



VIavi

**OLS-34/-35/
-36/-37/-38
Optical Laser Sources**

Operating Manual

BN 2303/98.11

2018.04

English

Please direct all inquiries to your local Viavi sales company. The addresses can be found at:

www.viavisolutions.com/en-us/contact-sales-expert

A description of additional instrument features can be found at:

www.viavisolutions.com/en-us/products/network-test-and-certification

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Notes:

Changes may be made to specifications, designations and delivery information.

CONTENTS

INTRODUCTION	5
OLS-34/-35/-36/-37/-38 Optical Laser Sources	5
Operating manual update	6
Symbols used in this operating manual	7
SAFETY INFORMATION	9
Warning symbols on the device	9
Proper use	9
Laser safety	10
Battery operation	10
Ventilation	11
GETTING STARTED	12
Unpacking the device	12
Device overview OLS-34/-35	13
Device overview OLS-36	15
Power supply	16
OPERATION	19
Switching the device on/off	19
Display elements	19
Select Wavelength	20
Changing the port	21
Enabling signal modulation	21
Auto-Lambda mode	21
Multi-Lambda mode	22
MAINTENANCE	23
Cleaning the test port	23
Cleaning the instrument	24
SPECIFICATIONS	25
OLS-34	25
OLS-35	25
OLS-36	26
OLS-37	27
OLS-38	27
General specifications	29
ORDERING INFORMATION	30
Devices	30



Accessories 32

1 INTRODUCTION

OLS-34/-35/-36/-37/-38 Optical Laser Sources

The Test Sets are specially designed for high performance testing of all systems, i.e. broadband, PONs, and Gigabit Ethernet.

Battery operation from two AA batteries and the robust, shock-proof design provide long operating time in the field even under tough conditions. AC line operation via a separate AC adapter and the USB interface ensure ease of use in the laboratory or production environment.

Differences between the devices

The OLS-34/-35/-36/-37/-38 family covers all the modes, wavelengths and fiber types needed. The table below lists the differences between the devices:

OLS-34

Model BN...	Fiber type	Wavelengths	Connector type
2303/01	MM 50/125	850/1300 nm	SC/PC, FC/PC

OLS-35

Model BN...	Fiber type	Wavelengths	Connector type
2303/11	SM 9/125	1310/1550 nm	SC/PC, FC/PC
2303/15	SM 9/125	1310/1550 nm	LC/PC

OLS-36

Model BN...	Fiber type	Wavelengths	Connector type
2303/21	MM 50/125 SM 9/125	850/1300 nm 1310/1550 nm	SC/PC, FC/PC

OLS-37

Model BN...	Fiber type	Wavelengths	Connector type
2303/41	SM 9/125	1310/1490/1550 nm	SC/PC, FC/PC

OLS-38

Model BN...	Fiber type	Wavelengths	Connector type
2303/51	SM 9/125	1310/1550/1625 nm	SC/PC, FC/PC

Test adapters

The OLS-34/-35/-36/-37/-38 is looped into the test configuration using test adapters which are available for all common connector systems (e.g. FC, ST).

Operating manual update

If the operating instructions about features provided by your device are missing, please visit the Viavi web site to check if additional information is available.

To download the latest operating instructions:

1. Visit the Viavi website at www.viavisolutions.com/en-en/products/network-test-and-certification.
2. Select your model from the product line or use the search function.
3. Open the download area and download the operating instructions if available.

Symbols used in this operating manual

Various elements are used in this operating manual to draw attention to special meanings or important points in the text.

Symbols and terms used in warnings

The following warnings, symbols and terms are used in this document in compliance with the American National Standard ANSI Z535.6-2011:

CAUTION

Follow the instructions carefully to avoid **damage to or destruction of the instrument**.

⚠ CAUTION

Follow the instructions carefully to avoid a low or medium risk of **injury to persons**.

⚠ WARNING

Follow the instructions carefully to avoid **severe injury** to persons.

⚠ DANGER

Follow the instructions carefully to avoid **death or severe injury** to persons.



High Voltage

Follow the instructions carefully to avoid **damage** to the instrument or **severe injury** to persons.

