

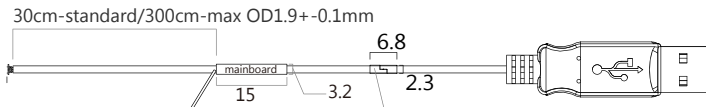
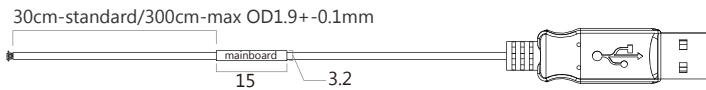
Series Information

	K Series	FX Series	X Series	FT Series	T Series	F Series	M Series
Feature	ultra slim camera head	low temperature and tiny size snapshot and freeze frame	low temperature and tiny size	ultra mini size snapshot and freeze frame	ultra mini size	miniature size snapshot and freeze frame	miniature size
Camera shape	round shape (front view)	T shape (front view), rectangle (side view / up view) round shape (front view)		T shape (front view), rectangle (side view / up view) round shape (front view)		T shape (front view)	
Interface	USB 2.0						
Frame rate	15~30 fps						
Video format	MJPEG / YUV						
Image sensor	1/9" Digital CMOS Camera Module						
Pixel size(μm)	1.4 x 1.4						
Max. frame rate	1280x720, 960x540, 848x480 640x480, 640x360 424x240, 320x240, 320x180, 160x120 @ 30fps MJPEG						
Image area	1.819 x 1.033 mm						
Scan mode	progressive						
Sensitivity	585 mV/(Lux-sec)						
Dynamic range	68.4dB @16x gain						
Storage temperature	-30 to 60 Degree C						
Working temperature	-10 to 45 Degree C						
Lens (specify which lens)	76° lens	1.32mm/F2.0/F3.5 (H= 69°; V= 42° ; D= 76°)					
	128° lens	1.00mm/F4.8 (H= 118°; V= 76°; D= 128°)					
	140° lens	F4.0 (D= 140°)					
Power source	DC 5V (USB)						
Power current	NO LED / 160mA with LED 6pcs / 190mA						
Operating system	Windows XP, windows Vista, window 7, windows 8, windows 10, Linux, MAC OSX						

K Series Information

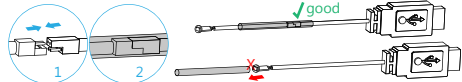
UNIT:±0.2mm

	No lens	76° lens	128° lens	140° lens
K _X -B20903 front view				



MIC. Specifically designed/ Customized for narrow pipeline, or other narrow spaces.

Using micro connector, camera can pass through narrow pipeline easily.



*cable length for mainboard to connector

Type	Cable length	Cable OD
1	10~150 (cm)	0.35 +0.1(mm) enameled wire
2	10~200 (cm)	0.9 +0.1(mm)
3	10~200 (cm)	1.7 +0.1(mm)
4	10~400 (cm)	2.8 +0.1(mm)
5	10~1000 (cm)	3.5 +0.1(mm)
6	10~1500 (cm)	5.0 +0.1(mm)

MINI
Miniature Size
Ultra Tiny Size Is Perfect For Articulation Borescope!
Short camera size perfect for medical endoscopes, borescopes or other small diameter inspection devices with 720p high resolution!

720p
Resolution
720p Excellent Image Quality !
Camera with 1280 x 720 HD resolution. Tiny size and high performance and outstanding quality

Low
Low Temperature
Low Temperature !
Low temperature(no LED) is perfect for medical equipment !

Dimmable
Dimmerable Function
1. With dimmer function, or 2. Without dimmer function (on/off). With dimmer function user can adjust camera brightness according to the environment.

Image Adjustable
Camera Parameter Adjustable
Camera parameter can be adjusted on the smartphone via the Misumi app and PC viewer software AMCAP.

UVC Signal
UVC Signal Output !
The connector is available at USB A type, Micro USB OTG B type, USB type C or customized for specify when ordering.

