

**Transformer Oil Test Kit**

The **ASC A-EWB08 Electronics Workbench** features an instrument panel and a spacious work surface, designed for students to practice testing and soldering of components. The instruments are securely mounted and internally wired within the bench, with the front panel and essential interfaces made easily accessible for use. For mobility, the workbench is equipped with locking caster wheels, and an MCB is included in the AC supply for safety."

### **Inbuilt Workbench instruments**

1. Digital Storage Oscilloscope
2. DC Power Supply
3. Impulse Winding Tester
4. Function Generator
5. LCR Meter
6. 4<sub>1/2</sub> Digit Digital Multimeter

## Top On Workbench instruments

1. Insulation Tester
2. Transformer Oil Test Kit
3. Soldering & De-Soldering Station

## Features

1. Instrument Panel:- Organized setup for easy access to instruments.
2. Work Surface:- Spacious table for soldering and testing.
3. Locking Caster Wheels:- For easy movement and stability.
4. Internal Wiring:- Tidy internal connections for instruments.
5. AC Supply with MCB:- Ensures electrical safety.
6. Storage:- Compartments for tools and components.
7. Power Supply Unit:- Provides adjustable power for testing.
8. Cable Management:- Keeps wires organized.

## Technical Specifications

### Dimensions (in mm) (approx.)

Length	:	1275mm
Depth	:	900 mm
Height	:	1625 mm
Structure	:	40mm x40mm x 1.2 mm Stainless Steel pipes for sturdiness.
Table Top	:	Plywood (thickness : 18mm) & MICA (thickness : 1mm)

**Material** : Stainless Steel & MS

### Drawers

Drawer Qty	:	1
Sub Drawers Qty	:	03
Length	:	400 mm
Depth	:	450 mm
Height	:	710 mm
Wall Thickness	:	1mm
Handle & Lockers	:	Separate lock & Handle
Material	:	MS

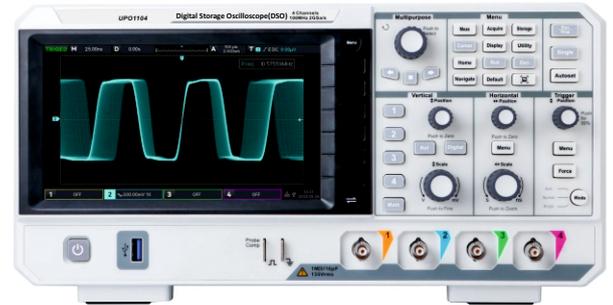
**Note:** Dimension of workbench may be vary depend upon ease of use.



## Inbuilt Instruments

### Digital Storage Oscilloscope(DSO) 100MHz

Bandwidth	:	100MHz
Channels	:	4 Analog
Display	:	7-inch TFT LCD
Real-Time Sample Rate	:	2GSa/s (Single channel)
	:	1GSa/s (Dual channel)
	:	500MSa/Sec (All channel)
Rise Time	:	≤3.5ns
Memory Depth	:	24Mpts (Single channel)
	:	12Mpt (Dual channel)
	:	6Mpt (All channel)
Vertical range	:	1mV/div to 10V/div
Horizontal range	:	2ns/div to 1000s/div
Waveform capture rate	:	500,000wfms/s
Input impedance	:	(1MΩ± 2%)    (16 pF± 2 pF)
Triggering facility	:	RS232/UART, I2C, SPI, Edge, Pulse, Window, Slope
Triggering decode	:	RS232, I2C, SPI
Vertical scale	:	500μV/div-20 V/div
Low base noise	:	<100μVrms
Math Functions	:	FFT, AND, OR, NOT, A+B, A-B, AxB & A/B
Connectivity	:	USB Host & Device and LAN



6bit hardware counter and built in DVM

- Maximum storage depth up to 56Mpts
- The hardware can be continuous waveform recording 120,000 frame in real time
- Automatic measurement of 36 waveform parameters, the measurement range divides into screen and cursor area
- Supports 7 digits hardware frequency meter measurement
- DVM supports AC/DC TRMS (true virtual value) measurement
- Waveform calculation function (FFT, add, subtract, multiply, divide, digital filter, logical operation and advanced operation)
- 1M sampling points to enhance FFT function, it supports frequency setting, waterfall curve, demodulation mode and marker measurement
- Multiple trigger functions (edge, pulse width, video, slope, runt pulse, over-amplitude pulse, delay, timeout, duration, setup hold, Nth edge and code pattern)
- Ultra phosphor display effect, 256 grayscale display

