
Tools for
Creative
Videographers
CENTURY PRECISION OPTICS

Get the Shot.

Capture a stunning panorama. Zoom in on a postage stamp. Reach across a stadium to grab a close-up. Zoom out farther to catch more of the action. All with Century Precision Optics' array of video lens accessories. Our tools enable creative videographers to capture imaginative new perspectives with their own zoom lens. By altering the optical characteristics of popular zooms, Century's tools dramatically expand their range and, therefore, usefulness. Many shots that would be impossible to execute or would require prohibitively expensive, specialized lenses are brought within easy reach by the right Century attachment. There's a Century Precision accessory for every shooting situation. Read on to discover which accessory meets your practical, creative & budgetary requirements.

About Century Precision & Tinsley Laboratories

No one knows professional zoom lenses like Century Precision. Since the widespread introduction of zooms in the 1950's, Century has been there to service them. Indeed, Century has serviced the world's finest cine and video optics, including Angenieux, Nikon, Canon, Schneider, Fujinon and Zeiss. Century Precision has consistently remained in the forefront of lens technology, with products like precision collimators, lens conversions, specialty optics and a broad range of creative zoom lens accessories.

In the 1990's Century joined forces with Tinsley Laboratories, renowned for supplying the corrective glass elements used to repair the Hubble Space Telescope. Long known as *The Asphere Company*, Tinsley is a pioneer in design, computer-controlled manufacturing, production and delivery of aspheric optical surfaces. Tinsley's lenses and mirrors and the company's 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 international leader in Aspheric lens technology pool their talents? The result is a growing family of ultra-precise zoom lens accessories custom-tailored to contemporary video cameras and today's fast-paced videography.

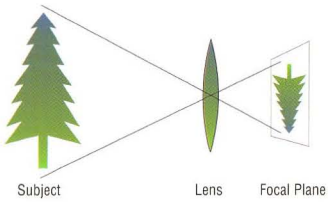
The Basics.

Basic Vocabulary of Video Zoom Lenses

To assist shooters in choosing the ideal Century accessory for their particular needs, here's a brief review of some important optical terms and concepts.

Focal Length, Image Size and Angle of View

The angle of view a lens captures is determined by two factors: the focal length of the lens and the size of the image formed at the focal plane.



A short focal length lens or a zoom lens set at a short focal length produces a wide angle of view, while a long lens or a zoom set at a long focal length results in a narrow angle of view. For any given focal length, the larger the image size (camera format), the wider the angle of view. A 50mm lens (or zoom set at 50mm) mounted on a 2/3" CCD camera results in a wider angle of view than the same lens (or setting) on a camera equipped with a 1/2" CCD.

Fixed Focal Length vs. Zoom

Unlike fixed focal length lenses, zoom lenses allow the operator to adjust the focal length—from wide angle to telephoto and back—while keeping the subject in focus.

Aperture and F-Stops

Video lenses contain an iris which determines the aperture—the diameter of the lens opening—and therefore the amount of light passing through the lens. Aperture is expressed in f/numbers (or f/stops). The smaller the f/number, the larger the opening. Most video lenses have an f/stop range between f/1.4 and f/22 with intermediate values of 2, 2.8, 4, 5.6, 8, 11, and 16. Each increase of one f/stop decreases the amount of light transmitted by one half.

Minimum Object Distance (MOD)

MOD is the shortest distance (measured from the front of the lens to the subject) at which it is still possible to focus and zoom. Today's high performance video zooms offer a macro function that enables the shooter to focus closer than the MOD. In macro mode, however, zooming is not possible, and only the shorter focal lengths may be employed.

Decoding Lens Model Numbers

Although video zoom manufacturers use a variety of codes in lens model numbers to denote features and functions—from internal range extender to flange focal distance—certain information is expressed in a conventional way. In the case of the Fujinon S13X7.3 BRM-18B, for example, *13* is the ratio between wide and telephoto focal lengths, *X* is the multiplication symbol, and *7.3* is the widest (shortest) focal length in millimeters. Multiplying 7.3 by 13 gives us the zoom's longest focal length—94.9mm.

The Tools.

Get Wide

Wide Angle Accessories:

There's a Century Precision Optics accessory for every wide angle shooting situation.

Expanding your Field of View

Century Precision's family of wide angle accessories opens a world of new possibilities to resourceful videographers. The wider angle of view provided by these tools makes it possible to capture more of the action from close up—especially crucial when shooting in tight quarters.

