

**PROXIMITY SERIES:**

**InfiniMite™**

**The Smart Lens™**



**Photo-Optical Company** • *Manufacturers of precision optical instruments.*

2530 Frontier Ave., Boulder, CO 80301 • Tel: (303) 440-4544 • Fax: (303) 440-4144 • E-mail: [info@infinity-usa.com](mailto:info@infinity-usa.com) • Web: [www.infinity-usa.com](http://www.infinity-usa.com)

Copyright 2003 Infinity Photo-Optical Company. All Rights Reserved.

## InfiniMite™ Video/Machine Vision Lenses

Capable of direct focus from infinity to 30mm, the InfiniMite optics are new additions to the PROXIMITY Series of application-specific video/machine vision lenses. Input from machine vision specialists was taken into consideration during the design and development of InfiniMite optics, resulting in truly innovative C/CS-mount video lenses with many unique features. Incorporating a patented Dynamic (internal) Focusing System (DFS), the InfiniMite optics always remain dimensionally stable. The InfiniMite DFS system provides continuous spherical correction with progressive proximity to the subject. This means that each InfiniMite improves its image quality where other lenses suffer aberrational defects.

**The Dynamic Focusing System (DFS).** A patented internal focusing system has been developed for InfiniMite. As the world leader in internally-focused optical instruments, Infinity Photo-Optical Company has developed a *lens* (as opposed to a full-fledged instrument) which is application-specific. Infinity's other (instrument) products incorporate patented afocally-variable focusing systems—AVS and InFocus—which allow many different configurations for successively different uses and applications. DFS is also a varying system, but is simplified by combining and subsuming the varying principle into the image-forming optics. This results in a less costly optical design, allowing the InfiniMite to be priced substantially lower than our more comprehensive instruments. Within its application "envelope," InfiniMite offers optical performance comparable to systems costing many times more, yet it provides new capabilities and conveniences due to its revolutionary concept and design.

Another feature of DFS is its "self-defining" aperture system. As focus is determined, so is the best overall aperture. Automatically, InfiniMite "finds" its optimum imaging potential. As a result, the typical iris diaphragm has been dispensed with.

Each InfiniMite in its own right is called The Smart Lens. This is because, at specific working distances each "finds" specific, repeatable magnifications—which can even be doubled to be specific, repeatable magnifications. They're the Smart Lenses for Smart Cameras!

**InfiniMite Alpha** was specifically designed to provide an optimum operating range and set of magnification options for 1/3-in. sensors commonly incorporated in smart-sensored video cameras. At specific points, InfiniMite "knows" it attains 0.25x, 0.50x and 0.75x. By adding a 2x Power Module Amplifier (DL or LDL Tube), InfiniMite can be used at 0.50x, 1x and 1.50x—without altering the original working distance. InfiniMite Alpha is also suited for sensors up to 1/2-in.

**InfiniMite Beta**—aside from being 7mm longer, is identical to the Alpha and produces a similar magnification range—but with approximately 50% greater working distance at any given time. InfiniMite Beta is suited primarily for 1/2-in. sensors. Please refer to the magnification charts in the OEM Handbook (under Technical Information below) for specific details.

**InfiniMite Gamma** is primarily used with larger-sensored cameras. The longest working distance in the InfiniMite series. The InfiniMite Gamma is 20mm longer than the InfiniMite Beta and 27mm longer than the InfiniMite Alpha.

### Focusing-lock:

The focusing ring (#4-40 socket set screw on the bottom of the focus ring) can be locked at one focus. It may be conveniently re-set if the need arises by loosening the socket set screw. This "set and forget" type of system reduces the chances that its focus will be knocked out of position or tampered with, yet also offers the versatility of variable focus when needed.

**Function.** InfiniMite's Focusing Ring activates focus. Power Module Amplifiers can be mounted to step-up magnification by 2x (one DL or lockable LDL Tube). Another unique design feature is that several frontal accessories are available to mount ring lights of various diameters directly to InfiniMite. Since the front objective is recessed, its elongated outer mount serves as a built-in lens shade. By using an optional retaining ring, the lens shade can be used to mount 25mm diameter optical filters.

**Formats.** InfiniMite can be used with all C-mount and CS-mount video cameras. If used with CS-mount cameras, a C5 Spacer should be added to compensate for InfiniMite's standard C-mount back focal distance. InfiniMite covers all 2/3-in. and smaller-sensored cameras (1x to 2x amplification).

