For current pricing, please see our website.

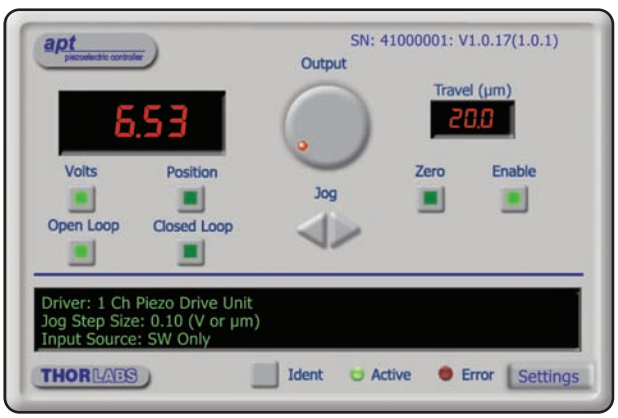
Benchtop Closed-Loop Piezo Controller (Page 1 of 2)

BPC203

Features

- High-Resolution Position Control (for Very Fine Positioning)
- Three-Channel Operation
- Front-Panel Controls
- High Power: 75 V, 500 mA Continuous
- Closed-Loop PID Position Via Strain Gauge Feedback Input
- Voltage Ramp/Waveform Generation Capability (for Scanning)
- High Bandwidth (10 kHz) Piezo Positioning (Open Loop)
- Auto-Configure Function for Thorlabs' Ident-Equipped Piezo Actuators
- Full Software Control Suite Supplied
- Extensive ActiveX® Programming Interfaces
- Software Integrated with Other apt™ Family Controllers
- Optional Handset Controller

The BPC203 apt™ high-power, three-axis piezo controller has been designed to drive the full range of open- and closed-loop piezo-equipped nanopositioning actuators and stages offered by Thorlabs. Flexible software settings make the BPC203 highly configurable and therefore also suitable for driving a wide range of piezo elements in third-party products. A waveform generation capability combined with triggering outputs make this unit particularly well suited for piezo scanning applications.



See pages 654 – 656 for more information on the apt™ software included with the BPC203 Controller.

Controls are located on the front face of the unit to allow manual adjustment of the piezo position using the digitally encoded adjustment potentiometer. The display is easy to read and can be set to show either applied voltage or position in microns. Open- or closed-loop control and zeroing of the voltage applied to the piezo can also be selected from the front panel.

USB connectivity provides easy plug-and-play PC operation. Multiple units can be connected to a single PC via standard USB hub technology for multi-axis applications. Coupling this with the user-friendly apt™ software allows it to quickly get running in a short time frame. For example, all relevant operating parameters are set automatically for Thorlabs' piezo actuator products. Advanced custom motion control applications and sequences are also possible using the extensive ActiveX® programming environment. The ActiveX® programming environment is described in more detail on pages 654 – 656.

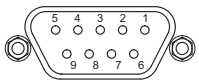
PHS101

It is often convenient to make adjustments to the piezo output while closely watching the device being positioned, which can prove difficult when using the front panel keys or a remote PC.

To allow this kind of use, Thorlabs has developed the PHS101 handset, which enables the piezos to be positioned remotely from the controller and PC (i.e., without using the front panel buttons, GUI, or software method calls). It is supplied with a 9.75' (3 m) cable.

Benchtop Closed-Loop Piezo Controller (Page 2 of 2)

Strain Gauge Connector Pin Out



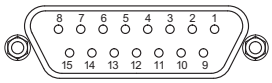
Pin	Description
1	Strain Gauge Excitation
2	+15 V Out*
3	-15 V Out*
4	Ground
5	AC Feedback IN
6	Ground
7	Actuator ID Signal**
8	Reserved for Future Use
9	Reserved for Future Use

Notes:

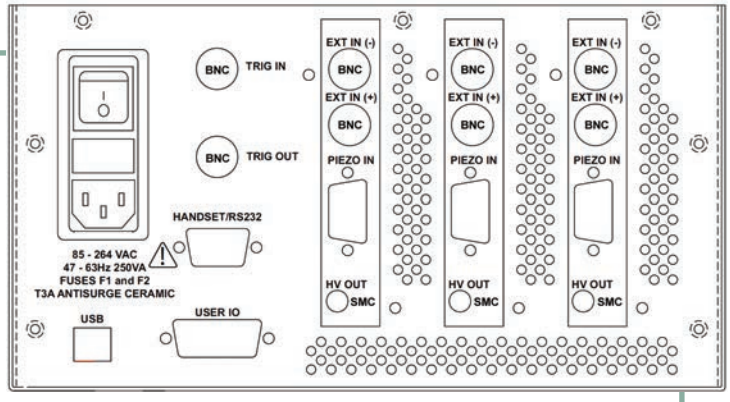
* Power supply for the piezo actuator feedback circuit. It must not be used to drive any other circuits or devices.

** This signal is applicable only to Thorlabs actuators. It enables the system to identify the piezo extension associated with the actuator.

User I/O Connector Pin Out



Pin	Description	Return
1	Digital O/P 1	5, 9, 10
2	Digital O/P 2	5, 9, 10
3	Digital O/P 3	5, 9, 10
4	Digital O/P 4	5, 9, 10
5	Digital Ground	
6	Digital I/P 1	5, 9, 10
7	Digital I/P 2	5, 9, 10
8	Digital I/P 3	5, 9, 10
9	Digital Ground	
10	Digital Ground	
11	For Future Use (Trigger Out)	5, 9, 10
12	For Future Use (Trigger IN)	5, 9, 10
13	Digital I/P 4	5, 9, 10
14	5 V Supply Output	5, 9, 10
15	5 V Supply Output	5, 9, 10



Specifications (Per Channel)

- **Piezoelectric Output (SMC Male)**
  - **Voltage (Software Control):** 0 - 75 VDC
  - **Current:** 500 mA Max Continuous
  - **Stability:** 100 ppm Over 24 Hours (After 30 min Warm-Up Time)
  - **Noise:** <3 mV_{RMS}
  - **Typical Piezo Capacitance:** 1 - 10 µF
- **External Piezo Control Input (BNC)***
  - ±11.74 VDC
  - 2 BNC Inputs (Non-Inverting and Inverting)
- **Bandwidth:** 10 kHz (1 µF Load, 1 V_{p-p})
- **Position Feedback (9-Pin D-Type Female)**
  - **Feedback Transducer Type:** Strain Gauge
  - **Detection Method:** AC Bridge (18 kHz Excitation)
  - **Typical Resolution:** 5 nm (for 20 µm Actuator; e.g., PAZ005)
  - **Auto-Configure:** Identification Resistance in Actuator
- **User Input/Output (15-Pin D-Type Female)**
  - **4 Digital Inputs:** TTL Levels
  - **4 Digital Outputs:** Open Collector
  - **Trigger Input/Output:** TTL
  - **Trigger Input Functionality:** Triggered Voltage Ramps/Waveforms
  - **Trigger Output Functionality:** Trigger Generation During Voltage Ramp Output
  - **User 5 V (Max, with Ground):** 250 mA
- **USB Port:** Version 1.1
- **Power Input**
  - **Voltage:** 85 - 264 VAC
  - **Power:** 200 W
  - **Fuse:** 3 A
- **Housing Dimensions (W x D x H):** 9.5" x 14.2" x 5.2" (240 mm x 360 mm x 133 mm)
- **Weight:** 14.75 lbs (6.7 kg)

*Differential inputs allow the user to eliminate unwanted common mode signals. By using just one of the inputs, the user can control the piezo actuator with a single signal.

ITEM #	$	£	€	RMB	DESCRIPTION
BPC203	$ 4,325.00	£ 3,114.00	€ 3.762,80	¥ 34,470.25	3-Channel, Benchtop Closed-Loop Piezo Controller/Driver
PHS101	$ 265.50	£ 191.16	€ 230,99	¥ 2,116.04	Remote Handset for BPC Series Benchtop Piezo Controllers