

REDWOOD™

12MP CAMERAS



CoaxPress

Video Cameras with AMS CMV12000 Sensors

APPLICATIONS

Automated Optical Inspection

Wide Area Observation

Virtual Reality and Special Effects

Scientific Research



FEATURES INCLUDE:

- Monochrome and Color Models
- High Resolution with High Speed Output
- Advanced Global Shutter CMOS Sensor
- Fast CoaxPress 2.0 Video Output with Coaxial or Fiber Optic Cabling Options
- Selectable 8/10/12-bit Data Formats
- Multiple Lens Mount Options
- Multi-ROI with up to 16 Separate Windows
- Flexible Image Adjustment and Enhancement

IO
IO INDUSTRIES

SPECIFICATIONS

Camera Model	Redwood 12MP
Sensor Size (H x V)	4096 x 3072 (12.6 MP)
Frame rate (full resolution)	335 fps (8-bit), 299 fps (10-bit), 132 fps (12-bit)
Optical Format	APS-C (28.1 mm diagonal)
Sensor Type	CMOS w. global electronic shutter
Sensor Options	Monochrome or color (Bayer)
Pixel Size	5.5 x 5.5 μ m
Dynamic Range	59.5 dB; optional Piecewise HDR or Interleaved HDR
Output Configurations	1/2/4 links at 3.125 / 5.0 / 6.25 / 10.0 / 12.5 Gbps via coaxial or fiber cabling (QSFP+)
Multiple ROI / Binning	Up to 16 windows with optional 2x2 binning, or with full-size window 1/2 subsampling can be used
Pixel Bit Depth	8/10/12-bit output
Exposure Control	Programmable or level-controlled exposure, triggered double exposure (PIV), or auto exposure
Image Correction	Black level, FPN/PRNU, bad pixel replacement, FFC, denoise filter, detail enhancement filter
Color Processing	White balance (Auto one-shot, tracking, or manual), Gamma LUTs
Camera Configuration	GenICam or Redwood Control software
Mechanical/Electrical	
Dimensions	62.0 mm x 62.0 mm x 154.7 mm (WxHxD, with F-mount)
Lens Mount	F-mount, M52 x 0.75 or Active Canon EF-mount
Weight	715 g (with F-mount, no lens)
Power Requirements	Approx. 12W @ 12V DC via Hirose 6-pin, CX models support PoCXP (min. 2 links required)
Additional I/O	TTL-level trigger input/output
Operating Temperature	-10°C to 50°C, 20-85% humidity (non-condensing)
Storage Temperature	-40°C to 85°C, 10-90% humidity (non-condensing)

FRAME RATE CHART

Example Output Resolution:	CXP Connection*:	ADC Mode:		
		8-bit	10-bit	12-bit
Maximum (4096 x 3072)	4x CXP-12	335	299	132
	2x CXP-12 / 4x CXP-6	188	150	125
	1x CXP-12 / 2x CXP-6 / 4x CXP-3	94	75	62
4K UHD (3840 x 2160)	4x CXP-12	475	424	187
	2x CXP-12 / 4x CXP-6	266	213	177
	1x CXP-12 / 2x CXP-6 / 4x CXP-3	133	107	89
HD 1080p (1920 x 1080)	4x CXP-12	936	838	371
	2x CXP-12 / 4x CXP-6	936	838	371
	1x CXP-12 / 2x CXP-6 / 4x CXP-3	528	424	352

*both Coaxial and CoaXPress-over-Fiber models support configurations up to 4x CXP-12