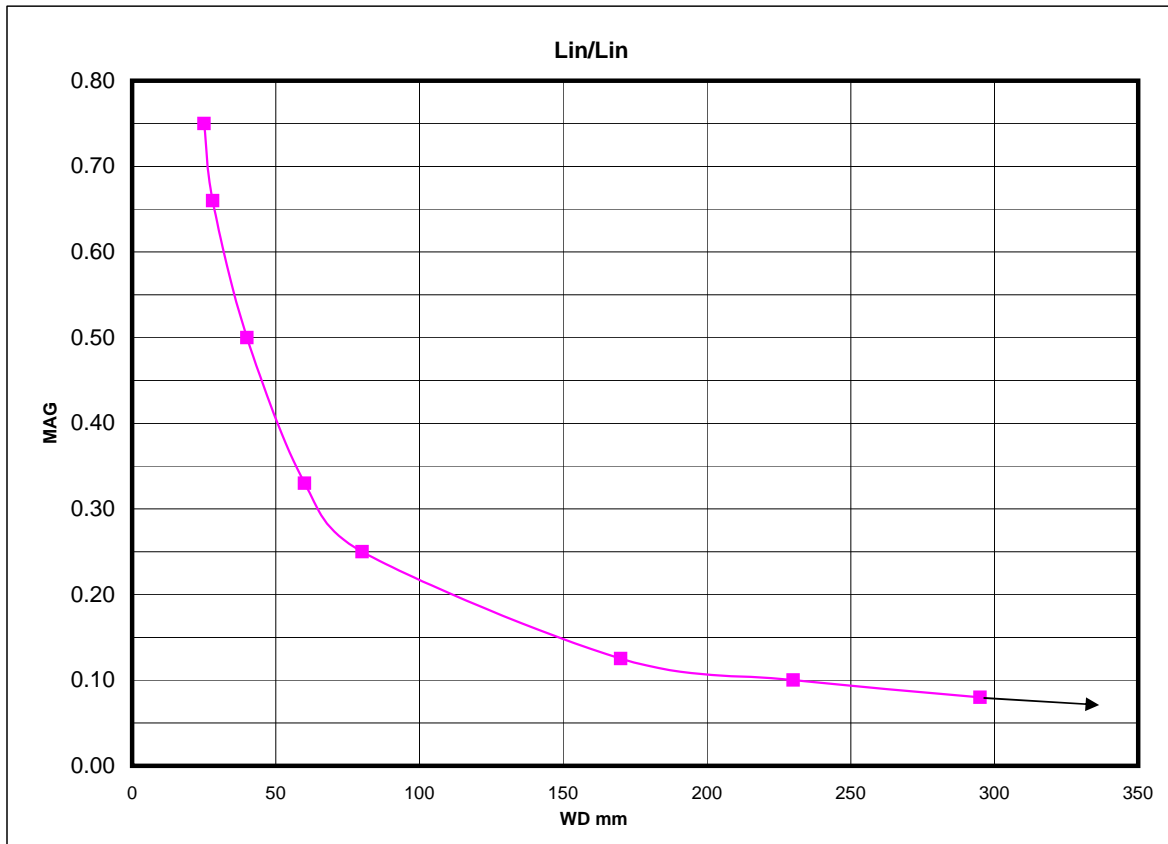
**Accessories.** Besides Power Module Amplifier Tubes for altering magnification by 2x, InfiniMite accepts various frontal adapters for direct connection of ring light illuminators. An Extender permits 30mm and larger ring lights to be mounted, and also serves as a 25mm diameter filter holder. Other adapters for 21, 28mm and 66mm ring lights are also available. The Extender accepts an optional C-Clamp for special mounting requirements. The C-Clamp can also be used atop InfiniMite.

The 21mm Fiber Optic Ring Light Adapter is a plastic probe which acts as a variable condenser when a 21mm ring light is moved up-and-down its shaft. This results in a continuous transition from brightfield to darkfield and assists edge detection in many objects which would otherwise defy being easily measured.

**Care and cleaning.** The InfiniMite should be treated as the fine lens that it is. Care should be taken to keep dust and dirt off external lens surfaces. The unit can be cleaned (metal parts only) by a cloth moistened with alcohol. The external optical surfaces should be cleaned only when necessary, and then, only by a soft cotton swab moistened by an approved optical glass cleaner. If you have further questions, please contact Infinity Photo-Optical Company or your authorized dealer.

