



The Professional Video SourceBook

Section 4

Camera Accessories

Fujinon Lenses	262-267
Canon Lenses	268-273
VariZoom.....	274-275
Electrophysics.....	276
Tiffen Filters	277-281
Century Precision.....	282-287
Telemetrics.....	288-297

ENG CAMERA LENSES

While ENG camera technology evolves faster and faster, delivering ever higher performance in ever small bodies, it has been increasingly difficult for lens manufacturers to improve quality while keeping size and weight to a minimum.... until recently. With At2 Aspheric Technology, Fujinon has succeeded in manufacturing superior quality lenses that are both smaller and lighter than lenses of conventional spherical design. From the widest angle to the longest telephoto, Fujinon's broadcast hand-held style lenses offer unparalleled features and performance. In fact, they are so advanced and so optically superb, they will reshape your thinking about how well a lens can perform.



FEATURES

Aspheric Lens Technology

- Conventional lenses use multiple spherical elements to control spherical and chromatic aberrations, glare and reflections. In AT-equipped lenses, a single aspheric element reduces these undesirable characteristics — and far better than multiple spherical lenses achieve.
- Aspherical optics allow zoom lenses to be made with higher magnification, wider angles and shorter MOD.
- One aspheric element replaces three spherical elements, reducing the number of elements by 20%, allowing production of smaller and lighter zoom lenses.
- Aspherical lenses have reduced distortion at wide angles and have improved corner resolution that can be managed throughout the zoom range, rather than just optimized at specific points.

Shortest MOD

- Using Fujinon's patented aspheric technology with a new inner focusing system, they reduce the minimum object distance MOD of each lens.
- The inner focusing system also gives the added convenience of not having to re-adjust filters after focusing.

"V"-Grip

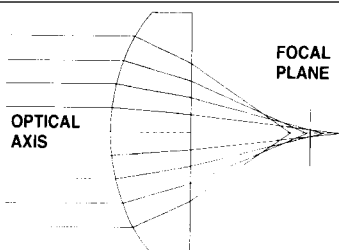
- The most comfortable and versatile hand-grip ever devised, the V-Grip keeps you in control, no matter what your shooting environment. The exclusive "V"-grip offers exceptional comfort by allowing the servo angle to be adjusted in five positions, from 3° to 17°. Balance any load, from lightweight camera/lens combinations to heavy camcorders.

Quick Zoom

- Fujinon takes the guesswork out of returning precisely to your original framed shot. You focus and the exclusive Quick Zoom has the lens zoom back to the original frame in full focus, at the touch of a button.
- Adjustable zoom speed control is selectable from 5 seconds to an incredible 1 second, wide-to-tele, right from the grip.

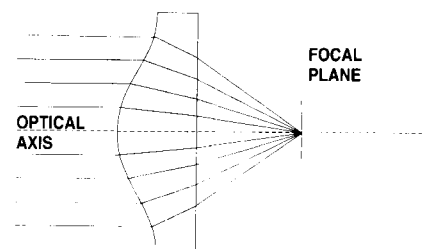
Conveniences

- Each lens barrel has a special protein coating applied to it, giving you solid finger contact, even while wet. Incredibly, even the zoom rocker switch is designed to carry off water collected in a special well below the switch.
- Lenses include a rectangular lens hood that provides a drastic reduction in flare.



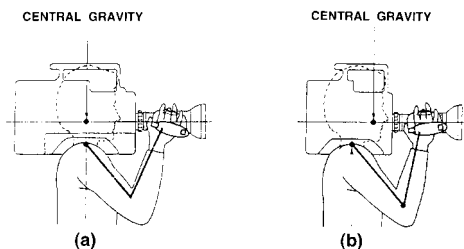
ASPHERIC ELEMENTS GAIN THEIR ADVANTAGES FROM THE WAY LIGHT PASSES THROUGH THEM

Light rays passing through the center of a spherical element focus on a different point than the rays that pass through the periphery. This creates a phenomenon known as spherical aberration — requiring additional elements to correct — adding weight and bulk, and increasing the potential for distortion, ghosting and flare.



Aspheric lenses, on the other hand, are designed so that all the light rays focus at the same point. This design reduces spherical aberration, thus eliminating the need for additional corrective elements and the added weight.

ENG CAMERA LENSES



Depending on the camera system, the position of central gravity varies. It is ideal to keep balance of any camera system on the shoulder. Grip angle adjustment from 3° to 17° provides balance at the most comfortable position, which prevents fatigue on the wrist and elbow.

A10X4.8EVM *Ultra Wide-Angle Zoom Lens*

The only ENG broadcast lens providing an 85° horizontal range of view, the A10X4.8EVM gives professional videographers the tools to capture a broader range of footage at close proximity. Ideal for shooting in short distances, such as inside cars and small rooms.

- Until now, a focal length of less than 5mm had been technically too complicated to achieve. Fujinon has broken the barrier with a 4.8mm focal length. In 16:9 format, A10X4.8EVM covers the world's widest 90° in horizontal.
- The first to achieve 10x zoom ratio in a wide-angle zoom, this lens extends super wide-angle and telephoto capacity for news gathering and TV programming.
- Image size changing ("pumping effects") while focusing has always been a problem. The A10X4.8E virtually eliminates this with their newly designed inner focusing system.
- With adoption of the newly developed Inner Focus mechanism, Fujinon achieved small size and light weight. The mass of this lens is only 1.85 kg.



- Achieves the best picture in its class, with less than 1% distortion at wide end.
- Longitudinal and lateral chromatic aberration and coma aberration have also been drastically improved.

Fujinon's broadcast hand-held lenses feature the very latest in optical and mechanical design and manufacturing techniques. New EBC (Electron Beam Coating) reduces flare and improves contrast, while AT2 Aspheric Technology improves corner resolution and reduces chromatic aberration. And all, except the 36:1 Super Telephoto, offer the exclusive "V-Grip" and Quick Zoom.

A15X8EVM

Standard Zoom Lens

Has become the standard for newsmen and videographers. A versatile performer in a compact package, offers AT2, inner focus, Quick Zoom and the "V-Grip".

A22X7.8EVM

Telephoto Zoom Lens

Longest length hand-held ENG/EPF lens available, combines additional focal length with AT2, Inner Focus, Quick Zoom and the "V-Grip".

A36X14.5ERD

Super Telephoto Zoom Lens

Combines the familiar design of a standard ENG style lens and the focal length of a much larger box type lens. Offers AT2 and Inner Focus.

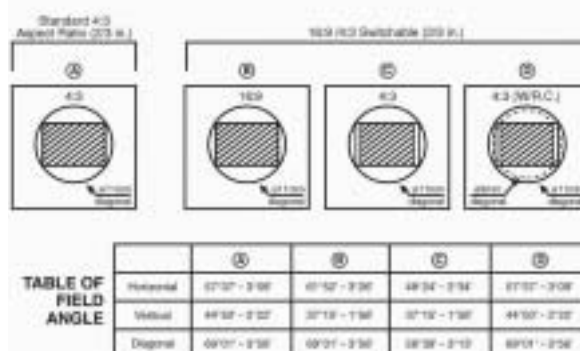
A10X4.8DEVM/A15X8DEVM/A22X7.8DEVM

V-Format Lenses with Ratio Converter

Fujinon lenses are compatible with the 16:9 format. However, because of the various methods of achieving the 16:9 aspect ratio, it is important to understand how the methods of ratio conversion are achieved.

There are two types of switchable-format cameras available today. One type uses 16:9-format CCDs and switches to 4:3. The other utilizes 4:3 CCDs and switches to 16:9.

When the 16:9-format CCD system is employed, it is necessary to compensate for a loss in angle of view of about 20 percent that occurs when switching to 4:3. To eliminate this, these lenses feature a ratio converter located in an enlarged extender housing.



ENG CAMERA LENSES

Lens	A10 x 4.8 EVM/ERD*	A15 x 8 EVM/ERD*	A22 x 7.8 EVM/ERD*	A36 x 14.5ERD*
FORMAT:	2/3"	2/3"	2/3"	2/3"
FOCAL LENGTH:	1x (4.8 to 48mm) 2x (9.6 to 96mm)	1x (8 to 120mm) 2x (16 to 240mm)	1x (7.8 to 172mm) 2x (15.6 to 344mm)	1x (14.5 to 520mm) 12x (29 to 1040mm)
ZOOM RATIO:	10x	15x	22x	36x
EXTENDER:	2x	2x	2x	2x
MAXIMUM APERTURE:	f/1.8 (to 34mm) f/2.3 (at 48mm)	f/1.7 (to 100mm) f/2.1 (at 120mm)	f/1.8 (to 124mm) f/2.5 (at 172mm)	f/2.7 (to 1305mm) f/4.6 (at 520mm)
M.O.D.:	0.3m	0.65m	0.8m	2.2m
HORIZONTAL FIELD OF VIEW:	4.8mm (85° 01') 48mm (10° 28')	8mm (57° 37') 120mm (4° 13')	7.8mm (58° 51') 172mm (2° 56')	14.5mm (33° 46') 520mm (0° 58')
FILTER SIZE:	127mm P = 0.75	82mm P = 0.75	95mm P = 1.0	127mm P = 0.75
INNER FOCUS:	Yes	Yes	Yes	Yes
MACRO:	Yes	Yes	Yes	Yes
QUICK ZOOM:	Yes	Yes	Yes	—
LENGTH:	244.4mm	202mm	215.6mm	363.3mm
WEIGHT:	1.85kg (EVM) 1.92kg (ERD)	1.48kg (EVM) 1.55kg (ERD)	1.7kg (EVM) 1.77kg (ERD)	— 4.58kg

*EVM= Manual Focus Servo Zoom

*ERD=Servo Focus and Servo Zoom

S19X6.5/A19X8.7

19x 1/2-inch and 2/3-inch Professional Telephoto Lenses

Designed for the newest digital cameras, Fujinon's professional-grade lenses offer wider angles, higher zoom ratios and quieter servos. The 19x series features the longest zoom ratio (19x) and widest angle (52°) combination of any professional lens. The series also incorporates AT2 aspheric technology, EBC coatings, Quick Zoom and inner focusing. Available for 1/2" and 2/3" cameras, with and without 2x extenders, the A19X8BRM can be purchased with Fujinon's exclusive "V-Format" 16:9 ratio converter in place of the 2x extender. The converter compensates for loss of angle view in the 4:3 mode on many of the newest switchable format digital cameras.



A12X6.8BRM

12x 2/3-inch Professional Wide-Angle Lens

The increasing demand for a high-performance, hand-held wide-angle zoom lens at a reasonable price which can be widely used for news gathering and field production has led to the development of the A12 x 6.8. Featuring a horizontal angle of view of over 65°, the lens brings more versatility to Videographers.

■ It is difficult to shoot in tele videography as well as at a wide-angle, at a close distance, with a 2/3" zoom lens. With the A12 x 6.8 you can cover a very wide shooting range, from the widest angle of 65° (in horizontal for 4:3 format) to 6°.

■ On a news gathering site, a cameraman often shoots and interviews by himself. In this case, the closer to the object, the more appealing the images will be. The A12 x 6.8 has a 0.5 minimum object distance to provide more appealing and well-balanced images of the object against the background scene.

■ Various aberrations, such as longitudinal chromatic aberration, lateral chromatic aberration and coma aberration, are greatly reduced to maintain high performance for high quality imaging.

■ Equipped with an aluminum diecast grip and a square hood for professional use.

Lenses for Videoconferencing and Distance Learning

Specially designed for the unique demands of videoconferencing, Fujinon's 1/2" and 2/3" lenses never intrude into the conversation, and are compact and light so installation is never a problem. The S14X7.3WMD wide-angle lens has a 60° horizontal field of view for great flexibility in camera placement. For telephoto applications, both the 17x and 19x incorporate aspheric technology for reduced distortion at wide angles; improved corner resolution; and chromatic aberration that can be managed throughout the zoom range. Also make them lighter and brings their MOD 5cm closer.

LENS:	S19 x 6.5BMD	A19 x 8.7BMD	S17 x 6.6MD	A17 x 9MD	S14 x 7.3 WMD
CAMERA FORMAT:	1/2"	2/3"	1/2"	2/3"	1/2"
FOCAL LENGTH Zoom Ratio:	6.5 to 123mm (19x)	8.7 to 165mm (19x)	6.6 to 112mm (17x)	9 to 153mm (17x)	7.3 to 102mm (14x)
MAXIMUM APERTURE:	f/1.4 (to 91mm) f/1.9 (at 123mm)	f/1.8 (to 114mm) f/2.6 (at 165mm)	f/1.4 (to 90mm) f/1.9 (at 112mm)	f/1.9 (to 115mm) f/2.6 (at 153mm)	f/1.9 (to 69.7mm) f/2.1 (at 102mm)
MOD:	0.9m	0.9m	0.9m	0.9m	1m
HORIZONTAL FIELD OF VIEW:	6.5mm (52° 25') 123mm (2° 59')	8.7mm (53° 39') 165mm (3° 03')	6.6mm (51° 44') 112mm (3° 16')	9.0mm(52° 06') 153mm (3° 18')	7.3mm(47° 20') 102mm (3° 36')
MACRO:	Yes	Yes	Yes	Yes	Yes
FILTER SIZE:	82mm P = 0.75	82mm P = 0.75	77mm P = 0.75	77mm P = 0.75	82mm P = 0.75
WEIGHT:	1.4kg	1.4kg	1.25kg	1.3kg	1.3kg

Lenses for Image Capture and Graphics Applications

Designed specifically for image capture and graphics application, the A4X7.5MD, S4X5.5MD, A8X12MD and S8X8.8MD are excellent choices when high quality imaging is required. The lenses are available with Fujinon's standard MD module, which provides remote control of zoom, focus, and iris — in a barrel-only configuration for manual operation or custom motorization. Lenses are compatible with Fujinon's complete line of remote controllers, close-up adapters and Pan/Tilt systems.

LENS:	S8 x 8.8MD	A8 x 12MD	S4 x 5.5MD	A4 x 7.5 MD
CAMERA FORMAT:	1/2"	2/3"	1/2"	2/3"
FOCAL LENGTH Zoom Ratio:	8.8 to 70mm (8x)	12 to 96mm (8x)	5.5 to 22mm (4x)	7.5 to 30mm (4x)
MAXIMUM APERTURE:	f/2.0	f/2.8	f/2.0	f/2.8
M.O.D.:	1m	1m	0.45m	0.45m
HORIZONTAL FIELD OF VIEW:	8.8mm (39° 58') 70mm (5° 14')	12mm (40° 16') 96mm (5° 15')	5.5mm (61° 37') 22mm (16° 57')	7.5mm (60° 48') 30mm (16° 41')
MACRO:	No	No	No	No
FILTER SIZE:	52mm P = 0.75	52mm P = 0.75	52mm P = 0.75	52mm P = 0.75
LENGTH/WEIGHT:	108mm/0.7kg	103mm/0.7kg	124mm/0.75kg	119mm/0.75kg

Lens Controllers

Fujinon's lens controllers feature control of zoom, focus and iris when used with the MD series of videoconferencing lenses. Three models and accessory cables up to 100 meters are available:

RMD-10: Provides push-button control over the zoom, focus and iris. (The iris can be either manually or remotely controlled.)

RMD-20: Offers a rocker type switch to control the zoom. Focus and iris are operated by two control knobs. As with the RMD-10, the iris can be either manually or remotely controlled.

RMD-30: Features eight preset zoom and focus positions, in addition to manual zoom and focus control. The iris can be operated manually or remotely.