ORDERING

Example: 120C335CCX-F

Camera
120C335

Lens Type
F - F-mount

M - M52 x 0.75

A - Active EF-mount

AO - Active EF-mount w. OLPF/IR-Cut Filter

Sensor Type

M - Monochrome

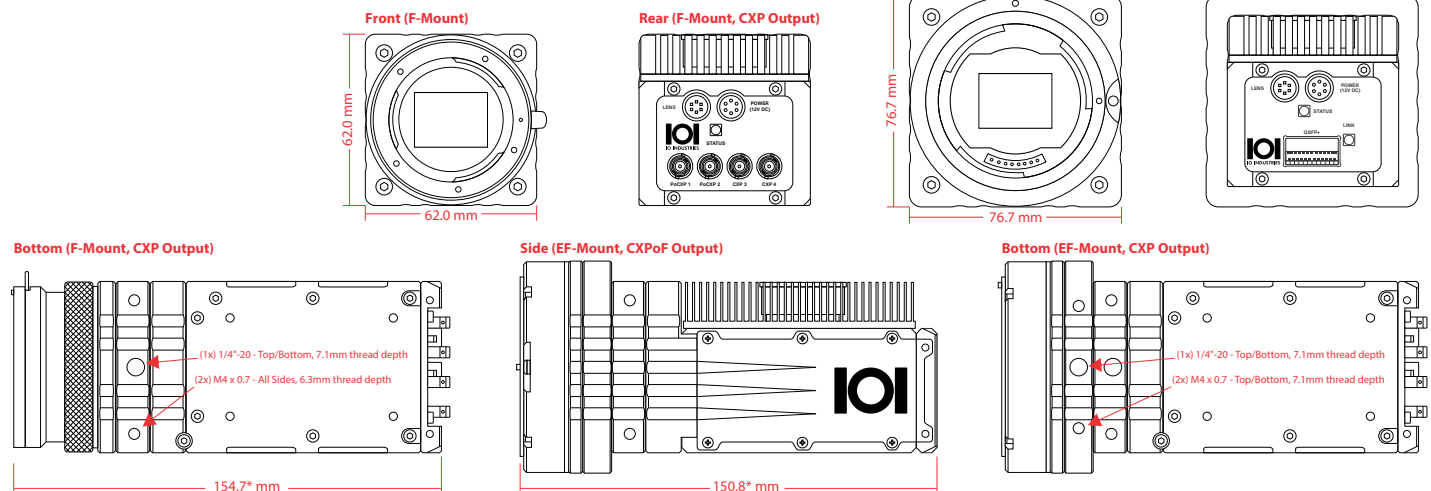
C - Color (with IR-Cut filter)

Interface

CX - CoaXPress (Coaxial)

CQ - CoaXPress-over-Fiber (QSFP+)

MECHANICAL DIAGRAMS



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REDWOOD™

45MP CAMERAS



CoaxPress

Video Cameras with ON Semiconductor XGS 45000 Sensors

APPLICATIONS

Automated Optical Inspection

Wide Area Observation

Virtual Reality and Special Effects

Scientific Research



FEATURES INCLUDE:

- Monochrome and Color Models
- High Resolution with High Speed Output
- Advanced Global Shutter CMOS Sensor
- Fast CoaxPress 2.0 Video Output with Coaxial or Fiber Optic Cabling Options
- Selectable 8/10/12-bit Data Formats
- Multiple Lens Mount Options
- Multi-ROI with up to 16 Separate Windows
- Flexible Image Adjustment and Enhancement

IOI
IO INDUSTRIES

SPECIFICATIONS

Camera Model	Redwood 45MP
Sensor Size (H x V)	8192 x 5468 (44.7 MP)
Frame rate (full resolution)	52 fps (8-bit), 52 fps (10-bit), 47 fps (12-bit)
Optical Format	Super 35 (31.5 mm diagonal)
Sensor Type	CMOS w. global electronic shutter
Sensor Options	Monochrome or color (Bayer)
Pixel Size	3.2 x 3.2 μ m
Dynamic Range	67.5 dB (up to 73dB with Dual ADC Gain HDR)
Output Configurations	1/2/4 links at 3.125 / 5.0 / 6.25 / 10.0 / 12.5 Gbps via coaxial or fiber cabling (QSFP+)
Multiple ROI / Binning	Up to 16 windows with optional 2x2 binning, or with full-size window 1/2 subsampling can be used
Pixel Bit Depth	8/10/12-bit output
Exposure Control	Programmable or level-controlled exposure, triggered double exposure (PIV), or auto exposure
Image Correction	Black level, FPN, bad pixel replacement, FFC, denoise filter, detail enhancement filter
Color Processing	White balance (Auto one-shot, tracking, or manual), Gamma LUTs
Camera Configuration	GenICam or Redwood Control software
Mechanical/Electrical	
Dimensions	62.0 mm x 62.0 mm x 154.7 mm (WxHxD, with F-mount)
Lens Mount	F-mount, M52 x 0.75 or Active Canon EF-mount
Weight	715 g (with F-mount, no lens)
Power Requirements	Approx. 12W @ 12V DC via Hirose 6-pin, CX models support PoCXP (min. 2 links required)
Additional I/O	TTL-level trigger input/output
Operating Temperature	-10°C to 50°C, 20-85% humidity (non-condensing)
Storage Temperature	-40°C to 85°C, 10-90% humidity (non-condensing)

