PRECISION DIGITAL

NOVA PROCESS & TEMPERATURE CONTROLLER APPLICATIONS

MANUAL FLOW CONTROL WITH NOVA PD540 SERIES DIGITAL CONTROLLERS

PD548-6RB-00
Nova Digital Controller

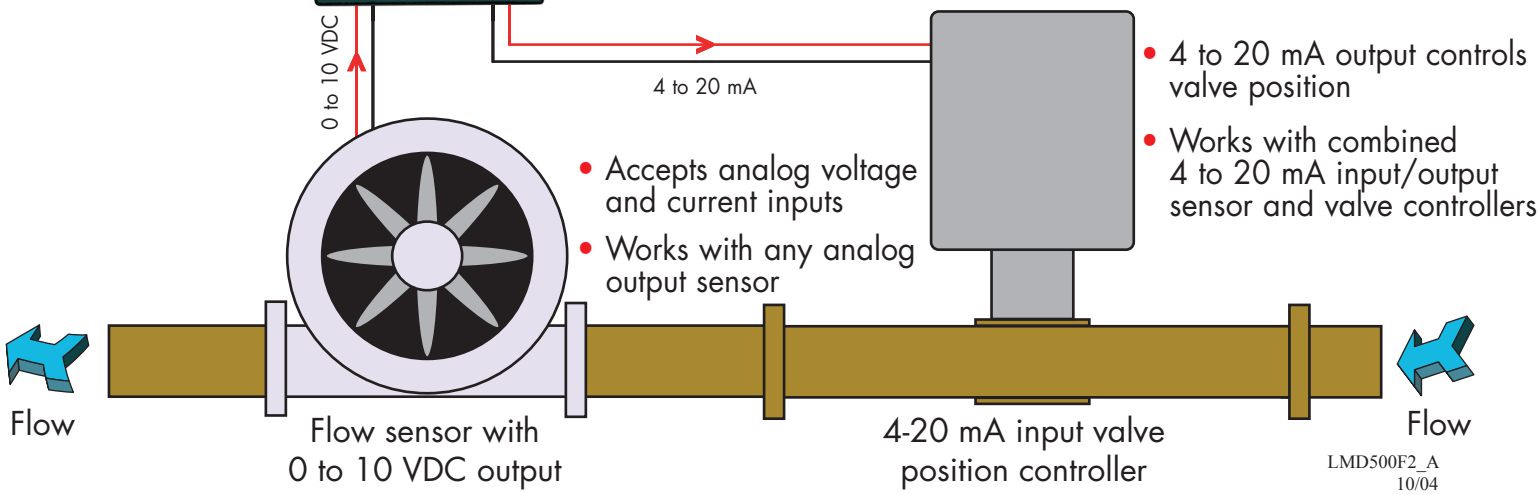
Ideal for Flow Monitoring and Manual Valve Control

- **Manually controlled 4-20 mA outputs**
- **4-20 mA output set point controller**
- **PV displays flow rate**
- **SP displays either flow rate, % open valve, or 4-20 mA output**
- **Easily change the set point as needed**
- **Accepts analog flow sensor inputs**

Setup Instructions and Application Notes Available at:
www.predig.com

NOVA PD540 Series
Process and Temperature Controller
PD548-6RB-00

- PV displays flow rate
- Change 4-20 mA output by changing the SP
- SP easily changed using front panel buttons
- SP and PV can be scaled to display engineering units



LMD500F2_A
10/04

PRECISION DIGITAL CORPORATION
19 Strathmore Road • Natick MA • 01760 • USA • Tel: (800) 343-1001 • Fax: (508) 655-8990

PRECISION DIGITAL
www.predig.com

App Note

Models:
PD540 & PD550 Series Nova Digital Controllers

4-20 mA Output Control Using the Set Point

This form of 4 of 20 mA manual control allows the user to use the Set Point to set the output value of a 4 to 20 mA output. With the scaling established in this note, the user sets what he wants for a mA output using the set point. A SP of 4 will result in the retransmitting output transmitting 4 mA, a SP of 12 will result in the retransmitting output transmitting 12 mA, etc.

Step 1: Retransmission Group Setup
In the Retransmission Group (GrEt), set the retransmitting outputs to be based on the Set Point. To do this, set the rEt parameter to SP as shown in Figure 1.

Next, setup the values at which 4 mA and 20 mA will be transmitted. Parameter rEtH establishes at what SP value 20 mA will be transmitted, and rEtL established at what SP value 4 mA will be transmitted. Set rEtH to 20.0 and rEtL to 4.0, as shown in Figures 2 and 3.

Figure 1: Set retransmitting output values to be based on SP values

Figure 2: The SP value when 20 mA will be output by retransmitting outputs

Figure 3: The SP value when 4 mA will be output by retransmitting outputs

Step 2: Set Point Setup
To restrict the values the Set Point can be set to for use in this application, establish a high and low range the Set Point can be set to. In the Set Point Group (GSP) establish Set Point range restrictions with parameters SPrH and SPrL. Set parameter SPrH to 20.0 to establish 20.0 as the maximum value the Set Point can be changed to. Set parameter SPrL to 4.0 to establish 4.0 as the minimum value the Set Point can be changed to. These settings are shown in Figures 4 and 5.

Figure 4: Restricted maximum value the SP may be manually set to

Figure 5: Restricted minimum value the SP may be manually set to

Step 3: Output Configuration
Under the Output Group (GOUt), set the analog output to be used as the 4-20 mA source to be a retransmitting output (rEt). This is shown in Figure 6.

Figure 6: Setting an analog output to be a 4-20 mA retransmitting output

Variations
Parameters rEtH, rEtL, SPrH, and SPrL can be altered to allow for different scaling for the 4-20 mA output. For example, if the user wanted to have 4 mA transmitted when the SP is 0, and 20 mA transmitted when the SP is 100, rEtH and SPrH would be set to 100, and rEtL and SPrL would be set to 0. Note however that the set point cannot go higher or lower than the max scaled range of the input scale. For example, if the input is scaled for 0.4 to 2.0 VDC, the set point cannot be set to 0.