



The 52085M Sensor & Control Trainer is a comprehensive sensor/transducer/Switch control training system that incorporates industrial-grade components with various control circuits and load units. Its modular and closed loop control circuits allow implementation of open-ended, individual control loops used in industrial applications. 52085M uses only Standard sensors/ transducers/ Switch and is equipped with USB interfaces for computer interface

Features

1. Trainer having control panel should be provided in 30X30mm Aluminum profile rack or MS Enclosure with sturdy table top flat panel.
2. Should use Plated-through Hole (PTH) Bare Board Tested Printed Circuit Board
3. Should have ABS plastic panel mounted experimental Modules
4. All input & output are terminated in 2mm banana connector; Provide 2mm banana cable for experiments.

Technical Specification

Sensor Trainer (Main Unit) (52085M.0)

- Instrumentation Amplifier, Differential Amplifier, Amplifier with Gain & Offset, X100 Amplifier, Power Amplifier, Current Amplifier, AC Amplifier, Summing Amplifier
- 1 to 10KHz Sine wave Generator, Max 7.5Vpp Amplitude
- 10K Ω Multiturn Pot, 10K Ω Wire wound Pot, 10K Ω Linear Variable Slide Pot
- 40KHz Oscillator
- 40KHz Filter, Full wave Rectifier, Low Pass filter, Buffer, Inverter, Comparator, Electronic Switch
- On Board Fixed DC Power Supply of $\pm 5V/1A$, $\pm 12V/1A$
- Glass epoxy (PTH) Bare Board Tested Printed Circuit Board panel
- Enclosed in a Metal powder coated enclosure

Measurement Panel (52085MM)

- Analog Input: ADC 4 channel, 16-bit Resolution
- Analog Output: DAC 2 channel, 16-bit Resolution
- Digital Input: 3 Channel
- Digital Output: 3 Channel
- Measurement: 32 bit Frequency / RPM counter (1 Channel)
- PC Connectivity: USB
- Glass epoxy (PTH) Bare Board Tested Printed Circuit Board panel
- Sensor Measurement Software: Windows 10, displays X-T, Digital values & Saves data
- Enclosed in a Powder coated MS enclosure

Note: Specifications are subject to change.

Optional Modules

01. Temperature Sensor Module (52085M.1)

- Temperature sensor Circuit like LM335, AD590, PT100, Thermocouple, Bimetallic, Thermistor.
- Temperature range upto 60 0C
- Insulated Heater for safety precaution
- Glass epoxy (PTH) Bare Board Tested Printed Circuit Board panel
- Enclosed in a ABS Plastic enclosure

02. Load Cell & LVDT Sensor Module (52085M.2)

- Load Cell sensor Circuit to measure weight up to 3kgs
- LVDT sensor Circuit to measure displacement upto ± 5 mm
- Glass epoxy (PTH) Bare Board Tested Printed Circuit Board panel
- Enclosed in a ABS Plastic enclosure

03. Pressure Sensor Module (85085M.3)

- Derivative Control
- P, I, D controller amplifier
- Air Pressure sensor to measure pressure up to 6PSI.
- Glass epoxy (PTH) Bare Board Tested Printed Circuit Board panel
- Enclosed in a ABS Plastic enclosure

04. Photo Sensor Module (52085M.4)

- Photo sensors circuit like Photoconductive cell, Photovoltaic cell, Phototransistor, PIN Photodiode.
- Glass epoxy (PTH) Bare Board Tested Printed Circuit Board panel
- Enclosed in a ABS Plastic enclosure
- 52085M SENSOR & CONTROL TRAINER

05. Buzzer, Solenoid, MIC Sensor Module (52085M.5)

- 12V Solenoid Valve with shaft
- Relay with circuit, Buzzer with circuit, Speaker with circuit, MIC with circuit
- Glass epoxy (PTH) Bare Board Tested Printed Circuit Board panel
- Enclosed in a ABS Plastic enclosure

06. Ultrasonic, Capacitive Sensor Module (52085M.6)

- Ultrasonic sensor Circuit to measure distance upto 150mm
- Capacitive Level Sensor Circuit to measure 10cm Level
- Glass epoxy (PTH) Bare Board Tested Printed Circuit Board panel
- Enclosed in a ABS Plastic enclosure

07. Angular, Servo Sensor Module (52085M.7)

- Servo Pot measuring circuit for Angular displacement & Error detection.
- Glass epoxy (PTH) Bare Board Tested Printed Circuit Board panel
- Enclosed in a ABS Plastic enclosure

08. RPM Sensor Module (52085M.8)

- RPM measurement using Hall Effect sensor, Photo pickup sensor, Proximity sensor circuit.
- Glass epoxy (PTH) Bare Board Tested Printed Circuit Board panel
- Enclosed in a ABS Plastic enclosure

09. Amplifier Sensor Module (52085M.9)

- Wheatstone bridge with $10K\Omega$ 10 turn potentiometer
- Differentiator, Integrator, F/V, V/F, V/I, I/V Circuit.
- Glass epoxy (PTH) Bare Board Tested Printed Circuit Board panel
- Enclosed in a ABS Plastic enclosure

10. Water Flow Sensor Module (52085M.10)

11. Temperature, Humidity, Moisture Sensor Module (52085M.11)

12. Wind, Speed, PH Sensor Module (52085M.12)

Note: Specifications are subject to change.

Sensor Accessories for Measurement

- Load Cell Unit with Maximum load : <3Kg with 4 different value Weight
- Temperature Heater Unit with Thermistor, LM335, AD590, PT-100, Thermocouples, Bimetallic
- Pressure generator Unit with Pressure gauge to generate pressure up to 6PSI.
- LVDT Unit with Screw gauge to measure scale Range: $\pm 5\text{mm}$
- Light Source Unit with LDR, Photovoltaic, Photo Diode, Photo transistor sensors & Light bulb Luminous intensity adjustable
- Angle/Error Measurement Unit having 2 no's of Servo potentiometer with adjustable Angular angle: $0\sim 360^\circ$
- Speed Measurement Unit for +12V DC Motor with slotted disc coupled with DC Generator having sensor like Photo pickup, Proximity, Hall sensor
- Water Level measurement Unit having Acrylic Tank for water Level measurement with 10cm Water level scale
- Ultrasonic transmitter/receiver: nominal frequency= 40 KHz with Platform moving range 200mm

Working Table (Optional)

- Dimension: 1200mm x 650mm x 910mm (L x W x H)
- MS Square Tubular with heavy duty power coating frame
- Smooth veneer finish table top thickness is 18mm.
- Castor wheel with locking mechanism is provided so that table can be easily moved.
- Three Drawers vertically accommodated in front of table

Note: Specifications are subject to change.

