Nuis Technologies

NV5001

Microcontroller Development board with programmer

Traditionally Embedded systems have come to mean microcontroller based design and programming. NV5001 the Microcontroller development board with programmer is a full featured development system for Atmel AT89C51/52 microcontrollers. It is an ideal trainer to implement and test the designs both for the beginners and the experts. The NV5001 is a convenient way to teach the principles of the family of microcontrollers through to programming and interfacing on the AT89C51/52 device. Using the trainer a range of projects in various domains like telecommunication, robotics, consumer electronics etc can be done. The NV5001 gives designers a quick start to develop code on controller with on board programmer and on board breadboard facility. The flexibility of connectors allows the user to make external connections. On board Breadboard allows making their own circuits and performing an experiment as they desire.

- **Atmel 89C51/52 MCU clocked at 11.0592MHz**
- **Expansion connectors for plug in modules and prototyping area**
- **On board programmer for AT89C51/ 52 and 55 devices**
- **RS232 interface to PC for programming**
- **Every pin is marked in order to make work easier**
- **Master Reset/Restart Key for hardware reset**
- **Input/Output & test points provided on board**
- **On board breadboard**
- **Self contained trainer with On board DC and AC power supply**
- **CD with sample project code, Programmer software & useful documents**
- **Exhaustive course & reference material**

Technical Specifications

Serial communication : RS 232 Port
Baud rate : 9600 bps
MCU : AT89C51/52
Crystal frequency : 11.0592 MHz
Size of Breadboard : 175 × 67 × 8 mm
Tie points : 1685
Test points : 40
DC power supply : +12 V, -12 V, +5 V & -5 V
Programmer unit : Ready to run programmer will program AT 89C51/ 52 & 55 Devices
Interconnection for modules : 2 mm patch cords and FRC cables

General :
Power supply : 230 V ±10 %, 50 Hz
Power consumption: 20 VA (approx)
Dimension (mm) : W 345 × D 245 × H 105
Weight : 1.8 Kg (approx)

Included Accessories

RS-232 serial cable
Mains cord
Operating and Experimental Manual
2 mm Patch cords
Four 20 pin FRC cable
One 10 pin FRC cable
Software CD

Optional Accessories

The comprehensive range of modules has been designed to aid the teaching of microcontroller interfacing to various peripherals. The module design enables students to easily understand each experiment section as it is worked upon. This plugin modules are supplied with the lab (Optional) :

MC01 Input interface module

MC02 ADC/DAC module

MC03 Computer interface module

MC04 Display module

MC05 Motor drive module

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MC01

Input interface module

Nvis Technologies input interface module for Microcontroller development board with programmer trainer, MC01 is an Extension module. The module has been designed to demonstrate the students and practicing engineers to gain invaluable practical experience on the principle and applications of microcontroller. The object is to have a clear understanding of how input peripherals are interfaced and controlled with microcontroller.

Input interface module, MC01 has input and output terminals for connection of external real world applications. Matrix keypad controlling and pressing is shown with the help of LED's.

- 4 x 4 Matrix keypad Interface
- ASCII Keypad interface
- Four input sensing switch interface
- PC based Programming
- Expansion connectors for plug in with Microcontroller Unit and prototyping area
- Every pin is marked in order to make work easier
- Input/Output & test points provided on board
- Ready Experiments
- Exhaustive course & reference material

Technical Specifications

Keyboard : ASCII Keyboard
LED'S : Eight No's
Switches : Four No's
Keypad : 4 × 4 Matrix Keypad
Power supply : From Microcontroller development board with programmer trainer NV5001
Interface : 20 pin FRC cable
Test points : 2
Dimension (mm) : W 255 × D 155 × H 80
Weight : 280 gm (approx)

Accessories include
20 pin FRC cable
ASCII keyboard
Operating manual

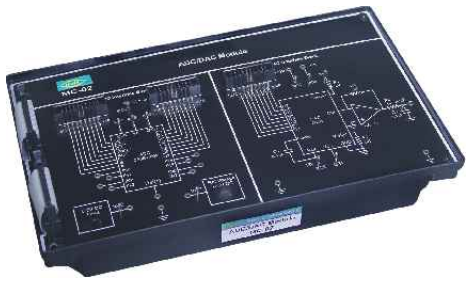
Experiments that can be performed

- To study implementation, analysis and interfacing of ASCII keyboard
- To study and analyze the interfacing of switches
- To study implementation, analysis and interfacing of 4 × 4 matrix keypad

Note : This module works only in combination with Nvis Technologies NV5001 Trainer

MC02

ADC/DAC Module



ADC/DAC module enables students and practicing engineers to gain invaluable practical experience of the principles and applications of microcontroller. The object is to have a clear understanding of how analog inputs are converted into digital through microcontrollers and vice versa. ADC/DAC module, MC02 has inputs and outputs terminals for connection of external real world applications.

- 8 Input 8 channel ADC Interface
- DAC Interface
- PC based Programming
- Expansion connectors for plug in with Microcontroller Unit and prototyping area
- Every pin is marked in order to make work easier
- Input/Output & test points provided on board
- Ready Experiments
- Exhaustive course & reference material

Technical Specifications

ADC : ADC 0808
DAC : DAC 0808
ADC Input and Reference voltage range : 0 - 5 V DC (Variable)
Power supply : From Microcontroller development board with programmer trainer NV 5001
Interface : 20 pin FRC cable
Test points : 36
Dimension (mm) : W 255 × D 155 × H 80
Weight : 550 gm (approx)

Accessories include
20 pin FRC cable
Set of patch cords
Operating manual

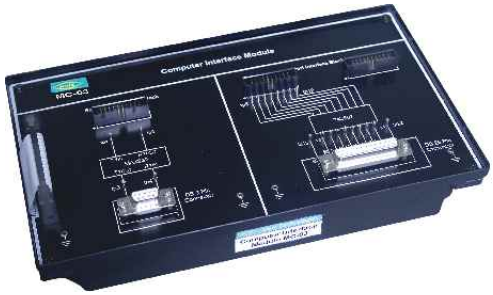
Experiments that can be performed

- To study interfacing of ADC
- To study interfacing of DAC
- To study timing and control signals of ADC and DAC Pin to pin study of MCU

Note : This module works only in combination with Nvis Technologies NV5001Trainer.