This safety instruction is given if the danger is due to **high voltage**.



Laser

Follow the instructions carefully to avoid **damage** to the instrument or **severe injury** to persons.

This safety instruction is given if the danger is due to **laser radiation**. Information specifying the laser class is also given.

Warning format

All warnings have the following format:

WARNING

Type and source of danger

Consequences of ignoring the warning

- ▶ Action needed to avoid danger.

The following character formats are used in this operating manual:

√	<p>Requirement</p> <p>This requirement must be met first; e.g.</p> <ul style="list-style-type: none"> √ The system is switched on.
▶ 1. 2.	<p>Instruction</p> <p>Follow the instructions given (the numbers indicate the order in which the instructions should be followed); e.g.</p> <ul style="list-style-type: none"> ▶ Select mode.
<i>Italics</i>	<p>Result</p> <p>Indicates the result of following an instruction; e.g.</p> <p><i>The page opens.</i></p>
Bold type face	<p>Pages, controls, and display elements</p> <p>Screen pages, controls, and display elements are indicated in bold type.</p>
Text in blue	<p>Cross references</p> <p>Cross references are indicated in blue type. When using the PDF version, just click on the blue text to skip to the cross reference.</p>
[STORE]	<p>Device keys</p> <p>Device keys are indicated within square brackets.</p>

2 SAFETY INFORMATION

Warning symbols on the device



Warning symbols indicating a potential hazard

- ▶ A warning symbol on the device indicates a potential hazard. In all cases where the unit is labeled with a warning symbol, the operating manual must be consulted to learn more about the nature of the potential hazard and any actions that have to be taken.
-

Proper use

This instrument is intended for measurements on optical fiber devices and systems.

- ▶ Please make sure the device is not operated outside the permitted conditions or for a purpose other than the one it was developed for.
- ▶ Always make sure that the device is in good condition before switching it on.

Laser safety



⚠ WARNING

Dangerous laser radiation

Laser radiation can cause irreparable damage to the eyes and skin.

This device is a Class 1 laser product according to DIN EN 60825-1:2003 and EN 60825-1:2007.



Observe the following instructions when working with this device and laser systems in general:

- ▶ Connect all optical fibers before switching on the radiation source.
 - ▶ Switch off the laser source before disconnecting the optical fibers.
 - ▶ Never look directly into the output of a laser source or into an optical fiber connected to it.
 - ▶ Always cover unused ports.
 - ▶ Observe the normal precautions for working with laser radiation and follow any local regulations.
-

Battery operation

⚠ WARNING

Explosion danger

Short-circuiting the batteries can result in overheating, explosion or ignition of the batteries and their surroundings.

- ▶ Never short-circuit the battery contacts by touching both contacts simultaneously with an electrically conductive object.
 - ▶ Only use AA size dry batteries or rechargeable batteries.
 - ▶ Take care to insert the batteries correctly.
-

⚠ WARNING**Explosion danger****Dry batteries must not be recharged.**

- ▶ The OLS-34/-35/-36/-37/-38 does not have a recharge function for rechargeable batteries, so there is no danger when using dry batteries.
 - ▶ Read the manual of the external charging device.
-

Ventilation

CAUTION**Insufficient ventilation****Insufficient ventilation can damage the instrument or adversely affect its function and safety.**

- ▶ Ensure adequate ventilation when operating the instrument.
-

3 GETTING STARTED

Unpacking the device

Packing material

We suggest that you keep the original packing material. It is designed for reuse (unless it is damaged during shipping). Using the original packing material ensures that the device is properly protected during shipping.

