

Cell

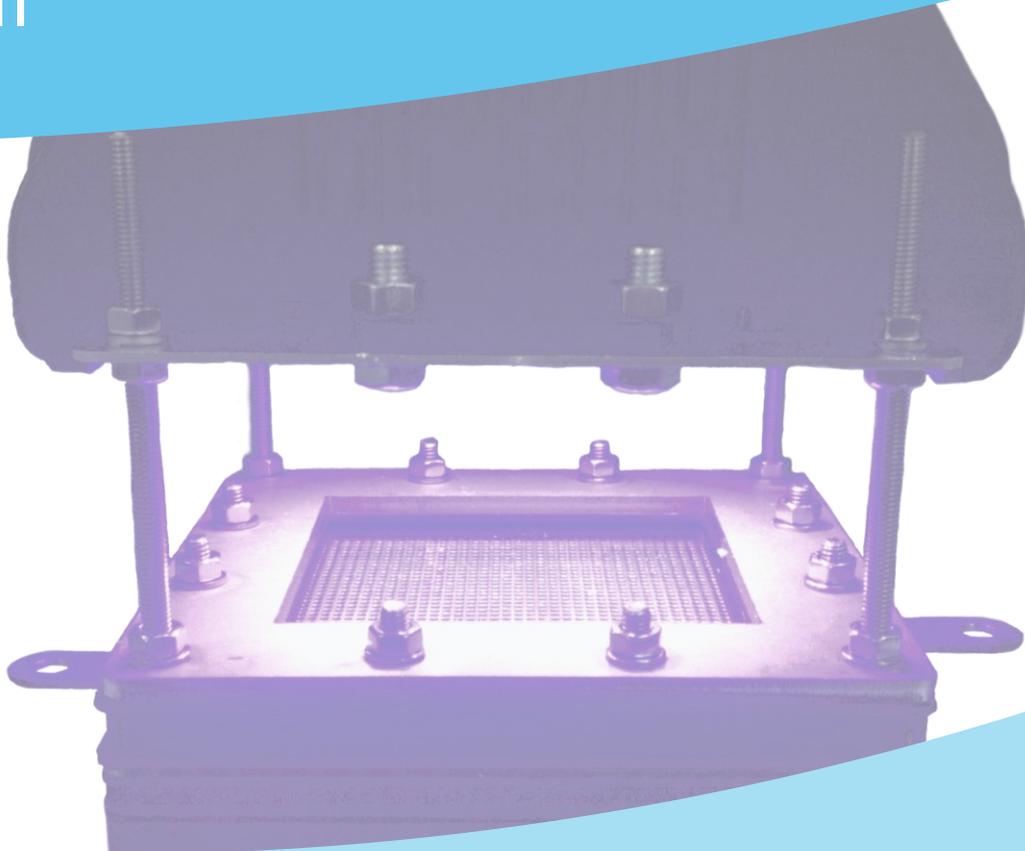


Plate and frame configuration



Customized electrodes



LED technology



Adjustable radiation intensity

The equipment

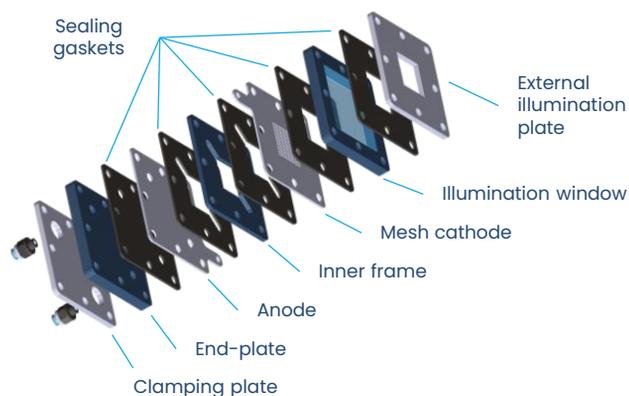
Apria Systems has designed a series of flexible cell photoelectroreactors, offering a wide range of **tailor-made** models to adapt the equipment to the needs of our clients.

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 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 area (cm²)	1 – 100
Gap between the electrodes (cm)	0.1 – 2