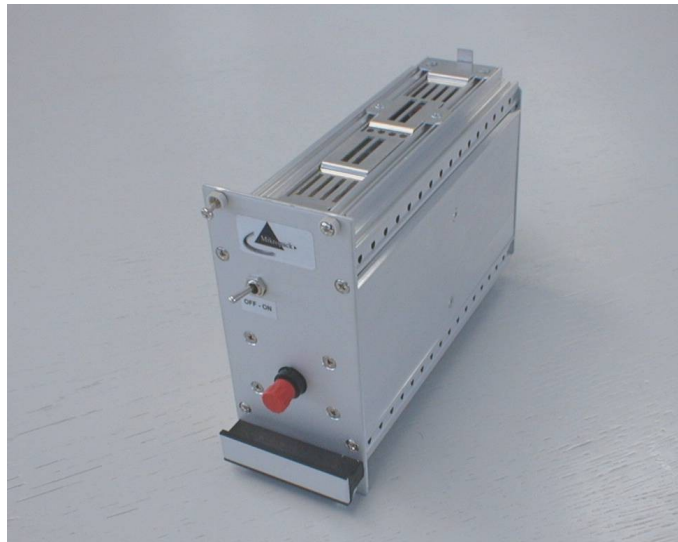# Operating Instructions

Halogen Light Source

HL-2000-HP-232R

Version 2.3
09/05

Read this manual before you attempt to use this instrument

1 Safety Instructions

Instructions: All the safety and operating instructions should be read before the unit is operated. Before using the power supply for the first time check for transport damage.

Warning: All warnings on the unit and in the operating instructions should be adhered to.

Moisture
The unit is designed for operation in dry rooms only.

Ventilation
The unit should be situated so that its location or position does not interfere with its proper ventilation.

Heat
The unit should be situated away from radiators, hot bodies, ovens or other heat sources.

Power Sources
The unit should be connected to a power supply only of the type described in the operating instructions or as marked on the unit.

Object and Liquid Entry
Care should be taken that objects do not fall, or liquids spilled into the enclosure through openings.

2 Umpacking Instructions

Your package should contain:
1   HL-2000-HP-232R Halogen light source
1   This manual
1   Tool
1   RS232 Serial Cable

1) Unpack your new power supply / lamp assembly carefully. Although the Halogen lamp is rigidly mounted dropping this instrument can cause permanent damage.

2) Inspect the outside of the instrument and make sure that there is no damage to your unit. In case of damage contact the dealer immediately and DO NOT USE THE INSTRUMENT!

3) Use this instrument in a clean laboratory environment.

3 Starting up

1. Plug in the power supply into the socket (1) of HL-2000-HP-232R
2. Plug in the included HL-2000-HP-232R serial cable to the connector (2) and connect it to a COM-Port of your PC.
3. Connect the SMA-connectors of your fibers to the SMA-plugs (3)
4. Turn on the Halogen lamp with the switch (4). The shutter will open and the lamp flashes once. **The light can only be turned on by RS232** (see Chapter Operation / Commands). For testing the Light source use the HL-2000-HP-232 test software.