KD-B20903LH-76

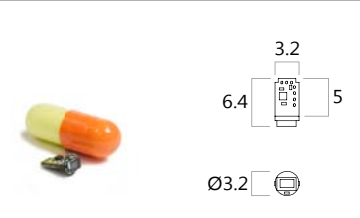



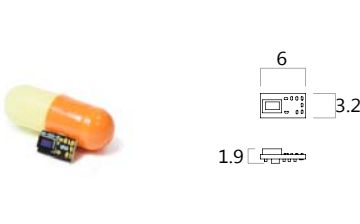
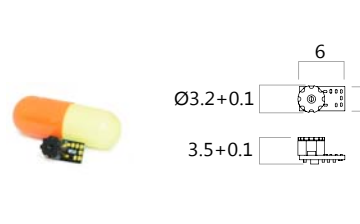

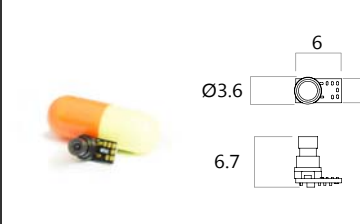
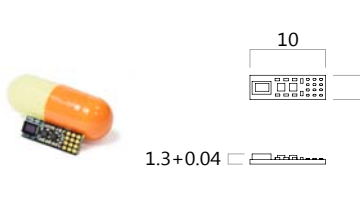
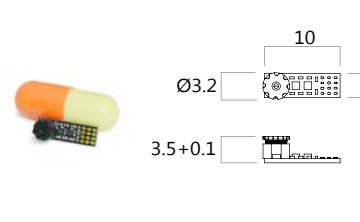
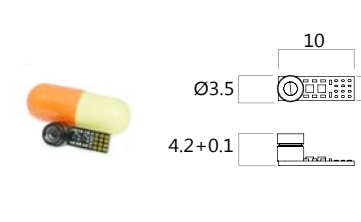
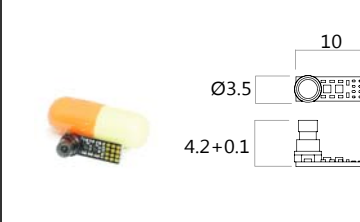


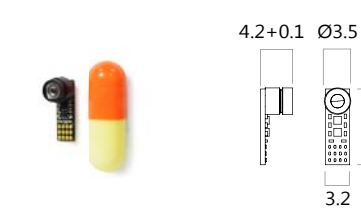
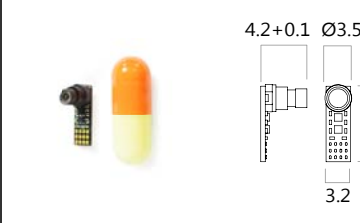
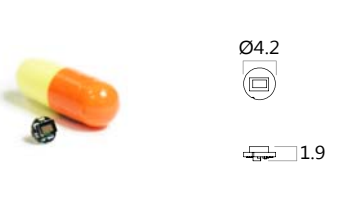



SERIES	CONNECTOR	CAMERA BODY	CAMERA TYPE	LED	LENS
K Ultra slim camera head	D USB 2.0 A type M Micro USB 2.0 OTG B type T USB 2.0 type C	Front view	20903 Color	LH High-intensity white LED L9 IR 940nm LED L8 IR 850nm LED	76 1.32mm/F2.0 (76°)
		B Board type	209M3 B/W		76 1.32mm/F3.5 (76°)
		VB Board type + dimmer	for Tube only		128 1.00mm/4.8 (128°)
		T Tube type	20904 Color		140 F4.0 (140°)
		V Tube type + dimmer	209M4 B/W		



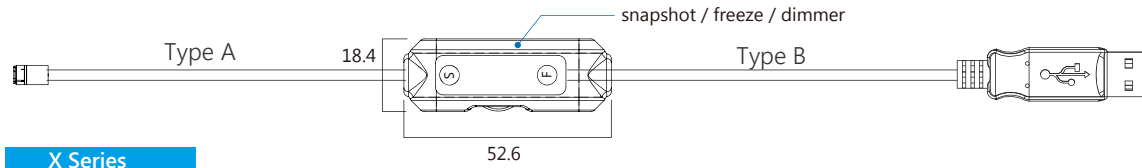
* IR 940nm or IR 850nm LED suggest to choose B/W camera type
* Camera with LED light source suggest to use larger number of F-stop

