WHAT IS CLAIMED IS:

1. A contact lens device with a variable aperture insert positioned within at least a portion of an optical zone of the contact lens device, wherein:

(a) the variable aperture insert comprises:

an energy source embedded in the variable aperture insert in at least a region comprising a non-optical zone;

a plurality of control photodiodes, each capable of irradiation within one of a plurality of narrow bands;

a controller electrically coupled to the energy source and the plurality of control photodiodes;

a light blocking element formed of a plurality of photochromic dye regions, wherein each photochromic dye region is sensitive to the narrow band emitted by one of the control photodiodes;

(b) the variable aperture insert is encapsulated within a hydrogel; and

(c) the controller adjusts a depth of field of the contact lens device by selectively transmitting energy from the energy source to one or more of the plurality of control photodiodes to activate one or more of the photochromic dye regions.

2. The contact lens device of claim 1, wherein each narrow band is in the infra-red region of the spectrum.

3. The contact lens device of claim 1, wherein the narrow bands are of different spectral ranges.

4. The contact lens device of claim 1, wherein each photochromic dye region is coupled to at least of the control photodiodes via a light pipe or a light scattering device.

5. The contact lens device of claim 1, wherein the photochromic dye regions are arranged in a series of concentric annular regions.

6. The contact lens device of claim 1, wherein the light blocking element forms an aperture of approximately 1 mm in size when all the photochromic dye regions are activated.