FRAME RATE CHART

Example Output Resolution:	ADC Mode: CXP Connection*:	Output:	10-bit		12-bit		
			8-bit	10-bit	8-bit	10-bit	12-bit
Maximum (8192 x 5468)	4x CXP-12		52	52	47	47	47
	2x CXP-12 / 4x CXP-6		52	41	47	41	34
	2x CXP-10 / 4x CXP-5		38	30	38	30	25
8K UHD TV2 (7680 x 4320)	1x CXP-12 / 2x CXP-6 / 4x CXP-3		26	20	26	20	17
	4x CXP-12		65	65	60	60	60
	2x CXP-12 / 4x CXP-6		65	56	60	56	46
	2x CXP-10 / 4x CXP-5		35	28	35	28	23
	1x CXP-12 / 2x CXP-6 / 4x CXP-3		51	41	51	41	34

*both Coaxial and CoaXPress-over-Fiber models support configurations up to 4x CXP-12

ORDERING

Example: 447X52MCX-F

Camera
447X52

Lens Type
F - F-mount

M - M52 x 0.75

A - Active EF-mount

AO - Active EF-mount w. OLPF/IR-Cut Filter

Sensor Type

M - Monochrome

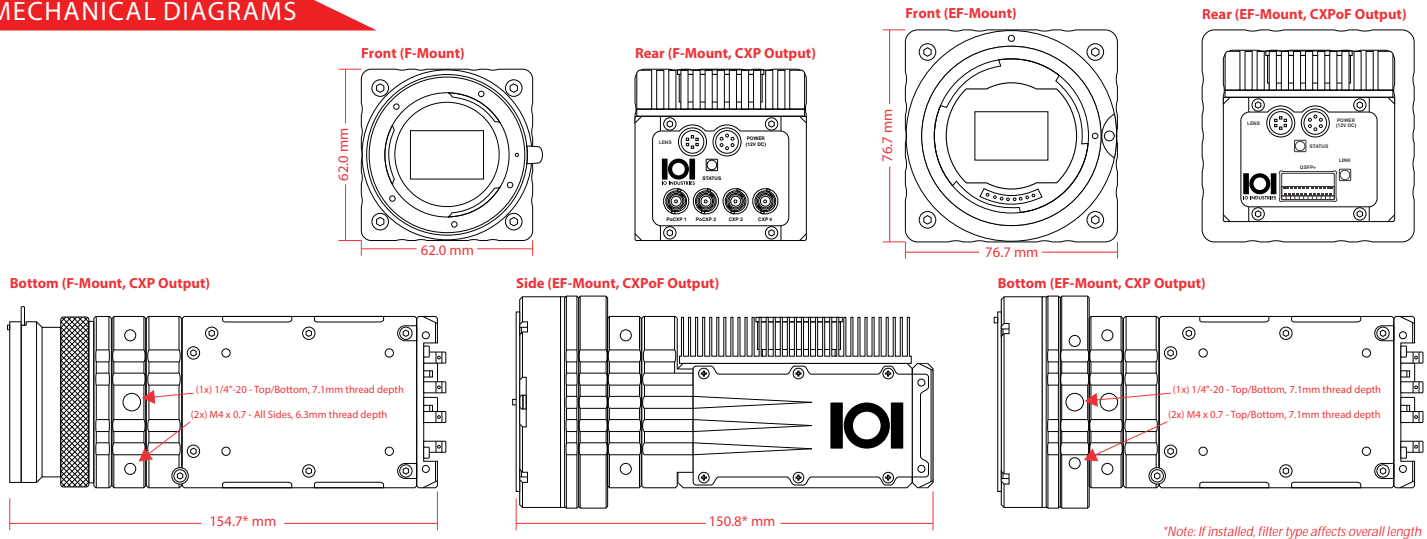
C - Color (with IR-Cut filter)

