

Technical specifications: Nanotec Scanning Probe Microscope Control System (Electronics)



SPM Control System: Dulcinea Electronics

Nanotec Electronica offers the most powerful and flexible SPM Control system, including Dulcinea electronics, M6701 Digital Signal Processor (DSP) and a last generation Dell Computer with 17" TFT screen, all controlled by the WSxM Scanning Probe Microscopy software.

Dual high voltage outputs for +X, -X, +Y, -Y, +Z and -Z signals
+/- 150V range*
Bipolar (+/-150V) or monopolar (-10V/140V) options for each axis available under customer request
16-bit offset with fixed 15 gain
16-bit scan with continuous gain from 0.06 to 15 (basis of +/-10V)
Noise level < 2mV RMS**
Manual/Software control of the Z offset
Secure button for fast withdrawing the tip
High voltage output for Bias signal
+/-150V range
16-bit resolution
Two gains available: 1 (+/-10V) and 15 (+/-150V)
Noise level < 2mV RMS**
Other 8 16-bit +/-10V output signals (3 of them available via free BNCs)
16 16-bit input signals (+/-10V input range)
8 of them with variable gain and offset
Variable gain inputs allow continuous gains from 0.65 to 9.8
4 of them available via free BNCs
32 digital signals
8 available as software configurable trigger signals
8 available as input counter
16 dedicated to specific tasks of the system
8 BNCs for internal signals monitoring and external conditioning inputs
Photodiode output, PLL (Phase Lock Loop) output***, generated AC signal for dynamic modes*** and internal voltage ramp for the modulation of the AC frequency monitoring***
External modulation of the voltage applied to the Z scanner
External modulation of the bias voltage applied between the tip and the sample
External input of the AC signal for Dynamic modes (to be used instead of normal force)***
AC current source with software configurable frequency (useful for excitation of magnetic driven cantilevers)***
15 different analog signals can be monitorized through 4 software configurable BNCs
Graphic display for real time information
Independent High Voltage & Low Voltage connectors

* +/-300V differential

** 100 KHz Bandwidth

*** Only useful if the Dynamic Force Board is installed on the Dulcinea electronics