

Technologies Explained – IXUS 125 HS and IXUS 500 HS

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HS System (IXUS 125 HS, IXUS 500 HS)

The HS System represents a powerful combination of a high-sensitivity sensor and high-performance DIGIC image processing. Canon's new DIGIC 5 processor can process up to six times more information at one time compared to the previous DIGIC 4 processor, to deliver exceptional images across a range of lighting conditions, and especially in low light.

This latest generation of Canon's HS System has been designed to provide excellent image quality and advanced low-light performance, as well as significant advantages over non-HS System models, including:

- **Improved image quality in all situations** – The HS System can capture images with considerably less noise than non-HS System cameras at all ISO speeds. High ISO sensitivity photos taken with non-HS System cameras exhibit noise and grainy detail, especially in low light. By contrast, the HS System can detect and capture more detail and significantly reduce noise, resulting in more beautiful and true-to-life shots.
- **Low-light performance** – Shooting in low light conditions, such as in a dimly lit interior or outdoors after the sun has set, can lead to blurred images when shooting handheld without a tripod. Engaging the flash in these conditions can often ruin the ambience of the scene and not provide enough light for a bright result. The HS System is designed to excel in low light and delivers premium image quality. Shooting at higher ISO levels also allows users to achieve faster shutter speeds to freeze the motion of subjects, prevent blur and avoid having to use a tripod. When the flash is required in very poorly lit conditions, the HS System can extend the reach of the flash, allowing users to capture more of the background detail, as well as illuminating the main subject.
- **Wider ISO range** – The HS System can leverage the excellent performance of its high and low ISO settings in order to capture the ambience of any scene with exceptional image quality, with an enhanced maximum ISO speed of ISO 3200.
- **Dynamic Range** – The increased sensitivity of the HS System allows each camera to capture a wider dynamic range with greater variation in brightness when compared to the results of non-HS System models.

DIGIC 5 Image Processor (IXUS 125 HS, IXUS 500 HS)

The next generation of Canon's DIGIC processor – DIGIC 5 – has been engineered to process more detailed image data, faster than ever before. The new DIGIC 5 processor analyses four times more image data to accurately produce each pixel of the image, which delivers more detail and more realistic colours. Image data is also processed six times faster compared to its predecessor DIGIC 4. The increased processing power, combined with improved noise reduction algorithms, results in highly detailed images with up to 75% less noise compared to the previous DIGIC 4-based models at high ISO settings.

24mm ultra-wide-angle 5x optical zoom lens (IXUS 125 HS)

Developed using the same processes and high quality standards employed to manufacture its range of professional lenses, Canon's compact cameras benefit greatly from Canon's heritage in lens design, capturing sharp, high-resolution images every time.

The IXUS 125 HS features a ultra-wide-angle 5x optical zoom with a versatile 35mm equivalent range of 24-120mm – allowing users to capture wide-angle group shots and also zoom in on distant subjects.

28mm wide-angle 12x optical zoom lens (IXUS 500 HS)

This genuine Canon lens offers an incredible 12x zoom that retracts fully into the IXUS 500 HS's slim body. This offers users an extended focal range of up to 336mm, allowing photographers to capture distant subjects with ease. Cutting-edge Canon engineering has created a special lens design, utilising a retractable prism system which allows the lens to be completely concealed within the camera body – providing a unique blend of a high-power zoom in a highly pocketable form.

This design preserves the optical performance of the first lens groups, which are the most important for high quality image capture. The lens barrel is made from magnesium alloy – a material used in professional Canon cameras – increasing the rigidity of the construction up to 6x compared to that of typical polycarbonate (plastic) lens barrels, while ensuring it remains lightweight and well-balanced.

ZoomPlus (IXUS 125 HS, IXUS 500 HS)

ZoomPlus is an advanced digital zoom technology that allows users to extend the optical zoom range of their camera and get closer to their subject while maintaining high image quality. ZoomPlus uses advanced digital image processing algorithms to take advantage of the high image resolution offered by the sensor and DIGIC 5

processor, maintaining an image quality far superior to that offered by standard digital zoom. ZoomPlus extends the reach of the zoom on the IXUS 500 HS to 21x, and to 10x on the IXUS 125 HS.

To help users identify which zoom mode is currently being applied, the on-screen zoom bar is split into three sections. The first section shows the optical zoom created by the extending camera lens and the second section, in yellow, shows the level of ZoomPlus being used. A third section, in blue, shows standard digital zoom, which offers further magnification with a decrease in image quality.

Multi-area White Balance (IXUS 125 HS, IXUS 500 HS)

When in Smart Auto mode, the DIGIC 5 processor powers the new Multi-area White Balance feature within the IXUS 125 HS and IXUS 500 HS. Most digital cameras set a white balance based on the most dominant light source within the scene. However, if there are multiple light sources present, then this approach can lead to an inconsistency in the way that colour is represented. For example, if flash is used to illuminate the main subject within a tungsten-lit environment, then the subject will look natural but the surroundings can look overly “warm” in comparison – a result of the different colour temperature of the flash and tungsten lights.

