10-24mm F/3.5-4.5 Di II VC HLD
(Model B023)
Expand your options with the only compact, ultra-wideangle zoom lens offering superior optical performance and Vibration Compensation
Improved performance plus new, cutting-edge technologies

1. Overall improvement of optical performance
   ○ 10-24mm zoom range (2.4x zoom is the broadest focal length range in its class)
   ○ Improved resolution across the entire zoom range
   ○ Enhanced peripheral illumination with minimized distortion
   ○ Excellent performance in backlit situations

2. New functions incorporated
   ○ HLD* delivers stable AF control and outstanding AF drive power
   ○ VC (Vibration Compensation) system --- 4 stops (CIPA standard compliant)
   ○ Fluorine Coating and Moisture-Resistant Construction

3. Totally renewed external design
   ○ Highly sophisticated design maintains lightweight compactness, functionality and ease of use, characteristics of the design concept of the SP series
   ○ Lightweight & compact construction with excellent versatility

*High/Low Torque Modulated Drive Motor
## Comparison of new and previous 10-24mm

<table>
<thead>
<tr>
<th>Feature</th>
<th>SP 10-24mm F/3.5-4.5 Di II LD Aspherical IF (Model B001)</th>
<th>10-24mm F3.5-4.5 Di II VC HLD (Model B023)</th>
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<tbody>
<tr>
<td>Focal Length Angle of view</td>
<td>○</td>
<td>○</td>
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<tr>
<td>Resolution/MTF</td>
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<td>○</td>
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<tr>
<td>Fluorine Coating</td>
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<td>○</td>
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<tr>
<td>Peripheral Light Fall Off</td>
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<td>○</td>
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<tr>
<td>Distortion</td>
<td>○</td>
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<tr>
<td>VC</td>
<td>×</td>
<td>○ 4stops (CIPA Compliant)</td>
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<tr>
<td>AF Speed/Accuracy</td>
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<td>○</td>
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<tr>
<td>MOD/Max. Magnification Ratio</td>
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<td>○ 0.24m/1:5.3</td>
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</table>
## Comparison of new and previous 10-24mm

<table>
<thead>
<tr>
<th>Feature</th>
<th>New Model</th>
<th>Previous Model</th>
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<td><strong>Filter Size</strong></td>
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<tr>
<td><strong>Max. Diameter/Length</strong></td>
<td>Ø83.2mm 86.5mm</td>
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<td><strong>Weight</strong></td>
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<td>440g</td>
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<td><strong>Moisture-Resistant Construction</strong></td>
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<td><strong>Year Released</strong></td>
<td>October, 2008</td>
<td>March, 2017</td>
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<tr>
<td><strong>[Accessory] TAP-in Console</strong></td>
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</table>
Inheriting the broadest focal length range in its class

The new B023 has a zoom range of 10-24mm, the widest* among ultra-wideangle zoom lenses for the APS-C cameras. It’s the 35mm equivalent of covering the very wide angle range from 16mm ultra-wide angle to 37mm wide angle. With just one lens, photographers can enjoy diverse wideangle expressions, from dynamic landscapes far beyond the normal human field of vision to simple, casual snapshots. This is the perfect ultra-wideangle zoom lens for every photographer, typically after their standard zoom lens and telephoto zoom lens.

*Among ultra-wideangle zoom lenses for APS-C DSLR cameras (As of March, 2017. Source: Tamron)

10mm (35mm equivalent: 16mm)
F/11  1/250 sec  ISO200

10mm (35mm equivalent: 16mm)
F/11  1/10 sec  ISO125

24mm (35mm equivalent: 37mm)
F/5.6  1/180 sec  ISO100
Offers a broad range of wideangle versatility

The zoom range is 2.4x, and with the maximum difference in the angles of view equaling 48°24’, a wide variety of photographic functionality is unleashed, from full-blown 10mm ultra-wide angle to 24mm which is good for casual snapshots—allowing for wideangle pictures with a very natural feel.

