## FSR Series

## Force Sensing Resistor

The Ohmite FSR series exhibits the unique characteristic of dynamic resistance related to the amount of applied force. In general, the more force applied to the surface of the sensor, the lower the resistance. The resistance change is inversely proportional to the applied force. Typical force-sensing resistors are characterized for HumanMachine Interface (HMI) or Machine-Machine Interface (MMI) applications with a sensing range from circa 20 g to 5 Kg . Specific device characteristics will depend on the size, shape and materials used in construction. Force-sensing resistors are intended for applications where a delta in applied force is to be detected. They are not intended for high accuracy or specific weight measurement applications.

| SERIES SPECIFICATIONS |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Series | Active area | Thickness (inc. 0.05 mm adhesive) | Sensor overall width | Sensor overall length |  | Tail length |  |  | Tail width |  |
| FSR01 | $39.70 \times 39.70 \mathrm{~mm}$ | 0.375 mm | $43.69 \times 43.69 \mathrm{~mm}$ | 83.09 mm |  | 39.40 mm |  |  | 7.62 mm |  |
| FSR02 | $604.60 \times 10.20 \mathrm{~mm}$ | 0.375 mm | 15.20 mm | 622.30 mm |  | 12.70 mm |  |  | 7.60 mm |  |
| FSR03 | $\varnothing 25.42 \mathrm{~mm}$ | 0.425 mm | 30.50 mm | 69.00 mm |  |  | 38.00 mm |  | 7.62 mm |  |
| FSR04 | ¢5.60mm | 0.325 mm | 7.62 mm | 15.80 mm |  |  | 9.00 mm |  | 6.35 mm |  |
| FSR05 | $\varnothing 5.60 \mathrm{~mm}$ | 0.325 mm | 7.62 mm | 38.10 mm |  |  | 30.00 mm |  | 6.35 mm |  |
| FSR06 | $\varnothing 14.70 \mathrm{~mm}$ | 0.375 mm | 18.00 mm | 25.0 | Omm |  | 9.00 mm |  | 7.62 mm |  |
| FSR07 | $\varnothing 14.70 \mathrm{~mm}$ | 0.375 mm | 18.00 mm | 56.34 mm |  | 38.00 mm |  |  | 7.62 mm |  |
|  |  | C | 719 | S |  |  |  |  |  |  |
|  | aracteristic Description |  |  | FSR01 | FSR02 F | FSR03 | 3 FSR04 | FSR05 | FSR06 | FSR07 |
|  | ation force Force to rea | each 10M , Average of | 0 samples | < 20g | < 20g | $<10 \mathrm{~g}$ | <20g | <30g | <15g | <15g |
|  | Force range linear region custom sen | on of log/log, Higher force nsor and actuation meth | can be achieved with ds |  |  |  | Il: Up to 5k |  |  |  |
|  | g term drift 1 kg for 48 hr | hrs, Per log time |  | <2\% | < 1\% | < 1\% | <2\% | <2\% | 1\% | 1\% |
| Single pa | epeatability 100 actuatio | tions of $1 \mathrm{~kg}, 1$ standard d | eviation/mean |  |  |  | All: 2\% |  |  |  |
| Part to pa | epeatability 100 sensors | rs same batch, 1 standar | deviation/mean |  |  |  | All: $\pm 4 \%$ |  |  |  |
| Low | n. storage $-20^{\circ} \mathrm{C}$ for 25 | 250hrs, Avg. change in re | . of 5 sensors | 8\% | 7\% | 7\% | 8\% | 8\% | 7\% | 7\% |
| High | np. storage $+85^{\circ} \mathrm{C}$ for 2 | 250hrs, Avg. change in res | . of 5 sensors | 4\% | 3\% | 3\% | 4\% | 4\% | 3\% | 3\% |
| High hu | dity storage $+85^{\circ} \mathrm{C} / 85 \%$ | \%RH for 250hrs, Avg. cha | nge in res. of 5 sensors | 8\% | 12\% | 8\% | 8\% | 8\% | 12\% | 12\% |
| Life | e durability (10M) 1 kg for | force at 3 Hz , Avg. chang | in res. of 4 sensors | 17\% | 12\% | 3\% | 7\% | 7\% | 3\% | 3\% |
|  | Hysteresis 100 actuatio | tions of 1 kg , Avg. change | in res. of 100 samples |  |  |  | All: 5\% |  |  |  |
| Operation | emp. range 100 cycles | at 0.5 kg |  |  |  |  | : -20 to +8 | $85^{\circ} \mathrm{C}$ |  |  |

Note: All values typical, and quoted at 10 N applied force unless otherwise stated. Force dependant on actuation interface, mechanics, touch location, and measurement electronics.

|  | FSR01-03 | FSR04 | FSR05 | FSR06 | FSR07 |
| ---: | :--- | :--- | :--- | :--- | :--- |
| Mode | Shunt | Shunt | Shunt | Shunt | Shunt |
| Trace pitch | 0.25 mm | 0.50 mm | 0.50 mm | 0.50 mm | 0.50 mm |
| Spacer height | 0.125 mm | 0.125 mm | 0.125 mm | 0.125 mm | 0.125 mm |
| Trace width | 0.25 mm | 0.25 mm | 0.25 mm | 0.25 mm | 0.25 mm |

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## ORDERING INFORMATION

## Terminal type

A = Bare tail
$B=$ Solder tab
C = Connector housing (female, equivalent to Nicomatic 14106-12 and OF-02)
$\mathrm{D}=$ Connector housing with latch (female, equivalent to Nicomatic OL-02)

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\begin{array}{ll}
\text { E, F, G... Assigned sequentially for custom designs } \\
\text { Series FSR } & \text { Format }
\end{array}
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