

## “Web Controls”

### PA200 WEB GUIDE CONTROLLER INSTALLATION, OPERATION, AND MAINTENANCE INSTRUCTIONS



Read this manual carefully, making full use of its explanations and instructions. The “Know How” of safe, continuous, trouble-free operation depends on the degree of your understanding of the system and your willingness to keep all components in proper operating condition. Pay particular attention to all **NOTES**, **CAUTIONS**, and **WARNINGS** to avoid the risk of personal injury or property damage. It is important to understand that these **NOTES**, **CAUTIONS**, and **WARNINGS** are not exhaustive. Nexen cannot possibly know or evaluate all conceivable methods in which service may be performed, or the possible hazardous consequences of each method. Accordingly, anyone who uses a procedure that is not recommended by Nexen must first satisfy themselves that neither their safety or the safety of the product will be jeopardized by the service method selected.

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## THEORY OF OPERATION

Nexen's PA200 Web Guide Controller System consists of two component parts, the PA200 Web Guide Controller and the PH16 Photo Head Sensor.

The PH16 Photo Head Sensor senses the movement of an opaque web edge by means of a pulsed LED in the near infrared range and generates a signal proportional to the web position.

The PA200 provides the excitation signal for the PH16 and receives the proportional feed back signal from the PH16.

This proportional signal is displayed on a LED array, located on the front panel of the PA200, with a green LED to show that the web is centered in the PH16. If the web moves off center in the PH16, the LED displays one red LED bar for each 0.004 In. [0.100 mm] of web movement.

Nexen's PA200 has a bipolar  $\pm 24\text{VDC}$  output to drive a linear actuator or other 24VDC motor. This output acts to correct the position of the web edge and maintain it in the center of the PH16.

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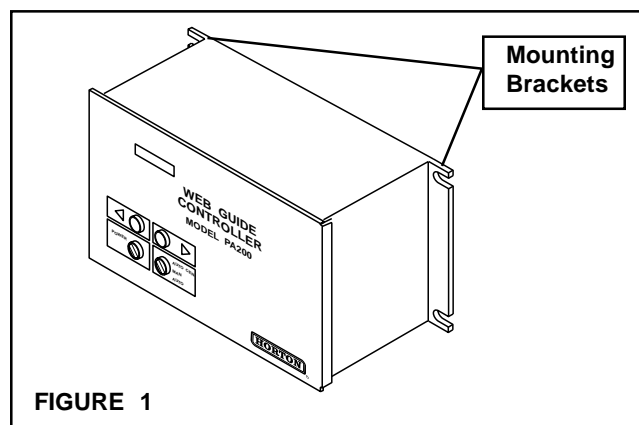
## INSTALLATION

### PA200

#### NOTE

The PA200 is an electronic component and should be mounted in a shock, vibration, and moisture-free area, which has an ambient temperature greater than 32°F [0°C] but less than 122°F [50°C].

Mount the PA200 against a vertical wall using the mounting holes provided (See Figures 1 and 7).



### PH16

Install the PH16 as described in Maintenance Instructions L-20140.

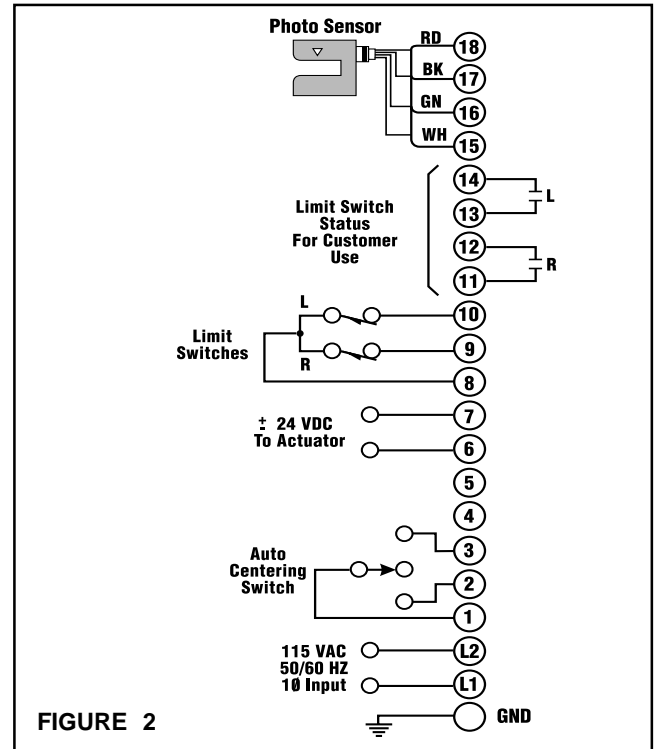
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## AUTOMATIC CENTERING SENSOR

Install the Automatic Centering Sensor as described in Maintenance Instructions L-20146.