10mm

10mm F/11 1/100 sec ISO200

24mm

24mm F/11 1/100 sec ISO200

10mm F/3.5 1/3 sec ISO100

24mm F/4.5 1/2 sec ISO100
New 10-24mm Di II VC HLD
Renovated optical design achieves superior optical performance across the entire zoom range...
MTF performance

Focal Length: 10mm  Exposure: F/3.5

Focal Length: 24mm  Exposure: F/4.5

Contrast ratio

Distance from center of frame (mm)

Contrast ratio

Distance from center of frame (mm)
The optical design of the new Model B023 consists of 16 lens elements in 11 groups. Special lens elements are utilized in an optimum configuration of one LD (Low Dispersion) lens element, one XLD (eXtra Low Dispersion) glass element, one molded glass aspherical element, and one hybrid aspherical lens. While curbing an increase in the size of the optical system, the new lens very effectively compensates for a wide variety of aberrations in the entire zoom range, including transverse chromatic aberration, comatic aberration and distortions that tend to become more prominent with a wideangle lens.

Tamron’s highly regarded BBAR (Broad-Band Anti-Reflection) Coating and the optical design paying close attention to internal reflections in the lens barrel also curb the effects of harmful light rays that tend to occur with a wideangle lens, achieving excellent resistance against ghosting and flare seen in backlighting situations.
The B023 provides outstanding resolving power across the entire zoom range and provides clear and crisp landscape photography.

Multiple aspherical lens elements placed in optimum positions improve the compensation for various aberrations and enhance resolution.
Wideangle images with a very natural appearance

• The cutting-edge optical design minimizes distortion and ensures very natural expressions for a wideangle lens.

• The peripheral (edge-to-edge) light fall-off is very natural-looking at maximum aperture, and even better when stopped down two stops.

10mm F/5.6 1/750 sec ISO200

10mm F/8 0.77 sec ISO100
Wideangle images with a very natural appearance

• The peripheral (edge-to-edge) light fall-off is very natural-looking at maximum aperture, and even better when stopped down.

10mm F/3.5 1/1000 sec ISO100

10mm F/5.6 1/400 sec ISO100
Even in high contrast situations, the new B023 delivers excellent edge-to-edge performance, and with its superior ability to capture a broad range of tones and gradations, gives rich expression to fine details in both the highlight and shadow regions.
In addition to capturing wide views, wideangle lenses provide unique, creative expressions by capitalizing on inherent perspective when used for close-ups, so a shorter minimum object distance is an important and useful feature. With a minimum object distance of 9.4 inches, users can take full advantage of spectacular background blur effects by opening the diaphragm.
Tamron’s original BBAR (Broad-Band Anti-Reflection) Coating is highly acclaimed for its superior backlit performance, increasing light transmission and preventing lens surface reflections and dispersion. In addition, reduction of internal reflections in the lens barrel (including the coating and the layout with a light-shielding groove) provides thorough resistance to ghosting and flare and delivers flawless, crystal clear images.
Achieving excellent resistance against ghosting and flare

To prevent ghosting and flare without fail, wide-ranging light sources and conditions were thoroughly simulated.
In response to the requests of many customers who have asked the company to equip a wideangle lens with image stabilization, we have now installed Tamron’s acclaimed VC (Vibration Compensation) on the new Model B023. Optimizing the actuator and the control algorithm has made it possible to incorporate the VC, while maintaining the compact design of the previous Model B001. The VC especially enhances the photographer’s freedom in handheld shooting at dusk or in a dimly lit room, and under other relatively low light conditions, as the mechanism proves particularly effective in the shooting conditions with slower shutter speeds.
Taking pictures without raising the ISO speed

With the B023, image stabilization performance of 4 stops (in accordance with CIPA standards) enables taking pictures without the need to increase ISO speed.

24mm F/4.5 1/6 sec ISO400

ISO speed: 400
Noise is hardly noticeable
Taking pictures without raising the ISO speed

To compensate for low light conditions, photographers sometimes raise the ISO speed. However, high ISO speeds generate high levels of noise and lower overall image quality.

ISO speed: 6400
Noise is noticeable
Taking pictures without raising the ISO speed

Even in low light levels, photographs at smaller apertures with considerable depth-of-field are possible without raising ISO.

