



The Transformer Testing Work Bench MI-TW01 is designed for students to practice testing and soldering components. It features a spacious work surface, an instrument panel with securely mounted instruments, and easily accessible front panel interfaces. The workbench is mobile, equipped with locking caster wheels, and includes an MCB for safety in the AC supply.

Features

- Instrument Panel for easy access to instruments.
- Work Surface for soldering/testing.
- Locking Caster Wheels for easy movement, stability.
- Internal Wiring for neat connections.
- AC Supply with MCB for electrical safety.
- Storage for tool/component compartments.
- Power Supply for testing.
- Cable Management for organized wires.

Fitted Instruments Workbench

- Function Generator
- LCR Meter
- Digital Storage Oscilloscope
- 4_{1/2} Digit Digital Multimeter
- DC Power Supply
- Impulse Winding Tester

Additional Instruments with Workbench

- Insulation Tester
- Soldering & De-Soldering Station
- Transformer Oil Test Kit

Specifications

- Width: 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)
- Stainless Steel & MS Material **Drawers**
- Length: 400 mm
- Depth: 450 mm
- Height: 710 mm
- Wall Thickness: 1mm
- Handle & Lockers: Separate lock & Handle

Function Generator

- 4 inch TFT LCD Display
- 2 channel 25 MHz AWG
- 4kpt memory
- 14bits Vertical Resolution
- 200MSa/Sec Sampling Rate
- In- Built 6 digit Frequency Counter 100mHz to 100MHz



Interface: USB Host Device

Amplitude in to (50 Ω)

- < 10MHz, 10mVpp - 10 V pp,
- < 30MHz 10mVpp - 5Vpp

• DC offset range (AC+DC): +5V (50Ω); +10V (high resistance) **Waveforms** – –

- In Built waveforms like Sinc, Exponential, ECG etc.
- Sine, Square, Pulse, Ramp, Noise, DC, Arbitrary
- Modulation AM, FM, PM, FSK, Sweep
- Sweep modes: Logarithmic, linear **Frequency Range:**
- 1μHz – 25MHz, Sine Wave
- 1μHz – 15MHz, Square Wave
- 1μHz – 15MHz, Pulse
- 1μHz – 400kHz, Ramp
- 1μHz – 10MHz Arbitrary
- 1μHz Resolution

Output Characteristics

Impedance: 50Ω/High Z

General Characteristics

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

LCR Meter

Features

- 2.8 " TFT true color LCD Display
- Automatic LCR measurement function
- Highest measurement accuracy: 0.1%
- Range mode: Hold, auto
- Multiple frequency range: 100Hz, 120Hz, 1kHz, 10kHz, (accuracy: 0.02%)
- Test speed: Fast: 30ms
Medium speed: 170ms
Slow speed: 350ms
- The fastest test speed is 33 times / s
- Test end configuration: Open circuit, short circuit
- Connectivity : RS232* HANDLER
- The main and auxiliary parameters can be matched freely, with 42 combinations in total



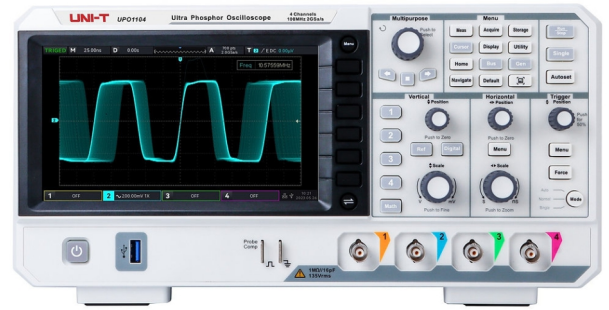
Technical Specifications

AC level

- Voltage: 0.1V,0.3V,1V
- Accuracy : $\pm 10\%$ * set value **Internal resistance of AC source**
- Resistance: 30 ohm / 100 ohm
- Accuracy : $\pm 5\%$ **Display range**
- R,X,|Z| : 0.00001 Ω ~ 99.9999 M Ω
- G, B,|Y| : 0.00001 μS ~ 999.999 S
- L - 0.00001 μH ~ 9.99999 kH
- C - 0.00001 pF ~ 999.999 mF
- D - 0.00001 ~ 9.99999
- Q - 0.00001 ~ 99999.9
- θd -179.999°~179.999 degree
- θr - 3.14159 ~ 3.14159

