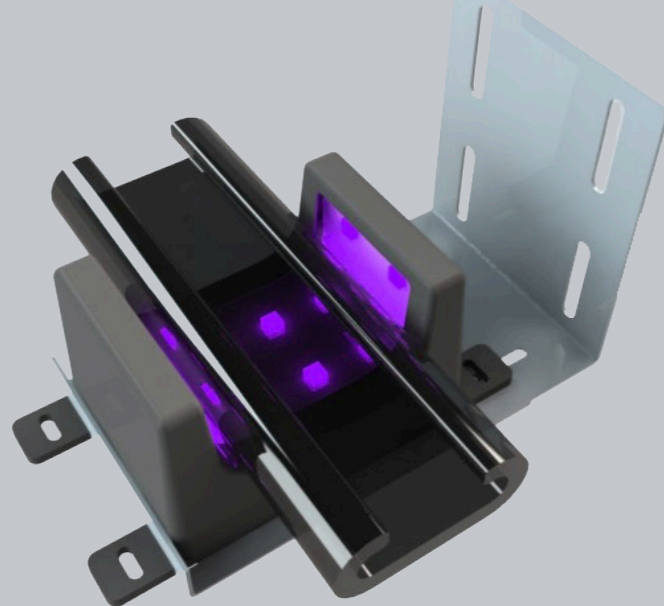


Sterile Touch

Sapphire LED UV-C Handrail Sterilization Module



Patent number: 202030217052.0
202020792369.1

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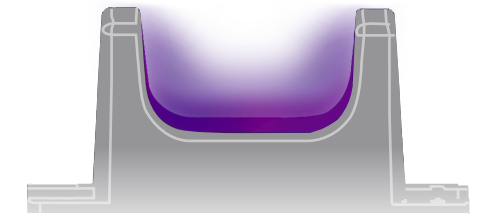
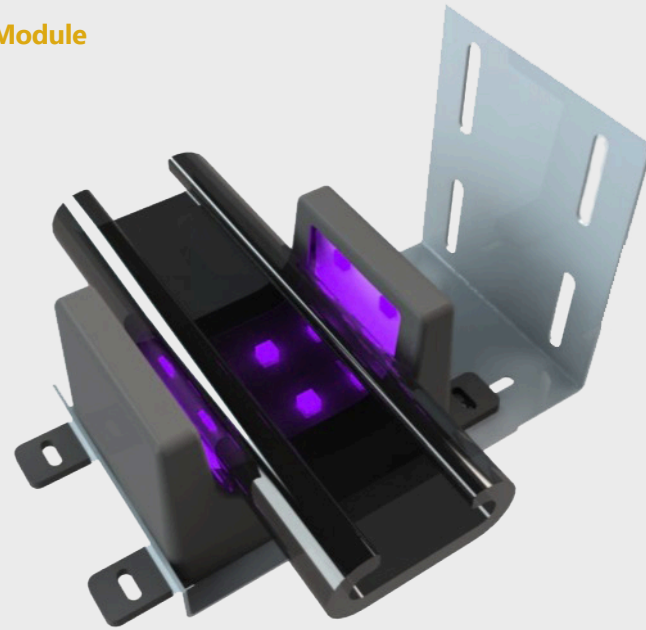
Sterile Touch

Sapphire LED UV-C Handrail Sterilization Module

Aesthetic Exterior Appearance

Our Sterile Touch, by its design of surrounding the handrail, and appearance perfectly reflect this technology capability of high sterilization.

Patent number: 202030217052.0
202020792369.1



ALL-AROUND Sterilization

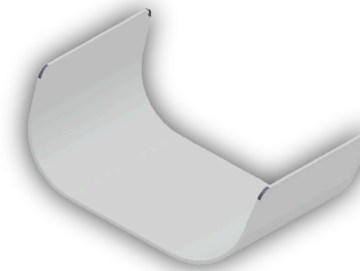
Operation Monitor / User Visualization

Display of Normal Operation can be seen clearly on the skirt of the escalator. Indicator of good operation show by a LED and positioned in the center of the handrail sterilized tag.

