



Features

- Industrial-standard sensors and transducers
- USB interface
- Open-ended design, ideal for expansion
- Includes sensing data acquisition software

Specifications

Main Unit

1. Power Supply Unit

- Fixed DC power supply
 - Output voltage: +5V, -5V, +12V, -12V
 - Max. output current: +5V/3A, -5V/0.3A, +12V/1.5A, -12V/0.3A
 - Includes output overload protection

2. A/D Converter: 1x12-bit ADC

- Input voltage range: 0 ~ +5V
- Time pulse frequency: 3.58 MHz
- Control signals: Status, pole, over-range indication

3. Interface Port

- USB interface: Type B

Note: Specifications are subject to change, Photos shown above are Indicative, Actual Product can Vary.



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4. D/A Converter: 1x12-bit DAC

- Analog output and 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

- Max. value: 4095

6. Status Display & DCV

- Input voltage measurement:
 - Range: 2000mV, 20V
 - Accuracy: $\pm 0.05\%$ of reading + 4 counts
 - Input impedance: 10M Ω
 - Display: 4 ½ digits

7. Mode Selector

- Modes: Manual / single-chip

8. Buzzer

- Maximum input signal voltage: +12V

9. Microcontroller Signals

- 5 control line outputs

10. Model Holder

- Quantity: 4

11. Potentiometer

- Value: 100K Ω B-type

12. Comparator

- Inputs: V-, V+
- Output: Vo

13. Differential Amplifier

- Inputs: V-, V+
- Output: Vo

14. Instrumentation Amplifier

- Inputs: V-, V+
- Output: Vo
- Adjustable gain

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Experiment Modules

1. Uses 2mm plugs and sockets
2. Comprehensive experiment manual included
3. Modules secured in plastic housings
4. Connected via 2mm-2mm test leads
5. Dimensions: 255 x 165 x 30mm
6. Circuit symbols, blocks, and components printed on module surfaces
7. Power supplied from KL-61001B main unit

Graphic User Interface Software**System Requirements:**

- PC: 1GHz or faster 32-bit (x86) or 64-bit (x64) processor, 1GB RAM, 1GB free disk space
- Operating System: XP/Vista/7/8/10

Specifications and Features:

1. Real-time signal acquisition
2. Adjustable acquisition frequency
3. Displays current, min, and max values
4. Data save, load, and print functions
5. X-axis: TIME/DIV
6. Y-axis: VOLT/DIV
7. Storage format: Excel

List of Modules**24258048.3.1A**

- Photo transistor
- Photo interrupter
- Magnetic (hall-effect) ~ digital
- Magnetic (hall-effect) ~ analog

24258048.3.2

- Pyroelectric detector
- Reed switch
- Thermistor
- Mercury switch

24258048.3.3A

- Limit switch
- Vibration switch
- Condenser microphone
- Dynamic microphone

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- Gas/smoke sensor
- Ethanol sensor

24258048.3.5A

- IC (AD590) temperature sensor
- Humidity sensor
 - Rated voltage: 1 Vp-p AC
 - Frequency range: 100Hz ~ 10KHz
 - Temperature range: 0°C ~ 60°C
 - Humidity range: 20%RH ~ 90%RH
 - Impedance: 13KΩ (70%RH at 25°C)

24258048.3.6

- Infrared TX/RX sensor
 - Infrared transmitter:
 - Emission intensity: 12mW/sr (I = 50mA)
 - Emission wavelength: 940nm (IF = 50mA)
 - Infrared receiver:
 - Sensitivity wavelength: 1000nm
- Ultrasonic TX/RX sensor
 - Nominal frequency: 40KHz

24258048.3.7A

1. Pressure Sensor
 - Pressure ranges: 0-7 psi to 0-30 psi
2. Strain Gauge
 - Maximum payload: <5kg
 - Terminal resistance: 350 ± 50Ω

24258048.3.8

1. Hall Current Sensor
 - Nominal current: ±3A
 - Current range: ±9A
 - Output voltage: ±4V, RL = 10 kΩ
2. Proximity Sensor
 - Operation voltages: 10 ~ 30V DC
 - Short circuit protection

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1. CDS Sensor
2. Photovoltaic Sensor
 - Open voltage: 2V
 - Close current: 0.06 μ A/lx

24258048.3.10

1. V/F Converter
 - Input voltage: +10mV ~ +10V
 - Output frequency: 5Hz ~ 5KHz, 10Hz ~ 10KHz

24258048.3.11

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

24258048.3.12

1. RTD (PT-100)
 - At 0°C: 100 Ω ; at 100°C: 139.16 Ω
 - Rating: 250°C

24258048.3.13

1. Level (Water)
 - Simulates reservoir control status (motor included)

24258048.3.14

1. Fiber Optic Emitter
 - Forward current, DC (IF): 50mA
 - Peak wavelength: 950nm
 - Output power: 50 μ W
2. Fiber Optic Phototransistor
 - λ_{peak} : 850nm
 - Collector current (IC): 50mA
 - Power dissipation: 100mW

24258048.3.15

1. LVDT (Linear Variable Differential Transformer)

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- Range: $\pm 5\text{mm}$
- Scale: 0.01mm
- Optimum frequency: $50\text{Hz} \sim 1.1\text{kHz}$ (Nominal: 350Hz)

24258048.3.16

1. Rotation Angle Sensor
 - 10-turn (3600°) precision potentiometer
 - Linearity: $\pm 0.25\%$

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 Differential 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 Optic Communication
19. Rotation Angle Sensor

Accessories

1. Experimental Manual
2. Connection Leads and Plugs: 1 Set

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