Quick Guide

Isis

CE

IVD

Distributor

MetaSystems Group, Inc.
200 River's Edge Drive, 1st Floor
Medford, MA 02155
U.S.A.

Phone +1 617 924 9950
Fax +1 617 924 9954
Email info@metasystems.org

MetaSystems Hard & Software GmbH
(MetaSystems)
Robert-Bosch-Str. 6
68804 Altlussheim
Germany
Tel: +49 (0)6205 39610
Fax: +49 (0)6205 32270
Email: info@metasystems.de

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1	06/2019	
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About this Quick Guide

This Quick Guide is intended for novice users and users, who have been using previous versions of MetaSystems imaging systems, namely laboratory staff operating, maintaining, and analyzing data generated by MetaSystems systems.

The Quick Guide contains important information for the reliable operation of your MetaSystems system:

- Symbols Used
- Safety Instructions
- Product Descriptions
- Important Notices for Setup and Operation
- Instructions for Use

Please familiarize yourself with its content prior to using the system and pay special attention to the hints concerning safe operation of the instrument. The specifications are subject to change; the Quick Guide is not covered by an update service.

Assumptions on Previous Knowledge

The Quick Guide assumes you have:

- Basic computer literacy, including a general understanding of data storage, file transfers, and copying and pasting.
- Sufficient knowledge of applicable laboratory techniques to interpret images generated by MetaSystems Metafer/Relosys, Ikaros, and Isis imaging systems.

How to Obtain More Information

- While this Guide provides just a brief introduction, a comprehensive description about the system functionality is available through manual and help files:
  - Inside Isis press the [F1] key to open a built-in help file.
  - The help file is also available as a printable PDF file (in ...\Neon\Manuals). You need a PDF reader software to open, display and print the PDF file. PDF reader software is available from various sources on the Internet.
- In addition to the present Quick Guide and the software manuals, the following operating manuals for optional equipment should also be consulted depending on the configuration:
  - Operating manuals for the computer, monitor, and printer.
  - Operating manual for the microscope, transmitted and reflected light fluorescence illuminator.

Errors and Suggestions

If you spot any mistakes in this online help or if you have any suggestions for improvement, please contact MetaSystems in Germany.

Compliance Notice

Systems by MetaSystems have been designed, produced and tested to meet the requirements regarding:

◩ Electrical safety	Directive 2006/95/EC for electrical equipment designed for use within certain voltage limits.
	EN 61010-2-101:2002 Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 2-101: Particular requirements for in vitro diagnostic (IVD) medical equipment (IEC 61010-2-101:2002 (Modified)).
◩ Electromagnetic Compatibility (EMC)	Directive 2014/30/EU for electromagnetic compatibility.
	EN 61326-2-6:2006 Electrical equipment for measurement, control and laboratory use – Part 2-6: Particular requirements – In vitro diagnostic (IVD) medical equipment (IEC 61326-2-6:2005).
And meet the requirements of the	EU directive 98/79/EC for IVD products (In Vitro Diagnostics)
Instrumentation identification marking	C€ mark

Symbols Used

C€	This product complies with the requirements in the EU directive 98/79 EC on in vitro diagnostic medical devices.
IVD	For in vitro diagnostic use.
◼	Manufacturer.
⚠	Caution.
📖	Consult instructions for use.

Safety Instructions

General Provisions

Imaging systems by MetaSystems:

- Are intended for laboratory use only and, thus, may only be operated by qualified and trained persons. MetaSystems or its representatives provide the technical training as part of the service. It is the responsibility of the laboratory to provide and maintain the necessary knowledge of the operator and to utilize all functions in compliance with standard laboratory practice and regulatory guidelines.

- Aid lab technicians in the documentation of microscopic brightfield and fluorescence images.

- Require the presence of a hardware token for software protection, also known as 'dongle', to be started and executed. Failure to plug in the dongle will result in the software not running. A MetaSystems' dongle does not only work as a security key, but also as a physical license key, which enables particular features in the MetaSystems software. Each dongle has an individual serial number. Thus, each dongle requires its own individual license key. Only features enabled by the license key are available in the respective software. All other software features are disabled, but can be enabled after purchasing the respective license and reprogramming the dongle.