MC03

Computer interface module



Nvis Technologies Computer interface module for Microcontroller development board with programmer trainer, MC03 is an Extension module. The module has been designed to have a clear understanding of how serial port and parallel port interfaced devices are controlled and interface with microcontroller. The apparatus is connected with microcontroller unit and PC. The computer interface trainer is made in such a way that student can understand the whole concepts of serial and parallel port and how they are interfaced with microcontroller.

- **RS 232 Interface using Rx/ Tx of MCU for Uploading / Downloading**
- **Printer Interface**
- **PC based Programming**
- **Expansion connectors for plug in with Microcontroller Unit and prototyping area**
- **Every pin is marked in order to make work easier**
- **Input/Output & test points provided on board**
- **Ready Experiments**
- **Exhaustive course & reference material**

Technical Specifications

Serial communication : RS 232 Port
Parallel Communication : 25 pin LPT port
Baud rate : 9600 bps
Power supply : From Microcontroller development board with programmer trainer NV 5001
Interface : 20 pin FRC cable
Test points : 2
Dimension (mm) : W 255 × D 155 × H 80
Weight : 430 gm (approx)

Accessories include :
20 pin FRC cable
RS-232 Serial cable
Printer cable
Operating manual

Optional Accessories :
Dot matrix printer (80 columns)

Experiments that can be performed

- To study Basics of Serial communication and MCU connections to Serial port
- To study MCU connections to Parallel port
- To study of Synchronous and Asynchronous Serial communication
- To study Programming and Transmission of data through Serial port
- To study Programming and Reception of data through Serial port
- To study implementation and analysis of printer interface using parallel port implementation and analysis of printer interface using parallel port

Note : This module works only in combination with Nvis Technologies NV5001 Trainer.

MC04

Display Module

Nvis Technologies MC04 Display module is an ideal tool to study the working of displays used for industrial applications. The trainer has been designed to demonstrate the applications of Microcontroller. The object is to connect and program a microcontroller to display data and monitoring.

- **16 x 2 Characters LCD interface**
- **Seven segment display interface**
- **LED bar graph interface**
- **PC based Programming**
- **Expansion connectors for plug in with Microcontroller Unit and prototyping area**
- **Every pin is marked in order to make work easier**
- **Input/Output & test points provided on board**
- **Ready Experiments**
- **Exhaustive course & reference material**

Technical Specifications

Display : 16 × 2 Characters LCD
Contrast control : 0 - 5 V (Variable)
Backlight control : 0 - 5 V (Variable)
Seven segment display : Four
Led bar graph : One
Power supply : From Microcontroller development board with programmer trainer NV5001
Interface : 20 pin FRC cable
Test points : 32
Dimension (mm) : W 255 × D 155 × H 80
Weight : 380 gm (approx)

Accessories include :
20 pin FRC cable
Operating manual

Experiments that can be performed

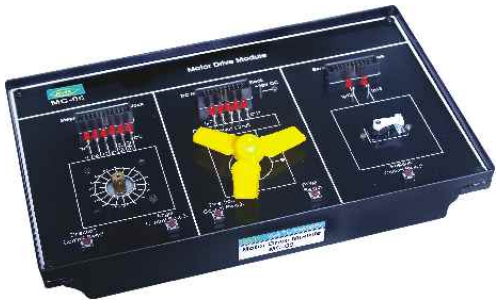
- To study implementation, analysis and interfacing of LED bar graph
- To study and analyze the interfacing of 16 × 2 Characters LCD
- To study implementation, analysis and interfacing of Seven segment display

Note : This module works only in combination with Nvis Technologies NV5001 Trainer.

MC05

Motor Drive Module

Nvis Technologies Motor drive module for Microcontroller development board with programmer trainer, MC05 is an Extension module. The module has been designed to have a clear understanding of how motors are interfaced and controlled with microcontroller. The Motor drive module is made in such a way that student can understand the whole concepts of steeper motor, DC motor and Servo system.



- Steeper motor Interface
- DC motor interface
- Servo system interface
- Expansion connectors for plug in with Microcontroller Unit and prototyping area
- Every pin is marked in order to make work easier
- Input/Output & test points provided on board
- Ready Experiments
- Exhaustive course & reference material

Technical Specifications

Stepper motor : +12 V

DC Motor : +12 V

Servo motor : +5 V

Power supply : From Microcontroller development board with programmer trainer NV5001

Interface : 20 pin FRC cable

Test points : 13

Dimension (mm) : W 255 × D 155 × H 80

Weight : 660 gm (approx)

Accessories include

20 pin FRC cable

Operating manual

Experiments that can be performed

- To study implementation, analysis and interfacing of steeper motor
- To study direction and angle controlling of steeper motor
- To study DC motor interfacing
- To study PWM
- To study the interfacing of Servo system

Note : This module works only with Nvis technologies NV5001 Trainer.

Subject to change

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