Digital Storage Oscilloscope

- Bandwidth: 100MHz
- Channels: 4 Analog
- 7-inch TFT LCD Display
- Real-Time Sample Rate: 2GSa/s (Single channel)
- 1GSa/s (Dual channel)
- 500MSa/Sec (All channel)
- 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: $(1M\Omega \pm 2\%) || (16 pF \pm 2 pF)$
- Triggering facility: RS232/UART, I2C, SPI, Edge, Pulse, Window, Slope
- Triggering decode: RS232, I2C, SPI
- Vertical scale: 500 μ V/div-20 V/div
- Math Functions: FF, AND, OR, NOT, A+B, A-B, AxB & A/B
- Connectivity: USB Host & Device and LAN
- 6 bit hardware counter and built in DVM
- Maximum storage depth up to 56Mpts



4 4½ Digit Digital Multimeter

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



Digital DC Power Supply

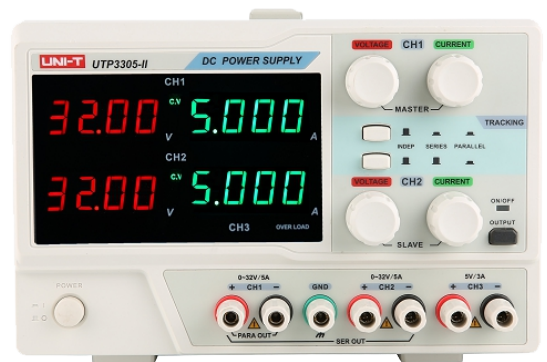
Specifications

- 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

Applied voltage:

- 100 V to 4200 V with Setting resolution - 10 V Steps • Max. applied energy: approx. 88 mJ

Measurement items

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

Testable inductance range

10 μ H to 100 mH

Sampling Speed:

200MHz/ 100MHz/ 50MHz/ 20MHz/ 10 MHz

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

Judgment method

- LC/RC value judgment: LC/RC value judgment (LCRC AREA) 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) $\pm 5\%$ of setting, (AC band) 100 kHz: ± 1 dB
- Accuracy guarantee conditions: 23°C \pm 5°C, 80% RH or less

Determination method:

- LC · RC value judgment, waveform judgment, discharge judgment
- **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 \times 600 dots), touch panel (4 background color available)
- **Interface:** Standard: EXT.I/O, USB host (memory), USB device (communication), LAN
- **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

Accessories: Power cord, Instruction Manual, Clip Type Lead, Three Phase Transformer, Discharge Detection Upgrade

Additional Instruments

Soldering and De-soldering Station

- Soldering : 24V AC,70W
- De-soldering : 24V AC,80W
- Desold pump : 24V DC, 80W
- Fuse : 3.15A
- 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 : < 2 Ohms
- Tip to Ground Leakage Voltage : < 2 mV
- Supply : 180-240VAC, 50Hz
- Microprocessor based power control unit with built in vacuum pump.



Accessories

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

Transformer Oil Test Kit

- 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
- 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.
- Supply: 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.



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)
- **Power supply:** LR6 (AA) alkaline batteries 4nos, 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)
- **AC voltage range:** 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
- **DC voltage range:** 4.2 V (0.001 V resolution) to 600 V (1 V resolution), 4 ranges,
- Accuracy: ±1.3 % rdg. ±4 dgt.
- 100 kΩ or higher Input resistance
- **Low resistance range:** For checking the continuity of ground wiring, 10 Ω (0.01 Ω resolution) to 1000 Ω (1 Ω resolution), 3 ranges
 - ±3 % rdg. ±2 dgt. Basic accuracy
 - Testing current: 200 mA (at 6 Ω or less)
 - Display: Semi-transmissive FSTN LCD with backlighting, 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