- Are only auxiliary components in the complex process of diagnosing the final result. The quality of the final result depends decisively on the process of specimen preparation. Although imaging systems have some capabilities to enhance images captured from difficult specimens but they cannot generally correct or compensate for shortcomings or imperfections such as inadequate brightfield staining or fluorescence in-situ hybridizations. Some of the system's image enhancement functions may have a distinct influence on the images. The operator should be careful about using them and be aware that - when applied excessively or inappropriately - they may reduce the quality and result in loss of image details.

It is part of the operator's responsibility to:

- Check the plausibility of each result by reviewing the images on screen and the slide directly under the microscope.

- Follow all procedures and recommendations for keeping the Metafer system within the specifications permanently (⬚ⁱ).

Specific Provisions

Your system was built and thoroughly tested according to our quality system. In order to ensure continuous safe and reliable operation please observe the safety notices and caution signs below.

⚠ ### Caution: Laboratory Safety Guidelines!

Before using Metafer it is essential to consult applicable laboratory safety guidelines and regulations in their latest versions, particularly those on the use of electric laboratory equipment, glass microscopic slides and potentially hazardous samples.

⚠ ### Caution: Operation by qualified personnel only!

The system must be operated only by qualified and trained laboratory personnel, who have been advised on the risks of operating a microscope and performing the respective assay.

⚠ ### Caution: Power Point! Risk of electric Shock!

Plug the individual system components into properly grounded electrical outlets. The cables are equipped with 3-prong plugs to ensure proper grounding (protective earth conductor). If you must use an extension cable, although it is not recommended, use a 3-wire cable with properly grounded plugs. Do not remove the grounding prong from a cable. Consult also the safety instruction in the product information supplied with the individual components.
In case of error there is a risk of contact with life-threatening voltage.

⚠ ### Caution: Motorized Focus Drive! Risk of Personal Injury and System Damage!

On microscopes with a motorized focus drive, it is imperative one does not place a hand or any object between microscope stage and objectives, while the stage is moving upwards. The same care should be taken when the stage is moving downward. You may be injured personally and/or damage the microscope in both instances. Please consult the safety and operating instructions of the microscope manufacturer (📖).

⚠ ### Caution: Gas Discharge Lamps! Risk of Personal Injury and System Damage!

Microscopes with fluorescence equipment, used in conjunction with MetaSystems systems, may include gas discharge lamps. They can explode if safe handling and operation is not observed. Gas discharge lamps emit ultraviolet radiation that may burn the eyes and skin.
Please follow the safety and operating instructions given by the microscope manufacturer (📖).

⚠ Caution: Risk of Ineffective Safety Measures!

If it is determined that protective measures are no longer effective, the device must be taken out of service and secured against inadvertent operation, to avoid the risk of injury. Contact MetaSystems or its representative to have the device repaired.

⚠ Caution: Build-up of Heat! Risk of Fire

Obstruction of vents may cause a build-up of heat in one of the system components. This may cause damage or fire in extreme circumstances. Ensure that the vents are always kept clear of obstructions (min. distance 15 cm).

Notes on Warranty

All MetaSystems systems are covered by a one-year warranty. The manufacturer and its representative guarantee that the instrument is free of material or manufacturing defects upon installation. Any defects must be reported immediately and steps taken to minimize damage. If such a defect is reported, the manufacturer shall be obliged to correct the fault, either by repairing the device or by replacing it with a new one, at the manufacturer's discretion. No warranty is given for defects caused by natural wear and tear (particularly of wearing parts) and improper use of the device.

The manufacturer shall not be liable for damage caused by misuse, negligence or any other tampering with the device, particularly the removal or replacement of device components, or the use of unapproved accessories from other manufacturers. Service and maintenance may only be carried out by trained personnel of MetaSystems. Improper use or modification of the hardware in any manner may void the warranty.

Maintenance and service work is to be carried out only by MetaSystems or individuals authorized by MetaSystems. In the event of a problem with the device, please contact MetaSystems or its representative.

Various warranty extensions and/or service contracts for software and hardware are available on request.

