Pyxis®

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DATA SHEET

IK-1600 SERIES

Fluid Chemistry Analyzer for AI Critical CDUs

DESCRIPTION

The The IK-1600 Series are pre-engineered Turn-Key analyzers designed specifically for data center Coolant Distribution Units (CDUs). They integrate multiple Pyxis smart sensors and touch-screen display onto a single stainless-steel analyzer panel to provide continuous, real-time measurement of critical coolant quality parameters required for reliable thermal management of high-density IT loads.

The IK-1600 Series provide continuous, real-time visibility into the critical coolant chemistry parameters that directly impact the reliability, efficiency, and lifespan of data center cooling infrastructure. By simultaneously measuring pH, temperature, conductivity, turbidity, and glycol concentration, the IK-1600 enables operators to detect chemical imbalance, contamination, fouling, or coolant degradation before these conditions escalate into thermal performance loss or equipment damage.

Accurate pH and conductivity measurement ensures corrosion control strategies remain effective and help verify inhibitor health in mixed-metal cooling loops. Turbidity monitoring provides early indication of particulate ingress, corrosion byproducts, or biological growth that can foul cold plates, microchannels, and heat exchangers. Glycol concentration measurement confirms freeze protection, heat transfer efficiency, and correct coolant formulation, which is especially critical for CDU secondary loops serving high-density AI and HPC workloads.

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By combining these measurements into a single, panelized monitoring solution, the IK-1600 delivers actionable intelligence rather than isolated data points. Operators gain the ability to trend coolant quality over time, correlate chemistry changes to system events, and integrate alarms directly into CDU controls, BMS, EPMS, or DCIM platforms. The result is improved uptime, reduced unplanned maintenance, longer equipment life, and increased confidence that cooling systems are operating within design limits as IT heat loads continue to rise.

TURN-KEY INSTALLATION

The IK-1600 combines proven Pyxis inline smart sensors and the UC-80-PLUS micro-processor based touch screen interface into a factory-assembled analyzer solution specifically suited for critical coolant chemistry monitoring. Each sensor includes an embedded transmitter with 4–20 mA and RS-485 Modbus outputs and is pre-wired to the UC-80-PLUS providing live sensor data display, data logging, digital calibration interface and sensor diagnostics while offering easy integration with CDU controls, PLCs, BMS, EPMS, or DCIM platforms via Modbus RTU and TCP output interface. The panelized analyzer approach simplifies installation, reduces field wiring, and ensures consistent measurement performance across deployments.

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FEATURES

ST-722 Ultra-Low Conductivity Sensor

The ST-722 is a stainless-steel inline conductivity sensor designed for continuous monitoring of dissolved solids in critical cooling and coolant distribution systems. By simultaneously measuring conductivity and temperature, the ST-722 provides real-time insight into coolant chemistry stability, contamination events, and inhibitor dilution. Automatic temperature compensation ensures accurate readings across varying operating conditions, while the integrated transmitter with 4–20 mA and RS-485 Modbus outputs enables direct integration with CDU controls, PLCs, and BMS platforms. Its robust 316L stainless-steel construction makes it well suited for long-term operation in high-pressure, high-reliability data center cooling environments.

ST-730SS-T Turbidity Sensor

The ST-730SS-T is an inline optical turbidity sensor engineered to detect particulate matter, corrosion byproducts, and fouling potential in CDU coolant loops. Turbidity is a critical early-warning indicator in liquid-cooled data centers, as even small increases can degrade heat transfer efficiency and threaten cold plate or microchannel performance. The tee-style, service-friendly design allows the sensor to be removed for maintenance without shutting down the system. With real-time NTU measurement, integrated temperature compensation, and native analog and digital outputs, the ST-730SS-T enables proactive maintenance strategies and protects mission-critical cooling infrastructure.

ST-710SS pH Sensor

The ST-710SS is a precision inline pH sensor designed to maintain optimal chemical balance in closed-loop and secondary cooling systems. Accurate pH control is essential to minimizing corrosion, scaling, and material degradation in mixed-metal CDU loops. The ST-710SS features a replaceable electrode assembly for simplified maintenance and long service life, along with automatic temperature compensation for stable measurements under dynamic operating conditions. Built-in 4–20 mA and RS-485 Modbus communications allow seamless integration into CDU logic and facility monitoring systems, supporting both real-time control and long-term trending.

