

# MICROFORCE SENSORS, FMA SERIES

**TABLE 3. ENVIRONMENTAL SPECIFICATIONS**

CHARACTERISTIC	PARAMETER
Humidity	0% to 95% RH, non-condensing
Vibration	MIL-STD-202, Method 214, Condition 1F (20.71 Gms)
Shock	MIL-STD-202, Method 213, Condition A (50 G)
Life <sup>1</sup>	1 million full scale force cycles minimum

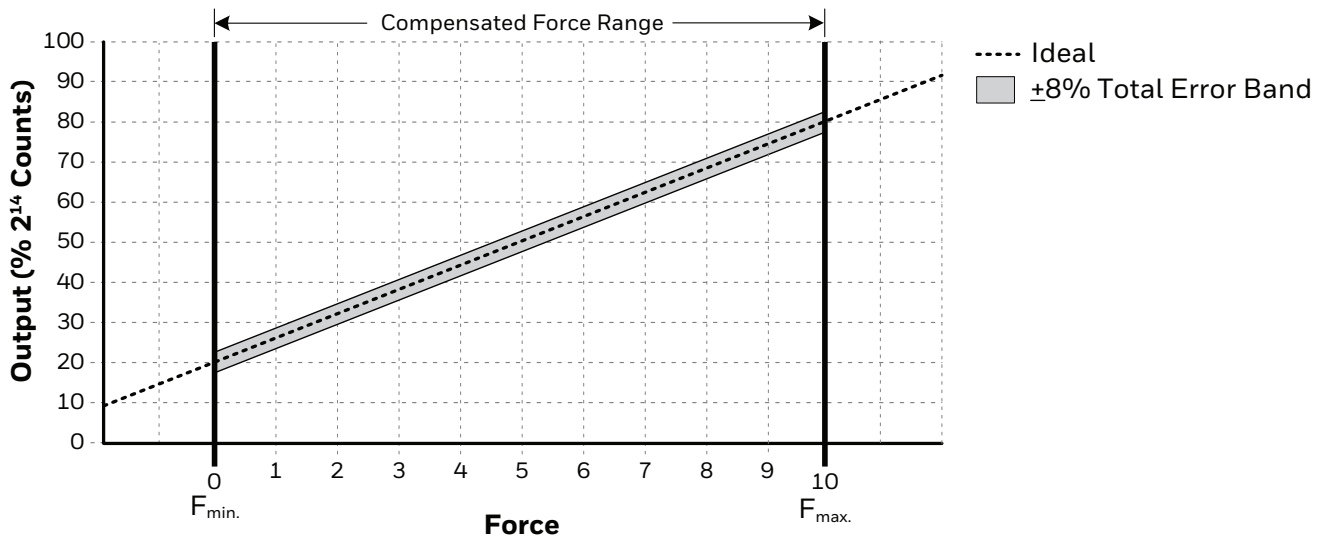
<sup>1</sup>Life may vary depending on specific application in which the sensor is utilized.

**TABLE 4. MATERIALS**

COMPONENT	MATERIAL <sup>1</sup>
Covers	liquid crystal polymer
Sphere contact element	stainless steel 440C
Substrate	FR4
Adhesives	epoxy, silicone
Electronic components	silicon, glass, solder

<sup>1</sup>Contact Honeywell customer service for detailed material information.

