

## ABOUT THE LiquID™ AND LiquID-XR™ STATIONS

LiquID and LiquID-XR are inline instruments used for real-time quantitative and qualitative measurements of multiple constituents in a fluid stream. The parameter set can be configured to best suit the application. Both instruments use multi-frequency optical and algorithmic analysis to make measurements without sample preparation. Measurements are conducted on-the-fly by observing a flow-through sample stream provided by the user. The system is ruggedized with remote online monitoring capabilities for installation indoors or out. LiquID-XR utilizes a dynamic flow cell approach to enhance readings of fluids from ultra-pure to heavily contaminated, enabling broader detection and detection range capabilities.

## PARAMETER SPECIFICATIONS

Following is a list of commonly configured parameters of the standard LiquID. A LiquID-XR should be used for detection outside these ranges. Contact ZAPS for details of specific parameters including parameters not listed here. Specifications may change without notice.



LABEL	PARAMETER NAME	RANGE* / SENSITIVITY	ACCURACY
NHI	Ammonia Index	-----	---
BOD	Biochemical Oxygen Demand	0.2 to 700 mg/L	±8%
CBOD	Carbonaceous BOD	0.05 to 600 mg/L	±8%
T	Cell Temperature	-4 to 100 deg C	±3%
COD	Chemical Oxygen Demand	0.7 to 1400 mg/L	±6%
NH <sub>2</sub> CL	Chloramine	0.01 to 11 mg/L	±5%
CHLA	Chlorophyll a	0.3 to >100 ug/L	±5%
CHLB	Chlorophyll b	3 to >100 ug/L	±5%
COLOR	Color @440nm	2 to 1500 Pt/Co Unit	±5%
ECOLI	<i>E. coli</i>	0.1 to 2.3x10 <sup>7</sup> MPN/100 mls	±10%
FDOM	Fluorescent Dissolved Organic Matter	0.5 to >100 DFU	±5%
DYE	Fluorescent Dyes ( <i>Rhodamine, PTSA, etc.</i> )	0.5 to >100 DFU	±5%
CHL	Free Chlorine (OCl <sup>-</sup> + HOCl)	0.01 to 11 mg/L	±5%
MLSS	Mixed Liquor Solids	0.08 to 30000 mg/L	±13%
N+N	Nitrate+Nitrite	0.03 to 50 mg-N/L	±9%
PHYCO	Phycobilin Chromophore	0.9 to >100 DFU	±5%
OIL	Refined Hydrocarbons	0.5 to >100 DFU	±5%
SIZE	Relative Particle Size	0.04 to 10	
SUVA	Specific UV Absorption	0.06 to 5 L/mg-C•m <sup>-1</sup>	±10%
TAOI	Taste & Odor Index	-----	---
TDFE	Total Dissolvable Iron	2.5-6,400 mcg/L	±5%
TKN	Total Kjeldahl Nitrogen	0.2 to 100 mg-N/L	±8%
TOC	Total Organic Carbon	0.02 to 100 mg/L	±5%
TOX	Total Organic Halide	2 to 6000 ug/L	1 ug/L
TSS	Total Suspended Solids	0.08 to 800 mg/L	±13%
ATU	Turbidity (ATU)	0.1 to 100 m-1	±10%
UVA	UV254 Absorbance	0.01 to 200 m-1	±5%
UVT	UV254 Transmission	0.2 to 100 %	±5%
VFA	Volatile Fatty Acids	1 to 1000 mg/L	±10%

\* Parameters have been tested in representative real-world matrixes. Detection ranges and sensitivities in specific environments may differ. If your application falls outside of the stated range, please contact ZAPS to discuss your specific application. ZAPS equipment allows for hookup of external probes, import data from other systems, and report customer-specific ratios. LiquID-XR may have greater range than shown.

## OPERATION BASICS

<b>Detection Method</b>	Hybrid Multispectral Analysis (HMA) continuous optical analysis.
<b>Sampling</b>	Automated optical measurements obtained from a continuous flow-through sample stream.
<b>Cleaning</b>	Automatic self-cleaning cycle with timing set per application needs. Periodic manual cleanings per application needs, using Cleaning Kit included with instrument.
<b>Factory Calibration</b>	Automatic calibration self-check and compensation cycle with timing set per application needs ensures instrument conforms to original factory calibration.
<b>Matrix Calibration</b>	Confirmation and field calibration of the LiquID station to a specific water matrix. Performed immediately after initial installation.
<b>Communications</b>	24/7 secure broadcast of readings every 2 to 4 minutes depending on parameter count. Variety of communication capabilities include cell modem, Modbus, and 4-20 mA data delivery.

## SITE REQUIREMENTS

<b>Location</b>	Within range of the fluids being sampled so they can be readily piped to the analyzer.
<b>Exposure</b>	Indoors or covered outdoors, not subject to immersion, flooding, freezing, direct rain or sun.
<b>Sample Stream</b>	Steady, continuous flow from 14 to 420 kPa (2 to 60 psi) supply pressure. 2.0 L/min. minimum flow rate. 4 °C to 40 °C sample temperature, maximum 65°C in approved applications. One ½-in. NPT (female) inlet within 3m (10 ft) of the analyzer. Shut-off valve recommended. pH between 6 and 9 with limited periods of excursion.
<b>Electricity</b>	Standard 120 VAC (90-130 V) or 240 VAC (200-260 V) AC power from a grounded electrical outlet within 2 m (6 ft) of the unit's junction box. Normal operating draw 1 A at 120 VAC.
<b>Rinse Water</b>	Clean water source, such as tap water, is recommended for optimal operation. 280 to 552 kPa (40 to 80 psi) pressure. One ½-in. NPT (female) inlet within 3m (10 ft) of the analyzer. Shut-off valve recommended. Backflow prevention device (where required).
<b>Drain</b>	Raised, zero back-pressure open drain, within 3 m (10 ft) of the unit. Drain rated to handle unaltered sample and tap water.
<b>Mounting</b>	Vertical surface for attaching the unit, at least 2 m (7 ft) high and 1 m (3 ft) wide. <i>Wall Mount:</i> Horizontal truss can support 110 kg (250 lb) vertical load and 23 kg · m (165 lb · ft) moment. <i>Floor Mount:</i> Floor surface can support 11 kg/cm <sup>2</sup> (150 lb/in <sup>2</sup> ) for support legs.
<b>Access</b>	Clearance of at least 1 m (3 ft) in front of the unit and 0.5 m (1 ft) to the sides of the unit for access and safety.
<b>Air Temperature</b>	Operating: -5 to 40 °C (23 to 104 °F). Temperature inside the cabinet must not exceed 60 °C (140 °F), or change more than 5 °C (10 °F) per hour.
<b>Storage Conditions</b>	Stored indoors at typical warehouse temperature, 10 to 40 °C (50 to 104 °F).

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