

# Tech Note

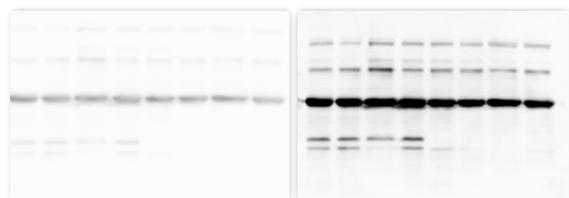
## What Truly Sets the Alliance™ Apart?

### 1. Sensitivity

Ever struggled with your current imager's detection limit? The [Alliance™ Q9-Series](#) was entirely built for utmost sensitivity and designed to provide your lab with the lowest detection limit possible.

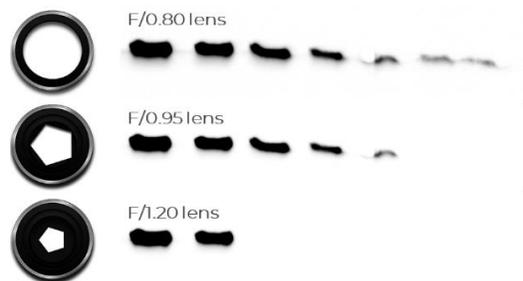
While some would argue that pixels size is the one and only factor to a sensitive instrument, **superior detection performance is reached through a smart blend of specifications:**

**Light Path** – A direct and short sample-to-camera light path has a proven major impact on photons collection. The shorter the distance, the quicker the acquisition with more light captured. Not only does the [Alliance™ Q9-Series](#) boast unrivalled 14cm sample-to-camera distance, it also ensures direct light collection unlike many other systems equipped with mirrors and reflectors.

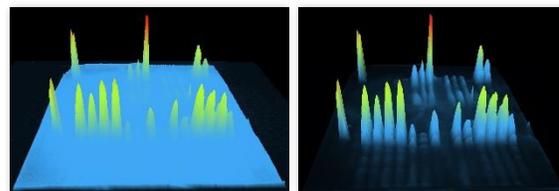


**Lens Type** – Nowadays, two main kinds of lens are commonly found on the market: zoom lenses and fixed lenses. While zoom lenses are preferred for gel documentation systems, fixed lenses are required for high-demanding applications which sensitivity is critical for. Nevertheless, still a few manufacturers' "chemidoc" systems are regrettably equipped with zoom lenses, so as to drop production costs.

**Lens Aperture** – A wider lens aperture (i.e. f/0.80 vs. f/0.95) results in more photons to go through the lens, hence boosting the image capture and allowing for lower-concentration bands to get revealed in a given exposure time. And the more efficient the exposure, the lower the background noise on images, too.



**Camera Cooling** – this plays an important role in sensitivity as it drastically improves images' signal/noise ratio by reducing camera-generated electric noise. Equipped with a 3-stage-Peltier air cooling system, the [Alliance™ Q9-Series](#) camera cools down to -60°C in only a few minutes.



**Camera Sensor** – When size does not necessarily matter for everything, it certainly does for camera sensors as larger chips definitely help with faster signal detection. Our Q9™ camera proudly boasts unique, Sony CCD sensors of over 1 square inch in size and specifically made for Uvitec.

**Dynamic Range** - Last but not least, dynamic range is to be considered too as a superior OD will significantly improve the capacity of a camera to detect fainter signals without stronger bands over-saturating. With a 4.8 OD, Alliance™ cameras perform better than X-ray films and most other imagers with 3.0 or 4.0 OD values.

### 2. Native & Extended Resolution

With a 9.2 MP camera, we strive to offer the highest native resolution currently available on the market. **Ideal for publication-level results, superior resolution allows for clearer and sharper pictures, with a much higher level of details.**

High-resolution images come with a cost though, as pictures are heavier and thus call for more hard-drive space. That is why the [Alliance™](#) imagers' application protocols can easily be customized and adjusted, allowing users to choose the desired resolution for their samples depending on the purpose they pursue. We believe routine imaging and publication imaging are two different things, and so should reflect the acquisition parameters.

#### Extended Resolution & Concept of Binning

Native resolution may also be extended through software and effective pixel technology. This is called image or extended resolution, and often is mixed up with actual native camera resolution. Extended resolution option is usually activated when relying on

binning-based image acquisition processes, in order to compensate for a lack of resolution.

**Pixel binning** is the process of combining the electric charge from adjacent CMOS or CCD sensor pixels into one super-pixel, particularly useful to obtain higher brightness in extreme low-light conditions – reduce noise and boost signal detection. However, combining pixels (usually 4 or 9) into one super-pixel means cutting down the number of pixels, hence resolution, which results in “pixelated”, blurred images. This is when extending the reduced native resolution through effective pixel technology can help.

