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Product Name :	**Product Code :**
Sensors And Transducer Trainer- Didactic Equipment	LIM-CAT-L0043-00005

Description :

Sensors And Transducer Trainer- Didactic Equipment

Technical Specification :

Sensors And Transducer Trainer- Didactic Equipment
This sensors and transducers trainer teach the operating principles of the sensors/transducers that are most widely used in industry. It is subdivided intwo sections: in the lower section, there is all the input and output transducers, while in the upper side there is all the signal-conditioning systems aswell as the instrumentation.
The trainer include the following input sensors/transducers:
Linear slide potentiometer, rotary potentiometer, precision servo potentiometer, Wheatstone bridge circuit, thermistors NTC, RTD platinum sensor.IC temperature sensor, thermocouple, phototransistor, PIN photodiode, photoconductive cell, photovoltaiccell,LVDT,extensiometric transducer,linear position sensor, air flow sensor, air pressure sensor, humidity sensor, opto-electronic sensor, opto-reflecting sensor, inductive sensor,Hall effect sensor.dc tachogenerator,microphone; the following output sensors/transducers:
Electric resistance, incandescent lamp, buzzer, moving coil loudspeaker, ultrasonic transmitter, ultrasonic receiver, dc solenoid,dc relay,dc motor; and the following signal conditioning components:
Timer/counter, bar graphs, dc voltmeter, dc amplifiers, ac amplfiers, power amplifiers, current amplifiers, buffer amplifier, inverting amplifier.differential amplifier,V/F converter,F/V converter,I/V converter,V/I converter, complete wave rectifier,hysteresis switchable comparator, alarm oscillator.

Electronic switch, oscillator, filter, switchable low-pas filter, power supply, adding amplifier,integrator with switchable time constant, instrumentation
Amplifier, sample & hold circuit, gain and offset control amplifier.

With this trainer it is possible to perform the following experiments:
Investigation about Practical Control System
Investigation of characteristics in a Proportional Control System
Characteristic of a Speed Control System
Application of Counter/Timer as a Time Meter
Application of Counter/Timer as a Simple Counter
The Characteristic of a LED bargraph display unit
The Moving Coil Meter Characteristic
Comparison between the Digital bargraph and Moving Coil Meters
To enlarge the voltages scale of the Moving Coil Meter
Variation of output voltage in a potentiometer used as a position transducer
Characteristics of the of Continuous Current Amplifiers 1,2 and x 100
Characteristics of the power and Buffer Amplifier
Characteristics of a current amplifier and buffer amplifier application
Characteristics of an Inverter Amplifier
Characteristics of a Differential Amplifier
[16:33, 08/04/2023] Anandhasudhan Muthuswamy: Characteristics of a Voltage to Current Converter
Characteristics of a Current to Voltage Converter
Characteristics of a Voltage to Frequency Converter
Characteristics of a Frequency to Voltage Converter
Characteristics of a Full Wave Rectifier
Characteristics of a Comparator
Characteristics of an Alarm Oscillator Circuit
Characteristics of an Electronic Switch
Characteristics of a Summing Amplifier
Characteristics of an Integrator
Characteristics of a Differentiator Circuit
Characteristics of a Sample and Hold Circuit
The Buffer as a compensator of the load effect in the potentiometer output voltage
Servo Potentiometer. Variation of the output voltage as a function of its position
Measure of Resistance using a Wheatstone Bridge Circuit
Voltage Measurement using "Null Balance"
The Integrated Circuit LM35 and Temperature Characteristics
NTC Thermistor Characteristics
Characteristic of the NTC thermistor used in an alarm circuit (doble thermistor)
Type "K" thermocouple characteristics

Photovoltaic cell Characteristics
Phototransistor Characteristics
Light Intensity Detector
Characteristics of PIN Photodiode
Linear Variable Differential Transformer Characteristic (LVDT)
Strain Gauge Characteristics
Characteristic of a slotted Optoelectronic Transducer and its application for count and speed measurement
Characteristics of the reflective optotransducers and the Gray Code Disk
Characteristics of an Inductive Transducer
Characteristics of the Hall Effect Transducer
Characteristics of DC Permanent Magnet Tachogenerator
Characteristics of a Dynamic Microphone
Characteristics of the ultrasonic receiver
Characteristics of the Moving Coil Speaker
[16:34, 08/04/2023] Anandhasudhan Muthuswamy: Characteristic of a Buzzer
Characteristic of DC Relay