Checking the package contents

Your device is shipped with the following accessories:

- 2 dry batteries AA
- Operating manual
- Belt bag

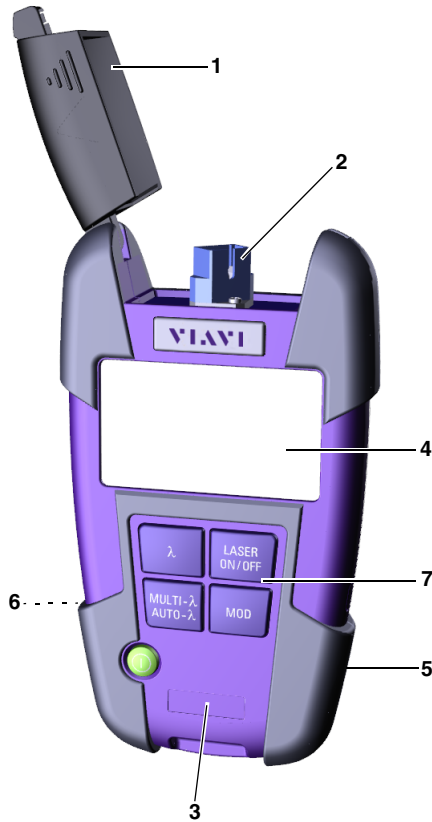
Checking for shipping damage

After you unpack the device, check to see if it has been damaged during shipping. This is particularly likely if the packaging is visibly damaged. If there is damage, do not attempt to operate the device. Doing so can cause further damage. In case of damage, please contact your local Viavi Sales Company. Addresses can be found at www.viavisolutions.com.

Recovery following storage/shipping




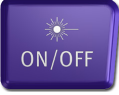

Condensation can occur if a device that is stored or shipped at a low temperature is brought into a warm room. To prevent damage, wait until no more condensation is visible on the surface of the device before powering it up. Do not operate the device until it has reached its specified temperature range and wait until it has cooled down if the device was stored at a high temperature (see [“Ambient temperature”](#) on page 29).

Device overview OLS-34/-35

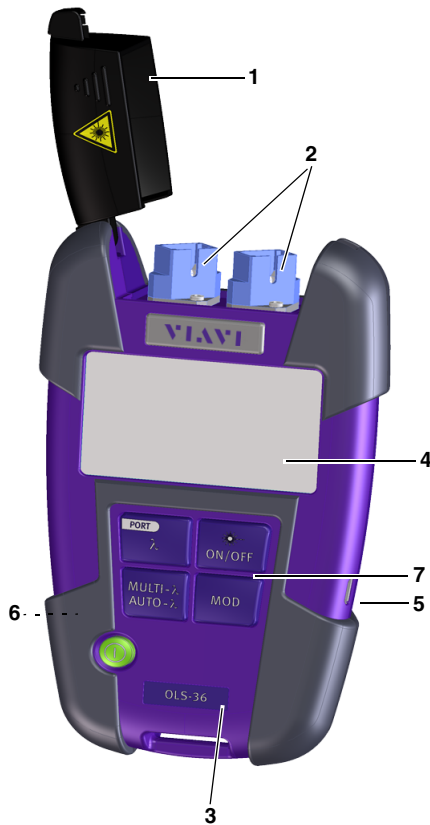


- | | |
|---|--|
| 1 | Test head cover |
| 2 | Port |
| 3 | Device label |
| 4 | Display |
| 5 | External power supply connector
USB interface for power supply only |
| 6 | Battery compartment (on rear of the device) |
| 7 | Key pad |

Keys






	<p>First function: Press to switch the device on and off (ECON).</p> <p>Second function: Press and hold the key for more than 2 seconds to switch the device on (PERM).</p>
	<p>Press to select a wavelength.</p>
	<p>Press to select wavelength coding.</p> <p>Select Auto-λ</p> <p>Multi-λ</p> <p>Single-λ</p>
	<p>Press to switch the laser on and off.</p>
	<p>Press to select modulation:</p> <p>CW (continuous wave: permanent signal)</p> <p>270 Hz</p> <p>1 kHz</p> <p>2 kHz</p>

Device overview OLS-36



- | | |
|---|--|
| 1 | Test head cover |
| 2 | Ports (A and B) |
| 3 | Device label |
| 4 | Display |
| 5 | External power supply connector
USB interface for power supply only |
| 6 | Battery compartment (on rear of the device) |
| 7 | Key pad |

Keys

	<p>First function: Press to switch the device on and off (ECON).</p> <p>Second function: Press and hold the key for more than 2 seconds to switch the device on (PERM).</p>
	<p>First function: Press to select a wavelength.</p> <p>Second function: Press and hold the key for more than 2 seconds to change the port.</p>
	<p>Press to select wavelength coding.</p> <p>Auto-λ Multi-λ Single-λ</p>
	<p>Press to switch the laser on and off.</p>
	<p>Press to select modulation:</p> <p>CW (continuous wave) 270 Hz 1 kHz 2 kHz</p>