FX / X Series Information

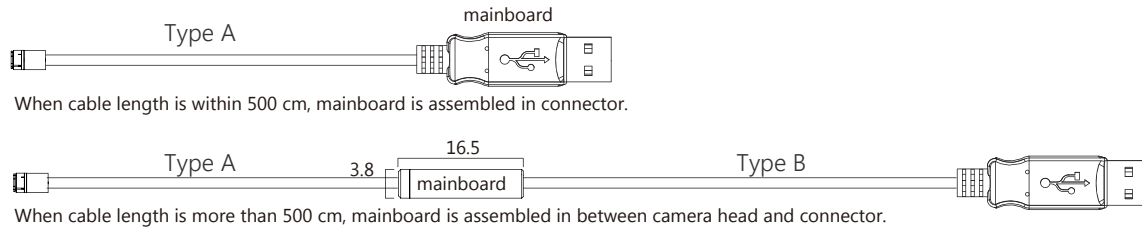
UNIT:±0.2mm

	No lens	76° lens	128° lens	140° lens
xx-B20903 front view	 3.2 6.4 5 Ø3.2	 3.2 8.5 5 Ø3.2	 3.2 9.2 5 Ø3.5	 3.2 11.7 5 Ø3.6
xx-BL20903 side view	 6 3.2 1.9	 6 Ø3.2+0.1 3.2 3.5+0.1	 6 Ø3.5+0.1 3.2 4.8	 6 Ø3.6 3.2 6.7
xx-BL20903S side view	 10 3.2 1.3+0.04	 10 Ø3.2 3.2+0.1 3.5+0.1	 10 Ø3.5 3.2+0.1 4.2+0.1	 10 Ø3.5 3.2+0.1 4.2+0.1
xx-B20903U up view	 1.3+0.04 10 3.2	 3.2+0.1 Ø3.5 10 3.2	 4.2+0.1 Ø3.5 10 3.2	 4.2+0.1 Ø3.5 10 3.2
xx-B20904R front view	 Ø4.2 1.9	 Ø4.2 4.4	 Ø4.2 4.8	 Ø4.2 7.3

FX Series



X Series



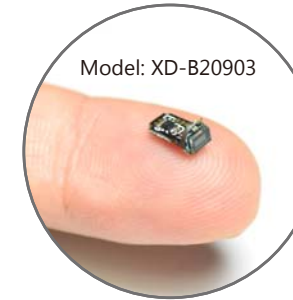
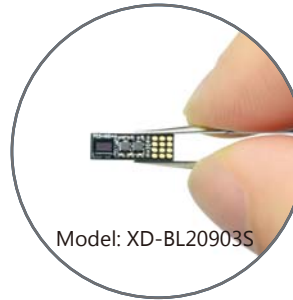
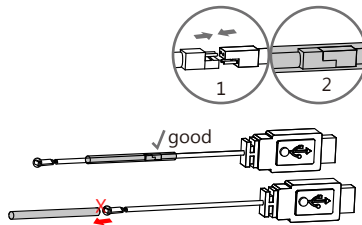
Camera Cable Information (Specify When Ordering)

Type A	Cable length	Cable OD
1	100~500 (cm)	1.9 ±0.1(mm)
2	100~500 (cm)	2.8 ±0.1(mm)

Type B	Cable length	Cable OD
1	10~150 (cm)	0.35 +0.1(mm) enameled wire
2	10~200 (cm)	0.9 +0.1(mm)
3	10~200 (cm)	1.7 +0.1(mm)
4	10~900 (cm)	2.8 +0.1(mm)
5	10~900 (cm)	3.6 +0.1(mm)
6	10~1400 (cm)	4.5 +0.1(mm)

Specifically Designed

Using micro connector, camera can pass through narrow pipeline easily.



