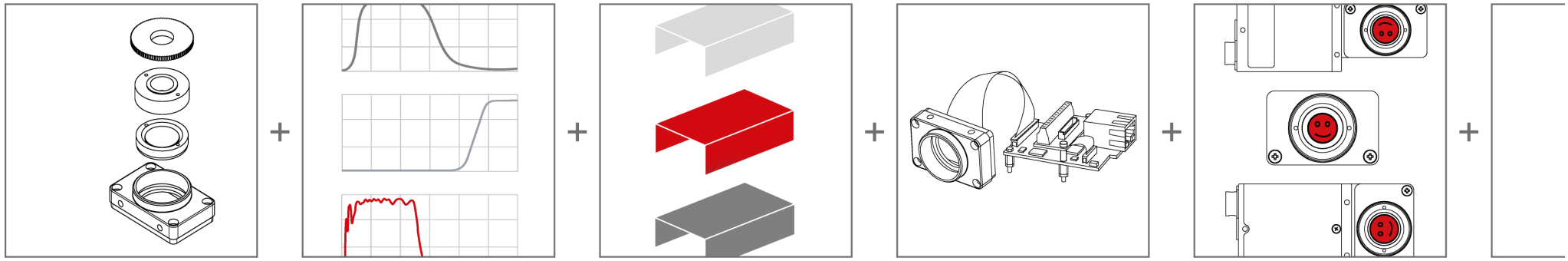
Allied Vision

Modular Concept

V10.0.0



Modular Concept at a glance

Benefits

When ordering an Allied Vision camera, the Modular Concept provides a system of additional options, such as for camera mounts, housing designs, angled heads, sensor surface options and classes, optical filters, power and interface connectors, and board level options.

Benefits of the Modular Concept options include:

- No customizing effort
- Pre-configured options
- Quick delivery times
- Transparent pricing

Ordering conditions

Please contact the Allied Vision Sales team for availability, minimum order quantities, and lead time: https://www.alliedvision.com/en/meta-header/contact-us.html.

Third-party information

This document provides links to websites of third-party manufacturers and suppliers.

Allied Vision does not take responsibility for the content provided on linked websites. In case of broken weblinks, please contact support@alliedvision.com.

Copyright and trademarks

Contact Allied Vision

Website

To directly contact Allied Vision with any enquiry, go to:

https://www.alliedvision.com/en/meta-header/contact

To find an Allied Vision office or distribution partner, go to:

https://www.alliedvision.com/en/about-us/where-we-are

Headquarters

Allied Vision Technologies GmbH
Taschenweg 2a
07646 Stadtroda, Germany

Tel: +49 36428 677-0
Fax: +49 36428 677-28
President/CEO: Frank Grube
Registration Office: AG Jena HRB 208962

Phone, Fax & E-mail

For all camera-related queries, contact us at support@alliedvision.com

For all general inquiries, contact us at info@alliedvision.com

North and South America

Toll-free// +1 877-USA-1394
T// +1 978 225 2030

Europe, Middle East and Africa

Allied Vision
T// +49 36428 677-0 (Reception)
T// +49 36428 677-230 (Sales)
F// +49 36428 677-28

Asia-Pacific

Allied Vision
T// +65 6634 9027

Sales Office China
T// +86 21 64861133

Contents

Document history and conventions

Document history

Version	Date	Document updates
V10.0.0	2018-Jan-01	**Pike:** All information related to Pike family have been removed. **Prosilica GB, GE, GS, GX:** All information related to Prosilica GB, GE, GS, and GX families have been removed. **Prosilica GT**: Added GT2460. Standard mount for GT1930L was changed from EF-Mount to EF-Mount PA. Removed TCG options for all GT20x0 models. **Manta:** added models G-040 and G-158; removed G-609. **Sensor options:** updated Sensor cover glass and quality options. **Editorial improvements:** • Adjusted defect pixel definition tables for better readability. • Replaced the drawings of angled head models (since some of them were erroneous) with valid drawings from the Manta technical manual. • Removed all statements concerning warranty, terms and conditions, legal issues, etc.
V9.4.0	2017-Jul-31	**Manta:** Manta G-895 and Manta G-1236 models released: added options. **Pearleye:** All information to Pearleye has been removed. Camera has been discontinued, last-time-buy date: December 15, 2016. **Prosilica:** Added Prosilica GT4090, GT4096, GT5120 models. **F-Mount adapter:** all information about the F-Mount adapter has been removed. Component has been discontinued. **Sensor options:** • Improved information on Taped Cover Glass sensor options for - Prosilica GT, GT Large Format, GX, and GE cameras - Pike cameras. • Added link to application note about handling cameras with Cover Glass sensor options. • Corrected product codes for sensor options in availability list in chapter Prosilica GT on page 23.

Table 1: Document history (Sheet 1 of 2)

Version	Date	Document updates
V9.3.0	2016-Sep-02	**Goldeye G/CL**: added image for Silver Design in Housing color and style on page 19. **Manta**: added options for Manta G-319 and G-507 models. **Prosilica GT**, Prosilica GT Large Lormat • Removed CS-Mount option for GT1930 model. • Corrected EF-Mount as standard version for GT1930L model. **Stingray**: • Deleted Stingray Compact option (discontinued). • Deleted Stingray GOF (glass optical fiber) option (discontinued). **F-Mount adapter** set: added information on camera pages and in F-Mount adapter on page 24. **Sensor options**:. Updated product codes, deleted discontinued products. See chapter Sensor cover glass and quality options on page 22.
V9.2.0	2016-Jun-28	**M12-Mount adapter** set: updated information on camera pages and in M12-Mount adapter set on page 18. **Sensor options** • Reworked information on sensor surface options on page 22. • Reworked tables with Defective pixel definitions on page 24 and following pages. **Editorial updates**: • Added chapter Document history and conventions. • Corrected typographical errors, inconsistencies, and terminology.
V9.1.2	2016-Mar-18	Up to this version no document history has been kept.

Table 1: Document history (Sheet 2 of 2)

Conventions used in this manual

All camera models are named in accordance with the Allied Vision naming convention with interface, resolution and color. If color is omitted, then all color versions are applicable. If color and resolution is omitted, then all models of the named interface(s) are applicable.

Styles

To give this manual an easily understood layout and to emphasize important information, the following typographical styles and symbols are used.

Style	Function
Emphasis	Some important parts or items of the text are emphasized to make them more visible.
Weblinks and references	References to other documents or web pages, like weblinks, hypertext links, e-mails, but also cross references, that include a link the user can follow by clicking.

Table 2: Styles

Symbols and notes

Practical hint

This symbol highlights a practical hint that helps to better understand the camera's features and functions,
and to make better use of it.