Power supply

The following power sources can be used to operate the OLS-34/-35/-36/-37/-38:

- two 1.5 V dry batteries (Mignon AA size, alkaline type recommended)
- two 1.2 V NiMH rechargeable batteries (Mignon AA size)
- via the AC adapter

Battery operation

▲ WARNING

Dangers when handling batteries

Handling batteries may be dangerous. Please note the following safety instructions.

- ▶ Please note the battery operation safety information in the section “[Battery operation](#)” on page 10.

Replacing the batteries

- ▶ Do not replace individual batteries. Always change both batteries at the same time.
- ▶ Always use batteries of the same type; i.e. do not mix rechargeable and non-rechargeable batteries.

Replacing batteries

The battery compartment is on the back of the device.

1. Pull down the lid to open the battery compartment.
2. Insert new batteries or replace old ones.

Caution: Take care to insert the batteries correctly. The correct polarity is indicated by a diagram inside the battery compartment.

3. Close the battery compartment.
4. Press [o] to switch on.

Note: The batteries cannot be recharged with the OLS-34/-35/-36/-37/-38.

General tips on using batteries

- Always handle batteries with care.
- Do not drop or damage the batteries or expose them to excessively high temperatures.
- Do not store rechargeable batteries for more than one or two days at very high temperatures (e.g. in a vehicle), either separately or fitted in the device.
- Do not leave discharged batteries in the instrument for a long time if it is not being used.
- Do not store rechargeable batteries for more than 6 months without recharging them at intervals.
- Avoid deep discharging of the batteries as this can cause the cell polarity to reverse and make the battery useless.

Protecting the environment

Please dispose of any unwanted dry batteries and rechargeable batteries carefully. They should also be removed from the instrument if it is to be scrapped. If facilities in your country exist for collecting waste or for recycling, please make use of them rather than throwing the batteries in the normal trash. You will often be able to return used batteries to the store where you purchase new ones. Any dry or rechargeable batteries that you purchased from Viavi can be returned to one of our Service Centers for disposal.

Operation from AC power

To fit one of the mains plug adapters:

- ▶ See [Fig. 1](#) and follow the instructions which are shown on the packaging of the mains plug adapter.

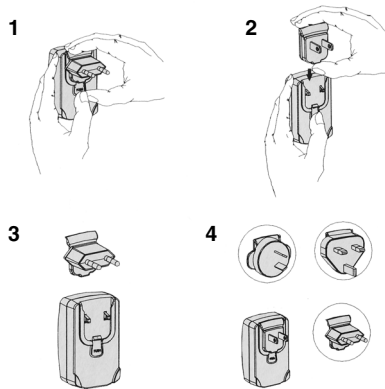


Fig. 1 Fitting the mains plug adapter

To operate the OLS-34/-35/-36/-37/-38 from AC power:

1. Connect the Micro USB connector power cord to the OLS-34/-35/-36/-37/-38.
2. Plug the mains plug adapter into the AC receptacle.

4 OPERATION

Switching the device on/off

The OLS-34/-35/-36/-37/-38 has two power modes:

- **Permanent ON (PERM):**
The device is switched on permanently.
- **Automatic OFF (ECON):**
The device switches off 20 minutes after the last operation. This function is only available when the device is powered from batteries.

To switch the device on:

- ▶ Press [⊙] to switch on the device in ECON-Mode.
- ▶ Press and hold down [⊙] **for more than 2 sec.** to switch on the device in PERM mode.

To switch the device off:

Press [⊙] to switch off the device.

Display elements



Fig. 2 Measurement display of the OLS-34/-35 (showing all available elements)

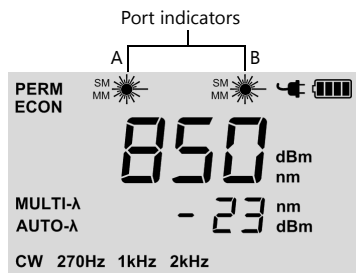






Fig. 3 Measurement display of the OLS-36 (showing all available elements)

Note: During operation only one port can be active and used.

