HARGA PERKIRAAN SENDIRI (HPS)
PENGADAAN PERALATAN PENDUKUNG PEMBELAJARAN LAB. KIMIA FMIPA
UNIVERSITAS NEGERI MALANG
TAHUN ANGGARAN 2023

NO.	NAMA/SPESIFIKASI BARANG	JUMLAH	HARGA SATUAN	JUMLAH HARGA
1	FT-NMR Benchtop	1 set	Rp 3.183.810.600	Rp 3.183.810.600
SUB TOTAL				Rp 3.183.810.600
PPN 11%				Rp 350.219.166
TOTAL				Rp 3.534.029.766

Terbilang: tiga milyar lima ratus tiga puluh empat juta dua puluh sembilan ribu tujuh ratus enam puluh enam rupiah
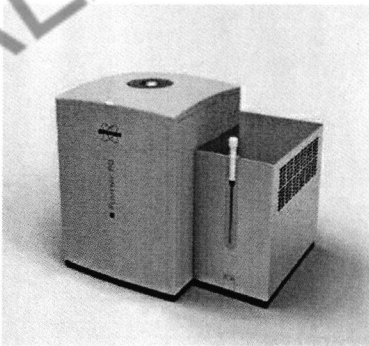
Malang, 17 Pebruari 2023
Pejabat Pembuat Komitmen,

Drs. Taat Setyohadi
NIP. 196411081989031004

NO.	NAMA BARANG	SPESIFIKASI BARANG	JUMLAH	GAMBAR
1	FT-NMR Benchtop	**FT-NMR Benchtop (1)** High-performance Fourier Transform (FT) NMR spectrometer in a compact benchtop system. Its condensed footprint and minimal infrastructure requirements allow the instrument to be placed on the lab bench or inside the fume hood, next to the chemist's work space. The Fourier EduLab is a compact solution to include NMR on teaching in undergraduate labs to study and teach a wide range of magnetic resonance, e.g. in physics, in-/organic chemistry, biochemistry, material science, nutrition science, incl.: • Cryogen-free, temperature-controlled permanent magnet at an operating proton frequency of 80 MHz, no liquid nitrogen or helium, no water cooling or additional venting required • To be used in a temperature-regulated room of 18 to 28°C with typical temperature variations of max. ±1.5 °C • Dimensions: ~50/70/60 cm (H/W/D), weight: ~94 kg • Power consumption < 300 W, power: 100-240 V, 50-60 Hz • Resolution: 1H @ 50% peak height (FWHH): < 0.5 Hz, 1H @ 0.55% peak height: < 20 Hz • Receiver bandwidth up to 1 MHz, RF shapes: 14 bit resolution, RF time resolution: 12.5 ns • Ethernet connections: 1 to PC or network, 1 to optional accessories, external trigger: 1 • Dedicated education protocols, acquisition and analysis software included, automated shim routine • TopSpin pulse program library included, Non-Uniform Sampling (NUS) possible **1H/13C Probe 5mm/7'' with external lock (1)** • 1H/13C double channel probe for standard 5 mm diameter, 7 inch long NMR tubes • Digital Lock: external (no deuterated solvents needed) • Sensitivity: 1H > 1500:1 for 10% EB • RF power 1H: 5W, 13C: 25 W • Experiments e.g.: 1H: 1D, 1D with solvent suppression, 1D selective excitation, T1, T2, reaction monitoring, 1H 2D: COSY, JRES, 13C: 1D (with NOE and decoupling), DEPT45, DEPT90, DEPT135, ATP, 13C-1H 2D: HMBC, HSQC, HMQC, HETCOR **Sample temperature: at 25°C magnet temperature (1)**	1 set	

NO.	NAMA BARANG	SPESIFIKASI BARANG	JUMLAH	GAMBAR
		Fourier TopSpin + GoScan Package License (1) Basic acquisition and processing license package for the use on a Fourier benchtop system, incl.: • GoScan acquisition license, incl.: Straightforward entry-level software for data acquisition; Optimized for mouse and touch screen operation; Configurable library of experiments; Import of TopSpin parameter sets possible; Combination of several experiments into one push-button; Overview over results and direct link to TopSpin for processing and analysis; Data can be exported automatically to an additional storage (hard disk or external server or USB stick) • TopSpin 4 acquisition and processing license, incl.: NMR data acquisition (arbitrary dimensions) and processing (1D-6D); TopGuide, menu guided acquisition setup; ; NMRGuide for training of users in use of 1D and 2D experiments with NMR literature library; IconNMR; Processing of non-uniformly sampled (NUS) data for 2D spectra; Spectra analysis, including automated integration and deconvolution of NMR spectra; Workflow automation: serial processing, AU programs, python scripts; NMRSIM and DAISY for experiment simulation and 1D and 2D spectra prediction; Relaxation analysis (T1/T2); TopSpin solid state lineshape analysis; TopSpin integrated structure editor; NMR Guide - a collection of theoretical information and practical tips around NMR **Bench PC with Touchscreen (1)** • HP MS-Windows PC Mini • Workstation to be placed between screen and screen base • HP monitor with touchscreen (23'') • 1920 x 1080 at 60 Hz • At least Windows 10, Intel® Core™ i7 Processor, 16 GB SDRAM; 256 GB SSD **Fourier Education Package (1)** New interactive learning experience to enrich students' expertise in MR techniques, including: • Student's Lab Guide: Step by step instructions on how to perform experiments, including theory, in English language • Instructor'S Lab Guide: Provides detailed information on how to set up, execute and evaluate the experiments, in English language **Fourier Accessory Case (1)** The Fourier Accessory Case includes: • 1 Fourier standard shim sample, 5% H2O, 0.06 mM GdCl3 D2O (Z10688) • 1 Fourier standard line shape sample, 20% CHCl3 in Acetone-d6 (Z10689) • 2 Fourier sample tube holders for 7 inch long tubes with an outer diameter of 5 mm (Z170760) • 1 Fourier cleaning kit to be used in case of cullet, to remove broken glass and spill safely from the probe (H176417) • 100 economy tubes for routine NMR, 5 mm outer diameter, 7 inch outer diameter length, wall 0.38 mm, camber 60 um, including Bruker caps without holes with code (Z172600) • USB-stick including Fourier documentation in electronic format (H176416) • 2 Backup fuses, 5x20 mm, 6.3 A (1801717) Instalasi dan pelatihan		