



formerly Horton Industrial Products

“Web Controls”

NARROW WEB CANTILEVER TENSION SENSORS TYPE CFL 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 can not possibly know or evaluate all conceivable methods in which service may be performed, or of the possible hazardous consequences of each method. Accordingly, anyone who uses a procedure which 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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GENERAL INFORMATION

RECEIVING AND UNPACKING

Handle and unpack the equipment carefully. Upon arrival, check the shipment against the packing list. Any damage should be reported immediately to the carrier and to your authorized Nexen Web Handling Distributor.

Equipment which will not be installed immediately should be stored in a clean, dry location. Precautions should be taken to prevent moisture, dust, and dirt from accumulating in storage and installation area.

PRECAUTIONS

Shipping and Handling

The Tension Sensor must be removed when a machine is shipped.

The Tension Sensor must be completely surrounded by a soft foam cushion when being transported.

Overloading and Overvoltage

Repetitive overloading above the maximum Force, shock, or severe overloading should be avoided because they will damage the unit.

strain gages.

The excitation voltage should not exceed 6VDC or AC (RMS). Excessive voltage can destroy the semiconductor

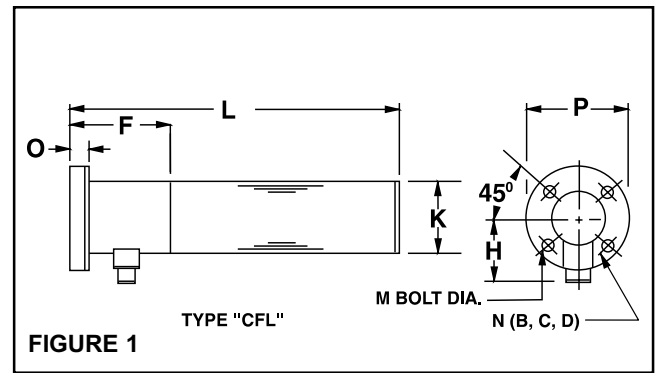
The voltage between the gage and beam or base (ground) should not exceed a peak of 50VDC or AC. Exceeding this voltage can cause an insulation breakdown between the gage and the beam.

SPECIFICATIONS

Gage Resistance	240 ohms per gage nominal
Excitation Voltage	6.0 VDC or VAC (RMS) nominal
Output Signal at Rated Maximum Force	250mV nominal
Output Impedance	SIZE 1 Approximately 850 ohms at 77° F SIZE 2 and 4 Approximately 120 ohms at 77° F
Required Input Impedance of Tension Amplifier	5000 ohms
Insulation Breakdown Voltage Gage to Beam	50V peak
Operating Temperature	0° F to +150° F
Maximum Roller Speed	4000 RPM

DESCRIPTION

The Type CFL Tension Sensor was designed to measure tension in webs having a width of up to 14 inches. Sensing beams to which semiconductor strain gages are bonded form a half bridge circuit. With these high signal output gages, a very small force on the roller is shown as a change in the tension output signal. See Figure 1 and Table 1 for mounting dimensions.



DIMENSIONS IN INCHES								
IN. CLEARANCE FOR CONNECTOR								
ALLOW 2.5								
SIZE	F	H	K	L	M	N	O	P
1T	1.73	2.00	2.00	5.33	5/16	2.75	0.38	3.38
2T	2.73	2.00	2.00	10.83	5/16	3.75	0.62	3.38
4T	3.73	2.45	2.90	19.83	5/16	3.75	0.62	4.50

