SCIENTICO INDIA
Manufacturer & Exporter · Ambala, Haryana, India

PRODUCT DATA SHEET
Catalogue reference for product evaluation

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Arduino Training Panel | NexuMation-54

Category: Automation and Control Technology · **Order Code:** NEXUMATION-54 · **Country of Origin:** India

Product Overview

The Arduino Training Panel NexuMation-54 is a microcontroller-based automation training unit built around the Arduino Mega 2560 with 54 digital I/Os (14 PWM), 16 analog inputs, 8 KB SRAM, and 4 KB EEPROM. This Arduino training panel supports C language programming via the Arduino IDE for customised data acquisition, control, and process supervision, with USB PC connectivity and built-in digital (8 toggle, 8 momentary) and analog input simulators. Fixed DC supplies at 24 V, +12 V, -12 V, and 5 V plus two +10 V analog voltage sources power the panel and connected modules. Twenty-two optional modules extend the platform to advanced industrial automation and robotics applications including pneumatic robots, rotary arms, drilling stations, and Cartesian storage systems.

View this product online: https://scienticoindia.com/product/arduino-training-panel-nexumation-54/



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

Technical Specifications

Technical Specifications

Parameter	Detail
Model Reference	NexuMation-54
Controller	Arduino Mega 2560
Digital I/Os	54 (14 provide PWM output)
Analog Inputs	16 x Voltage/Current Type
SRAM	8 KB
EEPROM	4 KB
Programming Language	C Language (Arduino IDE)
Digital Input Simulator	8 x Toggle Inputs, 8 x Momentary Inputs
Analog Input Simulator	Installed
Analog Voltage Source	2 x +10 V
Fixed DC Supply	24 V, +12 V, -12 V, 5 V
PC Interface	USB Cable
Optional Module Interface	40-pin IDC Connector

Technical Data

Controller

Parameter	Value
Controller Model	Arduino Mega 2560
Digital I/Os	54 (14 with PWM output)
Analog Inputs	16 x Voltage/Current Type
SRAM	8 KB
EEPROM	4 KB
Programming Language	C Language (Arduino IDE)

Input Simulators

Parameter	Value
Toggle Inputs	8
Momentary Inputs	8
Analog Input Simulator	Installed

Power Supplies

Rail	Value
Fixed DC Supply 1	24 V
Fixed DC Supply 2	+12 V
Fixed DC Supply 3	-12 V
Fixed DC Supply 4	5 V
Analog Voltage Source	2 x +10 V

Interfaces

Parameter	Value
PC Interface	USB Cable
Optional Module Interface	40-pin IDC Connector

Key Features

Key Features

- Controller: Arduino Mega 2560 with 8 KB SRAM and 4 KB EEPROM
- Digital I/O: 54 digital I/Os, 14 of which provide PWM output on this Arduino training panel
- Analog Inputs: 16 x voltage/current type analog inputs
- Programming: C language via Arduino IDE for fully customised application development
- Digital Input Simulators: 8 toggle inputs and 8 momentary inputs installed
- Analog Input Simulator: installed for signal simulation without external sources
- Analog Voltage Source: 2 x +10 V
- Fixed Power Supplies: 24 V, +12 V, -12 V, and 5 V DC rails installed
- PC Interface: USB cable for programming, data acquisition, and process supervision
- Optional Module Interface: 40-pin IDC connector for expansion module connection
- Optional Modules: 20 modules available covering industrial automation, robotics, pneumatics, and advanced process control

Experiments

- Implementation of Logic Gates

- Implementation of Timers
- Implementation of 4-bit Digital to Analog Converter
- Implementation of UP/DOWN Counter
- Implementation of 4-bit Analog to PWM Control

Construction and Design

The Arduino Training Panel NexuMation-54 is built around the Arduino Mega 2560 microprocessor integrated within a self-contained training panel. An internal power supply provides 24 V, +12 V, -12 V, and 5 V DC fixed rails alongside two analog voltage sources at +10 V each, supplying all voltages required for panel operation and optional module interfacing. Digital input simulation is handled by 8 toggle switches and 8 momentary pushbuttons installed on the panel, with an analog input simulator for voltage and current signal generation. A USB cable connects the panel to a PC for programming via the Arduino IDE and for data acquisition and process supervision during experiments. A 40-pin IDC header is mounted on the panel for optional expansion module connection. This Arduino training panel supports C language programming, enabling users to develop and deploy fully customised control and monitoring applications. The unit ships ready for use with all accessories included. An extensive range of 20 optional modules covers a comprehensive spectrum of industrial automation, robotic, and advanced process control scenarios.

Optional Modules

- Traffic Light Control by PLC
- Water Level Control by PLC
- Temperature Control by PLC
- Conveyor Control by PLC
- Elevator Control by PLC
- Motor Control by PLC
- Robot Control Module by PLC
- Module for Testing Selecting Pieces Control by PLC
- Weight Control Module by PLC
- Storage Control Module for Prismatic Pieces by PLC
- Conveyor Belt Control Module by PLC
- HMI Module
- Pushbutton Panel
- Cartesian Control Storage Module
- Linear Storage Module
- Drilling Station Module
- Piece Identification and Distribution Module
- Piece Thickness Measurement Module
- Rotary Indexing Table Module
- Rotary Arm Module
- Swivel Arm Module
- Pneumatic Robot with Conveyor

Scope of Delivery

- 1 experimental unit
- USB cable
- 2 mm patch cords
- Power cord
- Experiment manual
- IDC cable
- Programming cable
- Software CD

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: Which controller is used in the Arduino Training Panel NexuMation-54?
The unit is built around the Arduino Mega 2560, providing 54 digital I/Os (14 with PWM output), 16 analog inputs, 8 KB SRAM, and 4 KB EEPROM.

Q2: What programming language and environment does this Arduino training panel use?
Programming is carried out in C language using the Arduino IDE, enabling users to develop fully customised applications for data acquisition, control, and process supervision.

Q3: How does the NexuMation-54 connect to a PC?
The panel connects to a PC via a standard USB cable included in the scope of delivery, used for programming, data acquisition, and real-time process supervision.

Q4: How many optional modules are available for the NexuMation-54?
Twenty-two optional modules are available, covering traffic light, water level, temperature, conveyor, elevator, motor, robot, weight, HMI, Cartesian storage, linear storage, drilling station, piece identification, thickness measurement, rotary indexing table, rotary arm, swivel arm, and pneumatic robot with conveyor control.

Q5: What distinguishes the NexuMation-54 from PLC-based trainers in the NexuMation series?
The NexuMation-54 uses the Arduino Mega 2560 microcontroller programmed in C via the Arduino IDE, allowing fully customised application development. PLC-based NexuMation trainers use proprietary PLC platforms (Siemens or Fatek) with ladder and structured programming. The NexuMation-54 also provides 54 digital I/Os with PWM capability and 16 analog inputs, covering a broader I/O range for open-ended automation projects.

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