

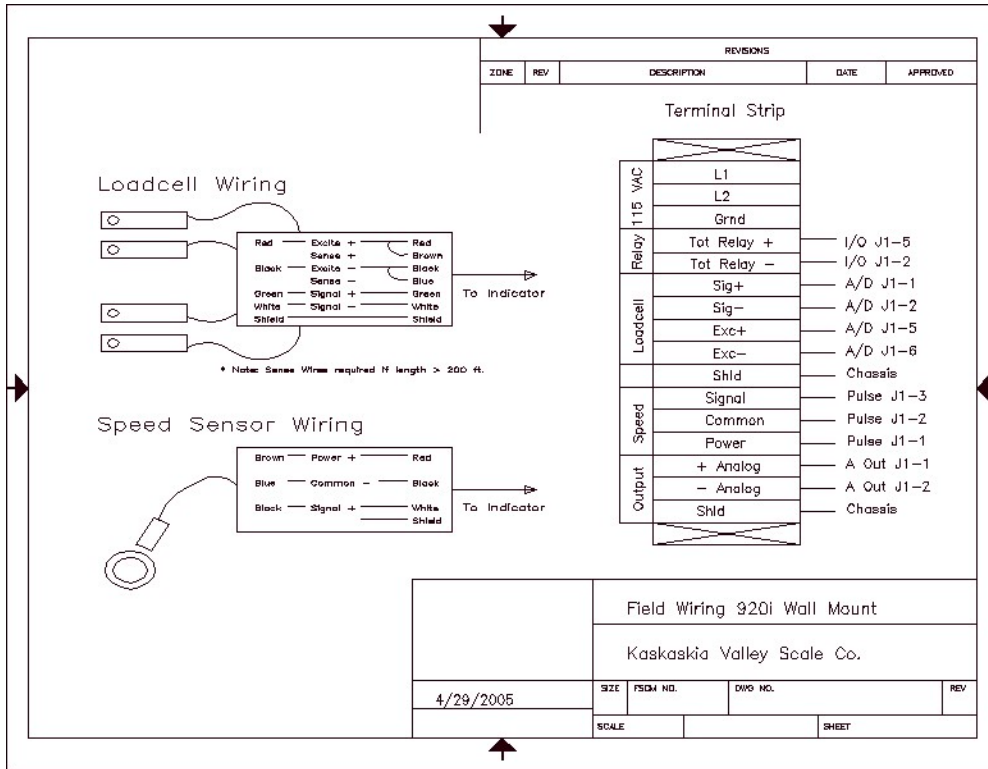
RC41 / 920i CONVEYOR BELT SCALE

Quick Setup Guide

920i™ Rice Lake Weighing System Inc.
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RC41™ © Kaskaskia Valley Scale Co.
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Field Wiring



Critical Measurements

Prior to performing the initial setup and calibration of the scale system, a number of critical measurements are required.

Belt Length _____ ft.

The length of the belt travel should be determined by measuring a complete revolution of the belt.

Test Revolutions _____ revs.

Determine the number of revolutions of the belt will be travel during a calibration test. The test should take a minimum of 3 revolutions and should be greater than 6 minutes in duration.

Test Time _____ seconds

Determine the time for the calculated test revolutions to pass the scale. Time the belt travel to the nearest 1/10th of a second.

Idle Spacing _____ inches

The distance from the scale idler to the adjacent idlers should be measured to the nearest 1/10th of an inch.

Scale Capacity

The scale capacity is the maximum load in units per hour expected to be passing over the conveyor. The capacity should be large enough to allow for any peak loads or surges that may occur. The scale capacity sets the scaling for the analog output signal.

Units of Measure

The units available are: Tons, Kg, Lbs, Tonnes, or L Tons. The units selected are used also used for printer outputs and remote displays.

Decimal Places

The decimal place setting formats the displays for the Totals, Rate, Load and Speed.

Idler Spacing

Enter the measured spacing in inches.

Test Length

Enter the belt length multiplied by the test revolutions.

Test Time

Enter the measured time for the belt test length to pass the scale.

The application section of this guide covers the routine calibration procedures of the belt scale.

There are five calibration settings used in the 920i scale electronics.

Static Zero and Static Span

Belt Timing

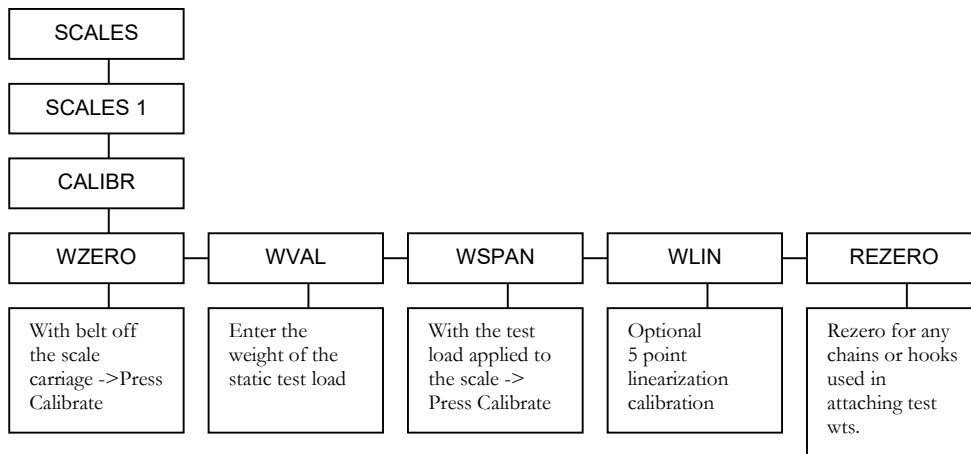
Dynamic Tare and Dynamic Span

Static Calibration Procedure

The static calibration procedures are performed with the conveyor belt stopped, and lifted off of the weighing idler.

