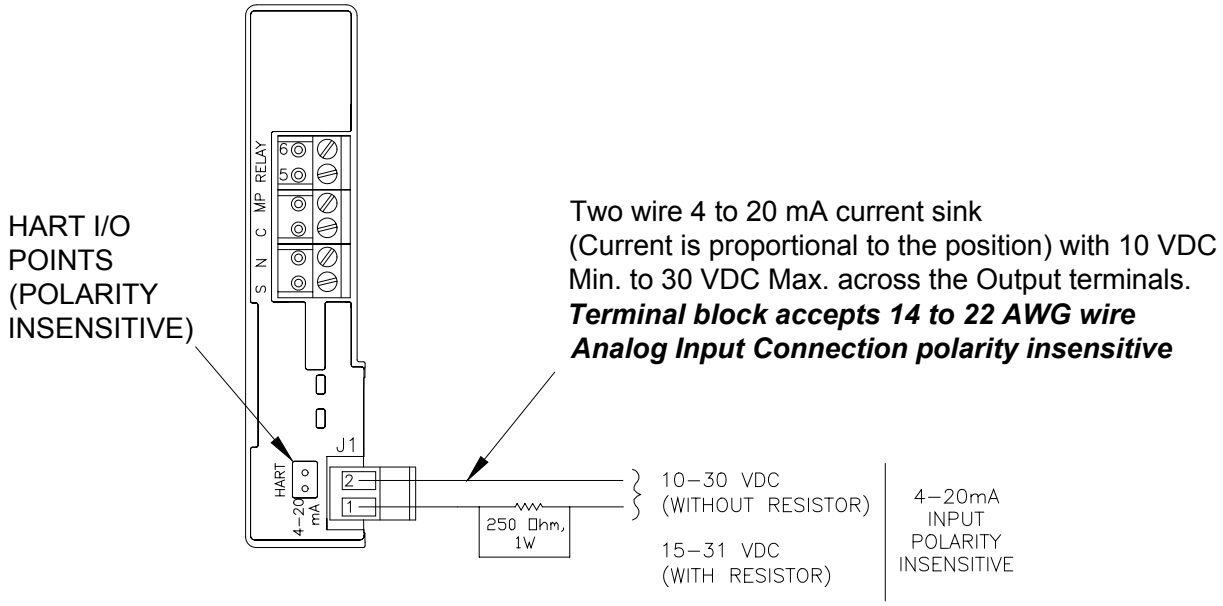
Always check the nameplate to make sure the agency approval ratings coincide with the application.

The proper wiring diagram for your unit is shown on the inside of the enclosure cover.

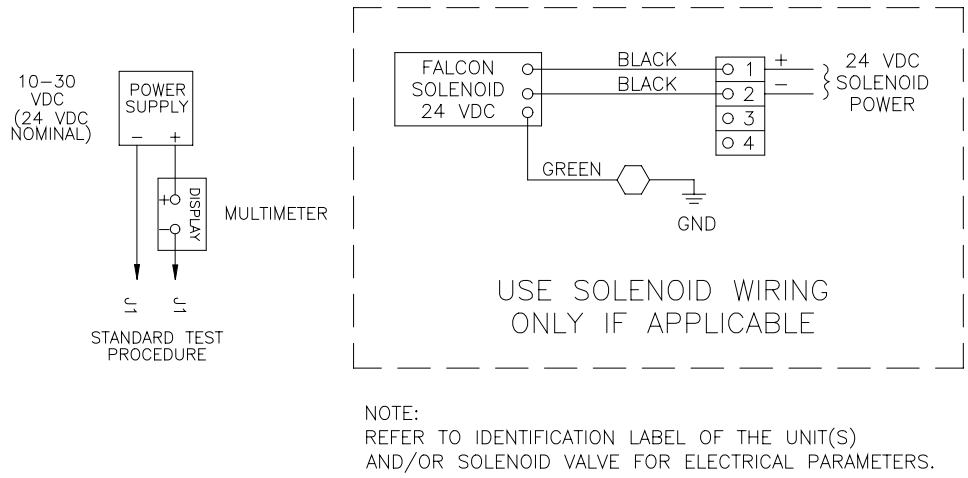
Confirm that the area is known to be non-hazardous before opening the cover of a network monitor and making or breaking any electrical connections.

