



Introduction to the *New* ConsoliDator+

Display, control, and alarm of
multiple 4-20 mA and pulse inputs

Presenter



Joe Ryan
VP of Sales &
Marketing

Agenda and Takeaways

01

Review ConsoliDator+ key features, functionality, pricing

02

Review ConsoliDator+ inputs, outputs, relays, and communication protocols available

03

Review ConsoliDator+ common applications, accessories, and setup and calibration services

Designed by Precision Digital Engineers



Orod Bavar
Principal Engineer

Hardware and Enclosure



James Venable
Sr. Embedded Software Engineer

Firmware and Software



Jose Umana
Sr. Product Engineer

Specifications and Testing

Key Features



- NEMA 4X panel or field mount
- Numeric & bargraph color display
- 20 Screens with up to 8 PVs each
- Isolated 4-20 mA inputs
- Inputs & outputs modular design
- Isolated 24 VDC transmitter power supplies for analog inputs
- RS-485 Modbus RTU standard
- Ethernet Modbus TCP/IP optional
- Math functions
- -40 to 60°C operating temperature
- Pulse or analog input flow rate, total, grand total capability
- Multi-pump alternation control or simple on/off control
- ConsoliDator+ configuration software
- 3 Year warranty

Pricing

Pricing for panel-mount controllers shown.
For field-mount, add \$175 to prices below and change GP to GF.

Model	Price	Pulse Inputs	4-20 Inputs	4-20 Outputs	Relays
PD9000-GP-4AI	\$2,175	0	4	0	0
PD9000-GP-4AI-10RY	\$2,525	0	4	0	10
PD9000-GP-4AI-5AO-10RY	\$2,935	0	4	5	10
PD9000-GP-4AI-20RY	\$2,875	0	4	0	20
PD9000-GP-4AI-5AO-20RY	\$3,285	0	4	5	20
PD9000-GP-8AI	\$2,650	0	8	0	0
PD9000-GP-8AI-10RY	\$3,000	0	8	0	10
PD9000-GP-8AI-10AO-10RY	\$3,820	0	8	10	10
PD9000-GP-8AI-20RY	\$3,350	0	8	0	20
PD9000-GP-8AI-25RY	\$3,525	0	8	0	25
PD9000-GP-12AI	\$3,125	0	12	0	0
PD9000-GP-12AI-20RY	\$3,825	0	12	0	20
PD9000-GP-12AI-10AO-10RY	\$4,295	0	12	10	10
PD9000-GP-16AI	\$3,600	0	16	0	0
PD9000-GP-16AI-15RY	\$4,125	0	16	0	15
PD9000-GP-16AI-15AO	\$4,830	0	16	15	0

Model	Price	Pulse Inputs	4-20 Inputs	4-20 Outputs	Relays
PD9000-GP-20AI	\$4,075	0	20	0	0
PD9000-GP-20AI-10RY	\$4,425	0	20	0	10
PD9000-GP-20AI-10AO	\$4,895	0	20	10	0
PD9000-GP-24AI	\$4,550	0	24	0	0
PD9000-GP-24AI-5RY	\$4,725	0	24	0	5
PD9000-GP-24AI-5AO	\$4,960	0	24	5	0
PD9000-GP-28AI	\$5,025	0	28	0	0
PD9000-GP-4PI	\$2,110	4	0	0	0
PD9000-GP-4PI-5AO	\$2,520	4	0	5	0
PD9000-GP-4PI-5AO-10RY	\$2,870	4	0	5	10
PD9000-GP-4PI-4AI-5AO	\$2,995	4	4	5	0
PD9000-GP-4PI-4AI-5AO-10RY	\$3,345	4	4	5	10
PD9000-GP-4PI-8AI-10AO-10RY	\$4,230	4	8	10	10
PD9000-GP-8PI	\$2,520	8	0	0	0
PD9000-GP-8PI-10AO	\$3,340	8	0	10	0
PD9000-GP-8PI-10AO-10RY	\$3,690	8	0	10	10
PD9000-GP-8PI-8AI-10AO-5RY	\$4,465	8	8	10	5

Code	Description
G	General Purpose
F	Field Mount (add \$175 to prices above and change P to F)
P	Panel Mount (prices as shown)

Code	Description
AI	Analog Input
PI	Pulse Input
AO	Analog Output

Code	Description
E	Ethernet (Add "E" at the end of the model number and \$500 to the price) Example: PD9000-GP-4PI-8AI-10AO-10RY-E

Other configurations are available for special order with a price adder of \$250.

