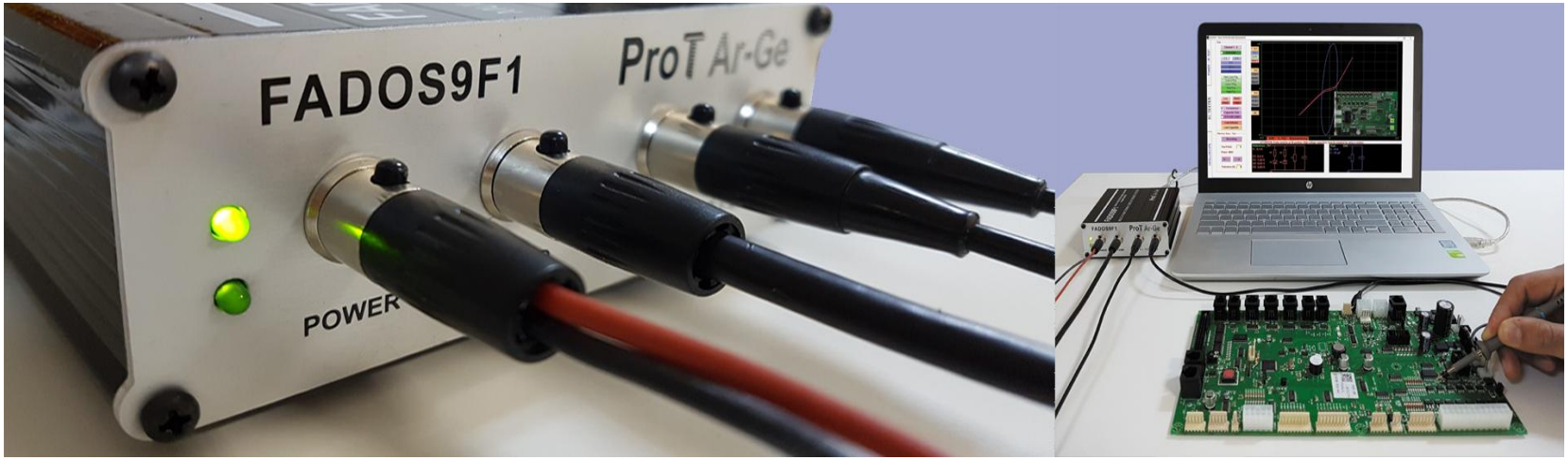
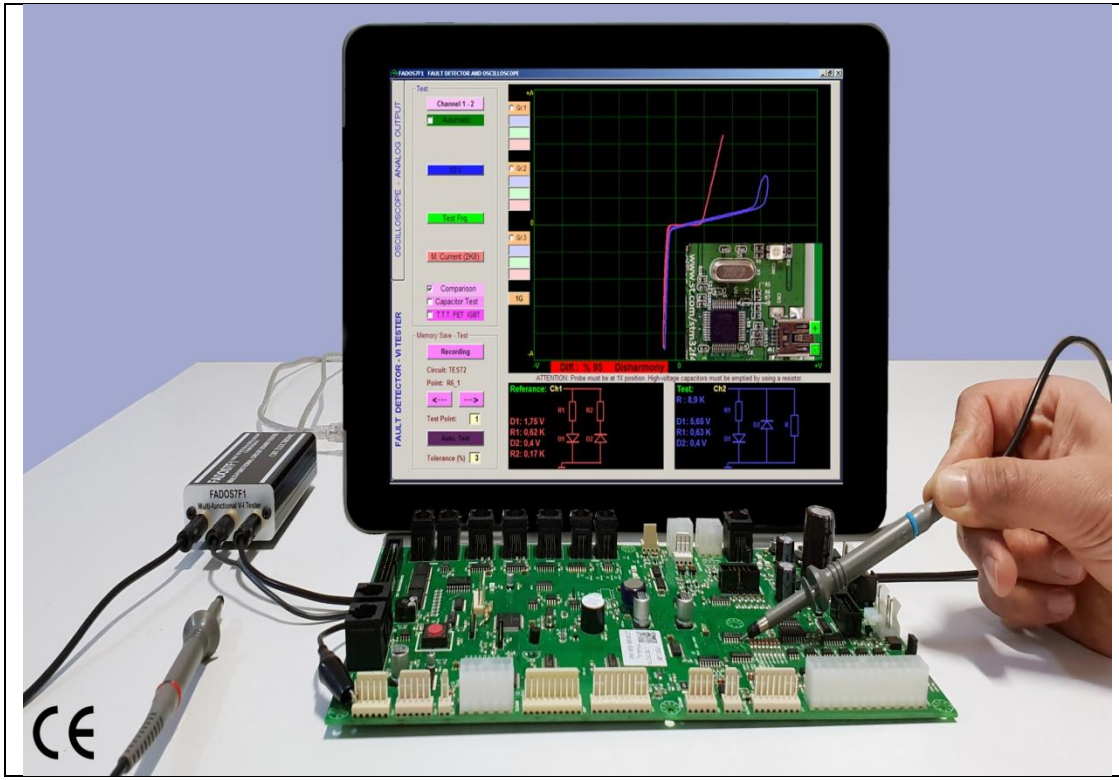
FADOS FAULT DETECTOR FOR ELECTRONIC BOARDS

FADOS (**FA**ult **D**etector **OS**cilloscope) Products have been especially developed to determine and troubleshooting faults at all type electronic circuit boards. FADOS is basically computer-based VI tester Voltage-Current (Signature Analysis) equipment. Signature Analysis is a power-off test method that is used to troubleshoot circuit boards.