RT-100 Series PRISM Refractometers

The RT-100 Series PRISM™ sensors are inline digital refractometers that provide direct, highly accurate measurement of ethylene or propylene glycol concentration in cooling fluids. Glycol concentration is a critical parameter affecting freeze protection, heat transfer efficiency, and overall coolant performance. The RT-100 Series uses optical refractive index measurement combined with internal temperature compensation algorithms to deliver precise concentration readings across the full operating range. This sensor platform is offered in two formats. With onboard display and data logging (RT-100) or no display and no data logging (RT-110L) both sensor versions offer and 4–20 mA / RS-485 Modbus outputs the RT-100 Series enable operators to verify coolant formulation in real time and avoid risks associated with over- or under-concentration.

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FEATURES

ST-009-03 Three Sensor Flow Cell

The ST-009-03 three-sensor flow cell is a compact stainless-steel housing designed to mount and hydraulically condition multiple inline Pyxis sensors within a single CDU side-stream. By providing controlled flow, proper sensor immersion, and standardized process connections, the ST-009 ensures consistent measurement performance across all installed analyzers. The modular design supports simplified installation, easy sensor removal for calibration, and compatibility with high-pressure CDU applications.

Simple Installation

Convenient and simple to install stainless steel panel with ¼-inch OD Swagelok Compression tubing for rapid and easy installation. Truly a plumb and power to go platform with intense factory setup, testing and sensor calibration prior to shipment.

UC-80-PLUS Display

UC-80-PLUS touch screen color display/data logger prewired to the Pyxis sensor via RS-485 with calibration interface. Display/data logger offers 8x 4-20mA, RS-485 and TCP Modbus output with sensor diagnosis and parameter adjustment.

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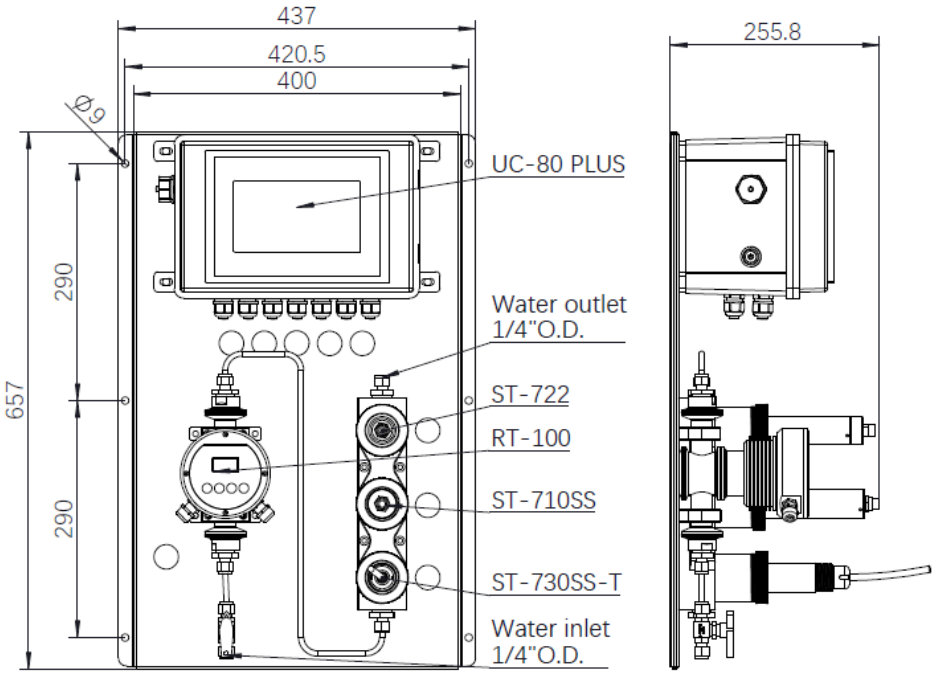
SPECIFICATIONS

