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Simplified Installation of the 4-20mA Output feature on the EESiFlo Portalok 7S Ultrasonic Flow Meter

Note: **The 4 to 20 mA output on the Portalok 7S is an**
"ACTIVE" OUTPUT

Setting up the 4-20 mA output on the Portalok 7S Ultrasonic Flow Meter involves four distinct steps.
1. Define the Pipe and Medium Parameters (PAR on the main menu)
2. Setting up the 4 to 20 mA output (SF on the main menu)
3. Selecting the Output Options (OPT on the main menu)
4. Enter the Measure Mode (MEA on the main menu)

Defining the Pipe and Medium Parameters >PAR<

1) Start by turning the instrument **ON** by pressing the **PWR** button

2) Plug the Transducers into the meter.

3) Press the B button one time to ensure you are at the Main Menu.

4) Using the arrow buttons move to the **PAR** (Parameter) menu, then press the **Enter** button.

5) Enter the pipes **Outer Diameter** then press the **Enter** button.

6) Or, if the pipes diameter is not known, simply enter 0.00 in the diameter and the meter will prompt you to enter the **Pipe Circumference.**

7) Enter the pipes **Wall Thickness**, then press the **Enter** button.

8) Select a **Pipe Material**

9) At the **Lining** Menu use the arrow buttons to select **YES** or **NO**, then press **Enter**. If you answered **YES**, then enter the **Lining Type** and then the **Lining Thickness**

10) At the **Roughness** menu enter the estimated internal roughness of the pipe, then press the **Enter** button. Default is 0.004 inch.

11) Select the **Medium** by using the arrow buttons to scroll up and down through the available list. Once you have found the proper pipe material press the **Enter** button.

12) Enter the approximate **Medium Temperature**, then press the **Enter** button.

13) Enter the amount of **Additional Cable**, then press the **Enter** button and you'll return to the **Main Menu**. Default is 0 feet.

Setting up the 4 to 20 mA Output >SF<

1. Plug the Outputs cable into the meter.

2. Using the arrow buttons move to the **SF** (Special Function) menu, then press the **Enter** button.

3. Using the arrow buttons select **System Settings**, then press the **Enter** button.

4. Using the arrow buttons select **Proc. Outputs**, then press the **Enter** button**.

5. At the **Install Output** screen use the arrow buttons to select **Current I1**, then press the **Enter** button.

6. At the **I1 disable** screen use the arrow buttons to select **NO**, then press the **Enter** button.

7. At the **Source Item** screen use the arrow buttons to select the type of output you want the 4 to 20 mA output signal to reflect, then press the **Enter** button. Default is Measuring value.

8. At the **Measuring value** screen use the arrow buttons to select the output you want the 4 to 20 mA output signal to reflect, then press the **Enter** button. Default is Flow.

9. At the **I1 Output Range** screen use the arrow buttons to select **4/20 mA**, then press the **Enter** button.

10. At the **Error-value** screen use the arrow buttons to select which value you'd like output if an error is encountered, then press the **Enter** button.

11. Hook a multi-meter set to measure Active mA outputs to the (C + Red) and (D – Black) terminals on the outputs cable terminal block. Place the multi-meter in the DC current measuring mode.

12. At the **I1= Active Loop** screen press the **Enter** button.

13. At the **I1:Output Test** screen, enter a valid number between 4 and 20 mA, then press the **Enter** button. The value you entered will be output by the Portalok 7S and should appear on the multi-meter.

14. At the **Again ? screen** you can select **YES** and enter another number to test, or enter **NO**. It is recommended that you answer **YES** a number of times and enter a couple of values between 4 and 20 mA to ensure the 4-20 mA output feature is functioning correctly.

15. Once you've answered **NO** to the above screen you'll be returned to the **System Settings Menu**.

16. Press the **B** button once and you'll return to the **Main Menu**, and the 4 to 20 mA output on your multi-meter will drop to 0 mA.

Setting the Output Options >OPT<

1. Using the arrow buttons move to the **OPT** (Output Options) menu, then press the **Enter** button.

2. At the **Physical Quantities** screen use the arrow buttons to scroll up and down through the available list. Once you have found the proper quantity press the **Enter** button. Default is Volume Flow.

3. At the Volume in: screen use the arrow buttons to scroll up and down through the available list. Once you have found the proper value press the **Enter** button. Default is USgpm.

4. Choose a **Damping** (averaging) time in seconds then press the **Enter** button. Default is 30s.

5. At the **Store Measured Data** screen select **NO**, then press the **Enter** button or **YES** if required.

6. At the **Serial Output** screen select **NO,** then press the **Enter** button or **YES** if required.

7. At the **Current Loop I1**: screen select **YES**, then press the **Enter** button.

8. At the **Measured Values** screen select either **Absolute** or **Signed** to indicate if you would like only positive (Absolute) or both positive and negative (Signed) flow, then press the **Enter** button. Default is Absolute.

9. At the **Zero-Scale Value** screen enter a value that will represent the 4 mA output signal, then press the **Enter** button.

10. At the **Full-Scale Value** screen enter a value that will represent the 20 mA output signal, then press the **Enter** button.

11. At the **Alarm Output** screen select NO, then press the **Enter** button or **YES** if required. Once entered you will return to the **Main Menu**.

Enter the Measure Mode >MEA<

1) Using the arrow buttons move to the **MEA** (Measuring) menu, then press the **Enter** button.
2) At the **Sound Path** screen choose a Sound Path that matches your exact needs, then press the **Enter** button. Please see page 25 in the Portalok 7S User's Manual for further information.
3) At the **Transducer Distance** screen this indicates how far apart the transducers must be separated.
4) Select an appropriate transducer **Installation Site** by following the guidelines in the manual on pages 17-19.
5) Apply **Ultrasonic Couplant** to the bottom of the Transducers
6) **Install Transducers** with arrows pointing in the same direction, with the arrow pointing in the normal direction of flow.
7) Ensure Transducers are correct distance apart by pressing **ENTER** and reviewing the **SIGNAL STRENGTH** as discussed in the manual on page 27.
8) A **GREEN** signal indicates you have sufficient signal strength to begin measuring. A **RED** signal indicates you should re-check your transducers installation.
9) Press **ENTER** again to confirm the transducer separation distance, and you will begin displaying the flow data you've selected, and outputting the appropriate value via the 4 to 20mA output!!!

Once measurements are complete, press **the PWR button for 3 seconds** to turn the instrument off, and it will retain your setup information for your next installation.

Output Connectors for Portalok 7S

Pin	Wire Color	Function
A	White	Open Collector Positive
B	Green	Open Collector Negative
C	Red	4-20 mA Positive
D	Black	4-20 mA Negative

Female Output Connector on side of Portalok 7S

A

D

B

C

Inline connector on end of Output Cable

WHITE — A — Open Collector Positive

GREEN — B — Open Collector Negative

RED — C — 4-20 mA Positive

BLACK — D — 4-20 mA Negative