

# WEB CONTROL PRODUCTS

User Manual



## RSTC Remote Operator Panel ROP



# DANGER

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.

#### Manufacturers' Declaration

In accordance with the CE machine directive 98/37/EC, Appendix II B

We hereby declare that the pneumatic/mechanical components described in this manual as well as their individual components are intended, in the configuration in which they have been supplied, to be integrated into a machine.

They must not be put into service until the machinery into which it is to be incorporated has been declared in conformity with the provisions of the Directive mentioned above or its amendments.

All Nexen products are designed in accordance with the manufacturing directives for pneumatic systems according to EN 983.

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.

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## INTRODUCTION

The Nexen RSTC Operator Panel (ROP) is a simple compact operator station for making adjustments to the RSTC Tension Controller. From the ROP, operators can make changes to operation and job settings of the RSTC. The ROP features a multi-line alphanumeric display that provides: information critical to the job currently in operation, single function push-buttons, and a rotary knob for tension setpoint adjustment.

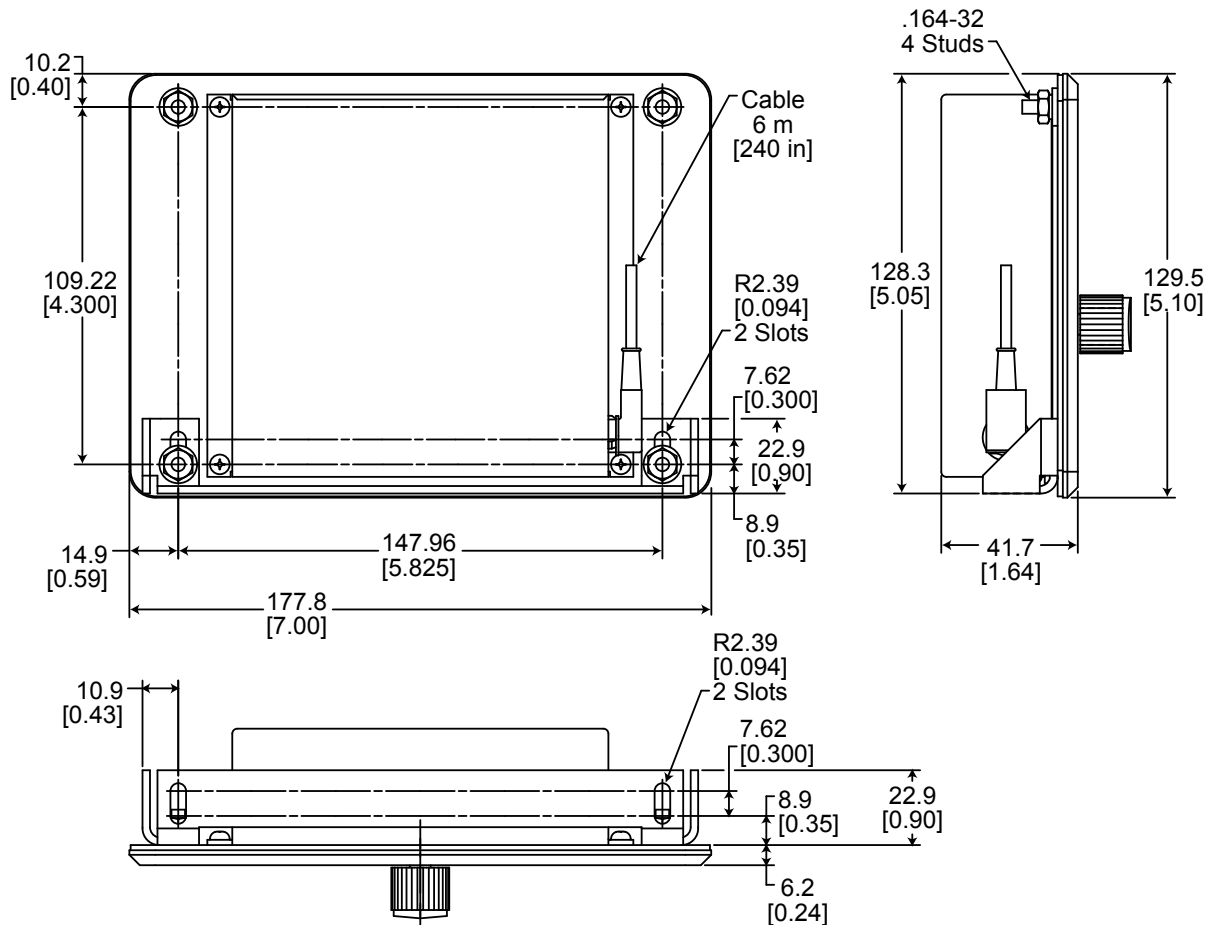
The ROP was designed with the machine builder in mind. With its small footprint and shallow depth, the ROP can be mounted in already crowded control stations. It features one cable that connects directly to the RSTC and thus does not require additional power supplies or control signals. There are two methods of mounting the ROP, it can be mounted through a cutout in the control station or using the included bracket it can be mounted vertically on top of a machine surface.