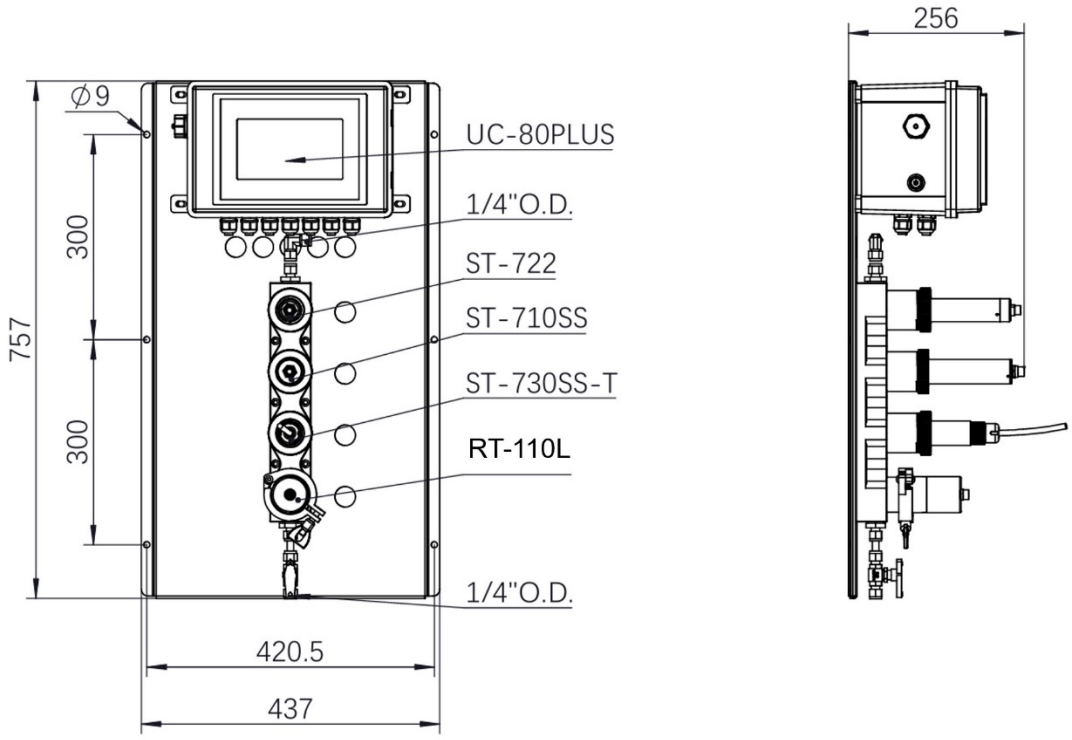
Item	IK-1600	IK-1600A
Part Number	40704	40470
Glycol Sensor	RT-100	RT-110L
Glycol Sensor Display/Data Log	Included	N/A
pH/Temp. Sensor	ST-710SS	
Conductivity/Temp. Sensor	ST-722	
Turbidity Sensor	ST-730SS-T (InfraRed)	
Range of Measurement	Refractive Index: 1.31700–1.5100 Mono-Ethylene/Mono-Propylene Glycol: 0.00–100.00% pH: 0.00–14.00 Conductivity: 0.02–10,000µS/cm Temperature: 32–212 ºF (0–100 ºC) Turbidity: 0.00–100.00NTU	
Precision	Refractive Index: ±0.0001 Mono-Ethylene/Mono-Propylene Glycol: ±0.1% pH: ±0.01pH or 1% of the Value Conductivity: ±0.2µS/cm or 1% (<500µS) Temperature: ±1% of the Temperature Value Turbidity: ±0.1NTU	
Sample Operating Temp.	4–49 ºC (40–120 ºF)	
Sample MAX Pressure	100psi (6.9Bar)	
Sample Inlet/Outlet	¼ inch OD Swagelok Compression	
Suggested Flow Rate	100–2,000mL/min	
Sensor Body Material	316L Stainless Steel	
Sensor Response Time	T95≤5s	
Sensor Measurement Interval	Every 4 Seconds - Customizable if Desired	
Sensor Power Supply	24V DC (1.5W)	
Sensor Installation	ST-009-03 316L Stainless Steel (3) Sensor Manifold - INCLUDED	
Sensor Wet Material	316L SS / Fluorelastomer / EDPM / PEEK / CPVC / POM / Quartz / Sapphire	
Sensor Signal Output	(2) 4-20mA and RS-485 Modbus - 8PIN - M12 Connector	
Dimensions (HxWxD)	700mm H x 237mm W x 256mm D	507mm H x 127mm W x 256mm D
Approximate Weight	8-12kg	
Rating	IP67	
Regulation	CE Marked / RoHS	
Typical Electrode Service Life	2 Years	
Electrode Warranty	6 Months	
Sensor Body Warranty	13 Months	
UC-80-PLUS Display	7 inch LCD Color Industrial Capacitive Touch Screen	
UC-80-PLUS Power Requirement	96–240VAC / 50–60 Hz; 60W	
UC-80-PLUS Storage Capacity	Built-In 128MB of RAM for Storing up to 1 Million Data/Event Records	
UC-80-PLUS Output	(8) 4-20mA / RS-485 Modbus-RTU + TCP	
UC-80-PLUS Input	(4) 4-20mA / RS-485 Modbus-RTU	
UC-80-PLUS USB	(1) USB Host for Data Downloading and Screen Upgrade	
UC-80-PLUS Relay	(2) 24VDC Relays (Passive Output or Active Output - User Selected)	
UC-80-PLUS Relative Humidity	20–90% (No Condensation)	