A first functional check of the device can be done with the included software.
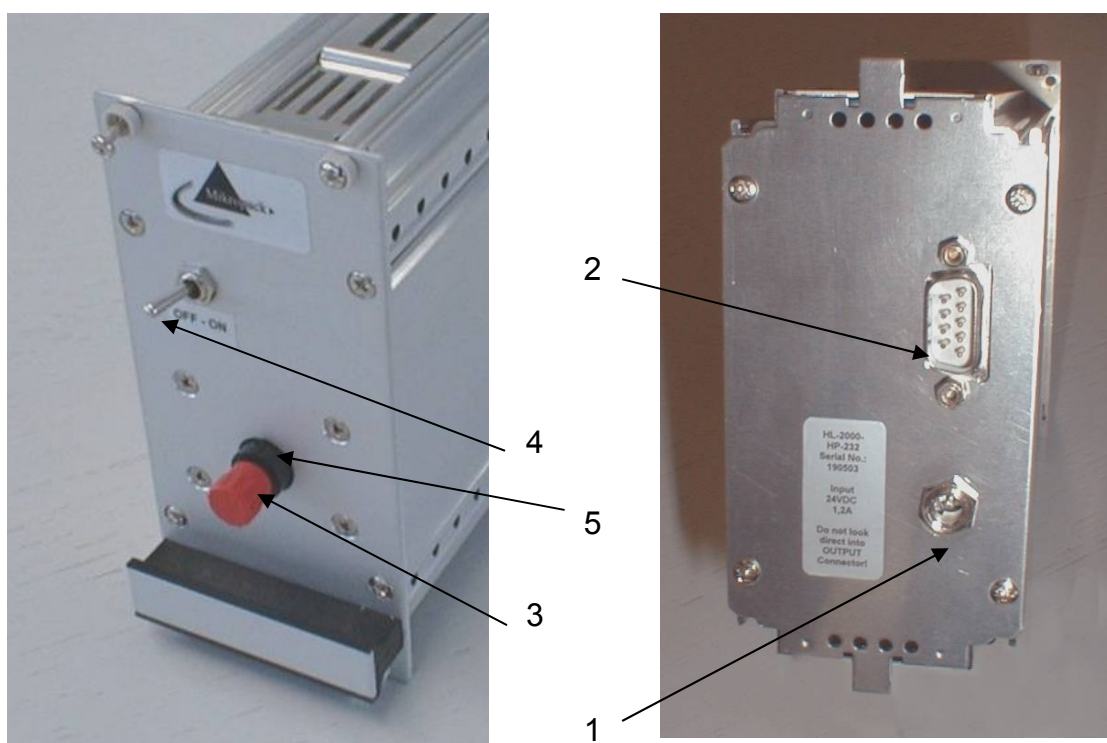
4 Comport settings

The required comport settings to establish connection with the device:

|	
Baudrate:	9600
Data bits:	8
Parity:	None
Stop bits:	1
Flow control:	None

5   Optimizing the optical power output

1. The HL-2000-HP-232R is factory adjusted to couple maximum power into a 200µm fiber. If lower optical power is recommended or a different fiber (bundle) diameter is used, the optical power can be adjusted.
2. Connect your fiber optic spectrometer or your optical-power-meter with your fiber to the HL-2000-HP-232R SMA-connector (3).
3. Loosen blocking-screw (5) with delivered Allen key (1,3mm).
4. By shifting the SMA socket you can optimize your optical power.
5. Secure position by tightening the blocking screw (5).

6   Changing the bulb

Take out the 19" cassette of the rack

1.   Open the four slotted screws (6) and take   off the side cover off the box
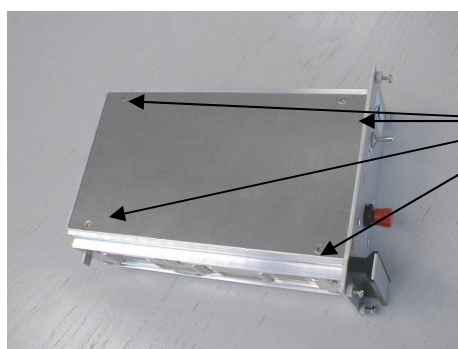
4 x screws (6)
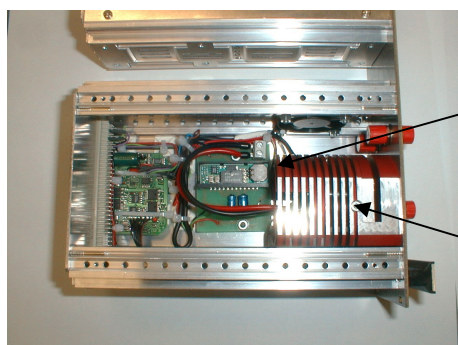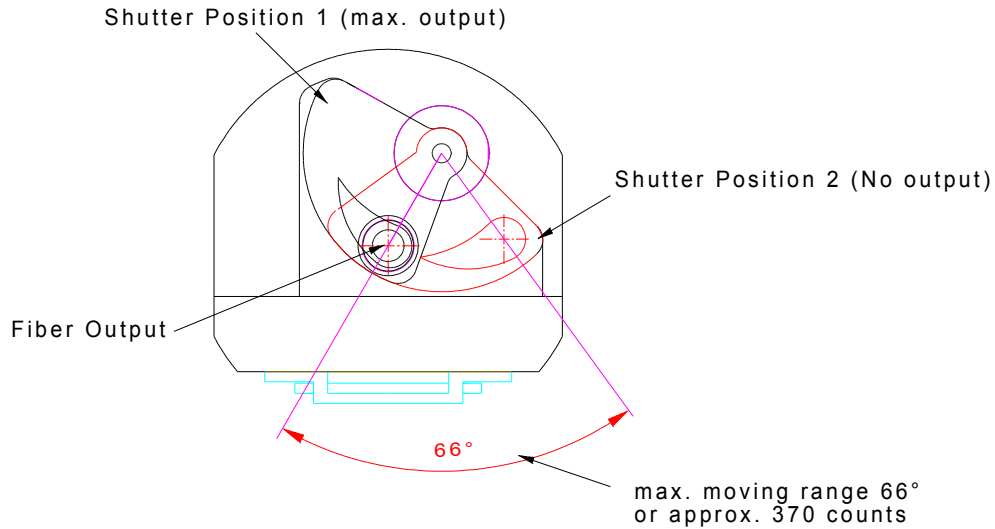
Lamp cables connector (7)

