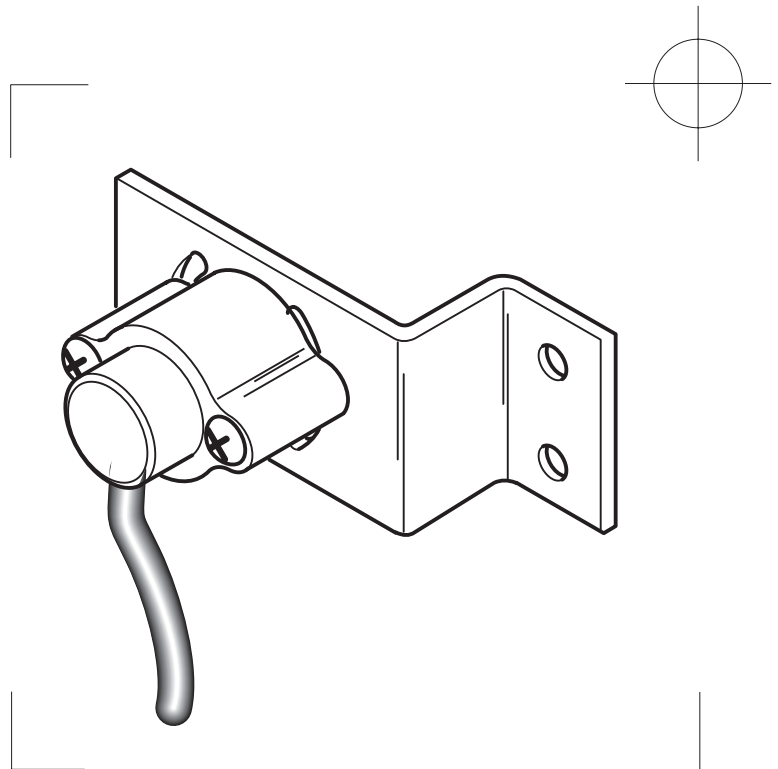


WEB CONTROL PRODUCTS

User Manual



Dancer Position Sensor

Models DPS30 and DPS60

In accordance with Nexen's established policy of constant product improvement, the specifications contained in this manual are subject to change without notice. Technical data listed in this manual are based on the latest information available at the time of printing and are also subject to change without notice.

Technical Support:
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www.nexengroup.com



WARNING

Read this manual carefully before installation and operation.

Follow Nexen's instructions and integrate this unit into your system with care.

This unit should be installed, operated and maintained by qualified personnel ONLY.

Improper installation can damage your system or cause injury or death.

Comply with all applicable codes.

Nexen Group, Inc.
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Vadnais Heights, Minnesota 55127



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INTRODUCTION

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.