Remove Cover and terminate twisted shielded cable to terminal J1 as shown in figure 4.

Figure 4



For Hart Applications the auxiliary resistance is necessary only if unit is energized without an Analog input card or with any device with negligible impedance. Hart hand held needs to be connected down stream of the optional resistance.



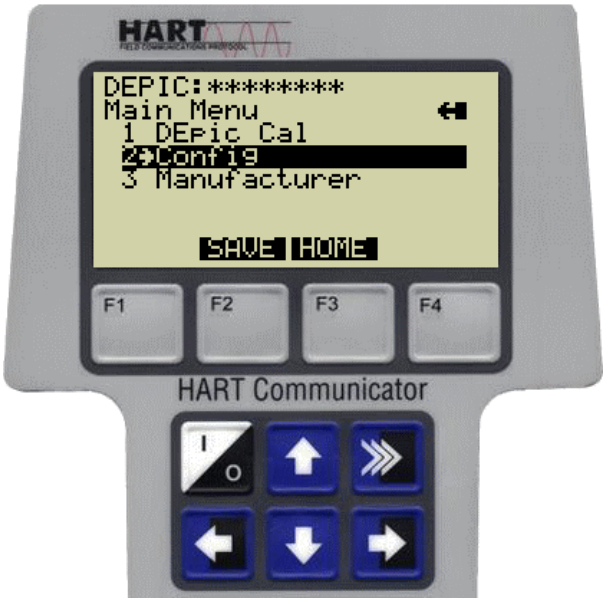
NOTE:
REFER TO IDENTIFICATION LABEL OF THE UNIT(S)
AND/OR SOLENOID VALVE FOR ELECTRICAL PARAMETERS.

5. D-EPIC Configuration Instruction via HART Rosemount 275

5.1 Connect D-EPIC to HART Hand Held and then select the "OnLine" menu.

5.2 Select "Main Menu" by pressing → Key.

5.3 Select "Config" by pressing → Key.



5.4 Select "Basic Config" by pressing → Key.

5.5 Select "Valve Type" by pressing → Key.

5.5.1 Select either "Linear" or "Rotary" by pressing → Key.

5.5.1.1 To accept selected choice press F4 (ENTER) and then F2 (SEND)
5.5.1.2 To go back to the Config Menu press ← Key or

5.6 Select "Dis_Mode" (display mode) by pressing → Key.

5.6 .1 Select either "%Open" or "% Close" by pressing → Key.
5.6.1.1 To accept selected choice press F4 (ENTER) and then F2 (SEND)
5.6.1.2 To go back to the Config Menu press ← Key.

5.7 Select "Alert Config" by pressing → Key.

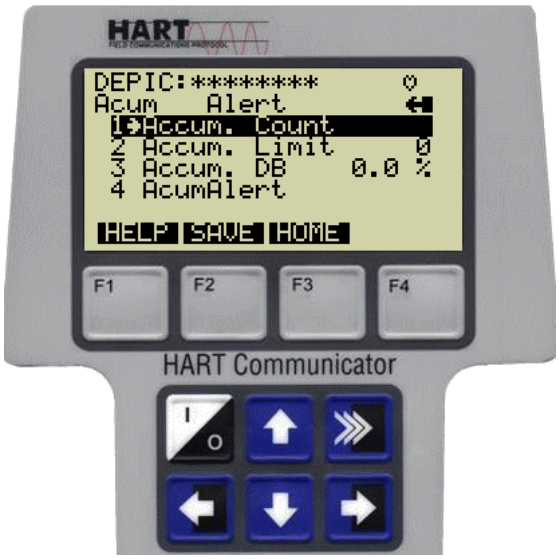
5.8 Select "Cycle Alert" by pressing → Key.
Cycle is every two full, complete and consecutive valve position status change

5.8.1 View the "Cycle Count" by pressing → Key
5.8.2 Set the "Cycle Limit" by pressing → Key
5.8.3 Set the "Cycle Dead Band" by pressing → Key
5.8.4 "Enable" or "Disable" the Cycle Limit by pressing → Key

5.8.5 To accept the selected choice press F4 (ENTER) and then F2 (SEND)
5.8.6 To go back to the Alert Config Menu press ← Key

5.9 Select "Accumu Alert" by pressing → Key.
Accumulator refers to every partial or complete valve position status change.

