

## Description

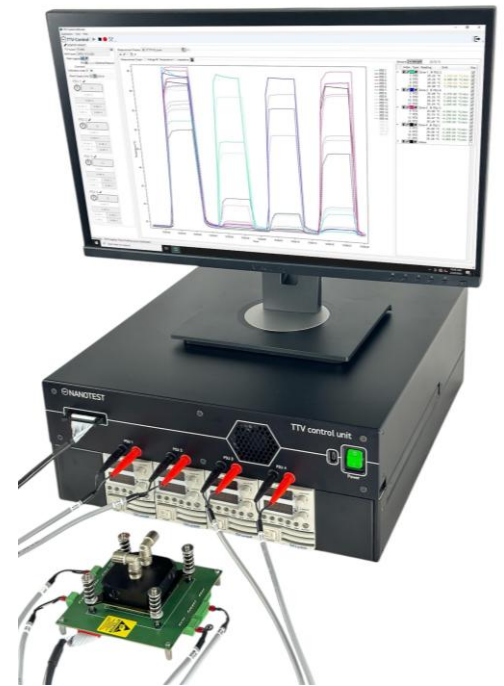
The TTV10 Control Unit is a fully-fledged system for operating a TTV10 chip with electronic test board (ETB).

It combines a robust industrial control computer, a DAQ unit and four power supplies in one device.

The connection options and the pre-installed Nanotest TTV Control software enable you to start your thermal tests quickly using plug and play.

## General Information

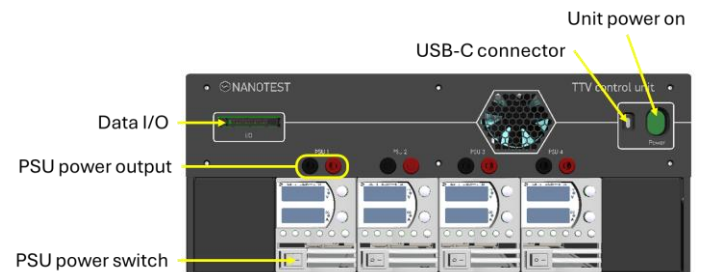
Supported TTVs	1x TTV10 + ETB
Software	Nanotest TTV Control Software
Power rating	2300 W/230 VAC; 1100 W/110 VAC
Peripherals (optional, excl.)	Display, Keyboard, Mouse
Rated voltage range	100 – 240 V
Rated input current	10 A
Rated line frequency	50 Hz/60 Hz
Rack compatibility	19", 4U
Weight	30 kg
Dimensions	44 x 17.5 x 51 cm <sup>3</sup> (w x h x d)



TTV10 control unit with peripherals

## Power Supplies

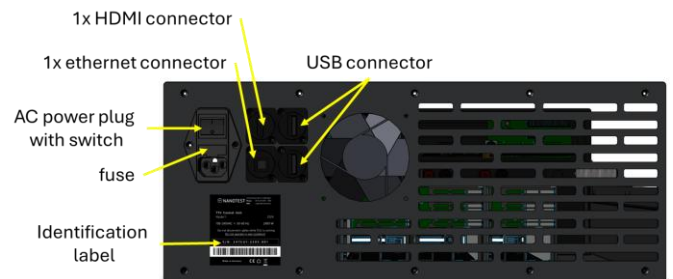
Power supply type	TDK Lambda Z+ 60-10
Number of power supplies	4
Max. voltage output	60 V
Max. current output	10 A
Power connection	Banana jacks
Max. power per unit	600 W



TTV10 control unit front side

## PC and DAQ

PC type	Industrial PC
Operation system	Windows 11
Max. voltage output	60 V
Max. current output	10 A
USB connections	2x USB 2.0, 1x USB-C
Display connection	HDMI
Network	Ethernet 1GbE – RJ45
DAQ-Card	National Instruments USB-6361

