OpTex Excellence

INSTRUCTION MANUAL

Contents


Motion Picture Relay

Introduction

Excellence is an extremely high quality Periscope/Probe lens designed to return images that will match or exceed those produced by modern prime and zoom lenses.

The design of the system overcomes many of the limitations imposed by previous designs, such as limited optical performance and over-extended Depth-of-Field when shooting on Television formats.

Excellence is an extremely versatile system, able to perform a wide range of tasks. Because of this, we recommend that you spend a few moments reading through this Manual, which will help you to obtain the best results from the system.

The Manufactures reserve the right to make occasional changes and improvements to specifications. We also welcome your comments and suggestions for further enhancements to Excellence. Please contact us through your OpTex Agent, or directly at the address below.

In order to obtain the best use of the system, please refer to the various guidelines and recommendations laid out in this Manual.

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OpTex HDTV
OpTex
90° Module

Assembly

Excellence is a totally modular system, allowing you to interchange various parts freely. The basic modules referred to in this Manual are as follows:

- **Prime Lenses:** There are currently four lenses available, ranging from 120° to 60° coverage. The angle of view remains constant, no matter what format is used, the Format Module giving appropriate image magnification. Please refer to the Table on Page 7 for appropriate focal lengths.
  The Prime Lenses use a special bayonet mount. Please take care that the lens is fitted carefully to the mount. Turning the locking ring clockwise locks the lens.
- **Prism Module:** The Prism Module allows you to shoot at 90° to the optical axis. It is fully corrected for both colour and exposure.
- **Probe Module:** The probe module is used when shooting on the optical axis. Like the Prism Module, it is fully corrected for colour and exposure.
  A secondary Probe Module may be fitted in order to extend the reach of the system. No exposure compensation is needed, however, in this mode, the image will be inverted.
- **Relay Module:** There are two Relay Modules available. The TV/HDTV Relay is specifically designed for use with ⅔" HDTV cameras and comes fitted with a standard B4 mount.
  In the case of the Film Relay, the appropriate Format Module (for Super 16, 35mm, 35mm Anamorphic, Vistavision, 65mm or IMAX® need to be fitted to the end of the Module.
- **Format Module:** The appropriate Format Module ensures full coverage and correct image size. Because the working aperture of the system is affected by image size, each format module comes supplied with an appropriate aperture scale.
  In all cases, the aperture scale is scribed with the appropriate T Stops so that no exposure correction is necessary. The Format Modules are fitted with a Universal Mount, allowing you to interchange the system to fit all popular cameras.
  The Format Module includes a filter holder in a rotating mount. You can fit any high quality 49mm filter. The rotating mount allows you to set the correct orientation for polarising and star filters.

Matte Box: A clip-on matte box is supplied, designed to take both 2x2" or 2x3" filters. This is simply slid on to the prime lens. The shade may be extended as appropriate and is self supporting.

- **Assembling Modules:** Apart from the Prime Lenses, all modules are assembled using a precision screw mount. Before tightening the knurled ring, make sure that each module is fitted correctly and in-line. The knurled ring needs only to be done up lightly - over tightening may damage the system.

  Please make sure that all surfaces are clean and free from dust when assembling the system. Although the Telecentric optics incorporated in Excellence overcome the problems associated with field lenses, it is still a precision optical instrument and should be treated as such.

- **Mounting on the Camera:** The system is designed to be used on a standard Arri style Bridge Plate, using 19mm or 15mm bars. It is essential to ensure that the lens support bracket is correctly centred on the optical axis by selecting the appropriate camera support plate.

  Although Excellence is self-supporting, we strongly recommend that you use a Bridge Plate - especially in Probe Mode.

  When using the system with a video camera mounted via a Tripod Adaptor Plate, do not attempt to release the camera without first releasing the lens support

- **Using Focus and Iris Motors:** 19mm Bars are provide so that you can mount most popular motors directly onto the Relay Module. The module is fitted with standard 0.8 Modulus gears, fully compatible with film and motion control systems.

  Motors may also be fitted to the 19mm or 15mm bars on the Bridge Plate. Whenever using externally mounted motors, it is *essential* that the lens support be used. Failure to do so can result in severe damage to the lens mount.

Lens Angle/Focal Length Table

Because the system is universal across a wide range of formats, all the Prime Lenses are marked in Degrees, rather than focal length.

