



GM328A Component Tester & Pulse Generator

General Purpose Multifunction Component Tester



Introduction:

The **GM328A** is a very small low-cost advanced microcontroller based semi-automatic component tester suitable for general use with many common types of conventional electronic components including; **Resistors, Capacitors, Inductors, Diodes, Transistors**. In addition, several innovative additional functions enable a variable PWM (5V pulse-wave) output and some basic frequency measurement facilities. Power (nominal 9Vdc) to the tester can be via an external plug-pack or a simple battery connection etc.

Once the test-programme (*mode*) is selected and the **to-be-tested** component is loaded (*connected*), the 'xx' microcontroller and LCD display quickly renders legible component data at modest accuracy.

The instrument's functions are controlled/selected using a combination of encoded-knob rotation and knob-depressing with test inputs and outputs as covered in the user manual that follows.

While the basic unit is supplied with mounting studs (*threaded standoffs*) no outer case is or leads are included. These may become an option or accessory in future production.

Basic Specifications:

Display: LCD 160*128 pixels

Supply-Power: 6.8~12Vdc @ 30mA (nominal)

Resistance Measurement: Up to 50M Ω (can be as good as +/- 0.1 Ω)

Capacitance & ESR Measurement: <25pF~100mF (and resolve as good as 1pF) combined with an ESR (equivalent series resistance): from 0.01 Ohms

Voltage Measurement: Up to 50Vdc

Frequency: TBA?

Inductance: <0.015mH ~ >20H (as currently tested)

Transistors: Auto-detect NPN, PNP, FET, SCR Bipolar & Darlington with display of some technical parameters.

FET: Measures FET gate threshold voltage and gate capacitance.

Diodes & LEDs: Forward-voltage-drop, leakage-current, polarity identification

Pulse-Generator: DC to 2.1MHz (increments from 0.1Hz) at 5V p-p (1~99% PWM)

Auto-Shutdown: after 1?m unit goes into quiet-mode (approx 20nA quiescent drain on power/battery)

Screen Size: 37 x 30mm (1.45 x 1.18 in)

PCB Size: 78 x 62mm (3.1 x 2.44 in)

Net Weight: 78gms

General Operation:

CAUTION - Please observe appropriate **ESD** (electrostatic-discharge) protection for the instrument and all static-sensitive components being tested.

Before measuring capacitance, the capacitor must be discharged; otherwise damage to the tester is likely.

- 1) Place the tester in a working space suitable for operating the tester and connect to a suitable power source.
- 2) Turn on the power-source and depress the knob to allow the tester to initialise.
- 3) The tester will default to auto-recognition of some pre-installed component.
- 4) If sensible auto-selection is not achieved then manually select the test or signal mode required using the knob and interacting with the LCD display text.
- 5) Connect the test component into the ZIF-Socket and clamp... ..or make connections to the appropriate input/output terminals.
- 6) Initialise the test or measurement or signal output by down-pressing the control knob.
- 7) Test results or signal output will be presented after a short wait.

