

EZM Electronics Studio ESR-2501C ESR Meter Quick Guide

- GREEN button turns tester on, and also allows changing ESR/DCR modes, and zeroing.
- RED button turns tester off, and also allows resetting tester without cycling power.
- ESR (Equivalent Series Resistance) is all resistance not due to capacitive reactance.
- DCR (DC Resistance) is the resistance of the internal plate structure of the capacitor.
- ESR value typ. $< 0.1\Omega$ except for aluminum electrolytics where ESR typ. up to several Ohms.
- DISCHARGE CAPACITORS BEFORE CONNECTING THE TESTER TO THEM.
- DCR values for aluminum electrolytics should be $> 25\Omega$, otherwise cap is shorted. A DCR value of less than 25Ω means capacitor is bad, regardless of a seemingly good ESR test.
- Lower ESR values are good, higher are bad, while higher DCR values are good, lower are bad
- Observe test lead polarity when testing DCR of polarized caps; red to (+), black to (-).
- ESR 'typical readings' chart on front of tester shows guidelines, not absolutes. ESR readings in Ohms must be interpreted according to capacitance and capacitor's rated voltage.
- Tester uses battery power to operate, and will not function without battery installed, even if the power cord is being used (cord must come from a USB-A type regulated 5VDC source, $\geq 1A$). Internal battery (not included) must be rechargeable type 14500 Lithium, 3.7V, typ. 1600mAh.
- Left side LED is OFF (power disconnected), RED (battery charging), GREEN (charged).
- On power-up, Tester prompts to short test leads in order to zero-out test lead resistance; this is 'probe compensate zeroing', and the "CP" value is displayed as a unit-less number. It is important to re-zero immediately after changing between ESR & DCR modes, or any time the display prompts to do so, or whenever the DCR value does not change when test leads are shorted & unshorted. Zeroing can be triggered by a brief press of the GREEN button. Do NOT add extra test lead length, as this may result in tester not being able to zero-out the resistance.
- Low value resistors (25Ω max) may be tested in DCR mode.
- Tester is best used for measuring electrolytic capacitors, $1\mu F$ or greater.