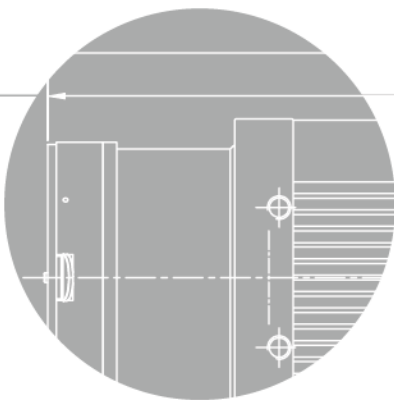


Application Note

Using the Canon EF Adapter with VX Series



VIEWWORKS
Imaging Expert

Revision History

Version	Date	Description
1.0	2015-01-09	Initial Release
1.1	2014-07-01	<ul style="list-style-type: none">• Changed an image illustrating type B cable connected to VX camera• Deleted contents about GenAPI
1.2	2015-03-06	<ul style="list-style-type: none">• Added two order code on page 7• Changed images and information note on page 12• Changed information note on page 14

Contents

1	Introduction.....	4
2	Canon EF Lens Adapter	5
3	Ordering information	7
4	How to install Canon EF Adapter on VX GigE camera.....	8
5	How to wire control cables	10
6	How to operate Canon EF Adapter using VIS 6.X SDK.....	15
Appendix	How to adjust Back focus	17

1 Introduction

VX Series cameras are made for aerial imaging and high-end surveillance applications which require the highest attention to detail. The VX Series cameras are compatible with a Canon EF Adapter from Birger Engineering, Inc. This document describes how to install a Canon EF Adapter on the VX GigE camera and how to operate the Canon EF adapter using Vieworks Imaging Solution 6.X.

- How to Install Canon EF Adapter on VX GigE Camera
- How to Configure Canon EF Adapter cables with VX GigE Camera
- How to operate Canon EF Adapter using VIS 6.X GigE SDK



This document assumes that you use a Canon EF Adapter from Birger Engineering, Inc.


2 Canon EF Lens Adapter

Canon EF Lens Adapter (or Canon EF Lens Mount) is the standard lens mount on the Canon EOS family of SLR film and digital cameras. EF stands for “Electro-Focus”: automatic focusing on EF lenses handled by a dedicated electric motor built into the lens. Mechanically, it is [bayonet-style mount](#), and all communication between camera and lens takes place through electrical contacts; there are no mechanical levers or plungers.

For more details, refer to the following link below.

http://en.wikipedia.org/wiki/Canon_EF_lens_mount

Canon EF Adapter from Birger Engineering, Inc

Order Reference	Description
RD-EF1-X-RS1	Canon EF Lens Adapter <ul style="list-style-type: none"> Electrical, RS232 cable 12 V 
RD-EF1-X-X	Canon EF Lens Adapter <ul style="list-style-type: none"> Typical configuration for OEM (Making your own cables or wiring harness is needed.)




VX GigE Camera with Canon EF Adapter and EF Lens



- Vieworks does NOT provide power supplies for Canon EF Adapter.
- For purchasing Canon EF Adapter, contact [Birger Engineering, Inc.](http://www.birger-engineering.com)

3 Ordering information

VX GigE camera is provided in six different types.

Order Code	Camera Model	Image
VAX200	VX-29MG-M2A0 F-mount <ul style="list-style-type: none"> F-mount Monochrome 	
VAX201	VX-29MG-C2A0 F-mount <ul style="list-style-type: none"> F-mount Color 	
VAX202	VX-29MG-M2A0 Interface for Canon EF adapter <ul style="list-style-type: none"> Interface for Canon EF Adapter Monochrome 	
VAX203	VX-29MG-C2A0 Interface for Canon EF adapter <ul style="list-style-type: none"> Interface for Canon EF Adapter Color 	
VAX215	VX-29MG-M2A0 Canon EF Adapter <ul style="list-style-type: none"> Includes Interface for Canon EF Adapter and Canon EF Adapter Monochrome 	
VAX205	VX-29MG-C2A0 Canon EF Adapter <ul style="list-style-type: none"> Includes Interface for Canon EF Adapter and Canon EF Adapter Color 	
Order Code	Cable Description	Cable Type
2232-3402-01A	Control Cable for VX-29MG and Canon EF Adapter <ul style="list-style-type: none"> 6P to 2 CON, 700 mm 	Type A
2220-3402-01A	Typical Control Cable for Vieworks Camera <ul style="list-style-type: none"> 6P to Wire, 2 M 	Type B

