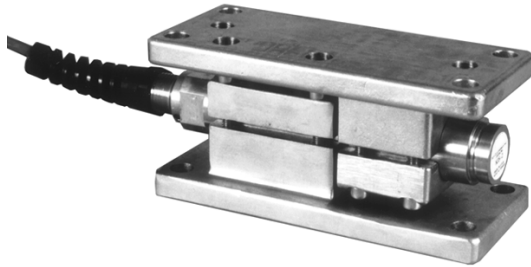


## Web Tension Measurement Module



### FEATURES

- Full Wheatstone bridge construction with temperature-compensated, Micro-Measurements SR-4® foil strain gages
- Easy retrofit with existing machine pillow blocks
- 100% stainless steel construction
- IP67/NEMA 4 environmental sealing
- Factory calibration eliminates need for on-site test weights

### DESCRIPTION

HTK Web Tension Measurement Modules are designed to measure vertical forces in the up or down direction and mount directly below roller pillow blocks in new or existing installations. Each module includes an integral top and bottom adapter plate with hole mounting arrangements for typical installations found in the roofing, converting, printing, and plastic industries. The design also provides safety stop installation points at each corner.

Transducer and mounting hardware components are 100% stainless steel for use in harsh, industrial environments. Module sealing meets NEMA 4 and IP67 requirements. An integral cable conduit fitting and epoxy sealed strain gages ensure long-term reliability in wet or washdown locations.

A full Wheatstone bridge array of temperature compensated, Micro-Measurements SR-4® strain gages are bonded to the 'I' beam type sensing section and factory calibrated for precision accuracy. Resulting temperature stability is due to closely matching the expansion coefficient of the sensing section to patented SR-4® gages.

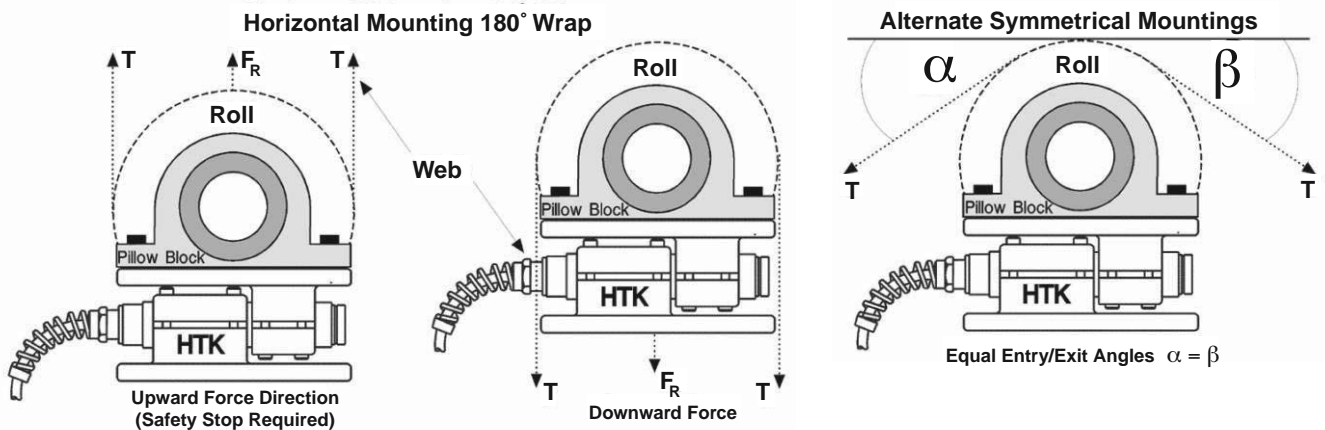
Space required below the pillow block bearing is minimal, resulting in negligible line profile changes on retrofit installations. Overall module height is only 3.27 inches. Low profile, along with rated capacities of 0.5, 1, 2, and 5kN, permits direct replacement of other type load cells.

Modules are calibrated and certified with matched output signals to permit on-site, push-button system calibration.

### APPLICATIONS

- Asphalt shingle production equipment
- Paper and converting machinery
- Suitable for applications in harsh, hot environments
- Perfect for 180° wrap angle applications

### CONFIGURATION

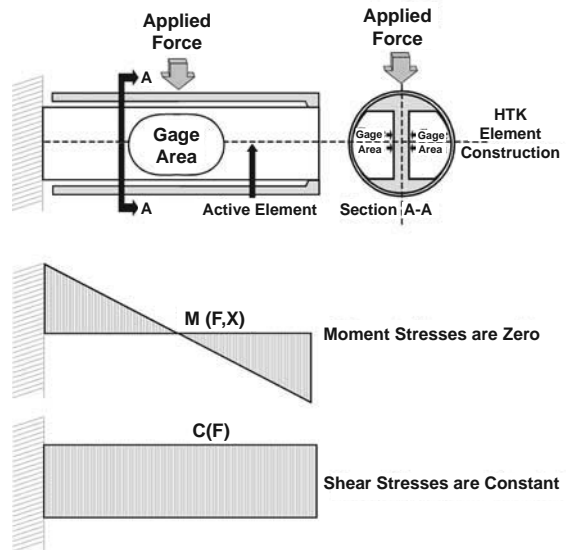


**THE DOUBLE CANTILEVER ADVANTAGE**

Double cantilever shear beams measure the shear force without errors caused by changing point or moment stresses.