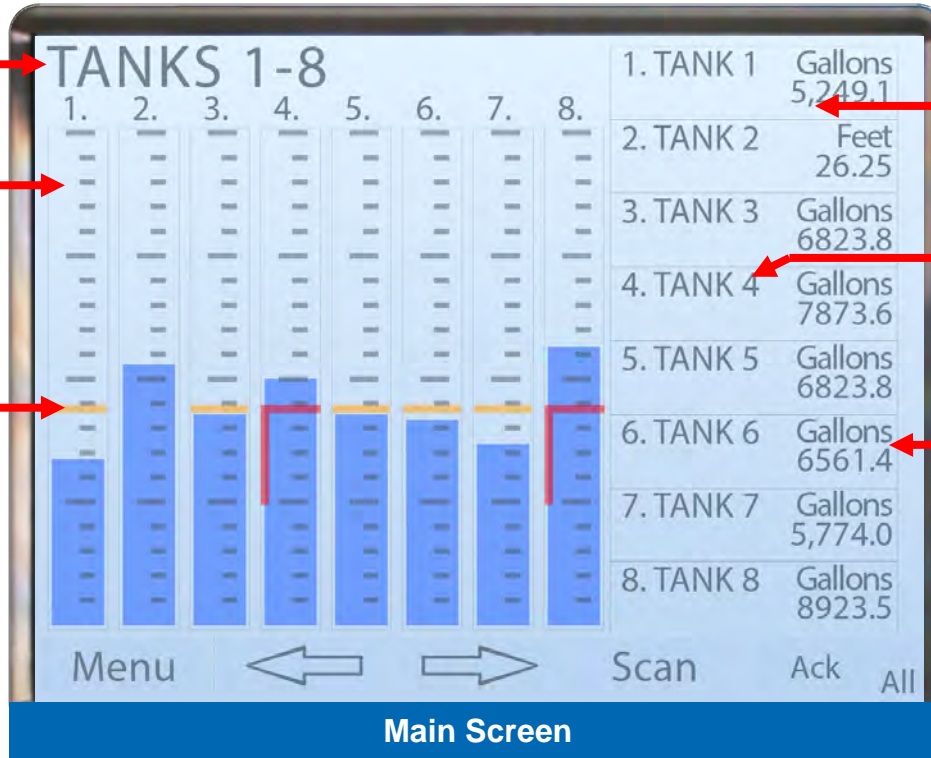
Display Features

NEMA 4X Front

Sunlight Readable Display



- Screen Name
- Display 1 to 8 PVs and Bargraphs on Screen
- Alarm Set and Reset Points Indicated on Bargraph
- Color 5.7" Screen