To address this imbalance, Multi-area White Balance is able to detect different light sources and compensate for the differences between tungsten, flash and daylight, resulting in a more realistic and consistent shot.

Optical Image Stabilizer (3.5-stops) (IXUS 125 HS, IXUS 500 HS)

Canon’s highly-effective optical Image Stabilizer (IS) technology prevents image blur by dramatically reducing the effects of camera shake. In situations where image blur due to camera shake is more likely – such as in darker conditions or when shooting with the zoom extended – the optical Image Stabilizer can help images remain sharp through minute vibration gyros which detect camera movement caused by hand shake. These signals are processed by a single-chip IS controller, which discriminates between hand shake and intentional camera movements. Signals are then sent to the IS unit, which moves one of the lens elements accordingly to re-align the light rays and cancel out the effects of camera shake.

Intelligent IS (IXUS 125 HS, IXUS 500 HS)

Intelligent IS is a technology that enables the camera to detect the shooting situation being captured and then select the most appropriate optical Image Stabilizer mode to prevent blur. As the nature of camera movement can change according to the shooting situation, there are seven different IS modes that can be used:

- **Normal IS** – This standard Image Stabilizer mode is appropriate for still image shooting where regular camera shake is corrected. Depending on the focal length and focal distance of the subject, the camera will apply the appropriate amount of angular (rotational) and shift-shake correction to obtain the best result.
- **Panning IS** – When shooting a moving subject such as a cyclist or moving cars at a race circuit, Panning IS detects the panning motion. This mode applies the Image Stabilizer in the axis opposite to that of the panning motion to ensure the subject remains clear and the panning effect is smooth.
- **Macro IS** – Macro IS corrects both angular and the more pronounced shift-shake which often occurs when shooting close ups of subjects such as flowers.
- **Tripod mode** – When the camera detects it is fixed on a tripod, tripod mode automatically turns the Image Stabilizer off as it is not needed.
- **Dynamic IS** – During movie shooting, this mode produces steadier video footage by compensating for low frequency vibrations that occur typically when users shoot movies while on the move.
- **Powered IS** – When users are shooting movies of distant subjects at the fullest extent of the telephoto zoom, Powered IS is used to ensure the subject remains still and clear, counteracting the more extreme camera shake that is produced when shooting using the telephoto setting.
- **Dynamic and Macro IS** – This mode is engaged when shooting movies of macro subjects and corrects any areas of blur caused by the shift and angular movement typical of macro shooting.

High-speed functions (IXUS 125 HS, IXUS 500 HS)

A range of high speed functions enable users to capture both fast moving action and scenes that would otherwise be very difficult to achieve:

- **High-speed Burst mode** – Shoots a continuous burst of images at 2.5 MP (IXUS 500 HS) / 4.0 MP (IXUS 125 HS) resolution when the shutter is pressed, taking a sequence of images to ensure you capture fast paced action.

- **Handheld Night Scene** – To capture scenes in very dark conditions, the camera will take a high speed sequence of shots and then combine them into a single image with the least possible blur and the best possible exposure.
- **Super Slow Motion Movie** – Utilises the strengths of the CMOS sensor to record VGA resolution footage (640 x 480 pixels) at 120 fps or QVGA video (320 x 240 pixels) at 240 fps. It provides a great way to slow down fast-paced action, like sport, and can be used to analyse a golf or tennis swing.

Smart Auto mode (IXUS 125 HS, IXUS 500 HS)

Smart Auto mode is the ultimate automatic shooting mode, which makes use of multiple technologies including Scene Detection, Motion Detection, Face Detection and Advanced Subject Detection. It allows everyone to obtain the best result by simply pointing the camera at a subject and pressing the shutter button. Smart Auto mode uses Scene Detection Technology to determine the shooting scene by analysing subject brightness, contrast, distance and overall hue.

This advanced version of Smart Auto now uses Canon's Face ID technology to differentiate between 58 different scenes and apply the most appropriate settings to achieve the best possible result. A range of new scenes have been added to the function including:

- **Four new smiling face scenes** – automatically detects a smiling face and switches to Best Image Selection mode, takes a series of three consecutive shots, then saves the best image to the camera's memory card.
- **Five new scenes to detect a sleeping face** – automatically captures three consecutive images and then combines them into one image with improved exposure and reduced image noise. The camera's flash, AF lamp and sounds are also disabled to enable easy capture without disturbing subjects.
- **13 new scenes to detect a registered baby** – when the subject is recognised as a registered baby in the camera's Face ID list, Smart Auto automatically picks from one of 13 bespoke scenes that optimise exposure and suppress flash and camera sounds as required.
- **Four scenes for children in motion scenes** – when capturing a child registered in the camera's Face ID function, Smart Auto will detect their movement within the frame and capture three consecutive shots which are stored in the camera, to freeze the moment.

Face Detection Technology (IXUS 125 HS, IXUS 500 HS)

Face Detection Technology makes it easier than ever to produce superb people shots. This advanced system quickly and accurately detects faces in a scene, and then optimises camera settings so that everyone looks their best. With the ability to detect up to 35 faces in a frame, it's great for group photos as well as portraits.

