

DATA CENTER SOLUTIONS

Precision Sensing and Hermetic Sealing Solutions
Supporting the Next Generation of Data Center Cooling

DATA CENTER COOLING IS BEING REDEFINED

AI workloads, higher rack densities, and liquid cooling technologies are transforming thermal management requirements across modern data centers.



INDUSTRY TRENDS



AI Drives Higher Heat Loads

Server racks are moving from **20–40 kW to 100+ kW** creating unprecedented cooling requirements.



Shift Toward Liquid Cooling

Traditional air cooling is reaching its limits. Data center operators are increasingly adopting:

- Direct-to-chip cooling
- Rear-door heat exchangers
- CDU architectures
- Hybrid cooling systems



Uptime Is Non-Negotiable

Even minor cooling failures can impact:

- Equipment reliability
- Availability
- Performance
- Business continuity

KEY CHALLENGES & IMPACT

CHALLENGE	IMPACT
 Higher Thermal Loads	Increased cooling demand
 Energy Efficiency	Lower Power Usage Effectiveness targets
 System Reliability	Downtime avoidance
 Sustainability	Reduced energy consumption



Sensience solutions help OEMs **monitor, control, and protect** critical cooling systems throughout the data center ecosystem.

ONE PARTNER. FOUR CRITICAL TECHNOLOGIES.

Supporting the complete data center cooling ecosystem - from facility infrastructure to rack-level thermal management.



COMPLETE COOLING COVERAGE.

Sensience brings together four complementary technologies to help OEMs monitor, control, and protect critical cooling systems across the entire data center ecosystem.

● TEMPERATURE SENSORS



Accurate temperature monitoring and control.

● REFRIGERANT PRESSURE TRANSDUCERS



Reliable pressure monitoring for efficient, safe operation.

● DIFFERENTIAL AIR PRESSURE SENSORS



Airflow and filtration monitoring for system protection.

● GLASS-TO-METAL HERMETIC SEALS



Hermetic feedthroughs for leak-tight connections.

WHY OEMs CHOOSE SENSIENCE



ONE PORTFOLIO. FOUR CORE TECHNOLOGIES

Temperature, pressure, airflow, and hermetic solutions from a single trusted supplier-simplifying sourcing and system integration.



DEEP APPLICATION EXPERTISE

Proven experience across chillers, CRAC/CRAH units, CDUs, liquid cooling systems, compressors, and rack-level architectures.



GLOBAL SCALE

Global engineering, manufacturing, and supply chain support for OEM programs worldwide.

SUPPORTING COOLING ARCHITECTURES FROM FACILITY TO RACK



FACILITY
INFRASTRUCTURE



CHILLERS



CRAC/CRAH



CDU



RACK

SUPPORTING THE DATA CENTER

COOLING ECOSYSTEM

From facility cooling infrastructure to rack-level thermal management.

