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598.70









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275 Sheldon Drive, Unit 3 Cambridge, ON N1T 1A3 T : (519) 894-9069

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# Glo-Black LED UV-A Lamps

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## LED UV-A LAMPS

Complex Challenges. Convenient Solutions.



GG.

## TOUGH.

CONTRACTION 2

## REL has created the most robust UV-A lamps available to the world NDT market.

We originally developed our LED UV-A inspection lamps as an enhancement to our non-destructive testing equipment. We couldn't find another lamp that was up to the demanding use case of 'REL normal operating conditions.' These conditions are modeled after reality, where products get dropped, kicked, and run over. The lamp product MUST work during and after these sudden and realistic events. In fact, we guarantee it will. When you buy our product, we warranty ANY damage you think should be covered, PERIOD. The result is a bulletproof, versatile, easy-to-use lamp that is sensitive enough for the clean room, and strong enough to withstand continuous use in the harshest industrial environments.

REL inspection lamps are designed for all power and intensity prerequisites of Fluorescent Penetrant Inspection (FPI), Magnetic Particle Inspection (MPI), and a plethora of leak detection applications as set forth in the aerospace, automotive, defense, energy, and medical industries. Each lamp utilizes safe, high yield, LED UV-A technology, and contains a high flux LED UV-A emitter with a built-in electrostatic discharge circuit, robustly coupled to a passively cooled IP67 machined military-grade aluminum housing to enable the light to perform to specification and your expectations!



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## C4 MAGNUM LED UV-A LAMP



Tested & Complies with **Rolls-Royce RRES** 90061 REQUIREMENTS

Tested & Complies with

## AIRBUS

AITM 6-1001

### NSN: 5980-01-671-7903

### **Directions For Use:**

- 1. Remove from tool control solution.
- 2. Drop
- 3. Kick
- 4. Use

\*Note: Steps 2-4 can be performed in any order!





## C4 MAGNUM & MAGNUM-GO LED UV-A CHARACTERISTICS

Performance Attributes	Parameters
Maximum Irradiance (at 15 in/38cm)	5000 μW/cm²
Peak Wavelength	365 ± 5 nm
Irradiance at Peak Wavelength (at 15 in)	> 200 µW/cm <sup>2</sup>
Typical Irradiated Area (profile at 15 in)	Circular Spot 10" Diameter
	> 1000 µW cm² (347-382 nm)
Emission Spectrum	
Full Width at Half Maximum (FWHM)	≤ 15 nm
Longest Wavelength at Half Max (LWHM)	≤ 377 nm
Full width at 10% Maximum	≤ 30 nm (± 15)
Excitation Irradiance (347-382 nm)	> 2500 µW/cm <sup>2</sup>
Wavelength Drift (at 70° F ambient)	≤ 3 nm
Working Distances	
ASTM E3022	Minimum WD ≤ 5 in
RRES 90061	Minimum WD = 12 in
	Maximum WD = 23"
Typical Visible Emission	
ASTM E3022 range (400-760 nm)	≤ 2 ft candles

Physical Attributes	Parameters
Operating Environment	32 - 120º F
Maximum Housing Temperature (at 70° F ambient)	116° F
Lamp Cord Length	10 ft (Standard)
Power Supply Cord Length	6 ft
Weight	1.7 lb
Power in	100-240V AC / 50 - 60Hz < 1.2A
Specification Compliance	ASTM E3022, RRES 90061, ISO 3059,
	Airbus AITM 6-1001

#### Emission Spectrum measured at Stabilization Temperature

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<u> 194</u>



10 inch diameter spot size 1000 µW/cm² at 15 inches away

0

4.1"

0

7.6"

A STREET

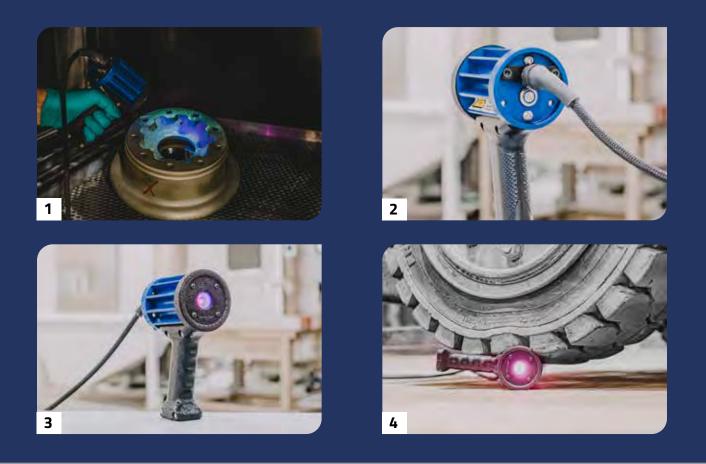
REL's C4 Magnum corded inspection lamps utilizes the latest UV-A LED technology for non-destructive testing.

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relinc.com

# C4 MAGNUM

The C4 Magnum contains a single high flux LED UV emitter that has a built in static-electric discharge circuit to allow the light to perform in all environments regardless of ambient conditions. Designed for Fluorescent Penetrant Inspection (FPI) and Magnetic Particle Inspection (MPI), the C4 Magnum provides a 10-inch diameter of UV-A intensity above 1000  $\mu$ W/cm<sup>2</sup> at 15 inches. The integral filter in the C4 Magnum limits the visible light to 20 lux at 15 inches and 5 lux at 36 inches. Each lamp is sealed and cooled with an engineered finned housing manufactured from a military grade aluminum. The IP67 rated housing allows the lamp to perform in all environments regardless of ambient conditions. The C4 Magnum will survive the toughest, wettest, and most severe work environments on the planet!



- 1. C4 Magnum shown in use on REL's human-driven Model I2C FPI line.
- 2. Bolt on Power Cord for Magnum
- 3. C4 Magnum IP67 rated allows peformance in all environments regardless of ambient conditons.
- 4. C4 Magnum run over by a 16,500 lb forklift!

### C4 Magnum & C4 Magnum-GO Certifications & Compliances

- TESTED & COMPLIES with ASTM E3022 STANDARD
- TESTED & COMPLIES with ROLLS-ROYCE RRES 90061
- AIRBUS AITM 6-1001
- ISO 3059
- IP67 RATED DUST SEALED & WATERPROOFED
- 2 YEAR WARRANTY GUARANTEE
- SERIALIZED CERTIFICATE of CONFORMANCE

### C4 Magnum & C4 Magnum-GO Features and Benefits

- High output UV-A LED emitters with white light (Magnum-GO) emitter for darker inspection environments
- NSN: 5980-01-671-7903 (UV-2000)
- Tested to work as hard as you do
- Engineered fin housing allows for maximum heat transfer in the harshest environments.
- Easy to use controls with clear indicators for lamp on/off operation
- Built-in static-electric discharge unit safety feature
- AC Power: 120/240V
- Individual lamp dimensions: 7.6" H x 3.0" W x 4.1" D
- Individual lamp weight: 1.7 lbs.
- Refurbishable
- Bolt on Power Cord

### C4 MAGNUM: 3 WAYS TO BUY

UV-2000	Kit Includes
	<ul> <li>Glo-Black C4 Magnum LED UV-A Lamp</li> <li>Bolt on Power Cord for Magnum</li> <li>120/240V, 60W Power Supply</li> <li>Tool control system</li> <li>Safety glasses</li> <li>NSN: 5980-01-671-7903</li> </ul>
UV-2000NC	Kit Includes
P	<ul> <li>Glo-Black C4 Magnum LED UV-A Lamp</li> <li>Bolt on Power Cord for Magnum</li> <li>120/240V, 60W Power Supply</li> <li>Safety glasses</li> </ul>
UV-2000LM	Kit Includes
91	<ul> <li>Glo-Black C4 Magnum LED UV-A Lamp, Legacy Model</li> <li>10' DC Extension Power Cord</li> <li>25W Wall Mounted Power Supply</li> <li>Safety glasses</li> </ul>

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### C4 MAGNUM ACCESSORIES

Part #	Description
UV-1000	Bench Adapter/Lamp Holder
UV-1020	Tool control system for Magnum Lamps
UV-1100	Mounting Arm
UV-2007	10' DC Extension Power Cord
UV-2014	Bolt on Power Cord for Magnum
UV-2016	Domer & Ding Ring
UV-2023	120/240V, 60W Power Supply
UV-7000	Spray Can Fixture
UV-7100	25W Wall Mount Power Supply
UV-7400	Snapshot-UV (GoPro™ HERO9 camera lamp mounted)

### ACCESSORY HIGHLIGHT



### **BOLT ON POWER**

A power cord that matches the toughness of our LED UV-A Lamps.



