

# TENSITRON®

A KTC Instruments Company



# TENSION TRANSDUCERS

REMOTELY MONITOR AND CONTROL TENSION

## CONTINUOUSLY MONITOR AND RECORD TENSION

Precise, measurable quality control • Uniquely suited to your project requirements



### DEPENDABLE

Save time and cost

- Precise, high-speed sensors
- Permanently mounted for stable readings
- Customized rollers and calibration for your application



### CONVENIENT

User-friendly

- Continuous monitoring and recording
- Remote display
- Automatic process control
- Wide variety of designs to match the needs of your installation

## CONTINUOUS MONITORING SOLUTIONS

1. Select from Tape, Web, and Belt Transducers or Fiber, Wire, and Cable Transducers
2. Choose a Signal Conditioner to utilize the signal
3. Transducer system will be customized for your application



## TAPE, BELT, AND WEB TRANSDUCERS

MODEL	DESCRIPTION	RANGE	IMAGE
E-415-003	Small Space Transducer with 3 rollers	5 - 5,000 g (11 lb)	
E-200-00	Cantilever Transducer	1 - 25 lb	
E-091-02	Low Force Load Cell with Cylindrical Rollers	1 - 100 lb	
4260	Single Roller Web Transducer	2 - 200 lb	
E-095-04	Notched Beam Transducer with Cylindrical roller	25 - 250 lb	
E-210-00	S Column Transducer	5 - 250 lb	
E-202-00	Pillow Block Load Cell Transducer	25 - 1,000 lb	

## FIBER, WIRE, AND CABLE TRANSDUCERS

MODEL	DESCRIPTION	RANGE	IMAGE
<b>Tension up to 5,000 g (11 lb)</b>			
FT-107	Small Space Fiber Transducer	5 - 5,000 g	
FT-116	Low Profile 3 Roller Sensor	5 - 5,000 g	
FT-117	Single Roller Sensing Beam	5 - 5,000 g	
E-415-002	Small Space Transducer with Single Roller	5 - 5,000 g	
F-1806	Platform Mounted Fiber Transducer	5 - 5,000 g	
<b>Tension up to 100 lb</b>			
E-090-00	Single Roller Low Force Load Cell	1 - 100 lb	
E-091-00	3 Roller Low Force Load Cell	1 - 100 lb	
<b>Tension up to 1,000 lb</b>			
E-095-01	Notched Beam Transducer	10 - 1,000 lb	
E-095-03	3 Roller Notched Beam Transducer	10 - 1,000 lb	

## SIGNAL CONDITIONER

### OMEGA STRAIN METER / CONTROLLER

- Big, bright LED display
- Scaling in wide range of engineering units
- Built-in excitation
- Tare button
- Choose 115 VAC or 230 VAC
- Gross/net reading or peak reading software configurable

### OPTIONS

- Analog Output • Dual 5A Relays



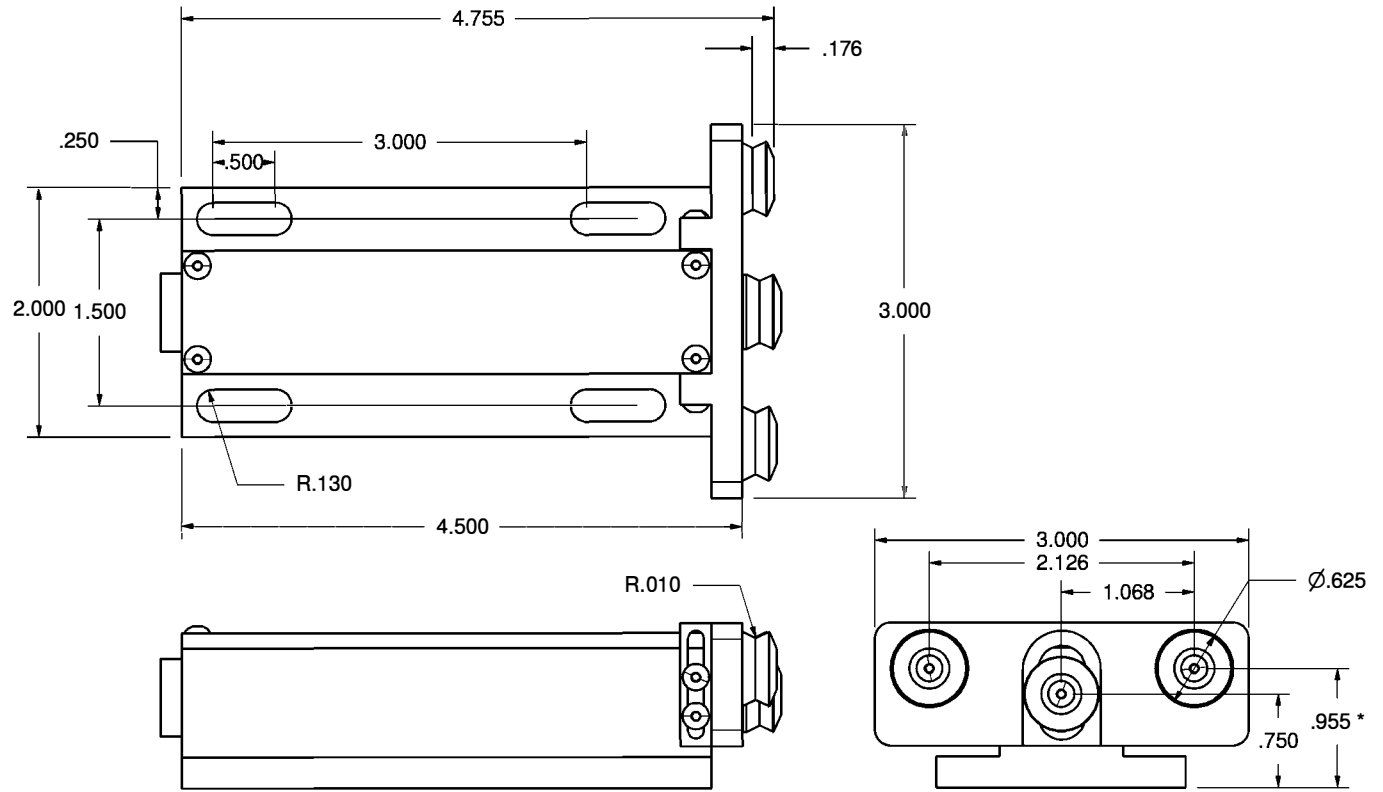
Signal conditioners use the input from the transducer and provide the excitation, amplification, signal conditioning, calibration functions, display/readout, and other options necessary for your application. We offer the OMEGA DP25B Series. You can also source your own signal conditioner, and we will provide you with wiring instructions to connect it.

