ENQ No.: PHY/AKG/2013-14/03   August 29, 2013

Enquiry letter for upgradation of a SPM controller

Sealed quotations are invited for upgrading an existing scanning probe microscopy controller (electronics and software). The existing controller is model **SPM100 (controller 1003 rev. 8.1 & software SPM32 version 2002.7C) from RHK Technology, Troy, MI, USA**. We would like to upgrade this to a controller with a compatible windows based software with detailed features as below:

A) General Requirements:
1. Must successfully provide new control software including upgrade to WIN XP operating system for an existing RHK rev8 SPM1000, without replacing existing SPM controller unit or affecting its full compatibility with current operations.
2. Supplier must be able to provide all electronics hardware and technical support for new WIN XP SPM Control software on existing RHK SPM1000 controller.
3. Upgrade must include WIN XP PC with 2 flat screen monitors and suitable computer interface TTL board.
4. Price quoted should be CIF Delhi.

B) Software Features Requirements:
1. Built-in image manipulation (rather than non-integrated external add-on) to provide hardware slope correction and thermal drift correction.
2. Automatic saving and protection of up to each scan line of data, and/or every image within user defined ranges.
3. All functions accessible via easy to navigate menus so no programming is required to perform any of the advanced imaging or spectroscopic measurements.
4. In topographic imaging, up to eight analog signals and two digital pulse counting channels can be acquired at every point in an image. Data resolution of up to 8192x8192 can be acquired.   Non-square arrays of data, such as 8192x512 can also be acquired.
5. Spectroscopic curves can be flexibly defined. Curves can be acquired at every point in an image (up to 1024x1024 locations), at a subset of points in an image (ie. 512x512 topographic points and 128x128 spectroscopic locations), at user selected points in an image (selected by mouse), at points along a user selected line, and at a grid inside of a user selected region.   When spectroscopic measurements are taken at a grid of points, multiple current-sliced images can be displayed in real-time.

6. At each spectroscopic location, any number of spectroscopic curves can be acquired. On each curve, up to 16,000 steps can be measured. At each step, up to eight data channels can be acquired.
7. Drift correction utilizing pattern matching algorithms allows thermal drift to be automatically compensated for between each image. The amount of offset compensated is written to a file to provide a direct record of thermal drift. Drift can also be automatically compensated for between each spectroscopic curve.
8. Atom tracking to allow the probe to be fixed onto an atom or molecule and automatically track its movement over the surface. The movement of the probe versus time is stored with the file, allowing playback of the probe position in relation to the surface on which is was imaged.
9. Image spectroscopy modes must include Automatic Parameter Imaging to allow a parameter to be incremented automatically at the end of each scan line, group of scan lines, or between images; Multiple Parameter Imaging to allow any parameter to be changed while the same scan line is repeated.
10. Additional flexible spectroscopy capabilities must include Voltage sweeps with more than 65000 steps, at each step up to 1024 readings can be averaged together for improved signal to noise, and at each image pixel during a scan, the tip can be paused and more than 1000 curves can be acquired. When operating an STM, measurement modes such as $I(V)$, $I(z)$, $z(V)$, $dI/dV(V)$ are possible.
11. Data Oversampling to allow acquisition board to run at its maximum sampling rate and average all readings between pixels.
12. Spectroscopy Drift Correction to automatically correct for drift in all three axis between multiple spectroscopy curves taken at the same location. Exact location of spectroscopic measurement will be stored with each curve.
13. Ability to average spectroscopy curves in real time and display the running average of all curves taken at each point in real time in additional to the display of each individual spectroscopy curve. Real-time processing and display of spectroscopic data: In addition to showing the raw data for each curve, real-time display of calculated derivative and/or second derivative can also be shown.

In addition:
1) All equipments and accessories must work with single phase power supply of 220V & 50Hz ±2%.

Since we are an academic institution, your offer must consider institutional discount. Please send your best offer to the undersigned **latest by Sept 7th , 2013**. The quote should be valid for at least 60 days. The delivery period and the terms and conditions should be clearly mentioned. The equipment should have at least one year warranty.

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