### 3. Data Integrity

We take Life Science research and bio-molecular imaging very seriously. This is why Uvitec Ltd. is committed to the highest standard of data integrity. Here are some examples:

**Tiff-Saved Images** – We do not use any proprietary saving formats, usually designed to tie users up by forcing them to stick to a specific software or product range. Images captured with [Uvitec imagers](#) can be saved in universal .tiff or .jpeg formats and therefore be loaded and open into any other platform such as ImageJ.



**No Image Trafficking** – Between the moment the image is physically captured and the moment it appears on the screen, no image corrections are performed. While our software do allow for display enhancements with tools such as artefact correction and background suppression, we strive to deliver raw images and let the users choose what to do. What you see is what your sample looks like, pure and simple.

**Open-Source Instruments** – We are [100% dedicated to imaging instruments](#). We will never force you to choose a particular reagent, dye or substrate in an attempt to upsell or tie you up with a specific product line. Our instruments are designed for compatibility with all kinds of proteins, stains or antibodies, and you should feel free to choose whichever product you like.

**License-Free Software** – Both our complimentary Uvitec-1D™ and NineAlliance™ software are provided for unlimited users and thus can be installed on as many computers as required. Literally every one in the lab could have the software installed on their desktop or laptop PC, and use it for image editing and analysis. There simply is no security key or license at all. This allows for much smoother workflow in the lab and helps cut down the waiting and queuing-up time to use the instrument.

### 4. Total Versatility

There is a lot about the [Alliance™ Q9-Series](#) that you can potentially think of.

**100% Customizable** – Why should you pay for modules you don't need? At Uvitec, we believe you just should not. All our instruments are entirely customizable and allow you to have it your own way. Choose from 6 different interchangeable transilluminators or whether not to have one at all, amongst 8 different epi-fluorescence excitation wavelengths and 13 narrow bandpass emission filters, opt for a conversion screen option, or not. It is totally up to you, and so should it always be.

**100% Interchangeable** – Get a specific module today, change or upgrade it tomorrow. Based on plug-n-play technology, all our transilluminators and epi-fluorescence Chromapure™ modules are interchangeable. Instead of having to purchase a new imager as your samples evolve, simply configure your Uvitec system as you go. Moved from Ethidium Bromide to SYBR® Green? Replace your UV-Box with a Safelight™ transilluminator. It is as simple as plugging one out and the other in.



**100% Upgradeable** – As you go, you may also start on new applications such as spectral fluorescence. Going for NIR/IR multiplex fluorescence with new dyed antibodies? Get yourself a Chromapure™ module with the wavelengths of your choosing. Just tell us which fluorescent proteins and/or dyes you'd like to work with, we will do the rest and advise on the most suitable option for you.

**100% Adjustable** – Having a sensitive imager is good. Having a sensitive imager that you can adjust to your specific needs is better. Absolutely all our application protocols' parameters can be edited and tailored to your requirements: sensitivity and resolution settings,

exposure parameters, preferred saving formats and directly, image visualization, autosave preferences... Every single person in the lab now can have their own tailored protocol, exactly the way they want it to be.

## 5. Support & After-Sales Service

**Calibration-free instruments** – our imaging systems are designed so that no lens recalibration is required throughout their entire life time. No hidden costs, no servicing charges. Just an imager that works.

**3-year Warranty** – Our included comprehensive warranty extends to 3 years instead of 2 years previously, at no extra cost. We are confident our steel-made imaging systems are amongst the most robust, long-lasting instruments on the market and so should you.

**9-year Maintenance Support** – That's right, 9 years. From the date of purchase, we commit to assisting you with any query you may have for a minimum of 9 years. This also includes spare parts and consumables like UV bulbs, and any module upgrade you may be interested in. Just let us know what you are up to, we will be most happy to assist.

**Lifetime Free Upgrades** – Whenever software upgrades are available, we provide new installation files for free, either through our distributors or directly from our website. As our software are license-free, you don't have to worry about security keys either. Just download the installation files and run the setup file.

**IQOQ & Certificates** – Our instruments are CE and ISO certified. We can also provide IQOQ documents upon installation, on demand. Feel free to ask us for a copy, and we will be happy to help!

**Stainless-steel-made instruments** - The **Alliance™ Q9-Series** is entirely made in steel, proving extremely robust and student-proof, designed to offering long-lasting performance. An imager you can count and rely on, no matter the circumstances.

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