**Distributed by:** ABQ Industrial LP USA  
**Tel:** +1 (281) 516-9292 / (888) 275-5772 **eFax:** +1 (866) 234-0451  
**Web:** https://www.abqindustrial.net **E-mail:** info@abqindustrial.net



### Typical Transducer Specifications

- \*Tension Range: Supplied to Customer's requirements.
- \*Contact Elements: To fit Customer's application.
- \*Operating Temperature: 70' ± 25'
- \*Connecting Terminals: 5 pin Amphenol plug or terminated ends.
- \*Excitation Voltage: 4-10 VDC
- \*Bridge Resistance: 350 Ohms nominal.
- \*Output Signal: 1.0 - 2.0 mv/V FS nominal.
- \*Resistance to Ground: Exceeding 500 Megaohms.
- \*Zero Balance: Less than 1.5% FS.
- \*Drift at Midpoint: 0.2%
- \*Noise Level: Less than 0.2%.
- \*Linearity: ± 0.5%
- \*Combined Linearity & Hysteresis: ± .75%
- \*Total Error: 1% FS
- \*Overload Tension: 50% Overated.
- \*Shielded Cable: 10' Standard length.



\* - DIMENSION IS ADJUSTABLE

\* NOTE 1.  
 ADJUSTMENT TO RAISE OR LOWER  
 OUTSIDE ROLLER POSITION ALLOWING  
 USER TO INCREASE OR DECREASE  
 MATERIAL WRAP ANGLE.

NOTE 2.  
 STANDARD, MAXIMUM TENSION RANGES  
 OF 1,000 AND 5,000 GRAMS. CUSTOM  
 RANGES AND ROLLER CONFIGURATIONS  
 AVAILABLE.

Material ALUMINUM				Finish CLEAR ANODIZE		Heat Treat		
DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED				TITLE		Weight		
.XXXX	.XXX	.XX	ANGLE	TYPICAL SMALL SPACE TRANSDUCER WITH 3" ADJUSTABLE FACEPLATE				
± .0005	± .005	± .01	± 1°					
Scale	1:1.5	No. Req'd		Drawn	SHS	Date	1-15-08	Size
Next Assy				Checked		Date		Drawing Number
				Approved		Date		REV
								FT-107
								2

Revision History		Date	Approval
Zone	Rev.	Description	Description
N/A	2	REDRAWN	
		7-10-14	M. BROCKMAN

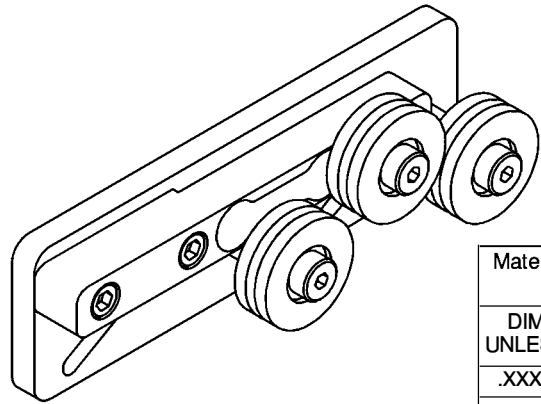
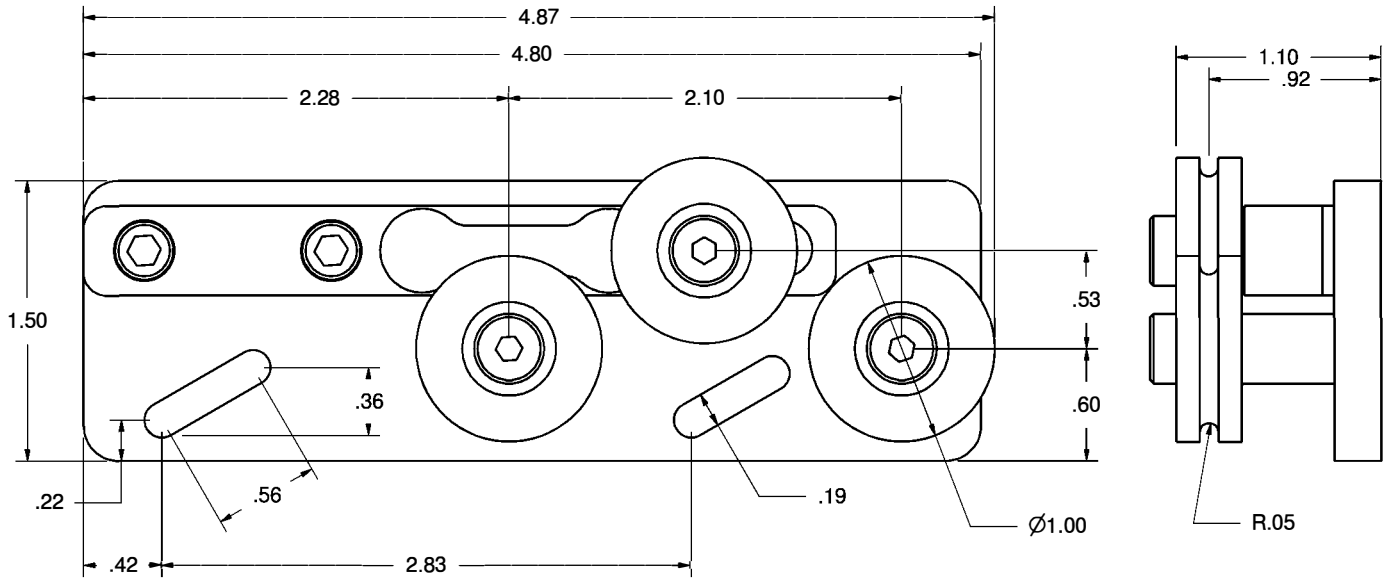
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### Typical Transducer Specifications