Abrasion

Resistant



Durable



Prevent

Breakage



Superior Strength

C4 Magnum shown with Bolt on Power Cord for Magnum (UV-2014)

## **C4 MAGNUM-G0** LED UV-A LAMP + White Light



**Meets Specifications** 



Tested & Complies with **Rolls-Royce RRES** 90061 REQUIREMENTS

**Tested & Complies with** 

AIRBUS

AITM 6-1001

### **Directions For Use:**

- 1. Remove from tool control solution.
- 2. Drop
- 3. Kick
- 4. Use

\*Note: Steps 2-4 can be performed in any order!



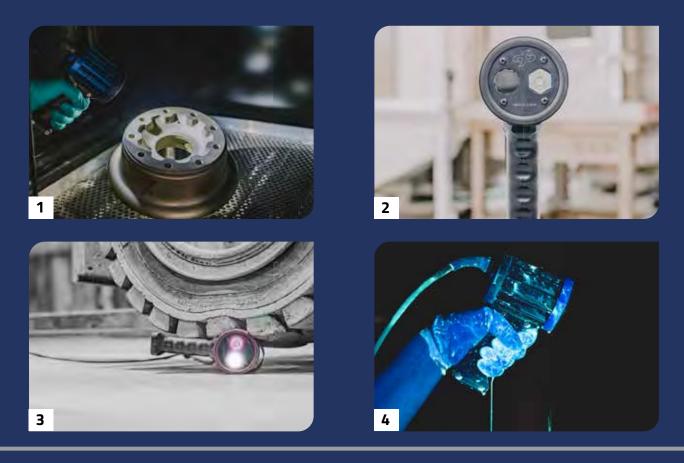


The REL C4 Magnum-GO (Gas and Oil) corded LED UV-A Lamp integrates both UV-A and white light emitters for critical versatility in darker inspection environments.

relinc.com

# C4 MAGNUM-GO

The C4 Magnum-GO is designed for all intensity requirements of Fluorescent Penetrant Inspection (FPI) and Magnetic Particle Inspection (MPI). REL's C4 Magnum-GO inspection lamps contain high flux UV-A and white light LED emitters with built-in static-electric discharge circuits. The C4 Magnum-GO provides a 10-inch diameter of UV-A intensity >1000  $\mu$ W/cm<sup>2</sup> at 15 inches. The integral filter in the UV-A emitter limits the visible light to 20 lux (1.86 foot-candles) at 15 inches and 5 lux (0.47 foot-candles) at 36 inches. The LED white light provides an intensity > 700-foot candles at 15 inches. The lamp's electrical components are IP67 sealed and passively cooled within an engineered finned housing manufactured from military-grade aluminum. The lamp performs in all environments regardless of ambient conditions. The C4 Magnum-G0 LED UV-A with white light will survive the toughest, wettest, and most severe work environments on the planet!



- 1. C4 Magnum-GO in use.
- 2. C4 Magnum-GO front shown with both LED UV-A and white light.
- 3. C4 Magnum-GO run over by a 16,500 lb forklift! And it still works!
- 4. The IP67 rating allows peformance in all environments.

### C4 MAGNUM-GO: 3 WAYS TO BUY

IV-3000	Kit Includes
	<ul> <li>Glo-Black C4 Magnum-GO LED UV-A Lamp</li> <li>Bolt on Power Cord for Magnum-GO</li> <li>120/240V, 60W Power Supply</li> <li>Tool control system</li> <li>Safety glasses</li> </ul>
/-3000NC	Kit Includes
	<ul> <li>Glo-Black C4 Magnum-GO LED UV-A Lamp (Tool control system not included)</li> <li>Bolt on Power Cord for Magnum-GO</li> <li>120/240V, 60W Power Supply</li> <li>Safety glasses</li> </ul>
UV-3000LM	Kit Includes
	<ul> <li>Glo-Black C4 Magnum-GO LED UV-A Lamp, Legacy Model</li> <li>10' DC Extension Power Cord</li> <li>25W Wall Mounted Power Supply</li> <li>Safety glasses</li> </ul>



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### C4 MAGNUM-GO ACCESSORIES

Part #	Description
UV-1000 UV-1020 UV-1100 UV-2007 UV-2015 UV-2016 UV-2023 UV-7000 UV-7100	Bench Adapter/Lamp Holder Tool control system for Magnum Lamps Mounting Arm 10' DC Extension Power Cord Bolt on Power Cord for Magnum-GO Domer & Ding Ring 120/240V, 60W Power Supply Spray Can Fixture 25W Wall Mount Power Supply
UV-7400	Snapshot-UV (GoPro™ HERO9 camera lamp mounted)

### ACCESSORY HIGHLIGHT

### **BOLT ON POWER**

A power cord that matches the toughness of our LED UV-A Lamps.









Abrasion Resistant Durable

Prevent Superior Breakage Strength



C4 Magnum-GO shown with Bolt on Power Cord for Magnum-GO (UV-2015)

# LED UV-A LAMP

Tested & Complies with **Rolls-Royce RRES** 90061 REQUIREMENTS

Meets Specifications



### LIQUID MAGNUM LED UV-A CHARACTERISTICS

Performance Attributes	Parameters
Peak Wavelength	365 ± 5 nm
Emission Spectrum	
Full Width at Half Maximum (FWHM)	≤ 15 nm
Longest Wavelength at Half Max (LWHM)	≤ 377 nm
Full width at 10% Maximum	≤ 30 nm
Wavelength Drift (at 70° F ambient)	≤ 3 nm
Typical Visible Emission	
(390 nm 800 nm)	≤ 20 lux

Physical Attributes	Parameters
Operating Environment	32 - 100º F
Maximum Housing Temperature (at 70° F ambient)	122 ° F
Lamp Cord Length	10 ft Standard
Power Supply Cord Length	≈6ft
Weight	1.8 lb
Power in	100-240V AC / 50 - 60Hz < 1.2A
Specification Compliance	ISO 3059, RRES 90061, Airbus AITM6-1001

Emission Spectrum measured at Stabilization Temperature

1200 μW/cm<sup>2</sup> at 8 inches 4 inch diameter above 1000 μW/cm<sup>2</sup> 7 inch diameter over 500 μW/cm<sup>2</sup>

@ 4 inch distance white light is less than 2 foot candles
 @ 4 inch distance there is a 5 inch diameter above 1000 μW/cm<sup>2</sup>
 @ 4 inch distance the maximum intensity is 4600 μW/cm<sup>2</sup>

@ 7 inch distance white light is less than 1 foot candle

(a) 7 inch distance there is a 4 inch diameter above 1000  $\mu$ W/cm<sup>2</sup>

@ 7 inch distance the maximum intensity is 1700 μW/cm<sup>2</sup>

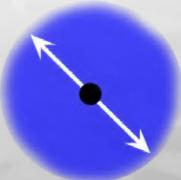
@ 9 inch distance white light is less than 1 foot candle

@ 9 inch distance there is a 1 inch diameter above 1000 μW/cm<sup>2</sup>

Use ergonomic elegance to solve the challenges of inspecting complex part geometries with our Liquid Magnum.



