

# FSLP Sensor Data Sheet

## Force Sensing Linear Potentiometer

FSLP Sensor for Position and Force Applications

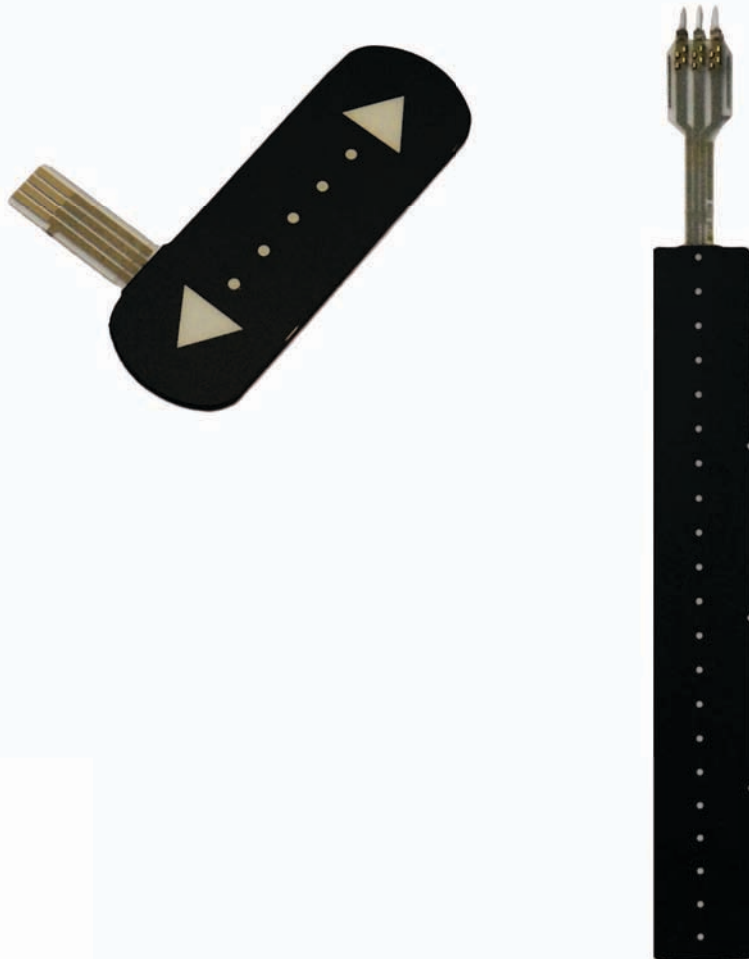
### Features and Benefits

- Rugged design - Over 1M touch activations over entire sensor area with no degradation observed.
- Measures position along a circular path
- Easy to integrate

### Description

The Force Sensing Linear Potentiometer (FSLP) Sensor is Interlink's solution for capturing position and force simultaneously in compact applications. The sensor's tough, moisture resistant surface can be used with a finger, stylus, or glove; even in harsh environments.

The Force Sensing Linear Potentiometer (FSLP) simplifies input design, saves critical room, and helps save battery life. A battery operated demo is available. Call us for more information 805-484-8855



P/N: 94-00019 Rev. E

Embrace the Power of Sensor Technologies

FSLP Sensor for Position and Force Applications

Device Characteristics

|   |   |
|---|---|
| Actuation Force*  | ~0.2N min   |
| Force Sensitivity Range*  | ~0.2N – 20N   |
| Force Resolution  | Continuous (analog)   |
| Force Repeatability Single Part   | +/- 2%  |
| Force Repeatability Part to Part  | +/-6% (Single Batch)  |
| Non-Actuated Resistance   | >10 Mohms   |
| Hysteresis**  | +10% Average ( $R_{F+} - R_{F-}$ )/ $R_{F+}$  |
| Device Rise Time  | <3 microseconds   |
| Long Term Drift**<br>1kg load, 35 days  | < 5% $\log_{10}(\text{time})$   |
| Operating Temperature Performance**<br>Cold: -40°C after 1 hour<br>Hot: +85°C after 1 hour<br>Hot Humid: +85°C 95RH after 1 hour        | -5% average resistance change<br>-15% average resistance change<br>+10% average resistance change |
| Storage Temperature Performance**<br>Cold: -25°C after 120 hours<br>Hot: +85°C after 120 hours<br>Hot Humid: +85°C 95RH after 240 hours | -10% average resistance change<br>-5% average resistance change<br>+30% average resistance change |
| Tap Durability<br>1 Million actuations, 500g,<br>4Hz Ø 1.2mm Derlin Stylus  | Fully functional during and after durability testing  |
| Standing Load Durability**<br>2.5kg for 24 hours  | -5% average resistance change   |
| Linearity   | Voltage on sense line is proportional to actuation position to within +/-3% over active area.     |
| EMI   | Generates no EMI  |
| ESD   | Not ESD sensitive   |
| UL  | All materials UL grade 94 V-1 or better   |
| RoHS  | Compliant   |

Specifications are derived from measurements taken at 1000 grams, and are given as (one standard deviation/mean), unless otherwise noted.

