



## Q-PRI – the modular, compact high speed camera for industrial and research applications with 3 megapixel resolution

**Intuitive to use, a robust camera for a variety of applications ranging from research, biomedical applications to factory floor trouble shooting.**

The Q-PRI is particularly suited for all applications where a compact, portable, high resolution camera is essential. With its 3 megapixel sensor the light sensitive Q-PRI delivers crisp clear images. A robust aluminum housing insures the camera is ready to use in the field, on the factory floor or under other demanding test conditions. Q-PRI is controlled with a powerful yet easy-to-use Imaging Studio software suite with features for setting of recording parameters, play back and editing of sequences and point and click measurements. Some of the available options are additional capacity internal battery pack, compact flash card in camera, live SDI or analog video out.

### Unique features

- **Excellent image quality** – Q-PRI – the modular, compact high speed camera for industrial and research applications with a high resolution 3 megapixel sensor. The unique format fitting algorithm allows recordings in image formats of up to 1920 x 1080 pixels.
- **Modular concept** – Q-PRI is configured for a perfect match to your application by choosing from an extensive range of options and extensions.
- **High sensitivity** – the Q-PRI is a high resolution light sensitive camera ideal for recording with less light and shorter shutter times to minimize motion blur of fast moving objects.
- **Truly portable** – with long battery life time, available option up to 2.5 hrs, Q-PRI is truly a camera where mobility and independent operation is a requirement.

# Q -PRI – Key Specifications

## Frame rate vs resolution vs recording time (partial)

Resolution ▶	Resolution @ fps	Resolution @ fps	Resolution @ fps (Requires option "Ext Speed")	Resolution @ fps (Requires option "Ext Speed")	Resolution @ fps (Requires option "Ext Speed")	Resolution @ fps (Requires option "Ext Speed" and "Max Speed")	Resolution @ fps (Requires option "Ext Speed" and "Max Speed")	Resolution @ fps (Requires option "Ext Speed" and "Max Speed")
	1696 x 1710 @ 500 fps	1360 x 1024 @ 1000 fps	1280 x 720 @ 1500 fps	900 x 700 @ 2000 fps	512 x 512 @ 4 290 fps	320 x 240 @ 12 000 fps	256 x 256 @ 12 700 fps	128 x 128 @ 32 450 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	0.9	0.9	0.9	1.0	1.1	1.4	1.5	2.5
2.6 GB	1.8	1.9	1.8	2.1	2.3	2.8	3.1	5.0
5.2 GB	3.6	3.8	3.8	4.2	4.7	5.7	6.3	10.0
10.4 GB	7.2	7.6	7.7	8.4	9.4	11.5	12.7	20.0

Table shows typical resolution vs. fps, resolution is freely adjustable, fps = max fps @ resolution, fps adjustable by software in steps of 1 fps, max 100 000 fps @ reduced resolution

## Extended resolution mode

Resolutions vs max. fps	1920 x 1080 @ 2000 fps	1024 x 1024 @ 4000 fps	1280 x 720 @ 5000 fps	853 x 480 @ 10 000 fps
Recording Times	1.3 GB memory: 1 sec	2.6 GB memory: 2 sec	5.2 GB memory: 4 sec	10.4 GB memory: 8 sec

## Optical/Sensor specifications

<b>Image Sensor</b>	1696 x 1710 pixel with 8 Bit dynamic range, monochrome or color version
<b>Sensor Size</b>	8 µm pixel size / 13.6 mm x 13.7 mm @ 1696 x 1710 pixel
<b>Light Sensitivity</b>	ISO 3200 (monochrome), ISO 1600 (color)
<b>Dynamic Range</b>	Standard 8 Bit
<b>HDR Mode</b>	High Dynamic Range Mode for higher image dynamic up to 12 Bit, free adjustable by slider in control software
<b>Pixel Correction</b>	Built-in pixel correction for highest image accuracy
<b>Shutter Type</b>	Global, independent of frame rate
<b>Exposure Time</b>	Free adjustable from 2 µsec to 1 / framing rate by software
<b>Lens Mount</b>	C-Mount or optional F-Mount

