



OmniCure® AC9/P+ Series User Guide

Applicable for the following UV LED Head models:

365 nm Products			
Model Number	Part Number	Description	Optical Length, mm
AC9150+ 365	019-00478R	AC9150+ 365nm UV LED Head	150
AC9225+ 365	019-00479R	AC9225+ 365nm UV LED Head	225
AC9300+ 365	019-00475R	AC9300+ 365nm UV LED Head	300
AC9150P+ 365	019-00477R	AC9150P+ 365nm UV LED Head	150
AC9225P+ 365	019-00476R	AC9225P+ 365nm UV LED Head	225
AC9300P+ 365	019-00474R	AC9300P+ 365nm UV LED Head	300
385 nm Products			
Model Number	Part Number	Description	Optical Length, mm
AC9150+ 385	019-00315R	AC9150+ 385nm UV LED Head	150
AC9225+ 385	019-00316R	AC9225+ 385nm UV LED Head	225
AC9300+ 385	019-00317R	AC9300+ 385nm UV LED Head	300
AC9150P+ 385	019-00338R	AC9150P+ 385nm UV LED Head	150
AC9225P+ 385	019-00339R	AC9225P+ 385nm UV LED Head	225
AC9300P+ 385	019-00340R	AC9300P+ 385nm UV LED Head	300
395 nm Products			
Model Number	Part Number	Description	Optical Length, mm
AC9150+ 395	019-00241R	AC9150+ 395nm UV LED Head	150
AC9225+ 395	019-00255R	AC9225+ 395nm UV LED Head	225
AC9300+ 395	019-00247R	AC9300+ 395nm UV LED Head	300
AC9150P+ 395	019-00252R	AC9150P+ 395nm UV LED Head	150
AC9225P+ 395	019-00253R	AC9225P+ 395nm UV LED Head	225
AC9300P+ 395	019-00246R	AC9300P+ 395nm UV LED Head	300

405 nm Products			
Model Number	Part Number	Description	Optical Length, mm
AC9150+ 405	019-00341R	AC9150+ 405nm UV LED Head	150
AC9225+ 405	019-00342R	AC9225+ 405nm UV LED Head	225
AC9300+ 405	019-00343R	AC9300+ 405nm UV LED Head	300
AC9150P+ 405	019-00344R	AC9150P+ 405nm UV LED Head	150
AC9225P+ 405	019-00345R	AC9225P+ 405nm UV LED Head	225
AC9300P+ 405	019-00346R	AC9300P+ 405nm UV LED Head	300



Excelitas Canada Inc.
2260 Argentia Road
Mississauga (ON)
L5N 6H7 Canada
+1 905.821.2600
www.excelitas.com

Installation/Reference Guide

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Revision History

Revision History	
Rev 0	Initial release AC9 Series
Rev 1.0	Update LVD revision year and China RoHS section
Rev 2.0	Addition of AC9225F
Rev 3.0	Update to regulatory section
Rev 4.0	Update to regulatory section
Rev 5.0	Updates for the “+” series

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Introduction

The OmniCure® AC9+ series represents another new standard in UV LED curing systems. The series provides unsurpassed levels of power, irradiance performance, control and monitoring in a compact form factor. The OmniCure® AC9+ series systems are offered alongside a variety of power supply, controller and cabling options, providing configuration flexibility to suit any application for end users and integrators alike.

Optical output is controlled via a PLC interface enabling a high degree of automation. At the heart of the OmniCure® AC9+ series are the arrays of LEDs, housed within the UV LED Head and located under the optical lens, providing excellent spectral and power stability. The UV LED Head has a typical lifetime in excess of 40,000 hours of accumulated 'on' time, made possible by the integration of state-of-the-art electronics, effective thermal management and high-performance optics. Acoustic noise is minimized through an innovative load-adaptive fan that keeps the LEDs operating efficiently and reliably while minimizing noise levels.

In the OmniCure® family of UV LED light systems, all systems offer the same high level of innovation, quality and reliability that our customers have come to expect. For over 40 years, OmniCure® has combined next generation optical engineering, state-of-the-art electronics and fibre-optics to produce sophisticated technologies that employ light. Today, OmniCure® is a leading developer of light-based systems for sectors ranging from manufacturing to bio-medicine and is unmatched in our commitment to quality and service.

The following highlights AC9+ features that have been enhanced from the previous AC9 series of lamps.

High-Efficiency VOC Air Filters

- Overview

All systems are equipped with high-efficiency VOC (Volatile Organic Compound) air filters designed to ensure clean and stable airflow throughout the equipment. These filters provide reliable protection for sensitive components and maintain consistent performance under demanding manufacturing conditions.

- Benefits

- Comprehensive VOC Removal: Effectively traps and removes a wide range of airborne contaminants including solvents, acetates, sulphates, and other VOCs.
- Enhanced Component Protection: Helps prevent LED module degradation caused by exposure to airborne chemicals or contaminants present in manufacturing environments.
- Optimized Airflow: Maintains optimum airflow for efficient system operation without compromising filtration performance.
- Standard Implementation: Installed as the standard air filter on all system models for consistent performance and serviceability.
- Parts Commonality: Simplifies maintenance and spare part management through improved commonality of components across models.

Unit-to-Unit UV Output Power Consistency

- Overview

Each system is designed and calibrated to achieve a unit-to-unit power variation of better than $\pm 5\%$, ensuring consistent optical output across multiple interconnected units. This performance target supports reliable and uniform UV emission in both single and multi-unit configurations.

- Benefits

- **Simplified Balancing:** Reduces the need for complex calibration or tuning when multiple units are joined together in wide UV-emitting area configurations.
- **Consistent Optical Performance:** Maintains uniform light output and performance when a single unit is replaced, ensuring seamless integration within existing system arrays.

Firmware Compatibility

- Overview

The system operates using the same firmware platform as the current AC8/9 Series, ensuring continuity and stability in both performance and functionality.

- Benefits

- **Seamless Integration:** Maintains full compatibility with existing AC8/9 Series systems.
- **Backward Compatibility:** Eliminates the need for firmware updates or configuration changes when integrating with legacy hardware or software.

Overview of Enhancements

- Overview

The latest generation of systems introduces several key enhancements designed to improve performance, reliability, and serviceability across all models. These improvements ensure higher optical quality, extended lifetime, and easier integration in demanding production environments.

- Key Enhancements

- **New Wavelength Options:** Expanded model range now includes 365 nm configurations for both AC8+ HD and AC9+ Series systems.
- **Extended LED Lifetime:** Optimized thermal management and component design provide a significantly longer operational lifetime.
- **Improved Uniformity:** Enhanced optical design ensures more consistent UV output across the emitting area.
- **Enhanced Environmental Protection:** Upgraded materials and filtration improve durability and performance in environments with poor air quality.
- **Improved Unit-to-Unit Consistency:** Tighter control of optical calibration results in better uniformity when multiple units are used together.

