

UV Source Curing for Optical Adhesive

Digital UV Illumination System — programmable ultraviolet light source for photonics, electronics manufacturing, industrial curing, scientific research, and precision assembly



PRODUCT OVERVIEW

The Digital UV Illumination System is a programmable ultraviolet light source designed for photonics, electronics manufacturing, industrial curing, scientific research, and precision assembly applications. The system combines a high-performance digital controller with a remote UV illumination head, providing accurate control of output power, modulation frequency, waveform type, duty cycle, and pulse width. Its flexible architecture enables users to optimize UV exposure conditions for a wide range of applications while maintaining excellent repeatability, process stability, and operational efficiency. The compact and robust design makes the system suitable for laboratory environments, production facilities, and automated manufacturing systems.

KEY FEATURES

- Adjustable UV Output Power (0-100%)
- Programmable Waveform Generation
- Modulation Frequency up to 100 kHz
- Adjustable Pulse Width
- Output Power Stability $\pm 1\%$
- Continuous and Pulsed Operation
- Integrated Color LCD Display
- User-Friendly Menu Interface

APPLICATIONS

PHOTONICS & OPTOELECTRONICS

- Fiber Optic Component Assembly
- Optical Sensor Manufacturing
- Photonic Device Production
- Optical Alignment Processes
- Precision Bonding Applications

MEDICAL DEVICE MANUFACTURING

- Medical Component Bonding
- Catheter Assembly
- Disposable Medical Products
- Precision UV Curing

ELECTRONICS MANUFACTURING

- UV Adhesive Curing
- PCB Assembly
- Semiconductor Packaging
- Electronic Component Bonding
- Component Encapsulation

RESEARCH & DEVELOPMENT

- Material Characterization
- UV Exposure Testing
- Scientific Research
- Laboratory Experiments

SYSTEM DESCRIPTION

The Digital UV Illumination System consists of two main modules.

Digital Controller Unit

The controller provides complete system management through an integrated graphical user interface.

FUNCTIONS INCLUDE

- Power Adjustment
- Frequency Control
- Waveform Selection
- Pulse Configuration

UV Illumination Head

The remote UV illumination head delivers controlled ultraviolet energy directly to the target area.

ADVANTAGES INCLUDE

- Flexible Positioning
- Uniform UV Exposure
- Easy Integration
- Compact Installation
- Improved Accessibility
- Reliable Long-Term Operation

ADVANCED MODULATION CONTROL

The system incorporates an advanced waveform generation engine for precise UV modulation.

SUPPORTED WAVEFORMS

- Square Wave
- Sine Wave
- Triangle Wave
- Sawtooth Wave
- Custom Waveform (Optional)

PULSE CONTROL FUNCTIONS

- Adjustable Frequency
- Adjustable Duty Cycle
- Adjustable Pulse Width
- Adjustable Amplitude
- Continuous Mode
- Pulsed Mode
- Triggered Operation
- Real-Time Monitoring

These capabilities allow optimization of UV illumination for different materials, adhesives, optical assemblies, and manufacturing processes.

TECHNICAL SPECIFICATIONS

PARAMETER	SPECIFICATION
UV Wavelength	365 / 385 / 395 / 405 nm (Optional)
Optical Output Power	Adjustable
Output Power Control Range	0 – 100 %
Output Power Stability	±1 %
Waveform Types	Square, Sine, Triangle, Sawtooth
Frequency Control	Adjustable
Maximum Frequency	100 kHz
Duty Cycle	Adjustable
Pulse Width	Adjustable
Operating Modes	CW / Pulsed / Modulated
Display	Integrated Color LCD
User Interface	Front Panel Push Buttons
UV Head Type	Remote UV Illumination Head
Cooling Method	Forced-Air Cooling
Input Voltage	100 – 240 VAC, 50/60 Hz
Operating Temperature	10°C to 40°C

BENEFITS

- Precise UV Control**
Independent control of power, frequency, waveform, duty cycle, and pulse width enables optimization for demanding applications.
- Excellent Process Repeatability**
Stable UV output ensures consistent curing and exposure results.
- Improved Manufacturing Efficiency**
Programmable operation reduces processing time and improves production throughput.
- Flexible Integration**
The compact architecture allows easy integration into laboratory systems and industrial automation platforms.
- Enhanced Application Flexibility**
Multiple waveform and pulse configuration options support a broad range of industrial and scientific requirements.

ORDERING INFORMATION

MODEL	WAVELENGTH
DUIS-365	365 nm
DUIS-385	385 nm
DUIS-395	395 nm
DUIS-405	405 nm