

# CORDIN

## SCIENTIFIC IMAGING

### HIGH SPEED GATED INTENSIFIED CCD CAMERA

## Models 222-4G, 222-4G-UV

- **Very high image quality**
- **High resolution CCD**, 2K x 2K pixels, 14 bit dynamic range
- **Extremely short exposure time**, down to 2.5 ns
- **Very high sensitivity**, enabling very short exposures in moderate light or microscope configurations
- **Very high framing rate**, minimum interframe times equivalent to 400 million frames per second
- **Independent control of gain**, exposure time and time delay for each channel
- **Display adjustment** sliding scale to view 8 bit subsamples of full 14 bit images on the fly



The **Cordin Model 222-4G** gated, intensified multi-channel CCD camera offers the best image quality of any multi-channel intensified camera available. It is a powerful and easy to use tool for studying events in the nanosecond to millisecond time domain. The camera system is based around a pellicle mirror beam splitter optical system that distributes the image from a single objective lens to eight separate imaging channels without vignetting, parallax or ghosting (-UV model uses a pyramid beam splitter which does incur some parallax). Each channel has an MCP device fiber-optically coupled to a 4MPixel CCD, and can capture two images per channel, for a total of 16 images captured by the system. Time between exposures on adjacent channels can be as short as 0 nanoseconds or as long as 10 milliseconds (adjustable in 1 ns increments). Time between exposures on a single channel can be as short as one microsecond.

Operation of the camera is controlled via a Gigabit Ethernet interface with user-friendly software that allows the user to set timing, sequence, gain and triggering. 14 bit images can be saved as TIFF or RAW files, and any 8 bit subsampled image can be saved as BMP or JPG files. Camera settings can also be saved and reloaded later to duplicate a set-up.

The 222-4G is a thoroughly new design, building on Cordin's 20+ years of experience in this technology.

#### OPTIONS

**Microscope integration**

**Tele-focus macro objective lens**

**Alternate photocathode materials for choice of wavelength range sensitivity**

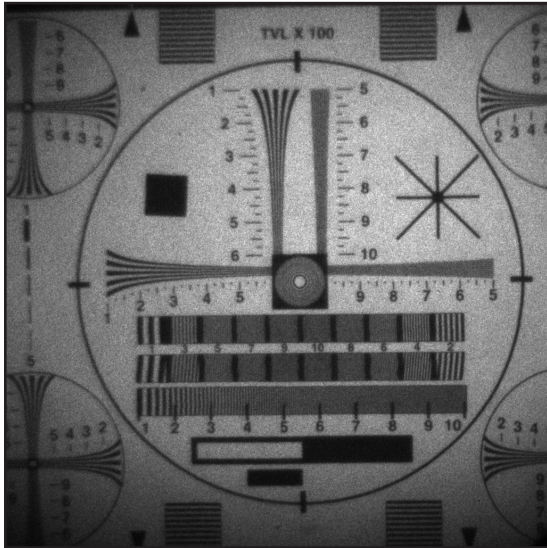
**UV configuration (model 222-4G-UV) with 220 - 700 nm spectral range**

**Modular Design: available with fewer channels, with option of adding channels later as an upgrade**

**S20 Photocathode**

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Raw Image of Resolution Chart at 5ns exposure

### SPECIFICATIONS

#### CCD

<b>Pixels</b>	2048 x 2048
<b>Device Type</b>	Full resolution progressive scan
<b>Dynamic Range</b>	14 bit
<b>Size</b>	15.16 mm x 15.16 mm

#### INTENSIFIER

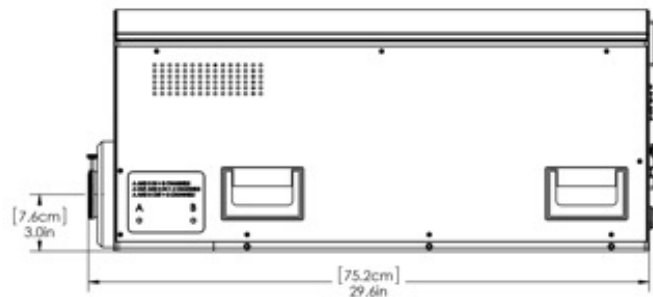
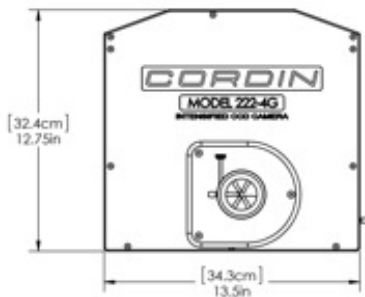
<b>Device</b>	18 mm Ø MCP
<b>Photocathode</b>	Super S25 (S20 on -UV model)
<b>Gain</b>	10,000 watts/watt
<b>Shutter Ratio</b>	107:1
<b>Grey Scale</b>	42 dB to 48 dB
<b>Resolution</b>	40 lp/mm

#### OPTICS

<b>Number of Images</b>	16 images on 8 channels
<b>Objective Lens</b>	Nikon F mount (Pentax mount on -UV model, lens not included)
<b>Beam Splitter</b>	Pellicle mirror system (Pyramid on -UV model)

#### TRIGGERING AND INTERFACE

<b>Interframe Times</b>	0 ns to 10 ms in 1 ns steps with independent control of each frame
<b>Exposure Times</b>	2.5 ns to 10 ms in 1 ns steps
<b>System Response</b>	65 ns maximum
<b>Jitter</b>	±3 ns
<b>Input Triggers</b>	Logic Level, direct and isolated; Analog and Optical with threshold
<b>Outputs</b>	Monitor, two programmable LVDS outputs on common time base with images
<b>Interface</b>	Gigabit Ethernet for camera



NOTE: Model 222-4G-UV has alternate casing and dimensions.  
Contact Cordin for details.