- **Greater Parts Commonality:** Simplified design and standardized components reduce maintenance complexity and spare parts inventory.

This manual covers the models referenced in the table above.

Excelitas Technologies recommends reading this guide to discover all features of the OmniCure® AC9+/P+ series systems, and how to use them.

Safety Precautions/ User Warnings

Glossary of Symbols:



Caution risk of danger – consult accompanying documents.



Risk Group 3 (IEC62471)

WARNING: UV emitted from this product. Avoid eye and skin exposure to unshielded product.

CAUTION: Possibly hazardous optical radiation emitted from this product. Do not stare into operating lamp.



Input/ Output Signals



Input Signal



Caution, Hot Surface



Protective Conductor Terminal



Earth (Ground) Terminal



CAUTION, Risk of Electrical Shock

Safety Precautions:

This series of cautions and warnings relate to the installation, operation and maintenance of the OmniCure® AC9+ System. They are also presented throughout this Installation/Reference Guide as applicable.



WARNING

Do not stare directly at the light emitted from the LED array. This may be harmful, resulting in eye injury. Always use UV protective eyewear as indicated below. Additionally, protect any exposed skin with appropriate clothing or shielding as required.



Warning UV protective eyewear must meet the following recommended optical specifications:

- Spectral range; 350-440nm
- Optical Density ≥ 6



Warning Should the OmniCure® AC9+ System be used in a manner not specified by Excelitas Technologies, the protection provided by the equipment may be impaired.



The UV LED Head operation can be affected if handled incorrectly. Never touch the protective lens cover assembly of the UV LED Head. The presence of skin oils may result in a decrease in system performance.



Always ensure the power supply unit is turned off prior to disconnecting or re-connecting the UV LED Head.



Warning:
Monitoring the system during automated operation:

The level of UV energy supplied by the OmniCure® AC9+ is sufficient to ignite flammable substances. Therefore, when the unit is operated unattended in an automated environment, an alarm function must be provided by the user to indicate a malfunction in the associated equipment used. During installation the appropriate measures must be included to prevent any such occurrence.

Optical Safety Data

IEC 62471: Photobiological Safety of Lamps and Lamp Systems

Resulting Classification and Labelling

Hazard	All AC9+/P+ Models
Actinic UV	Risk Group 3
Near UV	Risk Group 3
Blue Light	Exempt
Retinal Thermal	Exempt

GROUPE DE RISQUE 3 AVERTISSEMENT : Ce produit émet des UV. Eviter d'exposer vos yeux et peau à un produit non blindé. ATTENTION : Radiations optiques nuisibles peuvent être émises de ce produit. Ne pas fixer une lampe en cours d'utilisation.		RISK GROUP 3 WARNING: UV emitted from this product. Avoid eye and skin exposure to unshielded product. CAUTION: Possibly hazardous optical radiation emitted from this product. Do not stare at operating lamp.
IEC/TR 62471-2:2009		

Getting Started

Packaging Contents

Each package contains one UV LED Head, as well as a quick start guide.

Replacement air filters can be ordered from Excelitas Technologies.

Carefully unpack the unit and store the packing material for future use.

System Requirements

In addition to the UV LED Head, the following components are required:

- Power supply
- Power cable

Note A PLC controller is required unless an existing controller can be used. The PLC controller is used to discover the extensive functionality of the UV LED Head, but integrators can access the full feature set through integrating with the PLC interface directly.

These components may be sourced separately or may be purchased from Excelitas Technologies. Check with Excelitas Technologies to determine the appropriate components for your requirements. The following table provides the part numbers of recommended component parts.

The system controller selection is based on the total current requirement for total heads connected and the number of heads the controller can physically connect to (refer to table below for maximum number of heads supported by each SC model).

System Controller	Head Length, mm		
	150	225	300
SC2000 (019-00211R)	1	1	—
SC3000 (019-00213R)	2	1	1

Component	All LED heads
DC Power Cable	Refer to the power cable table below
PLC2000 controller	019-00214R

Connecting the Power Supply and PLC Controller

Note: All connectors are via screw style fastener -- do not over tighten the connector screws.

Note: The following is a generic procedure, illustrated with the common components described above; please refer to specific documentation related to your power supply and controller.

Note: If using the PLC2000, please refer to the User Guide for details on connecting and controlling the unit.

Tip: After securing the power cable to the power supply, it is recommended to “tie-off” the female connector cable on to the mounting brackets or process rigging as a form of strain relief.

1. Make sure the power supply unit is turned off.
2. Connect the AC power cord to the power supply.

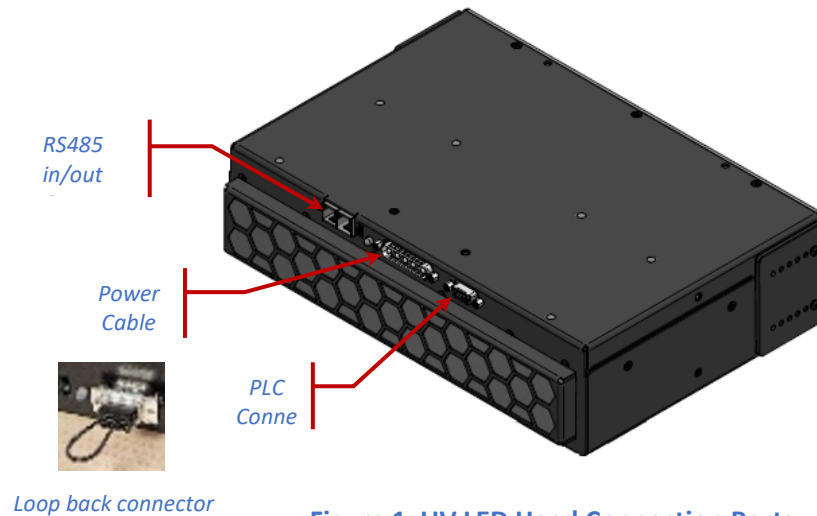


Figure 1 UV LED Head Connection Ports

3. Attach the male end of the power cable to the power supply unit and connect the female end of the power cable to the UV LED Head per Figure 1.
4. Ensure that the LED Enable switch on the PLC controller is in the OFF position (see Figure 2).
5. Attach the female end of the PLC cable to the PLC I/O connector on the controller console (see Figure 2).
6. Attach the male end of the PLC cable to the UV LED Head (see **Error! Reference source not found.**).
7. Connect the PLC loop-back connector to the PLC pass-through port (See Figure 1).
8. Power up the UV LED Head per Section *Powering UP and Powering Down* and then switch the LED Enable switch on the controller to the ON position.
9. Adjust intensity using the up / down button to the right of the display (see Figure 2), rotating clockwise and counterclockwise to increase and decrease the intensity respectively. Refer to section *Using the LED Head*.
10. UV LED & Temperature faults will be indicated by an illuminated LED on the control console. To clear, press the Clear Fault button (see 2).

