

i-SPEED specifications



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OLYMPUS

Your Vision, Our Future

High Speed Video

i-SPEED

Range Overview

i-SPEED LT *i-SPEED 2* *i-SPEED TR* *i-SPEED 3* *i-SPEED FS*

Resolution (full sensor)	800 x 600 pixels	800 x 600 pixels	1280 x 1024 pixels	1280 x 1024 pixels	1280 x 1024 pixels
Speed at full resolution	1,000 fps	1,000 fps	2,000 fps	2,000 fps	2,000 fps
Maximum recording speed	2,000 fps	33,000 fps	10,000 fps	150,000 fps	1,000,000 fps
Shutter	User selectable to 5 microseconds	User selectable to 5 microseconds	User selectable to 2.14 microseconds	User selectable to 1 microsecond	User selectable to 200 nanoseconds
Internal memory options	1 GB/2 GB/4 GB	2 GB/4 GB	4 GB/8 GB/16 GB	4 GB/8 GB/16 GB	4 GB/8 GB/16 GB
Lens mount	C-mount	C-mount	F-mount	F-mount	F-mount
CDU compatibility	✓	✓	✓	✓	✓
CF card storage compression	✓	✓	✓	✓	✓
Ethernet connection	✗	✓	✓	✓	✓
Multiple camera synchronisation	✗	✓	✓	✓	✓
Text/logo overlay	✗	✗	✓	✓	✓
User settings	✗	✗	✓	✓	✓
Battery backup	✗	✗	Optional	✓	✓
i-FOCUS	✗	✗	✓	✓	✓
i-CHEQ	✗	✗	✓	✓	✓
HIG options	✗	✓	✗	✓	✓
IRIG-B	✗	✗	✗	✗	✓
Economy modes	3	9	3	9 + manual	9 + manual

See individual camera features and specification sheets for full product details.



www.olympus-ims.com

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For enquiries contact
www.olympus-ims.com/contact-us

OLYMPUS CORPORATION
Shinjuku Monolith, 3-1Nishi-Shinjuku2-chome, Shinjuku-ku, Tokyo 163-0914, Japan Tel: +81 3-6901-4039

OLYMPUS INDUSTRIAL SYSTEMS EUROPA
Stock Road, Southend on Sea, Essex, SS2 5QH, United Kingdom
Tel: +44 (0)1702 616333 E-mail: info@olympusindustrial.eu

OLYMPUS NDT INC.
48 Woerd Avenue, Waltham, MA 02453, USA
Tel: +1 781-419-3900 E-mail: info@olympusndt.com
12569 Gulf Freeway, Houston, TX 77034, USA
Tel: +1 281-922-9300 E-mail: info@olympusndt.com

OLYMPUS SINGAPORE PTE LTD.
491B River Valley Road, #12-01/04 Valley Point Office Tower, 248373, Singapore Tel: +65 68-34-00-10

OLYMPUS AUSTRALIA PTY LTD.
31 Gilby Road, Mount Waverly, Victoria, 3149, Australia
Tel: +61 130-013-2992

High Speed, High Quality Imaging

i-SPEED high speed video



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Olympus is a world leading manufacturer of imaging products with a long history of producing high quality systems, providing solutions within a variety of industrial applications. The Olympus *i-SPEED* high speed video range is no exception, whatever the high speed application, industry or specialist requirements, Olympus has a high speed camera for you.

With years of experience in high quality digital image processing, the *i-SPEED* product range from Olympus offers high speed video cameras which are suitable for numerous applications, including: Automotive Crash Testing, Research and Development, Production, Fault Diagnosis, Bottling and Packaging, Pharmaceutical, Manufacturing, Component Testing, Ballistic and Broadcast industries.



*Multiple camera
synchronisation*



*High resolution at
higher frame speeds*



*On board image
measurement*



*Portable and
easy to use*



*High speed
electronic shuttering*



i-SPEED LT

800 x 600 resolution @ 1,000 fps
2,000 fps max

The *i-SPEED LT* has been designed to be quick to set up and simple to use. With the ability of instant video playback, it is a complete 'point and shoot' inspection tool.



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The *i-SPEED 2* is an invaluable tool for general research and development requirements, with recording rates of up to 33,000 fps and instant playback & analysis via the CDU.

DOWNLOAD VIA COMPACT FLASH

By selecting frames required for review via the CDU, download times are reduced. The video clip is easily transferred from the camera's internal memory to a removable Compact Flash card in either compressed or uncompressed format for transfer to a PC.



CONNECTION TO FIBERSCOPE, BORESCOPE OR MICROSCOPE

With over 30 years experience within the Remote Visual Inspection industry, the Olympus *i-SPEED* camera has been optimised for use with Olympus fiberscopes, rigid borescopes and microscopes.



