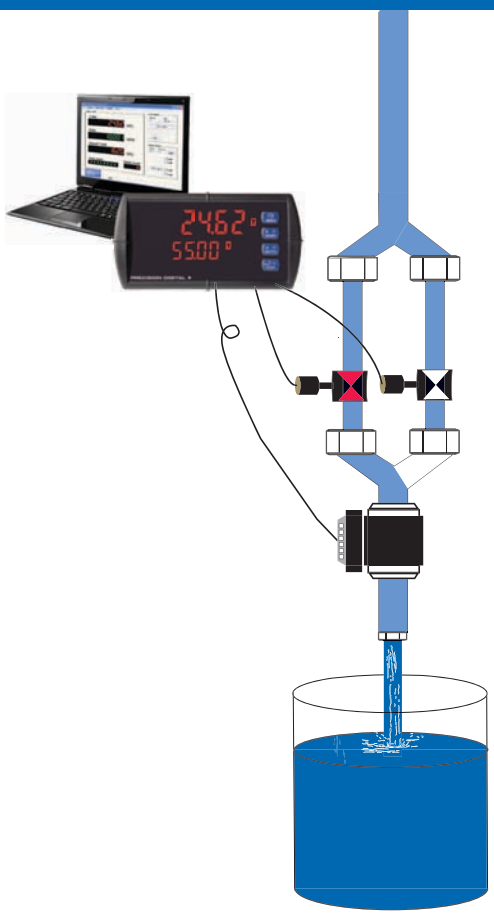
BATCH CONTROLLERS

ProVu® • Model PD6210 Analog Input

ProVu® • Model PD6310 Pulse Input



c UL us LISTED



Two-Stage
Batch Control Example

ProVu® Series

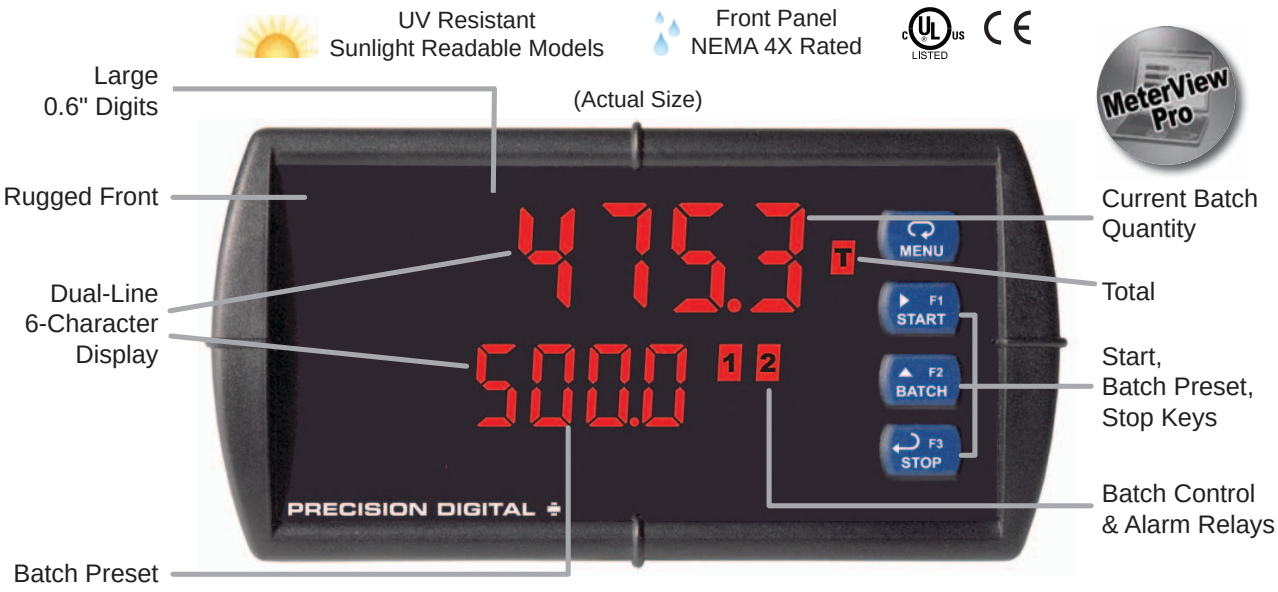
BATCH CONTROL FEATURES

- Start/Pause/Stop, Change Batch with Front Buttons
- Display Batch Total, Rate, Grand Total, Count or Preset
- Single or Multi-Stage Batch Control (Up to 8 Relays)
- Automatic Overrun Correction
- Rate in Units per Second, Minute, Hour, or Day
- Automatic or Manual Batch Control
- Low or High Flow Alarms while Batching
- 9 Digit Grand Total with Overflow Feature
- Count Up or Down with Each Batch
- Program and Control with a Computer Using MeterView Pro

ADDITIONAL FEATURES

- PD6210: 0-20 mA, 4-20 mA, 0-5 V, 1-5 V, and ±10 V Inputs
- PD6310: Pulse, Open Collector, NPN, PNP, TTL, Switch Contact, Sine Wave (Coil), Square Wave Inputs
- Large Dual-Line 6-Digit Display, 0.60" & 0.46"
- NEMA 4X, IP65 Front
- 85-265 VAC or 12/24 VDC Input Power
- Sunlight Readable Display Models
- 2 or 4 Relays + Isolated 4-20 mA Output Options
- External 4-Relay & Digital I/O Expansion Modules
- USB, RS-232, & RS-485 Modules for Modbus® RTU

ProVu® PD6210 & PD6310 Batch Controllers



INTUITIVE BATCH CONTROL

The front panel has intuitive buttons and displays that make operating the batch controller clear and easy right out of the box. START, BATCH, and STOP buttons come setup by default for batch controller operation. The START button is used to begin a batching process. The BATCH button is used to quickly access the preset value. The STOP button can be pressed once to pause a batch, or twice to cancel a batch in progress. The upper and lower displays can be easily configured for your application need. The STOP button may be used to easily cycle the lower display information while the batch is stopped.

