i-SPEED SERIES

i-SPEED® 7 SERIES

Premier high-speed cameras for the most demanding applications.

iX Cameras

THE FASTEST JUST GOT FASTER

3.2 MEGAPIXEL CMOS SENSOR

2.45 MILLION FPS MAX SPEED

27+GPIXELS/S

2072 x 1536 @ 8,512FPS

1920 x 1080 @ 12,742FPS

ISO 16,000 / 125,000

SYNCHRONIZED INTEGRATED LIGHTING CONTROL*

ELECTROMECHANICAL SHUTTER

DIRECT CONNECT REAR PANEL

UP TO 2TB EXTERNAL SSD

2TB INTERNAL SSD

NEW RUGGED HIGH G RATED BODY DESIGN

HANDHELD CONTROL DISPLAY UNIT

REMOVABLE HANDLE

MODEL UPGRADE PROGRAM

MADE IN THE UK AND USA

*Patent pending

The newest AST CMOS ultra-high speed sensor

The heart of a high-speed camera is the sensor. The i-SPEED® 7 Series is no different. Employing our newest Advanced Sensor Technology (AST), the sensor in our newest i-SPEED 717, 721, and 727 cameras is the most advanced, highest performing sensor in the iX Cameras line of products.

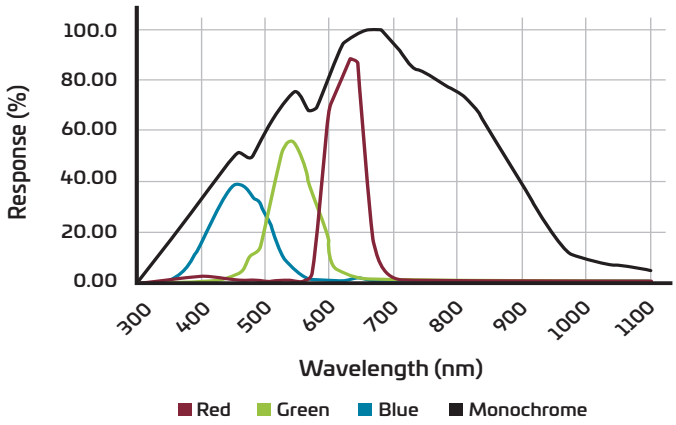
iX Cameras designs and develops its own state-of-the-art proprietary sensors. This commitment to excellence and quality control keeps us ahead of the commercial sensors found in most high-speed cameras. In 2018, we launched our AST initiative. The first sensor of this endeavor was the 1920 x 1080 HD sensor utilized in the i-SPEED 5 Series. The new 2072 x 1536 3.2 MPixel AST sensor builds upon that success.

The newest AST CMOS sensors boast increased light sensitivity, enhanced image clarity, ultra-high-resolution at high speeds that reach 2.45 million frames/second, and proprietary black level control for deeper blacks and low noise.

The 27.1 GPixels/s raw throughput rate is the fastest in the industry. No spatial or temporal interpolation. Raw speed, the 168ns shutter time is also among the fastest. We even optimized the 13.5 µm pixel size for the proper balance between high-resolution (for image clarity) and exceptional light sensitivity normally found only with larger pixels.

Spectral response curves

Our latest custom designed CMOS sensor with class leading light sensitivity provides high quality images for accurate analysis.



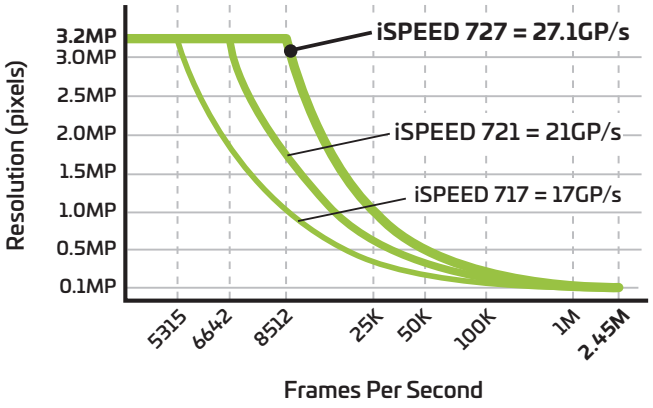
Sensor highlights

- 3.2 Megapixel CMOS Sensor
- Optimized full well capacity
- Full 12 bit dynamic range
- Dynamic pixel control
- New sensor drive engine
- 27.1 GPixels/s throughput
- Exceptional light sensitivity
- 13.5 µm pixel size

Features that redefine high-speed perfomance

Unparalleled throughput

The i-SPEED® 7 Series (717, 721, and 727) provides an increased 2072 x 1536 resolution that raises throughput speeds to 27.1 GPixels/second (27.1 billion pixels processed every second)—at even higher frame speeds. The balance between resolution and frame rate produces amazingly clear images at impressive resolutions that are critical for accurate motion analysis.



Electromechanical shutter

Continuing our tradition of developing easy-to-use cameras, we added an optional electromechanical shutter to the new i-SPEED 7 Series. This new feature enables remote reference, automated calibration, and sensor protection during lens changes. The electromechanical shutter makes the new i-SPEED 7 Series ideal for field work where the camera is at a distance from the user and for DIC and PIV applications where the camera must not be moved after a calibration frame.

Synchronized Integrated Lighting Control (SLC)*

The new integrated lighting control allows users to accurately control external lighting independent of the camera's exposure duration. Three modes allow the user to set up a single pulse per frame, double pulse per frame, or change pulse duration on alternating frames. This feature is ideal for LED and PIV laser illumination where the timing of the light in relation to the exposure can be tightly controlled. Delay, duration, and relative position for each pulse can be defined, allowing for superior lighting control and advanced camera synchronization possibilities.

**Patent pending*

Direct connect rear panel

The newly designed rear panel of the i-SPEED 7 Series added more BNC connections to reduce the requirement for a feature lead. Now the Trigger, Sync In/Out and Exposure Out are on the rear panel. Exposure Out can be switched to synchronized lightning control.

1 Power Input 12-36V

2 HD-SDI / HDMI video output

3 1Gigabit Ethernet control and download

4 Optional Internal batteries

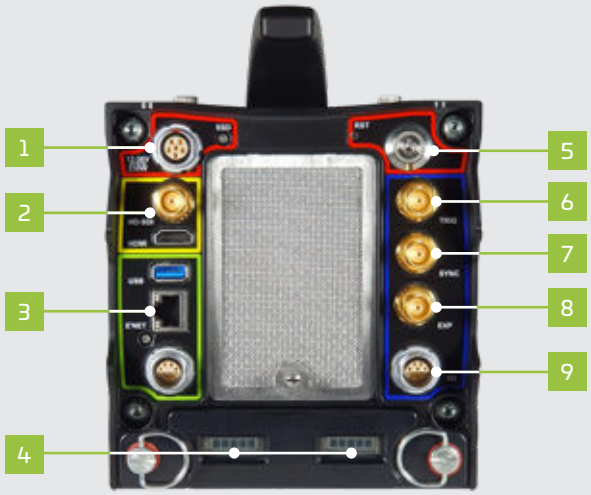
5 Power button

6 Trigger input BNC

7 Sync In/Out BNC

8 Exposure Out BNC

9 I/O connector
12V Out
IRIG in
Trigger
GPIO



Rugged high-G rated body design

iX Cameras engineers combined the i-SPEED® 7 Series instrumentation and rugged models into one innovative camera housing ideal for both laboratory and challenging field environments. The sturdy rugged design features a high-G rated two-piece aluminum enclosure for exceptional protection. The redesigned all aluminum enclosure also includes a user removable handle to provide greater flexibility when mounting the camera to a static frame. Removing the handle exposes fixing points to facilitate the connection of other components such as the CDUe or lights, displays, booms, etc.

2TB internal SSD storage

Recording at high speeds with high resolutions produces a great deal of data. The i-SPEED 7 Series camera can be configured with up to 2TB of internal SSD storage. You can quickly and seamlessly transfer data from the camera's internal RAM memory to secure, non-volatile SSD—without touching the camera—for subsequent analysis. A 2TB capacity allows the user to store multiple recordings and conduct tests in quick succession.

Don't stop—just swap

Swappable SSD technology allows you to transfer high resolution images between a camera and a computer. The external solid state drive (xSSD) memory cartridge, available in 250GB, 500GB, 1TB, and 2TB sizes, is ideal for secure non-volatile storage of large video files without interrupting the video capture process.

Revolutionary CDUe for complete camera control

The industry unique CDUe (Controller Display Unit) makes operating the camera quick, intuitive, and portable. The CDUe easily allows you to frame your field of view, set resolution, frame rate and shutter speed, record and review with the touch of a finger. Combine the CDUe with battery option for the camera and take your system to the field to run without the need of a laptop or power supply.

Unplug and go with internal batteries

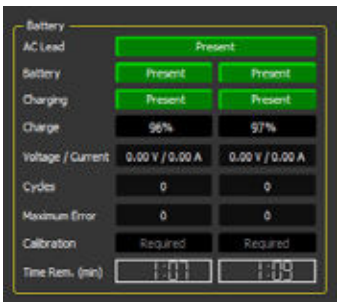
The optional battery set adds to the portability of the i-SPEED 7 Series camera, providing a one-hour charge without external power that can be swapped with another set for extended use. Data security is essential when tests cannot be repeated or in environments where the threat of power loss exists. Ensure that your video will be secure and intact with internal batteries that engage as soon as external power is lost.

i-CHEQ status monitoring

Monitor your camera's status at a glance and in real-time with i-CHEQ 360. View in-camera details for single or multiple camera setups with Remote i-CHEQ, part of the i-SPEED Software Suite 2.0. Understand your camera's exact status using the three variable color lights on the front of the camera and mirrored inside the control software.

Real-time health monitor

Observe the camera's internal condition and external environment. Switch off fans (Quiet Mode) to prevent vibration in microscopic applications. View battery status (if present), voltage information, fan speed and camera temperature.



Performance

Upgrade path between three models

The i-SPEED® 7 Series has been designed to allow for easy upgrades between models as performance or application requirements increase. Add additional memory and options such as xSSD or upgrade to a higher performance model.

i-SPEED 727

Frame Speed	Resolution	36GB	72GB	96GB	144GB	288GB
1,000	2072x1536	8.1	16.2	21.6	32.4	64.8
2,000	2072x1536	4.0	8.1	10.8	16.2	32.4
5,000	2072x1536	1.6	3.2	4.3	6.5	13.0
7,500	2072x1536	1.1	2.2	2.9	4.3	8.6
8,512	2072x1536	1.0	1.9	2.5	3.8	7.6
10,000	1920x1374	1.0	1.9	2.5	3.8	7.6
12,742	1920x1080	1.0	1.9	2.5	3.8	7.6
15,000	1568x1134	1.0	1.9	2.6	3.9	7.7
20,000	1344x960	1.0	2.0	2.7	4.0	8.0
30,000	1064x798	1.0	2.0	2.7	4.0	8.1
50,000	840x606	1.0	2.0	2.7	4.0	8.1
100,000	840x294	1.0	2.1	2.8	4.2	8.3
200,000	840x134	1.1	2.2	3.0	4.4	8.9
500,000	672x54	1.4	2.8	3.8	5.7	11.4
750,000	672x30	1.7	3.4	4.5	6.8	13.6
1,000,000	560x24	1.9	3.8	5.1	7.7	15.3
2,450,000	280x12	3.1	6.3	8.3	12.5	25.0

i-SPEED 721

Frame Speed	Resolution	36GB	72GB	96GB	144GB	288GB
1,000	2072x1536	8.1	16.2	21.6	32.4	64.8
2,000	2072x1536	4.0	8.1	10.8	16.2	32.4
5,000	2072x1536	1.6	3.2	4.3	6.5	13.0
6,642	2072x1536	1.2	2.4	3.2	4.9	9.7
7,500	1960x1428	1.2	2.5	3.3	4.9	9.8
9,944	1920x1080	1.2	2.4	3.3	4.9	9.8
10,000	1680x1242	1.2	2.5	3.3	4.9	9.9
15,000	1344x1008	1.3	2.5	3.4	5.1	10.1
20,000	1176x864	1.3	2.5	3.4	5.1	10.1
30,000	952x696	1.3	2.6	3.5	5.2	10.4
50,000	840x462	1.3	2.7	3.5	5.3	10.6
100,000	840x216	1.4	2.8	3.8	5.7	11.4
200,000	840x96	1.6	3.2	4.3	6.4	12.8
500,000	672x42	1.8	3.7	4.9	7.3	14.6
750,000	448x36	2.1	4.3	5.7	8.5	17.0
1,000,000	448x24	2.4	4.8	6.4	9.6	19.2
2,450,000	280x12	3.1	6.3	8.3	12.5	25.0

i-SPEED 717

Frame Speed	Resolution	36GB	72GB	96GB	144GB	288GB
1,000	2072x1536	8.1	16.2	21.6	32.4	64.8
2,000	2072x1536	4.0	8.1	10.8	16.2	32.4
5,000	2072x1536	1.6	3.2	4.3	6.5	13.0
5,315	2072x1536	1.5	3.0	4.1	6.1	12.2
7,500	1736x1284	1.5	3.1	4.1	6.2	12.3
7,960	1920x1080	1.5	3.1	4.1	6.1	12.2
10,000	1512x1098	1.6	3.1	4.1	6.2	12.4
15,000	1232x888	1.6	3.1	4.2	6.3	12.6
20,000	1064x762	1.6	3.2	4.2	6.4	12.7
30,000	840x624	1.6	3.3	4.4	6.6	13.1
50,000	672x546	1.7	3.4	4.5	6.7	13.4
100,000	672x216	1.8	3.5	4.7	7.1	14.2
200,000	672x96	2.0	4.0	5.3	8.0	16.0
500,000	672x24	3.2	6.4	8.5	12.8	25.6
750,000	448x24	3.2	6.4	8.5	12.8	25.6
1,000,000	336x24	3.2	6.4	8.5	12.8	25.6
2,450,000	280x12	3.1	6.3	8.3	12.5	25.0

Frame rates, resolution, and duration (in seconds). Note: Cameras with frame rates higher than 225,000 are optional. Specifications subject to change.