More Benefits of Going Wide

The shorter effective focal length minimizes unwanted camera movement when shooting handheld or with a Steadicam®. Plus, wide angle attachments yield increased depth of field and shorter MOD (Minimum Object Distance), enabling videographers to move closer to the subject, and to arrange subjects within a shot over a greater range of distance relative to the lens.

Fixed or Zoom-Through?

Century Precision wide angle accessories can be 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 in place, a zoom lens performs as a wide angle or super wide angle fixed focal length lens. (Focus is accomplished using the lens' macro function.) When the adapter is removed, the lens functions as a zoom once more. In contrast, converters, such as the Century .8X Wide Converter, are perfect for shooting situations which require both a wider angle of view *and* the ability to zoom.

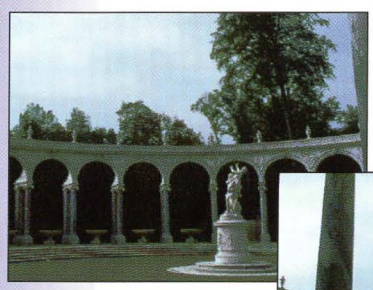
Wide Angle Adapter Set

For over a decade, videographers have expanded their creative options cost-effectively with Century Precision's Wide Angle Adapters. Compact, lightweight, and economical, the Century Wide Angle Adapter Set is now the industry standard.

Century Wide Angle Adapters simply attach to the front of your zoom lens.

Twice the Field of View—Instantly

The .7X attaches to the front of a video zoom lens to increase coverage by 30%. Adding the .5X Super Wide to the .7X produces coverage nearly double that captured by the lens alone. For example, when attached to a lens that zooms out to 9mm, the .7X Wide Angle Adapter shortens the effective focal length to 6.3mm. Supplementing the .7X with the .5X Super Wide Adapter further alters the wide end of the lens to just 4.5mm.



Zoom lens set at widest angle.

.7X Wide Angle Adapter added.

.7X *and* .5X Super Wide Angle Adapters in place.

.6X Double Asphere with optional Lens Shade/Filter Holder.

.6X Double Asphere Wide Angle Adapter

Tinsley lends its world-renowned aspheric expertise to the .6X. Unequivocally superior to every other wide angle adapter on the market, the .6X Double Asphere Wide Angle Adapter was created especially for use with the newest generation of ENG/EFP video zoom lenses. Its 40% increase in coverage changes a Fujinon 15X8 into a super-sharp 4.8mm fixed focal length lens.

Double Asphere

The .6X Double Asphere utilizes a single element with two aspheric surfaces. This radically new design ensures an unprecedented level of performance—impossible with conventional single element adapters. The resulting system minimizes distortion and reduces chromatic aberration while dramatically increasing edge resolution.

Zoom lens alone.

With .6X Double Asphere.

Versatility

Remarkably lightweight and compact, Century's .6X Double Asphere is ideal for use with the latest internal focus lenses such as the Fujinon 15X8 and Canon's 15X8 and 14X8.5 (its use on less advanced lenses will not produce the same degree of edge-to-edge sharpness).

The Century Double Asphere fits most lenses via interchangeable adapter rings. An accessory Lens Shade/Filter Holder accepts either a single 4"X5" or Panavision®-size filter holder.

Wide Angle Adapter Set.

.6X Double Asphere.

Angle Shots.

.8X *Zoom-Thru* Wide Angle Converter

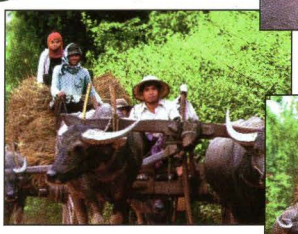
Here's the high-quality, economical way to expand a lens' angle of view when the shot requires a zoom as well.

Captures a Wider View—Throughout the Zoom Range

The new .8X Wide Converter attaches quickly to the front of a zoom lens, effectively shortening its focal length while maintaining full zoom capabilities. Attach the .8X to the front of a lens for 20% more coverage when set to wide angle, telephoto or anywhere in between. For example, when added to an 8.5-119mm lens, the .8X Wide Converter alters the focal range to 7-98mm. This can be especially advantageous when shooting in confined quarters.

Zoom lens at wide end.

Zoom lens at wide end with .8X.



Zoom lens at telephoto end.

Zoom lens at telephoto with .8X.