Interface

CX - CoaXPress (Coaxial)

CQ - CoaXPress-over-Fiber (QSFP+)

MECHANICAL DIAGRAMS



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REDWOOD™

65MP CAMERAS



CoaxPress

Video Cameras with Gpixel GMAX3265 Sensors

APPLICATIONS

Automated Optical Inspection

Wide Area Observation

Virtual Reality and Special Effects

Scientific Research



FEATURES INCLUDE:

- Monochrome and Color Models
- High Resolution with High Speed Output
- Charge-Domain Global Shutter CMOS Sensor
- Fast CoaxPress 2.0 Video Output with Coaxial or Fiber Optic Cabling Options
- Selectable 8/10/12-bit Data Formats
- Multiple Lens Mount Options
- Multi-ROI with up to 16 Separate Windows
- Flexible Image Adjustment and Enhancement

IO
INDUSTRIES

SPECIFICATIONS

Camera Model	Redwood 65MP
Sensor Size (H x V)	9344 x 7000 (65.4 MP)
Frame rate (full resolution)	71 fps (8-bit), 57 fps (10-bit), 31 fps (12-bit)
Optical Format	35mm Full Frame (37.4 mm diagonal)
Sensor Type	CMOS w. global electronic shutter
Sensor Options	Monochrome or color (Bayer)
Pixel Size	3.2 x 3.2 μm
Dynamic Range	66 dB (12-bit ADC mode), 62.3dB (10-bit ADC mode); optional Interleaved HDR
Output Configurations	1/2/4 links at 3.125 / 5.0 / 6.25 / 10.0 / 12.5 Gbps via coaxial or fiber cabling (QSFP+)
Multiple ROI / Binning	Up to 16 windows with optional 2x2 binning, or with full-size window 1/2 subsampling can be used
Pixel Bit Depth	Selectable 8/10/12-bit output from 10-bit (high-speed) or 12-bit (high dynamic range) ADC modes
Exposure Control	Programmable or level-controlled exposure, triggered double exposure (PIV), or auto exposure
Image Correction	Black level, FPN/PRNU, bad pixel replacement, FFC, denoise filter, detail enhancement filter
Color Processing	White balance (Auto one-shot, tracking, or manual), Black balance (auto or manual), Gamma LUTs
Camera Configuration	GenICam or Redwood Control software
Mechanical/Electrical	
Dimensions	62.0 mm x 62.0 mm x 154.7 mm (WxHxD, with F-mount)
Lens Mount	F-mount, M52 x 0.75 or Active Canon EF-mount
Weight	715 g (with F-mount, no lens)
Power Requirements	Approx. 12W @ 12V DC via Hirose 6-pin, CX models support PoCXP (min. 2 links required)
Additional I/O	TTL-level trigger input/output
Operating Temperature	-10°C to 50°C, 20-85% humidity (non-condensing)
Storage Temperature	-40°C to 85°C, 10-90% humidity (non-condensing)

FRAME RATE CHART

Example Output Resolution:	ADC Mode: CXP Connection*:	Output:	10-bit		12-bit		
			8-bit	10-bit	8-bit	10-bit	12-bit
Maximum (9344 x 7000)	4x CXP-12		71	57	31	31	31
	2x CXP-12 / 4x CXP-6		35	28	31	28	23
	2x CXP-10 / 4x CXP-5		26	20	25	20	17
8K UHD TV2 (7680 x 4320)	1x CXP-12 / 2x CXP-6 / 4x CXP-3		17	14	17	14	11
	4x CXP-12		114	112	51	51	51
	2x CXP-12 / 4x CXP-6		69	56	51	51	46
	2x CXP-10 / 4x CXP-5		51	41	51	41	34
	1x CXP-12 / 2x CXP-6 / 4x CXP-3		35	28	34	28	23

*both Coaxial and CoaXPress-over-Fiber models support configurations up to 4x CXP-12