CONTROLLER DISPLAY UNIT (CDU)

The unique CDU facilitates the operation of the *i-SPEED* high speed video camera through an intuitive menu structure, without the need of a PC, making the system portable, easy to use and also provides instant playback.



DATA CHANNELS

Multi-channel analogue data input from 0-5 V provides graphical representation synchronised exactly with the captured video.



ETHERNET CONNECTION

The Olympus *i-SPEED 2* can be connected to a PC via Ethernet allowing full camera control and image download.

MULTIPLE CAMERA SYNCHRONISATION

By synchronising two or more *i-SPEED* cameras, multiple views of the same event can be obtained and downloaded via Ethernet for review.



i-SPEED TR

1280 x 1024 resolution @ 2,000 fps
10,000 fps max



The *i-SPEED TR* provides high resolution, extreme low light sensitivity at speeds up to 10,000 fps recording, making it the ideal analysis tool for research and development.



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The *i-SPEED 3* has been designed to an advanced specification providing high frame rate capture, on board image analysis tools and electronic shuttering to 1 µs.

LUMINANCE HISTOGRAM

Provides graphical representation of the average brightness within a live image, allowing easy aperture set up in real time.



i-FOCUS

A feature unique to Olympus, i-FOCUS is an electronic image focusing tool which provides confirmation of focus within a live image and provides a visual indication of depth of field.



IMAGE PROCESSING

Captured footage can be processed via the CDU to enhance an image and identify detail that would not otherwise be seen.

USER SETTINGS

User settings can be stored through the camera and allows users to store up to five favoured camera settings or test parameters, which can be easily restored.



VIDEO TRIGGER*

An advanced triggering function that begins the recording process when movement occurs within a defined area of a live image.

*Triggering utilises changes in the luminance of the image



VIDEO CLIP PERSONALISATION

Text and company logos can be permanently burnt into video clips to assist with report generation and video accreditation.



MEASUREMENT

Accessed via the CDU, distance, angle, velocity, angular velocity, acceleration and angular acceleration measurements can be calculated, allowing instant analysis of captured images.



BATTERY BACK UP

i-SPEED 3 has an internal battery back up, to ensure camera operation, should AC power fail.

i-SPEED FS

1280 x 1024 resolution @ 2,000 fps
1,000,000 fps max



The *i-SPEED FS* provides high resolution, extreme low light sensitivity at speeds up to 1,000,000 fps recording, with an electronic global shutter selectable to 0.2 μ s, making the camera suitable for capturing even the quickest high speed phenomena.

ECONOMY MODES

Up to nine preset economy modes are available to utilise a smaller area of the CMOS sensor, which provides extended recording times without the need to reduce frame rates. Manual economy mode allows the user to define the sensor size.



i-CHEQ

A display of external LED indicators provide confirmation of camera record status - useful in ballistics or crash test environments to provide absolute confidence that tests will be captured.



IRIG-B

Onboard IRIG-B receiver provides lock synchronisation/lock exposure to sub 5 microsecond accuracy.



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The *i-SPEED* Software Suite is designed to mirror the ease-of-use and high specification power of the camera range. There are three levels of PC software available for use with all cameras:

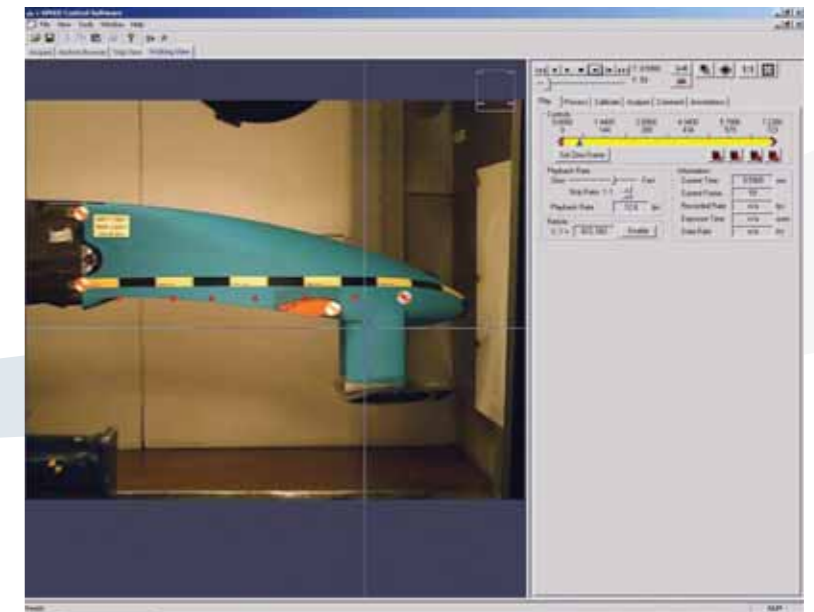
Control

Control is supplied as standard with all *i-SPEED* cameras (excluding LT model)