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Cooling Towers

Chillers

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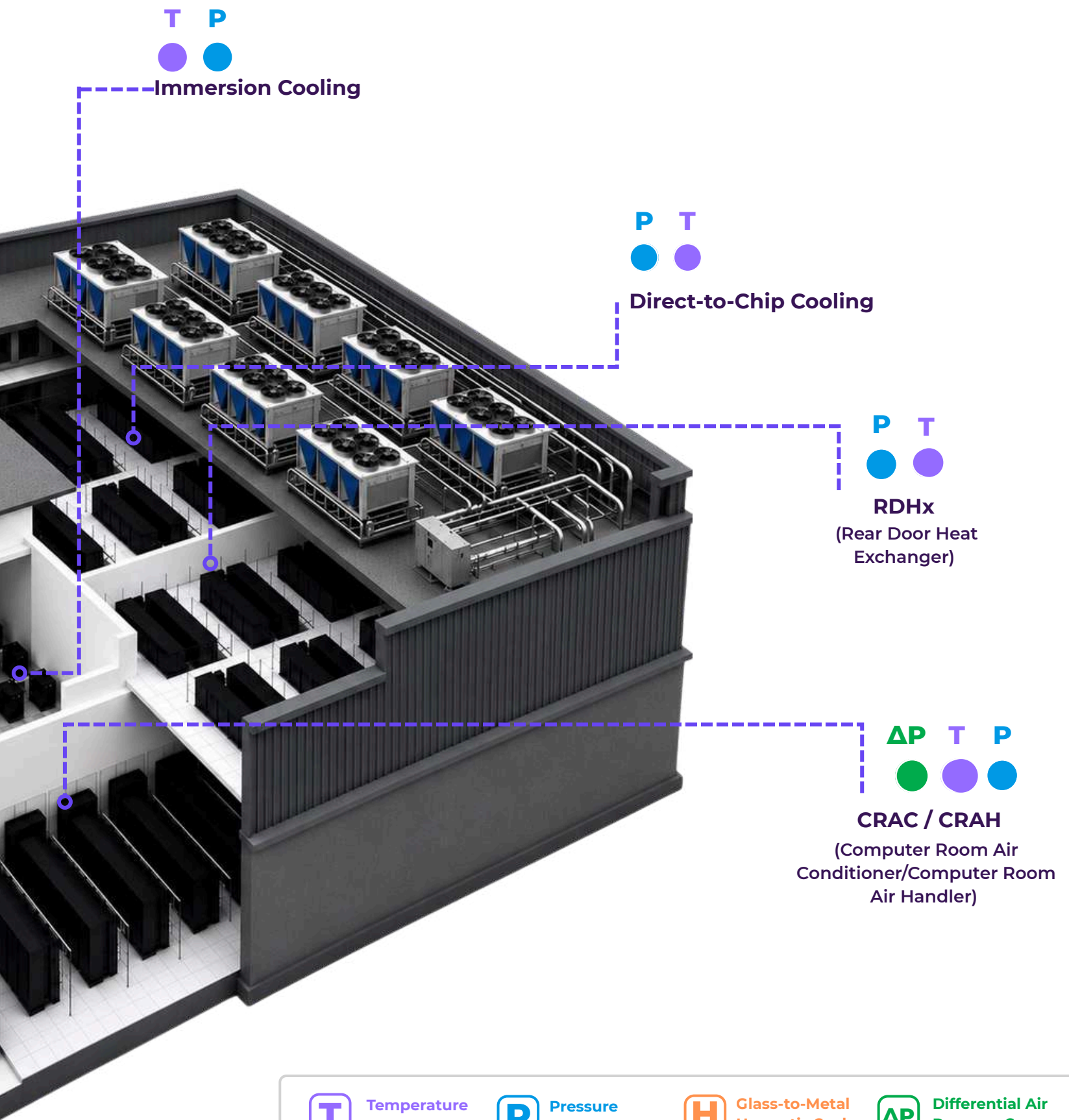
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CDU

(Cooling Distribution Unit)



Supporting thermal management across the data center cooling ecosystem.
Sensience helps OEMs monitor, control, and protect critical cooling infrastructure through precision sensing and glass-to-metal hermetic seals.



RELIABILITY
Optimize uptime.



EFFICIENCY
Improve cooling performance.



PROTECTION
Protect critical systems.