**Included Accessories:** Power cord, USB2.0 printing cable, Passive probe 100MHz \* 4(UT-P04)

## Digital DC Power Supply (Multi Output)

### Technical Specifications

Channel	:	3 Channel
CH1 output voltage	:	0 - 32V, output current: 0 ~ 5A
CH2 output voltage	:	0 - 32V, output current: 0 ~ 5A
CH3 output voltage	:	5V output current : 3A
Output Power	:	335W
Display Mode	:	4 Digit Voltage & Current dual display
Resolution	:	10mV , 1mA(≤mArms)
Ripple	:	CV ≤1mVrms, CC ≤3mArms
Load Regulation	:	CV Mode: ≤0.01%+3mV CC Mode: ≤0.2%+3mA
Modes	:	CH1 & CH2: Series/Parallel, Dual Tracking Constant Voltage (CV) Constant Current (CC),
Output Power	:	220V AC 50Hz



## Impulse Winding Tester

### Measurement items

- Quantification (LC value, RC value) of the response waveform obtained when impulse voltage is applied, pass / fail judgment
- Waveform judgment using AREA value, Flutter, Laplacian etc.
- Equipped with dielectric breakdown voltage test function

### Applied voltage:

- 100 V to 4200 V (Setting resolution: 10 V steps)
- Maximum applied energy: approx. 88 mJ

**Testable inductance range:** 10 μH to 100 mH

**Sampling Speed:** 200MHz/ 100MHz/ 50MHz/ 20MHz/ 10 MHz

- Sampling Resolution: 12 bits
- Number of Samples: 1001 to 8001 points(set in 1000 point steps)

**Judgment method**

- LC/RC value judgment: LC/RC value judgment (LCRCAREA)

**Waveform judgment:-**

- Waveform area comparison judgment (AREA)
- Waveform differential area comparison judgment (DIFF-AREA)
- Waveform flutter detection judgment (FLUTTER)
- Waveform second derivative detection judgment (LAPLACIAN)

**Discharge detection:**

- Discharge detection (DISCHARGE)

**Insulation breakdown voltage testing mode:**

- The work piece is subjected to impulse testing while gradually raising the applied voltage to determine the voltage at which the insulation breaks down. Waveform area judgment, discharge judgment, and LC/RC value judgment are used to judge insulation breakdown.

**Voltage detection accuracy:**

- [DC accuracy] ± 5% of setting, [AC band] 100 kHz: ± 1 dB
- Accuracy guarantee conditions: 23°C±5°C, 80% RH or less

**Determination method:**

- LC · RC value judgment, waveform judgment, discharge judgment (when incorporating the St9000)
- Number of test condition tables: 255 (test condition setting, judgment condition setting, master waveform)
- Test time: Approx. 60 ms (reference value when tester is configured for 3000V, 1Pulse detection OFF)
- Display: 8.4-inch SVGA color TFT LCD (800 × 600 dots), touch panel (4 background color available)
- Interface: Standard: EXT.I/O, USB host (memory), USB device (communication), LAN
- Optional: RS-232C (Z3001), GP-IB (Z3000)
- Power supply: 100 V to 240 V AC, 50/60 Hz, 80 VA max.
- Safety functionality: Key lock, interlock, double-action design (to prevent erroneous operation when starting testing)

**General Specification**

- Standards compliance: Safety: EN61010, EMC:EN 61326 Class A

**Included accessories:**

- Power cord Qty.1
- Instruction Manual Qty.1
- Clip Type Lead-Qty.1 (L2250) (Cables length: 1.5 m)
- Three Phase Transformer
- Discharge Detection Upgrade- Qty.1 (ST9000)



## Function Generator (2 channel 25 MHz AWG)

- Display 4" TFT LCD
- Memory 4kpt
- Vertical Resolution 14bits
- Sampling Rate 200MSa/Sec
- Built-in 6 digit Frequency Counter 100mHz - 100MHz

**Connectivity:** USB Host Device

### Amplitude in to (50 Ohms)

< 10MHz, 10mVpp to 10 V pp,

< 30MHz 10mVpp to 5Vpp

- DC offset range (AC+DC):  $\pm 5V$  (50 $\Omega$ );  $\pm 10V$  (high resistance)

### Waveforms

- Sine, Square, Pulse, Ramp, Noise, DC, Arbitrary
- Built in waveforms like Sinc, Exponential, ECG etc.
- Modulation AM, FM, PM, FSK, Sweep
- Sweep modes: Logarithmic, linear

### Frequency Range:

- Sine Wave: 1 $\mu$ Hz – 25MHz,
- Square Wave 1 $\mu$ Hz – 15MHz,
- Pulse 1 $\mu$ Hz – 15MHz,
- Ramp 1 $\mu$ Hz – 400kHz,
- Arbitrary 1 $\mu$ Hz – 10MHz
- Resolution: 1 $\mu$ Hz
- Accuracy: Within 90 days  $\pm 50$ ppm