Specifications

IMAGER

Sensor type	Custom CMOS
Sensor resolution	2072 x 1536 pixel
Sensor size	27.972 mm x 20.736 mm
Sensor diagonal	34.82 mm
Pixel size	13.5 µm
Bit depth	12 bit (36 bit color)
Light sensitivity Mono (Gain off/on)	16,000 / 125,000
Light sensitivity Color (Gain off/on)	4,000 / 32,000
Standard frame rate	225,000 fps
Optional frame rate	1,000,000 fps*
Maximum frame rate	2,450,000 fps*
Shutter type	Global exposure
Shutter integration time, standard	1 µs minimum
Shutter integration time, fast mode	168ns* @ 2.45M fps 277 ns* @ 1M fps
WDR	Wide Dynamic Range

SYNCHRONIZATION and CAPTURE

Trigger	TTL TO to 0-100%
Trigger modes	Circular, ROC, BROC
Sync	10 Hz - 350 kHz
Luminance histogram	Iris and light assistance
i-CHEQ 360	Camera status LEDs
i-FOCUS	Focusing and depth of field information
i-EXPOSE	High/low exposure highlight
Control	PC or CDUe
IRIG input	IRIG – B to sub 1 µs
Internal memory	36 GB standard, upgrade to 288 GB

CONNECTIVITY

Video outputs	HD-SDI, HDMI
USB	USB 3
Network	1 Gb RJ45
Video	IXV, AVI (compressed or uncompressed)
Image sequence	TIFF, JPG, RAW
Ethernet control	1 Gb
Remote control	Via supplied software

PC SOFTWARE

Standard control	Control ONE
Premium control	Control Multi-DAQ
Editing	i-SPEED Movie Maker
Analysis	ProAnalyst® by Xcitex
Viewer	i-SPEED Viewer
Software Developers Kit	C++
Synchronized data acquisition	USB DAQ, 8 options
Language	Local language (available in certain countries)

PHYSICAL and ENVIRONMENTAL

Dimensions, inches	14.75 (L) x 5.75 (W) x 6.0 (H)
Dimensions, mm	374 (L) x 143.5 (W) x 150 (H)
Weight	18.7 lb (8.5 kg) with battery
Input voltage	12-36 V
Power consumption	150 W Nominal, 200 W Max
Mounting	1/4 x 20 and 3/8 x 16 tripod plate
Battery	2x 14.4 V 90 Wh
Battery life	1 hour (with both batteries installed)
Lens mount	Custom, swappable lens plate
EMC	EN55032-A, EN55024
Safety	BS EN61010-1 (camera), IEC60950 (PSU)
CE marking	EMC Directive (Camera), EMC Directive, LV Directive (PSU)
Lead free	RoHS Directive
WEEE	Compliant
IP rating	IP 20
Temperature °F	-14† to 122 operation, -4 to 140 storage
Temperature °C	-10† to 50 operation, -20 to 60 storage
Pressure	71 kpa to 106 kpa
Relative humidity	95% at 104°F non-condensing
G-shock	30 G @ 11 ms IEC 68-2-27 Ea, 30 G @ 2 ms IEC 68-2-29 Eb
Power input connector	6 pin Lemo
Trigger input	BNC 75 Ω
I/O connector	10 pin Lemo, 12V, Remote Power, IRIG-IN, GPIO 0, 1, GPI 2, Trigger In

PURCHASING OPTIONS

CDUe	Portable Control Unit
Sensor	Color / Mono
Memory	36GB (std) / 72GB / 96GB / 144GB / 192GB / 288GB
Frame speed (option)	1,000,000fps*
Frame speed (maximum)	2,450,000fps*
Shutter integration time	1 µs (std) / 168ns* @ 2.45M fps/ 277ns* @ 1M fps
Internal SSD	500GB / 1TB / 2TB
External SSD	250GB / 500GB / 1TB / 2TB
Lens mounts	F mount (Nikkor D) / F mount (Nikkor D) with shutter / F mount (Nikkor G) / F mount (Nikkor G) with shutter / C mount / EF mount
Warranty	2 yr (std) / 3 yr
Internal Batteries	Set of 2 batteries

**Export restricted.*

†Cameras must be turned on above 0°C / 32°F and can operate down to -10°C /-14°F.

Our cameras set us ahead.

Our software sets us apart.

The i-SPEED® Software Suite 2.0 enables you to use the software with a Windows laptop, desktop, or the optional Controller Display Unit (CDUe). With both versions of the PC software—Standard and Premium—you will experience unparalleled features and the most complete set of functions with a modern and intuitive GUI. Control your camera via Gigabit Ethernet connection—load and control single and multiple camera configurations or connect remotely for uninterrupted access to restricted areas.

Two levels to suit your specific application requirements

- Control ONE: Control a single camera from a laptop or PC.
- Control Multi-DAQ: Control multiple cameras and/or synchronize with data acquisition devices.

Local Languages

To accommodate our worldwide customer base, the i-SPEED Software Suite 2.0 will be available in local languages to meet the needs of our global customers.

Video Trigger

The latest feature of the i-SPEED Software Suite 2.0, this functionality allows the user to define trigger levels through a manual mode or choose auto mode and have the software calibrate trigger levels. A real-time track mode has been added for triggering the camera in a dynamically changing environment such as cloud cover.

Record

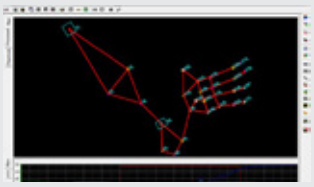
Customized connection and crow's-nest layout window

- Instantly sync and record from multiple cameras.
- Choose multiple configurations of a single camera, or quickly configure a new camera and new capture settings from inside the simplified connection control panel.

Edit

Renderless editing suite—i-SPEED Movie Maker features virtually no render lag

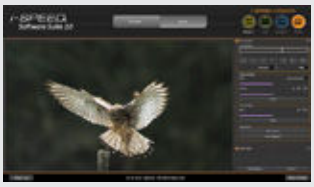
- The world's only editing software designed specifically for high-speed video
- Focuses on frame rate and video speed
- Available with Control Multi-DAQ



Analyze

Your i-SPEED camera becomes a precision measurement device with ProAnalyst® from Xcitex Inc., the world's most advanced motion analysis software

- Analyze, graph, and output speed, acceleration, fluid dynamics, PIV, and more with optional toolkits.
- Available with Control Multi-DAQ



Share

Play just about anything

- View and import saved files directly from the camera.
- Align and play multiple file types.
- Load and control the video and playback speed all without load times—load and play multi-gigabyte files instantly.

Software Developer's Kit (SDK)

iX Cameras will provide the SDK kit and the technical support to customize the software to meet your specific applications needs. We will work with you to integrate program commands into your own software to allow you full control of all i-SPEED 7 camera functions and features.

i-SPEED Software Suite 2.0

	Standard Bundle	Premium Bundle
Bundled Software		
Control ONE	■	
Control Multi-DAQ		■
Viewer	■	■
Movie Maker		■
ProAnalyst® by Xcitex Motion Analysis Software (see next page for details)	Introductory	Lite
Main Functons		
Language	English	Local Languages
Simple Mode	■	■
Customizable Workspaces	■	■
Check for Updates	■	■
Camera Connect		
Single Camera Control	■	■
Multi-Camera Control		■
Sync DAQ Control		■
Camera Naming / Positioning / Appearance	■	■
Crow's Nest Test Set-Up View	■	■
Real-Time Camera Health Monitoring System	■	■
Camera Capture		
i-FOCUS	■	■
i-EXPOSE	■	■
Low Light Mode	■	■
Luminance Histogram (Full Image or ROI)	■	■
Calibration Snapshot for DIC / PIV	■	■
Session Reference / Auto-Black Reference	■	■
Remote Session Reference / Auto-Black reference (with Mechanical Shutter)	■	■
DIC Tools	■	■
Multiple Buffers	■	■
Rearm	■	■
Auto Save		■
Buffer Advance Mode	Auto Advance, Auto Advance and Record	Auto Advance, Auto Advance and Record
Sync Modes	Normal	Normal, Random Snapshot
Sync	Master / Slave	Master / Slave
Trigger Modes	Normal (Circular)	Normal (Circular), ROC, BROC
Video Trigger		■
Software Trigger	■	■
TTL Trigger	■	■
IRIG Phase Lock (sold separately)	Optional	Optional
i-CHEQ	■	■
Synchronised Integrated Lighting Control*		■
On-Board PIV Double Pulse Timing for Driving PIV Laser Systems		■
Dual Brightness Twin Recording		■
Video Review		
Time Zoom	■	■
Bookmarks	■	■
Measure Window (Angles, Distances)	■	■
Video Processing	■	■
Measure (see next page for details)		
Linear, Distance, and Velocity	■	■
Angular, Angle, and Angular Velocity	■	■
Save		
File Formats	TIFF, JPG, RAW, IXV, AVI	TIFF, JPG, RAW, IXV, AVI
File Name Sequencing for Ingestion Into 3rd Party Software	■	■

**Patent pending*

ProAnalyst® Software by Xcitex Motion Analysis Software

ProAnalyst	Introductory	Lite
File Management		
AVI, WMF, ASF, CINE, MPED-1, MOV, and MP4 Files	■	■
BMP, JPG, PNG, TIFF Image Sequence Compatibility	■	■
Project-Based File Management	■	■
Video Explorer	■	■
Pack / Unpack Projects	■	■
Image Calibration and Processing		
Image Processing	■	■
Image Filtering		Limited
Video Timeline	■	■
Layered Display and Editing	■	■
2-D Scene Calibration	■	■
Perspective and Multi-Plane Scene Calibration		■
Video Analysis		
2-D Feature Tracking	■	■
Number of Auto-Track Features	1	256
Number of Manual Track Points	32	256
Real-Time Annotations of Distance and Angle Between Features		■
Graphing and Computation		
Graphing Within ProAnalyst		Limited
Notes and Reports		
External Data Import		■
Tracking Data Export to C3D, Diadem, Excel, MATLAB	Limited	■
Video Frame, Data Point, and Global Notes		■
Image Annotation	■	■