FADOS9F1

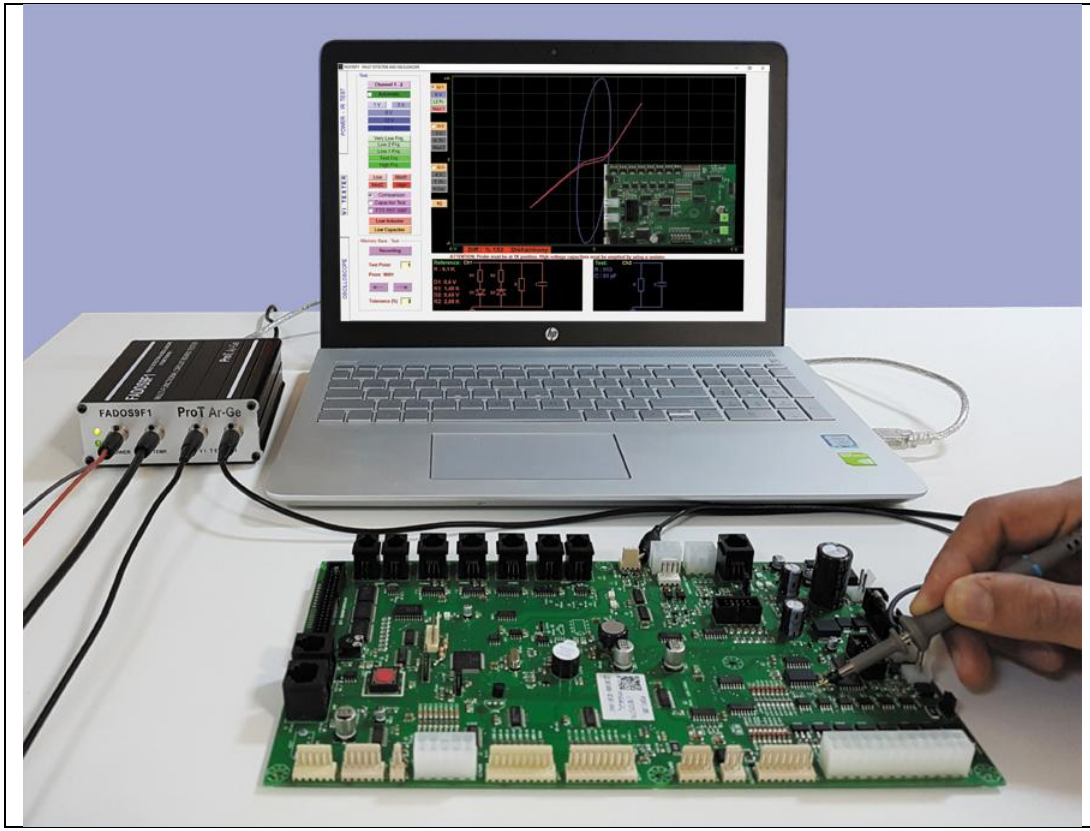


FADOS7F1 Fault Detector & PC Oscilloscope

FADOS7F1 7 Functions in 1:

1: Dual - Channel Fault Detection by V / I Tester (Analog Signature Analyzer)
2: Fault Detection by Comparison with Stored Signatures (Memory)
3: Equivalent Circuit Diagram***
4: Display Values of Resistor, Capacitor and Diode Threshold***
5: Dual - Channel Digital PC Oscilloscope
6: 0.2... 25KHz Square Wave Signal Output
7: Analogue Voltage Output

Software by analyzing signature graph to displays Equivalent Circuit Diagram and Values of Electronic Components and these features used for convenience to user in giving information for finding faulty easily. Equivalent Circuit Diagram and Values of Electronic Components features are unique features.



FADOS9F1 Fault Detector & PC Oscilloscope

FADOS9F1 9 Functions in 1:

1: Dual - Channel Fault Detection by V / I Tester (Analog Signature Analyzer)

2: Fault Detection by Comparison with Stored Signatures (Memory)