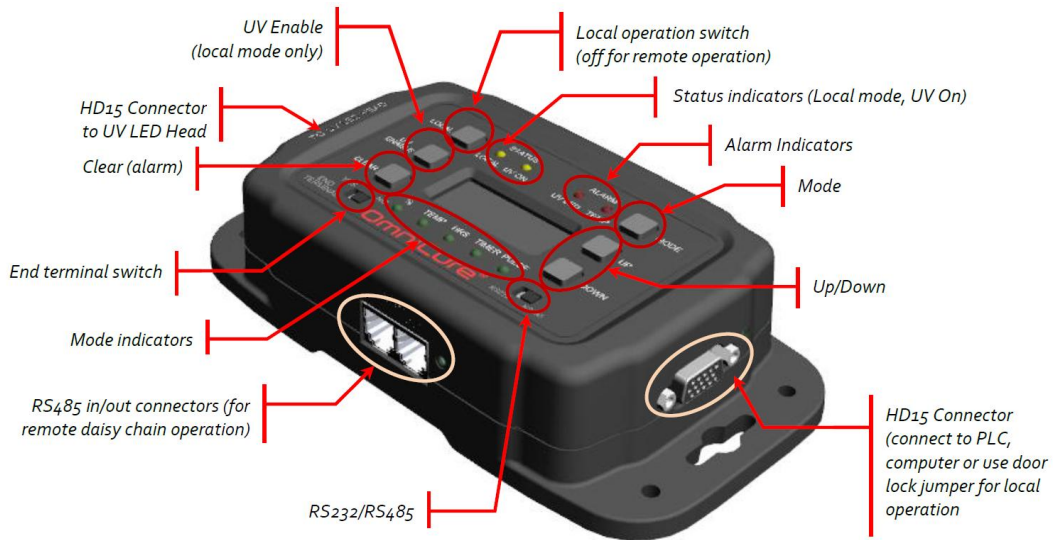


Figure 2 PLC Console (PLC2000 Remote Control Console shown)

Powering Up and Powering Down



1. Ensure that the AC8⁺ HD system has been properly installed and the UV LED Head is securely mounted with the optical lens in the desired orientation. Refer to section *Mounting the UV Head*.
2. Verify that the power supply unit's AC supply cord is connected to a properly grounded AC outlet.
3. If the power supply has a circuit breaker, switch it to the "ON" position.
4. Turn the main power switch of the power supply to the "ON" position and check the fan for airflow.
5. The LED indicator on the UV LED Head will flash green during "boot-up" and change to a steady green indicating UV LED Head is ready for use. It is recommended to wait for 15 seconds from initial power-up before attempting to control the UV head. For more information about the indicators, see section *Understanding the LED Indicators*.



After turning on UV power, the system will reach a fully stable operating temperature in 2-3 minutes. Caution – the UV LED Head can become very hot, avoid handling until the UV LED Head has cooled down (approx. 5 min) or use protective gloves.

Before disconnecting any cables, power down the UV LED Head using the PLC controller and turn off the power supply. (Note: the cooling fan may take up to 10 seconds to stop).

Mounting the UV Head

UV LED Head

Please note that the mounting holes on the AC9+ have not changed from the AC9 version.

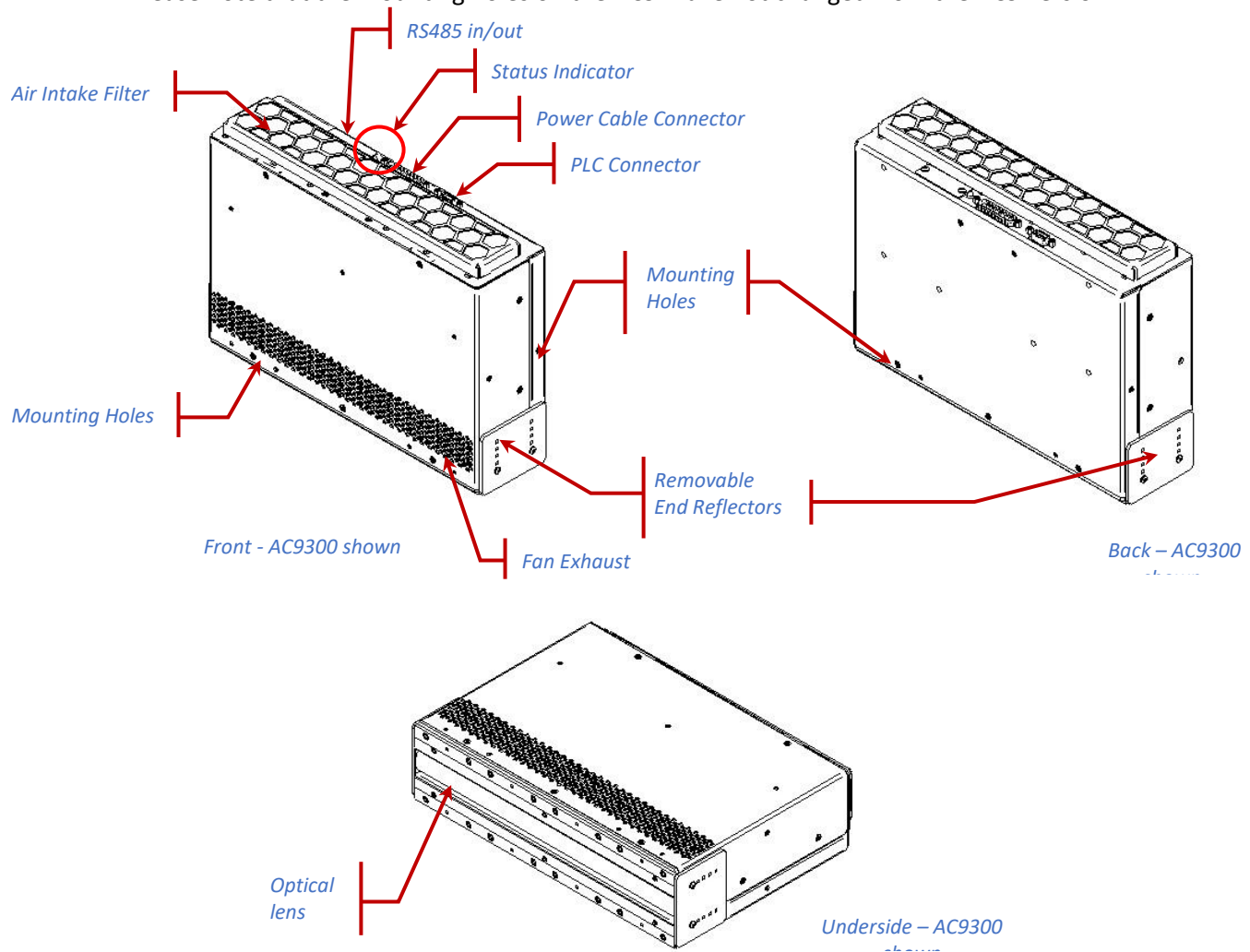


Figure 3 UV LED Head

Mounting the UV LED Head



****WARNING****

Do not block the air intake or the exhaust fans for the UV LED module's cooling system. Ensure that both intake and exhaust vents located on the LED heads have at least 5 inches (12cm) of clearance to allow sufficient air flow.

