



228-000

60 mm f/3.5 UV Forensic Fingerprint Lens

- **Compact design** providing a small lens to match the hand-held concept of a RUVIS system
- **Larger field of view** to match the fingerprint application (8.3° at 1:1.25 magnification up to 16.6° at long object distances) and fundamental to achieving many of the technical improvements listed here.
- **Improved lighting efficiency** - because the **228-000** lens, with its larger field of view, brings both UV lights and UV imager closer to the object than is the case with longer focal length lenses offering an identical view. The light level varies in proportion to the square of the object distance, and so the gain in lighting efficiency is approximately given by the ratio of focal lengths, e.g. the new 60 mm new lens in place of an 80 mm lens gives increased lighting efficiency of $(80/60)^2 = x1.78$ or 78% more light on the scene.
- **Extended magnification range** by using a novel telescopic focussing mount giving a large movement in an extremely compact form. This is perhaps the first lens of any type that offers the capability to image objects from infinity down to 1:1.25 magnification without using add-on adapters.
- **High Resolution Macro Viewing** - achieved by imaging fingerprints onto the image intensifier with a 1:1 lens magnification (**the macro setting**) while exactly matching the optical resolution of both lens and image intensifier. At this setting the RUVIS Scope resolves approx. 32 line pairs/mm over a 17.5 mm object diameter which is a significantly higher level of performance (around 2x better) than previously achieved by any RUVIS Scope. **This offers a unique high resolution crime-site macro viewing capability.** Enlarged images (around 2x magnification) can also be recorded onto 35 mm film at this macro setting.
- **Fast filter selection** – is available by using an integral filter holder with two positive click-stop positions. Each filter holder carries either two selected UV filters or a UV filter and window for the visible waveband. Extra and easily exchanged filter holders permit fast on-site selection of alternative UV filters. The new filter mechanism does not get in the way of illuminating close objects.
- **High transmission** - achieved by using the minimum of optical surfaces and very high performance multilayer anti-reflection coatings (Transmission per surface >99% over the waveband from 230 nm to 500 nm). The peak transmission points are centered around the key wavelengths for finger print analysis, namely 230 nm and 300 nm.
- **Highly accurate reproduction of fingerprints** with geometric image distortion corrected to <0.1%.

The **228-000** lens has the look and feel of a truly professional lens with an unrivalled performance to enhance any RUVIS system. Detailed specifications can be found on our web site at www.resolveoptics.com

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ITEM:	VALUE	COMMENTS
Focal Length	60 mm	Note: 105 mm Nikkor plus 127 mm single element has a focal length of 78 mm and an aperture of f/3.35. The focus scale and iris scales on the Nikkor are then no longer calibrated and provide incorrect readings.
Aperture	f / 3.5	Aperture range f/3.5 to f/32
Image Format	17.5 mm diameter	Image Intensifier tube used is type XX1440. Lens is always used with image intensifier.
Magnification	Infinity to 1:1.25	Object to lens distance at 1:1.25 approx. 0.76 feet (0.23 m)
Field of View	at infinity 16.6° at 1:1.25 9.3°	across 17.5 mm diameter
Object to Flange Distances	Infinity down to approx. 0.76 feet	Infinity down to approx. 0.76 feet (230 mm) as measured to lens/camera flange
Spectral Waveband	230nm to 290nm	See data sheets on image intensifier / filters used / UV Light source/ absorbing filter. Visible band is used for camera alignment with object area to be viewed.
Image Resolution	At 32 cycles/mm	MTF on-axis >60%, 0.7 field >40%, Corner >20%
Vignetting	< 22%	in corners
Mechanical Length	88 mm to 141 mm - See drawing 228-000	
Mechanical Diameter	Max. diameter 61 mm – see drawing 228-000	
Register	C-mount	17.53 mm in air . Lens mounting thread 1" – 32 UN-2A
Focusing Mount	Special telescopic movement	Focuses on objects from infinity down to approx. 0.76 feet to give 1:1.25 magnification
Filters	25 mm Ø filters in moveable slide holder	Filter diameter 25 mm + - 0.25 mm, maximum thickness 5 mm, minimum thickness 3.5 mm.
Filter Slide Holders	Click-stop filter location Fast Pull-out and Push-in exchange	Each slide holder can hold either two UV filters, or one UV filter and a window for object alignment in visible the waveband. See instructions for use. One filter holder is supplied with each lens.
Top Side Adjustment	Permits lens to be oriented to camera such that engraved scales are correctly located for use. See instructions for use.	
Weight	Approx. 500 g	

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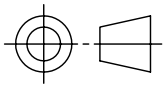
F: +44 (0) 1494 775201

