

Goliath 1.0 Manuel

Preview



Goliath V1.0 is an opensource simple inductor/capacitor meter. It's based on Arduino, providing a large measure range of inductor and capacitor.

Features

- Hardware and Software open source
- Large measure range
- Low measure error
- High accuracy

Product specifications

Product Size	79.09mm X 76.62mm X 28.56mm
Indicators	PWR
Power Switch	Power Button
Communication Protocol	UART,
RoHS	Yes

Technology specifications

Technology Specification	Parameter
Capacitor [*] Measure Range	1pF~10uF
Capacitor Measure Resolution	1pF
Capacitor Measure Accuracy	1%
Electrolytic Capacitor ^{**} Measure Range	10uF~100mF
Electrolytic Capacitor Measure Resolution	1uF
Electrolytic Capacitor Measure Accuracy	1%
Inductor ^{***} Measure Range	1nH~1H
Inductor Measure Resolution	1nH
Inductor Measure Accuracy	1%

Capacitor^{*} : include paper, plastic, glass, mica and ceramic capacitor.

Electrolytic Capacitor^{**} : include aluminum or tantalum plate with an oxide dielectric layer.

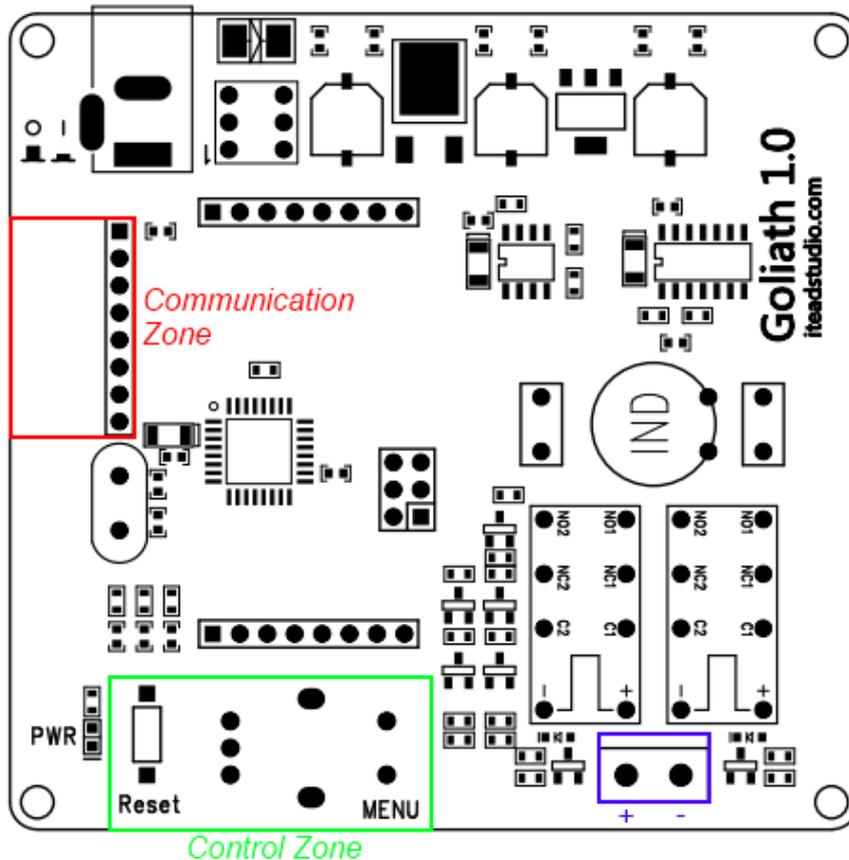
Inductor^{***} : include air core inductor and ferromagnetic core inductor.

Recommended operating condition

Power supply voltage	9 VDC
Current consumption	100mA (MAX)
Input Voltage VH	2.7V (Min) 3.3V (Type) 3.6V(Max)
Input Voltage VL	-0.3V (Min) 0V (Type) 0.9V(Max)
Operation Temperature	20°C~60°C

Basic operation

Operation zone description



The communication interface support UART/IIC protocol to communicate with ATmega328P, and support UART for programming.

