SCIENTICO INDIA
Manufacturer & Exporter · Ambala, Haryana, India

PRODUCT DATA SHEET
Catalogue reference for product evaluation

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Temperature Control Trainer | NexuMation 68

Category: Instrumentation Lab Equipment · **Order Code:** NEXUMATION 68 · **Country of Origin:** India

Product Overview

The Temperature Control Trainer NexuMation 68 is an educational board with a 5 Liter approx. vessel and sensors and actuators for temperature and flow. This temperature control trainer has a 400W heater element, a 10 l/min water circulation pump, K-Type Thermocouple, PT100, Bi-metallic and Direct Reading thermal sensors, and ON/OFF and PID control circuits. A heat exchanger with fan provides PID-controlled cooling. Fixed supply is +15V -15V. Optional digital PID controller with data acquisition and PLC unit are available.

View this product online: https://scienticoindia.com/product/temperature-control-trainer-nexumation-68/



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

Technical Specifications

Temperature Control Trainer NexuMation 68: Technical Specifications

Parameter	Value
Fixed Supply DC	+15V -15V
Vessel	5 Liter approx.
Heater Element	400W
Water Circulation Pump	10 l/min
Piping	Plastic
Thermal Sensors	K-Type Thermocouple, PT100, Bi-metallic, Direct Reading
Valves	Drain Valve, Manual Type
Level Sensor	Float Switch with LED indicator
Operation Mode	Internal & External
Flow Sensor	Rota Meter, Direct Reading Type
Cooling Temperature Controller	Auto Control with PID
Cooling Apparatus	Heat Exchanger with Fan

Technical Data

Parameter	Value
Temperature Sensor Interface	T/V converter and DC Amplifier with Offset and Gain Control
ON/OFF Control	Comparator with Hysteresis Control
Analog Source	0 ~ +10V, 0 ~ ±10V
PID Controller	Proportional Integral & Differential Control with Feedback
Pump Driver	DC to PWM Driver with DC Level Offset Control
Heater Driver	DC to PWM Driver with DC Level Offset Control
Programmable Logic Controller Unit: Digital Inputs	14 X 24V DC (Source/Sink)
Programmable Logic Controller Unit: Digital Outputs	10 X 24V DC (Source)
Programmable Logic Controller Unit: Analog Inputs	2 X Voltage Type
Programmable Logic Controller Unit: Analog Outputs	2 X Voltage Type
Programmable Logic Controller Unit: Program Memory	125KB
Programmable Logic Controller Unit: Programming Language	Ladder, STL & FBD

Key Features

Key Features

- **Application:** temperature control trainer for temperature and flow experiments
- **Sensors:** installed on-board
- **Control Circuits:** installed
- **Drivers:** installed
- **Protection Circuits:** installed
- **Vessel:** 5 Liter approx.
- **Heater Element:** 400W
- **Pump:** 10 l/min
- **Thermal Sensors:** K-Type Thermocouple, PT100, Bi-metallic, Direct Reading
- **Control Modes:** ON/OFF and PID
- **Cooling:** heat exchanger with fan, auto control with PID
- **PID Parameters:** controllable, graph plotting available

Experiments

- Study of the Temperature Sensor
- Study of the Characteristics of the Pump and Heater
- Study of the Characteristics of Cooling Temperature Controller
- Study of the characteristics of the static process and of the time constants
- ON-OFF, P, PI, PD and PID Closed Loop Control of the Temperature

Construction and Design

The Temperature Control Trainer NexuMation 68 has an educational board with a vessel. The vessel is approx. 5 Liter. Plastic piping connects the circuit.

A water circulation pump delivers 10 l/min. A 400W heater element provides heating. Thermal sensors include K-Type Thermocouple, PT100, Bi-metallic, and Direct Reading types. A float switch with LED indicator senses level. A rota meter, direct reading type, measures flow.

The temperature control trainer has a temperature sensor interface with a T/V converter and DC amplifier. It has offset and gain control. The pump driver and heater driver are both DC to PWM drivers with DC level offset control.

A heat exchanger with fan provides cooling, with auto control by PID. Operation mode is internal and external. A fixed DC supply of +15V and -15V powers the trainer.

Software

- Digital PID Controller with Data Acquisition Unit / Interface Software (Optional)
- PID parameters controllable, graph plotting available

Scope of Delivery

- Educational board with vessel
- Control module
- Power Cords
- 2mm Patch Cords
- Experimental Manual

Optional Accessories

- Digital PID Controller with Data Acquisition Unit / Interface Software
- Programmable Logic Controller Unit

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

Q1. What does the temperature control trainer contain?
It contains an educational board with a vessel, sensors and actuators for temperature and flow, and a control module with ON/OFF and PID control circuits.

Q2. How can pressure be controlled?
Manually, or through a software PID control algorithm.

Q3. Which closed loop experiments are included?
ON-OFF, P, PI, PD and PID closed loop control of the temperature.

Q4. What thermal sensors and heater are used?
Thermal sensors are K-Type Thermocouple, PT100, Bi-metallic, and Direct Reading types. The heater element is rated 400W.

Q5. How is cooling achieved?
By a heat exchanger with fan, with auto control by PID.

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