KL-620

Basic Sensor Experimental Lab



*Notebook is excluded.

The KL-620 Basic Sensor Experimental Lab is a comprehensive sensor/transducer control training system. Its modular and closed-loop control circuits allow implementation of open-ended, individual control loops used in industrial applications.

The KL-620 uses only industrial-standard sensors/transducers (0~10V, 4~20mA) with USB interface.

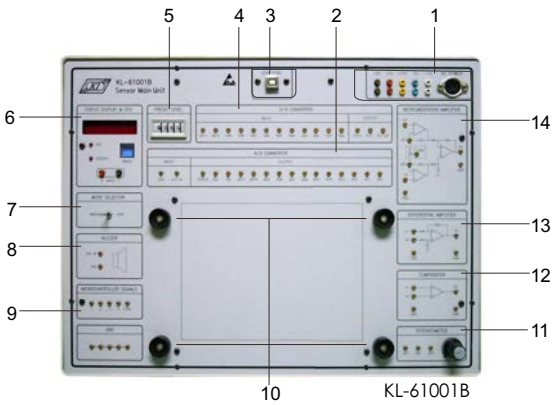
Features

1. Industrial-standard sensors and transducers
2. With USB interface
3. Open-ended design, ideal for expansion
4. Offer a sensing data acquisition software

Specification

Sensor Main Unit (KL-61001B)

1. Power Supply Unit
   Fixed DC power supply
   (1) Output voltage : +5V, -5V, +12V, -12V
   (2) Max. output current : +5V/3A, -5V/0.3A, +12V/1.5A, -12V/0.3A
   (3) With output overload protection
2. A/D Converter : 1x12-bit ADC
   (1) Input voltage range : 0 ~ +5V
   (2) Time pulse frequency : 3.58 MHz
   (3) Control signals : Status, pole, over range indication
3. Interface Port
   USB interface : Type B
4. D/A Converter : 1x12-bit DAC
   Analog output & control
   OUT+ : +DC OFFSET 0V ~ +4.096V unipolar
   OUT- : -DC OFFSET 0V ~ - 4.096V unipolar
   OUT BP : DC OFFSET -2.048V ~ +2.048V bipolar
5. Preset Level : 4-digit thumbwheel switch, Max. value : 4095
6. Status Display & DCV
   Input voltage measurement
   a. Range : 2000mV, 20V
   b. Accuracy : ±0.05% of reading + 4 counts
   c. Input impedance : 10MΩ
   d. Display : 4½ digits
7. Mode Selector
   Manual/single-chip
8. Buzzer
   Maximum input signal voltage : +12V
9. Microcontroller Signals
   5 Control line outputs
10. Model Holder : X4
11. Potentiometer : 100KΩ B-type
12. Comparator
    V-,V+ input, Vo output
13. Differential amplifier
    V-,V+ input, Vo output
14. Instrumentation amplifier
    V-,V+ input, Vo output, adjustable gain



KL-61001B

Experiment Modules

1. Using 2mm plugs and sockets
2. Comprehensive experiment manual
3. Modules secured in plastic housings
4. Connected by 2mm-2mm test leads
5. Dimension : 255 x 165 x 30mm
6. Circuit symbols, blocks and components printed on the surface of each module
7. Power supplied from KL-61001B main unit

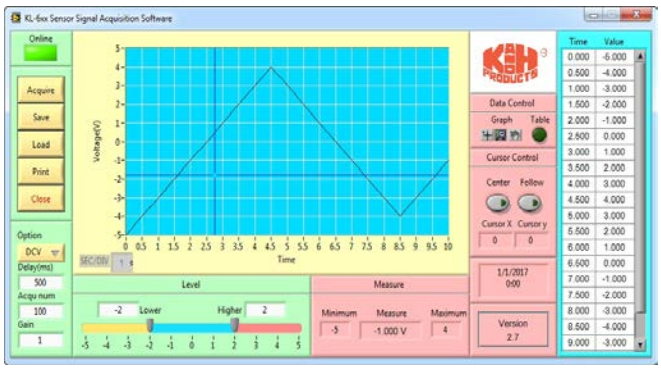
Graphic User Interface Software

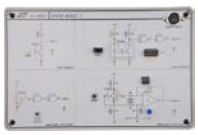
System Requirement

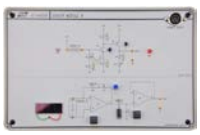
1. PC : 1GHz or faster 32-bit (x86) or 64-bit (x64) processor, 1GB RAM, 1GB more free disk space
2. OS : Windows XP / Vista / 7 / 8 / 10