5.9.1 View the "Accum Count" by pressing → Key
5.9.2 Set the "Accum Limit" by pressing → Key
5.9.3 Set the "Accum Dead Band" by pressing → Key
5.9.4 "Enable" or "Disable" the Accum Limit by pressing → Key



5.9.5 To accept the selected choice press F4 (ENTER) and then F2 (SEND)
5.9.6 To go back to the Alert Config Menu press ← Key.

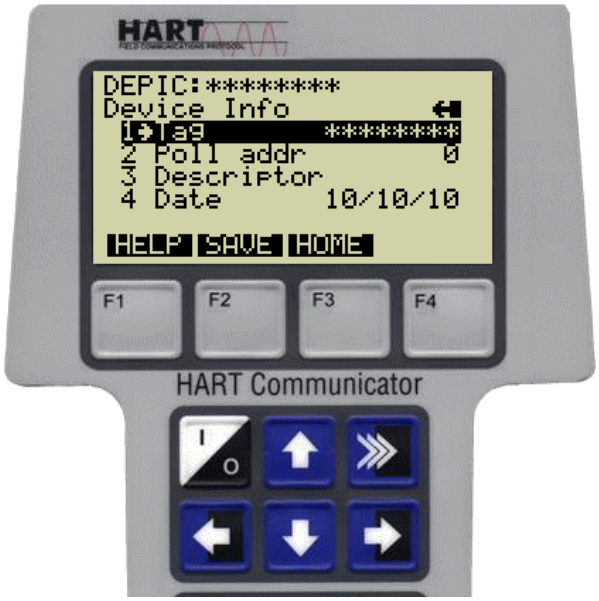
5.10 Select "Travel Alert" by pressing → Key.

5.10.1 Set the "Travel High Alert" by pressing → Key
5.10.2 Set the "Travel Low Alert" by pressing → Key
5.10.3 Set the "Travel Dead Band Alert" by pressing → Key
5.10.4 "Enable" or "Disable" the Travel High or Low alert by pressing → Key

5.10.5 To accept the selected choice press F4 (ENTER) and then F2 (SEND)
5.10.6 To go back to the Config Menu press twice ← Key.

5.11 Select "Device Info" by pressing → Key.

5.11.1 Set the "Valve Tag" by pressing → Key
5.11.2 Set the "Valve Polling Address" by pressing → Key
5.11.3 Set the "Valve Descriptor" by pressing → Key
5.11.4 Set the "Valve Date" by pressing → Key



5.11.5 To accept the selected choice press F4 (ENTER) and then F2 (SEND)
5.11.6 To go back to the "Config Menu" press ← Key.
5.11.7 To go back to the "Main Menu" press ← Key.
5.11.8 To go back to the "OnLine Menu" ← Key.

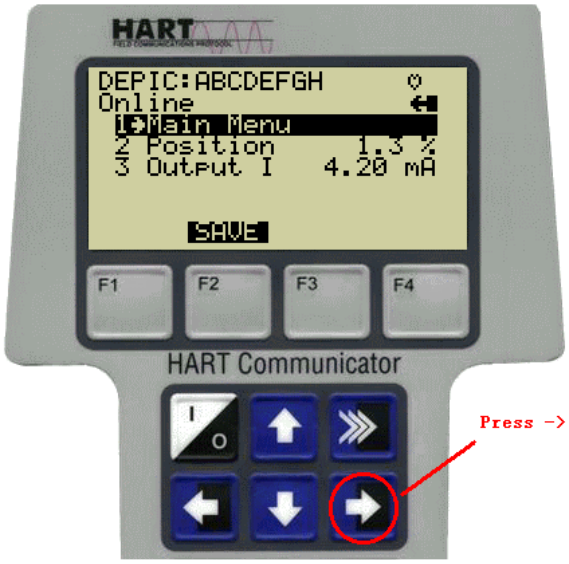
NOTE: To save any selected configuration press F2 (SAVE)