The UV LED Head includes threaded mounting holes (on the front, on the back, and on each side panel) M4 X 6mm deep. Mounting hole locations on the side panel are identical for all AC9+ models. However, front and back mounting hole locations differ according to the model. Refer to Figure 2 above and mechanical drawings for more information (www.excelitas.com/omniure).

Never mount the system using only one row of mounting features or from one side as this may damage the unit.

For applications requiring adjoining UV LED heads, mounting rails can be constructed from two long L-brackets. **For adjoining-head configurations it is important to remove the end-reflectors from all head-head abutment regions to maximize head to head optical uniformity.** The end-reflectors on the end-most points of the optical line can remain in place to further extend uniform operating length and operate as a UV shield for operators.



4CAUTION****

The threaded mounting holes in the AC9+ incorporate a blind configuration; ensure that the appropriate length of mounting hardware is used. Attempting to install over-length mounting screws could damage the threaded mounting holes and internal components.

Adjusting the Side Reflectors

To improve the longitudinal uniformity at the ends of the UV light line, the AC9+ series products are equipped with adjustable end reflectors (see Figure 2). These reflectors can be lowered in 10mm increments and can provide about 15mm of extended useful length when fully extended to 30mm working distance. They may also be useful in providing additional operator shielding of UV light.

To gain best effect from this mechanical feature, ensure that in the intended installation location the reflectors will not interfere with conveyed parts or conveyor belt or other mechanical attachments. Failure to do so may result in damage to ancillary hardware or the UV LED Head itself.

To adjust the reflectors:

1. Ensure that power to the unit is switched off.
2. Remove the two screws holding the end reflector in place.
3. Move the reflector down to the desired position, insert and tighten the two retaining screws.

This operation can also be performed on a single head.



****CAUTION****

When the end reflectors are detached from the head, the ends of the optical assembly and LED modules can be physically accessed. Take extreme care not to allow fingers, tools or other foreign objects or debris to come into contact with these areas. Doing so may severely damage or impair the function of your AC9+ series UV LED head. The installer should minimise the amount of time or frequency that these regions of the LED head are left unprotected.

UV LED Head Dimensions

The dimensions and weights of the various AC9+ series models are outlined below:

	AC9150+	AC9225+	AC9300+
Dimensions, mm (LxWxH)	159 x 80 x 218	235 x 80 x 218	311 x 80 x 218
Weight (kg)	2	2.6	3.7

For reference, the AC9300+, AC9225+ and AC9150+ mechanicals are shown in Figure 4, Figure 5, and Figure 6 respectively. For additional details or mechanical drawings for other AC9+ series models, please visit us online at www.excelitas.com/omnicure.