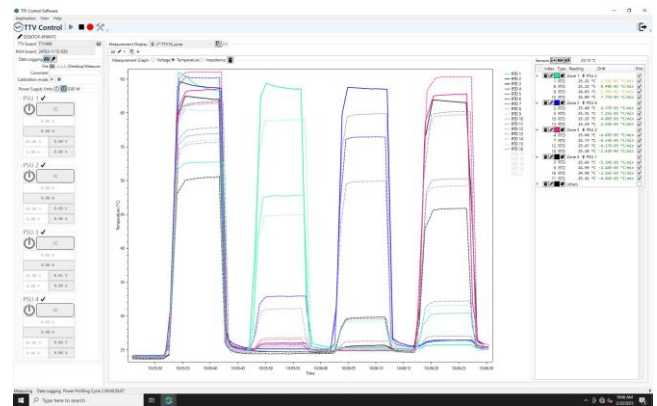


TTV10 control unit rear side

## TTV Control Software (included)

The TTV Control software allows easy control and readout of the TTV10. It can display the current measurements and record data. It is also possible to create cycle profiles for extensive thermal tests in just a few steps.

Data acquisition rate	Up to 2 Hz
Data plotting	Temperature - Time Voltage - Time Impedance - Time Power input - Time
Log-file format	Drift tolerance of voltage and temperature *.csv
Features	Power supply/heater zone control Power cycle profile generator Impedance calculation TTV calibration routine Multiplexing sensor data Calibration file import Shut-off temperature PID parameter setting for power control

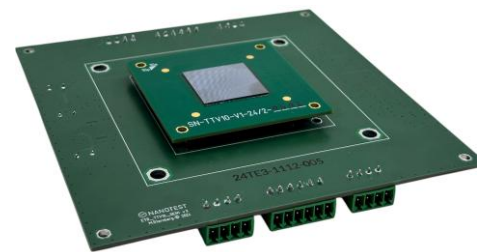


TTV control software

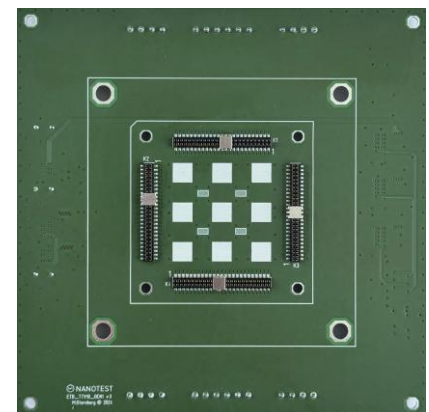
## TTV10 + Electronic Test Board (optional)

The TTV10 allows independent control of four heater zones and six hotspots for precise thermal simulation. Its user-friendly interface enables easy temperature profile customization. The package includes 16 integrated temperature sensors and four NTCs on the substrate's backside, all using four-wire sensing for accurate measurement. The Electronic Test Board (ETB) connects the TTV10 via six power connectors and enables four-wire power sensing. It also features three multiplexing units (MUX) and three constant current sources for sensor biasing via the sensing connector.

TTV10	
Die size	24.9 x 24.9 mm <sup>2</sup>
Heater zones	4x main heater zones, 6x hot spot heater
Sensors	16x RTD temperature sensors
Substrate size	60 x 60 mm <sup>2</sup>
Max. heating power:	2000 W
ETB	
Slot	1x TTV10 slot
Sensors	1x IC temperature sensor for TTV calibration
Signal handling	3x Multiplexer units
RTD supply	3x Constant current sources
Connections	6x Power connectors (4 main heater zones, 6 hot spot heaters and solder ball sensing) 1x Sensing connector (RTD data and bias current)
Cooler mounting	Holes with distance 78 mm for CPU coolers with Intel mounting
Dimension	135 x 135 mm <sup>2</sup>
Features	Supplies 16 RTDs and reads temperature values with a rate of up to 2 Hz and accuracy of 0.5 K Integrated IC temperature sensor (no calibration needed) enables an easy calibration of TTVs



Electronic Test Board (ETB) with TTV10



Electronic Test Board (ETB) front side

## Application remarks

The offered products are supposed to be used for characterization purposes. The application of the data from the test die to a functional system lies in the responsibility of the user. Nanotest makes no warranty, express or implied including the implied warranties of merchantability and fitness for a particular purpose, that the user's system designed using that data will perform as intended.