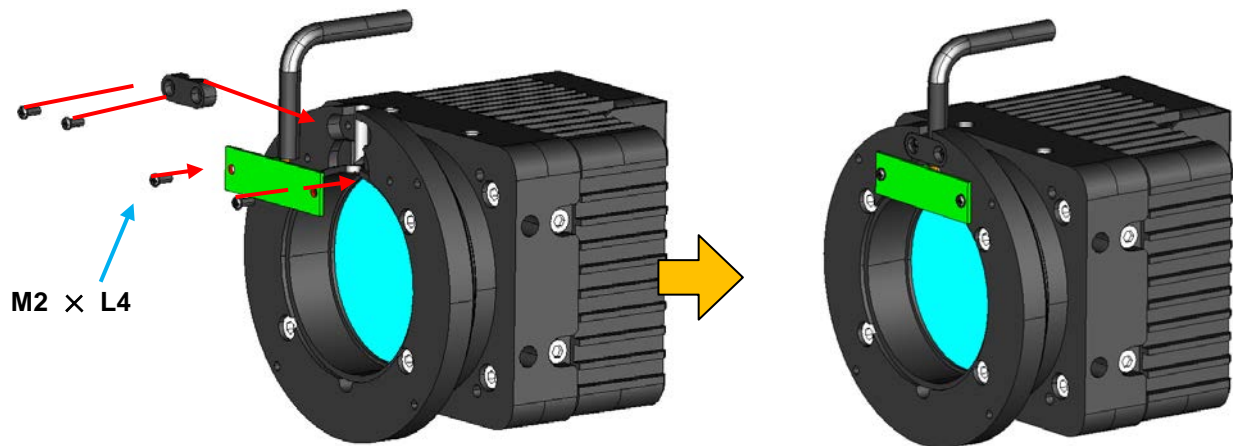
4 How to install Canon EF Adapter on VX GigE camera



- Make sure that you verify which mount option (F-mount or Interface for Canon EF Adapter) is suitable for your application when you make an order for VX GigE camera.
- Make sure to follow the procedures described below. Otherwise, it may result in damage to the camera.

Installing the PCB with attached cable

1. Place the PCB with attached cable (provided by Birger Engineering, Inc.) into the groove and then fix them by using the fixing plate (provided by vieworks). Using four M2×L4 screws (provided by vieworks), tighten them lightly finger-tight.

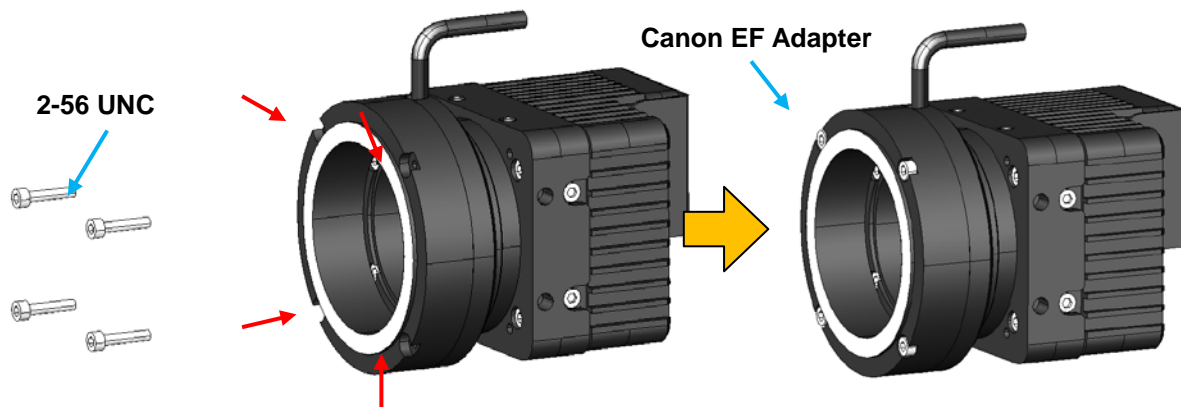


2. Installation of the PCB with attached cable is complete as follows.



Installing a Canon EF Adapter

1. Place the Canon EF Adapter on the VX GigE Camera equipped with an interface for Canon EF Adapter ensuring direction of electrical contacts. Using four 2-56 UNC screws (provided by Birger Engineering, Inc.), tighten them lightly finger-tight.

