

# LUMITEK

## PHOTONIC PRODUCTS

**Model No. Q-32-R**

INFRARED SENSOR

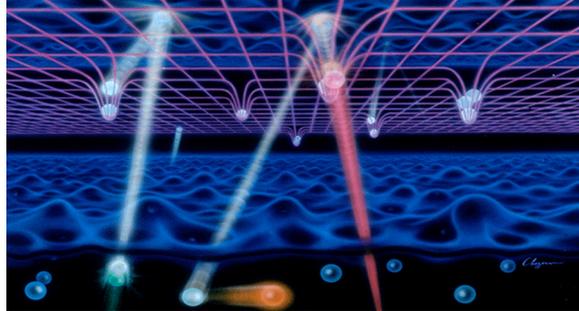
**LUMITEK** <sup>®</sup>

**International, Inc.**

9639 Dr. Perry Road  
Ijamsville, MD 21754

Phone: (301) 831-1001 / Fax: (301) 831-8221

*.....Artist's Concept of Electron Trapping.....*



IR Sensor Cards by LUMITEK International work on a principle known as "Electron Trapping" where phosphor-based compounds are employed to absorb and "trap" incoming light energy from a short wavelength, and release that stored light in the form of visible light upon stimulation from a longer IR wavelength. The visible result is a localized glow, which is relative in intensity to the amount of stored light and IR power levels exciting the active area.

Exposure of LUMITEK's up-converting materials to IR will produce a diffuse localized visible glow for detection and location of IR sources. These IR sensor screens provide a low-cost alternative to laser beam finders and beam profile instruments by providing the user with an instant visible pattern for determining beam location and approximate beam size. In addition, the high sensitivity of the IR sensor screens provides users of various IR sources and components (e.g., IR emitting diodes, optical fibers, etc.) an effective tool for determining the presence or absence of IR.

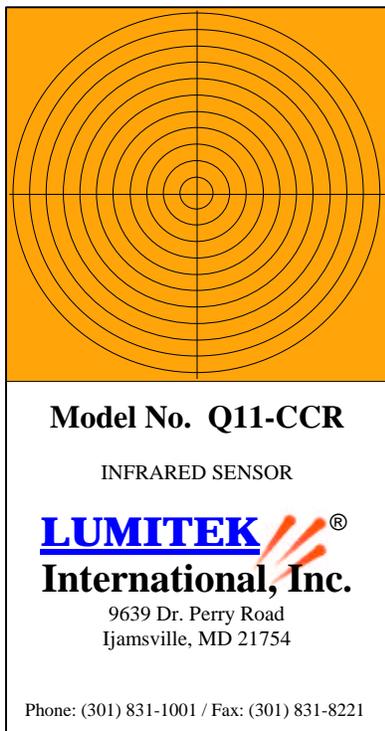
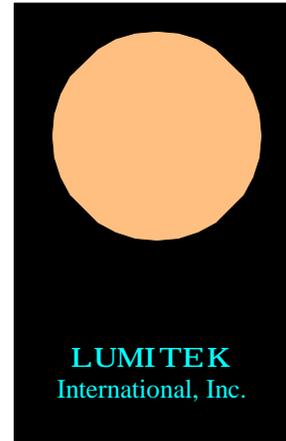
Use the chart below to determine the phosphor material which best suits your needs, or call LUMITEK International for help with your application.

ET® PHOSPHOR	PEAK EMISSION WAVELENGTH ( nm ) / color	IR WAVELENGTH RANGE (µm)	APPROX. MIN IR INTENSITY (IN THE DARK)	APPROX. MIN IR INTENSITY ( IN ROOM LIGHT)	PUMP WAVELENGTH	RESOLUTION (TYPICAL)
Q-11	625 / orange	0.7 - 1.4	12µW/cm <sup>2</sup>	500µW/cm <sup>2</sup>	visible...UV	3 Lp/mm
Q-16	485 / blue-green	0.7 - 1.4	10µW/cm <sup>2</sup>	500µW/cm <sup>2</sup>	visible...UV	3 Lp/mm
Q-32	650 / red	0.8 - 1.7	8µW/cm <sup>2</sup>	500µW/cm <sup>2</sup>	visible...UV	3 Lp/mm
Q-42	640 / deep orange	0.7 - 1.6	3µW/cm <sup>2</sup>	100µW/cm <sup>2</sup>	visible...UV	3 Lp/mm
F-16 (ceramic only)	640 / deep orange	10.6	100mW/cm <sup>2</sup>	500mW/cm <sup>2</sup>	visible...UV	3 Lp/mm
L-IR	550 / green	0.9-1.1	NA	NA	<b>Not Required</b>	NA