Setup and Operation

Ambient conditions — The ambient conditions as outlined under Technical Data should be adhered to. Select an installation site which is as temperature-stable as possible.

Fluorescence preparations — When documenting fluorescence preparations, do not expose the microscope to direct sunlight. This helps minimize the influence of stray light.

Staining / FISH— Although imaging software has some capabilities to enhance difficult specimens, it cannot generally correct or compensate for shortcomings or imperfections caused

by inadequate staining and/or FISH (*fluorescent in situ hybridization*). Follow your evaluated laboratory protocols and applicable SOPs.

Avoid Vibrations — For prolonged experimental procedures using the microscope choose an installation location with minimum vibration. Vibration stemming e. g. from forced ventilation, floor impact or other shocks can lead to reduced image quality and experimental errors. To reduce vibrations at the installation location, engage suitable damping measures.

Minimal space requirements — The minimal area required for setting up your system is 100 cm x 60 cm [Metafer 150 cm x 60 cm] (width x depth). Observe the applicable national regulations for VDU work stations and EN ISO 9241.

Power supply — If the electricity is subject to local voltage fluctuations, we recommend the usage of a UPS (<u>u</u>ninterrupted <u>p</u>ower <u>s</u>upply). Laser printers must NOT be connected to a UPS due to their high initial current peak during warm up.

Computer network — Several systems can be networked together using "Cat. 5" cables with standard RJ-45 connections. The required data transfer rates are at least 100 Mbps. The network installation is not included in the system price.

Changing system settings — The system settings are preconfigured by MetaSystems or it's representatives. These settings should only be changed by MetaSystems personnel or by experienced users. Pleased make a note of any changes made as some modifications may cause severe software malfunctions Please consult the accompanying manuals and contact MetaSystems (📖).

Dust - Protect the microscope and camera from dirt and dust, which may impair with the functionality of the camera and other system components. If you remove the camera from the microscope, please ensure that the sensor is pointing downwards. The sensor is not protected by a glass filter. Do not touch the sensor and do not try to clean the camera yourself. Cameras should only be cleaned by the camera manufacturer or by MetaSystems

Cleaning — Shut down all pieces of equipment belonging to the device and remove the power cord of all system components prior to cleaning. Only use a soft damp cloth for cleaning. Never employ liquid or spray cleaner containing inflammable substances.

Sensitive Fluorescence Filters — If your microscope is equipped with fluorescence filters, you should be aware that they are particularly sensitive to heat radiation. Prolonged exposure to fluorescence light may cause irreversible damage leading to a complete loss of functionality. Ensure that proper heat protection filters are positioned in the light path between lamp and fluorescent filters. Please follow the guidelines of the filter manufacturer with regard to filter maintenance and cleaning (📖).

Software updates — Software updates are available free of charge for 1 year during the initial free upgrade period after installation. You can update the software yourself following the detailed installation instruction included. You may receive new software versions electronically or on CD-ROM.

Warming up of the Camera — Cameras can get warm during operation. This may lead to a poorer signal-to-noise ratio causing a reduction in image quality. Ensure a tight connection between camera and microscope (camera adapter) to dissipate this heat energy through the microscope.

Product Descriptions

MetaSystems products consist of software modules, hardware components and accessories in different configurations.

The entire system subject to this declaration consisting of specified, verified and validated hardware components, software modules and their accessories after commissioning by system specialists or commissioned third parties.

Only components, modules and accessories specified, verified and validated by MetaSystems can be replaced by MetaSystems specialists or commissioned third parties as part of maintenance or servicing.

Metafer V4.x and Ikaros / Isis V6.x strictly depend on Neon V1.x for case and data management as well as for reporting ('x' represents the actual release version). Metafer and Ikaros/Isis appear in Neon as Modules and can only be started from within Neon.

All Ikaros, Isis, and Metafer version prior to those named above are not compatible with Neon and can be executed independent from each other.