3: Equivalent Circuit Diagram***

4: Display Values of Resistor, Capacitor and Diode Threshold***

5: Dual - Channel Digital PC Oscilloscope

6: 0.2... 25KHz Square Wave Signal Output

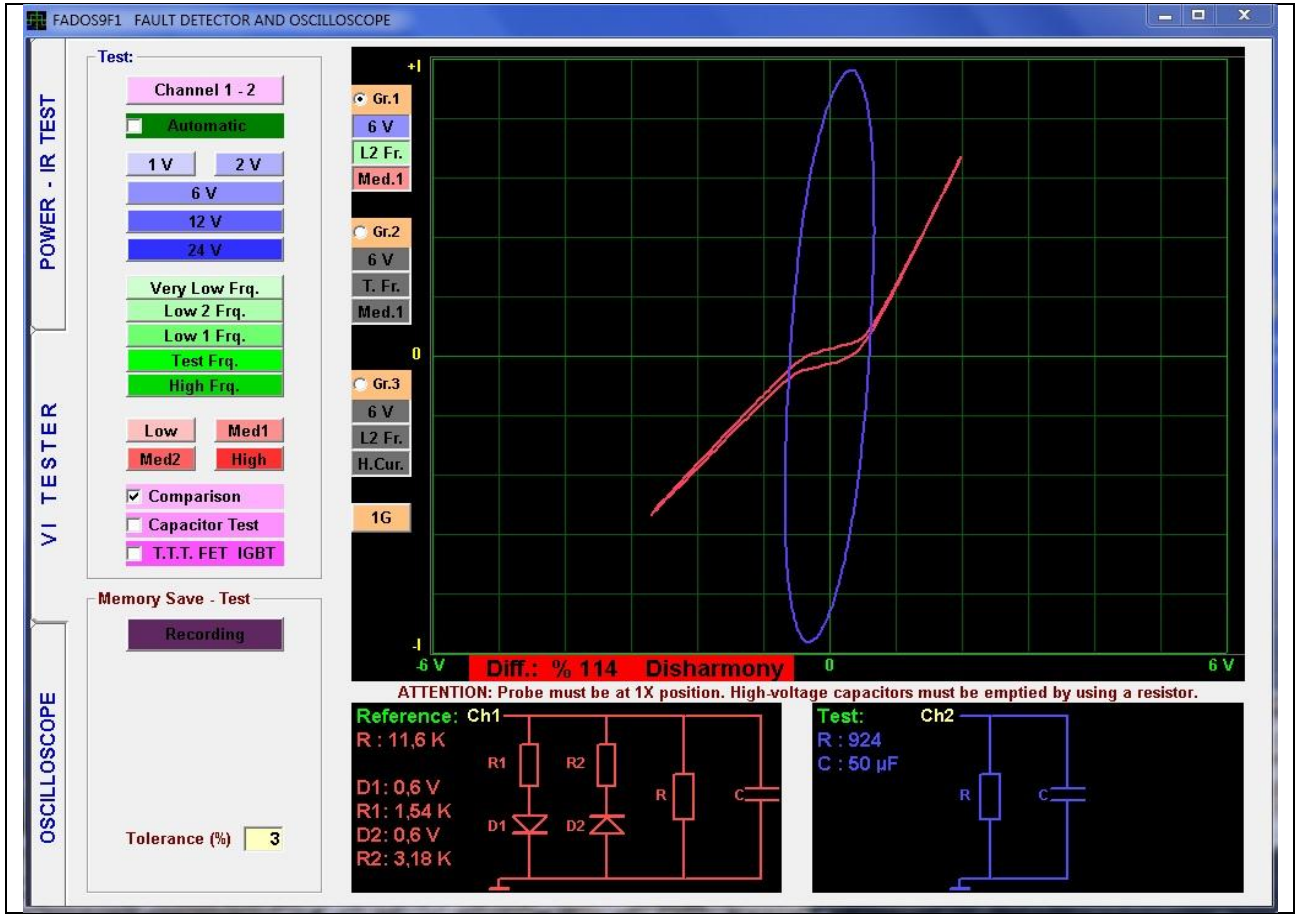
7: Analogue Voltage Output

8: DC Power Supply (DC V/I Graph of Supply)****

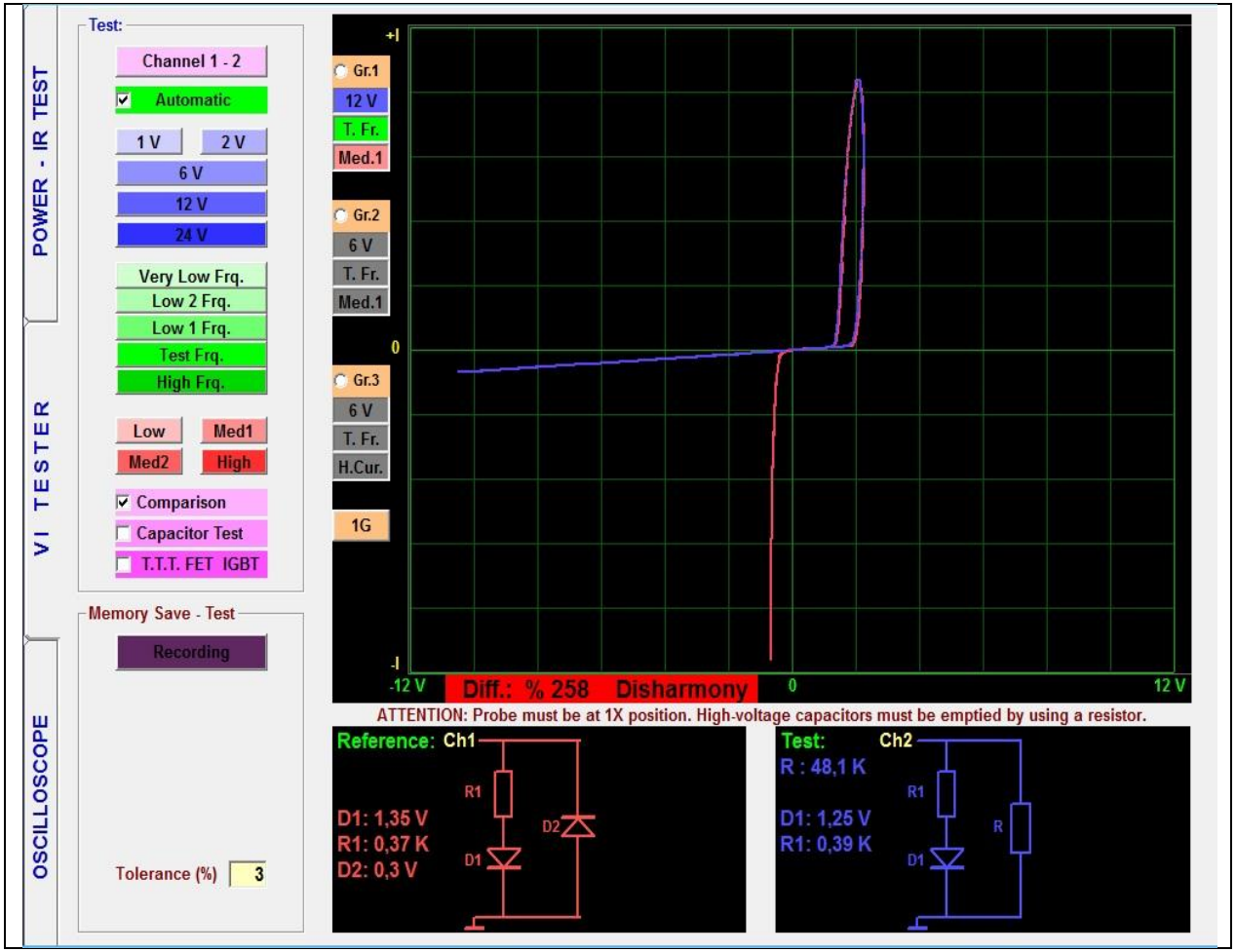
9: Non Touched IR Temperature Sensor ****

