



Basic Sensor Experimental System

Model: SS1102D

Features

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

Specifications:

Main Unit

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 : 1 x 12-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



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Max. value : 4095

6. Status Display & DCV

Input voltage measurement

- a. Range : 2000mV, 20V
- b. Accuracy : $\pm 0.05\%$ of reading + 4 counts
- c. Input impedance : $10M\Omega$
- d. Display : 4 $\frac{1}{2}$ digits

7. Mode Selector

Manual / single-chip

8. Buzzer

Maximum input signal voltage : +12V

9. Micro controller Signals

5 Control line outputs

10. Model Holder : X4

11. Potentiometer : $100K\Omega$ 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

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 Requirements

- 1. PC: 1GHz or faster 32-bit (x86) or 64-bit (x64) processor, 1GB RAM, 1 GB more free disk space
- 2. Operating System : 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



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List of Modules

SS-64001A

1. Photo transistor
2. Photo interrupter
3. Magnetic (hall-effect) ~ digital
4. Magnetic (hall-effect) ~ analog

SS -64002

1. Pyroelectric detector
2. Reed switch
3. Thermistor
4. Mercury switch

SS -64003A

1. Limit switch
2. Vibration switch
3. Condenser microphone
4. Dynamic microphone

SS -64004

1. Gas / smoke sensor
2. Ethanol sensor

SS -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 : 13K Ω (70%RH at 25°C)

SS -64006

1. Infrared TX / RX sensor
 - (1) Infrared transmitter : Emission intensity : 12mW/sr
(I = 50mA)
Emission wavelength : 940nm
(IF = 50mA)
 - (2) Infrared receiver : Sensitivity wavelength : 1000nm

2. Ultrasonic TX / RX sensor

Normal frequency : 40KHz

SS -64007A

1. Pressure sensor
0-7 psi to 0-30 psi pressure ranges
2. Strain gauge
 - (1) Maximum payload : <5kg
 - (2) Terminal resistance : 350 $\pm$ 50 Ω

SS -64008

1. Hall current sensor



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- (1) Nominal current : $\pm 3A$
- (2) Current range : $\pm 9A$
- (3) Output voltage : $\pm 4V$, $R_L = 10\text{ k Ohms}$

2. Proximity sensor

- (1) Operation voltages : $10 \sim 30V\text{ DC}$
- (2) Short circuit protection

SS -64009

1. CDS sensor

2. Photovoltaic sensor

- (1) Photovoltaic transducer open voltage = $2V$
- (2) Photovoltaic transducer close current = $0.06\text{ }\mu A/lx$

SS -64010

1. V/F converter

- (1) Input voltage : $+10mV \sim +10V$
- (2) Output frequency : $5Hz \sim 5KHz$, $10Hz \sim 10KHz$

SS -64011

1. F/V converter

- (1) Input frequency : $0 \sim 4.3KHz$ ($\pm 0.2Vp \sim \pm 5Vp$)
- (2) Output voltage : $0 \sim 4.3V\text{ DC}$

SS -64012

1. RTD (PT-100)

- (1) $0^\circ C : 100\Omega$, $100^\circ C : 139.16\Omega$
- (2) Rating : $250^\circ C$

SS -64013

1. Level (Water)

Simulation of the reservoir control status (motor included)

SS -64014

1. Fiber optic emitter

- (1) Forward current, DC (IF) : $50mA$
- (2) Peak wave length : $950nm$
- (3) Output power : $50\mu w$

2. Fiber optic phototransistor

- (1) λ_{peak} : $850nm$
- (2) Collect current (IC) : $50mA$
- (3) Power dissipation : $100mw$

SS -64015

1. LVDT

- (1) Range : $\pm 5mm$
- (2) Scale : $0.01mm$
- (3) Optimum frequency : $50Hz \sim 1.1KHz$
(Nominal : $350Hz$)

SS -64016

1. Rotation angle sensor

- (1) 10 turns (3600°) precision potentiometer



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(2) 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 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

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