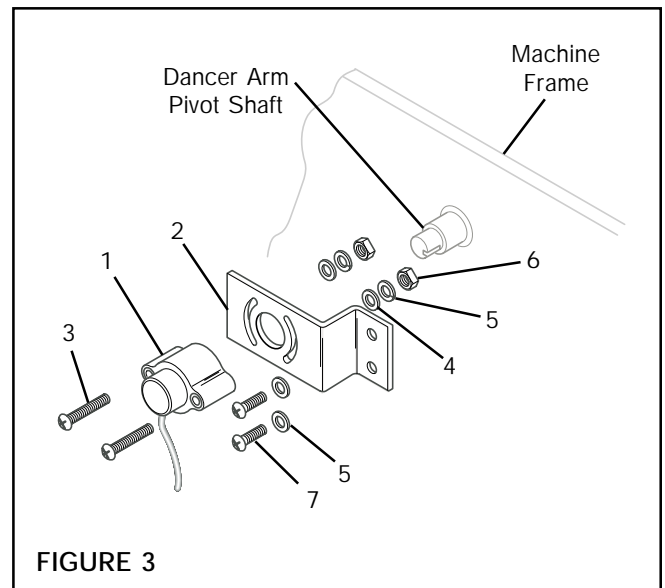
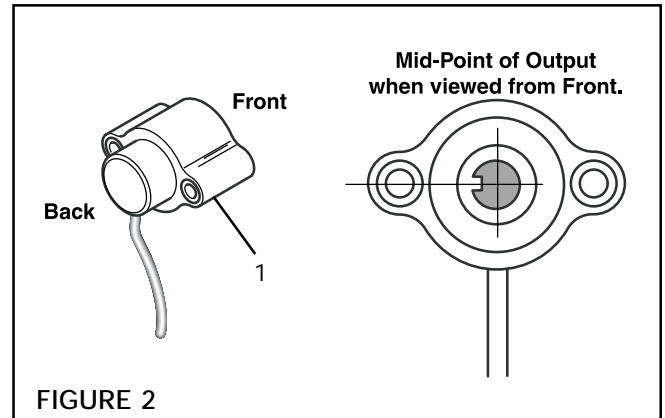
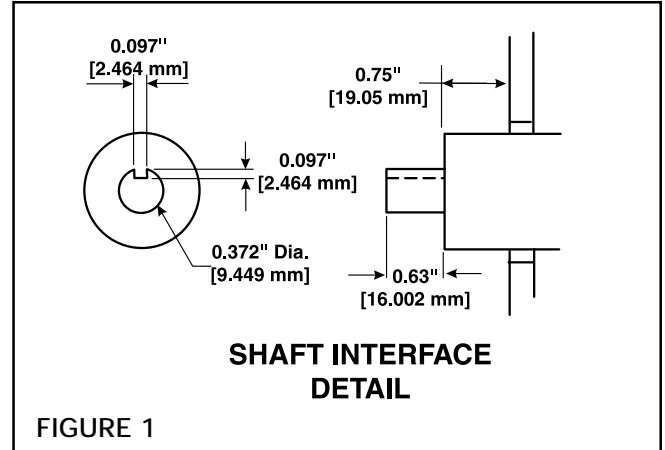
Nexen Dancer Position Sensors have been designed to accurately measure the rotational movement of a dancer arm. This family of sensors use Hall Effect technology which provide for benefits such as infinite resolution, low drag, and no mechanical wear. They are ideally suited to work with Nexen’s Dancer Position Controllers.

