



## Laser Diode Controller

# LDC200C Series Quick Reference



Full manual available at  
[www.thorlabs.com](http://www.thorlabs.com)

2021

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We aim to develop and produce the best solution for your application in the field of optical measurement technique. To help us to live up to your expectations and improve our products permanently we need your ideas and suggestions. Therefore, please let us know about possible criticism or ideas. We and our international partners are looking forward to hearing from you.

*Thorlabs GmbH*

**Attention**

Paragraphs preceded by this symbol explain hazards that could damage the instrument and the connected equipment or may cause loss of data.

**Note**

This manual also contains "NOTES" and "HINTS" written in this form.

Please read this advice carefully!

# 1 General Information

As a part of Thorlabs Green Initiative, we aim to save paper and decided to offer electronic documentation to our products. This Quick Reference gives only a short introduction and states safety and legal information.

The full manual can be downloaded in PDF format from the LDC200C Series product [web site](#), or simply by scanning the QR code:



## Note

In order to prevent damages to the laser diode, it is recommended to mount the laser into a suitable Thorlabs laser diode mount and connect it to the LDC200C Series using the supplied Thorlabs CAB400 cable. This ensures the utmost protection of the laser diode from damage by wrong connection.

## 1.1 Safety

### Attention

The safety of any system incorporating the equipment is the responsibility of the assembler of the system.

All statements regarding safety of operation and technical data in this instruction manual will only apply when the unit is operated correctly as it was designed for.

The LDC200C Series must not be operated in explosion endangered environments!

Do not obstruct the air ventilation slots in the housing!

Do not remove covers!

Do not open the cabinet. There are no parts serviceable by the operator inside!

This precision device is only serviceable if properly packed into the complete original packaging including the plastic foam sleeves. If necessary, ask for replacement packaging.

Refer servicing to qualified personnel!

Only with written consent from Thorlabs may changes to single components be made or components not supplied by Thorlabs be used.

### Attention

Prior to applying power to the LDC200C Series, make sure that the protective conductor of the 3 conductor mains power cord is correctly connected to the protective earth ground contact of the socket outlet! Improper grounding can cause electric shock resulting in damage to your health or even death!

Ensure that the line voltage setting of the fuse holder at the rear panel agrees with your local supply and that the corresponding fuses are inserted. If not, please change the line voltage setting (see section Line voltage setting) and the mains fuses (see section Replacing the main fuses).

To avoid risk of fire, only the appropriate fuses for the corresponding line voltage must be used.

All modules must only be operated with proper shielded connection cables.

**Attention**

The following statement applies to the products covered in this manual, unless otherwise specified herein. The statement for other products will appear in the respective accompanying documentation.

**Note:**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules and meets all requirements of the Canadian Interference-Causing Equipment Standard ICES-003 for digital apparatus. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/T.V. technician for help.

Users that change or modify the product described in this manual in a way not expressly approved by Thorlabs (party responsible for compliance) could void the user's authority to operate the equipment.

Thorlabs GmbH is not responsible for any radio television interference caused by modifications of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by Thorlabs GmbH. The correction of interference caused by such unauthorized modification, substitution or attachment will be the responsibility of the user.

The use of shielded I/O cables is required when connecting this equipment to any and all optional peripheral or host devices. Failure to do so may violate FCC and ICES rules.

**Attention**

Mobile telephones, cellular phones or other radio transmitters must not be used within the range of three meters of this unit since the electromagnetic field intensity may then exceed the maximum allowed disturbance values according to IEC61326-1.

This product has been tested and found complying with the limits according to IEC 61326-1 for using connection cables shorter than or equal to 3 meters (9.8 feet).

**Warning**

Laser modules can deliver up to several 100mW of even invisible laser radiation! When operated incorrectly, this can cause severe damage to your eyes and health! Be ensure to pay strict attention to the safety recommendations of the appropriate laser safety class, as stated for the used light source.

**Vous pouvez trouver les traductions françaises des paragraphes ayant trait à la sécurité d'utilisation de ce produit sur le lien suivant:**

[https://www.thorlabs.com/\\_sd.cfm?fileName=15988-D03.pdf&partNumber=LDC202C](https://www.thorlabs.com/_sd.cfm?fileName=15988-D03.pdf&partNumber=LDC202C)

**En outre, vous pouvez soit scanner le QR code, soit vous référer à la section "Documents" sur la page web du produit.**



## 2 Getting Started

Prior to operate a LDC200C Series controller, check if the set line voltage matches with your local power supply and if the appropriate fuses are inserted.