Easily Choose Your Display Information



Batch Total & Preset
The preset on the lower display provides even quicker access to the preset menu just by using the arrow keys to change the value.



Batch Total & Rate
The rate on the lower display may be alternated with units for variable flow batching systems. Rate alarms may also be used during the batch process.



Batch Total & Batch Count
The batch count on the lower display, tracks completed batches. The count may be set back to 0 with the reset menu.



Batch Total & Grand Total
A grand total with overflow digits for up to a 9 digit total may be displayed in the lower display, with password protection and non-resettable programmable features.

Clearly Labeled Displays

The upper display alternates the display to show the controller state when in pause or stop mode. When displaying rate, grand total, batch count, or preset, the lower display alternates between the display value and the function or unit of measure.



Batch Total & Preset **Alternating Display**

Grand Total Displays Up to 9 Digits

These batch controllers can display up to nine digits of total flow with the grand total feature. In the diagrams below, the batch controller is displaying 532,831,470 by toggling between a display of “oF 532” and “831470”. Notice the (GT with arrow ▲ symbol) is lit up indicating the display is in a grand total overflow mode.



Simple to Program

The user friendly dual-line display makes the ProVu easy to set up & program. No jumpers to set for input selection. All setup & programming are done via the front panel.



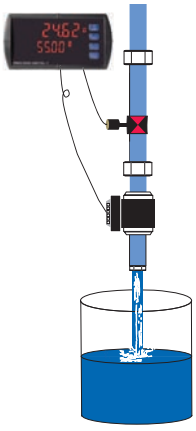
Input Setup **Display Setup**

BATCH CONTROLLER CAPABILITIES

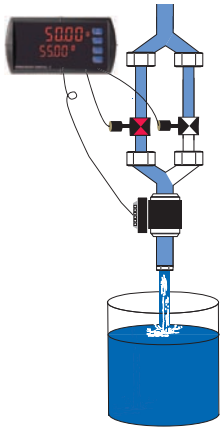
A PROVU batch controller can be programmed for a wide variety of applications. Setup is easy for single or multi-stage batching. Automatic overrun correction keeps the batch size accurate, even over time and with system wear. It can record grand total, or non-resettable grand total with a time base of seconds, minutes, hours or days. The user can program a conversion factor, and configure a non-resettable grand total, and password protection.

Single and Multi-Stage Batching

The PROVU can be used as a single or multi-stage batch controller. Relays assigned to the total act as batch control relays, with additional relays beyond the first including a preclose value. The preclose deactivates the relay before the batch is finished, to allow slower fill rates and a more accurate batch finish. With expansion module relays, up to eight-stage batching is possible. Each additional stage batching relay has an individually programmable preclose amount.



Single Stage Batch Control



Multi-Stage Batch Control

Manual or Automatic Batch Control

Batches may be started manually with the START front panel button, or with a remote digital input trigger. Batches may also be programmed to start automatically after a 0 to 999.9 second delay after the end of the last completed batch. A manually stopped batch will not automatically restart. The START button or digital input must be used.

Automatic Overrun Correction

The PROVU batch controller will correct for batch overrun or shortages automatically. By tracking the amount the batch was off by, the controller will automatically adjust the batch by modifying the batch relay deactivation time.

Quick Preset Changes

The front panel BATCH key is configured by default to access the preset menu. The preset may be changed quickly and easily between batches without the need to enter setup menus.



Non-Resettable Grand Total

The user can set up the grand total to be non-resettable by entering a specific password. Once this is done, the grand total can never be reset.

Total Conversion Factor

The user can enter a conversion factor that allows the controller to display total in different units than the rate. For instance, an operator could measure flow rate in gallons per minute and grand total in hundredths of acre-feet.

Grand Total & Rate Alarms

The PROVU's four internal and four external relays can be set up to alarm when the grand total reaches a user-defined set point or when the rate is above or below a certain value. Rate alarms are only activated when the batching process is running. A variety of reset modes are available and the user can also program time delays and fail-safe operation.

Relay Outputs

The PROVU has up to four 3 A Form C relays (SPDT) with multiple programmable functions. One (relay 1) should always be used for batch control. Other relays may be configured as additional batch relays, with or without preclose for multi-stage batching or as alarms for the rate or grand total. Each alarm has multiple power loss fail-safe options. Alarm relays can be configured for proper protective action upon input loop break. Alarm relay ON and OFF delay times are user adjustable. Up to eight front panel indicators show alarm and/or relay state. All alarm relays can be configured for 0-100% deadband. Rate alarms are only active while a batch is running.

