

# Technical Bulletin

## Interfacing FT430/440 Outputs Using the Seametrics PN 100557 Relay Board

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The FT430 and FT440 Rate/Total Indicators sometimes must supply both flow rate and total to a PLC (Programmable Logic Controller) via the FT430/440's 4-20mA current loop and pulse output. Unlike the FT415 and FT420 predecessors, the FT430 and FT440 have isolated (ungrounded) pulse outputs, which can be connected directly to the PLC's pulse input.

One purpose of the dual relay board (PN 100557) is to provide increased current capability and guarantee that two pulse outputs will have the same frequency, which otherwise would require accurate setting of Scaled Pulse Output 1 and Scaled Pulse Output 2 to the same value. A simple method of doing this is to add a solid-state relay and a second power supply to energize it.

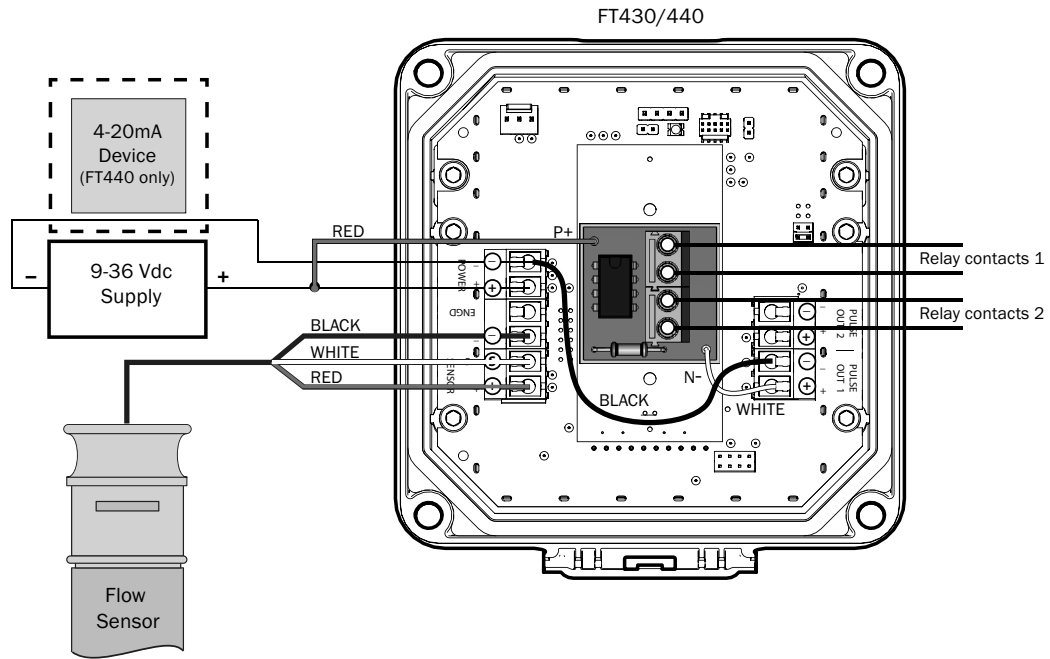
The wiring diagram on the next page shows how to accomplish this using either a single 12-45Vdc power supply or two power supplies. The relay module can be ordered as an FT430/440 option conveniently mounted inside the FT430/440 or as a later retrofit kit if the problem was not anticipated at the time of order. Order option -98 through your Seametrics dealer. The relay power supply can be a Seametrics PC12, PC3, or one purchased locally. Alternatively the Seametrics PC42 is a dual 12/24V power supply that combines both the loop and relay power supplies into one unit. If you use a multiple output power supply, it must have independent floating outputs since, as you can see in the wiring diagram, the power supply output negative terminals are at different circuit potentials with respect to ground. Please note that the maximum pulse output frequency is 6.1Hz or 366 pulses per minute which will not normally be a problem using the scaled pulse output.