- \*Tension Range: Supplied to Customer's requirements.
- \*Contact Elements: To fit application.
- \*Operating Temperature: 70' ± 25' F. (Special ranges available)
- \*Connecting Terminals: 5 pin Amphenol plug or terminated ends.
- \*Excitation Voltage: 4-10 VDC.
- \*Bridge Resistance: 350 ohms nominal.
- \*Output Signal: 1.0 - 2.0 mv/V nominal.
- \*Resistance to Ground: Exceeding 500 Megaohms.
- \*Zero Balance: Less than 1.5% FS
- \*Drift at Midpoint: 0.2%
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- \*Linearity: 0.5%
- \*Combined Linearity & Hysteresis: ± .75%
- \*Total Error: 1% FS
- \*Overload Tension: 50% Overated
- \*Shielded Cable: 10' standard length.

		Revision History			
Zone	Rev.	Description	Date	Approval	
N/A	2	REMODELED AND REDRAWN	7/14/14	M. BROCKMAN	



Material ALUMINUM		Finish CLEAR ANODIZE		Heat Treat	
DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED				Weight	
.XXXX	.XXX	.XX	ANGLE		
± .0005	± .005	± .01	± 1°		
Scale 1:1	No. Req'd	Drawn SHS	Date 6-22-07	Size	Drawing Number
Next Assy		Checked	Date	FT-116	
		Approved	Date	REV 2	

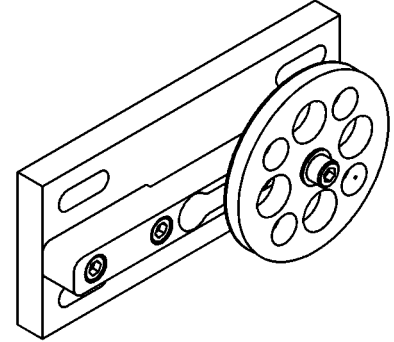
A B C D E F G

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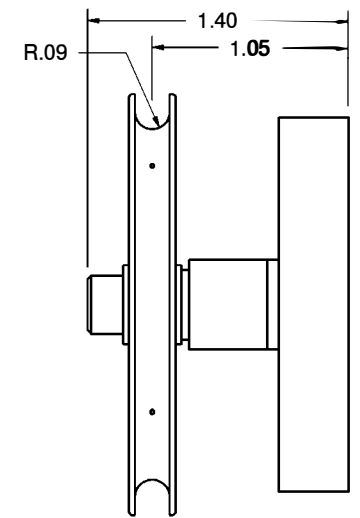
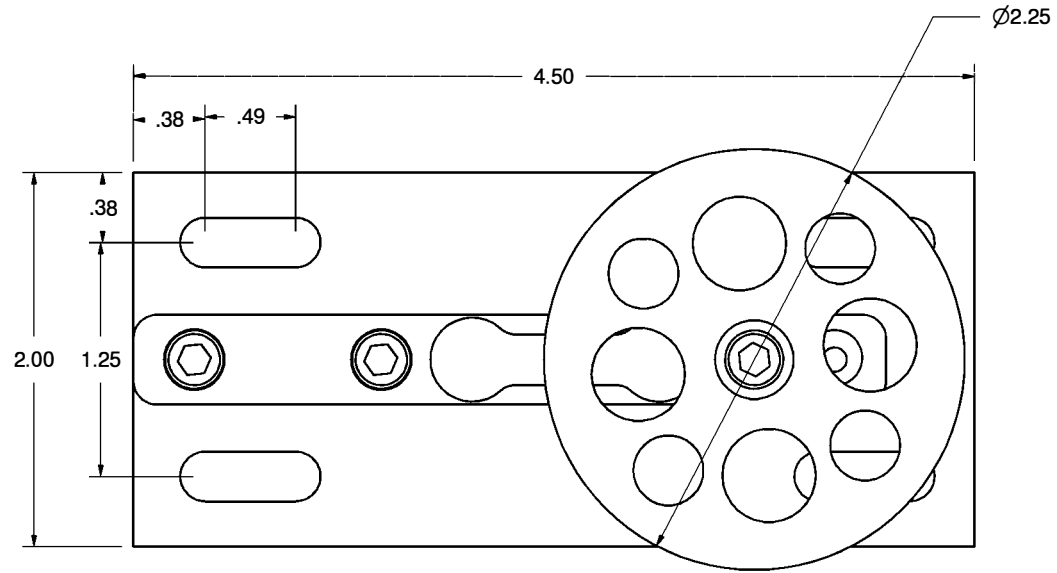


### Typical Transducer Specifications

- \*Tension Range: Supplied to Customer's requirements.
- \*Contact Elements: To fit application.
- \*Operating Temperature: 70' ± 25' F. (Special ranges available)
- \*Connecting Terminals: 5 pin Amphenol plug or terminated ends.
- \*Excitation Voltage: 4-10 VDC.
- \*Bridge Resistance: 350 ohms nominal.
- \*Output Signal: 1.0 - 2.0 mv/V nominal.
- \*Resistance to Ground: Exceeding 500 Megaohms.
- \*Zero Balance: Less than 1.5% FS
- \*Drift at Midpoint: 0.2%
- \*Noise Level: Less than 0.2%
- \*Linearity: 0.5%
- \*Combined Linearity & Hysteresis: ± .75%
- \*Total Error: 1% FS
- \*Overload Tension: 50% Overated
- \*Shielded Cable: 10' standard length.



		Revision History		
Zone	Rev.	Description	Date	Approval
N/A	2	REMODELED AND REDRAWN	7-16-147	M. BROCKMAN



### Application Note:

Roller configuration adjustable to meet specific applications. For optimum accuracy evenly guide material over pulley with a minimum wrap angle of 12°. For best accuracy keep wrap angle as consistent as possible.