Relay Operation/Configuration

There are powerful relay functions that can be configured in the PROVU controller, including:

- Single and multiple stage batch control with preclose
- Manual and automatic batch control modes
- Rate alarms during batch process
- Grand total alarms
- Sampling function
- User selectable fail-safe operation
- Relay action for loss (break) of 4-20 mA input signal (PD6210)
- Time delay (on and off), independent for each alarm relay

Analog Output

The isolated analog retransmission signal can be configured to represent the batch total, grand total, maximum (peak) value, minimum (valley) value, the value for any of the eight relay set points, manual setting control, or Modbus input. While the output is nominally 4-20 mA, the signal will accurately accommodate under- and over-ranges from 1 to 23 mA.

Isolated Transmitter Power Supplies

A powerful 24 V @ 200 mA power supply is a standard feature on the PROVU controller. It can be configured for 5, 10, or 24 V (default) by means of a simple internal jumper (see manual). An additional power supply (24 V @ 40 mA) is standard with the 4-20 mA output option.

Four Types of Password Protection

The PROVU offers 4 types of password protection. Level 1 protection allows the operator use of only the 3 pre-configured function keys on the front panel without a password. Level 2 protection allows the operator use of only the function keys and the ability to change set points without a password. Level 3 protection restricts the function keys and all configuration menus without a password. Grand total reset protection prevents the total from being reset manually.

Environmentally Protected

The PROVU has standard UV protection, a NEMA 4X front panel, extremely durable face plate, performs in wide ambient operating temperatures, and is CE Certified (high noise and RF immunity).

Optional SunBright Display Models

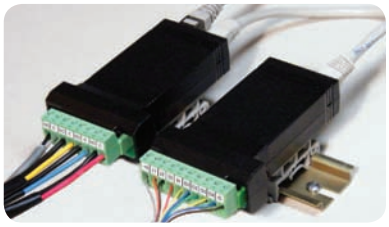
PROVU's SunBright display models have an extraordinarily bright LED display. They are perfect for applications where the controller is in direct sunlight or in applications where visibility may be impaired by smoke, fog, dust, or distance. This option is available on all PROVU models.



Rugged

A unique front panel design makes the PROVU nearly impenetrable in typical applications. Here, the PROVU easily survives a direct hit on the display from a heavy 2" solid stainless steel ball dropped from eight feet.

FIELD EXPANSION MODULES



Add functionality to the PROVU in the field with easy-to-install external expansion modules. Add RS-232, RS-422/485 , or USB communications, I/O modules (up to 2), and 4-relay expansion module. The menu items for these modules do not appear until the module is connected, simplifying the basic menu. Relay and digital I/O modules are shown below with optional DIN rail mounting kit, P/N PDA1002.

PDA1044 I/O Expansion Module

Four digital inputs and four digital outputs are available per expansion module. The PROVU controller will accept two of these modules. External digital inputs can function similarly to the front panel function keys.

PDA1004 Relay Expansion Module

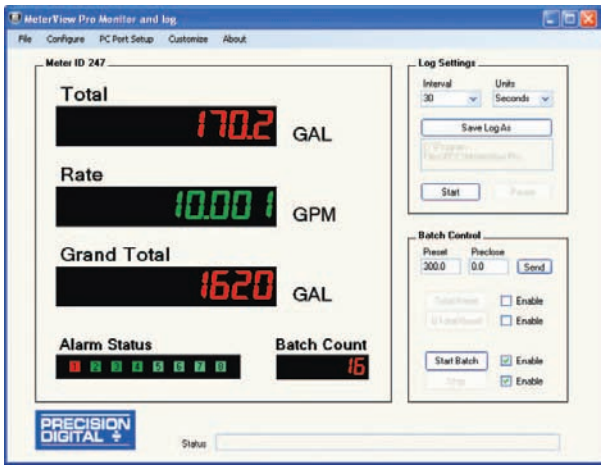
An external module containing four 3 A Form A (SPST) relays can be added to the PROVU at anytime. Removable screw terminal blocks accept 12 to 22 AWG wire.

PDA1232, PDA1485, & PDA8008 Communication Modules

Serial communications on the PROVU can be added anytime with external PDA1232 (RS-232), PDA1485 (RS-422/485), or PDA8008 (USB) communication adapters.

METERVIEW® PRO SOFTWARE

Configure, monitor, control, and datalog a PROVU PD6210 or PD6310 from a PC using MeterView Pro Software (available for free download at www.predig.com) and a serial adapter.



Batch Control From a Computer

Through MeterView Pro Software, the preset and relay 2 preclose may be easily changed from the main control window shown above. The total and grand total may be reset with just the click of a button. The batch controller may be started, paused, and stopped through the control window, for full featured batch controller operation.

Fully Program the Controller

All the programming parameters of the controller may be configured from MeterView Pro Software. The configuration file may be saved for later use, and saved configuration files may be loaded into the software for download into the PROVU.

DIGITAL COMMUNICATIONS

Modbus® RTU Serial Communications

With the purchase of a serial communication adapter, PROVU controllers can communicate with any Modbus Master device using the ever-popular Modbus communications protocol that is included in every PROVU. Below are some examples of other things that can be done with PROVU's Modbus communications.

- Start, pause, stop, or change preset values
- Send a 6-character message to the lower display upon an event
- Remote user control (i.e. change set points, acknowledge alarms)
- Read rate, total, grand total, batch count, etc.