Commas Available for Easy Reading of Large Numbers

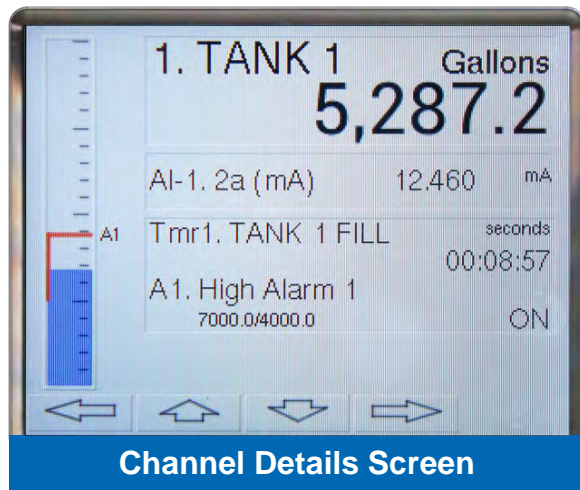
Channel Number & Tag

PV and Units

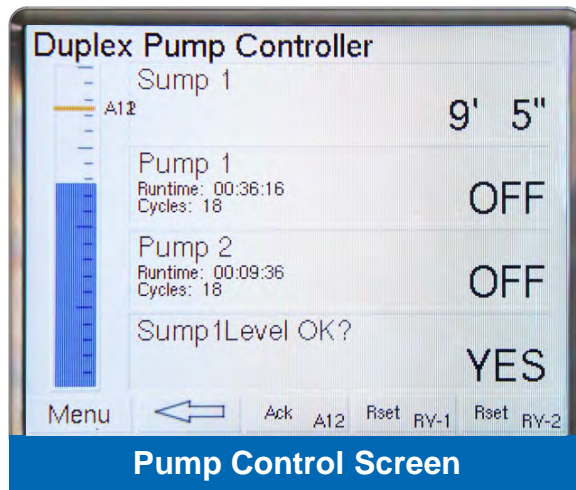
White Backlight

Main Screen

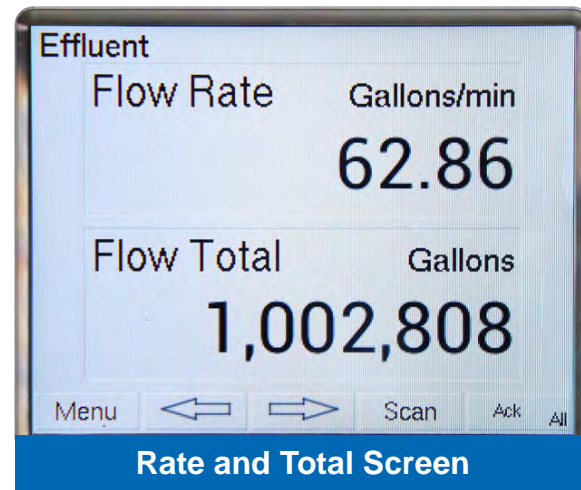
Display Possibilities



- Displays PV & inputs values
- Shows alarm set & reset points
- Displays timer settings



- Displays pump runtime & cycles
- Shows if pump is ON or OFF
- Can indicate if level is OK



- Displays rate and total
- Displays engineering units
- Up to 15-digit total

NEMA 4X Field / Wall or Panel Mount Models



Field / Wall Mount

- Built-in mounting flanges for wall mounting
- Plenty of room inside for wiring small devices
- Tamper-proof latch



Panel Mount

- Shallow depth behind the panel
- Forgiving panel cutout

Inputs, Outputs, Relays



Up to (28) 4-20 mA isolated inputs or
Up to (28) pulse inputs



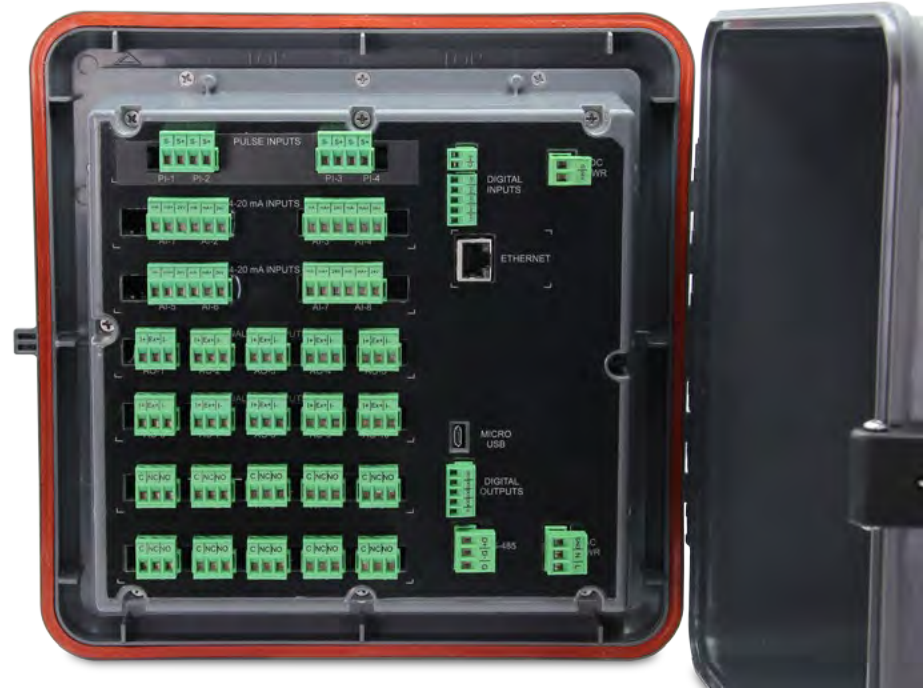
Up to (25) 10 A Form C relays,
with (8) analog or pulse inputs



Up to (25) isolated 4-20 mA outputs,
with (8) analog or pulse inputs



5 digital inputs, 4 digital outputs, and RS-485
with Modbus are standard on all ConsoliDator+
controllers



Modular Design for Input & Output Flexibility

Isolated 24 VDC Transmitter Power Supplies



To Power the Transmitter

- Each 4-20 mA input has its own isolated 24 VDC power supply to power the transmitter

Analog Input
mA- mA+ 24V



- Pwr+
2-Wire 4-20 mA
Transmitter

Isolation:

1500 V: Input-to-power line

500 V: Input-to-input, input-to-output

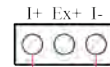
All analog inputs and analog outputs are isolated from each other.