The operation zone contains a rotary encoder with switch for function selection.

Prepare for use

1. Power supply: make sure the power supply voltage is 9V, and the supply current should more than 200mA.

Measure Cx

Cx: include paper, plastic, glass, mica and ceramic capacitor.

Rotate the rotary encoder anticlockwise or clockwise to move the cursor on "Cx", press the rotary encoder button.

The Goliath enter measure Cx function and the screen will give a tip: "**Please remove all the test object, and press the button to go on**", please following as the tips, remove all the test object, and press the button of rotary encoder to go on.

Then the Goliath enter self-calibration function, and the screen will give the tip: "**Calibration is doing**". When the self-calibration is done, the screen will give the tip: "**Calibration is OK**".

After self-calibration, the screen will give the tip: "**Please connect the cap, and press the button to go on**", and connect the test capacitor, press down the button of rotary encoder to go on.

Then the screen will give the measure result.

When the test capacitor is changed, the measure result also changed right now. And while testing, press the button of rotary encoder to exit to main menu.

Measure Lx

Inductor: include air core inductor and ferromagnetic core inductor.

Rotate the rotary encoder anticlockwise or clockwise to move the cursor on "Lx", press the rotary encoder button.

The Goliath enter measure Lx function and the screen will give a tip: "**Please remove all the test object, and press the button to go on**", please following as the tips, remove all the test object, and press the button of rotary encoder to go on.

Then the Goliath enter self-calibration function, and the screen will give the tip: "**Calibration is doing**". When the self-calibration is done, the screen will give the tip: "**Calibration is OK**".

After self-calibration, the screen will give the tip: "**Please connect the inductor, and press the button to go on**", and connect the test inductor, press down the button of rotary encoder to go on.

Then the screen will give the measure result.

When the test inductor is changed, the measure result also changed right now. And while testing, press the button of rotary encoder to exit to main menu.

Measure CEx(>500uF)

Electrolytic Capacitor: include aluminum or tantalum plate with an oxide dielectric layer.

Rotate the rotary encoder anticlockwise or clockwise to move the cursor on "Lx", press the rotary encoder button.

The Goliath enter measure Lx function and the screen will give a tip: " **Please press the button to go on**", please following as the tips, press the button of rotary encoder to go on.

Then the screen will give the measure result.

When the capacitance is over range, the Goliath will give the tip: "**OVER RANGE**".

When the test Electrolytic Capacitor is changed, the measure result also changed right now.

And while testing, press the button of rotary encoder to exit to main menu.

Measure CEx(<500uF)

Electrolytic Capacitor: include aluminum or tantalum plate with an oxide dielectric layer.

Rotate the rotary encoder anticlockwise or clockwise to move the cursor on "Lx", press the rotary encoder button.

The Goliath enter measure Lx function and the screen will give a tip: " **Please press the button to go on**", please following as the tips, press the button of rotary encoder to go on.

Then the screen will give the measure result.

When the capacitance is over range, the Goliath will give the tip: "**OVER RANGE**".

When the test Electrolytic Capacitor is changed, the measure result also changed right now.

And while testing, press the button of rotary encoder to exit to main menu.

Firmware update

The firmware of Goliath can be upgraded by Foca and Arduino IDE as following steps:

1. Plug the mini USB cable to Foca, and make sure the output level switch of Foca is on 3.3V. Then connect Foca with IEMP communication interface.
2. Download the newest firmware from Iteadstudio.com and store in computer.
3. Open the firmware by Arduino IDE, choose the Correct Port and choose the board as "Arduino Deumilanove or Nano w/ Atmega328", press the "upload" button to upgrade the new firmware to IEMP.
4. Reset the Goliath.

Made with community

Please visit the forum of iteadstudio.com for prompt tech support and usage discussion:

<http://forum.iteadstudio.com>

Revision History

Rev.	Description	Release date
v1.0	Initial version	2011-8-15