

Introducing The New

SUPERNOVA

PID Process & Temperature Controllers



Presenter



Joe Ryan

VP of Sales & Marketing

Joe brings more than 15 years of process industry experience in the design, support, manufacturing, marketing, and sales of process measurement and control devices. Joe has extensive field and support experience with process displays and controls, and a strong technical background including a bachelor's degree in Electromechanical Engineering and a master's degree in Computer & Electrical Engineering.



Agenda and Takeaways

01

Introduce the New SuperNova PD500 Series of PID Process & Temperature Controllers.

02

Learn About the Standard Features and Powerful Options the SuperNova Has to Offer.

03

Show the SuperNova TCS Software for Monitoring, Datalogging, and Programming.

04

Review Important Features of the SuperNova Controllers and Compare them to the Old Nova Controllers.

SUPERNOVA



**IN STOCK
NOW**

- Over 800 SuperNovas in Stock Now
- Same Day Shipment
- Order Online at predig.com/PD500

SuperNova Features

SuperNova Features



- Auto-Tuning PID Process & Temperature Controllers
- Reverse Polarity Three-Color LCD: -1999 to 9999
- Thermocouple and RTD Inputs
- DC Voltage and Current Inputs (1-5 V, 0-5 V, 0-10 V, 0-50 mV, 0-100 mV; 4-20 mA with Resistor)
- Primary Control Output Options: 4-20 mA (SCR), Voltage Pulse (SSR), or Relay
- Secondary Control Output Relay Standard on All Models
- Easily Switch Between Auto and Manual Control Modes
- Up to 2 Alarm Relays & 4-20 mA Retransmit Outputs
- Remote Set Value 1-5 V Input Option (4-20 mA with External Resistor)
- FREE Programming and Monitoring Software

SuperNova DIN Sizes

SuperNova Controllers Available in These Popular DIN Sizes



PD510
1/16 DIN



PD520
1/8 (V) DIN



PD530
1/4 DIN

Front Panel Buttons & Status Indicators

Front Panel Buttons and Status Indicators

STATUS INDICATORS

RUN: RUN or STOP status.
Turns on during control.

OUT1: Control output 1 status.
Blinks proportionally for 0-100% output.

OUT2: Control output 2 status.
Blinks proportionally for 0-100% output.

SUB1: Sub output 1 status.
Turns on when sub output 1 is on.

SUB2: Sub output 2 status.
Turns on when sub output 2 is on.

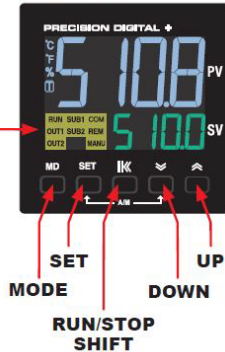
COM: Communications status.
Blinks during active serial communications.

REM: Remote input status.
Turns on when remote input is active.

MANU: Manual control mode status.
Turns on when manual output is on.

TUNE (T): Auto-tuning status.
Blinks during the auto-tuning process.

LOCK: Lock setting status.
Turns on when lock is set.



**MANIPULATED/
OUTPUT VALUE**
Control output value in
operating mode.

UNIT
Displays °C, °F, %, or no unit
depending on set value unit.



USB PORT
The USB port for the
PD510 is located on the
top of the unit.

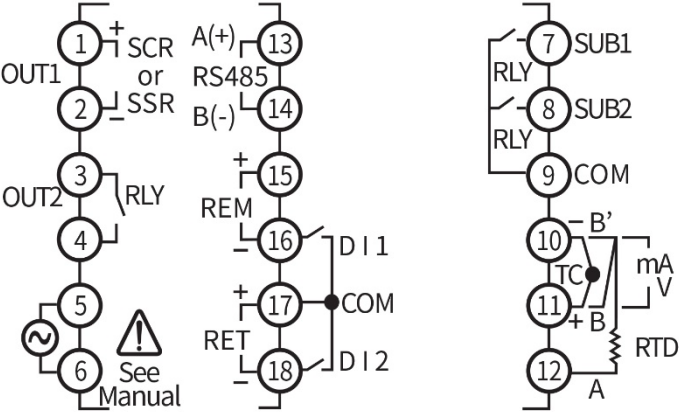


SET VALUE OR OUTPUT VALUE
Displays SV or control output value in operating
mode, displays parameter set value in menu mode.

