

Accurate, Reliable FLT93 Switch Provides Flow or Leak Detection in Nuclear Plants

*Ideal for Turbine Water Level, Pump Protection, Reactor Core Coolant, Flood Alarm,
Condensate Pot Level, Interface Level Detection & Temperature*

San Marcos, CA — Engineers responsible for nuclear power plant operations who need flow, level, or temperature alarms and indicators for use in liquid, air, gas, or for interface service will find the [FLT93 Series Switch](#) from [Fluid Components International \(FCI\)](#) provides a nuclear safety qualified solution.

The FLT93 Switch from FCI provides dependable critical equipment protection and plant integrity validation that makes it Ideal for use in a wide range of nuclear power plant flow, level and temperature measurement applications. Applications include: reactor core coolant, level interface detection and temperature, pump protection, flood alarm, condensate pot level and turbine water level. It is ideal in any application where the measurement of both flow and temperature or level and temperature are important.

FCI's proven single sensor design provides dual measuring functions with the FLT93 Switch. It helps nuclear plant operations save weight, space and costs over two or more discrete sensors. Operators also realize reduced qualification installation costs and complexity. It is the industry's most advanced heavy-duty thermal dispersion technology flow/level switch in the world. Its multi-parameter measurement design is based on more than 55 years of flow and level switch engineering and application experience, providing a rugged long-life instrument.

Long an innovator dedicated to the nuclear power industry, FCI's original Models 12-64, 8-66 and FR72 were installed when the first commercial nuclear power plants were built and are just now being replaced by the FLT93 Series. These models have survived the initial operating licenses and are being replaced under license extension renovations.

The FLT93 Switch features an analog design that is fully qualified for Class 1E safety related nuclear power plant applications, having been extensively tested to IEEE 323 and IEEE 344 as well as meeting the requirements of MIL-STD-461 and EN/IEC61000. Both the insertion and in-line sensor versions are qualified for 40-year life at 150°F. The FLT93 sensor is qualified to radiation levels of 2x10⁸ rads. The FLT93 electronics are qualified to 5x10⁵ rads for applications requiring an integral unit (sensor and electronics).



As a dual-function instrument, the FLT93 Switch can be configured for flow or level sensing, flow + temperature sensing or level + temperature sensing. A single FLT Switch measures and monitors flow or level and temperature simultaneously with excellent accuracy and reliability. Dual trip points and 6A relay outputs are standard and are assignable to flow, level or temperature.

FCI's unique sensor technology when combined with its temperature compensation circuitry provides users with unparalleled performance capabilities: It operates at a low process temperature range of -40 to 250°F [-40 to 121°C], a high temperature range of -40 to 455°F [-40 to 235°C], a process pressure rating of 2000 psig, and accuracy of ±5% of reading in flow applications.

In water, the sensing element set point range is up to 0.01 to 3.0 sfps [0.003 to 0.09 smps], 3.0 watt heater power, depending on the specific model configuration. In hydrocarbon-based liquids, the sensing element set point range is up to 0.01 to 5.0 sfps [0.003 to 1.5 smps], 3.0 Watt heater power, depending on the specific model configuration. In gases, the sensing element set point range is 0.25 to 120 sfps [0.076 to 37 smps].

A wide selection of standard and custom process connections can be provided. The electronic control circuit can be integrally-mounted with the sensing element, or it can be located in a remote location. The standard enclosure is cast stainless steel. It can be used in ATEX locations and is rated for NEMA Type 4X (IP66/IP67) environments.

Recognized for its reliable, long-life products, FCI has been a Continuous Class 1E Supplier to the nuclear power industry since 1978. Today it has more than 30 applications operational in over 100 nuclear power plants worldwide. FCI's Quality Management System is certified to ISO9001 and compliant to NQA-1 and ISO19443. FCI maintains a 10CFR50 Appendix B Quality Assurance Program and complies with 10CFR21 and ANSI-N45-2. The company is also NUPIC and NAIC audited and approved.

Fluid Components International is a global company committed to meeting the needs of its customers through innovative solutions to the most challenging requirements for sensing, measuring and controlling flow and level of air, gases and liquids.