The ROP was designed with the operator in mind. It is simple to understand and use. All push-buttons are single function, making it easy for operators to learn their function. An alphanumeric display has only two screens to convey information without using cryptic codes and the screens switch back and forth automatically without operator intervention. A tension setpoint adjustment knob located in the center of the ROP makes changes to web tension quick and easy.

The ROP only allows modifications of basic operations/parameters such as automatic/manual mode, output on/off selections, web tension settings, and taper tension setpoint settings. There are no ROP functions for making changes to the RSTC's setup or tuning parameters, which prevents tampering by unauthorized personnel.

A ROP will only work with one RSTC controller equipped with a Modbus RS-485 communications port. Therefore, in applications where there is more than one RSTC in use, each RSTC will require its own ROP.

## ROP DIMENSIONS



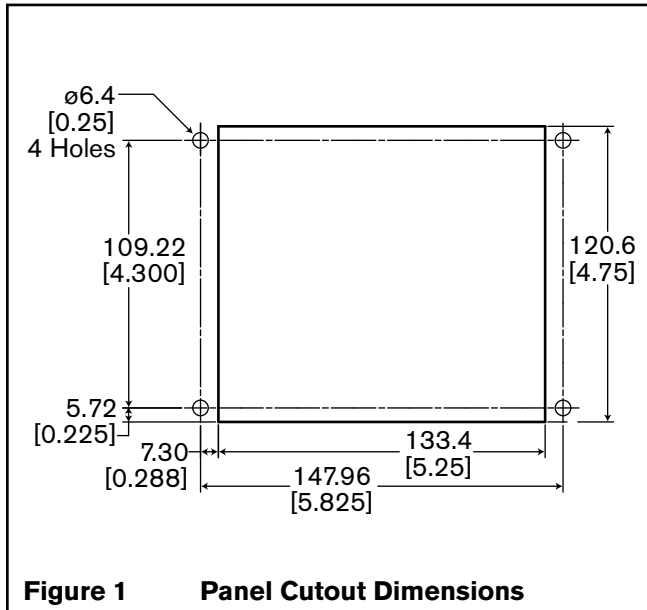
## INSTALLATION

The ROP can be mounted using two methods:

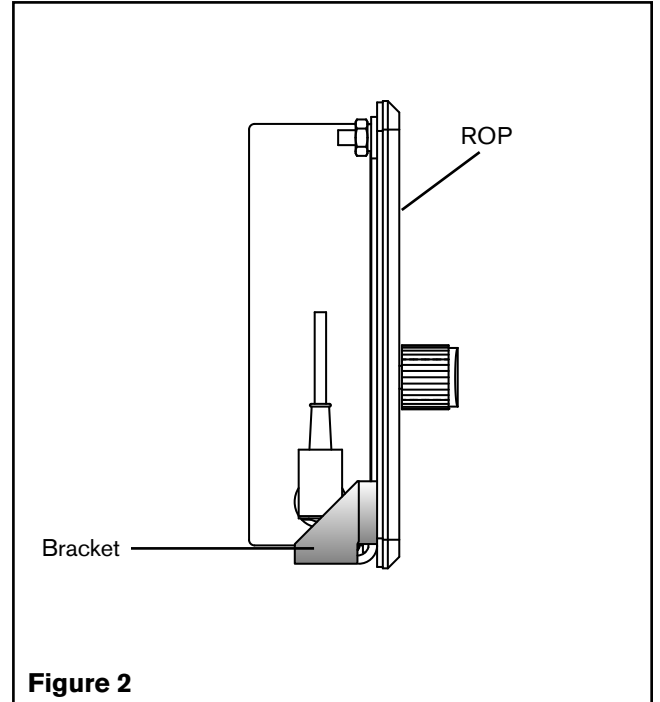
- A) Mount through a cutout in the operator station on the web machine (See Figure 1).