## ELECTRICAL CONNECTIONS

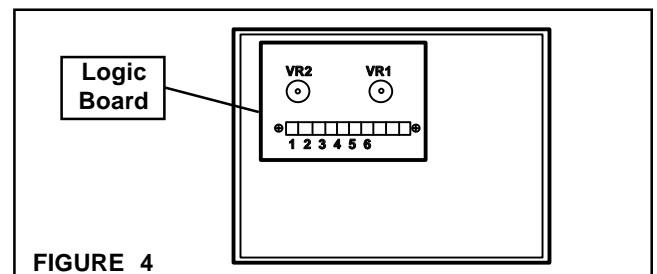
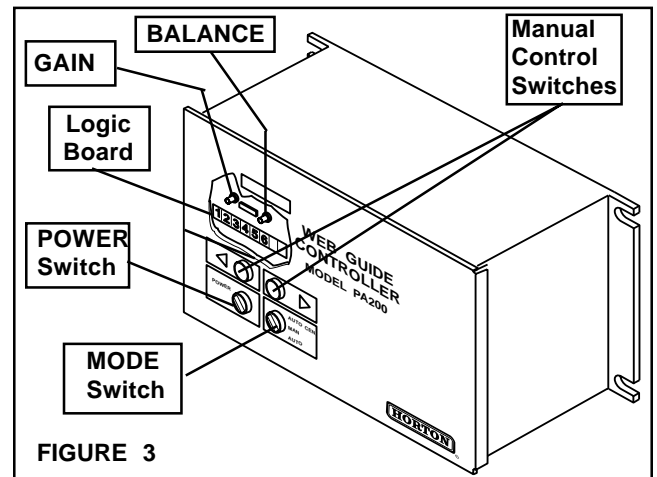
Refer to Figure 2 for Electrical Connections. Supply 115VAC, 50/60 Hz, single phase at Terminals **L1** and **L2**.



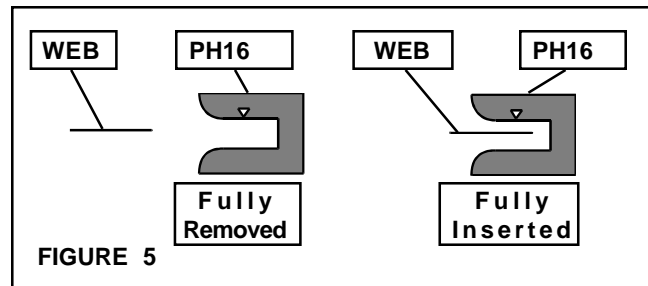
## CALIBRATION

### CALIBRATION USING VOLTMETER

1. Loosen the screws on the topside of the front cover, then swing the cover open to allow access to the Logic Board located in the upper left side of the Controller.
2. Adjust voltmeter to proper range for 12VDC.
3. Connect negative lead to Terminal **6** and positive lead to Terminal **5** on the Logic Board (See Figures 3 and 4).
4. Set **GAIN** (VR2) and **BALANCE** (VR1) to midrange position (slot should be vertical) (See Figures 3 and 4).
5. Set **POWER** Switch to **ON** (See Figure 3).
6. Insert an opaque web to block the light path of the PH16 and then completely remove the opaque web (See Figure 5). This will cause the signal to the voltmeter to vary from positive to negative.
7. Alternately insert and remove the opaque web, blocking the light path of PH16 and adjusting the **BALANCE** (VR1) until the plus and minus signals are equal.