INSTALLATION

NOTE: Mounting of the Dancer Position Sensor can be accomplished two ways. The first is the Direct Connection method and the second is the Stub Shaft Connection method. Review the instructions for both methods and select the method best suited for your application.

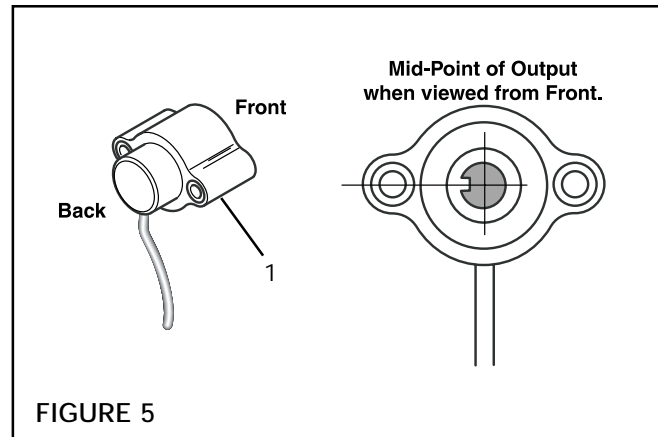
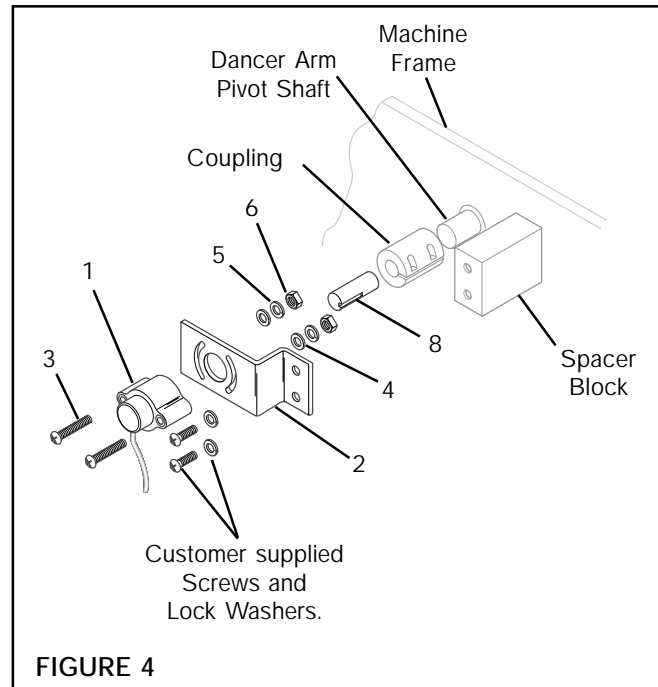
DIRECT CONNECTION