\*Typical value. Force dependent on actuation interface, mechanics, and measurement electronics.

\*\*Performance values are for the force sensing portion of the sensor. The position sensing component is minimally affected by environmental and durability factors.

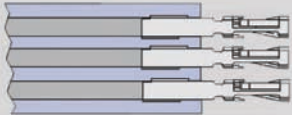
FSLP Sensor for Position and Force Applications

Connector Information

Recommended tail connector:

JST 4-pin SMT connector  
(JST PN# 04-FM-1.0SP-1.9-TF)  
or equivalent for FFC option.

Female Tin Contacts  
PN: TE 2-487406-4



Solder Tabs  
PN: TE 1-88997-2

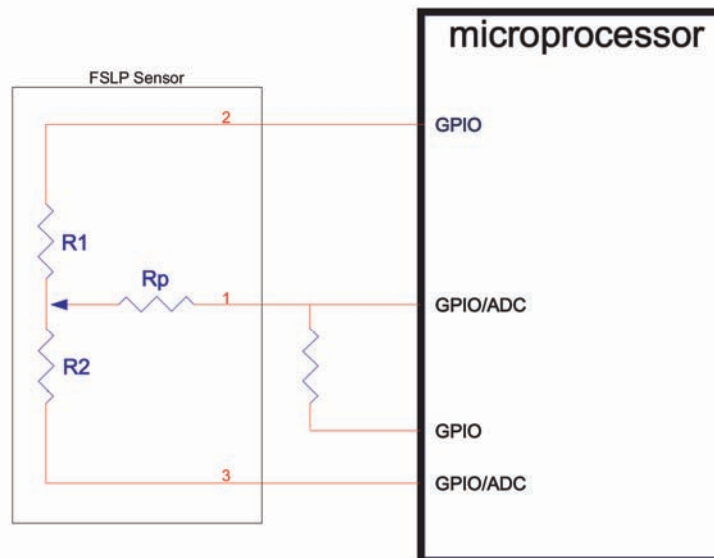


Female Tin Contacts  
with 3 Pin Housing  
PN: TE 2-487406-4  
PN: TE 487378-1



Application Information

The Interlink Electronics FSLP Sensor can measure position and pressure. The connection to the measuring microprocessor is very simple and requires only one external component. The microprocessor will need two general purpose IO (GPIO) pins and two GPIO/analog-to-digital converter (ADC) pins. The GPIOs should be able to go into high-impedance mode ( $>1M\Omega$ ) and the ADCs should be able to measure from 0 to  $V_{cc}$ .



| PINOUT        |            |                    |
|---------------|------------|--------------------|
| STANDARD FSLP | 10 cm FSLP | REFERENCE          |
| PIN #         | PIN #      |                    |
| 1             | 3          | SENSE LINE (SL)    |
| 2             | 1          | DRIVE LINE 1 (D1)  |
| 3             | 2          | DRIVE LINE 2 (D2)  |
| 4             | 4          | NOT CONNECTED (NC) |



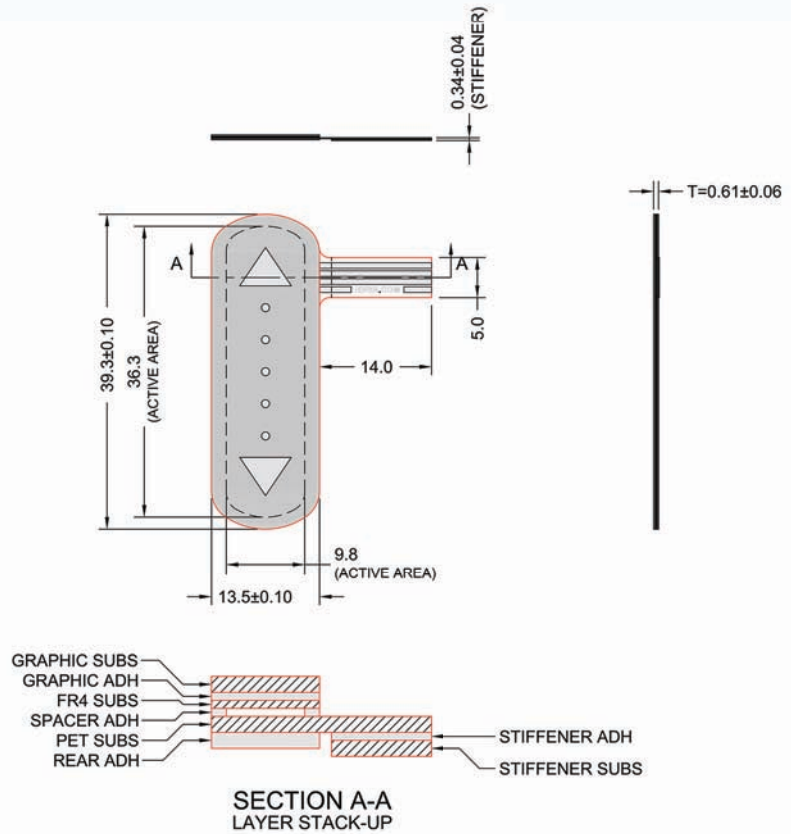
FSLP Sensor for Position and Force Applications