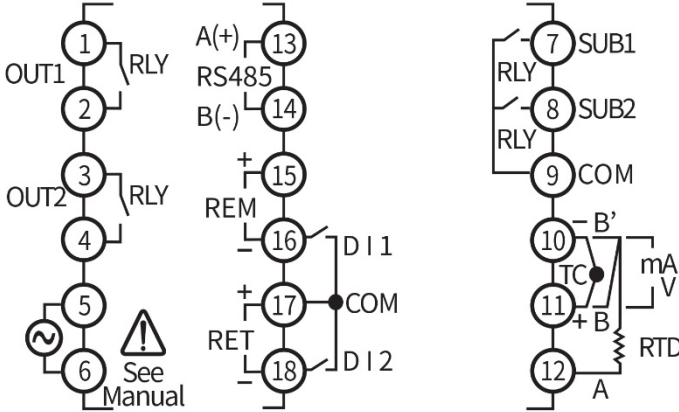
PROCESS VALUE
Displays PV value in operating mode,
displays parameter name in menu mode.

SuperNova Connections

SuperNova Connections

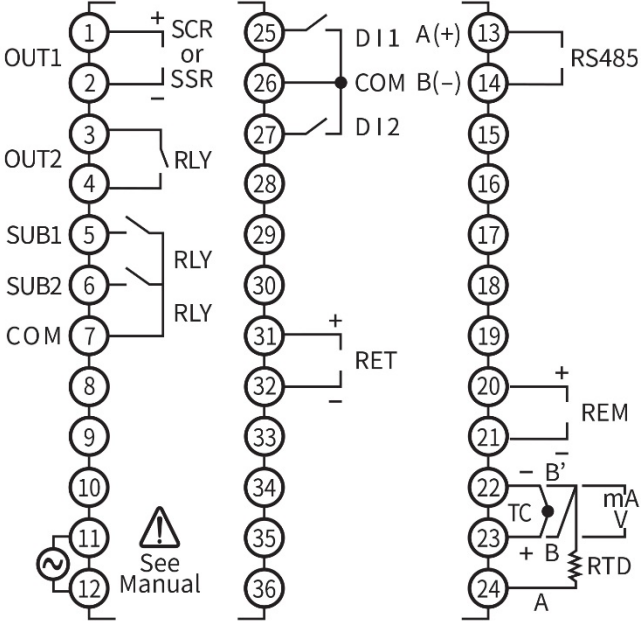


PD510-A or -S (1/16 DIN)

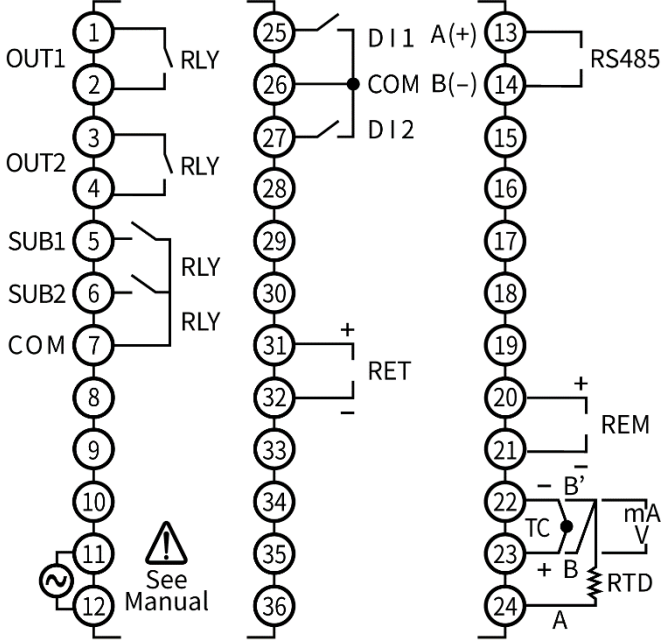


PD510-R (1/16 DIN)