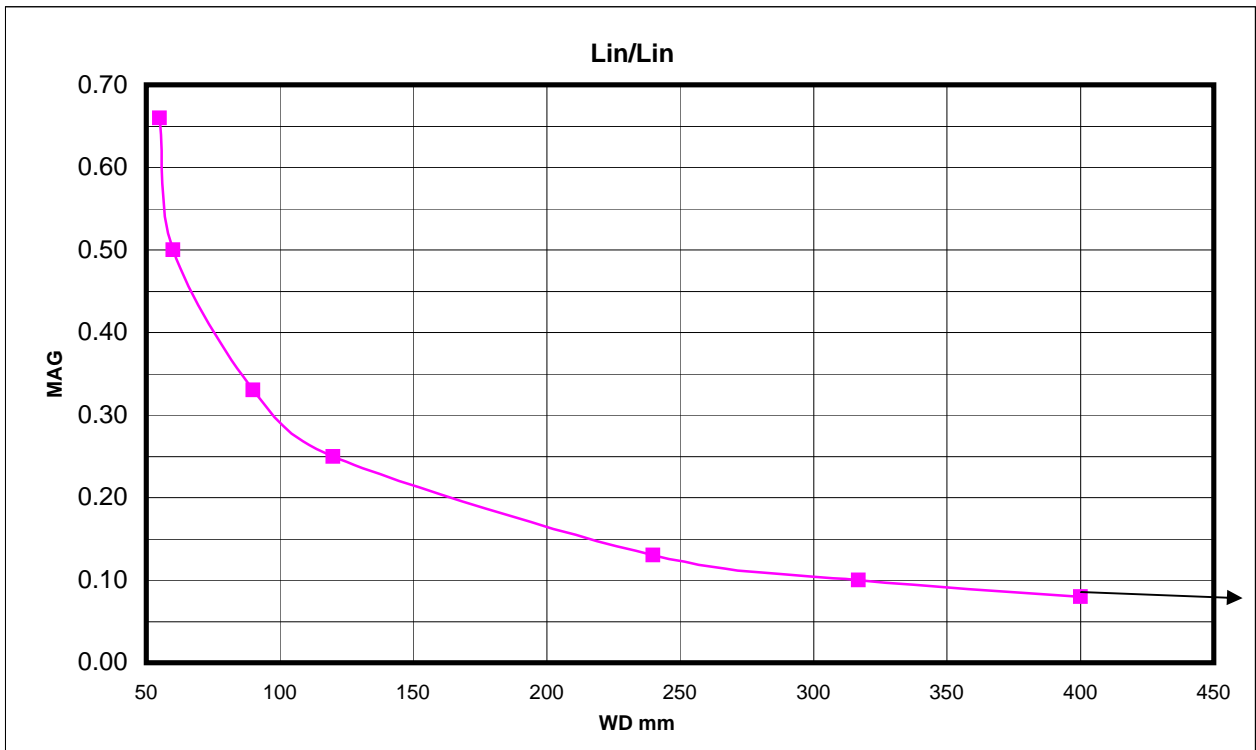
## INFINIMITE ALPHA OPTICAL DATA

<b>InfiniMite Alpha</b>	<b>WD mm</b>	25	28	40	60	80	170	230	295
<b>Direct</b>	<b>Mag</b>	0.75	0.66	0.50	0.33	0.25	0.13	0.10	0.08
	<b>FOV 1/2"</b>	8.5	9.7	12.8	19.4	25.6	51.2	64.0	80.0
	<b>FOV 1/3"</b>	6.4	7.3	9.6	14.5	19.2	38.4	48.0	60.0
	<b>WD mm</b>	25	28	40	60	80	170	230	295
<b>DL or LDL</b>	<b>Mag</b>	1.50	1.32	1.00	0.66	0.50	0.25	0.20	0.16
	<b>FOV 1/2"</b>	4.3	4.8	6.4	9.7	12.8	25.6	32.0	40.0
	<b>FOV 1/3"</b>	3.2	3.6	4.8	7.3	9.6	19.2	24.0	30.0



