rawlemon
powered by rawtics

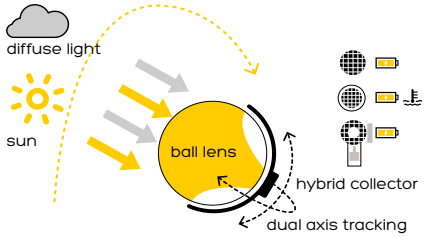
rawlemon
powered by rawtics

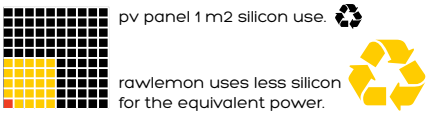
# The future is not green it's transparent!

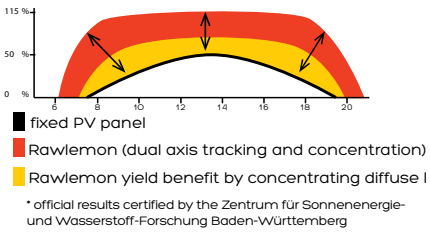
## Welcome to the next generation of sustainable solar energy...

Ever since Archimedes, scientists have known that a crystal lens exposed to the sun concentrates incoming light to a focal point. We based the design of the new Rawlemon devices on this simple optical phenomenon. The perfect geometry of the sphere, combined with our patented dual axis tracking system, naturally provides the optimum angle to concentrate light on our collectors all day long, traveling with the sun.

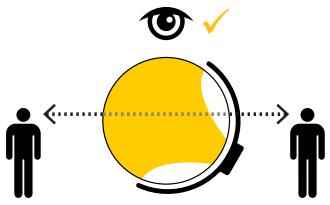
- Up to 95% more energy conversion by using dual axis tracking. (Central Europe)
- Minimum 15% improved yield surplus by concentrating diffuse light.
- Hybrid usability for electricity and thermal energy.
- At least minimum 75% less cell surface.
- Lowest carbon footprint.
- First concentrator solar module to allow a full building integration.
- No weather impact.
- Maximum 99% of transparency.

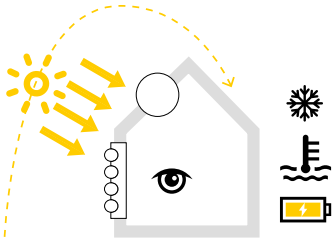


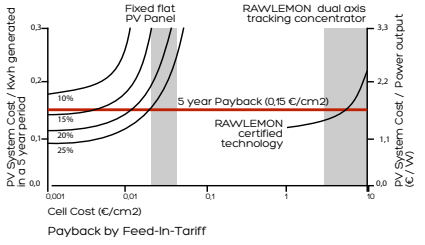




* official results certified by the Zentrum für Sonnenenergie- und Wasserstoff-Forschung Baden-Württemberg