PAN/TILT SYSTEMS

Fujinon's Pan and Tilt systems can accommodate dozens of applications where robotics are required. They feature precise DC Servo technology derived from Fujinon's extensive experience in broadcasting, to provide precision control of cameras from remote positions. From studio to stadium, field to underwater, Fujinon Pan/Tilt systems lead the way. And, in addition to preset controls for delivering high quality images, they offer both functionality and convenience by easily connecting to a computer, whereby they can be remote controlled via telephone lines.

Pan and Tilt Heads

Two Pan/Tilt heads (to support different camera models) provide capabilities for control over Zoom, Iris and Pan/Tilt, as well as computer and modem connection.

■ The CPT-1A-10D is designed for small CCD cameras (box cameras) and can be mounted upright or from a ceiling. It handles loads of up to 8.8kg and offers whisper-quiet and ultra smooth operation.

■ The EPT-5E-10D Pan/Tilt head is for use with ENG type cameras. Offering the same features as the CPT head, this unit can support up to 22kg.



CPT-1A-10D



EPT-5E-10D



Pan and Tilt Controllers

Three controllers are offered for controlling the heads. These include the EOP-102J-30D, 40D and 50D.



EOP-102J-30D



EOP-102J-40D



EOP-102J-50D

■ The 30D Digital Single Head Controller has 8 presets for positioning, Joystick Pan/Tilt, a rocker switch for the Zoom and a rotary knob for Focus control. A 12v power supply is included. The Iris control has Auto or Manual settings and the RJ-11 and RS-232 Interfaces allow computer and modem attachment.

■ The 40D offers all of the above features, plus 32 presets which can be expanded to 256 .

■ The 50D is a 4-Head Controller with 32 presets per head. A Signal Distributor and Receiver is required (ESD-452A-04A).

FUJINON

PAN/TILT SYSTEMS

Pan & Tilt Head Specifications

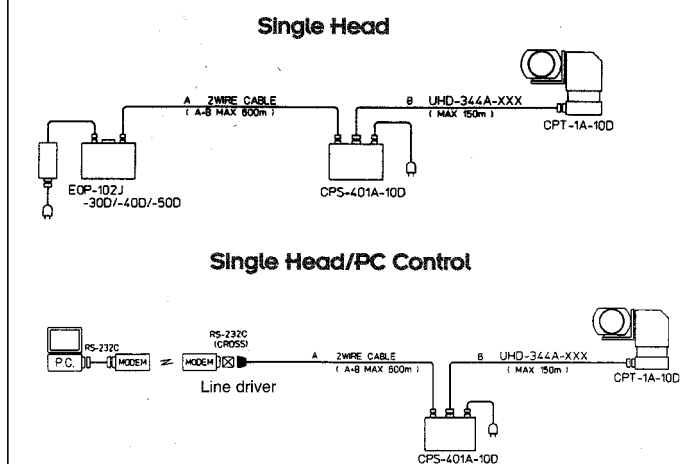
	PT-1A-10D	EPT-5E-10D
PAN RANGE:	300°	270°
TILT RANGE:	±95°	±95°
PAN & TILT SPEED:	15°/SEC.	9°/SEC
STOPPING ACCURACY:	±10'	±15'
ACOUSTIC NOISE	NC40dB	NC40dB
MAX. CABLE LENGTH:	600m (1968 ft)	600m (1968 ft)
LOAD CAPACITY:	8.8 lbs	22 lbs.
POWER SOURCE:	15v DC	15v DC
WEIGHT:	4.4 lbs	17.6 lbs.

Pan & Tilt Controllers Specifications

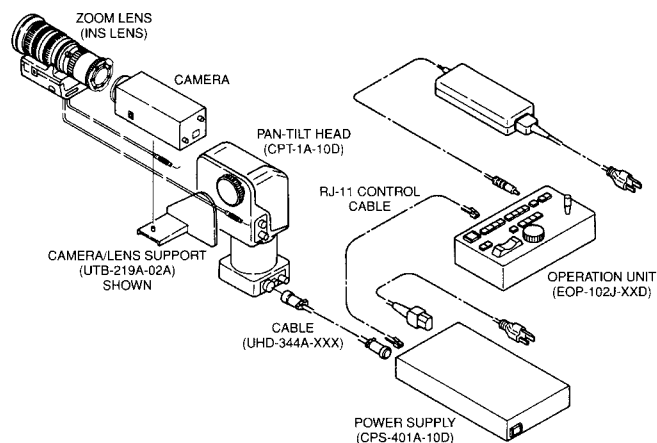
	EOP-102J-30D	EOP-102J-40D	EOP-102J-50D
OPERATION:	Digital (RJ-type 4- or 6-pin telephone connector), RS-232 (25-pin)		
PAN:	Variable Speed Joystick		
TILT:	Variable Speed Joystick		
ZOOM:	Variable Speed Rocker Switch		
FOCUS:	Variable Speed Potentiometer		
IRIS:	Close, Open, Auto, Remote		
SHOT MEMORY:	8	32, expandable to 256	32 per head
AUXILIARY INPUT:	2 auxiliary contacts for controlling accessory equipment		
POWER SOURCE:	120v AC via 12v DC Adapter (Included)		
EXPANSION:	1 head standard, expandable to 255*		Up to 4 heads standard, expandable to 255*

* Requires additional equipment

Pan & Tilt Configurations

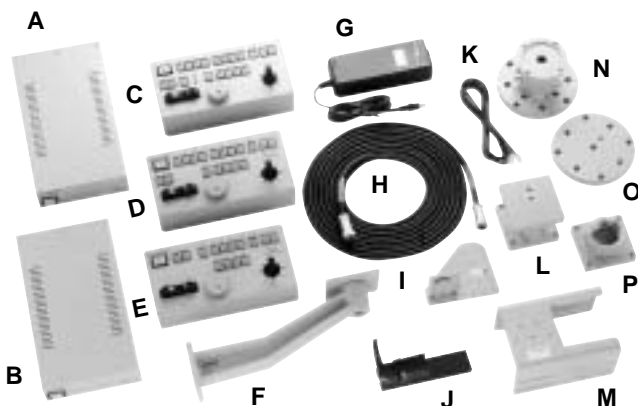


PAN/TILT SYSTEM



Optional Accessories

- A. CPS-401A-10D Power Supply
- B. ESD-45A-04A Multi Head Distr.
- C. EOP-102J-50D 4 Head Controller
- D. EOP-102J-40D Single Head Control
- E. EOP-10J-30D Single Head Control
- F. CMA-200A-01A Wall Mount (CPT only)
- G. CPS-401A-01A Controller Power Supply
- H. UHD-344A-XXX Cable
- I. UTB-219A-02A Support Bracket
- J. CLH-8B Support Bracket
- K. RJ-11 Control Cable
- L. PTA-C10D Tripod Adapter (CPT)
- M. UTB-219A-03A Support Bracket
- N. FH-10 High Hat Mount. (EPT only)
- O. FHTA-10 Tripod Adapter (EPT)
- P. EPA-C10D Pipe Adapter (CPT Only)



ENG CAMERA LENSES

2/3-inch ENG/EFP Lenses

Canon's IF+ lenses are engineered to meet the needs of broadcastings next generation while meeting the standards of today. Besides having the widest wide-angle lens available, they have wider angles at shorter MOD (Minimum Object Distance), provide higher MTF performance and incorporate Hi-UD glass for reduced chromatic aberration. Besides superb optics, they are all designed with Canon's "Ergonomic Grip" for fatigue-free shooting over an extended time. IF+ lenses are your assurance of unsurpassed quality and performance for today and tomorrow.



FEATURES

Internal Focus Technology

- In Internal Focusing lenses, the focusing group is mounted separately from the front lens. In essence, the focusing elements "float" within the lens, leaving the front element and mechanical barrel absolutely stationary. This provides several advantages:
- Since only a small portion of the lens is actually moving, focusing is much more precise than with traditional lenses.
- Internal Focusing practically eliminates the variation of color aberration and distortion that normally occurs due to the movement of the front elements while focusing. Thus there is no difference from infinity to M.O.D.
- Filters remain stationary, even when focusing, allowing higher grade filter work. Special effect filters like Cross, Snowcross, Polarizers, Multivision and Graduated NDs can be used while focusing, with no need for re-indexing.
- When using tele or wide converters, no additional power is required for manual or Servo operation, as the front element is fixed. The focus operates very smoothly.

Hi-UD Glass

High Index Ultra-Low Dispersion glass has a high refraction index and remarkably low dispersion. Hi-UD, when combined with existing fluorite and extra dispersion glass, dramatically reduces longitudinal and lateral chromatic aberration.

Wider Angles

They have wider angles and shorter MOD (Minimum Object Distance) than other lenses in their respective classes. This allows more flexibility, such as shooting in the small or restricted space of a studio.

Built-in 2x Extender

Each has a miniaturized 2x extender built in, providing better viewing of scales of Zoom and Focus for manual operation.

Square Lens Hood

Each IF+ lens includes a square lens hood that has more cut at the upper and lower edges. The shade matches the aspect ratio and offers protection from stray light, rain and dust. Also reduces image ghosting and flare.

High MTF Performance

Next generation TV will be in a 16:9 format. Compared with today's 4:3, the height of the format will become 20% smaller, thus the density of the scanning lines will be 20% greater. To meet the higher frequency requirements, the IF+ lenses achieve MTF (Modulation Transmission Function), corresponding to 6 MHz. MTF measures the transmittance of each color to the original.

Easy Operation

- The Canon grip is ergonomically angled at 12.5° — the ideal angle for a comfortable hold. It provides fatigue-free shooting over extended periods of time.
- All (except 33:1) have variable zoom speed control. Without taking your hand off the focus ring, you can adjust a volume switch under the grip to set zoom speeds (from 1.2 to 5 seconds).
- Special protein paint gives a soft, gentle feel to the grip and absorbs moisture (especially of the palm) for a slip-free grip. The rubber grip on the focus ring has extra wide ridges for smooth, precise focusing control.



Bottom View of IAS Grip

IAS Drive Unit

The IF+ series of lenses are also available with an IAS grip. In addition to the motor for Zoom and Iris Servo built into the "Ergonomic Grip" of lenses with the IRS nomenclature, the IAS version has a built-in motor for Focus Servo operation. And the IAS system does not limit any of the lenses to just studio or tripod work. By designing a customized IC (integrated circuit), Canon has succeeded in a remarkable 30% reduction in the number of electrical parts used in the grip. Focus, motor and all are barely any bigger than with the standard IRS grip.

ENG CAMERA LENSES

CROSSOVER - DUAL ASPECT RATIO SWITCHING SYSTEM

Crossover is Canon's brand name for lenses that have a built-in dual aspect ratio switching system. Developed for switchable cameras that can alternate between aspect ratios of 4:3 and 16:9, the Crossover lenses have a 0.8x shrinker built into the special extender housing. When the aspect ratio of a switchable camera is switched to 4:3 mode, the Crossover lens reduces the image size, so that the angle of view becomes the same as that of conventional 4:3 cameras.



There are two types of Crossover lenses available: The three position WRS/WAS with a built-in 2x extender (provides magnifications of 1x, 2x and 0.8x) and the two-position VAS/VRS without the built-in 2x extender (provides magnifications of 1x, and 0.8x).

NOMENCLATURE OF CANON PORTABLE LENSES

Zoom Ratio	Optical Adjustment for the Camera Prism			Zoom/Focus Control ***		
↓	↓			↓		
<i>J 20a X 8 B4 I R S</i>						
↑	↑			↑		↑
Image size*	Focal length at wide end			Built-in extender **		Iris Servo control
* Image size		<i>BC Class</i>		<i>B&I Class</i>		
<i>2/3"</i>		<i>J</i>		<i>J or YJ</i>		
<i>1/2"</i>		<i>PH or H</i>		<i>PH or YH</i>		
Built-in Extender **		Zoom/Focus Control ***				
<i>I = Built-in Extender</i>		<i>R = Zoom: Servo; Focus: Manual</i>				
<i>K = No Extender</i>		<i>K = Zoom: Servo; Focus: Servo (f/remote control use)</i>				
		<i>A = Zoom: Servo with built-in Focus Servo Motor</i>				

J9aX5.2B IRS/IAS

Ultra Wide-Angle Zoom Lens

Currently, the widest lens available, the J9aX5.2B IRS/IAS, provides images that previously were only seen with the zooming effect of focus or distortion. It features a focal length of 5.2mm to 47mm, with specifications and image quality far exceeding other wide-angle lenses – and is the only wide-angle with a built-in 2x extender. It also incorporates all the benefits of Internal Focus technology, Hi-UD glass and Canon's "Ergonomic Grip" for fatigue-free shooting. A Vari-Polar hood comes standard to offer extra flexibility, and an optional wide converter enables the lens to reach an extreme wide-angle of 4.3mm.



- Provides an 80.5° horizontal angle of view (93.2° diagonal) in standard 4:3 mode and 85.4° in 16:9 mode.
- Minimizes the "zooming effect of focus". This is a phenomena where the picture size (or angle of view) changes when focusing. Wide-angle lenses, because they have a deep depth of field, will appear to zoom when focusing, even though the focus looks sharp.
- Minimizing the zoom effect also allows the lens to capture 15% more than other wide-angles at M.O.D.
- 3-group internal focusing system design minimizes distortion and aberrations.
- With optional wide converter, offers focal length of 4.4mm and a horizontal angle of 90°. Because of the very deep depth of field, the lens can be used as a "Pan-focus lens" at the wide end.
- The only wide-angle lens with a built-in 2x extender, it can cover up to 94mm on the tele side, making it usable as a standard lens.
- Besides reducing image ghost and flare, the supplied Vari-Polar hood enables up to 90° rotation of filters attached to the hood. (A lever for rotation control is positioned under the hood.) It is easy to control Polarizers, Cross Filters etc.

J15AX8B IRS/IAS

15:1 Standard Zoom Lens

A next generation internal focusing lens, the J15aX8B IRS/IAS has the shortest MOD and widest angle of any standard ENG lens, letting you shoot in tight or restricted areas and capturing more of the subject. It incorporates all the great features of IF+ lenses, including a built-in 2x extender, high MTF performance, Hi-UD glass, square lens hood and the "Ergonomic Grip".



J20AX8B IRS/IAS

20:1 Telephoto Zoom Lens

Excellent for ENG, sports and production, the J20aX8B IRS/IAS lets you squeeze in shots from 8mm, and still takes you all the way out to 320mm with its built-in extender. Incorporates all IF+ features and is the only lens (besides the J9aX5.2B IRS/IAS) with a Vari-Polar lens hood, enabling rotation of attached filters.



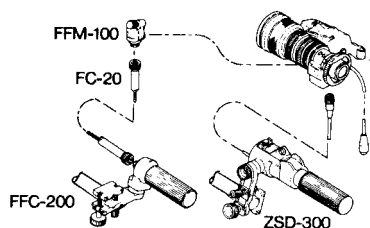
MS-210/MS-220 Semi-Servo Lens Control Kits

Canon basically offers two types of Servo Zoom/Manual Focus Studio conversion kits for the IF+ series. Both kits include the FFC-200 Manual Focus Controller, FC-20 (34") flexible cable and the FFM-100 Flexible Focus Module. They only differ on the Zoom Servo - the MS-220M with a Zoom 'Grip' type and the MS-210M with a Zoom 'Demand' type.