Hex screw at lamp housing (8)

3   Disconnect the two spare-bulb cables from the connector (7)
4   Loosen the screw at the lamp housing
5   Pull the spare-bulb in back direction
6   Replace the spare-bulb with a new one bulb by going back the described steps

4

7 Drawing of the shutter

Shutter Position 1 (max. output)

Shutter Position 2 (No output)

Fiber Output

66°

max. moving range 66°
or approx. 370 counts

8 Specifications / Parts List

Spectral range	VIS / NIR
Input	RS232
PIN description	PIN 2: RX PIN 3: TX PIN 5: Ground
Connection	Serial Zero Modem Cable
Power requirements	24VDC
Power consumption	1,2 A
Weight	ca. 875g
Dimensions	130 x 60 x 185 mm

Spare Parts / Order Information	Order - number
Halogen spare bulb High-Power	HL-2000-HP-B

9 Operation / Commands

The required settings for the COM-port are:

Baud = 9600
Data bits = 8
Parity = none
Stop bits = 1
Flow Control = none

If you are working with in a terminal the options "local echo" and "CR when sending" should be activated.

ASCII Instructions for HL-2000-HP-232R

In serial communications mode, the motion controller is controlled via a series of ASCII instructions issued by a Host computer.

Motion Related Commands:

Command	Function	Description	Example
M	Initiate Motion	Receipt of the "M" Move command initiates motion using the values presently loaded to determine the profile characteristics.	M
LA	Load Absolute Position	Allows programming of the desired target position relative to the present zero or "home" position.	LA10000
LR	Load Relative Position	Allows programming of the desired target position relative to the present position.	LR10000
SP	Load Command Velocity	This parameter should be loaded with the desired maximum profile velocity in position mode. This value should be selected to **not** exceed the capabilities of the mechanical system. Additionally, this command sets the maximum velocity value in "velocity mode".	SP3000
AC	Load Command Acceleration	This parameter determines the acceleration and deceleration rate to be calculated by the profiler during execution. Argument in rpm/s^2 (Allowed value: 0 to 20000)	AC100
V	Select Velocity Mode	Execution of this command causes the controller to switch into the Velocity control mode. The motor will ramp the selected velocity at the rate defined by the AC parameter.	V2200
HO	Define Home-Position	Define present position as zero	HO
DI	Disable Drive	Execution of this command disables the drive electronics and removes all current from the motor	DI
EN	Enable Drive	This instruction enables the drive electronics and allows the servo controller to become active, providing motor current as required.	EN

Configuration Related Commands:

Command	Function	Description	Example
DCE	Delayed Current Error	This command sets the delay between current limit condition and setting the Fault-Status (Fault-Pin and Fault-Bit for the GFS-Command). The DCE argument is in milliseconds.	DCE200
EEPSAV	Save To EEPROM	This command saves the current parameters and configurations to EEPROM. The saved parameters are recalled during power up so that the motor is configured for use immediately. After saving all configuration parameters, a serial message "EEPROM writing done" will be sent from the controller.	EEPSAV
ANSW	Enable / Disable asynchronous Events	This command enables / disables asynchronous events, sent by the motion controller	ANSW1 ANSW0
NP	Notify Position	This command tells the motion controller to send a "p" message when a particular position is reached. In the example above, when 10,000 is reached a "p" message will be sent from the controller. Will only work if ANSW1 is set	NP10000