The Table below shows the equivalent focal lengths for ⅔" Video, Super16, 35mm, 35mm Anamorphic, Vistavision and 65mm.

The Aperture scale is in T Stops measured at Short Infinity. There is no need to compensate for exposure, no matter what module is used. The only exception to this is where magnification may affect exposure as dealt with later in this Manual.

Format	Stop	120°	100°	78°	60°
⅔" Video	T2.2	4mm	5.6mm	8mm	11.2mm
Super16	T2.8	5mm	7mm	10mm	14mm
35mm Full Aperture	T5.6	10mm	14mm	20mm	28mm
35mm Anamorphic	T8	10/20mm	14/28mm	20/40mm	28/56mm
Stills/Vistavision	T8	14mm	20mm	28mm	40mm
65mm	T11	20mm	28mm	40mm	56mm

Setting Focus

The Excellence system is designed to focus from Infinity down to extreme close-up (less than 1cm from the prime lens surface).

In order to achieve this, a double focus system has been incorporated. Not only does this allow for extended focus but also a correction has been built in to overcome the problem of Field Curvature that would normally exist in a Periscope/Probe system. This arises when attempting to focus a very close object with a lens designed for distance use. It results in the edges of the image focussing on a different plane to the centre.

For extreme close focussing, some experimentation may be needed, especially when using the wider Prime Lenses. Under such conditions, with a flat subject, the edges will be at a considerably greater distance than the centre. Conversely, you can use the effect to deliberately throw the edges out of focus, should this be required.

For normal use, the main focus control on the relay is used. In order to extend close focus, each of the four prime lenses is fitted with a focussing mount. The mount is continuously variable between infinity and extreme close focus. Because of this, when using the Prime Lenses at Distant focus, the main relay will focus beyond infinity. This is quite deliberate. The following guidelines should be used for close-up work.

	MAIN RELAY			
	NEAR		**FAR**	
LENS	**NEAR**	**FAR**	**NEAR**	**FAR**
120°	SURFACE	.25"/8mm	1.25"/35mm	INF
100°	.25"/8mm	2"/50mm	1"/25mm	INF
78°	.75"/20mm	7"/180mm	2.5"/65mm	INF
60°	1.75"/45mm	9.5"/240mm	6"/150mm	INF

Motion Control

Because of its compact construction, the Excellence System will work with a wide range of Motion Control rigs.

The following table should be used to calculate movement nodes for pan and tilt. The Table shows the approximate front nodal plane of each prime lens. However, we advise individual tests for precision work. The measurements have been taken from the front ring of the lens.

LENS	ENTRANCE PUPIL
120°	13.6mm
100°	15.2mm
78°	19.9mm
60°	23mm

Cleaning and Maintenance

Excellence is built to the highest standards required for use in the film and television industries and should require very little routine maintenance.

There are no user-serviceable parts on the Excellence system and all maintenance should be referred to OpTex or their service agents. Do not attempt to disassemble the unit under any circumstances.

- **Collision Avoidance:** The optics used by the Excellence system have been shock mounted to withstand normal usage. However, you should bear in mind when using the system that because of its extended length - especially in probe mode - considerable forces can be involved when moving the camera.
  Especially when setting up motion control rigs, please ensure that there are no obstructions that are likely to be hit by any part of the system.

- **Cleaning the Body:** Only use a soft cloth and a mild cleaning fluid such as Isopropyl Alcohol. Avoid getting any part of the unit wet - the cloth should only be damp.

- **Cleaning Lenses:** Treat all optical elements of Excellence exactly like any other cinematographic lens. Avoid finger marks, which will lead to a degraded image and if not removed, could cause permanent damage. Clean lenses only with a fine camelhair brush or if necessary lens cleaning tissue and an approved lens cleaning fluid.

- **Rear filter:** We strongly recommend that you keep the plain glass rear filter fitted at all times - unless you are using other filters. This will help to ensure that dust does not enter the Relay Module.

- **Dust:** Although the Telecentric design of the system substantially reduces the risk associated with systems using field lenses of photographing dust, you should still keep all optical surfaces dust free.
  Many of the lenses used are of an extreme wide angle. As with other wide-angle primes, when used in close focus mode, any dust settling on the front element may photograph. Keep the lenses capped whenever the system is not in use.