Neon

Intended Use

Neon is MetaSystems' new platform for case and image data organization, for all MetaSystems devices. MetaSystems solutions are designed to address particular imaging and image analysis tasks. Neon collects the data from any imaging job, and from external sources, and presents them in comprehensive and versatile case management dashboard. Hence, Neon always has the most relevant information for the user at hand; fast and secure, regardless of where the information originates. Strong data management algorithms, several convenient display modes, and many options for selecting and filtering content make Neon the perfect basis to organize large quantities of heterogeneous information. Neon does not provide any in vitro diagnostic function by itself but is an accessory for the imaging platforms Ikaros, Isis and Metafer.

Product Variants

Besides the (full) Neon client licenses which come with every Ikaros, Isis or Metafer license, additional Neon client licenses can be purchased. There are two Neon product variants: and. It is possible to combine both license options to enable the full feature range:

Reference No.	Description
P-2500-002-MS	Neon Case Data Management (for Case Data entry)
P-2500-003-MS	Neon Gallery Reviews Upgrade (Enables Metafer and Ikaros/Isis Gallery, Counters and Statistics views in the Case Window and reporting)

⏎ If you have purchased any other Metafer and/or Ikaros / Isis license, both Neon variants are automatically included. Neon will start with Metafer and Ikaros galleries if at least an Ikaros analysis or Metafer Review license is also available.

- The Combined Karyogram view is only accessible, if an Ikaros / Isis full or analysis license is available, too.
- If Neon is started with a network license, by default Neon tries to obtain the licenses for the full functional range. You can start a Neon network license with the Case Data Management license only, if you include command line argument /NoGalleryReview in the desktop link.

Legal Classification

MetaSystems products are used in many countries worldwide. Depending on the regulations of the respective country or region, some products may not be used for clinical diagnostic use. In Europe, MetaSystems products are CE-labeled as *in vitro* diagnostic (IVD) devices:

	Australia	Brazil	Canada	Japan	U.S.A
Neon	Class 1 / TGA ARTG inclusion	Anvisa DOU entry	—	MAH License no. 13B3X10527	Class 1 / Listing

Isis

Intended Use

The color fluorescence imaging system Isis allows fast and easy acquisition, processing, archiving, and documentation of fluorescent microscopic images.

Isis replaces conventional photography and eliminates the time-consuming processing steps in the dark room. All the steps from image acquisition to color printouts can be performed in just a few minutes. In conjunction with the capability to store images electronically significant time and cost savings can be achieved. Images can be easily exported directly to other graphics and presentation software, which adds flexibility and convenience.

Images are captured with a light-integrating monochrome CCD camera. Color images are generated by subsequent acquisition of the individual color components (namely red (R), green (G), and blue (B) (RGB color model)) and subsequent automatic combination to establish the color image.

The automatic integration time control ensures correct exposures at the first shot. Avoiding cumbersome test exposures or guessing the correct integration time reduces hands-on time and simultaneously prolongs the lifespan of specimen. Even very weak fluorescent signals on intense counter stain will give rise to crisp images.

Legal Classification

MetaSystems products are used in many countries worldwide. Depending on the regulations of the respective country or region, some products may not be used for clinical diagnostic use. In Europe, MetaSystems products are CE-labeled as in vitro diagnostic devices (IVD):

	Australia	Brazil	Canada	Japan	U.S.A
Isis Micro	Class 3 / TGA ARTG inclusion	Class 1 / Anvisa DOU entry	Class 3 / License (SOR-98-282)	MAH License no. 13B3X10527	Class 1 /Listing
Isis CK	Class 3 / TGA ARTG inclusion	Class 1 / Anvisa DOU entry	Research Use Only	MAH License no. 13B3X10527	Research Use Only

Due to their diverse software capabilities, Isis *without* and Isis *with* color karyotyping module (Isis CK), including the module for mFISH/mBAND, are subjected to different legal classifications in Canada and in the U.S.A..

