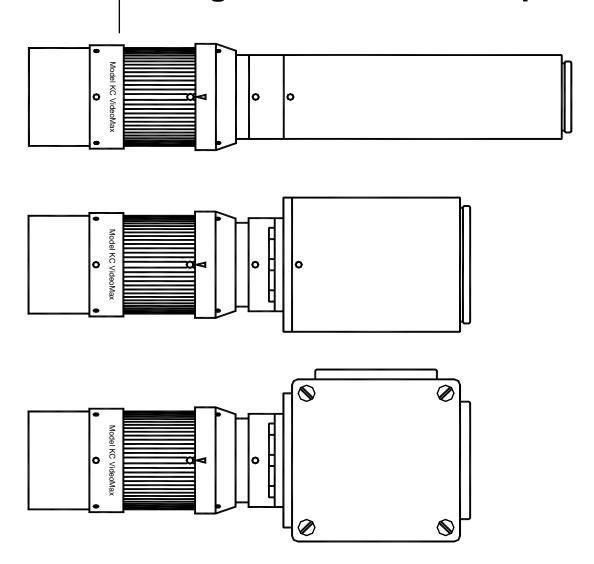
# Model KC VideoMax<sup>™</sup> Long-Distance Microscope



## Model KC VideoMax Long-Distance Microscope

#### INTRODUCTION

Model KC VideoMax contains Infinity's InFocus<sup>™</sup> internal focusing system, permitting focus from infinity down to 965mm. By using an optional AUX Lens, it can be focused from 940mm to 405mm. Then, by using IF-series objectives its focus can range from 490mm down to 63mm. Finally, adapters are available for use with infinity-corrected objectives: Achrovid<sup>™</sup>/Mitutoyo, Nikon, RMS-standard, and Olympus. This means that the KC VideoMax's ultimate focus range, magnification and resolution are limited only by the availability of microscope objectives suitable for use.

#### THREE MAIN BODY TYPES

The KC VideoMax Series is divided into three different Main body Types:

**S** is the primary version of the KC VideoMax series. It is C-tube diameter and attaches directly to C-mount cameras. A Small Mounting Clamp is supplied with each KC VideoMax to allow positioning and mounting via its central 1/4-20 screw and two "outboard" M4 metric screws. The Front has threads (M27) for attaching various objectives and adapters. Accessories permit the basic KC VideoMax to be upgraded, even to become one of the next two versions, ST and SD.

**ST** contains the same InFocus system, but includes a Variable Iris Diaphragm (see below) and has a stepup to T-sized tubes.

The KC VideoMax can therefore be used with the M62 Eyepiece Holder and Eyepieces—as well as a host of other more-advanced accessories.

**SD** is otherwise the same as KC VideoMax, except a Mirror Diverter is used as the back tube support. This allows accessories to be mounted one up to two ports, switched alternately from one set to the other.

The System Drawings that follow show the entire KC VideoMax system possibilities.

#### VARIABLE IRIS DIAPHRAGM

Optional on the KC VideoMax and standard equipment of the ST and SD, the Variable Iris Diaphragm replaces the S's C12 spacer and allows aperture variation and light attenuation. It is *not suitable* for use with infinity-corrected microscope objectives *other* than Infinity's IF-series. Use a 0.035-in. Allen wrench to loosen the C12's setscrew and interface the Variable Iris Diaphragm between the Focus Module and C96 Rear Tube.

#### **REFERENCE RING**

Three setscrews are spaced 120-degrees apart on the Reference Ring. By slightly loosening them, the Arrow marker can be turned and then locked to match the metal-colored Lock Ring (which serves a dual-purpose as a marker). A specific position—for example, infinity focus--can be chosen as a recurring reference point.

### **FILTER HOLDER**

The Regular Filter Holder is used either at the front of the S (direct), between IF-series objectives and the S Main Body—or interfaced between the KC VideoMax Main Body and Microscope Objective Adapter. 25mm diameter filters can be placed inside and secured by the included retaining ring.

#### **DL DOUBLER TUBE**

The DL Doubler Tube interfaces the rear of the C96 tube (or C-mount on ST and SD models) and the video camera, maintaining all focus ranges as before. Magnification is increased by 2x.

#### TELE-TUBE/C

The Tele-Tube/C compacts the S and approximately halves the magnification in all modes. This unit is designed to replace the standard C96 tube on S models. Tele-Tube/C maintains parfocality and does not alter the usable ranges of the S Model. It is recommended when sensor sizes go below the 1/2-inch video format, whenever a wider field of view is desired, etc.

#### Z FRONT FOR ZEISS ICS™ OBJECTIVES

The standard S Front of the KC VideoMax can be unscrewed and replaced by the Z Front with Zeiss ICS-type color correction. This is all that is required to convert the KC VideoMax for use with Zeiss objectives. All other aspects of the KC remain as before.

#### **COAXIAL ILLUMINATOR**

The Coaxial Illuminator allows connection to a 0.312-in. fiber optic light guide (not supplied). It interfaces the Microscope Objective Adapter and S Front. Its top has an access whereby 20mm filters can be inserted, rotated and retained, if needed. On the side of the Coaxial illuminator is a Collector. Collector I is preferred for objectives with magnifications less than 10x, while Collector II is best for objectives 10x and higher. However, reasonable (though not as evenly-illuminated) results can be obtained from Collector II with objectives lower in magnification than 10x. 20mm filters can be placed in either Collector and, by **slightly** loosening the three setscrews which holds the Collector to the Coaxial body, rotated against another filter which has been put in the top access. The Coaxial Illuminator is **only** suited for use with flat, highly reflective objects. The light is introduced into the Collector and a beamsplitter directs the light down through the objective (which acts as its own condenser).

#### LARGE FORMAT ADAPTER (LFA)

The LFA fits directly on top of the C96 on model S. A suitable camera mount can be screwed-on to permit sensors up to 24 x 36mm (the 35mm format) to be covered. The LFA provides a 3x amplification in magnification.

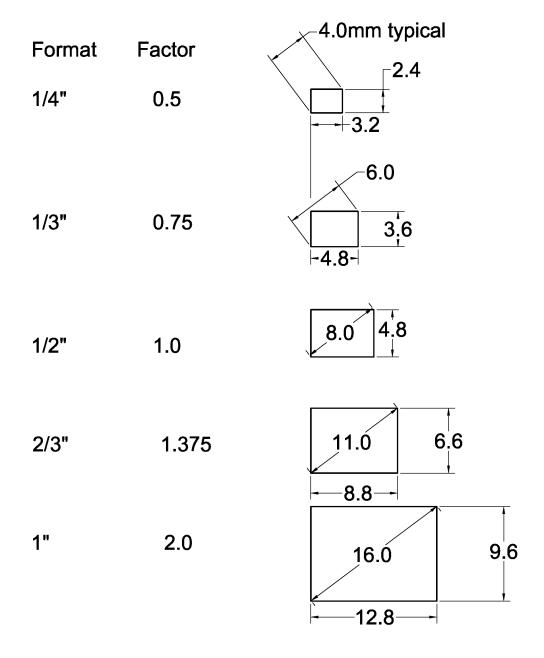
#### **OTHER FEATURES**

Please refer to the following drawings for other configurational information. Many accessories expand the capabilities—particularly of ST and SD models—for the most demanding requirements.

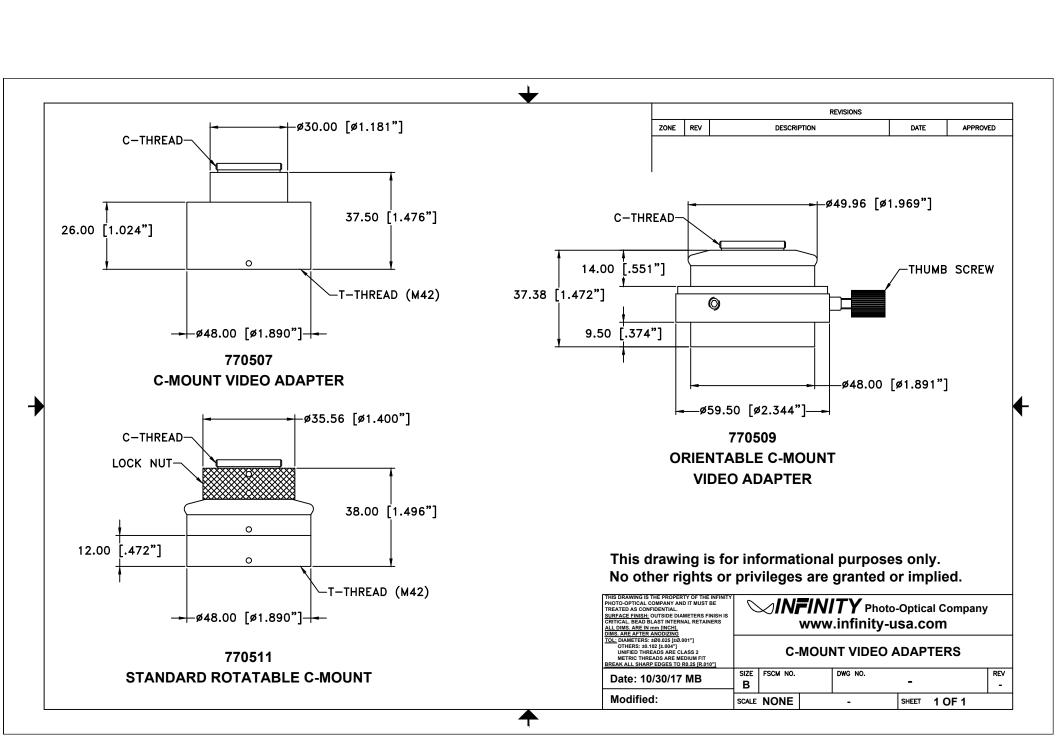
### **CARE AND CLEANING**

The KC VideoMax should be treated as the fine optical instrument 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.