Easy to check during inspection and maintenance of your escalator.

Easy to understand for the final user of the escalator that it is a sterilized handrail.

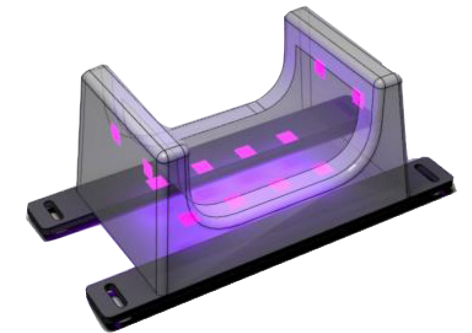
Patent number: 202030217052.0
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U TYPE

Integrated quartz glass, to permit the transmission of 100 % of the UV C ray for the best efficiency.

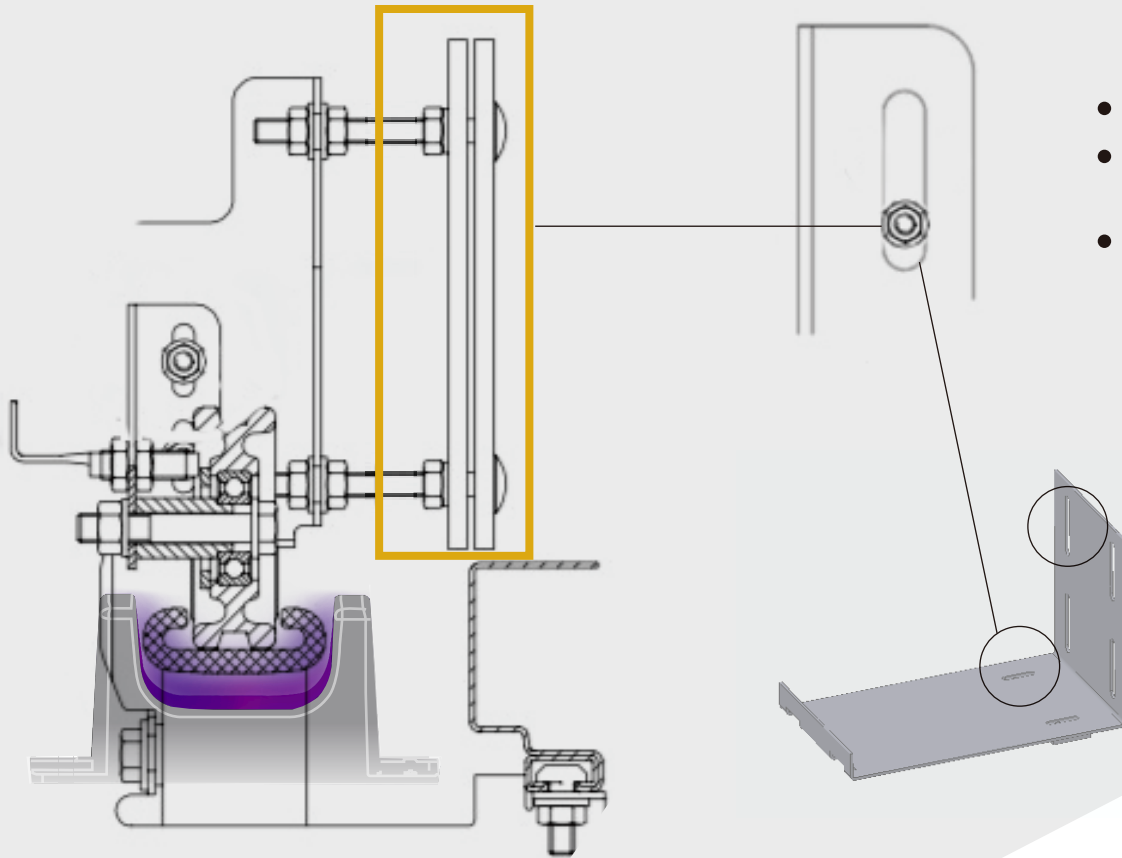
Patent number: 202030217052.0
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Professional Ceramic

LED UV-C light, Sapphire glass lens.

