

Wastewater Disinfection

TROJAN UV™

Water Confidence™

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TROJANUVSIGNA™



Revolutionary Advancement in Wastewater Disinfection

Ideal for primary, secondary, and reuse applications

UV is the most effective, safe and environmentally friendly way to disinfect wastewater. It provides broad-spectrum protection against a wide range of pathogens, including bacteria, viruses and chlorine-resistant protozoa such as *Cryptosporidium* and *Giardia*.

Chlorine is not the only viable disinfection option for mid- and large-scale applications. With the TrojanUVSigna™, operators and engineers can confidently choose UV and benefit from its inherent safety features, cost-saving advantages and disinfection performance.

TrojanUVSigna incorporates innovations, including TrojanUV Solo Lamp™ Technology, to reduce the total cost of ownership and drastically simplify operation and maintenance. It is the ideal solution for treatment plants in need of revolutionary UV technology.

Key Benefits

TrojanUVSigna

Low lamp count and high electrical efficiency. The revolutionary, 1000 Watt TrojanUV Solo Lamp combines the best features of low- and medium-pressure lamps.

Modular and compact. UV banks are available in two-row, four-row and six-row lamp configurations, thus accommodating various channel depths.

Optimized power consumption. Banks are turned on/off based on UV demand. The advanced Solo Lamp Driver enables lamp dimming from 100 to 30% power and has built-in diagnostic capabilities for easy troubleshooting.

Simple water level control. Light locks at each bank enable high tolerance to fluctuations in flow rates and water levels, simplifying water level control while maximizing disinfection.

Less time spent changing lamps. Fewer lamps, long lamp life and easy change-outs save time and money.

Chemical and mechanical sleeve cleaning. Without removing equipment or disrupting disinfection, the dual-action ActiClean™ system provides superior, automatic lamp sleeve cleaning.

Worry-free maintenance. Lamp change-outs and cleaning solution replacement are done while the UV bank is in the channel. And, thanks to the modular Power Distribution Center (PDC), components for one bank are isolated and can be safely accessed while other banks remain energized and disinfecting.

Easy bank removal. Routine maintenance can be performed while banks are in the channel, but an Automatic Raising Mechanism (ARM) makes other tasks – such as winterization – simple, safe and easy.

Simple retrofitting. Stringent tolerances on concrete channel walls are not required, making chlorine contact tank and UV channel retrofits simple and cost-effective. Retrofits can accommodate existing water level profile and head loss.

TROJAN UV SIGNA™

Compact, modular wastewater disinfection

Power Distribution Center (PDC)

The compact PDC panel contains state-of-the-art lamp drivers that power and control the UV lamps. Lamp drivers are rack-mounted, quick and easy to change, and generate very little waste heat.

Each PDC panel (which can operate multiple UV banks) has individual doors, disconnects and isolation so that other banks can remain energized while accessing components (e.g., lamp drivers) of another bank.