Under low light conditions, opening the diaphragm and/or increasing the ISO speed can be necessary to prevent blurred images. However, thanks to the VC system it’s possible to use smaller apertures and low ISO and still use shutter speeds high enough to prevent blurring.

19mm F/8 1/4 sec ISO400
Taking pictures without raising the ISO speed

With today’s higher-pixel-density cameras, subtle camera shake tends to be more noticeable, causing a decline in picture quality. The VC functions prevent subtle camera shake, thereby maintaining the lens’s pristine image quality.

VC: ON

12mm F/5.6 1/4 sec ISO400
Taking pictures without raising the ISO speed

VC: OFF

12mm F/8 1/4 sec ISO400
The VC system is useful in wide-ranging situations and freedom in handheld shooting is greatly enhanced without the need of a tripod.

Indoors

Shooting at dusk or nighttime

4-Stops (CIPA Compliant)
HLD (High/Low torque modulated Drive) is an AF drive system using a brushless motor developed and produced exclusively by Tamron. Long-life motor. Unlike a conventional DC motor, the bearing for the motor shaft is the only part with mechanical contact. An inverter circuit for conversion from DC to AC enables highly efficient rotations for low and high speeds alike. The HLD motor inside Model B023 is equipped with the Full-time Manual Focus override mechanism, so even when set to AF, a photographer can instantaneously make fine focusing adjustments by using MF.

[Characteristics of the HLD motor]
With its excellent AF control stability and AF drive power, the HLD motor is capable of smoothly controlling the AF mechanism of Model B023 even though it's equipped with large focusing lens elements. The motor itself is small in size, and the whole unit is configured as if drawing an arc in alignment with the cylindrical lens shape. This has reduced the unit size in the radial direction, contributing to the lens's overall space-saving design.
# Comparison of AF Actuator

<table>
<thead>
<tr>
<th>Models</th>
<th>USD</th>
<th>PZD</th>
<th>DC motor</th>
<th>HLD</th>
<th>Stepping Motor</th>
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<tbody>
<tr>
<td></td>
<td>A007, A025, A011, A012</td>
<td>B008, B016 A010</td>
<td>B018</td>
<td>B023</td>
<td>B011, C001</td>
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<td>AF Speed</td>
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<td>○</td>
<td>○</td>
<td>◎</td>
<td>○</td>
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<td>AF Accuracy</td>
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<td>◎</td>
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<td>Quietness</td>
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<td>○</td>
<td>◎</td>
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<tr>
<td>Size</td>
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<td>○</td>
<td>○</td>
<td>○</td>
<td>◎</td>
</tr>
<tr>
<td>Cost</td>
<td>△</td>
<td>△</td>
<td>◎</td>
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<tr>
<td>Full-time MF override</td>
<td>◎</td>
<td>○</td>
<td>×</td>
<td>◎</td>
<td>◎</td>
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<tr>
<td>High torque</td>
<td>◎</td>
<td>×</td>
<td>○</td>
<td>○</td>
<td>×</td>
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</tbody>
</table>
The front surface of the lens element is coated with a protective fluorine compound that is water- and oil-repellant. The lens surface is easier to wipe clean and is less vulnerable to the damaging effects of dirt, dust, moisture and fingerprints. For greater protection when shooting outdoors, leak-proof seals throughout the lens barrel help protect your equipment.

Image illustrates resistance to grime (oil-based felt marker)

Left side: Without Fluorine Coating
Right side: With Fluorine Coating
Compressed into a compact body with structural ingenuity

While enhancing image quality, adding new functions and substantially improving the basic performance, Model B023’s space-saving design has ensured an optimum configuration for components such as the VC and AF unit, thus successfully reducing overall length compared to the previous Model B001. The lightweight and compact body with outstanding ease of use will prove to be very well-balanced when attached to an APS-C DSLR camera.

12 elements in 9 groups
Without VC
Length: 3.9”

16 elements in 11 groups
With VC
Length: 3.3”

Adding 4 lens elements
Length is shortened 1.9mm
A key goal in developing the new 10-24mm was ensuring intuitive ease-of-use by every photographer while paying careful attention to a delicately refined form — right down to fine details and the texture of the materials.

