

ProtEX PD6830 Explosion-Proof Pulse Input Rate/Totalizer Quick Start Guide



IEC Ex



Congratulations on your purchase of the ProtEX PD6830 Explosion-Proof Pulse Input Rate/Totalizer!

This quick start guide will briefly describe some of the common setup procedures for this meter.

This guide includes:

Basic ProtEX Meter Wiring.....	2
Program Pulse Input and Totalizer.....	3
Program Open Collector Pulse Output..	5
Program Open Collector Alarm Output..	6
Program 4-20 mA Analog Output.....	7
Return Meter to Factory Defaults.....	8

For additional information about the ProtEX PD6830 meter not covered in this quick start guide, please consult the instruction manual included on the CD or available at www.predig.com.



Menu Button – Use this button to access *Programming Mode* and return to the previous menu.



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



Reset Button – Use this button to select the previous menu option or change the selected digit while inputting a numeric value in *Programming Mode*. While in *Run Mode*, use to reset the total.



Display Button – Use this button to select the next menu option or increment the selected digit while inputting a numeric value in *Programming Mode*. While in *Run Mode*, use to cycle through alternate variables such as maximum, minimum, and grand total.



233 South Street

Hopkinton MA 01748-2208 USA

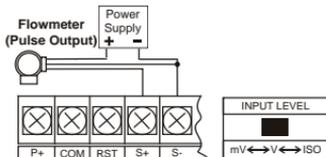
Tel. (508) 655-7300 www.predig.com

Basic ProtEX Meter Wiring

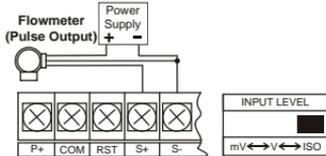
The connector labels, printed on the electronics module of the meter, show the location of all available connectors. Connect your wires to the screw terminals of the meter as indicated.

Pulse Input Wiring

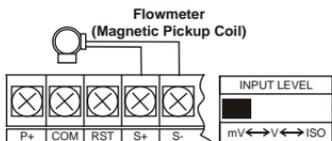
The image below shows wiring for a flowmeter powered by an external power supply (active).



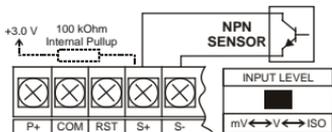
The image below shows wiring for a isolated flowmeter powered by an external power supply.



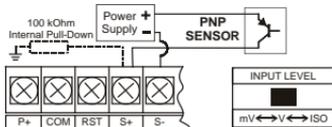
The image below shows wiring for a self-powered magnetic pickup coil flowmeter.



The image below shows wiring for an NPN open collector input.

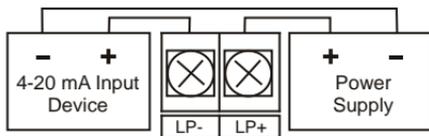


The image below shows wiring for a PNP sensor with external power.



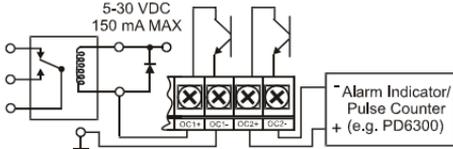
4-20 mA Output Wiring¹

The images below show wiring for a 4-20 mA output.



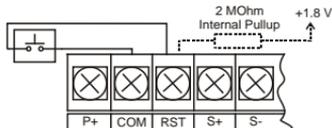
Open Collector Output

The below image shows wiring for the open collector output.



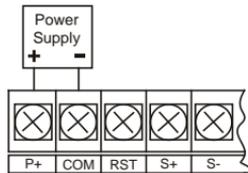
Total Reset Connection

The below image shows wiring for an external total reset switch or push button.



DC Power Connection

The below image shows wiring for a DC power connection to the meter.



Consult the PD6830 instruction manual located on the included CD or available online at www.predig.com for additional wiring diagrams.

¹ ProtEX models with 4-20 mA output option (PD6830-XXA/B)

Program Pulse Input and Totalizer

These instructions show you how to program the ProtEX meter to accept a pulse input and display a value. The flowmeter you are using in your facility will have a K-Factor assigned to it by the manufacturer. This is either notated on the flowmeter itself or somewhere in the instruction manual included with the flowmeter. This number is necessary in order to tell the ProtEX meter how many pulses it will receive depending on the flow rate.