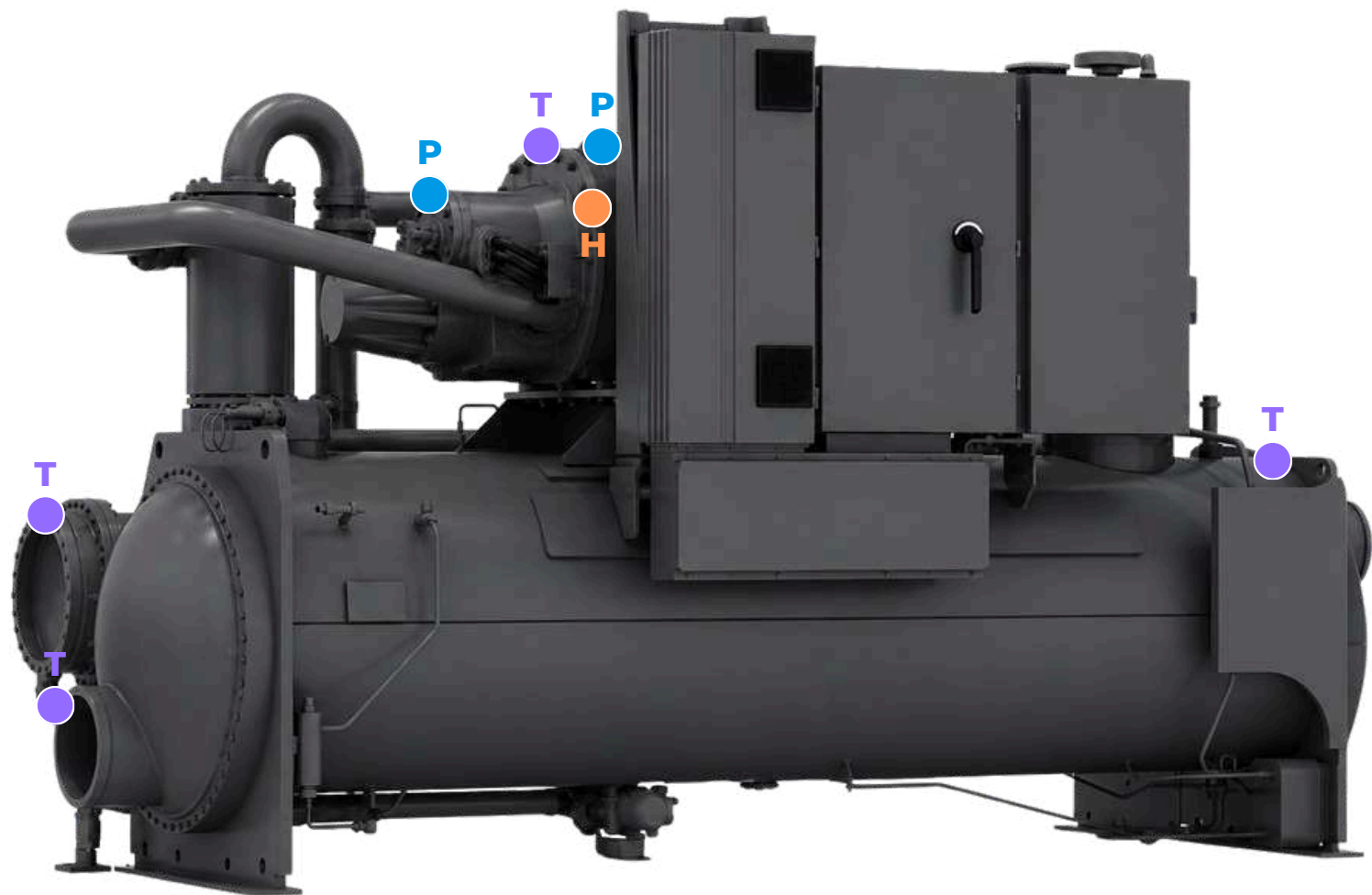


SCALABILITY
Support evolving architectures.

CHILLERS

THE BACKBONE OF COOLING INFRASTRUCTURE

Chillers remain the backbone of many data center cooling architectures. Reliable monitoring of refrigerant circuits, water loops, and compressors is essential to maintain cooling performance and uptime.



Temperature
Sensors



Refrigerant Pressure
Transducers



Glass-to-Metal
Hermetic Seals

WHY IT MATTERS



Improved Cooling Efficiency

Optimize thermal system performance and reduce energy consumption.



Enhanced Compressor Reliability

Improve system availability and prevent costly service interruptions.



Reduced Downtime

Protect critical compressor components and extend equipment life.



Lower Maintenance Costs

Reduce service needs and total cost of ownership.

