



# **Piezo Film Sensors**

# **Technical Manual**

**Internet Version**

**Part 16 of 18**

Appendix A – Applications of Piezo Film

## APPLICATIONS OF PIEZO FILM

**COMPUTER INPUT/OUTPUT***Keypad arrays**X-Y Coordinates*

Digitizer

Mouse

Joystick

Pen

*Printers*

Impact Flight Time

Ink Drop Generation and Detection

Toner and Ink Jet Level

Toner Activation

*Business Equipment*

ATM

Antitamper for ATM Machine

Coin Counters

Copiers

Switches

Paper Path Switches

Toner Level and Activation

*Disc Drives*

Shock Sensing Accelerometers

**INDUSTRIAL***Switches*

Solid State

Snap Action

Cantilever Beam

Keypad

Vandal-Proof

Intrinsically Safe

CMOS Wake-up

Low-Deflection

Singing Switch

Coin Counter

Acoustic Switch

Shaft Rotation

*Robotics*

Tactile Sensor

Micropositioner

Safety Mats &amp; Switches

Bumper Impact

*Physical Security & Energy Management*

Vidicon

Glass Break Detectors

Floor/Mat Sensor

Penetration Detection

Contact Microphone

Piezo Cable Perimeter Protection

Pyrometer/Flame Sensor

*Flow/Level*

Vortex

Fluidic Oscillator

HVAC Air Flow

Doppler Ultrasound

Solid State Fluid Level

Laminar/Turbulent Boundary Layer

**INSTRUMENTATION***Machine Health Monitor*

Accelerometers

Contact Microphones

Hi-Strain Dynamic Strain Gages

*Weather Sensors*

Rain Intensity

Hail Detection

Wind Velocity

*Active Vibration Damping*

Strain Gages Sensor Arrays

Actuator Arrays

*Non Destructive Engineering*

Flexible Contact NDT Probes

NDT Arrays

Acoustic Emission Sensors

*Air Ranging Ultrasound*

Safety

Distance

*Adaptive Optics*

Fiber Optic Shutters/Modulators

Deformable Mirrors

Laser Scanners

*Oil Exploration*

Hydrophones

Seismic Geophones

<p><b><u>MEDICAL</u></b></p> <p><i>Diagnostics</i></p> <ul style="list-style-type: none"> <li>Apnea Monitor</li> <li>Ambulatory/Gait Monitors</li> <li>Blood Pressure Cuff</li> <li>Pulse Counter</li> <li>Stethoscope</li> <li>Sleep Disorder Monitors</li> <li>Respiratory Air Flow</li> <li>Isokinetics</li> <li>Patient Bed Monitor</li> </ul> <p><i>Ultrasound</i></p> <ul style="list-style-type: none"> <li>Near Field Imaging</li> <li>Prostate</li> <li>Transdermal</li> <li>Transluminal</li> <li>Coronary Arterial</li> <li>Breast</li> <li>Lithotripter</li> <li>Hydrophone Calibration Probes</li> </ul> <p><i>Handicapped Aides</i></p> <ul style="list-style-type: none"> <li>Switches</li> <li>Braille Reader</li> <li>Hearing Aid</li> <li>Speech Intensification</li> </ul> <p><i>Implantables</i></p> <ul style="list-style-type: none"> <li>Pacemaker Activity Monitor</li> <li>Implantable Switch</li> <li>Vascular Graft Monitor</li> <li>Micropower Source</li> </ul> <p><i>Instrumentation</i></p> <ul style="list-style-type: none"> <li>Intravenous Drop Counter</li> <li>IV Air Bubble Detection</li> <li>Laser Switch/Modulator</li> </ul> <p><b><u>AUTOMOTIVE</u></b></p> <ul style="list-style-type: none"> <li>Accelerometers</li> <li>Occupancy Seat Sensor</li> </ul> <p><i>Switches</i></p> <ul style="list-style-type: none"> <li>Passenger Compartment Switches</li> <li>Horn Switch</li> <li>Control Panel</li> </ul> <p><i>Fuel Level, Tire Rotation, Security</i></p> <ul style="list-style-type: none"> <li>Keyless Entry</li> <li>Motion (Theft) Sensor</li> </ul>	<p><b><u>CONSUMER</u></b></p> <p><i>Musical Instruments</i></p> <ul style="list-style-type: none"> <li>Pick-up</li> <li>Drum Trigger</li> </ul> <p><i>Sports Equipment</i></p> <ul style="list-style-type: none"> <li>Target Location</li> <li>Reaction Time</li> <li>Foul Line</li> <li>Force (Karate, Impact)</li> <li>Sweet Spot</li> </ul> <p><i>Toys/Games</i></p> <ul style="list-style-type: none"> <li>Switches</li> <li>Proximity (Air Ranging Ultrasound, Pyro)</li> <li>Novelty Speakers</li> <li>Target Scoring</li> </ul> <p><i>Audio</i></p> <ul style="list-style-type: none"> <li>Tweeter</li> <li>Balloon Speakers</li> <li>Novelty Speakers (Visor, Poster)</li> <li>Microphone</li> <li>Speaker distortion Feedback</li> <li>Electronic Piano Keys</li> </ul> <p><i>Appliance</i></p> <ul style="list-style-type: none"> <li>Washer Imbalance</li> <li>Vacuum Soil Sensing</li> <li>Dishwasher Spray Arm</li> <li>Level Sensing Switches</li> </ul> <p><b><u>MILITARY/GOVERNMENT</u></b></p> <p><i>Hydrophones</i></p> <ul style="list-style-type: none"> <li>Towed Cable Array</li> <li>Hull Mounted Arrays</li> <li>Sonobuoys</li> <li>Active Noise Suppression</li> </ul> <p><i>Ballistics</i></p> <ul style="list-style-type: none"> <li>Safety and Arming Fuses</li> <li>Shock Wave Gages</li> <li>Seismic Accelerometers</li> </ul> <p><i>Physical Security</i></p> <ul style="list-style-type: none"> <li>Perimeter</li> <li>Seismic/Geophones</li> <li>Covert Microphones</li> </ul> <p><i>Traffic Sensors</i></p> <ul style="list-style-type: none"> <li>Vehicle Classification</li> <li>Weight-In-Motion</li> <li>Speed, Red Light Enforcement</li> <li>Lane Designation</li> <li>Toll Booth</li> </ul>
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