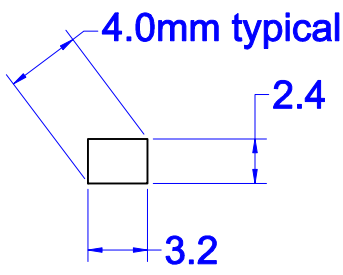
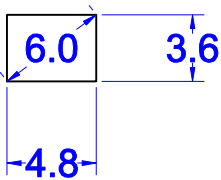
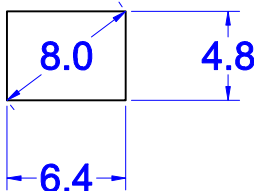
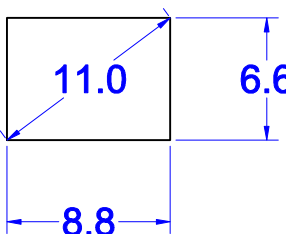
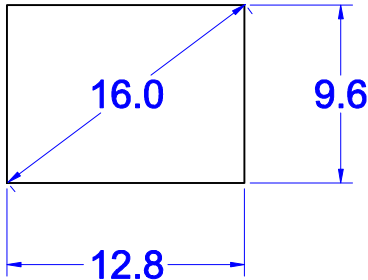
## INFINIMITE BETA OPTICAL DATA

<b>InfiniMite Beta</b>	<b>WD mm</b>	55	60	90	120	240	317	400
<b>Direct</b>	<b>Mag</b>	0.66	0.50	0.33	0.25	0.13	0.10	0.08
	<b>FOV 1/2"</b>	9.7	12.8	19.4	25.6	49.2	64.0	80.0
	<b>FOV 1/3"</b>	7.3	9.6	14.5	19.2	36.9	48.0	60.0
	<b>WD mm</b>	55	60	90	120	240	317	400
<b>DL or LDL</b>	<b>Mag</b>	1.32	1.00	0.66	0.50	0.26	0.20	0.16
	<b>FOV 1/2"</b>	4.8	6.4	9.7	12.8	24.6	32.0	40.0
	<b>FOV 1/3"</b>	3.6	4.8	7.3	9.6	18.5	24.0	30.0

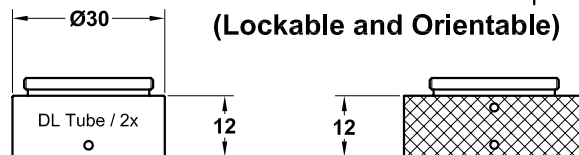




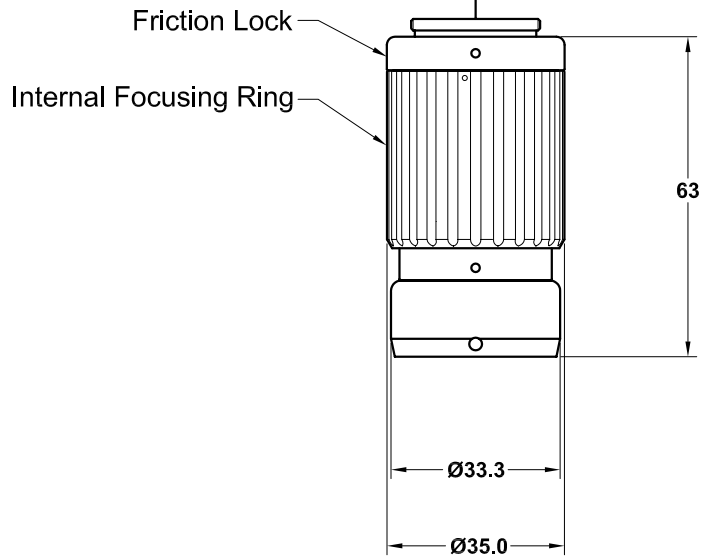
# Video Formats

Format	Factor	
1/4"	0.50	
1/3"	0.75	
1/2"	1.00	
2/3"	1.375	
1"	2.00	

Power Module Amplifier Factor: 2x



LDL/2x



REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

ALL DIM ARE mm [inches] AND ARE FOR REFERENCE ONLY AND ARE SUBJECT TO CHANGE.