or

- B) Mount vertically using the included bracket (See Figure 2).



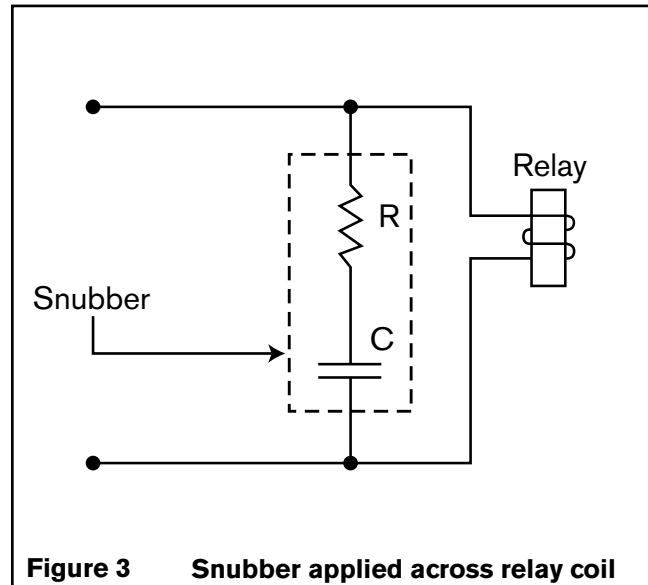
**CAUTION**  
 Mount the ROP in a shock and vibration free area with an ambient temperature of less than 113°F [45°C] and greater than 32°F [0°C].



## WIRING INSTALLATION GUIDELINES

This product is designed to minimize the effects of ElectroMagnetic Interference (EMI) on its operation, but as with any electronic device, proper installation and wiring methods are necessary to ensure proper operation. By doing so, the interference from external effects such as electrical line spikes, electrical noise, static electricity, etc. will be minimized. The following methods outline wiring installation guidelines to protect your system:

- All input and output signal and sensor cables must be shielded with the shields tied to earth ground at one end. In case of very high frequency (MHz range) electrical noise, both ends of the shield need to be tied to earth ground.
- Keep cable and unshielded lead lengths as short as possible. Think of them as antennae for noise.
- Use power line filters to suppress interference on the AC voltage lines that power the unit.
- Place a resistor-capacitor network (snubber) across inductive coils such as relays and solenoids in order to stop electrical interference at the source (See Figure 3).
- Isolate signal and sensor cables from cables carrying AC voltages, power for high current loads or relays and solenoids. Either relocate the signal and sensor cables away from other cables or use grounded metal conduits to shield them. This will reduce the potential for noise interference between the signal and sensor cables and the other noisy cables.