	<p>Battery status Indicates the battery status. If it is not shown, only the AC adapter is active.</p>
	<p>Operation with AC adapter</p>
<p>PERM ECON</p>	<p>Power mode</p> <ul style="list-style-type: none"> • PERM: Device remains switched on. • ECON: Device switches off 20 minutes after the last operation.
	<p>Laser active SM = Single-mode or MM = Multi-mode</p>
	<p>Laser not active</p>
<p>Center of display</p>	<p>Output wavelength setting Display of the selected output wavelength.</p>
<p>-7 dBm -23 dBm</p>	<p>Power output level in dBm</p>
<p>Auto-λ Multi-λ</p>	<p>Automatic wavelength coding</p>
<p>CW 270 Hz 1 kHz 2 kHz</p>	<p>Continuous wave or modulation frequency</p>

Select Wavelength

With the OLS-34/-35 two wavelengths can be selected separately. With the OLS-36 two wavelengths can be selected separately for each optical port.

To select a wavelength:

1. Press [**Auto- λ**] to skip through the modes and select the Single- λ mode.
Neither MULTI- λ nor AUTO- λ is shown.
2. Press [**λ**] to skip through the available wavelengths:
 $\lambda_1 \rightarrow \lambda_2 \rightarrow \lambda_3 \rightarrow \lambda_1...$

Changing the port

Note: Available for the OLS-36 only.

The OLS-36 provides two optical ports (A and B), of which only one is selected. All device settings and displays refer to the selected port.

To change the port:

- ▶ Press and hold down [λ] for more than 2 sec. to change the port.

Notes:

- The settings of the deselected port are retained.
- Due to safety reasons all lasers or LEDs are deactivated when changing the port.

Enabling signal modulation

Modulation frequencies provided by the OLS-34/-35/-36/-37/-38:

- CW: continuous wave
- 270 Hz modulation
- 1 kHz modulation
- 2 kHz modulation

To select a modulation frequency:

- ✓ Modulation cannot be changed manually when Auto- λ is activated. You first must disable Auto- λ (see [page 21](#)).
- ▶ Press [**MOD**] to skip through the available modulation modes: CW → 270kHz → 1kHz → 2kHz → CW...

Auto-Lambda mode

Auto- λ is a special feature developed by Viavi that allows you to identify wavelengths automatically. To do this, the signal is modulated at a certain frequency, which can be detected by an Auto- λ equipped power meter (such as the Viavi OLP-3x-series).

To activate Auto- λ :

- ▶ Press [**Auto- λ**] to skip through the modes and select the Auto- λ mode.
The display shows AUTO- λ .

Multi-Lambda mode

When Multi- λ mode is activated, the signal of each wavelength is sent automatically in a loop. Each signal will be sent for a few seconds and then skips automatically to the next wavelength. The display shows the current wavelength.

To activate Multi- λ :

1. Press **[Auto- λ]** to skip through the modes and select the Multi- λ mode.

The display shows MULTI- λ .

Note: Signal modulation (270 Hz, 1 kHz, 2 kHz) cannot be selected when Auto- λ is enabled.

5 MAINTENANCE



⚠ WARNING

Dangerous voltage and invisible laser radiation

Maintenance or cleaning of the instrument while it is connected or operating may damage the instrument or injure you.

- ▶ Make sure that the instrument is switched off and disconnected from all power sources and optical radiation sources before maintenance or cleaning.

Cleaning the test port

It is a good idea to check that the optical connections are clean and to clean them if necessary before starting measurements. Even very small dust particles on the end surfaces of the plugs or in the test adapters can adversely affect the accuracy of the measurement.

For daily use, clean the optical interface of the instrument using Viavi IBC cleaning tool 2.5 mm (see [“Cleaning materials, power supplies” on page 32](#)).

