

LDD-RC remote control
(for OEM Tech's diode drivers of LDD-, LDY-, PDD-series)

User manual

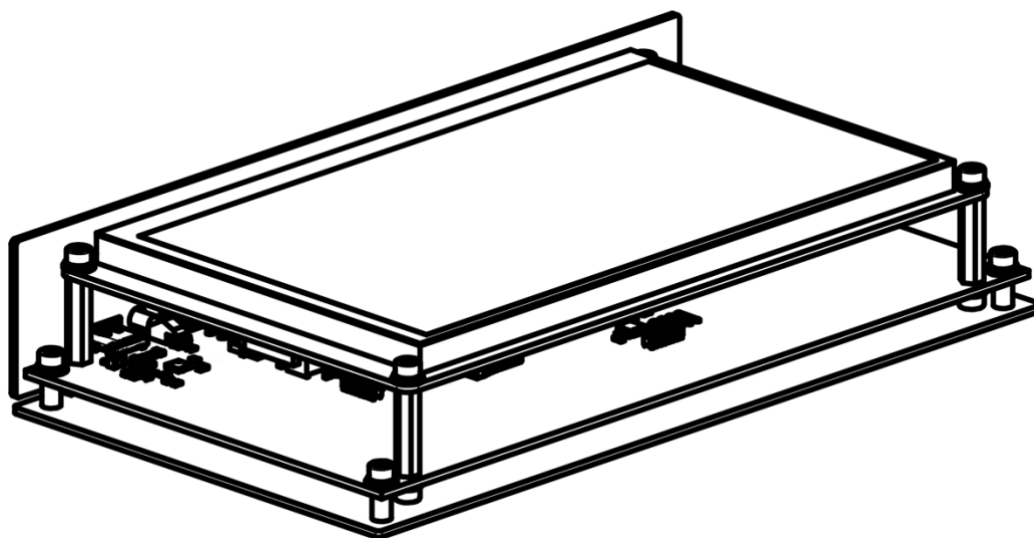


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Overview / Appearance

The LDD-RC is a remote control unit, providing human-machine interface, developed for OEM Tech [PDD-](#), [LDD-](#), and [LDY-series](#) laser diode drivers.

Featuring a 10-inch touchscreen and a 4-sided open-frame design, it provides a user-friendly interface, convenient for laboratory operation.

The LDD-RC allows users to configure all key operating parameters, including output current, pulse width, and pulse repetition rate. It supports both internal and external synchronization modes, enabling the driver to operate either from its internal timing source or from an external pulse generator.

Designed to simplify laser driver operation, the LDD-RC makes system control intuitive and efficient. Depending on the connected driver model, it supports both CW operation and pulsed operation, making it an ideal solution for laboratory testing, development, and laser system integration.



Cooling

The module is convection cooled. No external cooling is required.

Contents of delivery

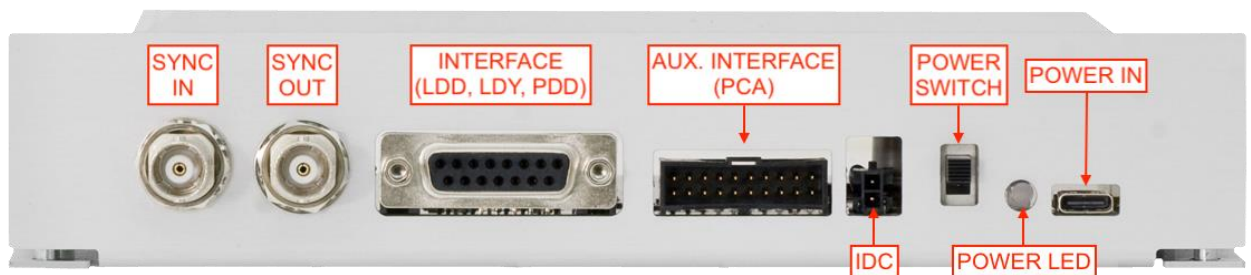
By default, the delivery package contains:

- LDD-RC remote control – 1pc
- IDC choke – 1pc
- INTERFACE cable – 1pc (>50cm length, type to be discussed at the moment of ordering and depends on the type of the diode driver used; by default, LDD/LDY version of the cable is supplied)
- AUX. INTERFACE cable – 1pc (50cm length, supplied only if LDD-RC is planned to be used together with PDD-1000/PDD-500 diode drivers)

Other cables are not usually supplied.

Customized delivery content is available on request.