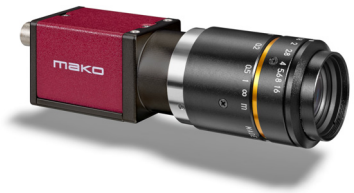
Further information available online

This symbol highlights URLs for further information.

Example: https://www.alliedvision.com.

Camera options

Mako G



All Mako G models (GigE Vision version of Mako)

Module	Standard	Options	Product code	
Lens mount	C-Mount	• CS-Mount For M12-Mount option, see M12-Mount adapter set on page 18.	• Mako G-... CS-Mount	
Optical filter	Monochrome and NIR models: No filter	• Protection glass B 270 (ASG) • IRC Hoya C-5000 (IR cut filter) • IRC type Jenofilt 217 (IR cut filter) • IRP RG715 (IR pass filter) • IRP RG830 (IR pass filter) See Spectral transmission of filters on page 20.	• Mako G-... ASG • Mako G-... IRC Hoya • Mako G-... IRC Jenofilt • Mako G-... IRP RG715 • Mako G-... IRP RG830	
	Color models: IR cut filter Hoya C-5000	• Protection glass B 270 (ASG) • IRC type Jenofilt 217 (IR cut filter) • IRP RG715 (IR pass filter) • IRP RG830 (IR pass filter) See Spectral transmission of filters on page 20.	• Mako G-... ASG • Mako G-... IRC Jenofilt • Mako G-... IRP RG715 • Mako G-... IRP RG830	
Housing design	Allied Vision standard design	• White medical design See Housing color and style on page 19.	• Mako G-... medical	

Table 3: Mako G camera options

Mako U

All Mako U models (USB3 Vision version of Mako).

Module	Standard	Options	Product code	
Lens mount	C-Mount	• CS-Mount For M12-Mount option, see M12-Mount adapter set on page 18.	• Mako U-... CS-Mount	
Optical filter	No filter	• Protection glass B 270 (ASG) • IRC Hoya C-5000 (IR cut filter) • IRC type Jenofilt 217 (IR cut filter) • IRP RG715 (IR pass filter) • IRP RG830 (IR pass filter) See Spectral transmission of filters on page 20.	• Mako U-... ASG • Mako U-... IRC Hoya • Mako U-... IRC Jenofilt • Mako U-... IRP RG715 • Mako U-... IRP RG830	
Housing design	Allied Vision standard design	• White medical design See Housing color and style on page 19.	• Mako U-... medical	

Table 4: Mako U camera options

Overview: Manta types A and B

Manta **type A**: G-031, G-032, G-033, G-046, G-125, G-145, G-146, G-201, G-504

Manta **type B**: G-040, G-158, G-223, G-235, G-282, G-283, G-319, G-419, G-505, G-507, G-895, G-917, G-1236

Manta camera model	G-031B/C	G-032B/C	G-033B/C	G-040B/C	G-046B/C	G-125B/C	G-145B/C[1]	G-146B/C	G-158B/C	G-201B/C[2]	G-223B/C[3]	G-235B/C
Type A	✓	✓	✓		✓	✓	✓	✓		✓	-	-
Type B	-	-	-	✓	-	-	-	-	✓	-	✓	✓
Angled head	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Board level	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	[1] Including Manta G-145B/C, Manta G-145B/C 30 fps, Manta G-145B NIR [2] Including Manta G-201B/C, Manta G-201B/C 30 fps [3] Including Manta G-223B/C, Manta G-223B NIR											

Table 5: Overview angled head, board level options for Manta type A and type B, part 1

Manta camera model	G-282B/C	G-283B/C	G-319B/C	G-419B/C[4]	G-504B/C	G-505B/C	G-507B/C	G-895B/C	G-917B/C	G-1236B/C
Type A	-	-	-	-	✓	-	-	-	-	-
Type B	✓	✓	✓	✓	-	✓	✓	✓	✓	✓
Angled head	-	-	✓	✓	✓	-	✓	✓	-	✓
Board level	-	-	✓	✓	✓	-	✓	✓	-	✓
	[4] including Manta G-419B/C, Manta G-419B NIR									

Table 6: Overview angled head, board level options for Manta type A and type B, part 2

Manta

Manta **type A**: G-031, G-032, G-033, G-046, G-125, G-145, G-146, G-201, G-504

Manta **type B**: G-040, G-158, G-223, G-235, G-282, G-283, G-319, G-419, G-505, G-507, G-895, G-917, G-1236

Module	Standard	Options	Product code
Lens mount	C-Mount	• CS-Mount For M12-Mount option, see M12-Mount adapter set on page 18.	• Manta G-... CS-Mount
Angled head	Standard housing	• W90 housing • W90 S90 housing • W270 housing • W270 S90 housing See Housing options: angled head and standard housing on page 19 for possible options.	• Manta G-... W90 • Manta G-... W90 S90 • Manta G-... W270 • Manta G-... W270 S90
Optical filter	Monochrome models: Protection glass B 270 (ASG) Color models: IRC Hoya C-5000	• Protection glass B 270 (ASG) • IRC type Jenofilt 217 (IR cut filter) • IRC Hoya C-5000 (IR cut filter) • IRP RG715 (IR pass filter) • IRP RG830 (IR pass filter) See Spectral transmission of filters on page 20.	• Manta G-... ASG • Manta G-... IRC Jenofilt • Manta G-... IRC Hoya • Manta G-... IRP RG715 • Manta G-... IRP RG830
	NIR models: No filter	See options above.	
Housing design	Allied Vision standard design	• White medical design See Housing color and style on page 19.	• Manta G-... medical
Sensor surface option	Fixed Cover Glass with microlens	Only for Manta G-145B model. Before operation, remove the cover glass taped to the sensor. For instructions, see page 22. • Removed Cover Glass with microlens	• Manta G-... RCG[1]
Board level		See Ordering a Manta board level camera on page 28.	• Manta G-... BL
		[1]Minimum order quantity of 10 pieces	

Table 7: Manta camera options

Prosilica GT

All Prosilica GT models, except Large Format models. See next page for options on Large Format models.

