

# Non always round

## Square Housing for Telecentric Lenses

Opto's QuadraMount telecentric lenses feature an aluminum square profile with a standard profile geometry of 160x160mm, 120x120mm or 80x80mm.

A lens is usually round, because the manufacturing processes for round optics are often faster, more precise, and cheaper. Today, however, camera sensors that are rectangular are mostly used. Due to the optical conditions of round optics, however, up to 1/3 of the available image field is often not used.

Larger sensors need even larger optics to avoid vignetting at the edges. Nevertheless, round optics are still cheaper than rectangular optics like those used in scanners or lasers and can be corrected for high image quality. But what you can do is better adapt the optics to assembly and machine concepts by mounting them in square housings that are easier to assemble and integrate.

Advantages are among other things that one can install the optics in its preferred direction in advance and mount the camera at right angles to the screw-on surface. This means that if you change the mounting position later, you no longer have to pay attention to the camera orientation.

For telecentric lenses used for high-precision optical measurement, mechanical component inspection, pharmaceutical product inspection, glass body inspection, or electronic component inspection, Opto also mounts bi-centric lenses in standard QuadraMount profiles. These provide a robust and universal mounting interface that greatly simplifies integration and alignment.

Lenses with factory integrated QuadraMount feature an aluminum square profile with a standard profile geometry of 160x160mm, 120x120mm or 80x80mm for easy integration and minimal alignment.

Large lenses in particular are often mechanically clamped internally by subsequent mechanical mounting, which can have a significant effect on the optical properties of the lens. In addition, the lenses with the new mounting device are also less sensitive to mechanical stress and vibration.

### Imaging Module

For laboratory set-ups, QuadraMount lenses can also be used quickly as table-top arrangements, e.g. the Telecentric Bench. Opto has been integrating this concept for many years in many thousands of units for various machine manufacturers.

Now this idea is also being implemented in the recently introduced imaging modules in standard sensors. With a preselection of optical concepts, pre-calibrated and mounted Sony Pregius camera sensors, integrated illuminators and rectangular mechanics, the Imaging Modules combine the same advantages as the Quadramounts in telecentric with the latest image processing technologies.

It may still be some time before the optical computers can manage with the rectangular optical concepts that have been adapted to the new digital sensors. Until then, however, at least mechanically all possibilities are open.

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