**After choosing the appropriate Phosphor material, select the LUMITEK product which best suits your application from the following pages -----**

**HIGH RESOLUTION SENSOR SCREENS**  
(CF16-R, CQ42-R, CQ16-R)

For use with IR laser sources (ND-YAG & CO<sub>2</sub>) that would burn through the standard sensor card. These screens measure 2.5" x 4" and have an active phosphor area of 2" diameter. For CO<sub>2</sub> lasers use the thermally activated model CF-16. This sensor needs about 1 watt/cm<sup>2</sup> or 1 to 2°C increase in temperature where IR impingement takes place compared to the surrounding phosphor. A long wave UV lamp may be needed to keep the phosphor emitting. The CQ42-R is high temperature tolerant but only needs 1/4 to 1/2mw/cm<sup>2</sup> of IR impingement in daylight. In dim light it only needs about 20-30μw/cm<sup>2</sup> impingement.



**LASER BEAM ALIGNMENT SCREENS**  
(Q \*\* - CC or APT - R or T)

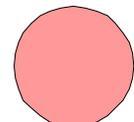
Three of the most popular phosphors are offered on a rigid polycarbonate substrate that is 1/8" thick. The dimensions are 2" x 4" and come with either a concentric circle or x-y axis reticle pattern. All are available in transmissive or reflective mode. They can be clamped, drilled, bolted, or otherwise affixed to various fixtures for permanent installation. Both have measurement lines of 2mm increments. The spatial coordinate of an impinging IR signal is not only visible but measurable by use of the reticle pattern.

**OPTICAL GLASS SENSOR SCREENS**  
Q\*\* - IRSCR-27

Optically clear 27mm diameter glass with your choice of one of our phosphors which is adhered to one side of the glass substrate. IR radiation emitting from your laser or LED source will be visualized from either side of the sensor screen.

\*\* PHOSPHOR TYPE (42, 32, 16, L-IR, etc.)

27mm coated Glass >



TO PLACE AN ORDER:  
Phone: (301) 831-1001 / 1-866-LUMITEK  
Fax: (301) 831-8221

## LAMINATED IR SENSOR SCREENS

( Q- \*\* - R or T )

These laminated reflective or transmissive sensor screens are the most commonly used basic sensor products. The phosphor layer is laminated between clear plastic for a wide range of near-IR detection and imaging applications. They are available with all of our phosphor materials and measure 2.5" x 4" overall with a 2" x 2" active area. Other sizes available upon request.

## ADHESIVE BACKED SENSOR SCREENS

ADQ\*\* - 2"x2" or 4"x4"

Thin flexible screens may be cut into any desired configuration and bonded to most surfaces by peeling the protective back and pressing in place. The phosphors are coated on transparent Mylar with a membrane adhesive back. The sensor screen will have the greatest IR sensitivity when bonded to a reflective material but may be applied to transparent materials for viewing from both sides of the screen. All of our phosphors are available in this format. Custom sizes are available upon request.

## UV SENSOR SCREENS

( U- 21- R or T )

Unlike our up-converting phosphors, this material down-converts UV to a visible wavelength. This material is sensitive from below 250nm to 500nm. It has the same dimensions as our other cards but has no laminate over the phosphor layer so as not to inhibit the UV transmission. The sensor card measures 2.5" x 4" overall with a 2" x 2" active area. Other sizes available upon request.

## SPECIALTY SENSOR PRODUCTS

Lumitek International can also provide sensor products such as private logo, business cards, or other custom sizes.

We can provide you with a product that is a like replacement for those people who had been purchasing their sensor cards from Kodak in the past.

Call our sales department for any specialty items that you may be interested in.

\*\* PHOSPHOR TYPE (42, 32, 16, L-IR, etc.)