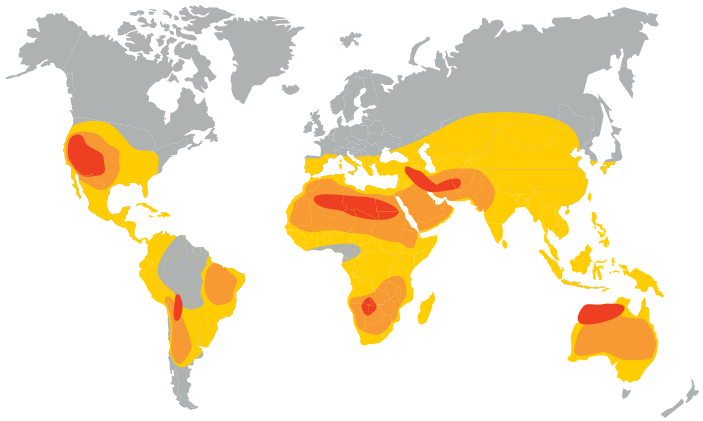






By combining spherical geometry principals with our dual axis tracking system, Rawlemon can reach up to 70% yield surplus compared to a conventional PV panel, when both are placed in vertical set-up (As certified by the "Zentrum für Sonnenenergie- und Wasserstoff-Forschung Baden-Württemberg"). This allows for Rawlemon products to be integrated anywhere and everywhere. At the same time, we reduce the cell surface to 1%, which offers a revolutionary perspective on producing sustainable and low cost energy.
Rawlemon is able to concentrate diffuse light. From economical point of view, this is a unique opportunity to produce solar energy where conventional systems fail. Rawlemon products vastly extend the geographical map of solar energy. On a cloudy day, Rawlemon produces 4 times more energy than a conventional system!
In addition to increase/optimum solar performance, Rawlemon offers revolutionary benefits for users, designers and architects. Unlike any existing solar technology, Rawlemon products and their dematerialised aesthetic allow for 99% transparency, full building integration with no weather impact thanks to the patent pending dual axis tracking system by Rawlemon. More over, it gives the possibility to connect both standard and hybrid collectors in order to convert electricity and/or thermal energy, Rawlemon products offer reversible self-sufficient system. Our next step for the future is to apply this technology to the emission of light creating new and exciting possibilities for lighting sources and media, such as a transparent, self-sufficient, video wall. Our ultimate goal is to minimize the foot print renewable energies leave on our environment in this multimedia world.

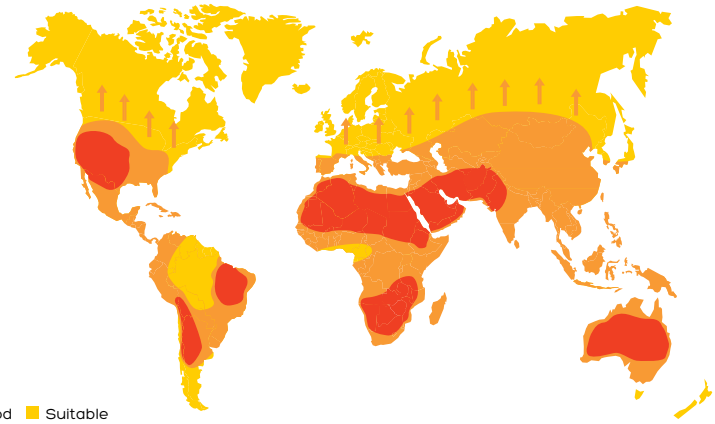
# Rawlemon keeps producing energy where others leave off...

Suitability for conventional CPV and thermal power plants.

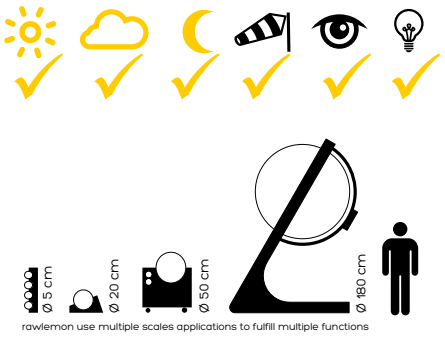


Excellent Good Suitable Unsuitable Range using conventional CPV and thermal power plants

Suitability for solar hybrid power plants with rawlemon β.torics technologies.

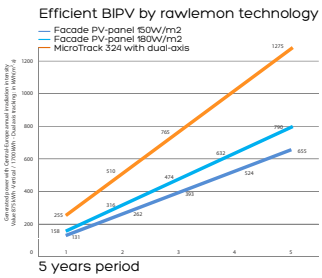


Excellent Good Suitable
Range amplification using Rawlemon's power concentrator system



