

Cell

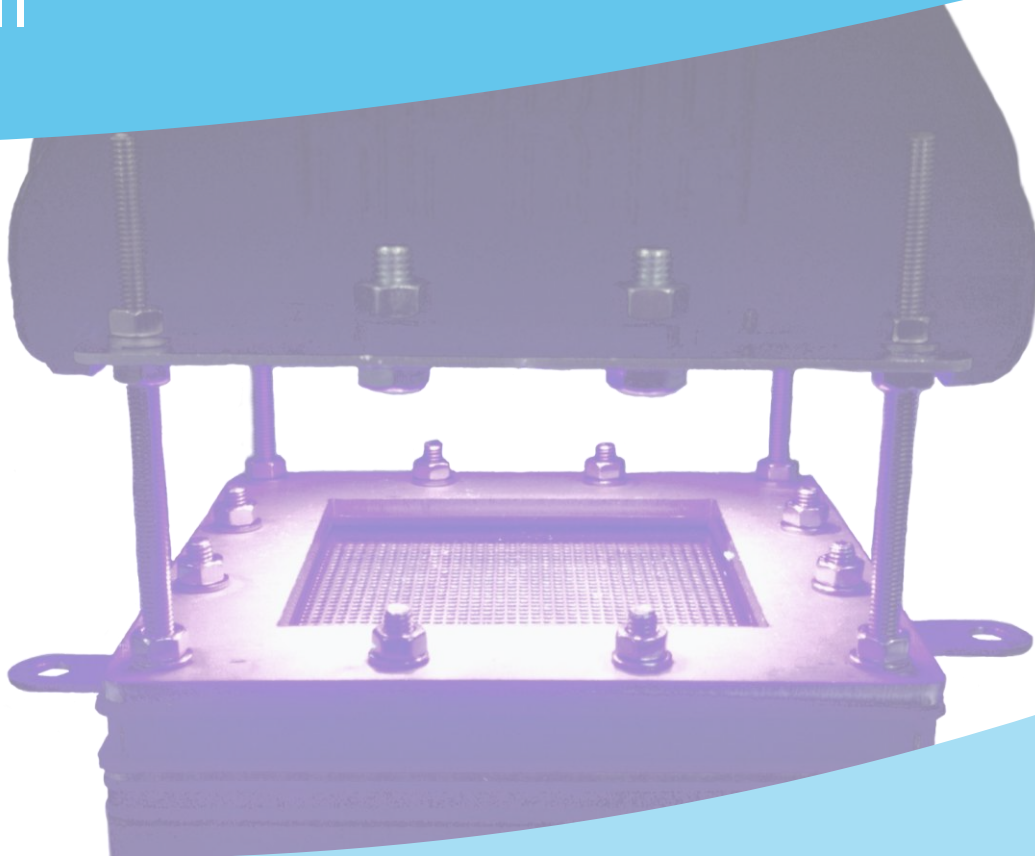


Plate and frame configuration



Customized electrodes



LED technology



Adjustable radiation intensity

The equipment

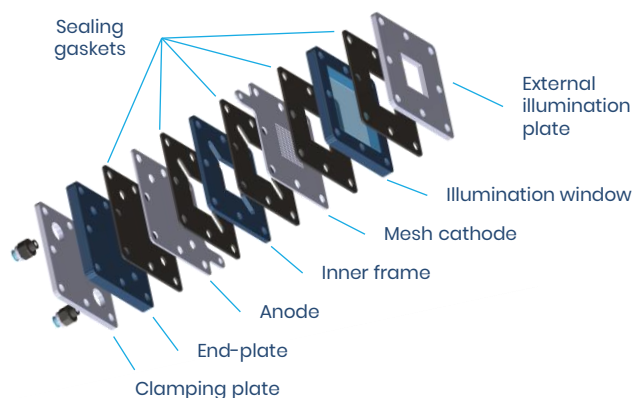
Apria Systems has designed a series of flexible cell photoelectroreactors, offering a wide range of **tailor-made** models to adapt the equipment to the needs of our clients.

We always use **cutting-edge LED technology** as source of light. Remarkably, the emitted radiation intensity can be regulated, and the temperature of the LEDs is controlled through forced air convection. Exchangeable illumination lamps –plates– are available in case different kind of lights need to be used.

The **electrodes can be totally customized**, being possible to select their configuration (gap between electrodes, number of compartments, etc.), the active anodic area, and the geometry of the electrodes. Moreover, we have a wide variety of exchangeable electrodes, allowing to test different electrode materials, when necessary.



Elements of the system



Operation

1. Pump the fluid to be treated
2. Turn-on the electronic console and select the working type of light, adjust its radiation intensity, and switch-on the lamp
3. Turn on the AC/DC power supply and select the desired working amperage and voltage
4. Perform the photoelectrochemical tests

We offer a wide range of alternatives to adjust our equipment to your needs

Reactor characteristics

Operation mode	Continuous / recirculation
Configuration	One plate / exchangeable plates – up to two wavelengths per plate -
Operation conditions	P_{max} : 1 bar; T_{max} : 50 °C, J_{max} : 1.000 A/m ²
Flowrate (m³/h)	Up to 1
Irradiated area (cm²)	1 - 100
Number of LEDs	1 - 25
Adjustable radiation intensity	Yes, through an electronic console with PLC
Refrigeration system for the LEDs	Forced air convection
Number of compartments	Selectable
Optional items	Automatization / feeding tank / online measurements (O ₂ , pH, etc.) / power supply / pumping / temperature control

Source of light

Light	λ (nm)	λ_{peak} (nm)	Φ / LED
UV-C	263 – 268	265	100 mW
	268 – 280	275	
UV-B	295 – 305	300	32 mW
UV-A	365 – 370	365	1,200 mW
Violet	400 – 410	405	1,260 mW
White	400 – 700	450	315 lm
Blue	453 – 460	457	1,350 mW
Green	520 – 530	523	450 mW
Yellow	587 – 598	590	470 lm
Red	618 – 630	623	935 mW
NIR	835 – 875	850	930 mW
FIR	920 – 960	940	1,350 mW

Electrodes

Type	Frame / mesh / perforated / solid
Geometry	Circular / rectangular / square
Material	Al / BDD / carbon felt / IrO ₂ / Ni / PbO ₂ / Pt / PtO _x / RuO ₂ / SnO ₂ / stainless steel / Ti
Active anodic area (cm²)	1 – 100
Gap between the electrodes (cm)	0.1 – 2