SuperNova Connections

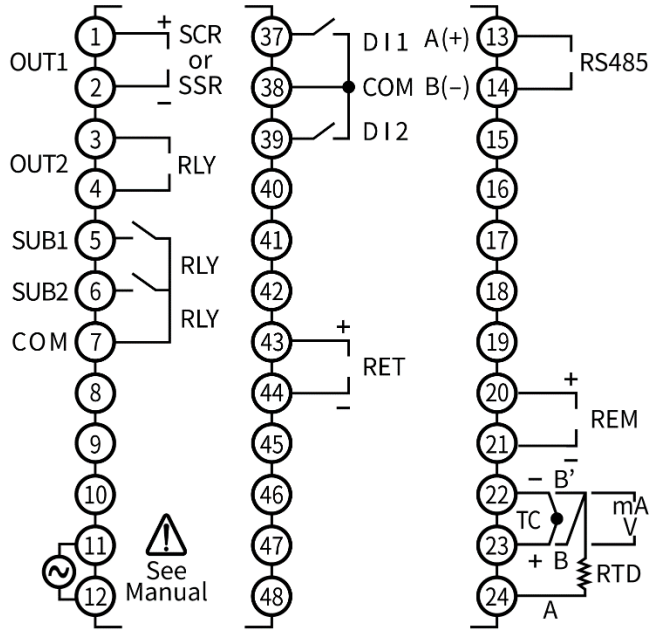


PD520-A or -S (1/8 DIN)

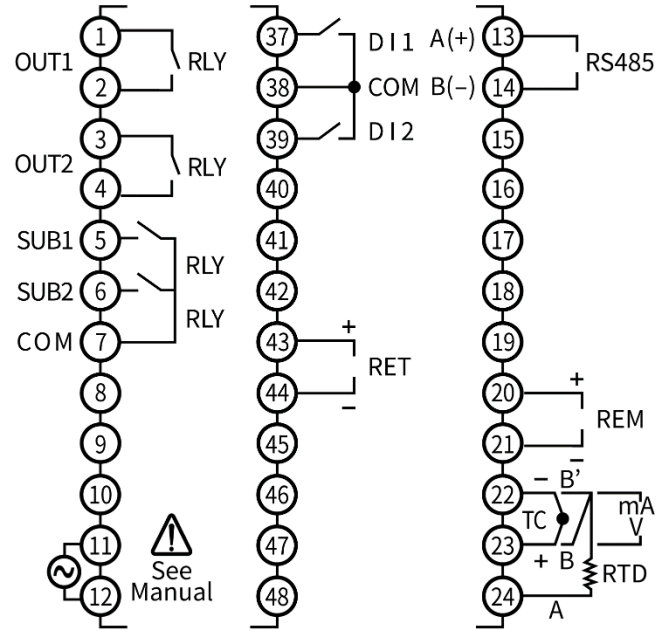


PD520-R (1/8 DIN)

SuperNova Connections



PD530-A or -S (1/4 DIN)



PD530-R (1/4 DIN)

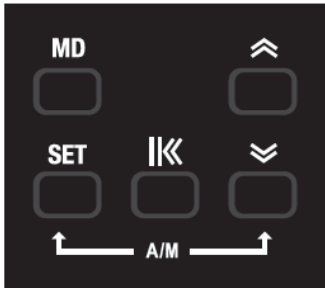
Easy to Read & Operate

Easy to Read & Operate



Information-Packed Display

- PV line displays process variable
- SV line displays set value (or selectable for output value on a PD510)
- MV line displays the manipulated value, or the output value as a %. H (heating) and C (cooling) indicated when enabled.



Button locations on the front of the PD510

Function Keys

- Hold **Shift** for two seconds to toggle Run and Stop modes.
- Use **SET** to change the set value.
- Hold **SET** and **DOWN** for three seconds to toggle Automatic and Manual modes.
- Press **UP** or **DOWN** to acknowledge a latching alarm.
- Hold **SET** and **Shift** for three seconds to Lock/Unlock the unit.

Quick Setup & Programming

Quick Setup & Programming

Group Display	Group Name	General Description
GSV	Set Value Group	Select active Set Values and Set Value limits.
GIN	Input Group	Configure input type and display scaling.
GOUT	Output Group	Configure control outputs.
GSET	Settings Group	Activate digital inputs and view system information.
GCOM	Comm Group	Configure Modbus RS-485 parameters.
GSUB	Sub Group	Assign alarm relays, set delays and relay operation.
GTR5	Transmit Group	Configure retransmit output and remote SV input.
GALM	Alarm Group	Configure alarm types and related parameters.
GCTL	Control Group	Configure for auto-tuning, PID zones, and SV ramps.