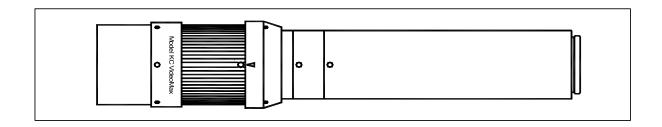
# Video Formats



Unless otherwise noted all data is given for 1/2" camera sensors. For FOV or magnification in other sensor sizes use the factors listed. For example, a FOV of 25mm listed for a 1/3" camera would be  $25 \times 0.75 = 18.75$ mm.

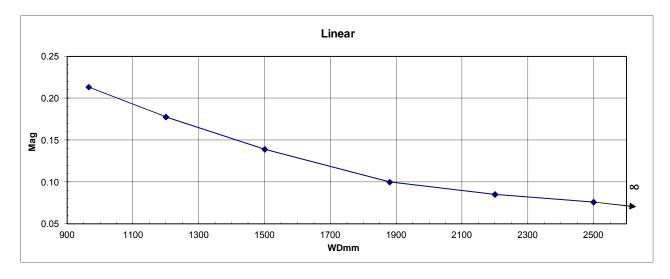


## MODEL KC VIDEOMAX OPTICAL DATA: DIRECT RANGE IN STANDARD CONFIGURATION

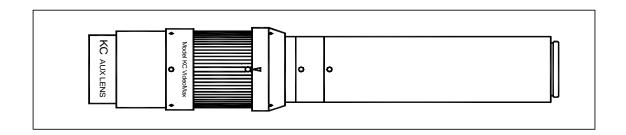


	Direct					
	Near					Far
WD mm	965	1200	1500	1880	2200	2500
MAG	0.21	0.18	0.14	0.10	0.09	0.08
FOV* mm	30	36	46	64	75	84

\*FOV based on 1/2" video format (6.4mm horizontally). See Video Format Page.

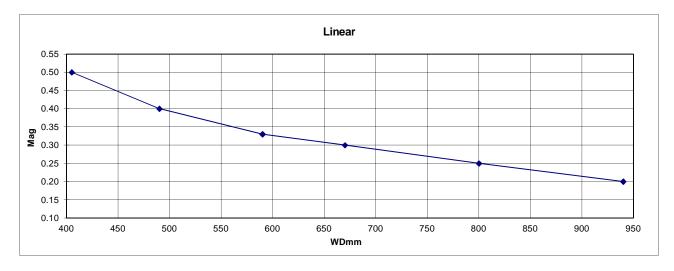


## MODEL KC VIDEOMAX OPTICAL DATA: DIRECT WITH AUX LENS

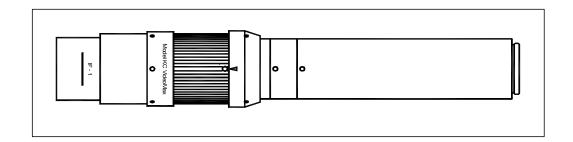


	Direct					
	Near					Far
WD mm	405	490	590	670	800	940
MAG	0.50	0.40	0.33	0.30	0.25	0.20
FOV* mm	12.8	16.0	19.4	21.3	25.6	32.0

<sup>\*</sup>FOV based on 1/2" video format (6.4mm horizontally). See Video Format Page.

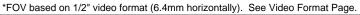


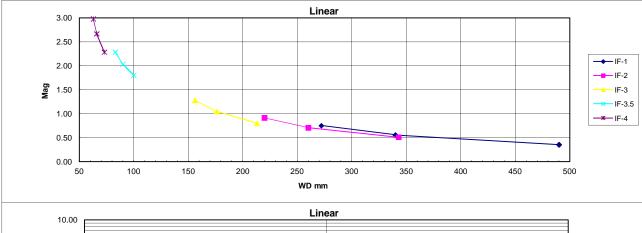
## MODEL KC VIDEOMAX OPTICAL DATA: TOTAL RANGE IN STANDARD CONFIGURATION WITH IF-SERIES OBJECTIVES

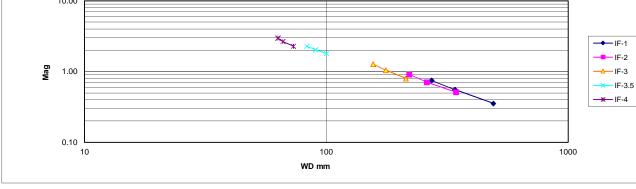


This configuration is for data below. See technical drawings for mechanical dimensions and mounting. (Set first to infinity position in order to reference initial working distance).

	IF-1				IF-2			IF-3		IF-3.5			IF-4		
	Near	Inf	Far	Near	Inf	Far	Near	Inf	Far	Near	Inf	Far	Near	Inf	Far
WD mm	272	340	490	220	260	343	156	176	213	83	90	100	63	66	73
MAG	0.75	0.56	0.36	0.91	0.71	0.51	1.28	1.05	0.80	2.29	2.03	1.80	2.98	2.67	2.29
FOV* mm	8.5	11.5	18	7	9	12.5	5	6.1	8	2.8	3.15	3.55	2.15	2.4	2.8

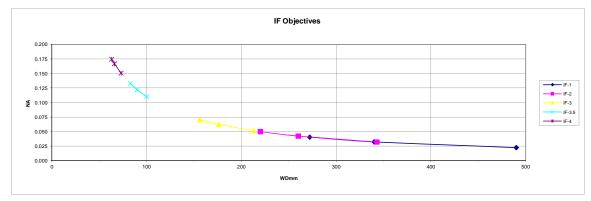


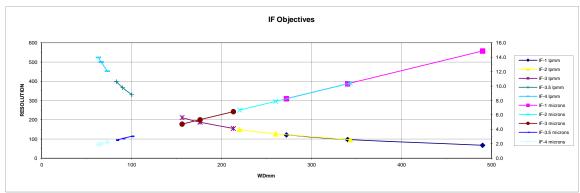


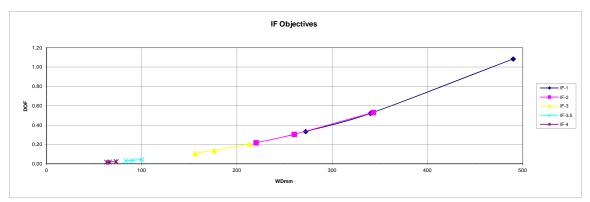


### MODEL KC VIDEOMAX OPTICAL RESOLUTION DATA IF-OBJECTIVES

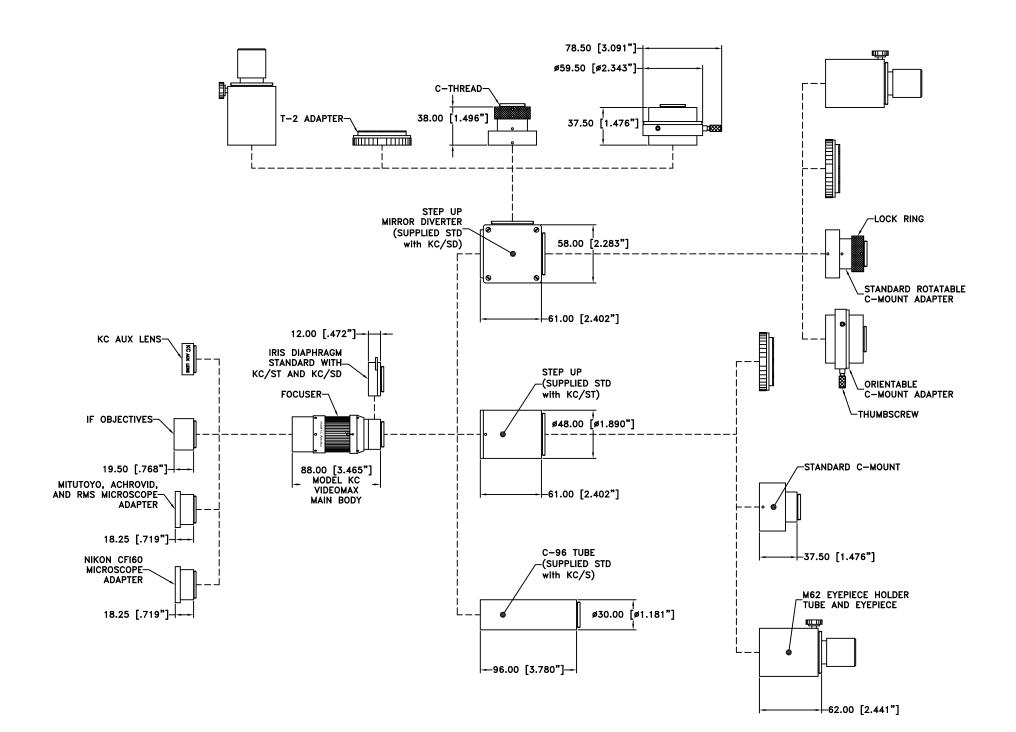
Model KC	Objective	IF-1			IF-2			IF-3			IF-3.5			IF-4		
		Near	Inf	Far	Near	Inf	Far	Near	Inf	Far	Near	Inf	Far	Near	Inf	Far
	WDmm	272	340	490	220	260	343	156	176	213	83	90	100	63	66	73
	MAG	0.71	0.46	0.38	0.91	0.64	0.52	1.28	0.91	0.80	2.13	2.00	1.71	2.91	2.56	2.33
	NA	0.040	0.032	0.022	0.050	0.042	0.032	0.071	0.063	0.052	0.133	0.122	0.110	0.175	0.167	0.151
	Resolution (Ipmm)	121	97	67	150	127	96	212	188	155	398	367	330	524	500	452
	Resolution (microns)	8.2	10.3	14.8	6.7	7.9	10.4	4.7	5.3	6.5	2.5	2.7	3.0	1.9	2.0	2.2
	DOFmm	0.33	0.52	1.08	0.22	0.30	0.53	0.11	0.14	0.20	0.031	0.036	0.045	0.018	0.019	0.024

