

Technologies Explained – PowerShot S95

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Genuine Canon f/2.0, 28mm, 3.8x wide-angle lens

Developed using the same processes and high-quality standards employed to manufacture Canon's range of EF lenses, the PowerShot S95 benefits greatly from Canon's heritage in lens design, capturing sharp, high resolution images with every shot. A wide f/2.0 maximum aperture allows twice as much light to reach the sensor as an f/2.8 lens, which is already considered to be a bright lens. A wider aperture makes it possible to achieve faster shutter speeds and helps prevent blurred images that can occur in low light conditions. It also allows for a shallower depth of field to be obtained at closer focusing distances for a more artistic effect.

Lens Control Ring

The PowerShot S95 features a highly intuitive lens Control Ring situated at the base of the lens barrel. This provides an easy and convenient way to manually adjust a range of camera settings as it can be freely turned left or right to adjust settings such as ISO, aperture, shutter speed, white balance, manual focus and step zoom.

Allowing higher levels of customisation, the PowerShot S95 allows the user to pre-set the operation of the lens Control Ring and rear Multi-Control Dial in the various shooting modes. For example, in Av mode the lens Control Ring controls the aperture by default, but this can be changed to control the ISO, white balance or exposure compensation, and users can then use the Multi-Control Dial to adjust the aperture. Settings for each shooting mode can be saved to a custom mode that tailors the usage of the Control Ring and dial to the photographer's preference.

The lens Control Ring can also be used to great effect in creative shooting modes. For example, in Nostalgic mode the lens Control Ring can be used to 'age' a photograph, progressively de-saturating the image in steps and adding film-like noise to create an older photo look, in real time.

HS System

The PowerShot S95 features the HS System, which represents a powerful combination of a high-sensitivity sensor and high-performance DIGIC 4 processor, and is designed to

provide excellent image quality and advanced low light performance which surpasses that of its predecessor, the highly-acclaimed PowerShot S90.

The HS System allows shooting at high ISO speeds with high image quality. Employing a higher ISO level enables photographers to utilise faster shutter speeds, capturing moving subjects with a reduced risk of blur. An extended ISO range means that users can shoot without engaging the flash, capturing correctly-exposed images using just the available light. When the flash is used, its range is increased as a result of the extended ISO range that's made possible with the HS System. PowerShot S95 owners will also benefit from a greater dynamic range, with the high-sensitivity sensor providing better tonal range representation when compared to conventional-type sensors.

The ISO range can be further extended to ISO 12800 by using Low Light mode, which further reduces the risk of subject blur in even darker conditions. Shooting at 2.5 Megapixel resolution, the camera selects an ISO speed between ISO 320 and ISO 12800, allowing photographers to capture a scene as they see it. Users can also manually adjust the ISO speed and fine-tune white balance to suit the conditions. Low Light mode also can support a faster continuous shooting rate of 3.9 shots per second.

A new Auto ISO level adjustment feature allows users to pre-configure the maximum ISO setting they wish to use during shooting, allowing photographers to suit their individual preference. They can also specify how quickly the camera will raise the ISO sensitivity to guard against blur that occurs due to subject motion or camera shake.

Optical Image Stabilizer (4-stop) with Hybrid IS

Canon's highly-effective optical Image Stabilizer (IS) 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 – effectively giving photographers a 4-stop advantage.

For the first time in any Canon digital compact, Hybrid IS technology is included in the PowerShot S95. A technology first introduced in the highly acclaimed EF 100mm f/2.8L Macro IS USM lens, Hybrid IS corrects both angular (rotational movement) and shift shake (linear shake) that becomes more pronounced when shooting at close focusing distances. An angular velocity sensor detects the extent of angular camera shake, while an acceleration sensor detects the amount of shift shake. Hybrid IS moves the lens elements to compensate for both types of movement – dramatically enhancing the effectiveness of the optical Image Stabilizer during macro shooting.

HD movies with stereo sound and HDMI

The PowerShot S95 is the first PowerShot S-series model to shoot HD movies in 1280x720p resolution at 24fps, allowing the capture of video content in high definition with stereo sound. Users can also view their images directly on HDTVs via the mini HDMI connection port via an optional HDMI cable, with no loss of quality when playing back stills or movies.

The PowerShot S95 is also compatible with HDMI Consumer Electronics Control (HDMI-CEC), a technology that allows PowerShot S95 owners to connect the camera to compatible HDTVs and browse images and movies using the TV remote – providing ultimate simplicity when sharing images and movies.

Tracking AF

To track subjects that are in motion, or to help achieve a creative composition, a new Tracking AF mode has been added to the PowerShot S95. This new 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.

PureColor II G LCD screen

The 7.5cm (3.0”), PureColor II G LCD provides excellent visibility to aid the capture and playback of images and video. The screen is constructed with a tempered glass outer layer, making it stronger, with improved contrast and wide colour reproduction. The screen also offers a wide viewing angle with 461k dot resolution – making it easier to shoot from awkward angles and share images with others. An RGB histogram is also available in playback, allowing photographers to instantly check the exposure of a shot in detail.

