

## DATA SHEET

May, 2018

# TS5



*In the Studio, on the shoot, in the field...High-speed imaging in the palm of your hand!*

*Its superior image quality and dynamic range* make it a great studio camera for everything from food commercials to music videos.

*...5 $\mu$ m pixel means greater depth of field...3.9 crop factor @ 1080p is 2x to 4x as high as most other high-speed cameras, allowing use of very fast C-mount lenses with exceptional depth of field. This is extremely valuable for difficult tabletop shots as well as for wildlife video!*

*...Save 8-, 10-, or 12-bit raw clips to optional built-in SSD... Built-in SSDs up to 1TB are available for saving footage during your shoot. Batch download/conversion to DNG or other formats may be done at your convenience after shooting.*

- Four models from QSXGA (2560 x 2048) @ 250fps to SVGA (800 x 600) @ 1650fps--all with faster frame rates at lower resolutions
- 7" touch display for control, frame and focus, and playback
- Built-in battery, good for up to 4 hours of operation
- Flexible recording and triggering modes to assure you capture every shot, every time
- Multiple built in non-volatile storage devices, including optional SSDs with up to 2TB capacity allow you to shoot and save your high-speed video quickly and securely without connecting to a PC



# Recording with the Circular Buffer

**TS5**, an extremely efficient tool for capturing high-speed footage...

*Using the circular buffer the TS5 may record some video trailing into the past as well as some advancing into the future.*

Frame the shot and Arm the camera. The camera begins recording...captures a programmable amount of video into the circular buffer and then begins to overwrite it...



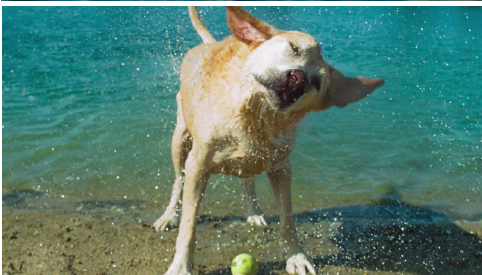
Trigger the camera as you would to take a snapshot. The camera, depending upon how you have it set up, may record video before and/or after the trigger. That way you may choose to respond to things before or after they happen.

*Record exactly what you want, no more no less.*



**FasFire** automatically saves that clip while continuing to record the next. Never miss a shot!

On-board high-speed memory may be divided into as many as 16 partitions. As one or more partitions are filled, they begin to empty into on-board storage, making them available again. (Use the optional 2TB SSD for best performance!) You just keep taking shots as opportunities arise.



**Does the TS5 have the dynamic range you need?**

This is a common concern among professionals when using high-speed cameras.

On a demo of the TS5 in a studio in LA, we got the opportunity to put the TS5 up against a Red Dragon. Same exact setup...apples to apples... well, it was actually "churros to churros!" The image on the top was from the TS5--1080p @ 529fps (12 bits). The image at the bottom was the Red camera--1080p @ 300fps (12 bits).

Conclusion: Advantage TS5 for speed. Image quality was comparable.





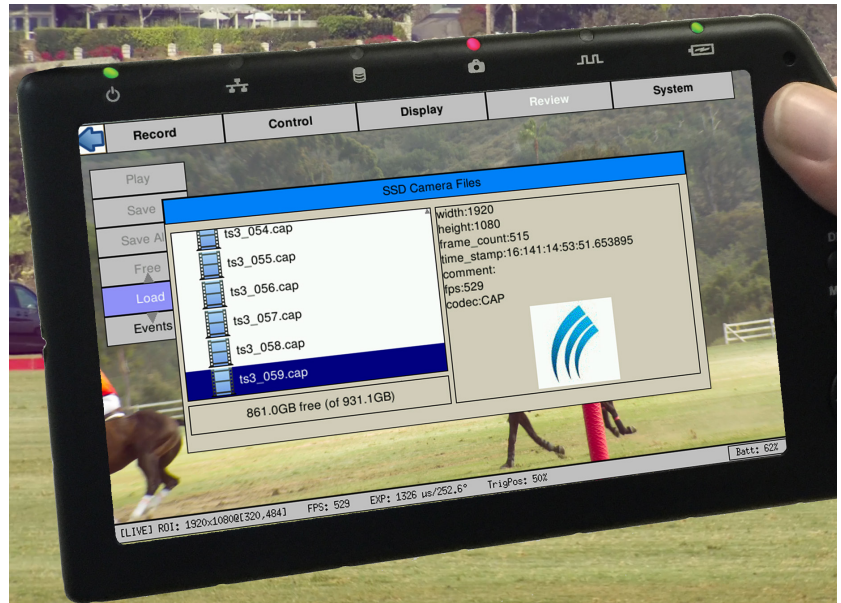
# TS5 with Optional SSD

## *Optimized workflow* with the optional SSD!

*Record hundreds of high-speed clips on the TS5 without having to stop to download...*