CRAC/CRAH SYSTEMS

SUPPORTING HYBRID COOLING ARCHITECTURES

CRAC and CRAH systems remain a critical part of modern data centers, supporting room-level temperature control, airflow management, and humidity regulation. In hybrid cooling architectures, they complement liquid cooling by maintaining optimal conditions for supporting infrastructure and air-cooled equipment.

Accurate sensing helps optimize airflow, improve energy efficiency, and maintain consistent temperatures.



Temperature
Sensors



Differential Air
Pressure Sensors

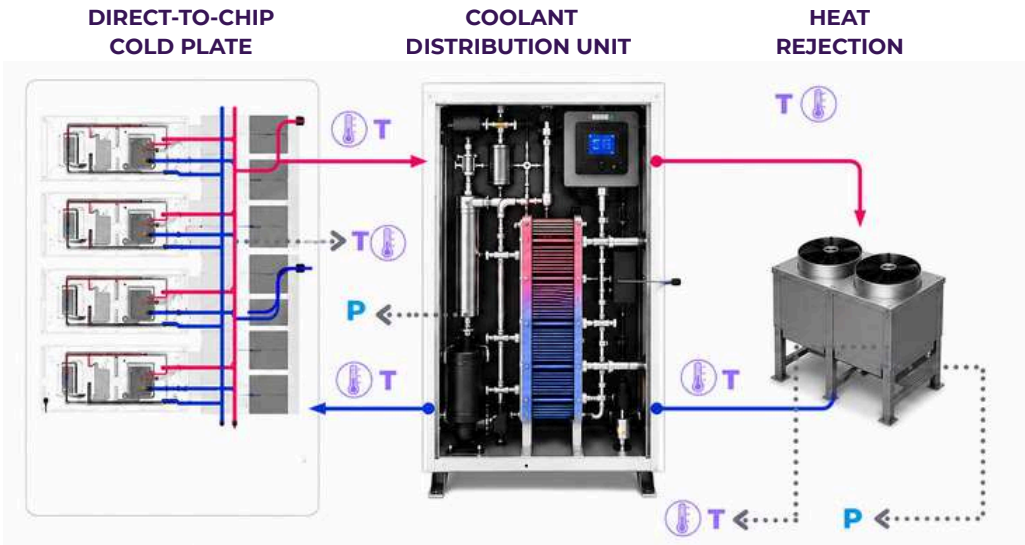
LIQUID COOLING ARCHITECTURES

SUPPORTING HIGH-DENSITY AI AND HPC COOLING

Precise temperature & pressure monitoring across key points in the liquid cooling loop helps maintain thermal stability, optimize efficiency, and ensure reliable uptime.