DIMENSIONS

IK-1600 (mm)



IK-1600A (mm)



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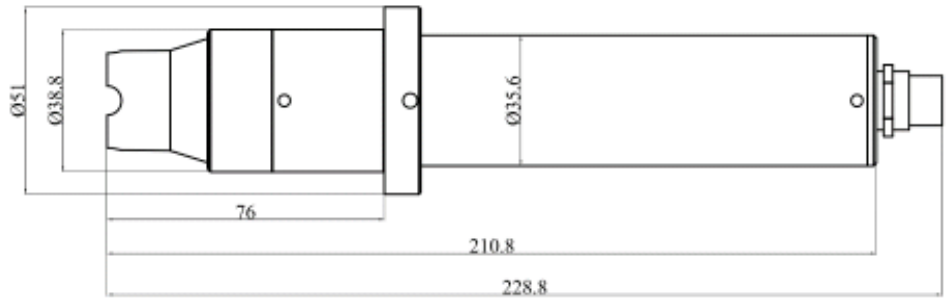
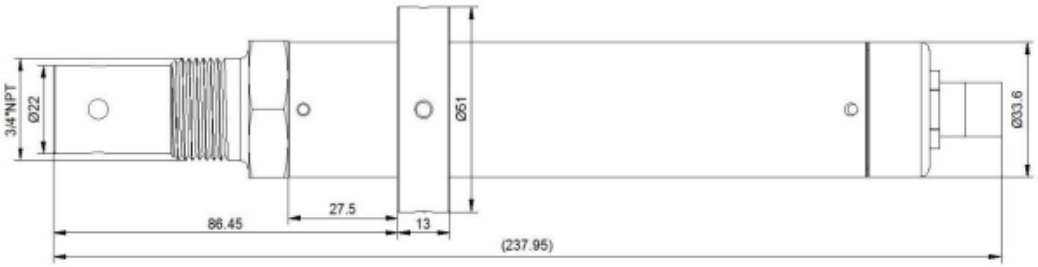
DIMENSIONS

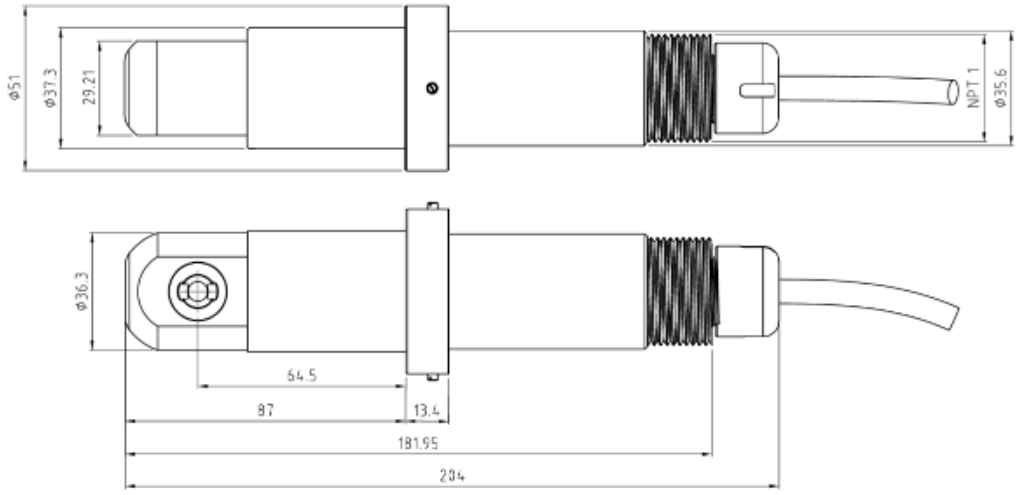
ST-712SS (mm)