To clean the test port in case of severe contamination:

1. Switch off the device.
2. Remove the test adapter from the optical connection. The connection surface is now accessible.
3. Wipe off the connection surface using a cotton bud soaked in isopropanol. This cleaning method is very effective and leaves no residues.
4. Blow out the test adapter with clean compressed air (also available in spray cans, e.g. Anti Dust Spray).

Note: Cover the optical connections with the dust cap whenever they are not in use. This prevents them from getting dirty.

Cleaning the instrument

If the device gets dirty through use, you can clean it using a soft cloth moistened with a mild solution of detergent.

NOTICE

Water and cleaning fluids

The instrument may be damaged or destroyed if water or cleaning fluids penetrate it.

- Make sure that water or cleaning fluids do not get inside the device.
-

6 SPECIFICATIONS

OLS-34

Source type	LED
Fiber type	Multi mode (MM) 50/125
Optical interface	
• Type	PC
• Number of optical ports	1
• Connectors BN 2303/01	Interchangeable adapter BN 2150/00.xx, SC and FC adapters included in scope of delivery
Auto-λ mode	yes
Modulation frequencies	270 Hz, 1 kHz, 2 kHz
Multi-λ mode	yes
Wavelength(s)	850 nm (±20 nm) 1300 nm (-20/+40 nm)
Spectral width (FWHM)	< 170 nm
Output power (CW)	-20 dBm
Stability ¹⁾	
• Short term (15 min)	±0.02 dB
• Long term (8 h)	±0.05 dB

1) after 20 min. warm-up, at ambient temperature -10 °C to +55 °C, ΔT = ±0.3 K

OLS-35

Source type	LASER
Fiber type	Single mode (SM) 9/125
Optical interface	
• Type	PC
• Number of optical ports	1
• Connectors	
BN 2303/15	fixed: LC
BN 2303/11	Interchangeable adapter BN 2150/00.xx, SC and FC adapters included in scope of delivery
Auto-λ mode	yes
Modulation frequencies	270 Hz, 1 kHz, 2 kHz
Multi-λ mode	yes
Wavelength(s)	1310 nm (±20 nm), 1550 nm (±20 nm)

Spectral width (FWHM)	< 5 nm
Output power (CW)	-7 dBm
Stability ¹⁾	
• Short term (15 min)	±0.02 dB
• Long term (8 h)	±0.05 dB

1) after 20 min. warm-up, at ambient temperature -10 °C to +55 °C, $\Delta T = \pm 0.3$ K

OLS-36

Source type	
• Port A	LED
• Port B	LASER
Fiber type	
• Port A	Multi-mode (MM) 50/125
• Port B	Single-mode (SM) 9/125
Optical interface	
• Type	PC
• Number of optical ports	2
• Connectors	
BN 2303/21	Interchangeable adapter BN 2150/00.xx, SC and FC adapters included in scope of delivery
Auto- λ mode	yes
Modulation frequencies	270 Hz, 1 kHz, 2 kHz
Multi- λ mode	yes
Wavelength(s)	
• Port A	850 nm (± 20 nm) 1300 nm (-20/+40 nm)
• Port B	1310 nm (± 20 nm) 1550 nm (± 20 nm)
Spectral width (FWHM)	
• Port A	< 170 nm
• Port B	< 5 nm
Output power (CW)	
• Port A	-20 dBm
• Port B	-7 dBm
Stability ¹⁾	
• Short term (15 min)	±0.02 dB
• Long term (8 h)	±0.05 dB

1) after 20 min. warm-up,
at ambient temperature -10 °C to +55 °C, $\Delta T = \pm 0.3$ K

OLS-37

Source type	LASER
Fiber type	Single mode (SM) 9/125
Optical interface	
• Type	PC
• Number of optical ports	1
• Connectors	
BN 2303/15	fixed: LC
BN 2303/11	Interchangeable adapter BN 2150/00.xx, SC and FC adapters included in scope of delivery
Auto- λ mode	yes
Modulation frequencies	270 Hz, 1 kHz, 2 kHz
Multi- λ mode	yes
Wavelength(s)	1310 nm (± 20 nm), 1490 nm (± 5 nm), 1550 nm (± 20 nm)
Spectral width (FWHM)	< 5 nm
Output power (CW)	-7 dBm
Stability ¹⁾	
• Short term (15 min)	± 0.02 dB
• Long term (8 h)	± 0.05 dB

