ProVu PDD6000 Demonstrator
Instruction Manual

1. **External 4-20 mA Transmitter** (Not Included)
2. **Easy-to-Carry Case**
3. **Fully Functional ProVu Meter**
4. **4-20 mA Analog Input**
5. **Transmitter Power**
6. **Onboard USB Connection**
7. **Relay Status Indicators**
8. **0-10 V Analog Input Simulator**

Getting in front of a customer is expensive and hard to do. The ProVu Demonstrator helps you make the most of this precious time. The ProVu Demonstrator allows you to quickly demonstrate Precision Digital's PD6000 & PD6200 ProVu meters and one of your transmitters or calibrators. The Demonstrator makes it easier to demo your transmitter because it can provide the necessary power.

The ProVu Demo can also be used as a stand-alone demo to make the last five minutes of your sales call more productive. When you are done with the primary focus of the call, take five minutes for the ProVu Demo. All you have to do is plug it in and adjust the potentiometer that simulates a voltage input (PV). You can use the built-in LEDs to demonstrate the ProVu's alarm and control capabilities.

The next time you make a sales call, be sure to use the ProVu Demonstrator to help present your transmitter or calibrator. It's sure to create the conversation that will help generate not only sales, but also a lasting impression.

Menu Button – Use this button to access *Programming Mode* and to return to *Run Mode*.

Right/F1 Button – Use this button to change the selected digit while inputting a numeric value in *Programming Mode*.

Up/F2 Button – Use this button to increment the selected digit while inputting a numeric value in *Programming Mode*.

Enter/F3 Button – Use this button to access or accept a menu item while in *Programming Mode*.

ProVu® Series

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Preparing the Meter for Demonstration

The PROVU Demonstrator will serve to demonstrate both the PD6000 and the PD6200. The actual product installed in the demonstrator is a PD6200 with the factory default settings changed to make it function as a PD6000. However, when total is turned on in the system menu, the unit will function as a PD6200. To prepare the meter for demonstration, reset the meter to it's factory default settings by following the instructions below.

1

Press and hold MENU for five seconds to enter the *Advanced Features Menu*.

2

Press F2 until the diAG (diagnostics) menu is displayed.

3

Press and hold F1 until the meter flashes rESEt (reset). Immediately press F3 to reset the meter to factory defaults.

4

The meter will flash all of the LED segments and then display dEmo ProcES (Demo Process). The meter has been reset to its defaults.

About the Factory Default Settings

The factory defaults configure the meter to have an input display range of 0 to 8000 with a corresponding 0 to 10 V input from the slider. The secondary display is programmed to display GAL (gallons). The Total and Dual Scale features are turned off.

Relays 1 and 2 are configured as alarms. Relay 1 is a low alarm with a set point of 495 and reset point of 750. Relay 2 is a high alarm with a set point of 7500 and reset point of 6900.

Relays 3 and 4 are configured for pump alternation control. The relays alternate being on at a set point of 6000 and reset point of 1000. Both relays will turn on at a set point of 7000, and both off at 1000.

The alarm indicators on the meter; and the relay indicators on the demonstrator will indicate the relay states.

Voltage Simulator (PV)

The slide control on the right side of the demonstrator serves as the 0-10 V signal simulator. The input signal increases as the slider is moved upward, and decreases when slider is moved downward.

Micro USB Connection

The PDD6000 Demonstrator includes a micro USB connector to demonstrate programming from a PC. MeterView Pro software is included onboard and will install automatically when the unit is plugged into a computer.

Demonstrating the PD6000 Process Meter

The PROVU Demo comes programmed with factory defaults that make it ready to demonstrate the features of the PD6000 immediately, with no additional programming required. The following steps describe how to demonstrate the relay alarm and pump alternation features of the meter using the factory default settings.

1

Use the 0 to 10 V simulator to adjust the display reading so the meter reads around 1500 gallons. All relay lights should be off.

2

Raise the slide wire until the meter reads around 6200 gallons. Relay number three will come on. Notice the relay light in the above graphic.

3

Lower the slide wire until the meter reads around 950 gallons. Relay number three should turn off.

4

Raise the slide wire until the meter reads around 6200 gallons. Relay number four will come on. This demonstrates the pump alternation feature.

5

Lower the slide wire until the meter reads around 950 gallons. Relay number four should turn off. Do this a couple times so the customer can see the pump alternation workings, and get their head around the concept. Discuss the advantages of this feature.

6

Now, raise the slide wire until the meter reads around 7100 gallons. Relays number three and four should be on, indicating both pumps on.

7

Keep raising the slide wire until the meter reads around 7600 gallons. Relay number two will come on, indicating the high level alarm.