Module	Standard	Options	Product code	
Lens mount for GT cameras	C-Mount (GT3300: F-Mount)	• CS-Mount (excluding GT1930, GT2460) • C-Mount (GT3300 only) • F-Mount • EF-Mount, Birger[1] • M42-Mount (45.46 mm flange focal distance)	• Prosilica GT....-01 • Prosilica GT....-07 • Prosilica GT....-03 • Prosilica GT....-09 • Prosilica GT....-31	
Optical filter	Monochrome and NIR models: No filter Color models: IRC30	• IRC30 (IR cut filter) • Protection glass B 270 (ASG)	• Prosilica GT....-06 • Prosilica GT....-19	
Sensor surface option	Fixed Cover Glass with microlens	Selected models only, see page 23 for availability. Before operation, remove the cover glass taped to the sensor. For instructions, see page 22. • Taped Cover Glass with microlens • Taped Cover Glass without microlens	 • Prosilica GT....-02 • Prosilica GT....-04	
		[1]Power supply included (does not work with PoE), see accessories price list.		

Table 8: Prosilica GT camera options

Prosilica GT large format

Prosilica GT1930L, GT4090[1], GT4096[1], GT4905, GT4907, GT5120[1], GT6600

[1] GT4090, GT4096, GT5120 currently are only available as monochrome and NIR models.

Module	Standard	Options	Product code	
Lens mount for GT Large Format cameras	F-Mount GT1930L: EF-Mount PA[2]	• F-Mount PA[2] (46.5 mm flange focal distance) • M58-Mount (12.71 mm flange focal distance) • M58-Mount PA[2] (46.5 mm flange focal distance) • EF-Mount PA[2] (44.0 mm flange focal distance) • M42-Mount PA[2] (45.46 mm flange focal distance) • M42-Mount (45.46 mm flange focal distance)	• Prosilica GT....-03 • Prosilica GT....-12 • Prosilica GT....-13 • Prosilica GT....-18 • Prosilica GT....-25 • Prosilica GT....-31	
Optical filter	Monochrome models: No filter Color models: IRC30	• IRC30 (IR cut filter) • Protection glass B 270 (ASG)	• Prosilica GT....-06 • Prosilica GT....-19	
Sensor surface options		Selected models only, see page 23 for details and availability. Before operation, remove the cover glass taped to the sensor. For instructions, see page 22. • Taped Cover Glass with microlens • Taped Cover Glass without microlens	 • Prosilica GT....-02 • Prosilica GT....-04	
Sensor quality	Class 2	For defective pixel definitions, see: Prosilica GT4905 (ON Semiconductor KAI-16050 sensor) on page 25 Prosilica GT4907 (ON Semiconductor KAI-16070 sensor) on page 26 Prosilica GT6600 (ON Semiconductor KAI-29050 sensors) on page 24	• Prosilica GT....-C1	
	[2]Planarity Adjustable			

Table 9: Prosilica GT Large Format camera options

Prosilica GC

All Prosilica GC models.

Module	Standard	Options	Product code	
Lens mount	C-Mount	• CS-Mount	• Prosilica GC....-01	
Optical filter	Monochrome models: No filter Color models: IRC30	• IRC30 (IR cut filter) • Protection glass B 270 (ASG)	• Prosilica GC....-06 • Prosilica GC....-19	

Table 10: Prosilica GC camera options

Guppy PRO

All Guppy PRO models.

Module	Standard	Options	Product code	
Lens mount	C-Mount	• CS-Mount For M12-Mount option, see M12-Mount adapter set on page 18.	• Guppy PRO F-... CS-Mount	
Optical filter	Monochrome models: Protection glass B 270 (ASG) Color models: IRC Hoya C-5000	• Protection glass B 270 (ASG) • IRC type Jenofilt 217 (IR cut filter) • IRC Hoya C-5000 (IR cut filter) • IRP RG715 (IR pass filter) • IRP RG830 (IR pass filter) See Spectral transmission of filters on page 20.	• Guppy PRO F-... ASG • Guppy PRO F-... IRC Jenofilt • Guppy PRO F-... IRC Hoya • Guppy PRO F-... IRP RG715 • Guppy PRO F-... IRP RG830	
Housing design	Allied Vision standard design	• White medical design See Housing color and style on page 19.	• Guppy PRO F-... medical	
Hirose power	Input	• Output	• Guppy PRO F-... PWR out	

Table 11: Guppy PRO camera options

Stingray

All Stingray models.

Module	Standard	Options	Product code	
Lens mount	C-Mount	• CS-Mount For M12-Mount option, see M12-Mount adapter set on page 18.	• Stingray F-... CS-Mount	
Angled head	Standard housing	• W90 housing • W90 S90 housing • W270 housing • W270 S90 housing See Housing options: angled head and standard housing on page 19.	• Stingray F-... W90 • Stingray F-... W90 S90 • Stingray F-... W270 • Stingray F-... W270 S90	
Optical filter	Monochrome models: Protection glass B 270 (ASG) Color models: IRC Hoya C-5000	• Protection glass B 270 (ASG) • IRC type Jenofilt 217 (IR cut filter) • IRC Hoya C-5000 (IR cut filter) • IRP RG715 (IR pass filter) • IRP RG830 (IR pass filter) See Spectral transmission of filters on page 20.	• Stingray F-... ASG • Stingray F-... IRC Jenofilt • Stingray F-... IRC Hoya • Stingray F-... IRP RG715 • Stingray F-... IRP RG830	
Housing design	Allied Vision standard design	• White medical design See Housing color and style on page 19.	• Stingray F-... medical	
Hirose power	Input	• Output	• Stingray F-... PWR out	
Board level		See Board level camera options on page 27.	• Stingray F-... BL	

Table 12: Stingray camera options

Goldeye

All Goldeye G and CL models, including G-032 Cool.

Module	Standard	Options	Product code	
Lens mount	C-Mount	• F-Mount • M42-Mount	• Goldeye G/CL-... SWIR... F-Mount • Goldeye G/CL-... SWIR... M42-Mount	
Optical filter	No filter	• IRBP 1450 (IR bandpass filter), water absorption peak See IRBP 1450 nm (IR bandpass filter) on page 21.	• Goldeye G/CL-... SWIR... IRBP 1450	
Housing design	Allied Vision standard design	• Silver design See Housing color and style on page 19.	• Goldeye G/CL-... SWIR... silver	

Table 13: Goldeye G/CL camera options

Further options

Please contact Allied Vision Sales for further options: https://www.alliedvision.com/en/contact.

M12-Mount adapter set

The M12-Mount adapter set (**product code: E3000115**) enables to use M12-Mount lenses with any CS-Mount camera.

M12-Mount and S-Mount

M12-Mount and S-Mount are the same.

To use M12-Mount lenses:

- Order a CS-Mount camera.
- Order the M12-Mount adapter set.
- Attach the lens with the M12-Mount adapter to the camera, as shown in the functional drawings below.