UV-C Module (20mW*12ea)
Totally: 240mW. (DC24V@100mA)



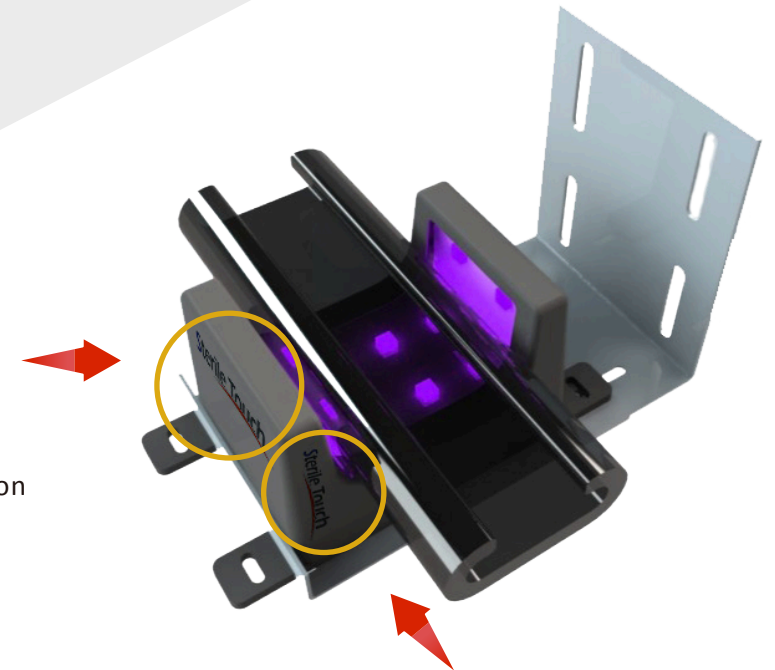
Easy And Safe Installation

- U groove hole to adapt perfectly and easily the module to the handrail
- The mounting bracket can be moved back and forth/ up and down by adjusting the bolt position
- Suitable for all type of Escalator and Moving walkway