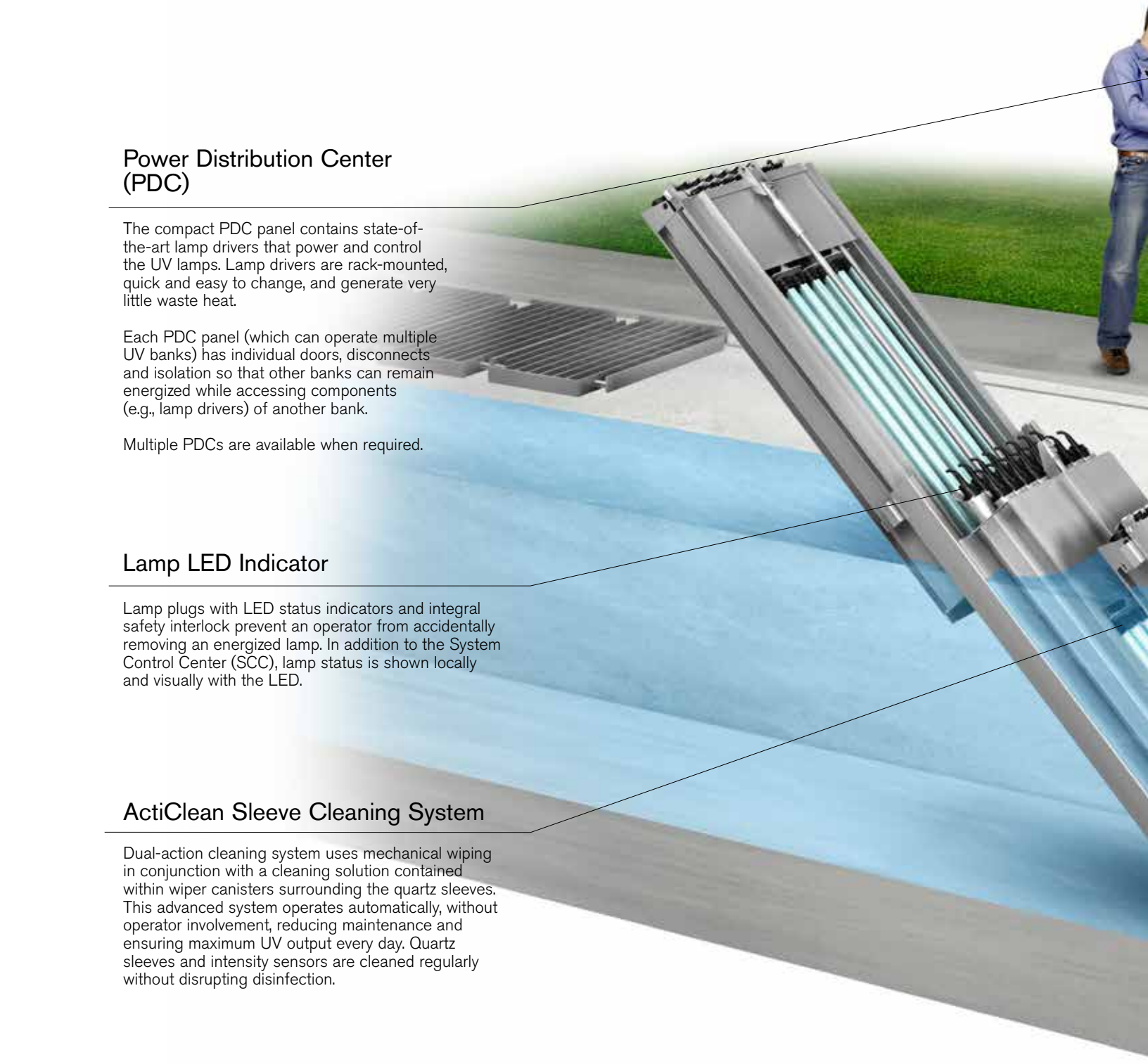
Multiple PDCs are available when required.

Lamp LED Indicator

Lamp plugs with LED status indicators and integral safety interlock prevent an operator from accidentally removing an energized lamp. In addition to the System Control Center (SCC), lamp status is shown locally and visually with the LED.

ActiClean Sleeve Cleaning System

Dual-action cleaning system uses mechanical wiping in conjunction with a cleaning solution contained within wiper canisters surrounding the quartz sleeves. This advanced system operates automatically, without operator involvement, reducing maintenance and ensuring maximum UV output every day. Quartz sleeves and intensity sensors are cleaned regularly without disrupting disinfection.

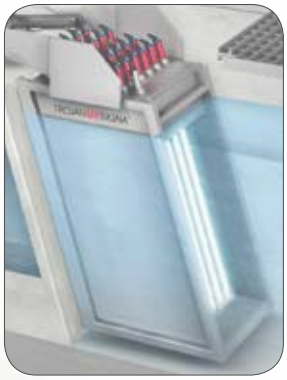


Shown here is the two-row lamp configuration.

Modular UV Bank (available in two-row, four-row or six-row lamp configurations)

A bank consists of TrojanUV Solo Lamps, positioned in a staggered, inclined array. With a push of a button, the ARM lifts the bank out of the channel. Integral bank walls optimize performance, prevent short-circuiting and simplify installation by eliminating the need for stringent concrete tolerances at the walls.