1. Verify that the dancer arm pivot shaft's end complies with the dimensions given (See Figure 1).
2. The orientation of the Dancer Position Sensor (Item 1) must be as shown in order to match the mid output of the Dancer Position Sensor to the mid travel position of the dancer arm (See Figure 2).
3. Attach Dancer Position Sensor (Item 1) to the Bracket (Item 2) with the Long Pan Head Screws (Item 3), Flat Washers (Item 4), Lock Washers (Item 5), and Nuts (Item 6) (See Figure 3).
4. Align Dancer Position Sensor (Item 1) with the center of the slots in the Bracket (Item 2) and then hand tighten just enough to prevent it from moving during Steps 5, 6, and 7 (See Figure 3).
5. With the dancer arm held firmly in its mid travel position, slide the Dancer Position Sensor (Item 1) over the shaft while carefully aligning the key with the shaft's key way (See Figure 3).
6. Slide the Dancer Position Sensor (Item 1) onto the shaft until the Bracket (Item 2) contacts the machine's side frame (See Figure 3).
7. Mark the location of the Bracket's two mounting holes.
8. Remove the Dancer Position Sensor (Item 1) and Bracket (Item 2); then, drill and tap two 8-32 threaded holes centered within the marks drawn in Step 7.
9. Slide the Dancer Position Sensor (Item 1) onto the shaft while carefully aligning the key and key way; then, using two Short Pan Head Screws (Item 7) and Lock Washers (Item 5), secure the Bracket (Item 2) to the machine's side frame (See Figure 3).