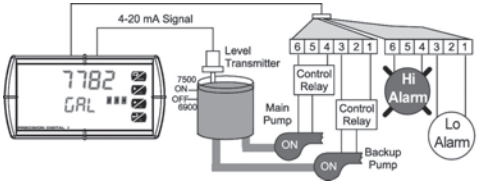
Note: The PROVU can be configured to control up to 8 pumps. Please refer to the section in the PD6000 Instruction Manual entitled *Pump Alternation Control Applications* found under *Relay Operation Details*.

8

Now lower the slide wire. At around 900 gallons, relays number four, three, and two will turn off indicating the high alarm has cleared and the two pumps have been shut off. Keep lowering the slide wire until the meter reads around 450 gallons. Relay number one will come on, indicating the low level alarm.

More about Pump Alternation Control

The following diagram shows the previously described pump alternation control setup. Please refer to the section in the Instruction Manual entitled "Pump Alternation Control Applications."



Program Other Process Alarm Types

The PROVU can be configured to control up to 8 pumps. In order to show the versatility of the relay operations available on the PROVU, this next sequence will change the relay action of alarm #2 to latching. This means that the alarm state will remain in effect until the *Acknowledge Button* is pressed.

1

Move the Voltage Simulator to its lowest position. Press MENU to enter *Programming Mode*, press F3 to access the SEtuP (Setup) menu.

2

Press F2 until the rELAY (Relay) menu is displayed and then press F3.

3

Press F2 until the rLY 2 (Relay 2) menu is displayed and then press F3.

4

Press F1 to access the Act 2 (Relay 2 Action) menu.

5

Press F2 until LAtcH (Latching Action) is displayed and then press F3.

6

Press MENU to return to *Run Mode*. Increase the input signal using the Voltage Simulator to a value above the relay 2 alarm set point of 7500, and then reduce it to below 1000. The relay will remain on, or latched. However, if you press F1, it will unlatch the relay. Experiment with other relay functions following the instructions in the PD6000 instruction manual under the section entitled "Setting the Relay Operation".

Note: The F3 button is programmed to function as an *Acknowledge Button* by default. Input 4 on the front panel of the demonstrator is programmed to function as F3 by default, so the digital input push-button labeled 'Input 4' may also be used to acknowledge the alarm.

Dual-Scale Level Display

The PROVU dual-scale level display allows the single process input to be scaled independently into two different display values. This is most commonly used in level applications to display height and volume, height and percent, volume and percent, or other combinations of variables that can be derived from the single process input. Both process variables may be displayed simultaneously on the dual-line display.

The following setup will configure the second line of the display to scale the process variable input to be 0.0 to 25.5 feet.

1

Press MENU to enter *Programming Mode*, press F3 to access the SEtuP (Setup) menu.

2

Press F3 to access the InPut (Input) menu.

3

Press F3 to accept the VoLt (Voltage) input. This should be the default option. If it is not, press F2 to select it.

4

Press F3 to access the totAL (Total) menu, select no (No) using F2, then press F3 to accept.

5

Press F3 to access the d-SCAL (Dual Scale) menu, select YES (Yes) using F2, then press F3 to accept. This enables dual scaling.

6

Press F3 to access the un itS (Units) menu then press F3 to accept the default unit tag (GAL).

7

Press F3 to access the dEc Pt (Decimal Point) menu.

8

Press F2 until PU 2 (Process Variable 2) is displayed and then press F3 to access.

9

Press F1 until ddddd.d (First Decimal Point Location) is displayed and then press F3 to accept.

10

Press F3 to access the ProG (Program) menu.

11 (dual-scale cont.)

Press F2 until SCAL 2 (Scale PV2) is displayed and then press F3 to accept.

12

Press F2 until diS 2 (High Display Value) is displayed and then press F3 to accept.

13

Using F1 to change which digit is selected and F2 to increment the selected digit, change the high display value to 00025.5 (25.5).

14

Press F3 to accept the new value. The meter will display SAVEd (Saved).

15

Press F3 to access the dSPLAY (Display) menu.

16

Press F2 until the LinE 2 (Display Line 2) menu is displayed and then press F3 to access.

17

Press F2 until d PU2 (Display PV2) is displayed and then press F3 to accept.

Note: PV2 will now be displayed on display line 2, where the units tag (UNIT) was displayed previously. Move the 0-10 V simulator up and down to demonstrate this capability.

Max/Min (Peak/Valley) Display

The PROVU has the capability of tracking and storing the maximum and minimum display values since last reset. The meter can be programmed to display maximum only, minimum only, or alternate between maximum and minimum. The following setup will configure the meter to alternate between maximum and minimum.

1

Press MENU to enter *Programming Mode*, press F3 to access the SEtuP (Setup) menu.

2

Press F2 until the dSPLAY (Display) menu is displayed and then press F3.

3

Press F2 until the LinE 2 (Display Line 2) is displayed and then press F3.