Max Intensity = 4600 µW/cm<sup>2</sup>



> 1000 µW/cm² at 4 inches away

> 1000 µW/cm<sup>2</sup> at 7 inches away

> Max Intensity = 1700 µWcm<sup>2</sup>

4 inches

5 inches

> 1000 µW/cm<sup>2</sup> at 9 inches away



### LIQUID MAGNUM: HOW TO BUY



#### **Kit Includes**

- Glo-Black Liquid Magnum LED UV-A Lamp
- 2-Meter Light Guide
- Bolt on Power Cord for Magnum
- 120/240V, 60W Power Supply
- Swivel Mount Lamp Holder
- Tool control system
- Safety glasses

### LIQUID MAGNUM ACCESSORIES

Description	
Tool control system for Magnum Lamps Mounting Arm 10' DC Extension Power Cord Bolt on Power Cord for Magnum Lamps 120/240V, 60W Power Supply 2-Meter Light Guide Liquid Nomad LED UV-A Lamp (battery powered) 25W Wall Mount Power Supply	
	Tool control system for Magnum Lamps Mounting Arm 10' DC Extension Power Cord Bolt on Power Cord for Magnum Lamps 120/240V, 60W Power Supply 2-Meter Light Guide Liquid Nomad LED UV-A Lamp (battery powered)

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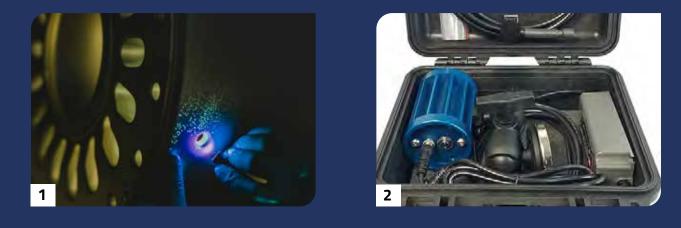
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# LIQUID MAGNUM

The 2-meter length of the liquid light guide allows for the inspection of depressions in surface geometries with high depth-to-diameter ratios, while maintaining fingertip control of the 365nm LED UV-A lamp. These lamps were developed to address operator safety and the rigorous precision demands during the inspection of complex part geometries encountered in FPI and MPI inspections. Operator fatigue with the risk of carpel tunnel injuries can happen in a repetitive motion environment with non-natural wrist flexure. Utilizing a Liquid lamp limits wrist forces to less than 20z. This allows the inspector to manipulate the powerful photon stream of UV-A radiation with the dexterity and pinpoint accuracy of a surgeon's scalpel.







- 1. Liquid Magnum shown in use on aerospace parts.
- 2. Liquid Magnum Kit packaged in tool control system
- 3. 2-Meter Light Guide
- 4. Liquid Magnum use with REL Star Testing Panel showing defect image

### Liquid Magnum Certifications & Compliances

- TESTED & COMPLIES with ROLLS-ROYCE RRES 90061
- AIRBUS AITM 6-1001
- ISO 3059
- 2 YEAR WARRANTY GUARANTEE
- SERIALIZED CERTIFICATE of CONFORMANCE

### Liquid Magnum Features and Benefits

 Easy to use controls with clear indicators for lamp on/off operation

• 10mm diameter Liquid light source!

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## C4 NOMAD LED UV-A LAMP



**Meets Specifications** 



Tested & Complies with **Rolls-Royce RRES** 90061 REQUIREMENTS

**Tested & Complies with** 





### **Directions For Use:**

- 1. Remove from tool control solution.
- 2. Drop
- 3. Kick
- 4. Use

\*Note: Steps 2-4 can be performed in any order!



### C4 NOMAD & NOMAD-GO LED UV-A CHARACTERISTICS

Performance Attributes	Parameters
Maximum Irradiance (at 15 in/38cm)	5000 μW/cm²
Peak Wavelength	365 ± 5 nm
Irradiance at Peak Wavelength (at 15 in)	> 200 µW/cm <sup>2</sup>
Typical Irradiated Area (profile at 15 in)	Circular Spot 10" Diameter
	> 1000 µW cm² (347-382 nm)
Emission Spectrum	
Full Width at Half Maximum (FWHM)	≤ 15 nm
Longest Wavelength at Half Max (LWHM)	≤ 380 nm
Full width at 10% Maximum	≤ 30 nm (± 15)
Excitation Irradiance (347-382 nm)	> 2500 μW/cm <sup>2</sup>
Wavelength Drift (at 70° F ambient)	≤ 3 nm
Working Distances	
ASTM E3022	Minimum WD ≤ 5 in
RRES 90061	Minimum WD = 12 in
	Maximum WD = 23"
Typical Visible Emission	
ASTM E3022 range (400-760 nm)	≤ 2 ft candles
RRES 90061 range (390-800 nm)	≤ 20 lux at 15 in

Physical Attributes	Parameters
Operating Environment	32 - 120° F
Maximum Housing Temperature (at 70° F ambient)	116° F
Power Supply Cord Length	18 V Lithium Ion Battery
Weight	3.2 lb
Approximate run time/per battery	2.5 hrs
Specification Compliance	ASTM E3022, RRES 90061, ISO 3059,
	Airbus AITM 6-1001

Emission Spectrum measured at Stabilization Temperature

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10 inch diameter spot size 1000 µW/cm² at 15 inches away

4.1"

•

0

0

2

32

7.6"

## **REL'S Nomad cordless UV-A inspection lamps are powered by M18**



LITHIUM CP2.0

# C4 NOMAD

The C4 Nomad is powered by the versatile Milwaukee M18 battery pack, allowing the operator to choose the optimal amp/hour battery best suited for their continuous use application. The C4 Nomad is designed for all intensity requirements of Fluorescent Penetrant Inspection (FPI) and Magnetic Particle Inspection (MPI). REL's C4 Nomad inspection lamps contain high flux UV-A and white light LED emitters with built-in static-electric discharge circuits.

The C4 Nomad provides a 10-inch diameter of UV-A intensity >1000  $\mu$ W/cm<sup>2</sup> at 15 inches. The integral filter in the UV-A emitter limits the visible light to 20 lux (1.86 foot-candles) at 15 inches, and 5 lux (0.47 foot-candles) at 36 inches. The lamp performs in all environments regardless of ambient conditions. The C4 Nomad LED UV-A will survive the toughest, wettest, and most severe work environments on the planet!









- 1. C4 Nomad shown in use on a REL FPI line.
- 2. REL M18 product integration feature.
- 3. C4 Nomad lamp body run over by a 16,500 lb forklift!
- 4. C4 Nomad shown with REL's Spray Can Fixture fits any REL hand-held lamp.

### C4 Nomad & C4 Nomad-GO Certifications & Compliances

- TESTED & COMPLIES with ASTM E3022 **STANDARD**
- TESTED & COMPLIES with ROLLS-ROYCE RRES 90061
- AIRBUS AITM 6-1001
- ISO 3059
- 2 YEAR WARRANTY GUARANTEE
- SERIALIZED CERTIFICATE of CONFORMANCE



### C4 Nomad & C4 Nomad-GO Features and Benefits

- Powered by Milwaukee RedLithium M18 battery pack system
- High output UV-A LED emitters with white light (Nomad-GO) emitter for darker inspection environments
- Easy to use controls with clear indicators for lamp on/off operation
- Built in static-electric discharge unit safety feature
- Individual lamp dimensions: 10.6" H x 3.0" W x 4.6" D
- Individual lamp weight: 3.2 lbs.
- Refurbishable
- Will not fall out of spec with Limiting Driver

### C4 NOMAD: 3 WAYS TO BUY

#### UV-2400

#### Kit Includes

- Glo-Black C4 Nomad LED UV-A Lamp
- 120V M18 Battery Charger
- Two M18 2-Amp hour batteries
- Tool control system
- Safety glasses

UV-2400BT	Kit Includes
	• Glo-Black C4 Nomad LED UV-A Lamp (Lamp only) • Safety glasses

470-00000	Kit Includes
The only complete mobile testing kit available to the fleet."	FPI Mobile Testing Nomad Kit: Type 1, Method C • C4 Nomad LED UV-A Lamp • 120V M18 Battery Charger • Two M18 2-Amp hour batteries • 1 can penetrant • 1 can developer • 2 cans cleaner • Tool Control System with foam that is cross-linked polyethylene, resistant to jet fuel and hydraulic fluid. • Safety glasses • NSN: 6850-01-676-2205

### C4 NOMAD ACCESSORIES

Part #	Description	
UV-1025 UV-1100 UV-2016 470-00007 470-00008 UV-7000 UV-7400	Tool control system for Nomad Lamps Lamp Mounting Arm Domer & Ding Ring 120V M18 Battery Charger M18 2-Amp hour Battery Spray Can Fixture (Hands-Free Applicator) SNAPSHOT-UV includes GoPro™ HERO9	

#### ACCESSORY HIGHLIGHT

"REL, Inc. is an authorized Original Design Manufacturer (ODM) distributor of MILWAUKEE ELECTRIC TOOL CORPORATION."



