

INTELLIGENT GONIOMETER HEAD

INTELLIGENT AUTOMATION

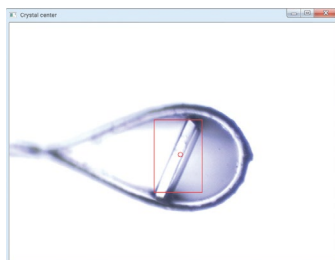


INTELLIGENT GONIOMETER HEAD

INTRODUCTION

Rigaku first offered a motorized goniometer head for the home lab, the Microglide, in 2001. Used both on Rigaku home lab instruments and on many synchrotron beamlines around the world, the Microglide was instrumental in changing the way cutting-edge crystallography was performed. Today, many beamlines operate in a hands-free way with users safely separated from the dangerous X-ray beam. Through this vast experience in goniometer head automation and an eye on the ever-changing needs of our customers, our latest product, the Intelligent Goniometer Head (IGH) was born.

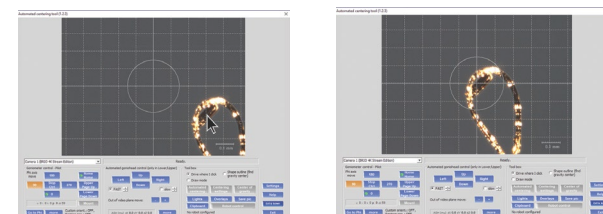
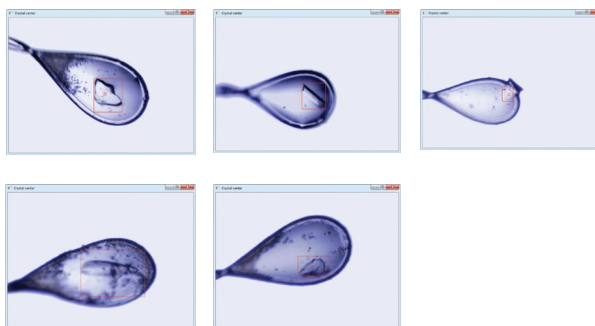
As you would expect from any Rigaku Oxford Diffraction product, the IGH has been engineered for the highest reliability, accuracy and precision with a major goal of significantly reducing the bulk compared with existing solutions. The end result is the smallest detachable motorized goniometer head for single crystal X-ray diffraction we have ever produced, which gives you convenience, safety and automation possibilities with the minimum impact on data collection strategies.



AUTOMATED OPTICAL OBJECT CENTERING

When it comes to robotics, automation and high-quality software, our track record speaks for itself. For any truly automated system, reliably getting the sample centered in the X-ray beam without user input is essential.

While older approaches used basic loop centering or scanning through the X-ray beam, the IGH uses the latest in optical image recognition techniques to detect sample holder presence, recognize the crystal and center not just the loop, but objects found within them. This fast approach minimizes dead time, avoids use of X-rays on sensitive samples and allows unattended data collection of an entire queue of samples when used in conjunction with a sample mounting robot like the ACTOR™ system.



POINT AND CLICK CENTERING

For a more manual approach, click on whatever you want to bring to the center of the goniometer and the IGH will move it into the beam.

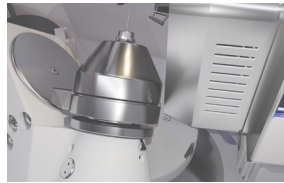
MANUAL CONTROL

The IGH also allows fully manual movements for fine-tuning centering or handling more unusual cases.



BUILT IN MAGNETIC MOUNT

For compatibility with commonly used sample mount standards, including SPINE and ALS, the IGH comes with a built in magnetic mount. Such mounts are commonly used by both small molecule and macromolecular crystallographers and automated systems such as the ACTOR system for automatic sample mounting. Conveniently, integrating the magnet also helps keep the size of the IGH to an absolute minimum.



MINIMAL PROFILE

The IGH sets the standard for motorized goniometer heads, packing 3 piezo motors into a sleek package. This is possible thanks to the unique piezo tripod design, which offers highly accurate sample positioning.

With such a small envelope, the IGH is able to offer the smallest collision zones for faster more complete measurements in any space group.



SINGLE OR DUAL CAMERA OPERATION

Should you have an instrument supplied with dual video microscopes, the IGH is able to take advantage of both of them for faster centering without the need for rotations to get extra images.

This allows centering to be completed within as little as 6 seconds, typically under 20 seconds.

In a single camera setup, all that is needed is a simple 90° phi rotation to get all the visual information needed.

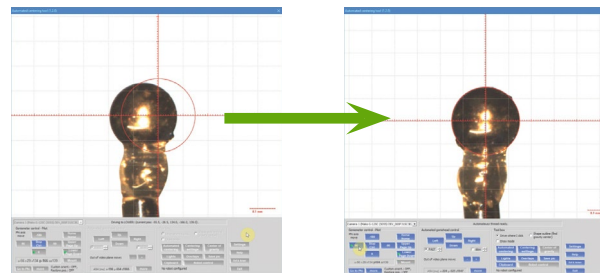


STANDALONE OR INTEGRATED

Just bought a diffractometer or have an older one to upgrade?

The IGH has been designed as a complete package, including a control box that contains all hardware necessary to drive the IGH. This allows for connection to existing compatible* instruments controlled by CrysAlis^{Pro}. Alternatively, when purchased with a new XtaLAB Synergy instrument, the IGH can be used as an integrated component. This flexibility lets you buy the IGH with your new diffractometer or at a later date if you so desire.

* Please contact your local sales representative to check compatibility.



AUTOMATED VIDEO CALIBRATION

Optical image recognition also means automatic video calibration is possible with a motorized goniometer

head. The size and shape of a calibrated steel ball is recognized, driven to the goniometer center and then used to automatically adjust the the video microscope center and scale.

Checking and recentering your video microscope is now a push-button procedure with the IGH.

Features and Specifications

Support mounts	SPINE or ALS compatible bases
Centering modes	Automatic sample recognition, point and click, manual
Movement ranges	X ±1 mm, Y ±1 mm, Z ±1.5 mm
Movement speed	2 mm/s
Positioning accuracy	<5 µm
Piezo actuator resolution	0.3 µm
Sample detection	Optical image recognition
Dimensions	54 mm (base diameter) 54 mm (height)
Software control	CrysAlis ^{Pro}

BENEFITS

- Reliable automated sample centering
- Hands-free, closed cabinet centering
- Minimized collision zone
- Use your existing mounts
- Fast <10 second centering
- Automated video calibration

