

PLEASE READ THE ENTIRE MANUAL BEFORE ATTEMPTING INSTALLATION

IMPORTANT SAFETY INFORMATION

• Before using the system, please follow and adhere to all warnings, safety and operating instructions located either on the product or in this Quick Start Manual. Keep this manual in a safe place as it contains important safety information and operating instructions.

• Use only as specified by the operating instructions or the intrinsic protection may be impaired.



• **WARNING:** Danger Electrical Shock hazard.



• **WARNING:** The symbols to the left are found on the front of the NanoScanZ controller above the Z stage connector.



• **WARNING:** The high voltage drivers can produce hazardous voltages and currents. Use caution when operating the drivers and when handling the linear actuators.

Piezoactuators have large capacitance and are capable of storing hazardous amounts of electrical energy over long periods of time. Various conditions such as load and temperature changes can also cause piezoactuators to accumulate charge.

Before disconnecting the DB-9 connector from the NanoScanZ:

1. Set the command voltage to 0.0V.
2. Turn the AC power to the NanoScanZ off.
3. Wait a minimum of one minute before disconnecting.

Before using the system, please follow and adhere to all warning and operating instructions

- Do not expose the product to water or moisture.
- Do not expose the product to extreme hot or cold temperatures.
- Do not expose the product to open flames.
- Do not allow objects to fall on or liquids to spill on the product
- Connect the AC power cord only to a mains power supply as marked on the product.
- Only connect to a grounded supply socket. THIS UNIT IS CLASS I CONSTRUCTION AND MUST BE GROUNDED!
- Make sure the electrical cord is located so that it will not be subject to damage.
- Ensure that the mains switch/IEC socket/mains plug is easily accessible to allow the unit to be switched off.
- Before replacing a fuse, DISCONNECT THE EQUIPMENT FROM THE MAINS SUPPLY.
- **Always disconnect power from product before connecting the components together.**
- DANGER - never alter the AC cord or plug. If the supplied cord set does not have the correct plug for your mains supply, contact your supplier for the correct cord set.
- Ensure that the ventilation slots in the controller case are free from obstruction.
- Use only the power supply cord set provided with the system for this unit, should this not be correct for your geographical area, contact your supplier.
- Do not in any way attempt to tamper with the product, doing so will void the warranty and may damage the system. This product does not contain consumer serviceable components, all repairs and service should be performed by authorized service centers.
- This product is designed to comply with BSEN 61010-1 and can be flash tested. It is fitted with radio frequency interference suppressors. Therefore it is recommended that only a D.C. test be performed. Performing flash tests repeatedly can damage insulation.

NANOSCANZ QUICK START INSTRUCTIONS



GENERAL INFORMATION

The NanoScanZ includes a PZT actuated linear Piezo stage of exceptional resolution and stability and comes complete with a position sensitive detector for closed loop operation. The Prior NanoScanZ stage inserts directly into the Prior microscope range of stages and has a large through hole that accepts a range of specialized Prior Scientific sample holders.

BEFORE YOU BEGIN

Before unpacking the Prior NanoScanZ, please read the entire operation manual, paying special attention to the following section on "Handling the NanoScanZ" and the before mentioned safety information. Please check the contents of the package against the shipping list and notify your vendor immediately if any items are missing.

HANDLING THE NANOSCANZ

The Prior NanoScanZ is a high precision scientific instrument and therefore requires special handling in order to ensure proper operation. Mishandling can cause permanent damage to the NanoScanZ stage. To ensure a long and useful life the following guidelines should be strictly followed:

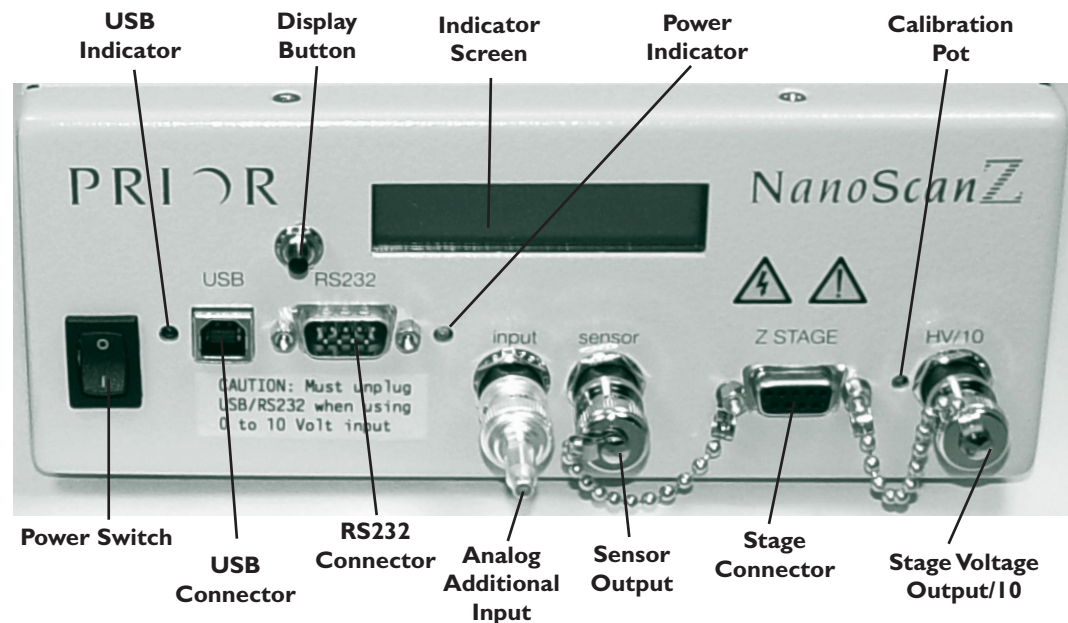
- Do not lift by the cable, always lift by the stage frame (outer portion).
- Do not drop, treat roughly, or physically shock the NanoScanZ stage.
- Do not move the translation stage by pushing on it with your hands or any other object.
- Avoid applying a torque between the moving stage and the frame.
- Always mount the NanoScanZ on a flat and clean surface.
- Ensure the underside of the NanoScanZ is free of particles and dust before mounting.
- Use only the power supply cord set provided with the system for this unit, should this not be correct for your geographical area, contact your supplier.
- Do not immerse in any liquid. If the NanoScanZ requires cleaning - slightly dampen a lint free cloth with iso-propanol or ethanol and lightly wipe the surface. Do not get any liquid or lint into the EDM grooves.
- Never disassemble the NanoScanZ stage, there are no user serviceable parts inside.
- Do not plug the RS232 connector into the stage socket, this is likely to cause severe damage to your computer.

