

Living up to Life

Leica
MICROSYSTEMS

Leica DI C800

User Manual / Installation Instructions

10 743 250 – Version 00

MEDICAL DIVISION



Thank you for purchasing a Leica DI C800.

In developing our systems, we have placed great emphasis on simple, self-explanatory operation. Nevertheless, we suggest studying this manual so that you know and are able to utilize all the benefits of your Leica DI C800 in an optimum way.

For valuable information about Leica Microsystems products and services and the address of your nearest Leica representative, please visit our website:

www.leica-microsystems.com

Thank you for choosing our products. We hope that you will enjoy the quality and performance of your Leica Microsystems Leica DI C800.

Leica Microsystems (Schweiz) AG
Medical Division
CH-9435 Heerbrugg

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These Instructions



This User Manual / Installation Manual contains important safety notes as well as information on using the instrument (see the chapter "Safety notes").



Before attempting to set up the product, carefully read through the User Manual / Installation Manual.

Product identification

The model and serial number of your product are shown on the identification label. Copy this information to the line below so that it is handy in case you have questions for our representatives or service locations.

Type: _____ Serial No.: _____

Symbols in this manual

The symbols used in this manual have the following meaning:



Warning

Indicates a potentially hazardous situation or improper use that could result in serious personal injuries or death.



Caution

Indicates a potentially hazardous situation or improper use which, if not avoided, may result in minor or moderate injury and/or appreciable material, financial or environmental damage.



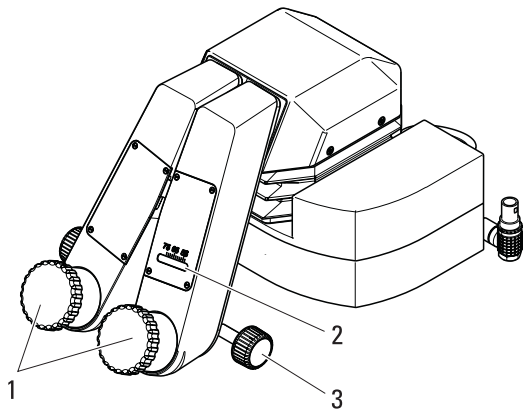
Information about use that helps the user to employ the product in a technically correct and efficient way.



Action required; here, you are requested to take action.

Design and function

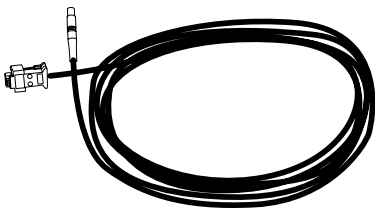
Design of the Leica DI C800



- 1 Eyepieces
- 2 Interpupillary distance display
- 3 Setting wheel for setting the interpupillary distance

Accessories provided

- XGA video cable (for connecting the Leica DI C800 to the workstation or to a PC)



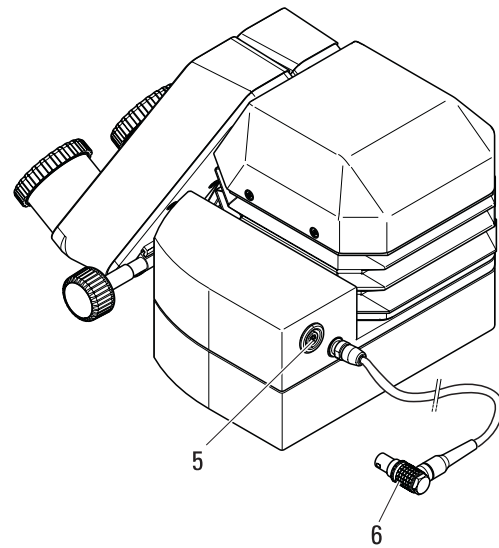
- Leica DI C800 User Manual / Installation Manual (10 743 250)