ST-722 (mm)



ST-730SS-T (mm)



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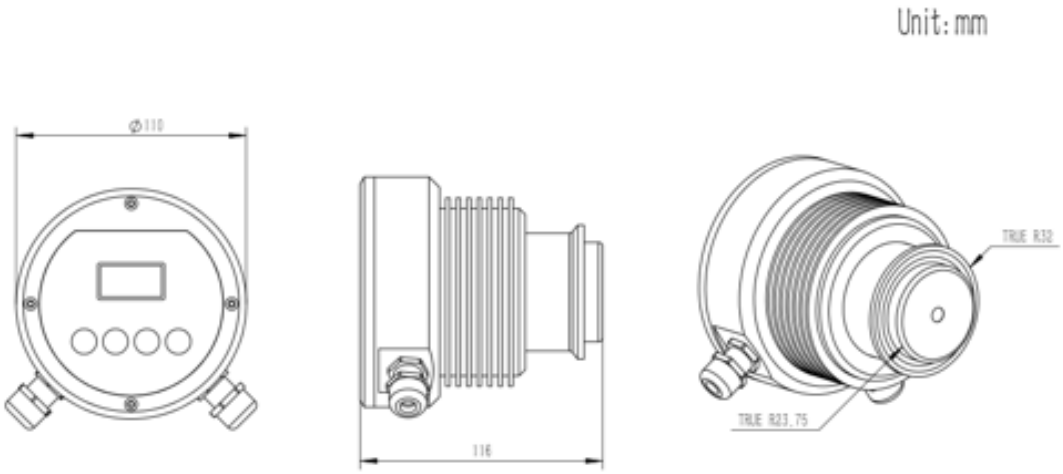
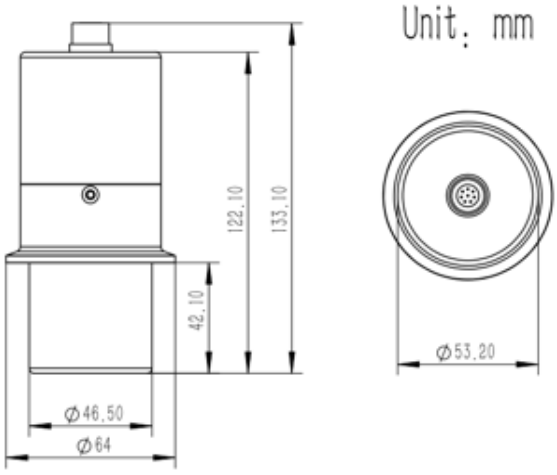
DIMENSIONS

RT-100 (mm)



RT-110L (mm)



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Order Information	Part Number
IK-1600 Data Center Sensor Module with RT-100	40704
IK-1600A Data Center Sensor Module with RT-110L	40470

Optional & Replacement Accessories	Part Number
ST-710SS Replacement pH Sensor	53030
ST-722 Replacement Ultra-Low Conductivity Sensor	53103
ST-730SS-T Replacement Turbidity Sensor	56377
RT-100 Replacement Refractometer (IK-1500)	55105
RT-110L Replacement Refractometer (IK-1500A)	57682
UC-80-PLUS Optional Display & Data Logging Terminal	72785
EH-710 Replacement Electrode Head for ST-710SS	53033
ST-009-03 Replacement Sensor Manifold	24397
pH Combo Calibration Solution Pack (4.0, 7.0, 10.0)	57007
TURB-2-PG25 (2NTU Calibration Solution with Glycol - 500mL)	36828
TURB-10-PG25 (10NTU Calibration Solution with Glycol - 500mL)	36777
TURB-100-PG25 (100NTU Calibration Solution with Glycol - 500mL)	34210
Conductivity Reference Calirbation Solution 100µS/cm - 500mL	39047
Conductivity Reference Calirbation Solution 1,000µS/cm - 500mL	57008