Save Raw, Uncompressed 8- 10- or 12-bit images

- The native raw format of the camera (CAP file) may be saved to the SSD very quickly (about 6 seconds for a 2GB clip)
- Once saved to the SSD, CAP files may be played back on the camera display
- CAP files may be converted to other formats (DNG, TIFF, JPEG, BMP, AVI) when transferred via Gigabit Ethernet to computer
- Batch transfers allow you copy all or selected files to computer



## *SSD Sizes up to 2TB*

*Stream directly to the SSD with the "Long Record" option as one long, continuous video, or start and stop the recording as you would a regular camcorder in **FasCorder** mode.*



- The entire event is accessible for playback on the TS5 display, mobile device or computer
- Start and Stop markers are placed on the timeline for easy navigation
- Save any portion of the recording to onboard media or to a computer

# Camera Control Interfaces

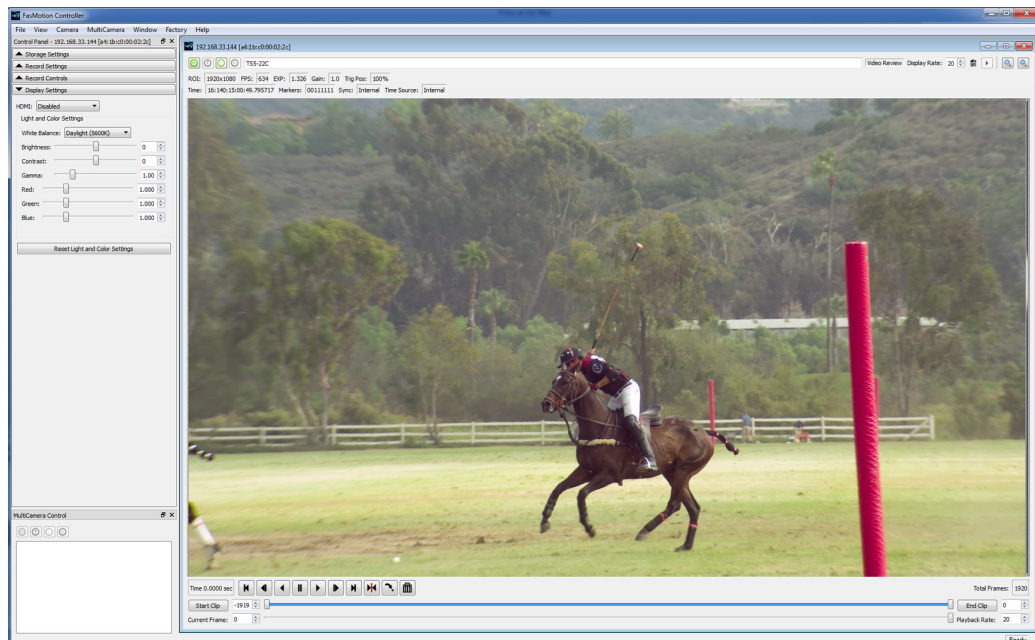
7" on-camera display with touch and D-Pad controls for complete setup, control, and playback.

Connect wirelessly via the TS3's built-in Web-Server for camera control on PC or mobile device on any browser without loading additional software.