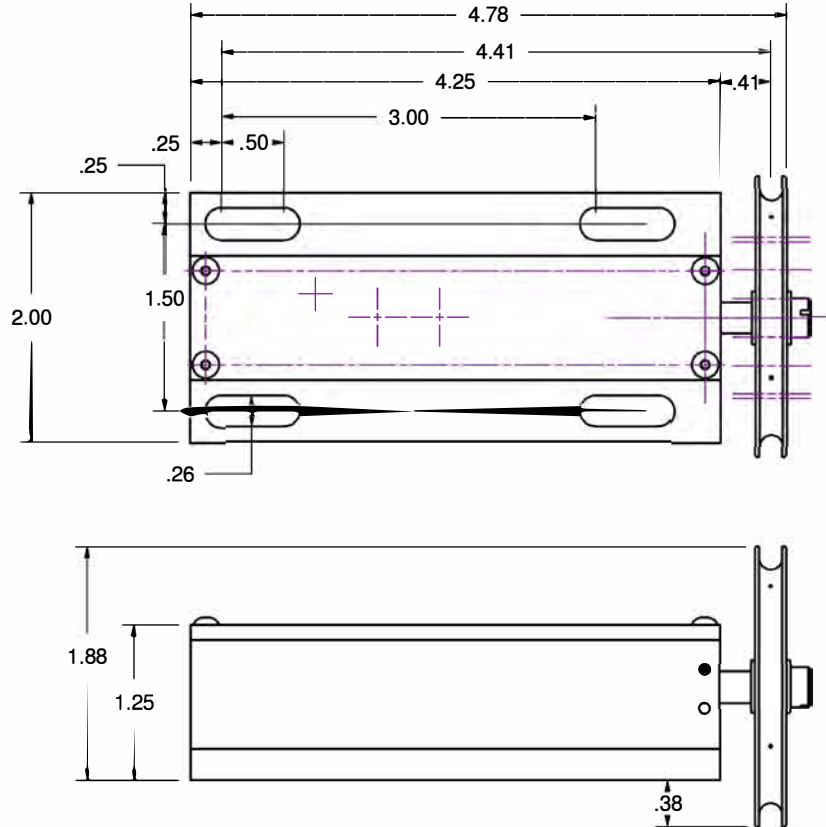
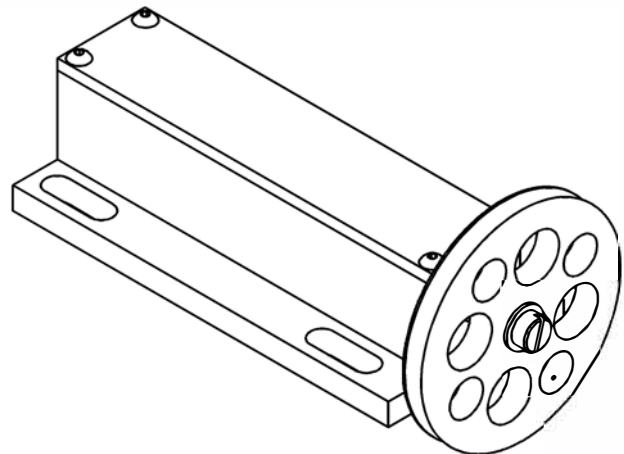
Material ALUMINUM		Finish CLEAR ANODIZE		Heat Treat	
DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED		TITLE		Weight	
.XXX	.XXX	.XX	ANGLE	SENSING BEAM CONFIGURED WITH MOUNTING PLATFORM	
± .0005	± .005	± .01	± 1°		
Scale 1:1	No. Req'd	Drawn SHS	Date 6-22-07	Size	Drawing Number
		Checked	Date	FT-117	
Next Assy		Approved	Date		
					2

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### Typical Transducer Specifications

- \*Tension Range: Supplied to Customer's requirements.
- \*Contact Elements: To fit application.
- \*Operating Temperature: 70' ± 25' F. (Special ranges available)
- \*Connecting Terminals: 5 pin Amphenol plug or terminated ends.
- \*Excitation Voltage: 4-10 VDC.
- \*Bridge Resistance: 350 ohms nominal.
- \*Output Signal: 1.0 - 2.0 mv/V nominal.
- \*Resistance to Ground: Exceeding 500 Megaohms.
- \*Zero Balance: Less than 1.5% FS
- \*Drift at Midpoint: 0.2%
- \*Noise Level: Less than 0.2%
- \*Linearity: 0.5%
- \*Combined Linearity & Hysteresis: ± .75%
- \*Total Error: 1% FS
- \*Overload Tension: 50% Overated
- \*Shielded Cable: 10' standard length.



#### Application Note:

Roller configuration adjustable to meet specific applications. For optimum accuracy evenly guide material over pulley with a minimum wrap angle of 12'. For best accuracy keep wrap angle as consistent as possible.

Material	ALUMINUM	Finish	CLEAR ANODIZE	Heat Treat	
DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED				Weight	
.XXXX	.XXX	.XX	ANGLE	TYPICAL SMALL SPACE TRANSDUCER WITH 2-1/4" PULLEY	
± .0005	± .005	± .01	± 1°		
Scale	1:5	No. Req'd	Drawn	SHS	Date
			Date	5-3-11	
Next Assy			Checked		Date
			Approved		Date
				Size	Drawing Number
					E-415-002
				REV	2

#### Revision History

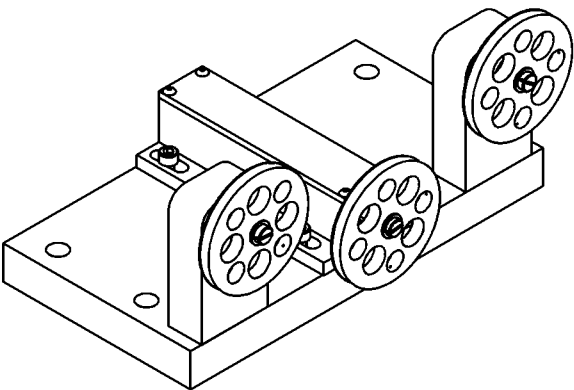
Zone	Rev.	Description	Date	Approval
N/A	2	REMODELED AND REDRAWN	7-11-14	M. BROCKMAN

