

## Compact 6-component Force Transducer



### Compact High Sensitivity Center Hole Type of 6-component Force Transducers

Enables simultaneous measurement of 3 components of force (Fx, Fy, Fz) in 3 axial directions orthogonal to the transducer and 3 moments (Mx, My, Mz) around the axes. An 8-channel measuring instrument amplifies the transducer's 8 output components in strain quantity and calculates 6-component force.

\*The equation is described in the instruction manual of LFM-A

#### Specifications

##### Performance

<b>Rated Capacity</b>	See table below.
<b>Nonlinearity</b>	Within $\pm 0.5\%$ RO
<b>Hysteresis</b>	Within $\pm 0.5\%$ RO
<b>Interference</b>	$\pm 1.5\%$ RO (After correction by interference compensated coefficients stated in the Test Data Sheet)
<b>Rated Output</b>	See table below.

##### Environmental Characteristics

<b>Safe Temperature</b>	-10 to 70°C (Non-condensing)
<b>Compensated Temperature</b>	0 to 60°C (Non-condensing)
<b>Temperature Effect on Zero</b>	Within $\pm 0.05\%$ RO/°C
<b>Temperature Effect on Output</b>	Within $\pm 0.05\%$ /°C

##### Electrical Characteristics

<b>Safe Excitation</b>	12 V AC or DC
<b>Recommended Excitation</b>	1 to 5 V AC or DC
<b>I/O Resistance</b>	350 $\Omega$ $\pm 3\%$
<b>Cable</b>	16-conductor (0.11 mm <sup>2</sup> ) twisted pair vinyl shielded cable, 6.6 mm diameter by 55 cm long, bared at the tip (Shield wire is not connected to the case.)

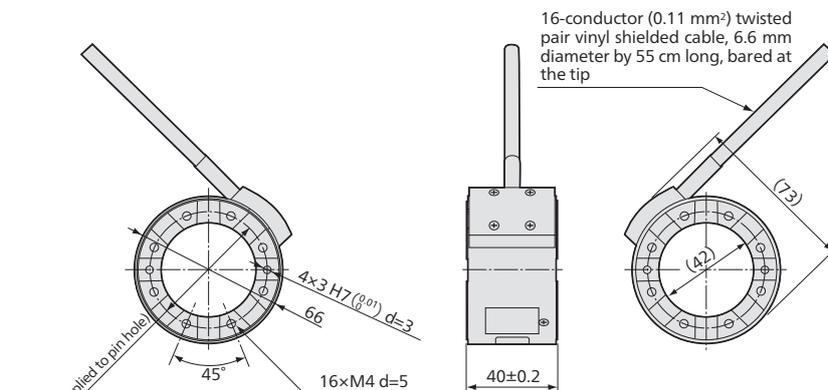
##### Mechanical Properties

<b>Safe Overloads</b>	150%
<b>Materials</b>	Main unit LFM-A-1KN: Aluminum (Metallic finish) Main unit LFM-A-3KN: SUS (Metallic finish) Cover: Black anodic oxide coating aluminum Cable holder: Anodic oxide coating aluminum
<b>Weight</b>	See table below (Excluding cable).
<b>Degree of Protection</b>	IP40 (IEC 60529)

Models	Rated Capacity	Rated Output	Natural Frequencies	Weight
LFM-A-1KN	Fx: $\pm 1000$ N	Fx: $\pm 1.5$ mV/V or more	$\approx 5$ kHz	$\approx 160$ g
	Fy: $\pm 1000$ N	Fy: $\pm 1.5$ mV/V or more		
	Fz: $\pm 1000$ N	Fz: $\pm 1.8$ mV/V or more		
	Mx: $\pm 50$ N-m	Mx: $\pm 4.0$ mV/V or more		
	My: $\pm 50$ N-m	My: $\pm 4.0$ mV/V or more		
	Mz: $\pm 25$ N-m	Mz: $\pm 2.4$ mV/V or more		
LFM-A-3KN	Fx: $\pm 3000$ N	Fx: $\pm 1.6$ mV/V or more	$\approx 5$ kHz	$\approx 360$ g
	Fy: $\pm 3000$ N	Fy: $\pm 1.6$ mV/V or more		
	Fz: $\pm 3000$ N	Fz: $\pm 1.6$ mV/V or more		
	Mx: $\pm 100$ N-m	Mx: $\pm 2.4$ mV/V or more		
	My: $\pm 100$ N-m	My: $\pm 2.4$ mV/V or more		
	Mz: $\pm 50$ N-m	Mz: $\pm 1.6$ mV/V or more		

\*The rated output is interference compensated output.

#### Dimensions



Note: The hole  $\phi 42$  at center is for the cable to pass by. However, make sure not let the cable and others contact the inner surface of the hole. Otherwise, may down the performance of the LFM-A or even damage it.

Original point and moment center of x-, y- and z-axes coincide with transducer height and circumferential center.

#### To Ensure Safe Usage

Prepare a plate for installing the LFM-A with sufficient strength. It is recommendable that LFM-A-3KN should be applied on the steel plate whose thickness is more than 10 mm. With same reason, we recommend as follows. LFM-A should be applied on an aluminum alloy board which is not less than 15 mm thick. If the LFM-A is installed on a low rigid mounting plate, interference may be increased.

#### ● Dynamic measurement

**LFM-A Recommended products for combination**

Universal Recorder  
EDX-200A  
→ 3-55

Universal Recorder  
EDX-100A  
→ 3-63

Memory Recorder/Analyzer  
EDX-5000A  
→ 3-68