FXD-B20903LH-76

SERIES	CONNECTOR	CAMERA BODY	CAMERA TYPE	LED	LENS
FX low temperature and tiny size snapshot and freeze frame	D USB 2.0 A type	B Board type	20903 Color	LH High-intensity white LED	76 1.32mm/F2.0 (76°)
	M Micro USB 2.0 OTG B type	VB Board type + dimmer	209M3 B/W	L9 IR 940nm LED	76 1.32mm/F3.5 (76°)
X low temperature and tiny size	T USB 2.0 type C	T Tube type	20904R Color	L8 IR 850nm LED	128 1.00mm/4.8 (128°)
		V Tube type + dimmer	209M4R B/W		140 F4.0 (140°)
		<u>Side view</u>	for up view only		
		BL Board type	20903U Color		
		VBL Board type + dimmer	209M3U B/W		
		TL Tube type	for Tube only		
		VL Tube type + dimmer	20904 Color		
			209M4 B/W		

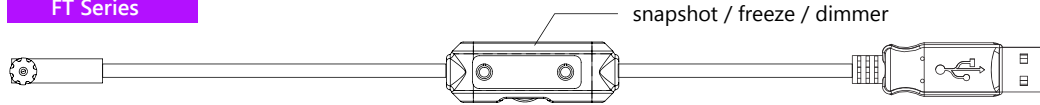
* IR 940nm or IR 850nm LED suggest to choose B/W camera type
* Camera with LED light source suggest to use larger number of F-stop

FT / T Series Information

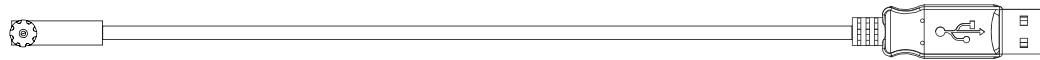
UNIT:±0.2mm

	No lens	76° lens	128° lens	140° lens
xx-B20903 front view				
xx-BL20903 side view				
xx-B20903U, up view				
xx-B20908R, front view				

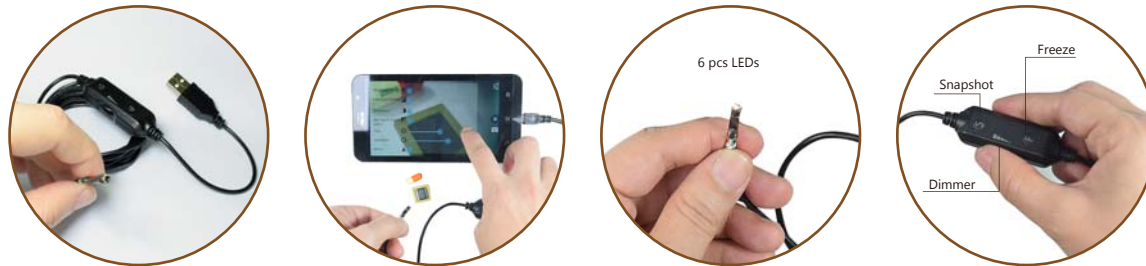
FT Series



T Series

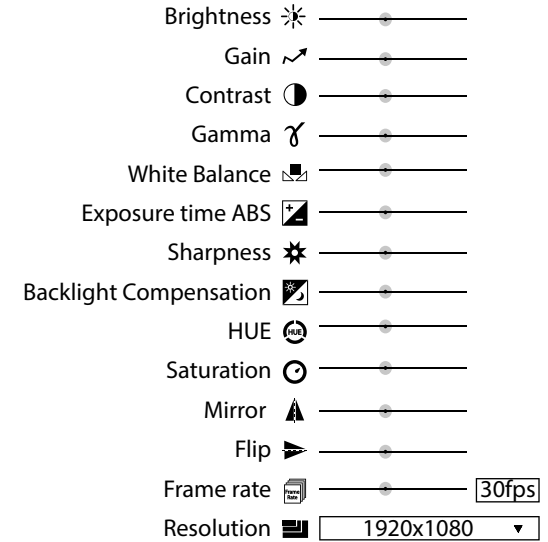


Item	Cable length	Cable OD
1	10~150 (cm)	0.35 +0.1(mm) enameled wire
2	10~200 (cm)	0.9 +0.1(mm)
3	10~200 (cm)	1.7 +0.1(mm)
4	10~900 (cm)	2.8 +0.1(mm)
5	10~900 (cm)	3.6 +0.1(mm)
6	10~1400 (cm)	4.5 +0.1(mm)



Camera Parameter Adjustable

Camera parameter can be adjusted on the smartphone via the Misumi app and PC viewer software AMCAP.