Exposure Control and Magnification

The system is calibrated in true T Stops so that there is no need for exposure compensation - no matter what configuration is used.

However, like any other optical device, exposure is affected by magnification. A general formula for calculating exposure compensation is:

NS=OS/(M+1)

Where NS= New Stop, OS=Original Stop and M=Magnification Factor. For general guidance, the following horizontal dimensions may be used in calculating the Magnification.

Format	mm	Inches
⅔" Video*	8	0.346
Standard 16mm	10.26	0.404
Super 16	12.52	0.517
35mm Academy	21.95	0.864
35mm Full Aperture	24.92	0.98
35mm Anamorphic**	21.95	0.864
Vistavision/Stills	37.72	1.485
65mm (5 Perf)	52.5	2.066
IMAX	71.09	2.799

*For 4:3 shot on a 16:9 camera divide width by .3
**For 35mm Anamorphic, multiply width by x2 to compensate for squeeze

Accessories

A range of accessories to add to the versatility of the Excellence System is either already available or in development.

For example, it is possible to fit a Spintec Rain Deflector directly on both the Periscope and Probe Modules.

Underwater Housings will also be available. OpTex is always interested in developing new accessories to support the Excellence Systems. If you have any suggestions or requests, please contact us directly at the address shown on Page 3.

Appendix

MACRO PHOTOGRAPHY
For extreme close- up shots, it is possible to use the Relay Module (either Film or HDTV) alone, without either the Prism or Probe Modules attached.

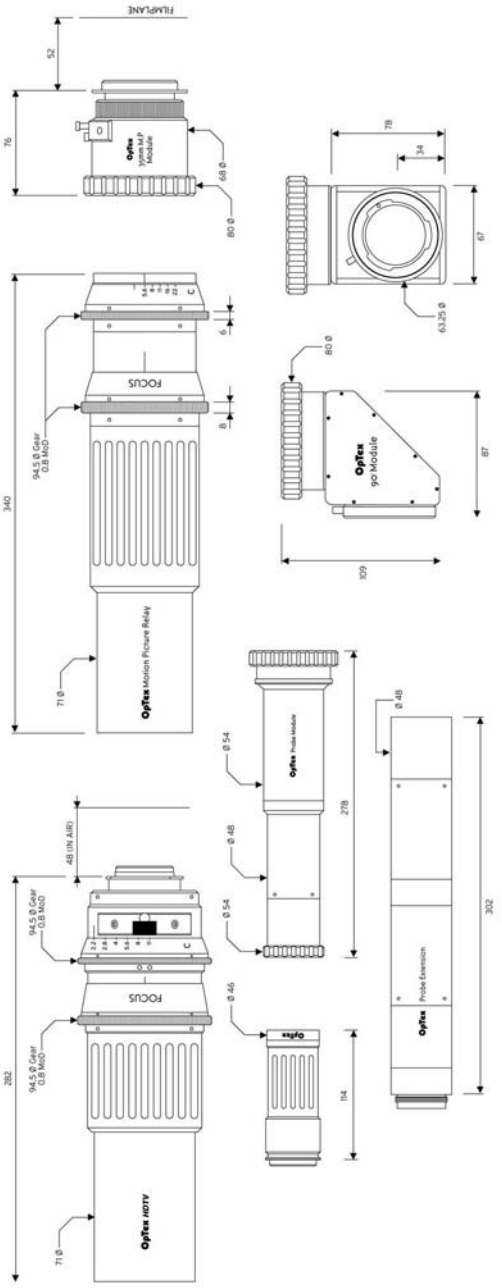
In this mode, the system will work at approx 1:1.

FILTER
The filter fitted to the rear of the system is a standard 49mm round filter. In addition to the clear filter fitted, it is also possible to use combined 85, ND, Pola and Star filters.

In the latter case, the filter may be rotated by means of the small rubber wheel. Please note that a filter *must* be used at all times in order for the system to deliver best results.

SONY LENS FILES
When used with cameras such as the Sony HDW F-900, it is important to select the appropriate lens file to correctly compensate for colour shading errors introduced by the camera's prism.
Selecting the file for the Canon HJ 9x5.5 will return the best result.

OpTex Excellence - System Chart



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