FADOS9F1 was added 2 unique features. First feature is DC power source. It can be adjusted between 0-16V and 20-1500mA with power output; DC voltage/current graph of electronic cards power is created. Second unique feature is IR (infrared) non-touched temperature sensor for detecting more heated components. Using together 2 new features, it is possible to some of detecting failures to decreasing during 5-10 times. These features can be used as new technique fault detection.

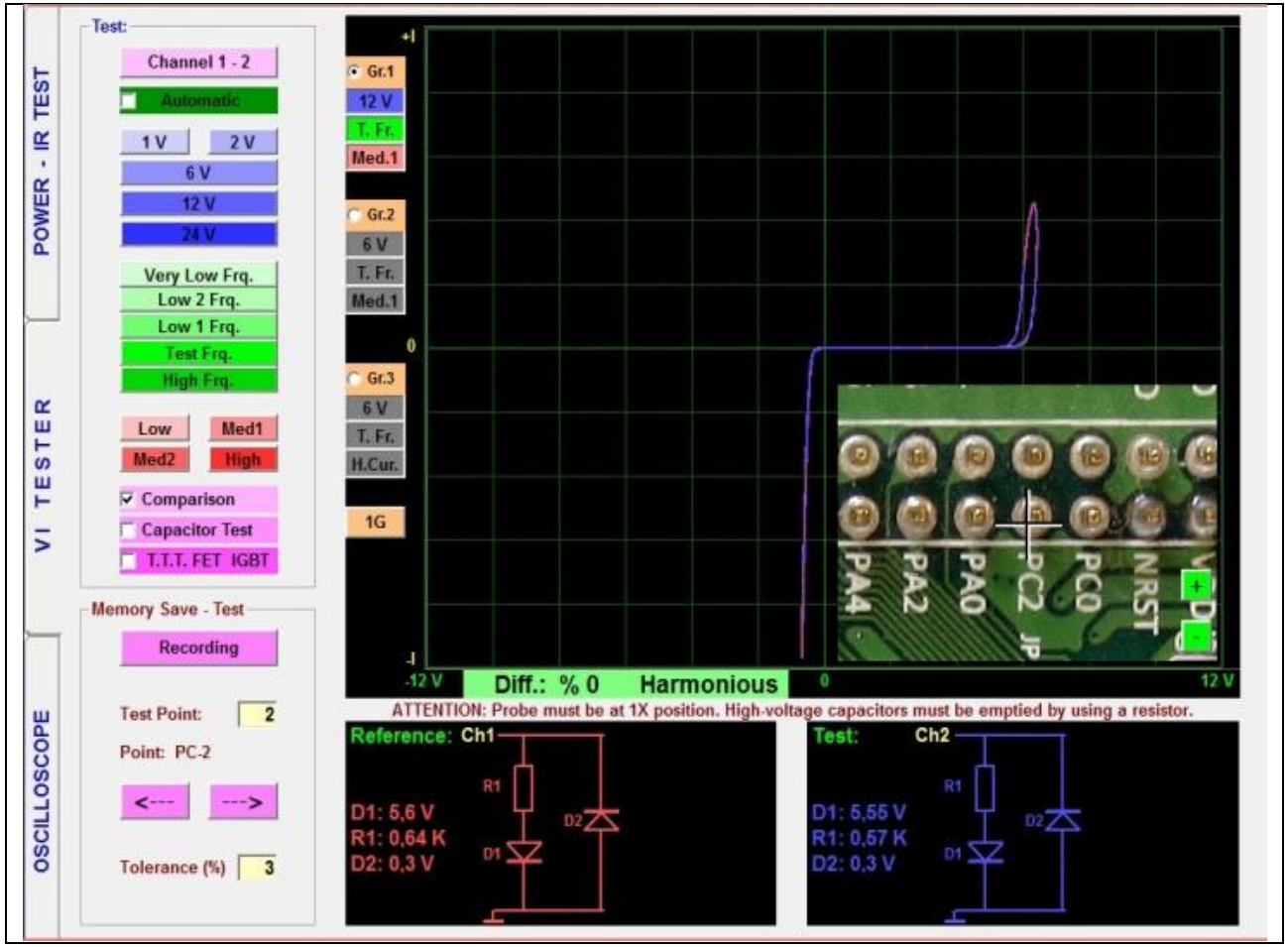
FADOS9F1 FEATURES



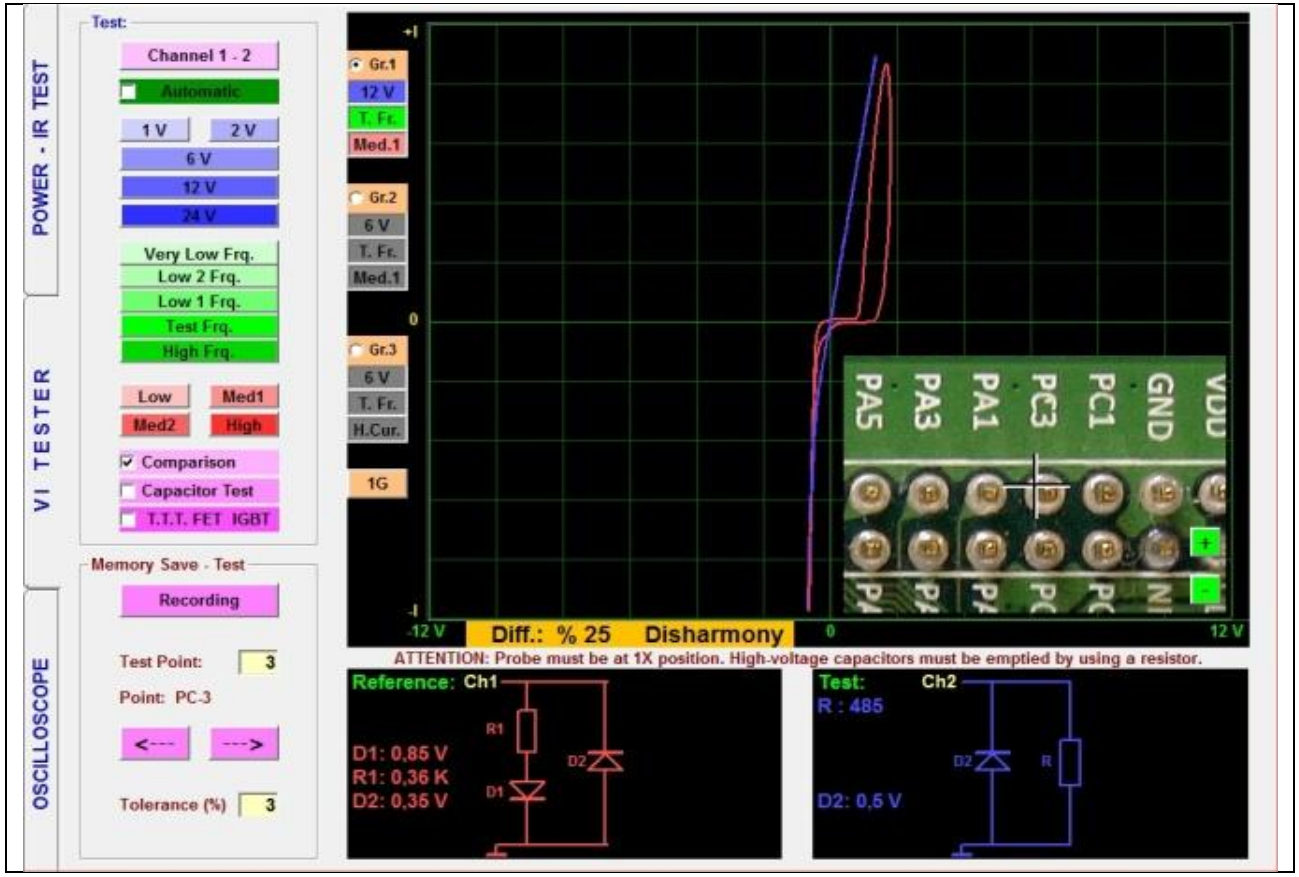
Dual channel VI graph, equivalent circuit drawing and multi-value display features