Banks are also available in four- and six-row lamp configurations, with concrete culvert. Shown here (in the image to the right) is the four-row.



Light Locks

Regardless of flow rate, high or low, light locks help direct the flow through the bank, maximizing disinfection and efficiency while minimizing quartz sleeve fouling.

SOLO LAMP™ TECHNOLOGY

TrojanUV Solo Lamp Technology

The revolutionary TrojanUV Solo Lamp enables high electrical efficiency and reduced lamp count. Lamps are located within protective quartz sleeves and positioned in a staggered, inclined array for maximum disinfection performance and easy accessibility.

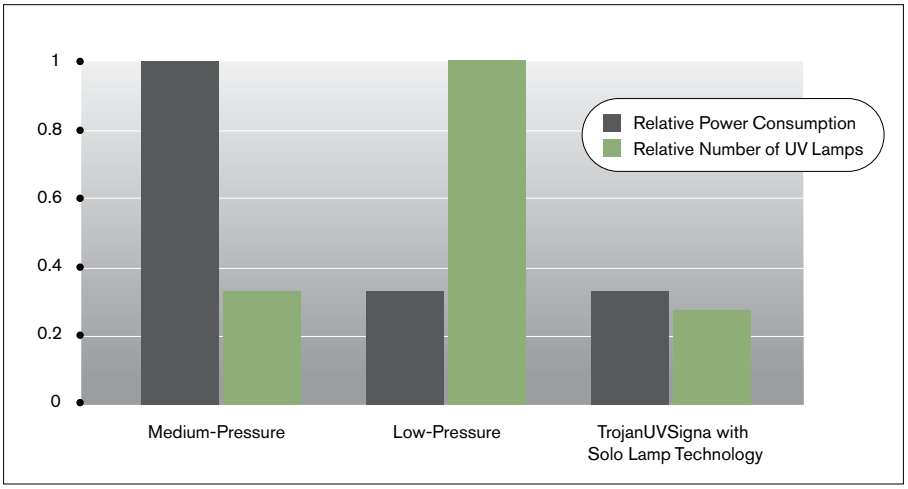
Revolutionary Lamp and Driver Technology

The best features of both low- and medium-pressure lamps

SOLO LAMP™ TECHNOLOGY

Benefits:

- Energy-efficient, 1000 Watt TrojanUV Solo Lamp
- High UV output, high electrical efficiency and lowest total lamp count
- Power consumption is approximately 1/3 that of medium-pressure lamps
- Long lamp life (15,000 hours guaranteed)
- Solo Lamp Driver has a high power factor, low total harmonic distortion, and cost-saving lamp dimming from 100 to 30% power
- Solo Lamp Drivers are rack-mounted for easy removal and replacement, if required



TrojanUV Solo Lamp systems combine the benefits of other lamp technologies – the low lamp count of medium-pressure systems with the high electrical efficiency of low-pressure high-output (LPHO) systems. The result is a compact, cost-effective installation that is easy and quick to maintain.

Bioassay Validation

Ensures accurate dose delivery

Benefits:

- Real-world performance data is generated over a range of flow rates, UVT, and using multiple organisms to represent pathogens with varying UV resistance
- Bioassay validation is the only way to evaluate disinfection performance of a UV system
- Incorporates the impact of actual lamp output, lamp spacing and configuration, hydraulics, quartz sleeve transmission, lamp driver efficiency and other variables affecting performance
- Third-party validations to USEPA UVDGM, NWRI and IUVA for secondary and high-level reuse applications



Validation testing incorporates UV sensors for accurate dose delivery and disinfection confidence.

