Falcon 4i/FFI/Tomography software/Application software/PC and accessories/Training

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Descriere: Upgrade of the operating system, support computer, direct electron detector and additional software on an existing Talos Arctica transmission electron microscope supplied by FEI Europe part of Thermo Fisher Scientific to HILIFE, Institute of Biotechnology, University of Helsinki.We will upgrade the operating system, support computer, direct electron detector, and software on our existing transmission electron microscope. Only the manufacturer of the microscope can offer the full integrated upgrade as they have exclusive rights to the operating systems and hardware. The instrument is under service contract with the manufacturer, and third parties may void the service contract which would not be available via other distributors. Included in this package are the following: Falcon 4i direct electron detector (with camera housing and Data management platform). Fringe free imaging upgrade, 2 PC upgrades with associated software, imaging software, and training. Based on our market research, we have not found other manufacturers that can meet the necessary requirements or any reasonable alternative or substitute solution that will fulfill all the specifications. The absence of competition is not due to an artificial narrowing of the terms and conditions of the procurement.Specifically included in the estimate:Falcon 4i- direct electron detectorThis special offering is for a Falcon 4i retrofit 200kV. Falcon 4i is Thermo Fisher Scientific's next generation direct electron detector based on the proven Falcon 4 platform. Falcon 4i benefits from an increased internal frame rate (320fps) and significantly reduced overhead time (reduced to 0.5 seconds per acquisition). Thanks to its large (14 µm) pixel size and lowest noise levels, Falcon 4i's (electron counting) DQE remains unsurpassed over the entire spatial frequency range, enabling highest quality 3D structures of even the most challenging (small and flexible) biological samples.Camera housingThis special offering is for the Thermo Scientific camera housing. This housing is suitable to house the Thermo Fisher Ceta 16M camera and/or the Thermo Fisher Falcon 3EC camera. This housing is suitable up to and including 300kV for (X)FEG systems. With this the existing Ceta and Falcon 3 can be installed with the new camera. Data Management PlatformData Management Platform (DMP) is a computing platform with 60 TB available for fast, temporary storage of TEM camera data. DMP uses RAID 6 for data and RAID 1 for its Operating System. A maximum of three on-board, embedded TEM cameras can be connected to a single DMP unit. DMP can be extended with a GPU that is part of the EPU Quality Monitor option.FFIWith the classical electron optical alignment, the C2 aperture introduces Fresnel fringes in the beam that illuminates the specimen. These fringes cause artifacts and non-usable areas for data collection. With the Fringe-Free Imaging Field Upgrade, the CompuStage hardware alignment and nanoprobe lens series are adapted in such way that the C2 aperture is focused on the specimen, and the fringes are nearly eliminated. Thus, single particle analysis (SPA) data can be collected from the entire illuminated area, and more images can be acquired per foil hole, which can significantly enhance the overall throughput, depending on the use case. Tomography can also benefit from this improvement, as potentially more (batch) tomograms can be acquired on a given lamella surface, depending on the use case.Tomography Data Acquisition SoftwareTEM Tomography Data Acquisition Software provides a user-friendly and fast way for the acquisition of tilt series for three-dimensional (3D) reconstruction.EPUThe EPU Multigrid option of EPU software enables optimal usage of microscopes with an Autoloader present. EPU Multigrid enables queuing multiple automatic EPU sessions for the different grids in the Autoloader. EPU Multigrid thus enables full tool utilization by making it possible to automatically set-up and execute multiple unattended sessions. This is extra helpful for systems with high-speed detectors in a 24/7 environment with limited operator availability. EPU Multigrid also facilitates efficient scheduling of work for multi-user facilities, and it facilitates fast screening with queuing short runs to be executed overnight.eCL Smart EPU with embedded CryoSPARC Live is intended for optimizing the usage of the microscope during single-particle data acquisition. It provides real time feedback of the results during the data acquisition, enabling the user to adapt the acquisition strategy and settings. Thus, optimal results are obtained in the shortest possible time, or, in the case of a low-quality sample, the data acquisition can be stopped early, freeing up microscopy time. Smart EPU with embedded CryoSPARC Live includes real time motion correction, CTF estimation, particle picking, 2D classification, ab-initio 3D reconstruction, and a streaming 3D refinement and produces optimized data for further refinement by a full CryoSPARC pipe, allowing significant processing timesaving.5 days on site training sessions to get the staff and users familiarized with the new hardware and software.