1) after 20 min. warm-up, at ambient temperature -10 °C to +55 °C, $\Delta T = \pm 0.3$ K

OLS-38

Source type	LASER
Fiber type	Single mode (SM) 9/125
Optical interface	
• Type	PC
• Number of optical ports	1
• Connectors	
BN 2303/15	fixed: LC
BN 2303/11	Interchangeable adapter BN 2150/00.xx, SC and FC adapters included in scope of delivery
Auto- λ mode	yes
Modulation frequencies	270 Hz, 1 kHz, 2 kHz
Multi- λ mode	yes
Wavelength(s)	1310 nm (± 20 nm), 1550 nm (± 20 nm), 1625 nm (± 5 nm)

Spectral width (FWHM)	< 5 nm
Output power (CW)	-7 dBm
Stability ¹⁾	
• Short term (15 min)	±0.02 dB
• Long term (8 h)	±0.05 dB

1) after 20 min. warm-up, at ambient temperature -10 °C to +55 °C, $\Delta T = \pm 0.3$ K

General specifications

Calibration interval

Recommended recalibration interval	3 years
------------------------------------	---------

Power Supply

Dry batteries	2 x AA, 1.5 V
Rechargeable batteries	NiMH, 2 x AA, 1.2 V
Operation from AC power	with separate adapter
Operating modes	permanent; auto off after approx. 20 min
Maximum battery run time (CW) ¹⁾	
• OLS-34:	30 h
• OLS-35:	80 h
• OLS-36:	MM: 30 h, SM: 80 h

1) typically

EMC and safety

Electromagnetic compatibility (EMC)	EN 61326-1:2006
Device safety	EN 61010-1:2002
Laser safety	DIN EN 60825-1:2003 EN 60825-1:2007

Ambient temperature

Operating temperature range	-10 to 60 °C
Storage and shipping	-40 to 70 °C

Humidity

Relative humidity up to +30 °C	5 to 95%
Absolute humidity > +30 °C	1 to 29 g/m ³

Occasional condensation is permissible.

Dimensions and weight

Dimensions (H x W x D)	30 x 80 x 150 mm
Weight	200 g

7 ORDERING INFORMATION

Devices

OLS-34

LED Source, 850/1300 nm, MM 50/125

Interchangeable adapter	BN 2303/01
FC /PC adapter¹⁾	BN 2303/02
SC /PC adapter¹⁾	BN 2303/03
ST /PC adapter	BN 2303/04

1) included in scope of delivery

OLS-35

Laser Source, 1310/1550 nm, SM 9/125

Interchangeable adapter	BN 2303/11
FC /PC adapter¹⁾	BN 2303/12
SC /PC adapter¹⁾	BN 2303/13
LC /PC adapter	BN 2303/15

1) included in scope of delivery

OLS-36

LED Source, 850/1300 nm, MM 50/125

Laser Source, 1310/1550 nm, SM 9/125

Interchangeable adapter	BN 2303/21
FC /PC adapter¹⁾	BN 2303/22
SC /PC adapter¹⁾	BN 2303/23
LC /PC adapter	BN 2303/25

1) included in scope of delivery

OLS-37

Laser Source, 1310/1490/1550 nm, SM 9/125

Interchangeable adapter	BN 2303/11
FC /PC adapter¹⁾	BN 2303/12
SC /PC adapter¹⁾	BN 2303/13
LC /PC adapter	BN 2303/15

1) included in scope of delivery

OLS-38

Laser Source, 1310/1550/1625 nm, SM 9/125

Interchangeable adapter	BN 2303/11
FC /PC adapter¹⁾	BN 2303/12
SC /PC adapter¹⁾	BN 2303/13
LC /PC adapter	BN 2303/15

1) included in scope of delivery

Calibration report

OLS-34, OLS-35, OLS-36, OLS-37, OLS-38

BN 2303/90.01

Accessories

Cleaning materials, power supplies

OCK-10	BN 2229/90.21
Optical cleaning kit BN 2229/90.21	
IBC cleaning tool 2.5 mm	ZP-FCL-0275
Cleaning tape for optical connectors	BN 2229/90.07
Spare optical cleaning tape	BN 2229/90.08
NiMH rechargeable batteries, Mignon AA, 1.2 V (2 batteries required)	BN 2237/90.02
AC adapter SNT-505	BN 2302/90.01
Interchangeable adapter	BN 2150/00.xx

Viavi Environmental Management Program

Superb performance and high quality have always characterized Viavi datacom and telecom measurement technology products. In this same world-class tradition, Viavi has an established, proactive program of environmental management.

