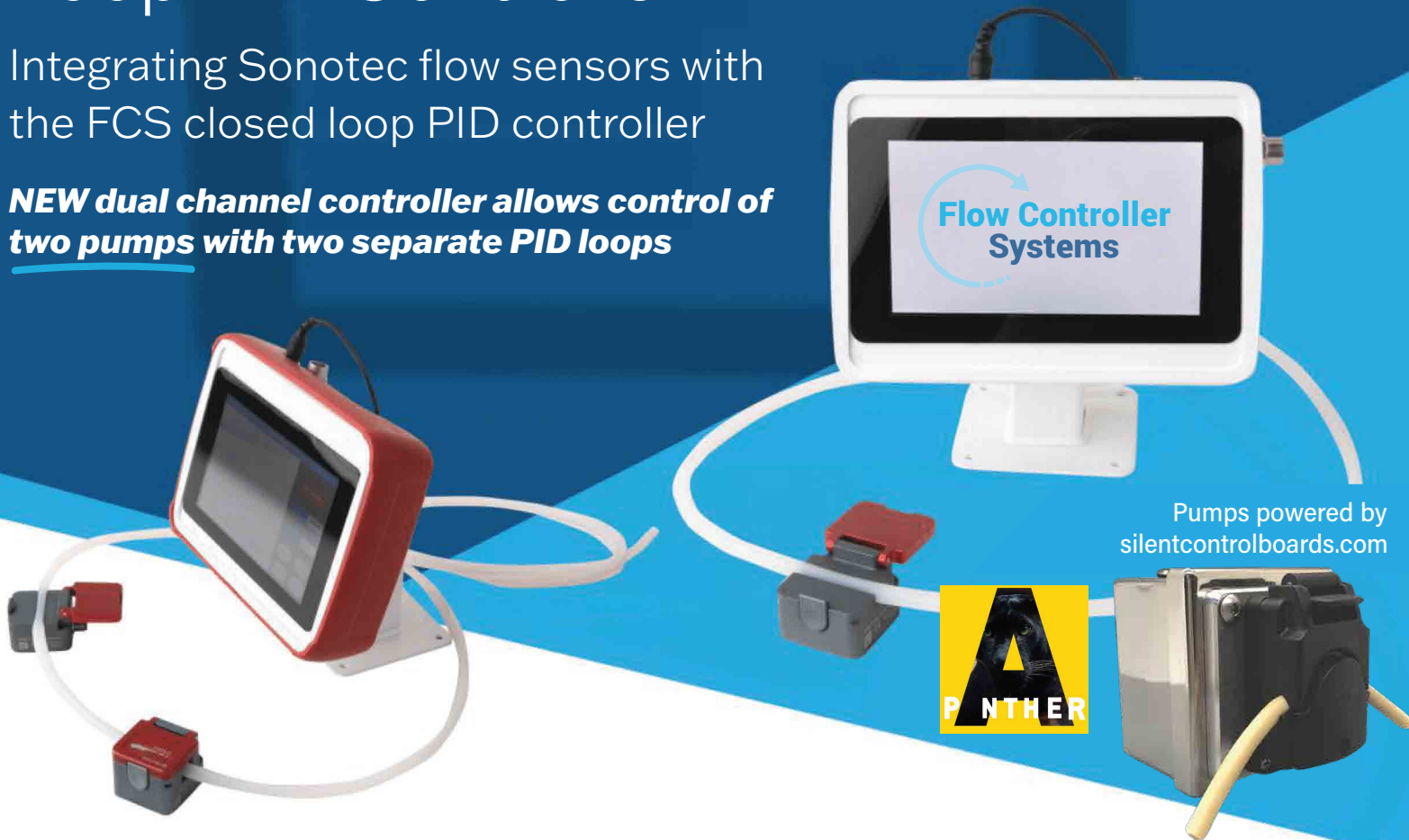# Portable Closed Loop PID Controller

Integrating Sonotec flow sensors with the FCS closed loop PID controller

NEW dual channel controller allows control of two pumps with two separate PID loops

Flow Controller Systems

Pumps powered by
silentcontrolboards.com

PANTHER

The new, economical Flow Controller Systems (FCS) Controller is a self-contained, "open architecture," single/dual channel PID closed loop controller manufactured to control any pump, load cells, and sensors from a single, portable, compact unit. The FCS controller is designed to be cost effective with a user-friendly touch-screen interface. The optional FCS Watchdog application provides the ability to control, monitor, and data log a wide variety of applications.

The FCS Controller communicates via WiFi, USB, HDMI, analog (4-20mA), digital (modbus) and ethernet (RJ45) and integrates seamlessly with Sonotec ultrasound, non-invasive flow meters for unrivaled precision and accuracy.

Applications for the **FCS Controller** with **Sonotec Flow Meters:**

- ✓ Create a PID closed control loop
- ✓ Pump feedback and control
- ✓ pH control - acid/base additions
- ✓ Bolus feed/Dosing - carbon (glucose) feeding
- ✓ Balance feed rate - in/out
- ✓ Filling/Dispensing - for vials and bottling lines
- ✓ Perfusion (Continuous Culture Applications) - replacing scales and load cells
- ✓ Integrated turnkey controller system (pump, tubing, flow sensor, load cell)
- ✓ Closed loop pressure control pacing off a pressure transducer

FCS Controller Technical Specifications:

Unit Dimensions:	Width/Length: 220mm x 140mm Height: 50mm
Weight :	2.6lbs or 1.2kg
Materials:	ABS-Engineered Plastic
Operating System:	Linux-Based
Voltage:	120/220V & Fuse Protected

Highly Adaptable Interface:
WiFi accessible (On/Off, Password Protected), 2x USB (2.0), HDMI (for monitors), Analog (4-20mA), Digital (Modbus), and Ethernet (RJ45)

User Interface/Operational Options:
7" or 10" on-board touch screen display, direct monitor connection (via HDMI), USB for mouse and keyboard connection, or wireless connection to external touch screen or tablet.

Internet Remote Access (Password Protected)

Customer General Questions:

What types of inputs/outputs is the FCS Controller compatible with?
The FCS Controller is compatible with: WiFi, USB (2.0), HDMI, Analog (4-20mA), Digital (Modbus), and Ethernet (RJ45).

How many inputs/outputs can one FCS Controller handle?
The FCS controller is available in a single or dual channel PID loop configuration. Each PID loop can control a single pump using a flow or pressure sensor.

What are my options for viewing/interfacing with the FCS Controller?
The user interface options for the FCS Controller are also modular depending on your application. The Controller can be equipped with a 10" touch screen or be connected directly to a monitor, or wirelessly linked to a touch screen, tablet, or mobile device.

What can I accomplish with the FCS Controller and Sonotec flow sensors?
Extremely accurate measurement of the flow rate by Sonotec sensors allows the Controller to modulate the pump output to deliver your process fluids with precision and accuracy both flow rate and volume dispensing.

Flow Controller Systems

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