Characteristic of a Permanent Magnet Motor
Diode temperature sensor
Characteristics of the humidity sensor
Characteristics of the flow sensor
Characteristics of the pressure sensor
INPUT SENSORS/TRANSDUCERS
Resistance transducers for applications in linear or angular position
Linear slide potentiometer 10 K?
Rotary potentiometer 100 K? linear
Conductive plastic potentiometer 1 K? linear
Precision servo potentiometer 20 K?
Wheatstone Bridge Circuit
Temperature applications
Thermistors NTC:
Resistance@25°?:400k?
Resistance@50°?:118k?
B-constant(B25/50(K)):4700±7%
RTD platinum sensor
Temperature range:-50°? to +600?
Nominal resistance @0°?:100?
IC temperature sensor
Scale factor:+10mV/C
Accuracy:±0.5?

Thermocouple: "K" type,260°C max. continuous
Light applications
Phototransistor
V(BR) ceo: 30 V; I(c) abs:25mA
P(D) max: 100mW;V(CE) sat:400mV max
Tresp.:5ms
PIN Photodiode,I=1nA/L
Photoconductive cell, R(dark)=10 M?
I=1 nA/Lux
Photovoltaic cell V(insulated)=3V
Linear position and force
LVDT,Linearly Variable Differential Transformer:
Primary:69?
Secondary:200?
Extensiometric transducer:
Resistance.320?±20% linear
Linearity:±2%
Operating force: from 2 to 7.5 N
Linear Position Sensor, Resistance: 5k?±20% linear
Environmental measurements:
Air flow sensor,Flow Range +/-200sccm
Air pressure sensor, Pressure Range 30 psi, gauge type
Humidity sensor
Rotational velocity and position control:
Opto-electronic sensor
Slot width:3.15mm
Opto-reflecting sensor:
Diode (Vf: 1.8V max,Vr: 2V max, Pd: 50mV)
Transistor (Vceo: 15V max, Vceo: 5V max)

Inductive sensor:
Diameter:6.35mm
Length:22mm
Coil resistance:130?
Coil inductance:12mH±10%
Output:10Vpp
Hall effect sensor:
Supply voltage: 25 Vmax.
Output:5V@5V supply and zero magnetic flow
Output current: 10mA
DC tachogenerator, DC motor 12 V

Pneumatics application:
Solenoid valve,3/2-way valve NC, 7 bar max
pneumatic cylinder, Stroke 10mm, 6 bar max.
pneumatic switch,3/2 valve NC,stem actuated
Sound measurements:
Microphone, 50Hz-10KHz
FOR OUTPUT SENSORS/ TRANSDUCERS
Electric resistance
Incandescent lamp
Sound output applications:
Buzzer, Frequency:2.5kHz
Moving coil loudspeaker, Impedance:8?
Rated power: 200mW
Bandwidth: 400Hz to 5kHz
Ultrasonic transmitter:
Frequency:40kHz
Bandwidth: 4kHz/112 dB
Sound pressure level: 119 dB/40
Ultrasonic receiver:
Frequency: 40kHz
Bandwidth:3.5kHz/71 dB
Sound pressure level: 65 dB/40
Linear or angular movement applications
DC solenoid, Rated power: 0.3W
Rated voltage:12Vdc
DC relay, SPDT 12V/10A
DC motor,12 Vdc
Visualization Devices:
Timer/counter with 3-digit LED display
Bar graphs with 10 segments
Moving coil DC voltmeter
Signal Conditioning:
DC amplifiers
AC amplifiers
Power amplifiers
Current amplifiers
Buffer,amplifier
Inverting amplifier
Differential amplifier
Voltage/Frequency converter

Frequency/Voltage converter
Current/Voltage converter
Volltage/Current converter
Complete Wave Rectifier
Hysteresis switchable comparator
Alarm Oscillator
Electronic Switch
40 KHz Oscillator
40 KHz Filter
Switchable low-pass filter with time constant
Power supply Outputs: 15 Vdc-1A,5Vdc-1A
Circuits with Mathematical Operations:
Adding amplifier
Integrator with switchable time constant
Instrumentation amplifier
SAMPLE & HOLD circuit
Gain and offset control amplifier
The trainer is supplied with manual.

Sensors And Transducer Trainer- Didactic Equipment, Sensors And Transducer Trainer- Didactic Equipment Bulk Suppliers, Sensors And Transducer Trainer- Didactic Equipment Tools, Sensors And Transducer Trainer- Didactic Equipment Sensors And Transducer Trainer- Didactic Equipments, Sensors And Transducer Trainer- Didactic Equipment Manufacturers, Sensors And Transducer Trainer- Didactic Equipment Suppliers from India, China, Kenya.