The 920i calibration procedure is listed in detail in the Rice Lake Weighing System manual section 4.0 through section 4.2. The 920i setup menu is accessed by pressing the configuration switch located under the screw hole in the bottom of the enclosure. The menu can also be accessed by jumpering the remote configuration connection on the 920i motherboard above the J10 terminal strip.

The Static Calibration Menu is accessed by moving through the following menu's



To exit the configuration menu press the (Save and Exit) button.

Belt Timing

The belt speed and timing calibration procedures are performed after physically measuring the length conveyor belt. With the belt running unloaded and at maximum speed, measure the time for the belt to complete 1 circuit of travel.

Multiply the belt length x the number of revolutions and record the test length and test time.

Press the [TARE] key and then press the [ENTER] key to unlock the parameters.

Press the [SETUP] button.

Press the down arrow until the cursor is at the Test Length parameter.

Press the [ENTER] key.

Using the number keypad, enter the Test Length.

Press the [ENTER] key to accept the new value.

Press the down arrow until the cursor is at the Test Time parameter.

Press the [ENTER] key.

Using the number keypad, enter the Test Time.

Press the [ENTER] key to accept the new value.

Press the [CALIBRATION] button.

Press the down arrow until the cursor is at the Test Pulse Count parameter.

Press the [ENTER] key.

Press the [ENTER] key again to automatically count the speed pulses, or using the number keypad, manually enter the pulse count value.

Wait for the test to complete, the press [ENTER] to accept the new value.

Press the [TARE] key to lock the parameters when finished.

Dynamic Tare and Span Calibration

The dynamic calibrations are performed after the static calibration and belt speed calibrations have been performed. The dynamic tare setting is used to cancel out the weight of the moving empty belt. The dynamic span setting is used to factor the weight for the effects of belt tension. The dynamic span may also be used to factor for lever ratio on a pivot type scale carriage.

Tare Calibration

The Tare Calibration value is the average weight of the belt running empty expressed in pounds.

Press the [TARE] key and then press the [ENTER] key to unlock the parameters.

Press the [CALIBRATION] button.

Press the down arrow until the cursor is at the Tare Calibration parameter.

Press the [ENTER] key.

Press the [ENTER] key again to automatically calculate the tare value, or using the number keypad, manually enter the value.

(Manually entering the Tare Value will set the Tare Limit to the new value.)

Wait for the test to complete.

Record the New and Old values, and the % Error

.

NOTE: If the % Error exceeds the Tare Limit Value, the new value must be manually entered.

Press the [ENTER] key to accept the new value, or press one of the menu buttons to exit with changing the value.

Press the [TARE] key to lock the parameters when finished.

Span Calibration

The Span Calibration value is a correction factor that adjusts the weight signal. A span value of 1.0 applies no correction. A span value of 2.0 doubles the weight signal, and a value of 0.5 divides the weight signal in half.

Press the [TARE] key and then press the [ENTER] key to unlock the parameters.

Press the [CALIBRATION] button.

Press the down arrow until the cursor is at the Span Calibration parameter.

Press the [ENTER] key.

(Apply Test Weights prior to automatically adjusting span)

Press the [ENTER] key again to automatically calculate the span value, or using the number keypad, manually enter the value.

Wait for the test to complete.

Record the New and Old values, and the % Error.

Press the [ENTER] key to accept the new value, or press one of the menu buttons to exit with changing the value.

Press the [TARE] key to lock the parameters when finished.

Material Testing

The Span value can be manually changed to correct the scale for any bias between the test weight calibration results and the actual weight registered in a material test. Following a material test, the test weight value should also be adjusted to match the results of the correction.

$\% \text{ Error} = (\text{Belt Scale Wt.} - \text{Reference Wt.}) / \text{Reference Wt.}$

The correction to the belt scale is calculated as follow:

$\text{New Span Value} = (\text{Reference Wt.} / \text{Belt Scale Wt.}) \times \text{Current Span Value}$

Manually Adjusting the Dynamic Span

Press the [TARE] key and then press the [ENTER] key to unlock the parameters.

Press the [CALIBRATION] button.

Press the down arrow until the cursor is at the Span Calibration parameter.

Press the [ENTER] key.

Using the number keypad, manually enter the New Span value.

Press the [ENTER] key again to accept the value.

Press the [TARE] key to lock the parameters when finished.

Determining the Adjustment for the Test Weight value

The test weight value should be determined by applying the test weights to the scale and recording the weight accumulated in a dynamic span test.

Press the [TARE] key and then press the [ENTER] key to unlock the parameters.

Press the [CALIBRATION] button.

Press the down arrow until the cursor is at the Span Calibration parameter.

Press the [ENTER] key.

(Apply Test Weights)

Press the [ENTER] key again to start a dynamic span calibration test.

Wait for the test to complete.

Record the value of the Weight Accumulated.

The % Error is the amount of change to be made to the test weight value.

Do not press [ENTER] key.

(Remove Test Weights)

Press the [CALIBRATION] button to abort the test without changing the span value.

Press the down arrow until the cursor is at the Test Weight parameter.

Press the [ENTER] key.

Using the number keypad, manually enter the new Test Weight value.

Press the [ENTER] key again to accept the value.

Press the [TARE] key to lock the parameters when finished.