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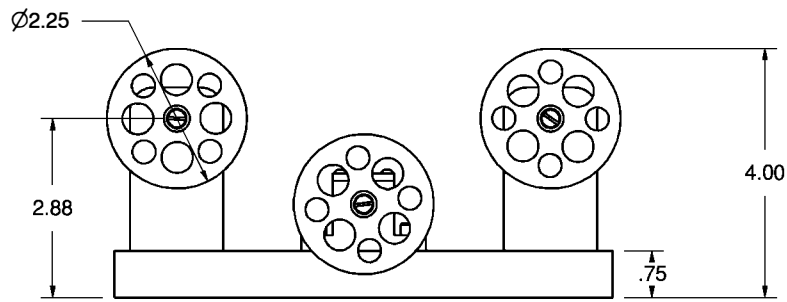
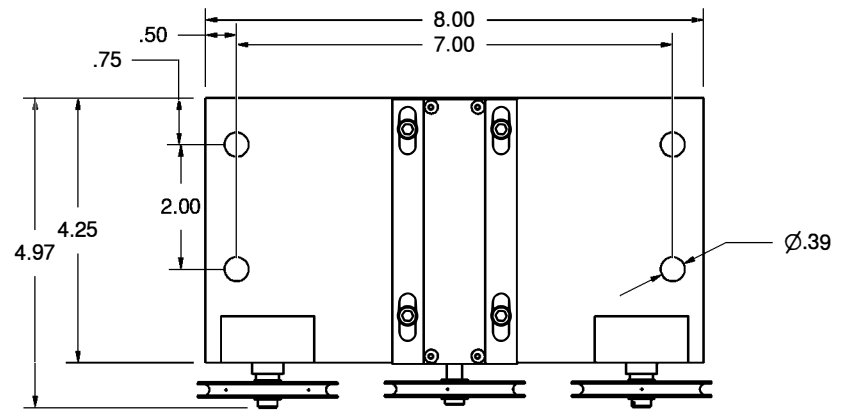


### Typical Transducer Specifications

- \*Tension Range: Supplied to Customer's requirements.
- \*Contact Elements: To fit application.
- \*Operating Temperature: 70' ± 25' F, (Special ranges available.)
- \*Connecting Terminals: 5 pin Amphenol plug or terminated ends.
- \*Excitation Voltage: 4-10 VDC.
- \*Bridge Resistance: 350 ohms nominal.
- \*Output Signal: 1.0 - 2.0 mv/V FS nominal.
- \*Resistance to Ground: Exceeding 500 Megaohms.
- \*Zero Balance: Less than 1.5% FS.
- Drift at Midpoint: 0.2%
- Noise Level: Less than 0.2%
- Linearity: 0.5%
- Combined Linearity & Hysteresis: ± .75%
- Total Error: 1% FS
- Overload Tension: 50% Overated
- Shielded Cable: 10' standard length.



Revision History	
Zone	Rev. Description Date Approval
N/A	2 REMODELED AND REDRAWN 7-16-14 M. BROCKMAN

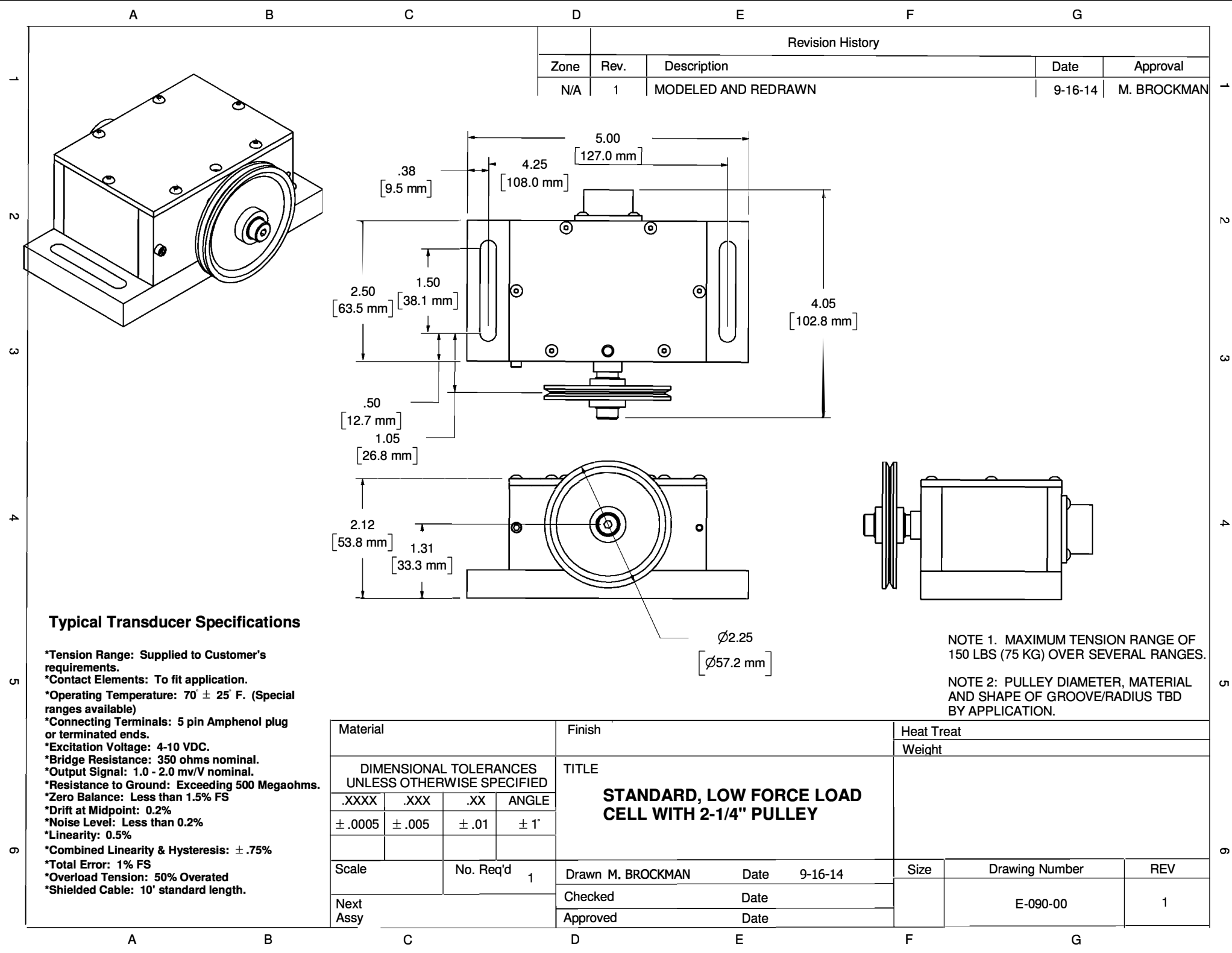


#### Application Note:

Dimensions of Mounting Platform, Roller Size and configuration, and material wrap angle through the rollers can be adjusted to meet specific application requirements.