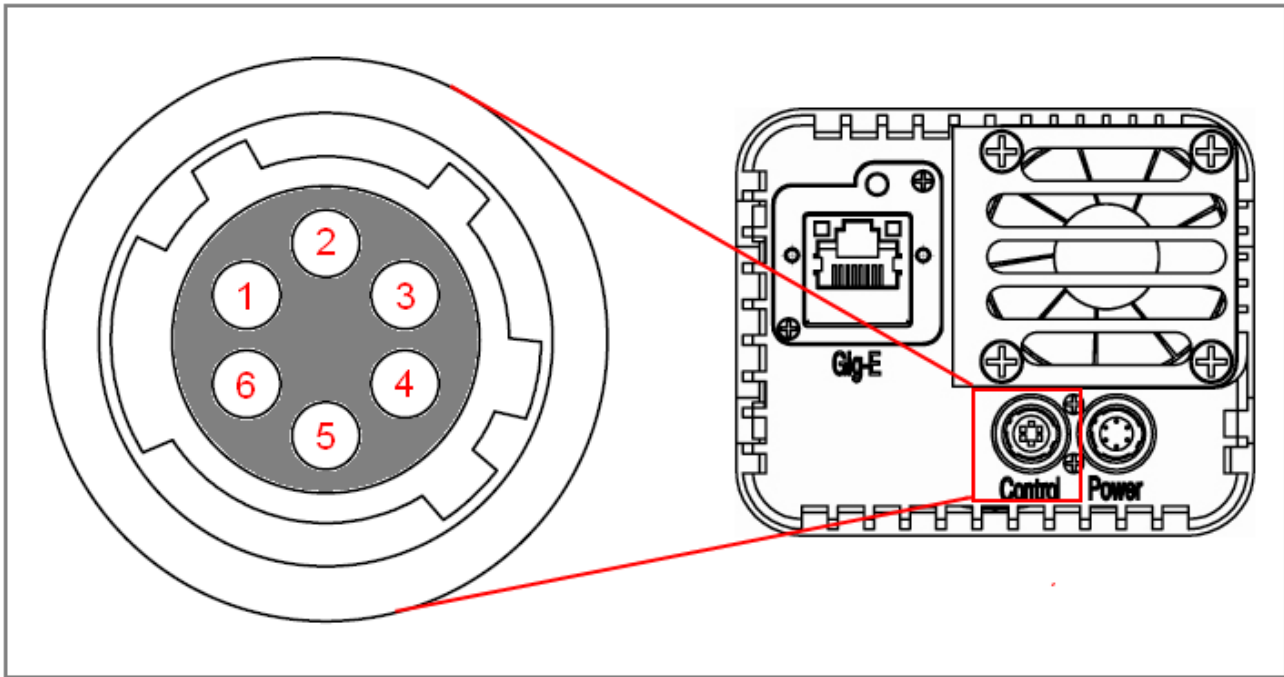


2. Now, the installation of Canon EF Adapter is complete as follows.



5 How to wire control cables

VX GigE Camera provides a 6 pins control receptacle as illustrated below.