Product Variants

Isis is available in different configurations:

Reference No.	Description
Class 1	
P-1000-003-MS	Isis Color Fluorescence Imaging System (1st) - *Primary system with software and camera*
P-1000-004-MS	Isis Color Fluorescence Imaging System (Sat) - *Satellite system with software and camera*
P-1010-001-MS	Isis Color Fluorescence Analysis System - *Analysis station with software (image processing functions)*
P-1020-002-MS	Isis Color Fluorescence Capture System - *Capture station with software (image acquisition functions)*
Research Use Only	
P-1040-004-MS	Isis upgrade for Ikaros
P-1040-005-MS	Isis upgrade for Metafer
P-1040-006-MS	Isis capture upgrade for Metafer
P-1040-007-MS	Isis analysis upgrade for Ikaros
P-1040-008-MS	Isis capture upgrade for Ikaros
P-1030-001-MS	Color Karyotyping upgrade for Isis
P-1030-002-MS	CGH module (requires color karyotyping)*
P-1030-003-MS	Telomer module (requires color karyotyping)*
P-1030-004-MS	mFISH/ mBAND module (requires color karyotyping)*

*Not available in combination with Neon

Systems from MetaSystems comprise the following components:

Component	Comment
PC / operating system	Standard office PC, model selected and tested by MetaSystems
Computer mouse	Computer wheel mouse
Camera with USB connection	Optional for systems with capture functionality
Monitor	Min. 24" TFT monitor (Full HD)

Instructions for Use - How to capture the first image

All main functions for image acquisition and processing are accessible directly through command buttons on the right-hand side of the screen. Most functions can be activated and completed with a three-button mouse. A function is started with a left mouse click and confirm it with a right click. Shortcut keys are also available for many functions. A complete summary of all command buttons, menu commands, mouse clicks and key shortcuts can be found in the accompanying manuals (⬚ⅈ).

⬚ Start the PC and turn on the microscope. Optional: Wait until the boot sequence of a motorized microscope is completed.

⬚ Without Neon:

⬚ On the Windows desktop, click on the Ikaros program icon.

⬚ Load a case or setup a new one by typing the case name into the 'Case' field.

⬚ With Neon:

⬚ On the Windows desktop, click on the 'Neon' program icon

⬚ Load a case in the 'Cases' view or setup a new on by clicking the 'Create Case' command button in the 'Create Case' view.

⬚ Go to the 'Cells' view and click on the 'Ikaros / Isis' icon in the sidebar on the right side. In the 'Add Cell' window, select 'Culture', 'Slide' and 'Experiment Type'.

⬚ Select 'Experiment Type' at the bottom right-hand corner of the screen to determine which fluorochromes channels will be captured.

⬚ Click on the "Capture" button and adjust the focus and stage positions in the first color channel. Acquire the image with a right mouse click. Exposure time is set automatically. Repeat the image acquisition for all other color channels required.

⬚ Press the keys 'B' (background correction), 'L' (lower threshold) and 'U' (upper threshold) to significantly improve the image. For further enhancement use the command buttons on the right side of the screen (⬚ⅈ for further details).

- Without Neon:
    - The command 'View – Case Data' opens the integrated case data sheet, in which you can fill in patient details, type of analysis and diagnosis.
    - Print a report with a left mouse click on the printer icon.
    - Save images and case data by selecting 'File – Save'.
    - You can exit the program by selecting 'File – Quit'.

- With Neon:
    - Press the key combination [Alt] + [Tab] to bring Neon to the front.
    - Add 'Cell Data' by clicking on the respective icon in the sidebar or add case data by clicking the 'Data' view tab.
    - Print a report by clicking on the 'Report' icon in the Neon header and select the wanted report template.
    - Exit Neon and Ikaros by clicking on the 'Main' icon in the Neon header, followed by click on the 'X' (Exit) icon in the headline of the Neon program window.

Microscopes

Microscopes are not part of MetaSystems systems. The camera and microscope must be connected by a *C*-mount adapter for 2/3" CCD cameras (not included). Please contact your microscope representative for details. MetaSystems software supports a number of motorized microscopes. Suitable control cables are available from the microscope manufacturers (not included).
A detailed description of supported microscopes and system configuration can be found in the accompanying manuals (📖).

