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ANALYSIS BEGINS WITH CLARITY

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LOGITECH

Glassco Group

ANALYTICAL INSTRUMENTS

Integrated Work Station For Nitrogen Estimation

A compact 3-in-1 nitrogen analysis platform integrating Digestion, Distillation, and Auto Titration for Kjeldahl protein determination, Non-Protein Nitrogen (NPN), volatile compounds, and related analysis.

1. **Fields of Application**
   - Widely used in industries where nitrogen analysis is critical for protein, nutrition, soil fertility, and regulatory testing:
   - Agriculture & Soil Science
   - Industrial & Chemical
   - Environmental Science & Water/Wastewater Testing
   - Food & Feed Industry
   - Pharmaceuticals & Biotechnology
2. **Operation & Automation**
   - 7-inch Full-HD capacitive touch display with modern LCD interface and Labs-Connect™ software for control and real-time monitoring.
   - Independent digestion operation allowing parallel workflow with automatic distillation and titration.
   - Remote monitoring & control via optional Labs-Connect™ module or PC Connectivity.
   - Automatic titration with integrated colorimetric titrator for high precision and automatic result calculation.
   - Programmable reagent addition (boric acid, water, sodium hydroxide).
   - Smart error detection with alarms for low water, reagent levels, temperature faults, and system abnormalities.
   - Low-maintenance design with easy service access and tool-less cleaning.
3. **Reagent Handling**
   - Automatic reagent handling with automatic suction and feeding for distillation and titration operations.
4. **Distillation & Titration**
   - Selectable but Interdependent: Both distillation and titration can be selected and run as individual functions; however, titration relies on the distillate produced during the distillation step. This ensures the correct Distillation → Titration sequence for accurate analytical results.
5. **Separate Containers for All Reagents:**
   - Dilutents, Alkaline Solution, Boric Acid, Titration Color/Indicator (4 Containers).
6. **Key Features**
   - 3-in-1 System with Three Parallel Independent Workflows
   - Auto steam generator with proximity-based water level sensing and pressure control.
   - Integrated automatic titration with precise endpoint detection.
   - High-precision burette/piston titrant delivery system tolerance <0.1 ml.
   - Inbuilt scrubber for safe absorption of digestion fumes.
   - Fully automatic distilled water addition during distillation.
7. **Data Connectivity**
   - PC connectivity with data editing, data export, and USB connection through integrated Labs-Connect™ software.
8. **Safety Features**
   - Comprehensive sensor monitoring for safe unattended operation, including sample detection, reagent level monitoring, cooling water flow control, and door safety interlocks.
9. **Digestion Heating Block**
   - High thermal conductivity aluminium alloy digestion block for faster heat transfer with chemical-resistant pathways for reliable digestion performance.

SPECIFICATION

Analysis time	4 Min. and Above (titration included)
Measuring range	0.04 - 220 mg N
Reproducibility (RSD)	≤1%
Recovery	≥99.5 %
Sodium hydroxide addition	Automatic
Water addition	Automatic
Boric acid addition	Automatic
Distillation residues removal	Automatic
Titration residues removal	Automatic
Titration vessel cleaning	Automatic
Selectable distillation time	Not necessary
Steam flow regulation	10 - 100 %
Water consumption	0.5 L/min at 15°C; 1 L/min at 30°C
Distillation in series	Yes
User management	Yes
Programs	60 Customizable
21 CFR PART 11 Compliance	Yes, (Optional)
Connectivity	USB/Wifi (Labs-Connect™)
Power input	Digestion 2.0 kW & Distillation 1.5 kW

Dimensions (WxHxD)	785x 910 x 490 mm
Weight	91 Kg for IWS Model
Capacity	6 x 300 ml, 42 mm OD Kjeldahl tubes
Temperature Range	Ambient to 450 °C
Temperature Accuracy	±1 °C
Temperature Control	PID-based point and curve control
Auto Scrubber	Automatic drain and refill after each digestion cycle
Analysis Scope	0.1–240 mg N
Precision (RSD)	≤0.5%
Recovery	99 %
Cooling System	High-efficiency coil condenser
Cooling Water Consumption	1.2–3.0 L/min
Safety Features	Over-temperature and dry-run protection
Accuracy	±0.1%
Endpoint Detection	Colorimetric
Dispensing Mechanism	High-precision piston-based titrant delivery system
Dispense Resolution	0.01 ml
Power	220–240 V AC, 50/60 Hz, 20A

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01 DISTILLATION & TITRATION
Nitrogen Estimation With Titration