4

Press F2 until the d HL (Display High/Low) is displayed and then press F3.

Demonstrating the PD6200 Rate/Totalizer

The totalizer needs to be turned on in order to demonstrate the process meter (PD6200). Typically, Rate will be displayed in display line 1 (as denoted by the Rate indicator – **R** to the right), and Total will be displayed in display line 2 (as denoted by the Total indicator – **T** underneath). The following setup will configure the meter to function as a PD6200 Rate/ Totalizer.

1

Press MENU to enter *Programming Mode*, press F3 to access the SEtuP (Setup) menu.

2

Press F3 to access the inPut (Input) menu.

3

Press F3 to accept the VoLt (Voltage) input. This should be the default option. If it is not, press F2 to select it.

4

Press F3 to access the totAL (Total) menu, select YES (Yes) using F2, then press F3 to accept. The meter will now function as a PD6200 Rate/Totalizer

Reset the Total

Resetting the meter does not reset the Total value to zero, this must be done manually.

1

Press MENU to enter *Programming Mode*, press F2 until rESEt (Reset) is displayed and press F3 to access this menu.

2

Press F2 until rSt t (Reset Total) is displayed and then press F3. This will reset the total count which is displayed on display line 2.

Overflow Display

The ProVu can display up to 9 digits for Total or Grand Total. To demonstrate this capability, move the 0-10 V simulator all the way to the top. When the total reaches greater than six digits, display line 2 will alternate between the overflow digits and the first six digits of the number. The display will alternate as illustrated below.

1

When the total reaches greater than six digits, the overflow indicator (▲) will illuminate.

2

The display will alternate to show the cut off leading digits of the number.

Display Total and Grand Total

The PROVU may show the Total and Grand Total simultaneously using the dual-line display. The following instructions will configure display line 1 to read Total and display line 2 to read Grand Total.

1

Press MENU to enter *Programming Mode*, press F3 to access the SEtuP (Setup) menu.

2

Press F2 until the dSPLAY (Display) menu is displayed and then press F3.

3

Press F3 to access the LinE 1 (Display Line 1) menu.

4

Press F2 until the d tot (Display Total) is displayed and then press F3.

5

Press F3 to access the LinE 2 (Display Line 2) menu.

6

Press F2 until the d Gtot (Display Grand Total) is displayed and then press F3.

Program Rate & Total Alarms

The relays on the PROVU can be programmed to be based on the rate or total. The following instructions will configure relay 3 as a high rate alarm with set point of 6000 and a reset point of 5000, and relay 4 as a total alarm with a set point of 30000.

Note: Factory default sets relays 1 and 2 to be used for high and low alarms. The default meter configuration of the demonstrator is for level or process displays, however these alarms will function as rate alarms when the totalizer functions of the PD6200 are enabled.

1

Press MENU to enter *Programming Mode*, press F3 to access the SEtuP (Setup) menu.

2

Press F2 until the rELAY (Relay) menu is displayed and then press F3.

3

Press F3 to access the ASS iGn (Relay Assignment) menu.

4

Press F2 until the A5 iGn3 (Relay #3 Assignment) menu is displayed and then press F3.

5 (alarms cont.)

Press F3 to accept rAtE (Rate) as the relay assignment. This should be the default option, but if it is not use F2 to select it.

6

Press F3 to access the AS iGn4 (Relay #4 Assignment) menu.

7

Press F2 until totAL (Total) is displayed and then press F3.

8

Press F2 until rLY 3 (Relay #3) is displayed and then press F3 to access this menu.

9

Press F3 to access the Act 3 (Relay #3 Action) menu.

10

Press F2 until Auto (Automatic) is displayed and then press F3 to accept automatic operation.

11

Press F3 to access the SEt 3 (Relay #3 Set Point) menu.

12

Using F1 to change which digit is selected and F2 to increment the selected digit, change the set point value to 006000 (6000). Press F3 to accept this new value..

13

Press F3 to access the rSt 3 (Relay #3 Reset Point) menu.

14

Using F1 to change which digit is selected and F2 to increment the selected digit, change the set point value to 005000 (5000). Press F3 to accept this new value.

15

Press F2 until rLY 4 (Relay #4) is displayed and then press F3 to access this menu.

16

Press F3 to access the Act 4 (Relay #4 Action) menu.

17 (alarms cont.)

Press F2 until Auto (Automatic) is displayed and then press F3 to accept automatic operation.

18

Press F3 to access the SEt 4 (Relay #4 Set Point) menu.

19

Using F1 to change which digit is selected and F2 to increment the selected digit, change the set point value to 30000.0 (30,000). Press F3 to accept this new value.