STUDIO CONVERSION KIT (SEMI-SERVO KIT)

MS-210 Focus Manual (FR-2) Zoom Servo (ZR-1)

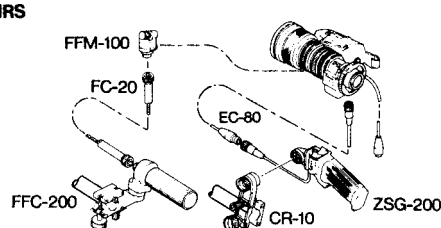
for J14aX8.5B IRS
PH14aX6.6B IRS



The MS-210 incorporates the ZSD-300 Zoom Demand Servo, which resembles a handle bar grip. A long cable, plus the CR-10 Clamper, are included.

MS-220 Focus Manual (FR-2) Zoom Servo (ZR-2(A))

for J14aX8.5B IRS
PH14aX6.6B IRS



The MS-220 incorporates the ZSG-200 Zoom Servo Grip which resembles a pistol grip. The MS-22 also includes the EC-80 Cable to the Servo unit, plus the CR-10 clamper.

MS-210: Lens Control Kit.....2587.50

MS-220: Lens Control Kit.....2195.95

J33ax11B/J33ax15B IAS

33:1 Super Telephoto Zoom Lenses

Super long and portable, the J33ax11B and the J33ax15B zoom lenses are ideal for EFP and sports applications. They feature the largest zoom ratio and the longest focal length of any portable lens in the industry and can be moved with a minimum effort during production — tear down not necessary. They achieve an incredible wide zoom range, from 11-363mm (22-726mm with built-in 2x extender) and 15-500mm (30-1000mm with built-in 2x extender), with reduced distortion.

*J33ax11B IA
Super Telephoto
Zoom Lenses*

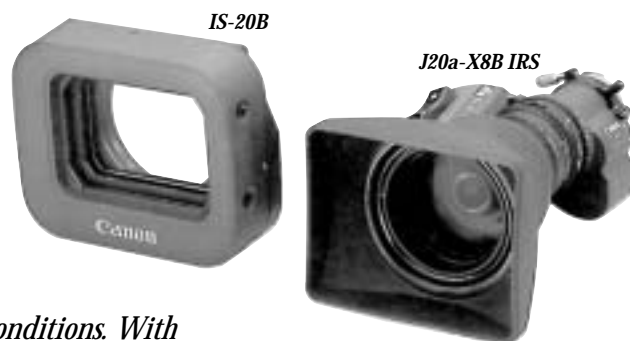


- By employing Canon's internal focus technology, only a small portion of the heavy front element group moves during focusing. The low power consumption focus servo was thus made possible — the power for full servo control is supplied from the camera, without the need of any additional power supplies.
- Even though they have a long reach, these lenses have an exceptionally compact design and weigh only 9.9 pounds.
- Color blur is diminished at the tele end, which is a very important point when using lenses for OB use. Even when using the built-in 2x extender, a sharp picture without color blur is achieved.
- Both lenses are IAS models, meaning they have a built-in motor for Focus Servo control. Only the attachment of the cable, from the focus demand controller to the lens drive unit, is required.
- Color aberration and distortion are minimized. There is no difference in performance from infinity to MOD — which is quite a distance in field use.
- The J33ax sets up quickly and includes a lens supporter (SUP-100) that is compatible with all portable ENG cameras.

IS-20B

Image Stabilizer for Canon Zoom Lenses

Designed to be front mounted on Canon's 9x, 15x and 20x zoom lenses, the IS-20B Image Stabilizer adds even more versatility to them. Incorporating patented Vari-Angle Prism technology, the IS-20B virtually eliminates shaking and vibration commonly associated with shooting on the run, from a car, or in high wind conditions. With the IS-20B, you continue to enjoy all the features of these popular lenses, including focal length and 2x extender, plus there is no additional f-stop loss.



- Full range of master lens is usable, as well as the 2x built-in extender.
- No additional loss of f-stop.
- Auto lock mechanism automatically locks the Vari-angle prism when the IS-20B is removed from the lens.
- High/low vibration character selector to select frequency range of vibration to be corrected.
- Built-in front protection filter.
- Panning switch for smooth finish of a pan with the stabilizer.
- Stabilizer on/off switch.
- Powered by optional external 12v 3ah battery with 4-pin XLR connector. Also has a battery power indicator
- Lightweight, only adds 3.5 lbs. to the lens

J13ax9B KRS-V • J14ax17B KRS-V

Standard and Telephoto Vari-Angle (Stabilized) Prism Lenses

KRS-V Standard and Telephoto Vari-Angle Prism Lenses with the "VAP" (Vari-Angle Prism) family of lenses – shooting from a car, boat, helicopter or any moving platform will never be the same. No wires, weights or supports attached, the VAP lenses provide a steady image with a remarkably low power drain. High quality Canon optics (including internal focus) in a slim, lightweight package ideally suited for fast moving mounts and applications — that's all there is.



Principles of Image Stabilization

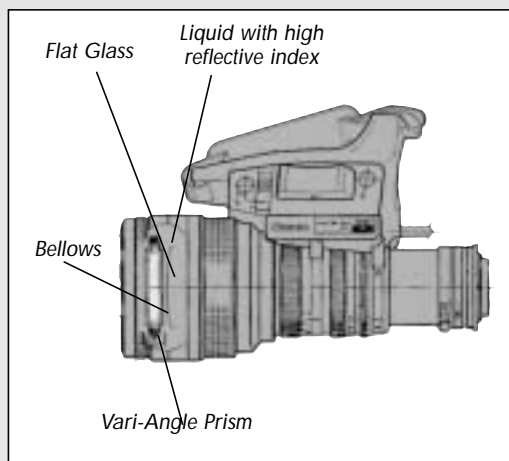
Normally, light rays from a subject pass through the object lens to the image plane. However, shaking of the lens caused by vibration of hand shaking, for example, would cause the phenomenon known as image shaking. When the Vari-Angle Prism is placed between the subject and optical system, the angle of the prism can be changed according to the angle of vibration of the axis of light in the lens. This controls the angle of refraction of light rays, so that the subject remains centered on the image plane – free from the shaking effect.

The Vari-Angle Prism

The Vari-angle Prism is composed of two pieces of flat glass joined by a bellows made of a special film that can expand and contract as needed. The space between the glass plates is filled with a liquid with a high refractive index. The liquid is a silicon-based oil, specially developed by Canon. A prism with a variable angle is formed when the bellows expands and contracts.

Image Stabilization System

System configuration includes the Vari-angle Prism located in front of the object lens, vibration sensors (one to detect pitch and another to measure yaw), prism drive actuator, prism angle sensor and microprocessor. When image shaking occurs, the vibration sensor sends a signal in proportion to the degree of shaking. The signal is then processed by the microcomputer and passed to the prism drive actuator, which adjusts the prism angle as needed to compensate from shaking. While the image stabilization system is operating, the prism is constantly monitored by the prism angle sensor, allowing real time control over the prism.



	J13ax9B KRS-V	J14ax17B KRS-V
Format	2/3"	2/3"
Zoom Ratio	13:1	14:1
Focal Length	9-117mm	17-238mm
Maximum Aperture	1:2.7	1:3.4
M.O.D	0.8m	0.8m
Weight	4.3 lbs	3.5 lbs
Filter Thread	82mm P0.75	82mm P0.75

	IS-208 II Universal Stabilizer Adapter
Stabilizer	Optical Image Stabilizing System using Vari-angle Prism
Style	Front Mount Adapter
Applicable Lenses	J14ax8.5B/PH, 14ax6.6B Series J15ax8B/H, 15ax6 Series J20ax8B/H, 20ax6 Series
Power	External DC 12v/3Ah (Not Included)
Size	178.5 x 150.5 x 68.5
Weight	3.5 lbs

Most Orders Shipped Within 24 Hours

YH18x6.7 KRS/YJ18x9B KRS

18:1 Zoom Lenses for 1/2" and 2/3" CCD Cameras

Now industrial camera people can take advantage of the breakthrough technology broadcasters have enjoyed for years—Internal Focus (IF). This unique technology is now incorporated into Canon's YJ and YH18X KRS lenses, and the YJ and YH18X IRS lenses (with built in 2X extender).



LENS:	YJ18X9B KRS	YJ18X9B IRS	YH18X6.7 KRS	YH18X6.7 IRS
FORMAT:	2/3"	2/3"	1/2"	1/2"
FOCAL LENGTH:	9- 162mm	9- 162mm 18- 324mm (2.0x)	6.7 to 121mm	6.7 to 121mm 13.4 to 242mm (2.0x)
ZOOM RATIO:	18x	18	18	18x
EXTENDER:	—	2x	—	2x
MAXIMUM APERTURE:	f/1.8 (9 to 117mm) f/2.5 (at 162mm)	f/3.6 (18 to 234mm) f/5.0 (at 324mm)	f/1.4 (6.7 to 91mm) f/1.85 (at 121mm)	f/2.8 (13.4 to 182mm) f/3.7 (at 242mm)
M.O.D.:	0.9m	0.9m	0.9m	0.9m

An industry-standard, Internal Focus is the system where the front of the lens remains stationary and does not rotate. Only internal elements move when focusing. Internal Focus enhances optical performance and provides several user benefits:

- Improves chromatic aberrations, thus increasing resolution
- Decreases distortion and flare
- IF is not sensitive to change in object distances

Improved optical performance is achieved with use of the IF system:

- The trademark IF Square Hood can be used, since with IF, the barrel of the front glass elements remain stationary during focusing. This allows the hood to be rectangular in shape, identical to the television screen—eliminating ghosting and flare more effectively by cutting unnecessary light fluxes.
- Since filters attached to the front of an internal focused lens remain stationary, even while focusing, re-indexing is a thing of the past. Internal Focus enables a higher level of creative filter work.
- The use of optical accessories such as wide converter and tele-converter, are also feasible since they don't affect focusing operation.

YH12x4.8 KRS / YJ12x6.5B KRS

1/2-inch and 2/3-inch 12:1 Wide Angle Zoom Lenses

The affordable high quality answer for those who want to enhance their capabilities with a quality wide angle lens. The 12X features an advanced 3-Group Internal Focus to minimize the zoom effect when focusing, in addition to reducing chromatic aberrations, distortion, and enhancing overall image quality. They are also exceptional wide angle lenses in 16:9 mode.



LENS:	YJ12X6.5B KRS	YJ12X6.5B IRS	YH12X4.8 KRS	YH12X4.8 IRS
FORMAT:	2/3"	2/3"	1/2"	1/2"
FOCAL LENGTH:	6.5-78mm	6.5-78mm 13 -156mm (2.0x)	4.8-58mm	4.8-58mm 9.6 -116mm (2.0x)
ZOOM RATIO:	12x	12	12	12x
EXTENDER:	—	2x	—	2x
MAXIMUM APERTURE:	f/2.0 (6.5 to 60mm) f/2.6 (at 78mm)	f/4.0 (13 to 120mm) f/5.2 (at 156mm)	f/1.5 (4.8 to 44.6mm) f/1.95 (at 58mm)	f/3.0 (9.6 to 89.2mm) f/3.9 (at 116mm)
M.O.D.:	0.4m	0.4m	0.4m	0.4m

VARIZOOM

VZ-456



- Gives the AG-456 the same professional features as cameras costing thousands more. Control your camera from 100 feet away with optional extension cable.

Zoom Lens Control for the Panasonic AG-456

The VZ-456 will control the camcorder's zoom functions with extreme precision – from a very slow crawl to shotgun speed and anywhere in between. Featuring a “set it and forget it” speed, you can rehearse all Pan, Dolly and Crane movements and rely on the VZ-456 to deliver the same exact zoom speed each and every time. The VZ-456 also take control of AG-456 functions, including autofocus, open/close iris and record/pause. The controller is supplied with a universal mount, enabling attachment to tripod or jib arms with thicknesses from 7/8” up to 1 1/2”.

- Rocker zoom with speed dial for precision control – from a dead crawl to fast speed and anything in between.
- Pause/Record button to control your camera recording from your handle.
- Includes a harness kit as well as a black anodized aluminum clamp for attaching to a tripod, crane or jib up to 1 1/2” thick.
- Mounted or free-hand, the VZ-456 is easy to operate. When rehearsing a pan, dolly or crane movement, the VZ-456 lock in speed control allows for exact same zoom speed each and every time.
- Nothing else to buy — just follow the supplied instructional video tape. All you need is a soldering iron and a screwdriver to install the mini jack. That's it!

VZ-100C/VZ-100F

Zoom Lens Controllers for Canon and Fujinon 8-Pin Lenses*

- Rocker zoom with speed dial for precision control – from a dead crawl to fast speed and anything in between.
- A “RETURN” switch allows you to see what is being recorded in your viewfinder
- Pause/Record button allows you to control your camera's recording from the tripod handle.
- Constructed of lightweight, yet strong aluminum alloy. Mounted or freehand, the VZ-100 is easy to operate.
- Ideal for Steadicam operators, news organizations and production companies.
- Optional VZ-extension cables (10' to 100') are available.



- Nothing else to buy or change on your camera. Just plug them into the 8-pin jack on the bottom of your Canon or Fujinon lens. Can be used with any make of camera using these lenses.

*If you have a Fujinon 12-pin lens, order model VZ-F12

VZ-X3/VZ-D200

Zoom Lens Controllers for JVC GY-X3 and Panasonic AJ-D200/210/215

The Varizoom VZ-X3 is exactly the same as the VZ-100C or VZ-100F except its designed to control the Fujinon 14:1 and 17:1 lenses that come with the JVC GY-X3 or Panasonic AJ-D200, AJ-D210, AJ-D215 DVCPRO camcorders.

VariZoom VZ-TFT Monitor

The perfect accessory to complement your controller, the VZ-TFT is a 5.6-inch active matrix color LCD monitor with a very wide viewing angle. It can be powered by batteries or by the supplied AC adapter. It features audio input, built-in speakers and headphone jack—making it perfect for playback as well as recording. The bottom side is threaded for a tripod or camcorder shoe mount, and there is adjustments for volume, color, brightness and contrast. Includes a custom carrying case.



VZ-PRO/C • VZ-PRO/F

Professional Rear Lens Controllers with Dual Speed Potentiometers for Canon and Fujinon Lenses

Varizoom's VZ-Pro series gives you the highest degree of zoom control for nearly every acquisition situation. This is achieved by the precision dual potentiometers and unique zoom handle grip. By combining a pressure sensitive thumb control with a separate but easily accessed dial speed control, Varizoom's VZ-Pro series provide exceptional control. Set the high speed limit with the dial, and ramp up to that setting with the separate, super smooth thumb control. This uniquely styled device relieves the operator of having to hold and maintain just the right amount of pressure since the maximum speed is set by the dial.

■ All in one, heavy duty, clamping system allows operator exceptional control over both camera and tripod functions simultaneously.

■ Tripod handle configuration with rubberized foam grip for maximum comfort.

■ Dual speed controls with quick adjust access to both controls.



(If you have a Fujinon 12-pin lens, order model VZ-PRO/F12)

Also available for the Panasonic AJ-D210 and AJ-D215 (model #VZ-PRO/D200) and JVC GY-X3 (model #VZ-PRO/X3)

VZ-PRO/L

Zoom Handle Grip for 'LANC-Equipped' Camcorders

Using proprietary (TAL) technology, Varizoom has created a lens remote control system for DV camcorders. A true variable speed and manual focus remote control, the VZ-PRO/L utilizes the Control L (LANC) remote connector to control almost any DV camcorder including the Canon XL-1, Sony VX-1000 and the DSR-200A. Now for the first time, owners of these camcorders can use jib arms, tripods and have the same type of control found on cameras costing thousands more. Combination rocker and speed control dial allows you to vary speeds in a single movement —smoothly from a slow crawl to fast and then slow again. Also features manual focus control, universal tripod/crane mounts and a record light indicator.