SPECIFICATION

Distillation	
Analysis Scope	0.1–240 mg N
Precision (RSD)	≤ 0.5%
Recovery	99%
Steam Generator	High-efficiency design with automatic water refill
Cooling System	High-efficiency condenser
Water Consumption	1.2–3.0 L/min
Safety Features	Over-temperature and dry-run protection Reagent System
Separate containers	Alkali, Diluent, Boric Acid, Titrant, Indicator Semi-automatic reagent suction & feed Chemical-resistant tubing

Titration	
Type	Automatic acid–base titration
Accuracy	±0.1%
Endpoint Detection	Colorimetric
Dispensing Mechanism	High-precision piston-based titrant delivery system
Dispense Resolution	0.01 mL
Repeatability	High stability due to closed piston chamber and micro step motor control
Power	220–240 V AC, 50/60 Hz, 2.1 kW

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02 DISTILLATION
Nitrogen Estimation

SPECIFICATION

Distillation	
Analysis Scope	0.1–240 mg N
Precision (RSD)	≤ 0.5%
Recovery	99 %
Steam Generator	High-efficiency design with automatic water refill
Cooling System	High-efficiency condenser
Water Consumption	1.2–3.0 L/min
Safety Features	Over-temperature and dry-run protection
Power	220–240 V AC, 50/60 Hz, 2.0 kW

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03 BUILT IN SCRUBBER
Digestion

SPECIFICATION

Capacity	8 / 12 tubes
Compatible Tube Sizes	42 mm OD, 300 mL Kjeldahl tubes
Temperature Range	Ambient to 450 °C
Temperature Accuracy	±1 °C
Heating Module Material	Aluminium alloy high-temperature block
Temperature Control	PID-based point and curve control
Construction	High-temperature digestion block with resistant chemical-pathways
Auto Scrubber	Automatic drain and refill after each digestion cycle
Power Supply	220–240 V AC, 50/60 Hz

Automatic Solvent Extraction System

- Independent Sample Loading with mechanical controls; capable of running six samples simultaneously.
- 7-inch Full-HD Capacitive Touch Display with advanced GUI for easy control, parameter settings, and real-time monitoring.
- Cold Water Condensation Line with high-quality silicon hose connections for efficient and stable solvent condensation.
- Chemical-Resistant Tubing & Components designed for durability in harsh laboratory environments.
- Low-Maintenance Design with easy service access and tool-less removal for cleaning and tubing replacement.
- Smart Error Detection with alarms for low water flow, low reagent levels, temperature faults, and system abnormalities.
- Remote Monitoring & Control via optional Labs Connect module for secure internet-based operation and status monitoring.
- Advanced Safety System with over-voltage, over-temperature, and dry-run protection.
- Program & PC Connectivity allowing multiple program storage with USB export/import for quick setup, sharing, or backup.

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Sample Size	0.1 To 8g (depending on Sample Type)
Energy Mode	PID With Auto Tuning Facility
Heat Temp. Control	35°C(Ambient) To 250°c
Power Consumption	2200W
Voltage	240V/50Hz
Dimensions	875 x 420 x 680 mm

Automatic Fibre Extraction System

- 6-Position Independent Sample Loading with individual mechanical controls for flexible and efficient operation.
- 7-inch Capacitive Full-HD Touch Display with an advanced GUI for easy control, parameter setup, and real-time monitoring.
- Inbuilt Scrubber removes fumes and vapors during fiber extraction for safe operation.
- Chemical-Resistant Tubing & Components designed for durability in harsh laboratory environments.
- Remote Monitoring & Control via optional Labs Connect module for internet based operation and system status monitoring.
- Integrated Safety System with auto error alerts, over-temperature protection, and sensor-break detection.
- Cold Water Condensation Line with high-quality silicon hose connections for efficient condensation.
- Smart Error Detection with alarms for low water, low reagents, temperature faults, and system abnormalities.
- Comprehensive Protection System including over-voltage, over-temperature, and dry-run protection.
- Program Management allows saving multiple programs with USB export and import for quick setup or backup.

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SAMPLE SIZE	0.1 to 4g (depending on sample type)
TEMP. RANGE CONTROL	RT to 450°C
Temperature Accuracy	±0.5°C
MEASURING RANGE	0.1 % - 100 %
Heat Source	Ceramic Infrared Heater
Crucibles	Sintered silica glass crucibles with P1 porosity disc (6Nos.)
Extractor	Marked borosilicate extraction vessel
Temperature Control	PID with auto- tuning facility
Power Consumption	2800W
VOLTAGE	240V/50Hz
DIMENSIONS	710 x 515 x 680 mm

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