Function of the Leica DI C800

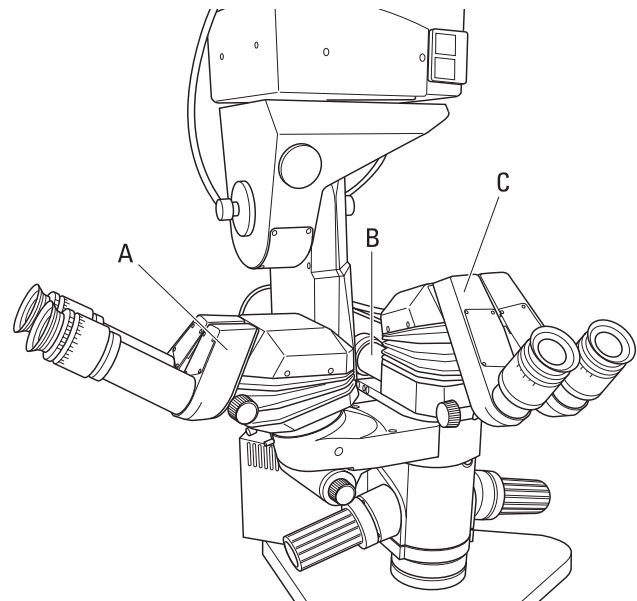
The Leica DI C800 (Digital Imaging Color Module) is a binocular tube with an integrated module for superimposing data. A built-in color display can superimpose data or video images.

Connection points on the Leica DI C800



- 5 Video cable terminal
- 6 CAN cable

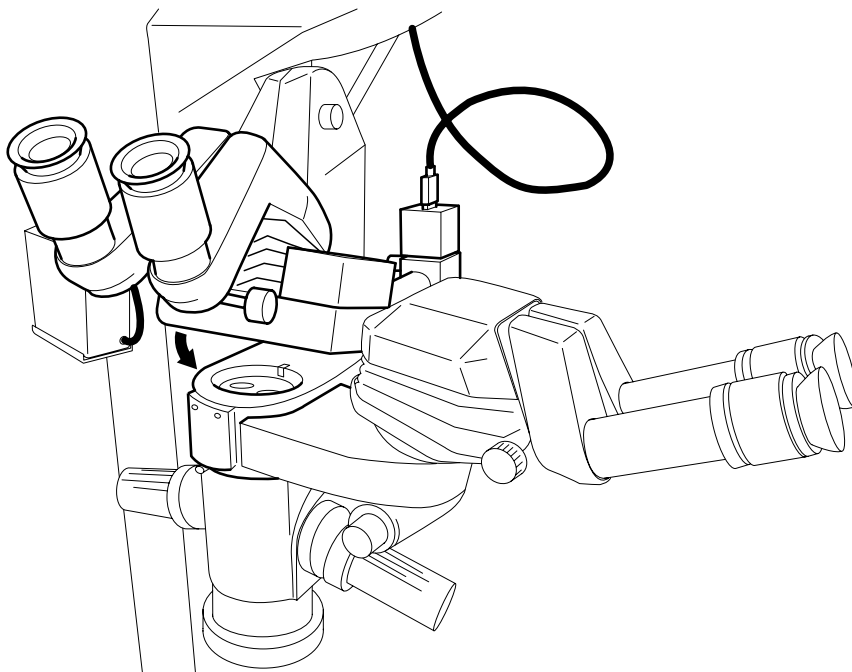
Overview of the typical load for the Leica DI C800



- A Stereo binocular tube at the side optical output
- B Video adapter (documentation accessories) at the document output
- C Leica DI C800