ProAnalyst Professional and 3-D Professional	Professional	3-D Professional
Image Calibration and Processing		
3-D Manager		■
3-D Scene Calibration		■
Lens Distortion Correction	■	■
Video Analysis		
Image Stabilization Toolkit*	Optional	Optional
Particle Counting, Sizing, and Tracking Toolkit*	Optional	Optional
Contour / Edge Analysis Toolkit*	Optional	Optional
Particle Image Velocimetry Toolkit	Optional	Optional
Impact Excursion Toolkit	Optional	Optional
Biological Cell Tracking Toolkit	Optional	Optional
1-D Line Tracking	■	■
3-D Measurement and Analysis		■
Graphing and Computation		
One-Click FFT	■	■
2-Axis Graphing	■	■
3-Axis Graphing	■	■
3-D Graphing of Trajectories from 3-D Manager	■	
Data Filtering	■	■
Notes and Reports		
HTML, PowerPoint, and Print-Ready Report Generator	■	■

**Included in Professional Ultimate Bundle*

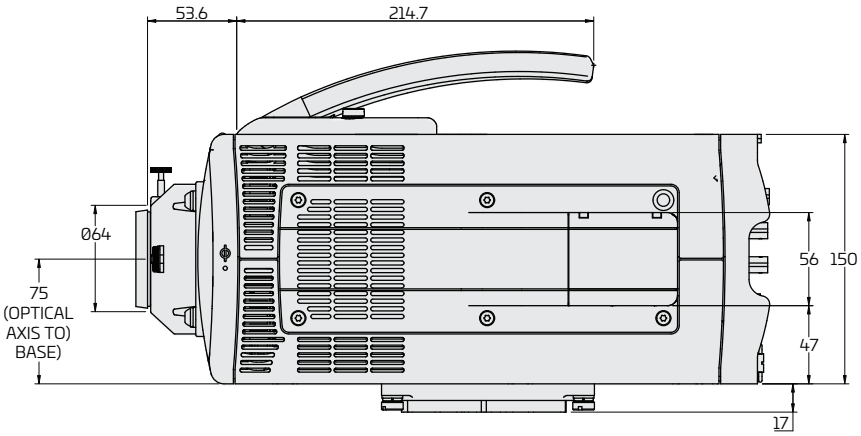
Upgrade Options

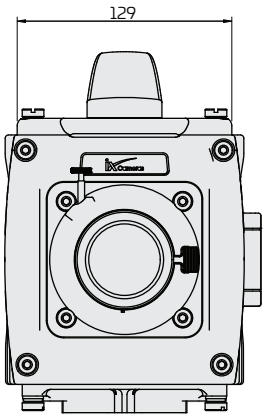
- From **Introductory** to **Professional Edition**
- From **Introductory** to **Professional Ultimate Bundle**
- From **Lite** to **Professional Edition**
- From **Lite** to **Professional Ultimate Bundle**
- From **Professional** to **3-D Professional Edition**
- From **Professional Ultimate Bundle** to **3-D Professional Ultimate Bundle**

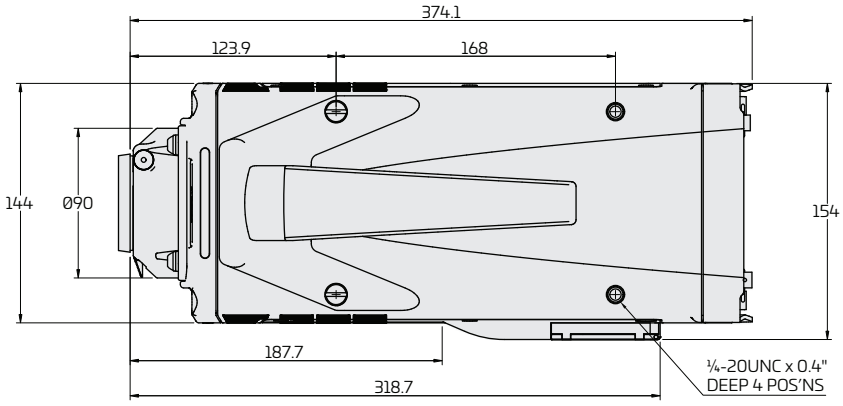
iX Cameras shares its CAD models

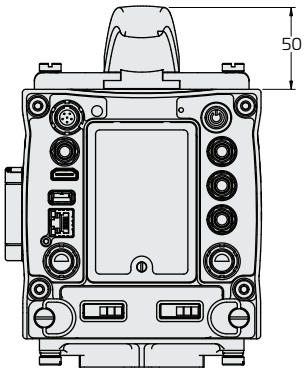
With many applications, the camera is a component in the overall solution. While commercially available accessories can fulfill most requirements, there are always some situations that require a bit extra. This may be as simple as a bracket to mount an accessory to the camera, or as complex as a full OEM system integration. Whatever the requirement, accurate and complete interface data is a must. As such, iX Cameras is pleased to provide another first in our industry by opening access to the CAD model data for the exterior of our cameras.

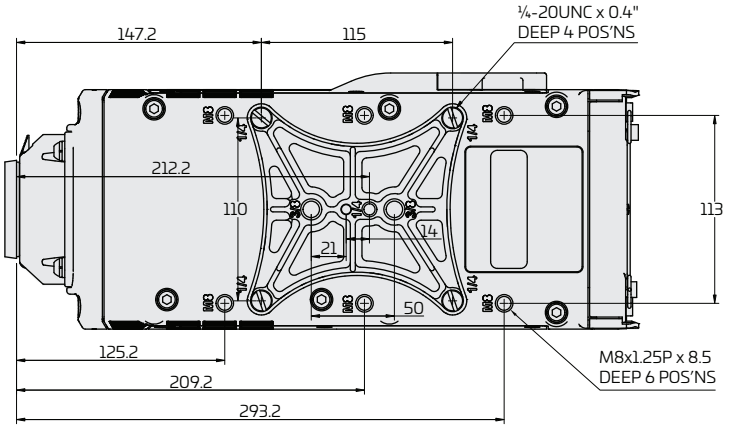
For more information, please visit our Cameras CAD Models page.









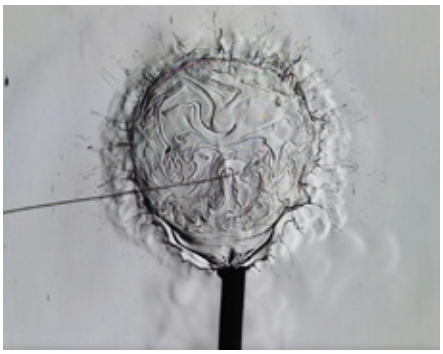


Advanced high-speed cameras for any application

The new i-SPEED® 7 Series with the AST sensor offers our customers three models (717, 721, 727) of high-speed cameras to use in the lab, field, or test range recording a wide range of applications without compromising high resolution at high recording speeds—capturing the fastest events while reducing motion blur.

Fluid Dynamics

The combination of high resolution and integrated lighting control allows for perfect capture of fluids with zero motion blur.



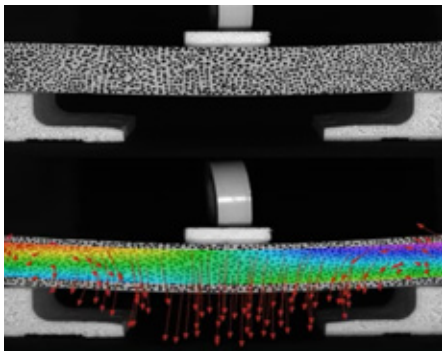
Courtesy: Linden Gledhill

Ballistics

With the highest pixel throughput available (27.1Gp/s), the 7 Series provides industry leading resolution values at high frame rates.

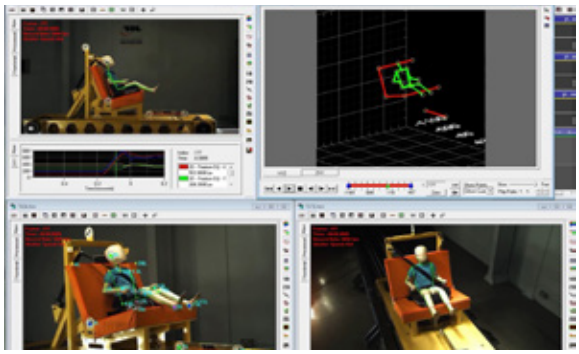
Digital Image Correlation (DIC)

The 7 Series cameras use the new AST high-resolution sensor, enabling small particle correlation with zero interpolation.



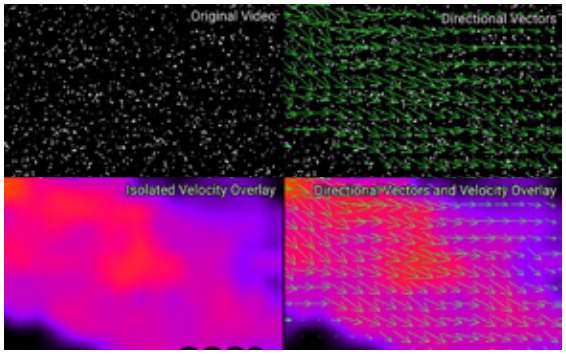
Motion Analysis

When accuracy of motion analysis is paramount, the high resolution, high dynamic range allows for perfect 2D and 3D analysis.



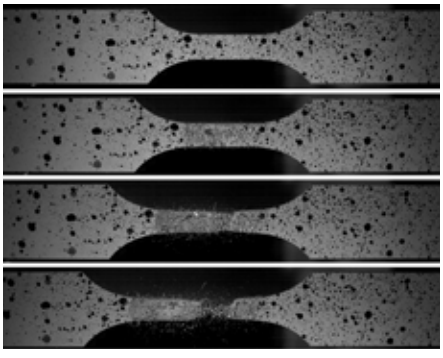
PIV

Large area medium pixel sensors are ideal for PIV applications, giving high resolutions as well as high sensitivity.



Scientific Research

The wealth of functions and features that the 7 Series offers enables the most extreme tests to be completed with ease.

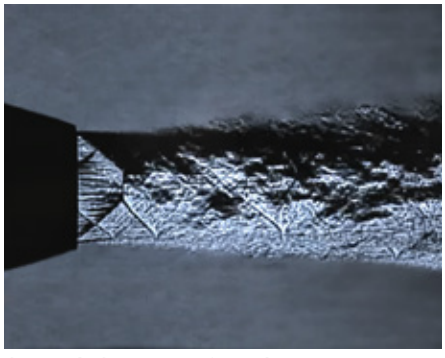


Fragmentation

When the environment is tough the camera also needs to be tough. The new 7 Series provides a tough 30G case made from a solid billet of aluminum.

Schlieren

Traditional mirror and modern digital techniques both excel with the AST Sensor due to its high sensitivity and resolution.



Courtesy: Dr. Charles Tinney, Applied Research Laboratories, University of Texas at Austin and Dr. Nathan Murra, University of Mississippi

A legacy built on innovation

iX Cameras is a world-leading technology and product company specializing in the field of high-speed (slow motion) imaging. Based on proprietary innovative technologies, we design, build and sell cutting-edge, ultra-fast cameras and software for a wide range of advanced scientific research applications. The innovation of our i-SPEED® brand of cameras is backed by our world-class service and support teams, ensuring our customers' success.

iX Cameras was created in 2014 when we purchased the Olympus product group that has been developing and selling the i-SPEED brand of high-speed cameras for over a decade. Today, the same heralded development team from Olympus, combined with new camera and software industry veterans, continues to design innovative state-of-the-art i-SPEED cameras under the iX Cameras brand. Our commitment is simple—innovate and push the boundaries of high-speed video science, developing technically superior and easy-to-use products that allow customers to attain the highest scientific achievements and creativity.

iX Camera support and service locations

iX Cameras is dedicated to providing the best support and customer communication possible. Use the information below to get comprehensive company-wide contact information for any question or topic which you may have.

United Kingdom
Bradley House
Locks Hill
Rochford Essex, SS4 1BB
T: +44 (0) 1702 540 669

United States
8 Cabot Road
Suite 1800
Woburn, MA 01801
T: +1 339 645 0778

China
Room 605, Building 8
No 365, Chuanhong Road
Pudong New District
Shanghai, 201323
T: +86 186 215 60553

India
C-207, Twin Arcs
Legacy Life Spaces, Punwale Bazar
Punawale, Pune-411033
Maharashtra
T: +91 955 256 5021

info@ix-cameras.com
ix-cameras.com

To find the iX Cameras sales partner nearest you, visit our Worldwide Distribution page.