ORDERING

Example: 654G71CCQ-A

Camera
654G71

Lens Type

F - F-mount

M - M52 x 0.75

A - Active EF-mount

AO - Active EF-mount w. OLPF/IR-Cut Filter

Sensor Type

M - Monochrome

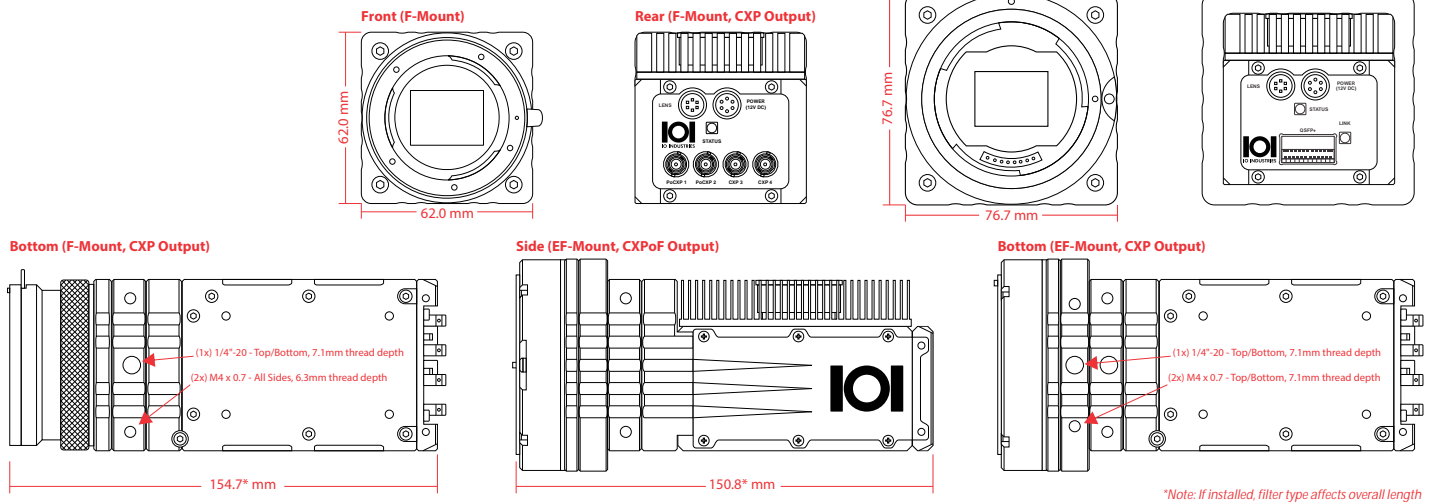
C - Color (with IR-Cut filter)

Interface

CX - CoaXPress (Coaxial)

CQ - CoaXPress-over-Fiber (QSFP+)

MECHANICAL DIAGRAMS



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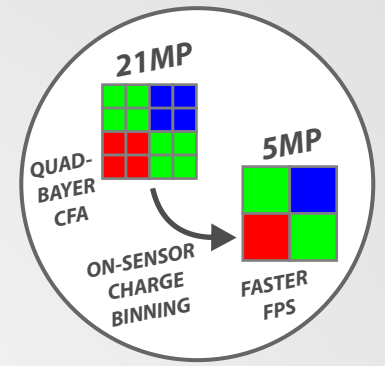
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REDWOOD™

5MP CAMERAS



CoaXPress

Video Cameras with Gpixel GSPRINT4521 Sensors

APPLICATIONS

High Speed Motion Analysis

Specialty Video Production

Automated Inspection

Scientific Research



FEATURES INCLUDE:

- 21MP Quad-Bayer Color Sensor with On-Sensor Binning delivers 5MP Output at Fast Frame Rates
- Charge-Domain Global Shutter CMOS Sensor
- Fast CoaXPress 2.0 Video Output with Coaxial or Fiber Optic Cabling Options
- Selectable 8/10/12-bit Data Formats
- Multiple Lens Mount Options
- Flexible Image Adjustment and Enhancement