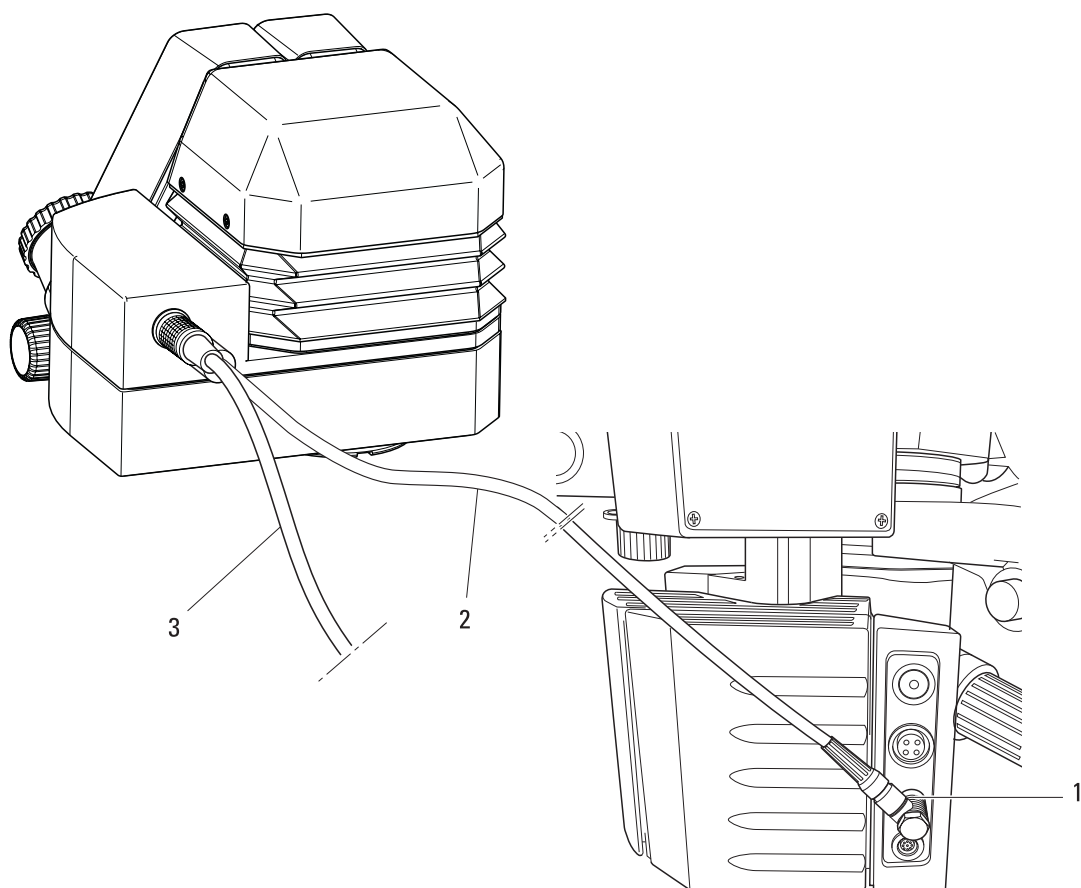
Assembling the Leica DI C800

- ⇒ Release the clamping screw at the dovetail ring of the 0° assistant attachment (at the beam splitter or at the second observer attachment) and remove the protective cover.
- ⇒ Carefully insert the Leica DI C800 and fasten the clamping screw in place.



Pay attention to the maximum load of the Leica surgical microscope during assembly of the Leica DI C800, see the microscope's User Manual.

Connecting the Leica DI C800



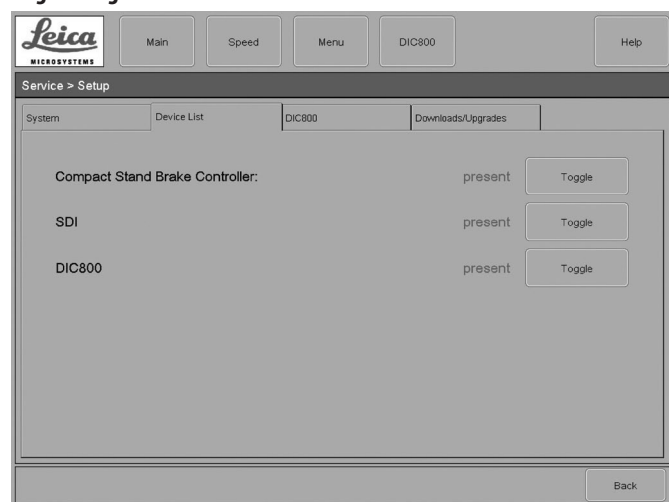
- 1 Socket for a CAN connecting cable on the optics carrier
- 2 CAN connecting cable
- 3 XGA video cable (for a PC or workstation) (marked in blue)



Look out for pinching of the CAN connecting cable (2) that may occur when laying the cable.