**Figure 3 Snubber applied across relay coil**

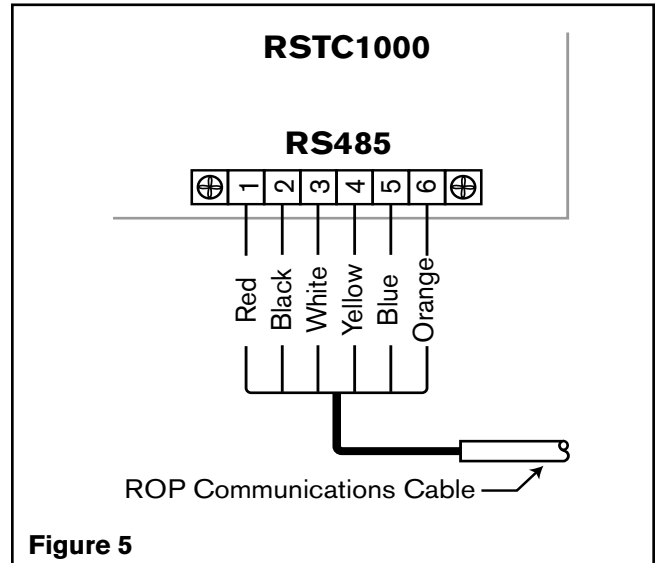
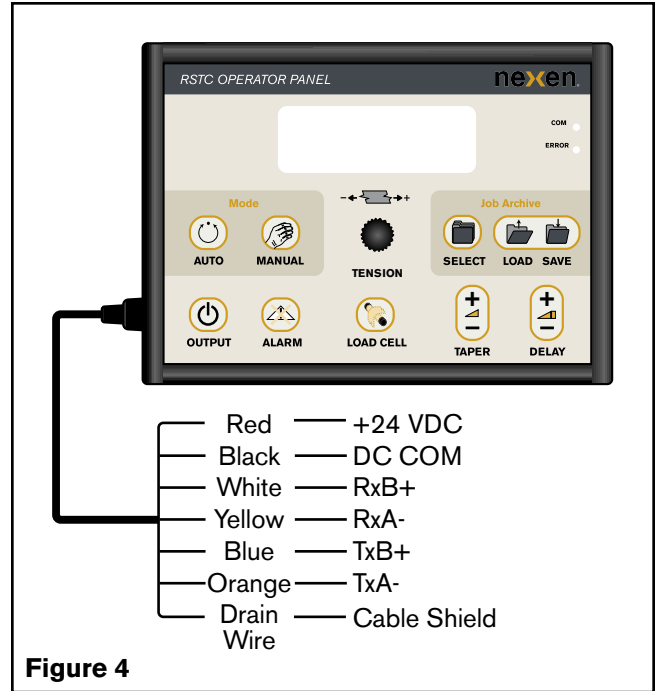
For environments that experience high levels of static electricity follow these additional guidelines:

- Remove the static charge from material carrying it. In the case of webs that carry static charges, there are static charge removal products available such as static bars and ionized blowers.
- Ensure that sensors and machine frames are grounded to earth through a low impedance path.
- Wrap grounding tinsel around sensors and cables that are close to the source of the static electricity and ground the tinsel to earth.
- Tie all signal and sensor cable shields directly to earth ground without passing through the electronic device. This will help prevent high voltage interference from coupling into other circuits within the device.