STUB SHAFT CONNECTION

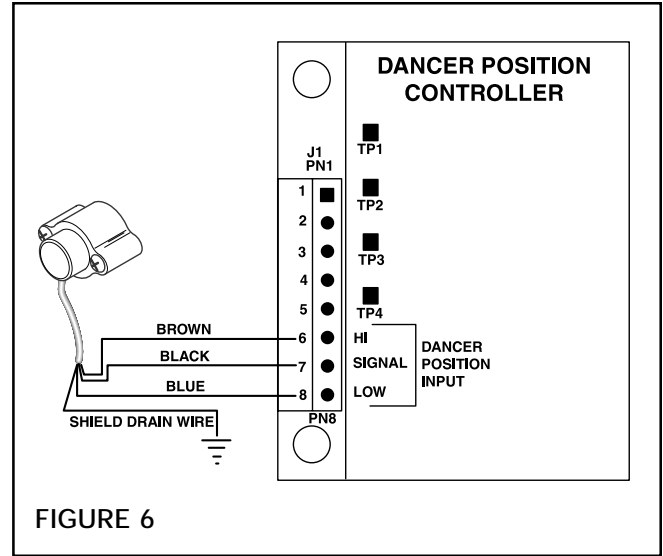
1. Purchase a zero backlash flexible shaft coupler that accommodates the diameter of the Stub Shaft (Item 8) on one end and the dancer arm pivot shaft on the other end (See Figures 4 and 9).
2. Slide the shaft coupler onto the dancer arm pivot shaft, inserting the shaft no further than half the thickness of the coupler clamp; then, tighten the clamp around the shaft (See Figure 4).
3. Slide the Stub Shaft (Item 8) into the shaft coupler, inserting the Stub Shaft no further than half the thickness of the coupler clamp; then, tighten the clamp around the Stub Shaft (See Figure 4).
4. Position the Dancer Arm in its mid-travel position.
5. The orientation of the Dancer Position Sensor (Item 1) must be as shown in order to match the mid output of the Dancer Position Sensor to the mid travel position of the dancer arm (See Figure 5).
6. Attach Dancer Position Sensor (Item 1) to the Bracket (Item 2) with the Long Pan Head Screws (Item 3, Flat Washers (Item 4), Lock Washers (Item 5), and Nuts (Item 6) (See Figure 4).
7. Align Dancer Position Sensor (Item 1) with the center of the slots in the Bracket (Item 2) and then hand tighten just enough to prevent sensor from moving during Steps 8 and 9 (See Figure 4).
8. With the dancer arm held firmly in its mid travel position, slide the Dancer Position Sensor (Item 1) over the Stub Shaft (Item 8) while carefully aligning the key with the shaft's key way (See Figure 4).
9. Slide the Dancer Position Sensor (Item 1) onto the Stub Shaft (Item 8); then, measure the distance from the bottom of the Bracket (Item 2) to the machine's side frame. Fabricate a spacer block to make up the distance between the Bracket and the machine's side frame (See Figure 4).
10. Repeat Steps 8 and 9 with the spacer block in place on the machine's side frame and mark the location for the bracket's mounting holes.
11. Remove the Dancer Position Sensor (Item 1) and Bracket (Item 2); then, drill and tap two 8-32 threaded holes centered within the marks drawn in Step 10.
12. Slide the Dancer Position Sensor (Item 1) onto the Stub Shaft (Item 8) while carefully aligning the key and key way; then, using two customer supplied 8-32 screws and lock washers, secure the Bracket (Item 2) to the customer supplied spacer block (See Figure 4).



ELECTRICAL CONNECTIONS

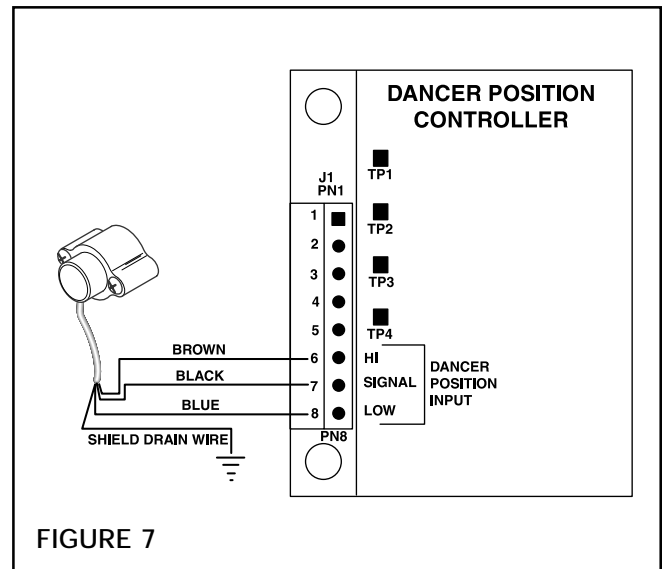
NOTE: Failure to observe the correct polarity of the Dancer Position Sensor input power will result in damage to the Dancer Position Sensor.

1. Route the Dancer Position Sensor signal cable through the machine to the Nexen Dancer Controller.
2. Connect the signal cable to the controller (See Figure 6).



ADJUSTMENT

1. Apply power to the Nexen Dancer Controller.
2. Using a voltmeter, measure the voltage across the brown (+) and the blue (-) wires while they are connected to J1 on the controller (See Figure 7).
2. The voltmeter must read +12 VDC for proper operation.
3. Attach the negative lead of the voltmeter to TP1 on the controller and the positive lead to terminal 7 of J1 (or the black wire) (See Figure 7).
4. With the dancer arm held in its mid travel position, the sensor output should be +5 VDC. If it is not, then slightly loosen the sensor's fasteners (Item 3) and rotate the sensor until +5 VDC is read on the voltmeter.
5. Tighten the fasteners securely to prevent the Dancer Position Sensor from moving.
6. Move the dancer arm through its full swing and check that the voltage ranges between 0 - 10 VDC.