# **C4 NOMAD-G0** LED UV-A LAMP + WHITE LIGHT



Tested & Complies with **Rolls-Royce RRES** 90061 REQUIREMENTS

Meets Specifications Tes

**ISO** 3059

Tested & Complies with

AIRBUS



#### **Directions For Use:**

- 1. Remove from tool control solution.
- 2. Drop
- 3. Kick
- 4. Use

\*Note: Steps 2-4 can be performed in any order!



## What do you get when you cross REL's C4 Magnum-GO with Milwaukee powered portability?

hazard.

EDLITHIUM CP2.



# C4 NOMAD-GO

The C4 Nomad-GO is designed for all intensity requirements of Fluorescent Penetrant Inspection (FPI) and Magnetic Particle Inspection (MPI). REL's C4 Nomad-GO inspection lamps contain high flux UV-A and white light LED emitters with built-in static-electric discharge circuits. The C4 Nomad-GO provides a 10-inch diameter of UV-A intensity >1000  $\mu$ W/cm<sup>2</sup> at 15 inches. The integral filter in the UV-A emitter limits the visible light to 20 lux (1.86 foot-candles) at 15 inches, and 5 lux (0.47 foot-candles) at 36 inches.

The LED white light provides an intensity > 700-foot candles at 15 inches. The lamp's electrical components are sealed and passively cooled within an engineered finned housing manufactured from military-grade aluminum. The lamp performs in all environments regardless of ambient conditions. The C4 Nomad-GO LED UV-A with white light will survive the toughest, wettest, and most severe work environments on the planet!



- 1. C4 Nomad-GO in use on REL's FPI line Model I2C.
- 2. C4 Nomad-GO in use with REL's Spray Can Fixture.
- 3. C4 Nomad-GO lamp body run over by a 16,500 lb forklift!
- 4. REL Lamps survive the toughest, wettest, and most severe work evironments.

#### C4 NOMAD-GO: 2 WAYS TO BUY

UV-3400	Kit Includes
	<ul> <li>Glo-Black C4 Nomad-GO LED UV-A Lamp</li> <li>120V M18 Battery Charger</li> <li>Two M18 2-Amp hour batteries</li> <li>Tool control system</li> <li>Safety glasses</li> </ul>

UV-3400BT	Kit Includes
	• Glo-Black C4 Nomad LED UV-A Lamp (Lamp only) • Safety glasses

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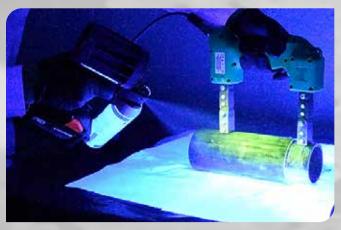
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### C4 NOMAD-GO ACCESSORIES

Part #	Description	
UV-1025	Tool control system for Nomad Lamps	
UV-1100	Lamp Mounting Arm	
UV-2016	Domer & Ding Ring	
470-00007	120V M18 Battery Charger	
470-0008	M18 2-Amp hour Battery	
UV-7000	Spray Can Fixture (Hands-Free Applicator)	
UV-7400	SNAPSHOT-UV includes GoPro™ HERO9	

### ACCESSORY HIGHLIGHT



C4 Nomad-GO shown with Spray Can Fixture.

#### UV-7000

Spray Can Fixture

## NOMAD-ASCENT LED UV-A LAMP

Tested & Complies with

Meets Specifications



**Tested & Complies with** 

AIRBUS

#### **Directions For Use:**

- 1. Remove from tool control solution.
- 2. Drop
- 3. Kick
- 4. Use

\*Note: Steps 2-4 can be performed in any order!

# Hands-Free / Cord-Free UV Power



### NOMAD-ASCENT: HOW TO BUY



#### **Kit Includes**

- Nomad-Ascent LED UV-A Lamp
- 4 Batteries
- 2 USB chargers
- Headband
- Pocket clip
- Tool control system
- Safety glasses



# Nomad-Ascent

REL Glo-Black Nomad-Ascent: Brings mobility to indications discovered in the FPI process.

The Nomad-Ascent is the highest power density lamp in the UV-A inspection market. This lamp delivers a powerful uniform beam pattern from a compact rugged machined housing of military grade aluminum. The Nomad-Ascent features a solid state switch along with fluoroelastomer sealed interfaces to deliver a punch way above its weight class.



- 1. 3D printed, infinite variable angle-of-focus mount.
- 2. Hand-held comfort with snap on pocket clip, or utilize its magnetic base by sticking it to any ferrous metal surface.
- 3. 3D printed, closeup image of hands-free mount for the Nomad-Ascent.
- 4. Kit includes: Lamp with magnetic base, 4 Batteries with 2 USB Chargers, Headband, Pocket clip, Tool control system

#### Nomad-Ascent Certifications & Compliances

- TESTED & COMPLIES with ASTM E3022 STANDARD
- TESTED & COMPLIES with ROLLS-ROYCE RRES 90061
- AIRBUS AITM 6-1001
- ISO 3059
- IP67 RATED
- 5 YEAR WARRANTY GUARANTEE
- SERIALIZED CERTIFICATE of CONFORMANCE

#### Nomad-Ascent Features and Benefits

- 12-inch diameter spot above 1000 μW/cm<sup>2</sup> at startup
- 1.5 + hour run time with each 5000 mAh li-ion battery
- Quad-lead thread for quick single turn battery removal
- IP67 Rated (Tested in Carrier Fluid!)
- Lightweight 7 ounces
- Magnetic base with 1/4-20 socket for fixed mounts
- Hard hat mountable
- Pocket clip

## PROFUSION LED UV-A LAMP



**Meets Specifications** 



Tested & Complies with **Rolls-Royce RRES** 90061 REQUIREMENTS

**Tested & Complies with** 

AIRBUS





100

**REL STAR PANEL - TWIN shown** 

#### **PROFUSION CHARACTERISTICS**

Performance Attributes	Parameters
Maximum Irradiance (at 15 in/38cm)	5000 μW/cm²
Peak Wavelength	365 ± 5 nm
Irradiance at Peak Wavelength (at 15 in)	> 200 µW/cm <sup>2</sup>
Typical Irradiated Area (profile at 15 in)	Circular Spot 10" Diameter
	> 1000 µW cm² (347-382 nm)
Emission Spectrum	
Full Width at Half Maximum (FWHM)	≤ 15 nm
Longest Wavelength at Half Max (LWHM)	≤ 377 nm
Full width at 10% Maximum	≤ 30 nm (± 15)
Excitation Irradiance (347-382 nm)	> 2500 µW/cm <sup>2</sup>
Wavelength Drift (at 70° F ambient)	≤ 3 nm
Working Distances	
ASTM E3022	Minimum WD ≤ 5 in
RRES 90061	Minimum WD = 12 in
	Maximum WD = 23"
Typical Visible Emission	
ASTM E3022 range (400-760 nm)	≤ 2 ft candles
RRES 90061 range (390-800 nm)	≤ 20 lux at 15 in
	≤ 5 lux at 36"

