For more information contact Luzerne Optical Laboratories Ltd at 800-233-9637 or on the web at www.LuzerneOptical.com
What is emPower!?

- The first electronic focusing eyewear — it adjusts so you don’t have to
- Instantly provides your patients with the control over their vision
- Includes ground-breaking optical advances:
  - a liquid crystal layer in each lens
  - an accelerometer in the frame
- Patients can adjust their vision simply by living their lives
- emPower! is a very unique lens combining a reduced add progressive lens design with an electronic add component that can be turned on or off with a touch of the finger.
- In the ‘OFF’ mode, the wearer will experience clear distance and wide intermediate vision for optimal visual performance at arm’s length and beyond.
- In the ‘ON’ mode, emPower! offers superior progressive lens performance at all distances while providing wide fields of vision and enhanced peripheral clarity.
- In the ‘AUTO’ mode, the wearer experiences the benefits of both the ‘ON’ and ‘OFF’ modes as both are activated based on the wearers head tilt and line of gaze.
What is Life-Activated?

Life is watching television across the room, then reading the book in your lap.

Life-activated is doing it all without searching for focus or dealing with swim and distortion.

Life is walking down a flight of stairs.

Life-activated is seeing all the steps with crystal-clear clarity.
Limited Dual Surface Design
Versus
Virtually UNLIMITED Composite Design

A problem with Dual Surface Technology

Optical reality:
As the Add Power of a Progressive Addition Lens increases, unwanted optical astigmatism increases.

Ratio – Approximately 1:1
emPower!®
by design, reduces unwanted astigmatism
50% or more!!

emPower!

Unwanted Astigmatism (Diopters)

Example: 2.00D Add Power

Traditional PAL
2.33

Dual Add Premium PAL
1.51

Distortion Perception (1.10 D)

0.85

Noticeable Swim

No Swim
Feels Like SV
Rather than individuals adapting and compromising to the needs of their eyewear, the eyewear should adapt to the needs of the individual.

emPower! Optical Design

emPower! incorporates a spherical front surface, a free-formed partial progressive and an electronic add zone. These features combine to provide unprecedented comfort and control of viewing to the presbyopic patient.

emPower! Viewing Performance

Example: Plano Distance / +2.00 Full Prescribed Add / +0.75 Electronic Add

Using a traditional Plano / +2.00 Add example, we are demonstrating in these images the viewing performance of emPower!

With the electronic add (+0.75D) OFF, the patient experiences a range of comfortable ‘Convenient Vision’ utilizing their Distance correction along with a Partial Progressive (In the case of this example, the partial power is +1.25D).

With the electronic add ON, the patient will experience a full range of viewing capability while enjoying expansive viewing zones and a significant reduction in swim and blur compared to traditional PAL designs.
Why not have the near power ‘on’ all the time?

We don’t live in a ‘near vision world’.

We live in an intermediate world.

Our studies show that 70% or more of the day we are living at arm’s length and beyond.
How it works

Power and Control of Electronic Eyewear

- Control modules embedded in temples
  - Rechargeable batteries
  - Accelerometers/sensors
  - Logic/switching
- Signal transmitted to electronic segment

Frames & Focus Control
Automatic and Manual

emPower! is controlled by capacitive switching — much like a touch screen on a phone. This switch is used to put emPower! into automatic or manual mode.
Modes of Operation

Manual Mode

Manual Mode is activated simply by touching the right temple about one inch behind the hinge.

Automatic Mode

Automatic Mode is activated by ‘swiping’ the right temple in either direction.

Tilt your head down — the Electronic Add Zone turns ON.

Look straight ahead — the Electronic Add Zone turns OFF.

emPower! is a trademark of PixelOptics, Inc., Roanoke, VA. USA
Availability and Add Range
(at launch)

Availability

- 1.67 (Abbe 32)
- Standard with a quality A/R Coating
- Power Range -7.00 to +4.50 up to 4.00 Cylinder
- Prescribed Add Range +1.25 to +2.75
- Electronic Add +0.75
- Rx Prism 1.50D each eye (Total 3.00D)
- Base Curves 2.75 / 4.25 / 5.25
- Transitions® Future availability—stay tuned!

Add Range

<table>
<thead>
<tr>
<th>Prescribed Add Power (ON)</th>
<th>Electronic Add Zone Power</th>
<th>Partial Add Power (OFF)</th>
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<tbody>
<tr>
<td>+1.25</td>
<td>(+0.75)</td>
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Transitions is a registered trademark of Transitions, Inc.
emPower! is a trademark of PixelOptics, Inc., Roanoke, VA. USA

5/20/2011
Charging emPower! is as easy as any cell phone. It is an inductive charger which means the temples just rest on the charger. You do not have to plug anything into the frame. A full charge typically lasts 2-3 days. The charger also acts as a great holding station when your emPower! eyewear is not in use. Understanding what the LED’s are indicating is simple and allows the wearer to properly monitor the performance of the eyewear.