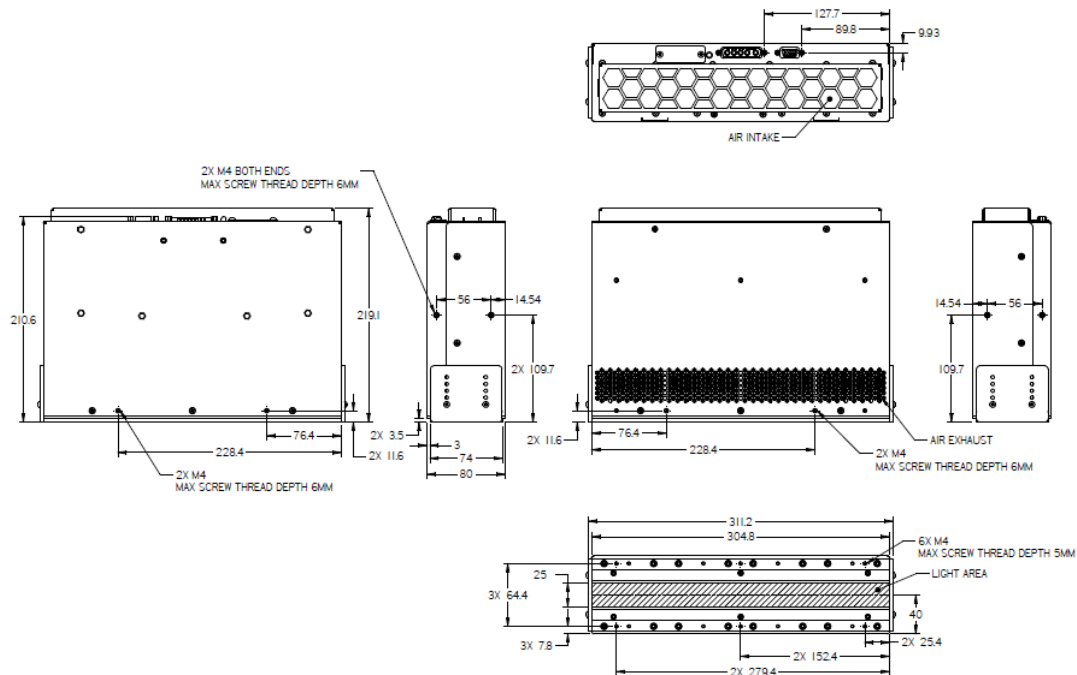


Figure 4 AC9300+ UV LED Head Mechanical Drawings

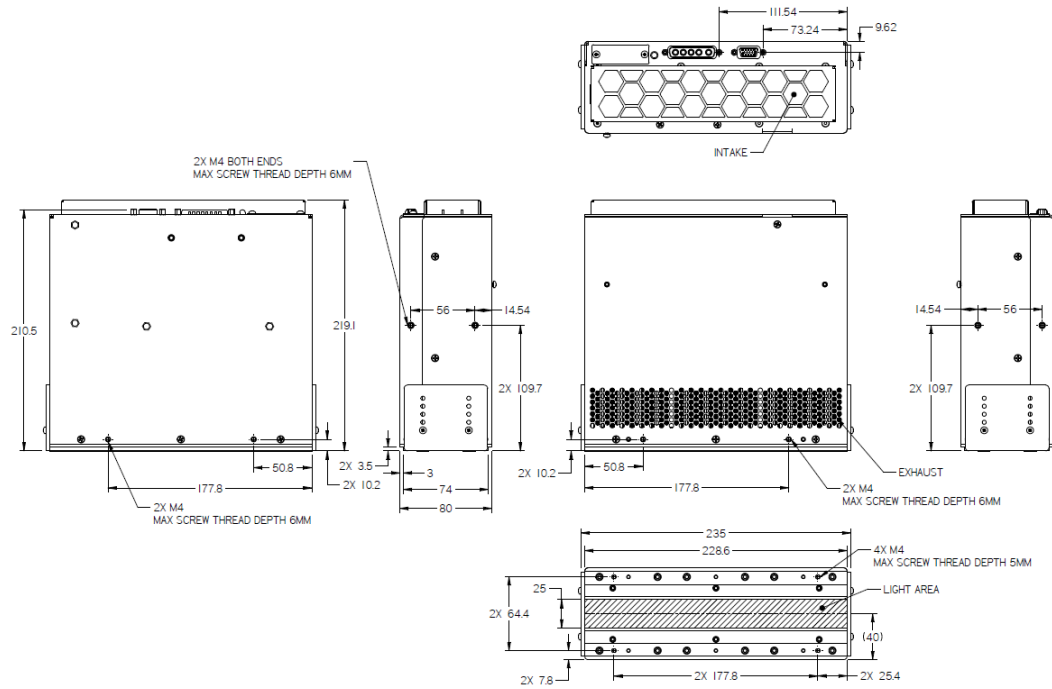
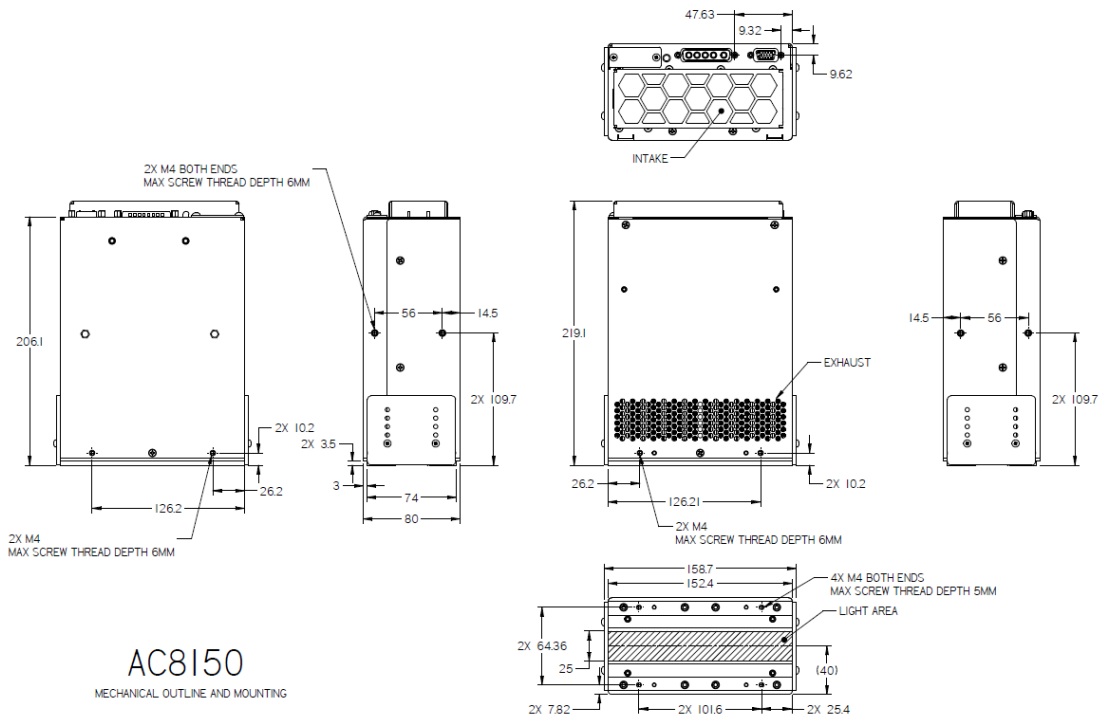


Figure 5 AC9225+ UV LED Head Mechanical Drawings



AC8150
MECHANICAL OUTLINE AND MOUNTING

Figure 6 AC9150+ UV LED Head Mechanical Drawings

Connecting the UV LED Head

Interfacing with the System Controller (PLC)

PLC Input Signal Requirements

	Digital	Analog
Input	- Voltage: 0 – 24 V - Current: 1 – 40 mA	- Voltage: 0 – 5 V - Current: 500 μA
Output	- Voltage: 0 – 5 V - Current: 4 mA (max.)	- Voltage: 0 – 5 V - Current: 100 μA

PLC Connector Pin-Out

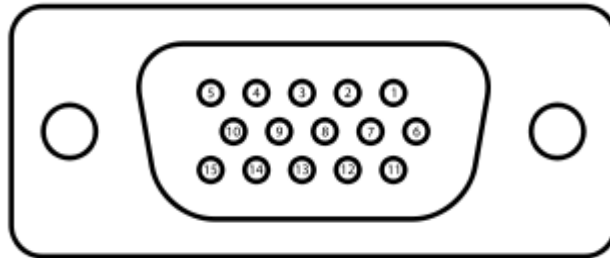


Figure 7 PLC Connector (looking at UV Head)

PIN	Name	Description
1	Intensity Input	Input voltage is converted to required current to achieve desired intensity; intensity will vary linearly between 20% and 100% for voltages between 1V and 5 V respectively. A minimum voltage of 0.4 V is required for proper light source operation. If the user inputs a voltage <i>below</i> the minimum required, the light source will not turn on.
2	Enable High	0.0 V to +0.6 V = Turns LEDs off (Open input will default to OFF). +2.4 V to +24.0 V = ON.
3	Enable Low	0.0 V to +0.6 V = Turns LEDs on. +2.4 V to +24.0 V = Turns LEDs off (Open input will default to OFF).
4	Thermal Fault	0.0 V to +0.4 V (ground) = Fault +2.4 V to +5.0 V (open) = No Fault
5	IsoDGND	Ground Reference for digital IOs
6	IsoVCC	+5.0 V Output.
7	Reserved	Do not connect
8	Door Lock *	0.0 V to +0.6 V = UV Emission Allowed. +2.4 V to +24 V = UV Emission Stopped.
9	IsoGND	Ground Reference for analog IOs.

PIN	Name	Description
10	LED ON	0.0 V to +0.4 V (ground) = LED off +2.4 V to +5.0 V (open) = LED on.
11	Reserved	Do not connect
12	UV LED Fault	0.0 V to +0.4 V (ground) = Fault +2.4 V to +5.0 V (open) = No Fault
13	Reserved	Do not connect
14	Clear Fault/ LED Hours	High-to-low transition clears faults; low-to-high transition initiates visual indicator sequence of accumulated LED hours
15	Temperature Monitor	Output is a voltage proportional to the maximum UV LED heat sink temperature. Conversion Factor: 0.05 V/°C.