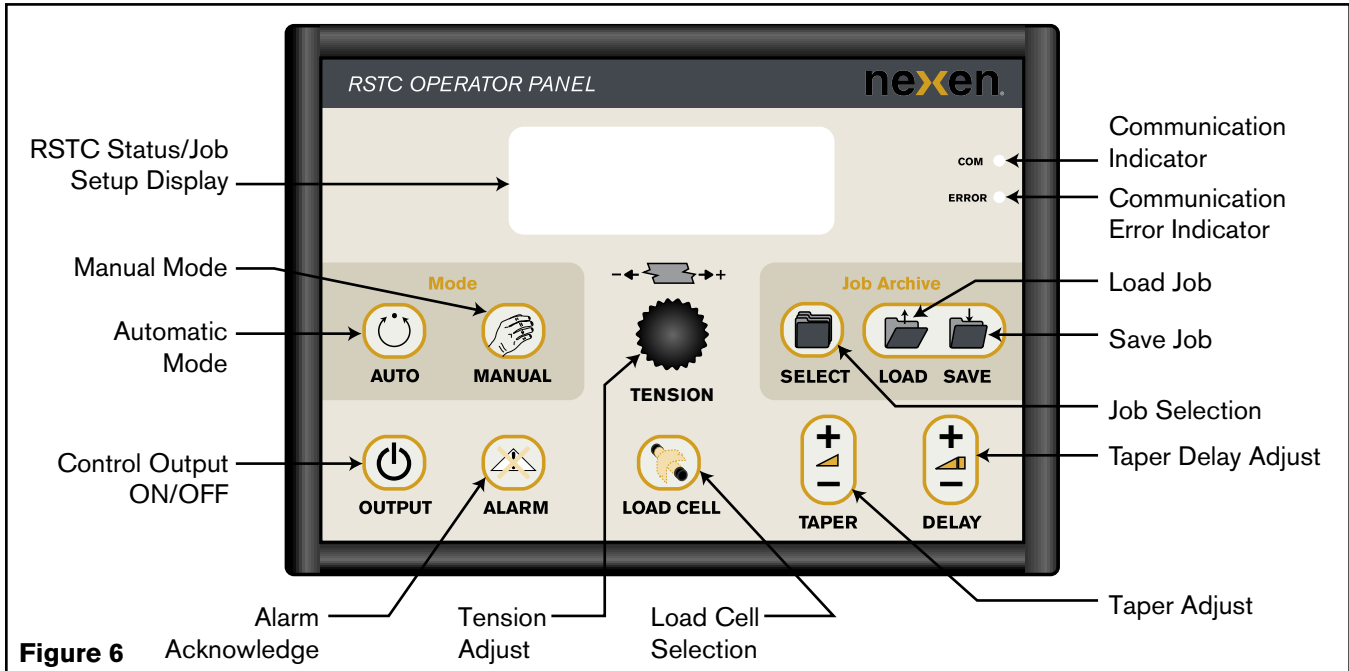
## ELECTRICAL CONNECTIONS

**Note: The RSTC must be equipped with the Modbus communications option to be compatible with the ROP.**

**Note: The communication cable is shielded and the shield's drain wire is terminated at the ROP. To maintain the integrity of the ROP and cable's shielding, the ROP's mounting studs must connect to earth ground via a low resistance conductor.**



**OPERATION**



**AUTOMATIC/MANUAL MODE SELECTION**

When the AUTO key is depressed the RSTC will go into automatic mode; the RSTC Status display will change to "Auto" to confirm that the RSTC is in automatic mode. At this stage, the web's tension is set by the Tension Adjust knob and maintained automatically.

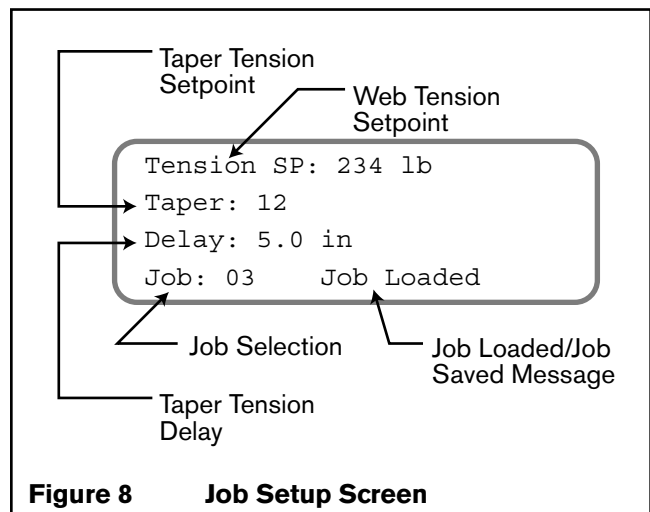
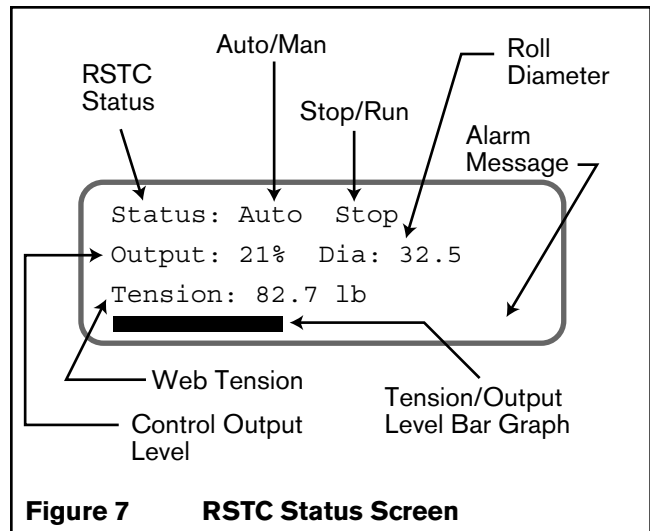
When the MANUAL key is depressed the RSTC will go into manual mode; the RSTC Status display will change to "Man" to confirm that the RSTC is in manual mode. At this stage, the Tension Adjust knob is used to manually change the RSTC's control output level.