Setup Group Menus

- All parameters are grouped by category
- Press and hold **MODE (MD)** button to access group menus
- Use **UP** or **DOWN** arrows to navigate through groups
- Press **SET** button to enter a group or change parameter

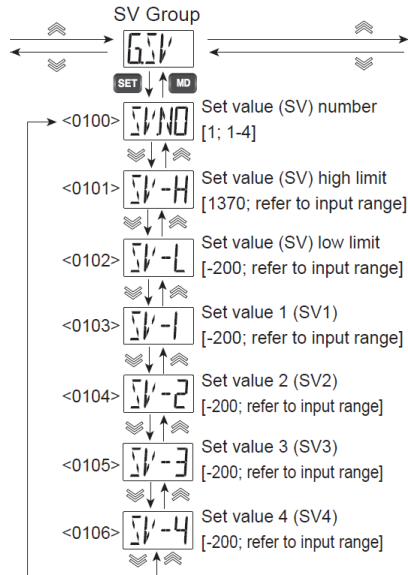


PD530 Showing Set Value Group

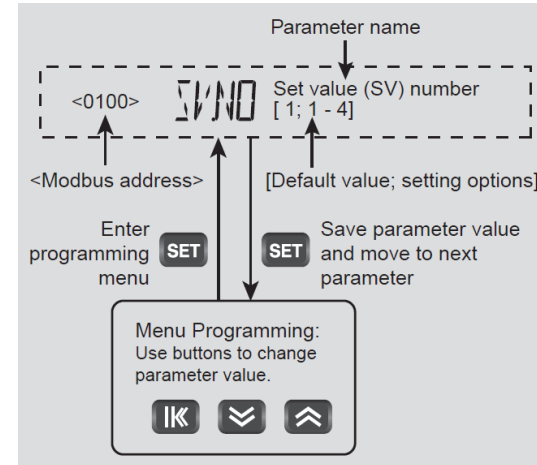
Quick Setup & Programming

Easy to Use Menu Structure

Each parameter is located in an associated menu group:



How to Read Parameters & How to Change Parameter Values

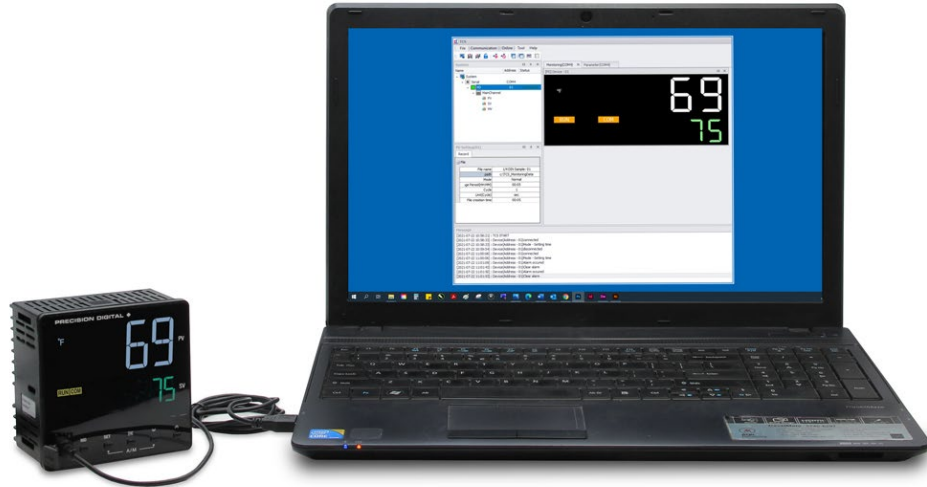


SuperNova TCS Software

SuperNova TCS Software

Key Features

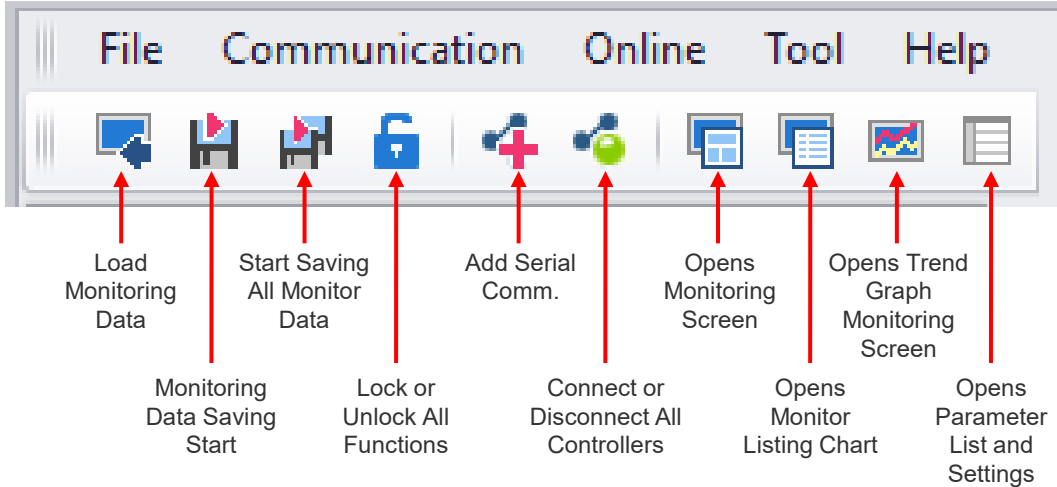
- Free software for monitoring, datalogging, and programming
- Quick and Easy connection to PC with mini-USB port
- Connect up to 31 SuperNova controllers
- View PV, SV, MV, and alarm status simultaneously
- Control set points
- Save configurations
- Log, view, and save data in spreadsheet files



SuperNova TCS Software

Main Menu

The main menu consist of icons representing various commands as show below:

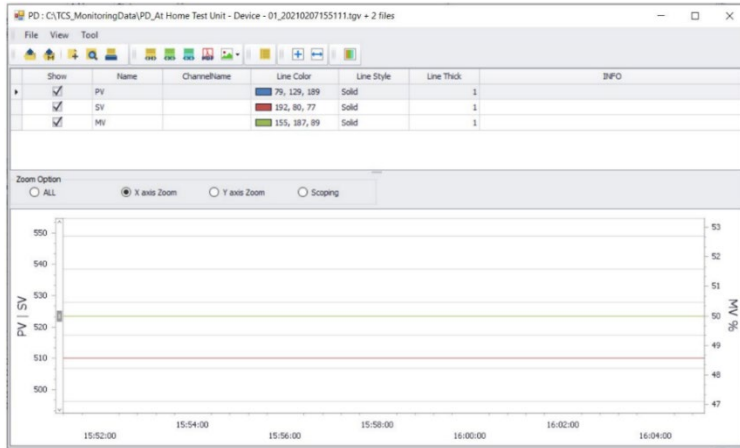


SuperNova TCS Software



Load Monitor Data

Opens the Graph Viewer to see previously data logged information in chart or table form and can be exported into various file formats.



Monitoring

Opens the graphical monitoring screen for the selected controller.



SuperNova TCS Software

Multitrend

Opens the trend graph monitoring screen for all connected controllers.



Parameter

Opens the parameter list and parameter settings for the selected controller.

The screenshot shows a 'Parameter' window for 'PD : Device - 01'. It contains two tables: 'Information group(G.MONITOR)' and 'Temperature setting group(G.SV)'. The 'Information group(G.MONITOR)' table lists parameters such as CPV, CSV, TSV, DP-P, UNIT, MVOUT, H-OUT, C-OUT, PID.NO, SV.NO, NOW_STS, ERR_STS, SUB_STS, ALM_STS, DI_STS, and CTLM. The 'Temperature setting group(G.SV)' table lists parameters such as SV.NO, SV-H, SV-L, SV-1, SV-2, SV-3, and SV-4.