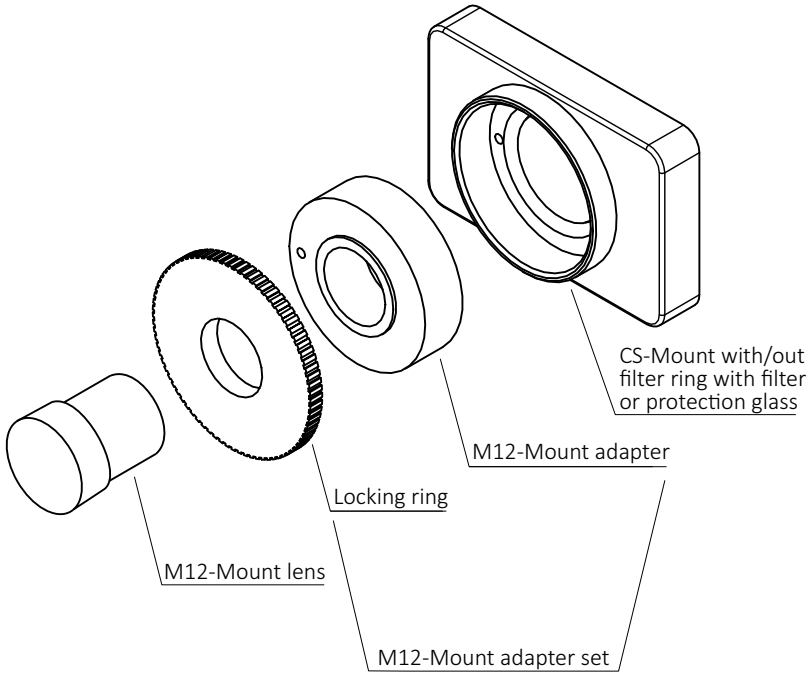


Figure 1: M12-Mount lens adapted to CS-Mount with the M12-Mount adapter set

Housing options: angled head and standard housing

The schematic drawings show the sensor position for the following camera families:

- Manta type A: (none)
- Manta type B: only G-223, G-235, G-319, G-419, G-507, G-895, G-1236
- Stingray

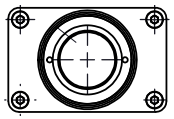
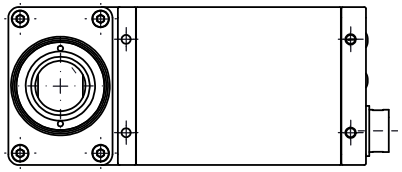
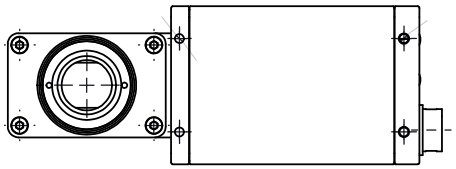
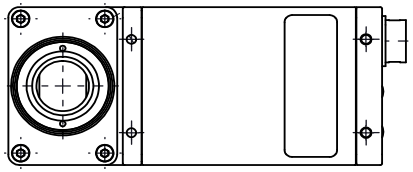
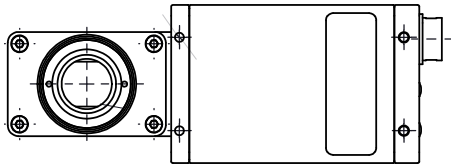
Standard housing	W90 housing	W90 S90 housing	W270 housing	W270 S90 housing
 Front view into sensor	 Top view into sensor	 Top view into sensor	 Bottom view into sensor	 Bottom view into sensor

Figure 2: Sensor position of standard housing and angled head options.

Housing color and style

The Allied Vision standard housing is Allied Vision red with white company logo. In addition, for some camera models, you can order the following color/style options.

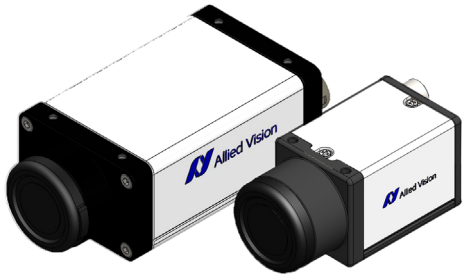
Blue logo for medical style	Medical style (white)	Silver style (used for Goldeye)
Allied Vision		