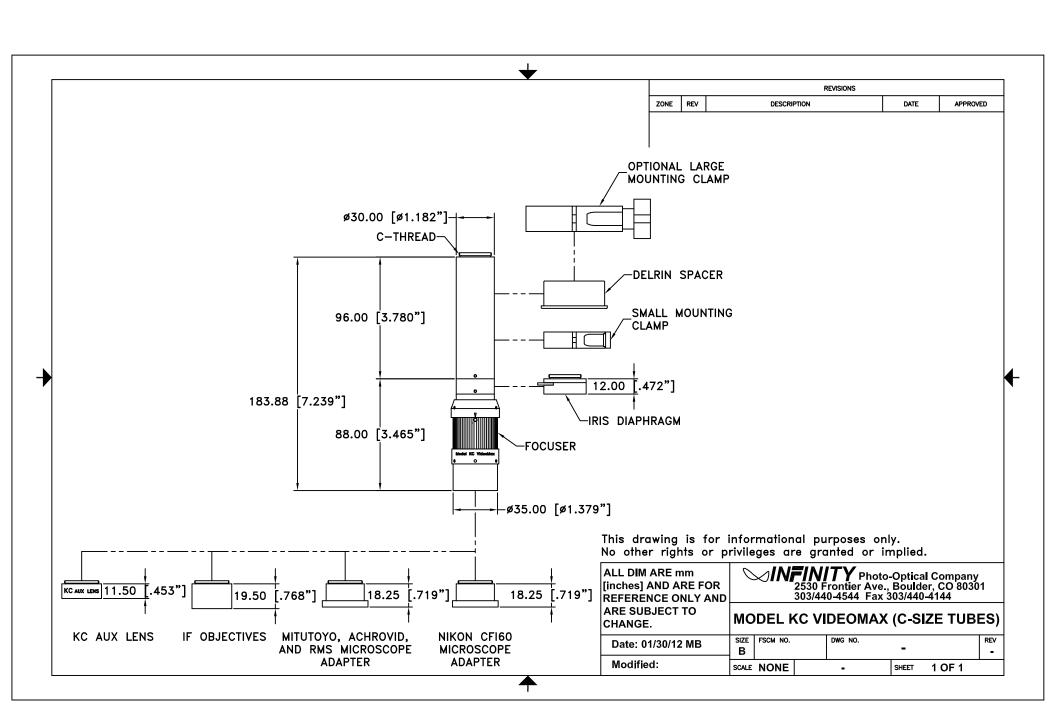


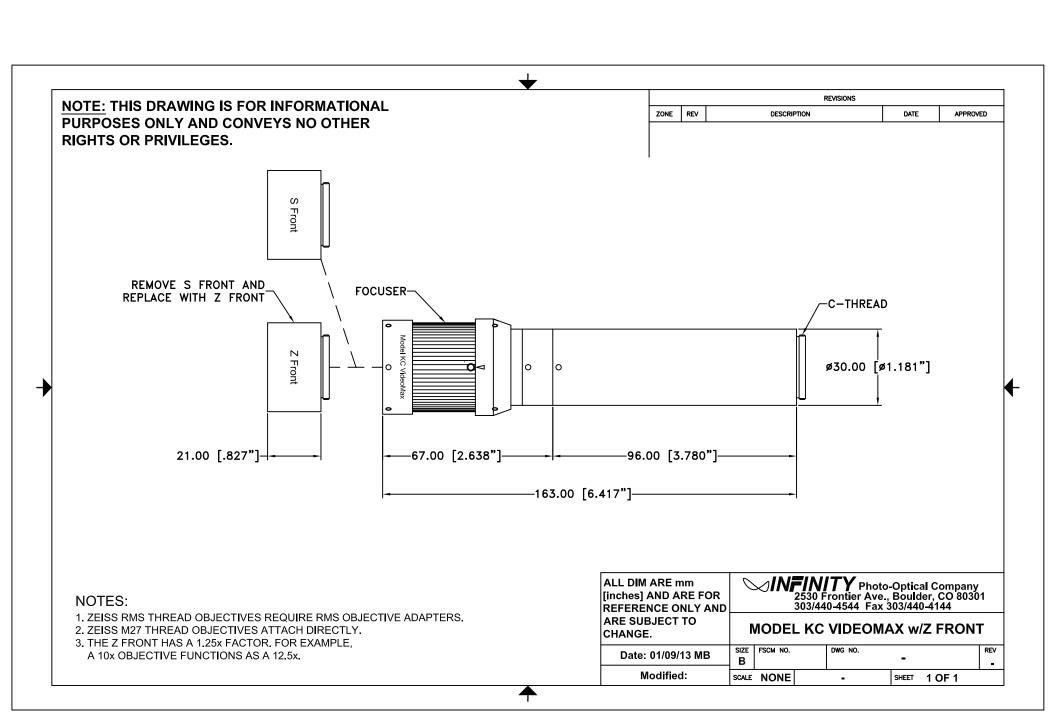


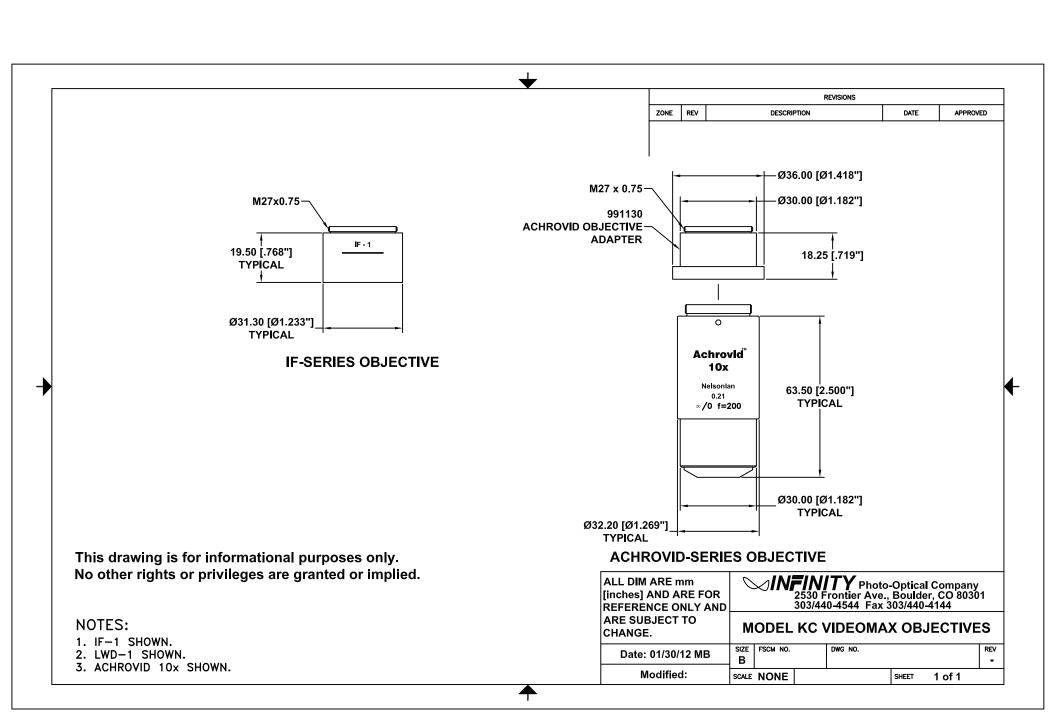


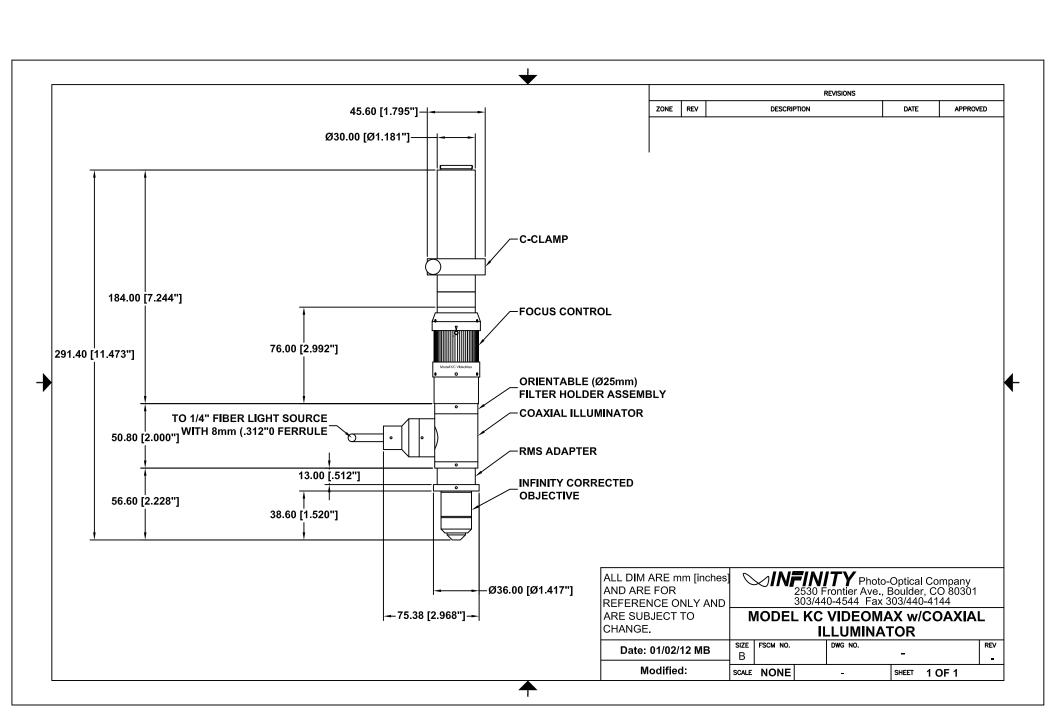
## MODEL KC VIDEOMAX ACCESSORIES

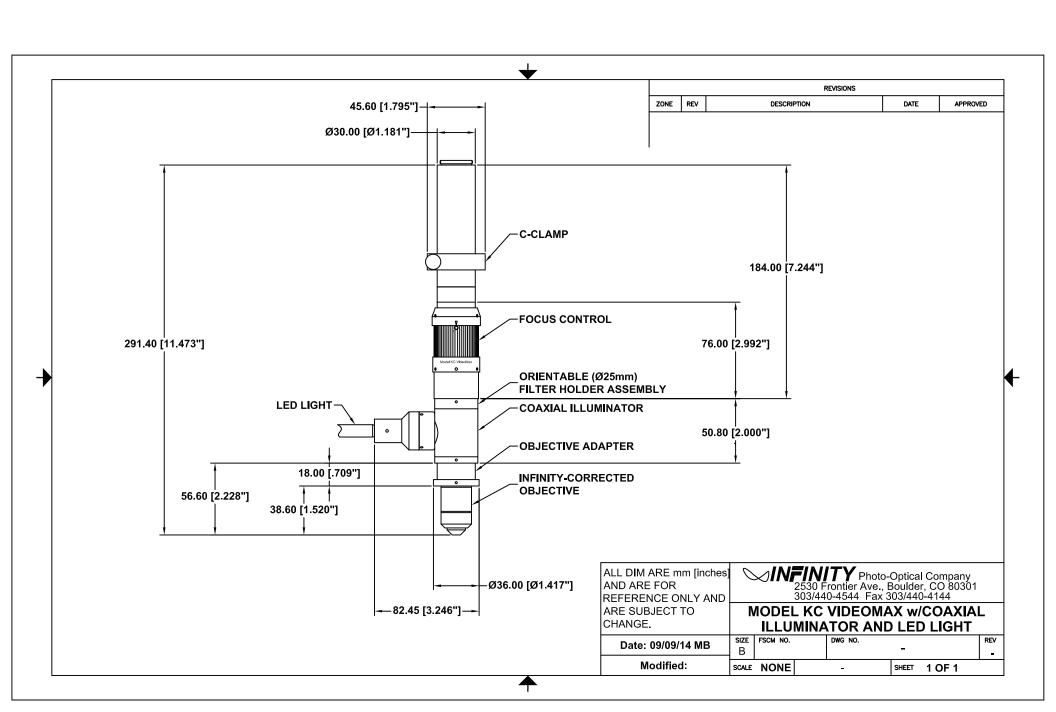


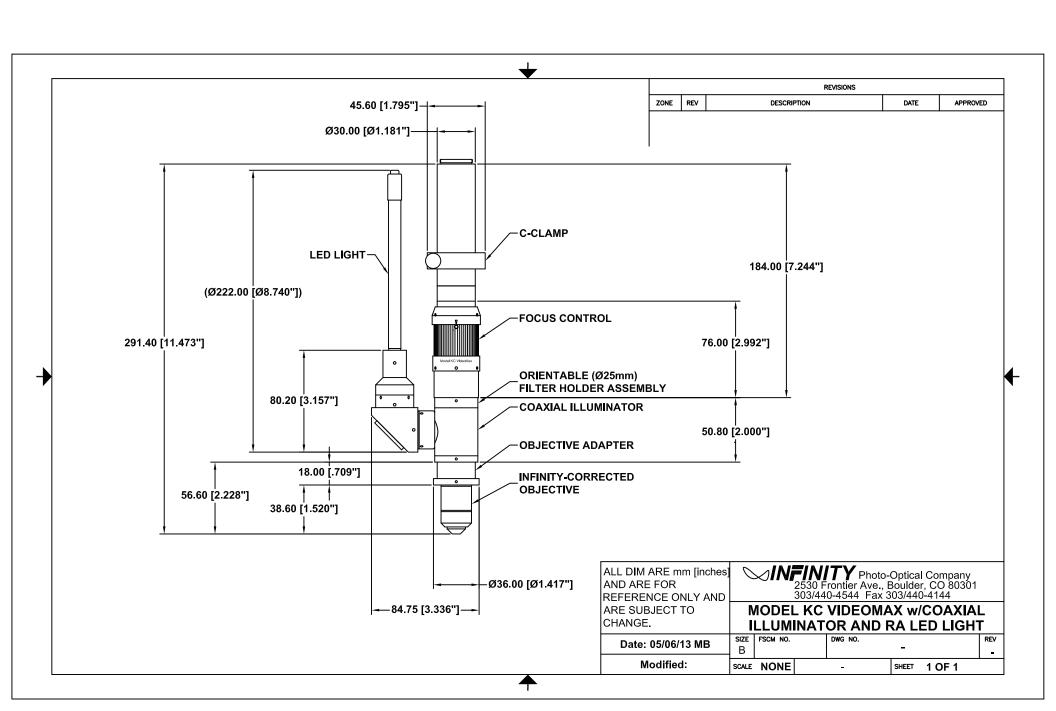