**Web Tension/Output Level Adjustment And Indication**

**AUTOMATIC MODE**

When the RSTC is in automatic mode (status display indicates "Auto") the tension setpoint is adjusted by turning the Tension Adjust knob. Turning the knob clockwise will increase the setpoint and turning the knob counterclockwise will decrease the tension setpoint. Turning the knob will cause the ROP display to change from the RSTC Status screen to the Job Setup screen (See Figure 8). Continue turning the knob until Web Tension Setpoint is set to the desired tension value. If the knob is left stationary, the ROP display will return to the RSTC Status screen after a short delay.

Web tension is indicated by the TENSION display (See Figure 7). The bar graph display indicates web tension magnitude as a percentage of the RSTC's maximum tension setpoint value entered during RSTC setup.







## **MANUAL MODE**

When the RSTC is in manual mode (status display indicates “Man”) the Control Output level is adjusted by turning the Tension Adjust knob. Rotating the knob clockwise will increase the output level and rotating the knob counter clockwise will decrease the output level.

Control Output level is indicated by the OUTPUT display (See Figure 7). The bar graph display indicates output level magnitude on a scale from 0 to 100 %.

## **JOB SETTINGS ARCHIVES**

The ROP can store up to ten different sets of job settings. Each job has a setting for web tension setpoint, taper tension setpoint, and taper tension delay. These settings are designated Job 1 through Job 10.

### **SELECTING A JOB**

When the SELECT key is pressed once, the display screen switches to Job Setup.

1. From this screen, press and hold the SELECT key to scroll through job numbers.
2. When the desired job number is reached, release the SELECT key.

### **LOADING A JOB**

3. Press and hold the LOAD key to load the parameters of the selected job.

After the parameter values have been loaded, the messaged “Job Loaded” is displayed.

### **SAVING A JOB**

4. Press and hold the SAVE key to save the current job parameters into the ROP's memory.

After the parameter values have been saved, the messaged “Job Saved” is displayed.

### **RETURN TO STATUS SCREEN**

5. Release all keys and after a short delay the display will return to the RSTC Status screen and the new job parameter values will be sent to the RSTC.

When power is supplied to the ROP, all the job parameter settings (tension setpoint, taper tension setpoint, and taper tension delay) that were in use when the ROP power was removed are restored from the RSTC. These job parameter settings will stay in affect until changed by the operator.

When power to the ROP is removed, all the job parameters (including the ones currently in use and Jobs 1 through 10) are stored in nonvolatile memory.

## **OUTPUT ON/OFF**

The RSTC's control signal output can be turned off and

on from the ROP by pressing the OUTPUT key. Each time it is pressed, the present state of the control signal output changes from OFF to ON or ON to OFF. When the control signal output is on, the OUTPUT display will show the output level from 0 to 100 %. When the control signal output is off, it will display "OFF"

## ALARMS AND ALARM ACKNOWLEDGE

Anytime the RSTC detects a condition that warrants an alarm, an alarm message will be displayed in place of the bar graph on the RSTC Status screen. The following alarm messages will remain until the alarm condition has ceased.

**Web Break** – total loss of web tension.

**No Control** – control signal output has reached 0% or 100% during automatic operation and web tension is not at set point. This is usually caused by accelerating a large roll too quickly or a web speed that is too fast near core. Both can produce a situation where tension is too high and the control output is at 0% and can not decrease any further. A large roll decelerated too quickly can also cause the output to go to 100% while the web tension remains below setpoint.

**High Tension** – web tension is greater than the high-tension limit.

**Low Tension** – web tension is less than the low-tension limit.

**Max Output** – control signal output has reached maximum output limit, typically 100%.

**Min Output** – control signal output has reached minimum output limit, typically 0%.

The ALARM key is used to signal to the RSTC that the current alarm has been noticed. Typically the RSTC responds by turning its alarm outputs off. The alarm message on the ROP screen, however, will remain until conditions change.