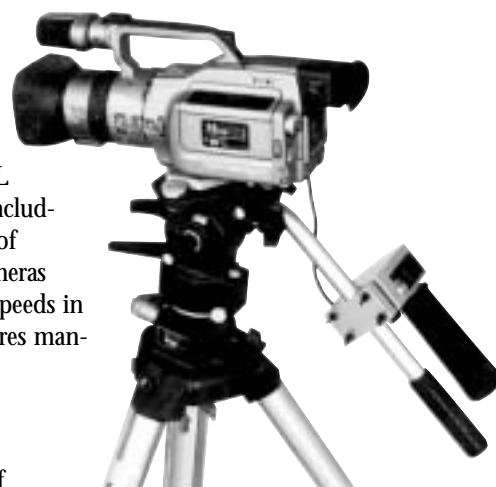
■ Precision variable speed control of camera zooms. Go from slow to fast and then slow again in a single smooth movement.

■ Push-button manual focus is conveniently at your fingertips so you can adjust focus functions precisely.

■ Has an LED recording indicator.

■ When the camera automatically turns off you can push a button and you're back in standby mode. (Wake up switch).

■ Tripod handle configuration with rubberized foam grip for maximum comfort.



■ All in one, heavy duty, clamping system offers exceptional control over both camera and tripod functions simultaneously.

Varizoom Lens Controllers

VZ-456	For AG-456	259.95	VZ-PRO/C	For Canon Lenses	499.95
VZ-100C	For Canon Lenses	259.95	VZ-PRO/F	For Fujinon 8-pin Lenses.....	499.95
VZ-100F	For Fujinon 8-pin Lenses.....	259.95	VZ-PRO/F12	For Fujinon 12-pin Lenses	509.95
VZ-100F12	For Fujinon 12-pin Lenses.....	274.95	VZ-PRO/X3	For JVC GY-X3	519.95
VZ-X3	For JVC GY-X3	299.95	VZ-PROD/200	For Panasonic AJ-D210/D215.....	519.95
VZ-D200	For Panasonic AJ-D210/D215.....	299.95	VZ-PRO/L	For Control L (LANC) Camcorders	399.95

Extension cables in 10', 20' and 50' lengths available**CALL**

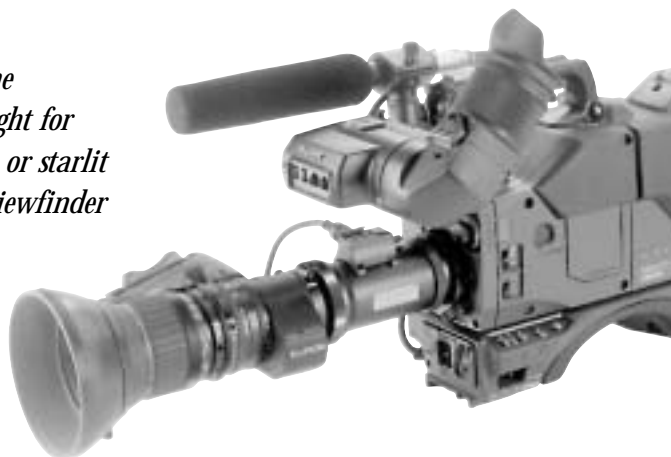
VZ-TFT 5.6-inch LCD Monitor with custom carrying case**329.95**

ELECTROPHYSICS

ASTROSCOPE 9323B

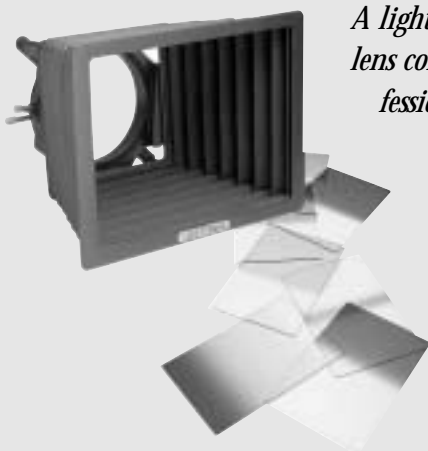
Night Vision Lens for 2/3-inch ENG/EFP Cameras

The AstroScope 9323B is the ultimate Night Vision Module. Designed for use on 2/3" bayonet-mount ENG/EFP cameras, the AstroScope offers the absolute highest possible performance at night for this configuration. This light amplifier transforms dark moonlit or starlit nights into bright high-resolution scenes, easily viewed via the viewfinder monitor and recorded. Because of its excellent low-light performance, the compact and rugged 9323B makes these cameras ideal for use in portable, low-light video imaging applications such as night-time news gathering, government surveillance and law enforcement.



- Designed for dedicated use on B4 bayonet-mount ENG / EFP cameras, the AstroScope is easy to use and requires no set-up, calibration or training.
- The AstroScope permits full electronic control of the lens iris and zoom from the camera. In addition, under bright scene conditions, module control signals request that the camera close the lens iris. No batteries are required, as the energy-efficient AstroScope draws minimal power from the camera's rechargeable battery via the lens cable connection.
- The heart of the 9323B is the Central Intensifier, an electro-optical device with communication electronics that ensures proper interface between the camera and the lens.
- This AstroScope 9323B transforms dark, moonlit or starlit nights into bright, high-resolution scenes easily recorded by the camera's daylight sensor. The AstroScope 9323B extends the camera's usable light range without any drawbacks. A 3-position variable gain unit adds to the range of the 9323B.
- The AstroScope 9323B fits easily between the camera body and the lens and amplifies the reflected light from the objects being viewed. For those situations having essentially no ambient light, a bore-sighted infrared light source is available as an option that covertly illuminates the dark areas with an invisible light beam. The AstroScope then converts this infrared light to visible, enabling it to be imaged by the camera.

LEE FILTERS *Video Hood*



A lightweight (weighs only 16-ounces) low cost alternative to conventional front of lens configurations, the Video Hood has been developed specifically for ENG and professional video applications. Features two filter slots, as well as an articulating hood.

- Self-supporting bellows operates without rails or bayonets
- Fits standard 85mm and 95mm lenses
- Allows complete 360° rotation
- Step-down converters available to fit 85mm, 86mm and 95mm lenses
- Easily attaches with push-on adapter ring
- Features two 4mm filter slots
- For 4 x 4" or 4x 6" mounted filters
- 6.5" maximum extension
- Compact and easy to use

LEVH85 Video Hood for 85mm Lenses**399.95**

LEVH95 Video Hood for 95mm Lenses**399.95**

LEVHD95-90 Converter Ring for 85mm Lenses**79.95**

LEVHD95-86 Converter Ring for 86mm Lenses**79.95**

LEVH95-85 Converter Ring for 95mm Lenses**79.95**

Precision Control Matte Box

Combining unique, patented innovations with maximum flexibility, Tiffen's FilterFlex lets you use almost any square or rectangular 4" wide filter to achieve beautiful images. Lightweight, it clamps directly to your lens without bulky support rails, and since no separate frames are required, filters go on and off quickly.

- FilterFlex comes complete with two filter stages which rotate 360° independently and a rectangular lens shade that remains horizontal while rotating filters. It allows full, precise fingertip positioning of each filter independently.
- Can hold one, two, or with optional accessory, three filters.
- The lens shade features fast on/off and swing away positions for easy access to front of the lens.
- Filters are held parallel to the lens, minimizing internal reflection problems.
- Lens mounts are available for internal or external lenses



- Accepts square or rectangular 4" wide by any standard length (4x4, 4x5, 4x5.650, 4x6). With optional accessory can also be assembled to hold 1, 2, or 3 filters.
- C-Ring adapters are available for most lenses (from 70mm to 100mm — based on outside barrel diameter).

TIFFI FilterFlex for Internal Focus Lens**864.95**

TIFFE FilterFlex for External Focus Lens.....**1124.95**

TIFFA French Flag Assembly**72.50**

TICFF Case for FilterFlex, Flag and accessories**219.95**

TIFFCR C-Ring Adapters (specify size—70mm, 75mm, 80mm, 85mm, 90mm, 94mm, 95mm, 98mm, 100mm ea.....**44.95**

Welcome to the World of FilterFlex

Using filters should be part of the creative experience. Too often, however, the physical apparatus gets in the way. Round, threaded filters can take time to change and don't allow lateral positioning. Traditional matte box/filter holders, using square or rectangular filters, can require the filter to be inserted into a separate frame before it can be placed on the lens. Often, these units don't allow each filter to rotate individually. Not so with the FilterFlex.

Using filters should require a minimum of hardware—no bulky rail supports; no unnecessary weight. Filters should go on and come off quickly. Filters should be totally maneuverable, both rotationally and laterally, with fast, precise control. Period. Except for one more thing.....it should also be affordable. Welcome to the world of FilterFlex, it is unlike anything you have ever seen or used.

TELE2X

Wide Angle Viewfinder

No more need to keep your eye pressed against the finder anymore. The Tiffen Tele2X Wide Angle Viewfinder provides a 2:1 image magnification allowing you to keep your eye off the viewfinder. This alleviates eye strain and can also prevent injury which can occur when covering sporting events, demonstrations, riots, etc. The camera can be elevated or lowered for effective shots while you maintain full frame in view. Attaching the Tele2X is easy. You simply remove your existing finder and twist the Tele2X onto the bayonet mount.



TIM2X TELE2X Wide Angle Viewfinder.....**269.95**

- Magnifies your viewfinder image while alleviating eye strain
- Allows you to adjust the camera while keeping the full frame in view
- Available for Sony or Ikegami cameras

Helping Create the World's Greatest Images

Technical precision, superior quality, and unequaled range of effects—that's why Tiffen filters are used in more motion picture and television productions than any other filter. The winner of two Academy Awards, Tiffen filters make a big difference indoors, outdoors, in close-ups or landscapes, in bright sun or shade, and in many other videographic situations.

Tiffen filters are so superior, they are backed by a 10-year warranty against manufacturing defects. Unlike ordinary batch-dyed glass filters in which color can be uneven, their unique lamination process allows complete control over color and density for maximum consistency. This, along with Tiffen's innovative product design has won them two Academy Awards and an Emmy for engineering excellence.



Polarizers

Linear Polarizer

Polarizers provide color and contrast enhancement. Reflected light often shows up as whitish glare that washes out color in an image. A Polarizer corrects this problem producing deep, dramatically blue skies. It also removes glare from non-metallic surfaces, such as windows and water. Color saturation in general, especially out doors, can be improved significantly. Approximately 2 f-stop compensation is recommended.

Warm Polarize

No optical filter is more indispensable than the polarizer. It eliminates glare and reflection from water and window surfaces, a common problem, and it also saturates color and increases contrast. In the Warm Polarizer, Tiffen combines the properties of the polarizing filter with the exclusive effects of the 812 Warming Filter. This valuable filter adds natural warmth to all skin tones, exterior shade and highlight areas. This is useful in outdoor open shade situations where there is excessive blue in the image and total control over lighting may not be possible.

UltraPol

Tiffen's new UltraPol linear and circular polarizers offer the best polarization effects available for professional motion picture and television work. They extract the maximum of unwanted glare from the scene and render crisp white clouds against a dramatically dark blue sky, like never before. Distracting reflections from water and windows become invisible with the magic of the UltraPol. UltraPols get the most from any scene that calls for a polarizer. Some camera-related optics, like a video tap, employ a partially silvered mirror, or beam splitter. This may require the use of an UltraPol Circular Polarizer, which places a clear, quarter-wave retarder on the camera side of the filter, effectively de-polarizing the light being recorded, after the image enhancement is done. UltraPol Circular Polarizer filters are suitable for virtually all situations; UltraPol Linear Polarizer filters excel in traditional applications. Rotating the UltraPol Polarizer varies the effect to meet your needs.

812 WARMING FILTER

A Tiffen exclusive, the 812 improves skin tones and is ideal for portraits taken on a cloudy day or outdoors in shade on a sunny day.

- Ideal for portraits or scenics
- Adds warmth to pale washed-out flesh tones
- Absorbs blue cast often caused by electronic flash
- Warmer results than 1-A.

	72mm	77mm	82mm	86c	95c	4x4
Polarizer	39.95	39.95	54.95	124.95	324.95	124.95
Warm Polarizer	59.95	59.95	84.95	124.95	324.95	124.95
Ultra Pol (Linear)	—	—	—	—	—	149.95
Ultra Pol (Circular)	—	—	—	—	—	149.95
812 Warming	29.95	29.95	39.95	69.95	129.95	99.95

Overnight Shipping Available

Pro-Mist

Pro-Mist

The Pro-Mist filter is exceptional for creating a special mood. Outdoors or indoors, in broad scenics or portraits, the Pro-Mist is excellent for toning down excessive sharpness and reducing contrast by moderately lightening shadow areas without detracting from the overall image. This is especially useful given the contrast and extremely sharp resolution produced by contemporary film and video lenses. Pro-Mist filters also yield moderate highlight flare that appears to stay close to the light source like a halo, creating an almost pearlescent glow around the highlights. The Pro-Mist is often used to mute colors and create exquisite pastel tones.

Available in 1/8, 1/4, 1/2, 1, 2, 3, 4 and 5 densities.

Warm Pro-Mist

Warm Pro-Mist filters combine the Pro-Mist with the Tiffen 812 filter, adding a natural warmth to skintones, exterior shade and highlight areas. This is useful in outdoor open shade situations where there is excessive blue in the image and total control over lighting may not be possible. Helps eliminate the blue cast for a more pleasing effect.

Available in 1/8, 1/4, 1/2, 1, 2, 3, 4 and 5 densities.

The higher the density, the greater the effect of diffusion. The warm color remains constant in all densities while the amount of softening varies.

Black Pro-Mist

The Black Pro-Mist filter offers all of the benefits of the Pro-Mist filter in a more subtle form. Excellent for toning down excessive sharpness and reducing contrast by moderately lightening shadow areas. Pro-Mist filters also yield moderate highlight flare that appears to stay close to the light source like a halo, creating an almost pearlescent glow around the highlights. The Black Pro-Mist creates a definably visible, light "pasteling" effect. The effect is subtle and delicate, with contained highlight flare, less lightening of shadows and moderate reduction of contrast.

Available in 1/8, 1/4, 1/2, 1, 2, 3, 4 and 5 densities.

Warm Black Pro-Mist

The Warm Black Pro-Mist offers the dramatic benefits of the Black Pro-Mist and the Tiffen 812 filter for warming skintones, as well as exterior shade and highlight areas. The warming feature also reduces bluish reflections from dark skintones, making it the right choice when you want to convey a warm, romantic feeling.

Available in 1/8, 1/4, 1/2, 1, 2, 3, 4 and 5 densities.

Black & Gold Diffusion/FX

The Black Diffusion/FX and Gold Diffusion/FX filters use a unique optical construction that produces the most advanced diffuser ever developed by Tiffen. They create a diffused image that doesn't look like it's been shot through a filter. Tiffen filters let you explore and realize your cinematic vision and creativity. Filters are available in all professional sizes in grades 1/2, 1 to 5.

Black Diffusion/FX

The Black Diffusion/FX filter gives a silky-smooth look to textured surfaces. So, it does a spectacular job of suppressing facial blemishes and wrinkles while maintaining a clear, focused image. The effect is flattering, by virtually eliminating unwanted details, but without being dull or "fuzzy." At the same time, a bare minimum of highlight flare is produced. The effect of the lighter grades is subtle, with the higher grades becoming gradually more noticeable—all capable of providing a beautiful image.

