

ON-LINE POUR POINT MONITOR

PROCESS/ON-LINE

42801D NEC Purge • 42801E CENELEC Purge
42801DX NEC Ex-Proof • 42801H CENELEC/Ex-Proof

Measure pour point of hydrocarbon products quickly, accurately, completely on-line!



The PSPI Pour Point Monitor determines pour point in correlation with ASTM and IP testing procedures even at ultra-low temperatures! Utilizing on-stream process technology, the 42801 arrives pre-programmed with three different operational modes, each with cycle times as small as five minutes, depending on the sample. And because the spent sample is returned directly to process, no sample collection system is needed. The Pour Point Monitor is completely microprocessor-controlled with self-test and diagnostic capabilities, making it simple to operate and maintain.

- Designed to measure Pour Point from -55° to 25°C (-67° to 77°F) with repeatability of $\pm 0.5^\circ\text{C}$
- Measurement correlates to ASTM D 97 and IP 15
- No sample recovery system required for return pressure up to 1.4 kg/cm² (20 psi) below inlet pressure
- Programmable operation and display in Celsius or Fahrenheit scales
- Typical applications are locations where automatic, on-line composition analysis of aviation fuel, diesel fuel, cycle oil or gas oil streams is required:
 - *quality monitoring*
 - *blending optimization*
 - *closed loop process control*
 - *quality assurance*

THEORY OF OPERATION

Pour Point is determined by measuring the pressure differential across the cooling cell and monitoring the temperature at which the pressure differential changes. Pour point temperature is displayed in either degrees °C or °F on the monitor's local readout and output as an analog signal. Once pour point is measured, the sample cell is flushed and a new measurement cycle initiated.

The heart of the PSPI/PetroSpec Pour Point Monitor is the detector system. This system consists of a cooling module, sample block, and pressure transmitter. The detection system transfers heat from the sample block via a two-stage Peltier effect thermoelectric cooling module mounted on the sides of the block. Each stage of the module is capable of pulling a 28° to 33°C (50° to 60°F) temperature differential and thus permits maximum pull-downs of -68° to -73°C (-90° to -100°F). The actual level of cooling provided in a given application, of course, will also be dependent on coolant temperature and flowrate. The detection system is specially designed to prevent sample leakage and condensation while minimizing maintenance. Capable of withstanding sample pressures of 200 PSI or greater, it features an easily replaced Swagelok-style thermocouple, over temperature thermo switch, and pressure transducer. The entire detection system is housed in a sealed/gasketed box enclosure.

ON-LINE POUR POINT MONITOR

42801D NEC Purge • 42801E CENELEC Purge

42801DX NEC Ex-Proof • 42801H CENELEC/ATEX Ex-Proof

SPECIFICATIONS

Performance

- **Response Time:** Typical cycle time is 5 to 60 minutes (user-programmable); sample dependent
- **Operation Modes:** High Speed Trending Monitoring, Laboratory Test Simulation, Combination Trend & Laboratory Simulation
- **Ambient Temperature Limits:** 4° to 38°C (40° to 100°F); weather protection required; no direct sunlight

Sample Requirements

- **Flow Rate:** 0.2 to 1.0 liters/minute (0.05 to 0.26 gallons/minute)
- **Inlet Pressure:** 2.1 kg/cm² (30 psig) min, 14 kg/cm² (200 psig) max
- **Return Pressure:** Maximum differential pressure across sample cell 2.1 kg/cm² (30 psig)
- **Temperature:** At least 10°C (18°F) above pour point temperature, but no higher than 55°C (131°F) at inlet to analyzer
- **Viscosity:** 750 Centistokes at 38°C (100°F) maximum
- **Water Influence:** Proper sample conditioning techniques to keep water out of sample are required

Utility Requirements

- **Electrical:** 115 or 230 VAC (±10%), 50/60 Hz, single phase, 300 watts (*D/E models* - 400 watts)
- **Purge Gas** (*DX/H models optional*): Clean, dry Nitrogen (98% pure) or other inert gas at 2.0 to 4.2 kg/cm² (30 to 60 psig) input pressure; 42 liters/minute (1.5 SCFM) initial purge rate at 2.8 kg/cm² (40 psig) input
- **Coolant:** 50/50 water/glycol mixture at 10.5 kg/cm² (150 psig) maximum pressure; minimum differential pressure of 2.8 kg/cm² (40 psig)

Signal Outputs

- **Analog Outputs:** One isolated 4–20 mA DC Pour Point Value (standard)
- **Alarm Relays:** 3 SPST fail-safe alarm relays (standard): Level 1 Alarm, Level 2 Alarm, Purge Alarm
- **Serial Output:** RS-232C serial output available (optional)
- **"Come Read" Contact:** Dry relay contact for end of measurement cycle notification (optional)

Signal Inputs

- **Remote Program Selection:** Terminals available for four 24 VDC dry contact relays (optional)
- **Remote Standby:** Terminals available for customer-supplied dry contact control of instrument; allows control room to take monitor "off-line" (optional)
- **Automatic Validation Check:** Terminals available for dry contact or user-selectable intervals (optional)
- **Stream Switching:** Terminals available for customer-supplied dry contact switching between two process streams (optional)



Purged Enclosures:

- **42801D:** NEC Class 1, Div 1, Group D
- **42801J:** JIS Purge (Japan)

Dimensions & Weight

Uncrated:	H	W	D	units
• Analyzer (42801D)	889	838	305	mm
108 kg (237 lbs)	35	33	12	inches
• Analyzer (42701DX/H)	1804	724	762	mm
272 kg (600 lbs)	71	29	30	inches
Crated:	H	W	D	units
• Analyzer (42701D)	1041	940	407	mm
182 kg (350 lbs)	41	37	16	inches
• Analyzer (42801DX/H)	1956	838	864	mm
340 kg (750 lbs)	77	33	34	inches

Optional Accessories

- **Filter Coalescer** separates water from petroleum liquids and acts as high-efficiency filter
- **Sample Conditioning System** prepares and presents representative sample to analyzer with minimum lag time

Due to PSPI's commitment to continual product development, specifications are subject to change without notice.



For more information, please contact us:

[ExpotechUSA](#)
[10700 Rockley Road](#)
[Houston, Texas 77099](#)
[USA](#)

[281-496-0900 \[voice\]](#)

[281-496-0400 \[fax\]](#)

E-mail: sales@expotechusa.com

Website: www.ExpotechUSA.com