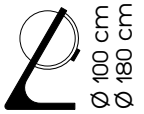

rawlemon use multiple scales applications to fulfill multiple functions

Our family of applications is growing,
so check it out, at: www.rawlemon.com




rawlemon
powered by rawtics

# Unconventional Transparent Power Generators
# Mobile Stand-Alone Power Generator Station

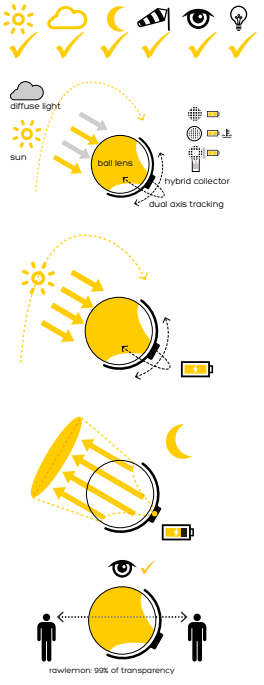



**rawlemon's** revolutionary spherical solar concentrating system leads the way in state-of-the-art ecological design, producing efficient energy in any region of the world, thanks to its ability to concentrate any light. Like all **Rawlemon** products, the **KS1000-1800** outdoor generator features a breakthrough patented micro dual axis tracking unit for full environmental integration, with the lowest possible weather impact that won't break your budget.

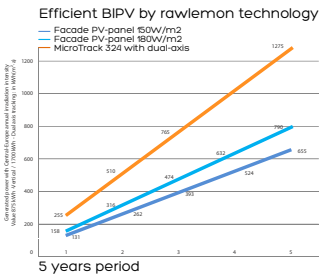
**KS1000-1800** comes with a hybrid collector to convert daily electricity and thermal energy at the same time. While reducing the silicon cell area to 25% with the equivalent power output by using our ultra transmission Ball Lens point focusing concentrator, it operates at efficiency levels of nearly 57% in hybrid mode. At nighttime the Ball Lens can transform into a high-power lamp to illuminate your location, simply by using a few LED's. The station is designed for off grid conditions as well as to supplement buildings' consumption of electricity and thermal circuits like hot water.

**KS1000-1800** is easy to transport and install. The support frame includes all the plugs you need to connect to the local grid and holds a security protection panel behind the collector.

**Applications**: Off-Grid Energy / Building Integration / Electric Devices




| Technical datas | KS 1000 | KS 1800 |
|---|---|---|
| • Lens Design | Acrylic-Polymer ball lens, water filled | Acrylic-Polymer ball lens, water filled |
| • Numerical Aperture | 1.0 Diameter | 1.8 Diameter |
| • Electrical Data | 180 W (220W/m2) with basic Silicon | 560 W (220W/m2) |
| • Thermal Data | 275 W (350W/m2) | 890 W (350W/m2) |
| • Combined Efficiency | 57% (Hybrid) | 57% (Hybrid) |
| • Capacity Per Day | 1.1 kWh max. | 3.4 kWh max. |
| • Battery Capacity | 0.5 kWh | 0.5 kWh |
| • AC/DC Management | 120 V / 220 V - Client Specific Options | 120 V / 220 V - Client Specific Options |
| • Connections | Collector Header/Return Lines, 220V/16A Din-Socket | Collector Header/Return Lines, 220V/16A Din-Socket |
| • Dual Axis Tracking | Low inertia DC microdrive | Low inertia DC microdrive |
| • Control Unit | Tracking sun/moon, positioning LED beam | Tracking sun/moon, positioning LED beam |
| • Light Energy | 200 lm - up to 500m Spot with LED's | 300 lm - up to 800m Spot with LED's |
| • Weight | 700 kg (Water - 524 l) | 3.350 kg (Water - 3.055 l.) |
| • Dimensions | 2.15 x 1.30 x 1.80 Meter | 3.90 x 2.40 x 3.15 Meter |
| • Wind resistance | Up to 120 m/s | Up to 120 m/s |




