

## Multi-Zone Web Tension Transmitter



### FEATURES

- Individually digitized transducer forces for 4 web tension zones
- View left, right, and total tension values
- 100% digital calibration - no dead weight loading, no strapping
- On-Line diagnostics significantly reduce downtime
- Dynamic Digital Filtering for each tension zone
- Measure resultant force ( $F_r$ ) and angle of inclination for any or all wrap angles (HTU version only)

### OPTIONAL FEATURES

- Total, individual, and difference output control signals - four 4-20mA outputs
- 4 input/output dry contact relays
- Viewing window for internal vacuum fluorescent display
- Allen-Bradley Remote I/O or Modbus RTU interface

### DESCRIPTION

DXt-40 Tension Transmitters measure up to four independent web points, or zones, to ensure maximum operating speeds without belt, felt, or product breakage. Each zone is precisely measured with 750,000 count resolution and produces a corresponding, high resolution, 4-20mA output. Total, individual, and differential outputs from two transducers (load cells) permit a comparison of tension signals on either side of a sheet, strip, or web.

Digital calibration eliminates time consuming dead weight loading and

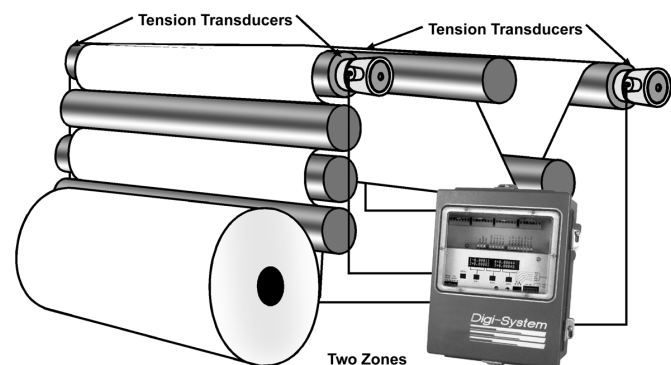
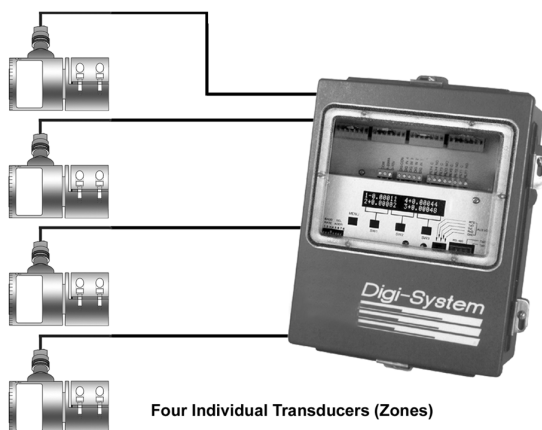
machine 'strapping'. With four integral operating modes, DXt-40 transmitters offer wide operating flexibility and easy installation. Simply select the mode that matches your application, enter the transducer zero and span values, and begin system operation.

When combined with unique HTU transducers, units measure both horizontal and vertical tension vectors. Based upon both measurements, software algorithms calculate the precise, resultant force vector and exact linear tension component.

### APPLICATIONS

- Pulp and paper machinery
- Roofing machines
- Converting equipment
- Mining conveyors
- Winders, rewinders, laminators, coaters, dryers, felts

### CONFIGURATION



## SPECIFICATIONS

### PERFORMANCE

|                           |   |
|---------------------------|---|
| Internal Resolution       | 4,194,304 total counts                                |
| Max. Display Resolution   | 3,000,000 total counts                                |
| Max. Res. Per Channel     | 750,000 counts  |
| Conversion Speed          | 100msec (10 updates/sec)                              |
| Full Scale Range          | ±35mV/channel   |
| Bipolar Dead Load Range   | ±100% (positive/negative signal)                      |
| Linearity                 | ±0.0015% of full scale                                |
| Load Cell Excitation      | 10V (65mA/channel max)                                |
| Software Filter (Std.)    | 50 to 10,000msec                                      |
| Optional Auto-Tune Filter | multivariable up to 10,000msec                        |
| Remote Sense              | user configurable, each channel                       |
| Span/Zero                 | ±2ppm/°C  |
| Calibration Repeatability | 0.6 microvolts per count                              |
| Step Response             | one conversion cycle                                  |
| Units                     | LB, KG, N, PLI, (all) and N/M or Web Width (HTU only) |