Modbus PV Input



Remote Message

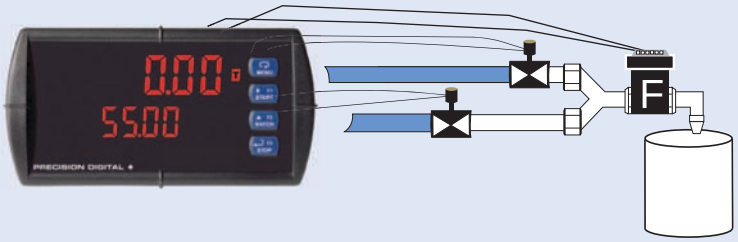
Controller Copy

The Copy feature is used to copy (or clone) all the settings from one PROVU to other PROVU controllers in about 20 seconds! The Copy function is a standard feature on all controllers. It does not require a communications adapter, only an optional cable assembly, P/N PDA1200. See the ordering information for complete details.

MANUAL MULTI-STAGE BATCH CONTROL OPERATION

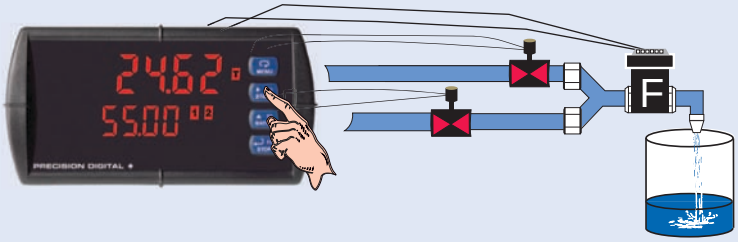
System Setup

1. Both valves are closed with an empty barrel in place. The batched total is displayed in the upper display, the preset is selected for the lower display.



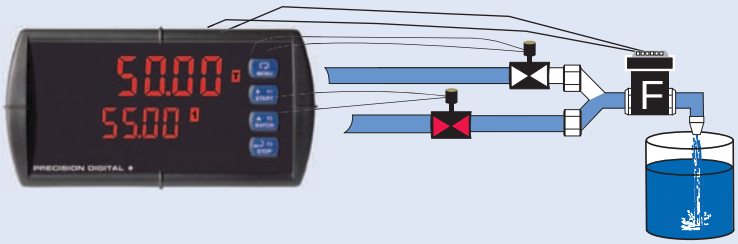
Batch Start

2. The START button is pressed, with both valves open. The barrel begins to fill.



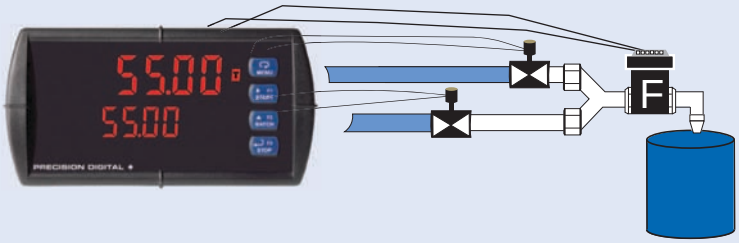
Preclose Valve

3. When the batch total reaches a value of 50.00 (Preset [55.00] – Preclose [5.00]) the full-flow valve closes. The fill rate of the tank slows as a result.



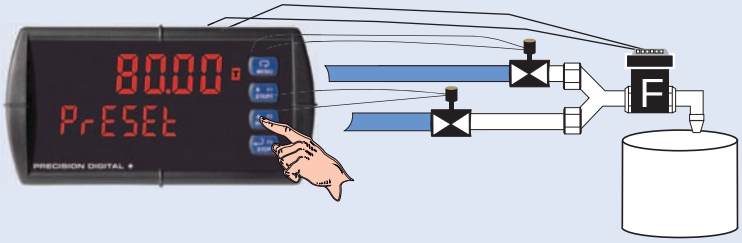
Completed Batch

4. When the batch total equals the preset amount, the restricted-flow valve closes. The barrel is now full. If some overrun occurs, the next batch will adjust for this offset amount to maintain accuracy.



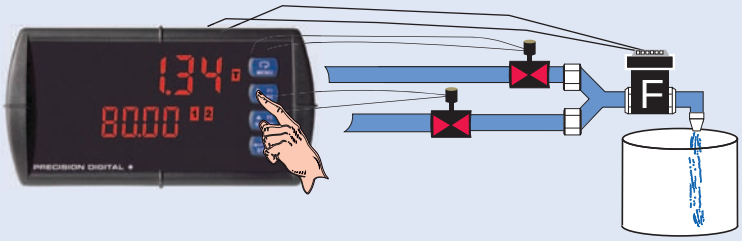
Change Preset

5. After placing a new, empty barrel, a new preset fill amount may be selected with the BATCH key, while the process is stopped.



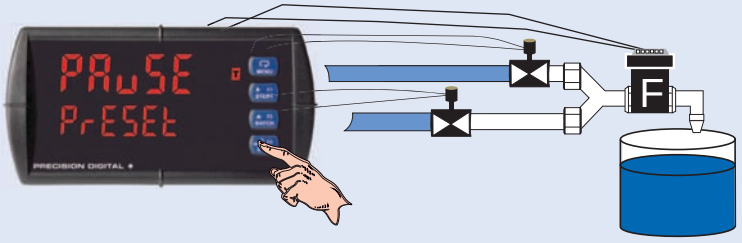
Begin New Batch

6. Press the START key and a new batch will begin. With both valves open, the process continues.



Pause/Stop

7. At any time, the STOP button may be pressed, once to Pause the process, or twice to cancel the batch, which stops the process.