Connections, signals, signal descriptions

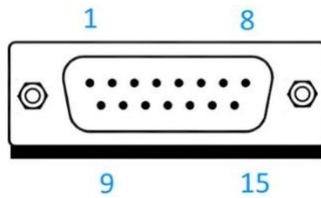


LDD-RC has the following connections and interfaces (from left to right):

- **Synchro input** BNC connector – TTL, input impedance 560 Ohm
- **Synchro output** BNC connector – TTL, 5V to 50 Ohm
- **Interface** DSUB connector (15-pin, female) – LDD, LDY, PDD-series diode driver connection
- **Auxiliary interface** Molex C-GRID III connector (20-pin) – PCA-series capacitor charging power supply connection (to be only used together with DC/DC PDD-500/PDD-1000 diode drivers)
- **IDC** Molex Micro-Fit connector (2-pin) – Door-interlock connection, two pins of the connector should be short-circuited to allow the diode driver operations
- **Power switch** – switches LDD-RC on and off
- **Power LED** – indicates whether 5VDC power is applied to the LDD-RC
- **Power in** USB Type-C connector – power input to the LDD-RC (5VDC from external power source should be applied here)

Note: Despite the presence of the USB connector, the communication with a PC is not supported at the moment. USB connector is solely used as a power input to the LDD-RC.

INTERFACE: 15-PIN DSUB FEMALE



PIN	DESIGNATION (LDD, LDY)	DESIGNATION (PDD)
1	ENABLE	ENABLE
2, 5, 7, 10	INTERFACE RETURN	PULSE 1 RETURN, PULSE 2 RETURN, ENABLE RETURN, INTERFACE RETURN
3	I PROGRAM	CURRENT PROGRAM
4	PULSE	PULSE 1
6	-	PULSE 2
8	INTERLOCK	-
9	FAULT	FAULT
11	I OUT MONITOR	-
12	V OUT MONITOR	-
13, 14, 15	-	-

Installation

- Remove AC power from all system components. Ensure that all buffer capacitor banks, which can store any significant amount of energy, are fully discharged.
- Assemble the power circuits of the system in accordance with the user manuals of the equipment being used.
- Connect the INTERFACE connector of the LDD-RC to the INTERFACE connector of the diode driver. Please use the connecting cable supplied with the LDD-RC. Contact the manufacturer for a replacement or the cable pinout, if the cable is missing for any reasons.
- For the PDD-1000/PDD-500 also connect the AUX. INTERFACE connector of the LDD-RC to the INTERFACE connector of the PCA-series capacitor charging power supply. Please use the connecting cable supplied with the LDD-RC. Contact the manufacturer for a replacement or the cable pinout, if the cable is missing for any reasons.
- If synchronization features are going to be used, connect the corresponding equipment using standard coaxial cables to the SYNC IN and SYNC OUT BNC connectors.
- Organize your interlock connection or install the IDC choke instead.
- Connect the POWER IN connector of the LDD-RC to a 5VDC power source. Any commercial USB power adapter and USB Type C cable (both with >1A output current capability) can be used.

