KODAK *EktaPro* RO Imager

The KODAK EKTAPRO RO Imager combines high-speed and high-resolution color within a small, ruggedized package designed for use in severe environments. The high-resolution color camera allows users to record up to 1,000 full frames per second in environments such as automotive crash sleds.

The RO Imager is designed to replace film cameras currently being used in harsh environments. The compact housing allows it to mount easily on an impact sled or crash test vehicle. Control of one or more imagers is made possible via RS-485, simple hard-wired controls or a dedicated Ethernet option.

EASY OPERATION

Image capture with the RO Imager begins in a low power standby mode. A signal is sent to ready the camera for recording. An additional signal from the user triggers the camera to begin recording which continues until the memory is full.

The RO Imager can capture up to 1024 images in its internal DRAM.

The RO Imager can automatically download images to either a PCMCIA hard drive or type 3 solid state flash memory card. The card is removed from the camera and inserted into a desktop computer or image server for conversion and analysis. The RO Imager can also download images to a computer via dedicated Ethernet.

ECONOMICAL DESIGN

Designed as a stand-alone camera, the RO Imager does not require an accompanying processor, reducing the cost in comparison to most tethered systems. For multiple imager applications, the reduction in cost is even more significant. The RO Imager provides high-resolution images in a compact file format. These images are then converted to 24-bit color TIFF images by software included with the RO Imager.

RO Imagers can be networked together and programmed to trigger either in unison or at specific intervals—all along a common bus so cabling remains simple. Images from multiple RO Imagers can be used for photogrammetry since each view is precisely exposed with respect to time.

The KODAK EKTAPRO RO Imager is the ideal replacement for rugged high-speed film cameras. Its compact design and high performance provide users an economical, yet powerful tool for motion analysis in punishing environments.

- **High-Resolution Color Recording**
  Kodak's state-of-the-art sensor technology provides resolution at 512 x 384 pixels in 24-bit color. Also available is a model with a monochrome sensor which provides even greater resolving power and light sensitivity.

- **Large Square Pixels**
  Pixels are 16μm x 16μm, making the camera ideal for computer image analysis applications.

- **Highly Rugged Design**
  Built to withstand punishing environments up to 100g in any axis.

- **Unique Anti-Blooming Control**
  The camera can look directly into flood lamps and still capture the surrounding scene. This is unique for high-speed sensors.

- **Built-in Electronic Shutter**
  The camera's reliable electronic shutter provides sharp images and is essential in eliminating motion blur.

- **Variable Exposure**
  From 23 through 983 microseconds at 1,000 full frames per second, in 5 microseconds increments.

MOTION ANALYSIS SYSTEMS DIVISION

KODAK EKTAPRO RO Imager
SPECIFICATIONS

Kodak

Resolution:	512 (H) x 384 (V) photo-sensitive pixels
Image:	24-bit color or 8-bit monochrome images
Blooming Protection:	Greater than 100x at 1 millisecond exp. (1000 fps)
Shutter Time:	23 through 983 μsec. at 1,000 frames per second, in 5 μsec. increments
Dynamic Range:	48 dB at 25°C ambient temperature
Capture Rate:	1000, 500, 250 fps or external frame rate (user defined)
Record Time:	Up to 1 second storage at 1000 fps
Rear Panel Controls:	Download button, Live-normal/Play forward button, Live-low light/Play reverse and RS-485 Termination On/Off switch
LED Indicators:	Standby, Ready, Data Secure, Fault
Hardwired Controls:	**Ready** - (input) changes imager mode from low-power Standby to Ready to be Triggered
	Trigger - (input) changes the imager mode from Ready to Record
	Ready Status - (output) indicates the imager is in the Ready to record mode, waiting for Trigger
	Fault - (output) indicates the imager is not ready to record and requires operator intervention
Communication:	**RS-485** - used for control and configuration of one or more imagers over serial line
	Dedicated Ethernet - 10Base-T physical link using TCP/IP protocol. Used for RO Imager control and configurations, and for downloading images from one or more RO Imagers. Connection of non-RO devices to this link is not recommended.
Storage:	1024 frames
	Memory module - PCMCIA type 3 interface for archiving digital images onto removable hard disks
Connectors:	**Main:** Power, RS-485 Serial Communication, External Sync In, Hardwired Controls, Strobe Out (Ready, Ready Status, Trigger, Fault)
	Display: 15 pin D subminiature, VGA output
Lens Mount:	C-mount or Box Mount
Size:	4.3(W) x 5.5(H) x 12(L) inches
Weight:	13.5 lbs.
Base Mounting:	Five 1/4" - 20 bolt mounts on the bottom
Power:	+28 VDC at 70W
Operating Case Temp:	-10°C to +50°C
Storage Case Temp:	-25°C to +65°C
Shock:	100g @ 10 milliseconds any axis, 1000 cycles 50g @ 100 milliseconds any axis, 1000 cycles
Vibration:	5g, sinusoidal from 5 to 2500 Hz
Emission Standards:	Meets all applicable international standards
Safety Standards:	Meets all applicable international standards

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