Activating the Leica DI C800

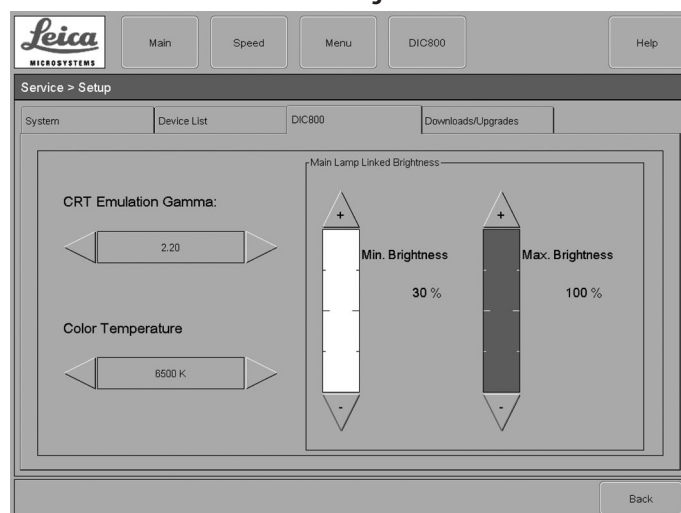
Registering the Leica DI C800 at the control unit



- ⇒ Select the "Setup" entry in the "Service" menu.
- ⇒ Switch to the "Device List" tab.
- ⇒ Select DI C800 and press the "Toggle" button.
DI C800 "present" is displayed in green.
The Leica DI C800 is registered at the control unit.
- ⇒ Leave the menu using "Back".

Setting up the Leica DI C800

Set the minimum and maximum for brightness on the Leica DI C800



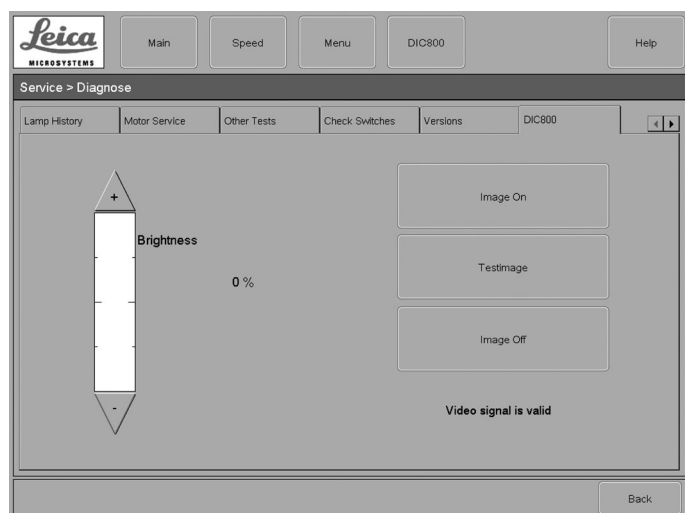
- ⇒ Select the "Setup" entry in the "Service" menu.
 - ⇒ Switch to the "DIC800" tab.
 - ⇒ Set the brightness with the "+" or "-" button.
- Or
- ⇒ Click the brightness adjustment bar directly.



Briefly clicking the "+" or "-" button changes the brightness value in increments of 1. If the button is held down, the value changes in increments of 5.

Checking the installation

Functional test



⇒ Select the "Diagnostic" entry in the "Service" menu.

⇒ Switch to the "DI C800" tab.

