



MONITORING SOLUTIONS FOR
**DATA CENTER LIQUID
COOLING SYSTEMS**

Liquid Level Switches

DATA CENTER LIQUID COOLING

The rapid growth of Artificial Intelligence (AI), high-performance computing (HPC), and high-density server environments is accelerating the adoption of liquid cooling technologies in modern data centers. As rack power densities increase, traditional air-cooling systems are struggling to provide the thermal performance and efficiency required for next-generation infrastructure.

Technologies such as direct-to-chip (D2C) cooling, immersion cooling, and CDU-based systems offer more efficient heat transfer and support higher computing densities. However, liquid cooling systems also introduce risks including coolant loss, low fluid levels, pump failure, and undetected leaks.

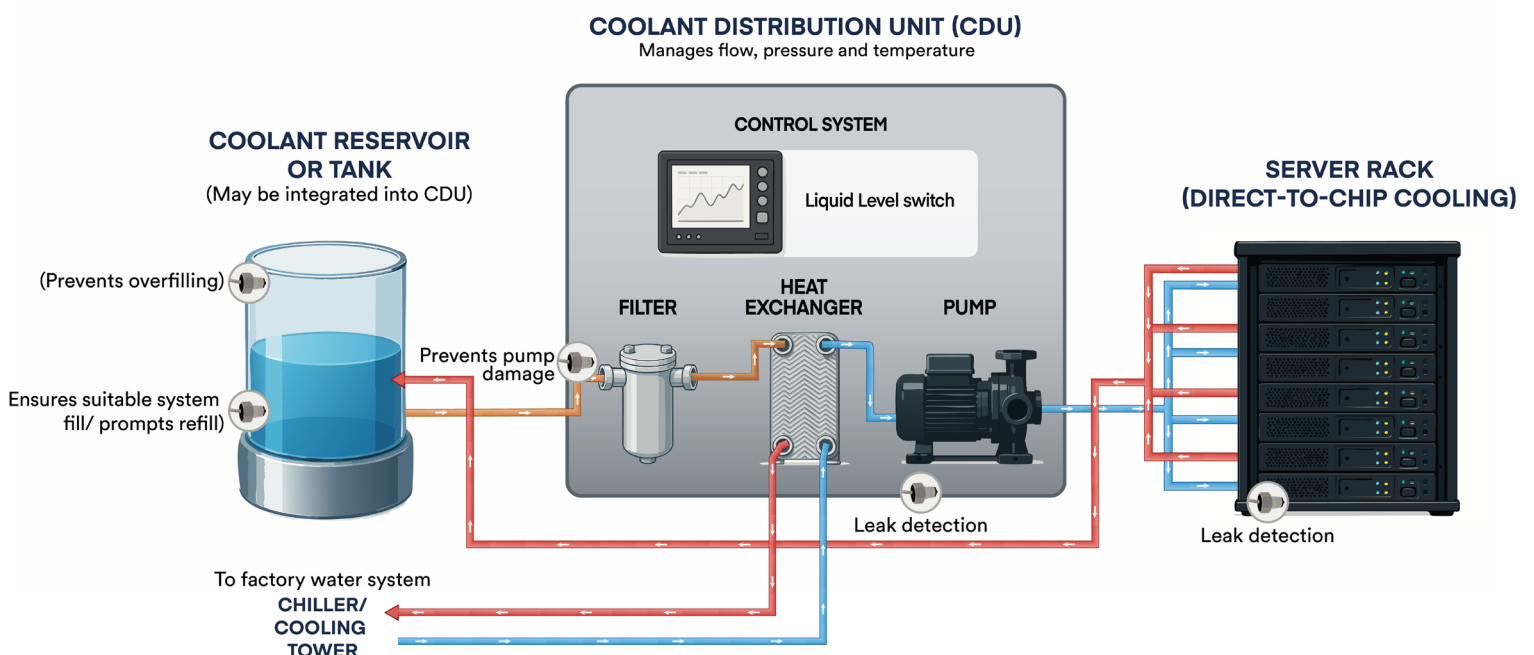
Reliable liquid level monitoring is essential for protecting cooling infrastructure, maintaining thermal stability, and ensuring continuous operation across reservoirs, coolant loops, leak detection systems, and CDU platforms.

Why Liquid Level Monitoring Matters

Accurate liquid level monitoring helps data center operators maintain safe, efficient, and reliable cooling performance throughout the cooling system.

- **Protect Critical Equipment**
Prevent low coolant conditions that can lead to overheating, pump damage, or system shutdowns.
- **Detect Leaks Early**
Identify coolant loss before it impacts cooling performance or damages infrastructure.
- **Support Continuous Operation**
Enable stable 24/7 cooling performance in high-density and AI-driven environments.
- **Improve Cooling System Reliability**
Monitor coolant levels across reservoirs, CDUs, refill tanks, and secondary containment systems.
- **Enable Automated Cooling Control**
Support intelligent refill systems, alarms, and automated cooling management platforms.

