Mobile Heritage Lab List of Equipment 2020

The Mobile Heritage Lab has a wide range of equipment available, which allows the lab to match the needs of each project. See below for a list of some of our equipment and what it does. For further enquires contact the lab manager Josep Grau-Bove josep.grau.bove@ucl.ac.uk.

Air Particle Counter (Gradko International - DC1100 and DC1700)

Detection of airborne particulates including dust. The instrument is simple to use and can be mains or battery operated. Calibration range PM1.0 and PM5.0; Air Particle Counter DC1700: calibration range 0.5 uM /2.5 uM.

Digital Microscope (Keyence-VHX 5000)

All-in-one microscope that incorporates observation, instant high-resolution fully-focused image capture, and measurement capabilities. It was designed to overcome the limitations of traditional optical microscopes by providing large depth-of-field imaging and integrated 2D/3D measurement in a system.

Formaldemeter

The formaldemeter htV can precisely measure formaldehyde concentrations in parts per million (ppm) and mg/m3 over a wide range of temperature and humidity. Sampling methods include a 10ml snatch-sample of air taken by internal pump at a frequency of 1 minute in normal IAQ conditions.

Glossmeter

Measurements of gloss using a specialist geometry often specified in the ceramics, metal manufacturing and film making industries. 0.1GU resolution and 0.2% repeatability. Rhopoint Instruments - Novo-Gloss Lite 20°.

Environmental loggers

HOBO Data Loggers - U12-012, U23-001, UX100-011; iButtons. Monitoring of relative humidity, temperature and light in different environments (also with highly humid). iButtons allow measurements in small spaces such as boxes and inside objects.

Hot Wire Anemometer

The ATP Hot Wire USB Logging Thermo Anemometer is used for low air velocity (0.1 to 25m/sec) and volume measurement. Measures also temperature and relative humidity.
The slim plug in telescopic hot wire probe extends from 0.3 to 1m (including handle). It has a probe sensor head 9mm diameter and has a USB interface for real time transfer of readings to a PC or laptop.

Infrared Reflectography Camera

Provides high resolution (16M, 0.05 mm) IR reflectography images of a surface (e.g. a painting), portable, equipped with a macro lens for close-ups.
Key features: High resolution images (16 mega pixels). Object resolution down to 0.05mm (0.002 inches). Zoom in and out of the screen to look at fine details. Simple controls allow selection and capture of an area of interest. Fast focus mode allows the best focus to be quickly obtained. Integration time and black-level calibrations simply controlled by PC display. Opus – Osiris.

Infrared Thermal Imaging Camera

The FLIR T460 Thermal Camera includes laboratory accuracy and sensitivity in a portable instrument, delivering 76,800 pixels of vivid thermal resolution with an excellent 0.03° C thermal sensitivity – low enough to see even very fine temperature variations in a target. It is capable of measuring temperatures from -20 to 1500 °C (-4 to 2732 °F) with an 1% accuracy.
With a resolution of 320 x 240, T460 features the FLIR UltraMax technology – doubling resolution to 640 x 480 and the total pixels to 307,200. Image bursts are stored on the infrared camera, then downloaded and combined using the included FLIR Tools software for PC or Mac. Lux & UV Indicator. Hanwell – ULM

Mobile Light Spectrometer

Smart spectrometer for spectral assessment and characterisation of light sources in operational, quality and development areas. Android-based operating system automatically calculates critical parameters such as colour temperature and colour rendering index, whilst different accessories are available for specialised measurements including illuminance (lux), spectral irradiance (μW/m2/nm), luminous flux (lumens), spectral radiant flux (W/nm), luminous intensity (candelas), luminance, 2D & spot (candelas per sq. Meter). Analytik-GL Spectis 1.0 Touch

Near Infrared Spectrometer

Handheld portable battery-run NIR spectrometer for material identification and characterisation. Equipped with multivariate software and method builder. Sampling spot diameter 5 mm. Polychromix - Phazir

Optical Profilometer - Surface Roughness Scanner

Optical profilometer for assessment of surface roughness, resolution 3 um, measured area 5x5 mm. Innowep – TraceIT.

pH Meter

The instrument can be used to measure acidity or alkalinity of a solution - also know as pH. Mettler Toledo.

