

SPECTROLINE[®]

OPK-300N

OPTIMAX[™] Multi-Lite[™] LED INSPECTION KIT FOR NDT

OPERATOR'S MANUAL

(U.S. Patent 5,905,268; foreign patents pending)



PRINTED IN U.S.A.

AM10008
ISSUED: JUNE 2010

OPK-300N OPTIMAX™ Multi-Lite™ LED Inspection Kit for NDT

INTRODUCTION

The OPTIMAX™ Multi-Lite™ LED inspection kit is a comprehensive, cost-effective inspection tool. It features a rugged, cordless, battery-operated, rechargeable black-anodized flashlight body with three Qwik-Connect™ interchangeable LED head assemblies: black light/UV-A (with a peak intensity at 365nm), blue light with dichroic filter (with a peak intensity at 450nm), and white light (400-700nm).

Utilizing ultra-hi-flux LED technology and our exclusive **Electronic Intensity Stabilizer™**, the OPTIMAX Multi-Lite maintains the highest light output. The beam strength will not fade, even on a low battery. Instant-on operation allows the lamp to reach full intensity immediately. It is portable and lightweight while maintaining the brightest visible LED optical output.

The blue light LED head assembly with its patented, thin-film dichroic lens filters out long-wave visible light. Blue light (450nm) provides the safety and convenience desired for inspections for indications of magnetic particles or fluorescent penetrants. This saves time and limits the use of UV light to only when necessary.

The UV-A LED head assembly is ideal for examining fluorescent penetrants or magnetic particles in low lighting.

The OPK-300N is an all-in-one LED inspection kit for NDT. Yellow fluorescence-enhancing spectacles (UVS-40) are provided to enhance the specific sample for NDT inspections. The UV-absorbing spectacles (UVS-30) ensure eye safety during use of the UV light source.

EXCLUSIVE KEY FEATURES

- Qwik-Connect interchangeable, single-wavelength LED head assemblies
- Electronic Intensity Stabilizer
- Rugged, corrosion-resistant, black-anodized lamp body
- Patented thin-film dichroic lens6

EASE-OF-USE FEATURES

- Lightweight, single flashlight-style housing
- Instant-on operation
- Rechargeable NiMH battery stick with green/red LED battery status indicator
- AC and DC smart chargers with green/red LED charge status indicator

KIT COMPONENTS

Unpack and inspect the components for possible damage in shipment. If any damage is noted, immediately notify the carrier and supplier and do not use the light source.

The **OPK-300N LED inspection kit** includes:

One OPTIMAX Lamp Housing with Three Interchangeable LED Head Assemblies

365nm UV-A LED Source, **OF-365U**

450nm Blue LED Source with Dichroic Filter, **OF-450BD**

6500°K Cool White LED Source, **OF-300W**



UV-Absorbing and Contrast Spectacles



**UV-Absorbing Spectacles,
UVS-30**



**Fluorescence-Enhancing
Spectacles, UVS-40**

Battery Chargers

AC Smart Charger, 100-240V
RB-300 (see p. 8 for voltage listings)



DC Auto Charger, 12-24V
RB-300DC



APPLICATIONS

Typical Applications for NDT

Lamp Head Color/ Dominant Wavelength	Spectacles	Application
Blue 450nm	Yellow	Best utilized for inspections for indications of magnetic particles or fluorescent penetrants - saves time and limits use of UV-A light
Black UV-A 365nm	UV-absorbing	Ideal for fluorescent penetrant or magnetic particle inspection in low lighting
White 400-700nm	N/A	General examination

SAFETY AND PRECAUTIONS

Before operating your OPTIMAX Multi-Lite LED inspection kit, please read these important safety instructions.

UV DANGER

Ultraviolet radiation emitted from this product. Avoid exposure. ALWAYS WEAR PROTECTIVE CLOTHING. EXPOSURE MAY CAUSE PREMATURE AGING OF THE SKIN AND CANCER. ALWAYS WEAR PROTECTIVE EYEWEAR; FAILURE TO DO SO MAY RESULT IN SEVERE BURNS OR LONG TERM INJURY TO EYE. Never look directly into the lamp. Exposure can cause eye and skin allergy and allergic reactions. Medications or cosmetics may increase your sensitivity to ultraviolet radiation. Consult physician before operating this product if you are using medications or have a history of skin problems or believe yourself especially sensitive to sunlight.

FOR TRAINED PERSONNEL USE ONLY

- The OPTIMAX Multi-Lite must be fully charged before first use.
- **CAUTION:** Use *only* the battery charger packed with the flashlight. Do not attempt to use the charger to recharge any other product.
- Use *only* the included battery stick (part no. 125608, see Replacement Parts for listing).
- The OPTIMAX Multi-Lite is not approved for use in hazardous atmospheres. Do not attempt to use it in areas requiring explosion-proof lighting.

OPERATION

CHARGING AND USE

The OPTIMAX Multi-Lite is available with different chargers. See Replacement Parts for listing.

- Fully charge your OPTIMAX Multi-Lite before first use.
- **A lamp head must be attached to the lamp in order to charge.**
- The OPTIMAX Multi-Lite lamp is equipped with a **battery strength indicator light**. When the battery is of sufficient strength to power the lamp at its specified performance, **GREEN** will be indicated. When the battery requires recharging, **RED** will be indicated. The lamp will continue to function. However, using it when the indicator is **RED** will shorten the life of the battery.
- Insert the smart charger (AC and DC supplied) into the tail-cap of the OPTIMAX Multi-Lite and attach the plug to the corresponding live power source. The flashlight can operate for approximately 90 minutes after a full charge.
- The included AC and DC smart chargers have indicator lights that will show **RED** while charging and **GREEN** when the charge is complete. A full charge will take approximately five hours.
- Press the switch on to light and use the OPTIMAX Multi-Lite. Lamp indicator will be **GREEN**.