**INFINITY** Photo-Optical Company  
 2530 Frontier Ave., Boulder, CO 80301  
 303/440-4544 Fax 303/440-4144

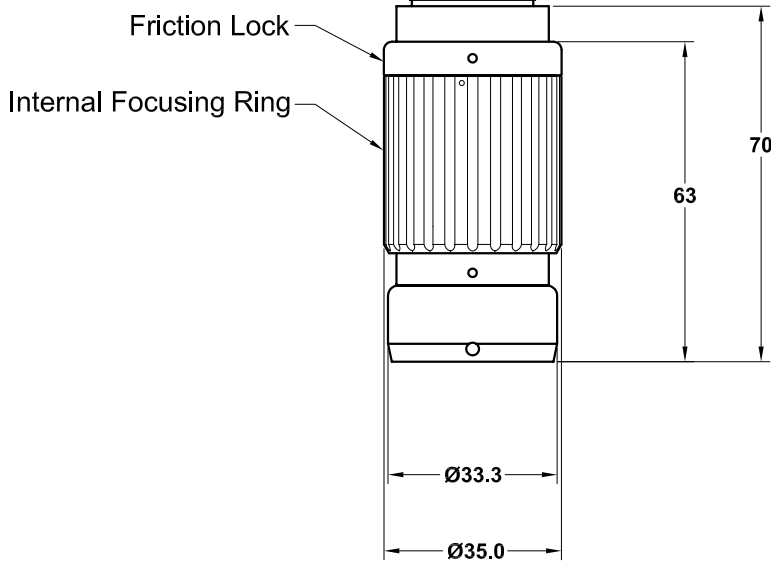
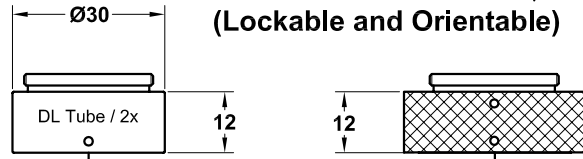
**InfiniMite Reference Configuration, Alpha**

Date: 09/30/99 MS	SIZE B	FSCM NO.	DWG NO.	REV A
Modified:	SCALE NONE	SHEET -		



Power Module Amplifier Factor: 2x

(Lockable and Orientable)



REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

ALL DIM ARE mm [inches] AND ARE FOR REFERENCE ONLY AND ARE SUBJECT TO CHANGE.

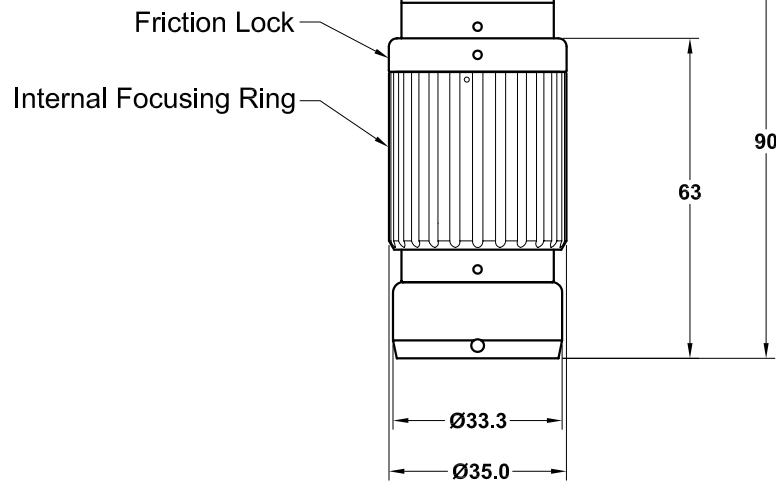
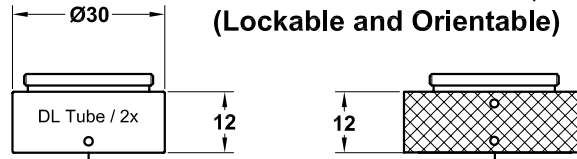
**INFINITY** Photo-Optical Company  
 2530 Frontier Ave., Boulder, CO 80301  
 303/440-4544 Fax 303/440-4144

**InfiniMite Reference Configuration, Beta**

Date: 02/28/02 MB	SIZE B	FSCM NO.	DWG NO.	REV -
Modified:	SCALE NONE	SHEET -		

Power Module Amplifier Factor: 2x

(Lockable and Orientable)



REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

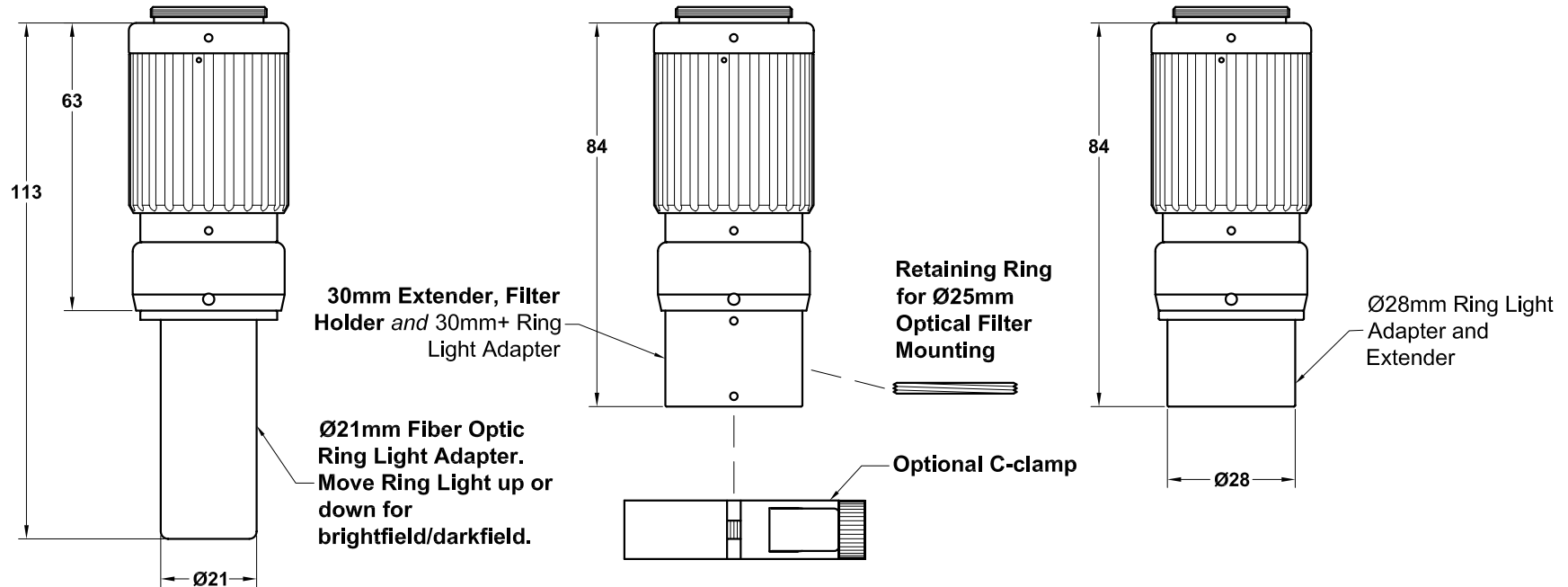
ALL DIM ARE mm [inches] AND ARE FOR REFERENCE ONLY AND ARE SUBJECT TO CHANGE.