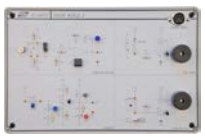
Specification & Feature

1. Real time acquire signal
2. Adjustable acquire frequency
3. Current, Min and Max value displayed
4. Data save, load and print function
5. X-axis : TIME/DIV
   Y-axis : VOLT/DIV
6. Storage format : Excel format




KL-64001A


KL-64009

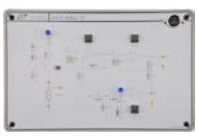

KL-64002

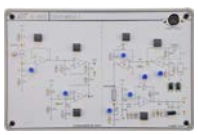

KL-64010


KL-64003A


KL-64011


KL-64004


KL-64012


KL-64005A


KL-64013


KL-64006


KL-64014


KL-64007A


KL-64015


KL-64008


KL-64016

List of Modules

KL-64001A
1. Phototransistor
2. Photointerrupter
3. Digital magnetic detector
4. Analog magnetic detector

KL-64002
1. Pyroelectric detector
2. Reed switch
3. Thermistor
4. Mercury switch

KL-64003A
1. Limit switch
2. Vibration switch
3. Condenser microphone
4. Dynamic microphone

KL-64004
1. Gas/smoke sensor
2. Ethanol sensor

KL-64005A
1. IC (AD590) temperature sensor
2. Humidity sensor
   (1) Humidity transducer rated voltage : 1 Vp-p AC
   (2) Frequency range : 100Hz ~ 10KHz
   (3) Temperature range : 0°C ~ 60°C
   (4) Humidity range : 20%RH ~ 90%RH
   (5) Impedance : 13KΩ (70%RH at 25°C)

KL-64006
1. Infrared TX/RX sensor
   (1) Infrared transmitter : Emission intensity : 12mW/sr (I_F = 50mA)
   Emission wavelength : 940nm (I_F = 50mA)
   (2) Infrared receiver : Sensitivity wavelength : 1000nm
2. Ultrasonic TX/RX sensor
   Norminal frequency : 40KHz

KL-64007A
1. Pressure sensor
   0-7 psi to 0-30 psi pressure ranges
2. Strain gauge
   (1) Maximum payload : <5kg
   (2) Teminal resistance : 350 ± 50Ω

KL-64008
1. Hall current sensor
   (1) Nominal current : ±3A
   (2) Current range : ±9A
   (3) Output voltage : ±4V, R_L = 10 k Ohms
2. Proximity sensor
   (1) Operation voltages : 10 ~ 30V DC
   (2) Short circuit protection

KL-64009
1. CDS sensor
2. Photovoltaic sensor
   (1) Photovoltaic transducer open voltage≒ 2V
   (2) Photovoltaic transducer close current ≒ 0.06 μA/lx

KL-64010
1. V/F converter
   (1) Input voltage : +10mV ~+10V
   (2) Output frequency : 5Hz ~ 5KHz, 10Hz ~10KHz

KL-64011
1. F/V converter
   (1) Input frequency : 0 ~ 4.3KHz (±0.2Vp ~ ±5Vp)
   (2) Output voltage : 0 ~ 4.3V DC

KL-64012
1. RTD (PT-100)
   (1) 0°C : 100Ω , 100°C : 139.16Ω
   (2) Rating : 250°C

KL-64013
1. Level (Water)
   Simulation of the reservoir control status(motor included)

KL-64014
1. Fiber optic emitter
   (1) Forward current, DC (I_F) : 50mA
   (2) Peak wave length : 950nm
   (3) Output power : 50μw
2. Fiber optic phototransistor
   (1) λ peak : 850nm
   (2) Collect current (I_C) : 50mA
   (3) Power dissipation : 100mw

KL-64015
1. LVDT
   (1) Range : ±5mm
   (2) Scale : 0.01mm
   (3) Optimum frequency : 50Hz ~ 1.1KHz
   (Nominal : 350Hz)

KL-64016
1. Rotation angle sensor
   (1) 10 turns (3600°) precision potentiometer
   (2) Linearity : ± 0.25%

List of Experiments

1. D/A and A/D Converters
2. Characteristics of Sensors
3. Gas Sensors
4. AD590 Temperature Transducer
5. Hall Current Sensor
6. PT100 Temperature Sensor
7. Humidity Sensor
8. Strain Gauge
9. Linear Variable Difference Transformer (LVDT)
10. Photovoltaic Cell
11. Proximity Switch
12. Infrared Transducer
13. Ultrasonic Transducer
14. Pressure Sensor
15. V/F and F/V Converters
16. CdS Cell
17. Level Controller
18. Fiber Optical Communication
19. Rotation Angle Sensor

Accessories (KL-68013)

1. Experimental manual
2. Connection leads and plugs : 1set