Gold Diffusion/FX

The Gold Diffusion/FX takes the effect of the Black Diffusion/FX a step further. It adds a soft, golden tint to shadows, and infuses images with a special warmth. Yet, it still manages to balance any mix of skin tones. Neutral colors appear minimally affected, while cool colors and skin tones are slightly warmed and softened with beautiful results. As grades increase, so does the diffusion, but the warm, golden tint stays constant. Filters available in all professional sizes in grades 1/2 to 5.

	72mm	77mm	82mm	86c	95c	4x4
Pro-Mist	79.95	79.95	79.95	79.95	79.95	79.95
Warm Pro-Mist	69.95	69.95	89.95	109.95	199.95	144.95
Black Pro-Mist	69.95	69.95	89.95	109.95	199.95	144.95
Warm Black Pro-Mist	69.95	69.95	89.95	109.95	199.95	144.95
Black Diffusion/FX	—	—	—	—	—	179.95
Gold Diffusion/FX	—	—	—	—	—	179.95

COLOR GRAD FILTERS

Half Color–Half Clear Filters with a Smooth Transition

Tiffen Color Grad filters are one of the most widely used filters in the industry today. They enable you to create an illusion, or to enhance reality, by adding color to a specific part of the image. Add color or excitement to a drab sky; change the specific color in a scene to create a desired special effect; enhance the existing color or create subtle drama; create more balanced exposures in uneven lighting situations. Made from ground and polished glass that feature superior optical properties, they are more scratch resistant than plastic, helping to ensure that the effect will not wash or rub off. Academy Award-winning lamination process offers better resolution quality. They include a Cordura storage pouch and are made in the U.S.A. Color Grads are shipped in soft edge. (Hard edge is available but must be specified when ordering).

Color Grads come in the following colors and densities:

Blue1 – 5	Cranberry1 – 3	ND 0.3, 0.6, 0.9	Straw1 – 3	Tropic Blue1 – 3
Chocolate1 – 3	Cyan1 – 5	Pink1 – 5	Sunrise1 – 3	Twilight1 – 3
Cool Blue1 – 5	Grape1 – 3	Plum1 – 3	Sunset1 – 3	Yellow1 – 5
Coral1 – 5	Green1 – 5	Red1 – 5	Tangerine1 – 3	
1/8, 1/4, 1/2 and 1 – 5	Magenta1 – 5	Skyfire1 – 3	Tobacco1 – 3	

Soft/FX

Portrait Improvement Filters

The Soft/FX filters retain overall image clarity while they soften unwanted small details. They incorporate effective light softening technology that diminishes imperfections, smooths out wrinkles and skin blemishes, while keeping the overall appearance sharp. This is accomplished with the small lens-like elements within the glass which produce a light-scattering pattern that selectively defocuses details like wrinkles and skin blemishes while leaving larger details such as the eyes, sharp. Soft/FX filters are available in five densities (1, 2, 3, 4, and 5) for creative flexibility. Density #1 provides subtle softening, while #3 produces modest softening, with no reduction in contrast. With #5, the effect is most dramatic on unwanted details. Details are diminished while highlights look luminous.

Warm Soft/FX

Portrait Improvement with Warming

The Warm Soft/FX combines the innovative diffusion technology of the Soft/FX filters with the exclusive Tiffen 812 warming filter, balancing contrasting skin tones to make people look their best. Very helpful when a scene involves several people of varying skin tones. The Warm Soft/FX is particularly useful with video due to its sensitivity to blue.

Warm Soft/FX come in densities 1/2, 1-5.

Fog Effect

The Fog Filter adds drama to your scenes by working with highlights to produce a misty atmosphere. It causes highlights to flare while softening image contrast and sharpness. Fog filters create a soft glow and can be used to produce a warm romantic tone. Available in 1/8, 1/4, 1/2, 1, 2, 3, 4 and 5 densities.



Without Fog



With Fog

Double Fog

Produces a natural fog effect where objects remain sharper and contrast is substantially reduced. Available in 1/8, 1/4, 1/2, 1, 2, 3, 4, 5 densities.



With Double Fog

	72mm	77mm	82mm	86c	95c	4x4
Color Grad	59.95	59.95	—	139.95	—	154.95
Soft/FX	62.95	62.95	89.95	114.95	204.95	149.95
Warm Soft/FX	62.95	62.95	89.95	114.95	204.95	149.95
Fog Effect	59.95	59.95	64.95	79.95	169.95	114.95
Double Fog Effect	59.95	59.95	84.95	79.95	169.95	124.95

ENHANCING FILTERS

Creates Intense Reds, Rust, Browns and Oranges

Creates brighter, more saturated reds, rust browns and oranges on film, with minimal effect to other colors. Made of didymium glass, it is ideal where red, brown and orange subjects should be enriched. Old rustic barns, flowers, earthtone rock formations, architecture, woodwork, strawberries and tomatoes are some of the many possibilities in which this filter can improve color saturation. Most popular for capturing dramatic images of autumn. Changes in foliage color are enhanced for improved fall landscapes and picture postcard scenes. Use with Polarizer for dramatic outdoor effects.

Contrast Filters

Alter Highlight or Shadow Intensity Levels

Whether on location or in the studio, your ability to control the contrast of your image is critical. Bright lights or sunlight create problems when the ratio between the highlight and shadow areas is beyond the latitude of the recording medium. If you expose for the highlights, the shadows appear without detail. If you expose for the shadows, the result is washed-out overly bright highlights. Contrast reduction can be achieved by lightening shadows without overexposing highlights or by darkening highlights without darkening shadows further. Tiffen offers three alternatives to solving your contrast problems: LOW CONTRAST, SOFT CONTRAST, AND ULTRA CONTRAST filters. These filters have no effect on sharpness, yet each alters your scene in a slightly different way.

Low Contrast Filter

Low Contrast filters work by spreading light from the highlights to the shadowed and darker areas, leaving the bright areas of the image bright. The dark areas are lighter, enabling you to see more detail in shadow areas. Because there is no f-stop compensation, you will not overexpose any portion of the image. This filter also creates a very slight flare or halation around hot spots or individual light sources. This feature can be a useful effect. The more light there is for the filter to work with, the greater the effect. Through the years, Low Contrast has been the filter of choice for people who shoot video but want to achieve more of a film look to their images. **Available in** $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$, 1, 2, 3, 4, 5 densities.

Soft Contrast Filter

Soft Contrast filters reduce contrast. This filter absorbs light, diminishing the highlighted areas while retaining the darker look of the shadow areas. In other words, the hot spots or bright areas of the image are reduced while the shadow areas remain dark, (black areas stay black), hence a reduction in contrast. This filter will cause a slight amount of flaring or halation.

Available in 1, 2, 3, 4 and 5 densities.

Ultra Contrast Filter

Ultra Contrast filters work with ambient light from surroundings, as well as the light in the actual image area. They lower contrast uniformly throughout the scene, even when there are varying degrees of brightness within the image. Shadow areas are opened up, revealing more detail, but without any flare or halation from direct light sources or bright reflections.

Available in $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$, 1, 2, 3, 4, 5 densities.

	72mm	77mm	82mm	86c	95c	4x4
Low Contrast	59.95	59.95	64.95	79.95	169.95	124.95
Soft Contrast	59.95	59.95	64.95	79.95	169.95	124.95
Ultra Contrast	69.95	69.95	89.95	149.95	—	149.95
Enhancing	59.95	64.95	64.95	124.95	319.95	254.95

CENTURY PRECISION

VALUE SERIES



Lens Accessories for 1/3- and 1/2-inch Camcorders and for the Canon XL-1

The Value Series are affordable, high quality lenses for use on detachable 1/2" zoom lenses with 75mm lens fronts, such as those packaged with Panasonic's Supercam and JVC's GY-X2B (Fujinon S14x7.5BRM). Or, with 1/3" zoom lenses with 65mm lens fronts, like those with the Panasonic AJ-D215, JVC GY-X3 (Fuji T14x5.5BRM) and the Canon XL-1. All adapters feature precision construction, multi-coated glass elements and light aluminum alloy housings.

.6x Wide-Angle Fixed Adapter

Remarkably lightweight and cost-effective, the .6x Wide-Angle Adapter increases coverage by 40%. Ideal for shooting situations in which zooming is not needed, it offers a significantly wider angle of view with very little distortion.

.8x Lightweight Wide-Angle Converter

Ideal for shooting situations that require both a wider angle of view and full zooming capabilities, the .8x Wide-Angle Converter attaches to the front of your zoom lens for 20% more coverage when set to wide-angle, telephoto, or anywhere in between.

Fisheye Adapter

For the widest possible angle of view – and a remarkable degree of barrel distortion, the Fisheye exaggerates depth, pulling nearby objects closer and causing distant objects to recede into the background.

2x Tele-Extender

Attaching to the back of zooms with 1/2" mounts (only), the 2x doubles your lens' focal length, making it easy to capture far-away action close-up. The extender's shallow depth of field also makes it easy to isolate a subject from foreground and background and to shoot past visual barriers, as well.

1.6x Tele-Converter

The 1.6x is a front-mounting accessory that instantly shifts the focal length in the telephoto direction. Adding the 1.6x to the Fujinon S14X7.5, for example, results in a focal length range 105- 168mm. (At focal lengths shorter than 105mm, vignetting occurs.)

For the longest possible reach and full zoom-through capabilities, use both the 2x Tele-Extender and the 1.6x Tele-Converter. For example, the 7.5-105mm focal length of the Fujinon S14X7.5 is expanded to a remarkable 24-334mm when both are in place.

Value Series Lenses				
For XL-1	For 65mm Lens Front		For 75mm Lens Front	
VS-06WA .6x Wide-Angle Adapter	#VS06WAXL	VS06WA65	VS06WA75	329.95
VS-08CV 6x Wide-Angle Converter	#VS08CVXL	VS08CV65	VS08CV75	739.95
VS-FE .55x Reversible W/A Adapter	#VSFEWAXL	VSFE65	VSFE75	419.95
VS-16TC .3x Ultra Fisheye Adapter	#VS16TCXL	VS16TC65	VS16TC75	749.95
XF-212B 2x Tele-Extender	#XF212B.....			699.95
VS-FA00 Sunshade/Filter Holder (4-1/2" Drop-in Filter) for .8x Wide-Angle and 1.6 Converters				164.95
VS-FA90 Sunshade/Filter Holder (4-1/2" Drop-in Filter) for .6x Wide-Angle Adapter				164.95

Resulting Focal Lengths using the Digital and Value Series Lenses				
	Sony VX-1000/DSR-200A, Using the Digital Series Lenses	Panasonic AJ-D215 or JVC GY-X3, Using Value Series Lenses	Canon XL-1, Using the Value Series Lenses	Fujinon S14X7.5 BRM, Using the Value Series Lenses
Zoom Alone	5.9-59mm	5.5-77mm	7.5-105mm	7.5-105mm
Wide Converter	3.8-38mm	4.4-61.5mm	6-84mm	6-84mm
Wide Adapter	3.5mm (fixed)	3.3mm (fixed)	3.5mm (fixed)	4.5mm (fixed)
Tele-Converter	59-118mm	77-123mm	59-118mm	10.5-168mm

We Exhibit At NAB, Infocomm, and Siggraph

CENTURY PRECISION

DIGITAL SERIES

Lens Accessories for Digital Camcorders

The Digital Series is a family of high quality lenses designed for use on digital camcorders with small lens front diameters, like the Sony DCR-VX1000 and DSR-200A. They easily attach to the front of these camera's non-interchangeable lenses via bayonet-style mount. Just disengage the factory lens shade, and with a quick twist the lenses are locked on ready for action. The entire Digital Series is also available in a screw-on version with 58mm threads for use on other camcorders and palmcoders, like the Panasonic AG-EZ1 or the AG-456. Step-up rings are also available for adapting to even smaller lens fronts.



With Century Precision Optics' range of video lens accessories, you can capture a stunning panorama, zoom in on a postage stamp or reach across a stadium to get a close-up. Many shots that would have been impossible to execute, or required prohibitively expensive specialized lenses are now possible, using your own lenses. By choosing the right tool, you can alter the optical characteristics of your lenses to dramatically expand their range and usefulness and capture imaginative new perspectives. Century products are found on the world's best optics, including Angenieux, Canon, Schneider, Fujinon and Zeiss. So, for answers to everyday optical problems, as well as creative solutions for unusual shooting dilemmas, look for a Century Precision optical tool, and expand the flexibility of your Video system.

2x Tele-Converter

Fitted on the front of your zoom lens, the 2x instantly doubles your lens' focal length, making it easy to capture far-away action close-up.

.55x Reversible Wide-Angle Adapter

The .55x Reversible Wide-Angle Adapter is the first dual purpose lens accessory. When attached to the lens front in one direction, the .55x performs like Century's other high quality wide-angle adapters, offering a significantly wider angle of view, with minimal distortion. Used with the Sony VX-1000, the .55x provides a horizontal viewing angle of 73° (93° measured diagonally).

When you want to go "wow-em" wide with a fisheye effect, simply remove the .55x optical element, flip it around, and thread it on the other way. Voila! It becomes a fisheye adapter. Oriented this way, the .55x provides a wider angle pronounced barrel distortion. When used as a fisheye adapter on the Sony VX-1000, the 55x offers a horizontal viewing angle of 92° and a diagonal viewing angle of 115°.

.6x Wide-Angle Fixed Adapter

Lightweight and cost-effective, the .6x Wide-Angle Adapter increases coverage by 40%. Ideal for situations when zooming isn't needed, it offers a significantly wider angle of view with very little distortion.

.65x Lightweight Wide-Angle Converter

A tool for capturing a wider angle of view while maintaining full zoom capabilities. The .65x Wide-Angle Converter attaches to the front of your zoom lens for 35% more coverage when set to wide-angle, telephoto, or anywhere in between.

3x Ultra Fisheye Adapter

The 3x Ultra Fisheye offers an extreme fisheye effect and a high degree of barrel distortion. It exaggerates depth by pulling nearby objects closer and causing distant objects to recede into the background. On the Sony VX-1000, the .3x Ultra Fisheye yields a horizontal viewing angle of 145° (180° measured diagonally).

Digital Series for VX-1000/DSR-200A

DS-06WA .6x Wide-Angle Adapter.....	249.95
DS-65CV .6x Wide-Angle Converter.....	419.95
DS-55WA .55x Reversible W/A Adapter.....	334.95
DS-FEWA .3x Ultra Fisheye Adapter	674.95
DS-20TC 2x Tele-Converter	299.95

Digital Series for 58mm Thread

DS-06WA58 .6x Wide-Angle Adapter.....	189.95
DS-65CV58 .6x Wide-Angle Converter.....	389.95
DS--55WA58 .55x Reversible W/A Adapter.....	274.95
DS-FEWA58 .3x Ultra Fisheye Adapter	649.95
DS-20TC58 2x Tele-Converter	299.95

DS-FA00 Rectangular Sunshade/Filter Holder (Series 9 Drop-in Filter) for .6x, .65x, .55x (Wide-Angle only, not Fisheye) and the 2x Tele-Extender **124.95**

CENTURY PRECISION

BROADCAST LENS ACCESSORIES

Century Precision's wide-angle adapters open new possibilities for videographers. By providing a wider angle of view, they let you capture more of the action from close up – especially crucial when shooting in tight quarters. Using a wide-angle adapter also yields increased depth of field and shorter M.O.D. (Minimum Object Distance), enabling you to move closer to the subject and to arrange subjects within a shot over a greater range of distance relative to the lens. Century's wide-angle adapters are divided into two classes: fixed focal length adapters and zoom-through converters. The Wide Angle Adapter Set, .6x Double Asphere and Super Fisheye are designed for use with a zoom lens set at its widest focal length. With one of these adapters, a zoom lens performs as a wide or super wide-angle fixed focal length lens. (Focus is done by using the lens' macro function.) For zoom-through applications, the 8x Wide Converter is perfect for shooting situations which require both a wider angle of view and the ability to zoom.