Material 6061 ALUMINUM		Finish ANNODIZED, CLEAR		Heat Treat	
DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED		TITLE		Weight	
.XXXX	.XXX	.XX	ANGLE	<b>PLATFORM MOUNTED FIBER TRANSDUCER</b>	
± .0005	± .005	± .01	± 1°		
Scale		No. Req'd	Drawn SHS	Date 6-22-07	Size
Next Assy			Checked	Date	Drawing Number
			Approved	Date	REV
					F-1806
					2

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**Typical Transducer Specifications**

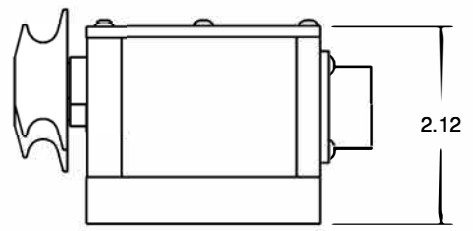
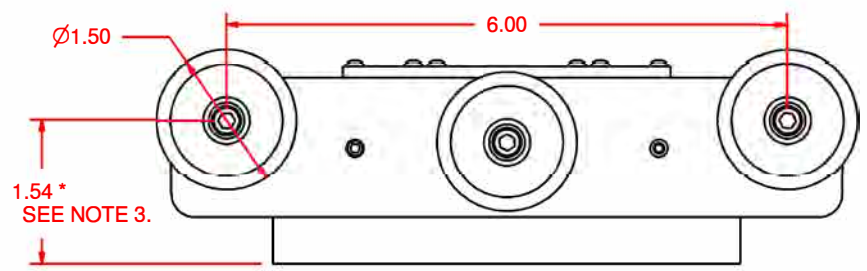
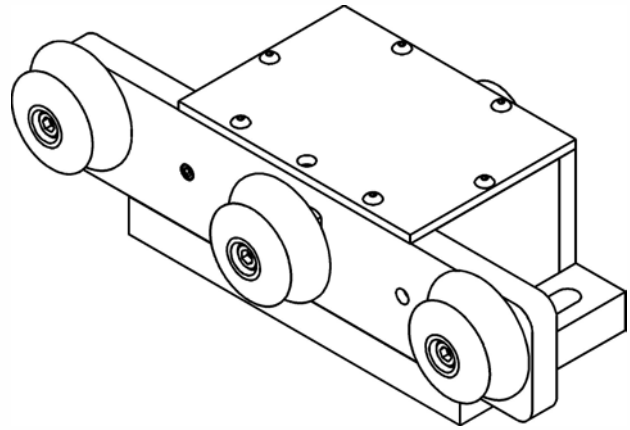
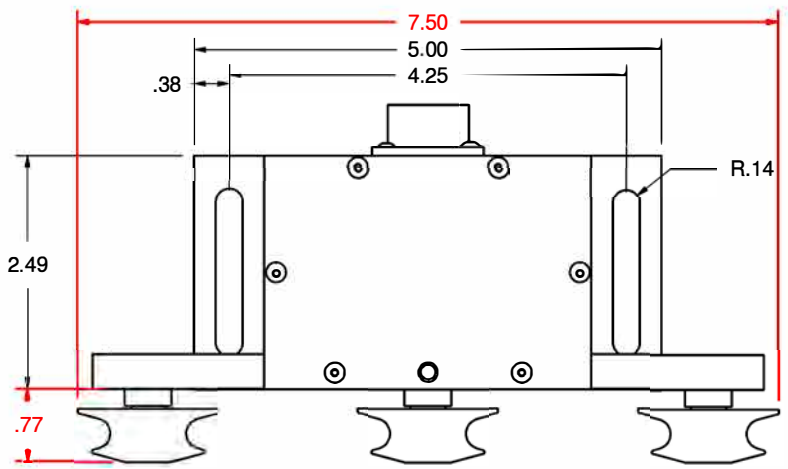
- \*Tension Range: Supplied to Customer's requirements.
- \*Contact Elements: To fit application.
- \*Operating Temperature: 70 ± 25° F. (Special ranges available)
- \*Connecting Terminals: 5 pin Amphenol plug or terminated ends.
- \*Excitation Voltage: 4-10 VDC.
- \*Bridge Resistance: 350 ohms nominal.
- \*Output Signal: 1.0 - 2.0 mv/V nominal.
- \*Resistance to Ground: Exceeding 500 Megaohms.
- \*Zero Balance: Less than 1.5% FS
- \*Drift at Midpoint: 0.2%
- \*Noise Level: Less than 0.2%
- \*Linearity: 0.5%
- \*Combined Linearity & Hysteresis: ± .75%
- \*Total Error: 1% FS
- \*Overload Tension: 50% Overated
- \*Shielded Cable: 10' standard length.

NOTE 1. MAXIMUM TENSION RANGE OF 150 LBS (75 KG) OVER SEVERAL RANGES.  
 NOTE 2. PULLEY DIAMETER, MATERIAL AND SHAPE OF GROOVE/RADIUS TBD BY APPLICATION.