Figure 3: Housing color and style

Spectral transmission of filters

300 to 1000 nm

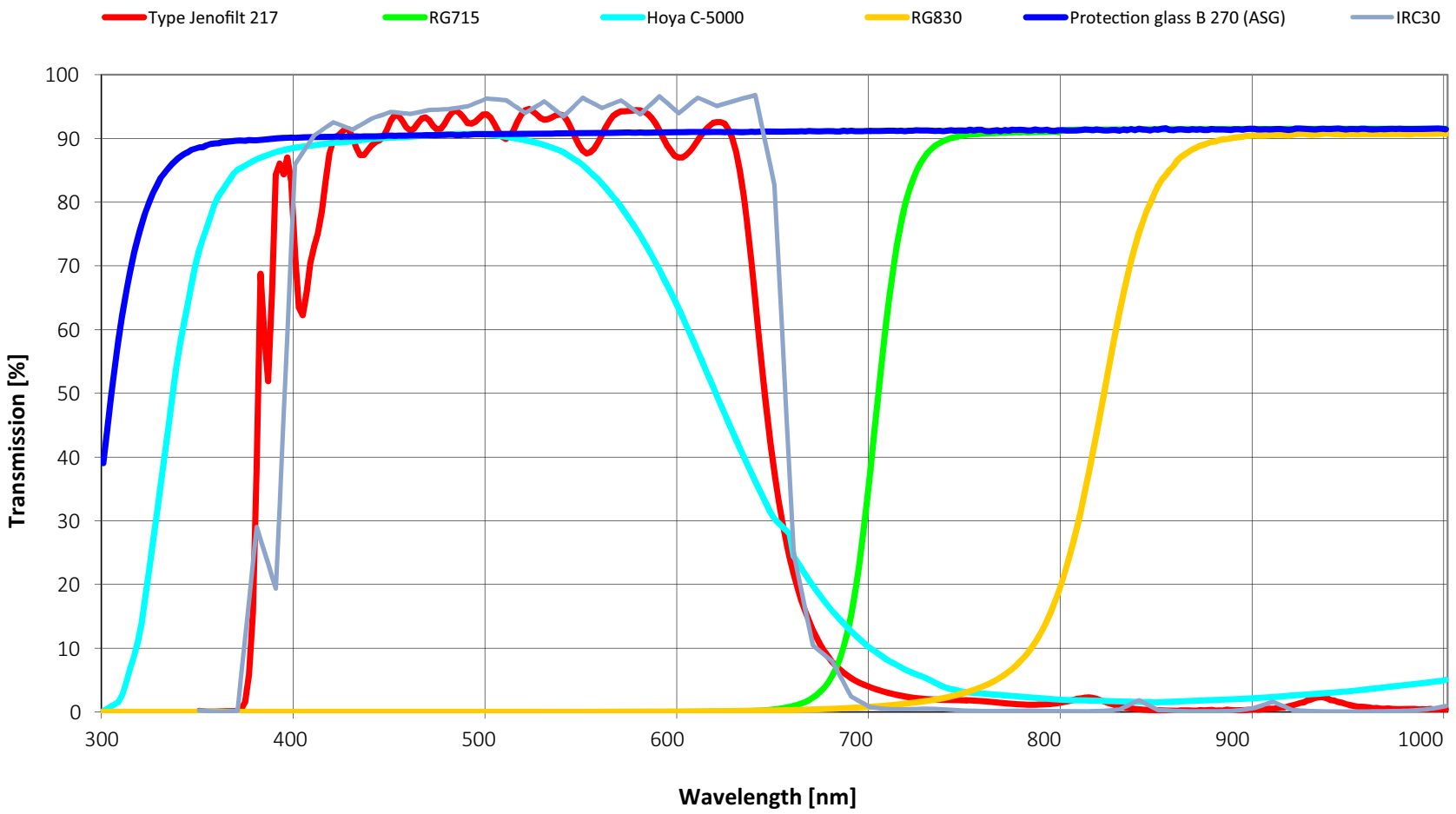


Figure 4: Spectral transmission of filters 300 to 1000 nm (exemplary curves)

IRBP 1450 nm (IR bandpass filter)

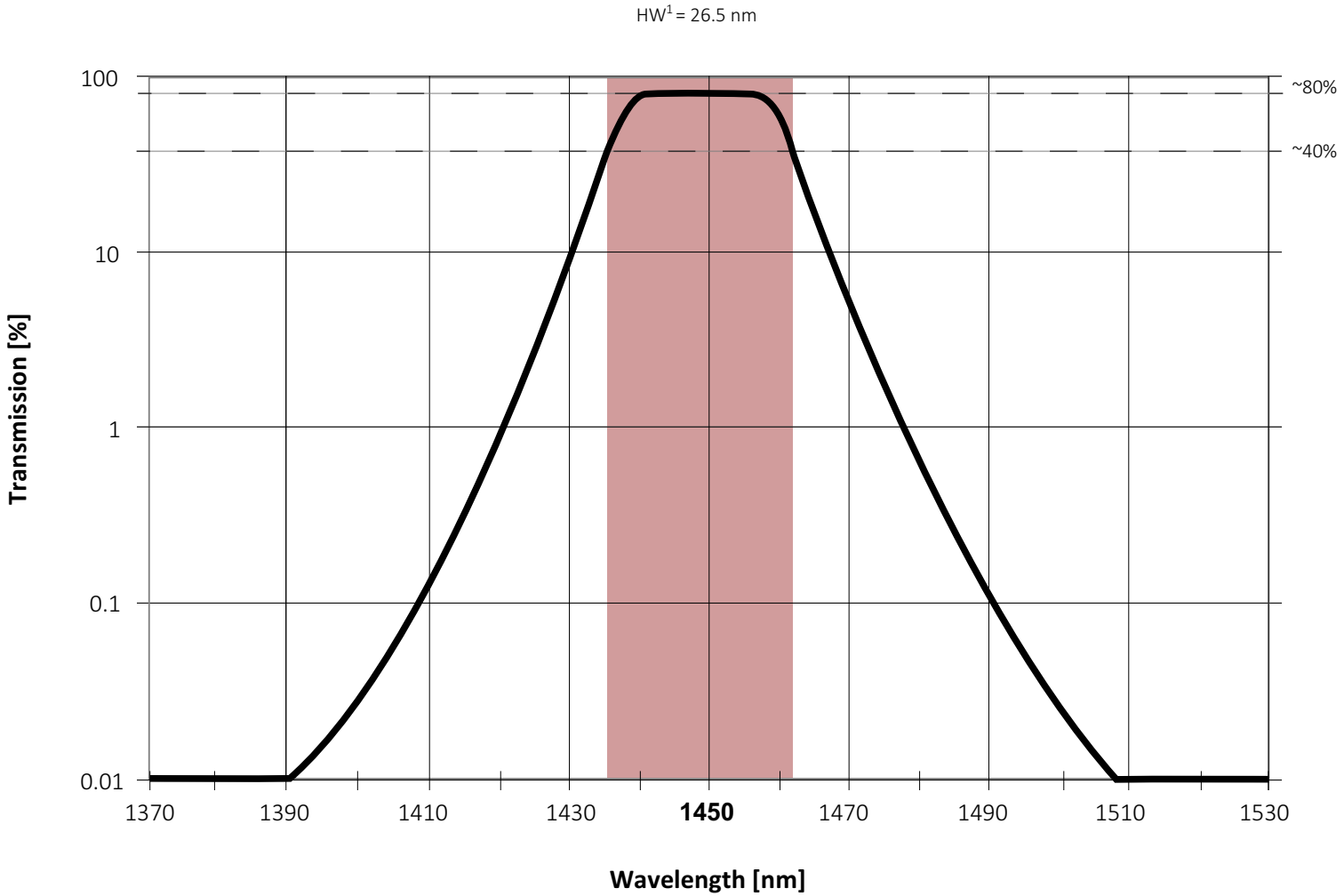


Figure 5: Spectral transmission of IRBP 1450 nm (IR bandpass filter, exemplary curve)

[1]HW: Half width, spectral range for 50% of the maximum spectral transmission; in this case 40% from 80%

Sensor cover glass and quality options

Removed or Taped Cover Glass: Manta, Prosilica GT

Sensors without cover glass are suitable for several applications, to:

- Increase overall quantum efficiency
- Increase quantum efficiency in UV imaging
- Attach fiber optic arrays directly to the sensor, for example in connection with an image intensifier
- Enable applications with laser beam profiling

Camera models and sensor surface options, Taped Cover Glass (TCG) and Removed Cover Glass (RCG):

Camera model	Cover glass type	Cover glass removed by
Prosilica GT (selected models only, see page 23 for availability)	Taped Cover Glass (TCG)	Customer
Manta G-145B RCG	Removed Cover Glass (RCG)	Allied Vision

Table 14: Cameras with Taped Cover Glass (TCG) and Removed Cover Glass (RCG) sensors

Handling of cameras with TCG and RCG sensor options

Handling of cameras with TCG and RCG sensor options

Before handling cameras with taped cover glass or removed cover glass, read the following application note:

https://www.alliedvision.com/fileadmin/content/documents/products/cameras/various/appnote/various/TCG-RCG_Sensor-Handling.pdf