WA-7X5X

Wide-Angle Adapter Set

Compact, lightweight and economical, the WA-7X5X Wide-Angle Adapter Set is the industry standard. The set consists of two lenses: the .7x Wide-Angle and .5x Super Wide-Angle. The .7x attaches to the front of a Video zoom lens, increasing coverage by 30%. Adding the .5x to the .7x produces coverage nearly double that captured by the lens alone. (The .5x used alone increases coverage 30%.) For example, when attached to a lens that zooms to 9mm, the .7x Wide-Angle adapter shortens the effective focal length to 6.3mm. Adding the .5x Super Wide-Angle further alters the wide end of the lens to just 4.5mm, thus producing coverage nearly double that captured by the lens alone.



WA-7X93 .7x Wide-Angle Adapter	445.00
WA-5X45 .5x Super Wide-Angle Adapter	535.00
WA-7X5X Wide-Angle Adapter Set (consists of the WA-7X93 and WA-5X45)	895.00

WA-6XAS

.6x Double Asphere Wide-Angle Adapter

Unequivocally superior to every other wide-angle adapter, the .6x Double Asphere utilizes a single element with two aspheric surfaces. This design ensures a performance that is not possible with conventional single element adapters. The adapter minimizes distortion and reduces chromatic aberration while dramatically increasing edge resolution. Remarkably lightweight and compact, the .6x Double Asphere was created especially for use with the latest internal focus lenses like Canon and Fujinon's 15 x 8. The .6x increases their coverage 40%, effectively changing a 15 x 8 into a super-sharp 4.8mm fixed focal length lens. An accessory Lens Shade/Filter Holder accepts either a single 4 x 5 or Panavision-size filter holder.



WA-6XAS .6x Double Asphere Wide-Angle Adapter	1199.95
FA-6XAS Sunshade for .6x Double Asphere with slot to hold one 4 x 5" or 4 x 5.6" 5" filter in a holder	346.50
FH-4X50 4 x 5" Filter Holder	204.95



CENTURY PRECISION

WA-8XCV

.8x Zoom-Thru Wide-Angle Converter

A high quality, economical alternative when the shot requires both a wider angle of view and the ability to zoom, the .8x attaches to the front of the lens, effectively shortening the focal length while maintaining full zoom capabilities. With the converter attached, 20% more coverage is realized when the zoom lens is set to wide-angle, telephoto or anywhere in between. For example, when added to an 8.5-119mm lens, the .8x alters the focal range to 7-98mm, especially advantageous when shooting in confined quarters. The .8x not only expands field of view, but also reduces minimum object distance (M.O.D.) The camera can therefore move considerably closer to the subject while maintaining focus. And, because there is no light loss with the .8x, there is no need to change exposure or lighting.



WA-8XCV 8x Zoom-Thru Wide-Angle Converter.....**1479.95**

FA-388X 138mm Filter Adapter.....**164.95**

STEP-UP RINGS FOR .5x ADAPTER			
MODEL #	SIZE	TYPE	PRICE
FA-5X85	85mm	Slip-On	89.95
FA-5X90	90mm	Slip-On	89.95
FA-5X95	95mm	Slip-On	89.95
FA-5X00	100mm	Slip-On	89.95

STEP-UP RINGS FOR .6x ADAPTER			
MODEL #	SIZE	TYPE	PRICE
FA-6X75	75mm	Slip-On	104.95
FA-6X80	80mm	Slip-On	104.95
FA-6X85	85mm	Slip-On	104.95
FA-6X90	90mm	Slip-On	104.95

STEP-UP RINGS FOR WA-8XCV, WA-7X5X, WA-7X93 and TC-16CV ADAPTERS AND CONVERTERS							
MODEL #	SIZE	TYPE	PRICE	MODEL #	SIZE	TYPE	PRICE
FA-7X67	67mm	Screw-In	69.95	FA-7X85	85mm	Slip-On	69.95
FA-7X75	75mm	Slip-On	69.95	FA-7X86	86mm	Screw-In	59.95
FA-7X80	80mm	Slip-On	69.95	FA-7X90	90mm	Slip-On	69.95

WA-FESU Super Fisheye Adapter

When you need the widest possible angle of view, the Super Fisheye Adapter produces an extraordinary degree of barrel distortion for a magnification factor of approximately .55x. For example, adding the Super Fisheye to a 15 x 8 lens, results in a 116° horizontal angle of view — a remarkable 145° when measured diagonally. In addition to the Super Fisheye (designed for the newest generation of internal focus zooms), Century Precision also offers the Fisheye Adapter for industrial zoom lenses with 75mm lens fronts.



■ Tremendously wide field of view suggests a myriad of creative possibilities — from panoramic vistas that seem to stretch to the edge of the earth, to comical forced perspective close-ups in which an actor's distorted features seem to pop through the Video screen. While extreme telephoto shots tend to flatten the subjects against the background, the Super Fisheye exaggerates depth, pulling nearby objects closer and causing distant objects to recede into the background.

■ Due to the Super Fisheye's characteristic barrel distortion, extreme low and high angle shots are also made more dramatic. An attic crawlspace can induce heightened claustrophobia, or tall skyscrapers can be made to bend menacingly over the audience. And since the Super Fisheye takes in a much wider angle of view than the human eye, it can also be used to plunge the audience into a scene — surrounding them with a noisy crowd, or exiling them to a lonely beach.

WA-FESU Super Fisheye Adapter**1049.95**



THE PROFESSIONAL'S SOURCE (212) 444-6601 • FAX: (212) 444-5001

1 • 8 0 0 • 9 4 7 • 9 9 0 1

CENTURY PRECISION

XF-212B/XF-223BA

2x Tele-Extenders

In situations where it is difficult, dangerous or even impossible to move in close, Century's 2x Tele-Extenders are the ideal solution. Easily mounting between your camera and lens, they double your lens' focal length, allowing you to fill the frame with far-away action. Model XF-212B fits most 1/2" bayonet mount lenses (Panasonic and JVC), XF-2325 is for Sony 1/2" bayonet and the XF-223B is for 2/3" bayonet mount lenses.



- With a 2x Tele-Extender, subjects that were previously out of range will now fill the frame. Get a shot across a stadium or over water. Attaching easily, the 2x instantly converts a 9-144mm 16:1 zoom lens into a 18-288mm super telephoto zoom. One caveat though, doubling the focal length results in a two-stop reduction in the amount of light reaching the focal plane.
- Characterized by their shallow depth-of-field, they also make it easy to isolate a subject from foreground and background. For example, wildlife videographers find this helpful when shooting an animal whose natural camouflage causes it to blend with its surroundings. Reduced depth-of-field is also effective in shooting past visual barriers, such as chain-link fences.

XF-212B for 1/2" Bayonet Mount Lenses	699.95
XF-2325 for Sony 1/2" Bayonet Mount Lenses.....	699.95
XF-223B for 2/3" Bayonet Mount Lenses	699.95



Zoom lens set at telephoto
without Tele-Extender



With 2x Tele-Extender

In 1992 Century merged with Tinsley Laboratories. Renown for supplying the corrective glass elements used to repair the Hubble Space Telescope, Tinsley is a pioneer in design, computer-controlled manufacturing and production of aspheric optical surfaces. Tinsley's lenses, mirrors and optical assemblies are used in precision optical and electro-optic systems for aerospace, military, scientific and industrial applications. What happens when America's top lens experts and the world leader in Aspheric lens technology join forces? The result is family of ultra-precise zoom lens accessories custom-tailored to today's contemporary video cameras.

TC-16CV 1.6x Tele-Extender

Another alternative for extending your lens' reach, the 1.6x Tele attaches quickly to the front of a lens and shifts the focal length in the telephoto direction. Unlike internal or external tele-extenders, the 1.6x Tele requires no exposure compensation.



- Add the 1.6x Tele-Converter to a 15x8 f/1.7-2.0 lens, and you alter its working focal length from 8-120mm to 120-192mm. (Vignetting occurs at focal lengths shorter than 120mm.) Combine this with a zoom's built-in 2x extender, and you have the greatest possible reach — with full zoom-through capabilities and no additional light loss.
- For example, engaging the internal 2x extender converts an 8-120mm f/1.7 zoom into a 16-240mm f/3.4 zoom lens with a two-stop loss of light. Attach the 1.6x Tele-Converter, and the resulting focal length range would be an astounding 26-384mm with the same 3.4 f-stop.

TC-16CV 1.6x Tele-Extender (Requires Step-Up Ring. See previous page).....1599.95

CENTURY PRECISION

ACHROMATIC DIOPTERS

Macro Zoom Attachments

Century's advanced two-element Achromatic Diopters turn your video lens into a true macro zoom. Also known as Macro Zoom Attachments, they provide video zoom lenses with more close-up range and magnification, while maintaining full zoom capabilities — without compromising image quality. They are also designed to maintain a flat field and edge-to-edge sharpness without chromatic aberration or image degradation.



■ They provide dramatically shorter MOD (Minimum Object Distance). This is essential whenever it is necessary to focus tightly on a small subject with a long lens — in tabletop, miniature and flat field videography. For example, add a +2.6 diopter to a 14x lens with an MOD of 40", and bring it down to 10", filling the frame with a subject as small as 3/4" across.

■ Reduced working distance also offers a wide range of shooting possibilities. Exceptionally crisp videography of small objects like jewelry or computer chips is now possible. A variety of industrial applications are also made simpler, including remote, high-magnification visual inspection of hard-to-reach objects and manufacturing processes.

■ Common single element diopters permit focusing at close camera-to-subject distances, only at the expense of image clarity. Instead, Century's Diopters feature two highly corrected glass elements for edge-to-edge sharpness, thus minimizing chromatic aberration and distortion.

58mm Achromatic Diopters with Step-Up Ring for Lenses with 46mm to 55mm Front Threads

AD-5820 +2.0	209.95
AD-5840 +4.0	209.95
AD-5870 +7.0	209.95

72mm Achromatic Diopters and Step-Up Rings

AD-7220 +2.0 Achromatic Diopter.....	329.95
AD-7235 +3.5 Achromatic Diopter.....	329.95
FA-6272 62-72mm Step-Up Ring.....	34.95
FA-6772 67-72mm Step-Up Ring.....	34.95

86mm Achromatic Diopters and Step-Up Rings

AD-8616	+1.6 Achromatic Diopter	459.95
AD-8620	+2.0 Achromatic Diopter	459.95
AD-8626	+2.6 Achromatic Diopter	459.95
FA-6786	67-86mm Step-Up Ring	59.95
FA-7286	72-86mm Step-Up Ring	59.95
FA-7586	75-86mm Step-Up Ring	69.95
FA-7786	77-86mm Step-Up Ring	59.95
FA-8086	80-86mm Step-Up Ring	69.95
FA-8586	85-86mm Step-Up Ring	69.95

WA-25S5/WA-252B

25mm Lens for Image Capture and Analysis

Century's 25mm is a remarkably high quality, low cost alternative to video zoom lenses in high magnification close-up situations. Compatible with today's 1/2-inch 3-CCD image capture cameras, the 25mm is designed for applications requiring a low distortion flat field lens with close focusing capability. Ideal for computer graphics capture, instrumentation applications, image analysis, machine vision and still-to-video imaging.



■ Featuring manual focus and iris, the lens focuses to 7 1/2" (4" from the front of the lens). The field of view at that distance measures 1 1/2" horizontal by 3/4" vertical — yet the lens allows less than 1% geometric distortion.

■ Available for either Sony 1/2" bayonet mount cameras, like the Sony DXC-950 or cameras with standard 1/2" bayonet mounts, like the Hitachi HVC-10, JVC KY-F32 and the Panasonic AW-E600.

WA-25S5: 25mm f/2.8 for Sony 1/2" Bayonet Mount**649.95**

WA-252B: 25mm f/2.8 for Standard 1/2" Bayonet Mount.....**949.95**

TELEMETRICS

TRIAX/COAX CONTROL SYSTEMS

The proliferation of live event broadcasting from locations like stadiums, arenas, concert halls and convention centers, continues to increase the need for mobility and studio-quality video performance for field events. Today's high-quality ENG and EFP-style cameras provide a cost-efficient alternative to placing large and expensive studio cameras in the field, while providing outstanding performance. With the addition of a coax or triax camera control system, broadcasters can achieve the desired mobility with the ability to run extended lengths of cable between the control site and each camera location.

Telemetrics has been a leader in camera control multiplexing systems since 1973. They have also developed and produced innovative camera control systems for broadcasting, industrial, educational, and military type applications. In fact, they have produced over 500 airborne video cameras for various fighter planes, including the F-15 and F-16. Telemetrics manufactures triax camera adapters for most brands of ENG cameras on the market. The adapters are designed to interface electronically and mechanically through the multi-pin dockable connectors, without any modification to the camera head. Depending on the application and the cost-effectiveness, standard RG-59 coax cable can be used instead of triax cable where cable runs do not have to be over 1500 feet.

Direct Docking Camera Control Systems

Turn your ENG cameras into full featured EFP cameras for the field and the studio. With a direct docking camera adapter — factory setup ready to plug and play.

Telemetrics offers the largest selection of cost-effective camera control systems with the compatibility to interface with virtually any ENG camera, including new DSP-equipped cameras.

The TM-9250 triax system offers comprehensive camera setup and adjustment capabilities, along with Video, return Video, microphone Audio, intercom, tally and genlock — plus power. The TM-9660 triax system offers all the same functionality with the benefit of component Video transmission.

The TM-9255A coax system delivers camera remote control plus power on a single coax cable.

Telemetrics camera control systems are used the world over by broadcasters like ABC, NBC and cable networks, as well as in stadiums, arenas, colleges, hospitals and stock exchanges.

Previously, standard multicore cable was used to carry all the required signals between the camera head and its base station. This severely limited the reliability and mobility of the camera, due to the cable's bulk, weight, high initial cost and transportation expense. Because of electrical loss, they also have limited distance capability of only about a thousand feet. Multicore cable is also not easily field repairable. Repair of a break in a multicore cable is very tedious and time consuming compared to a triax cable. Finally, the multitude of different camera cables and connectors prevent permanent installation of the cabling. Because of this, triax has become the camera cable of choice. In the field it allows users with triax adapters to interconnect cameras to base stations of any manufacturer. In venues such as stadiums and golf courses, the cable is permanently installed, providing substantial time and cost savings. In the studio, simple patch panels are arranged to easily relocate cameras in the various set locations and provide connection to base stations in the control room.

Each of their camera control systems provides the versatility to accept various transmission carriers like triax, coax, fiber and RF transmitters. This gives you the ability to remotely control cameras in virtually any type of field environment. For added versatility and functionality, Telemetrics multiplex triax camera controls can be complemented with a variety of robotic-type devices, which include Pan/Tilt camera mounts, linear tracks and weather-proof housings. The mating of these robotic devices to the triax system offers the ability to capture unique video of sports and other remote events not possible with multicore-connected cameras or robotic devices.

