

ZMETRIX vs POLAR

This table compares the Zmetrix ST600 to Polar's CITS880

Information on Polar was obtained from Polar literature and is presumed to be correct. Polar prices are estimated. We suggest checking with Polar for accurate prices.

Model	ZMETRIX ST600	CITS880
Measurement Range	10 to 200 ohms single ended and differential	20-150 ohms (single-ended) 40 – 200 Ohms (differential)
Accuracy	1% @ across the range Calibrated against traceable Standards @ 25,50,75 and 100 ohms	1% @ 50 ohms Calibrated against traceable Standards @ 28,50,75 and 100 ohms
Test pulse rise time	75 picoseconds	130-140 picoseconds
Bandwidth	7 Ghz	2.5 Ghz
Testable length	30 inches	2 m maximum
Horizontal display Resolution	75 points inch/0.013	0.2 mm (0.008")
Impedance tolerance range	0.1% - 99.99%	0.1% - 99.99%
Calibration check	Yes, automatic The ST600 has <u>3 internal Standards</u> . The standards <u>are</u> Checked before <u>every measurement</u>	Yes automatic Defaults to every 20 minutes Can be programmed
Supplied with standards	YES 2- 50 ohm traceable secondary standards are supplied	NO Standards sold separately
Test Head protection relays	NOT REQUIRED The ST600 has built-in ESD protection	YES, Replacement cost is \$4,000 est
Replacement Test Head cost	Maximum Replacement cost of \$1600	Replacement cost over \$4000 est
Test probe channels	4 (2 Single ended) and 1 (differential pair)	4 (Single ended) or 2 (differential pairs)
Digital Signal Processing	Yes Provides a more accurate representation of the actual data acquired by the tester.	
Aggressive Deconvolution	YES User selectable	NOT Available
Live mode (Selectable)	Yes Continuous measurement Operates in a mode similar to Tektronix and Agilent.	NO Single test mode only
Single test mode	Yes	Yes
Realtime diagnostics	YES Condition of the test head can be determined via E-mail in minutes	NO

Model	Zmetrix ST600	Polar Instruments CITS 880
Can measure from 100 ohms to 30 ohms with 50 ohm probe at full accuracy	YES	NO requires special probes
Differential Measurements (Made simultaneously, or singly and then calculated)	Simultaneously The ST600 outputs 1 positive and 1 negative pulse simultaneously for a TRUE differential measurement.	2 single ended measurements are made and the results are added algebraically
Simple test program edit and create	YES	YES
Cursors	YES	YES
Hot keys	YES	YES
Trace Window	Infinitely selectable by the user	Selected by the software (not an advantage)
Drag and drop test window function	Yes	No
Programmable colors	Yes	Yes
Dongle or license required	NO ST600 system software is readily available @ www.zmetrix.com and can be loaded on any number of computers	Software license required
Loss compensation	Yes	Yes
Physical size	11"d x 9"w x 3.5"h	17.6" x 11.8" x 5.2"
Portability	Completely portable No AC Power is required, the ST600 is powered by the host computer via USB	NOT Portable (due to size, weight, fragility) Requires AC power
Minimum trace length	1" @ 50 ohms	2-3" @ 50 ohms Limited by the ability to program the X axis window
Probe prompting lights indicate which probe is being used	YES	YES
Training videos	YES	NO
End of probe marker	Yes A necessity when measuring one inch traces	NO
Foot switch operation	Yes, supplied with system	Yes, supplied with system
VIRTUAL RETEST	YES Allows the user to reprocess data log information using different test parameters providing a "what if" capability	NO
Datalog Report Generator	Yes	Yes
Comprehensive user manual	YES	YES
Torque wrench included	YES	NO
Warranty	2 years	6 months test head warranty
Annual recertification cost	\$500 including 3 new SMA cables	\$700+ ??

Made in USA	Yes	NO Made in UK
COST	\$19,950	List \$40,000 est

SUMMARY

The Polar TDR has been used in the PCB industry for over twenty years. The original design was based on purchasing the TDR head electronic assemblies from Tektronix. When Tektronix would no longer sell these assemblies to Polar, they began to purchase the TDR heads from Zmetrix. **For several years Polar purchased the testhead for the CITS900 from Zmetrix, until Zmetrix came out with it's own controlled impedance test system, and would no longer sell TDR heads to Polar. The newest Polar TDR, the CITS880 has a reduced specification from the CITS900, as the only TDR head available to Polar now, is an obsolete version that is decades old.**

The Polar systems have always been somewhat susceptible to static damage (ESD), although less so than the Tektronix higher bandwidth TDR's. To improve their ESD resistance, Polar uses expensive coaxial relays to protect against static damage. These relays are expensive and need to be replaced every few years (depending upon use). In the case of the CITS900, the static susceptibility was even greater due to the integration of the TDR head into Polar's chassis grounding techniques. This static susceptibility did not show up in the ST600 units distributed by Zmetrix, even though Zmetrix did not use the coaxial relays for ESD protection.

The Zmetrix ST600 is, by design, not extremely sensitive to ESD damage so we don't need to use relays for protection. Even though the unit has excellent static immunity, we strongly suggest implementing good ESD procedures. **(wrist straps, mats, etc)**

The Zmetrix ST600 is not a copy of the Polar. The design is based on techniques and hardware which were not available when the Polar was designed. The accuracy and repeatability is better than Polar . **The ST600, in addition to providing the same functionality, also has a higher frequency (better resolution), true differential measurements, End of probe marker, Virtual Retest, selectable live mode and aggressive deconvolution (more information on these unique features is available upon request).**

The ST600 operating software is quite Polar like because in many cases our unit is replacing a Polar and our customers have encouraged us to make the system operationally similar to the Polar units to make it easy for their operators to make a seamless transition. **ST600 is extremely portable**, does not require a software license, or a "dongle" to operate. You can use the system with a laptop and take it anywhere, as the ST600 is USB powered. (No AC power required)

The system software is readily available on our website. Your customer can download the software, and even though he may not have a system, you can e-mail him test results which he can display and print out. You can send him a test report or he can print his own report from your data.

The price to repair, should have the misfortune of damaging a test head has a maximum repair/replacement cost of \$1,600

Conclusion : The ST600 is a TDR with all the functionality of the Polar, plus the additional features mentioned above at less than half the price of the Polar with a much better warranty.....this is a no-brainer!

Actual size: 9" w x 11" d x 3.5" h

ZMETRIX Introduces... the NEW ST600!



**EVERYTHING YOU NEED FOR
CONTROLLED IMPEDANCE TESTING!**