Material				Finish			Heat Treat			
DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED				TITLE						
.XXXX .XXX .XX ANGLE				<b>STANDARD, LOW FORCE LOAD CELL WITH 2-1/4" PULLEY</b>						
± .0005 ± .005 ± .01 ± 1'										
Scale			No. Req'd 1			Drawn M. BROCKMAN		Date 9-16-14		
Next Assy						Checked		Date		
						Approved		Date		
							Size	Drawing Number		REV
								E-090-00		1



Revision History				
Zone	Rev.	Description	Date	Approval
N/A	3	REMODELED AND REDRAWN	7-21-14	M. BROCKMAN



**Typical Transducer Specifications**

- \*Tension Range: Supplied to Customer's requirements.
- \*Contact Elements: To fit application.
- \*Operating Temperature: 70° ± 25° F. (Special ranges available)
- \*Connecting Terminals: 5 pin Amphenol plug or terminated ends.
- \*Excitation Voltage: 4-10 VDC.
- \*Bridge Resistance: 350 ohms nominal.
- \*Output Signal: 1.0 - 2.0 mv/V nominal.
- \*Resistance to Ground: Exceeding 500 Megaohms.
- \*Zero Balance: Less than 1.5% FS
- \*Drift at Midpoint: 0.2%
- \*Noise Level: Less than 0.2%
- \*Linearity: 0.5%
- \*Combined Linearity & Hysteresis: ± .75%
- \*Total Error: 1% FS
- \*Overload Tension: 50% Overated
- \*Shielded Cable: 10' standard length.

NOTE 1. MAXIMUM TENSION RANGE OF 150 LBS (75 KG) OVER SEVERAL RANGES.  
 NOTE 2. PULLEY DIAMETERS, MATERIAL AND SHAPE OF GROOVE/RADIUS TBD BY APPLICATION.  
 \* NOTE 3. POSITIONING OF OUTER ROLLERS CAN BE ADJUSTED (THREE POSITIONS) TO INCREASE OR DECREASE WRAP ANGLE.

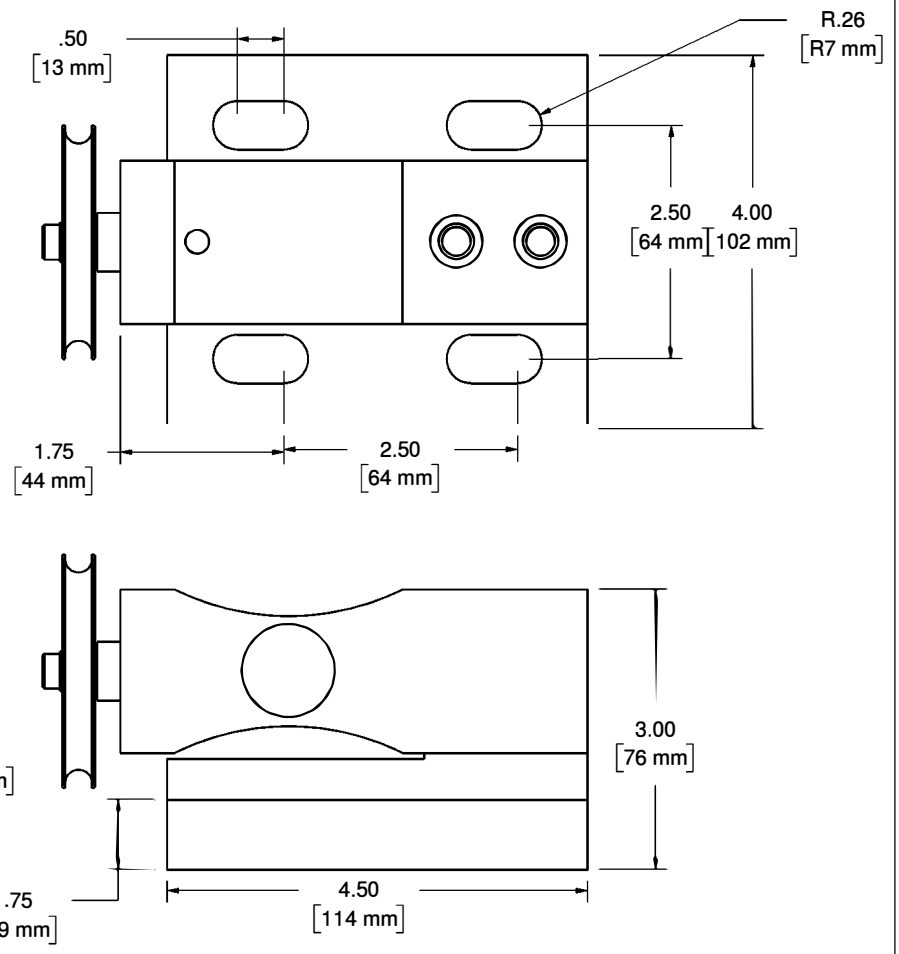
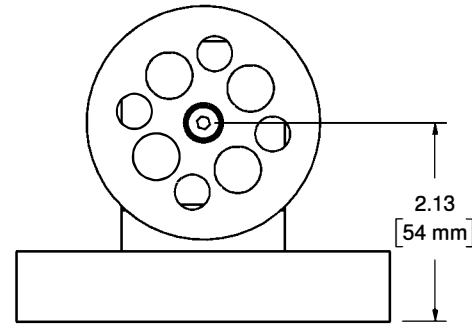
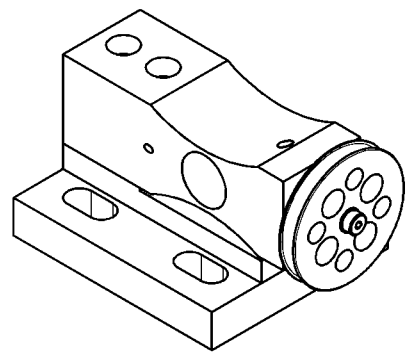
Material	ALUMINUM			Finish	CLEAR ANODIZE			Heat Treat			
DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED				TITLE						Weight	
.XXXX	.XXX	.XX	ANGLE	STANDARD, THREE ROLLER LOW FORCE LOAD CELL							
± .0005	± .005	± .01	± 1°								
Scale	1:2	No. Req'd		Drawn	SHS	Date	11-16-11	Size	Drawing Number		REV
Next Assy				Checked			Date	E-091-00		3	
				Approved			Date				

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- \*Excitation Voltage: 4-10 VDC.
- \*Bridge Resistance: 350 ohms nominal.
- \*Output Signal: 1.0 - 2.0 mv/V nominal.
- \*Resistance to Ground: Exceeding 500 Megaohms.
- \*Zero Balance: Less than 1.5% FS
- \*Drift at Midpoint: 0.2%
- \*Noise Level: Less than 0.2%
- \*Linearity: 0.5%
- \*Combined Linearity & Hysteresis: ± .75%
- \*Total Error: 1% FS
- \*Overload Tension: 50% Overated
- \*Shielded Cable: 10' standard length.



