



OTSUKA The **O-SCOPE2**

High quality,
unique, compact,
go anywhere,
use anywhere

The **O-scope2** is a truly high quality, unique, compact, go anywhere, use anywhere, research grade, portable field microscope, offering a wide magnification range from 100x to 1600x with comparable performance and resolution to mid-priced bench compound microscopes but within the smallest product size possible and minimal compromise on usability.

The **O-scope2** is quick and simple in operation and a bright, sharp image can be viewed or photographed within seconds. To extend the range and usefulness of what is essentially a hand portable instrument attachment methods have been created to allow tripod and/or digital camera mounting, and the attachment of a XY micrometer slide indexer/stage.

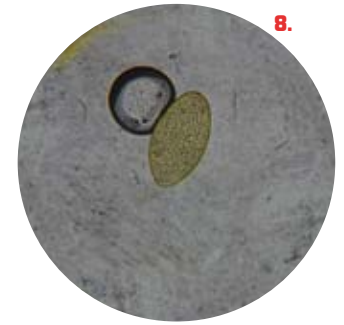
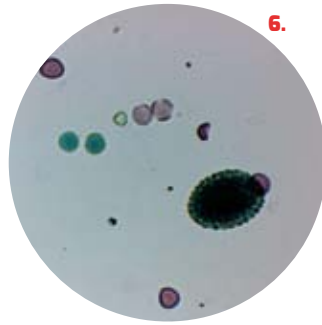
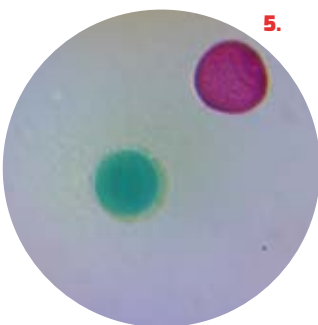
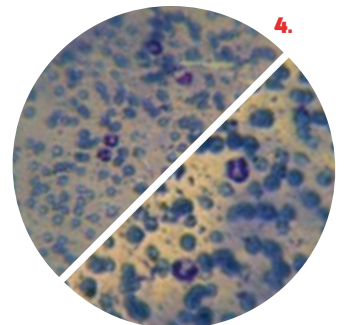
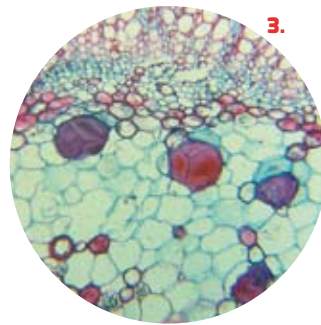
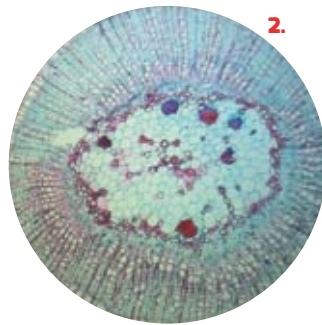
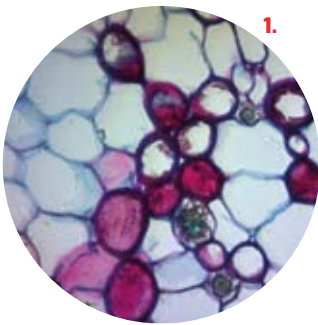
The **O-scope2** Portable Field Microscope

The O-scope2 OPTICAL SYSTEM

The optical system is based on the RMS 160mm 'tube' length and uses the standard RMS eyepiece mounting. The compact hand held form factor required an inverted design with the optical path three dimensionally folded using 3 multi-coated front silvered precision ground glass mirrors. The objective lenses, designed and manufactured by Cambridge Optronics, are significantly miniaturised in order to reduce overall product size and weight. The precision ground multi coated glass elements are laser aligned and set within custom mounts.

The optical chassis and mechanism is an arrangement of anodised high pressure Aluminium die-cast parts with CNC precision machined surfaces. The optical chassis is relatively independent of the external casing, which is intended to provide numerous levels of protection with precision injection moulded rubber coated PC/ABS parts.

A hand held portable design and typical Tropical field conditions required a miniaturised in-built low energy illumination system. The O-scope2 uses a white LED light source controlled by an energy management circuit, driven by AAA battery pack or a USB connection.