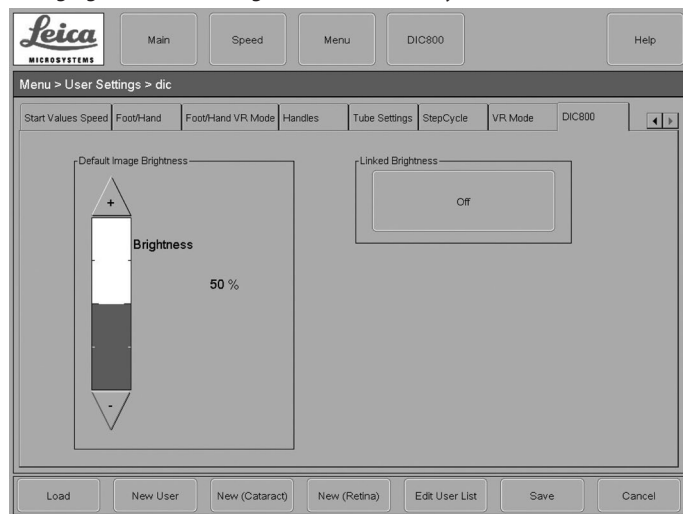
The following options for functional testing are provided:

- Image on / Image off Manually switch on/off the display containing overlaid data
- Testimage Superimpose a test image in the eyepiece of the Leica DI C800
- Video signal is (in)correct Shows the status of the video signal

"User Settings" menu

If a Leica DI C800 is connected and enabled, an additional "DI C800" tab appears in the "User Settings" menu.

Changing the standard brightness of the overlay:



⇒ Select the "DI C800" entry in the "User Settings" menu.

The following settings for brightness are provided:

- **Default Image Brightness** Change the default image brightness using the "+" or "-" key or by clicking on the bar
- **Linked Brightness On/Off** If "Linked Brightness" is enabled, the brightness of the display in the Leica DI C800 changes with the brightness of the microscope's light



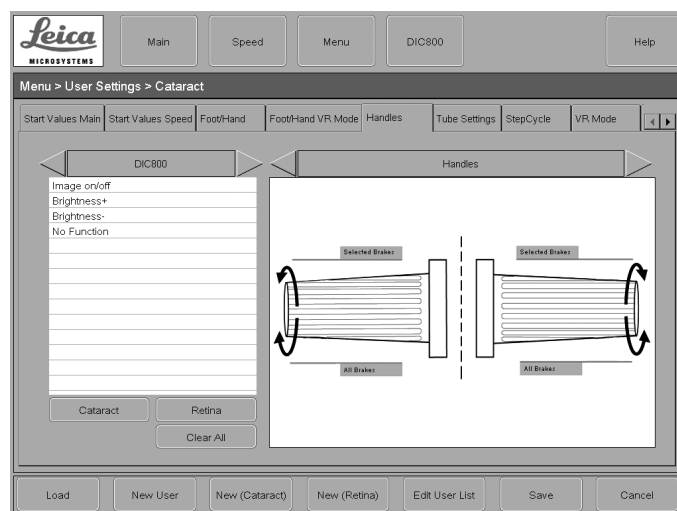
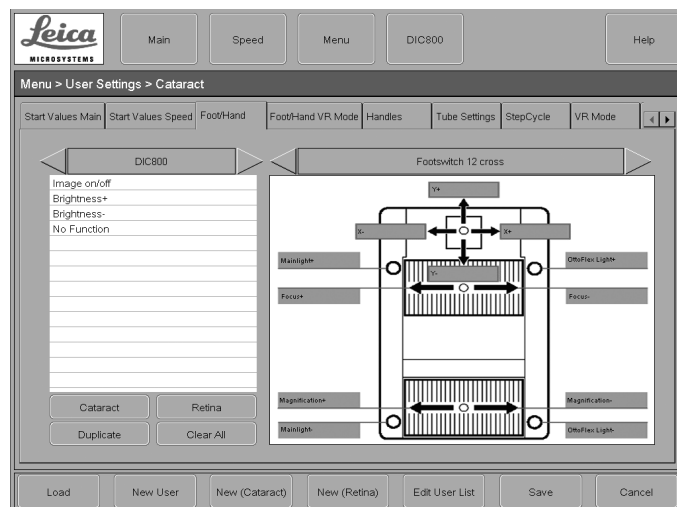
Briefly clicking the "+" or "-" button changes the brightness value in increments of 1. If the button is held down, the value changes in increments of 5.