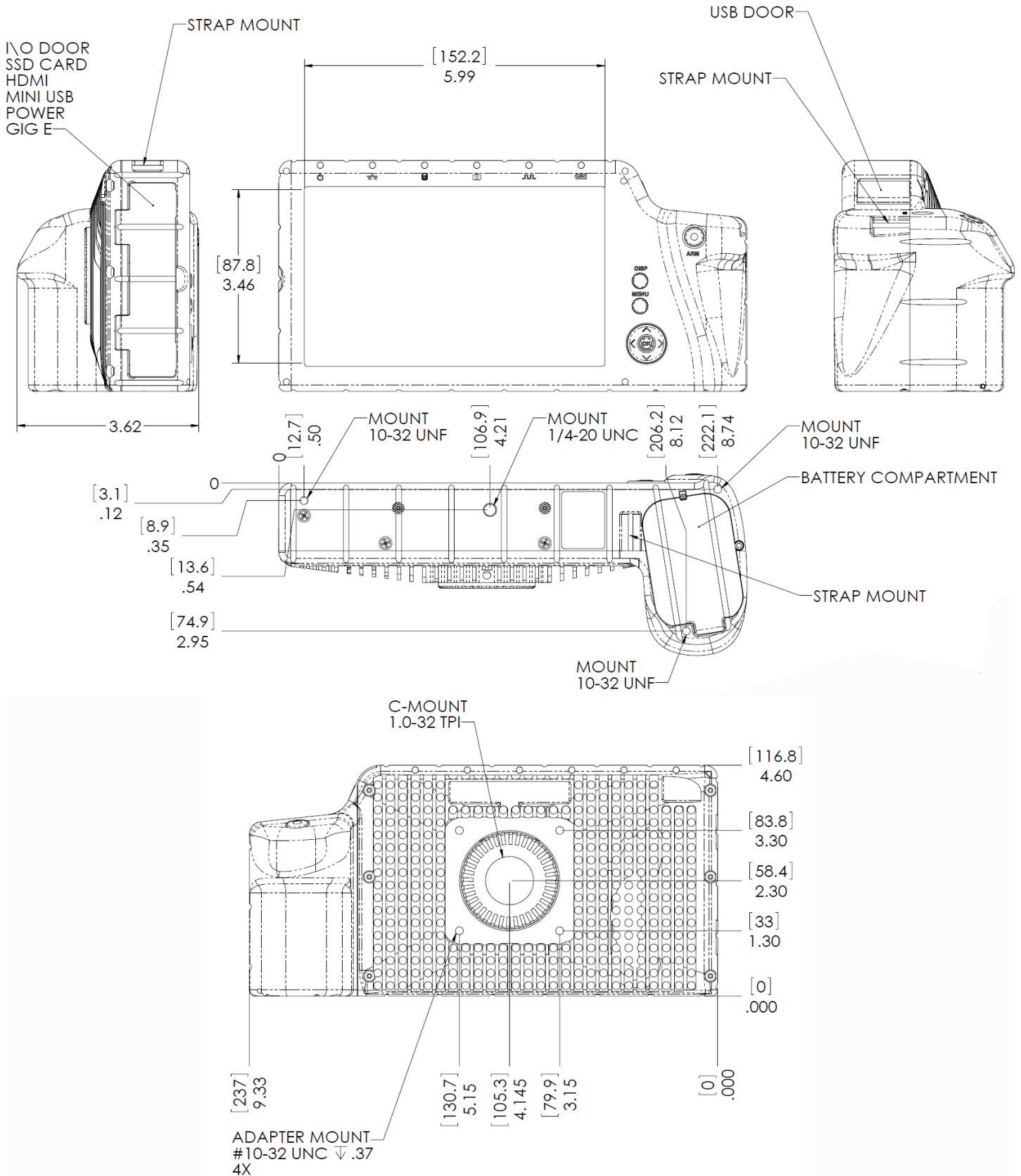
...or use FasMotion software on a PC or Mac

- Fast downloads to PC (up to 90MB/sec)
- Multi-camera control
- Batch downloads and transcoding
- Flexible custom overlay superimposing metadata, user text or images on video





# TS5 Dimensions



# Recording Rates and Time

## Normal Mode\*

	Resolution	Max Frame Rate	Recording Time	
TS5-Q: QSXGA	2560 x 2048 (QSXGA)	253 fps	6.3 sec	
	2560 x 1440 (QHD)	359 fps	6.3 sec	
	TS5-H: HD 1080p	1920 x 1080 (HD: 1080p)	634 fps	6.5 sec
		1440 x 1080	634 fps	8.5 sec
	TS5-S: SXGA	1280 x 1024 (SXGA)	991 fps	6.4 sec
		1280 x 1014	1001 fps	6.4 sec
		1280 x 720 (HD: 720p)	1403 fps	6.5 sec
		1000 x 1000	1015 fps	8.2 sec
	TS5-L: SVGA	1024 x 768 (XGA)	1316 fps	8.1 sec
		800 x 600 (SVGA)	1677 fps	10.4 sec
		800 x 450	2221 fps	10.5 sec
		768 x 576	2764 fps	6.8 sec
		640x480 (VGA)	3289 fps	8.3 sec
		512 x 384	4061 fps	10.5 sec
		320 x 240	6267 fps	17.4 sec
		64 x 32	29090 fps	2min 19 sec