IOI
IO INDUSTRIES

SPECIFICATIONS

Camera Model	Redwood 5MP
Sensor Size (H x V)	2560 x 2016 (5.2 MP)
Frame rate (full resolution)	872 fps (8-bit), 714 fps (10-bit), 583 fps (12-bit)
Optical Format	APS-C (29.5 mm diagonal)
Sensor Type	CMOS w. global electronic shutter
Sensor Options	Color-only (Bayer)
Pixel Size	9.0 x 9.0 μ m
Dynamic Range	67.6 dB
Output Configurations	1/2/4 links via coaxial or fiber cabling (1x CXP-10/12, 2x CXP-5/6/10/12, or 4x CXP-3/5/6/10/12)
Multiple ROI / Binning	Single window, on-sensor charge binning always enabled
Pixel Bit Depth	8/10/12-bit output
Exposure Control	Programmable or level-controlled exposure, triggered double exposure (PIV), or auto exposure
Image Correction	Black level, FPN/PRNU, bad pixel replacement, denoise filter, detail enhancement filter
Color Processing	White balance (Auto one-shot, tracking, or manual), Black balance (auto or manual), Gamma LUTs
Camera Configuration	GenICam or Redwood Control software
Mechanical/Electrical	
Dimensions	62.0 mm x 62.0 mm x 162.6 mm (WxHxD, with F-mount)
Lens Mount	C-mount, F-mount, M52 x 0.75 or Active Canon EF-mount
Weight	760 g (with F-mount, no lens)
Power Requirements	Approx. 21W @ 12V DC via Hirose 6-pin, CX models support PoCXP (min. 2 links required)
Additional I/O (Hirose 12-pin)	TTL-level trigger input/output
Operating Temperature	-10°C to 50°C, 20-85% humidity (non-condensing)
Storage Temperature	-40°C to 85°C, 10-90% humidity (non-condensing)

FRAME RATE CHART

Example Output Resolution:	CXP Connection*:	Frame Rate:		
		8-bit	10-bit	12-bit
Maximum (2560 x 2016)	4x CXP-12	872	714	583
	2x CXP-12 / 4x CXP-6	450	350	292
4MP 1:1 (2048 x 2016)	4x CXP-12	950	872	731
	2x CXP-12 / 4x CXP-6	552	437	358
HD 1080p (1920 x 1080)	4x CXP-12	1945	1639	1360
	2x CXP-12 / 4x CXP-6	1008	826	685
1.3MP (1280 x 1024)	4x CXP-12	2976	2551	1782
	2x CXP-12 / 4x CXP-6	1636	1257	1039
HD 720p (1280 x 720)	4x CXP-12	3876	3378	2386
	2x CXP-12 / 4x CXP-6	2193	1689	1396

*both Coaxial and CoaXPress-over-Fiber models support configurations up to 4x CXP-12

