

## Web Tension Measurement Modules

### FEATURES

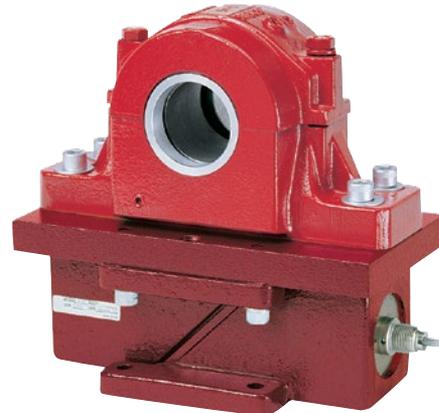
- Capacity range: 500, 1K, 2K, 5K, 10K, 20K and 50K lb (227, 454, 907, 2.27K, 4.54K, 9K and 22.7K kg)
- Rugged stainless steel 'I' beam sensing section
- Resultant forces measure in the up or down direction
- Full Wheatstone bridge with SR-4® foil strain gages
- Factory calibration eliminates need for on-site test weights
- Optional adapter plate designed for on-site installation of overload safety stops
- FM and CSA approved

### APPLICATIONS

- Paper producing machines
- Roofing shingle manufacturing
- Printing presses
- Laminator zones
- Dryer zones
- Coating zones
- Felt measurement

### DESCRIPTION

HTZ-3 Web Tension Measurement Modules are designed to mount directly below roller pillow blocks in new or existing installations. Each module includes an integral mounting pad for use with an optional pillow block adapter plate. Adapter plate design allows upward or downward measurement and provides safety stop installation points at each corner. Transducers are machined from high strength stainless steel to yield a rugged 'I' Beam sensing section. A full Wheatstone bridge array of temperature compensated, Foil SR-4 Strain Gages are attached to this section and calibrated for precision accuracy. Resulting temperature stability is due to closely matching the expansion coefficient of the sensing section to the gages.



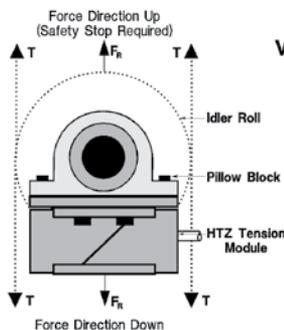
Module sealing meets NEMA 4 and IP65 requirements. An integral cable conduit fitting, epoxy sealed strain gages, and a stainless steel transducer ensure long-term reliability in wet or washdown locations.

Space required below the pillow block bearing is minimal, resulting in negligible line profile changes on retrofit installations. Overall height of the 1000 pound module is 2 inches. BLH Nobel provides HTZ-3 sizing recommendations based upon the actual sensing roll configuration.

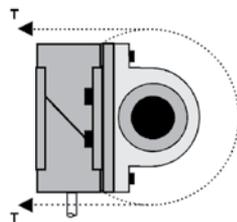
Modules are calibrated and certified with matched output signals to permit on-site, push-button system calibration.

### CONFIGURATION—SYMMETRICAL WRAP ANGLES RECOMMENDED

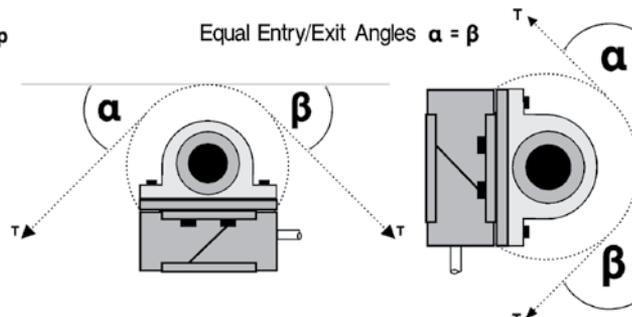
#### Horizontal Mounting 180° Wrap with Force Directed Up or Down