NOTE: While the dancer arm is moving the sensor output voltage should change. If the output voltage stops changing as the dancer arm is moving, the sensor needs to be realigned or the angular movement of the dancer arm exceeds the capability of the Dancer Position Sensor.

7. Check that sensor voltage decreases when the dancer arm pivots as web is taken out of what accumulates around the dancer roller and that the sensor voltage increases when the dancer arm pivots as web is accumulated around the dancer roller. If the Dancer Position Sensor voltage does not change as previously described, then the dancer controller's output must be reversed. This is accomplished by swapping the exhaust muffler and the air supply air line fitting on the dancer controller's air manifold (See Figure 8).

NOTE: Attempting to reverse the Dancer Position Sensor's output by swapping its power supply leads will result in damage to the Dancer Position Sensor.

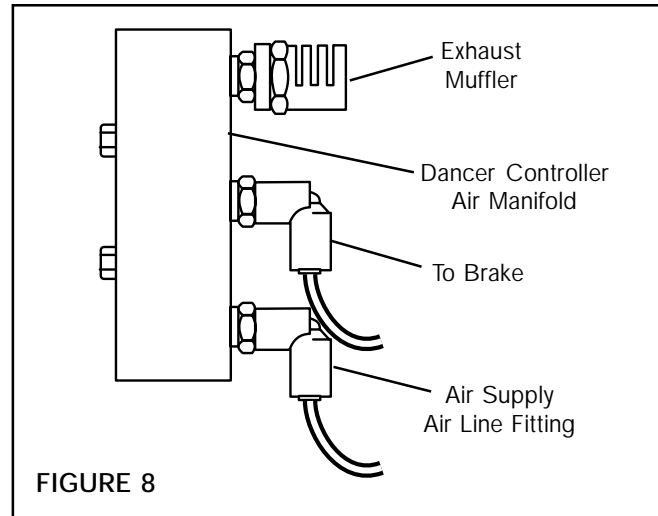


FIGURE 8

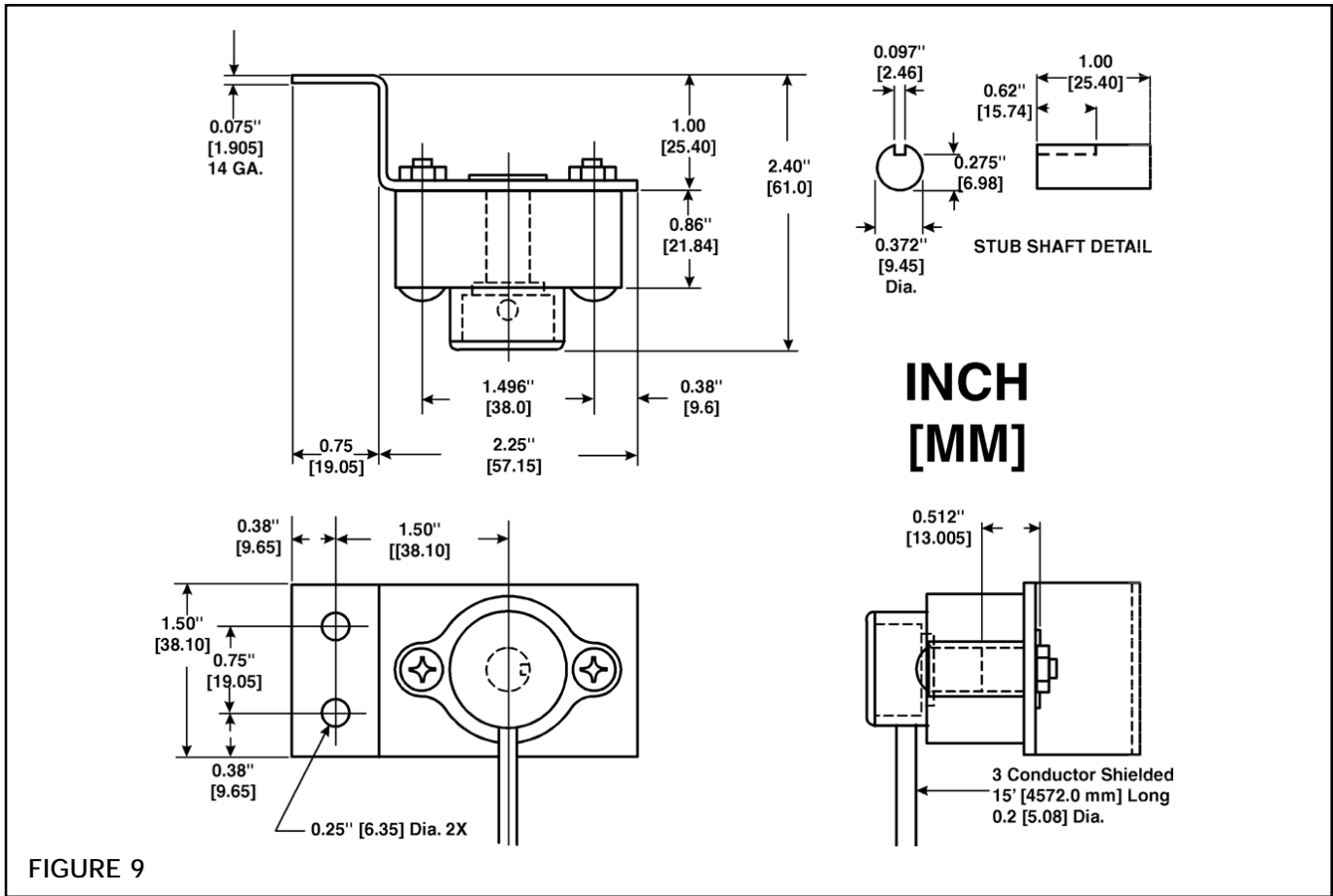
8. At this time the installation and adjustment of the Nexen Dancer Position Sensor is complete.