DS-7-02262021

The Perfect Balance of Speed, Size, and Memory

3,985fps @ 1920x1080 | 8GPx/s throughput | 10,000fps @ 1064x768

FEATURES + OPTIONS

- **HD resolution 1920 x1080 pixel sensor (2.1MPx), more pixels = greater accuracy**
- **8 TB internal SSD capacity**
- **Up to 144 GB of on-board memory for long recordings or multiple buffers**
- **Internal or external SSD drive for fast data transfer**
- **Global electronic shutter to 289 ns***
- **Compatible with all Nikon F and Canon EF mount lenses**
- **Record up to 1,000,000 fps**
- **Fully compatible with the i-SPEED Software Suite 2.0 for more advanced functions**
- **Upgrade path between models**

* subject to export regulations

High performance high-speed camera in a compact and durable form-factor.

The sealed electronics design of the i-SPEED 5 utilizes an innovative internal cooling system—drawing heat from the inside of the camera and venting it to the atmosphere

The i-SPEED 5 Series is controlled both by PC and the touchscreen CDUe.

SPECIFICATIONS

IMAGER

Sensor type	Custom CMOS
Sensor resolution	1920 x 1080 pixel
Sensor size	25.920 mm x 14.580 mm
Sensor diagonal	29.74 mm
Pixel size	13.5 µm
Bit depth	12 bit (36 bit color)
Light sensitivity Mono (Gain off/on)	16,000 / 125,000
Light sensitivity Color (Gain off/on)	4,000 / 32,000
Maximum frame rate	1,000,000 fps
Shutter type	Global exposure
Shutter time, standard	1 µs min (standard)
Shutter time, fast mode	289 ns min (export restricted)

SYNCHRONIZATION and CAPTURE

Trigger	TTL T0 to 0-100%
Trigger modes	Circular, ROC, BROC
Sync	10 Hz – 350 kHz
Luminance histogram	Iris setting aid tool
i-CHEQ 360	Camera status LEDs
i-FOCUS	Focusing aid tool
i-EXPOSE	High/low exposure highlight
Control	PC or CDUe
IRIG input	IRIG – B to 1 µs
Internal memory	18 GB standard, upgrade to 144 GB

PHYSICAL and ENVIRONMENTAL

Dimensions inches	5.0 (W) x 5.1 (H) x 12.0 (L)
Dimensions mm	127 (W) x 129 (H) x 305 (L)
Weight	9.9 lb (4.5 kg)
Input voltage	14-36 V
Power consumption	110 W nominal, 150 W max
Mounting	1/4 x 20 and 3/8 x 16 tripod plate
Lens mount	Custom, swappable lens plate
EMC	EN55032-A, EN55024
Safety	BS EN61010-1 (camera), IEC60950 (PSU)
CE marking	EMC directive (camera), EMC directive, LV directive (PSU)
Lead free	RoHS directive
WEEE	Compliant
Temperature °F	14° to 122° operation, -4° to 140° storage
Temperature °C	-10° to +50° operation, -20° to 60° storage
Pressure	71 kpa to 106 kpa
Relative humidity	95% at 104°F non-condensing
Power input connector	4 pin Lemo
Trigger input	BNC 75 Ω
I/O connector	10 pin Lemo, trigger in / sync / exposure out / remote power

CONNECTIVITY

Video outputs	HD-SDI, HDMI
USB	USB 3
Network	1Gb/s RJ45 / 10 pin Lemo
Video	IXV, AVI (compressed or uncompressed)
Image sequence	TIFF, JPG, RAW
Ethernet control	1 Gb/s
Remote control	Via supplied software

PC SOFTWARE

Standard control	Control ONE
Premium control	Control MULTI-DAQ
Editing	i-SPEED Movie Maker
Analysis	ProAnalyst® Lite by Xcitex
Viewer	i-SPEED Viewer
Utilities	i-SPEED Lens Calculator, i-SPEED Viewer
Software Developers Kit	C++, LabView
Synchronized data acquisition	USB DAQ, 8 options

PURCHASING OPTIONS

CDUe	Controller Display Unit
Sensor	Color / Mono
Memory	18 GB (std) / 36 GB / 72 GB / 96 GB / 144GB
Shutter time	1 µs (std) / 289 ns (subject to export restrictions)
Internal SSD	500 GB / 1 TB / 2 TB / 4 TB / 8 TB
External SSD	500 GB / 1 TB / 2 TB
Lens mounts	F mount (Nikkor D) / F mount (Nikkor G) C mount / EF mount
Warranty	1 yr (std) / 2 yr / 3 yr
IRIG	IRIG-B

FRAME RATES, RESOLUTION, and DURATION (in seconds)

FPS	Resolution	18GB	36GB	72GB	96GB	144GB
100	1920x1080	60.85	121.70	243.40	324.53	486.80
200	1920x1080	30.43	60.85	121.70	162.27	243.40
300	1920x1080	20.23	40.47	80.93	107.91	161.86
500	1920x1080	12.17	24.34	48.68	64.91	97.36
1,000	1920x1080	6.09	12.17	24.34	32.45	48.68
2,000	1920x1080	3.05	6.09	12.18	16.24	24.36
3,000	1920x1080	2.03	4.05	8.10	10.80	16.20
3,985	1920x1080	1.53	3.05	6.10	8.13	12.20
4,980	1512x1080	1.58	3.17	6.33	8.45	12.67
5,000	1512x1080	1.58	3.16	6.31	8.41	12.62
6,382	1344x966	1.55	3.11	6.22	8.29	12.44
7,500	1232x888	1.57	3.14	6.28	8.37	12.56
10,000	1064x768	1.58	3.15	6.30	8.41	12.61
15,000	840x630	1.62	3.25	6.49	8.65	12.98
20,000	728x540	1.64	3.28	6.55	8.74	13.10
50,000	448x324	1.77	3.55	7.10	9.46	14.20
100,000	336x198	1.94	3.87	7.74	10.33	15.49
200,000	336x84	2.28	4.56	9.13	12.17	18.26
300,000	336x48	2.66	5.32	10.65	14.20	21.30
500,000	392x18	3.65	7.30	14.60	19.47	29.21
750,000	112x42	7.30	14.60	29.20	38.93	58.40
1,000,000	112x30	7.67	15.34	30.68	40.91	61.36

Note: Other resolutions and speeds are available.

iX Cameras

United Kingdom
Bradley House
Locks Hill
Rochford
Essex, SS4 1BB
T: +44 (0) 1702 540 669

United States
8 Cabot Rd.
Suite 1800
Woburn,
MA, 01801
T: 339 645 0778

China
Room 1402, Unit 65,
No 399 Hangting Road,
Oriental Hong Jing Garden,
ZhuQiao Town, Shanghai,
T: +86 186 215 60553

India
C-207, Twin Arcs
Legacy Life Spaces
Punwale Bazar
Punawale, Pune-411033
Maharashtra, India
T: +91 955 256 5021

info@ix-cameras.com • ix-cameras.com

The Perfect Balance of Speed, Size, and Memory

6,382fps @ 1920x1080 | 13GPx/s throughput | 10,000fps @ 1344x984

FEATURES + OPTIONS

- **HD resolution 1920 x1080 pixel sensor (2.1MPx), more pixels = greater accuracy**
- **8 TB internal SSD capacity**
- **Up to 144 GB of on-board memory for long recordings or multiple buffers**
- **Internal or external SSD drive for fast data transfer**
- **Global electronic shutter to 277 ns***
- **Compatible with all Nikon F and Canon EF mount lenses**
- **Record up to 1,000,000 fps**
- **Fully compatible with the i-SPEED Software Suite 2.0 for more advanced functions**
- **Upgrade path between models**

* subject to export regulations

High performance high-speed camera in a compact and durable form-factor.

The sealed electronics design of the i-SPEED 5 utilizes an innovative internal cooling system—drawing heat from the inside of the camera and venting it to the atmosphere

The i-SPEED 5 Series is controlled both by PC and the touchscreen CDUe.

SPECIFICATIONS

IMAGER

Sensor type	Custom CMOS
Sensor resolution	1920 x 1080 pixel
Sensor size	25.920 mm x 14.580 mm
Sensor diagonal	29.74 mm
Pixel size	13.5 µm
Bit depth	12 bit (36 bit color)
Light sensitivity Mono (Gain off/on)	16,000 / 125,000
Light sensitivity Color (Gain off/on)	4,000 / 32,000
Maximum frame rate	1,000,000 fps
Shutter type	Global exposure
Shutter time, standard	1 µs min (standard)
Shutter time, fast mode	277 ns min (export restricted)

SYNCHRONIZATION and CAPTURE

Trigger	TTL T0 to 0-100%
Trigger modes	Circular, ROC, BROC
Sync	10 Hz – 350 kHz
Luminance histogram	Iris setting aid tool
i-CHEQ 360	Camera status LEDs
i-FOCUS	Focusing aid tool
i-EXPOSE	High/low exposure highlight
Control	PC or CDUe
IRIG input	IRIG – B to 1 µs
Internal memory	18 GB standard, upgrade to 144 GB

PHYSICAL and ENVIRONMENTAL

Dimensions inches	5.0 (W) x 5.1 (H) x 12.0 (L)
Dimensions mm	127 (W) x 129 (H) x 305 (L)
Weight	9.9 lb (4.5 kg)
Input voltage	14-36 V
Power consumption	110 W nominal, 150 W max
Mounting	1/4 x 20 and 3/8 x 16 tripod plate
Lens mount	Custom, swappable lens plate
EMC	EN55032-A, EN55024
Safety	BS EN61010-1 (camera), IEC60950 (PSU)
CE marking	EMC directive (camera), EMC directive, LV directive (PSU)
Lead free	RoHS directive
WEEE	Compliant
Temperature °F	14° to 122° operation, -4° to 140° storage
Temperature °C	-10° to +50° operation, -20° to 60° storage
Pressure	71 kpa to 106 kpa
Relative humidity	95% at 104°F non-condensing
Power input connector	4 pin Lemo
Trigger input	BNC 75 Ω
I/O connector	10 pin Lemo, trigger in / sync / exposure out / remote power

CONNECTIVITY

Video outputs	HD-SDI, HDMI
USB	USB 3
Network	1Gb/s RJ45 / 10 pin Lemo
Video	IXV, AVI (compressed or uncompressed)
Image sequence	TIFF, JPG, RAW
Ethernet control	1 Gb/s
Remote control	Via supplied software

PC SOFTWARE

Standard control	Control ONE
Premium control	Control MULTI-DAQ
Editing	i-SPEED Movie Maker
Analysis	ProAnalyst® Lite by Xcitex
Viewer	i-SPEED Viewer
Utilities	i-SPEED Lens Calculator, i-SPEED Viewer
Software Developers Kit	C++, LabView
Synchronized data acquisition	USB DAQ, 8 options

PURCHASING OPTIONS

CDUe	Controller Display Unit
Sensor	Color / Mono
Memory	18 GB (std) / 36 GB / 72 GB / 96 GB / 144GB
Shutter time	1 µs (std) / 277 ns (subject to export restrictions)
Internal SSD	500 GB / 1 TB / 2 TB / 4 TB / 8 TB
External SSD	500 GB / 1 TB / 2 TB
Lens mounts	F mount (Nikkor D) / F mount (Nikkor G) C mount / EF mount
Warranty	1 yr (std) / 2 yr / 3 yr
IRIG	IRIG-B

FRAME RATES, RESOLUTION, and DURATION (in seconds)

FPS	Resolution	18GB	36GB	72GB	96GB	144GB
100	1920x1080	60.85	121.70	243.40	324.53	486.80
200	1920x1080	30.43	60.85	121.70	162.27	243.40
300	1920x1080	20.28	40.57	81.13	108.18	162.26
500	1920x1080	12.17	24.34	48.68	64.91	97.36
1,000	1920x1080	6.09	12.17	24.34	32.45	48.68
2,000	1920x1080	3.04	6.09	12.17	16.23	24.34
3,000	1920x1080	2.03	4.06	8.11	10.82	16.22
3,985	1920x1080	1.53	3.05	6.11	8.14	12.21
4,980	1920x1080	1.22	2.44	4.89	6.51	9.77
5,000	1920x1080	1.22	2.43	4.87	6.49	9.74
6,382	1920x1080	0.95	1.91	3.81	5.08	7.62
7,500	1624x1080	0.98	1.96	3.92	5.22	7.83
10,000	1344x984	0.97	1.95	3.90	5.19	7.79
15,000	1064x798	1.01	2.02	4.04	5.39	8.08
20,000	952x678	1.00	1.99	3.98	5.31	7.96
50,000	560x420	1.10	2.19	4.38	5.84	8.76
100,000	504x216	1.18	2.36	4.72	6.29	9.44
200,000	504x96	1.33	2.66	5.32	7.09	10.64
300,000	560x54	1.42	2.84	5.68	7.57	11.36
500,000	560x24	1.92	3.83	7.66	10.21	15.32
750,000	112x78	3.93	7.86	15.72	20.96	31.44
1,000,000	112x48	4.79	9.58	19.16	25.55	38.32

Note: Other resolutions and speeds are available.

iX Cameras

United Kingdom
Bradley House
Locks Hill
Rochford
Essex, SS4 1BB
T: +44 (0) 1702 540 669

United States
8 Cabot Rd.
Suite 1800
Woburn,
MA, 01801
T: 339 645 0778

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Room 1402, Unit 65,
No 399 Hangting Road,
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Maharashtra, India
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info@ix-cameras.com • ix-cameras.com

The Perfect Balance of Speed, Size, and Memory

4,980fps @ 1920x1080 | 10GPx/s throughput | 10,000fps @ 1176x870

FEATURES + OPTIONS

- **HD resolution 1920 x1080 pixel sensor (2.1MPx), more pixels = greater accuracy**
- **8 TB internal SSD capacity**
- **Up to 144 GB of on-board memory for long recordings or multiple buffers**
- **Internal or external SSD drive for fast data transfer**
- **Global electronic shutter to 293 ns***
- **Compatible with all Nikon F and Canon EF mount lenses**
- **Record up to 1,000,000 fps**
- **Fully compatible with the i-SPEED Software Suite 2.0 for more advanced functions**
- **Upgrade path between models**

* subject to export regulations

High performance high-speed camera in a compact and durable form-factor.