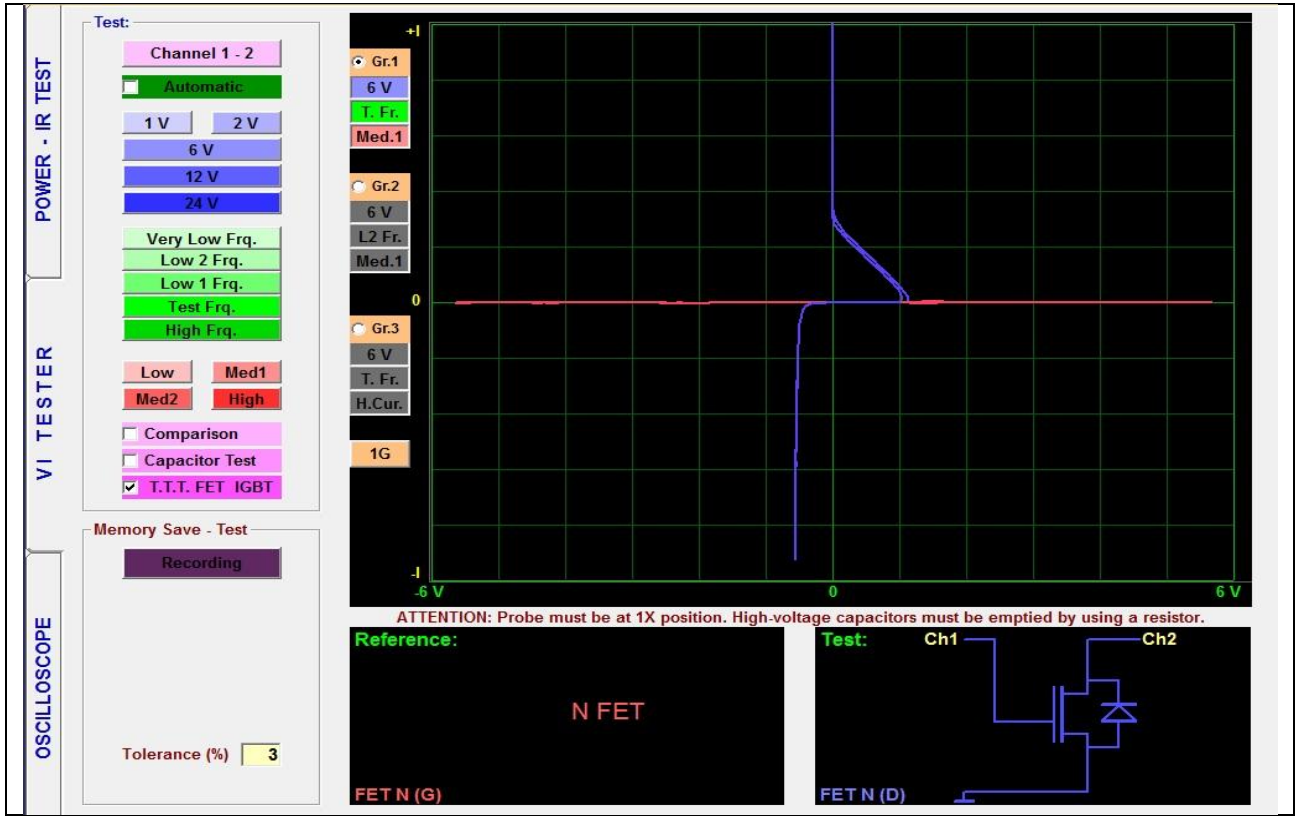
The comparison feature; the user can detect the fault by testing solid and defective cards at the same time. Channel 1 (red) is the solid card signal, Channel 2 (blue) is the defective card signal. The difference in the curves means that there is a fault in the integrated pin of the defective card.



Memory Recording feature; the features of the solid electronic card are recorded on the computer's hard disk and by taking these points as reference, you can make precise, easy and fast comparisons with electronic cards that are faulty or suspected to be faulty. If the 1st Channel (red) data in the memory and the 2nd Channel (blue) touched point curves overlap, it means there is no problem at this point.