For example: If the K-Factor of your flowmeter is 210, meaning that for every U.S. gallon of flow per second it will transmit 210 pulses, then you should enter the value 210.000 at the *FRActor* (K-Factor) menu during this setup procedure.

Note: K-Factors are almost always given in U.S. gallons. Make certain that you take the unit of measure used by the flowmeter manufacturer into account when programming the ProtEX meter.

Note about SafeTouch® through-glass buttons

The ProtEX Series of meters are equipped with four SafeTouch® through-glass buttons which allow it to be programmed and operated without removing the cover. To activate a button, press one finger to the glass directly over the marked button area.

1

Press  to enter *Programming Mode*, press  to access the *SETUP* (Setup) menu.



2

Press  to access the *InPuT* (Input) menu.



3

Press  to select the appropriate input type (e.g. active, NPN, PNP, coil, isolated, etc.) depending upon your wiring configuration, press  to accept.



4

Press  to access the *FRActor* (K-Factor) menu.

Note: The information entered during the next three steps is related to the K-Factor assigned to your specific flowmeter.



5

Press  to select the appropriate factor unit of measure (e.g. pulses per gallon, pulses per liter, etc.), press  to accept.



6

Press  to select an appropriate decimal point location for your K-Factor, press  to accept.



7

Using  to select a digit and  to increment the selected digit, enter your flowmeter's K-Factor. Press  to accept.



Note: The number entered during step 7 is the K-Factor assigned to your specific flowmeter. This number is notated on the flowmeter itself or somewhere in the instruction manual included with the flowmeter. This number is necessary in order to tell the ProtEX meter how many pulses it will receive depending on the flow rate.

8 (Pulse In Continued)

Press  to access the **Units** (Units) menu.

Note: The units menu allows you to enter the unit types used to measure your rate, total, and grand total.



9

Press  to access the **Time Base** (Time Base) menu.



10

Press  to select the appropriate time base for your measurement (i.e. units per second, minute, hour, or day), press  to accept.



11

Press  to access the **Rate Units** (Rate Units) menu.



12

Press  to select the appropriate unit of measure (e.g. gallons, liters, etc.) for your rate measurement, press  to accept.



13

Press  to access the **Total Units** (Total Units) menu.



Note: Consult the instruction manual for a full list of available units of measure.

14

Press  to select the appropriate unit of measure (e.g. gallons, liters, etc.) for your total measurement, press  to accept.



15

Press  to select the appropriate multiplication factor for your total calculation, press  to accept.



Note: This is the number by which the rate will be multiplied before being added to the total. The default is X1, meaning that the rate will be multiplied by 1.0 before being added to the total. You have the option of multiplying by 100, 1,000, or one million.

16

Repeat steps 13 through 15 to set the grand total units and multiplication factor.



17

Press  to access the **Decimal Point** (Decimal Point) menu.



18 (Pulse In Continued)

Press  to access the *rAtE* (Rate Decimal Point) menu.



19

Press  to select the appropriate decimal point location for your rate measurement, press  to accept.



20

Press  to access the *tOtAL* (Total Decimal Point) menu.



21

Press  to select the appropriate decimal point location for your rate measurement, press  to accept.



22

Repeat steps 20 and 21 to set the grand total decimal point location.



23

Press and hold  to return the meter to *Run Mode*.



Program Open Collector Pulse Output

These instructions show you how to program the ProtEX meter to output the rate as pulse signals from the two NPN open collector outputs based on programmed parameters.

Note: Additional pulse output options not covered in this quick start guide, including *tOtAL* (Total), *GrTot* (Grand Total), *rEtE* (Retransmit), *QuAD* (Quadrature), and *tESE* (Test), are covered in detail in the PD6830 instruction manual.

1

Press and hold  until the meter displays *ADVANCE* (Advanced). The meter is now in the *Advanced Features* menu.



2

Press  to access the *OUTPUT* (Output) menu.



3

Press  to select the output you want to program (Output 1 or Output 2), press  to access.



4

Press  to select the *PULSE* (Pulse) menu, press  to access.



5 (Pulse Out Continued)

Press  to access the **rRtE** (Rate) menu.



6

Press  to select an appropriate decimal point location for the output pulse count, press  to access.