VALVE KEY LEGEND



NEMA 4, NEMA 4X, AND EXPLOSION-PROOF ENCLOSURES

Thermoplastic and stainless steel NEMA 4X, and painted steel NEMA 4 enclosures are available. Also available is the ProtEX-MAX for hazardous area applications requiring explosion-proof enclosures. Visit our website at www.predig.com for more information.



PDA2811
Plastic Low-Cost



PD8 Series
ProtEX-MAX

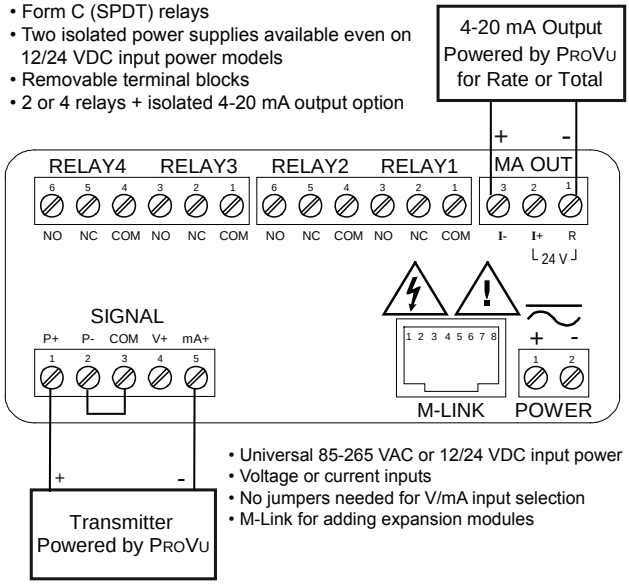


Enclosure Selection Utility Online

CONNECTIONS

PD6210

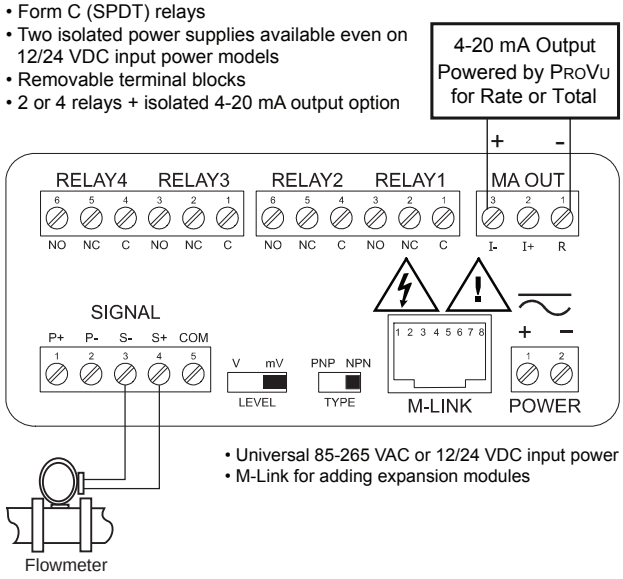
- Form C (SPDT) relays
- Two isolated power supplies available even on 12/24 VDC input power models
- Removable terminal blocks
- 2 or 4 relays + isolated 4-20 mA output option



- Universal 85-265 VAC or 12/24 VDC input power
- Voltage or current inputs
- No jumpers needed for V/mA input selection
- M-Link for adding expansion modules

PD6310

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- 2 or 4 relays + isolated 4-20 mA output option



- Universal 85-265 VAC or 12/24 VDC input power
- M-Link for adding expansion modules

SPECIFICATIONS

Except where noted all specifications apply to operation at +25°C.

General

Display: Upper display: 0.60" (15 mm) high. Lower display: 0.46" (12 mm) high. Both displays are 6 digits (-99999 to 999999), red LEDs with leading zero blanking.

Default Display Assignment: The upper display shows batch total. The lower display shows rate with alternating units, and can be switched to show grand total, batch count, or preset with the STOP key.

Custom Display Assignment: The upper and lower displays may be assigned to rate, total, grand total, batch count, preset, set points, units (lower display only), alternating R & T, R & GT, preset & rate, max & min, or a Modbus display register. Any rate display may be programmed to alternate with a custom unit or tag.

Alternating Display: Displays alternate every 10 seconds when display is selected or the batch is paused.

Display Intensity: Eight user selectable intensity levels

Display Update Rate: 5/second (200 ms)

Overrange: Display flashes 999999

Underrange: Display flashes -99999

Front Panel: NEMA 4X, IP65

Operating Methods: Three programmable front panel buttons (default START, BATCH, STOP), digital inputs, PC and MeterView Pro software, and Modbus registers.

Programming Methods: Four front panel buttons, digital inputs, PC and MeterView Pro software, Modbus registers, or cloning using Copy function.

Noise Filter: Programmable from 2 to 199 (0 will disable filter)

Filter Bypass: Programmable from 0.1 to 99.9% of calibrated span.

Recalibration: All ranges are calibrated at the factory. Recalibration is recommended at least every 12 months.