Environmental management is an integral part of Viavi's business philosophy and strategy requiring the development of long-term, productive solutions to problems in the key areas of economics, technology, and ecology.

A systematic environmental management program at Viavi is essential in regard to environmental policy and enhances cooperation between ourselves and our business partners.

The Viavi Environmental Management Program considers:

Product design and manufacture

Environmental restrictions and requirements are taken into account during planning and manufacture of Viavi products. This attention ranges from the raw materials and finished components selected for use and the manufacturing processes employed, through to the use of energy in the factory, and right on up to the final stages in the life of a product, including dismantling.

Hazardous materials

Viavi avoids or uses with care any hazardous or dangerous material in the manufacturing process or the end product. If the use of a dangerous material cannot be avoided, it is identified in product documentation and clearly labeled on the product itself.

Packaging materials

Preference is given to reusable or biodegradable single-substance packaging materials whenever possible.

Environmental management partnerships

Viavi encourages our customers and suppliers who take this responsibility seriously to join Viavi in establishing their own environmental management programs.

Recycling used products

This product complies with the European Union Waste Electrical and Electronic Equipment directive (WEEE), 2002/96/EC. This product should not be disposed of as unsorted municipal waste and should be collected separately and disposed of according to your national regulations.

In the European Union, all equipment purchased from Viavi after 2005-08-13 can be returned for disposal at the end of its useful life. Measuring systems affected by this can be recognized by the symbol on the right of a crossed-out trash can and a black bar. This symbol can be found either on the device or in the accompanying documents.



Contact your local Technical Assistance Center (TAC) for return and collection services available to you. If you would like specific information about the Viavi Environmental Management Program, please contact us at:

If you would like specific information about the Viavi Environmental Management Program, please contact us at www.viavisolutions.com.

The following page provides information with regard to the location of restricted hazardous substances within this equipment according to Chinese requirements.

As measuring equipment, this equipment is excluded from the European regulations for the restriction of hazardous substances (RoHS).

"中国RoHS"

《电子信息产品污染控制管理办法》(信息产业部, 第39号) 附录 (Additional Information required for the Chinese Market only)

本附录按照"中国RoHS"的要求说明了有关电子信息产品环保使用期限的情况, 并列出了产品中含有的有毒、有害物质的种类和所在部件。本附录适用于产品主体和所有配件。

环保使用期限:



本标识标注于产品主体之上, 表明该产品或其配件含有有毒、有害物质(详情见下表)。

其中的数字代表在正常操作条件下至少在产品生产日期之后数年内该产品或其配件内含有的有毒、有害物质不会变异或泄漏。该期限不适用于诸如电池等易耗品。

有关正常操作条件, 请参见产品用户手册。

产品生产日期请参见产品的原始校准证书。

有毒、有害物质的类型和所在部件

元器件 (Component)	有毒、有害物质和元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr ⁶⁺)	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
产品主体 (Main Product)						
印刷电路板组件 (PCB Assemblies)	X	O	O	O	O	O
内部配线 (Internal wiring)	O	O	O	O	O	O
显示器 (Display)	O	O	O	O	O	O
键盘 (Keyboard)	O	O	O	O	O	O
塑料外壳零件 (Plastic case parts)	O	O	O	O	O	O
配件 (Accessories)	O	O	O	O	O	O
O: 代表该部分中所有均质材料含有的该有毒、有害物质含量低于SJ/T11363-2006标准的限值。 X: 代表该部分中所有均质材料含有的该有毒、有害物质含量高于SJ/T11363-2006标准的限值。						



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Viavi product specifications and descriptions in this document are subject to change without notice.
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