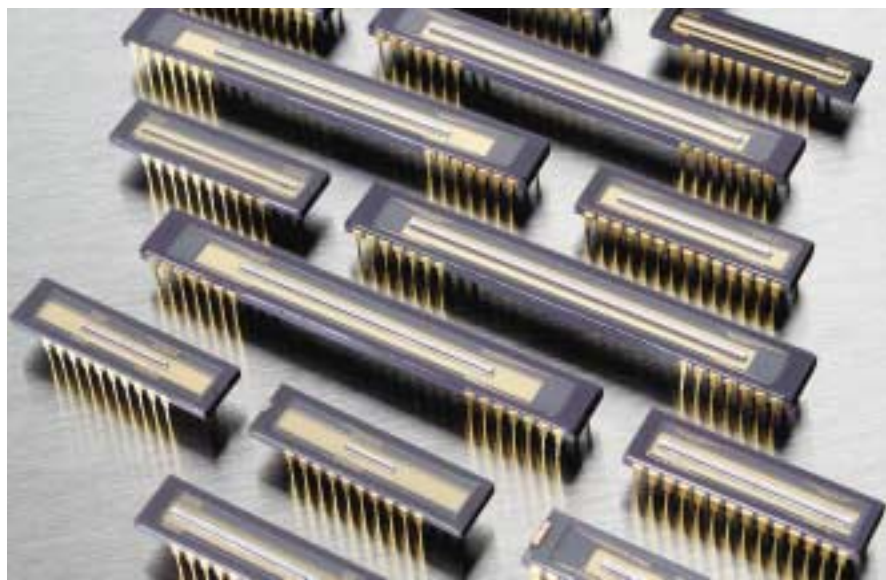


RETICON®

P-series Linear Photodiode Array Imagers

7 or 14 μm , single, dual and quad output, 512 to 8192 elements



Description

In the P-series linear imagers, PerkinElmer has combined the best features of high-sensitivity photodiode array detection and high-speed charge-coupled scanning to offer an uncompromising solution to the increasing demands of advanced imaging applications.

These high-performance imagers feature low noise, high sensitivity, impressive charge storage capacity, and lag-free dynamic imaging in a convenient single, dual and quad output architecture. The 7 or 14 μm square contiguous pixels in these imagers reproduce images with minimum information loss and artifact generation while their unique photodiode structure provides excellent blue response extending below 250 nm in the ultraviolet.

The two-phase CCD readout register operates from as little as 5 volts for clocking (model dependent), yet achieves excellent charge transfer efficiency. Additional electrodes provide independent control of exposure and antiblooming. Finally, the high-sensitivity readout amplifier provides a large output signal to relax the noise requirements on the camera electronics that follow.

Available in array lengths of 512 to 8192 elements with either low-cost glass or UV-enhanced fused silica windows, these versatile imagers are widely used in high-speed document reading, web inspection, mail sorting, production measurement and gauging, position sensing, spectroscopy and many other industrial and scientific applications requiring peak imager performance.

Caution: While the P-Series imagers have been designed to resist electrostatic discharge (ESD), they can be damaged from such discharges. Always observe proper ESD precautions when handling and storing this imager.

Features

- 512 to 8192 pixel configuration models
- 1, 2 or 4 output architectures
- Extended spectral range — 250 to 1000 nm
- Up to 40 MHz per output pixel readout rate
- 2500:1 dynamic range
- Line rates to 70 kHz
- Ultra low image lag
- Electronic exposure control
- Antiblooming control
- Square pixels with 100% fill factor


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Linear Photodiode Array Imagers

Part Information

The P-series imagers are available with either glass or fused silica windows. On special order, PerkinElmer can supply anti-reflectance coated windows or windowless packages. Imagers are individually packed in electrostatic-resistant boxes and identified by lot number for tracking.

Table 1. Imager Model Specifications

Sensor Model	No. of Outputs	Active Pixels	Pixel Size (μm)	Total Data Rate (MHz)
RL0512P	1	512	14 x 14	40
RL1024P	1	1024	14 x 14	40
RL2048P	1	2048	14 x 14	40
HL1024P	2	1024	14 x 14	80
HL2048P	2	2048	14 x 14	80
RL4000P	2	4096	7 x 7	40
RL6000P	2	6144	7 x 7	40
RL8000P	2	8192	7 x 7	40
RL1014P	4	1024	14 x 14	80
RL1714P	4	1728	14 x 14	80
RL2014P	4	2048	14 x 14	80
RL3014P	4	3072	14 x 14	80
RL4004P	4	4096	7 x 7	80
RL6004P	4	6144	7 x 7	80
RL8004P	4	8192	7 x 7	80

Table 2. Imager Specifications

Specification	Min	Typical	Max	Units
Exposure Control	-	Yes	-	-
Antiblooming Control	-	Yes	-	-
Horizontal Clocks	5	6	7	Volts
Dynamic Range	-	2500:1	-	-
RMS Noise				
Amplifier	-	25	-	Electrons
Reset Transistor	-	55	-	Electrons
Total Noise (without CDS)	-	60	-	Electrons
Saturation Charge Capacity	150,000	-	300,000	Electrons
Saturation Exposure				
14μm sensors	-	0.024	-	μJ/cm ²
7μm sensors	-	0.013	-	μJ/cm ²
Saturation Voltage				
14μm sensors	600	-	900	mV
7μm sensors	650	-	750	mV
Photo Response Non-Uniformity (PRNU)				
Within a tap	-	-	±5	Percent
Across the array	-	-	±10	Percent
Lag	0	-	1	Percent
Charge Transfer Efficiency (CTE)	0.99995	0.99998	-	Percent
Spectral Response Range	250	-	1000	nm

For more information e-mail us at opto@perkinelmer.com or visit our web site at www.perkinelmer.com/opto. All values are nominal; specifications subject to change without notice.

Sales Offices

United States

PerkinElmer Optoelectronics
2175 Mission College Blvd.
Santa Clara, CA 95054
Toll Free: 800-775-OPTO (6786)
Phone: +1-408-565-0830
Fax: +1-408-565-0703

Germany

PerkinElmer Optoelectronics GmbH
Wenzel-Jaksch-Str. 31
D-65199 Wiesbaden, Germany
Phone: +49-611-492-570
Fax: +49-611-492-165

Japan

PerkinElmer Optoelectronics
NEopt. 18F, Parale Mitsui Building 8
Higashida-Cho, Kawasaki-Ku
Kawasaki-Shi,
Kanagawa-Ken 210-0005 Japan
Phone: +81-44-200-9170
Fax: +81-44-200-9160

Singapore

47 Ayer Rajah Crescent #06-12
Singapore 139947
Phone: +65-770-4925
Fax: +65-777-1008