TELEMETRICS

TM-9250/TM-9660

Triax Composite and Component Camera Control System

The TM-9250A and TM-9660 feature both triax and coax connectors on the camera adapter and base station to allow coax cable hook-up in case of a break in the triax connection. Cable runs of up to 5000 feet are possible using triax and up to 2000 feet with coax cable, using a local power supply for the camera. Camera adapters snap on quickly and dock directly, eliminating the need for adapting the triax connector to the camera's multi-pin connector. A 4-pin XLR power connector allows for stand-alone camera operation.

Introduced less than one year ago, the innovative TM-9660 system delivers both operational advantages of processing component video signals and using triax cable. Processing and transmitting component video in the studio and triax system prior to encoding results is a substantial improvement of video quality. Recording, playback, generating special effects, digitizing for transmission and video switching are also greatly enhanced with component video. In addition, component video simplifies the exchange of programming between locations, using different encoding systems such as NTSC and PAL. The TM-9660 also features an optional Teleprompter Modulator that allows a teleprompter to be hooked up to the Triax system.



FEATURES

- With the TM-9250 or TM-9660, your Panasonic, Ikegami, Hitachi, Sony or JVC camera head becomes a full-featured camera for both field production and studio applications.
- Permits cable runs of up to 5000 feet using standard low-cost, easily repairable triax cable, or 2000 feet with coax cable.
- Video, audio, camera controls, intercom, tally and genlock.
- Provisions for mounting a studio viewfinder.
- Serial data path for remote camera controls.
- Serial data path for Pan, Tilt, Zoom and Focus controls.
- NTSC or PAL configurations available.
- Component video capability and optional teleprompter modulator (TM-9660 only).
- Accessories include cables and rackmounting adapters. All systems are made to specifications supplied by the users, to work with their brand of camera and CCU, intercom and tally system.

Triax Cable

Triax cable feeds power to the camera adapter, camera, studio viewfinder and lens (where applicable). In addition, it will also power the Telemetrics Robotic Pan Tilt heads when used as part of the Triax system. Built-in safety feature shuts the power upon disconnect, short circuit or open shield.

Camera Adapter

The triax camera head adapter replaces the stand-alone camera adapter and CCU. Designed to electronically and mechanically interface with the camera head, no changes are required to the camera, and all interconnections are made through the multi-pin dockable connector. The adapter also includes connectors for headset, microphone (XLR), and external monitor hook up.

Base Station

The base station features front panel adjustments for video, chroma gain and horizontal and subcarrier phase. Program audio mix control allows the base station operator to adjust the volume between the intercom and external microphones that are being fed from a mixer, so that the cameraman listening to the audio feed through headphones can tell the operator to raise or lower the volume of the program mics. Cable and power supply fault indicators, as well as Call/Tally indicators on the base station keep the operator and cameraman in full control of what is happening during the shoot.

TELEMETRICS

TM-9255

Coax Camera Control System

The TM-9255B is an affordable camera control system that offers the advantage of using standard RG-59 coax cable (BNC).

Benefits include lower cost, less weight and greater flexibility.

Using advanced multiplexing circuitry, the TM-9255B uses these inexpensive cables to transmit video to and from the camera, genlock and power to the camera, intercom to and from the camera, microphone audio from the camera, camera controls to the camera and tally control. These signals can be transmitted up to 1500 feet without local power to the camera, or up to 2000 feet utilizing local camera power. The camera adapters dock directly, eliminating the need for multicore cable adapters. The camera does not require mechanical or electronic changes to accept the adapters. The Camera Adapters have built-in power connectors for camera stand-alone operation where local power is supplied. Studio viewfinders can also be mounted and powered by the Camera Adapters. Also available are Universal HIP pack adapters that can be connected to any camera via the multicore connector of the camera back. This is very useful where more than one brand of camera equipment is being used. The Base Station comes standard as a rackmountable unit complete with rackmount. An open cable warning indicator is built into the base, and the power shuts down automatically when there is a short or a disconnect.



Camera Control Systems

TM-9250B

Triax Camera Control For The Long Run

The TM-9250B Triax Camera Control System permits long cable runs of up to 5000 feet and offers composite NTSC/PAL video outputs with proven performance and reliability.

TM-9660

Triax Camera Control Technology At Its Best

The TM-9660 Triax Camera Control System offers the highest levels of performance and camera control capabilities. By processing component video signals, the system enables you to maintain the highest levels of signal integrity. Telemetrics TM-9660 also interfaces to serial digital video converters for digital processing.



TM-9250B
Camera Adapter

TM-9250B
Base Station



TM-9255B Camera Adapter and Base Station



TM-9255B

Control Technology That's Cost-Effective

The TM-9255B Coax Camera Control System provides all of the features and performance you need in an affordable, field-proven coax camera control system. The TM-9255B delivers camera control capabilities — plus power for the camera and a large studio viewfinder with the many advantages of using readily available coax cable.

TM-9250/9660 SPECIFICATIONS

CAMERA ADAPTER

Dimensions (HxWxD):
7.55 x 4.2 x 4.5" (TM-9250)
7 x 4 x 5.25" (TM-9660)

Weight:
4 lbs. (TM-9250)
6 lbs. (TM-9660)

Controls:
Mic Volume; Call Signal
Button; Power Break
Warning Light

Connectors:

Power:
(4-pin XLR)
Standard Triax

Connector:
BNC Coax connector;
XLR Mic. input;
Standard Intercom
Headset;
BNC Return Video

BASE STATION

Dimensions (HxWxD):
5.5 x 8.25 x 12.5" (TM-9250)
7 x 8.25 x 12.5" (TM-9660)

Weight:
15 lbs. (TM-9250)
14 lbs. (TM-9660)

Controls:
•On/Off; Mic On/Off
•Chroma; Gain;
•Intercom Volume
•Program Audio Volume
•Horizontal Phase, SC Phase;
•SC Fine Control
•Tally/Call Indicator
•Camera Status Indicator

Connectors:

- Standard Triax; BNC Coax;
- 2 BNC Genlock In & Out;
- 2 BNC Return Video
- 2 BNC Camera Video
- Intercom Headset Conn.
- RCU-compatible with controller brand
- Tally Input - compatible with brand
- Intercom-compatible with brand
- BNC Monitor Out
- XLR Program Mix Input
- XLR Audio Out
- BNC Component Outputs (TM-9660 only)

MAXIMUM CABLE LENGTH (TM-9255)

Cable Type	Belden Part No.	Camera	Power Length(feet)	Length (meters)
RG-59	9249	Local Remote	1500 950	457 290
8281	8281	Local Remote	2000 1500	610 457
RG-11	8213	Local Remote	3500 30000	1067 914
TRIAX	9232	Local Remote	3000 30000	914 914

CABLE TYPE (TM-9250/TM-9660)

	Belden Part No.	Diameter (Inches)	Diameter (mm)	Length (feet)	Length (meters)
Triax	9267	0.36	9.1	50-2500	15-750
	9232	0.52	13.2	100-5000	30-1500
Coax	8281	0.31	7.8	50-2000	15-600

TM-9255 SPECIFICATIONS

CAMERA ADAPTER

Dimensions (HxWxD):
6.5 x 4.0 x 3.55"
Hip Pack : 6.5 x 4.0 x 5.5"

Weight:
3 lbs.

Controls:
Mic On/Off and Volume;
Power Break Warning Light

Power:
(4-pin XLR); BNC Coax

Connectors:
XLR Mic input;
Standard Intercom Headset;
Multicore Adapter
(HIP only)

BASE STATION

Dimensions (HxWxD):
1.7 x 19 x 14.5"

Weight:
10 lbs.

Controls:
On/Off; Chroma;
Gain; Mic On/Off;
Intercom Volume;
Horizontal Phase;
SC Phase; SC Fine Control;
Open Cable Indicator;
Private/Common Switch
for 2-Wire Intercom

Connectors:

- 2 BNC Coax
- Blackburst In and Out
- 2 BNC Return Video
- 2 BNC Camera Video
- Intercom Headset Conn and RCU compatible with controller brand
- Terminal strip for All, 2 & 4 Wire Intercom;
- XLR Mic Audio Out

TELEMETRICS

PT-CP

Compact Pan/Tilt Head

The PT-CP is a precision Pan/Tilt head with smooth variable operating speed, designed for today's compact CCD camera heads and lenses. Highest quality all-metal construction with heavy-duty drive blocks, cross roller bearings and worm gears, along with precision swiss motors with isolation mounts assure quiet and smooth operation. The lens connector and built-in lens interface board with motor drivers provides direct connection and interface to motorized lenses. Different lens voltages can be specified to match the particular lens being used. The head can be top or side mounted with optional top or side mounting platforms. Optional positional presets are available to provide feedback for shot storage and recall. The head is controlled by either desktop single controllers, or by rackmount units that can be configured to control up to eight heads.



Telemetrics Robotics-Pan/Tilt Heads

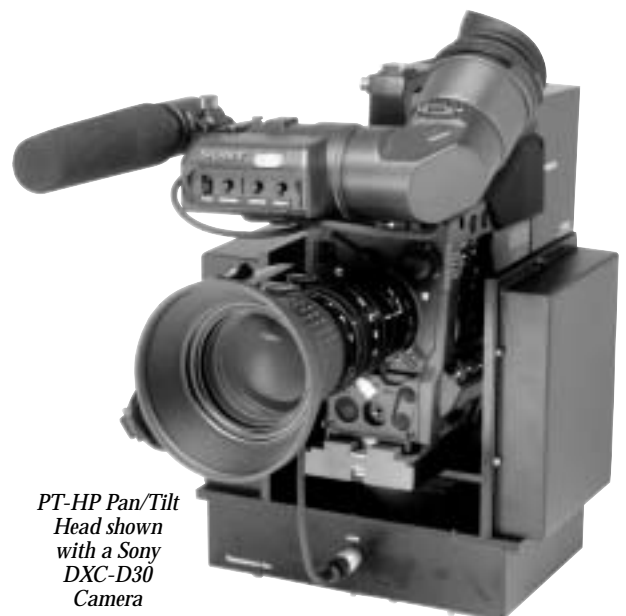
Telemetrics manufactures an extensive line of robotics, including three different Pan/Tilt heads, a trolley system and various control panels. The control panels range from simple joystick controllers to advanced computerized systems that fully integrate Real Time Video monitoring, camera switching, robotics control and camera setup. The Pan/Tilt systems are designed to accommodate the industry's demand for smooth and highly reliable operation. An RS-232 controlled heavy-duty Pan/Tilt head, in a special weather-proof environmental housing, is also included. Specialized rotator devices can be added as an option for additional axis rotation. This is very handy for special mounting and copystand work where the camera head must be rotated on its own axis for proper orientation.

Telemetrics' Pan/Tilt Robotic Trolley systems offer variable speed motorized and manual trolley Pan/Tilt heads that travel on ceiling tracks, "H" ceiling tracks for X-Y axis positioning and vertical tracks. Custom lengths are available with easily adjustable end stops. Remote controllers for the Pan/Tilt heads are available in different variations, including desktop and rackmountable units with or without memory presets, as well as computerized systems. In addition Telemetrics provides Receivers, Switchers and power supplies for multiple Pan/Tilt operations. These units are available as stand-alone or rack-mountable units. The Telemetrics Triax and Coax systems can be incorporated with the Pan/Tilt systems to provide a complete remote camera operation.

PT-HP

High Performance Pan/Tilt Head

The PT-HP is the industry's first precision Pan/Tilt head with a wrap-around cradle for high performance 3-CCD cameras and lenses. As an option, a positional preset function can be built in, either as standard or with a serial receiver, to accept serial control commands from automatic controllers that take advantage of the optional positional presets. Utilizing Swiss precision motors, worm gears and cross roller bearings assures extremely quiet and smooth operation. Extended arms and yoke option allow for optimal tilt range and camera orientation. In addition, the third axis rotator allows camera rotation on its centerline. Lens interface options are available for different lenses.



PT-HP Pan/Tilt Head shown with a Sony DXC-D30 Camera

TELEMETRICS

PT-CP/PT-HP PAN-TILT HEADS

Features

- Highest quality all metal construction with heavy-duty drive blocks, cross roller bearings, worm gears and precision motors assure a smooth range of movement.
- Lens connector and built-in interface with motor drivers for direct connection to motorized lenses.
- Motors are isolation mounted and insulated for whisper quiet operation.
- Threaded base for tripod mounting. They can also be ceiling mounted.
- Accurate preset motion control feedback.
- They operate in open or closed loop mode, providing a wide choice in control systems. They can also be powered and controlled through a Telemetrics Triax/Coax Camera Control System.

PT-CP Only

Side or top camera mounting platform options provide optimal overall size and camera orientation.

PT-HP Only

- Serial/positional option with built-in receiver accepts serial control commands.
- Third axis rotator allows camera center-line rotation.
- Extended arms and yoke option for optimal tilt range and camera orientation.

TM-LCDP *Touchscreen Control Panel*

Only 1.27" deep with a 9½" diagonal color LCD display, the TM-LCDP includes a built-in touch panel and a compact CPU that occupies less than 100 cubic inches. The Touchscreen Control Panel is constructed of black anodized aluminum and has a molded ABS bezel with an anti-reflective scratch resistant screen and sealed control buttons. It includes a cast aluminum swivel mount with 180° rotation and 90° tilt. When combined with the TM-CPS Control Panel Software, the TM-LCDP provides an integrated control environment for broadcast, videoconference and interactive television applications. The TM-LCDP is a configurable panel that interfaces with various cameras, Pan/Tilt heads and Audio/Video equipment. Controls can be accessed via a mouse, joysticks or the built-in touchscreen.

People Tracker Software

The ultimate camera operator support, the new People Tracker software provides continuous Pan/Tilt/Zoom tracking of a moving object without requiring any infrared device or beacon to be worn by the subject. All movement is tracked by software-based computer vision analysis that works within a range of six to sixty feet, occupying 10% to 50% of field of view.

PT-CP Compact Pan/Tilt Head and Options

PT/CP Compact Pan/Tilt Head

PTO-CP-T Pre-set option

PT-HP High Performance Pan/Tilt Head and Options

PT-HP Hi-Performance Pan/Tilt Head

PTO-HP-EA Extended Arms Option

PTO-HP-P Positional Presets Option

TM-PTR Third Axis Pan/Tilt Rotator

PTO-HP-S Serial/Positional Option

TM-CR Single Axis Camera Rotator

PTO-HP-EY Extended Yoke Option

PT-CT/HP SPECIFICATIONS

Input Voltage/Current:

15-24v DC, 800mA to 1 .5A max.