Table 1 PLC Connector Pin Out

- * The integrated door lock function provides the integrator with a means of shielding operators from accidental UV exposure by utilizing a dry contact switch on the door of the UV shield and connecting between pins 5 and 8 on the PLC interface.

Integrating Monitoring with External Circuitry

All inputs and outputs from the PLC interface are opto-isolated. The digital outputs are implemented using NPN logic. The equivalent circuit is shown in figure below.

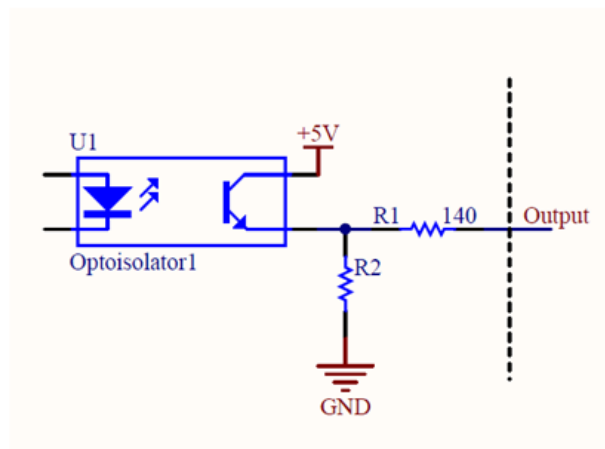


Figure 8 PLC Digital Output Equivalent Circuit

Interfacing with the Power Cable

Please note that the following 5 conductor DC power cables must be used with the AC9+ series UV LED heads. The 3 conductor power cables used with the AC4, AC5, and AC7 series will not work with the AC9+ Series.

Heads	Cable Part Number
AC9150+	018-00595R
AC9225+	018-00595R
AC9300+	018-00661R

Should third party cable assemblies be used, please note the following specifications must be met in order to ensure reliable operation of the AC9⁺ series UV LED heads and guarantee the appropriate EMI/EMC requirements are met.

- AC9⁺ 300: 5 conductor 12 AWG, shielded cable less than 5 meters in length.
- AC9⁺ 225: 5 conductor 14 AWG, shielded cable less than 5 meters in length.
- AC9⁺ 150: 5 conductor 16 AWG, shielded cable less than 5 meters in length or 3 conductor 12AWG, shielded cable less than 5 meters in length (connect one of pins A1 or A2, one of pins A3 or A4, and A5).

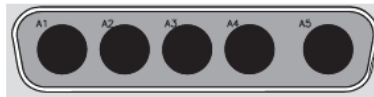


Figure 9 Power Connector (looking at UV Head)

PIN	Name	Description
A1,A2	+ve	48V DC power feed
A3,A4	-ve	48V DC power return
A5	Chassis	Chassis ground connection

Table 2 Power Connector Pin Out

48V Input Requirements:

- Voltage: 46-50V DC
- Current:
 - AC9150⁺ and AC9150P⁺ = 23 A
 - AC9225⁺ and AC9225P⁺ = 34.5 A
 - AC9300⁺ and AC9300P⁺ = 45.5 A

Note: For safety, the AC9⁺ series is internally fused. These fuses are not replaceable. If it is suspected that an internal fuse has blown, please contact [Excelitas Technologies Service Centre](#) for further assistance and refer to other sections of this manual.

Using the LED Head



The peak wavelength of the UV LED Head is 365, 385, 395, or 405 +/- 5 nm, depending on model.



For all models, adjusting the UV LED Head intensity can be actuated by an external controller via the PLC interface. Refer to *Pin-Outs* section.

Input voltage vs. desired intensity; 5V = 100% and 1V = 20%. A minimum voltage of 1V is required for light source operation.

Note: The light source will maintain a 20% intensity when the input voltage is in the range of 0.5V. If the input voltage is below this, the light source will turn off.

Ensure the UV LED Head indicator is illuminated to a steady green before applying UV power to the head. The UV LED Head indicator will illuminate to a steady amber indicating UV is on. When UV is off, the indicator will revert back to a steady green indicating UV is off.

The UV LED Head is capable of responding to PLC control signals in less than 0.2 seconds.

Understanding the LED Indicators

LED Indicator	Condition
Steady green	System Ready; no critical faults
Steady amber	UV LED turned ON
Steady red	Critical fault • Temperature Fault • LED Fault • System Error
Slow flashing green (~1x/second)	POST and Initialization Input voltage is less than 46V or greater than 50V. Unit is still functional.
Slow flashing red	Major and critical fault
Slow flashing amber	UV LED ON with 48V input voltage out of requirement
Fast flashing green (~3x/second)	Warranty status - operating hours is < 9,000
Fast flashing amber	Warranty status - operating hours = between 9,000 and 10,000
Fast flashing red	Warranty status - operating hours is > 10,000

Table 3 LED Indicator Status (UV LED Head)

A transition from high-to-low is required to clear the alarm signals. Use the PLC function:

Pin #	Description	I/O	Behaviour
14	Clear fault/ LED hours	In	0V to 0.6V (Open) Logic Low 2.4V to 24V Logic High High-to-low transition = clear faults Low-to-high transition = LED hours

Caution: Routine maintenance should only be completed by a user qualified personnel to avoid risk of injury to the end user. **No user serviceable components are located within the power supply or UV LED Head enclosures.**

Fault Status

PLC Output

- LED Fault: At least one module fails to turn on.
- Thermal Fault that includes:
 - At least one module's temperature is over the maximum limit.
 - At least one module's temperature is lower than the minimum limit or open circuit.
 - Internal Fault.

Troubleshooting - Symptoms and Possible Causes

Service to be completed by qualified Excelitas Technologies personnel only!

Always wear optical safety glasses while troubleshooting. Never put hands or fingers in front of the lens. Serious personal injury may result.

Do not place any potentially combustible materials (e.g. paper, card, etc.) in front of the LED Head. Risk of fire and damage to the UV LED Head may result.

If the system fails to power up:

- Make sure the AC power cord is securely plugged into a functional AC outlet and into the AC inlet on the power supply unit.
- Make sure that the circuit breaker on the power supply unit is not tripped. If so, reset breaker.
- Make sure all cable connections (power supply to UV LED Head) are secure.
- Ensure that the power supply is switched on and the green LED indicator on the front panel is lit.
- Make sure the door lock electrical loopback on the PLC is installed properly.

If the system powers up but experiences a thermal fault during operation:

- Ensure UV Head is installed with adequate clearance around intake and exhaust ports.
- Ensure intake air filter is not clogged or obstructed.
- If filter is clogged, either clean with compressed air or replace with a new filter insert.

If the system powers up but does not emit UV:

- Check that the door lock loop is intact.
- Ensure that the voltage levels on pins 2 and 3 of the PLC interface match the logic required to enable the LEDs.
- Check the visual indicator for signs of a fault.