Physical Attributes	Parameters
Operating Environment	32 - 115º F
Maximum Housing Temperature (at 70° F ambient)	104° F
Lamp Cord Length	10 ft standard
Power Supply Cord Length	Sized per array
Weight	3.08 lb (1 module)
Specification Compliance	ASTM E3022, RRES 90061, ISO 3059,
	Airbus AITM 6-1001

#### Emission Spectrum measured at Stabilization Temperature

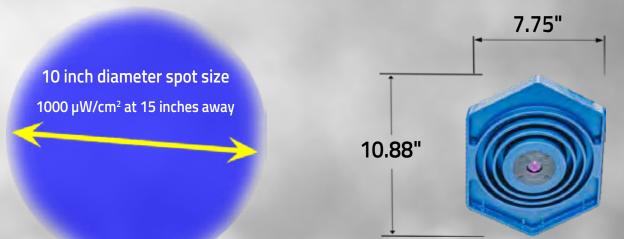
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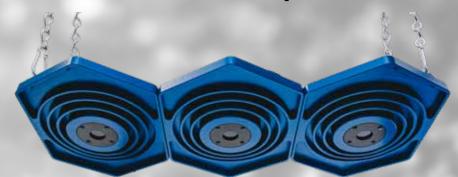
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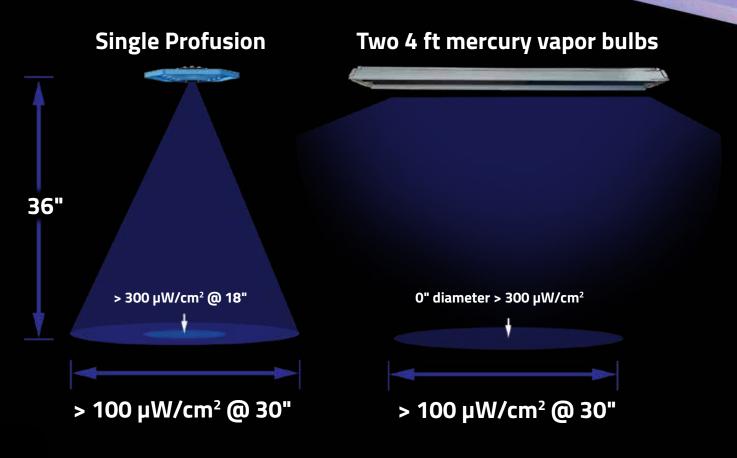
#### Single lamp module



## UV-4000TB (3 lamp module)



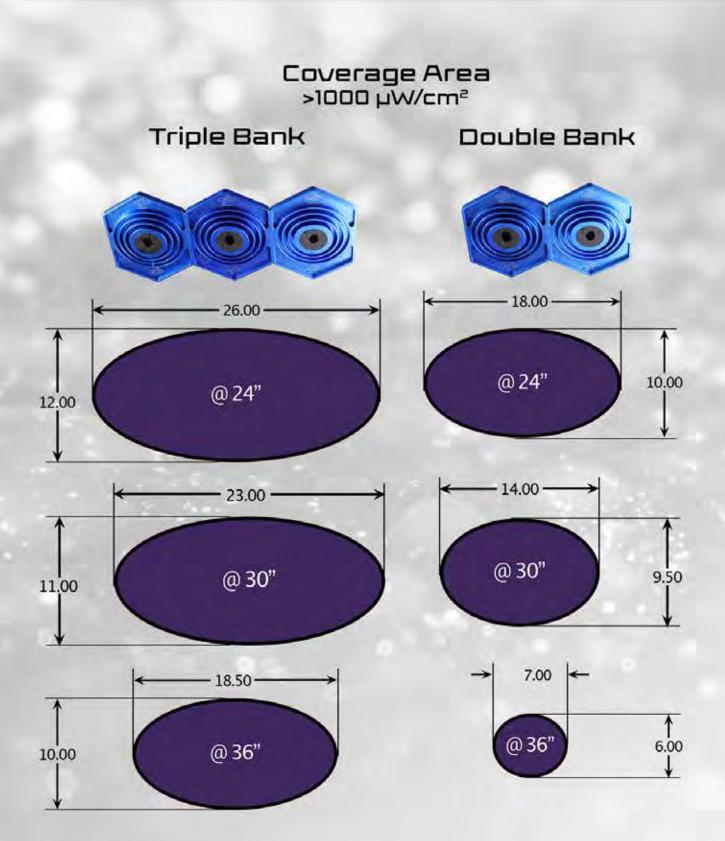
### PROFUSION VERSUS 4 FT FLUORESCENT BULBS





## 1 Profusion = 1 fluorescent fixture

### PROFUSION COMMON CONFIGURATIONS

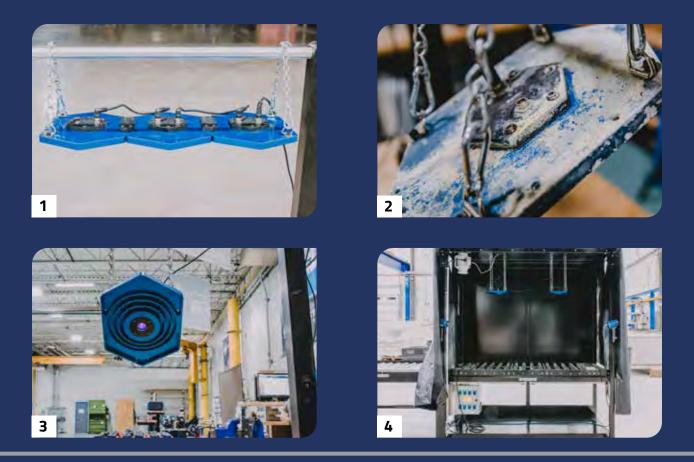


# PROFUSION

REL's classic Profusion overhead UV-A inspection lamps are an expandable and configurable modular system for stationary non-destructive testing applications.

The Profusion is designed for all intensity requirements of Fluorescent Penetrant Inspection (FPI) and Magnetic Particle Inspection (MPI). Each Profusion module provides a 10-inch diameter of UV-A intensity above 1000  $\mu$ W/cm2 at 15 inches. The integral filter in the Profusion limits the visible light to 20 lux at 15 inches and 5 lux at 36 inches. Each Profusion module contains LED emitters with a built-in static-electric discharge circuit.

The lamp's electrical components are sealed and passively cooled with an engineered finned housing manufactured from military-grade aluminum. The IP68 rated housing allows the lamp to perform in all environments regardless of ambient conditions.



- 1. UV-4000TB with Profusion Hanging Hardware Kit, and Profusion Joining Plate & Connecting Wire Kit.
- 2. Glo-Black Profusions survive the toughest, wettest, and most severe work evironments.
- 3. UV-4000 (1 lamp module) with Profusion Hanging Hardware Kit.
- 4. Profusion modules in a Inspection booth on REL's human-driven I2C FPI line.

#### Profusion Certifications & Compliances

- TESTED & COMPLIES with ASTM E3022 STANDARD
- TESTED & COMPLIES WITH ROLLS-ROYCE RRES 90061
- AIRBUS AITM 6-1001
- ISO 3059
- IP68 RATED DUST SEALED & WATERPROOFED
- 2 YEAR WARRANTY GUARANTEE
- SERIALIZED CERTIFICATE of CONFORMANCE

#### Profusion Features and Benefits

- Modular & conformable system available in single, double bank, triple bank, or custom configurations
- 10-inch diameter of UV-A intensity above 1000 µW/cm2 at 15 inches
- Integral filter limits visible light to 20 lux at 15 inches and 5 lux at 36 inches
- Low Voltage (Lamp input voltage 24V)
- Built-in static-electric discharge unit safety feature
- Clear indicators for lamp on/off operation
- Passive cooling via engineered finned housing with military-grade aluminum
- Power Supply input Voltage 100V 240V AC
- Individual lamp module dimensions: 10.88" H x 7.75" W
- Individual lamp module weight (not including mounting hardware): 3.08 lbs.