Typical Sensor Locations in a Data Center Cooling System



LIQUID LEVEL SENSOR SOLUTIONS

SST Sensing's liquid level switches provide a robust solution for monitoring coolant levels across CDU systems, reservoirs, leak detection trays, and immersion cooling platforms.

Using proven optical sensing technology, SST liquid level switches help operators detect low coolant conditions, identify leaks early, protect pumps from dry running, and support safe, continuous operation in mission-critical cooling infrastructure.

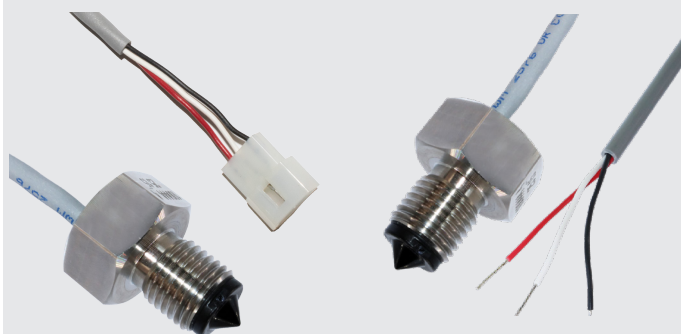
Key Benefits

- Maintenance-free
- No moving parts
- Fast response time
- Compact design
- High reliability
- Long operational life
- Compatible with water and glycol-based coolants and synthetic hydrocarbon dielectric fluids
- Resistant to vibration and contamination
- Suitable for typical temperature and pressure ranges in CDU applications

LLHP Data Center Series

Part number: 100444

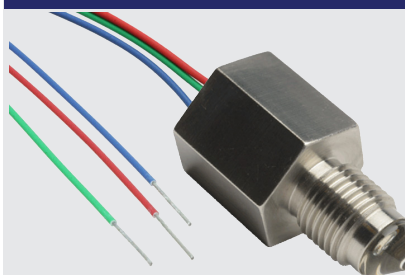
Part number: SL-LLHP-521



Thread	M14 x 1.5
Housing	Stainless steel with polysulfone tip
Output Logic	Low in air
Output Type	N-Type with internal 10kΩ pull-up resistor Can sink current up to 35mA
Termination	SL-LLHP-521: 3m cable 100444: Molex connector (0.5m length)

Optomax Industrial Glass Series

Part number:
LLG610D3-003



Thread	1/2"-20 UNF
Housing	Stainless steel with borosilicate glass tip
Output Logic	High in air
Output Type	N-Type Can sink current up to 1A
Termination	Flying leads (0.25m length)

Please refer to product datasheets for full technical specifications and recommended operating conditions.

Customized Solutions

SST Sensing can also support application-specific requirements to help simplify integration into OEM cooling systems, including:

- Thread configuration options available to support easier mechanical integration
- Output options available for compatibility with OEM control and monitoring systems

WHY CHOOSE SST SENSING?

As data centers continue to adopt liquid cooling technologies, reliable coolant monitoring is becoming an increasingly important part of system design. SST Sensing's liquid level switches are already used in liquid cooling applications to help monitor coolant levels, protect pumps from dry running, and support reliable operation across CDU systems, reservoirs, and leak detection points.

To support the growing demand for liquid cooling infrastructure, SST has invested in additional manufacturing capacity, helping ensure strong product availability and dependable lead times for OEMs and system designers. Alongside a range of standard sensor options, SST can also support customised requirements, including thread configurations and output types, making integration into new and existing cooling systems straightforward.

Key Benefits of SST Liquid Level Sensors

- High-volume manufacturing capability to support rapidly growing data centre markets
- Strong product availability and reliable lead times
- Proven use in liquid cooling and thermal management applications
- Compact, solid-state optical sensing technology with no moving parts
- Suitable for CDU systems, coolant reservoirs, leak detection, and refill monitoring
- Custom thread configurations available for simplified mechanical integration
- Custom output options available to support OEM control systems
- Engineering support for application-specific sensor requirements
- Robust stainless steel and industrial-grade sensor options available

Designed for OEM Integration

Whether you are developing next-generation direct-to-chip cooling systems, immersion cooling platforms, or CDU infrastructure, SST can support your cooling architecture with scalable liquid level sensing solutions tailored to your application requirements.

Speak to our engineering team to identify the right liquid level sensing solution for your data center cooling application, including customized thread, mounting, and output configurations for OEM integration.

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