## Long Record Mode\*\*

	Resolution	Max Frame Rate	Recording Time	
TS5-Q: QSXGA	2560 x 2048 (QSXGA)	91 fps	34.9 min	
	2560 x 1440 (QHD)	130 fps	34.7 min	
	TS5-H: HD 1080p	1920 x 1080 (HD: 1080p)	231 fps	34.7 min
		1440 x 1080	308 fps	34.7 min
	TS5-S: SXGA	1280 x 1024 (SXGA)	366 fps	34.7 min
		1280 x 1014	369 fps	34.7 min
		1280 x 720 (HD: 720p)	520 fps	34.7 min
		1000 x 1000	478 fps	34.7 min
	TS5-L: SVGA	1024 x 768 (XGA)	610 fps	34.7 min
		800 x 600 (SVGA)	993 fps	34.7 min
		800 x 450	1331 fps	34.7 min
		768 x 576	1084 fps	34.7 min
		640x480 (VGA)	1562 fps	34.7 min
		512 x 384	2441 fps	34.7 min
		320 x 240	5000 fps	42.8 min

All specifications subject to change. All record rates assume 8-bit data.

\*Record times assume 8GB of memory. Divide Record times by 2 for approximate 4GB record times.

\*\*LR Record times assume "D" option and 1TB SSD. Divide by 2 for 512GB SSD; multiply by 2 for 2TB SSD.

# TS5 Specifications

## Standard Features

<b>System Design</b>	Handheld, battery-powered, portable with touchscreen LCD
<b>Sensor</b>	12-bit CMOS sensor with 5µm square pixels, color or monochrome
<b>Sensor Modes</b>	Standard, binning 2x2 or 4x4; sub-sampling 2x2 or 4x4; Or 2x binning + 2x sub-sampling
<b>Resolution by Model</b>	TS5-Q: QSXGA 2560 x 2048; TS5-H: HD 1920x1080; -S: SXGA 1280x1024; -L SVGA 800x600
<b>Light Sensitivity</b>	1600 to 12,800* ISO monochrome, 800 to 6400* ISO color (depending on mode)
<b>Shutter</b>	Global electronic shutter from 3µsec to 41.654ms
<b>Image Memory</b>	4GB (std.) or 8GB (optional)
<b>Removable Storage</b>	SD card (SDHC: 32GB maximum); USB flash drive
<b>File Formats</b>	Stacks – BMP, DNG (color), JPEG (selectable quality), TIFF, TIFF(raw); Video – AVI (selectable quality (compressed) or un-compressed), CAP(raw); Still – JPEG
<b>Lens Mounts</b>	C-mount (all cameras ship with C-mount), F-mount or PL-mount (optional)
<b>Built-in Monitor</b>	High resolution, 178mm (7") diagonal LCD
<b>Communication Ports</b>	USB 2.0 device port (micro-B), Ethernet (10/100/1000Base-T)
<b>Control Software</b>	FasMotion (PC/Mac application), web interface (web browser on all platforms)
<b>Six External I/O Ports</b>	Trigger In/Out, Sync In/Out, Arm In/Out (LVTTTL (3.3V) or switch closure); Any or all of the I/O ports may be used as Marker inputs
<b>Marker Data Views</b>	Camera display info line, playback timeline, FasMotion o-scope mode, XML file
<b>Video Out</b>	HDMI (1080p30, 1080p60, 720p, 480p)
<b>Construction</b>	Anodized machined aluminum housing
<b>Power</b>	Rechargeable Internal Li-ion battery or 10-26 VDC external
<b>Power Consumption</b>	42W maximum
<b>Operating Environment</b>	+5°C to +40°C
<b>Size and Weight</b>	228mm (9.0") W x 114mm (4.5") H x 89mm (3.5") D. 1.8 Kg (3.9 lbs.)

## Optional Features

<b>WiFi</b>	802.11 b/g/n, Security: open, WEP, WPA(2) - PSK
<b>Built-In Storage</b>	Solid State Drive (SSD): 256GB, 512GB, 1TB, 2TB
<b>Long Record</b>	Streams uncompressed video to SSD at 480MB/sec; 8GB mem. + SSD required; ships with an external battery pack

\*Higher ISO settings available via bit-shifting and analog gains result in lower SNR.  
Binning modes reduce noise.

All specifications subject to change.

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