Easy Operation and Simplified Maintenance

Designed to make the operator's job easier

Benefits:

- Reduced number of lamps means less time and money spent changing, maintaining and replacing them
- Dose pacing extends lamp life and reduces number of lamps replaced each year
- Safety interlocks prevent operators from accidentally removing an energized lamp
- The dual-action ActiClean system provides superior, automatic sleeve cleaning to remove fouling
- Cleaning solution can be refilled anytime, without removing banks from the channel
- PDC has multiple doors, giving operators the ability to safely isolate and perform lamp/lamp driver change-outs on one bank without having to shut down or de-energize others



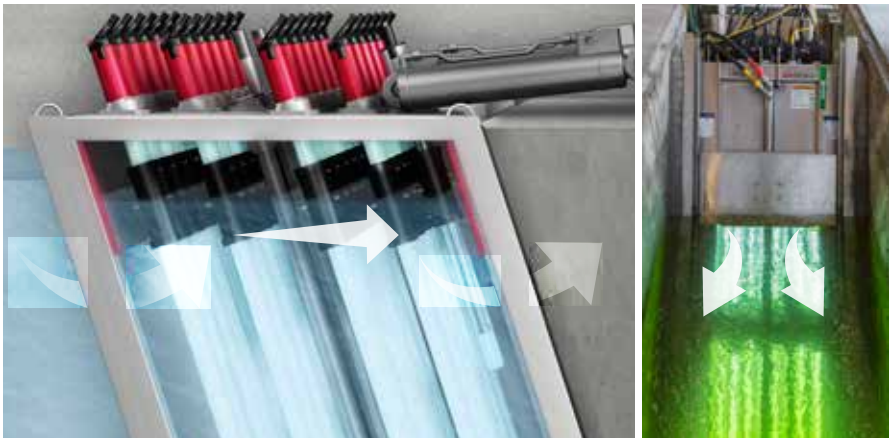
Routine maintenance is performed while banks are in the channel. However, when needed, banks can be raised by pressing a button and activating the ARM.

Proven Disinfection Performance

Revolutionary UV technology and design features guarantee optimal results

Benefits:

- Light locks direct the flow through the bank, enabling high tolerance to water level changes and maximizing the UV energy delivered to the effluent
- Integral bank walls eliminate the risk of short-circuiting
- Staggered, inclined array – optimized through computational fluid dynamics – reduces sleeve stress and debris collection, and maximizes disinfection performance
- Advanced, NIST-traceable sensors continuously monitor lamp intensity to guarantee disinfection and meet permit requirements while balancing energy usage



Light locks, along with downstream level controller, ensure that no portion of the lamp arc is exposed to air. This ensures operator safety, prevents sleeve fouling and maximizes disinfection.

Flexible Installation and Easy Retrofitting

Cost-effective installation in existing effluent channels

Benefits:

- Designed to fit into an existing chlorine contact chamber, thus reducing civil and concrete work
- Integral bank walls and light locks make retrofits or new installations easy; disinfection performance no longer relies on concrete channel wall tolerances or downstream water level controller
- All system components can be installed outdoors
- Modular design reduces channel depth and length requirements



The TrojanUVSigna can be installed in an existing chlorine contact tank without major modifications to the channel depth or width. Gone are the days of time-consuming installations requiring new concrete walls with tight tolerances or stepped floors. Shown here is the two-row lamp configuration.

System Specifications

System Characteristics	TrojanUVSigna
Lamp Type	TrojanUV Solo Lamp (amalgam)
Lamp Driver	Electronic, high-efficiency (99% power factor)
Input Power Per Lamp	1000 Watts
Lamp Control	30 - 100% variable lamp power (1% increments)
Lamp Configuration	Staggered, inclined array (two-row, four-row or six-row)
Module/Bank Frame	Type 6P (IP67)
Ballast Enclosure	Type 4X (IP66)
Cleaning System	Automatic ActiClean chemical/mechanical
UV Intensity Sensor	1 per bank – with automatic chemical cleaning
Bank Lifting Device	1 per bank - Automatic Raising Mechanism (ARM)
Level Control Device	Fixed weir or motorized weir gate
Water Level Sensor	High and low water level sensors available (one per channel)
Installation Location	Indoors or outdoors
System Control Center	Standard color HMI, 16 digital I/O, 4 analog I/O, SCADA compatible PLC options available

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