1. Tillea stem amsc x100
2. Tillea stem amsc iPhone x100
3. Tillea stem amsc iPhone x400
4. MHM Malaria 2x400 / MHM Malaria 2x600

5. Pollen x6001 aXX
6. Pollen x400
7. Schistosome worm egg
8. Egg of fasciola gigantica

The **O-scope2** product features and operation

Magnification

The **O-scope2** can simultaneously carry up to 3 objective lenses. The factory fitment is 1 x10, 1 x40, and 1 x blanking plug. The blanked third position is a user option to allow higher magnifications to be installed, including x60, or x100 oil. Each objective position is numbered 1 to 3, with No1 as x10, No2 as x40, and No3 as the expansion option. The actual power of individual objectives are marked on their top surfaces with the x magnification value and the standard RMS colour coding. Objectives are selected by rotating the magnification knob located in the centre underneath the main body. This can be rotated in either direction but a clockwise turn starting from x10 indexes the objective to the next power up. The selected power should lightly click into position when correctly aligned, with a visible alignment check indicator on the top surface using two red dots and a corresponding number for each objective location.

Illumination Brightness

The viewing brightness can be **increased or decreased by rotating the thumb wheel** underneath in the direction indicated by the graphic. Higher magnifications require higher lighting levels. To avoid potential over-brightness at x10 pre-set the illumination to the lowest level before viewing. Further reduction in brightness can be achieved by lifting the lighting arm slightly. At x1000 magnification the internal 3xAAA primary cells offer approximately 300 hours of continuous operation and at x100 and x400 magnifications approximately 1000 hours.

External Power

The **O-scope2** has a **circuit designed to allow external power** sources to drive the lighting system instead of relying on the internal battery pack. When using external power sources the automatic cut out is overridden. External power sources can also deliver a slightly brighter light if required. The supplied USB cable connects into the socket in the side, and can be driven from a PC/Lap top or a USB mains plug adaptor (often found with smart phones).

Mounting

As this is primarily a hand held instrument tripod mounting frees up the operators hands allowing faster and more convenient access to various controls simultaneously. This is **particularly useful for longer periods of investigation and reduces fatigue**. There are two standard tripod mounting points underneath and the mount nearest the brightness control tends to give clearer access to the magnification changer when mounted. Cambridge Optronics recommend a specific tripod combining smallness of size and weight but with sufficient stability and reliable positioning lock.



The O-scope2 can be tripod mounted for bench operation, XY stage attachable and digital camera attachable.



The **O-scope2** in its standard form is supplied as follows

- 10x and 40x objectives
- RMS standard 10x wide field eyepiece
- Removable slide clips
- Integrated LED lighting
- Rugged foam lined carry case
- Instructions
- USB cable
- 3 x AAA batteries



The **O-scope2** Product Specifications

Microscope Type	Monocular, Inverted, Portable			
Special Features	3D Folded Optical Path RMS standard path length and eyepiece fitment Miniature objectives - novel design Reciprocating Focus			
COMPONENTS				
Plan Objectives	Part No.	Total Magnification		AVAILABILITY
		With 10x eyepiece	With 16x eyepiece (optional)	
10X		100X	160X	On all models
40X		400X	640X	On The O-scope2-146
60X	0222	600X	960X	On The O-scope2- 1410
100X (oil)	0223	1000X	1600X	On all models
Objective Type	NM Miniature, coverslip corrected			On all models
Objective Carriage	Inverted Rotating Turret, click stop, control on underside			On all models
Objective Mount	NM Miniature Thread with tool for removal/insertion			On all models
Eyepiece:	Part No.	Field Number		
10X		18mm		On all models
10X WF	7209	20mm		Optional
16X	7315	11mm		Optional
10X Focussing with 100 Division Horizontal Reticle (with crosshair)	5021	18mm		Optional
10X WF Focussing with 100 Division Horizontal Reticle (with crosshair)	4963	20mm		On all models
Stage	Scratch Resistant with spring loaded specimen clips			On all models
Focus	Fine Focus, reciprocating, side mounted knob			On all models
Illumination	Bright White LED Adjustable Intensity Auto power save in battery mode			On all models
Dimensions	Size (main body) - Length 133mm, width 110mm, height 49mm			
	Size (max overall) - Length 154mm, width 122mm, height 66mm			
Weight	480gms (with 2 objectives)			
Power	3x AAA battery Pack Auto power save in battery mode External USB power connectable Battery life approximately 1,000 hours at minimum continuous power Battery life approx 300 hours at maximum continuous power			On all models
Other	Supplied with Plastic Case & USB power lead Tripod mount on underside			On all models
Camera Adapters	Part No.	Specification		
C-Mount	8732	0.5X		Optional
SLR	0159	T2 Mount		Optional
Immersion oil	9161	5ml		Optional