FTD-B20903LH-76

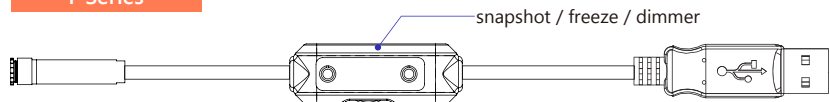
SERIES	CONNECTOR	CAMERA BODY	CAMERA TYPE	LED	LENS
FT Ultra mini size with snapshot and freeze frame	D USB 2.0 A type M Micro USB 2.0 OTG B type	B Board type VB Board type + dimmer T Tube type V Tube type + dimmer	20903 Color 209M3 B/W 20908R Color 209M8R B/W <i>for up view only</i> 20903U Color 209M3U B/W <i>for Tube only</i> 20904 Color 209M4 B/W	LH High-intensity white LED L9 IR 940nm LED L8 IR 850nm LED	76 1.32mm/F2.0 (76°) 76 1.32mm/F3.5 (76°) 128 1.00mm/4.8 (128°) 140 F4.0 (140°)
T Ultra mini size	T USB 2.0 type C	<i>Side view</i> BL Board type VBL Board type + dimmer TL Tube type VL Tube type + dimmer			

* IR 940nm or IR 850nm LED suggest to choose B/W camera type
* Camera with LED light source suggest to use larger number of F-stop

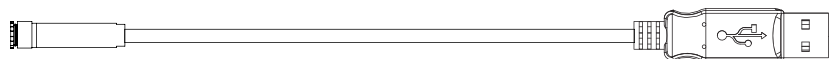
F / M Series Information

	No lens	76° lens	128° lens	140° lens
xx-B20904 front view				

F Series



M Series



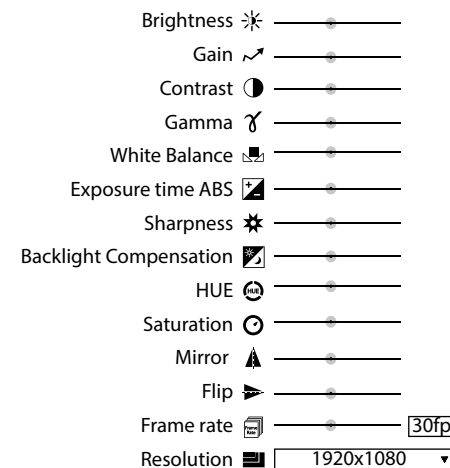
Item	Cable length	Cable OD
1	10~150 (cm)	0.35 +0.1(mm) enameled wire
2	10~200 (cm)	0.9 +0.1(mm)
3	10~200 (cm)	1.7 +0.1(mm)
4	10~900 (cm)	2.8 +0.1(mm)
5	10~900 (cm)	3.6 +0.1(mm)
6	10~1400 (cm)	4.5 +0.1(mm)

4 Types Connector



Camera Parameter Adjustable

Camera parameter can be adjusted on the smartphone via the Misumi app and PC viewer software AMCAP.



FD-B20904LH-76

SERIES	CONNECTOR	CAMERA BODY	CAMERA TYPE	LED	LENS
F miniature size snapshot and freeze frame	D USB 2.0 A type M Micro USB 2.0 OTG B type	B Board type VB Board type + dimmer T Tube type V Tube type + dimmer	20904 Color 209M4 B/W	LH High-intensity white LED L9 IR 940nm LED L8 IR 850nm LED	76 1.32mm/F2.0 (76°) 76 1.32mm/F3.5 (76°) 128 1.00mm/4.8 (128°) 140 F4.0 (140°)

* IR 940nm or IR 850nm LED suggest to choose B/W camera type
* Camera with LED light source suggest to use larger number of F-stop