- ▶ Connect to camera*
- ▶ Control camera*
- ▶ Download images to PC
- ▶ Manual distance, speed, angle, angular velocity measurements

Additional functionality available when using Control with *i-SPEED LT/3/FS*

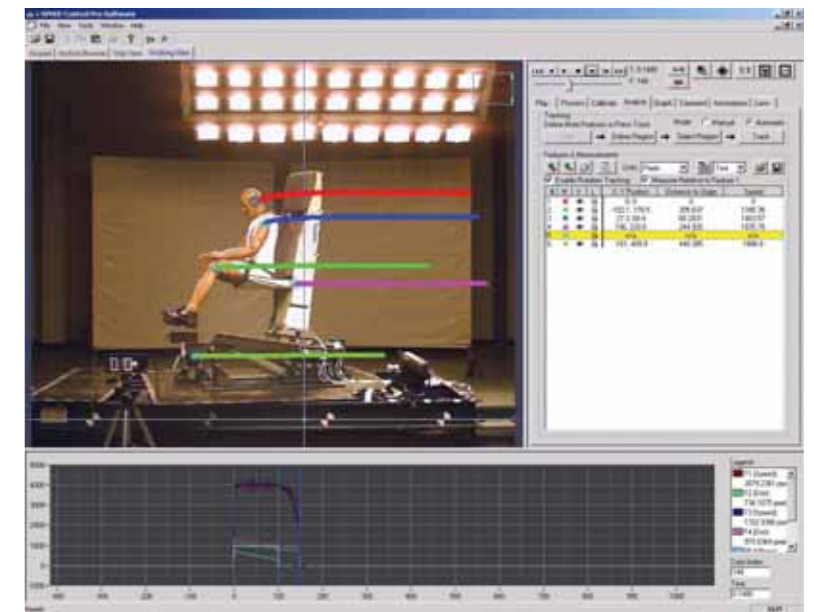
- ▶ i-FOCUS for confirmation of depth of focus
- ▶ i-CHEQ for instant camera status determination
- ▶ Luminance histogram for precise image set-up



Control-Pro

By upgrading to Control-Pro as an optional extra, additional features to the Control software are available

- ▶ Auto Capture and download to PC
- ▶ Free text facility including data and frame comments
- ▶ Video annotation
- ▶ HTML report generator
- ▶ 64 point auto-tracking
- ▶ Perspective projection
- ▶ Data filtering
- ▶ Video triggering
- ▶ Lens distortion correction and saving
- ▶ Permanent text burned onto video, including customer's logos



i-SPEED Viewer

To allow *i-SPEED* footage to be reviewed within an organisation (in addition to the Control and Control-Pro PC Software Suites) a simple Viewer software is available as a free of charge download from the Olympus website (www.olympus-ims.com). This offers the capability to view *i-SPEED* footage and change playback speed only.

**i-SPEED LT* is not Ethernet enabled. *i-SPEED* Software Suite may be purchased to enable saved image manipulation and analysis as described.

For further information on *i-SPEED* software options, please see the dedicated literature.

i-SPEED accessories



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C-mount and F-mount lenses

Flood-Lighting

For more information on the products below please see the Olympus RVI Product Guide

To complement the *i-SPEED* digital high speed video cameras and to suit the varying and demanding needs of high speed video applications, Olympus offers a wide range of lens and lighting accessories.

Olympus have over 30 years of experience in the Remote Visual Inspection (RVI) industry and offer a range of products suitable for use with *i-SPEED* cameras.

SERIES 5 BORESCOPES

Olympus rigid borescopes offer high quality images and provide visual access to confined areas. Available in a range of diameters from 4 to 16 mm, the Olympus Series 5 Borescope can be connected to any high speed camera via an optical adaptor to allow capture of high speed applications.

INDUSTRIAL FIBERSCOPES

Olympus also offer a range of flexible fiberscopes for use when direct line access to the inspection area is not available. With diameters ranging from 6 to 11 mm, lengths of up to 3 m and four way tip articulation, Olympus fiberscopes can provide a view of the hardest to reach high speed applications.

LIGHT SOURCES

Olympus high intensity light sources can provide illumination for applications that require the use of borescopes and fiberscopes or can be utilised for focused illumination of high speed events.

OPTICAL ADAPTORS

A range of adaptors are available for connection between *i-SPEED* cameras and Olympus borescopes and fiberscopes.



Adding value to Olympus *i-SPEED* cameras

- Local, quick and efficient service and repairs
- Product and application support
- Continued education through local high speed video training courses
- Loan equipment available during servicing and repair
- Expertise in endoscopy, microscopy and non-destructive testing
- System upgrades