The HTK Web Tension Module incorporates an outer sleeve that can be thought of as a second cantilever, rigidly attached to the free end of the first cantilever. Thus the term double cantilever. With this design, the applied force is brought back to a point directly over the gaged area. A cross section shaped as an 'I' BEAM provides the desired shearing stress while maintaining a high degree of rigidity against bending in all directions. The second cantilever also is effective at isolating load application point stresses from the active element.

Double cantilever shear beams approach the ideal in tension transducer design: they measure the desired force while ignoring any extraneous forces that may be present.



**SPECIFICATIONS**

**Performance**

|                         |   |
|-------------------------|---|
| Available Capacities    | 0.5kN - 5kN (112.5 - 1125lb)  |
| Rated Output (RO)       | 2.0394mV/V±0.25%  |
| Zero Balance - %RO      | 5.0   |
| Error- Max. - %RO       | 0.15 for 0.5kN capacity<br>0.05 (Combined error, best fit through zero) |
| Creep - %RO (5 Minutes) | ±0.02   |
| Repeatability           | 0.01% Rated Capacity  |

**Temperature**

|                   |                              |
|-------------------|------------------------------|
| Compensated Temp. | -1 to +54°C (+30 to +130°F)  |
| Safe Temp.        | -40 to +105°C (-40 to 220°F) |

**Temperature Effects**

|                    |                       |
|--------------------|-----------------------|
| Zero Balance - %RO | 0.0014/°C (0.008/°F)  |
| Output- % Reading  | 0.0033/°C (0.0018/°F) |

**Overload Rating - % Rated Capacity**

|                   |     |
|-------------------|-----|
| Safe Load         | 150 |
| Ultimate Load     | 300 |
| Safe Sideload     | 100 |
| Ultimate Sideload | 200 |

**Electrical**

|                          |  |
|--------------------------|--|
| Excitation Voltage       | 10Vac-dc recommended<br>20Vac-dc maximum |
| Input Resistance         | 350±3.0 ohms                             |
| Output Resistance        | 350±3.0 ohms                             |
| Insulation Resistance    | 4Gohms minimum                           |
| Connection-4-Cond. Cable | 10m (32ft. 10in.)                        |

**Material**

|                     |                            |
|---------------------|----------------------------|
| Beam                | Stainless Steel (15-5PH)   |
| Moisture Protection | IEC IP67                   |
| Unit Weight         | 12 pounds - all capacities |