Help in a Tight Spot

The .8X not only expands field of view, but also reduces minimum object distance (MOD). The camera can therefore move considerably closer to the subject while maintaining focus. Because there is no light loss with the .8X Wide Converter, there is no need to change exposure or lighting.

.8X Wide Angle Converter.

Super Fisheye Adapter

Century Super Fisheye Adapter.

When you need to get the widest possible angle of view, add Century's Super Fisheye Adapter. Designed in conjunction with Tinsley Laboratories, the Super Fisheye produces an extraordinary degree of barrel distortion for a magnification factor of approximately .55X. For example, adding the Super Fisheye to a modern 15X8, results in a 116° horizontal angle of view—*a remarkable 145°* when measured diagonally.

New Depths

The Super Fisheye's 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 subject against the background, the Super Fisheye exaggerates depth, pulling nearby objects closer and causing distant objects to recede into the background.

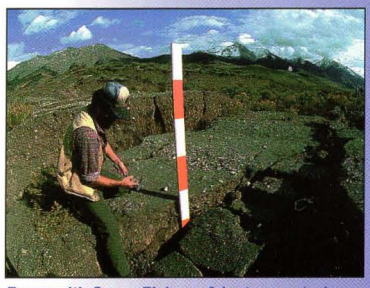
Zoom with Super Fisheye Adapter—interior.

Fresh Angles

Due to the Super Fisheye Adapter's characteristic barrel distortion, extreme low and high angle shots are made more dramatic. An attic crawlspace induces heightened claustrophobia. A forest of tall skyscrapers bend menacingly over the audience.

Bay Window on the World

Because the Century Super Fisheye takes in a much wider angle of view than the human eye, it may be used to visually plunge the audience into a scene—surrounding them with a noisy crowd or exiling them to a lonely beach.



Zoom with Super Fisheye Adapter—exterior.

Two Fisheyes to Choose From

In addition to the Super Fisheye Adapter—designed for the newest generation of internal focus zooms—Century also offers the Fisheye Adapter for industrial video zooms with 75mm lens fronts.

Super Fisheye Adapter.

Features of Century Wide Angle Accessories:

- Precision construction.
- Multi-coated glass elements.
- Lightweight aluminum alloy housings.
- Reduced MOD.
- No light loss.
- Availability of step-up rings for most lenses.

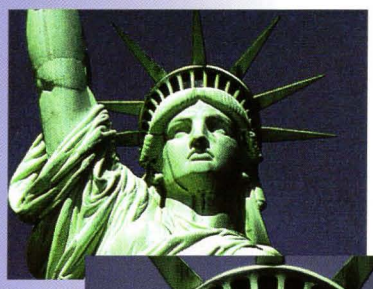
Get Telephotos.

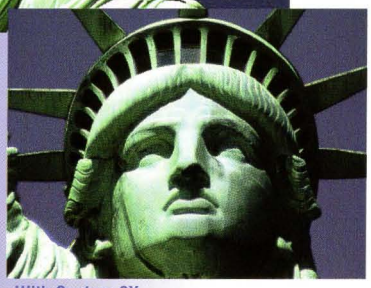
2X Tele-Extender

Standing at the foot of the Statue of Liberty, Leslie needs all the reach she can get. Her job is to frame a close-up of the statue's face several hundred feet above. At 9.5-162mm her zoom lens alone isn't long enough, so she adds a Century 2X Tele-Extender to the back. The attachment doubles her lens' focal length, resulting in a zoom range of 19 to 324mm.

The Tele-Extender mounts between camera and video zoom.

Typical zoom lens set at telephoto without Tele-Extender.





With Century 2X Tele-Extender.

In situations that make it difficult, dangerous or even impossible to move in closer to fill the frame with a distant subject, a Tele-Extender from Century Precision is the perfect solution. Mounted between the camera and video zoom, the Tele-Extender doubles the lens' focal length—enabling a shooter to capture faraway action in close-up.

Double Your Reach

If a zoom ranges from 9-144mm, a 2X Tele-Extender from Century Precision converts it in seconds to an 18-288mm. As a result, subjects that were previously out of range—across a river, a stadium, or a police barricade—now fill the frame. This doubling of the focal length results in a two-stop reduction in the amount of light reaching the focal plane.