Max/Min Display: Max (Peak) / min (Valley) readings reached by the process are stored until reset by the user or until power is cycled.

Password: Three programmable passwords restrict modification of programmed settings and two prevent resetting the totals. Pass 1: Allows use of function keys. Pass 2: Allows use of function keys, digital inputs, and editing set/reset points. Pass 3: Restricts all programming, function keys, and digital inputs. Gtotal password: Prevents resetting the grand total manually.

Non-Volatile Memory: All programmed settings are stored in non-volatile memory for a minimum of ten years if power is lost.

Power Options: 85-265 VAC 50/60 Hz, 90-265 VDC 20 W max, or jumper selectable 12/24 VDC ±10%, 15 W max.

Fuse: Required external fuse: UL Recognized, 5 A max, slow blow; up to 6 controllers may share one 5 A fuse.

Isolated Transmitter Power Supply: Terminals P+ & P-: 24 VDC ± 5% @ 200 mA max (standard), (12/24 VDC powered models rated @ 100 mA max). 5 or 10 VDC @ 50 mA max, selectable with internal jumper J4.

Normal Rejection Mode: Greater than 60 dB at 50/60 Hz (PD6210)

Isolation: 4 kV input/output-to-power line. 500 V input-to-output or output-to-P+ supply.

Overvoltage Category: Installation Overvoltage Category II: Local level with smaller transient overvoltages than Installation Overvoltage Category III.

Environmental: Operating temperature range: -40 to 65°C. Storage temperature range: -40 to 85°C. Relative humidity: 0 to 90% non-condensing.

Connections: Removable screw terminal blocks accept 12 to 22 AWG wire, RJ45 for external relays, digital I/O, and serial communication adapters.

Enclosure: 1/8 DIN, high impact plastic, UL 94V-0, color: black

Mounting: 1/8 DIN panel cutout required: 3.622" x 1.772"
(92 mm x 45 mm). Two panel mounting bracket assemblies are provided.

Tightening Torque: Screw terminal connectors: 5 lb-in (0.56 Nm)

Weight: 9.5 oz. (269 g)

Overall Dimensions: 4.68" x 2.45" x 5.64"
(119 mm x 62 mm x 143 mm) (W x H x D)

UL File Number: UL & c-UL Listed. E160849; 508 Industrial Control Equipment.

Warranty: 3 years parts & labor

PD6210 Analog Input

Inputs: Field selectable: 0-20, 4-20 mA, ±10 VDC (0-5, 1-5, 0-10 V), Modbus PV (Slave)

Accuracy: ±0.03% of calibrated span ±1 count, square root & programmable exponent accuracy range: 10-100% of calibrated span

Temperature Drift: 0.005% of calibrated span/°C max from 0 to 65°C ambient, 0.01% of calibrated span/°C max from -40 to 0°C ambient

Signal Input Conditioning: Linear, square root, programmable exponent, or round horizontal tank volume calculation.

Multi-Point Linearization: 2 to 32 points

Programmable Exponent: 1.0001 to 2.9999

Low-Flow Cutoff: 0-999999 (0 disables cutoff function)

Decimal Point: Up to five decimal places or none: d.ddddd, dd.dddd, ddd.ddd, dddd.dd, ddddd.d, or dddddd.

Calibration Range:

Input Range	Minimum Span Input 1 & 2
4-20 mA	0.15 mA
±10 V	0.10 V

An error message will appear if input 1 and input 2 signals are too close together.

Input Impedance: Voltage ranges: greater than 1 MΩ. Current ranges: 50 - 100 Ω (depending on resettable fuse impedance).

Input Overload: Current input protected by resettable fuse, 30 VDC max. Fuse resets automatically after fault is removed.

PD6310 Pulse Input

Inputs: Field selectable: Pulse or square wave 0-5 V, 0-12 V, or 0-24 V @ 30 kHz; TTL; open collector 4.7 kΩ pull-up to 5 V @ 30 kHz; NPN or PNP transistor, switch contact 4.7 kΩ pull-up to 5 V @ 40 Hz; coil (sine wave) 40 mVp-p min @ 10 kHz; Modbus PV (Slave)

Low Voltage Mag Pickup (Isolated): Sensitivity: 40 mVp-p to 8 Vp-p

Minimum Input Frequency: 0.001 Hz - Minimum frequency is dependent on high gate setting.

Maximum Input Frequency: 30,000 Hz (10,000 for Low Voltage Mag Pickup)

Input Impedance: Pulse input: Greater than 300 kΩ @ 1 kHz. Open collector/switch input: 4.7 kΩ pull-up to 5 V.

Accuracy: ±0.03% of calibrated span ±1 count

Display Update Rate: Total: 10/sec, Rate: 10/sec to 1/1000 sec

Temperature Drift: Rate display is not affected by changes in temperature.

Multi-Point Linearization: 2 to 32 points

Low-Flow Cutoff: 0-999999 (0 disables cutoff function)

Decimal Point: Up to five decimal places or none: d.ddddd, dd.dddd, ddd.ddd, dddd.dd, ddddd.d, or dddddd.

Calibration: May be calibrated using K-factor, scale using internal calibration, or calibrate by applying an external calibration signal.

K-Factor: Field programmable K-factor converts input pulses to rate in engineering units. May be programmed from 0.00001 to 999,999 pulses/unit.