Portable Mass Spectrometer

Portable battery-run membrane-introduction mass spectrometer (with no pre-separation of volatiles) for analysis of volatile compounds in air samples. Useful for identification of VOCs in high concentration in a complex matrix or for characterisation of complex mixtures. KORE - MS-200.
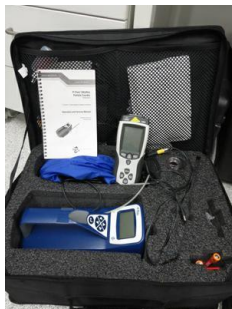
SO2/NOx/O3 Loggers and Meters

Three independently run data loggers and meters for SO2, NOx, and O3 gases in air samples. Various sampling rates from seconds to days, and typically 0.5 ppb detection limits. Teledyne API; M100, M200, M400.

Spectrodensiometer colorimeter X-RITE

Measurements of density, colour and spectral data.
Measurements of light intensity by measuring the wavelength of light. The spectrophotometer will illuminate the sample for measurement with white light. The reflectance of a sample is expressed as a fraction or as a percentage. Selection of measurement aperture - microspot 1.6 x 3.2mm, small 2.0mm, medium 3.4mm or large 6.0mm. X-RITE 500.

Ultrafine Particle Counter

Measurement of ultrafine particulate levels - detection of ultrafine particles smaller than 0.1 µm (or 100 nm). Included Items: telescoping sample probe, sample tube, inlet screen, spare wicks (2), battery holder, and alcohol fill capsule with storage cap, alcohol cartridge, 30ml bottle Reagent Grade Isopropyl alcohol (16), zero filter (2), carrying case, TrakPro software, computer cable, operation and service manual. TSI - P-Trak 8525

Universal Air Sampling Pump

The Universal Air Sampling Pump is suitable for particulate and vapour sampling and has both an inlet and an exhaust port to make bag sampling a breeze. ATEX approved and capable of flows between 5 and 4000 ml/min without requiring an adaptor. Universal Deluxe five pump Combined kit (224-PCMTX8K5C). SKC(224-PCMTX8K5C).

USB 400x Digital Microscope

USB Microscope with 400x magnification, 2 Mega Pixels and alloy flexi-stand and measurement software. Main Features: Adjustable LEDs for object illumination; 2 MP Cmos (interpolated); Measurement function using enclosed software; Snapshot and video recording function; Alloy stand and stand-alone capture button; VMS-004 USB Microscope is supplied with Windows and Mac drivers. The 2 megapixel CMOS lens can be adjusted to point in any direction using the movable arm. Veho - VMS-004.

UV Lamp

Portable UV lamps allows detecting different materials (e.g. varnishes on paintings) depending on its absorption of UV radiation. UVP 3UV lamp.

UV Torch

Portable UV torch allows detecting different materials (e.g. varnishes on paintings) depending on its absorption of UV radiation.

UV-VIS and Near Infrared Spectrometer

Portable UV-VIS-NIR spectrometer for material identification and characterisation. Equipped with fibre optics sampling accessories to accommodate materials of different size and shape. Sampling spot diameter 2-10 mm. LabSpec – 5000.

VOC (volatile organic compounds) Handheld Sensor

Handheld battery-run portable meter and data logger for the concentration of total VOCs in the air. Limit of detection: 10 ppb, resolution 1 ppb, linear range 10 ppm. ppb RAE – 3000.

UVA/B Light Meter

Measurement of damaging UV (long and medium wave UV-A/B) light in the environment and museums.
UV light intensity appears on the large backlit display in either µW or mW/cm² while the small lower display simultaneously shows minimum, maximum, average and recorded data. Up to 20 data points can be recorded automatically at a variety of intervals. Sper Scientific – 850009.