



S-PRI – the modular, compact high speed camera for industrial and research applications

S-PRI is a light sensitive high speed camera providing outstanding image quality, serving the needs of those searching for good performance at an outstanding price.

S-PRI cameras have a unique modular concept, allowing addition of options where desired. Options can be added at time of purchase or any time later. Updates are performed in the field without returning the camera to the manufacturer. Further extensions such as in-camera compact flash card, live SDI or analog video out, extended battery pack for up to 3 hrs of autonomous operation and IRIG-B, to name a few, are available.

Unique features

- **Compact** – 'all-in-one camera' with built-in image memory and battery.
- **Fast** – record up to 1000 fps with high image resolution of 900 x 700 pixels to see fine details.
- **Standard data interface** – the S-PRI plus connects via standard Gigabit Ethernet ('GigE') data interface to any standard WIN PC. No need for dedicated camera interfaces and cables.
- **High sensitivity** – the S-PRI plus offers high light sensitivity, well suited for mobile applications. In many applications the camera delivers well-lit images without added illumination, while in others only minimal extra light is necessary.
- **Powerful yet simple to operate control software** – the S-PRI plus includes the award winning 'AIS - AOS Imaging Studio' control software. Despite many features and functions, this Imaging Studio is easy to operate.
- **Economical** – buy the performance you need and add extensions later in case the need arises.

S-PRI – Key Specifications

Frame rate vs resolution vs recording time (partial)

Resolution ▶	Resolution @ fps Option 2 required	Resolution @ fps Basic camera	Resolution @ fps Basic camera	Resolution @ fps Option 3 required	Resolution @ fps Option 3 required	Resolution @ fps Option 3 required	Resolution @ fps Option 3 required	Resolution @ fps Option 3 required
	1280 x 1024 @ 500 fps	900 x 700 @ 1000 fps	800 x 600 @ 1250 fps	640 x 480 @ 1925 fps	512 x 512 @ 2110 fps	320 x 240 @ 6110 fps	256 x 256 @ 6680 fps	128 x 128 @ 16'500 fps
Memory ▼	Sec recording time	Sec recording time	Sec recording time	Sec recording time	Sec recording time	Sec recording time	Sec recording time	Sec recording time
1.3 GB	2.0	2.1	2.2	2.2	2.3	2.8	3.0	4.9
2.6 GB	4.0	4.2	4.4	4.4	4.6	5.6	6.0	9.8
5.2 GB	8.0	8.4	8.8	8.8	9.2	11.2	12.0	19.6
10.4 GB	16.0	16.8	17.6	17.6	18.4	22.4	24.0	39.3

Table shows typical resolution vs. fps, Resolution is freely adjustable, fps = max fps @ resolution, fps adjustable by software in steps of 1 fps, max 16'500 fps with option 3

Optical/Sensor specifications

Image Sensor	1280 x 1024 pixel with 10 Bit dynamic range, monochrome or color version Basic max. resolution of S-PRI is 900 x 700 pixel (see Option 2)
Sensor Size	14 µm pixel size / 17.8 x 14.3 mm @ 1280 x 1024 pixel
Light Sensitivity	ISO 3200 (monochrome), ISO 2400 (color)
Dynamic Range	– Standard 8 Bit – With option 1: 5-8-10 Bit adjustable by user
HDR Mode	High Dynamic Range Mode for higher image dynamic up to 14 Bit, free adjustable by slider in control software
Pixel Correction	Built-in pixel correction for highest image accuracy
Shutter Type	Global, independent of frame rate
Exposure Time	Free adjustable from 2 µsec to 1 / framing rate by software
Mount	C-Mount, optional F-Mount

Camera and control features

Image Memory	Standard: 1.3 GB, optional 2.6 / 5.2 / 10.4 GB
Nonvolatile Memory	Optional flash card interface for up to 128 GB flash disk in camera. Camera can save image data on flash disk w/o PC attached
Power	9–16 VDC/12–15 Watts depending on options and extensions Optional: 24–36 VDC input
I/O Tolerance	TTL level, all I/O are 0–24 V tolerant
LED Control	LED on back and front for indication of camera status
Reset	Reset function to reset camera status w/o affecting image memory
Power On/Off	Switch on/off, Remote Switch on
Battery	Re-chargeable NiMH battery for up to 45 mins autonomous operation of camera: Optional NiMH battery for up to 3 hrs autonomous operation is available. Note: Operation time depends on camera configuration
Trigger Delay	Programmable up to 65 sec
Trigger Windowing/ De-bouncing	User programmable trigger window to eliminate false triggering by external devices
Trigger Modes, Positions	Pre-post recording, user adjustable in steps of 1% of total camera memory
Timing	High precision time base, temperature compensated
Multi-Buffer	Split buffer for up to 32 individual sub-buffers
Auto-Download	Auto download to PC for 24/7 recording or automatic download to optional flash card until flash card full
Pre-Program of Camera	S-PRI may be preprogrammed with a specific set of commands. Ideal when camera can no longer be accessed before test. Switch on is possible only by remote switch on
OSD	Information on camera, recording features, time stamp, event marker and user specific text may be added in image data. Position of OSD is set by user
IRIG-B	Optional IRIG-B 122 input for synchronization and/or time stamp

Data Interface

Data Interface	– Gigabit Ethernet (10/100/1000) with RJ45 connector – Hot plug function of Ethernet link, no need to restart Imaging Studio software on PC when re-connecting camera to PC
I/O Interface	Solid 14 pin Lemo connector
Synchronization	Sync in / Sync out for phase-locked master-slave operation with other cameras or synchronization to external frequency (Option 5)
Armed Out	Armed out indicates camera is working well in record mode and is ready to receive trigger
Trigger In	Trigger input, rising, falling edge, TTL, switch closing/opening
Triggered Out	Indicates camera is triggered
Set_To_Rec	Used to set the camera from idle to recording mode
Remote Switch On	Switch on camera through simple 2 wire connection over a distance of up to 100 m (300 feet)
Event Marker	1 event marker in basic camera, 3 additional event markers with Option 4
Strobe	Strobe out to synchronize external equipment to camera. Pulse width represents shutter time

Physical specifications

Size/weight	72 x 72 x 122 mm, 900 gr (2.8 x 2.8 x 4.8", 1.9 lb)
Operating Temperature	0 ... + 45 °C / 32 to +113 °F
Storage Temperature	-40 ... +70 °C / -40 ... +158 °F
I/O Connector (type required for cable)	LEMO Type: FGG.2B.314.CLAD82Z ODU: S22LOC-P14MFG0-8200
CE	In compliance with relevant standards
Mounting	¼" UNC thread

Options

Option 1	Gain control (5-, 8- or 10-bit, low-, mid- or high-gain) allows full control of sensor gain
Option 2	Extends basic resolution of 900 x 700 pixel to full sensor resolution of 1280 x 1024 pixel
Option 3	Extends fps up to 16'500 fps
Option 4	3 additional event markers (total of 4)
Option 5	Frame synchronization, multi camera operation on same PC
Option 11	Auto Exposure
Option 12	Motion Detection

Extensions

Video Out	PAL or NTSC format, SDI or analog Video out on camera for live view during set-up, recording. Playback sequence on screen, OSD function on video screen
Flash Card Interface	Flash card interface with card lock and protection cover for up to 128 GB flash card memory
Extended Battery	Internal NiMH battery for up to 3 hrs of autonomous recording. No change of camera size
IRIG-B	IRIG-B 122 input for phase lock/time stamp of recording to/with IRIG-B signal
Motion Analysis	TEMA Starter 2D Motion Analysis packages

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