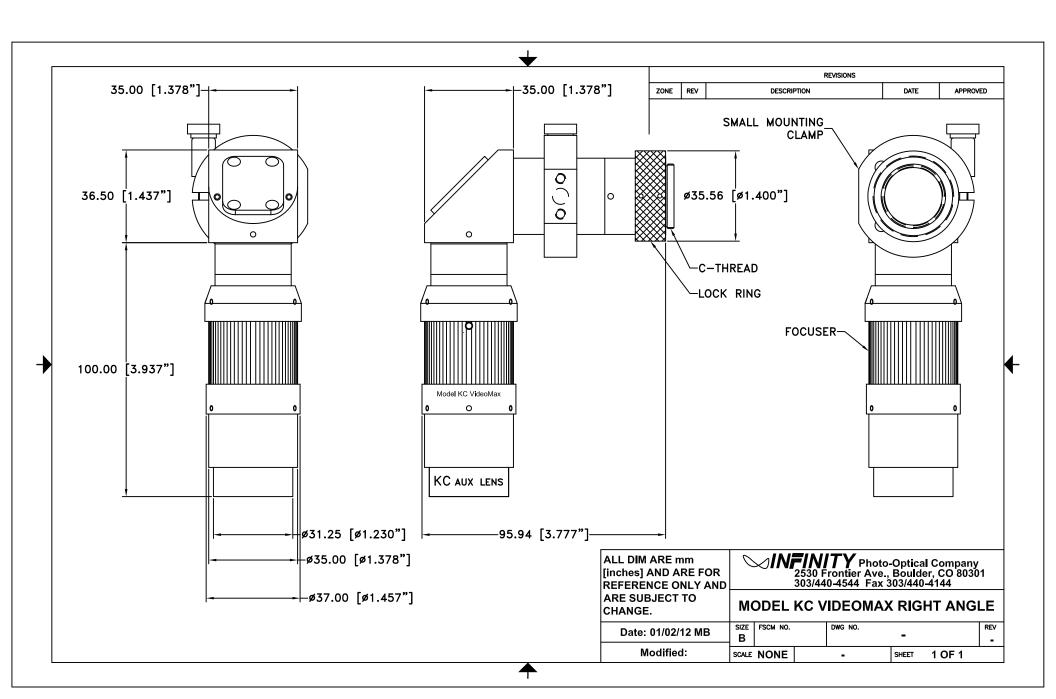


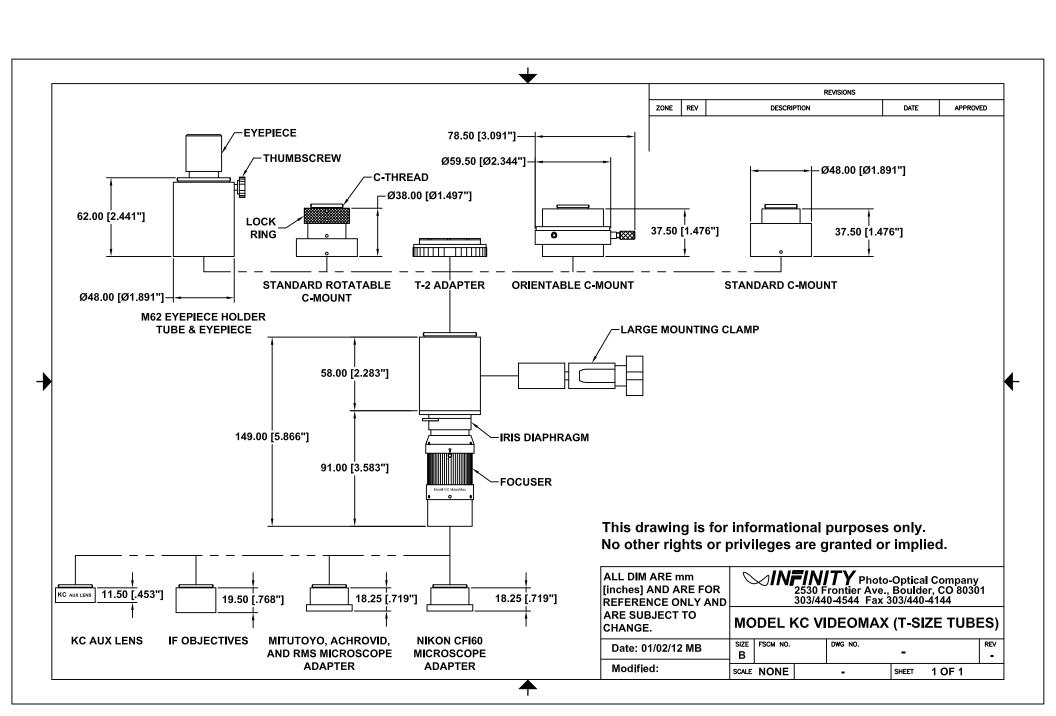


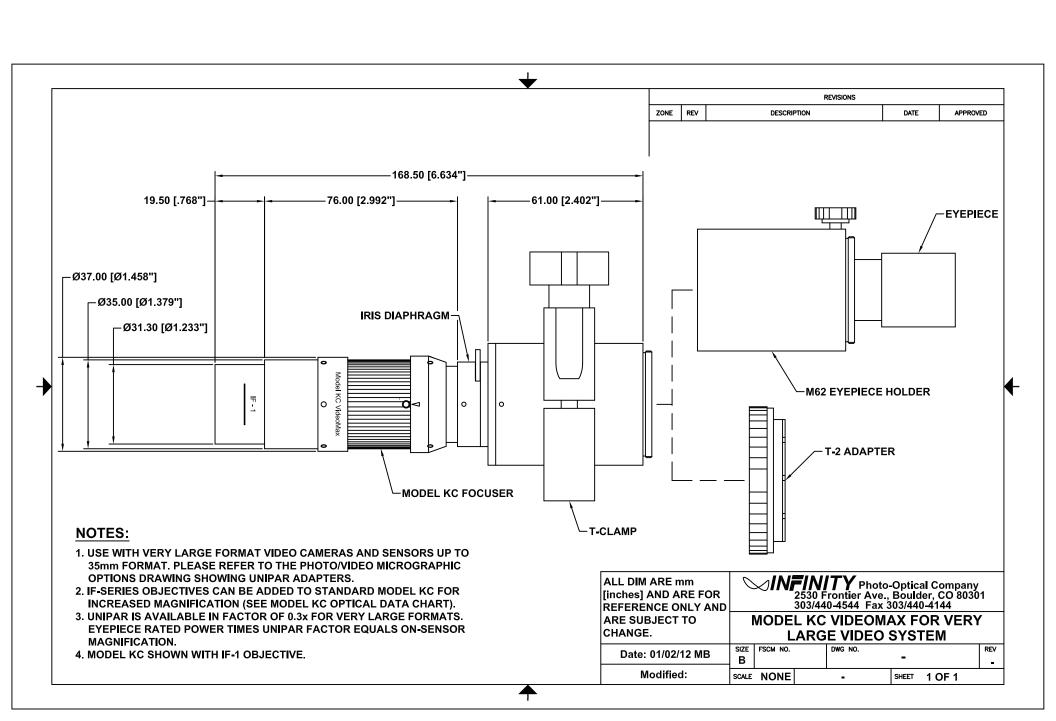


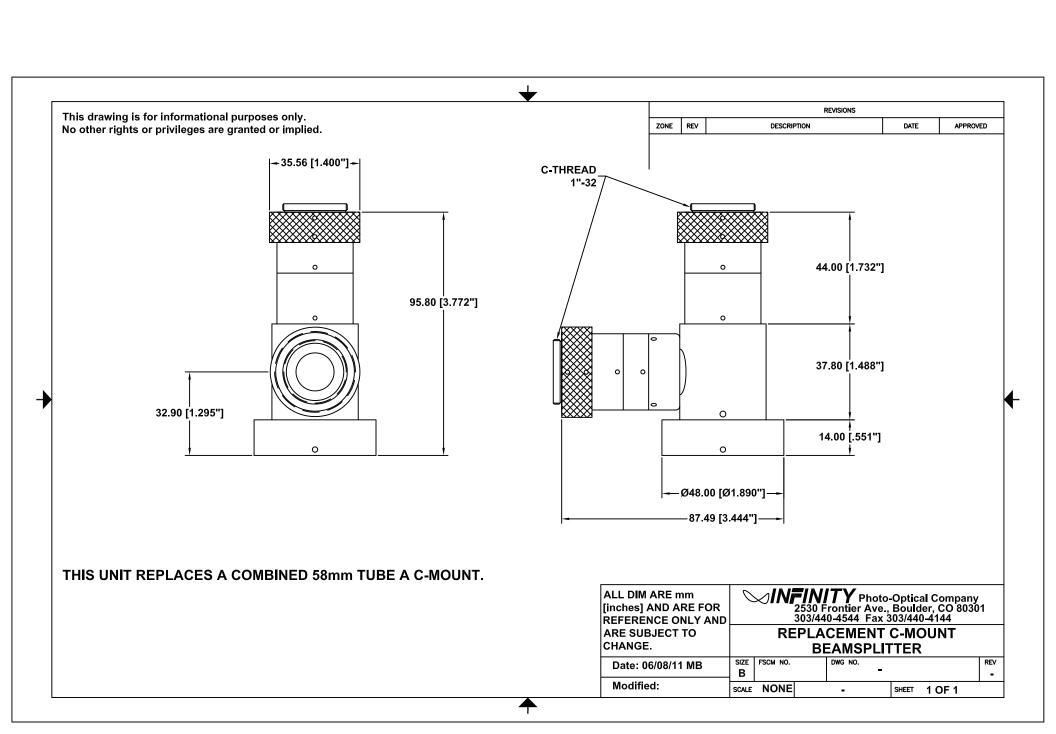


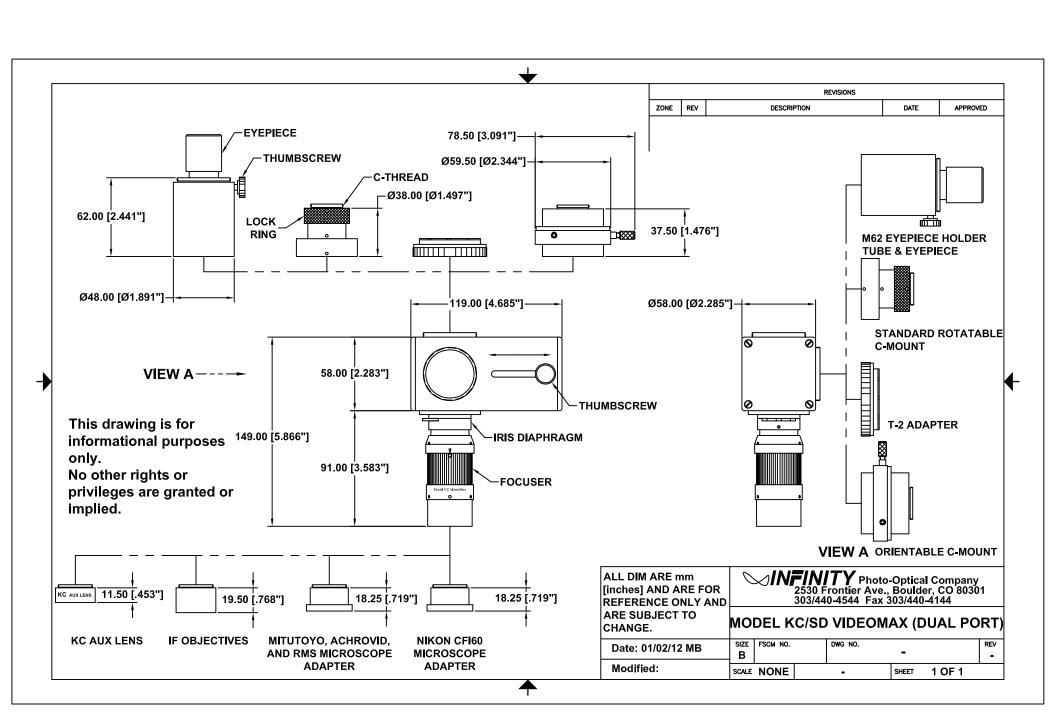


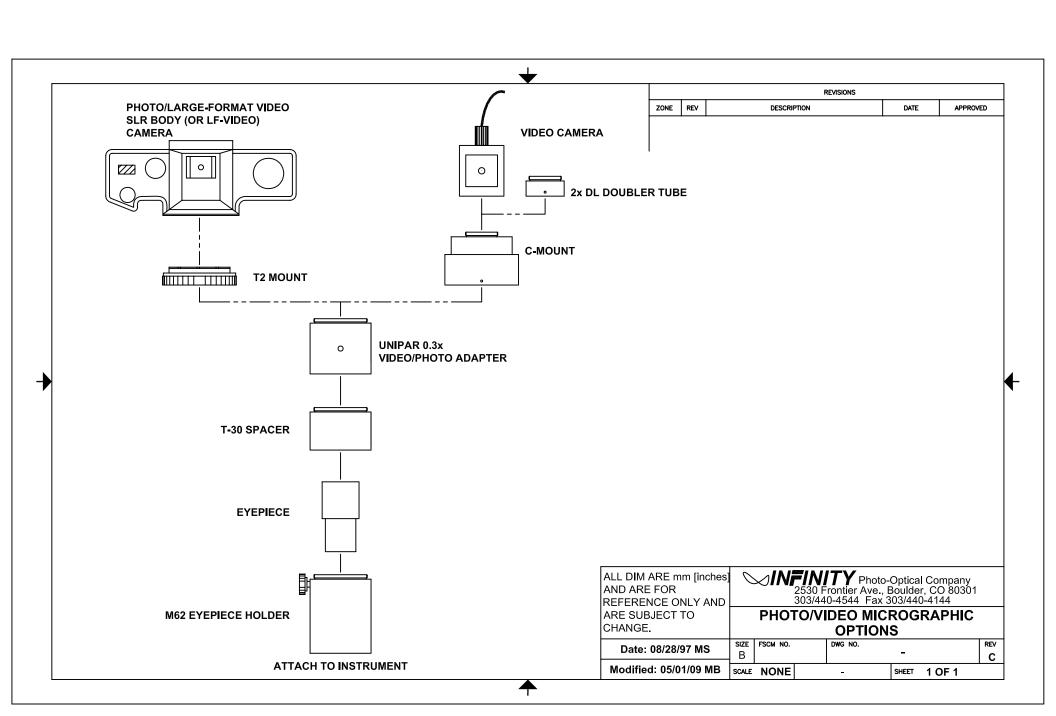


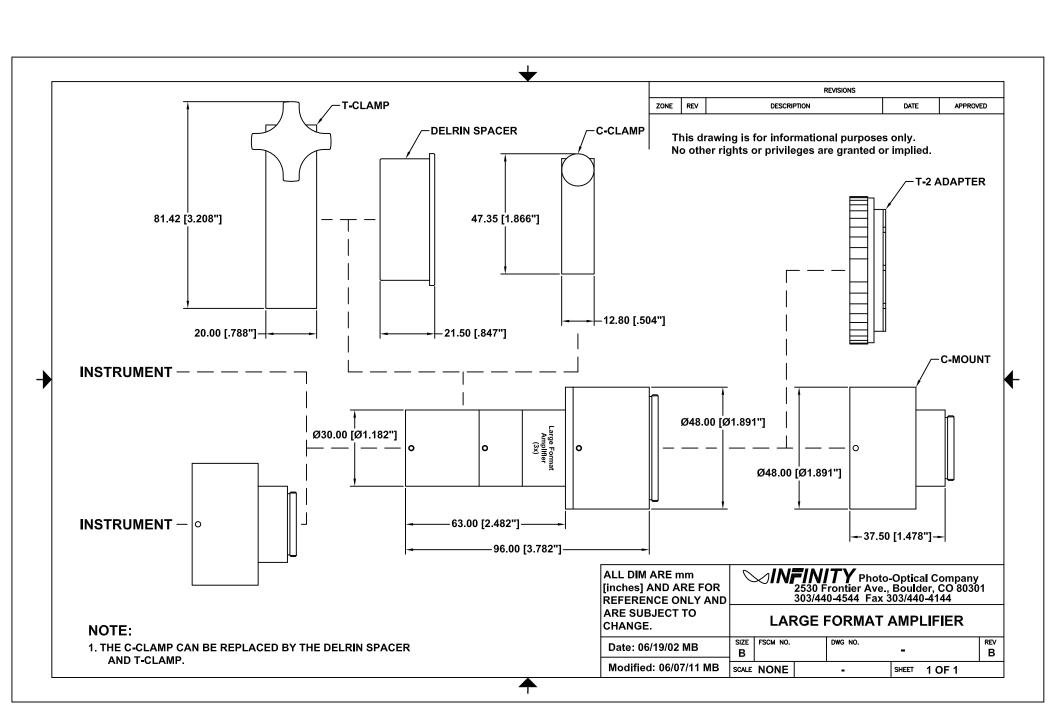


