

PENTAX AUTO 110



SMALL MIRACLE

As Lomography revives the 110 film format, it's timely to revisit the most remarkable of all the 110 cameras which also remains the world's smallest interchangeable lens SLR camera. **Report by Paul Burrows.**

Before 35mm became the most popular of the film formats, there were various attempts at packaging up film to make things as easy as possible for the casual snapper. Among them was the 126 cartridge – the basis of the hugely successful 'Instamatic' cameras – and the ill-fated Disc which simply pushed the existing colour film emulsion technology too far. In between the two was the 110 format, also devised by Kodak – which really made all the running in those days – for its 'Pocket Instamatic' cameras. Subsequently, quite a few other camera manufacturers adopted the format including Agfa, Canon, Cosina, Fujifilm, Hanimex, Minolta, Ricoh, Rollei, Pentax, Voigtlander and Yashica. Kodak even made its famous Kodachrome slide film in the 110 format.

Introduced in 1972, the film was packaged in a plastic cartridge similar in design to that of the 126 film, but obviously significantly smaller. Versions to give either 12 or 24 exposures were available. Both the 126 and 110 format were designed to make loading film into a camera as easy as dropping in the cartridge and pulling it out at the end. No threading or rewinding was needed and the cartridge only fitted into the camera one way. The film itself is 17 mm in width and the image size is 13x17 mm, compared to 126's 28x28 mm (actually 26x26 mm after masking for printing) and 35mm's 24x36 mm. As with 126 film, the processed negatives were returned in film strips and not in the original cartridge (as happened with both Disc and the nearly equally short-lived Advanced Photo System or APS).

DOWN SIZING

While the 110 frame was small, it wasn't completely beyond the capabilities of the colour negative film technology of the day to deliver a reasonable result. Obviously there was a limit to just how much enlargement was possible compared to 35mm, but the perception that 110 was low quality was mostly down to the very rudimentary nature of many of the cameras that were made for it. These had simple plastic lenses and single-speed shutters, relying on the latitude of the colour negative film to 'correct' for exposure (or density) failure as determined by automatic printing equipment. In this situation, a grainy-looking print would inevitably be the outcome.

However, the potential for a 110 frame to give a higher-quality print was recognised by a number of camera makers who created more sophisticated machinery for the format. Notable among these was Minolta's 110 Zoom SLR which was first introduced in 1976 and the Pentax Auto 110, introduced in 1978.

While the Minolta camera had a fixed zoom lens – equivalent to 50-100mm – the Pentax had interchangeable lenses and was still quite a lot smaller. For the record, Minolta continued with the fixed-lens design, introducing the 100 Zoom SLR Mark II in 1979 with a 50-135mm zoom housed in a completely new – and more SLR-like – bodyshell. Nevertheless, it's the Auto 110 that is undoubtedly the most remarkable of all the 110 format cameras and a remarkable piece of engineering for the time given its extremely compact dimensions. Recently Pentax has been making waves again with another extremely compact interchangeable lens camera, but even the pocket-sized Q is still slightly bulkier overall than the Auto 100... and it doesn't have a pentaprism viewfinder either!

With its standard lens fitted (equivalent to 48mm), the Auto 110 measures 99x56x45 mm (VxHxD) while the Q, similarly configured (equivalent to 47mm), measures 98.0x57.5x54.0 mm. Of course, the Q offers a whole lot more in terms of capabilities thanks to the wonders of integrated circuits, but the Auto 110 is still arguably the more amazing feat of downsizing. It's hard not to wonder what combining the Q's systems – perhaps with a slightly bigger sensor – with the Auto 110's external design and optical finder might have produced.

GOOD LITTLE WORKER

The little Pentax sits very snugly in the palm of the hand and looks more like a miniaturised promotional model rather than a fully working camera. And arriving before push buttons and LCD read-out panels, the Auto 110 has mechanical controls, comprising the shutter button, a film advance lever, the lens release and the camera back release.