Information group(G.MONITOR)			Temperature setting group(G.SV)		
Address	Register	Info	Address	Register	Info
00000	CPV	69	00100	SV.NO	1
00001	CSV	75	00101	SV-H	2192
00002	TSV	75	00102	SV-L	-328
00003	DP-P	0	00103	SV-1	75
00004	UNIT	°F	00104	SV-2	-328
00005	MVOUT	50.0	00105	SV-3	-328
00006	H-OUT	0.0	00106	SV-4	-328
00007	C-OUT	0.0			
00008	PID.NO	1			
00009	SV.NO	1			
00010	NOW_STS	33			
00011	ERR_STS	0			
00012	SUB_STS	0			
00013	ALM_STS	0			
00014	DI_STS	0			
00015	CTLM	0.0			

Versatile Operation

Versatile Operation

Main Control Outputs

- 4-20 mA (SCR),
- Voltage pulse (SSR)
- Or relay output

Secondary Outputs

- Relay control output standard
- Allows for one or two direction SV control (i.e., heating and cooling).

Analog Retransmit Output

- 4-20 mA Retransmitting Output
- Retransmit Based on PV, SV, or MV

Auto-Tuning PID

- High Accuracy
- Calculates the PID values for your system with the push of a button

Programmable Alarm Relays

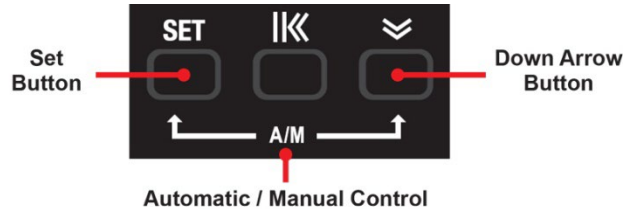
All PD500 Series controllers have two SPST alarm relays.

- On/Off Control
- High/Low Alarms
- Set Point Deviation Alarms
- Loop Break Alarm
- Latching or Automatic Reset
- Fail-Safe and Standby Alarms
- Alarm Delays and Wide Deadbands

Versatile Operation

Auto/Manual Control Mode Switching

- Easily switch to automatic or manual control by pushing two buttons simultaneously!
- A graphic on the front panel labeled A/M points to the buttons to push



Set Value Ramp Up/Down

- When used, the set value (SV) changes over time to reach a newly selected set value.
- When not used, a newly selected SV immediately becomes the active SV.

PID Response Adjustment

- The Alpha parameter allows for easily adjusting the system response without the need to change P, I, or D values.

Versatile Operation

DI Set Point Selection

- Two digital inputs optional
- Active with dry contacts or low logic levels
- Select SV1, SV4, or remote
- Select run and stop modes

Function		DI 1	DI 2
R/S	STOP	0	-
	RUN	1	-
SV	SV1	-	0
	SV4 or REM	-	1

Serial Communication

- RS-485 for Modbus
- SuperNovas are used as Modbus server (slave) devices
- Process control information can be read from the units
- Settings parameters can be read or written to the controllers
- Serial adapters available



Mini-USB Port

- Direct PC connection to run SuperNova Software
- Located on top of the controller for the PD510
- Located on front panel of PD520 and PD530



Mini-USB Port Location for PD520 and PD530: Front Panel, Lower Left



Mini-USB Port Location for PD510: Top of the Controller

A Variety of Rugged Enclosures

A Variety of Rugged Enclosures



NEMA 4 and 4X Field Enclosures

- Provide a high degree of protection against harsh environments
- Thermoplastic (NEMA 4X), stainless steel (NEMA 4X) and painted steel (NEMA 4)
- Houses (1-6) SuperNova controllers
- Precision Digital offers a light/horn that can be mounted to most of these enclosures
- Sufficient space to house other devices such as the PDA1024-1 24 V power supply, signal splitters, isolators, and conditioners



A Variety of Rugged Enclosures

PDA2300 Series

- Plastic NEMA 4X
- Externally mounted through hinged cover
- Cover has stainless steel hinge & latch
- Houses (1-2) PD510 & PD530, and (1-6) PD520 SuperNova Controllers



PDA2301-4 with One PD530 (1/4 DIN)



PDA2301-16 with One PD510 (1/16 DIN)

Precision Digital's enclosures, combined with the SuperNova's shallow 2.5" (63 mm) case, allows lots of space for other devices.