**INFINITY** Photo-Optical Company  
 2530 Frontier Ave., Boulder, CO 80301  
 303/440-4544 Fax 303/440-4144

**InfiniMite Reference Configuration, Gamma**

Date: 10/03/03 MB	SIZE B	FSCM NO.	DWG NO.	REV -
Modified:	SCALE NONE	SHEET -		

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

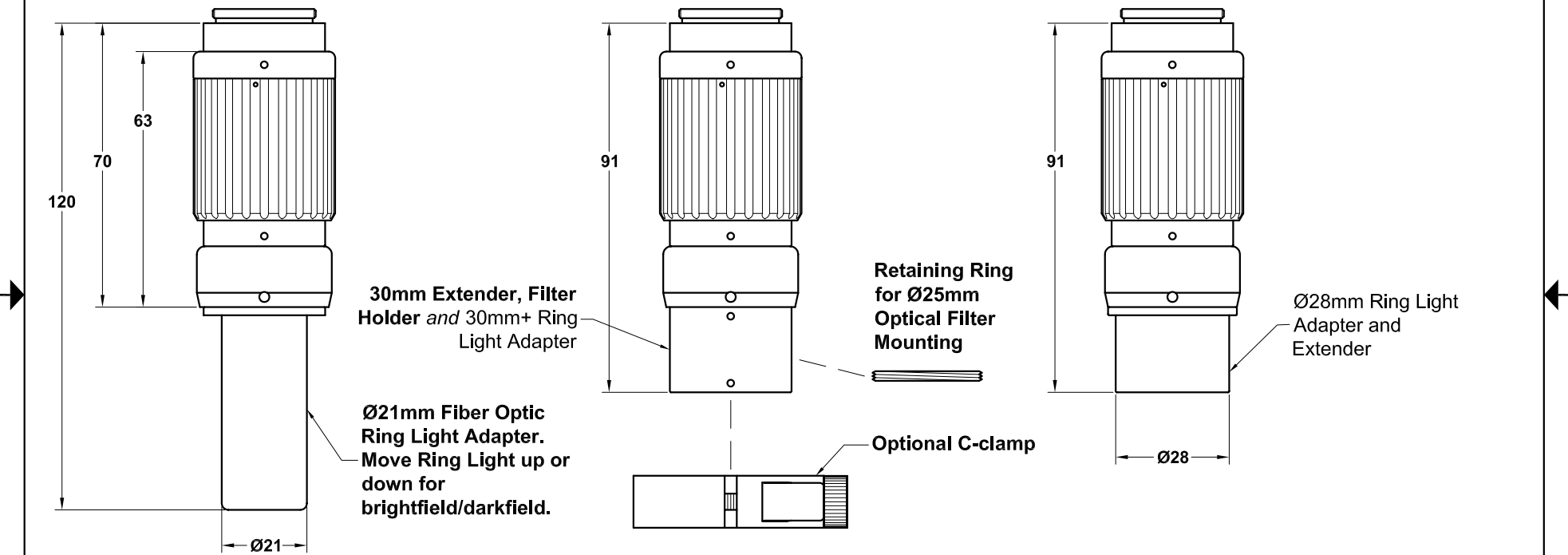


Note 1: The Ø30mm and Ø28mm extenders can be used to distend any light adapters. Only the Ø30mm Extender can be used with the optional C-clamp.

Note 2: When the Ø21mm Fiber Optic Ring Light Adapter is used with suitable ring lights, one or two additional extenders may be required. This is dependent on whether the ring light has a parallel or converging fiber beam orientation.

<b>ALL DIM ARE mm [inches] AND ARE FOR REFERENCE ONLY AND ARE SUBJECT TO CHANGE.</b>		<b>INFINITY</b> Photo-Optical Company 2530 Frontier Ave., Boulder, CO 80301 303/440-4544 Fax 303/440-4144			
<b>InfiniMite Reference Accessories, Alpha</b>					
Date: 09/22/00 MB		SIZE B	FSCM NO.	DWG NO.	REV -
Modified:		SCALE NONE		SHEET -	

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

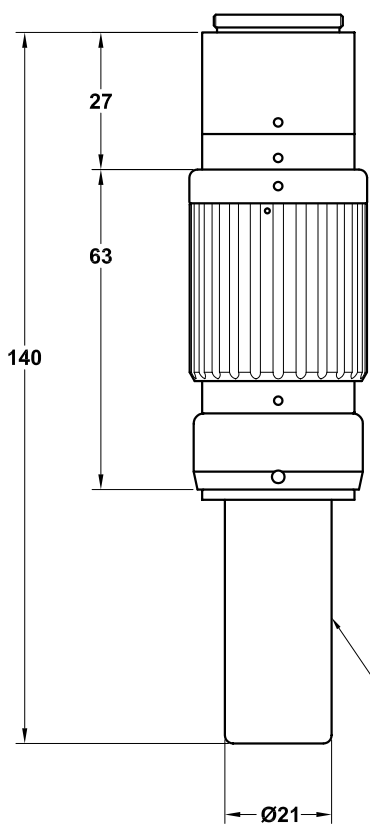


Note 1: The Ø30mm and Ø28mm extenders can be used to distend any light adapters. Only the Ø30mm Extender can be used with the optional C-clamp.

Note 2: When the Ø21mm Fiber Optic Ring Light Adapter is used with suitable ring lights, one or two additional extenders may be required. This is dependent on whether the ring light has a parallel or converging fiber beam orientation.