- Connect the charger to a 110V AC power source.
- Once connected, the white rubber insert and the small LED light in front of the charging cradle should glow BLUE (Image 1 A).
- The modules on the inside of each temple (Image 2 A) which contain the batteries and switching components for emPower! also contain LED indicator lights (Image 2 B) that provide information about the eyewear such as charging status and level of battery charge as well as indicating the ON / OFF status of the electronic add of emPower!
- Ensure the charger arms are extended and approximately perpendicular to the front of the charger, (Image 3 A).
- Turn the emPower! eyewear upside-down. This will put them in SLEEP MODE and ready for charging. When entering SLEEP MODE, the LED indicator lights, (Image 2 A), will display one rapid series of GREEN flashes lasting several seconds. (Note: Image 2 is purposely right-side up for reference only, in application the eyewear is upside down as noted here.)
- Carefully place the bridge of the frame on the center bridge insert (Image 3 B) and rest the temples on the charger arms ensuring the small charging plates are in contact with the temples directly below the control module, (Image 3 C). Once correctly positioned, the small RED LED lights on each module should glow bright red (Image 4 A).
- The charging plates may be adjusted, (Image 4 B), by loosening the small adjustment screw (Phillips head) located on the underside of the charging arm (Image 4 C). The patient will be advised to return the eyewear WITH the charger to their Eye Care Professional for an easy adjustment of the charging plates if needed.
- Under normal use, charging the eyewear overnight should ensure a full charge that will easily last throughout the day and likely longer. Depending on use of the ON MODE, a full charge has been measured to last 2-3 days or longer.
- Once the eyewear is fully charged, (approximately 8 hours) the RED charging status of the LED will be accompanied by an intermittent GREEN flash every few seconds, (Image 5 A). If, after an overnight charge, the LED does not flash GREEN as described, the patient will be advised to return the eyewear along with the charger to their Eye Care Professional for evaluation.
- After charging and removing the eyewear from the charger, turn the eyewear over (as you would if preparing to put them on for wear). This will bring emPower! out of the SLEEP MODE and initiate a sequence of green flashes from the LED’s in both modules. Note: this activation feature occurs anytime the eyewear comes out of SLEEP MODE.
- The LED in each module, (Image 2 A), will repeat a sequence of 1 to 5 short green flashes, 3 consecutive times, to indicate the charge status of the battery.
- Charge status is indicated by the number of short flashes; 1 flash indicates a low charge while 5 flashes indicate a full charge. These are followed by a long steady flash to indicate the eyewear is ready for use. For example: Consider that the eyewear has been used for 2 days and has discharged the batteries 40%; this would be indicated by a sequence of 3 flashes as shown in the diagram below.

*Additional information on product specifications along with Care and Handling Instructions can be found in the emPower! Wearer’s Guide.

emPower! is a trademark of PixelOptics, Inc., Roanoke, VA. USA
1. Take Monocular Distance PD measurements using a Corneal Reflection Pupillometer for accuracy—note your findings.

2. Adjust the frame on the patient and mark center pupil height on sample lens of frame.

3. Place frame face down on cut-out chart and align center pupil mark with fitting cross on chart.

4. With center pupil mark aligned with the fitting cross, use the horizontal millimeter lines, measure to the deepest part of the eyewire (full frame) or lens edge (semi-rimless) - note fitting height. (Example shows a fitting height of 24mm.)

5. With center pupil mark aligned with the fitting point cross, verify cut-out as follows:
   A. The inside edge of the eyewire, (full frames), or lens edge, (Semi-rimless), must lie outside of all three curved lines.
   B. Hinge midpoint (frame) must lie at or above the dotted ‘Hinge Mid-Point’ line.
   C. Frame must fit within lens outline to ensure cut-out.

6. If these conditions are not met, another frame must be selected.

Note: The Cut-Out Chart is designed to verify each lens individually. Verify one lens at a time using the lens diagram that corresponds with the same lens of the frame.
Only use a hot air frame warmer for any adjustments requiring heat. DO NOT use a ‘salt pan’ or glass bead frame warmer with emPower!

Always use fiber or nylon covered pliers when making contact with the frame. Marring or scratching the metal on the pad arms or other parts of the frame may compromise the functionality of the electronic components.

**Temples (behind the ear)** - Hold the temple BEHIND the electronic module and warm. Bend gently as customary to fit.

**Temples (Bowling)** - Temples should fit straight. Never bow or bend the temple.

(Temple to Head) - Never adjust the temple in or out at the edge of the eyewear as this will break the electronic connection.

**Nose Pad Arms** - Exercise caution when adjusting the nose pad arms. If necessary, fiber or nylon covered pliers should be used or, simply ‘hand adjust’ the nose pads to fit.

**Face - Form** - When adjusting for face-form, gently form the bridge (metal frames only!). Grasp the front as shown using the inside of your thumbs to apply gentle pressure. DO NOT HEAT A PLASTIC FRAME AT THE BRIDGE!

**Pantoscopic Angle** - The emPower! frames have been created with 12 degrees of pantoscopic angle to accommodate most wearers. It is not recommended to attempt changing the pantoscopic angle of an emPower! frame.

**Prescription Axis** - Do not attempt to adjust the axis of the lens.
Cut-out Chart

Instructions
1. Take monocular distance PD’s using a pupillometer for accuracy and note findings for ordering.
2. Adjust frame on the patient and mark center pupil height on sample lens of frame.
3. Place frame face down on cut-out chart and align center pupil mark on lens with fitting point cross on chart (done for each lens individually).
4. With center pupil mark aligned with the fitting point cross, using the horizontal millimeter lines, measure to the deepest part of eyewire (full frame) or lens edge (semi-rimless) note the fitting height for ordering.
5. With center pupil mark aligned with the fitting point cross, verify cut-out as follows:
   A. The inside edge of eyewire (full frames) or lens edge (semi-rimless) must lie outside all 3 of the curved red lines.
   B. Hinge midpoint must lie at or above the dotted red ‘Hinge Mid-point’ line.
   C. The frame must also fit completely within lens outline to ensure cut-out.
6. If these conditions are not met, a different frame must be selected.

Note: This cut-out verification chart is designed to verify each lens individually. Verify one lens at a time using the lens on the chart which corresponds with that lens of the eyewear.