Face ID (IXUS 125 HS, IXUS 500 HS)

Powered by Canon's advanced DIGIC 5 processor, Face ID technology cleverly identifies and recognises up to 12 different faces, which have been previously registered in the camera by the user. When these faces are detected in frame, they are given focusing and exposure priority over other faces meaning users can ensure they are always in focus even in crowded group shots. Enhancing the Smart Auto mode to make photography even more intuitive, Face ID also introduces new scenes for children and babies to help capture precious moments.

Face ID automatically tags image files with the name of each registered face recognised in a shot, allowing users to find pictures quickly and easily by filtering for specific names in either the camera or by using ImageBrowser EX software on a computer.

Servo AF/AE (IXUS 125 HS, IXUS 500 HS)

When a subject is moving towards or away from the camera and the shutter is half-pressed, Servo AF/AE will track it continuously – ensuring that the subject is in focus and well-exposed when the shutter is finally pressed.

Tracking AF (IXUS 125 HS, IXUS 500 HS)

To keep focus on subjects in motion, or to help achieve a creative composition, Tracking AF mode gives photographers the ability to select objects from the centre of the frame and track them if they move, or if the frame is recomposed.

Smart Shutter (IXUS 125 HS, IXUS 500 HS)

Smart Shutter mode uses Face Detection Technology to allow users to take both group shots and self-portraits more easily and in a more relaxed way. The shutter can be triggered remotely in three different ways:

- **Smile Detection** – Triggers the shutter when the camera detects a smiling face within the frame.

- **Wink Self-Timer** – Triggers the shutter two seconds after the subject in the frame has winked, removing the need for a remote control.
- **FaceSelf-Timer** – Allows perfect group shots or self portraits by automatically triggering the shutter two seconds after a new face has entered the frame.

Full HD Movie with Stereo Sound and HDMI-CEC (IXUS 500 HS)

Full High Definition video at 1080p resolution is recorded at 24 fps with Stereo Sound, ready for playback in excellent quality on Full HD displays. A dedicated Movie Record Button activates instant movie recording, ensuring that every moment is captured. An HDMI-CEC connection port is available for connecting directly (via an optional cable) to HD displays such as high definition TVs. If users have a HDMI-CEC compliant display, they can control playback of images on the camera via the TV remote.

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Creative shooting modes (IXUS 125 HS, IXUS 500 HS)

Additional shooting modes make it easier to capture high-quality, creative shots. These modes include:

- **Creative Filters** – A choice of filter effects allows users to have fun with their photography by creating images with greater impact or a different mood:
 - **Toy Camera Effect** – Darkens the edges of the image, as well as carrying out image processing to increase the contrast of the overall image, to re-create the effect of an older style or pinhole camera. Additionally, three effect types can be selected to attach to the image: Warm, Standard or Cool.
 - **Monochrome** – Allows users to shoot with three types of monochromatic effects: black and white, sepia or blue.
 - **Fish-eye Effect** – Mimics the distortion of a fish-eye lens with one of three levels of strength (weak, medium, strong).
 - **Super Vivid** – Saturates the colours of an image for an intensely colourful effect.

- **Poster Effect** – Reduces the levels of colour gradation to give the image the retro feel of vintage posters.
- **Miniature Effect** – Gives the effect of a very narrow depth of field, making the scene look like a small-scale model. When shooting, designated portions of the top and bottom (or right and left side in vertical shooting) of the image are blurred, while the rest of the image remains in focus.
- **Soft Focus** – Recreates the effect of a soft focus lens and allows users to pick from three different levels of soft focus intensity.
- **Smooth Skin** – Adjusts and improves the appearance of subjects' skin in the shot by smoothing out the skin texture. Users are able to choose from three different levels of intensity and also have the ability to add a light or dark tone to the skin.
- **Movie Digest** – Movie Digest captures a 4-second video clip in 720p HD quality before the shutter is released to capture a photo. It then joins all the clips together from the same day into a single movie to give you an alternative way to view the story behind the day's action or share a bonus reel with friends.
- **iFrame Movies** – The Apple^{®1} iFrame video format is a computer-friendly video format designed to dramatically simplify the process of working with video recorded using the camera. With iFrame, the video in the camera is in the same format in which users will edit, so importing video is fast. Users will be able to start editing and sharing their movies right away across multiple platforms and devices. Because it's based on standard technologies such as H.264, AAC, MP4 and QuickTime, iFrame can be used with PC and MAC applications.

PureColor LCD II G screen (IXUS 125 HS, IXUS 500 HS)

The 7.5 cm (3.0"), 460K dot, PureColor II G LCD screen has been designed to enhance the capture and playback of images and video. The screen is constructed with a tempered glass layer, making it stronger, with improved contrast and wide colour reproduction. The thin PureColor II G screen also offers an ultra-wide viewing angle, making it easier to shoot from awkward angles or share images with others.

¹ Apple is a trademark of Apple Inc.