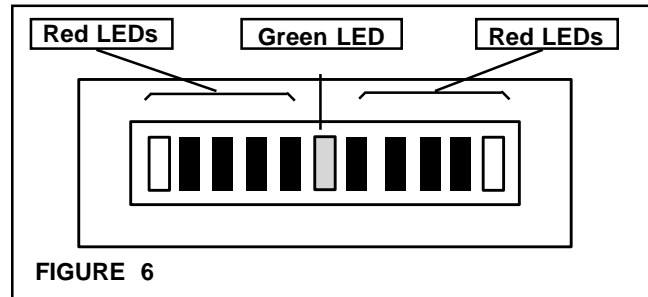


8. Adjust GAIN (VR2) until output varies between  $\pm 9.5\text{VDC}$  to  $12\text{VDC}$  equally.
9. Set POWER Switch to **OFF**.
10. Remove voltmeter leads from Terminals **5** and **6**.



## FIELD ADJUSTMENT WITHOUT A VOLTMETER

1. Set GAIN (VR2) and BALANCE (VR1) to midrange position (slot should be vertical).
2. Set POWER Switch to **ON**.
3. Insert an opaque web to block the light path of the PH16 and then completely remove the opaque web (See Figure 4). This will cause the eleven segment LED to vary from the left hand red LEDs through the green center LED to the red LEDs (See Figure 6).
4. Adjust the BALANCE (VR1) to balance the number of LEDs displayed for complete light blockage and complete web removal.
5. Adjust GAIN (VR2) so four right LEDs are illuminated during complete web or sample insertion and four left LEDs are illuminated for complete web or sample removal.
6. Set POWER Switch to **OFF**.



## OPERATION

### NOTE

Nexen's PA200 can be operated in any one of three operating modes: **AUTOMATIC**, **MANUAL**, and **AUTO CENTERING**. The **MODE Switch** located on the front panel is used to select the proper operating mode.

### AUTOMATIC MODE

This is the normal operating mode for the PA200. While in Automatic Mode, the PA200 senses the web position signal from the PH16. The edge of the web must be in the center of the PH16 sensor zone. If the web moves off center, the PA200 will issue a corrective signal to the linear actuator, which will move the roll stand or guide roll mechanism to bring the web back to center.

The LED array on the front panel shows the position of the web edge within the sensor (green is on center, within 0.004 In. [0.100 mm] and each red segment is equal to the green segment).

If the LED array varies rapidly from side to side, the system is overcorrecting or hunting. This can be corrected by slowing

the system reaction time with the Gain Pot located on the front panel. A slow variation from side to side indicates that the system is not reacting quickly enough and is corrected by increasing the gain (clockwise to increase and counter clockwise to decrease reaction speed).

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## MANUAL MODE

In Manual Mode the web position is controlled with the two Manual Control Switches located on the front panel. The LED array shows the position of the web within the sensor gap, but the controller takes no action to correct the position.

Manual Mode is useful when running a roll of irregular material through the machine. In Automatic Mode, the controller may be constantly correcting and still be unable to keep up unless machine speed is drastically reduced.

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Another use for Manual Mode is process alignment. When a web is first fed into a process, the correct edge position may not be known. With Manual Mode the web can be positioned until the desired result is achieved. The PH16 sensor can then be mechanically moved to the edge of the web until the green LED glows. The PH16 is then locked in position and the MODE Switch changed to Automatic Centering Mode.

## AUTOMATIC CENTERING MODE

In this mode the PA200 ignores all signals from the Manual Control Switches and does not automatically position the web in the PH16 sensor. The PA200 follows the switch contacts of the Automatic Centering Switch.

The Automatic Centering Switch is installed on the roll stand or guide roll mechanism being controlled by the PA200. A mechanical cam is provided and the switch placed in such a way as to give a null output when the mechanism is in the center of its mechanical travel. If the mechanical element is either left or right of center, the Automatic Centering Switch gives an appropriate relay closure.

The PA200 will issue an output signal to the Linear Actuator to maintain the Automatic Centering Switch in its center or null position at all times while in the Automatic Centering Mode.

The Automatic Centering Mode is useful to lock up the position of the roll stand or guide roll mechanism while threading a new web into the machine.

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## MAINTENANCE

Although there is no required maintenance for the PA200 or PH16, periodically clean the light transmitting and receiving lenses using a clean dry cloth.

Refer to Maintenance Instructions L-20140 for PH16 replacement parts.