PDA2301-V with One PD520 (1/8 DIN)



PDA2301-V with One PD520 (1/8 DIN) and PDA1024-01 Power Supply

A Variety of Rugged Enclosures

PDA2800 Series

- Low cost, plastic NEMA 4X
- Externally mounted through cover
- Cover has 4 screws
- Houses (1-4) PD510, (1-2) PD520, and (1) PD530 SuperNova Controllers



PDA2812-V with Two
PD520s (1/8 DIN)



PDA2801-V with One
PD520 (1/8 DIN)

PDA3400 Series

- Plastic NEMA 4X with clear cover
- Internally mounted to sub-panel behind clear plastic cover with 4 screws
- Houses (1) PD530 SuperNova Controller



PDA3408 with One
PD530 (1/4 DIN)

A Variety of Rugged Enclosures

PDA2600 Series

- Stainless Steel NEMA 4X
- Externally mounted through hinged cover
- Cover has stainless steel latch
- Houses (1-6) PD520 SuperNova Controllers



**PDA2606-V with Six
PD520s (1/8 DIN)**



**PDA2601-V with One
PD520 (1/8 DIN)**

PDA2700 Series

- Painted Steel NEMA 4
- Externally mounted through hinged cover
- Cover has stainless steel latch
- Houses (1-6) PD520 SuperNova Controllers



**PDA2706-V with Six
PD520s (1/8 DIN)**



**PDA2701-V with One
PD520 (1/8 DIN)**

New SuperNova vs Old Nova Series

New SuperNova vs Old Nova Series

New
SuperNova
Series



Old Nova
Series



Display	Two and three lines of reverse polarity three-color LCDs: PV: white, SV: green, MV: amber, -1999 to 9999	Display	Dual line, 4 digits, red LED, -1999 to 9999
Digit Type	14-segment digits for clear alphanumeric characters.	Display	7-segment digits
Depth Behind Panel	Shallow depth of 2.5" (63 mm)	Depth Behind Panel	3.92" (99.6 mm)
Control Modes	Auto and manual switching with the push of two buttons simultaneously.	Control Modes	Varied by model number, Heating/Cooling or Heating and Cooling.
USB Connection	Mini-USB port standard	USB Connection	None
DIN Sizes	1/16 DIN, 1/8 DIN Vertical, 1/4 DIN	DIN Sizes	1/16 DIN, 3/16 DIN, 1/8 DIN (H & V), 1/4 DIN

New SuperNova vs Old Nova Series

New
SuperNova
Series



Old Nova
Series



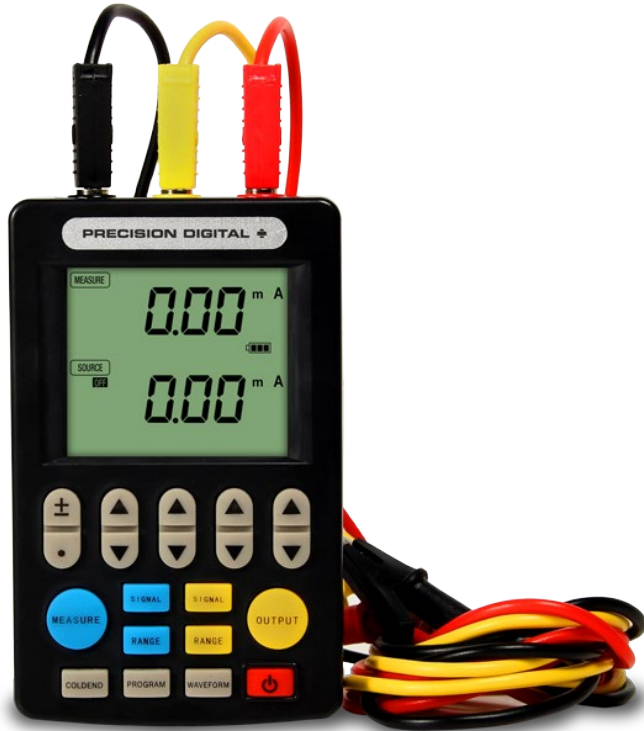
Remote Set Value	1-5 V Input Option (4-20 mA with External Resistor)	Remote Set Value	None
Auto/Manual Control Change	Hold SET & down arrow for 3 seconds. Indicated on front panel.	Auto/Manual Control Change	Requires setup of user function screen and screen navigation.
Run/Stop Mode Change	Hold shift key for 3 seconds	Run/Stop Mode Change	Requires setup of user function screen and screen navigation.
Lock SV and Setting Changes	Hold SET & shift keys for 3 second.	Lock SV and Setting Changes	Menu navigation and numeric password required
Button Type	Rugged hard-plastic pushbutton	Button Type	Membrane faceplate overlay
Starting Price	\$199	Starting Price	\$251 for quantities <5