## Camera and control features

<b>Image Memory</b>	Standard: 1.3 GB, optional 2.6 / 5.2 / 10.4 GB
<b>Nonvolatile Memory</b>	Optional flash card interface for up to 64 GB flash disk in camera. Camera can save image data on flash disk w/o PC attached
<b>Power</b>	9–16 V / optional 24–36 VDC / 12–15 Watts depending on options and extensions
<b>I/O Tolerance</b>	TTL level, all I/O are 0–24 V tolerant
<b>LED Control</b>	LED on back and front for indication of camera status
<b>Reset</b>	Reset function to reset camera status w/o affecting image memory
<b>Power On/Off</b>	Switch on/off, Remote Switch on
<b>Battery</b>	Re-chargeable NiMH battery inside for up to 30 min autonomous operation of camera, optional internal battery for up to 2.5 hrs autonomous operation is available
<b>Trigger Delay</b>	Programmable up to 65 sec
<b>Trigger Windowing/De-bouncing</b>	User programmable trigger window to eliminate false triggering by external devices
<b>Trigger Modes, Positions</b>	Pre-post recording, freely adjustable in steps of 1% of total camera memory
<b>Timing</b>	High precision time base, temperature compensated
<b>Multi-Buffer</b>	Split buffer for up to 32 individual sub-buffers
<b>Auto-Download</b>	Auto download to PC for 24/7 recording or automatic download to optional flash card until flash card full
<b>Pre-Program of Camera</b>	Q-PRI may be preprogrammed with a specific set of commands. Ideal when camera can no longer be accessed before a test and remote power up is required
<b>OSD</b>	Information on camera, recording features, time stamp, event marker may be added in image data, position of OSD is set by user
<b>Extended Format Mode</b>	By switching on the "Extended Format Mode" the cameras built in sophisticated image algorithms provides desired image formats up to a maximum of 1920 x 1080. This unique camera feature is a powerful tool allowing users to customize image format based on desired output needs

## Data interface

<b>Data Interface</b>	Gigabit Ethernet (10 / 100 / 1000) with RJ45 connector
<b>I/O Interface</b>	14 pin LEMO connector
<b>Synchronization</b>	Sync in / Sync out for phase-locked master-slave operation with other cameras or synchronization to external frequency
<b>Armed Out</b>	Armed out indicates camera is ready to receive trigger
<b>Trigger In</b>	Trigger input, rising, falling edge, TTL, switch closing/opening
<b>Triggered Out</b>	Indicates camera is triggered
<b>Set_To_Rec</b>	Used to set the camera from idle mode into recording mode
<b>Remote Switch On</b>	Switch on camera by simple 2 wire connection over a distance of up to 100 m (300 feet)
<b>Event Marker</b>	Event marker to record/mark events during image data acquisition
<b>Strobe</b>	Strobe out to synchronize external equipment to camera. Pulse width represents shutter time

## Physical specifications

<b>Size/Weight</b>	72 x 72 x 122 mm, 980 gr (2.1 lb)
<b>Operating Temperature</b>	-5 °C ... +45 °C / 23 °F ... +113 °F
<b>Storage Temperature</b>	-40 ... +70 °C / -40 °F ... +158 °F
<b>I/O Connector (type required for cable)</b>	LEMO type: FGG.2B.314.CLAD82Z ODU: S22LOC-P14MFG0-8200
<b>CE</b>	In compliance with relevant standards
<b>Mounting</b>	¼" UNC thread, bottom

## Configuration and options

<b>Standard Configuration</b>	Up to 1000 fps with free definition of ROI by software within specifications of sensor. Extended format up to 1920 x 1020 pixel 1 event marker
<b>Extended Speed</b>	Recording up to 10 000 fps with free definition of ROI by software within specifications of sensor. Extended format up to 1920 x 1020 pixel
<b>Max Speed</b>	Recording up to 100 000 fps with free definition of ROI by software within specifications of sensor. Extended format up to 1920 x 1020 pixel
<b>Option Event Markers</b>	Additionally 3 event markers (total of 4) to record and display external events in frames
<b>Option External Sync Multi Camera</b>	Allows external synchronization of cameras (phase lock) to any external TTL source or master slave synchronization. Multi camera operation on one PC. Includes Pigtail cable AOS# 2200116
<b>Option Auto Exposure</b>	Auto exposure function
<b>Option Motion Detection</b>	Motion detection function

## Extensions

<b>Video Out</b>	PAL or NTSC format, SDI or analog. Video out on camera for live view
<b>Flash Card Interface</b>	Flash card interface for up to 64 GB flash card memory
<b>Extended Battery</b>	Internal NiMH battery for up to 2.5 hrs autonomous recording
<b>IRIG-B</b>	IRIG-B 122 input for phase lock/time stamp of recording to/with IRIG-B signal
<b>Motion Analysis</b>	TEMA Starter 2D Motion Analysis packages
<b>Extended Temperature Range</b>	Camera tested for temperature -50 °C to +55 °C (-58 °F ... 131 °F)

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