## LOAD CELL SELECTION

1. Press the LOAD CELL key to display the tension for load cell 1 as indicated by "Tension1" on the RSTC Status screen (See Figure 7).
2. Press the key a second time to display the tension for load cell 2 as indicated by "Tension2" on the RSTC screen.
3. Press the key a third time to display the total tension of load cell 1 and 2 as indicated by "Tension" on the RSTC screen.

## TAPER TENSION ADJUSTMENT

A RSTC using a roll diameter sensor is capable of performing taper tension during a roll winding application. Two adjustable parameters are provided on the ROP for taper tension applications:

- a) **TAPER**: determines the amount of tension taper applied to the roll
- b) **DELAY**: determines the roll diameter at which the tension tapering is to begin

For more information on taper tensioning, refer to the RSTC instruction manual.

### To ADJUST TAPER TENSION

1. Press "TAPER +" or "TAPER –" to display the Job Setup screen. Holding down "TAPER +" or "TAPER –" will cause the Taper value to increase (more tension taper) or decrease (less tension taper) respectively. A Taper value of zero will turn off the taper function.
2. Release the key to return to the RSTC Status screen (there will be a short delay).

### To ADJUST TAPER DELAY

1. Press "DELAY +" or "DELAY –" to display the Job Setup screen. Holding down "DELAY +" or "DELAY –" will cause the Delay value to increase (begin tapering later) or decrease (begin tapering sooner) respectively.
2. Release the key to return to the RSTC Status screen (there will be a short delay).

## COMMUNICATION STATUS INDICATORS

Communication status between the ROP and the RSTC is indicated by the COM and ERROR indicators (See Figure 6). The COM indicator flashes whenever there is communication between both units. The ERROR indicator turns on whenever there is a communication error detected by the ROP.

If an error is detected by the ROP, the ROP will re-send the message. If successful, the error indicator is turned off. If the communication error is still present (and the ERROR indicator remains on) ensure that the communications cord is firmly seated into the ROP's connector (See Figure 4) and the communication cord connections at the RSTC are correct (See Figure 5). Anytime the ERROR indicator is on, many of the displayed parameters will not change as they are updated from the RSTC.

## IMPERIAL OR METRIC UNITS

The ROP is capable of displaying tension and roll diameter in either imperial or metric units. Choose the desired units during RSTC setup. Units cannot be changed from the ROP.

## ROP POWER UP

When power is applied to the ROP, all job parameter settings including the ones in use prior to power removal and Job 1 through 10 parameter settings are restored. Parameters such as Automatic/Manual mode, Manual Output Level, and Control Output on/off are updated from the RSTC.

## ROLL DIAMETER

Roll diameter values are received from the RSTC and are only displayed if greater than zero.

## WRITING DISABLED

Whenever communication occurs between a computer using the RSTC Communications Software and the RSTC, the ROP will be prevented from making settings changes to the RSTC. A message "Writing Disabled" appears in place of the bar graph. This condition remains in effect until the computer disconnects from the RSTC.

## LANGUAGE SELECTION

Each ROP can display text in English and one other language: Spanish, French, German, or Italian depending on the model (refer to PART NUMBER section). The language can be selected from the RSTC communications Software or by simultaneously pressing the ALARM and LOAD CELL keys. Each time both keys are pressed the text language will change.

## SPECIFICATIONS

Number of RSTCs to be used with the ROP.....1 maximum  
 Power (provided from RSTC).....+24 VDC @ 150 mA maximum  
 Temperature Range.....32°F [0°C] to 113°F [45°C]

## PART NUMBER

<b>RSTC OPERATOR PANEL</b>	964537 ENGLISH-SPANISH	964539 ENGLISH-GERMAN
	964538 ENGLISH-FRENCH	964540 ENGLISH-ITALIAN

## SERVICE INSTRUCTIONS

Nexen does not recommend customer servicing of this product. Contact Nexen for replacement parts or repair.



## WARRANTY

### 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.

### LIMITATION OF NEXEN'S LIABILITY

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.

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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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