Refurbishable

### PROFUSION: COMMON WAYS TO BUY

UV-4000 (1 lamp module)	Kit Includes
	<ul> <li>Glo-Black Profusion LED UV-A Lamp Module</li> <li>120/240V, 60W Power Supply</li> <li>10' DC Extension Power Cord</li> <li>Profusion Hanging Hardware Kit</li> </ul>
UV-4000DB (2 lamp module)	Kit Includes
	<ul> <li>2 - Glo-Black Profusion LED UV-A Modules</li> <li>120/240V, 60W Power Supply</li> <li>10' DC Extension Power Cord</li> <li>Profusion Connecting Kit</li> <li>Profusion Hanging Hardware Kit</li> </ul>
UV-4000TB (3 lamp module)	Kit Includes
	<ul> <li>3 - Glo-Black Profusion LED UV-A Modules</li> <li>120/240V, 60W Power Supply</li> <li>10' DC Extension Power Cord</li> <li>2 - Profusion Connecting Kits</li> <li>Profusion Hanging Hardware Kit</li> </ul>
4 lamp array	Kit Includes
	<ul> <li>4 - Glo-Black Profusion LED UV-A Modules</li> <li>120/240V, 120W Power Supply</li> <li>10' DC Extension Power Cord</li> <li>3 - Profusion Connecting Kits</li> <li>Profusion Hanging Hardware Kit</li> </ul>
5 lamp array	Kit Includes
* Sample set-up shown	<ul> <li>5 - Glo-Black Profusion LED UV-A Modules*</li> <li>120/240V, 120W Power Supply</li> <li>10' DC Extension Power Cord</li> <li>4 - Profusion Connecting Kits</li> <li>Profusion Hanging Hardware Kit</li> </ul>

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ONTARIO



#### **PROFUSION ACCESSORIES**

Part #	Description	
UV-1100	Lamp Mounting Arm	
UV-2007	10' DC Extension Power Cord	
UV-2023	120/240V, 60W Power Supply	
UV-2030	Profusion Joining Plate & Connecting Wire Kit	
UV-2031	120/240V, 120W Power Supply	
	(4-7 Profusion Modules)	
UV-4010	Swivel Mount Lamp Holder	
UV-4015	Profusion Hanging Hardware Kit	
UV-4200	Profusion Switch Block (includes power supply)	
UV-7100	25W Wall Mount Power Supply	

#### **PROFUSION HIGHLIGHT**

#### Versatility



Seven Glo-Black Profusion LED UV-A modules shown linked together with Profusion Joining Plates & Connecting Wires, and Hanging Hardware.

# PROFUSION XW LED UV-A LAMP

Tested & Complies with

**Meets Specifications** 



Tested & Complies with



AITM 6-1001



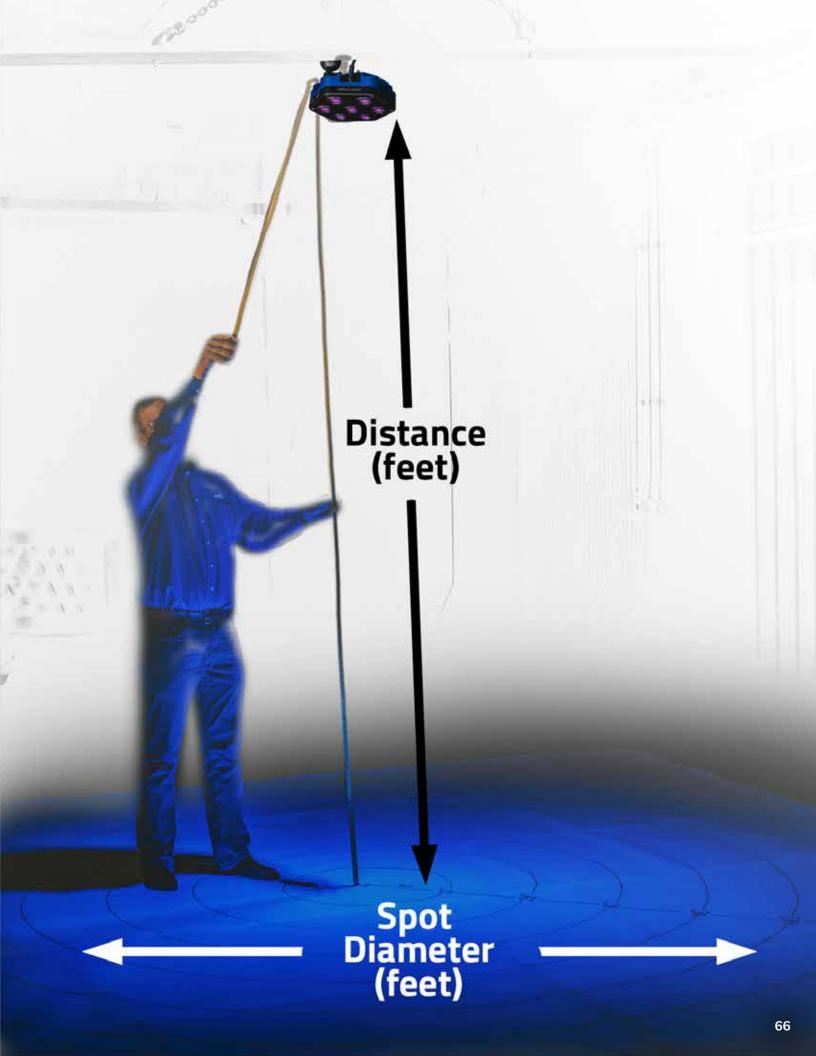
### PROFUSION XW CHARACTERISTICS

Performance Attributes	Parameters
Maximum Irradiance (at 24 in/38cm)	10000 µW/cm²
Peak Wavelength	365 ± 5 nm
Emission Spectrum	
Full Width at Half Maximum (FWHM)	≤ 15 nm
Longest Wavelength at Half Max (LWHM)	≤ 377 nm
Full width at 10% Maximum	≤ 30 nm (± 15)
Excitation Irradiance (347-382 nm)	> 7000 µW/cm <sup>2</sup>
Wavelength Drift (at 70° F ambient)	≤ 1 nm
Typical Visible Emission	
range (400-760 nm)	≤ 2 ft candles at 24 in
	≤ 20 lux at 24 in

Physical Attributes	Parameters
Operating Environment	32 - 115º F
Maximum Housing Temperature (at 70° F ambient)	88°F
Lamp Cord Length	10 ft Standard
Power Supply Cord Length	10 ft
Weight	5.8 lb
Power in	100-240V AC / 50 - 60Hz
Specification Compliance	ISO 3059, ASTM E3022, Airbus AITM 6-1001