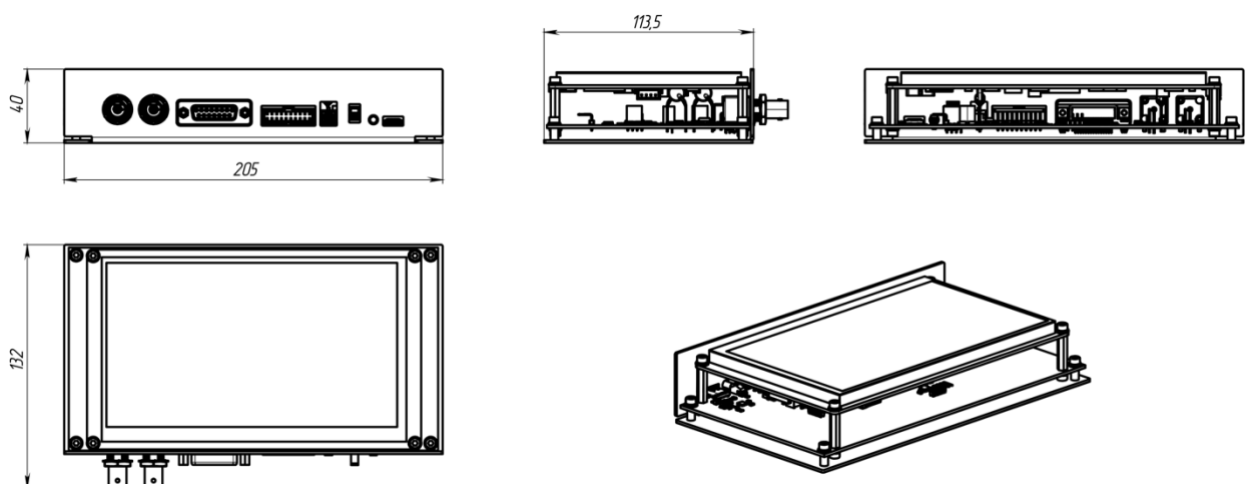
Operations

- After installation ensure that the POWER SWITCH is in the OFF position.
- Apply 5VDC power to the LDD-RC.
- Turn the POWER SWITCH to the ON position and wait for the software to start.
- On the **Setup** screen, verify that the "LDD I_{max}, A" and "LDD V_{max}, V" parameters are configured according to the part number of the diode driver connected to the LDD-RC.
- On the **Main** screen, set the desired operating mode (CW or pulsed, internal or external synchronization etc).
- On the **Main** screen, set the desired operating parameters.
- On the **Main** screen, switch the ON/OFF slider to ON.
- After the operation switch the ON/OFF slider to OFF.

Specifications

INPUT	
Voltage	5VDC
Max. current	<1A
INTERFACES	
UI	10'' display with touchscreen
USB/UART/RS-232/RS-485	Not available
COMPATIBILITY	
LDD-series	+
LDY-series	+
PDD-series (AC input)	+
PDD-series (DC input)	+
PCA-series	+
COOLING	No external cooling is required
ENVIRONMENT	
Operation temperature	+10 ... +40°C
Storage temperature	-20 ... +60°C
Humidity	<90%, non-condensing
MECHANICAL	
Dimensions	See dimensional drawings below
Weight	<0.5kg

Dimensional drawing



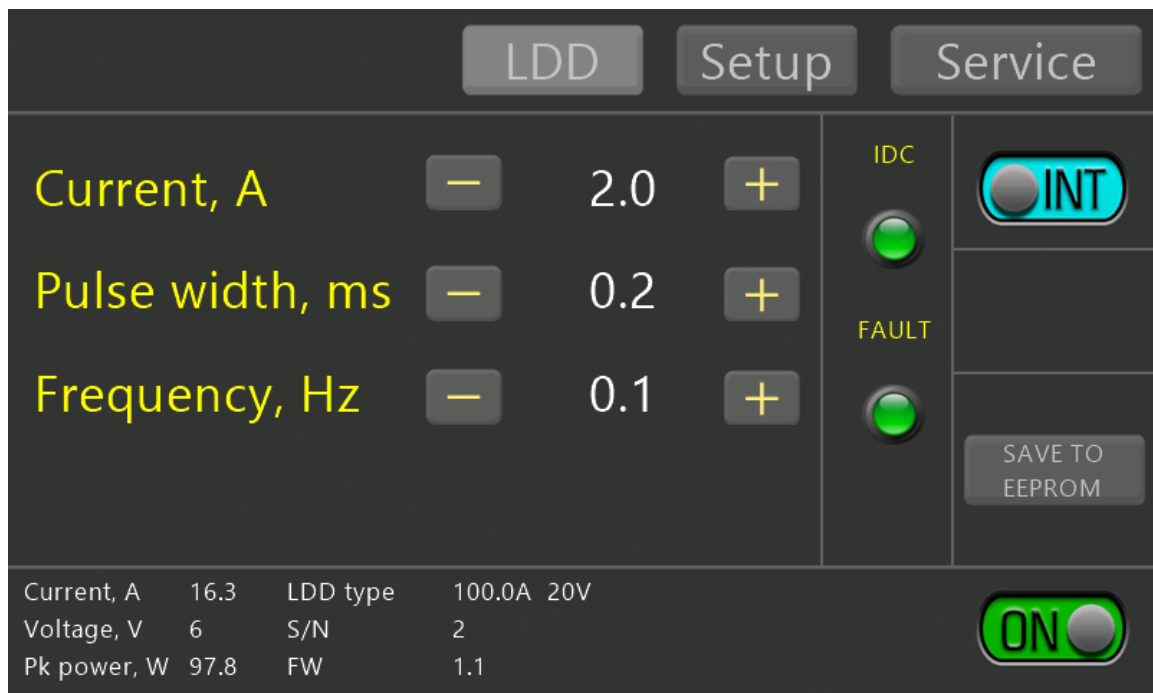
Software description

STARTUP SCREEN



In normal circumstances must change to the main screen in a few seconds.