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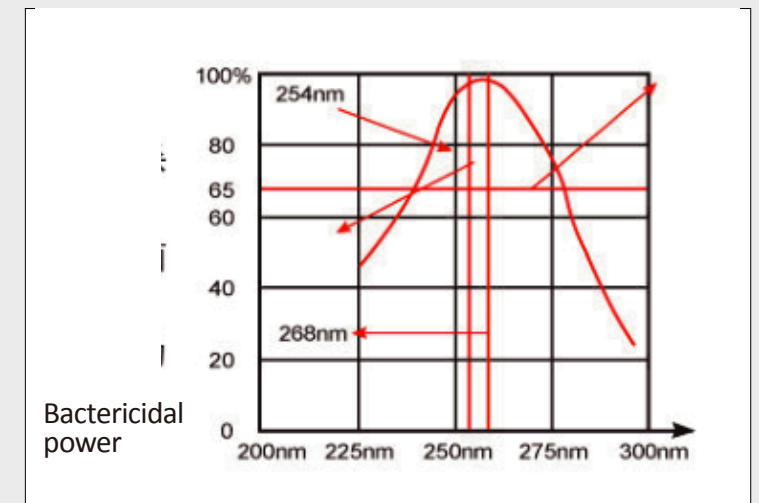
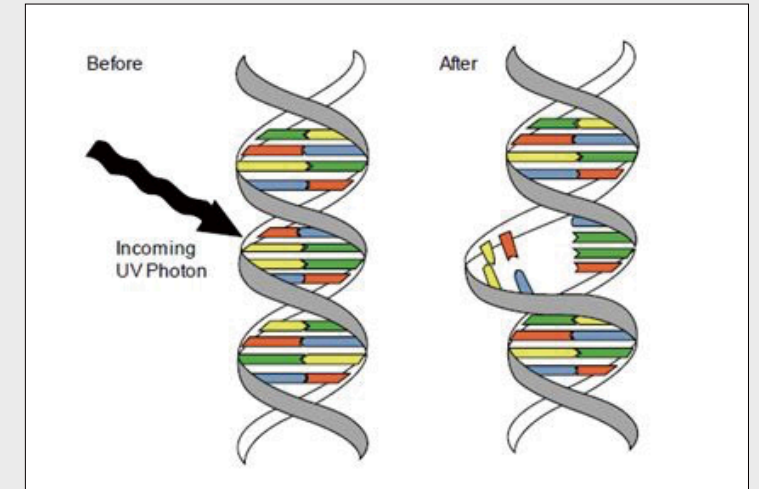
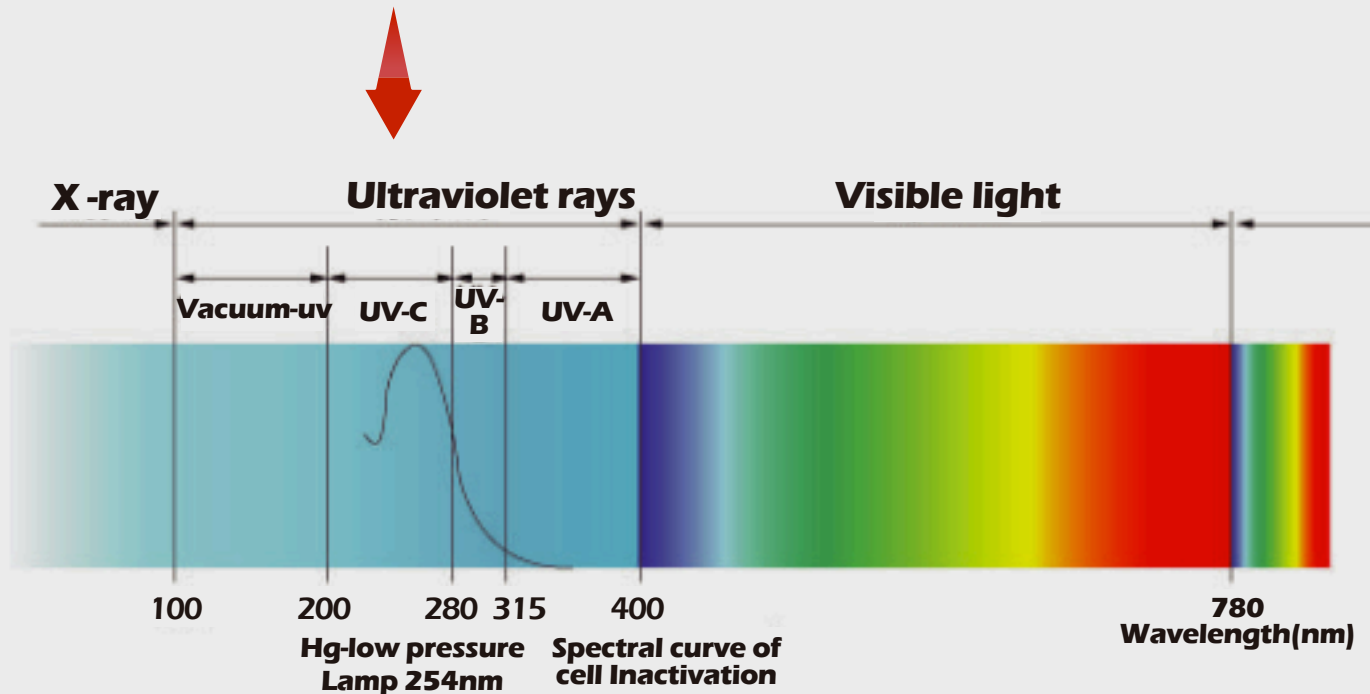
Tag your LOGO