### Notes:

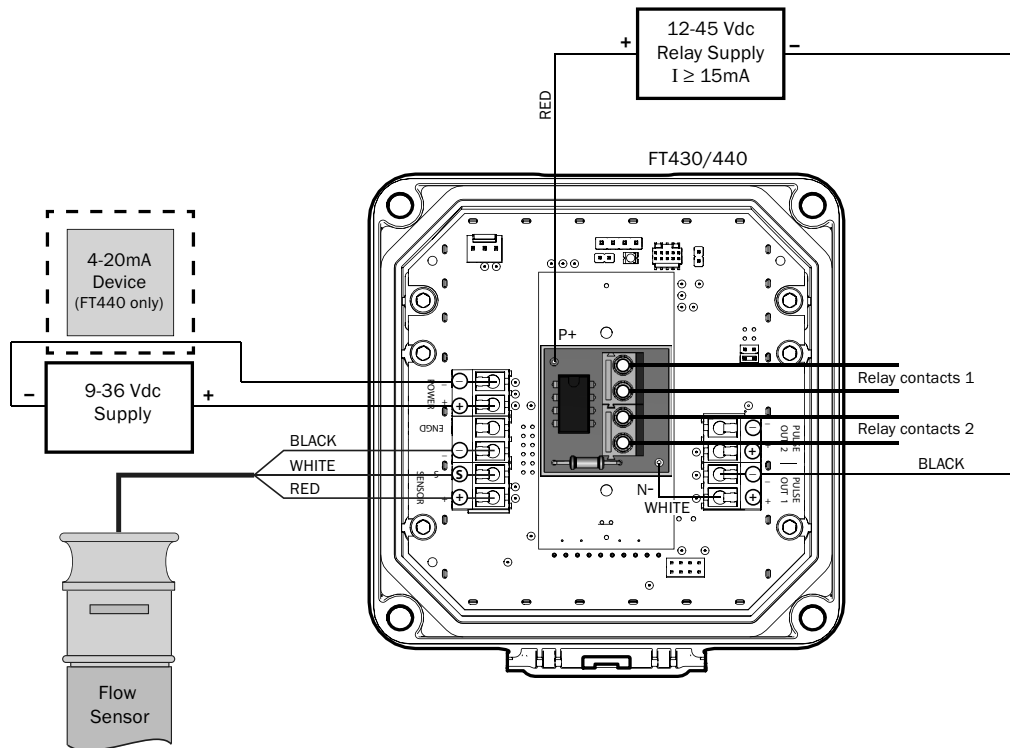
- The analog output (aka 4-20mA loop) may be used at the same time as the dual relay output board (100557).
- Both of the Pulse Outputs on the FT440 are scalable and either one can be wired as the input to the dual relay board. On the FT430, only Pulse Output 1 is scalable. Scaling is done in the standard manner via the FT4XX menu on the pulse output that is connected to the dual relay board. The output from the relay board will be two in-phase pulse signals with greater current capability than the standard pulse outputs.
- Note that the minus (-) on both FT4XX Pulse Outputs is not connected to FT4XX ground (unlike the FT420). This means that FT4XX Power (-) is not connected to Pulse Output (-), and a wire between power supply (-) and Pulse Output (-) is required as shown in the diagrams on next page.
- If you obtain your FT4XX with the relay board already installed, it will be wired for a single power supply (Diagram 1). You can convert to a dual power supply (Diagram 2) as follows:
  - Move the red (P+) wire from the screw terminal and connect to power supply (+) on the external power supply.
  - Move the black wire (power supply (-) to Pulse Output (-)) from the power supply and connect to power supply (-) on the external power supply.
- The AQW210EH relay IC has a maximum continuous load current of 0.12 amps, and a maximum peak load power of 800mW.



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*Diagram 1: Single Power Supply used with FT430/440 with Relay Board*



*Diagram 2: Dual Power Supplies used with FT430/440 with Relay Board*