**Deflection Under Load - mm (in.)**

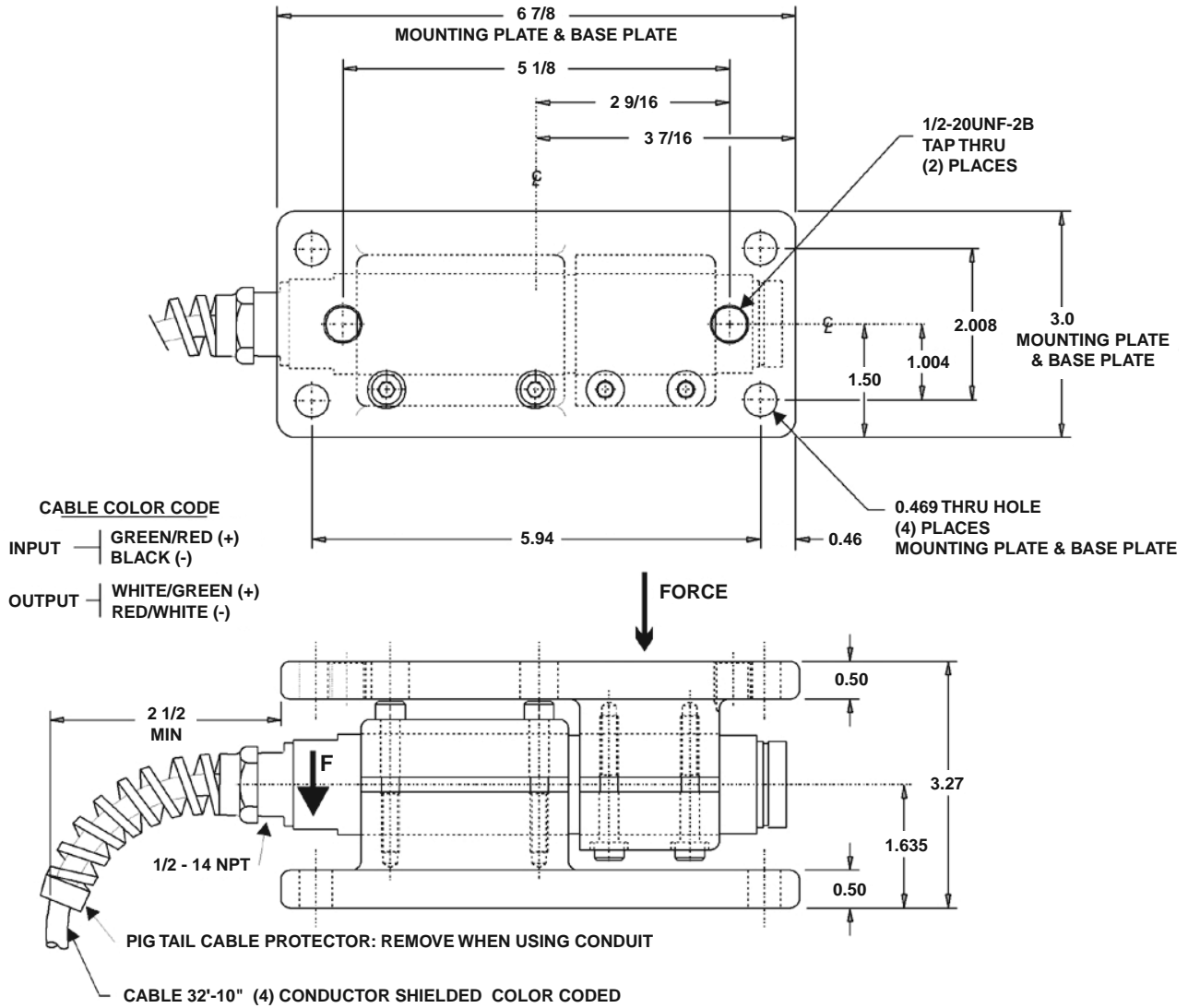
|       |               |
|-------|---------------|
| 0.5kN | 0.101 (0.004) |
| 1kN   | 0.101 (0.004) |
| 2kN   | 0.101 (0.004) |
| 5kN   | 0.152 (0.006) |

**Approvals**

|                     |  |
|---------------------|--|
| FM (Factory Mutual) | 3611 (Class I, II, III;<br>Div.1,2; Groups A-G)  |
| CSA                 | C22.2 (Class I, II, III;<br>Div.1,2; Groups A-G) |

**NOTE:** 1kN = approx. 225lb

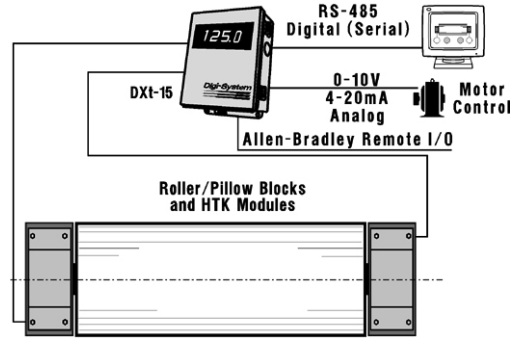
**OUTLINE DIMENSIONS**



**TYPICAL SYSTEM CONFIGURATIONS**

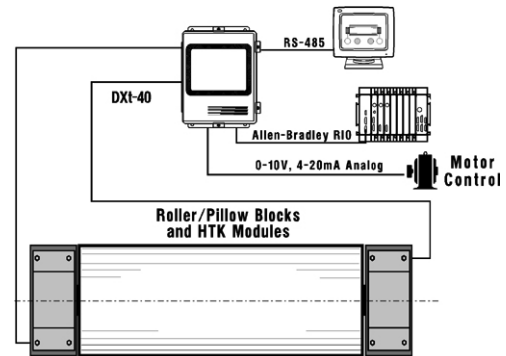
**Basic Web Tension System with Symmetrical Wrap Angles**

- Analog summing of both ends of roll
- 3 1/2 digit display of total tension
- 4-20mA & 0-10 volt analog output to web tension controller
- RS-485 serial output to computer
- Allen-Bradley Remote I/O Interface to PLC



**'Expert' Series Web Tension System**

- Continuous display of left, right, or total tension
- Keypad calibration eliminates need for on-site test weights
- Individually digitized transducer data
- Continuous 'Expert System' diagnostics
- Dynamic digital filter
- 750,000 count resolution per channel; 20 updates per second
- Multiple analog outputs
- Display units = pli, lb, kg, N, and N/m
- Allen-Bradley Remote I/O or Modbus Plus Interface to PLC



**AVAILABLE INSTRUMENTATION**

DXt-15



Display Transmitter

LCt-104



Multi-Zone  
Tension Transmitter

DXt-40



Tension Display  
Left, Right or Total

AST 3P



High Resolution  
Tension Transmitter

PS-2010T



DIN Rail Mount