Selective Focus

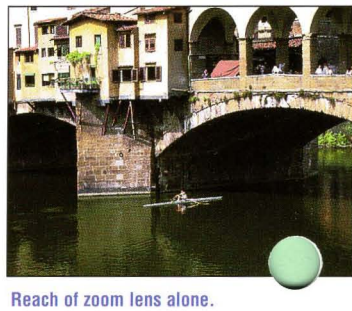
Characterized by shallow depth of field, Century Tele-Extenders make it easy to isolate a subject from foreground and background. Wildlife videographers find this particularly helpful when shooting an animal whose natural camouflage causes it to blend with its surroundings. Reduced depth of field is also effective in shooting past visual barriers such as chain-link fences.

1.6X Tele-Converter

Century's new 1.6X Tele-Converter is another excellent way to extend the reach of your zoom. It attaches quickly to the front of the lens, shifting focal length range in the telephoto direction. Unlike internal and external tele-extenders, the Tele-Converter requires no exposure compensation.

Use Alone, or with a Zoom's Built-in Extender

Adding the 1.6X Tele-Converter to a 15X8 f/1.7-2.0 zoom alters its working focal length from 8-120mm to 120-192mm. (At focal lengths shorter than 120mm, vignetting occurs). Combining the Century Precision Tele-Converter with a zoom's built-in 2X extender results in the longest possible reach—along 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 lens into a 16-240mm f/3.4, with a two-stop loss of light. Mount a 1.6X Tele-Converter onto the front of the lens and the resulting focal length range is an astounding 26-384mm f/3.4.

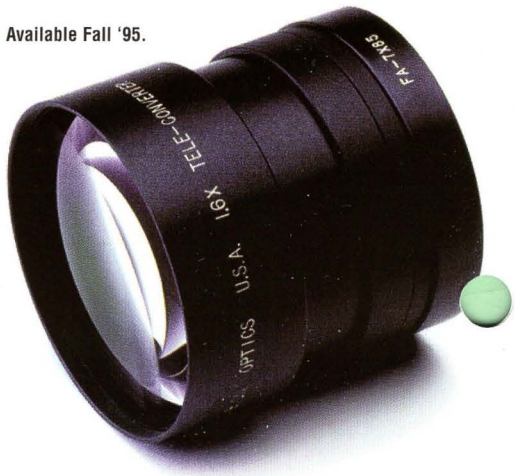


Reach of zoom lens alone.

Reach with 1.6X Tele-Converter added to front of lens.

Available Fall '95.

2X Tele-Extender.

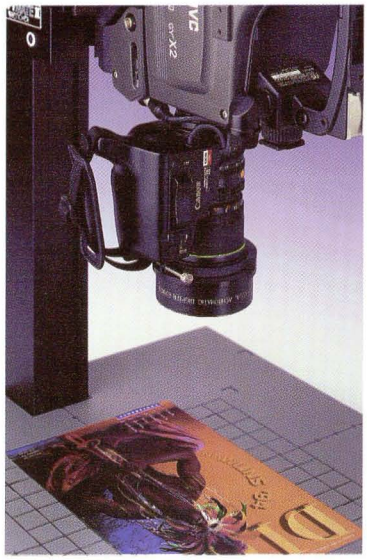


1.6X Tele-Converter.

Get Close-ups.

Achromatic Diopters (a.k.a. Macro Zoom Attachments)

Robert's assignment: Capture on video a still photograph of a flower arrangement. He wants to zoom in from the entire image to a close-up of a miniature sunflower. And he wants it sharp. He mounts his video camera on a copy stand and attaches a Century Precision +2.6 Achromatic Diopter to the front of the zoom lens.



Achromatic Diopter used on a copy stand.

Macro Zooms

Century Precision Optics' advanced line of Achromatic Diopters provides video zoom lenses with more close-up range and magnification, while maintaining zoom capabilities—without compromising image quality.

Edge-to-Edge Sharpness

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

Dramatically Shorter MOD.

An Achromatic Diopter is essential whenever it is necessary to focus tightly on a small subject with a long lens—in tabletop, miniature and flat field photography.

For example, a popular 14X lens alone has a minimum object distance of 40". Adding a +2.6 Macro Zoom Attachment brings the MOD down to 10", filling the frame with a subject as small as 3/4" across.

A Closer Look

Reduced working distance 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 made simpler, including remote, high-magnification visual inspection of hard-to-reach objects and manufacturing processes. For example, a camera and lens equipped with a Century Achromatic Diopter might be used to get an extremely accurate close-up view of signatures moving through a printing press.

