The New IOLMaster Version V 4.0 NEW

Since beginning of September the newest generation of the IOLMaster with software version 4.0 from Carl Zeiss Meditec AG is on the market.

The new IOLMaster is equipped with a modern, powerful PC board with several additional ports. The software was extended with additional functions especially for use in refractive surgery using phacic IOLs. IOL power calculations after LASIK or data transfer to another PC using Holladay 2 consultant application (HIC) are further improvements. In addition, the 4th software generation features a large number of improvements to small points of detail which have been requested by customers in the past few years.

The most important improvements compared to the 3.0 version at a glance:

– fast, powerful computer board — Time saving in measurement of K's and ACD

– Power computation of phakic implants — IOLMaster now also for refractive surgery

– New biometry formula (Haigis-L) for post myopic LASIK/PRK/LASEK — Enables easy IOL computation after Lasik/PRK/Lasek for myopic eyes

– Improved connection to HIC (Holladay IOL Consultant) with Holladay 2 formula — Use of modern biometry formula via Ethernet connection

– No data loss in event of improper shutdown — On shutdown with power switch the software is properly closed down and all data is saved

– CD-RW drive for reading and writing data — Software updates or printer easily installable, data storage on CD-RW

– Windows™ XP professional — Modern state of the art operating system

– Extended data storage period — Extended availability of patient data for evaluations after examination

– Export of patient data to CD-RW or USB Flash Drive — Enables own evaluations for scientific papers, etc.

– Power computation for 1 lens with 4 different biometry formulas — Easy comparison of results with different biometry formulas (display and printout)

The New IOLMaster with Software Version 4.0

The computer was equipped with a fast, modern board and a CD-RW drive, and operates with Win XP professional. The following ports are available: USB (2x), PS2 (2x), serial, parallel, VGA, Ethernet. This means the computer meets all upcoming requirements regarding instrument hardware. The faster computer leads to time savings in keratometry and anterior chamber depth measurement.
The software version 4.0 is the consistent further development of the IOLMaster software for greater ease of use, increased safety and expanded applications in refractive surgery. Even users with little experience can quickly make use of the benefits offered by the system. The functions already present in the version 3.0 will not be described here again. These are already mentioned on this Web page. The most important improvements to the 3.0 version are described below:

➢ **Haigis-L formula (Option A plus)**
For Lasik/PRK/Lasek patients undergoing cataract surgery the IOL power calculating is difficult, as the corneal refractive power entered into the calculation formula cannot be directly measured. For this reason, the refractive power correction according to the clinical history method and according to the contact lens method was already integrated into the software 3.0 (Option A). Difficulties in the first method arrive, in fact of the pre-op (LASIK) data is generally not available. For the second method sometimes the required contact lenses are not available or the necessary experience with this method is lacking. With the Haigis-L formula for myopic PRK/LASIK/LASEK eyes the IOL power calculation is performed with current measured values and problems are overcome.

➢ **Computation of phakic implants (Option A plus)**
The computation of phakic lenses as refractive option is growing in importance. These lenses are primarily used for high myopia (> 8 D) and severe hyperopia (> 3 D). The software calculates the IOL power and contains the lens constants (manufacturer constants) of selected IOLs which cannot be changed by the customer.

➢ **Data transfer to Holladay IOL Consultant (Holladay 2 formula) (Option A plus)**
The new IOLMaster with software version 4.0 creates a file with all necessary data. Via Ethernet connection another PC with Holladay IOL Consultant (HIC) can access to that file using the data for calculation with the Holladay 2 formula. The Holladay 2 formula cannot be integrated into the IOLMaster software and the HIC is not supplied by CZM. It is distributed via the Internet (www.docholladay.com). Additionally the HIC also provides statistics functions for quality improvements. Older versions of the HIC do not offer data transfer from the IOLMaster.

➢ **4 in 1 (Multiformula) (Option A plus)**
The new software version 4.0 offers the direct comparison (on screen and printout) of IOL power results for one IOL derived from 4 different power calculation formulas. This increases reliability in the selection of a lens power, particularly for short and long eyes.

➤ **Additional AL measuring modes**

Additional axial length measuring modes for eyes with refractive intraocular lenses (phakic IOLs), piggy-back lenses and pseudo-phakic silicone oil filled eyes expand the system's field of application and facilitate IOL computation in special cases.

➤ **Import**

The import function can be used to easily transfer IOL constants from USB Flash Drive or CD-RW to the IOLMaster. The file with the IOL constants can be downloaded from www.augenklinik.uni-wuerzburg.de/ulib. Import of lens data can be done for each surgeon individually. New IOLs constants or further optimized constants can also be installed to the system.

➤ **Data export to USB Flash Drive or CD-RW (Option A plus)**

An export function is available particularly for users who want to produce scientific publications or lectures with their own clinical results. The patient data (measured values, but without graphs) can be transferred to another PC for further evaluations.

➤ **Extended storage period for measured data up to 365 days**
➤ **Storage of any specific target refraction**

➤ **Correct software shut down on power off**

The new IOLMaster can be switched off using the power switch without closing the software. This is done automatically and all data is stored before shut down. Nevertheless it is recommended to close down the software manually before switching off the system for safety reasons. Pulling out the power plug or shutdown of the system via master line switch will continue to lead to data loss and may destroy the computer.

➤ **Printout possible via network printer or PDF writer**
➤ **Printing on B5 format**
➤ **Serial port speed of data transmission to practice / hospital information systems is adjustable via IOLMaster software**

➤ **IOLMaster attachment for IT 3L instrument table with or without keyboard support (accessory)**

The new IOLMaster can be attached to the IT 3L instrument table or the keyboard support using fastening borders.

Further software adds are planned for the 2nd release (fall 2005):
– Test eye measurements can not be deleted

The values are available for customers and service purposes (patient's name: !Check, Device!).

– 5 measurements of axial length and 3 keratometer measurements are mandatory

Our experience has shown that usually too few measurements are performed. This leads to incorrect IOL calculations in some cases. Therefore, an IOL calculation is now no longer possible until at least 5 axial length and 3 keratometer measurements have been completed.

– Additional specifications of astigmatic difference and spherical equivalent on printout

– Name of facility can be entered for printout

– Compliance with HIPAA regulations (USA) concerning user authorization and user identification

– Active surgeon still active after restart

– Screen and printout also available in Japanese (Kanji)