6 D-EPIC calibration instructions

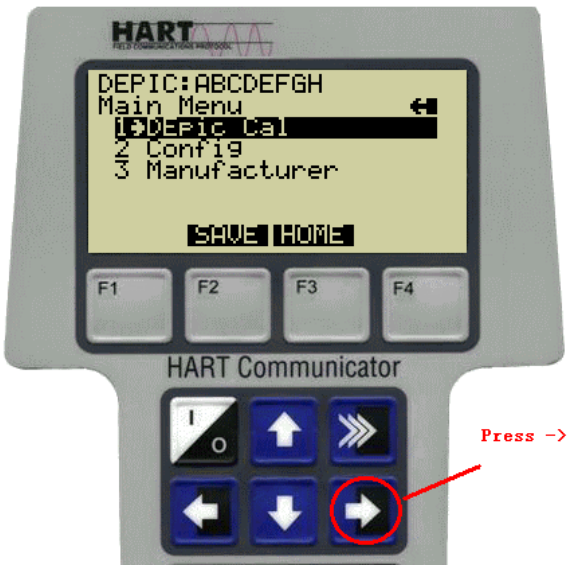
6.1 HART Rosemount 275 Procedure

6.1.1 Connect D-EPIC to HART Handheld 275.

6.1.2 Select Main Menu by pressing → Key.



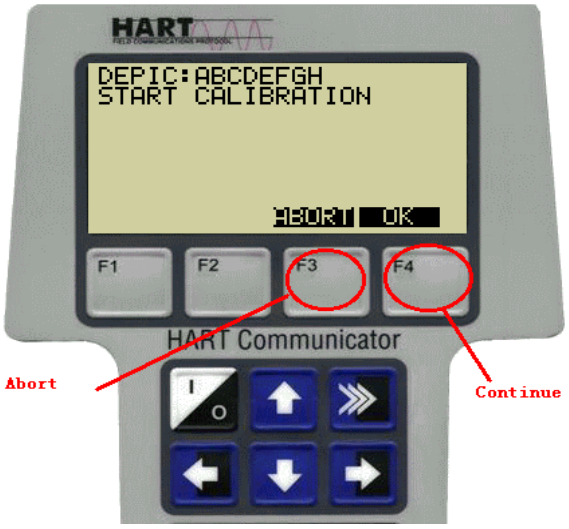
6.1.3 Select D-EPIC Cal by pressing → Key



6.1.4 Once D-EPIC selected.

6.1.4.1 Calibration process can be aborted by pressing F3 key.

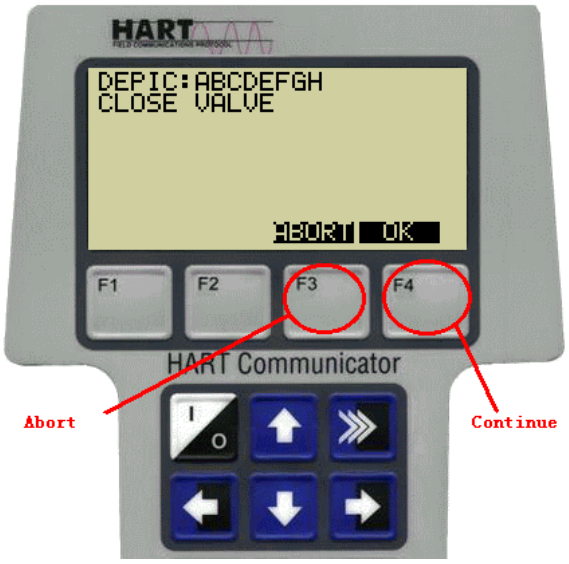
6.1.4.2 Calibration process can be continued by pressing F4 key.