New SuperNova vs Other PID Controllers



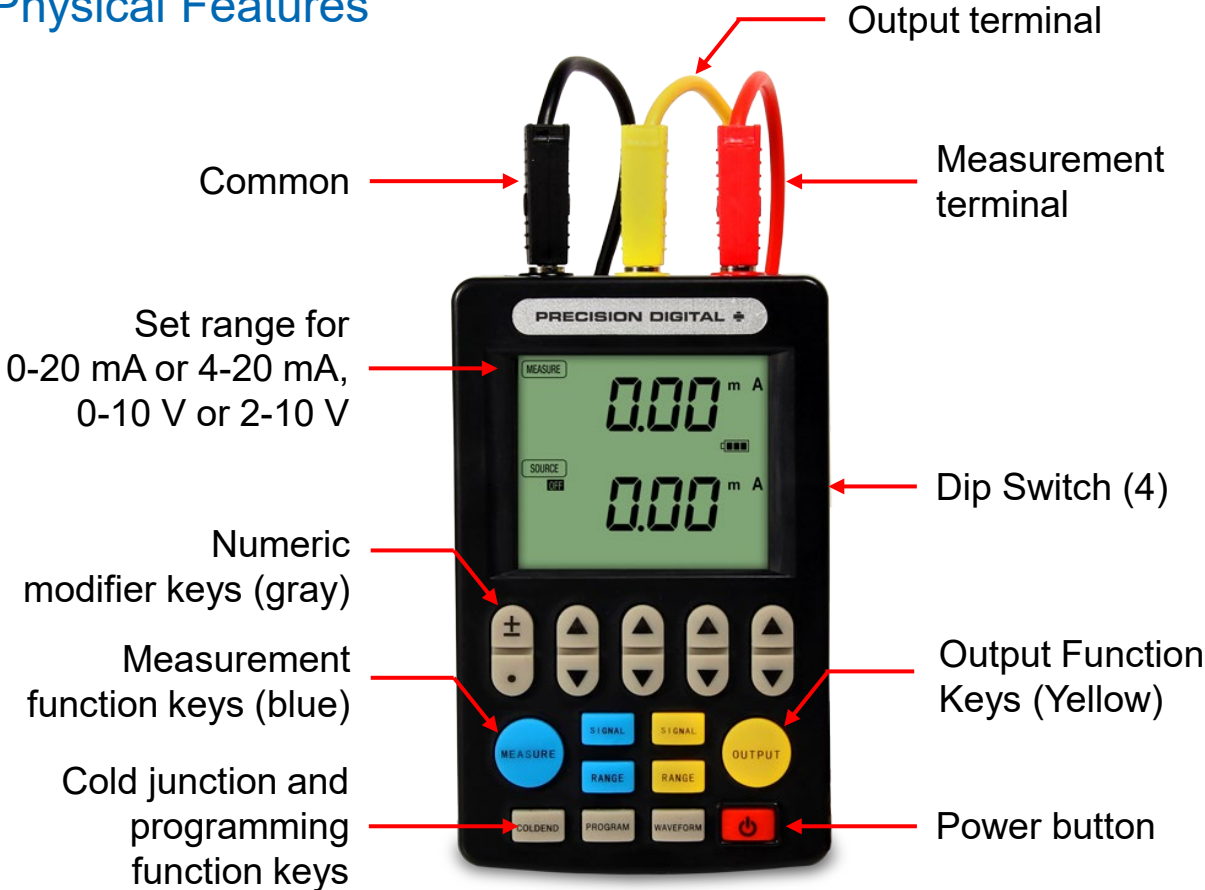
In this photo of a paper mill application, see how much better the clarity and visibility on the PD530 SuperNova looks with its 3-color reverse polarity display and larger digits compared to the other PID controllers on the panel.

PD9501 Multi-Function Calibrator



- Has a variety of signal measurement and output functions including voltage, current, thermocouple, and RTD.
- Compact and lightweight
- Has a 24 V power to drive the transmitter
- \$599

PD9501 Physical Features



PD9501 Storage Case





Questions?

If you have any questions, then reach out to us.



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