Prosilica GT

Camera model	Sensor	Sensor type	Fixed Cover Glass with microlens		Taped Cover Glass with microlens		Taped Cover Glass without microlens	
			Product code of sensor surface options and classes					
			Class 2[1]	Class 1[1] (-C1)	Class 2[1] (-02)	Class 1[1] (-C1-02)	Class 2[1] (-04)	Class 1[1] (-C1-04)
GT1660	KAI-02050	Monochrome	Standard	n/a	ABA-JP-BA	n/a	AAA-JP-BA	n/a
GT1910	KAI-02150	Monochrome	Standard	n/a	ABA-JP-BA	n/a	AAA-JP-BA	n/a
GT2300	KAI-04050	Monochrome	Standard	n/a	ABA-JP-BA	n/a	AAA-JP-BA	n/a
GT4905	KAI-16050	Monochrome	Standard	AXA-JD-B1	n/a	n/a	n/a	n/a
GT4905C	KAI-16050	Color	Standard	FXA-JD-B1	n/a	n/a	n/a	n/a
GT4907	KAI-16070	Monochrome	Standard	AXA-JD-B1	n/a	n/a	n/a	AAA-JP-B1
GT4907C	KAI-16070	Color	Standard	FXA-JD-B1	n/a	n/a	n/a	n/a
GT6600	KAI-29050	Monochrome	Standard	AXA-JD-B1	AXA-JR-B2	AXA-JR-B1	n/a	n/a
GT6600C	KAI-29050	Color	Standard	FXA-JD-B1	n/a	n/a	n/a	n/a
			[1] Classes do not apply for CMOS sensors. In some data sheets **Grade** is used instead of **Class**.					

Table 15: Product codes of sensor surface options and classes: Prosilica GT cameras

Product code example: The product code for Prosilica GT1660 with sensor surface option Taped Cover Glass without microlens (Code = AAA-JP-BA) is: **02-2616A-04** .

Ordering conditions

Please contact Allied Vision Sales for lead time, minimum order quantities, and delivery times: https://www.alliedvision.com/en/contact.

Defective pixel definitions

Prosilica GT6600 (ON Semiconductor KAI-29050 sensors)

The following table lists the number of allowed pixel defects for a sensor.

Test conditions

The following table contains data for an operating temperature of **40 °C**. For measurements at 27 °C, see the manufacturer data sheet.

Description	Definition	Class 1[4]	Class 2[4] Monochrome	Class 2[4] Color	Notes
Major dark field defective bright pixel	PD_Tint = Mode A → Defect ≥ 565 mV	270	540	540	1, 3
Major bright field defective dark pixel	Defect 12%	270	540	540	1
Minor dark field defective bright pixel	PD_Tint = Mode A → Defect ≥ 282 mV	2,700	5,400	5,400	3
Cluster defect	A group of 2 to 19 contiguous major defective pixels, but no more than 4 adjacent defects horizontally	20	n/a	n/a	2
Cluster defect	A group of 2 to 38 contiguous major defective pixels, but no more than 5 adjacent defects horizontally	n/a	50	50	2
Column defect	A group of more than 10 contiguous major defective pixels along a single column	0	7	27	2
	[1] For the color sensor KAI-29050-FXA, a bright field defective pixel deviates by 12% with respect to pixels of the same color. [2] Column and cluster defects are separated by no less than two good pixels in any direction (excluding single pixel defects). [3] Meaning of Mode A: PD_Tint = Frame Time = 3252.2 msec, no electronic shutter used. [4] In the manufacturer data sheet, the term **Grade** is used instead of **Class**.				

Table 16: Defective pixel definitions: Prosilica GT 6600 (ON Semiconductor KAI-29050 sensors)

Manufacturer data sheet

The data in the table above originates from the manufacturer's data sheet and is reproduced here in a reorganized way. To check data or to obtain more detailed information, see http://www.onsemi.com/PowerSolutions/product.do?id=KAI-29050.

Prosilica GT4905 (ON Semiconductor KAI-16050 sensor)

The following table lists the number of allowed pixel defects for a sensor.

Test conditions

The following table contains data for an operating temperature of **40 °C**. For measurements at 27 °C, see the manufacturer data sheet.

Description	Definition	Class 1[3]	Class 2[3]	Class 2[3]	Notes
			Monochrome	Color	
Major dark field defective bright pixel	PD_Tint = Mode A → Defect ≥ 328 mV	150	300	300	1
Major bright field defective dark pixel	Defect ≥ 12%	150	300	300	1
Minor dark field defective bright pixel	PD_Tint = Mode A → Defect ≥ 164 mV	1,500	3,000	3,000	
Cluster defect	A group of 2 to 19 contiguous major defective pixels, but no more than 3 adjacent defects horizontally	20	n/a	n/a	2
Cluster defect	A group of 2 to 38 contiguous major defective pixels, but no more than 5 adjacent defects horizontally	n/a	30	30	
Column defect	A group of more than 10 contiguous major defective pixels along a single column	0	4	15	2
	[1] For the color sensor KAI-16050-FXA, a bright field defective pixel deviates by 12% with respect to pixels of the same color. [2] Column and cluster defects are separated by no less than two good pixels in any direction (excluding single pixel defects). [3] In the manufacturer data sheet,the term **Grade** is used instead of **Class**.				

Table 17: Defective pixel definitions: Prosilica GT4905 (ON Semiconductor KAI-16050 sensors)

Manufacturer data sheet

The data in the table above originates from the manufacturer's data sheet and is reproduced here in a reorganized way. To check data or to obtain more detailed information, see http://www.onsemi.com/PowerSolutions/product.do?id=KAI-16050.

Prosilica GT4907 (ON Semiconductor KAI-16070 sensor)

The following table lists the number of allowed pixel defects for a sensor.

Test conditions

The following table contains data for an operating temperature of **40 °C**. For measurements at 27 °C, see the manufacturer data sheet.

Description	Definition	Class 1[3]	Class 2[3]	Class 2[3]	Notes
			Monochrome	Color	
Major dark field defective bright pixel	PD_Tint = Frame Time → Defect ≥ 325 mV	150	300	300	1
Major bright field defective dark pixel	Defect ≥ 15%	150	300	300	1
Minor dark field defective bright pixel	PD_Tint = Frame Time → Defect ≥ 163 mV	1,500	3,000	3,000	
Cluster defect	A group of 2 to 19 contiguous major defective pixels, but no more than 4 adjacent defects horizontally	30	30	30	2
Column defect	A group of more than 10 contiguous major defective pixels along a single column	0	4	15	2
	[1] For the color sensor KAI-16070-FXA, a bright field defective pixel deviates by 12% with respect to pixels of the same color. [2] Column and cluster defects are separated by no less than 2 good pixels in any direction (excluding single pixel defects). [3] In the manufacturer data sheet, the term **Grade** is used instead of **Class**.				