7

Using  to select a digit and  to increment the selected digit, enter the output count. Press  to accept.



Note: The number entered during step 7 is the output pulse count, or the number of pulses that should be outputted per input pulse (adjusted by input K-Factor). For a 1-to-1 ratio, the count should be set to 1. Otherwise, the output will be calculated as follows:

$$\text{Number of Output Pulses} = \frac{\text{Input Pulses}}{\text{Input K-Factor}} \times \text{Count}$$

Program Open Collector Alarm Output

These instructions show you how to program the ProtEX meter to output an alarm state via the two NPN open collector outputs based on programmed set and reset points.

1

Press and hold  until the meter displays **ADVANCE** (Advanced). The meter is now in the *Advanced Features* menu.



2

Press  to access the **OUTPUT** (Output) menu.



3

Press  to select the output you want to program (Output 1 or Output 2), press  to access.



4

Press  to select the **ALrm** (Alarm) menu, press  to access.



5

Press  to select the output parameter, press  to access.



Note: **rRtE**, **tOtAL**, and **GrTAL** will output alarm states related to the rate, total, or grand total. **On** and **OFF** will force the output alarm into either the on or off alarm state.

6

Press  to access the **SEt** (Set Point) menu for your chosen parameter.



Note: This menu will allow you to program the value at which the selected parameter will trigger the alarm. The reset point is the value at which the parameter will deactivate the alarm state.

7 (Alarm Out Continued)

Using to select a digit and to increment the selected digit, enter the desired set point. Press to accept.



8

Press to access the *rESEt* (Reset Point) menu for your chosen parameter.



9

Using to select a digit and to increment the selected digit, enter the desired reset point. Press to accept.



Note: Programming the *set point* to be **greater** than the *reset point* will result in a high alarm (meaning the alarm will turn on when the value is greater than the set point). Programming the *set point* to be **less** than the *reset point* will result in a low alarm.

Note: The alarm status will show on the display even if the output is not wired.

Program 4-20 mA Analog Output

These instructions show you how to program the ProtEX meter to output an analog signal based on a desired parameter. This signal is commonly output to a PLC or chart recorder.

Note: This feature is only available on certain PD6830 models. Please consult the footnote in the wiring section or the ordering information section of the instruction manual for models that include this option.

1

Press and hold until the meter displays *ADVANCE* (Advanced). The meter is now in the *Advanced Features* menu.



2

Press until the *R OUT* (Analog Output) menu is displayed, press to access.



3

Press to select the parameter you want to output (i.e. rate, total, or grand total), press to access.



Note: The following menus will ask you to program display and output values. A display value is the process value being displayed by the meter. An output value is the current in mA that the meter should output at that display value. Display 1 represents the low end of the display value range while display 2 is the high end. Output 1 is the low end of the analog output and output 2 is the high end.

4

Press to access the *dSP 1* (Display 1) menu. This is the value at which the low end of the analog signal range will be output.



5

Using to select a digit and to increment the selected digit, enter the desired display value. Press to accept.



6 (4-20 mA Out Cont.)

Press  to access the *OUT 1* (Output 1) menu. This is the value in mA which will be output at *dSP 1* (Display 1).



7

Using  to select a digit and  to increment the selected digit, enter the desired output value. Press  to accept.



8

Repeat steps 4 through 7 for the high end of the display (*dSP 2*) and output (*OUT 2*) ranges.



9

Once *dSP 2* and *OUT 2* have been programmed, press  to save the programmed settings to memory.



Return Meter to Factory Defaults

If a mistake has been made while programming the meter and it is unclear where the error occurred, the best option may be to perform a factory reset of the meter and begin again. These steps show how to perform a factory reset of the ProtEX meter.

1

Press and hold  until the meter displays *ADVANCE* (Advanced). The meter is in the *Advanced Features* menu.



2

Press  until the *SYSTEM* (System) menu is displayed, press  to access.



3

Press  until the *BACKUP* (Backup) menu is displayed, press  to access.



4

Press  until the *DEFLT* (Defaults) menu is displayed, press  to accept.



5

Press  again when the meter flashes *RESET DEFAULTS?* (Reset Defaults?) to confirm.



6

The meter has been reset to its default settings. You can now begin programming the meter again.