We recommend setting the basic brightness of the Leica DI C800 and linking it with the brightness of the microscope's light.

Assigning Leica DI C800 functions to footswitches or handles

If a Leica DI C800 is connected and enabled, the "DI C800" function group is offered in the selection.



- ⇒ Select the "Foot/Hand" or "Handles" entry in the "User Settings" menu.
- ⇒ Select the "DI C800" function group on the left side.
- ⇒ Assign functions such as described in the Leica surgical microscope's User Manual.

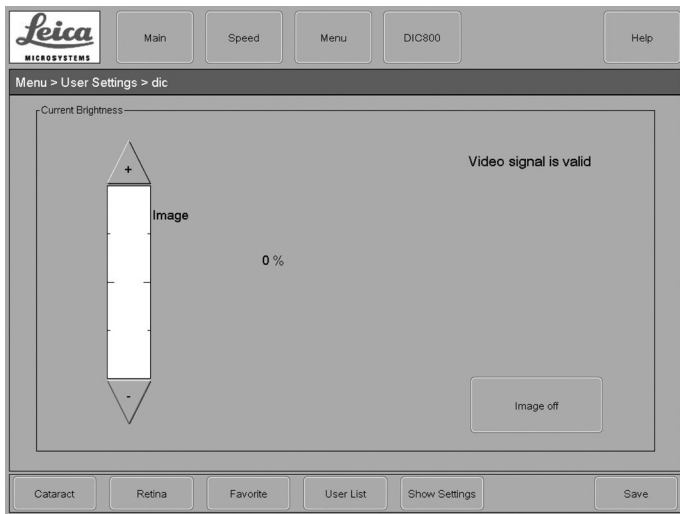
The microscope footswitch and/or the microscope handles can be assigned the following functions for controlling the Leica DI C800:

Image on/off	Switches the display in the Leica DI C800 on or off.
Brightness+	Increases the brightness of the superimposed data.
Brightness-	Decreases the brightness of the superimposed data.

During the surgery

If a Leica DI C800 is connected and enabled, an additional "DI C800" quick access button appears in the static menu bar.

Changing the current brightness of the overlay



⇒ Click the "DI C800" quick access button.

⇒ Press the "+" or "-" button.

Or

⇒ Click the brightness adjustment bar directly.



Briefly clicking the "+" or "-" button changes the brightness value in increments of 1. If the button is held down, the value changes in increments of 5.



The display in the Leica DI C800 is switched off using the "Image off" button (brightness = 0 %).



We recommend controlling the brightness via a footswitch during a surgery.

Designated use

- The Leica DI C800 Digital Imaging Color Module is an optical instrument for operating microscopes in Ophthalmology which can superimpose data or images. These superimpositions can be overlaid over the microscope image.
- Only use the plug and cable provided with the delivery package for connecting the Leica DI C800, even to a system used as a data source.

Non-intended use

- Only use the Leica DI C800 as described in this manual. Failure to observe these instructions may result in property damage.

Information for the person responsible for the instrument

- Ensure that only instructed users use the Leica DI C800.
- Ensure that this User Manual is always available at the place where the instrument is used.
- Carry out regular inspections to make sure the users are complying with safety requirements.
- Brief the users thoroughly and explain the meaning of the warning signs and warning messages to them.
- Allocate responsibilities for preparing the instrument for work, for operating it and for maintaining it. Monitor compliance with these.
- Do not use the Leica DI C800 unless it is in proper condition.
- Inform your Leica representative or Leica Microsystems (Schweiz) AG, 9435 Heerbrugg, immediately if you detect a product defect that could potentially cause injury or harm.
- Ensure that the usual precautionary measures for electromagnetic and other radiation are observed.
- Do not make any changes to this instrument.
- Connected units and all the configurations for the analog and digital interfaces (signal inputs and outputs) have to be certified in accordance with IEC 601-1/EN 60601-1 for medical devices. It is the responsibility of the user to ensure that the limits of the above-mentioned standards are not exceeded. If in doubt, please contact the appropriate technical department or the representative responsible.
- The complete system does not conform to CE if the instrument is operated together with components that do not have CE certification.