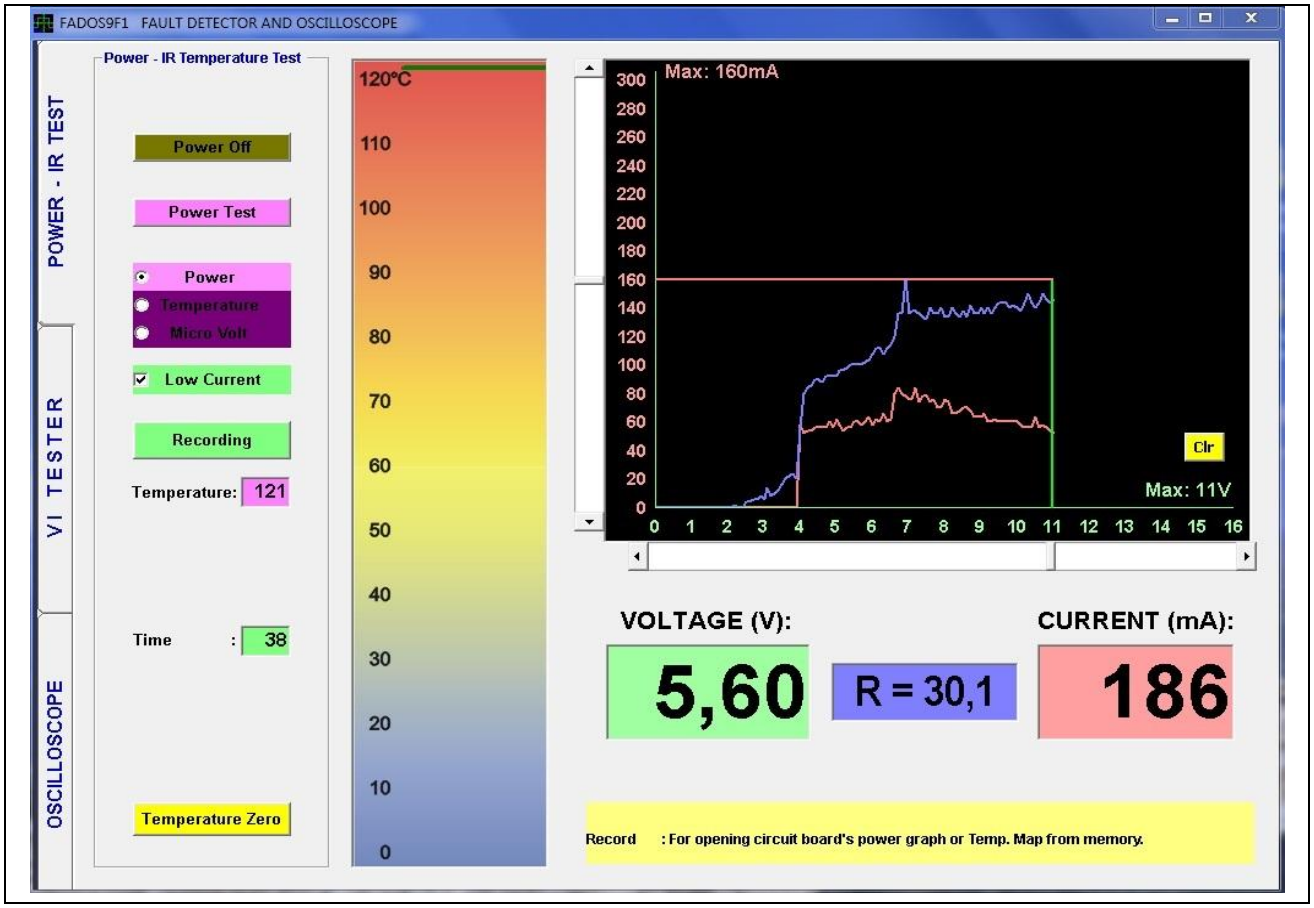


The faulty component can be quickly detected using the Memory Recording feature.



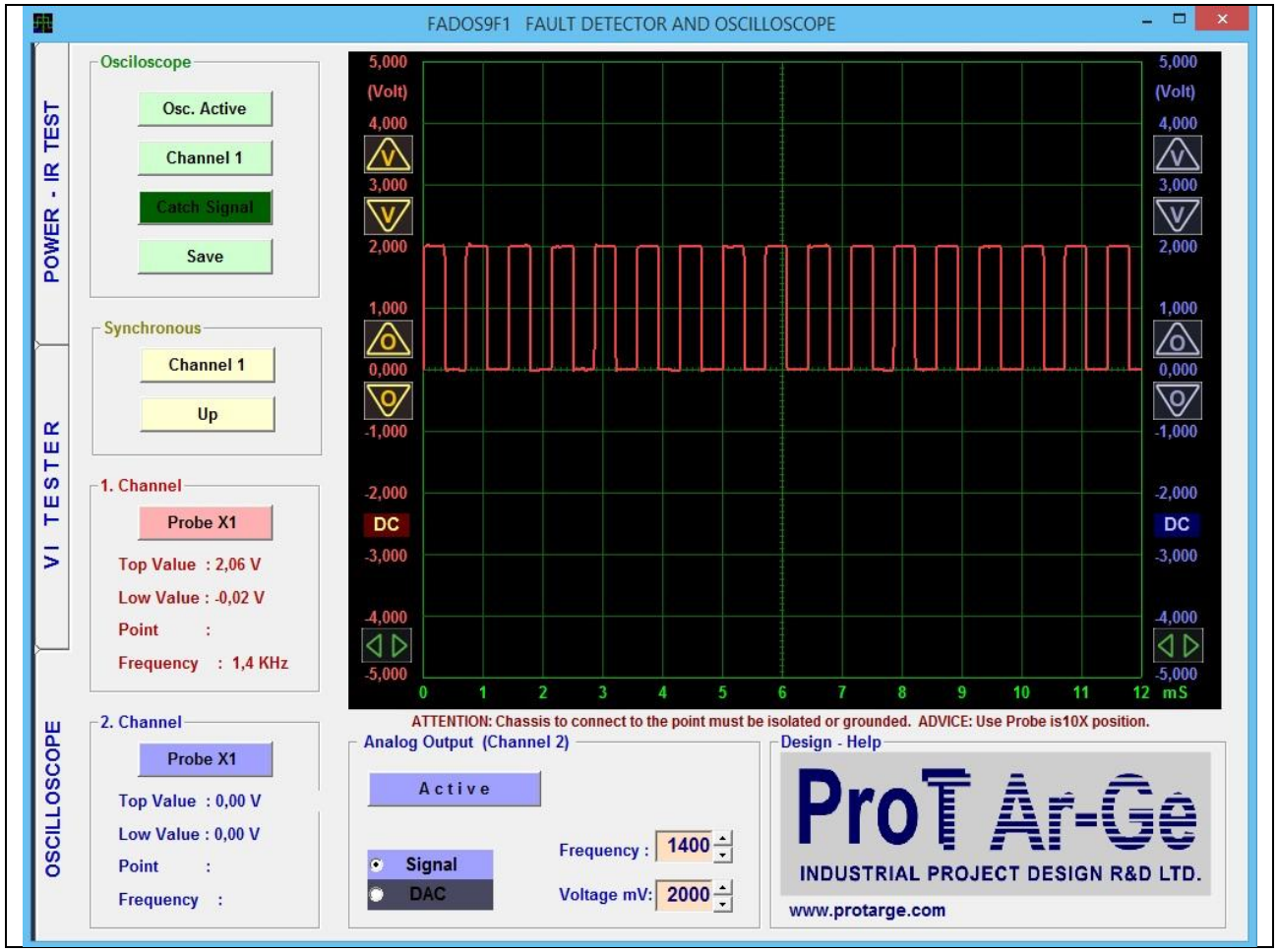
By using both channels, it is checked whether the active components (transistor, thyristor, fet, IGBT) are conducting and whether they leak.