Note: Alarm #3 will set if the rate increases above 6,000 and will reset when the rate drops below 5,000. Use the 0-10 V simulator to demonstrate this. Alarm #4 will set when the total reaches 30,000 and will reset once the total is reset to zero. While the total is easily reset via the menu system, it can also be reset via a function key, or external digital input as shown below.

Function Key & Digital I/O Programming

The meter buttons (**F1**-**F3**) can be programmed to perform different actions than they do by default. The following steps show how to program the **F2** function key to reset the total.

1

Press and hold MENU for five seconds to enter the *Advanced Features Menu*.

2

Press F2 until the uSEr (User) menu is displayed. Press F3 to access this menu.

3

Press F2 until the F2 (F2 Button) menu is displayed. Press F3 to access this menu.

4

Press F2 until rSt t (Reset Total) is displayed. Press F3 to accept. The F2 button is now programmed to reset the total to zero. Try returning to *run mode* and resetting the total with the F2 button.

Connecting a Transmitter to the Demonstrator

The PROVU demonstrator has been designed to power an external transmitter with up to 200 mA of 24 V excitation. The demonstrator has signal input terminals to accept a 4-20 mA signal. Demonstrate one of your transmitters along with the PROVU! The following steps show how to select the scaling of the meter to match your transmitter.

1

Press MENU to enter *Programming Mode*, press F3 to access the SEtuP (Setup) menu.

2

Press F3 to access the InPut (Input) menu.

3

Press F2 until mA (milliamp) is displayed and then press F3 to accept as the input type.

4

Press F3 six (6) times, until the dEc Pt (Decimal Point) menu is displayed and press F3 to access.

5

Press F1 until the desired decimal point location is displayed.

6

Press F3 to access the ProG (Program) menu.

7

Press F3 to access the SCALE (Scale) menu.

8

Press F3 multiple times, until dISP 1 (Low Display Value) is displayed. Use F1 to change which digit is selected and F2 to increment the selected digit. Press F3 when done.

9

Press F3 multiple times, until dISP 2 (High Display Value) is displayed. Use F1 to change which digit is selected and F2 to increment the selected digit. Press F3 when done and press MENU to return to *Run Mode*.

Note: To connect your transmitter to the PROVU demo, use the wiring diagrams provided on the back page of this manual. Connect the transmitter to the 24V supply using the P+ and P- terminals. Connect the 4-20 mA input signal from the transmitter to the mA+ and COM input terminals.

Be sure to observe polarity!

The current input is protected against current overload by a resettable fuse. However, the display may or may not show a fault condition.

Ordering Information

Model	Description
PDD6000	PROVU Demo Unit

Note: The PROVU meter in the PROVU Demo is not intended for resale.

Parts Included

1. PD6200 assembled in convenient hand carry enclosure
2. Power Cord
3. Micro USB Cable
4. Product Documentation and USB Driver CD
5. PROVU Demonstrator Instruction Manual (This Document)

Safety Information

⚠WARNING

Hazardous voltages exist within enclosure. Service should be performed only by trained service personnel.

Important Notes

The PD6200 included with the demonstrator is configured by default to demonstrate the PD6000 with the dual-scale level feature turned off. To demonstrate this feature, d-SCAL must be set to ON in the menu system.

There are strong benefits of demonstrating both the PD6200 & PD6000 exactly as shown in this manual in order to show all the important features of the PROVU.

Make sure to have the PROVU data sheet open and available to the customer when demonstrating!

While there are some instructions in this manual related to the demonstration of the PROVU, please refer to the PD6000 or PD6200 Instruction Manual for more complete details on how to program the meter.

Warranty

2 years parts and labor

Power Connection

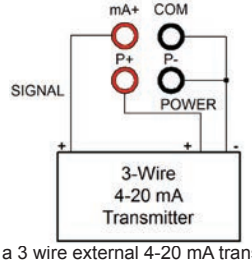
The PROVU Demonstrator has a power cord that plugs into a USA standard 115 VAC power outlet.

To power the Demonstrator from other power sources such as 230 VAC, the user must provide the necessary plug adapter. Refer to the PD6000/PD6200 instruction manual for power specifications.

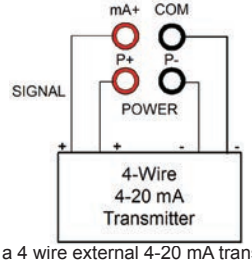
4-20 Transmitter Connections

The wiring diagrams below show how to connect an external 4-20 mA transmitter to the PROVU Demonstrator.

The PROVU meter must be set up to accept a 4-20 mA input when connecting a transmitter or a 4-20 mA signal source to the input terminals on the side of the demo. The transmitter may be powered by the internal 24 VDC power supply available at terminals labeled P+ and P-.



Wiring for a 3 wire external 4-20 mA transmitter.



Wiring for a 4 wire external 4-20 mA transmitter.