SPECIFICATIONS

Power Supply	115VAC, 50/60 Hz, Single Phase
AC Power Consumption	100W
Input from PH16	0 to 200 mV
Input Resistance	2K ohm
Sensor Lamp Excitation	12VDC
Auto Centering Sensor	Double Pole, Double Throw, Center Null
Ambient Temperature	-32°-122° F [0°-50° C]
Output Voltage	±24VDC
Output Current	4 amps

MOUNTING DIMENSIONS

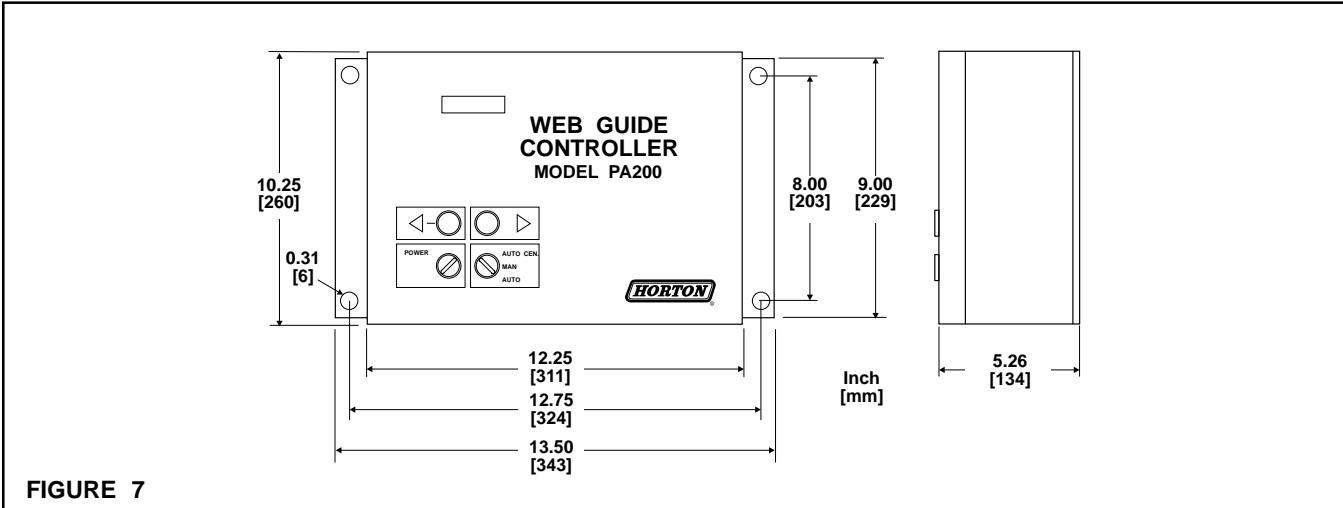


FIGURE 7

WARRANTY

Nexen Group, Inc. (Nexen) warrants its product(s) [the Product(s)] will be free from defects in materials and workmanship under normal use and service conditions for a period of 12 months from the date of shipment. NO OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED, OR STATUTORY, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY, OR OF FITNESS FOR A PARTICULAR PURPOSE, ARE GIVEN, AND ALL SUCH OTHER WARRANTIES ARE HEREBY EXPRESSLY DISCLAIMED.

Conditions

This warranty applies only if: (a) the Product has been installed, used, and maintained in accordance with any applicable Nexen installation or maintenance manual for the Product; (b) the alleged defect is not attributable to normal wear and tear; (c) the Product has not been altered, misused, or used for purposes other than those for which it was intended; and (d) the claimant has complied with the warranty claim procedures set out below in Warranty Claim Procedures.

Exclusive Remedy

The sole and exclusive remedy for a breach of this warrant shall be, at Nexen's sole election, repair or replacement with new, serviceably used or reconditioned Product, or issuance of a credit in the amount of the current Nexen discounted price for the Product.

Limitation of Damages

In no event shall Nexen be liable for any consequential, indirect, incidental, or special damages of any nature whatsoever, including without limitation, lost profits arising from the sale or use of the Products.

Warranty Claim Procedures

To make a claim under this warranty, the claimant must give written notice of the alleged defect to Nexen and deliver the Product to Nexen within one year of the date on which the alleged defect first became apparent.

Nexen Group, Inc.  
560 Oak Grove Parkway  
Vadnais Heights, MN 55127  
800-843-7445  
In MN: (651) 484-5900  
Fax: (651) 286-1099  
www.nexengroup.com

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