- Up to 1,600 mA are available to power 4-20 mA transmitters. For a ConsoliDator+ with 8 inputs, this power could be deployed as 200 mA per input.
- For a ConsoliDator+ with the maximum number inputs (28), this power could be deployed as roughly 50 mA per input.
- If a transmitter requires 500 mA, the ConsoliDator+ could power three of them by wiring three of the 24 V supplies in parallel for each transmitter.

To Power the Output Loop

- Each 4-20 mA output has its own isolated 24 VDC power supply to power the output loop

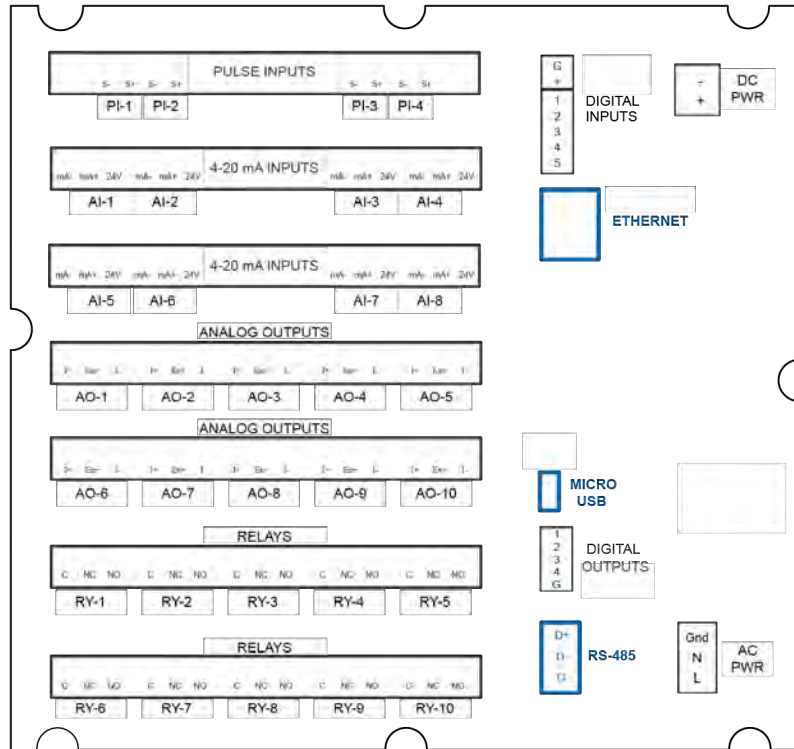
Analog Output



Remote Display,
Chart Recorder, Etc



Communications



Ethernet (Option)

- Ethernet Modbus TCP/IP protocol
- Allows the ConsoliDator+ to connect to a local area network that could be accessed from anywhere



Micro-USB

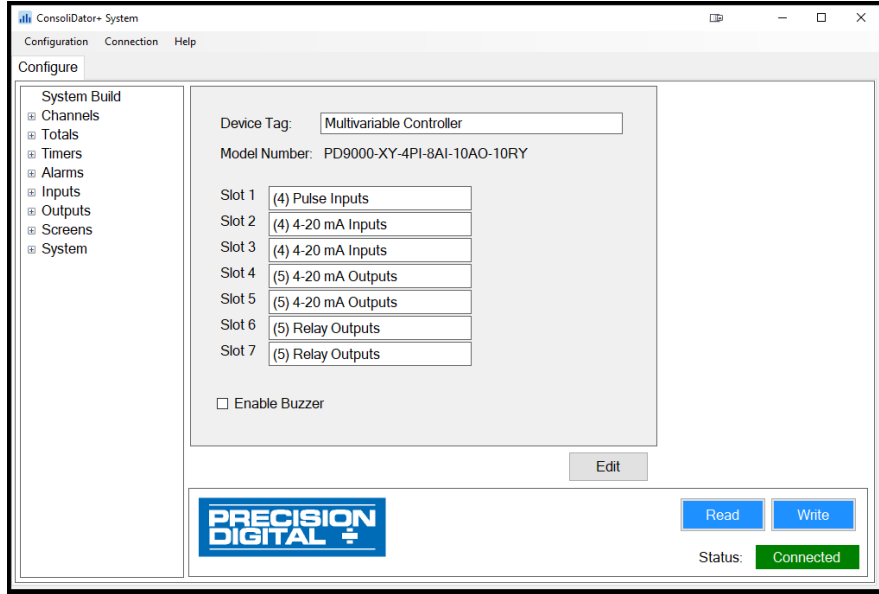
- For configuration with ConsoliDator+ Software