Your own logo can be attached on the module as you request



• Mechanism Of UV Sterilization

The irradiation of UVC to microorganisms such as bacteria and viruses will destroy the structure of the DNA (deoxyribonucleic acid) and RNA (ribonucleic acid) of the microorganism's cells. Cause DNA strand breaks, crosslinking of nucleic acids and proteins, and cause death of growth cells and regenerative cells, to achieve the effect of sterilization.



Technical Parameters

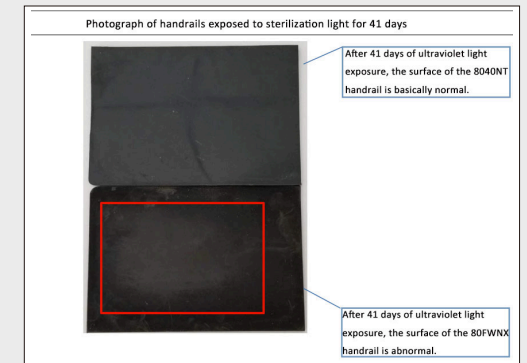
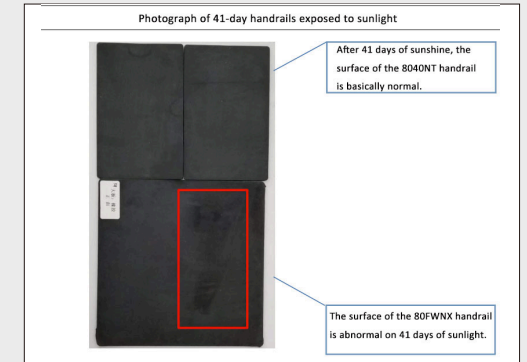
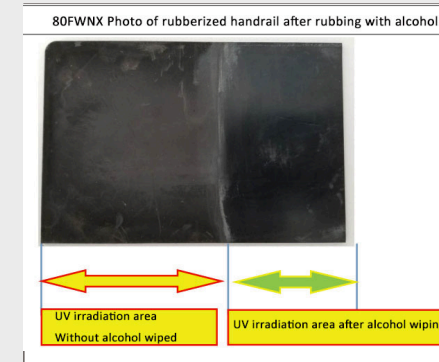
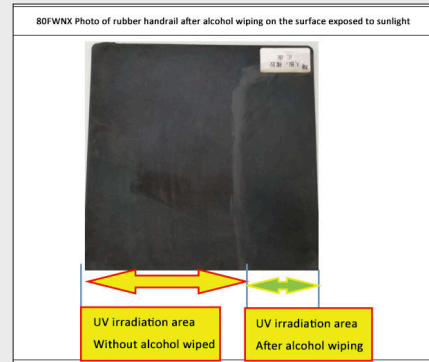
Material:	ABS,VO Flame retardant grade
LED light source:	Ceramic substrate and sapphire glass lens
Input Voltage	DC24V±10%
Input Current	< 0.3A
Wave length	270-280nm
LED Size	3535
LED Quantity	12PCS
Design Lifetime	10000H
IP Protecting Level	IP55
Working Temperature	-25°C~+60°C
Operation Relative Humidity	≤95%
Storage Environment	-30°C~+70°C
Best sterilization Distance	≤25mm(vertical distance between light emitting surface of lamp and handrail)
Irradiation Area	195*70mm
Initial Irrandiance	≥70uw/cm2(@15mm)
Irrandiance@10000Hrs	≥60uw/cm2(@15mm)
Off and On time	>300,000 times

