FX29
COMPRESSION LOAD CELL

Versatile Miniature Force Sensor

mV, Amplified, and Digital Outputs

Low Power Consumption

Rugged Microfused Sensing Element

Stainless Steel Enclosure

Several Load Ranges

FEATURES
- Compact Design
- mV or Amplified Analog Outputs
- Optional I²C Digital Interface
- High Over Range Capability

APPLICATIONS
- Medical Infusion Pumps
- Analog & Digital Scales
- Fitness & Exercise Equipment
- Payload Weighing
- Power Tools
- Robotics
- Surgical & Dental Tools
- Battery Powered Devices
- Manufacturing Equipment

TE Connectivity's (TE) FX29 is a compact compression load cell that offers exceptional price-to-performance in a robust sensor package. Optimized for embedded force sensing applications from disposable medical devices to durable appliances and exercise equipment. The FX29 allows design flexibility with mV, amplified, and digital output options.

The FX29 incorporates the high reliability Microfused technology and is offered in ranges from 10lbf to 100lbf (50N to 500N). Microfused technology provides excellent span and zero stability, outstanding cycle life, superior resolution, high over-range capabilities, and an unamplified span sensitivity of 20mV/V.

The FX29 utilizes a two-piece construction of stainless steel materials. The combination of a metal injection molded flexure and micro miniaturized MEMS strain gauges allows flexibility of force range options for a lower cost sensor. These improvements over previous load cell designs give the FX29 more precise dimensional control and better performance.

Absolute Maximum Ratings (Analog)[1]

Parameter	Symbol	Min	Typ	Max	Units	Notes/Conditions
Supply voltage	V_{dd}			6.0	V	Analog mV Output
				5.25	V	Analog 0.5-4.5V Output
Storage temperature	T_S	-40		+85	°C	
Compressive load	L_{max}			2.5X	Rated	
ESD		-4.0		4.0	kV	Human Body Model

[1] Maximum limits the device will withstand without damage

Standard Load Ranges

Pounds-Force (lbf)	Newtons (N)
10	50
25	125
50	250
100	500

Electrical Specifications (Analog)

(Unless otherwise specified, all parameters are measured at 25°C @ 5.0V applied)

Parameter	Symbol	Min	Typ	Max	Units	Notes/Conditions
Supply voltage (V_{supply})	V_{dd}	1.00		6.0	V	mV Output only
		4.75		5.25	V	0.5-4.5V Output only
Operating current	I_{dd}			3	mA	0.5-4.5V Output only
Input resistance	R_{in}	2.4	3.0	3.6	kΩ	mV Output only
Output resistance	R_{out}	1.76	2.2	2.64	kΩ	mV Output only
Rise time	T_r			2.0	ms	10% to 90%
Maximum output current	I_o	2.2			mA	0.5-4.5V Output only
Output short circuit duration	T_s			∞	seconds	0.5-4.5V Output only
Insulation resistance		50			MΩ	@250VDC
Bandwidth				1.0	kHz	