Status Related Commands:

Command	Function	Description	Example
GV	Get Velocity Commanded	This command returns the command velocity sent.	GV
GN	Get Actual Velocity	This command returns the actual velocity.	GN
POS	Get Present Position	This command returns the present motor position.	POS
TEM	Get Temperature	This command returns the present coil temperature (in °C)	TEM
GAC	Get Acceleration	This command returns acceleration	GAC
GSP	Get Maximum Speed	This command returns Maximum speed setting.	GSP
GRC	Get Real Current	This command returns the current being used in milliamperes	GRC
GST	Get Status	This command returns motion controller status. Bit Description Bit 0: 1... Position mode 0... Velocity mode Bit 1: 1... Speed command is analog input 0... Speed command comes via RS232 Bit 2: 1... Speed command is PWM (SOR 2) 0... Speed command is analog voltage (SOR1) Bit 3: 1... Amplifier Enabled 0... Amplifier Disabled Bit 4: 1... In Position 0... Not in Position Bit 5: 1... Rising edge on external switch is valid 0... Falling edge on external switch is valid Bit 6: 1... External switch now high level 0... External switch now low level	GST

GFS	Get Fault Status	This command returns fault status. Bit Description (0 is normal, 1 is Fault present) 0 Over-temperature condition 1 Over-current condition 2 Under-voltage (< 15VDC) 3 Over-voltage (> 28VDC)	GFS
VER	Get Version	This command returns firmware version.	VER

Turning the lamp on / off

Command	Function	Description	Example
CO	Clear output	Turns the lamp off	CO
SO	Set Output	Turns the lamp on	SO

All commands have to end with a Carriage Return (ASCII: 013, [CR])

Example:

Turn the light on and set a certain shutter-position.

Relative position		Absolute position	
POS [CR] HO [CR] SO [CR] LR150 [CR] M [CR] -------------- CO [CR]	returns actual position set actual position = 0 set output = turn the lamp on load relative position +150 start motion to relative position ------------------------------------- clear output = turn the lamp off	POS [CR] HO [CR] SO [CR] LA150 [CR] M [CR] -------------- CO [CR]	returns actual position set actual position = 0 set output = turn the lamp on load absolute position +150 start motion to absolute position ------------------------------------- clear output = turn the lamp off

You should insert a delay between "M" and "CO" if you send these instructions automatically

10 Warranty

Mikropack GmbH warrants to the Original User of this instrument that it shall be free of any defects resulting from faulty manufacture of this instrument for a period of 12 months from the original data of shipment. There are no warranties for the Halogen Bulb (Spare Part HL-2000-HP-B).

This **instrument should not be used for any Clinical or Diagnostic Purposes**, data generated is not warranted in any way by Mikropack GmbH. Any defects covered by this Warranty shall be corrected either by repair or by replacement, as determined by Mikropack GmbH.

There are no warranties which extend beyond the description herein.
This Warranty is in lieu of, and excludes any and all other warranties or representation, expressed, implied, or statutory, including merchantability and fitness, as well as any and all other obligations or liabilities of /Mikropack GmbH, including, but not limited to special or consequential damages. No person, firm, or corporation is authorized to assume for Mikropack GmbH. Any additional obligation or liability not expressed provided for herein except in writing duly executed by an officer of Mikropack GmbH.

Attention!
There are no warranties if you change the Motor Parameter Setting!!

10.1   Warranty Handling

1.   Clear with your local distributor the problem or fault.

2.   In case of warranty your local distributor will give you a RMA number.

3.   Send your instrument free of charge and insured to your local distributor.

4.   Your distributor will inform you on delivery time. If there is repair out of warranty you will be informed about repair cost. The system will be on hold till you have officially ordered the repair.

The system will be send back to you free of transport cost and insured (in case of warranty)