Flow Switches, Thermal

Dwyer® Series TSP
Liquid Flow Controller
NO or NC Relay Output, Adjustable Time Delay

Protect pumps and valves from dry running with the Series TSP Liquid Flow Controller. The Series TSP combine a liquid flow switch with a failsafe relay controller to detect a flow or no flow situation and provides switching for direct actuation of pumps and valves. Controller features adjustable time delay, selectable NO or NC operation, and LED indication of sensor, relay, and power status. Four models (TSP110S, TSP210S, TSP120S, TSP220S) are designed with an integral flash alarm to provide immediate indication of local alarm conditions.

**SPECIFICATIONS**
- **Service**: Compatible liquids.
- **Wetted Materials**: Polypropylene/PPS or polyvinylidene fluoride.
- **Viscosity Range**: 0.04 to 3 fps (1.2X10-2 to .91 m/s).
- **Temperature Limits**: -40 to 158°F (-40 to 70°C).
- **Pressure Limits**: 150 psi (10 bar) at 77°F (25°C), derated 1.67 psi (.113 bar) per °C above 25°C.
- **Relay Output**: 1 SPDT form C, isolated and sealed.
- **Relay Load**: 250 VAC, 10 A resistive, 1/2 hp.
- **Switching Mode**: Selectable NO or NC.
- **Supply Voltage**: 120/240 VAC, 50/60 Hz, selectable.
- **Current Consumption**: 25 amps maximum.
- **Sensor Voltage Supply**: 13 VDC, 1 Watt max., nominal.
- **Sensor Trigger Point**: Dry <10 mA, wet >10 mA.
- **Time Delay**: Adjustable, 0.15 to 60 seconds.
- **Flash Type**: Xenon tube.
- **Flash Frequency**: 1 per second.
- **Brightness**: >50,000 CP.
- **Strobe Life**: 10 M cycles.
- **Conduit Connection**: 1/2” NPT.
- **Mounting Connection**: 3/4” NPT.
- **Enclosure**: Polypropylene, flame retardant, probe NEMA 4X (IP65).
- **Agency Approvals**: CE.

### Model Options

<table>
<thead>
<tr>
<th>Model</th>
<th>Flash Alarm</th>
<th>Wetted Parts</th>
<th>Sensor Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSP110</td>
<td>No</td>
<td>PP</td>
<td>Short</td>
</tr>
<tr>
<td>TSP210</td>
<td>No</td>
<td>PVDF</td>
<td>Short</td>
</tr>
<tr>
<td>TSP120</td>
<td>No</td>
<td>PP</td>
<td>Long</td>
</tr>
<tr>
<td>TSP220</td>
<td>No</td>
<td>PVDF</td>
<td>Long</td>
</tr>
<tr>
<td>TSP110S</td>
<td>Yes</td>
<td>PP</td>
<td>Short</td>
</tr>
<tr>
<td>TSP210S</td>
<td>Yes</td>
<td>PVDF</td>
<td>Short</td>
</tr>
<tr>
<td>TSP120S</td>
<td>Yes</td>
<td>PP</td>
<td>Long</td>
</tr>
<tr>
<td>TSP220S</td>
<td>Yes</td>
<td>PVDF</td>
<td>Long</td>
</tr>
</tbody>
</table>

---

Dwyer® Series TDS
Thermal Dispersion Flow Switch
Adjustable Switch Point, LED Indication

The Series TDS Thermal Dispersion Flow Switch offers solid state flow detection of non-coating liquids for pump and process protection. SPDPT output allows for interfacing with remote PLC or relay control device. The adjustable switch point is factory calibrated at 0.2 fps with LED indication of flow and calibration status. Units feature selectable NO or NC operation and are not damaged by overranging flow velocities.

**SPECIFICATIONS**
- **Service**: Liquids.
- **Wetted Materials**: Polypropylene/Polypropylene or polyvinylidene fluoride.
- **Range**: 0.04 to 3 fps (1.2X10-2 to .91 m/s).
- **Temperature Limits**: 32 to 140°F (0 to 60°C).
- **Pressure Limits**: 150 psi (10 bar) at 25°C, derated 1.67 psi (.113 bar) per °C above 25°C.
- **Repeatability**: ±5% of setpoint.
- **Switch Type**: SPDPT.
- **Electrical Rating**: 60 VAC/60 VDC @ 1 A.
- **Electrical Connections**: 22 AWG 3-wire, 10 ft (3 m) length.

### Model Options

<table>
<thead>
<tr>
<th>Model</th>
<th>Wetted Parts</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDS112</td>
<td>PP/PPS</td>
<td>3.0” (7.6 cm)</td>
</tr>
<tr>
<td>TDS212</td>
<td>PVDF</td>
<td>3.0” (7.6 cm)</td>
</tr>
<tr>
<td>TDS122</td>
<td>PP/PPS</td>
<td>4.5” (11.4 cm)</td>
</tr>
<tr>
<td>TDS222</td>
<td>PVDF</td>
<td>4.5” (11.4 cm)</td>
</tr>
</tbody>
</table>