Symbolized by a Luminous Gold ring, and featuring a form that faithfully encompasses the internal structures aiming for compactness to the utmost limit, the B023 possesses an external design with a high-grade feel befitting this next-generation model that’s full of the most advanced technologies. The highly sophisticated craftsmanship—with attention to even the smallest details—is a testament to the quality of the lens itself. The switchbox shape, the distance scale window ensuring excellent visibility, and the metal mount with outstanding precision and rigidity comprise a refined, well-thought-out design that places importance on functionality as well.

This product series ensures both a sophisticated external design and the requirements of “lightweight compactness,” “excellent functions” and “ease of use.”
External design placing importance on functionality and ease of use

1. The external shape faithfully encompasses the internal structures geared towards compactness to the utmost limit.

2. Creating a flat surface has subtly changed the tactile feedback when a photographer holds the lens for zooming.

3. New rubber patterns have a high-grade feel and user-friendliness.


5. The switchbox shape is designed to curb the overall length of the lens.

6. Improved distance scale window is easier to read.
Compatible with TAMRON TAP-in Console™, an optional accessory product

The optional TAP-in Console provides a USB connection to your personal computer, enabling you to easily update your lens’s firmware as well as customize features including fine adjustments to the AF and VC.
An electromagnetic diaphragm system, which has been a standard feature for Canon-mount lenses, is now employed in Nikon-mount lenses*. More precise diaphragm and aperture control is possible because the diaphragm blades are driven and controlled by a motor through electronic pulse signals.

*Available only with cameras compatible with the electromagnetic diaphragm (D3100, D3200, D3300, D3400, D5000, D5100, D5200, D5300, D5500, D5600, D7000, D7100, D7200, D300, D300s) (As of January, 2017; Tamron)
## Comparison of ultra-wideangle lenses

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Tamron B023</th>
<th>Tamron B001</th>
<th>Canon</th>
<th>Nikon</th>
<th>Sigma</th>
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</thead>
<tbody>
<tr>
<td>Product name</td>
<td>10-24mm F3.5-4.5 DiII VC HLD</td>
<td>SP AF10-24mm F3.5-4.5 DiII LD Aspherical [IF]</td>
<td>EF-S10-22mm F3.5-5.6 USM</td>
<td>AF-S DX NIKKOR 10-24mm F3.5-4.5G ED</td>
<td>AF-S DIAMOND NIKKOR 10-20mm F3.5 ED DC HSM</td>
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<tr>
<td>Subjects/Shooting scenes</td>
<td>Nature (Astronomophotography, mountains, shore)</td>
<td>Family, travel, building, nature, street, snaps</td>
<td>landscape, snap, building, night view, airplane</td>
<td>landscape, night view, building, snap</td>
<td>landscape, snap, night view</td>
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<td>10-18mm</td>
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<td>35mm equivalent</td>
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<td>15.5-37.2mm</td>
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<td>Angle of view</td>
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<td>108.44° - 60.2°</td>
<td>107.3° - 74.2°</td>
<td>109°-61°</td>
<td>114.5°-75.7°</td>
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<td>Optical construction</td>
<td>16 elements in 11 groups</td>
<td>12 elements in 9 groups</td>
<td>13 elements in 10 groups</td>
<td>14 elements in 11 groups</td>
<td>15 elements in 11 groups</td>
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<tr>
<td>Special glass materials</td>
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Nikon: AF-S DX NIKKOR 10-24mm F3.5-4.5G ED
Tamron: SP AF10-24mm F3.5-4.5 DiII LD Aspherical [IF]
Canon: EF-S10-22mm F3.5-5.6 USM
Sigma: AF-S DIAMOND NIKKOR 10-20mm F3.5 ED DC HSM
Tamron: Tamron B001
Canon: EF-S10-18mm F4.5-5.6 IS STM
Sigma: AF-S DIAMOND NIKKOR 10-20mm F3.5 ED DC HSM