If a fault condition has been detected:

- Attempt to clear the fault by toggling the voltage high on pin 14 of the PLC interface or by pressing the “Clear Fault” button on the PLC controller.

If the system exhibits a fault condition with a slow-flashing red:

- Power-cycle the UV Head to clear.

If the light intensity is too low:

- Make sure the input voltage is at least 46V (input voltage to the Head for the purposes of powering the head is typically 48V (46-50V DC)).
- Out-of-range input voltage will be indicated on the visible indicator on the UV LED Head with a slow flashing green.
- Clean the optical window of the UV LED Head as described in Section Cleaning the LED Head.
- Verify that the intensity level of the UV LED Head is set to the correct level, using the PLC Controller.
- If problems persist beyond these troubleshooting points, please contact Excelitas Technologies Service Department.

Care and Maintenance

Note: Excelitas Technologies recommends incorporating the cleaning of the optical lens into the user/operator cleaning and maintenance schedule.

Cautions and Handling



Caution: Routine maintenance should only be completed by qualified personnel to avoid risk of injury/electrical shock to the end user. **No user serviceable components are located within the UV LED Head enclosure.**



Warning: Use UV radiation eye and skin protection during servicing if access to the UV LED modules is required during operation.

Risk Group 3 (IEC62471)

WARNING: UV emitted from this product. Avoid eye and skin exposure to unshielded product.



CAUTION: Possibly hazardous optical radiation emitted from this product. Do not stare into operating lamp.



CAUTION UV: Hazardous visible radiation is emitted from this product. Eye or skin irritation may result from exposure. Use appropriate shielding.

Ensure main power supply is disconnected prior to making any changes to cabling configurations.

Ensure that both intake and exhaust vents located on the LED heads have at least 5 inches (12cm) of clearance to allow sufficient air flow.

Avoid physical shocks or jarring of the LED Head, especially while the unit is operating.

When necessary, clean the optical lens of the UV LED Head using an optical cleaning solution. Refer to section “Cleaning the LED Head”.

The UV LED Head includes an optical lens assembly. Improper handling and cleaning practices can damage polished surfaces or coatings which are utilized in this optical lens. Note that damage to the surface of the glass or coating can degrade the unit’s performance. Proper handling and cleaning technique is very important. Below are the recommended procedures for cleaning of the OmniCure® UV LED Head optical lens.

Always handle the UV LED Head by the metal enclosure; never touch the optical lens with your fingertips. The moisture or oils on your fingertips can damage the coating of the lens. Fingerprints left on an optical surface for an extended period of time, can become a permanent stain. Even if you are wearing gloves, avoid touching the optical surface.

Never touch the optical lens with metal implements or tweezers.

Do not place the UV LED Heads lens assembly down onto a hard tabletop surface; this can cause scratches in the lens surface.

To store UV LED Heads, wrap them individually in a clean, lint free bag and store in a safe place, preferably using the original packaging.

Never store unwrapped LED Heads together in a box or bag, as they may become damaged if they come in contact with each other.

Cleaning Materials

- Lint-free lens tissue, lint-free cotton swabs, lint or powder-free gloves or finger cots.
- An organic solvent, such as reagent-grade isopropyl alcohol, reagent-grade acetone, or lens cleaning solution.

Cleaning the LED Head



****WARNING****

Do not attempt to open the enclosure of the LED head. Ensure power to the power supply unit is OFF and the UV LED arrays are cool before attempting any cleaning procedure.

Use protective gloves or finger cots suitable for the cleaning solution selected. Refer to the MSDS for guidance.

Turn off the UV LED Head and keep the optical lens, face down to prevent the solvent from seeping into the assembly during the cleaning procedure.

Blow off dirt and dust with pressurized air on front glass surface.

Use a lens tissue folded into quarters or a lint-free cotton swab. Saturate the lens tissue or swab with organic solvent as indicated in the cleaning materials section.



****CAUTION****

Before using any solvent, consult the manufacturer's Materials Safety Data Sheets (MSDS) and your internal Health and Safety Advisor for proper handling and storage.

Using a new saturated tissue; clean optical lens by gently wiping the surface with a continuous stroke in one direction.

Note: Never apply a dirty tissue or swab to the optical lens of the UV LED Head.

Note: Never face the optical lens upwards before the solvent has evaporated.

Cleaning the LED Head Air Intake



****CAUTION****

Ensure that the LED Head power cable is disconnected from the head assembly and the UV LED Head is cool to the touch.

The air intake filter is located on the exterior of the LED Head and is removable for cleaning and/or replacement as required. Remove the filter frame by gently prying the frame from the clip end. Next, remove the filter media located within and clean with compressed air.

Replace the filter guard and frame prior to powering up the LED Head.

Technical Specifications

Environmental Conditions

Operating Conditions	
Ambient Temperature	15 °C to 40 °C ¹
Altitude, maximum	3000 m
Atmospheric Pressure	700 to 1060 hPa
Relative Humidity	10% to 80% (non-condensing)
Installation Category	II
Pollution Degree	2
Transport and Storage Conditions	
Temperature	-20 °C to +80 °C
Relative Humidity	0% to 80% (non-condensing)
Atmospheric Pressure	500 to 1060 hPa

¹ 15 °C - 50 °C for all P variants.

Table 4 Environmental Conditions

AC9+ UV LED Head Specifications

AC8/P+ Common Specifications	
Estimated LED Life, hrs.	> 40,000
Variable Intensity Range	20 – 100 %
Longitudinal Uniformity	Better than +/- 5 %
Operating Voltage	48 V DC +/- 2 V
Cooling	Air
Automation	Integrated PLC controls for UV intensity and system alarms

Head length, mm	Optical Size, mm x mm	Max Operating Current, A	Weight, kg	Power Consumption, W ¹
150	30 x 150	33.4	2	1603
225	30 x 225	50	2.6	2400
300	30 x 300	66.7	3.7	3202

LED Wavelength, nm	Peak Irradiance (W/cm2) ²
365	10.8
385	13.5
395	
405	

¹ At 100% intensity setting

² Typical

Table 5 UV LED Head Specifications

Regulatory Compliance

Safety and Electromagnetic Compatibility:

The OmniCure AC9+ series has been tested and found to comply with product safety and electromagnetic compatibility requirements. For a complete list of tests and for certification details, please contact your OmniCure representative.

CE Marking

Council Directive 2014/35/EU	Low Voltage Directive	
Council Directive 2014/30/EU	EMC Directive	
Council Directive 2012/19/EU as amended by (EU) 2024/884	WEEE Directive	
Council Directive 2011/65/EU as amended by (EU) 2015/863	RoHS Directive	

This is a class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

FCC Class A Digital Device or Peripheral

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.



****WARNING****

Changes or modifications not expressly approved by Excelitas Technologies could void the user's authority to operate the equipment.

China RoHS



The symbol above indicates that this product is in compliance with China RoHS requirements.