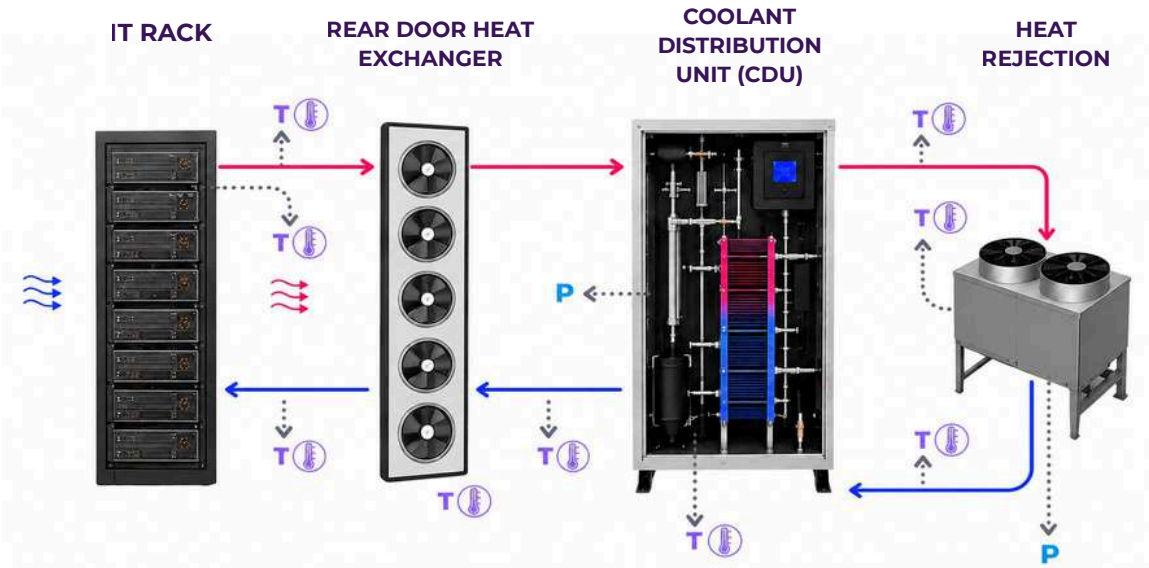
DIRECT-TO-CHIP COOLING

Maximum efficiency for the highest thermal loads



REAR DOOR HEAT EXCHANGER

Efficient rack-level cooling with minimal footprint



→ Warm Liquid (Supply)

→ Cool Liquid (Return)