rawlemon
powered by rawtics

## Unconventional Transparent Power Generators

# Mobile Stand-Alone Power Charger Station

Ø 100 cm
Ø 130 cm
Ø 180 cm

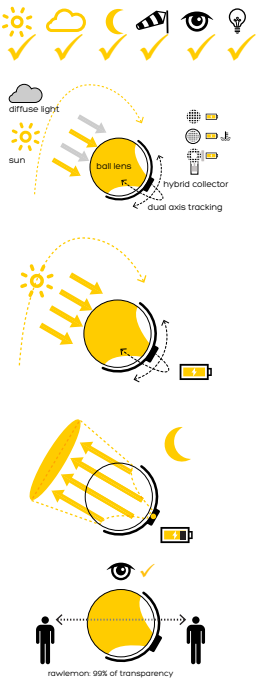
**rawlemon's** revolutionary spherical solar concentrating system leads the way in state-of-the-art ecological design, producing efficient energy in any region of the world, thanks to its ability to concentrate any light. Like all **Rawlemon** products, the **ß.ray** outdoor charging station features a breakthrough patented micro dual axis tracking unit for full environmental integration, with the lowest possible weather impact that won't break your budget.

**ß.ray 1.0 – 1.8** comes with a hybrid collector that charges and stores energy. While reducing the silicon cell area to 25% with the equivalent power output by using our ultra transmission Ball Lens point focusing concentrator, it operates at efficiency levels of up to 57% in hybrid mode. At nighttime the Ball Lens can transform into a high power lamp to illuminate your location, simply by using a few LED's. The stand-alone charging station is perfectly designed for electro mobility as well as to supplement buildings' energy consumption.

**ß.ray 1.0-1.8** is easy to transport and install. The support frame includes all the plugs necessary to connect electric vehicles and holds a security protection panel behind the collector.

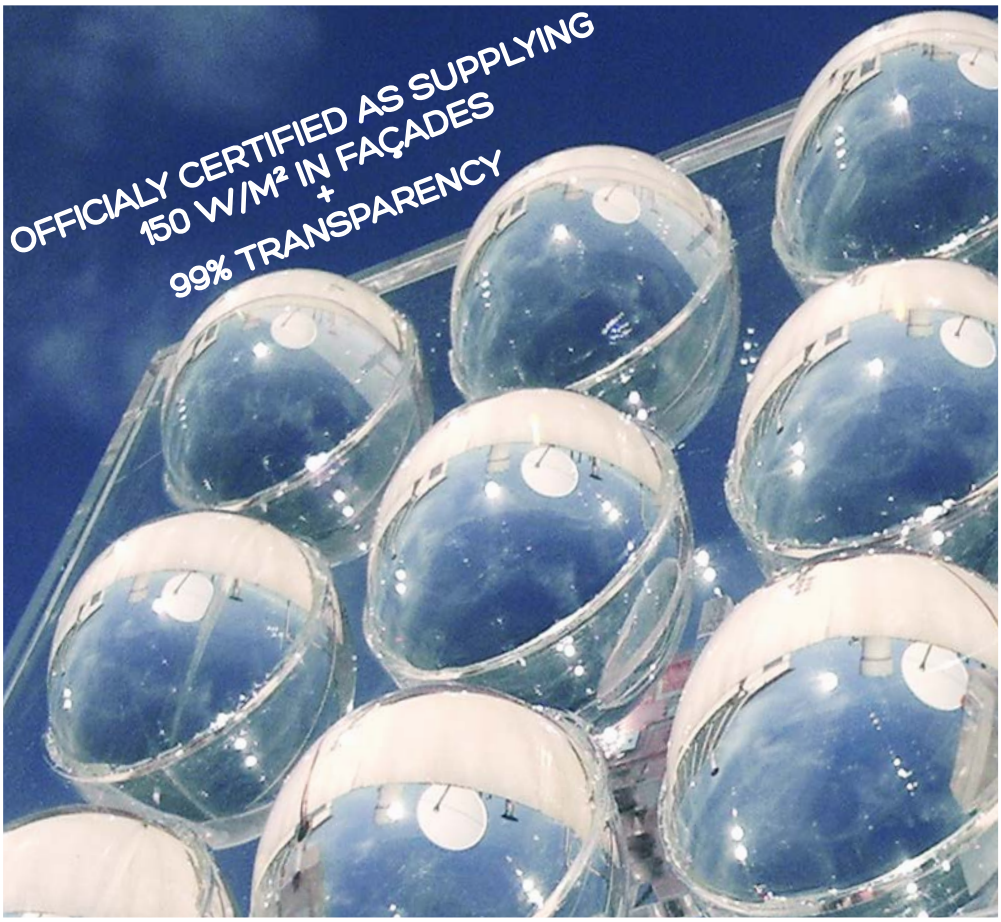
**Applications**: Electric Bicycles / E-Motorcycles / E-Cars / Building Integration / Electric Devices