Power Supply and IR Temperature Test Feature



In this technique, power cable is connected the input of solid card and set maximum voltage. Click "Power Test" button; software creates 100 mV steps DC voltage-current graph from 0 to Vmax. and saves a file. After waiting a few minutes, it will be easy to detect more heated components and draw out heat map of electronic card.

Oscilloscope Feature



This section is a low frequency oscilloscope offered as an additional feature. It can be used as a square wave signal or an analog voltage source from channel 2. Its sensitivity is 6mV.

FADOS MUX Multiplexer Module

FADOS Multiplexer module can be added to FADOS9F1 model. Each module has 96 Outputs and can test 96 Points in 1 Second. Output number can be increased by connecting 2, 3… 5 Modules to a device. The output is 2X50 pins.

Fault Detection Techniques in Electronic Cards

Those who are new to electronic repair usually use a multimeter to measure the resistance, capacitance or diode conduction voltage of the materials and perform tests or fault detection. Since this method is both time-consuming and insufficient in some respects, more professional ones usually prefer VI test devices. VI test devices display resistance, capacitance or diode together graphically. The first advantage is to check the touched point in a short time. The second advantage is that they apply a higher voltage than multimeters through a resistance, so they do not damage the circuit and make the differences that occur at higher voltages visible.

Some of the VI test devices only have a VI curve. More advanced ones may have different functions. For example; those with a memory feature may have the feature of recording the touched points and then comparing them with the defective card.

There are many features in FADOS devices that can be very useful to the user in finding faults. Some of these features are specific to FADOS devices. These features are the equivalent circuit diagram display and the ability to show the values of circuit elements. For example, if there is a parallel resistance at the same point while measuring a capacitor with a multimeter, the multimeter will not show the capacitor value correctly or will not measure it at all. FADOS software shows both the value of the capacitor and the resistance at the same time. Such features help the user to find the fault faster. The memory recording and memory comparison feature is quite useful. Thanks to this feature, it shows which point you should touch from the photo. If it is within the set tolerance when you touch, it gives you a sound meaning “OK” and when you lift your hand, it automatically moves to the next point. If it is out of tolerance, it warns with a different sound and it is understood that that point has a different value than the working reference device.

Usage Areas

ECU Automotive electronic cards, servo - stepper motor drivers, medical and military electronic device cards, computer - laptop and monitor circuits, television - radio electronic cards, auto electronics, textile and other production machine electronic cards etc. (in all electronic cards)

WHY FADOS?

1)FADOS is a double-channel VI Test device, and all graphs are composed at 2.5 mV sensitivity and by taking 720 different measurements of voltage-current. For this reason, it is very sensitive. You can compare 2 electronic cards (solid and faulty) at the same time.

2)At VI Test, by the help of memory feature, it is possible to save the features of solid card to memory and then, to compare with the faulty card.

3) You can record data with electronic card's picture. As a result; when you compare data from memory: you can see data which you saved before on the picture.

4) In order to lower the loss of time during test procedure, it sounds different at compatible and incompatible points. By this way, you can major in the card and make the comparison quickly without any need to look at the card and/or screen steadily.

5) Shows 3 different graphs composed at 3 different steps at the same time (Selected current-voltage-frequency steps).

6) Component values can be measured as of multi-meter. Additionally, it shows the values of all components at touched point besides equivalent circuit diagram. This is unique feature.

7) It has oscilloscope feature and it can be used as double-channel memory oscilloscope.

8) By using square-wave signal output, signal is applied to circuit; then, it is possible to see the other channel and output signals at oscilloscope screen.

9) It is easy to carry since it is small. It can be carried in a laptop briefcase.

10) *FADOS9F1* has Adjustable (Voltage/Current) DC Power Supply: It is used for giving energy to circuit boards creating Power DC Voltage-Current Graph. This is unique feature.

11) *FADOS9F1* has Non Touched IR Temperature Sensor: It is used for detecting more heated components and draw out heat map of circuit board. This is unique feature.

12) Including many more features explained above, it is like a Swiss knife of people dealing with electronics. You can use any one of the features of FADOS7F1 or FADOS9F1, when you need.