#### Emission Spectrum measured at Stabilization Temperature





### **PROFUSION XW**



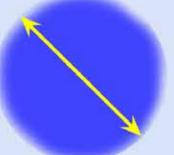
> 1000 µW/cm² at 4 feet away

28 inches



> 100 µW/cm² at 4 feet away

60 inches





> 300 µW/cm²at 4 feet away

46 inches



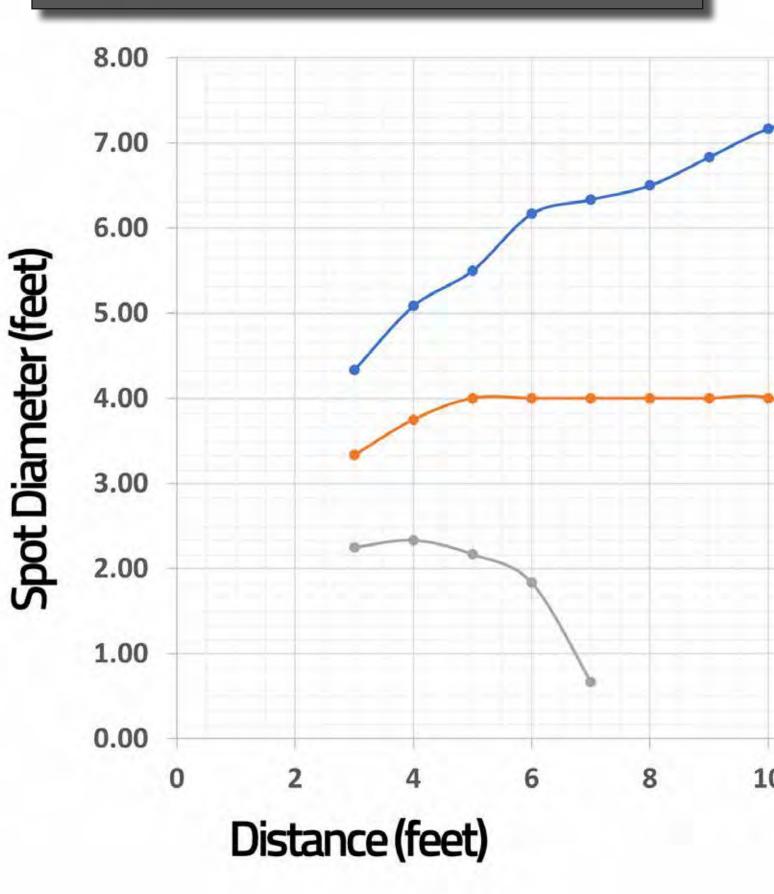
> 300 µW/cm² at 9 feet away

48 inches

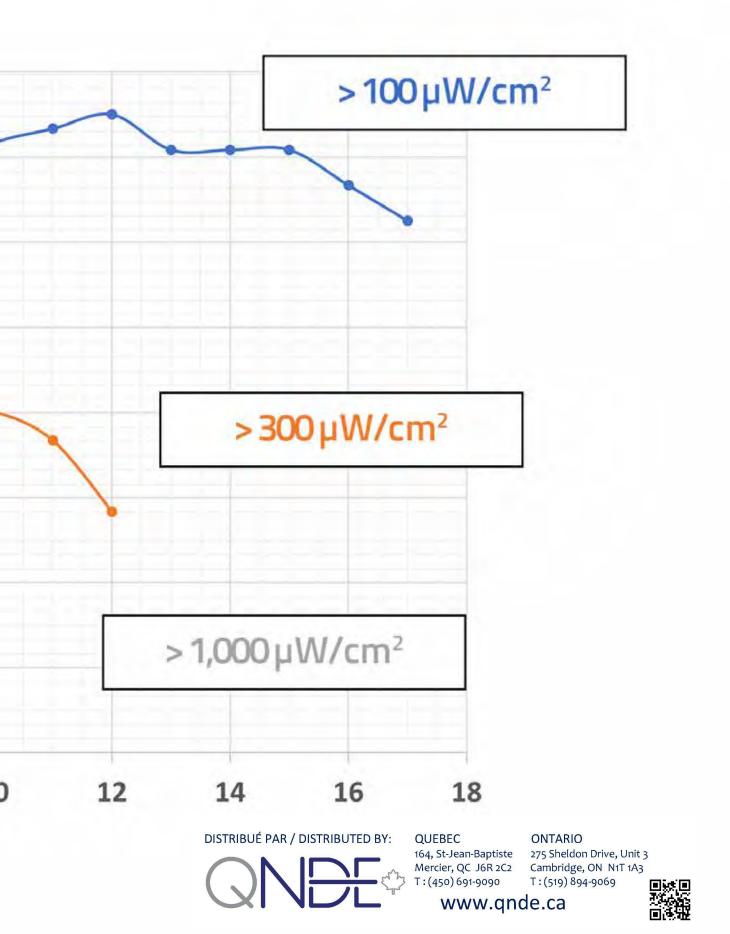
> 100 µW/cm² at 9 feet away



#### PROFUSION XW PERFORMANCE DATA



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#### **PROFUSION XW: HOW TO BUY**



#### **Kit Includes**

- Glo-Black Profusion XW Lamp
- 120/240V, 120W Power Supply
- 10' DC Extension Power Cord
- Swivel Mount Lamp Holder
- Tool control system
- Safety glasses

### PROFUSION XW ACCESSORIES

Part #	Description
UV-1100 UV-2031 UV-4010 UV-4015 TRM-100	Lamp Mounting Arm 120/240V, 120W Power Supply Swivel Mount Lamp Holder Profusion Hanging Hardware Kit Tripod Kit, Adjustable Tripod with ball head, 12" - 62" height, 27lb capacity, ARCA adapter

#### DISTRIBUÉ PAR / DISTRIBUTED BY:



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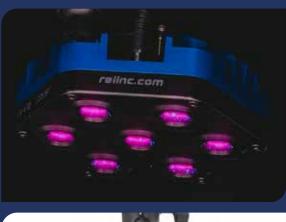


# **PROFUSION XW**

Massive amounts of UV-A wavelength emission in a small package! The Profusion XW is the perfect light for larger FPI and MPI non-destructive testing environments. The design of this package was demanded by aerospace and space companies that produce parts that are over 100 feet in length. Integration of heat sinks and cooling are a foundational part of this lamp's design.

REL's Profusion XW IP68 rated overhead lamp builds on the classic Profusion to offer 7x higher output and wider coverage area in a lamp head of equal frontal area.







## Profusion XW Certifications & Compliances

- TESTED & COMPLIES with ASTM E3022 STANDARD
- AIRBUS AITM 6-1001
- ISO 3059
- IP68 RATED DUST SEALED & WATERPROOFED
- 2 YEAR WARRANTY GUARANTEE
- SERIALIZED CERTIFICATE of CONFORMANCE

## Profusion XW Features and Benefits

- 7x the intensity of the classic Profusion Lamp
- High Intensity UV-A light emitters for wide coverage areas
- 100% continuous duty at full output
- Engineered fin housing allows for maximum heat transfer in the harshest environments
- Built-in static-electric discharge unit safety feature
- AC: 120/240V
- Individual lamp dimensions: 8" H x 7.25" W



# REL STAR TESTING PANEL

Certification for GE Aviation Process Specification P3TF47

**3x magnification** 

**Twin Panels shown** 

# HEXAVALENT CHROMIUM FREE

#### **REL Designed Green**

een 😥

Panel plating is designed to comply with RoHS, REACH, WEE, ELV, and Proposition 65.

**REL Certified** 



REL Star Testing Panels meet the requirements as stated in ASTM E1417, MIL-STD-6866, TO 33B-1-1, NAVAIR 01-1A-16-1, and TM 1-1500-335-23. The REL Star Testing Panels have been manufactured and tested in accordance with the REL, Inc. procedure RWI-1105.