ORDERING

Example: 52G872CCQ-A

Camera
52G872

Lens Type

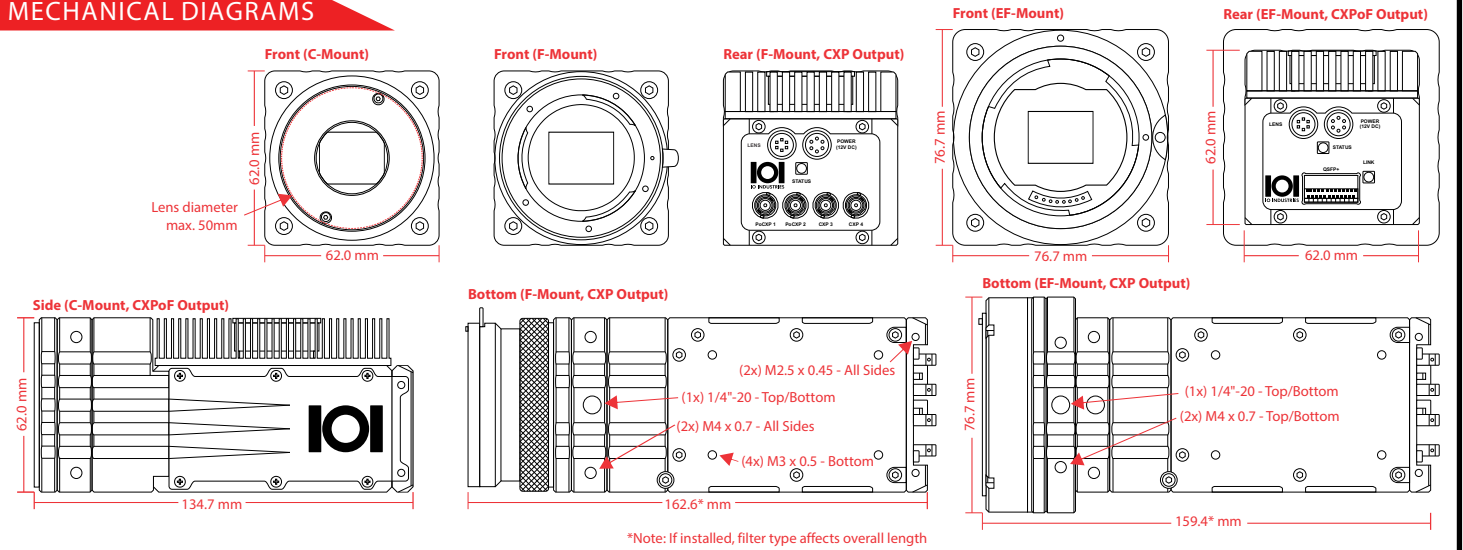
F - F-mount with IR-Cut filter
A - Active EF-mount with IR-Cut filter
CN - C-mount, no IR-Cut filter
MN - M52 x 0.75 mount, no IR-Cut filter

Sensor Type
C - Color

Interface

CX - CoaXPress (Coaxial)
CQ - CoaXPress-over-Fiber (QSFP+)

MECHANICAL DIAGRAMS



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REDWOOD™

21MP CAMERAS



CoaxPress

Video Cameras with Gpixel GSPRINT4521 Sensors

APPLICATIONS

High Speed Motion Analysis

Specialty Video Production

Automated Inspection

Scientific Research



FEATURES INCLUDE:

- Monochrome and Color Models
- High Resolution with High Speed Output
- Charge-Domain Global Shutter CMOS Sensor
- Fast CoaxPress 2.0 Video Output with Coaxial or Fiber Optic Cabling Options
- Selectable 8/10/12-bit Data Formats
- Multiple Lens Mount Options
- Flexible Image Adjustment and Enhancement

IO
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SPECIFICATIONS

Camera Model	Redwood 21MP
Sensor Size (H x V)	5120 x 4096 (21.0 MP)
Frame rate (full resolution)	230 fps (8-bit), 183 fps (10-bit), 152 fps (12-bit)
Optical Format	APS-C (29.5 mm diagonal)
Sensor Type	CMOS w. global electronic shutter
Sensor Options	Monochrome or color (Bayer)
Pixel Size	4.5 x 4.5 μm
Dynamic Range	66.8 dB
Output Configurations	1/2/4 links via coaxial or fiber cabling (1x CXP-10/12, 2x CXP-5/6/10/12, or 4x CXP-3/5/6/10/12)
Multiple ROI / Binning	Single window, optional 2x2 on-sensor binning (monochrome models only)
Pixel Bit Depth	8/10/12-bit output
Exposure Control	Programmable or level-controlled exposure, triggered double exposure (PIV), or auto exposure
Image Correction	Black level, FPN/PRNU, bad pixel replacement, denoise filter, detail enhancement filter
Color Processing	White balance (Auto one-shot, tracking, or manual), Black balance (auto or manual), Gamma LUTs
Camera Configuration	GenICam or Redwood Control software
Mechanical/Electrical	
Dimensions	62.0 mm x 62.0 mm x 162.6 mm (WxHxD, with F-mount)
Lens Mount	C-mount, F-mount, M52 x 0.75 or Active Canon EF-mount
Weight	760 g (with F-mount, no lens)
Power Requirements	Approx. 21W @ 12V DC via Hirose 6-pin, CX models support PoCXP (min. 2 links required)
Additional I/O (Hirose 12-pin)	TTL-level trigger input/output
Operating Temperature	-10°C to 50°C, 20-85% humidity (non-condensing)
Storage Temperature	-40°C to 85°C, 10-90% humidity (non-condensing)