Directions for the user of the instrument

- The Leica DI C800 is suited only for use with selected Leica surgical microscopes with a corresponding updated software version. If in doubt, please contact the appropriate technical department or the representative responsible.
- Follow directions provided by your employer regarding work organization and safety.
- Follow the instructions given in this manual.
- The electrical system at the installation location must conform to IEC, CEC and NEC specifications.
- Do not sterilize the Leica DI C800.
- Observe the applicable statutory and country-specific regulations for accident prevention and environmental protection.

Dangers during use

Care



Caution

Danger of damage to the instrument due to improper storage!

- ⇒ Only put the Leica DI C800 in storage with the protective dust cover in place.
- ⇒ Protect the instrument from direct sunlight and heat.

- ⇒ Protect the Leica DI C800 from improper operation.
- ⇒ Remove dust on the optics of the Leica DI C800 using a bellows and a soft brush.
- ⇒ Clean the Leica DI C800 using a moist towel and dry it using a soft, lint-free cloth.
- ⇒ Protect the Leica DI C800 from moisture, vapors, acids, alkalis, and corrosive substances.
- ⇒ Do not store chemicals near the instrument.
- ⇒ Protect the instrument from oil and grease. Never grease or oil mechanical parts or sliding surfaces.
- ⇒ During breaks in work, use protective dust covers to protect the Leica DI C800.
- ⇒ Do not roll the cables too tightly and do not kink them.
- ⇒ Do not sterilize the Leica DI C800.

Maintenance

The unit does not require maintenance. In order to maintain reliability, we recommend contacting the responsible service organization to be on the safe side. Here you can arrange for periodic inspections and, if appropriate, conclude a maintenance contract.

Service

Service work must only be performed by Leica service technicians. Only original Leica spare parts must be used.

Disposal

Observe the relevant national regulations on disposing the unit. Suitable waste disposal companies are to be used. The unit packaging is to be recycled.

Troubleshooting the mirrored data

Fault: No image superimposition.

Possible cause 1: The data source does not emit an image.

The plug connection for the XGA video cable is defective or the XGA video cable is connected incorrectly.

Fault remedy:

- ⇒ Check whether the "DI C800" quick access button is present on the user interface.
- ⇒ Check whether the video signal is correct.
- ⇒ Check whether the data source is sending an image.
- ⇒ Check the plug connection for the XGA video cable between the Leica DI C800 and the external data source.
- ⇒ If the XGA video cable is connected correctly to the external data source, contact your Leica representative.

Cause 2: The Leica DI C800 does not have power.

Fault remedy:

- ⇒ Check the plug connections for the power supply cable between the Leica DI C800 and the optics carrier.
- ⇒ If the power supply cable is connected correctly to the optics carrier, contact your Leica representative.

Cause 3: The Leica DI C800 is not enabled.

Fault remedy:

- ⇒ Check whether the "DI C800" quick access button is present on the user interface.
- ⇒ If the "DI C800" quick access button is present, contact your Leica representative.

Fault: The superimposed image does not have the correct color.

Cause: defective plug connections.

The plug connection for the XGA video cable is defective or the XGA video cable is connected incorrectly.

Fault remedy:

- ⇒ Check the plug connection for the XGA video cable between the Leica DI C800 and the external data source.
- ⇒ If the XGA video cable is connected correctly to the external data source, contact your Leica representative.

Fault: The superimposed image is shown in the wrong format.

Cause: The connected workstation is supplying data/signals in the wrong format.

Fault remedy:

- ⇒ Check the graphics card settings on the workstation.

Fault: A correlated contour is not overlaid over the object precisely.