Table 18: Defective pixel definitions: Prosilica GT4907 (ON Semiconductor KAI-16070 sensors)

Manufacturer data sheet

The data in the table above originates from the manufacturer's data sheet and is reproduced here in a reorganized way. To check data or to obtain more detailed information, see http://www.onsemi.com/PowerSolutions/product.do?id=KAI-16070.

Board level camera options

Benefits of Manta or Stingray board level cameras

- The Modular Concept provides several options for board level cameras, for example, different lengths for the flex cables. The following pages describe how to order a Manta or Stingray board level camera.
- The Modular Concept is beneficial because all listed options:
  - Avoid customizing effort in the field
  - Are ready to order
  - Lead to quick delivery times
  - Are priced transparently.

Ordering conditions

Please contact the Allied Vision Sales team for availability, minimum order quantities, and lead time: https://www.alliedvision.com/en/contact.

Ordering a board level camera step by step

Follow the instructions and order your board level camera by components:

1. Interface type
2. Flex cable length
3. Lens mounting type (optional)
4. Interface cable and I/O cable (optional)

CE, FCC, ICES and board level cameras

Board level models are designed for integration and are delivered without housing on customer's request. Because housing design is critical to the electromagnetic compatibility (EMC) of a camera, no CE, FCC, or ICES certification tests regarding electromagnetic interference have been performed for board level models.
Users who design board level models into their systems should perform appropriate testing regarding EMC after the product design is completed.

Ordering a Manta board level camera

(for G-031, G-032, G-033, G-040, G-046, G-125, G-145, G-146, G-158, G-201, G-223, G-235, G-319, G-419, G-504, G-507, G-895, G-1236)

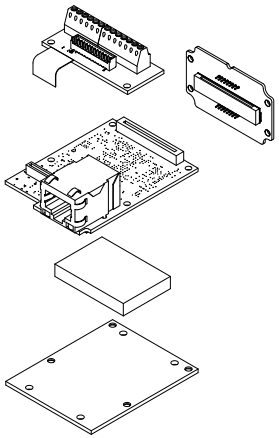
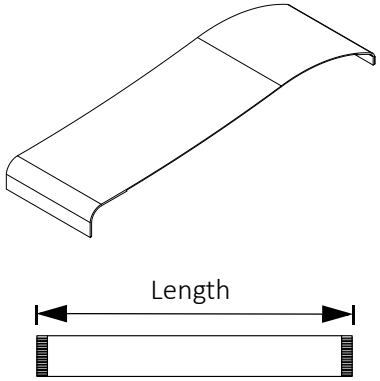
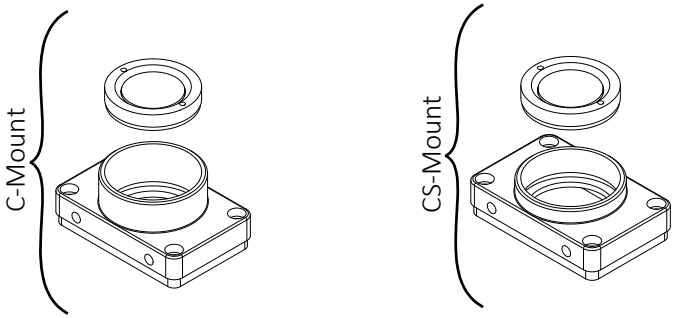
Step 1: Select the interface type	**Step 2: Select the flex cable length**	**Step 3: Select the lens mount and filter**	
Basic camera 	**Flex cable** 	**Lens mount:** 	
• Sensor board + main board(s) + I/O board + thermal conductive film + cooling plate	**Ordering flex cables** Flex cables are not sold separately!	Each mounting type is equipped with: • IRC Hoya C-5000 or • Protection glass B 270 (ASG)	**NIR models** NIR models are not equipped with filter or protection glass.
Interface type • Manta G-...._BL • Manta G-...._BL PoE (Power over Ethernet)	**Flex cable Manta type A** • Flex cable 56 mm FC56 • Flex cable 110 mm FC110 • Flex cable 152 mm FC152 • Flex cable 200 mm FC200	**Mount** • C-Mount • CS-Mount (M12 option available)	
	Flex cable Manta type B • Flex cable 60 mm FC60 • Flex cable 110 mm FC110 • Flex cable 150 mm FC150 • Flex cable 200 mm FC200	**Filter** • Protection glass B 270 (ASG) Manta G-... ASG • IRC type Jenofilt 217 (IR cut filter) Manta G-... IRC Jenofilt • IRC Hoya C-5000 (IR cut filter) Manta G-... IRC Hoya • IRP RG715 (IR pass filter) Manta G-... IRP RG715 • IRP RG830 (IR pass filter) Manta G-... IRP RG830 For filter details, see Spectral transmission of filters on page 20..	

Table 19: Ordering a Manta board level camera in (steps 1 to 3)

Ordering a Manta board level camera

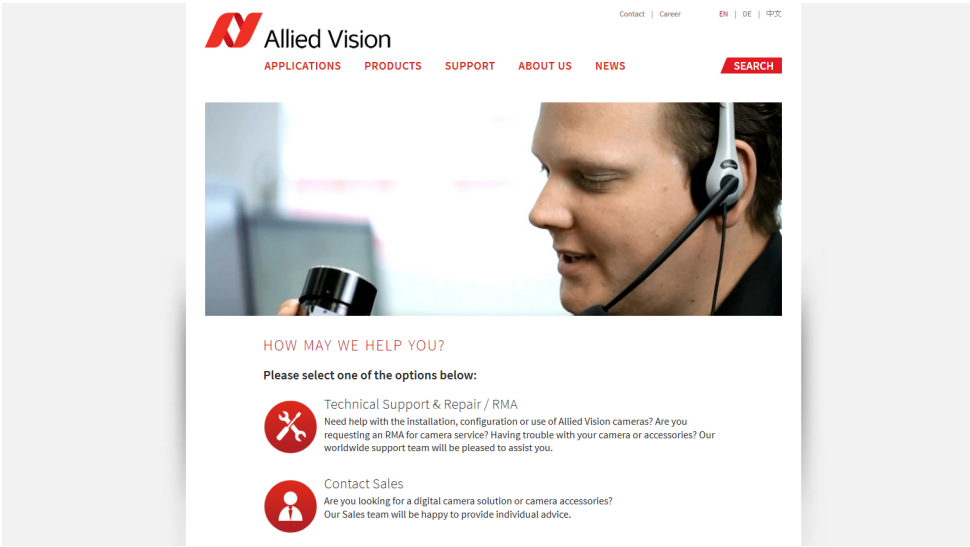
Step 4: Select the interface and I/O cable	Step 5: Contact Allied Vision Sales
Selected cables below are examples:  Interface cable  I/O cable **Interface cable** GigE interface cable, Cat6, drag chain suitability, RJ45 8-pin straight with screw locks to RJ45 8-pin straight latch, 3.0 m (product code 8259) **I/O cables** • Molex picoblade 12wire plusGND Board-to-cable connector, open ended, 3.0 m (product code K1200301) • Molex picoblade 12wire plus GND Board-to-cable connector, open ended, 5.0 m (product code K1200302)	
Please contact the Allied Vision Sales team for more cables and accessories: https://www.alliedvision.com/en/contact.	See contact information on page 2.