Revision History				
Zone	Rev.	Description	Date	Approval
N/A	1	MODELED AND REDRAWN	9-15-14	M. BROCKMAN

#### Application Note:

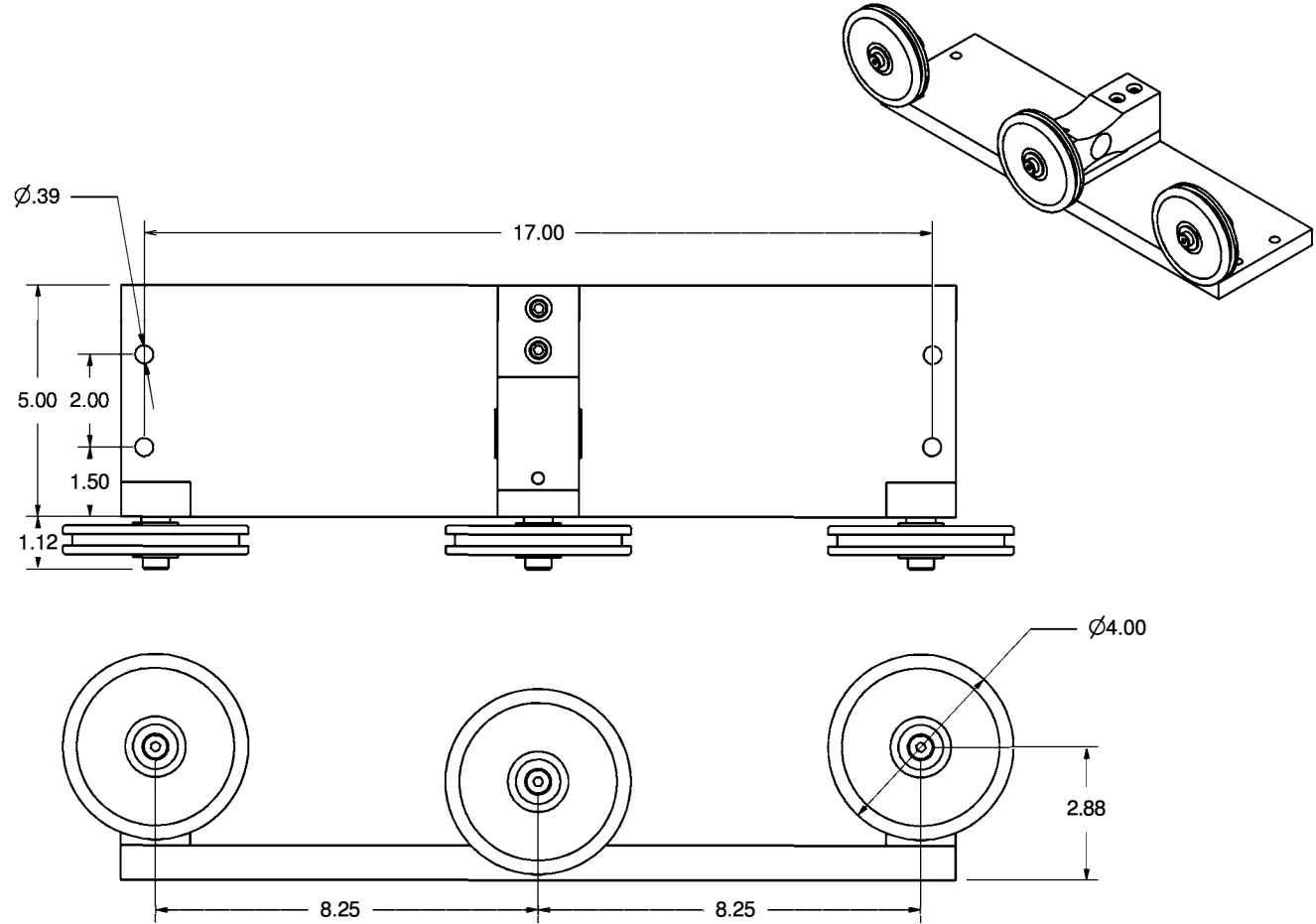
Roller configuration adjustable to meet specific applications. For optimum accuracy evenly guide material over pulley with a minimum wrap angle of 12°. For best accuracy keep wrap angle as consistent as possible.

Material <b>ALUMINUM</b>		Finish <b>CLEAR ANNOIDIZED</b>		Heat Treat	
DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED		TITLE <b>NOTCHED BEAM TRANSDUCER ASSEMBLED TO PEDESTAL</b>		Weight	
.XXXX	.XXX	.XX	ANGLE		
± .0005	± .005	± .01	± 1°		
Scale	No. Req'd	1	Drawn M. BROCKMAN	Date	9-15-14
Next Assy			Checked	Date	
			Approved	Date	
			Size	Drawing Number	REV
				E-095-01	1

### Typical Transducer Specifications

- \*Tension Range: Supplied to Customer's requirements.
- \*Contact Elements: To fit application.
- \*Operating Temperature: 70' ± 25' F. (Special ranges available)
- \*Connecting Terminals: 5 pin Amphenol plug or terminated ends.
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- \*Overload Tension: 50% Overated
- \*Shielded Cable: 10' standard length.

		Revision History		
Zone	Rev.	Description	Date	Approval



### Application Note:

Dimensions of mounting platform, roller size and configuration, and material wrap angle through rollers can be adjusted to meet specific application requirements.

Material ALUMINUM		Finish CLEAR ANODIZE		Heat Treat	
DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED		TITLE		Weight	
.XXXX	.XXX	.XX	ANGLE	TYPICAL 3 ROLLER NOTCHED BEAM TRANSDUCER	
± .0005	± .005	± .01	± 1°		
Scale 1:4	No. Req'd	Drawn SHS	Date 6-23-07	Size	Drawing Number
Next Assy		Checked	Date	E-095-03	
		Approved	Date	REV	