There's a dedicated connection for the accessory flash unit, but that's pretty much it so, of necessity, there was a limit to the camera's controllability. Exposure control, for example, is fully

automatic, but it is based on TTL centre-weighted average metering using an SPD (silicon photo diode) photocell which was the latest thing at the time. The clever bit of engineering on the Auto 110 was its combined shutter and diaphragm arrangement which was located just inside the lens mount. A comparatively simple – but clever – two-bladed design with triangular cut-outs to create the opening, it eliminated the need to accommodate a diaphragm in the Pentax-110 system lenses... and meant every lens has an aperture range of f2.8 to f13.5. The shutter speed range is one second to 1/750 second.

The optical viewfinder comprises a pentaprism, reflex mirror and a matte-field focusing screen with a split-image focusing spot. It's small, but actually quite comfortable to use. It provides 87 percent subject coverage with a magnification of 0.75x. The viewfinder display is limited to a LED which shows green when the selected shutter speed is above 1/30 second and yellow when it's below in order to warn of possible camera shake. The camera is powered by a pair of 1.5 volt button cells which sit side-by-side in a holder that then slots into one end of the body after the film back has been opened. It's another clever little piece of packaging.

The 24mm standard lens is truly tiny – about the size of a wine bottle's screw top – yet it still has a manual focusing collar and a distance scale marked in both feet and metres. The mount is a two-claw bayonet and lenses attach to the body via a 45-degree twist clockwise.

The camera was launched with three lenses – the 24mm standard, an 18mm wide-angle (equivalent to 36mm) and a 50mm short telephoto (equivalent to 100mm) – but later came a 70mm telephoto (140mm), a 20-40mm zoom (40-80mm) and a fixed-focus version of the 18mm. Additionally, independent lens maker Soligor produced a 1.7x teleconverter. The Auto 110 system comprised two flash units, an autowinder and screwthread filters for each of the lenses... the 24mm, for example, has a 25.5 mm diameter fitting. Powered by a pair of AA-size batteries, the autowinder delivered continuous film advance at 1.5 fps.

LAST GASP

In 1983 – when the 110 format looked to be well and truly a lost

cause in the face of 35mm's growing popularity – Pentax introduced an upgraded camera body called the Auto 110 Super. The new features were a backlight compensation button and a self-timer while the film advance's lever's action was revised to a single-stroke sweep which was a bit quicker than the previous need to make two 145-degree strokes. The focusing screen was also brighter, but the Super wasn't around for very long at all and production appears to have ended sometime in late 1984 or early 1985. Consequently, along with the later lenses, it's much harder to find on the second-hand market.

While the production of 110 format cameras had pretty well fully ceased by the end of the 1980s, film remained in production for a lot longer and, in fact, Fujifilm kept going right up until September 2009.

Lomography's new 'Orca' 110 film is an ISO 100 speed B&W stock, but the organisation is promising a variety of emulsions in the future (presumably if this first offering goes well). Certainly there remains no shortage of 110 cameras to experiment with and many can be had at garage sales and white elephant stalls for a couple of dollars. Even the Auto 110 isn't expensive unless it happens to be for sale complete with a full set of lenses, accessories, boxes and books.

Ironically, it's 110's performance deficiencies that are being lauded as the format's main appeal in the digital era so perhaps it's time has finally come... 40 years on! 📸

"The **Auto 110** is undoubtedly the most remarkable of all the **110** format cameras and a remarkable piece of engineering for the time given its extremely compact dimensions."



✦ One of the clever design features of the Auto 110 is its combined shutter/diaphragm mechanism located just inside the lens mount on the camera body.



✦ A pair of button cells power the camera and fit into a holder which is then located inside the film cartridge chamber.



✦ There wasn't much room on the top panel for anything else beyond the shutter release and the film advance lever. The connector on the left (as viewed from behind) is for the dedicated flash units.



✦ The 24mm standard lens shown alongside a screw cap for reference. It's really tiny, but still has a mechanical focusing collar and distance scale.

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