Table 20: Ordering a Manta board level camera (steps 4 to 5)

Ordering a Stingray board level camera

All Stingray models.

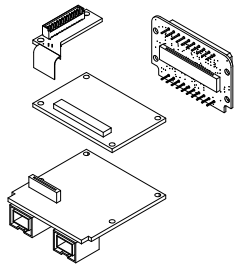
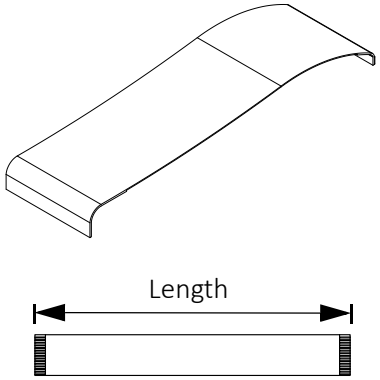
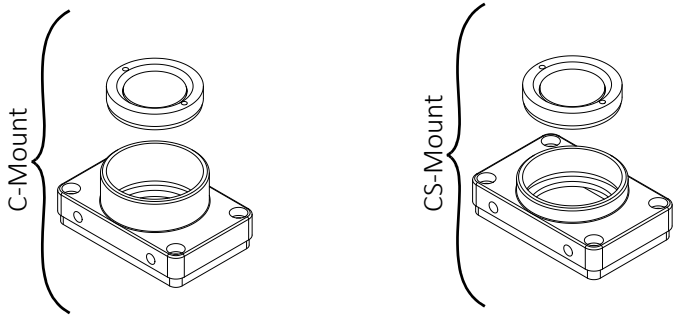
<table>
<tr><th>Step 1: Start with the basic camera</th><th>Step 2: Select the flex cable length</th><th colspan="2">Step 3: Select the lens mount and filter</th></tr>
<tr><td rowspan="2">Basic camera
 
• Sensor board + 2 main boards
+ 13-pin connector
(interface: 2 x IEEE 1394b copper)</td><td>Flex cable
 
</td><td colspan="2">Lens mount
 
</td></tr>
<tr><td>Ordering flex cables
Flex cables are not sold separately!</td><td colspan="2">Each mounting type is equipped with:
• IRC Hoya C-5000 or
• Protection glass B 270 (ASG)</td></tr>
<tr><td>Interface type
• Stingray F-...._BL</td><td>Flex cable
• Flex cable 56 mm FC56
• Flex cable 110 mm FC110</td><td colspan="2">Mount
• C-Mount
• CS-Mount</td></tr>
<tr><td></td><td></td><td colspan="2">Filter
• Protection glass B 270 (ASG) Stingray F-... ASG
• IRC type Jenofilt 217 (IR cut filter) Stingray F-... IRC Jenofilt
• IRC Hoya C-5000 (IR cut filter) Stingray F-... IRC Hoya
• IRP RG715 (IR pass filter) Stingray F-... IRP RG715
• IRP RG830 (IR pass filter) Stingray F-... IRP RG830
For filter details, see Spectral transmission of filters on page 20..</td></tr>
</table>

Table 21: Ordering a Stingray board level camera (steps 1 to 3)

Ordering a Stingray board level camera

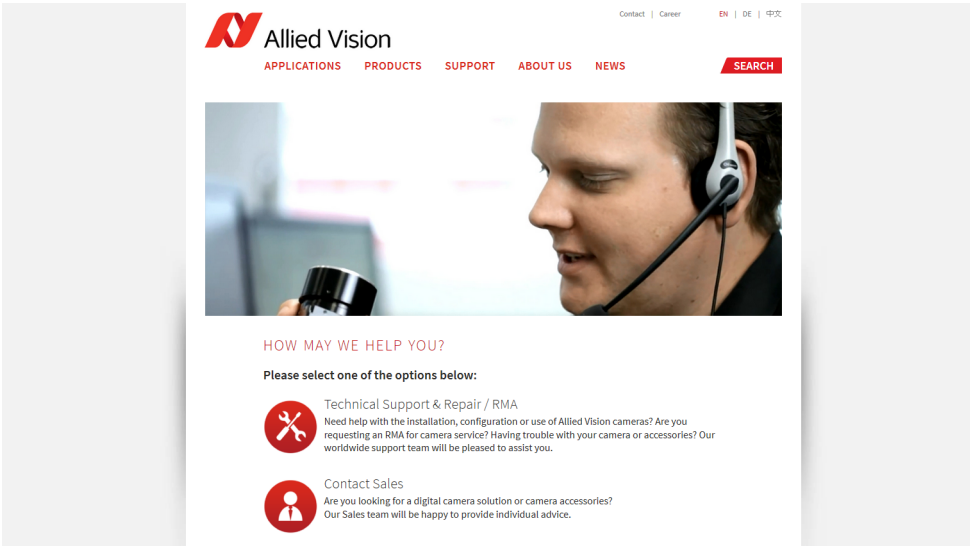
Step 4: Select the interface and I/O cable	Step 5: Contact Allied Vision Sales
Selected cables below are examples:  Interface cable  I/O cable **Interface cable** IEEE 1394b interface cable, industrial suitability, with screw locks, 9-pin to 9-pin, 5.0 m (product code K1200169) **I/O cable** • Molex picoblade 12wire plusGND Board-to-cable connector, open ended, 3.0 m (product code K1200301) • Molex picoblade 12wire plus GND Board-to-cable connector, open ended, 5.0 m (product code K1200302)	
Please contact the Allied Vision Sales team for more cables and accessories: https://www.alliedvision.com/en/contact.	See contact information on page 3.

Table 22: Ordering a Stingray board level camera (steps 4 to 5)