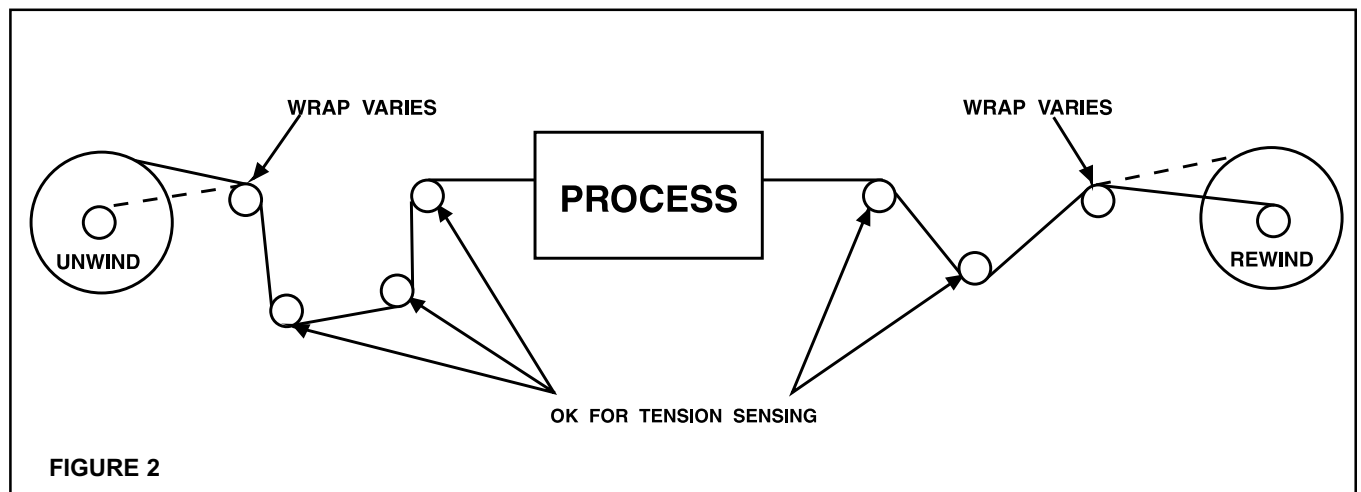
TABLE 1

INSTALLATION

SELECTION OF SENSOR MOUNTING LOCATION

NOTE

When selecting a sensor mounting location, keep in mind the tension sensing roll must not be mounted where the web wrap can vary. Any change in wrap angle will be sensed by the sensor as a change in tension and indicated as such on the indicator (See Figure 2).



GENERAL INSTALLATION INFORMATION

Mount the base of the sensor so the force applied by the web will be perpendicular to the load line label (See Figure 3).

If present mounting holes are to be used or if for some reason new holes cannot be drilled, the sensor can be rotated 90° in either direction. If the load line label is not lined up with the applied force, some sensitivity will be lost.

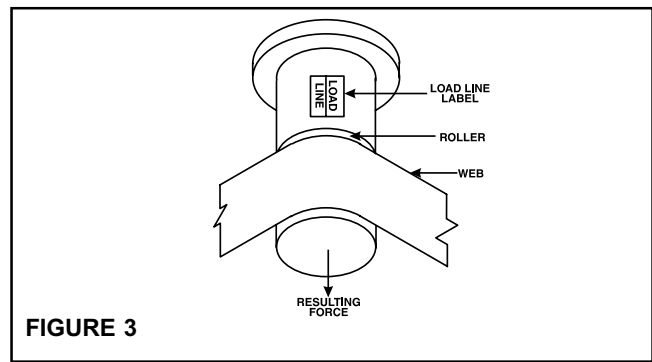


FIGURE 3

ELECTRICAL CONNECTIONS

Use the cables provided with the sensors and the installation wiring diagram supplied with the Nexen tension indicator or controller for making the transducer connections. Make certain the cables do not interfere with the web path and they are away from gearing or other moving parts. Use only the

Nexen supplied cables which include half bridge resistors in the cable connector shell.

These wiring diagrams are for reference only (See Figures 4 and 5). All of the Nexen indicators and controls will accept a half bridge input as shown in Figures 4 and 5.