Tilt Travel:

CP: Top Mount 50° Up, 50° Down
Side mount ± 160° with End Stops
(+ 180° without End Stops)
HP: Top Mount 35° Up, 40° Down
(15° Up, 135° Down with Extended Arm option;
45° Up, 45° Down with Extended Yoke option)

End Stops:

CP: Continuous Angular Adjustment.
(Set to ± 60° Pan, ± 30° Tilt, unless otherwise specified)
HP: Continuous Angular Adjustment.
(End Stops are set to ± 60° Pan, ± 30° Tilt, Maximum Velocity is set to 12°/sec. Pan, 3°/sec. Tilt unless otherwise specified)

Pan Travel:

+ 160° with End Stops
(±180° without End Stops)

Pan Velocity:

CP: 15° /sec.
HP: 12°/sec. Standard, 25°/sec optional

Mounting:

Upright or Inverted

Tilt Velocity:

CP: 6°/sec.
HP: 3°/sec. Standard, 6°/sec. Optional

Operating Modes:

Open Loop (Proportional Velocity) or
Closed Loop (Positional)
Remotely Selectable

Dynamic Load:

CP: 15 lbs. (6.8kg)
HP: 50 lbs. (23kg)

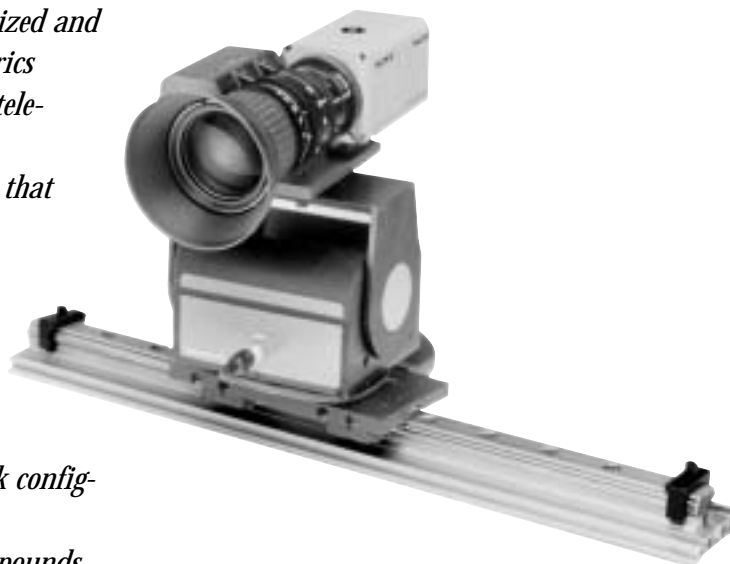
Weight:

CP: 9 lbs. (4kg)
HP: 12 lbs. (5.5kg)

TELEMETRICS

TROLLEY SYSTEMS

Lightweight and easy to mount, the Variable-Speed Motorized and Manual Trolley Systems are fully compatible with Telemetrics Pan/Tilt mechanisms and controllers. Designed for use in teleconferencing, studio and medical applications, the custom length tracks are available with easily adjustable end stops that can be mounted upright or inverted for installation on a ceiling. The trolley can support up to 100 pounds, making it compatible with most available cameras. Double rail guide with precision alignment and quad low friction bearings offer smooth, quiet operation. The lightweight aluminum mounting plate allows fast, easy installation. Options include an "H" track configured for X-Y axis positioning and a vertical track that provides motorized vertical positioning for loads up to 35 pounds.



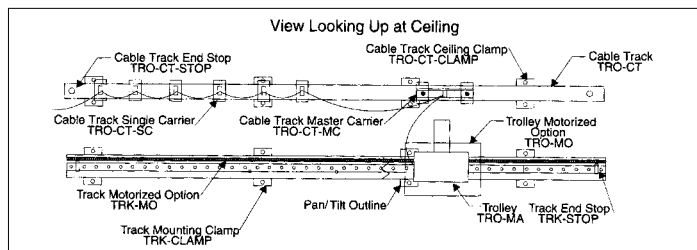
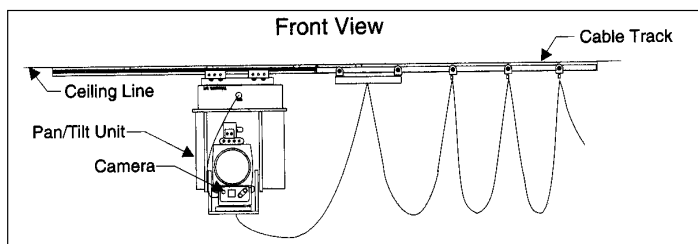
FEATURES

- Custom lengths available with easily adjustable end stops
- Motorized (TRO-MO) 1 foot/second; faster optional or manual (TRO-MA)
- Double rail guide with precision alignment and quad low friction bearings for smooth operation
- Mounts upright or inverted for installation on a ceiling
- Lightweight aluminum mounting plate for easy installation
- Supports up to 100 lbs. in linear and 35 lbs. in vertical configurations
- "H" track trolley configuration provides X-Y axis positioning
- Dual track trolley configuration provides stability for critical applications
- Vertical track trolley configuration provides motorized vertical positioning of Pan/Tilt mechanism
- Compatible with Telemetrics Pan/Tilt mechanisms and controllers
- Designed for use in teleconferencing, studio and medical applications

ROBOTICS - TROLLEY

Model No.	Description	Price	Model No.	Description	Price	Model No.	Description	Price
Trolley/Track Systems - Manual Linear (Incl. Cable Track)			Trolley/Track Systems - Motorized Linear (Incl. Cable Track)			Trolley/Track Systems - Motorized 'H' (Incl. Cable Track)		
TRT-3M-MA	3m (10')	1,920.00	TRT-3M-MO	3m (10')	4,900.00	TRT-3x3-MO	3x3m	9,500.00
TRT-6M-MA	6m (20')	3,360.00	TRT-6M-MO	6m (20')	6,000.00	TRT-3x6-MO	3x6m	12,500.00
TRT-9M-MA	9m (30')	4,800.00	TRT-9M-MO	9m (30')	9,000.00	TRT-3x9-MO	3x9m	16,750.00
TRT-12M-MA	12m (40')	6,200.00	TRT-12M-MO	12m (40')	10,900.00			
TRT-15M-MA	15m (50')	7,800.00	TRT-15M-MO	15m (50')	12,800.00			
TRT-18M-MA	18m (59')	9,000.00	TRT-18M-MO	18m (59')	14,700.00			
TRT-18M-MA	21m (69')	10,400.00	TRT-18M-MO	21m (69')	16,600.00			
			TRT-MO-P	Preset Position Option ¹	2,500.00			

¹ Requires Trolley Positional Option on Serial Receiver or Serial P/T
Note: Custom Lengths require a Modification Fee



7-Day Customer Satisfaction Guarantee

TELEMETRICS

CONTROL PANELS

Dual Joystick Control Panels

Telemetry control panels contain two proportional rate precision joysticks for smooth simultaneous variable speed control of Pan, Tilt, Zoom and Focus. They offer Preset Shot, Motion Control, Trolley/Rotate, Iris Control and Video Switching options. Available with RS-232/RS-422 Serial Control in single or quad versions, or parallel connected with integral power supply in single or dual configuration. Available as Desktop or Standard Rackmount models.



CP-DTS-P Desk Top Control Panel

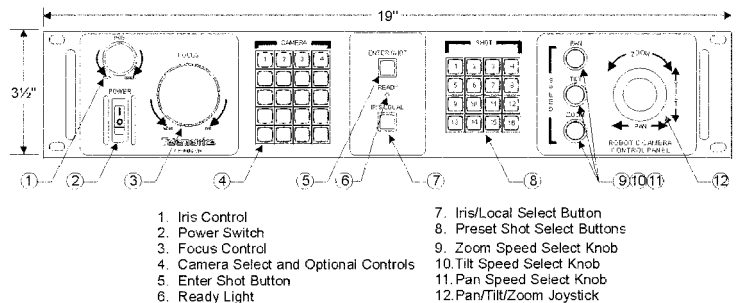
- Available in single (CP-RMS-P) and dual (CP-RMD-P) rackmount configurations
- Parallel wired control panel with 24v power supply for entire system, including Pan/Tilt head and Trolley
- Maximum cable length of 800' (using Belden #9543)
- Optional Iris Open/Close and Trolley/Rotator Control

CP-DTS-S Desk Top Serial Control Panel

- Joystick Analog voltages are converted to RS-232/422 Serial Data Train for transmission to the control receiver
- Maximum RS-232 cable length is 100' (using Belden #9925) and 1000' using RS-422 (with Belden # 9729)
- Preset option includes Non-Volatile Memory for storage and recall of up to eight preset shots, including Pan, Tilt, Zoom and Focus
- Easy to read backlight buttons can be used for other functions, including Camera Power, Lens Extender and Wiper On/Off

CP-RMQA-3A

The CP-RMQA-3A is a rackmounted panel that communicates via RS-232 or RS-422 with Telemetry serial receivers units. It includes Camera select buttons 1-4 with 16 optional control function buttons available for expansion. The Panel also allows 16 presettable "shots" P/T/Z/F for up to 4 cameras to be entered for later recall. The Joystick controls Pan/Tilt/Zoom with adjacent control knobs to set speed sensitivity. Focus and Iris control knobs are located on the left side of the unit.



CP-RMQ-S Rackmount Quad Preset Control Panel

- Rackmount Serial Control Panel designed to be used with Telemetry Serial Receiver units.
- Controls four cameras and has 16 presets for each camera. (Includes local/remote panel switch.)
- Overlay panels allow for optional control functions, including Trolley/Rotator Control, Iris Open/Close and an option to control up to eight cameras.
- Motion Control Option contains a 128k memory card that provides eight 32-second movements for each of four cameras; up to 1/2 hour of Real Time Motion Recording; and an easy-to-use "Learn Mode" that stores Pan, Tilt, Zoom and Focus Joystick movements in memory with One-Touch Recall.
- Available in a desktop version (CP-DTQ-S) with an additional Video switching option (CPO-VS) that allows automatic Video switching from Preview to Program, upon preset selection.

CP-DTS-P	Single Desk Control Panel w/Power Supply
CP-RMS-P	Single Rack Control Panel w/Power Supply
CPO-TRC	Trolley/Rotate Control Option
CPO-IC	Iris Control Option
CP-DTS-S	Desk Top Serial Control Panel
CP-RMS-S	Single Rack Serial Control Panel
CPO-P8	8-Preset Shot Option

CP-RMQ-S	Rack Quad Serial Control Panel
CP-DTQ-S	Desk Quad Serial Control Panel
CPO-TRC	Trolley/Rotate Control Option
CPO-IC	Iris Control Option
CPO-C8	8-Camera Control Option
CPO-MC8	Motion Control Option
CPO-VS	Video Switching Option (Desk Quad only)

TELEMETRICS

CONTROL RECEIVERS

Telemetrics offers two rackmounted control receivers to receive serial data for controlling lens and Pan/Tilt operation. The CP-SRD is a Single Control Receiver, while the CP-RMR-S is a quad unit that controls four cameras in a compact 1" to 3/4" rack.

CP-SRD Serial Receiver

- Compact receiver designed to drive Pan, Tilt, Zoom and Focus Servos
- Compatible with Telemetrics Serial Control Panel data and compact Pan/Tilt head drive requirements
- Optional RS-232 or RS-422 input port available
- Accepts power from PS-CM Power Supply
- Can be mounted under Pan/Tilt head or in a remote location. Maximum cable distance to Pan/Tilt head is 800' and 500' with presets (Belden #9543)

CP-SRD Chassis Serial Control Receiver

CP-RMR-S Rack Quad Control Receiver

PS-CM-1 Chassis Mount Power Supply

CP-RMR-S Rack Quad Control Receiver

- Receives serial data to control Pan, Tilt, Zoom and Focus Servo for 4 cameras per receiver, in Proportional or Preset modes
- Includes 16 presets per camera (stored in Non-Volatile Memory)
- RS-232 or RS-422 Serial Control Interface
- Integrated Pan/Tilt Power via external rackmount power supply (PS-RM)
- User position feedback of Pan, Tilt, Zoom and Focus for closed-loop operation

PS-RM-1 Rack Single Power Supply

PS-RM-2 Rack Dual Power Supply

PS-RM-3 Rack Triple Power Supply

PS-RM Power Supply

- Rackmount unit delivers 48 watts at 24 volts to Pan/Tilt heads
- Compact single chassis, measures 1 1/4" x 19" x 15" (HxDxW)
- Available in single, double or quad configurations

PS-CM Chassis Mount Power Supply

- Supplies Serial Pan/Tilt Head with 48 watts at 24 volts
- Compact single chassis, measures 2 x 7 1/4" x 4" (HxDxW)

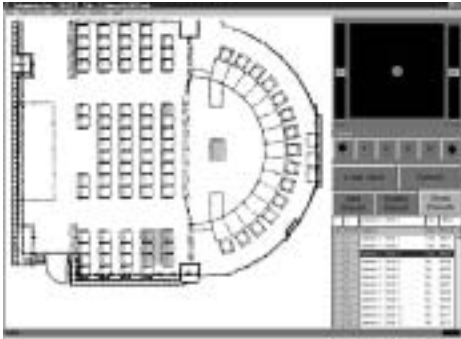
TM-CPS *Control Panel Software*

TM-CPS is the most comprehensive and cost efficient camera control software system available. The easy-to-operate Windows-based software delivers fully integrated programmable Camera Control, Robotics Control and Video Switching capabilities from a single PC. It offers seamless integration with Telemetrics' comprehensive line of camera robotics systems — there is no need for additional interfaces or equipment. Live camera "Program" and "Preview" images, and Still Video "Preset" images can be viewed on a single PC display. By centralizing all camera control operations, the need for extra monitors is reduced. For added cost-efficiency, TM-CPS is comprised of four application modules, including: Robotics Control Display, Set/Preset Display, Camera Control Display and Video Display. The modular configuration allows customization of TM-CPS to meet your specific application.



TELEMETRICS

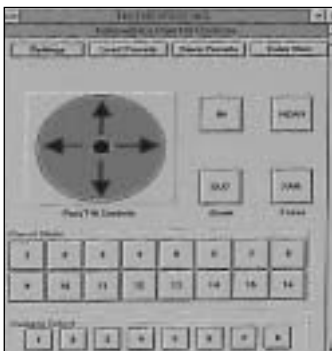
TM-CPS



- Program and preview video displayed in realtime NTSC or PAL (composite, component and RGB) formats.
- Video Switching Interface provides integrated remote control of video switchers, including Telemetrics' TM-VIS.
- Provides complete access to all camera setup and control functions.
- System can be easily operated via touch-screen PC monitor, mouse or joystick.
- Pan/Tilt, Zoom and Focus settings can all be preset on TM-CPS and used in conjunction with Telemetrics' Joystick Control Panel.
- Integral video frame grabber allows camera position presets to be displayed on-screen for instant verification and reference.
- Controls a variety of serially controlled devices required for studio camera control, as well as teleconferencing applications (i.e. A/V equipment, lighting, curtains).

By integrating Video, Data and Pan/Tilt signals, TM-CPS provides comprehensive controls of all camera, peripheral and robotics functions for multiple camera systems. In addition, the software's Video Switcher Interface allows the system operator to automatically switch Video upon Preset selection.

Robotics Control Display



TM-CPS delivers comprehensive control of all Telemetrics' highly acclaimed camera Robotics systems with seamless integration. A proportional Video joystick provides Pan/Tilt control. Zoom (in/out) and Focus (near/far) controls are also provided for simple remote operation. In addition, Robotics motion control and environmental housing functions (Washer, Wiper, Heater) can also be

controlled with TM-CPS. All camera presets and positions can be stored and instantly recalled with one button operation.

Camera Control Display

A camera control window provides a visual display of the camera manufacturer's Remote Control panel with all camera setup functions, including Menu, Shutter Speed, Gain, Detail, Auto White Balance, Iris, Pedestal and more. CCU functions for specific manufacturer's cameras can be emulated by TM-CPS to deliver the highest degree of control and functionality.



Set/Preset Display



An unlimited number of Camera Preset positions can be programmed into the host computer's memory for instant recall and setup. The number of presets is limited only by memory capacity. Camera presets can be labeled using alpha-numeric characters. A "Wait List" indicator lets the system operator know when a member of

Both Program and Preview windows feature Real-Time Video displays. Twelve camera preset positions can be simultaneously displayed on the screen as Still Video images. The status of the preset screens is annotated by a two-color border display to indicate

when a shot has been stored (red border) and when a shot has been selected (green border). A "Quad" Display mode allows four Real-Time Video images to be displayed simultaneously.

Video Display