The laser diode controller LDC2xxC operates at fixed line voltages of

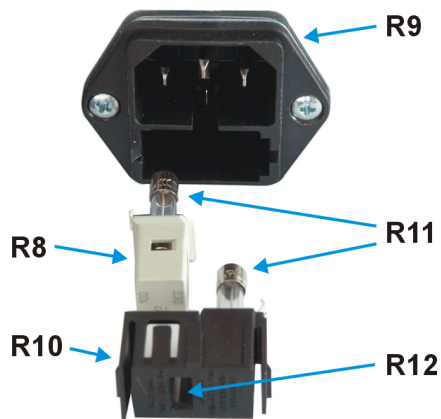
100 V +15% / -10% ( 90 V ... 115 V)

115 V +15% / -10% (104 V ... 132 V)

230 V +15% / -10% (207 V ... 264 V)

line frequency 50 ... 60 Hz.

The line voltage setting can be changed from the rear without opening the unit.



1. Turn off the controller and disconnect the mains cable.
2. The fuse holder (R10) is located below the 3-pole power connector of the mains jack (R9). Release the fuse holder by pressing its plastic retainers with the aid of a small screwdriver. The retainers are located on the right and left side of the holder and must be pressed towards the center.
3. Unplug the white line voltage switch/indicator (R8, containing the left fuse) from the fuse holder (R10), rotate it until the appropriate voltage marking (100V, 115V, or 230V) is on target for the cutout (R12) of the fuse holder, and plug it back into the fuse holder. Press in the fuse holder until locked on both sides. The appropriate line voltage marking must be visible in the cutout (R12) of the fuse holder.

### Attention

If you have changed to or from 230 V, also change the mains fuses to the correct value given below:

### Fuse types

LDC200VC, LDC201CU, LDC202C, LDC205C, LDC210C, and LDC220C:

100 V	500 mA, time-lag, 250V	T0.5A250V
115 V	500 mA, time-lag, 250V	T0.5A250V
230 V	250 mA, time-lag, 250V	T0.25A250V

LDC240C:

100 V	800 mA, time-lag, 250V	T0.8A250V
115 V	800 mA, time-lag, 250V	T0.8A250V
230 V	400 mA, time-lag, 250V	T0.4A250V

All fuses must meet IEC specification 60127-2/III, time characteristic: time-lag (T), 250V AC, size 5 x 20 mm.

Connect the unit to the power line using the supplied cable. Turn the unit on by pressing the line switch.

If required, the chassis ground can be connected to ground potential via the connector jack (R5). The ground pin of the laser diode is internally connected to chassis ground.


Please see the full manual for detailed operating instructions and technical data. This manual can be downloaded from our [web site](#), or simply by scanning the QR code:





## 3 Appendix

### 3.1 Declaration of Conformity

<i>EU Declaration of Conformity</i>		
<i>in accordance with EN ISO 17050-1:2010</i>		
<b>We:</b>	Thorlabs GmbH	
<b>Of:</b>	Münchner Weg 1, 85232 Bergkirchen, Deutschland	
<i>in accordance with the following Directive(s):</i>		
2014/35/EU	Low Voltage Directive (LVD)	
2014/30/EU	Electromagnetic Compatibility (EMC) Directive	
2011/65/EU	Restriction of Use of Certain Hazardous Substances (RoHS)	
 <i>hereby declare that:</i>		
<b>Model:</b>	<b>LDC2xxCx</b>	
<b>Equipment:</b>	<b>Benchtop Laserdiode Current Controller</b>	
<i>is in conformity with the applicable requirements of the following documents:</i>		
EN 61010-1	Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use.	2010
EN 61326-1	Electrical Equipment for Measurement, Control and Laboratory Use - EMC Requirements	2013
 <i>and which, issued under the sole responsibility of Thorlabs, is in conformity with Directive 2011/65/EU of the European Parliament and of the Council of 8th June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment, for the reason stated below:</i>		
does not contain substances in excess of the maximum concentration values tolerated by weight in homogenous materials as listed in Annex II of the Directive		
 <i>I hereby declare that the equipment named has been designed to comply with the relevant sections of the above referenced specifications, and complies with all applicable Essential Requirements of the Directives.</i>		
<b>Signed:</b>		<b>On:</b> 11 November 2019
<b>Name:</b>	Bruno Gross	
<b>Position:</b>	General Manager	<b>CE</b>
		<i>EDC - LDC2xxCx -2019-11-11</i>