NANOSCANZ QUICK START MANUAL

INSTALLATION

Install the XY stage onto your microscope before installing the NanoScanZ stage. The NanoScanZ must be installed horizontally. When planning to install the stage, minimize the load carried by the NanoScanZ stage. Heavier loads reduce the stage response time and may cause fatigue and/or reduced motion. Install the sample holder into the NanoScanZ stage before installing onto the XY stage.

INSTALLING THE CONTROLLER



Complete this section after installing the NanoScanZ stage into the XY stage. **Note:** Please ensure you note the position of the stage and RS232 connections, it is important to connect these correctly.

Power Switch: 1 = on, 0 = off.

USB Indicator: Illuminated red = USB connected.

USB Connector: Port for supplied USB cable.

Connector: Port for supplied RS232 cable.

Power Indicator: Illuminates green, on power on.

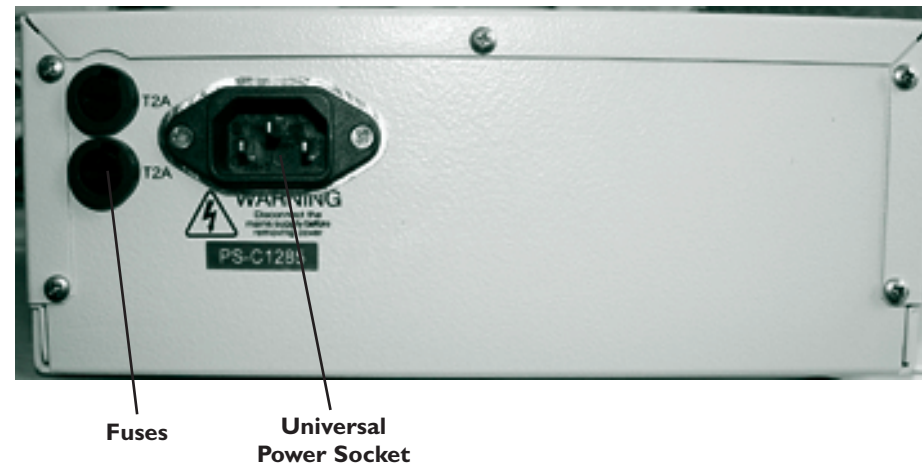
Analogue Additional Input: BNC connector for PCI board control. Note: Must be capped by supplied terminator when not in use.

Indicator Screen: Black lettering on green background, indicates position of stage and mode of operation.

Sensor Output: BNC connector, supplying the output of the closed loop sensor.

Stage Connector: Port for NanoScanZ stage.

Warning: This connector outputs high voltage. Always ensure the stage connector is screwed securely into the socket before powering the system. Do not plug any other connector into this socket.



Stage Voltage Output/10: BNC connector outputting a tenth of the voltage supplied to the stage.

Universal Power Socket: 100-240 VAC 60/50 Hz.

Fuses: Two fuses, fuse rating: V250T2A

CONNECTING TO THE CONTROLLER

! Do not connect both the Optional Analog Input and the RS232/USB connection simultaneously. Damage to the unit may result.

- Ensure the power switch is in the off (down) position.
- Ensure that the terminator is connected to the additional analogue input, or a connection is made to a DAQ board, the output from the DAQ board should be set to 0 Volts.

! Connect the 9 PIN NanoScanZ stage connector to the stage output on the controller and secure the connector with the two screws (the stage may make a slight click, this is normal operation).

d) Connect the control connector (RS232 connector, USB connector, or optional analog input).

e) Push the supplied power cord into the universal power socket on the reverse of the unit and connect it to the mains supply.

f) The NanoScanZ system is now ready for use.

TROUBLESHOOTING

Problem:

The NanoScanZ stage is not traveling the entire range.

Suggested Solution:

- Power cycle the unit.
- Hold down display button.
- Display changes to "VALUE= __ _v"
- Turn calibration pot to set value 0.0V:
Clockwise → Up
Counter clockwise → Down
- Care should be taken as pot is sensitive.

Problem:

The NanoScanZ stage is not at 0, when I use the optional analog 0-10V input and set it to 0V.

Suggested Solution:

- Power cycle the unit and reconnect to optional analog input:
 - Ensure the unit is not powered.
 - Remove all USB and RS232 connections.
 - Set the command signal to 0.0 Volts from the user control system.
 - Turn the power switch on.
 - The command voltage now controls the position of the NanoScanZ stage, do not exceed +10V control voltage.
 - 0 to +10V corresponds to the 0-400 μ m movement for the 400 μ m units.
 - No indication of position is provided by the display while the system is used in this mode.

PRIOR

Scientific

80 Reservoir Park Drive, Rockland, MA. 02370

Phone: 781-878-8442

Toll Free: 800-877-2234 Fax: 781-878-8736

Email: info@prior.com

Web: www.prior.com