Köhler Illumination

It is common knowledge among microscopists that correctly adjusted microscope is essential for good image quality and, hence, the basis for a successful analysis of microscope slide. The *Köhler* illumination provides a homogeneously illuminated field of view, reduced optical glare from the light source and an increase in optical resolution. The prerequisite for *Köhler* illumination is a vertically adjustable, centerable condenser with iris diaphragm. It is recommended to check the illumination on a regular basis (according to laboratory SOPs):

1. Move up condenser with the top lens swung in (if available).
2. Focus on specimen with a low power objective (e.g. 10x or 16x).
3. Close down the lamp field stop (diaphragm in the microscope stand) while viewing.
4. Lower condenser slightly until the diaphragm (lamp field stop) image is in focus.
5. Center diaphragm image using the condenser centering screws.
6. Open diaphragm to the edge of field of view, then fine focus and open it further to just clear the field.
7. Adjust contrast using the condenser aperture diaphragm.
8. Remove eyepiece and check to see that 75% of visible aperture is filled with light.

Troubleshooting

The following table list some of the most common problems:

Problem	Potential Cause	Action
System does not work.	▣ Interrupted power. ▣ System is not turned on.	▣ Please check that all power cords are connected correctly and that all system components are switched on.
Monitor does not display an image.	▣ Monitor is turned off. ▣ The cable connecting the monitor to the PC is not plugged in correctly.	▣ Please check that the power cord and the monitor cable are plugged in correctly and that the monitor is switched on.
Error message on non-responding hardware components during software initialization	▣ Systems with motorized microscope: communication cable unplugged, microscope is switched off or boot sequence not yet completed, wrong firmware versions installed in microscope stand. ▣ Systems with camera: camera cable(s) unplugged on system, corrupt camera driver, wrong camera type selected.	▣ Check cable connection between system and microscope. Shut down software, switch on microscope and wait until boot sequence completed. If problem persists, contact MetaSystems or representative. ▣ Shut down system, wait 30 seconds and restart. If problem persists, contact MetaSystems or representative.
Error message: X / Y axis exceeding stage range	▣ The axis indicated in the error message has been moved to a position exceeded the defined movement range of the stage. For safety reasons the stepping motors acting on the stage axes were switched off.	▣ Remove the covers from the stage axes. Use the yellow knobs on the x- and y axis to move the stage to a position within the movement range of the stage. Restart Metafer.
No live image is displayed when the 'Capture' (Ikaros/Isis) or the 'Scan' (Metafer) command is selected.	▣ Microscope illumination turned off. ▣ Light path to the camera is closed.	▣ Please check that the required microscope lamp is on and that the light path to the camera is open. For fluorescence applications please verify that the correct filter is positioned in the light path.

Live image too dark.	Transmitted light:	
	▣ Light source not properly centered.	▣ Center light source and adjust Köhler illumination (*see above*).
	▣ Luminous-field or condenser aperture diaphragms closed too far.	
	▣ Light level on the microscope too low.	▣ Increase light intensity on microscope.
	▣ Live image exposure time too short.	▣ Increase live image exposure time (▣ *see Ikaros or Metafer manuals*).
	Fluorescence:	
	▣ Light source operating beyond recommended livespan.	▣ Replace light source (burner, light guide, if applicable, *see light source manual*).
	▣ Live image integration time too short.	▣ Increase live image integration time (▣ *see Ikaros/Isis or Metafer manuals*).
Image not in focus / Manual Focusing is impossible	▣ Objective damaged.	▣ Check objective's front lens for signs of damage. For immersion objectives: Check, whether 'cushion' mechanism is working properly (front less is moving inwards when a gentle force is applied). Objectives can only be repaired by microscope manufacturer.
	▣ No coverslip.	▣ Use coverslips for coverslip-corrected objectives.
	▣ Specimen too thick or uneven.	▣ Prepare fresh samples with reduced and homogenous thickness.
	▣ Not sufficient immersion oil for high magnification oil objectives.	▣ Use more immersion oil.
	▣ Wrong immersion oil (immersion objectives).	▣ Use immersion oil specified by microscope manufacturer for the particular objective. For fluorescence (FL) applications: use only FL-compatible immersion oil, e. g. ZEISS 518F.
	▣ Motorized microscope: stage was lowered to 'Load' position before microscope was switched off. Metafer use the current focus (Z) position as default focus plan	▣ Consult microscope manual how to return to correct focus plane.
		▣ Metafer systems: Apply 'Move to Focus Plane' command from the 'Tools' menu (▣ *See*