TROUBLESHOOTING

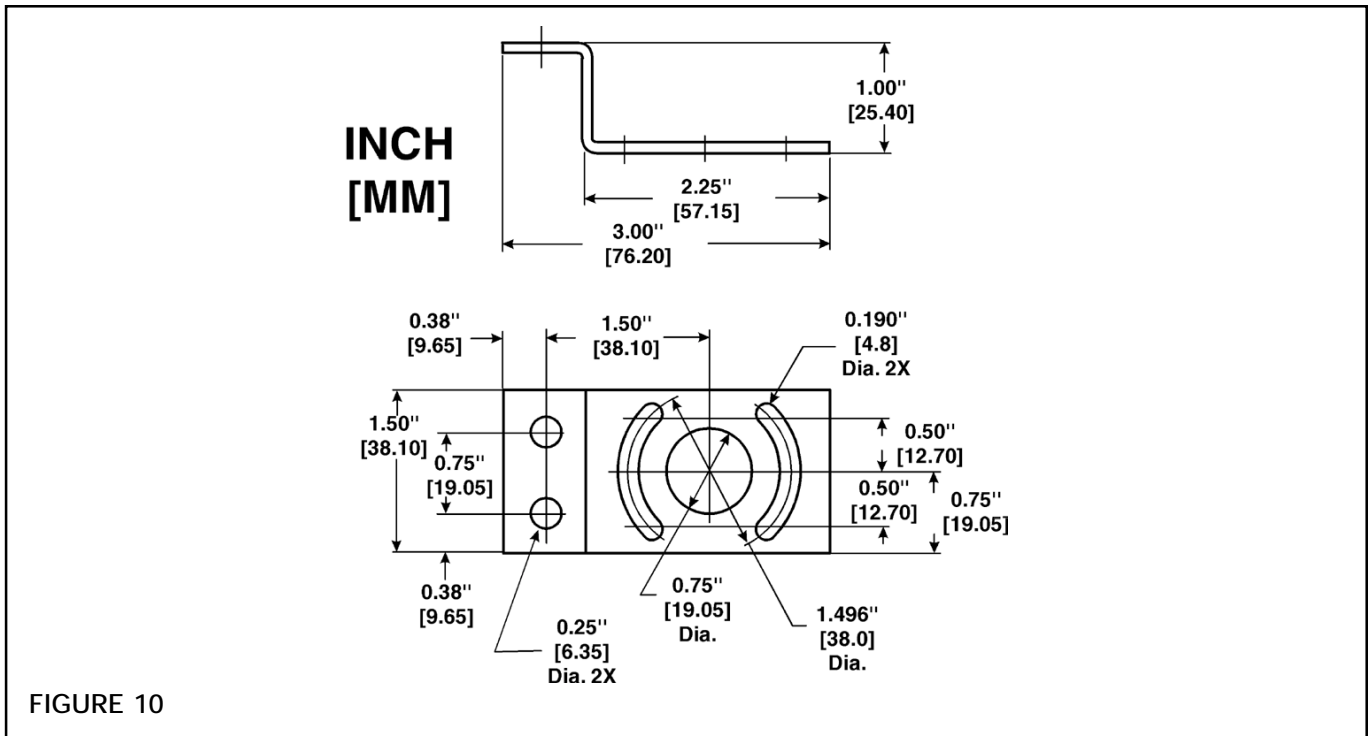
SYMPTOM	PROBABLE CAUSE	SOLUTION
No voltage from Dancer Position Sensor.	No power to the Dancer Position Sensor.	Turn on the power to the Dancer Position Controller. Connect the Dancer Position Sensor according to Figure 6.
	Input power polarity is backwards.	Replace Dancer Position Sensor and connect it according to Figure 6.
Dancer Position Sensor output does not change.	No power to the Dancer Position Sensor.	Turn on the power to the Dancer Position Controller. Connect the Dancer Position Sensor according to Figure 6.
	Dancer Position Sensor misaligned.	Align the Dancer Position Sensor according to Figure 2 for Mid Point of Output and according to the instructions in the INSTALLATION , and ADJUSTMENT Sections.
	Dancer arm exceeds the capability of the sensor.	Switch to a DPS60 or restrict the swing of the dancer arm. Refer to SPECIFICATIONS .
Dancer Position Sensor output voltage swing is backwards in relation to the dancer arm movement.	Orientation of the dancer arm components on the machine.	Mount the Dancer Position Sensor on the opposite end of the pivot shaft or reverse the output of the controller according to the instructions in the ADJUSTMENT Section.