Cause: The data source is not calibrated to the Leica DI C800.

Fault remedy:

- ⇒ Have the data source calibrated to the Leica DI C800.

Troubleshooting the display

Fault: The display shows a signal error

Cause: The display switches on by itself and/or shows an incorrect video signal.

Fault remedy:

- ⇒ Unplug the Leica DI C800 and then plug it back in.
- ⇒ Switch the Leica DI C800 off and then back on using the handswitch/footswitch or the touchscreen.

Troubleshooting the optical system

Fault: Prolonged operation causes headaches for the surgeon

Cause: Optics out of alignment.

Fault remedy:

- ⇒ Contact your Leica representative.

Electrical data

General classification

Safety type Type B

Power supply

Input voltage +24 V DC (via CAN connection)
Power consumption max. 15 W

CAN interface

Power output +24 V DC / max. 30 W

Graphics interface

RGB signals 0.7 V p–p / 75 Ohm
H sync and V sync TTL
VESA Standard 60/70/75 Hz at 1024(H) x 768(V) pixels

Display features

Type Reflective LCD
LCD resolution 1024(H) x 768(V) pixels
Contrast min. 250:1, typically 400:1
Color depth 16 bit

Physical data

Dimensions 270 x 190 x 140 mm
Weight 2.1 kg

Ambient conditions

Transportation –40 °C to +70 °C (–40 °F to +158 °F)
Storage –10 °C to +55 °C (–14 °F to +131 °F)
 up to 75 % relative humidity
Operation +10 °C to +40 °C (+50 °F to +104 °F)
 up to 75 % relative humidity

Standards

EU Guideline 93/42/EEC,
EN 60601-1; -1-1; -1-2

Accessories

Both 8.33x and 10x eyepieces can be used for the Leica DI C800.

Compatibility

Optics carrier Leica M844, Leica M820, Leica M822

The fruitful collaboration "with the user, for the user" has always been the foundation of Leica Microsystems' innovative strength. On this basis, we have developed our five corporate values: Pioneering, High-end Quality, Team Spirit, Dedication to Science, and Continuous Improvement.

MEDICAL DIVISION

What does a surgeon expect from an outstanding surgical microscope? Sharp, clear images, and a modular system aligned with the surgeon and OR staff needs.

Innovations for your practice

From the first surgical microscope with widefield optics in the 1980s to the first microscopes with Horizontal Optics and with LED illumination, Leica Microsystems has been at the forefront of innovation in the development of surgical microscopes.

HD video, fluorescence and retinal viewing systems also demonstrate the continued innovative nature of the Leica team. We strive to provide the surgeon with leading edge technology to enhance performance, surgeon comfort, and patient outcomes.

Leica Microsystems – an international company with a strong network of worldwide customer services:

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Austria · Vienna	+43	1 486 80 50 0	+43	1 486 80 50 30
Belgium · Groot Bijgaarden	+32	2 790 98 50	+32	2 790 98 68
Denmark · Ballerup	+45	4454 0101	+45	4454 0111
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Germany · Wetzlar	+49	64 41 29 40 00	+49	64 41 29 41 55
Italy · Milan	+39	02 574 861	+39	02 574 03392
Netherlands · Rijswijk	+31	70 4132 100	+31	70 4132 109
Portugal · Lisbon	+351	21 388 9112	+351	21 385 4668
Spain · Barcelona	+34	900 210 992	+34	93 494 95 40
Sweden · Kista	+46	8 625 45 45	+46	8 625 45 10
Switzerland · Heerbrugg	+41	71 726 34 34	+41	71 726 34 44
United Kingdom · Milton Keynes	+44	800 298 2344	+44	1908 246 312
China · Hong Kong	+852	2 564 6699	+852	2 564 4163
· Shanghai	+86	21 6387 6606	+86	21 6387 6698
Japan · Tokyo	+81	3 5421 2800	+81	3 5421 2896
Korea · Seoul	+82	2 514 65 43	+82	2 514 65 48
Singapore	+65	6779 7823	+65	6773 0628