	and limits the focus movement range for safety reasons.	*Metafer manual*).
Metafer: Auto-focus does not work properly	◰ Slide frame (slide frame adapter on systems with slide-feeder) not firmly seated in scanning stage. ◰ Slide not firmly seated in the slide frame. ◰ Incorrect microscope setup. ◰ Search area too large compared to cell drop or tissue section areas. ◰ Artifacts like trapped air bubbles, oil droplets on the cover slip, etc. . ◰ Defect focus drive: focus drive is skipping focusing steps. ◰ Auto-focus range is limited by software settings.	◰ Remove slide frame/slide adapter and reinsert it correctly. ◰ Insert slide correctly. ◰ Check the microscope setting and consult the microscope manual. ◰ Reduce the search area so that there are objects allowing focusing for most of the image fields. ◰ Avoid artifacts during sample preparation and remove these artifacts from existing slides. ◰ Run a simple test: focus a sample manually, move the focus drive a few steps down and then the same number of steps up again (check the Z-position on the microscope's display): the sample should be in focus again. If the sample is not in focus, quit Metafer, switch the microscope off, wait 10 seconds, switch it on again, wait another 10 seconds and then restart Metafer. If the problem persists, please contact MetaSystems. ◰ Increased focus range in Metafer settings (▯ *see Metafer manual*).

Images have poor contrast.	▣ Weak staining	▣ Repeat staining, if possible. ▣ Prepare fresh specimen with prolonged staining.
	▣ Weak FISH signals	▣ Check system capabilities with (commercial) control slides: if results are better with control slides, check FISH protocol, all reagents and temperature of water baths and heating plates. ▣ If results are similar, check reflected light path on the microscope (filters, light source), check software configuration parameter.
No printout is obtained.	▣ Printer is switched off. ▣ The cable connecting printer and PC is not plugged in correctly. ▣ Network printer: printer is not 'shared'. ▣ Printer is not selected in the MetaSystems program.	▣ Please check that the power and printer cables are plugged in correctly and that the printer is switched on. Verify that the network share for a network printer is configured properly. Check the program settings to ensure the desired printer is selected (▢ *see also accompanying manuals*).
Warning messages: insufficient disk space.	▣ The amount of data on the storage drive has reached a critical level (usually 90 % full)	▣ Software version prior to Neon: archive cases with MetaArchive software and free disk space with built-in software functions (▢ *see MetaArchive manual*). ▣ Software version based on Neon: define clean-up rules in 'Data Folder'-Settings.

If this does not solve the problem, or your problem is not listed, please contact MetaSystems.

Technical Data

Dimensions (width x depth):

Ikaros, Isis and Metafer (without SFx80):...120 cm x 60 cm

Metafer w/ SFx80 on Base Plate S:...127 cm x 60 cm

Metafer w/ SFx80 on Base Plate M:..127 cm x 80 cm

Height (dependent on configuration): ....63 cm — 75 cm

Weight (dependent on configuration, incl. microscope): ....approx. 30 kg — 85 kg

Ambient conditions

Transport (in packaging)

Permissible ambient temperature:...- 20 °C — +60°C

Storage:

Permissible ambient temperature:..+ 10 °C — +35°C

Permissible relative humidity (no condensation): ....max. 75 % at 35°C

Operation:

Permissible ambient temperature:..+ 10 °C — +35°C

Permissible relative humidity: ....max. 75 % at 35°C

Atmospheric pressure.. 800 hPa — 1060 hPa

Altitude ....max. 2000 m

Pollution degree... 2

Operating environment ....Closed Room

Protection Class I

Protection Type.. IP 20

Electrical safety .... in compliance with DIN EN 61010-1 (IEC 61010-1)

Overvoltage category II

Radio interference suppression .... in accordance with EN 55011 Class B

Noise immunity..in accordance with DIN EN 61326-1

Line voltage .... 100 V to 127 V and 200 V to 240 V ± 10 %

Line frequency ....50 Hz – 60 Hz

Power consumption (dependent on configuration) ....typical: 150 - 300 W, max. 800 W