MOUNTING DIMENSIONS

DANCER POSITION SENSOR



BRACKET



PARTS LIST

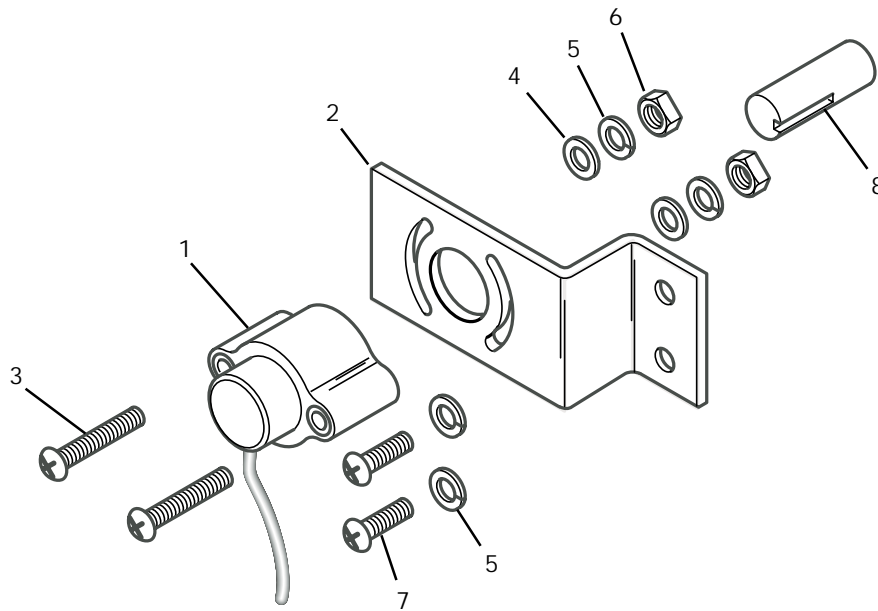


FIGURE 11

ITEM	DESCRIPTION	QTY
1	Dancer Position Sensor	1
2	Bracket	1
3	Pan Head Phillip Screw	2
4	Flat Washer	2

ITEM	DESCRIPTION	QTY
5	Lock Washer	4
6	Hex. Nut	2
7	Pan Head Phillip Screw	2
8	Stub Shaft	1

REPLACEMENT PARTS

The item or balloon number for all Nexen products is used for part identification on all product parts lists, product price lists, unit assembly drawings, bills of materials, and instruction manuals.

When ordering replacement parts, specify model designation, item number, part description, and quantity. Purchase replacement parts through your local Nexen Distributor.

SPECIFICATIONS

DPS30

Product Number 964504
 Supply Voltage +12VDC, +/-10%
 Output Voltage 0~10VDC @ max. angular rotation
 Temperature -40°F [-40°C] to 185°F [85°C]
 Enclosure NEMA 4
 Resolution Infinite
 Angular Rotation +/- 15° maximum

DPS30

Product Number 964505
 Supply Voltage +12VDC, +/-10%
 Output Voltage 0~10VDC @ max. angular rotation
 Temperature -40°F [-40°C] to 185°F [85°C]
 Enclosure NEMA 4
 Resolution Infinite
 Angular Rotation +/- 30° maximum



WARRANTIES

Warranties

Nexen warrants that the Products will be free from any defects in material or workmanship for a period of 12 months from the date of shipment. NEXEN MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND ALL IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. 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) Buyer has given written notice of the alleged defect to Nexen, and delivered the allegedly defective Product to Nexen, within one year of the date of shipment.

Exclusive Remedy

The exclusive remedy of the Buyer for any breach of the warranties set out above will be, at the sole discretion of Nexen, a repair or replacement with new, serviceably used or reconditioned Product, or issuance of credit in the amount of the purchase price paid to Nexen by the Buyer for the Products.

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TO THE EXTENT PERMITTED BY LAW NEXEN SHALL HAVE NO LIABILITY TO BUYER OR ANY OTHER PERSON FOR INCIDENTAL DAMAGES, SPECIAL DAMAGES, CONSEQUENTIAL DAMAGES OR OTHER DAMAGES OF ANY KIND OR NATURE WHATSOEVER, WHETHER ARISING OUT OF BREACH OF WARRANTY OR OTHER BREACH OF CONTRACT, NEGLIGENCE OR OTHER TORT, OR OTHERWISE, EVEN IF NEXEN SHALL HAVE BEEN ADVISED OF THE POSSIBILITY OR LIKELIHOOD OF SUCH POTENTIAL LOSS OR DAMAGE. For all of the purposes hereof, the term "consequential damages" shall include lost profits, penalties, delay images, liquidated damages or other damages and liabilities which Buyer shall be obligated to pay or which Buyer may incur based upon, related to or arising out of its contracts with its customers or other third parties. In no event shall Nexen be liable for any amount of damages in excess of amounts paid by Buyer for Products or services as to which a breach of contract has been determined to exist. The parties expressly agree that the price for the Products and the services was determined in consideration of the limitation on damages set forth herein and such limitation has been specifically bargained for and constitutes an agreed allocation of risk which shall survive the determination of any court of competent jurisdiction that any remedy herein fails of its essential purpose.

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 whom the Product was purchased from and deliver the Product to same within one year of the date on which the alleged defect first became apparent.

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