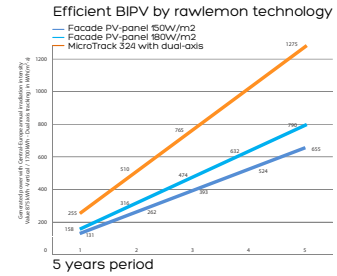
| Technical datas | β.ray 1.0 | β.ray 1.3 | β.ray 1.8 |
|---|---|---|---|
| · Lens Design | Acrylic-Polymer ball lens, water filled | Acrylic-Polymer ball lens, water filled | Acrylic-Polymer ball lens, water filled |
| · Numerical Aperture | 1.0 Diameter | 1.3 Diameter | 1.8 Diameter |
| · Electrical Data | 180 W (220W/m2) with basic Silicon | 292 W (220W/m2) with basic Silicon | 560 W (220W/m2) with basic Silicon |
| · Thermal Data | 275 W (350W/m2) | 465 W (350W/m2) | 890 W (350W/m2) |
| · Combined Efficiency | 57% (Hybrid) | 57% (Hybrid) | 57% (Hybrid) |
| · Capacity Per Day | 1.1 kWh max. | 1.8 kWh max. | 3.4 kWh max. |
| · Battery Capacity | 1.8 kWh | 3.6 kWh | 5.4 kWh |
| · AC/DC Management | 120 V / 220 V - Client Specific Options | 120 V / 220 V - Client Specific Options | 120 V / 220 V - Client Specific Options |
| · Connections | Collector Header/Return Lines, 220V/16A Din-Socket | Collector Header/Return Lines, 220V/16A DIN-Socket | Collector Header/Return Lines, 220V/16A Din-Socket |
| · Dual Axis Tracking | Low inertia DC microdrive | Low inertia DC microdrive | Low inertia DC microdrive |
| · Control Unit | Tracking sun/moon, positioning LED beam | Tracking sun/moon, positioning LED beam | Tracking sun/moon, positioning LED beam |
| · Light Energy | 200 lm - up to 500m Spot with LED's | 200 lm - up to 500m Spot with Led's | 300 lm - up to 800m Spot with LED's |
| · Weight | 700 kg (Water - 524 l.) | 1.400 kg (Water - 1150 l.) | 3.350 kg (Water - 3.055 l.) |
| · Dimensions | 2.15 x 1.30 x 1.80 Meter | 2.80 x 1.70 x 2.30 Meter | 3.90 x 2.40 x 3.15 Meter |
| · Wind resistance | Up to 120 m/s | Up to 120 m/s | Up to 120 m/s |

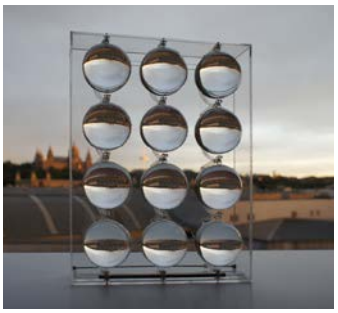



The basic system of one ball lens can, optionally, be customized to host a multiple array of up to3 ball lenses in one support frame. Set-up time takes from 4 hrs. onwards. For a totally off-grid position, the water capacity for full fill needs to be delivered in a tank.

rawlemon
powered by rawtics
www.rawlemon.com



rawlemon
powered by rawtics

## Unconventional Transparent Power Generators

# MicroTrack CPV power module

**rawlemon's** revolutionary spherical solar concentrating system leads the way in state-of-the-art ecological design, producing efficient energy in any region of the world, thanks to its ability to concentrate any light. Like all **Rawlemon** products, the **MicroTrack** features a breakthrough patented micro dual axis tracking unit for full environmental integration, with the lowest possible weather impact that won't break your budget.