The sealed electronics design of the i-SPEED 5 utilizes an innovative internal cooling system—drawing heat from the inside of the camera and venting it to the atmosphere

The i-SPEED 5 Series is controlled both by PC and the touchscreen CDUe.

SPECIFICATIONS

IMAGER

Sensor type	Custom CMOS
Sensor resolution	1920 x 1080 pixel
Sensor size	25.920 mm x 14.580 mm
Sensor diagonal	29.74 mm
Pixel size	13.5 µm
Bit depth	12 bit (36 bit color)
Light sensitivity Mono (Gain off/on)	16,000 / 125,000
Light sensitivity Color (Gain off/on)	4,000 / 32,000
Maximum frame rate	1,000,000 fps
Shutter type	Global exposure
Shutter time, standard	1 µs min (standard)
Shutter time, fast mode	293 ns min (export restricted)

SYNCHRONIZATION and CAPTURE

Trigger	TTL T0 to 0-100%
Trigger modes	Circular, ROC, BROC
Sync	10 Hz – 350 kHz
Luminance histogram	Iris setting aid tool
i-CHEQ 360	Camera status LEDs
i-FOCUS	Focusing aid tool
i-EXPOSE	High/low exposure highlight
Control	PC or CDUe
IRIG input	IRIG – B to 1 µs
Internal memory	18 GB standard, upgrade to 144 GB

PHYSICAL and ENVIRONMENTAL

Dimensions inches	5.0 (W) x 5.1 (H) x 12.0 (L)
Dimensions mm	127 (W) x 129 (H) x 305 (L)
Weight	9.9 lb (4.5 kg)
Input voltage	14-36 V
Power consumption	110 W nominal, 150 W max
Mounting	1/4 x 20 and 3/8 x 16 tripod plate
Lens mount	Custom, swappable lens plate
EMC	EN55032-A, EN55024
Safety	BS EN61010-1 (camera), IEC60950 (PSU)
CE marking	EMC directive (camera), EMC directive, LV directive (PSU)
Lead free	RoHS directive
WEEE	Compliant
Temperature °F	14° to 122° operation, -4° to 140° storage
Temperature °C	-10° to +50° operation, -20° to 60° storage
Pressure	71 kpa to 106 kpa
Relative humidity	95% at 104°F non-condensing
Power input connector	4 pin Lemo
Trigger input	BNC 75 Ω
I/O connector	10 pin Lemo, trigger in / sync / exposure out / remote power

CONNECTIVITY

Video outputs	HD-SDI, HDMI
USB	USB 3
Network	1Gb/s RJ45 / 10 pin Lemo
Video	IXV, AVI (compressed or uncompressed)
Image sequence	TIFF, JPG, RAW
Ethernet control	1 Gb/s
Remote control	Via supplied software

PC SOFTWARE

Standard control	Control ONE
Premium control	Control MULTI-DAQ
Editing	i-SPEED Movie Maker
Analysis	ProAnalyst® Lite by Xcitex
Viewer	i-SPEED Viewer
Utilities	i-SPEED Lens Calculator, i-SPEED Viewer
Software Developers Kit	C++, LabView
Synchronized data acquisition	USB DAQ, 8 options

PURCHASING OPTIONS

CDUe	Controller Display Unit
Sensor	Color / Mono
Memory	18 GB (std) / 36 GB / 72 GB / 96 GB / 144GB
Shutter time	1 µs (std) / 293 ns (subject to export restrictions)
Internal SSD	500 GB / 1 TB / 2 TB / 4 TB / 8 TB
External SSD	500 GB / 1 TB / 2 TB
Lens mounts	F mount (Nikkor D) / F mount (Nikkor G) C mount / EF mount
Warranty	1 yr (std) / 2 yr / 3 yr
IRIG	IRIG-B

FRAME RATES, RESOLUTION, and DURATION (in seconds)

FPS	Resolution	18GB	36GB	72GB	96GB	144GB
100	1920x1080	60.85	121.70	243.40	324.53	486.80
200	1920x1080	30.43	60.85	121.70	162.27	243.40
300	1920x1080	20.29	40.57	81.14	108.19	162.28
500	1920x1080	12.17	24.34	48.68	64.91	97.36
1,000	1920x1080	6.09	12.17	24.34	32.45	48.68
2,000	1920x1080	3.04	6.09	12.17	16.23	24.34
3,000	1920x1080	2.03	4.06	8.11	10.82	16.22
3,985	1920x1080	1.53	3.05	6.10	8.13	12.20
4,980	1920x1080	1.22	2.44	4.89	6.51	9.77
5,000	1904x1080	1.25	2.51	5.01	6.68	10.02
6,382	1512x1080	1.24	2.47	4.94	6.59	9.88
7,500	1344x1008	1.27	2.54	5.07	6.76	10.14
10,000	1176x870	1.26	2.52	5.04	6.71	10.07
15,000	952x708	1.27	2.55	5.10	6.79	10.19
20,000	840x594	1.29	2.58	5.16	6.88	10.32
50,000	504x366	1.40	2.79	5.58	7.44	11.16
100,000	392x204	1.61	3.22	6.44	8.59	12.88
200,000	392x90	1.83	3.65	7.30	9.73	14.60
300,000	392x54	2.03	4.05	8.10	10.80	16.20
500,000	392x24	2.74	5.47	10.94	14.59	21.88
750,000	112x60	5.11	10.22	20.44	27.25	40.88
1,000,000	112x36	6.39	12.78	25.56	34.08	51.12

Note: Other resolutions and speeds are available.

iX Cameras

United Kingdom
Bradley House
Locks Hill
Rochford
Essex, SS4 1BB
T: +44 (0) 1702 540 669

United States
8 Cabot Rd.
Suite 1800
Woburn,
MA, 01801
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Room 1402, Unit 65,
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C-207, Twin Arcs
Legacy Life Spaces
Punwale Bazar
Punawale, Pune-411033
Maharashtra, India
T: +91 955 256 5021

info@ix-cameras.com • ix-cameras.com

i-SPEED SERIES

i-SPEED® 2 SERIES

Small, lightweight
high-speed cameras.

IX Cameras

POWERFUL, PORTABLE, AND BUDGET-FRIENDLY

UP TO 16GB ON-BOARD STORAGE

2,500 FPS @ 1280 x 864

225,000 FPS MAX FRAME RATE

POWERFUL i-SPEED SOFTWARE SUITE 2.0

GENICAM COMPLIANT

EXCELLENT LIGHT SENSITIVITY

SHOCK AND VIBRATION RESISTANCE

INTERNAL BATTERY

LIGHTWEIGHT AND COMPACT

VIDEO TRIGGER

MULTIPLE TRIGGER MODES

Performance specifications

Compact and budget-friendly, the i-SPEED 2 Series cameras are ideally suited for environments where there is limited space for a high-speed camera installation. Outstanding performance features make i-SPEED 2 cameras excellent analysis tools, producing reliable images regardless of low light conditions, temperature extremes, shock and vibration. Choose from four models based on your resolution needs (1MPx to 2.6 MPx), your speed requirements (up to 2.7GPx/sec) and your record durations (up to 16GB RAM).

	i-SPEED 203	i-SPEED 220	i-SPEED 210/211
Throughput (Gigapixels / Second)	2.7	1.5	0.65
Native Image Resolution	1280 x 864	1600 x 1600	1280 x 1024
Maximum speed at full resolution	2,500 fps	600 fps	500 fps
Maximum speed	225,000 fps	204,100 fps	79,500 fps
Record memory, Standard/maximum	8GB / 16GB	2GB / 4GB	**210:** 2 GB / 4GB **211:** 4GB / 8GB
Light sensitivity ISO Mono	6,400	1,200	2,500
Light sensitivity ISO Color	5,000		
Minimum shutter speed	1 µs	2 µs	2 µs
Bit depth	10 bits	8 bits	8 bits
Pixel size	13.7 µm	8.0 µm	14.0 µm
Memory partitions		16	16
PC computer camera control	i-SPEED Control One/ Multi-DAQ	i-SPEED Control DX	i-SPEED Control DX
Saved formats	TIFF, JPEG, RAW, IXV, AVI	AVI, JPG, DNG, BMP, PNG, TIFF	AVI, JPG, DNG, BMP, PNG, TIFF
Ethernet connection	1 Gb	1 Gb	1 Gb
Dimensions Inches (L x W x H)	4.7 x 2.6 x 2.6	2.6 x 2.5 x 2.5	**210:** 2.6 x 2.5 x 2.5 **211:** 3.6 x 3.7 x 2.7
Dimensions mm (L x W x H)	120 x 65 x 65	66 x 64 x 64	**210:** 66 x 64 x 64 **211:** 92 x 94 x 69
Lens mounts	Normal	Normal	Normal
G-shock rating		100G (optional)	100G (optional)
Battery equipped			Yes (211)

i-SPEED 203—performance in a compact form factor

Sensor

Light-sensitive CMOS sensor delivers excellent light sensitivity and superb image quality with a high level of detail to record and replay most life sciences, robotics, and machinery applications in slow motion.

Compact and robust

The i-SPEED 203 puts slow motion in the palm of your hand. The small form factor fits where other cameras cannot: microscope optical mounts, engine compartments, assembly lines, mounted on machinery, and more.

Up to 16GB memory

With memory levels of 8GB and 16GB, the i-SPEED 203 can capture events of extended durations.

Powerful control software

i-SPEED Control One or Control Multi-DAQ (for i-SPEED 203) has been developed to handle large amounts of data, fast transmission, and ultra-slow motion in captured videos. Menus and workspace are structured for intuitive workflow. Define your trigger setting with just one click, adjust video playback speed, and mark your videos with helpful information such as a time stamp, frame rate, resolution, or trigger information. The user-friendly control software is suited for a wide range of video applications, including manufacturing processes, R&D, testing, robotics, biomechanics, and sports science.

Multiple trigger modes

Trigger events manually, choose post-trigger burst mode, or the optional video trigger.

GenICam compliant

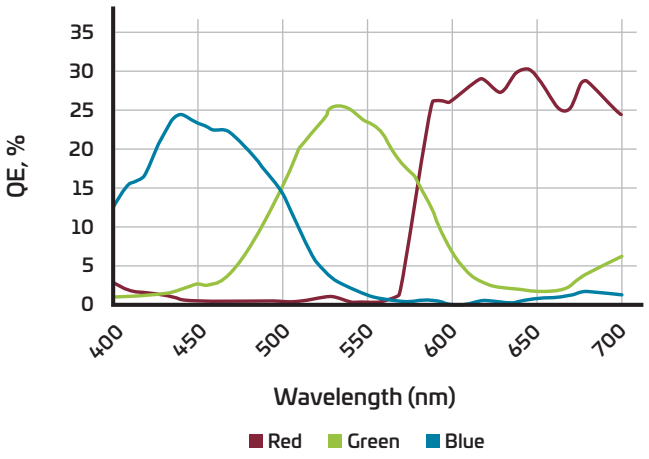
The i-SPEED 203 can be controlled with the global standard GenICam generic programming interface for industrial cameras.