### PENETRANT SYSTEM MONITORING PANEL DOCUMENTATION

SN# 80077188					
Crack Position	A	В	C		E
Photo of Defect	1	Velos			
Magnification Factor: 1 : 5.5	X	×	*	×.	*
Measured Size (inch)	0.183	0.142	0.081	0.050	0.030
Specification (Inch)	0.180 - 0.250	0.125 - 0.171	0.075 - 0.093	0.046 - 0.062	0.015 - 0.031
Measured Size (mm)	4.65	3.61	2.06	1.27	0.76
Specification (mm)	4.57 - 6.35	3.18 - 4.34	1.91 - 2.36	1.17 - 1.57	0.38 - 0.79

Crack Depth .0025" ± .0001" 63 µm ± 2.5µm



REL Star Testing Panel - Single (Part Number: 250-00104)

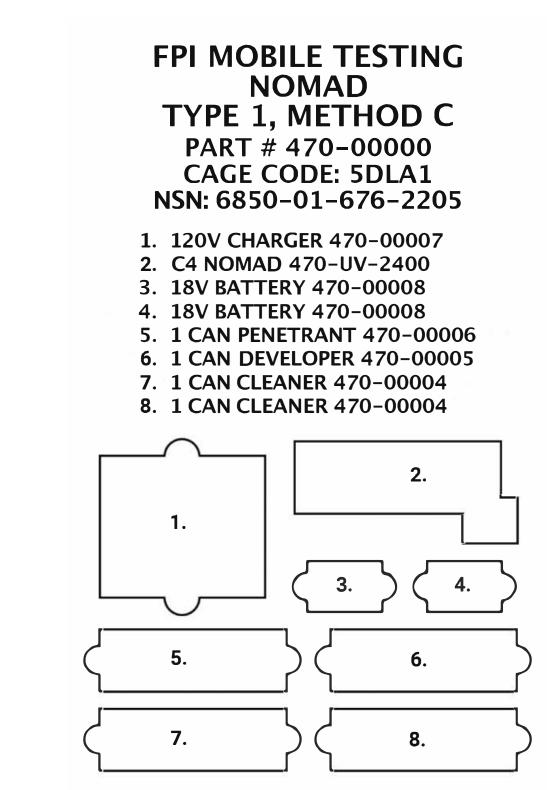
REL Star Testing Panel - Twin (Part Number: 250-00103)

Each REL Star Testing Panel includes documentation, protective case, and foam sleeve for panel. а в с п е \* \* \* \* \* 0 О

**REL Star Testing Panel and Documentation included:** 

- 1. Case w/ panel certification,
- 2. Serialized crack size certification documents, and
- 3. Five (5) pictures of the manufactured defects.

# **FPI MOBILE TESTING KIT**



Part #	Description
470-0000	<ul> <li>FPI Mobile Testing Nomad Kit: Type 1, Method C</li> <li>C4 Nomad LED UV-A Lamp</li> <li>120V M18 Battery Charger</li> <li>Two M18 2-Amp hour batteries</li> <li>1 can penetrant</li> <li>1 can developer</li> <li>2 cans cleaner</li> <li>Tool Control System with foam that is cross-linked polyethylene, resistant to jet fuel and hydraulic fluid.</li> <li>Safety glasses</li> <li>NSN: 6850-01-676-2205</li> </ul>



## "The only complete mobile testing kit available to the fleet."

9

#### SNAPSHOT-UV

relinc.com

LITHIUM

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Record your indications with REL integrated GoPro™ <u>HERO9</u>

S*NAPSHOT-UV* mounted on a C4 Nomad-GO

# **SNAPSHOT-UV**

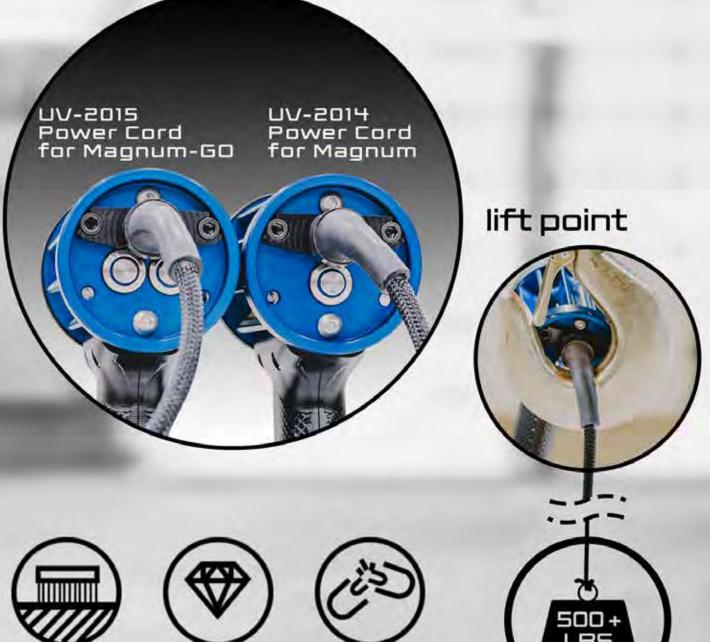
REL Glo-Black SNAPSHOT-UV: Brings traceability to indications discovered in the FPI process.

The Glo-Black Snapshot-UV was developed with the casting industry to support traceability in the FPI process through capturing digital pictures of indications in real time. REL integrated a GoPro<sup>™</sup> on the top of handheld Glo-Black lamps. The focal distance and direction were designed to capture indications to facilitate a digital transformation to your FPI inspection process.



- 1. 12 deg camera angle optimized for inspection at 15 inches
- 2. Hands free camera with macro lens focused for recording images clearly at 15 inches
- 3. SNAPSHOT-UV image of a 1/4" indication on KDS panel
- 4. Kit includes: GoPro<sup>™</sup> HERO9, mounting bracket, remote, wrench, 2 batteries with charger, 64GB SD card, 2 USB-C cords

# **BOLT ON POWER**





Abrasion Resistant

Durable

Prevent Breakage





**REL PRODUCT INTEGRATION** 

### "REL, Inc. is an authorized Original Design Manufacturer (ODM) distributor of MILWAUKEE ELECTRIC TOOL CORPORATION."

## C4 Nomad UV-2400





C4 Nomad-GO UV-3400

#### 120 Volt M18 Battery Charger





Two M18 2-Amp hour Batteries included in kit

### TOOL CONTROL SYSTEMS Eliminate workplace FOD (Foreign Object Debris)



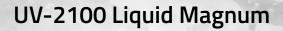


UV-2000 Magnum UV-3000 Magnum-GO



UV-2400 Nomad UV-3400 Nomad-GO







UV-2200 Liquid Nomad

# LED UV-A LAMP ACCESSORIES

UV-1000	Description
	Bench Adapter/Lamp Holder
UV-1020	Description
	Tool control system for Magnum Lamps

UV-1025	Description
	Tool control system for Nomad Lamps

UV-1100	Description
	Lamp Mounting Arm

Description
10' DC Extension Power Cord
Description
Bolt on Power Cord for Magnum
Description
Bolt on Power Cord for Magnum-GO
Description
Domer & Ding Ring Kit
Description
Case with foam and label NSN: 6240-01-700-3159

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UV-2023	Description
	120/240V, 60W DC Power Supply
UV-2030	Description
	Profusion Joining Plate & Connecting Wire Kit
UV-2031	Description
	120/240V, 120W Power Supply (4-7 Profusion Modules)
UV-2120	Description
	2-Meter Light Guide
UV-2200	Kit Includes
	<ul> <li>Glo-Black Liquid Nomad LED UV-A Lamp</li> <li>2-Meter Light Guide</li> <li>120V M18 Battery Charger</li> <li>Two M18 2-Amp hour batteries</li> <li>Swivel Mount Lamp Holder</li> <li>Tool control system</li> <li>Safety glasses</li> </ul>
UV-4010	Description
	Swivel Mount Lamp Holder

UV-4015	Description
	Profusion Hanging Hardware Kit
	Deve futfore
UV-4200	Description
	Profusion Switch Block (includes power supply)
UV-7000	Description
	Spray Can Fixture (Hands-Free Applicator)

UV-7100	Description	
	25W Wall Mount Power Supply	
-		

UV-7400	Description
	Snapshot-UV includes GoPro™ HERO9, mounting bracket, remote, wrench, 2 batteries with charger, 64GB SD card, and 2 USB-C cords.

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TRM-100	Description
	Tripod Kit, Adjustable Tripod with ball head, 12" - 62" height, 27lb capacity, ARCA adapter
470-00007	Description
	120 Volt M18 Battery Charger
470-00008	Description
RECUTHUM COST	M18 Battery, 2.0 amp hour
250-00103	Description
	REL Star Testing Panel - Twin
250-00104	Description
	REL Star Testing Panel - Single





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