SCIENTICO INDIA
Manufacturer & Exporter · Ambala, Haryana, India

PRODUCT DATA SHEET
Catalogue reference for product evaluation

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Biogas Process Trainer | RVX 127

Category: Renewable Energy · **Order Code:** RVX 127 · **Country of Origin:** India

Product Overview

The Biogas Process Trainer RVX 127 demonstrates single-stage or two-stage anaerobic digestion for biogas production from biodegradable material. This biogas process trainer features dual 7.5L digesters with independent heating blankets (0 to 100°C), four peristaltic pumps for substrate and pH control, dual pH meters, and industrial-grade CH4 and CO2 sensors for biogas composition analysis. Volumetric tanks with water displacement measurement track gas generation.

View this product online: https://scienticoindia.com/product/biogas-process-trainer-rvx-127/



Request a model-specific quotation
Include quantity and delivery country.

Technical Specifications

Biogas Process Trainer RVX 127 — Technical Specifications

Parameter	Value
Digester Tank Capacity	7.5L each, 2 units
Reactor Packing	25mm diameter bacto balls
Heating Blanket Temperature Range	0 to 100°C
Peristaltic Pump Flow Range	0 to 15 mL/min per pump
Peristaltic Pumps Total	4 units
Buffer Tank Capacity	2L
Acid/Base Vessel Capacity	3L each, 2 units
Volumetric Tank Capacity	3.2L each, 2 units
CH4 Sensor Range	0 to 100%
CO2 Sensor Range	0 to 100%
pH Meter Range	0 to 14
Temperature Sensor Type	K-type
Temperature Measurement Range	-100 to 400°C
Structure Material	Anodized aluminum with painted steel and HDF panels

Parameter	Value
Main Metallic Elements	Stainless steel

Technical Data

Digesters:

- 2 glass tanks with hot water jacket circulation
- Capacity: 7.5L each
- Reactor packing: 25mm diameter bacto balls
- Heating blanket with thermostat per digester
- Temperature range: 0 to 100°C
- pH meter range: 0 to 14 per digester
- K-type temperature sensor per digester

Pumps:

- 2 peristaltic pumps for biological process feed, 0 to 15 mL/min range
- 2 peristaltic pumps for acid and base introduction, 0 to 15 mL/min range
- Calibration enables feeding flow measurement

Buffer and Storage Tanks:

- Intermediate buffer tank: 2L capacity
- Acid vessel: 3L high-density polyethylene
- Base vessel: 3L high-density polyethylene
- Volumetric tanks: 3.2L each (upper and lower positions), 2 units total

Sensors and Instrumentation:

- CH4 sensor: 0 to 100% range with digital display
- CO2 sensor: 0 to 100% range with digital display
- 2 pH meters: 0 to 14 range
- Multiple K-type temperature sensors
- Temperature measurement range: -100 to 400°C
- Industrial-grade CH4 and CO2 sensors

Electronic Console:

- Temperature digital displays
- CH4 and CO2 sensor digital displays
- Pump switches and controllers
- Heating blanket switches
- All cables and accessories for normal operation

Key Features

Key Features

- Dual-Digester System: Biogas process trainer enables single-stage or two-stage anaerobic digestion with separate temperature and pH control
- Wide Temperature Control: Heating blankets allow operation across psychrophilic (room temperature), mesophilic (35°C), and thermophilic (55°C) ranges
- Four Peristaltic Pumps: Precise control of substrate feed, acid, base, and inter-digester transfer with calibration-based flow measurement
- Biogas Composition Analysis: Industrial-grade CH4 and CO2 sensors measure 0 to 100% concentration ranges
- Volumetric Gas Measurement: Two 3.2L volumetric tanks with water displacement measurement for biogas volume tracking
- Dual pH Control: Two independent pH meters enable pH optimization at each digestion stage
- Packed Reactor Design: 25mm bacto ball packing increases surface area for microbial attachment

- Buffer Tank Integration: 2L intermediate buffer tank manages excess flow from first digester stage

Experiments

- Anaerobic digestion stabilization process study
- Temperature effect on anaerobic digestion, biogas purification, and quality
- Feeding wastewater pH effect on anaerobic digestion and biogas composition
- Feeding rate influence on digestion, purification, and biogas quality
- Feeding wastewater type influence on digestion and biogas production
- Nutrient concentration effect on anaerobic digestion and biogas quality
- Hydraulic load effect on digestion, purification, and biogas quality
- Inhibitor influence on anaerobic digestion and biogas production
- Mesophilic versus thermophilic anaerobic digestion comparison
- Optimum operation temperature determination
- Optimum feeding rate determination
- Optimum solids and water ratio determination
- Degradable versus non-degradable solids ratio optimization
- Multistage anaerobic digestion nature investigation
- Kinetics determination
- Carbon balance calculation
- Solids balance calculation
- Biogas balance calculation

Construction and Design

The Biogas Process Trainer RVX 127 features anodized aluminum structure with painted steel and HDF panels. Two 7.5L glass digester tanks with hot water jacket circulation provide robust construction. Bacto ball reactor packing of 25mm diameter increases microbial surface area. Individual heating blankets with thermostat control temperature from 0 to 100°C independently per digester. Four peristaltic pumps deliver substrate, acid, base, and inter-stage transfer flows. Two independent pH meters and K-type temperature sensors monitor digestion parameters in each stage. Buffer tank collects excess flow from first digester when operating in two-stage mode. Volumetric tanks with water displacement measurement system track biogas generation. Industrial-grade CH4 and CO2 sensors mounted at volumetric tank outlet analyze biogas composition. Electronic console consolidates all temperature, pH, methane, and CO2 displays with pump and heating switches. Stainless steel metallic elements ensure chemical resistance.

Software

DAQ software in National Instruments LABVIEW environment (optional). Measures and calculates apparatus results. Runs on any Windows environment.

Scope of Delivery

- 1 Experimental unit
- 1 Instruction manual

Ordering & Delivery

- Send the product name, quantity, delivery country and destination with your enquiry.
- Production schedule, freight, payment terms and export documents are confirmed in the written quotation.

Frequently Asked Questions

Q: Can the Biogas Process Trainer RVX 127 operate in single-stage or two-stage mode?
A: Yes. The two 7.5L digesters enable single-stage operation in one digester or two-stage operation with hydrolysis and acidogenesis in the first digester and methanogenesis in the second digester.

Q: What temperature ranges does the Biogas Process Trainer RVX 127 support?
A: Independent heating blankets control temperature from 0 to 100°C, enabling psychrophilic (room temperature), mesophilic (35°C), and thermophilic (55°C) operating modes.

Q: How does the Biogas Process Trainer RVX 127 measure biogas composition?
A: Industrial-grade CH4 and CO2 sensors measure methane and carbon dioxide concentration at 0 to 100% ranges, with digital display

on electronic console.

Q: What pH control capability does the Biogas Process Trainer RVX 127 provide?
A: Two independent pH meters with 0 to 14 range enable pH optimization in each digester stage. Two peristaltic pumps deliver acid and base from 3L storage vessels for precise control.

Q: How is biogas volume measured in the Biogas Process Trainer RVX 127?
A: Two 3.2L volumetric tanks employ water displacement measurement where biogas enters the upper chamber and displaced water collects in the lower chamber for volume tracking.

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