Video trigger

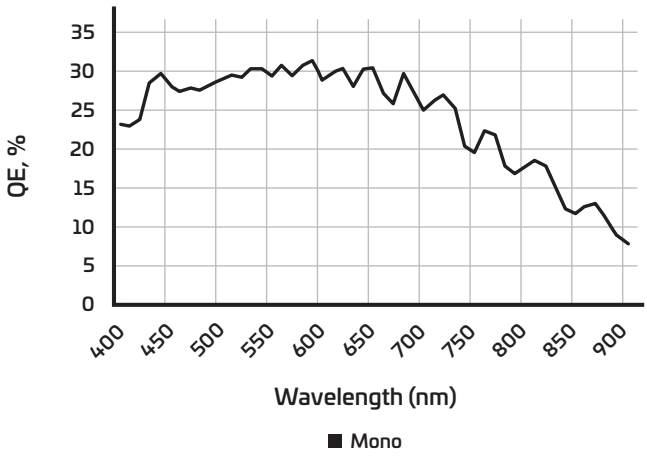
The i-SPEED Software Suite 2.0 video trigger system, available with Control Multi-DAQ, monitors changes in the luminance of a selected area of the scene and triggers when the changes exceed defined levels.

Frame Speed	Resolution	8GB	16GB
2,500	1280x864	2.48	4.96
2,813	1280x768	2.48	4.96
3,000	1280x720	2.48	4.96
4,219	1280x512	2.48	4.96
4,501	1280x480	2.48	4.96
9,002	1280x240	2.48	4.96
16,879	1280x128	2.48	4.96
33,758	1280x64	2.48	4.97
67,516	1280x32	2.48	4.97
90,022	1280x24	2.48	4.97
180,044	1280x12	2.48	4.97
225,000	1280x8	2.98	5.96

203 Quantum Efficiency—Color



203 Quantum Efficiency—Mono



Our cameras set us ahead. Our software sets us apart.

With both versions of the i-SPEED Software Suite 2.0—Standard and Premium—you will experience unparalleled features and the most complete set of functions with a modern and intuitive GUI. Control your camera via Gigabit Ethernet connection—load and control single and multiple camera configurations or connect remotely for uninterrupted access to restricted areas.

Two levels to suit your specific application requirements

- Control ONE: Control a single camera from a laptop or PC.
- Control Multi-DAQ: Control multiple cameras and/or synchronize with data acquisition devices.

Local languages

To accommodate our worldwide customer base, the i-SPEED Software Suite 2.0 will be available in local languages to meet the needs of our global customers.

Video trigger

The latest feature of the i-SPEED Software Suite 2.0, this functionality allows the user to define trigger levels through a manual mode or choose auto mode and have the software calibrate trigger levels. A real-time track mode has been added for triggering the camera in a dynamically changing environment such as cloud cover.

Record

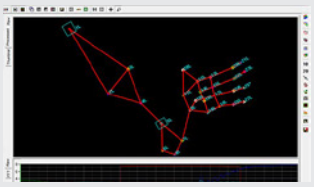
Customized connection and crow's-nest layout window

- Instantly sync and record from multiple cameras.
- Choose multiple configurations of a single camera, or quickly configure a new camera and new capture settings from inside the simplified connection control panel.

Edit

Renderless editing suite—i-SPEED Movie Maker features virtually no render lag

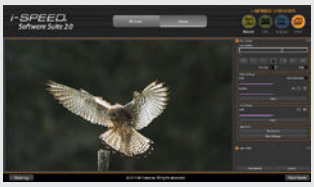
- The world's only editing software designed specifically for high-speed video
- Focuses on frame rate and video speed
- Available with Control Multi-DAQ



Analyze

Your i-SPEED camera becomes a precision measurement device with ProAnalyst® from Xcitex Inc., the world's most advanced motion analysis software

- Analyze, graph, and output speed, acceleration, fluid dynamics, PIV, and more with optional toolkits.
- Available with Control Multi-DAQ



Share

Play just about anything

- View and import saved files directly from the camera.
- Align and play multiple file types.
- Load and control the video and playback speed all without load times—load and play multi-gigabyte files instantly.

Software Developer's Kit (SDK)

iX Cameras will provide the SDK kit and the technical support to customize the software to meet your specific applications needs. We will work with you to integrate program commands into your own software to allow you full control of all i-SPEED 203 camera functions and features.

i-SPEED Software Suite 2.0 features

i-SPEED 203

	Standard Bundle	Premium Bundle
Bundled Software		
Control ONE	■	
Control Multi-DAQ		■
Viewer	■	■
Movie Maker		■
ProAnalyst® by Xcitex Motion Analysis Software (see page 8 for details)	Introductory	Lite
Main Functons		
Language	Local Languages	Local Languages
Simple Mode	■	■
Customizable Workspaces	■	■
Check for Updates	■	■
Camera Connect		
Single Camera Control	■	■
Multi-Camera Control		■
Sync DAQ Control		■
Camera Naming / Positioning / Appearance	■	■
Crow's Nest Test Set-Up View	■	■
Real-Time Camera Health Monitoring System	■	■
Camera Capture		
Low Light Mode	■	■
Calibration Snapshot for DIC / PIV	■	■
Sync Modes	Normal	Normal
Sync	Master / Slave	Master / Slave
Trigger Modes	Normal (Circular)	Normal (Circular), BROC
Video Trigger		■
Software Trigger	■	■
TTL Trigger	■	■
i-CHEQ	■	■
Video Review		
Time Zoom	■	■
Bookmarks	■	■
Measure Window (Angles, Distances)	■	■
Video Processing	■	■
Measure (see next page for details)		
Linear, Distance, and Velocity	■	■
Angular, Angle, and Angular Velocity	■	■
Save		
File Formats	TIFF, JPG, RAW, IXV, AVI	TIFF, JPG, RAW, IXV, AVI
File Name Sequencing for Ingestion Into 3rd Party Software	■	■

ProAnalyst® Motion Analysis Software by Xcitex

ProAnalyst	Introductory	Lite
File Management		
AVI, WMF, ASF, CINE, MPED-1, MOV, and MP4 Files	■	■
BMP, JPG, PNG, TIFF Image Sequence Compatibility	■	■
Project-Based File Management	■	■
Video Explorer	■	■
Pack / Unpack Projects	■	■
Image Calibration and Processing		
Image Processing	■	■
Image Filtering		Limited
Video Timeline	■	■
Layered Display and Editing	■	■
2-D Scene Calibration	■	■
Perspective and Multi-Plane Scene Calibration		■
Video Analysis		
2-D Feature Tracking	■	■
Number of Auto-Track Features	1	256
Number of Manual Track Points	32	256
Real-Time Annotations of Distance and Angle Between Features		■
Graphing and Computation		
Graphing Within ProAnalyst		Limited
Notes and Reports		
External Data Import		■
Tracking Data Export to C3D, Diadem, Excel, MATLAB	Limited	■
Video Frame, Data Point, and Global Notes		■
Image Annotation	■	■

ProAnalyst Professional and 3-D Professional	Professional	3-D Professional
Image Calibration and Processing		
3-D Manager		■
3-D Scene Calibration		■
Lens Distortion Correction	■	■
Video Analysis		
Image Stabilization Toolkit*	Optional	Optional
Particle Counting, Sizing, and Tracking Toolkit*	Optional	Optional
Contour / Edge Analysis Toolkit*	Optional	Optional
Particle Image Velocimetry Toolkit	Optional	Optional
Impact Excursion Toolkit	Optional	Optional
Biological Cell Tracking Toolkit	Optional	Optional
1-D Line Tracking	■	■
3-D Measurement and Analysis		■
Graphing and Computation		
One-Click FFT	■	■
2-Axis Graphing	■	■
3-Axis Graphing	■	■
3-D Graphing of Trajectories from 3-D Manager	■	
Data Filtering	■	■
Notes and Reports		
HTML, PowerPoint, and Print-Ready Report Generator	■	■

**Included in Professional Ultimate Bundle*

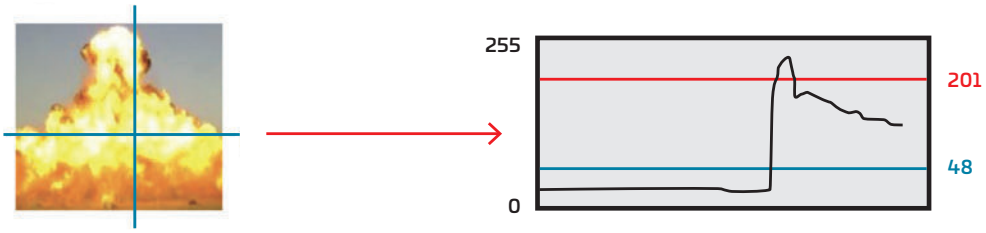
Upgrade Options

- From **Introductory** to **Professional Edition**
- From **Introductory** to **Professional Ultimate Bundle**
- From **Lite** to **Professional Edition**
- From **Lite** to **Professional Ultimate Bundle**
- From **Professional** to **3-D Professional Edition**
- From **Professional Ultimate Bundle** to **3-D Professional Ultimate Bundle**
- **ProAnalyst is sold separately for the i-SPEED 210/211/220 cameras**

i-SPEED Software Suite 2.0 video trigger system

A real-time video trigger system has been added to the i-SPEED® Software Suite—for when you can't use a wired trigger, or when you want to use the event itself to trigger the camera recording.

This new system works by monitoring changes in luminance value of a defined location in the camera scene. This feature is available only for the i-SPEED 203 running Control Multi-DAQ.

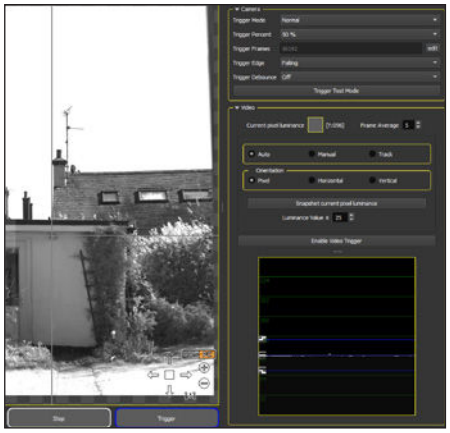


The brightness of the pixel under the reticle is plotted on a graph and if the value goes above or below a user set value then the camera will be triggered.

The new video trigger system has three options, depending on the application.

Auto Mode

Quick and simple setup



Auto mode is a quick and simple way to set up a Video Trigger:

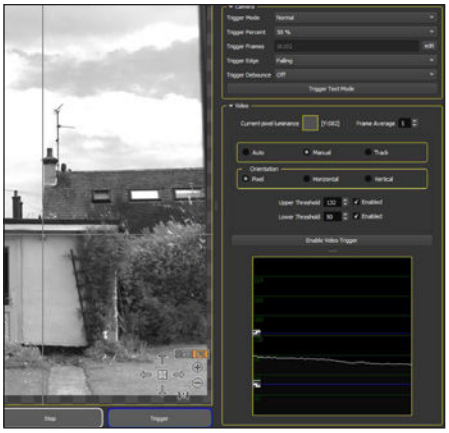
1. Place the reticle on the location where the movement is expected.
2. Snapshot the current pixel luminance.
3. Click **Enable Video Trigger**.

If the value changes higher or lower than the default thresholds of 25, the camera will trigger.

Note: The thresholds can be modified to make the trigger more or less sensitive to luminance changes.

Manual Mode

User-definable trigger levels for more control



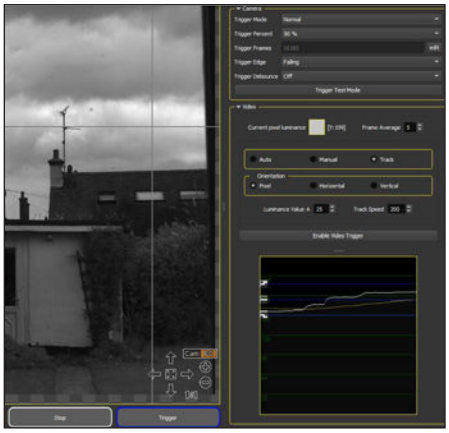
Manual mode provides more control than Auto. For example, the user may only want to run with an upper threshold (trigger on brighter, not darker).