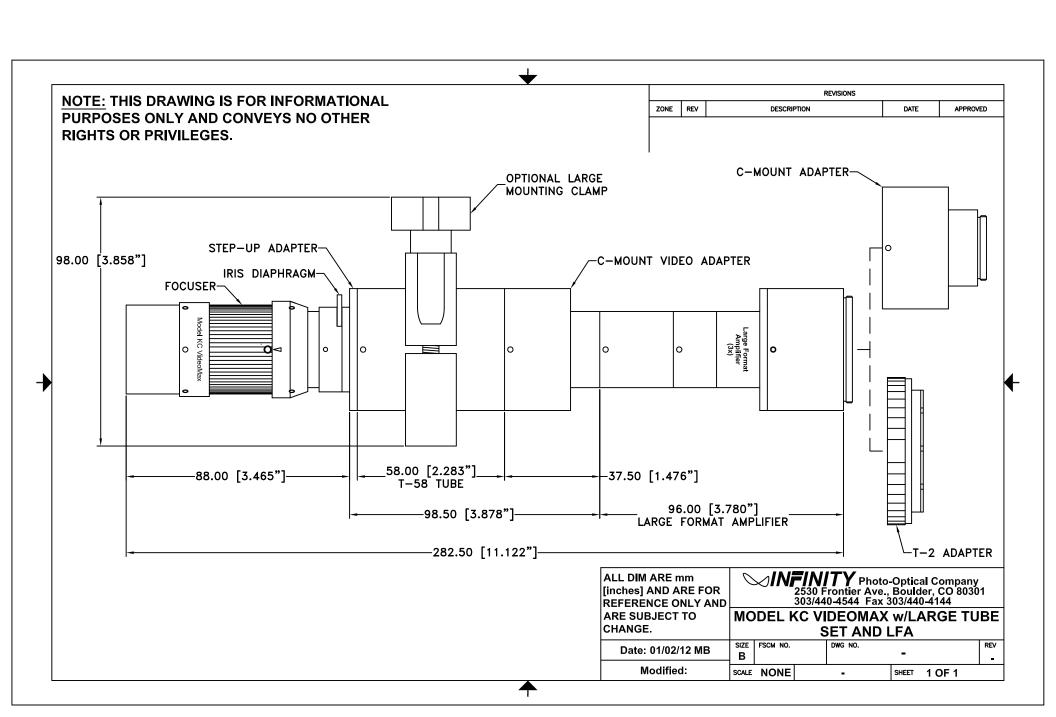


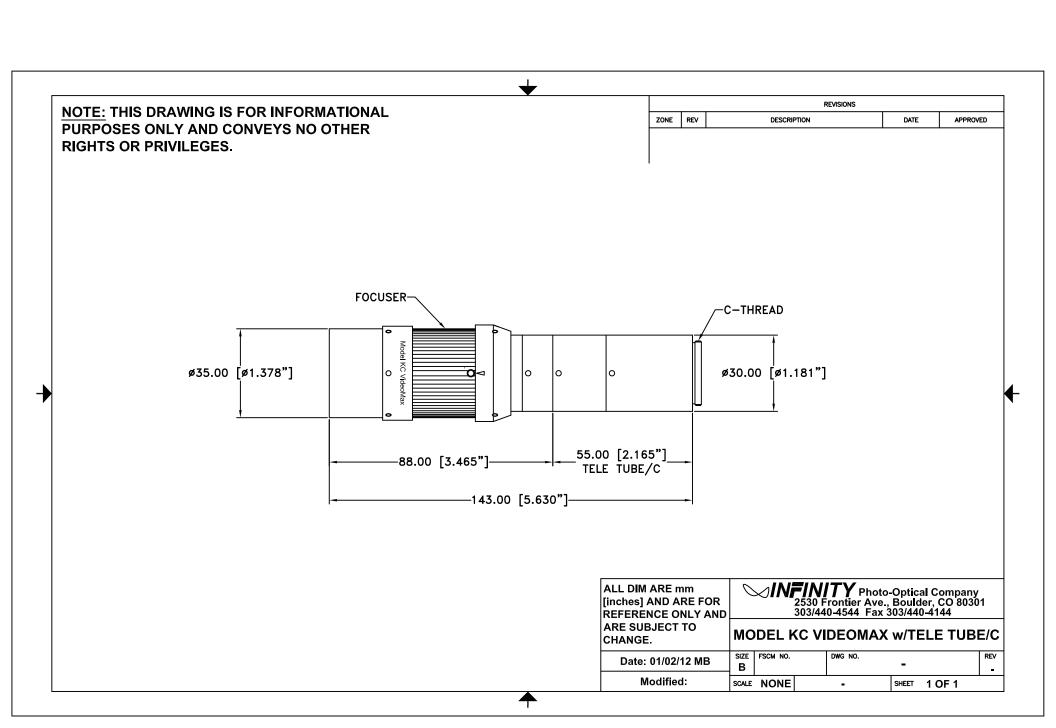


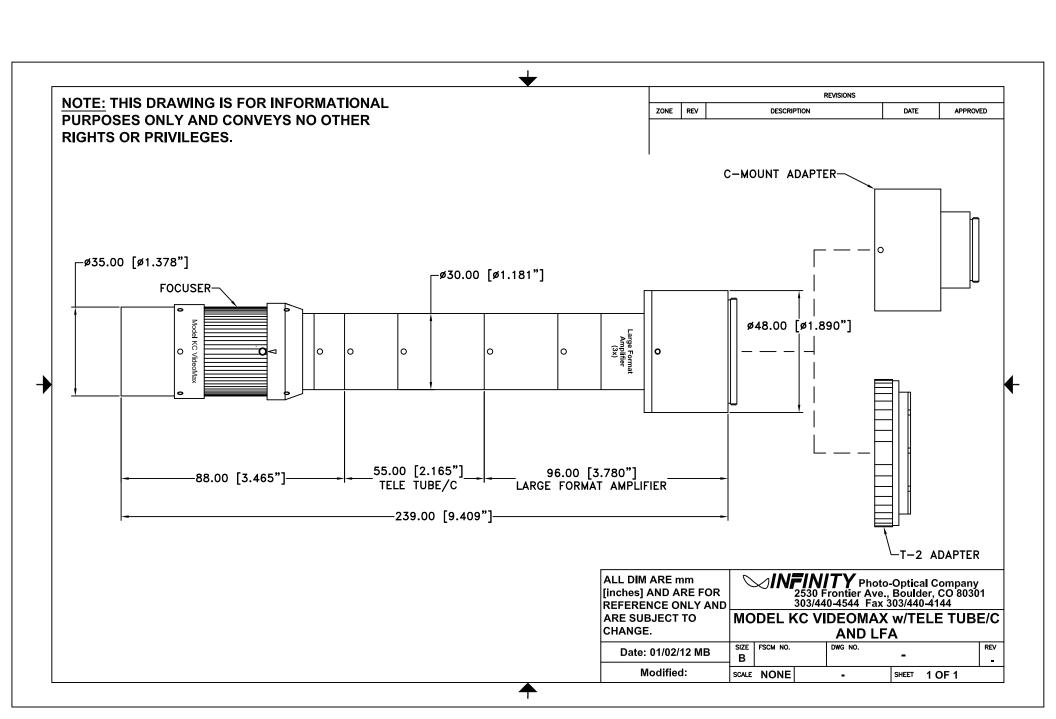


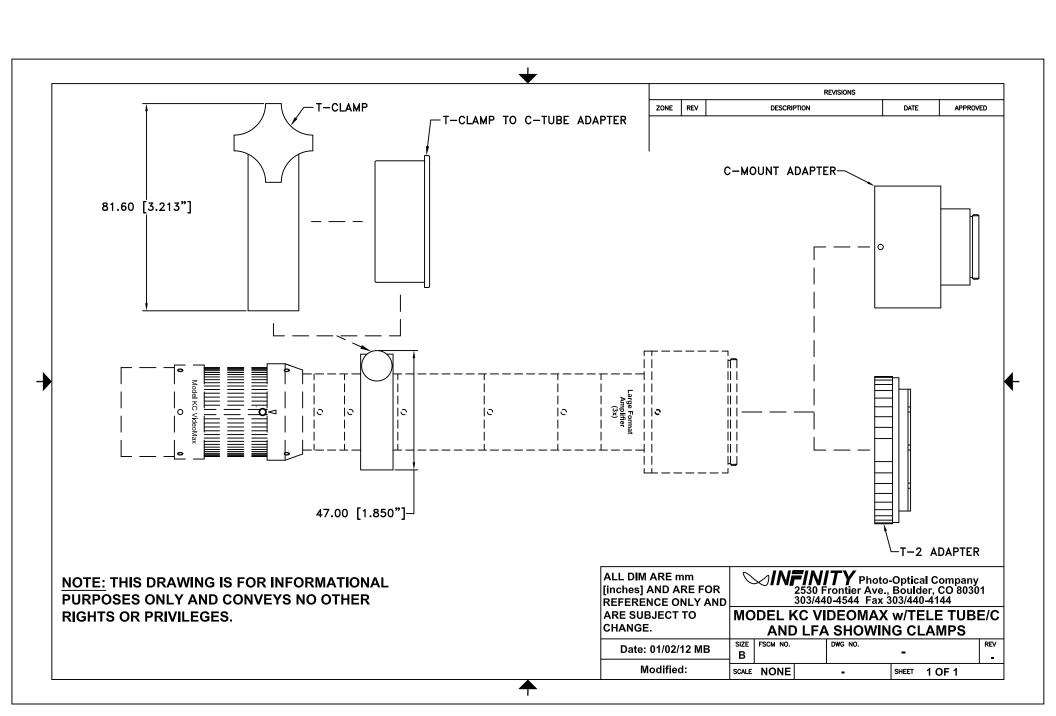




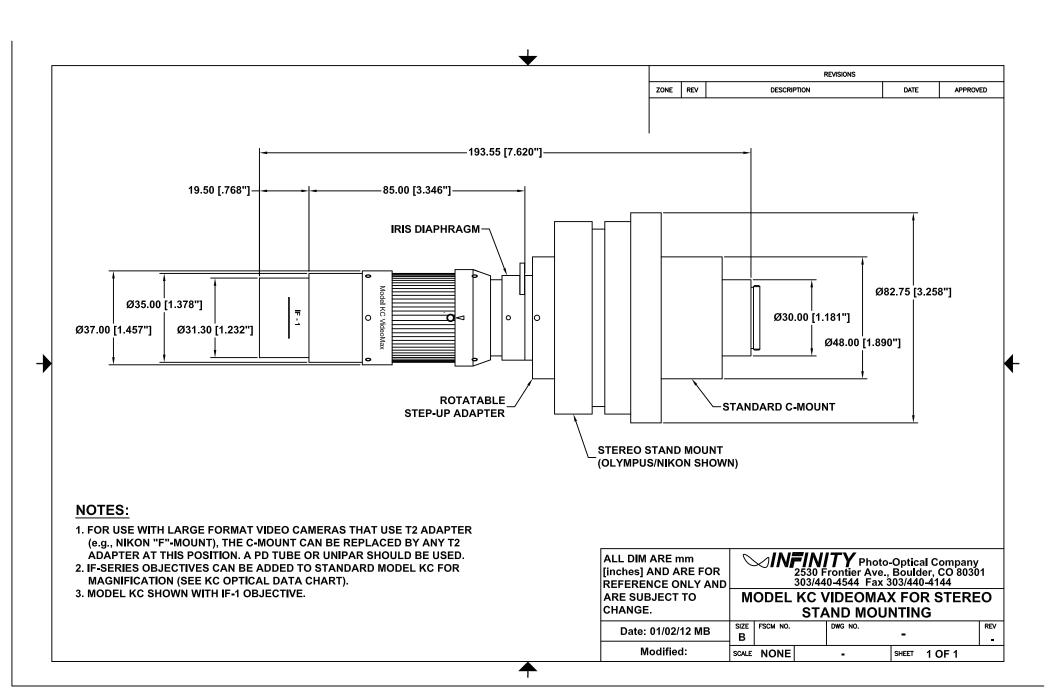


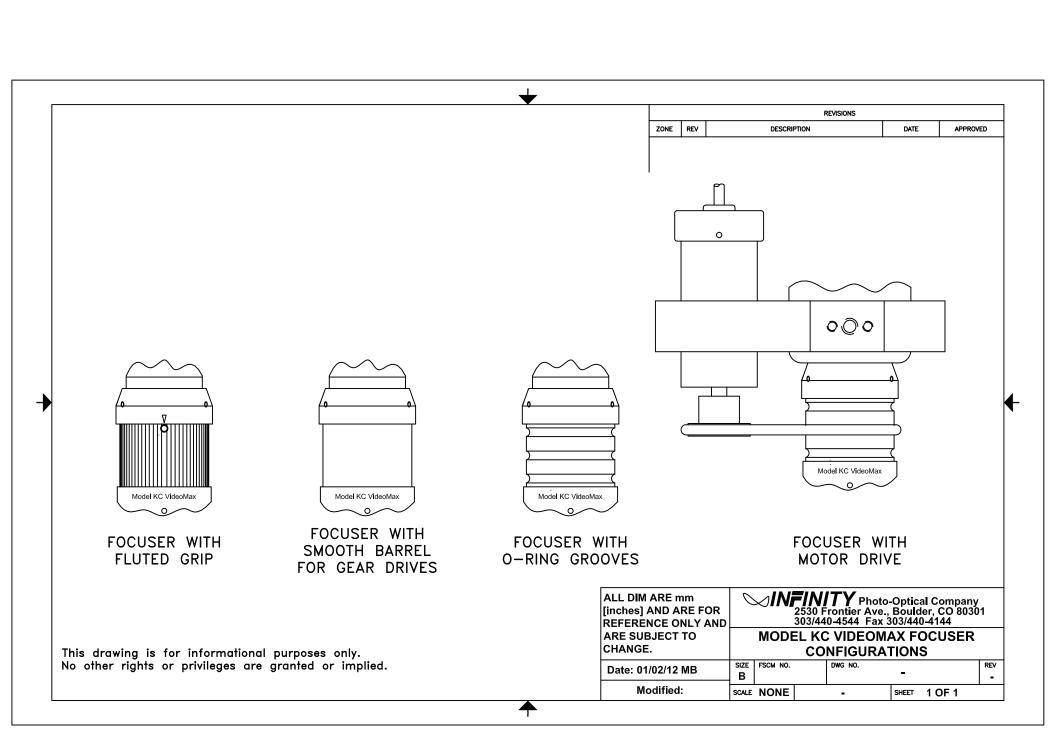


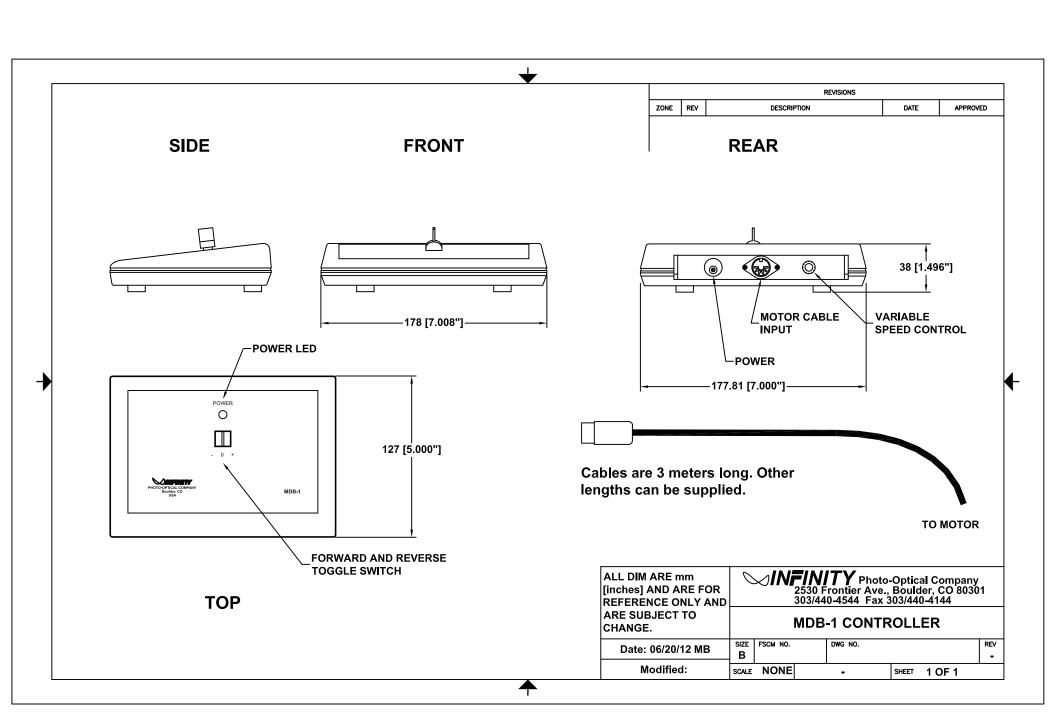


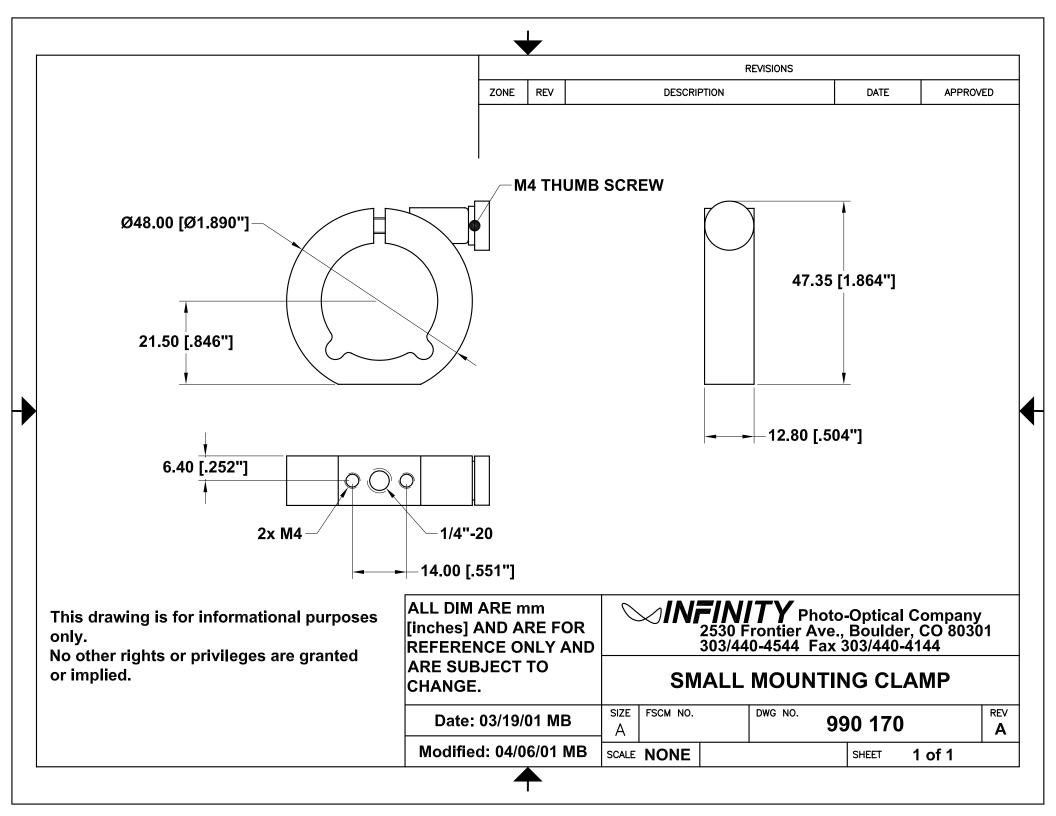