### Output Characteristics

Impedance: 50 $\Omega$ /High Z

### General Characteristics

- Power: 100~240VAC, 50Hz/60Hz



**LCR Meter**

**Features**

- Display 2.8 inch TFT true color LCD
- Automatic LCR measurement function
- Highest measurement accuracy: 0.1%
- Multiple frequency range: 100Hz, 120Hz, 1kHz, 10kHz, (accuracy: 0.02%)
- Test speed: Fast: 30ms; Medium speed: 170ms; Slowspeed: 350ms
- The fastest test speed is 33 times / s
- The main and auxiliary parameters can be matched freely, with 42 combinations in total

**Technical Specifications**

**AC level**

- Voltage range: 0.1V, 0.3V, 1V
- Accuracy:  $\pm 10\%$  \* set value

**Internal resistance of AC source**

- Resistance: 30 ohm / 100 ohm
- Accuracy:  $\pm 5\%$

**Maximum input voltage**

Main parameters: Cp, Cs, Lp, Ls, Z, R, G, Y

Secondary parameters: D, Q, X, B, Rp, Rs,  $\theta_r$ ,  $\theta_d$

Auto LCR

Free collocation of main and auxiliary parameters Test speed (ms / time)

**Display range**

R, X, |Z| : 0.00001 Ohm - 99.9999 M Ohm;

G, B, |Y| : 0.00001 uS - 999.999 S

L - 0.00001 uH - 9.99999 kH

C - 0.00001 pF - 999.999 mF

D - 0.00001 - 9.99999

Q - 0.00001 - 99999.9

$\theta_d$  - 179.999° - 179.999°

$\theta_r$  - 3.14159 - 3.14159



**Vertical resolution**

- C :  $0.1\% (1+ Cx/Cmax+ Cmin/Cx)(1+Dx)(1+ks+kv+kf)ke$
- L :  $0.1\% (1+ Lx/Lmax+ Lmin/Lx)(1+1/Qx)(1+ks+kv+kf)ke$
- Z :  $0.1\% (1+ Zx/Zmax+ Zmin/Zx)(1+ks+kv+kf)ke$
- R :  $0.1\% (1+ Rx/Rmax+ Rmin/Rx)(1+Qx)(1+ks+kv+kf)ke$
- D :  $0.0010(1+ Zx/Zmax+ Zmin/Zx)(1+Dx+Dx2)(1+ks+kv+kf)ke$
- O :  $0.0015(1+ Zx/Zmax+ Zmin/Zx)(Qx+1/Qx)(1+ks+kv+kf)ke$

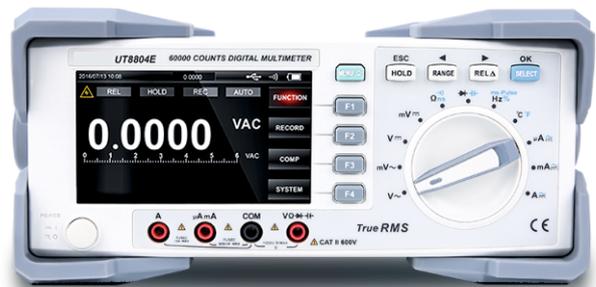
- Test end configuration: Open circuit, short circuit
- Clear function: Open circuit, short circuit
- Equivalent mode: Series, parallel
- Range mode: Hold, auto
- Trigger mode: Internal, manual, external, bus
- Mathematical operation: Direct reading,  $\Delta$ ABS,  $\Delta\%$

**Comparator:** Para A 4-gear sorting, BIN1-BIN3, NG, Para B 2-gear sorting, AUX, NG, front panel LCD display

- Interface : RS232\* HANDLER
- Upper computer function: Statistical analysis of upper computer
- Power: 110V/220V 50/60Hz 20W-30W
- Display: 2.8'TFT LCD 240x320

**4 ½ Digit Digital Multimeter**

- Display : 4.3" full color display
- 4 ½ -Digit maximum reading upto 59999
- Voltage measurement up to:1000VDC , 750V AC
- DC, AC current Range: upto 20A
- ACV frequency response: 100kHz
- Frequency, Resistance, Capacitance measurement, Diode check and Continuity Test
- Resistance range: 600Ω — 60MΩ
- Capacitance range: 6nF~60mF
- Conductivity range: 60ns
- Frequency measurement range: 60Hz— 60MHz
- Duty cycle measurement range: 10%~90%
- Mathematical operation: maximum, minimum, average, peak, comparative measurement, trend chart
- Frequency response: 100kHz
- Data record: 20000 groups
- LPF low pass filter function
- Support global mains voltage
- Interface: USB device
- Power supply: 220V/ 110V AC