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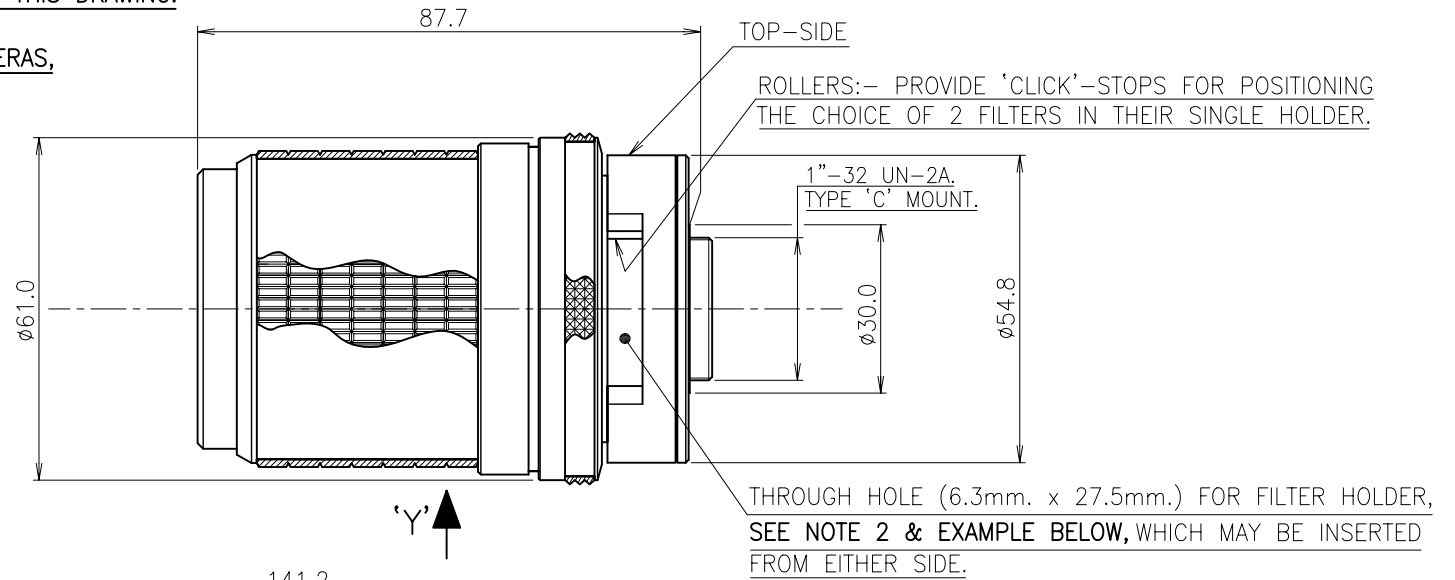
W: www.resolveoptics.com

NOTES:-

- FOR DETAILS OF ENGRAVING SEE SHEET 2 (A3) OF THIS DRAWING.
- FOR DETAILS OF FILTER HOLDER SEE SHEET 3 (A4) OF THIS DRAWING.
- FOR DETAILS OF MOUNTING ADAPTER FOR TYPICAL CAMERAS, SEE OUTLINES DRAWING No. 228-015.

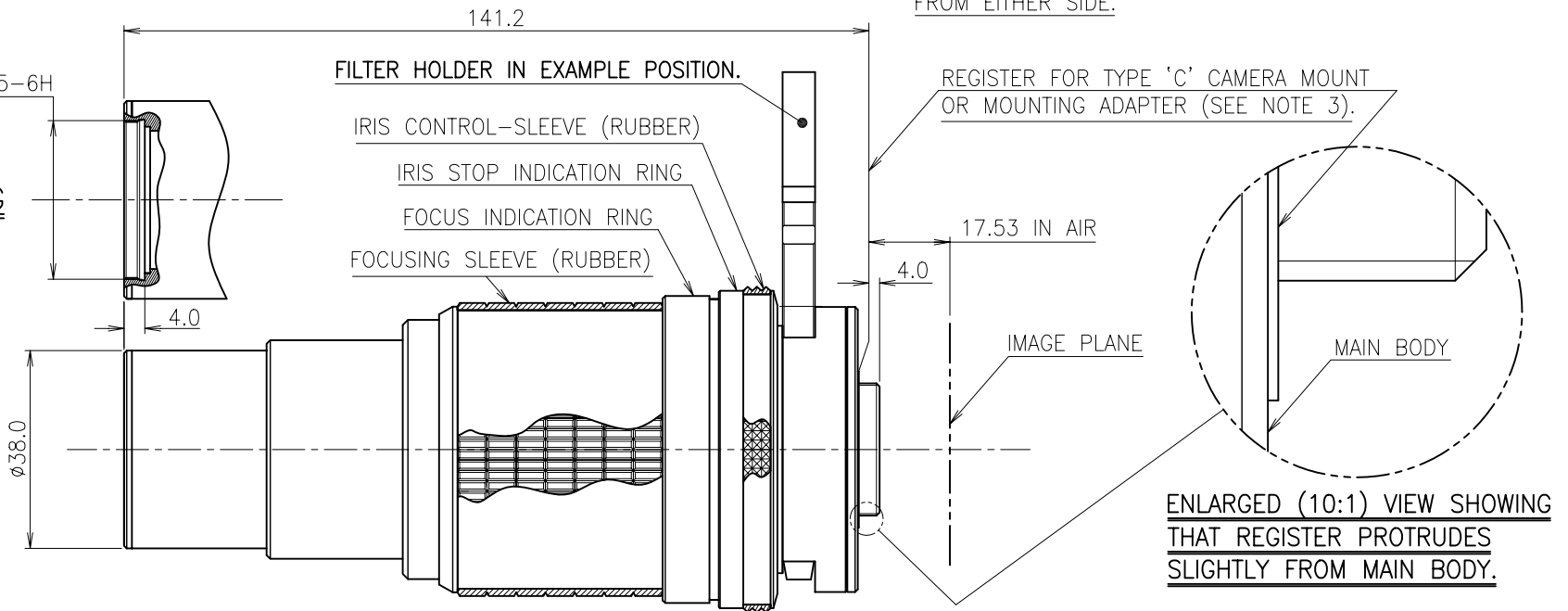


LENS FOCUSED AT INFINITY.



SCRAP SECTION OF FRONT EXTENDING BARREL SHOWING DETAIL OF FILTER THREAD.

M30.5 x 0.5-6H



VIEW IN DIRECTION 'Y' AND WITH LENS FRONT AT MAXIMUM EXTENSION.

ENLARGED (10:1) VIEW SHOWING THAT REGISTER PROTRUDES SLIGHTLY FROM MAIN BODY.