### TO PLACE AN ORDER:

Phone: (301) 831-1001 / 1-866-LUMITEK

Fax: (301) 831-8221

sales@lumitek.com

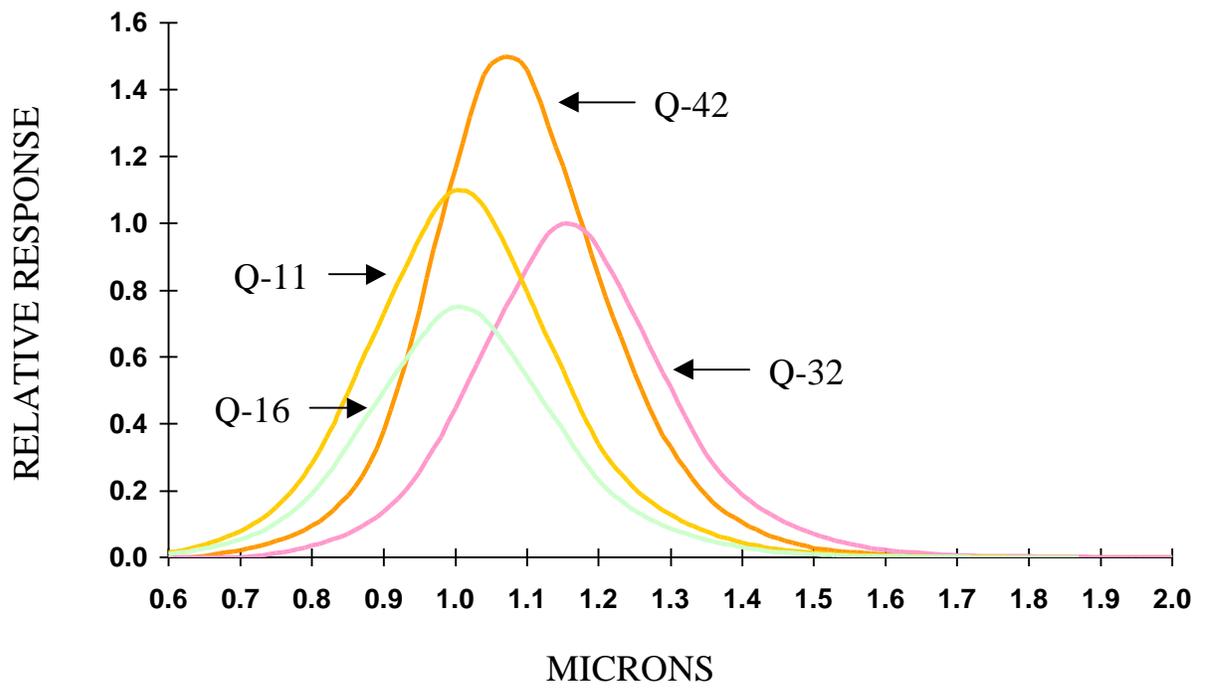


**ORDER LINE: 1-866-LUMITEK**

## KODAK EQUIVALENTS

KODAK#	KODAK DESCRIPTION	LUMITEK #
133 4093	¾" x ¾" screen size Reflectant IR Detection Stick	Q_11_R Stick ¾" x ¾"
827 8673	¾" x ¾" screen size Translucent IR Detection Stick	Q_11_T Stick ¾" x ¾"
824 2067	¾" x ¾" screen size Reflective & Translucent Stick	None
823 3124	¾" x ¾" screen size Reflectant IR Detection Card	Q_32_R Stick ¾" x ¾"
814 9718	2" x 2" screen size Reflectant IR Detection Card	Q_32_R 2" x 2"
808 5292	2" x 3" screen size Reflectant IR Detection Card	NONE
143 8522	4" x 5" screen size Reflectant IR Detection Card	Q_32_R45 4" x 5"
834 5282	¾" x ¾" screen size Reflectant IR Detection Card	Q_11_R Stick ¾" x ¾"
174 2048	2" x 2" screen size Reflectant IR Detection Card	Q_11_R 2" x 2"
192 1709	2" x 3" screen size Reflectant IR Detection Card	NONE
192 2558	4" x 5" screen size Reflectant IR Detection Card	Q_11_R45 4" x 5"
837 2997	8" x 10" screen size Reflectant IR Detection Card	Q-11-ADQ 8" x 10"
845 4027	¾" x ¾" screen size Translucent IR Detection Card	Q_11_T Stick ¾" x ¾"
183 4753	2" x 2" screen size Translucent IR Detection Card	Q_11_T 2" x 2"
845 7525	2" x 3" screen size Translucent IR Detection Card	NONE
826 2917	4" x 5" screen size Translucent IR Detection Card	Q_11_T45 4" x 5"
849 6754	8" x 10" screen size Translucent IR Detection Card	Q-11-ADQ 8" x 10"

# PHOSPHOR SENSITIVITY CHART



# New Product

## LUMITEK International, Inc.

Lumitek introduces a *New Infrared Sensor Product*

\* Ideal for the users of YAG Lasers and IR LED's \*

\* No optical pre-charging necessary \*

\* Constant light output for steady light input \*

PHOSPHOR	PEAK EMISSION	IR WAVELENGTH
L-IR	Blue / Green	900 – 1100 nm

**Model #L-IR-\***

\* AVAILABLE IN ALL OF OUR STANDARD MODEL CONFIGURATIONS

(R,T,CCR,APT,ETC...)

Contact our sales department for further information.

1-866-LUMITEK

Fax: 301-831-8221

[sales@lumitek.com](mailto:sales@lumitek.com)