FRAME RATE CHART

Example Output Resolution:	CXP Connection*:	Frame Rate:		
		8-bit	10-bit	12-bit
Maximum (5120 x 4096)	4x CXP-12	230	183	152
	2x CXP-12 / 4x CXP-6	115	90	74
4K UHD (3840 x 2160)	4x CXP-12	551	454	375
	2x CXP-12 / 4x CXP-6	283	221	183
HD 1080p (1920 x 1080)	4x CXP-12	2032	1652	903
	2x CXP-12 / 4x CXP-6	1040	816	668
Maximum (2x2 Binning, mono only) (2560 x 2016)	4x CXP-12	871	714	583
	2x CXP-12 / 4x CXP-6	450	350	292
HD 1080p (2x2 Binning, mono only) (1920 x 1080)	4x CXP-12	1945	1639	1360
	2x CXP-12 / 4x CXP-6	1008	826	685

*both Coaxial and CoaXPress-over-Fiber models support configurations up to 4x CXP-12

ORDERING

Example: 210G230CCQ-A

Camera
210G230

Lens Type
C - C-mount
F - F-mount
M - M52 x 0.75
A - Active EF-mount

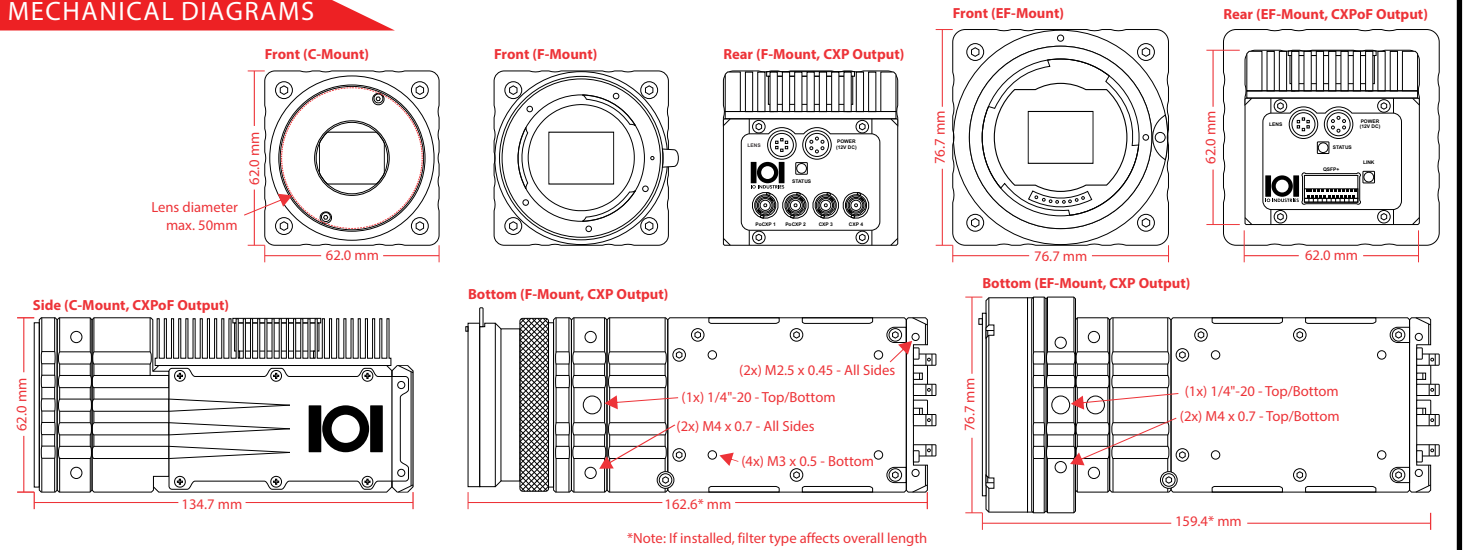
Sensor Type

M - Monochrome
C - Color (with IR-Cut filter)

Interface

CX - CoaXPress (Coaxial)
CQ - CoaXPress-over-Fiber (QSFP+)

MECHANICAL DIAGRAMS



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