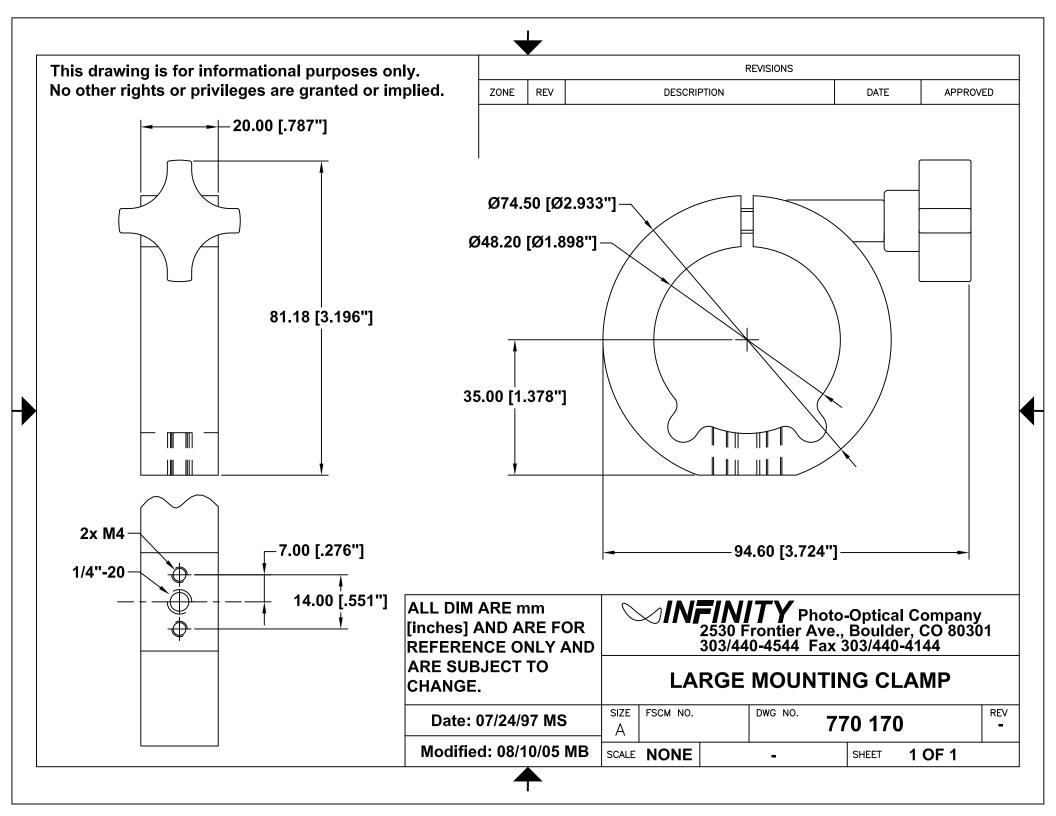
REVISIONS This drawing is for informational purposes only. No other rights or privileges are granted or implied. ZONE REV DATE DESCRIPTION APPROVED 10.00 [.394"]— 7.00 [.276"] RETICLE MOUNTED -M42 THREAD **HERE** 12.00 [.473"]— Ø30.00 [Ø1.182"] Ø48.00 [Ø1.891"] 0 0 0 0 58.00 [2.285"]—<del>-</del> 91.00 [3.585"] **NOTES:** ALL DIM ARE mm PINITY Photo-Optical Company 2530 Frontier Ave., Boulder, CO 80301 303/440-4544 Fax 303/440-4144 1. SURFACE ANODIZED BLACK. [inches] AND ARE FOR 2. RETICLE IS MOUNTED INTO C-7 TUBE. REFERENCE ONLY AND **ARE SUBJECT TO** LARGE FORMAT AMPLIFIER CHANGE. **FOR 19mm RETICLES** FSCM NO. SIZE DWG NO. Date: 05/11/05 MB Modified: SCALE NONE 1 OF 2 SHEET











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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.

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