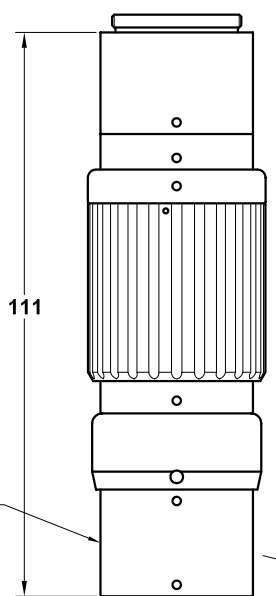
<b>ALL DIM ARE mm [inches] AND ARE FOR REFERENCE ONLY AND ARE SUBJECT TO CHANGE.</b>		<b>INFINITY</b> Photo-Optical Company 2530 Frontier Ave., Boulder, CO 80301 303/440-4544 Fax 303/440-4144		
<b>InfiniMite Reference Accessories, Beta</b>		Date: 09/22/00 MB		
SIZE <b>B</b>	FSCM NO.	DWG NO.	REV -	SCALE <b>NONE</b>
Modified:	SHEET -			

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED



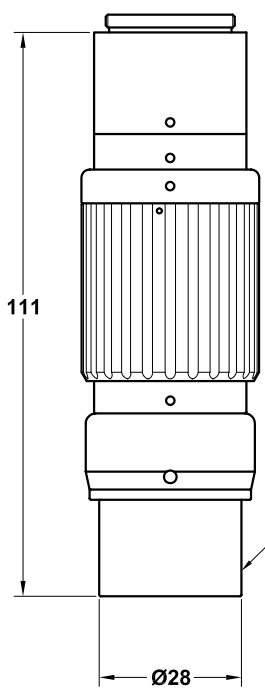
30mm Extender, Filter Holder and 30mm+ Ring Light Adapter

Ø21mm Fiber Optic Ring Light Adapter. Move Ring Light up or down for brightfield/darkfield.



Retaining Ring for Ø25mm Optical Filter Mounting

Optional C-clamp



Ø28mm Ring Light Adapter and Extender

Note 1: The Ø30mm and Ø28mm extenders can be used to distend any light adapters. Only the Ø30mm Extender can be used with the optional C-clamp.

Note 2: When the Ø21mm Fiber Optic Ring Light Adapter is used with suitable ring lights, one or two additional extenders may be required. This is dependent on whether the ring light has a parallel or converging fiber beam orientation.

ALL DIM ARE mm [inches] AND ARE FOR REFERENCE ONLY AND ARE SUBJECT TO CHANGE.		 <b>INFINITY</b> Photo-Optical Company 2530 Frontier Ave., Boulder, CO 80301 303/440-4544 Fax 303/440-4144			
Date: 10/03/03 MB		SIZE	FSCM NO.	DWG NO.	REV
		B			-
Modified:		SCALE	SHEET		
		NONE	-		

**InfiniMite Reference Accessories, Gamma**

## **INFINITY PHOTO-OPTICAL COMPANY LIMITED WARRANTY**

INFINITY PHOTO-OPTICAL COMPANY hereby warrants its products to be free from defects in workmanship or materials for the warranty period set forth below. INFINITY PHOTO-OPTICAL COMPANY, at its option, shall repair or replace the defective product without cost to the purchaser, and such repair or replacement shall be the full extent of this express limited warranty. INFINITY PHOTO-OPTICAL COMPANY shall not be liable for any other damages either direct or consequential.

This warranty is made to the original purchaser, and is effective only on new equipment purchased from INFINITY PHOTO-OPTICAL COMPANY, or a dealer authorized by INFINITY PHOTO-OPTICAL COMPANY to sell the product.

This warranty is valid only when the product is returned to the authorized dealer from whom it was purchased, or returned directly to INFINITY PHOTO-OPTICAL COMPANY, freight prepaid, with proof of date of purchase.

This warranty does not extend to any defect, malfunction or failure caused by misuse, abuse or the use of the product with equipment for which it may not have been intended. Any unauthorized repair voids this warranty.

The warranty period for all products manufactured by INFINITY PHOTO-OPTICAL COMPANY is five (5) years from date of original purchase. Parts or components made or sourced from other manufacturers shall be solely covered by that manufacturer's warranty.

The warranty contained herein is the only warranty made by INFINITY PHOTO-OPTICAL COMPANY. Any implied warranty of merchantability and/or fitness for a particular purpose is expressly excluded from this warranty. INFINITY PHOTO-OPTICAL COMPANY shall not be liable for any expense, loss, incidental or consequential damages which may arise in connection with the use of this equipment. Recovery under this warranty is limited to repair or replacement of the equipment as provided above.

INFINITY PHOTO-OPTICAL COMPANY reserves the right to modify designs, equipment and accessories without notice.