**FIGURE 1. TRANSFER FUNCTION LIMITS**

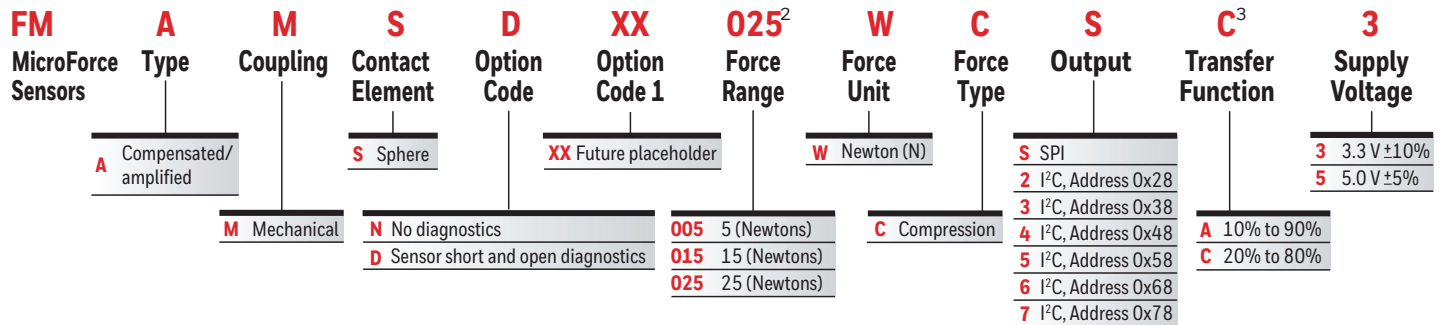


$$\text{Output (\% of } 2^{14} \text{ counts)} = \frac{60\%}{\text{Force}_{\text{range}}} \times (\text{Force}_{\text{applied}}) + 20\%$$

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**FIGURE 2. NOMENCLATURE AND ORDER GUIDE**

For example, **FMAMSDXX025WCSC3** defines an FMA Series Force Sensor, compensated/amplified, mechanically coupled, sphere contact element, sensor short and open diagnostics, 25 N force range, force unit in N, compression force type, SPI digital output, 20% to 80% transfer function, 3.3 Vdc supply voltage<sup>1</sup>



<sup>1</sup> Custom configurations are available upon request. Please contact Honeywell Sales.

<sup>2</sup> Three characters specify the desired force level; allowable characters are the numbers 0 through 9. See Table 5 for currently configurable force ranges.

<sup>3</sup> For other available transfer functions, contact Honeywell Customer Service.

Note: Breakout boards, designed for use with the Honeywell SEB002 Sensor Evaluation Kit, are available with the FMA Series sensor already mounted. Please contact your Honeywell representative for details.

**TABLE 5. FMA SERIES AVAILABILITY<sup>1</sup>**

CATALOG LISTING	FORCE RANGE	OUTPUT	DESCRIPTION
FMAMSDXX005WCSC3	5 N	SPI	FMA Series Force Sensor, compensated/amplified, mechanically coupled, sphere contact element, sensor short and open diagnostics, 5 N force range, compression force type, SPI digital output, 20% to 80% transfer function, 3.3 V ±10% supply voltage
FMAMSDXX005WC2C3		I <sup>2</sup> C, address 0x28	FMA Series Force Sensor, compensated/amplified, mechanically coupled, sphere contact element, sensor short and open diagnostics, 5 N force range, compression force type, I <sup>2</sup> C digital output, address 0x28, 20% to 80% transfer function, 3.3 V ±10% supply voltage
FMAMSDXX015WCSC3	15 N	SPI	FMA Series Force Sensor, compensated/amplified, mechanically coupled, sphere contact element, sensor short and open diagnostics, 15 N force range, compression force type, SPI digital output, 20% to 80% transfer function, 3.3 V ±10% supply voltage
FMAMSDXX015WC2C3		I <sup>2</sup> C, address 0x28	FMA Series Force Sensor, compensated/amplified, mechanically coupled, sphere contact element, sensor short and open diagnostics, 15 N force range, compression force type, I <sup>2</sup> C digital output, address 0x28, 20% to 80% transfer function, 3.3 V ±10% supply voltage
FMAMSDXX025WCSC3	25 N	SPI	FMA Series Force Sensor, compensated/amplified, mechanically coupled, sphere contact element, sensor short and open diagnostics, 25 N force range, compression force type, SPI digital output, 20% to 80% transfer function, 3.3 V ±10% supply voltage
FMAMSDXX025WC2C3		I <sup>2</sup> C, address 0x28	FMA Series Force Sensor, compensated/amplified, mechanically coupled, sphere contact element, sensor short and open diagnostics, 25 N force range, compression force type, I <sup>2</sup> C digital output, address 0x28, 20% to 80% transfer function, 3.3 V ±10% supply voltage

<sup>1</sup> These catalog listings are production released and are readily available. Other configurations per Figure 2 are possible; however, minimum order quantity thresholds and NRE may apply. Please consult the factory.