Report On Germicidal Efficiency



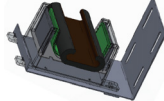
			CFU	CFU	(%)	(KL)
Escherichia Coli (8099)	1min	1	20	3.3×10^6	99.99	5.26
		2	10	3.8×10^6	99.99	5.56
		3	25	3.7×10^6	99.99	5.16
				3.6×10^6	99.99	5.33
	2min	1	<5	3.3×10^6	>99.99	>5.86
		2	<5	3.8×10^6	>99.99	>5.86
		3	<5	3.7×10^6	>99.99	>5.86
			3.6×10^6	>99.99	>5.86	
Staphylococcus aureus or "staph" (ATCC 6538)	1min	1	3.1×10^3	4.2×10^6	99.94	3.20
		2	2.8×10^3	4.8×10^6	99.94	3.24
		3	2.6×10^3	6.0×10^6	99.94	3.28
	2min			5.0×10^6	99.94	3.24
		1	2.1×10^3	4.2×10^6	99.99	4.37
		2	2.6×10^3	4.8×10^6	99.99	4.28
		3	2.4×10^3	6.0×10^6	99.99	4.31
		5.0×10^6	99.99	4.32		

Analysis On The Influence Of Handrail Life

The results is showing that the physical properties of SBR and TPU of the handrail belt surface rubber layer did not change significantly after the exposure to sunlight and sterilization light.



Treatment Conditions	Handrail A			Handrail B			
	Without irradiation	Sunlight	Sterilization light irradiation	Without irradiation	Sunlight 1#	Sunlight 2#	Sterilization light irradiation
Hardness(shore A)	76	77	76	85	86	86	86
Tensile Strength (Mpa)	18.30	19.02	18.30	33.29	35.22	33.69	33.31
Elongation at break(%)	307.07	327.45	316.27	599.43	551.97	610.30	591.60
300% constant elongation(Mpa)	18.18	18.26	17.88	12.63	13.02	12.60	12.65



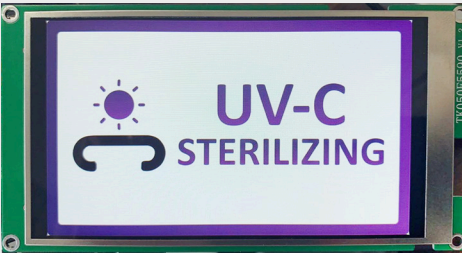


	Outside installation version	Current inside inner version	Sterile Touch From ES
Product picture			
Material used and flame retardant level	ABS,V2	PC,V2	ABS,V0 (highest level of flame retardant)
EN115:2017 standard	N	Y	Y
Safety	Accident can happen Risk to pinch long skirt or hair	hidden in escalator	hidden in escalator
Exposure effect	180° exposure, not suitable due to dead spot of UV emission.	Not perfectly suitable:due to poor light energy transmit- ted on the two curved sides of the handrail (through refraction only)	270 degree exposure, no loss for the light passing through the quartz glass cover. Only direct transmission of light energy include the both sides of handrail
Operation monitor (outside)	N	N	Y Clear and Visible indicator with a LED on the Skirt of escalator to check the Good working operation of the module in a blink of an eye.
Visibility of good working operation	Y	N	Y Visible LED indicator and visible Safe handrail sterilized Tag associated. To notify clerly to the final user that this escalator Hand- rail is safe and sterilized.
LED light	---	---	UV sterilization light source made of ceramic substrate with sapphire glass lens(100% of transmission).
Installation convenience	Y	Without mounting bracket	Y Specially designed mounting bracket for all types/brands of escalator and moving walkway.

Tag Option



Installation position

All dimensions and words support customized.

	<p>1</p> <p>Material: PVC Pastable 95*148mm</p>
	<p>2</p> <p>Material: PVC Pastable 300*95mm</p>
	<p>3</p> <p>LED Display 7 inch (Diagonal)</p>
	<p>4</p> <p>Material: Electro Luminescent 300*95mm</p>
	<p>5</p> <p>Material: Electro Luminescent 300*95mm</p>