Calibration Range: Input 1 signal may be set anywhere in the range of the controller; input 2 signal may be set anywhere above setting.

Filter: Programmable contact de-bounce filter, 40 to 999 Hz maximum input frequency allowed with low speed filter.

Time Base: Second, minute, hour, or day

Low Gate: 0.1-99.9 seconds; this function determines how often the incoming pulses are calculated and the rate display is updated.

High Gate: 2.0-999.9 seconds; this function determines how long to wait for pulses before the display goes to zero. This function is used to display slow pulse rates.

Note: The combination of the low and high gate functions makes it possible to have a fast display update for fast pulse rates while displaying slow pulse rates, if needed. For example: If the low gate is set to 1.0 second and the high gate to 999.9 second, with a fast pulse rate the display is updated every second; with a slow pulse rate the controller is capable of waiting up to 999.9 seconds before calculating the rate, making it possible to display a very slow rate down to 1 pulse/999.9 second (0.001 pulse/second).

Batch Controller

Rate Display Indication: 0 to 999999, lead zero blanking. "R" LED illuminates while displaying rate.

Total Displays & Grand Total Overflow: 0 to 999,999; automatic lead zero blanking. "T" LED is illuminated while displaying batch total and "GT" for grand total. Up to 999,999,999 with total-overflow feature. "oF" is displayed to the left of grand total overflow and ▲ LED is illuminated.

Batch Total Decimal Point: Up to five decimal places or none: d.ddddd, dd.dddd, ddd.ddd, dddd.dd, ddddd.d, or dddddd.
Total decimal point is independent of rate decimal point.

Totalizer: Calculates total based on rate and field programmable multiplier to display total in engineering units. Time base must be selected according to the time units in which the rate is displayed.

Total Conversion Factor: 0.00001 to 999,999

Batch Preset: 0.00001 to 999,999 based on batch total decimal point.

Automatic Batch Restart Delay: 00000.1 to 999.9 seconds. The batch will automatically restart after completion of the last batch.

Grand Total Rollover: Totalizer rolls over when display exceeds 999,999,999. Relay status reflects the display value.

Grand Total Alarms: Up to seven, user selectable under Setup menu. Any set point can be assigned to grand total and may be programmed anywhere in the range of the controller for grand total alarm indication. Note that Relay 1 should always be assigned to batch control (totAL).

Grand Total Reset: Via front panel button, external contact closure on digital inputs, automatically via user selectable preset value and time delay, or through serial communications.

Grand Total Reset Password: A grand total password may be entered to prevent resetting the grand total from the front panel.

Non-Resettable Grand Total: The grand total can be programmed as a non-resettable total by entering the password "050873".
Caution: Once the Grand Total has been programmed as "non-resettable" the feature cannot be disabled.

Relays

Rating: 2 or 4 SPDT (Form C) internal and/or 4 SPST (Form A) external; rated 3 A @ 30 VDC and 125/250 VAC resistive load; 1/14 HP (≈ 50 W) @ 125/250 VAC for inductive loads

Noise Suppression: Noise suppression is recommended for each relay contact switching inductive loads.

Relay Assignment: Relays may be assigned to batch control, sampling, rate, or grand total alarms.

Preclose: 0-100% of batch size, individually user programmable for each additional batch control relay beyond the first.

Alarm Deadband: 0-100% of span, user programmable

High or Low Alarm: User may program any alarm for high or low trip point. Unused alarm LEDs and relays may be disabled (turned off).

Batching Relay Operation: Single or (2 to 8) multi-relay batching with optional preclose for multi-stage operation. Each additional relay may be programmed with an individual preclose value.

Alarm Relay Operation: Automatic (non-latching), latching (requires manual acknowledge), sampling (based on rate or grand total), pump alternation control (2 to 8 relays), off (disable unused relays), and manual on/off control mode. Alarms are active only when the batch is running.

Alarm Relay Reset: User selectable via front buttons, digital inputs, or PC

1. Automatic reset only (non-latching), when input passes the reset point or total is reset to zero.
2. Manual reset only, when batch is stopped (latching).
3. Manual reset only after alarm condition has cleared (latching)

Note: Front panel button or digital input may be assigned to acknowledge relays programmed for manual reset. This replaces one of the standard batch control function keys. Only the PAUSE/STOP key function is possible during a batch process, so manual reset may only be done when the controller is in STOP mode.

Deadband: 0-100% of span, user programmable

Time Delay: 0 to 999.9 seconds, on & off relay time delays. Programmable and independent for each relay.

Fail-Safe Operation: Programmable and independent for each relay.
Note: Relay coil is energized in non-alarm condition. In case of power failure, relay will go to alarm state.

Auto Initialization: When power is applied, relays will reflect the state of the input. Alarms are active only when the batch is running.

PROVU® PD6210 & PD6310 BATCH CONTROLLERS

Isolated 4-20 mA Transmitter Output

Output Source: Rate/process, total, grand total, max, min, set points 1-8, manual control setting, or Modbus input

Scaling Range: 1.000 to 23.000 mA for any display range

Calibration: Factory calibrated: 4.000 to 20.000 = 4-20 mA output

Analog Output Programming: 23.000 mA maximum for all parameters: Overrange, underrange, max, min, and break

Accuracy: ± 0.1% FS ± 0.004 mA

Temperature Drift: 0.4 µA/°C max from 0 to 65°C ambient,

0.8 µA/°C max from -40 to 0°C ambient

Note: Analog output drift is separate from input drift.