1. Place the reticle on the location where movement is expected.
2. Set or disable the Upper Threshold.
3. Set or disable the Lower Threshold.
4. Click **Enable Video Trigger**.

If the value meets any enabled threshold, a trigger event will occur.

Track Mode

For dynamic changing environments



The Track mode allows the luminance to change slowly without triggering the camera, and only allows a trigger to occur when the luminance changes quickly. An example for use is in an outdoor environment with cloud cover where the ambient brightness will vary slowly.

1. Place the reticle on the location where movement is expected.
2. Set the Upper and Lower Threshold.
3. Set the Track Speed.
4. Click **Enable Video Trigger**.

If ambient brightness changes are too fast and create an unwanted trigger event, then the Track speed can be lowered, allowing the tracking to move more quickly.

Specifications

IMAGER

Frame rate at full resolution	2,500 fps
Shutter	1 µs
Spectral bandwidth	420-700 nm
Maximum resolution	1280 x 864
Maximum frame rate	225,000 fps
Sensor diagonal	21.15 mm
Pixel size	13.7 µm square
Bit depth	10 bit
Light sensitivity	6,400 mono / 5,000 color

SYNCHRONIZATION and CAPTURE

Memory	8 GB / 16 GB
Video	IXV, AVI (compressed or uncompressed)
Image sequence	TIFF, JPEG, RAW

PHYSICAL and ENVIRONMENTAL

Dimensions, inches	2.6 (W) x 2.6 (H) x 4.7 (L)
Dimensions, mm	65 (W) x 65 (H) x 120 (L)
Weight	1.1 lbs (500 g) without lens
Input voltage	10-30 VDC
Power consumption	17 W max
Mounting	¼-20
Lens options	C mount / FG mount
Temperature °F	41 to 122 operation
Temperature °C	5 to 50 operation

CONNECTIVITY

Network	1 Gb RJ45
Power input	5 pin female connector
Trigger	External signal / switch triggering
Input/output	16 pin female
Ethernet	1 Gb
Remote control	Via supplied software

PURCHASING OPTIONS

Sensor	Color / Mono
Memory	8 GB / 16 GB
Warranty	1 year standard parts and labor

i-SPEED 210/211/220— compact, versatile, easy to use

The i-SPEED 210, 211, and 220 are economical high-speed cameras for real-world situations where access, portability, and rapid deployment matter. Providing a balance between cost, speed, resolution, and compact size, these cameras are ideal for budget-conscious test laboratories, production lines, and test facilities.

Sensor

High-sensitivity CMOS sensors provide 1.3 million pixels of resolution at 500 fps (models 210 and 211) and 2.6 megapixel resolution at 600 fps (model 220). Combined with the global exposure shutter, these cameras produce images that are ideal for microscopy, robotics, auto-crash testing, graphics inspection, 3-D biomechanics, sports, web inspection, and more.

Compact, lightweight, easy to use

Whether attached to machinery or mounted on a tripod, the small form factor of the i-SPEED 2 Series cameras fits where other cameras cannot.

Control DX software

i-SPEED Control DX software provides a complete user-friendly interface for recording, playback, and editing of i-SPEED 2 high-speed videos. This powerful camera control software has been developed specifically to handle large amounts of data, fast transmission, and ultra-slow motion. Control DX is ideal for a wide range of video applications including manufacturing and process automation, quality assurance testing, research and development, biomechanics, and sports.

Camera connect features allow the user to connect to one or more cameras and save user profiles in local languages.

Camera capture features include Low Light mode, digital gain, and dynamic range adjustment.

Video review provides multi-camera playback, jump to trigger frame, and video clip creation.

Save and export in a variety of formats.

Additional features include Image Processing, and a variety of recording, sync, and trigger modes.

Internal battery

The i-SPEED 211 comes with an internal battery making this camera ideal for untethered portable field work. Charge, unplug, and record. Battery life is 1 hour while recording and 1.5 hours while in standby mode.

Trigger modes

i-SPEED 2 models running Control DX software have two trigger modes, Normal and Burst. Triggering can be accomplished via software, external trigger switch, or the trigger button on the model 211.

GenIcam compliant

All i-SPEED 2 Series cameras can be controlled with the global standard GenIcam generic programming interface for industrial cameras.

Performance options

Video trigger

i-SPEED Control DX software provides a video trigger option for the 210, 211, and 220 models. The video trigger window works like a sensor. When video triggering is activated, a reference image of the current scene is store. In all following frames, the video trigger window is compared to the reference image. Depending on the trigger settings for gray difference and relative object size, changes in the window will trigger the camera.

Memory upgrade

Capture extended-duration events with memory levels that can be upgraded from 2GB to 4GB (models 210 and 220), or 4GB to 8GB (model 211).

Hi-G packaging

For use in harsh environments, select the Hi-G option. i-SPEED 2 cameras with Hi-G are certified to 100G shock and 20G vibration for the most physically demanding applications.

IRIG

Connect the i-SPEED 211 to an IRIG-B generator to synchronize your camera's timing.

Segmented memory

Choose this option to partition the camera's internal memory to a maximum of 16 buffers.

i-SPEED 210/211/220 performance

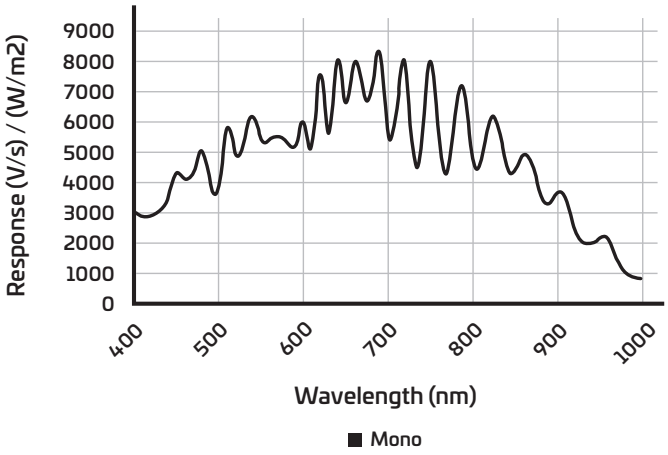
i-SPEED 210/211

Frame Speed	Resolution	2GB	4GB	8GB
500	1280x1024	3.3	6.5	13.1
700	1280x720	3.3	6.7	13.3
1,000	1280x512	3.3	6.5	13.1
1,250	800x600	3.6	7.2	14.3
1,850	640x480	3.8	7.6	15.1
2,000	512x512	4.1	8.2	16.4
5,650	320x240	4.9	9.9	19.8
18,500	128x100	9.1	18.1	36.3
79,500	128x10	21.1	42.2	84.4

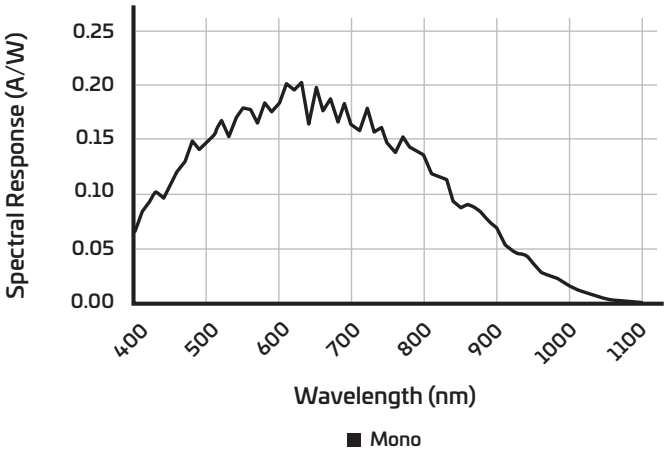
i-SPEED 220

Frame Speed	Resolution	2GB	4GB	8GB	16GB
600	1600x1600	1.4	2.8	5.6	11.2
1,000	1600x900	1.5	3.0	6.0	11.9
1,150	1280x1024	1.4	2.8	5.7	11.4
1,400	1024x1024	1.5	2.9	5.8	11.7
1,640	1280x720	1.4	2.8	5.7	11.4
2,850	800x600	1.6	3.1	6.3	12.6
4,450	640x480	1.6	3.1	6.3	12.6
5,000	512x512	1.6	3.3	6.5	13.1
14,750	320x240	1.9	3.8	7.6	15.2
43,500	128x128	3.0	6.0	12.0	24.1
204,100	128x10	8.2	16.4	32.9	66.0

210/211 Quantum Efficiency



220 Quantum Efficiency



Specifications

i-SPEED® 210|211

IMAGER

Frame rate at full resolution	500 fps (1,750 fps in quad mode)
Shutter	Global electronic shutter: 2 µs to 1 s
Spectral bandwidth	400 - 900 nm
Amplification	Digital gain 1 - 4 in 8 steps
Maximum resolution	1280 x 1024
Maximum frame rate	79,500 fps
Sensor diagonal	Size 22.9 mm
Pixel size	14 µm square
Bit depth	10 bit
Light sensitivity	2,500 mono / 2,000 color

SYNCHRONIZATION and CAPTURE

210 Memory	2 GB / 4 GB
211 Memory	4 GB / 8 GB
Memory segments	16
Video	AVI (JPG, BMP)
Image sequence	TIFF, BMP, JPG, DNG, PNG

PHYSICAL and ENVIRONMENTAL

210 Dimensions inches	2.5 (W) x 2.5 (H) x 2.6 (L)
Dimensions mm	64 (W) x 64 (H) x 66 (L)
Weight	0.66 lbs (300 g) without lens
211 Dimensions inches	3.7 (W) x 2.7 (H) x 3.6 (L)
Dimensions mm	94 (W) x 69 (H) x 92 (L)
Weight	2.00 lbs (900 g) without lens
Input voltage	10 - 30 VDC
Power consumption	210 / 7.5 w max
	211 / 15 w max
Mounting	¼-20
Battery charge	Recording: 1 hr, standby: 1.5 hr*
Lens options	C mount / F mount / FG mount
G shock	Hi-G 100 G shock, 10 G vibration
Temperature °F	41 to 113 operation
Temperature °C	5 to 45 operation
Ethernet	1 Gb
Remote control	via supplied software

CONNECTIVITY

IRIG input	B synchronization*
Network	1 Gb RJ45
Power input	6 pin female connector
Trigger	External signal/switch triggering
Input/output	8 pin female I/O module*
Trigger modes	Video trigger, burst trigger mode

PURCHASING OPTIONS

Sensor	Mono
210 Memory	2 GB / 4 GB
211 Memory	4 GB / 8 GB
Package	Standard / Hi-G rated
Warranty	1 year (std)/2 yr

**Model 211 only*

i-SPEED® 220

IMAGER

Frame rate at full resolution	600 fps
Shutter	Global electronic shutter: 2 µs to 1 s
Spectral bandwidth	400 - 900 nm
Amplification	Digital gain 1 - 2 in 3 steps
Maximum resolution	1600 x 1600
Maximum frame rate	204,100 fps
Sensor diagonal	size 18.1 mm
Pixel size	8 µm square
Bit depth	8 bit
Light sensitivity	1,200 mono / 1,000 color

SYNCHRONIZATION and CAPTURE

Memory	2 GB / 4 GB
Memory segments	16
Video	AVI (JPG, BMP)
Image sequence	TIFF, BMP, JPG, DNG, PNG

PHYSICAL and ENVIRONMENTAL

Dimensions inches	2.5 (W) x 2.5 (H) x 2.6 (L)
Dimensions mm	64 (W) x 64 (H) x 66 (L)
Weight	0.66 lbs (300 g) without lens
Input voltage	10 - 30 VDC
Power consumption	220 = 7.5 W max
Mounting	¼-20
Lens options	C mount / F mount / FG mount
G shock	Hi-G 100 G shock, 10 G vibration
Temperature °F	41 to 113 operation
Temperature °C	5 to 45 operation
Ethernet	1 Gb
Remote control	via supplied software

CONNECTIVITY

Network	1 Gb RJ45
Power input	6 pin female connector
Trigger	External signal/switch triggering
Trigger modes	Video trigger, burst trigger mode