High Dynamic Range mode

A High Dynamic Range shooting mode allows the user to capture an increased dynamic range to include detail from both highlight and shadow areas of the scene. In higher contrast situations, conventional cameras aren't able to capture both dark shadows and bright highlights at the same time. High Dynamic Range mode captures these by taking multiple exposures of the same scene using a tripod, before combining them back into one image in the camera. This allows the PowerShot S95 to capture the highlights, shadows, and everything in between, closer to how the photographer sees it.

i-Contrast including Shadow and Dynamic Range Correction

Allowing users to fine-tune the corrections made to the light and dark regions of their shots, shadow and dynamic range correction thresholds included in i-Contrast can be set individually to suit the shooting conditions.

For Dynamic Range Correction, photographers can choose from 3 settings: 'DR CorrectionAuto', 'DR Correction 200%' and 'DR Correction 400%'. With the 'DR Correction 200%' and 'DR Correction 400%' settings, the corrections made to the light and dark areas of the image allow the suppression of highlight blowout and shadow detail loss in the resulting image, effectively increasing the range of the image by 2x or 4x when compared to the uncorrected image. The available ISO speed settings are ISO 160 – 1600 and ISO 320 – 1600, respectively.

Users can choose 'Shadow Correct Off' or 'Shadow Correct Auto' settings for Shadow Correction which will brighten darker areas of the image to reveal hidden detail in shadows.

RAW and DPP

The PowerShot S95 supports RAW shooting – allowing the capture of uncompressed image information that photographers can then adjust and use to manually create their final image using Canon's supplied Digital Photo Professional (DPP) software.

Sharing the same editing environment with the Canon EOS System and tailored to the needs of professionals, DPP provides a range of processing options for the RAW files produced by the PowerShot S95, including Picture Style, contrast, brightness, sharpness, noise reduction, white balance and exposure. A lens correction tool is also

included with the PowerShot S95, allowing RAW files to be corrected for lens distortion, peripheral illumination, chromatic aberration and colour blur.

DIGIC 4 Processor

Canon's DIGIC 4 (Digital Imaging Core) processor manages all of the camera's primary functions to optimise operating efficiency. Advanced image processing algorithms deliver superb image detail and colour reproduction with accurate white balance and minimal noise. High-speed processing results in outstanding responsiveness, rapid auto focus and extended continuous shooting ability.

Smart Auto with Scene Detection Technology

Smart Auto mode uses Scene Detection Technology to determine the shooting scene by analysing subject brightness, contrast, distance and overall hue. The camera then selects the scene type from 28 variables, applying the best settings for optimum results. In Smart Auto mode, a colour icon indicating the type of scene detected – and the lighting conditions of the scene – is shown on the LCD monitor.

Smart Flash Exposure

Smart Flash Exposure intelligently controls the power and usage of the onboard flash to ensure natural results in a variety of conditions. By using focusing distance as well as shooting scene information, an optimum balance between the ambient light of the scene and flash power is achieved. When shooting in very bright conditions, shadows which can appear on a subject's face are detected by the camera, and flash can be used to eliminate them. When shooting at close distances, overexposure is avoided by sensing how reflective the subject is, as well as reducing the flash power to compensate for the close shooting distance.

Face Detection Technology

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 one frame, it's great for group photos as well as portraits.

The PowerShot S95 features the following Face Detection Technologies:

- Face Detection AF: Sets the focus on faces in people shots – not just the closest subject

- **Face Detection AE:** Optimises exposure for faces in all lighting conditions – useful for backlit scenes or indoor shooting
- **Face Detection FE:** Guards against washed-out faces when using the camera's flash – perfect for close-up shots in restaurants, clubs or other dimly lit locations
- **Face Detection WB:** Optimises white balance for natural-looking skin tones which remain true to life regardless of skin colour and lighting conditions
- **Red-Eye Correction:** Automatically eliminates the unwanted effects of flash photography immediately after the shot is taken. At the touch of a button in playback, natural-looking eyes can be instantly restored

Smart Shutter

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

Fish-eye Effect and Miniature Effect

The PowerShot S95 features Fish-eye Effect and Miniature Effect – two shooting modes that enable users to experiment with their images. Fish-eye Effect shoots with the effect of a fish-eye lens, with three levels of distortion (weak, medium and strong) available to choose from, adding a new and creative dimension to every image where the effect is used.

Miniature Effect gives the impression of selective focus, which, when applied to landscapes, creates images with a model-like appearance. Users can shoot with designated portions of the top and bottom of an image blurred while the rest of the image remains in focus, resulting in landscapes that appear to be of model-scale. The focus area can be moved and sized to suit individual requirements, and the effect can also be achieved in vertical shooting, with right and left portions of the image blurred.

Miniature Effect in movie

Miniature Effect has also extended to movie recording for the first time, providing the ability to capture model-like scenes in 720p resolution. Combining Time Lapse and Miniature Effect functions, the top and bottom, or the left and right, of the scene are gradually blurred, emphasising perspective. The user can select the frame rate the movie is shot at (6fps, 3fps and 1.5fps options available) so that when the movie plays back at 30fps, it gives the effect of watching a movie of a time-lapse miniature model. As with time-lapse movies, sound is not captured.

Multi-aspect Shooting

Multi-aspect shooting allows PowerShot S95 users to shoot in a number of different formats without the need for post-processing. Photographers now have the ability to choose to choose from 1:1, 16:9, 3:2 and 4:5, allowing them to instantly select the composition that suits their subject and desired results.

SDXC Card Support

The PowerShot S95 supports the latest SDXC memory cards, which provide up to 2TB of storage. With SDXC memory cards, more content can be stored on a single card than ever before, and movies and images can be shot without having to change cards.