#### Vertical Mounting 180° Wrap

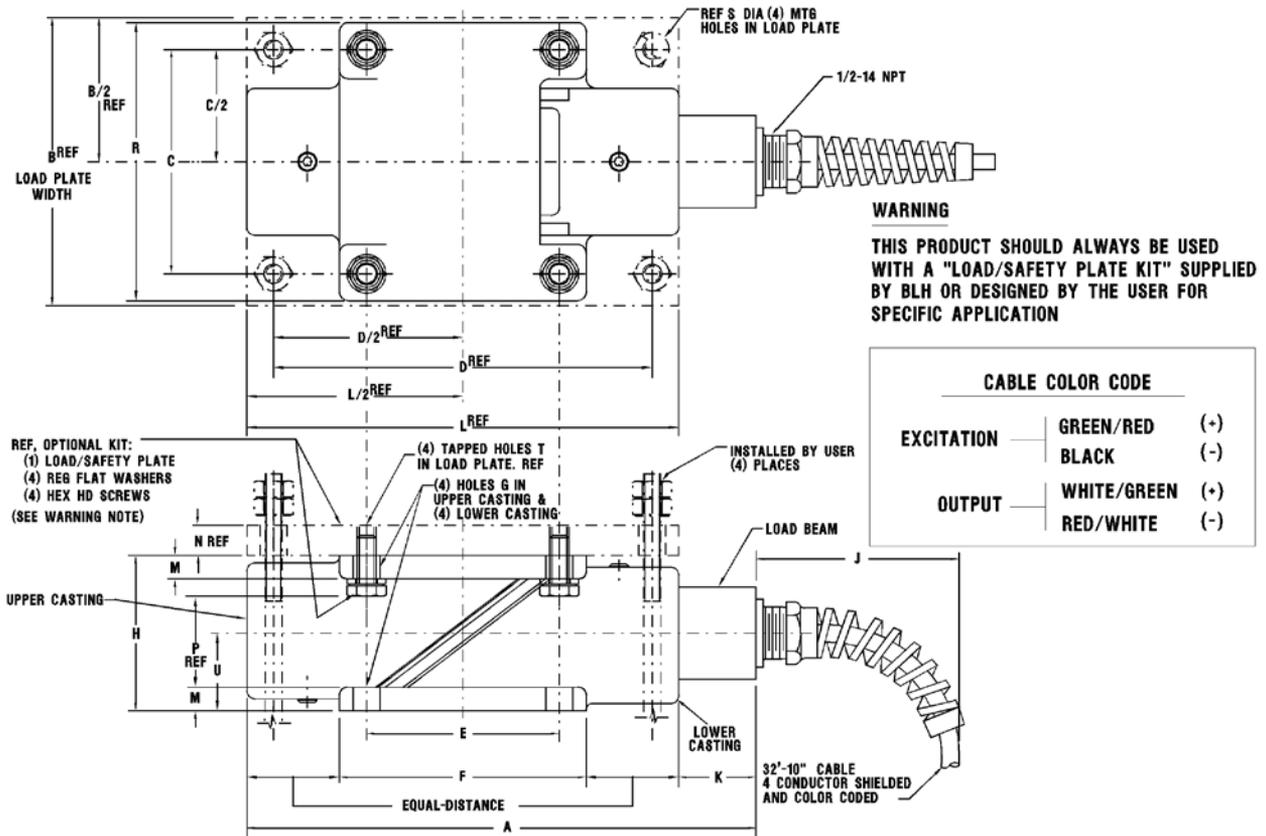


#### Equal Entry/Exit Angles $\alpha = \beta$



Web Tension Measurement Modules

**OUTLINE DIMENSIONS**



**WARNING**  
THIS PRODUCT SHOULD ALWAYS BE USED WITH A "LOAD/SAFETY PLATE KIT" SUPPLIED BY BLH OR DESIGNED BY THE USER FOR SPECIFIC APPLICATION

CABLE COLOR CODE		
EXCITATION	GREEN/RED	(+)
	BLACK	(-)
OUTPUT	WHITE/GREEN	(+)
	RED/WHITE	(-)

CAPACITY (lb)	A	B REF	C	D REF	E	F	G	H	J	K	L REF	M TYP	N REF	P REF	R	S REF	T REF	U
500	7.50	4	3.0	5.0	2.56	3.5	.32	2.00	3	1.50	6	.31	1/2	1.16	3.88	.50	1/4-20	1.00
1,000										1.25	7	.38	5/8	1.43	4.5	.62	3/8-16	1.25
2,000	8.25	4 1/2	3.62	6.0	3.12	4.0	.43	2.50		9	.56	3/4	1.91	5.5	.75	3/8-16	1.67	
5,000										10.00	6 1/2	5.06	8 3/4	4.18	5.5	.50	3.88	FLUSH WITHIN
10,000	9.00	5 1/2	4.42	8.0	3.92	5.0	.43	3.34		12	1.00	1 1/4	2.03	7.50	1.00	5/8-11	2.30	
20,000										10.00	6 1/2	5.06	8 3/4	4.18	5.5	.50	3.88	FLUSH WITHIN
50,000	12.00	8	6.00	10	5.00	6.5	.69	4.60	3	12	1.00	1 1/4	2.03	7.50	1.00	5/8-11	2.30	

Dimensions shown in inches.

## Web Tension Measurement Modules

SPECIFICATIONS			
PARAMETER	VALUE		
<b>PERFORMANCE (% RATED OUTPUT)</b>			
Capacities	500, 1K, 2K, 5K, 10K, 20K, 50K lb (227, 454, 907, 2.27K, 4.54K, 9K and 22.7K kg)		
Rated output (RO)	2.0 mV/V ±0.1%		
Repeatability	0.01% RO		
Combined error (best fit)	0.10% RO		
Zero balance	5% RO		
Creep (20 minutes)	0.03% RO		
Temperature effects on zero balance	0.0017% RO/°F (0.003%/°C)		
Temperature effects on rated output	0.0020% Reading/°F (0.0036%/°C)		
<b>ELECTRICAL</b>			
Input and output resistance	350 Ω ±3 Ω		
Recommended excitation	10 or 15 VAC/VDC		
Maximum excitation	18 VAC/VDC		
<b>TEMPERATURE</b>			
Operating range	-40 to 220°F (-40 to 105°C)		
Compensated range	30 to 130°F (-1 to 54°C)		
		<b>PARAMETER</b>	
		<b>VALUE</b>	
		<b>OVERLOAD RATING – % RATED CAPACITY</b>	
		Safe overload	150
		Ultimate overload	300
		<b>MATERIAL</b>	
		Beam	15-5PH Stainless Steel
		Brackets	Ductile Iron with Enamel Paint
		Environmental class	NEMA 4/IP65
		Moisture protection	IEC Recommendation 68-2-4 Test D, 100 Cycles
		<b>DEFLECTION UNDER LOAD UNIT WEIGHT</b>	
		<b>Capacity (lb)</b>	<b>Deflection</b>
			<b>Weight</b>
		500, 1K	0.012 in
			10 lb
		2K	0.013 in
			15 lb
		5K	0.027 in
			15 lb
		10K	0.023 in
			35 lb
		20K	0.047 in
			50 lb
		50K	0.066 in
			75 lb

BLH Nobel is continually seeking to improve product quality and performance. Specifications may change accordingly.



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