FSLP Sensor Part Number

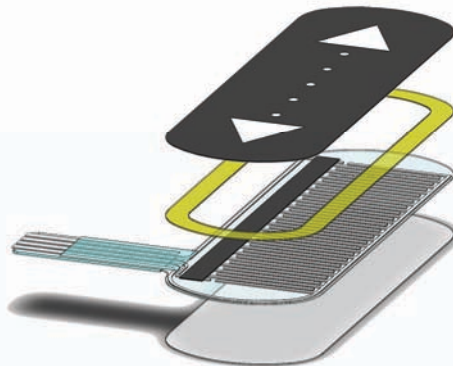
FSLP Sensor, 34-00003

- Black top layer with white graphic

Sensor Mechanical Data



Exploded View



FSLP Sensor for Position and Force Applications

Orderable Part Numbers

Hardware Development Kit, 54-00019

This Hardware Development Kit includes:

- FSLP Demo Board (Qty. 1)
- FSLP Sensor (Qty. 10)
- FSLP 10cm Sensor (Qty. 10)
- 4 Pin Connector (Qty. 5)
- USB Flash drive with product literature (Qty. 1)

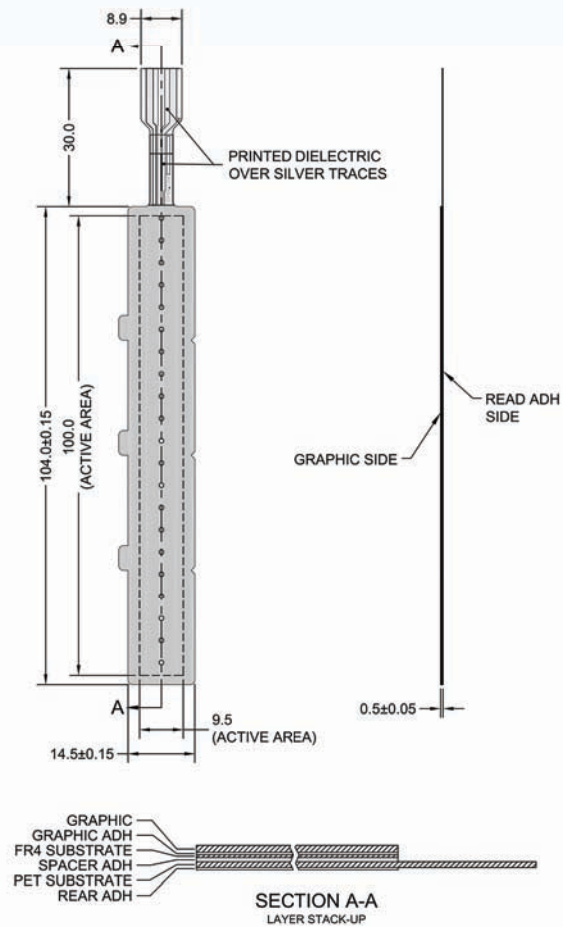
FSLP 10cm Sensor with Female Contacts, PN 34-00022

FSLP 10cm Sensor with Solder Tabs, PN 34-00024

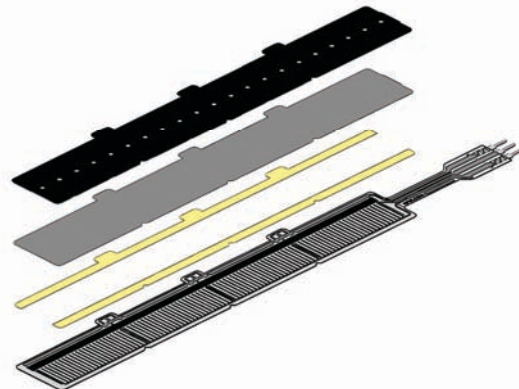
FSLP 10cm Sensor with Female Contacts & Housing, PN 34-00025

FSLP 10cm Sensor with FFC Tail, PN 34-0034

Sensor Mechanical Data



Exploded View



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