## Top On Workbench instruments

### Insulation Tester

Testing voltage (DC) / Effective maximum indicated value	:	50 V /100 MΩ 125 V /250 MΩ 250 V /500 MΩ 500 V /2000 MΩ 1000 V /4000 MΩ
Accuracy/ 1st effective measuring range MΩ	:	±2 % rdg. ±2 dgt./ 0.200 - 10.00 ±2 % rdg. ±2 dgt./ 0.200 - 25.0 ±2 % rdg. ±2 dgt./ 0.200 - 50.0 ±2 % rdg. ±2 dgt./ 0.200 - 500 ±2 % rdg. ±2 dgt./ 0.200 - 1000
Lower limit resistance	:	0.05 MΩ, 0.125 MΩ, 0.25 MΩ, 0.5 MΩ, 1 MΩ
Overload protection	:	600 V AC (10s), 660 V AC (10s)
<b>Power supply</b>	:	LR6 (AA) alkaline batteries Qty.4, Continuous use: 20 hours (Comparator off, backlight off, 500 V range, no load)
Number of measurements	:	1000 times (at 5 s ON, 25 s OFF cycle, insulation measurement of lower limit resistance value to maintain nominal output voltage)
<b>AC voltage range</b>	:	420 V (0.1 V resolution) / 600 V (1 V resolution), 2 ranges, 50/60 Hz,
Accuracy	:	±2.3% rdg. ±8 dgt.
Input resistance	:	100 kΩ or higher, Average rectifier
<b>DC voltage range</b>	:	4.2 V (0.001 V resolution) to 600 V (1 V resolution), 4 ranges,
Accuracy	:	±1.3 % rdg. ±4 dgt.
Input resistance	:	100 kΩ or higher
<b>Low resistance range</b>	:	For checking the continuity of ground wiring, 10 Ω (0.01 Ω resolution) to 1000 Ω (1 Ω resolution), 3 ranges
Basic accuracy	:	±3 % rdg. ±2 dgt.
Testing current	:	200 mA or more (at 6 Ω or less)
Display	:	Semi-transmissive FSTN LCD with back lighting, bar-graph indicator
Response time	:	Approx. 0.8 second for PASS/FAIL decision (based on in-house testing)
Other functions	:	Live circuit indicator, Automatic electric discharge, Automatic DC/AC detection, Comparator, Drop proof, Auto power save
<b>Included accessories</b>	:	[IR4056-20] Test lead L9787 Qty.1, Neck strap Qty.1, Instruction manual Qty.1, LR6 (AA) alkaline batteries Qty.4 [IR4056-21] Test lead set with remote switch L9788-11 Qty.1, Neck strap Qty.1, Instruction manual Qty.1, LR6 (AA) alkaline batteries Qty.4



### Transformer Oil Test Kit

Type	:	Motor operated to uniformly increase the output voltage between 0 to 0 to 50KV 'or' 60KV 'or' 70KV 'or' 75KV 'or' 80KV 'or' 90KV 'or' 100KV 'or' 120KV with the help of continuously variable Auto Transformer at 2KV/Sec. approx.
Input	:	230/240V AC 50Hz single phase AC supply
Output	:	0-50KV 'or' 60KV 'or' 70KV 'or' 75KV 'or' 80KV 'or' 90KV 'or' 100KV 'or' 120KV 'or' with center tap earthed infinitely variable.
Capacity	:	500VA 'or' 600VA 'or' 700VA 'or' 750VA 'or' 800VA 'or' 900VA 'or' 1000VA 'or' 1200VA intermittent depending on the output voltage
Duty	:	Intermittent duty cycle
Nature of cooling	:	The transformer is cast resin type air cooled



### Soldering and De-soldering Station

- Input Voltage : 180-240VAC, 50Hz
- Fuse : 3.15A
- Soldering : 24VAC,70W
- De-soldering : 24VAC,80W
- Desold pump : 24VDC, 80W
- Vacuum Pressure :12000 rpm, 500 to 600mm/hg
- Temp Range : 180° to 480°C
- Temperature control accuracy +/- 1°C
- Temperature control Stability +/- 1°C
- Tip Leakage Current : < 2 mA
- Tip to Ground Resistance : < 2Ω
- Tip to Ground Leakage Voltage : < 2 mV
- Microprocessor based power control unit with built in vacuum pump.



#### Accessories

- De-soldering iron & Soldering iron
- Stand with cleaning sponge & Cellulose tip cleaning sponge
- Power cord & Tool box : Fiber filters Qty.20,
- solder collector glass tube Qty.1,
- Tip replace Spanner Qty.1
- Cleaning Accessories.

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