T Temperature Sensors

P Pressure Transducers

THERMAL STABILITY

COOLING EFFICIENCY

EARLY FAULT DETECTION

SYSTEM RELIABILITY

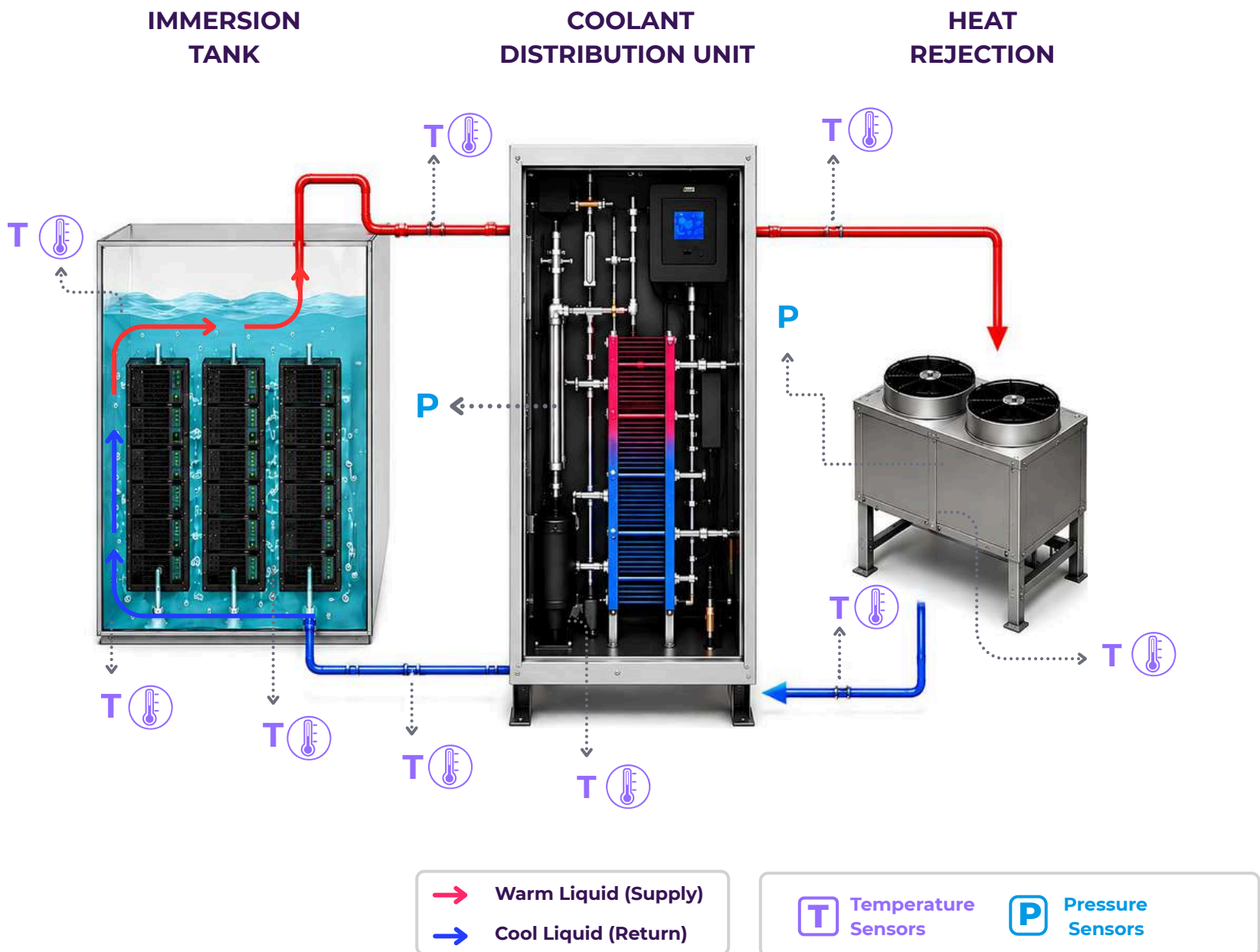
LIQUID COOLING ARCHITECTURES

SUPPORTING HIGH-DENSITY AI AND HPC COOLING

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IMMERSION COOLING

The ultimate solution for ultra-high-density deployments



THERMAL STABILITY



COOLING EFFICIENCY



EARLY FAULT DETECTION



SYSTEM RELIABILITY

REFRIGERANT PRESSURE TRANSDUCERS

Applications

- Suction pressure monitoring
- Discharge pressure monitoring
- Expansion valve control
- Refrigerant charge optimization

Featured Product



50P

Key Features

- High accuracy pressure measurement
- Refrigerant-compatible construction
- Long-term stability in demanding environments
- Supports efficient system control and optimization

TEMPERATURE SENSORS

Applications

- Chilled water supply temperature
- Chilled water return temperature
- Condenser water monitoring
- Heat exchanger temperature monitoring

Featured Product



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Key Features

- Fast thermal response
- High accuracy temperature measurement
- Configurable probe and cable options
- Robust construction for demanding environments

DIFFERENTIAL AIR PRESSURE SENSORS

Applications

- Duct pressure monitoring
- Fan and blower monitoring
- Filter clog detection
- Airflow verification

Featured Product



54S

Key Features

- High sensitivity and accuracy for precise airflow measurement
- Stable performance in varying environmental conditions
- Easy integration and OEM-friendly design
- Long-term reliability with low maintenance

GLASS-TO-METAL HERMETIC SEALS

Applications

- Compressor terminal
- Motor winding
- Compressor current draw
- Suction/discharge pressure

Featured Product



CO2 Compressor Feedthroughs

Key Features

- Proven hermetic sealing technology
- Leak-tight electrical feedthrough design
- High-current and high-voltage capability
- Designed for long-term reliability

Applications

- Suction Pressure
- Discharge Pressure
- Liquid Line Pressure

Featured Product



Power Bolts

Key Features

- High-current power connection
- Excellent electrical performance
- Robust mechanical strength
- Hermetic sealing for harsh environments

Applications

- Liquid Line Temperature
- Compressor Discharge Temperature
- Suction Pressure
- Discharge Pressure

Featured Product



Wired Feedthroughs

Key Features

- Pre-wired for easy integration
- Hermetic seal with proven reliability
- Available in custom configurations
- Suitable for high-current applications

ABOUT US

Sensience is a global leader in highly engineered sensing, control, and sealing technologies, providing mission-critical protection and intelligent data solutions across a wide range of industries, including energy, food and beverage, HVACR systems, appliances, industrial equipment, automotive platforms, and aerospace technologies.

Backed by a broad portfolio of proven products, deep engineering expertise, and dedicated customer support, we help customers innovate with confidence-delivering advanced technologies, technical capabilities, and tailored solutions that enhance performance, reliability, and efficiency in the most demanding environments.

LET'S CONNECT



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