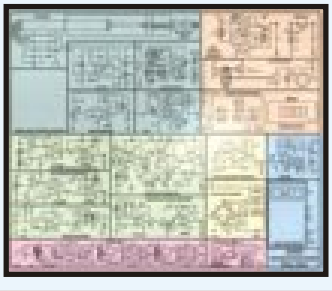
SENSOR INSTRUMENTATION TRAINER

MODEL-SENSOR100

This trainer has been designed with a view to provide theoretical & practical knowledge of Sensor Instrumentation Trainer on SINGLE P.C.B.



SPECIFICATIONS

1. Built in Power Supply - DC Supply +/- 12V, 500mA & Variable 7V to 14V, 3 Amp.
2. Built in function generator -O/p waveform - sine, tringle & square, TTL O/p frequency - 1Hz to 200 KHz in ranges with amplitudes & freq. control pots
3. o/p voltage 10 Vpp or new photo with LED BAR graph.
4. On Board DPM - Dc Volt - 2V/20V ..... 1 no.

MODULAR EXPERIMENT PANELS SHOULD OFFERED :-

1. Strain gauge Transducers -

Supports following experiments :-

Piezo resistive transducer for strain measurement. Micrometer 0.25mm (Accuracy 0.01mm) for strain generation, Strain gauges in half & full Wheatstone bridge arrangement. Zero & span adjustement for calibration with nstrumentation amplifier, Experiments on Gauge factor determination, Strain indicator, Displacement measurement using Strain gauges & cantilever Provision to connect external strain guage based applications setup as follows.

(A) Piezo resistive transducer for pressure measurement (0-15 psi/30 psi). Pressure sensor 0-15 psi (30 psi). Pressure generating hand pump connected using nozzle to the sensor. Pressure gauge for measurement & calibration. Piezo electric transducer for impact measurement with attenuator & peak detector Force/Weight measurement using piezo tranducer 0-20 kg uses weighing scale sensor.

2. Displacement Sensing Transducers -

Supports following experiments :-

* Micrometer 0-20m /(Accuracy 0.01mm)
* Precision Phase Sensitive Rectifier
* Measurement frequency of 1 KHz sine wave @ 2VPP
* Zero & Span adjustment for calibration of following transducers :-

i) Resistive linear transducer 0-20mm
ii) Capacitive linear transducer 0-20mm
iii) Capacitive angular transducer 0-90 dgree
iv) Inductive linear transducer 0-20mm
v) LVDT transducer 0-20mm or (-10mm to +10mm)

Sigma Trainers and Kits
E-113, Jai Ambe Nagar,
Near Udgam School,
Thaltej,
AHMEDABAD - 380054.
INDIA.

Phone(O): +91-79-26852427/ 26850829
Phone(F): +91-79-26767512/ 26767648
Fax : +91-79-26840290/ 26840290
Mobile : +91-9824001168
Email : sales@sigmatrainers.com
: sigmatrainers@sify.com
Web : www.sigmatrainers.com

Dealer:-

3. Speed Sensing Transducers -

Supports following experiments :-

* 12V DC motor with speed varying from 0-4000rpm & rotating slotted wheel having 8 slots.
* Individual signal conditioning circuit with programmable threshold comparator.
* F to V converter with span & zero amplifier.
* Speed transducers :-

i) Magnetic pickup
ii) Photo reflective
iii) Photo interruptive
iv) Inductive pickup with envelop detector
v) Stroboscope
vi) Hall Sensor

* Torque Measurement Setup consisting of 12V DC motor with gear box (600 rpm). Loading arrangement using pulley and spring balance of 25kgs. Max Torque : 5kg.cm. Speed measurement using speed sensor module to be attached to above panel.
* Flow Measurement - Two tank (2 litres) system with small pump for delivery & turbine flow sensor (300LPH max).

4. Sound Sensing Transducer -

Supports following experiments :-

* 40KHz gated oscillator to generate Ultrasonic sound waves.
* V to I function block to convert voltage O/P into 4 to 20mA current loop.
* Sound Sensor :

i) Ultrasonic Distance & Liquid level Measurement.
ii) Dynamic Microphone as Sound/Audio Sensor.

5. Light Sensing Transducers -

Supports following experiments :-

Incandescent lamp with variable intensity Light Sensors :

i) Photodiode with I to V converter
ii) Photo transister with I to V converter
iii) Photo resister/LDR with R to V converter using constant current source
iv) Photo voltaic cell/Solar cell
v) Opto coupler
vi) Laser diode
vii) Infrared LED
viii)Red LED

with :-

1. Signal Transmission and reception using Fiber Optic Cable & Sensors using LED, IR LED, Laser LED
2. Optical Filters for Red, Green, Blue and Yellow Coloursto Determine sensivity of 1 to iv transducers for colours.

6. Temperature Sensing Transducer -

Supports following experiments :-

* Instrumentation Amplifier to amplify thermocouple signals.
* Built in heat bar/mini oven driven by Power amplifier of sufficient wattage temp. selection upto 95 degree C in 5 ranges with ON/OFF closed loop control
* Temp. Sensors :-

i) Thermocouple J with room temp. calibration pot.
ii) Thermocouple K with room temp. calibration pot.
iii) Thermister (100K)
iv) PT100
v) IC sensor (AD 590)
vi) Bimetalic switch

Including accessories and operating manual