Modbus

- RS-485
- 199 Modbus RTU slave inputs
- Up to 32 Modbus devices may be connected to a single RS-485 bus

Consolidator+ Software



Free download



Configure inputs, outputs, alarms, timers

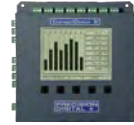


Save controller settings on PC for programming other controllers or to restore settings



Connection via micro-USB

Comparison



Feature	ConsoliDator+	ConsoliDator 8	ConsoliDator 4
Analog Inputs	Up to 28, isolated	8	4
Analog Outputs	Up to 25, isolated	4, isolated	4, isolated
Pulse Inputs	Up to 28	4	4
Digital Inputs / Outputs	5 / 4	4 / N/A	4 / N/A
Modbus Inputs	Up to 199	Up to 8	Up to 4
Power Supplies	Isolated 24 VDC for each analog input and output	12 VDC for output loop	12 VDC for output loop
Relays - 10 A Form C (SPDT)	Up to 25	9	9
Pump Alternation Control	Yes	N/A	N/A
Display	Color LCD, sunlight readable	Monochrome LCD	Monochrome LCD
Enclosure	NEMA 4X	NEMA 1	NEMA 1
Mounting	Field/wall or panel	Wall or panel	Wall or panel
Communications	RS-485 Modbus RTU, Ethernet	RS-232 Modbus	RS-232 Modbus
Warranty	3 years	1 year	1 year
Operating Temperature	-40 to 60°C	0 to 50°C	0 to 50°C

Accessories



**PDP9000EB
Mounting Plate**

- For mounting other devices like relays and power supplies



**PDA9000SH
Sun Hood**

- For outdoor applications in bright sunlight



**PDA-LH
Light/Horn**

- For visual and audible indication of alarm conditions



**PDA9000U
Pipe Mounting Kit**

- For mounting to a 2" pipe

Factory Calibration & Setup Services



Calibration Services

- Calibration and certificate for up to 12, 24, or 36 inputs and outputs
- Calibration and certificate with data for up to 12, 24, or 36 inputs and outputs



Setup Services

- Custom setup of inputs, outputs, relays, etc. for ConsoliDator+
- Get up and running in no time