6.1.5 First close the valve and wait until the valve fully reaches the closed position.

6.1.5.1 Calibration Process can be aborted by pressing F3 key.

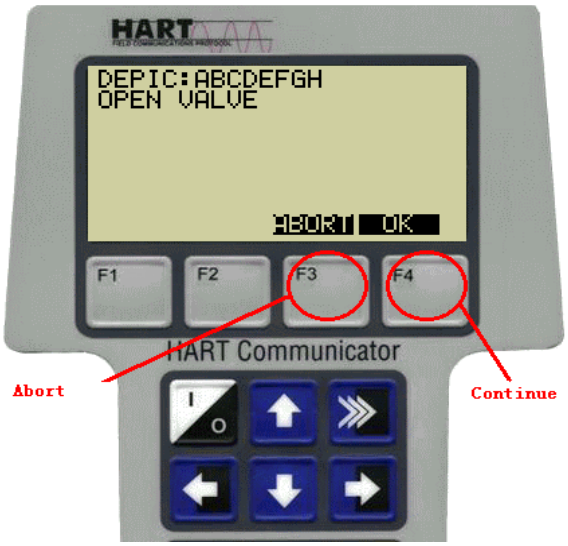
6.1.5.2 Calibration process can be continued by pressing F4 key.



6.1.6 Now open the valve and wait until the valve fully reaches the open position.

6.1.6.1 Calibration process can be aborted by pressing F3 key.

6.1.6.2 Calibration process can be continued by pressing F4 key.



6.1.7 Finish and accept the new calibrated value.

6.1.7.1 To reject new calibrated value, and set back old value, select “ABORT ” by pressing F3 key.

6.1.7.2 To accept new calibrated value, select “OK” by pressing F4 key.
Note: Wait 5 seconds before doing this Operation

6.1.8 Return to online menu to read current output values by pressing ← key once. This screen may view any calibration error flag.

6.2 Hart Rosemount 275 & ALTEC 334 loop Calibrator Procedure

6.2.1 Disconnect both input wires from the D-Epic transmitter.

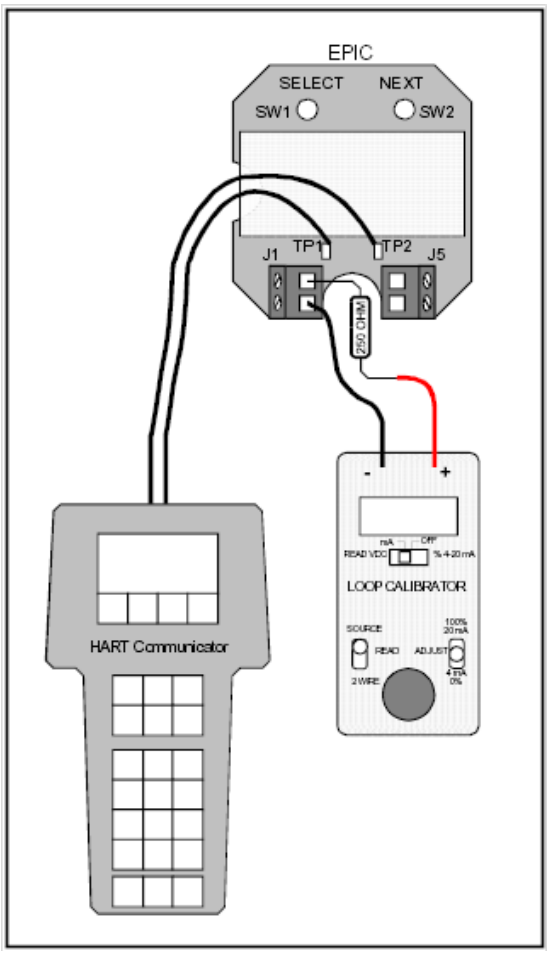
6.2.2 On the ALTEK Loop Calibrator move the slide switch to the "mA" position, the left toggle switch to the "Source" position and the right toggle switch to the "Adjust" position. Short the output leads together then turn thee adjustment knob until the display shows full-scale output (usually 24.0 mA).

6.2.3 Connect the black lead (-) to one pin of the D-EPIC transmitter input connector (J1). Connect the red lead (+) to a 250-Ohm 1/4W resistor. Connect the other end of the 250-Ohm resistor to other pin of the EPIC transmitter input connector (J1).

6.2.4 Connect the leads of the HART 275 Communicator to TP1 and TP2 of the D-EPIC transmitter.

Note:

The Loop calibrator does not control the D-Epic, it only supplies current for it to operate. The D-EPIC will draw (sink) current in proportion to the valve position (usually 4.0 mA with the valve Closed and 20.0 mA with the valve current for the
EPIC to operate. This is why the Loop Calibrator is set to 24.0 mA so that it can supply enough current for the EPIC to operate when the EPIC draws 20 mA.



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