Isolated Transmitter Power Supply: Terminals I+ & R: 24 VDC ± 5% @ 40 mA maximum, may be used to power the 4-20 mA output or other devices. Present on both AC & DC powered units.

External Loop Power Supply: 35 VDC maximum

Output Loop Resistance:

Power supply	Minimum	Maximum
24 VDC	10 Ω	700 Ω
35 VDC (external)	100 Ω	1200 Ω

Serial Communications

Protocol: Modbus® RTU

Controller Address/Slave ID: 1 - 247

Baud Rate: 300 - 19,200 bps

Transmit Time Delay: Programmable between 0 and 199 ms or transmitter always on for RS-422 communication

Data: 8 bit (1 start bit, 1 or 2 stop bits)

Parity: Even, odd, or none with 1 or 2 stop bits

Byte-to-Byte Timeout: 0.01 - 2.54 seconds

Turn Around Delay: Less than 2 ms (fixed)

Note: Refer to the PD6000/PD7000 Modbus Register Tables located at www.predig.com for details.

Digital I/O Expansion Module

Channels: 4 digital inputs & 4 digital outputs per module

System: Up to 2 modules for a total of 8 inputs & 8 outputs

Digital Input Logic: High: 3 to 5 VDC Low: 0 to 1.25 VDC

Digital Output Logic: High: 3.1 to 3.3 VDC Low: 0 to 0.4 VDC

Source Current: 10 mA maximum

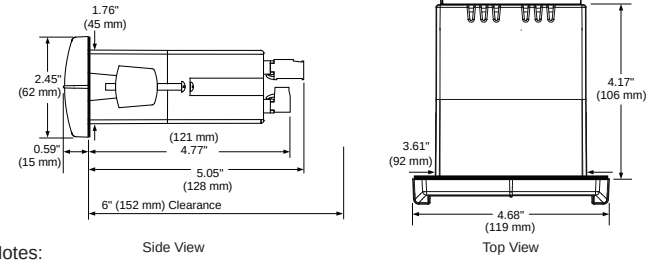
Sink Current: 1.5 mA minimum

+5 V Terminal: To be used as pull-up for digital inputs only.

4-Relay Expansion Module

Relays: Four Form A (SPST) rated 3 A @ 30 VDC and 125/250 VAC resistive load; 1/14 HP (≈ 50 watts) @ 125/250 VAC for inductive loads.

DIMENSIONS



Notes:
1. Panel cutout required: 1.772" x 3.622" (45mm x 92mm)
2. Panel thickness: 0.040 - 0.250" (1.0mm - 6.4mm)
3. Mounting brackets lock in place for easy mounting
4. Clearance: Allow 6" (152 mm) behind the panel

ORDERING INFORMATION

PROVU® PD6210 Analog Input		
85-265 VAC Model	**12/24 VDC Model**	**Options Installed**
PD6210-6R2	PD6210-7R2	2 Relays
PD6210-6R4	PD6210-7R4	4 Relays
PD6210-6R5	PD6210-7R5	2 Relays & 4-20 mA Output
PD6210-6R7	PD6210-7R7	4 Relays & 4-20 mA Output
To order SunBright display models replace the "R" with "H" (i.e. PD6210-6H2) Note: 24 V flowmeter power supply standard on all models.		

PROVU® PD6310 Pulse Input		
85-265 VAC Model	**12/24 VDC Model**	**Options Installed**
PD6310-6R2	PD6310-7R2	2 Relays
PD6310-6R4	PD6310-7R4	4 Relays
PD6310-6R5	PD6310-7R5	2 Relays & 4-20 mA Output
PD6310-6R7	PD6310-7R7	4 Relays & 4-20 mA Output
To order SunBright display models replace the "R" with "H" (i.e. PD6310-6H2) Note: 24 V flowmeter power supply standard on all models.		

Accessories	
Model	**Description**
PDA1002	DIN Rail Mounting Kit for Two Expansion Modules
PDA1004	4-Relay Expansion Module
PDA1044	4 Digital Inputs & 4 Digital Outputs Module
PDA1200	Controller Copy Cable
PDA1232	RS-232 Serial Adapter
PDA1485	RS-422/485 Serial Adapter
PDA7485-I	RS-232 to RS-422/485 Isolated Converter
PDA7485-N	RS-232 to RS-422/485 Non-Isolated Converter
PDA8008	USB serial adapter
PDA8232-N	USB to RS-232 Non-Isolated Converter
PDA8485-I	USB to RS-422/485 Isolated Converter
PDA8485-N	USB to RS-422/485 Non-Isolated Converter
PDX6901	Suppressor (snubber): 0.01 µF/470 Ω, 250 VAC
PDA2811	Plastic NEMA 4X Enclosure for 1 Batch Controller
PDA2812	Plastic NEMA 4X Enclosure for 2 Batch Controllers

See www.predig.com/esu for additional enclosures.

Your Local Distributor is:

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PRECISION DIGITAL CORPORATION
89 October Hill Rd • Holliston MA 01746 USA • Tel (800) 343-1001 • Fax (508) 655-8990
www.predig.com