**MicroTrack**, combines three products – a revolutionary concentrator photovoltaic module, a full transparent ball lens screen with multimedia LED video wall, and a breakthrough, micro dual-axis tracking unit assembled with Multi-Junction high efficiency solar cells – into one full building integrated photovoltaic module.

**MicroTrack** comes with the new **ß.torics** technology that allows the module to be placed at any inclination and on any surface of a building simply by tracking the sun using optical tracking.

This system has been officially certified as supplying 150W/m$^2$, and simply by using dual axis tracking can **double** the energy production of any existing building integration system known to man.

**Test our prototype yourself to believe it!**

**MicroTrack** is the world's most transparent photovoltaic module! While featuring Multi Junction High Efficiency Solar Cells (each 5mm x 5mm, smaller than the nail on your pinky!), we reduce the cell area to 1% per m2.

As it is virtually transparent it therefore decreases the carbon footprint of cell production by 99%.

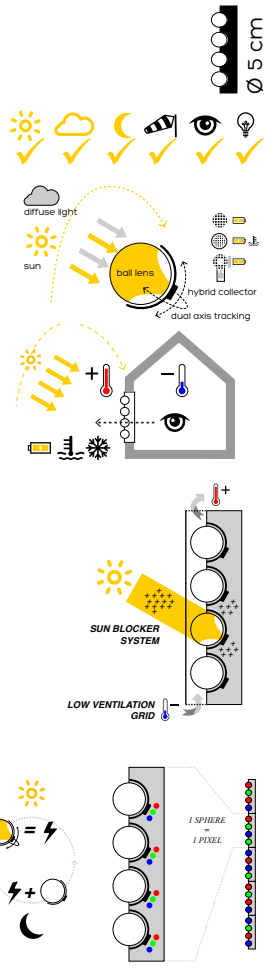
Besides full daylight transmission, the cells absorb the transfer of heat into the building. That provides maximum building energy efficiency and decreases the burden of costly air conditioning and the additional thermal insulation lessens excessive internal heat loss, which finally reduces the carbon emissions of the buildings.

**MicroTrack** also features an optional built-in multimedia LED technology that can be set up as a media façade. The stunning LED video wall display features full color LED's projected by MicroTrack's ultratransmission ball lenses with a pixel pitch of 50 mm diameter that support light-trapping. Perhaps most importantly, it's powered by the sun to be the most energy-efficient module.

**MicroTrack** is an unrivalled, powerful, protecting self-sufficient video wall module which, due to its high performance efficiency, results in the same pay back rate as a conventional PV-Panel.

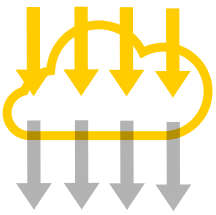
## Technical datas MicroTrack 324

| | |
|---|---|
| • Lens Design | Acrylic-Polymer ball lens |
| • Numerical Aperture | 50 mm Diameter per ball lens |
| • Cell Type | Multi-Junction solar cell |
| • Electrical Data | 48 W (150W/m2) |
| • Voltage | 148 V |
| • Current | 0.32 A |
| • Dual Axis Tracking | Low inertia DC microdrive |
| • Elevation Track | 0° - 75° |
| • Azimuth Track | 0° - 180° |
| • Control Unit | Sun position calculator<br>LED beam positioning |
| • Video Wall | RGB / unique color LED |
| • Weight | 116 kg |
| • Dimension | 729 mm x 452 mm x 73 mm |



rawlemon

the first company in history to
concentrate diffuse light.



rawlemon
powered by rawtics

C/ Olivera 8, local
08004 Barcelona Spain
post@rawlemon.com
press@rawlemon.com
www.rawlemon.com