Common Applications



**Tank Height
Measurement**



**Sump Level
Monitoring**



**Pump Alternation
Control**



**Flowmeter
Rate and Total**



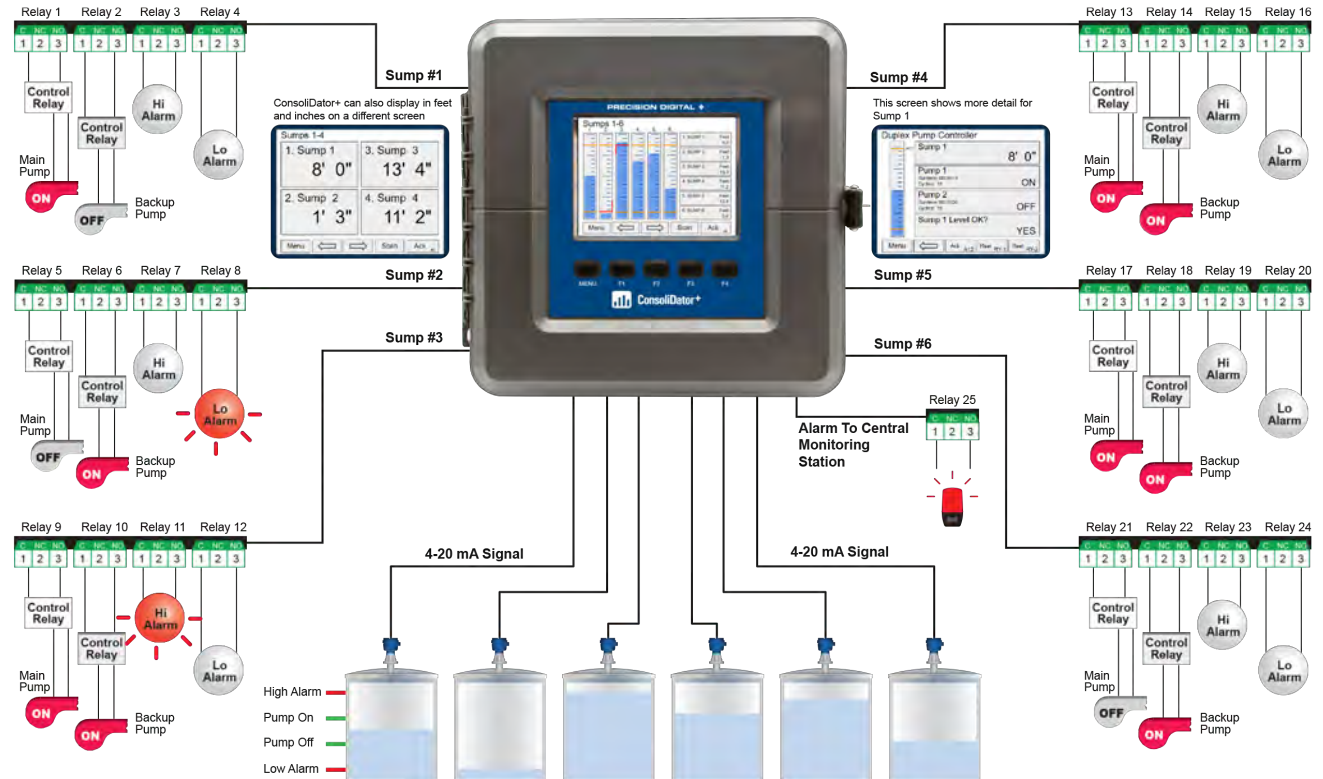
**Open Channel
Flow**



**Display Direct
Modbus PV Inputs**

Application Example – Level Control in Multiple Sumps

- (1) ConsoliDator+ monitors and controls 6 sumps
- All 4-20 mA inputs from the level transmitters are isolated and powered by the ConsoliDator+
- (24) 10 A Form C relays control and alternate 2 pumps in each sump while providing high and low level alarms for each sump
- (1) relay sends a signal to a central monitoring station when any sump goes into high alarm



Things to Remember



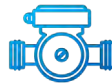
Display multiple inputs on one screen



Isolated 4-20 mA + pulse inputs



Relay + 4-20 mA outputs



Pump alternation control



Powers the transmitters



Ethernet Modbus TCP/IP Option



ConsoliDator+ Poster for Distributors

Introducing The New

ConsoliDator+ Multivariable Controller

DISPLAY, CONTROL, & ALARM OF MULTIPLE 4-20 mA & PULSE INPUTS

- NEMA 4X Panel or Field Mount
- Numeric & Bargraph Color Display
- (2) Screens with up to Eight PV's Each
- Inputs & Outputs Modular Design
- Isolated 24 VDC Transmitter Power Supplies for Analog Inputs, 1600 mA Max
- RS-485 Modbus RTU Standard & Ethernet Modbus TCP/IP Optional
- Operating Temperature Range: -40 to 60°C (-40 to 140°F)
- Up to (28) 4-20 mA Isolated Inputs or Up to (28) Pulse Inputs
- Up to (25) 10 Amp Form C Relays (With Eight Analog or Pulse Inputs)
- Up to (25) Isolated 4-20 mA Outputs (With Eight Analog or Pulse Inputs)
- Pulse or Analog Input Flow Rate / Total / Grand Total Capability
- Multi-Pump Alternation Control or Simple On/Off Control
- ConsoliDator+ Configuration Software

Actual Size Full Mount ConsoliDator+ Screen

Go to PREDIG.COM/PD9000 for more details.



Provides an actual size view of the ConsoliDator+



Get a preview of various display possibilities



Makes a great handout to your customers



Requests more copies at any time

CELEBRATING OUR **45th** ANNIVERSARY
1974 2019

Thank you.

For additional questions



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