



## Overview

**IoT-enabled Linux-based Sensor Lab with a 7" graphical touch LCD, ARM Cortex processor, and integrated Data Acquisition (DAQ) system for practical experimentation and real-time learning.**

## Key Features

- IoT-enabled Linux-based 7" graphical touch LCD with inbuilt ARM Cortex processor & DAQ system
- Software for viewing output waveforms, operating manuals, tutorials, and more
- USB storage and HDMI output for extended connectivity
- Ethernet port for connecting to real-world applications
- Supports a variety of amplifiers, filters, and converters:
  - o Inverting, Non-Inverting, Power, Current, Instrumentation, Differential Amplifiers
  - o Buffer, Frequency to Voltage, Voltage to Frequency, Current to Voltage, Voltage to Current Converters
  - o High Pass and Low Pass Filters
  - o LED, Buzzer, Relay, Square Wave Generator

## Key Components

- Inbuilt DAQ for real-time data acquisition
- Stand-alone unit for learning and practical experimentation
- USB port for keyboard and pendrive interface
- Ethernet port for networking
- HDMI port for video output
- Data logging in .csv format
- Onboard graph capture and storage capabilities
- Office tools to view PDF and DOC files
- Signal conditioning for sensor-based experiments

## Experiments and Learning Modules

- **Sensor Fundamentals:** Signal conditioning, sensors, and actuators
- **Testing & Graphing:** Real-time graphs for various sensors:
  - o Light Intensity Sensors: Photo Diode, Photo Transistor, Photo Voltaic Cell, LDR
  - o Temperature Sensors: NTC Thermistor, Platinum RTD, K and J-type Thermocouple, AD590, LM35
- **Fault Finding:** Diagnose issues with sensor types and signal conditioning circuits
- **Amplifier Testing:** Inverting, Non-Inverting, Differential, Instrumentation, Current Amplifiers
- **Filter Testing:** High Pass and Low Pass Filters
- **Converter Testing:** Frequency to Voltage, Voltage to Frequency, Current to Voltage, Voltage

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



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to Current Converters

- **Output Blocks:** Testing of LEDs, Buzzers, and Relays

### Onboard Specifications

- Display: 7" capacitive touchscreen for interactive control and display
- Connectivity: USB, Ethernet, HDMI ports
- Square Wave Generator: Up to 40 KHz
- Low Pass Filter: Up to 30 KHz
- High Pass Filter: Effective above 40 KHz
- Amplifiers:
  - o Inverting: Variable Gain (1-10)
  - o Non-Inverting: Variable Gain (2-10)
  - o Differential: Variable Gain (1-10)
  - o Instrumentation: Variable Gain (10-20)
- Converters:
  - o Frequency to Voltage: Input 1-10 KHz, Output 1-10 V
  - o Voltage to Frequency: Input 1-10 V, Output 1-10 KHz
  - o Current to Voltage: Input 4-20 mA, Output 0-5 V
  - o Voltage to Current: Input 0-5 V, Output 4-20 mA
- ADC: 4 Channels (0-5 V)
- DAC: 1 Channel (0-3.3 V)
- Input/Output Ports: 4 IP / 4 OP
- Operating Voltage Range: 0-3.3 V

### Sensor Specifications

- **Temperature Sensors:** RTD, NTC Thermistor, LM35, J/K Type Thermocouple, AD590
- **Optical Sensors:** Photo Voltaic Cell, LDR, Photo Transistor, PIN Photo Diode
- **IR Sensors:** TSOP 1738, IR LED

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