This product was tested for and complies with the following standards:

- CAN/CSA-C22.2 No. 61010-1-04
- ANSI/UL 61010-1-2004

## 3.2 Environmental Conditions

Mains Supply Overvoltage	Category II (Cat II)
Relative Humidity	Max. 80% up to 31 °C; decreasing to 50% at 40 °C
Pollution Degree (Indoor use only)	2
Operation Altitude	<2000 m
Operating Temperature Range (non condensing)	0°C to 40°C

## 3.3 Warranty

Thorlabs warrants material and production of the LDC200C Series for a period of 24 months starting with the date of shipment. During this warranty period Thorlabs will see to defaults by repair or by exchange if these are entitled to warranty.

For warranty repairs or service the unit must be sent back to Thorlabs. The customer will carry the shipping costs to Thorlabs, in case of warranty repairs Thorlabs will carry the shipping costs back to the customer.

If no warranty repair is applicable the customer also has to carry the costs for back shipment.

In case of shipment from outside EU duties, taxes etc. which should arise have to be carried by the customer.

Thorlabs warrants the hard- and/or software determined by Thorlabs for this unit to operate fault-free provided that they are handled according to our requirements. However, Thorlabs does not warrant a fault free and uninterrupted operation of the unit, of the software or firmware for special applications nor this instruction manual to be error free. Thorlabs is not liable for consequential damages.

### Restriction of Warranty

The warranty mentioned before does not cover errors and defects being the result of improper treatment, software or interface not supplied by us, modification, misuse or operation outside the defined ambient stated by us or unauthorized maintenance.

Further claims will not be consented to and will not be acknowledged. Thorlabs does explicitly not warrant the usability or the economical use for certain cases of application.

Thorlabs reserves the right to change this instruction manual or the technical data of the described unit at any time.

### 3.4 Copyright and Exclusion of Liability

Thorlabs has taken every possible care in preparing this document. We however assume no liability for the content, completeness or quality of the information contained therein. The content of this document is regularly updated and adapted to reflect the current status of the hardware and/or software. We furthermore do not guarantee that this product will function without errors, even if the stated specifications are adhered to.

Under no circumstances can we guarantee that a particular objective can be achieved with the purchase of this product.

Insofar as permitted under statutory regulations, we assume no liability for direct damage, indirect damage or damages suffered by third parties resulting from the purchase of this product. In no event shall any liability exceed the purchase price of the product.

Please note that the content of this document is neither part of any previous or existing agreement, promise, representation or legal relationship, nor an alteration or amendment thereof. All obligations of Thorlabs result from the respective contract of sale, which also includes the complete and exclusively applicable warranty regulations. These contractual warranty regulations are neither extended nor limited by the information contained in this document. Should you require further information on this product, or encounter specific problems that are not discussed in sufficient detail in the document, please contact your local Thorlabs dealer or system installer.

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## 3.5 Thorlabs Worldwide Contacts and WEEE Policy

For technical support or sales inquiries, please visit us at [www.thorlabs.com/contact](http://www.thorlabs.com/contact) for our most up-to-date contact information.



### USA, Canada, and South America

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**Manufacturer Address Europe**

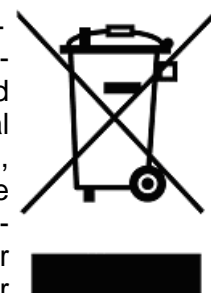
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**Thorlabs 'End of Life' Policy (WEEE)**

Thorlabs verifies our compliance with the WEEE (Waste Electrical and Electronic Equipment) directive of the European Community and the corresponding national laws. Accordingly, all end users in the EC may return “end of life” Annex I category electrical and electronic equipment sold after August 13, 2005 to Thorlabs, without incurring disposal charges. Eligible units are marked with the crossed out “wheelie bin” logo (see right), were sold to and are currently owned by a company or institute within the EC, and are not disassembled or contaminated. Contact Thorlabs for more information. Waste treatment is your own responsibility. “End of life” units must be returned to Thorlabs or handed to a company specializing in waste recovery. Do not dispose of the unit in a litter bin or at a public waste disposal site.









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