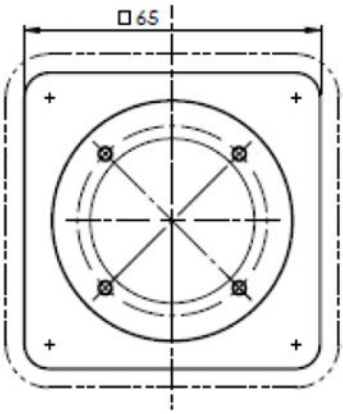
PURCHASING OPTIONS

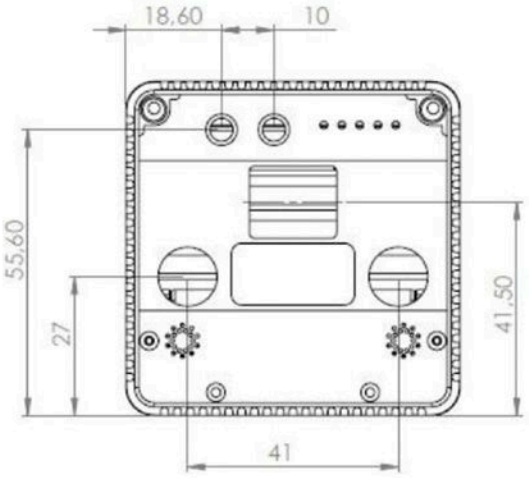
Sensor	Mono
Memory	2 GB / 4 GB
Package	Standard / Hi-G rated
Warranty	1 year (std)/2 yr

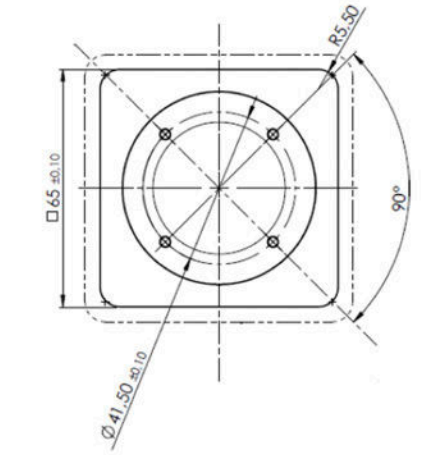
i-SPEED 203 dimensions

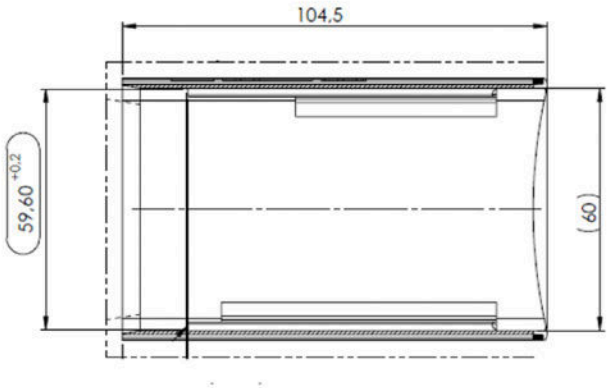
With many applications, the camera is a component in the overall solution. While commercially available accessories can fulfill most requirements, there are always some situations that require a bit extra. This may be as simple as a bracket to mount an accessory to the camera, or as complex as a full OEM system integration. Whatever the requirement, accurate and complete interface data is a must. As such, iX Cameras is pleased to provide another first in our industry by opening access to the CAD model data for the exterior of our cameras.

For more information, please visit our Cameras CAD Models page.

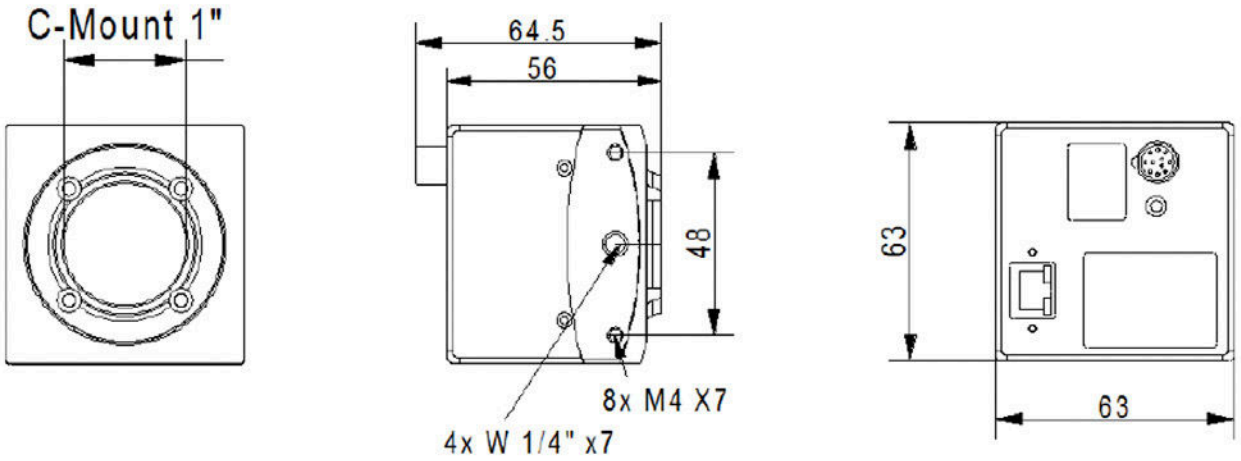


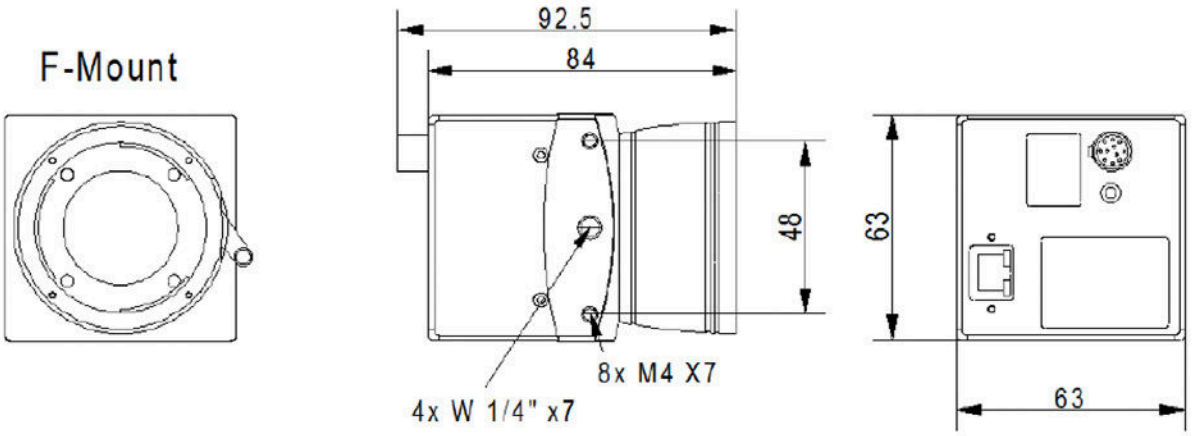






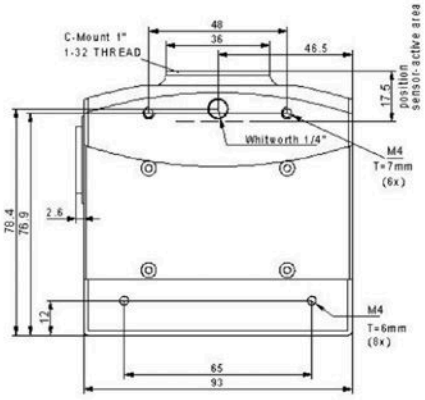
i-SPEED 210/220 dimensions



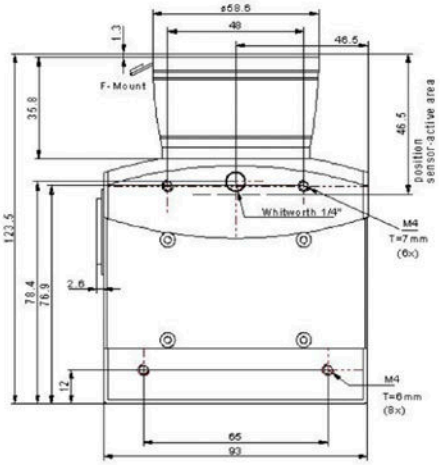


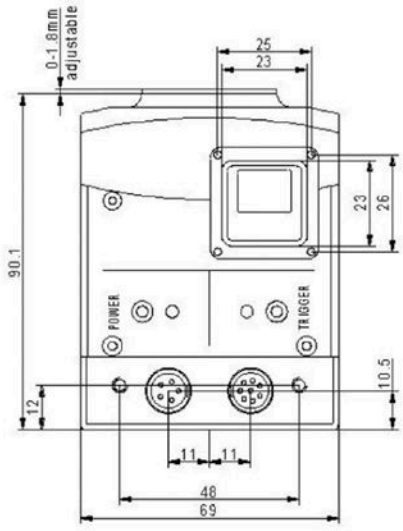
i-SPEED 211 dimensions

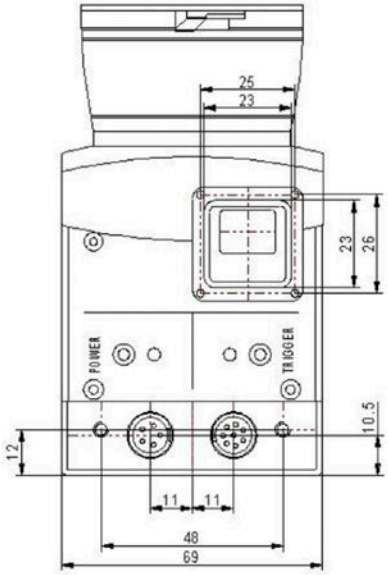
C-Mount



F-Mount







Advanced high-speed cameras for any application

The i-SPEED 2 Series bring portability and power with high performance, lightweight, compact high-speed cameras suited for a wide range of applications.

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Biomechanics

Drop Test

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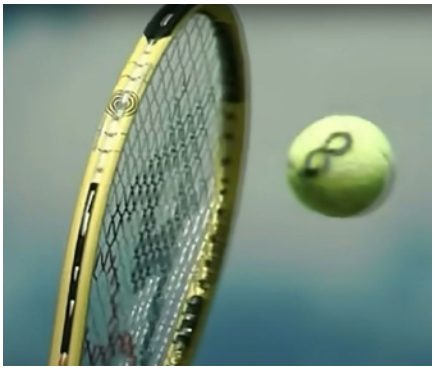
Scientific Research

Sports



A legacy built on innovation

iX Cameras is a world-leading technology and product company specializing in the field of high-speed (slow motion) imaging. Based on proprietary innovative technologies, we design, build and sell cutting-edge ultra-fast cameras and software for a wide range of advanced scientific research applications. Our commitment to innovate and push the boundaries of high-speed video science drives our development of technically superior and easy-to-use products that our customers demand to attain the highest scientific achievements and creativity. The innovation of our i-SPEED brand of cameras is backed by our world-class service and support teams, ensuring our customers' success.

For over a decade, thousands of i-SPEED brand cameras were developed and sold by Olympus until the spinoff of the product development group in 2014. Today, the same development team from Olympus, combined with new camera and software industry veterans, continues to design innovative state-of-the-art i-SPEED cameras under the iX Cameras name.

iX Innovation Centre

We built the Innovation Centre at our Rochford, UK facility to create an environment combining the latest in academic research, industry know-how and practices, and our own engineering team to advance high-speed imaging technology. This holistic collaborative approach brings together people, ideas, and skills from different disciplines and industries to help us design, build, and service the most powerful, feature-rich, and easy to use cameras in the marketplace.

Worldwide Sales Network

iX Cameras sells its products through a worldwide network of dealers. To find the dealer nearest you, please visit our website at ix-cameras.com

United Kingdom
Bradley House
Locks Hill
Rochford Essex, SS4 1BB
T: +44 (0) 1702 540 669

United States
8 Cabot Road
Suite 1800
Woburn, MA 01801
T: +1 339 645 0778

China
Room 605, Building 8
No 365, Chuanhong Road
Pudong New District
Shanghai, 201323
T: +86 186 215 60553

India
C-207, Twin Arcs
Legacy Life Spaces, Punwale Bazar
Punawale, Pune-411033
Maharashtra
T: +91 955 256 5021

info@ix-cameras.com
ix-cameras.com

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