MAIN SCREEN (PULSED DRIVERS)



Current, A – output current of the diode driver (in amperes)

Pulse width, ms – pulse width (in milliseconds)

Frequency, Hz – pulse repetition rate (in hertz)

INT/EXT slider – internal/external synchronization modes of the LDD-RC

ON/OFF slider – enables/disables the current output of the diode driver

IDC status indicator – the Interlock-door connection status:

- **Green** – IDC circuit is closed
- **Red** – IDC circuit is open

FAULT status indicator – fault status of the equipment connected:

- **Green** – no faults detected
- **Red** – fault of the equipment connected

SAVE TO EEPROM button – saves operating parameters to the LDD-RC memory

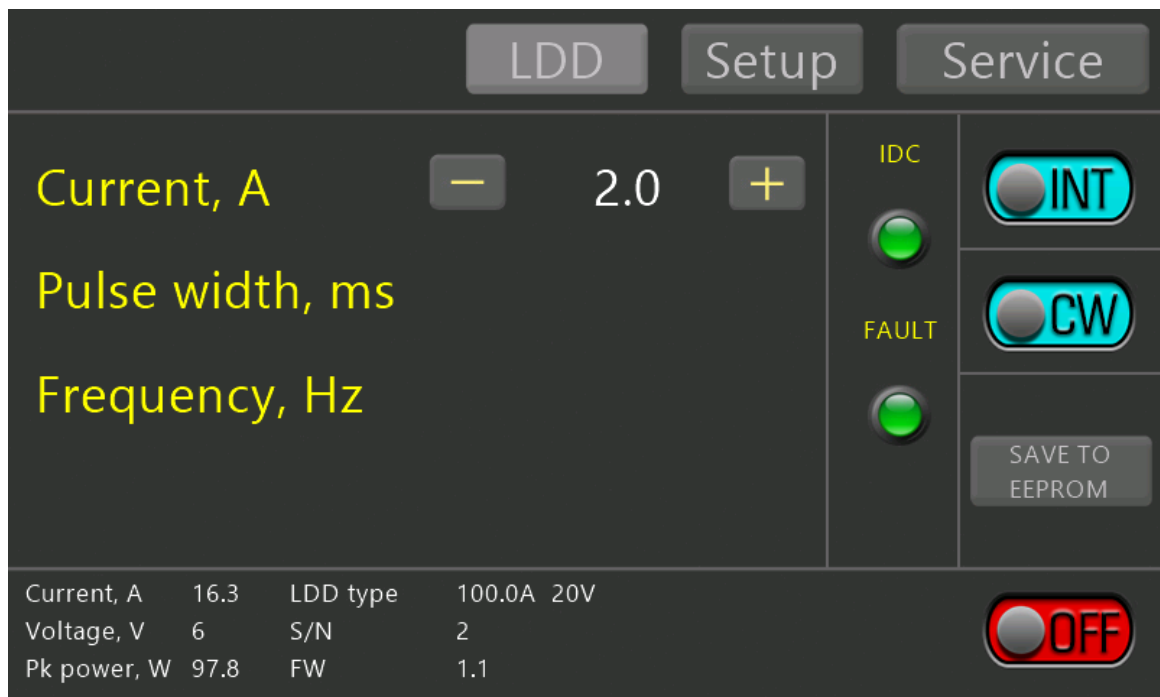
Information bar (from top to bottom, from left to right):

Current, A	16.3	LDD type	100.0A 20V
Voltage, V	6	S/N	2
Pk power, W	97.8	FW	1.1

- Current, A – current monitor (I_{OUT}) in Amperes

- Voltage, V – voltage monitor (V_{OUT}) in Volts
- Pk power, W – peak output power (calculated as $I_{OUT} * V_{OUT}$) in Watts
- LDD type – I_{MAX} , V_{MAX} values (must be configured on the **Setup** screen according to the part number of a particular diode driver used together with LDD-RC)
- S/N – LDD-RC serial number
- FW – LDD-RC firmware version

MAIN SCREEN (PULSED AND CW DRIVERS)



CW/PLS slider – switches CW and Pulsed regimes of operations (only for drivers able to operate in both regimes)

SETUP SCREEN

	LDD	Setup	Service
Current max, A	—	100.0	+
Pulse width max, ms	—	100.0	+
Frequency max, Hz	—	50.0	+
LDD I _{max} , A	—	100.0	+
LDD V _{max} , V	—	20.0	+
			☐ Pulsed only
			☒ Pulsed and CW
			DISCARD CHANGES
			APPLY CHANGES

Current max, A – limits the output current of the diode driver to a given value

Pulse width max, ms – limits the pulse width to a given value

Frequency max, Hz – limits the repetition rate to a given value

LDD I_{max}, A – must be equal to the I_{MAX} from the part number of the diode driver connected to the LDD-RC

LDD V_{max}, V – must be equal to the V_{MAX} from the part number of the diode driver connected to the LDD-RC

Pulsed only – hides CW/PLS slider on the main screen

Pulsed and CW – shows CW/PLS slider on the main screen

APPLY CHANGES – saves the parameters to the LDD-RC memory

DISCARD CHANGES – exits the screen without saving the parameters to the LDD-RC memory

SERVICE SCREEN

Service screen is unavailable for the customers.