

## IPX-VGA210, IPX-VGA210C

### VGA 8/10 BIT DIGITAL CAMERAS

- Progressive scan fast camera
- Camera Link Interface
- 8/10 bit digital output – single or dual
- 210 fps @ 640 x 480 pixels
- 1600 fps @ 228 x 164 pixels
- Horizontal @ vertical binning (2x2)
- Programmable resolution and frame rate
- Programmable electronic shutter
- Programmable long integration
- Programmable external trigger
- Programmable pre-exposure
- Programmable strobe output
- Dynamic gamma and noise correction
- Programmable gain & offset
- Built in test patterns



**IPX-VGA210** and **IPX-VGA210C** are advanced, fast progressive scan CCD cameras, featuring programmable modes of operation and Camera Link™ output. The cameras are built around an interline transfer CCD with 640 x 480 pixels resolution, able to output a maximum frame rate of 210 frames per second (fps) at full resolution, and up to 1600 fps at 228 x 164 pixels resolution. IPX-VGA210 has a monochrome imager, while the IPX-VGA210C has a color imager. The cameras can be easily adapted to many diverse applications because the parameters and modes of operation are programmable, including image resolution, frame rates, horizontal and vertical binning, gain, offset, asynchronous external (CC1 and hardware) triggering with pre-exposure and capture duration, electronic shutter, long time integration, strobe output and gamma correction. The square imager format with uniform 7.4 μm square pixels provides superior image in any orientation. The interline transfer CCD permits full vertical and horizontal resolution of high-speed shutter images. The combination of electronic shutter and long time integration enables the camera capturing speed to be from 1/40,000 sec. to more than 10 sec. The cameras have an optically isolated external asynchronous trigger and can capture a single frame or a sequence of frames, the number of which can be programmed. A built-in Gamma correction (G=1.0 and G=0.45) optimizes the CCD dynamic range. The cameras have a standard Camera Link™ interface that includes 8/10 bits data transmission with one or two output taps, as well as camera control and asynchronous serial communication all on a single cable. The highly programmable nature of the cameras allow them to be used in a wide and diverse range of applications including machine vision, monitoring of fast processes, imaging and surveillance, medical imaging, intelligent transportation systems, character recognition and documents processing, and many more.

## Camera Specifications

IPX-VGA210 and IPX-VGA210C Specifications	
<b>Imager:</b>	1/3" progressive scan interline transfer CCD
IPX-VGA210C	Color Imager
IPX-VGA210	Monochrome Imager
<b>Spectral Response:</b>	Visible, Near IR
<b>Active Area:</b>	5.87 mm x 4.71 mm (0.231" x 0.185")
<b>Active Pixels:</b>	640 (H) x 480 (V)
<b>Pixel Size:</b>	7.4 um x 7.4 um
<b>Output resolution:</b>	8/10 bit resolution
<b>Camera Interface:</b>	DIGITAL
<b>DATA</b>	Base Camera Link <ul style="list-style-type: none"> <li>- 20 bits Data output,</li> <li>- Trigger input – CC1</li> <li>- RS232 communication interface</li> </ul>
<b>I/O CONTROL</b>	Level Sensitive <ul style="list-style-type: none"> <li>- Trigger input</li> <li>- Strobe output</li> </ul>
<b>Data clock:</b>	40.000 MHz
<b>Video Output:</b>	Digital – Camera Link 20 bits Data, one or two taps
<b>Resolution:</b>	Programmable - 640 x 480 pixels max.
<b>Frame Rate:</b>	Programmable - from 110 fps to 1600 fps
<b>Shutter Speed:</b>	Programmable - 1/40000 sec. to 1/110 sec.
<b>Long integration:</b>	Programmable - 1/110 sec. To 10 sec.
<b>Gamma:</b>	Programmable G=1.0 and G=0.45
<b>Offset:</b>	Programmable for each output - 256 levels/output
<b>Gain:</b>	Programmable for each output - 1024 levels/output
<b>Min. Illumination:</b>	1.0 lux, f=1.4 without IR cut filter (no shutter)
<b>External Trigger:</b>	Asynchronous
<b>Hardware</b>	External, level sensitive, (3.3 - 5.0) V p-p, 10mA., optically isolated, programmable pre-exposure (0 to 30 msec)
<b>Software</b>	Frame-grabber via CC1, pulse duration determines the pre-exposure
<b>Strobe output:</b>	Active HIGH, for external light source synchronization
<b>S/N ratio:</b>	50 dB minimum
<b>AGS:</b>	OFF
<b>Lens mount:</b>	C-mount, 1/3" lens format, 50 mm FL
Electrical Characteristics	
<b>Power:</b>	12V DC +/- 10%, 300 mA (current measured at 25°C)
Physical Dimensions	
<b>Housing:</b>	Solid, aluminum, black anodized
<b>Size (W x H x L):</b>	76mm x 76mm x 40mm (3.00" x 3.00" x 1.58")
<b>Weight:</b>	330 grams, 12.0 oz
Operating Environment	
<b>Operating temperature:</b>	0°C to 50°C
<b>Storage temperature:</b>	-10° C to +70° C
<b>Relative humidity:</b>	80% non-condensing

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