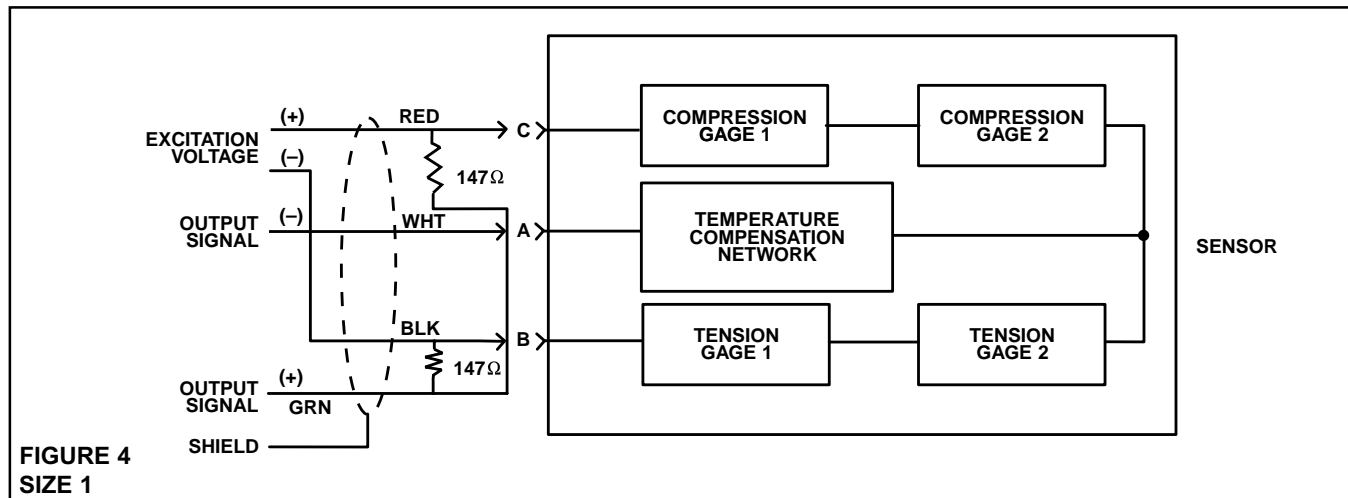


FIGURE 4
SIZE 1

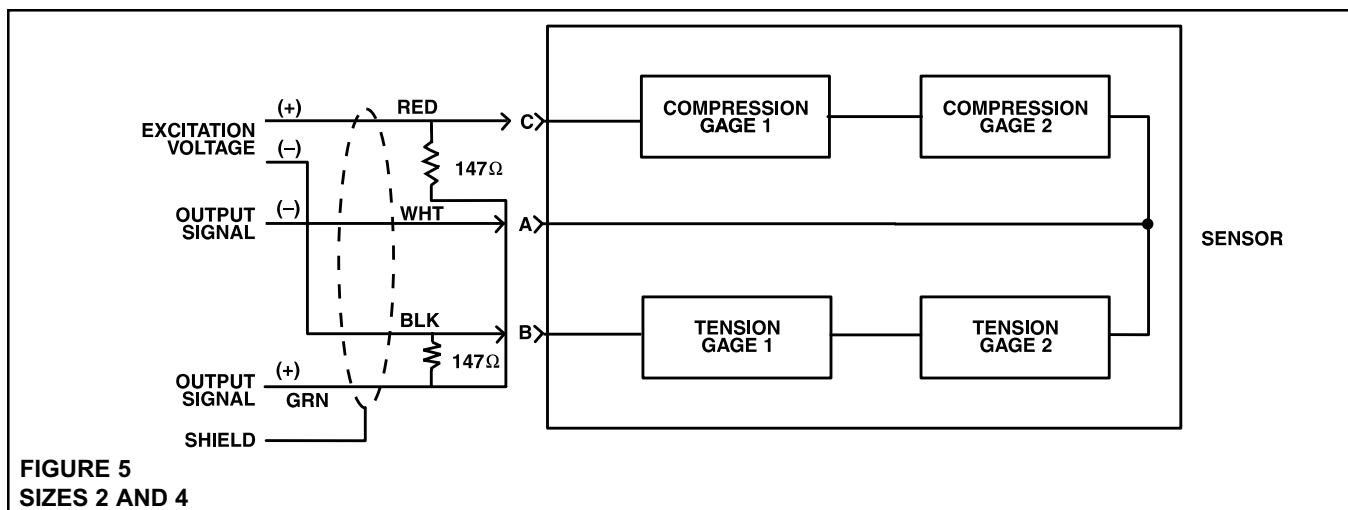


FIGURE 5
SIZES 2 AND 4

TEMPERATURE COMPENSATION

Size 1 Tension Sensors are supplied with a temperature compensation network which is in series with the output signal lead. The compensation circuit is designed to be used with a tension amplifier which has an input impedance of 5K ohms. If other than the input impedances given above are

used, drift will occur in the tension amplifier output when the transducer temperature changes. Size 2 and 4 Tension Sensors use a beam material that does not require temperature compensation.

TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE	SOLUTION
Low output signal.	Sensor has too large a rated maximum Force for the application.	Replace with a lower rated maximum Force sensor or increase the web wrap angle.
Output signal fails to increase with added load.	Sensor is overloaded and is hitting the mechanical stop.	Replace the Sensor with one having a higher rated maximum Force or reduce the load. (This may be accomplished by reducing the web wrap angle).
Wrong polarity of output signal.	Sensor may be incorrectly oriented.	Make certain the web force is being applied to the top side of the transducer which is identified by the load line label (See Figures 2 and 3). If rotation is impossible, interchange the sensor's Output Signal leads (green and white) at the tension meter or controller (See Figure 4 and 5).
No output signal.	Connecting cable might be crimped, cut, or making bad connection.	Check to see all connections have been made completely. Check for places where the connecting cable might be crimped or cut. Replace cables if necessary.
Very high output with no load.	Faulty sensor or bad connections.	Check cable and connector for good connections and check continuity of cable with an ohmmeter. Check for proper wiring to transducer. Check sensor gage resistance as given in Tables 2 and 3 at room temperature with no load applied.

SENSOR GAGE RESISTANCE CHECK (WITH CABLE REMOVED)	
MEASUREMENT	RESISTANCE
Pin B to Pin C	480 ohms \pm 72 ohms
Pin A to Pin B	700 to 1400 ohms
Pin A to Pin C	Equal to Pin A to Pin B \pm 12 ohms

TABLE 2
SIZE 1

SENSOR GAGE RESISTANCE CHECK (WITH CABLE REMOVED)	
MEASUREMENT	RESISTANCE
Pin B to Pin C	480 ohms \pm 72 ohms
Pin A to Pin B	240 ohms \pm 36 ohms
Pin A to Pin C	Equal to Pin A to Pin B \pm 12 ohms

TABLE 3
SIZES 2 AND 4

SERVICE ASSISTANCE AND REPAIR

CAUTION

Disassembly by improperly trained personnel may result in additional damage to the unit. Contact the factory if repairs become necessary.

For additional service assistance, please obtain the Nexen part number and serial number from the nameplate. Contact

your authorized Nexen Web Handling Representative.

REPLACEMENT PARTS

Contact your authorized Nexen Web Handling Distributor for parts availability. This unit is not field servicable. The only field replaceable component is the cable.

PART NUMBER	DESCRIPTION
30517	Cable Assembly with Resistors

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

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.

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