Zoom lens alone.

A Range of Sizes and Magnifications

Century offers diopters in three basic thread sizes: 86mm (+1.6, +2, +2.6), with step-up rings to accommodate lens fronts from 85mm to 67mm; 72mm (+2, +3.5) with step-up rings for lens fronts with diameters of 67mm & 62mm; and 58mm (+1, +2, +4, +7) with step-up rings for lenses with 46mm to 55mm front threads.

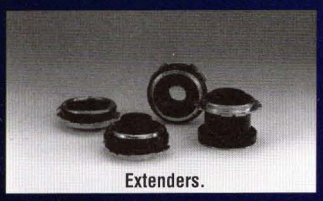
Zoom lens with +2.0 Achromatic Diopter.

Achromatic Diopters.

Product photography: Joel Lipton, Brochure design: Lewis Communications

More Tools.

From answers to everyday optical problems to creative solutions for unusual shooting dilemmas, Century offers optical tools to expand the flexibility of your video system. Here are a few additional members of Century's growing family of optical products.

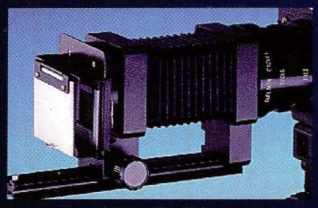


Extenders.

Shoot with SLR Lenses

Thanks to Century Precision, it's no longer necessary to do costly, permanent modifications on 35mm SLR lenses in order to use them on a video camera. Century **Extenders** make it possible to easily employ unmodified 35mm SLR lenses on 2/3" & 1/2" bayonet mount cameras. Available in either 1.4X or 2X varieties for Nikon lenses—and in 2X for Canon lenses—Extenders affect focal length and lens speed much like conventional tele-extenders. This extra reach, combined with a telephoto lens, is especially valuable to wildlife and sports shooters.

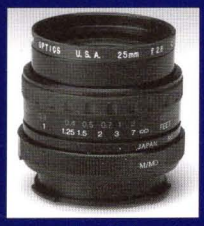
Capture 35mm Slides on Video



Video Duplikin.

Avoid costly post production still-to-video transfers with Century's economical **Video Duplikins**. Available for 2/3" and 1/2" CCD cameras, the Video Duplikin fits easily into the lens port. Just slip your 35mm slide into the spring-loaded holder and adjust focus, iris, and magnification.

Add a Video Prime to Your Imaging System



25mm Prime.

Century's **25mm Prime Lens** is a remarkably high-quality, low-cost alternative to video zoom lenses in high magnification close-up situations. Designed for use on industrial 1/2" 3-CCD cameras in applications requiring a low distortion, flat field lens with close-focusing capability, the 25mm is ideal for computer graphics capture, instrumentation applications, image analysis, machine vision and still-to-video imaging. Ask about our other focal length primes.

Get More From Your Camcorder

Century offers a family of quality accessories to add to the versatility of professional Hi-8, VHS, and Super VHS camcorders such as the popular Panasonic AG-455. Like their counterparts for larger cameras, the **.6X Wide Angle Adapter**, **.7X Wide Converter**, **1.5X** & **2.0X Tele-Converters** and **Achromatic Diopters** attach easily to the front of your lens, adding versatility to your video system.

Camcorder Lens Accessories.

Expand Your Optical Arsenal

Century offers a broad range of Lens Mount Adapters that enable videographers to utilize still and cine lenses:

- **Mechanical Lens Mount Adapters** for mating C-mount and Nikon lenses to bayonet mount cameras, and still and cine lenses to C-mount cameras.
- **Optical Relay Systems** to mount C-mount lenses —or special instruments such as night vision devices—on 2/3" and 1/2" cameras.
- The **Universal Nikon to 1/2" Bayonet Adapter** for utilizing Nikon SLR lenses (from wide angle to telephoto) without altering focal length—an advantage for everything from image capture to wildlife work.

Universal Nikon to 1/2" Bayonet Adapter.

Meet Optical Challenges

Not sure which accessories best complement your shooting style? Need help deciding which attachment will capture a particular angle? Have a special challenge that requires a one-of-a-kind solution? Century has the answers.

No Risk Guarantee.

All Century products feature an unconditional 30-day money-back guarantee.

Call Today: 1-800-228-1254

Place an order, talk to an expert, or get the name of your local dealer.

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