Part Name	Hazardous Substances									
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr (VI))	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ethers (PBDE)	Dibutyl phthalate (DBP)	Di isobutyl phthalate (DIBP)	Butyl benzyl phthalate (BBP)	Bis(2-Ethylhexyl) phthalate (DEHP)
Printed circuit board assemblies	X	O	O	O	O	O	O	O	O	O
This table is prepared in accordance with the provisions of SJ/T 11364-2024. Note 1: O: Indicates that the content of the hazardous substance in all homogeneous materials of the component does not exceed the national standard requirements for the restricted use of hazardous substances in electrical and electronic products. X: Indicates that the content of the hazardous substance in at least one homogeneous material of the component exceeds the national standard requirements for the restricted use of hazardous substances in electrical and electronic products. Note 2: For components not listed above, it means that the content of their hazardous substances does not exceed the national standard requirements for the restricted use of hazardous substances in electrical and electronic products. (Enterprises can further explain the technical reasons for marking "X" in the above table here according to actual conditions.)										

部件名称	有害物质									
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价 铬 (Cr(VI))	多溴 联苯 (PBBs)	多溴二 苯醚 (PBDEs)	邻苯 二甲 酸二 正丁 酯 (DBP)	邻苯 二甲 酸二 异丁 酯 (DIBP)	邻苯 二甲 酸丁 苄酯 (BBP)	邻苯 二甲 酸二 (2-乙 基)己 酯 (DEHP)
印刷 电路 板组 件	X	O	O	O	O	O	O	O	O	O

本表格依据SJ/T 11364-2024的规定编制。

注1：O: 表示该有害物质在该部件所有均质材料中的含量均不超出电器电子产品有害物质限制使用国家标准要求。

X: 表示该有害物质至少在该部件的某一均质材料中含量超出电器电子产品有害物质限制使用国家标准要求。

注2：以上未列出的部件，表明其有害物质含量均不超出电器电子产品有害物质限制使用国家标准要求。

(企业可在此处，根据实际情况对上表中打“X”的技术原因进行进一步说明。)

WEEE Directive



1. The symbol above indicates that this product should not be disposed of along with municipal waste, that the product should be collected separately, and that a separate collection system exists for all products that contain this symbol within member states of the European Union.
2. The equipment that you bought has required the extraction and use of natural resources for its production. It may contain hazardous substances that could impact health and the environment.
3. To avoid the dissemination of those substances in our environment and to diminish the pressure on the natural resources, we encourage you to use the appropriate take-back systems. Those systems will reuse or recycle most of the materials of your end life equipment in a sound way.
4. The crossed-out wheeled bin symbol indicated above invites you to use those systems.
5. If you need more information on the collection, reuse and recycling systems, please contact your local or regional waste administration.

Accessories

Various accessories to enhance the application utility of the AC9+ series are available. Please contact Excelitas Technologies for more information

Warranty

Excelitas Technologies warrants the original purchaser for a period of one (1) full year, calculated from the date of purchase, that the equipment sold is free from defects in material and workmanship.

In the event of a claim under this warranty, the equipment is to be sent postage and carriage paid to the [Excelitas Technologies Service Centre](#). Returned equipment will not be received without a Return Authorization (RA) Number, issued by the appropriate Service Centre.

In order for us to serve you better, include a written description of the fault and the name and telephone number of a contact person who may be contacted for additional service related questions.

Any claims for units received with defects in material or workmanship must be reported to an authorized Excelitas Technologies Service Centre within 30 days from the original date of receipt and returned within 30 days of reporting to an authorized Excelitas Technologies Service Centre. Excelitas Technologies will repair or replace these reported defects free of charge. The equipment must be sent postage and carriage paid.

Package the equipment in its original shipping case or as appropriate to prevent damage during transport.

In the case of damage caused by wear and tear, careless handling, neglect, by the use of force or in the case of interventions and repairs not carried out by an Excelitas Technologies Authorized Service Centre, the warranty ceases to be valid. This warranty may not form the basis for any claims for damages, in particular not for compensation of consequential damages.

This warranty is not transferable.

No warranty is extended to perishable items (if purchased separately or included in systems). These may include, but are not limited to air filters and cables.



****WARNING****

Apart from filters there are no field serviceable parts within the equipment. Opening the equipment main enclosure will void the warranty.

Checking LED Head Hours

Level transitions on pin 14 of the PLC interface can be used to access the UV LED warranty status information:

Pin #	Description	I/O	Behaviour
14	Clear fault/ LED hours	In	0 V to 0.6 V (Open) Logic Low 2.4 V to 24 V Logic High Low-to-High transition = LED hours

You can also check the status by pressing the Clear Fault button on the PLC Controller: on release of the button, the warranty status is indicated on the status indicator on the UV LED Head.

The LED indicator on the UV Head will display the warranty status of the UV LEDs as follows:

LED Indicator	Condition
Fast Flashing Green	Operating hours is < 9000
Fast Flashing Amber	Operating hours = between 9,000 and 10,000
Fast Flashing Red	Operating hours is > 10000

Table 6 UV LED Warranty Status

Replacement UV LED Module Warranty

If the AC9⁺ fails to power up during the warranty period of 10,000 operational hours or 2 years, whichever comes first, the UV LED Module will be replaced under warranty. In the event of a claim under this guarantee, the UV LED Head is to be sent postage and carriage paid, including a description of the fault, to the nearest [appropriate Excelitas Technologies Service Centre](#). Returned equipment will not be received without a Return Authorization (RA) Number, issued by the Service Centre. This warranty is non-transferable.

In the case of damage caused by careless handling, neglect, by the use of force or in the case of interventions and repairs not carried out by an Excelitas Technologies Service Centre to the AC9⁺ system, the guarantee ceases to be valid.

Returning your AC9⁺ System to Excelitas Technologies for Service

Please make a note of the problem encountered, the steps followed to isolate the problem and the result of any trouble shooting steps taken.

Telephone the nearest Excelitas Technologies Service Centre to obtain a Return Authorization Number so that repairs may be completed quickly and efficiently. In North America, request for Return Authorization number can be made online at https://www.excelitas.com/ox_service_request_form

Enclose details of the problem with the unit and return both to the Excelitas Technologies Service Centre. The unit should be returned in its original packaging if possible.

Contact Information

Excelitas Canada Inc.
2260 Argentia Road
Mississauga, Ontario
L5N 6H7 CANADA

Tel.: +1 905 821-2600

Toll: +1 800 668-8752 (USA and Canada)

Fax: +1 905 821-2055

http://www.excelitas.com/Pages/Contact/Contact_OX.aspx

www.excelitas.com/omnicure

Technical Assistance:

https://www.excelitas.com/ox_service_request_form

For a complete listing of Authorized OmniCure Distributors and Service Centres please go to

<https://www.excelitas.com/dealer-search>.