### ENVIRONMENT

|                       |                             |
|-----------------------|-----------------------------|
| Operating Temperature | -10 to 55°C (12 to 131°F)   |
| Storage Temperature   | -20 to 85°C (-4 to 185°F)   |
| Humidity              | 5 to 90% rh, non-condensing |

### INTERNAL DISPLAY/OPERATOR INTERFACE

|                      |  |
|----------------------|--|
| Standard VFD Display | high visibility, vacuum fluorescent<br>2 columns of 20 characters each |
| Interface            | 4 'soft buttons'   |

### ELECTRICAL

|                   |  |
|-------------------|--|
| Voltage           | 117/230Vac + 15% 50/60Hz                         |
| Power             | 12 watts max                                     |
| Input Impedance   | 10 M-Ohms, min. per channel                      |
| Noise             | 0.002% full scale<br>(max ±16 counts w/o filter) |
| Common Mode Rej.  | 100db @ 60Hz                                     |
| Normal Mode Rej.  | 100db above 35Hz                                 |
| Parameter Storage | EEPROM   |

### ISOLATED ANALOG OUTPUT(S) - FOUR AVAILABLE

|         |                                    |
|---------|------------------------------------|
| Type    | 16 bit digital to analog convertor |
| Current | 4-20mA (600 ohm max load)          |
| Voltage | 0-10Vdc (25K ohm min load)         |

### RELAY OUTPUTS (OPTIONAL)

|                |                            |
|----------------|----------------------------|
| Solid State    | 110/220Vac at 1.0 amp      |
| Closed Contact | 28Vac/dc @ 0.4 amps (max.) |

### DIGITAL INPUTS

|                 |  |
|-----------------|--|
| Logic'0' (Low)  | short circuit or less than 0.5Vdc,<br>sink 3mA (min) |
| Logic'1' (High) | open circuit or 10 to 28Vdc (TTL<br>open collector)  |

### SIMPLEX DATA OUTPUT (STANDARD)

|                          |                                    |
|--------------------------|------------------------------------|
| Type                     | RS-485 (Simplex)                   |
| Baud                     | 1200 or 9600                       |
| Data Format (Selectable) |                                    |
| ASCII                    | 7 data bits, even parity, stop bit |

### TERMINAL/COMPUTER INTERFACE (OPTIONAL)

|                |                                    |
|----------------|------------------------------------|
| Interface Type | RS-485 half duplex (standard)      |
| Baud           | 1200 or 9600                       |
| Protocol       | duplex command/response<br>format  |
| ASCII          | 7 data bits, even parity, stop bit |

### SPECIAL PROTOCOLS (OPTIONAL)

|        |              |
|--------|--------------|
| Modbus | RTU Protocol |
|--------|--------------|

### SPECIAL INTERFACE (OPTIONAL)

|               |                               |
|---------------|-------------------------------|
| Allen Bradley | Remote I/O - 1/4 logical rack |
|---------------|-------------------------------|

### ENCLOSURE

|            |  |
|------------|--|
| Dimensions | 11.5 x 8.0 x 4.3in HxWxD<br>NEMA 4/4X<br>(292 x 203 x 109mm HxWxD)             |
| Weight     | 12.0lb (5.4kg)   |
| Optional   | EX 12.9 x 10.9 x 8.2in HxWxD<br>(328 x 277 x 208mm HxWxD)<br>(Explosion Proof) |

### 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) |

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