CHANGING LAMP HEADS

The OPTIMAX Multi-Lite is available with three interchangeable, LED lamp heads: UV-A, blue and white.

To remove or install a lamp head to the lamp base:

1. Firmly hold the lamp base and lamp head.
2. With the thumb and the forefinger, grip the lamp head-locking ring and pull down (see figure right).
3. Remove or install the appropriate wavelength lamp head in the socket by pulling up or pushing down on the lamp head and hold in place.
4. Slide the lamp head-locking ring back into place (covering the socket of the lamp head). The grip will lock lamp head firmly into place.



IMPORTANT

When viewing UV fluorescence, use the flashlight in low-light conditions to achieve the best inspection results. Wear the UV-absorbing spectacles supplied for eye protection.

TECHNICAL SPECIFICATIONS

Product Number

OPTIMAX™ Multi-Lite OPK-300N

Style

Multiple-wavelength LED flashlight with interchangeable lamp heads

Lamp Head (diameter)

2.0 in (5.1 cm)

Length

9.0 in (22.9 cm)

Weight (with battery)

15.4 oz (435.5 gm)

Light Source

LED

Power Requirement

3.6V, 2Ahr NiMH internal battery stick, rechargeable

Continuous Run Time

90 minutes

Charge Time

5 hours

ELECTRICAL SPECIFICATIONS

A 3.6V, 2 Amp-Hour NiMH rechargeable internal battery stick is included. Typical charge time is five hours with a continuous run time of 90 minutes.

ENVIRONMENTAL CONDITIONS

The OPTIMAX Multi-Lite OPK-300N LED inspection kit is designed to be operated safely under the following conditions:

- Indoor use;
- Altitude up to 2,000 m (6,562 ft.)
- Temperature 5°C to 40°C (41°F to 104°F)
- Maximum relative humidity 80% for temperatures up to 31°C (88°F) decreasing linearly to 50% relative humidity at 40°C (104°F)
- Mains supply voltage fluctuations not to exceed $\pm 10\%$ of the nominal voltage
- Installation Category II
- Pollution Degree 2

CARE AND USE OF NICKEL-METAL HYDRIDE (NiMH) BATTERIES

- NiMH battery packs last longer when charged and stored in a temperature range between 50°F to 86°F (10°C to 30°C) away from heat, sunlight and humidity.
- Always charge batteries to full capacity before long-term storage (approximately 30 days) to prevent aging. After storage they must be charged, which may require conditioning (two or three charge/discharge cycles) to reach full capacity.
- Do not subject these batteries to repeated deep discharges that run the batteries down completely on a regular basis as this will greatly shorten battery life.
- NiMH batteries generally have no voltage sag until the last 10% of charge. The lamp usually will operate for better than 90% of the battery's rated capacity.
- NiMHs have no toxic lead or mercury, and a life expectancy of 500 charge/discharge cycles or more, provided the battery is not overcharged or heavily discharged. Recycle according to local disposal laws. Do not dispose of in fire. They will explode.

⚠ WARNING

Be sure to use genuine OPTIMAX Multi-Lite replacement parts. Using another manufacturer's replacement parts could affect product performance and will void the warranty.

UV INTENSITY VERIFICATION

To ensure that your OPTIMAX Multi-Lite is operating at the required UV intensity, it should be checked periodically. The AccuMAX™ XRP-3000 radiometer/photometer kit uses a dual-wavelength UV-A/VIS sensor detector to accurately measure ultraviolet irradiance or visible light. The AccuMAX XR-1000 digital readout unit with the XS-365 UV sensor or the Spectroline DM-365XA digital readout unit are also recommended for accurate UV-A measurement. The meters are specially designed to measure UV irradiance from 320-400nm with a peak at 365nm.

For more information about these meters, please contact the Customer Service Department at Spectronics Corporation by calling 1-800-274-8888. Outside the U.S. and Canada, call 516-333-4840.

REPLACEMENT PARTS & ACCESSORIES

Description	Part No.
Replacement LED Lamp Heads (Color and Wavelength)	
• UV-A, 365nm	OF-365U
• Blue, 450nm with Dichroic Filter	OF-450BD
• White, 400-700nm	OF-300W
Battery Stick, 3.6V, 2 AHr, NiMH	125608
AC Smart Charger for Lamp Kit No.	
• OPK-300N (100-120V/50-60Hz)	RB-300
• OPK-300N/F (230V/50Hz)	RB-300/F
• OPK-300N/FB (230V/50Hz)	RB-300/FB
• OPK-300N/FA (240V/50Hz)	RB-300/FA
12V DC Smart Charger	RB-300DC
Spectacles, UV-Absorbing	UVS-30
Spectacles, Fluorescence-Enhancing (Yellow)	UVS-40
Soft Carrying Case	CC-370A
Nylon Bag	124240

LIMITED WARRANTY

The warranty policy for the OPTIMAX Multi-Lite is provided on the Certificate of Limited Warranty enclosed separately with each unit.

NOTE: Please contact our Customer Service Department for assistance. Have the model and serial numbers of the unit and the date of purchase available when calling.

Spectronics Corporation reserves the right to make changes without notice both to this publication and to the product it describes.

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