



Phantom S641
Front View

Phantom S641
Back View

PHANTOM S641

4Mpx High Speed
Machine Vision

1490 fps at 2560 x 1600 resolution
CXP-over-Fiber for extreme high-speeds
High image quality, with low noise

FEATURES & BENEFITS

UNIQUE EXTREME HIGH-SPEED MACHINE VISION

- The Phantom S641 offers unique capability, providing very high frame rates at a 4 Mpx resolution. It achieves up to 6Gpx/sec (48 Gbps).
- Reach up to over 200,000 fps at reduced resolutions, for the power to support cutting edge applications.
- The S641 employs CoaXPress-over-Fiber (CXPoF) with CXP-12, the latest in high-speed machine vision technology, to deliver high throughput with ease of use. Two simple cables reliably transfer data, with very low latency.

PHANTOM IMAGE QUALITY GIVES THE HIGHEST DETAIL

- 4 Mpx resolution with a 10µm pixel and 12-bit capabilities provide exceptional detail
- Phantom image quality offers very low noise and high dynamic range for the clearest images
- Flexible, with 8-bit or 12-bit selection, and a full selection of signals

FRAME RATES & EXPOSURE		
	12-bit	8-bit
Top FPS at Max Resolution	1,450	1,490
1 Megapixel FPS	5,180	5,180
Maximum FPS	231,400	231,400
Minimum FPS	24	
CAR Increments	128 x 4 (bank A); 128 x 8 (banks A & B)	
Minimum Exposure	1 μ s	
Electronic Shutter	Global Shutter	

IMAGING	
Sensor Type	CMOS
Maximum Resolution	2560 x 1600
Bit Depth	12-bit, output in either 12-bit or 8-bit
Pixel Size	10 μ m
Sensor Size	25.6 x 16 mm; 30.18 mm diagonal
ISO Daylight (12232 STD)	Mono 6,400; Color 1,250
ISO Tungsten (12232 STD)	Mono 16,000; Color 1,250

RESOLUTION		Bit Depth	FPS	
H	V		2 Fiber Banks	1 Fiber Bank
2560	1600	8-bit	1,490	1,080
		12-bit	1,450	720
1920	1600	8-bit	1,900	1,450
		12-bit	1,900	960
1280	1600	8-bit	2,610	2,160
		12-bit	2,610	1,450
1280	800	8-bit	5,180	4,300
		12-bit	5,180	2,880
1024	720	8-bit	6,740	5,960
		12-bit	6,740	3,980
640	680	8-bit	9,620	9,620
		12-bit	9,620	6,690
512	512	8-bit	14,280	14,280
		12-bit	14,280	10,760
256	256	8-bit	36,080	36,080
		12-bit	36,080	36,080
128	128	8-bit	74,460	74,460
		12-bit	74,460	74,460
128	16	8-bit	202,890	202,890
		12-bit	202,890	202,890
128	8	8-bit	N/A	231,400
		12-bit	N/A	231,400

EMVA 1288 DATA	
QE @ 532 nm (%)	60.2
Dark Noise (e ⁻)	23.8
Saturation Capacity (Ke ⁻)	14.5
Dynamic Range (dB)	55.5
Max SNR (dB)	41.6



CONNECTIVITY & SIGNALS

QSFP+ Ports	Bank A Bank B	
Timecode	IRIG-B Modulated and Un-modulated	
Port Descriptions	Dedicated BNC	Timecode-in
	I/O BNC	3 Ports
	Power	6-pin Fischer
	Ethernet (for programming only)	RJ45
I/O Signals - available on GPIO 0, 1, 2	Signal	I/O
	Trigger In	Input
	Trigger Out	Output
	Software Trigger Out	Output
	Strobe	Output
	Event	Input
	Ready	Output
	Memgate	Input
	Timecode In	Input
	Timecode out	Output
	User out	Output
	User in	Input



Phantom S641 Connectors



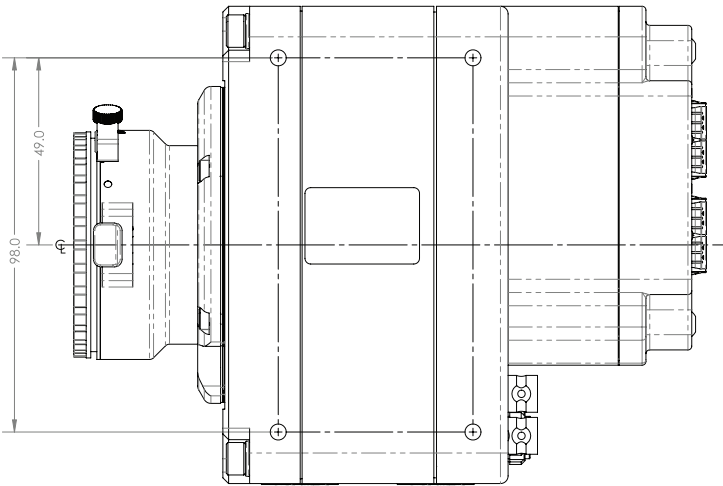
Phantom S641 with cables

CONTROL

Operational Protocols	CXP-12, CoaXPress-over-Fiber (CXPoF),CXP 2.0 protocol compliant
Exposure Start	Programmed in GenICam and operates as FSYNC
Metadata Available	Meta data including Event ID, Event timestamp, Event payload can be streamed

MECHANICAL

Size	5 x 5 x 6.3" (125 x 125 x 159.7 mm)
Weight	5.4 lbs (2.4 kg)
Lens Mounts	F Mount standard, EOS, C, M42 and PL Mounts optional
Mounting Points	6 x 1/4-20, 16 x M5-0.8 mounting points
Internal Shutter	Standard, for remote black references
Cooling	Active cooling. Fans can be disabled via Quiet mode.


POWER

AC Power	80W 24V power supply included
Voltage Range	16-32 VDC

ENVIRONMENTAL

Operating Temperature	0 to +50°C
Storage Temperature	-20 to +70°C
Operational Shock	30G, sawtooth wave, 11 ms, +/- 10 pulses all axes
Operational Vibration	MIL-STD-202H Method 214-I; Test Condition B 7.5 Grms, 15 min/axis
Regulatory	Made in the USA CE Emissions – CE Compliant EN 61326-1 CE Immunity – CE Compliant EN 61326-1 FCC – CFR 47, Part 15, Subpart B & ICES-0003, Class A Safety - IEC 60950-1

GLOBAL SUPPORT NETWORK

The Phantom High-speed Machine Vision Cameras are supported by Vision Research's Global Service and Support network, offering Phantom Care Performance Services from multiple sites around the globe. Maximize the value of your Phantom camera with a selection of professional services from which to choose

Learn more about our service offering at www.phantomhighspeed.com/Service-Support

ABOUT VISION RESEARCH

Focused. Since 1950, Vision Research has been designing, and manufacturing high-speed cameras. Our single focus is to invent, build, and support the most advanced cameras possible.



100 Dey Road
Wayne, NJ 07470 USA
+1.973.696.4500