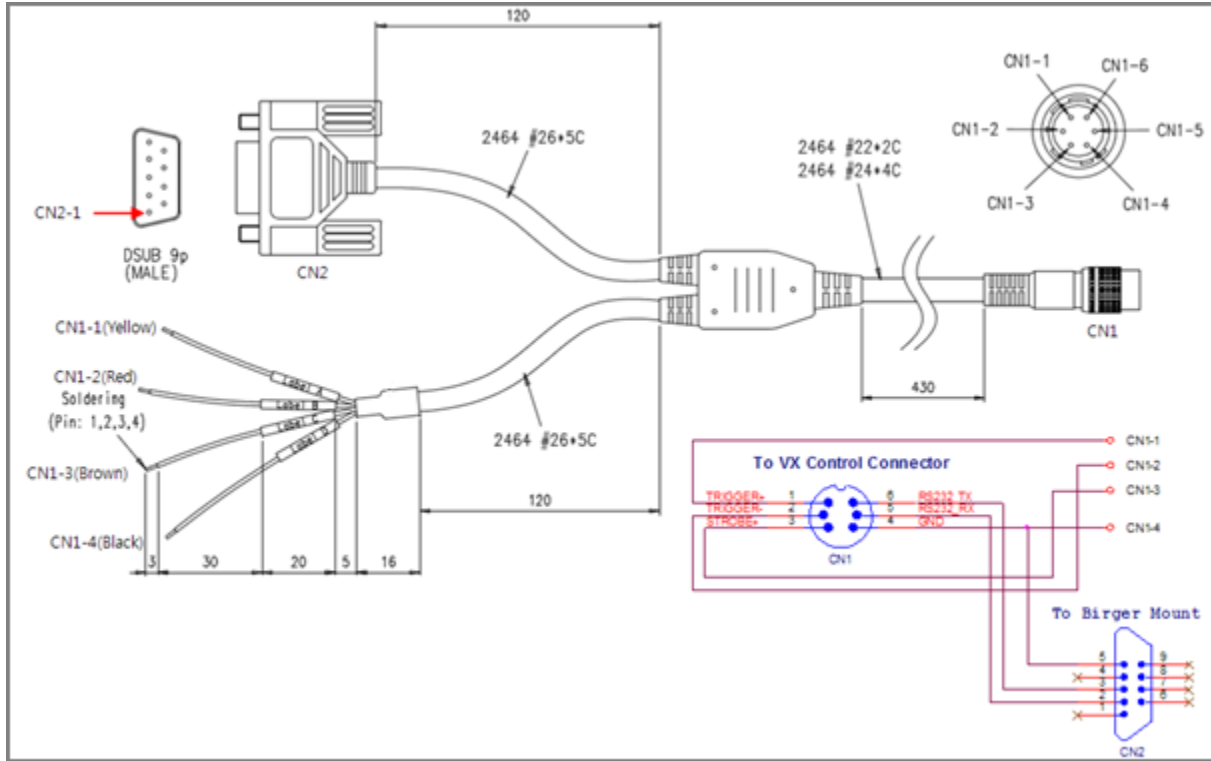


Pin Number	Signal	Type	Description
1	Trigger Input +	Input	-
2	Trigger Input -	Input	-
3	Strobe Out	Output	3.3 V TTL Output Output resistance : 47 Ω
4	DC Ground	-	DC Ground
5	RS-232 RX	Input	Canon EF Adapter (Birger) interface
6	RS-232 TX	Output	Canon EF Adapter (Birger) interface

You can wire between VX control receptacle and Canon EF Adapter in two different ways as follows.

- Using a Type A cable equipped with D-Sub connector
 - [Compatible with RD-EF1-X-RS1](#)
- Using Type B cable without D-Sub connector
 - [Compatible with RD-EF1-X-X](#)

Type A cable with D-Sub connector



Connect a D-Sub connector illustrated in the left top to the Canon EF Adapter and 6 pins plug illustrated in the right top to the control receptacle of VX GigE camera.

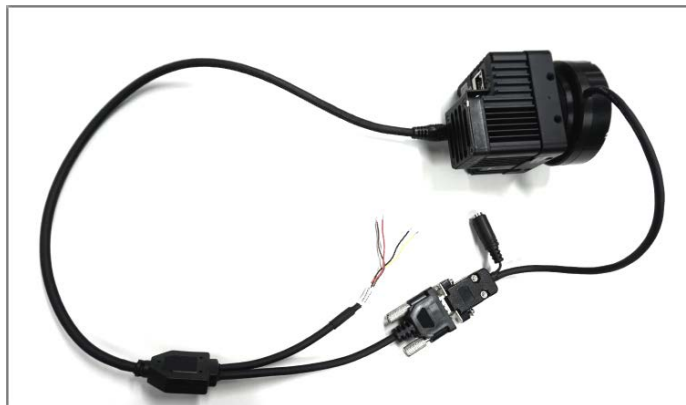
Connector Specification

Address	Part Name	Part No.	Qty.	Maker	Remarks
CN1	Circular Connector	HR10A-7P-6PC, Male	1	Hirose	Molding
CN2	D-Sub Connector	DSUB-9P, Male	1	UL	Molding, Screw
	Label A=CN1-1	“TRIGGER+”	1		“TRIGGER+”
	Label B=CN1-2	“TRIGGER-”	1		“TRIGGER-”
	Label C=CN1-3	“STROBE+”	1		“STROBE+”
	Label D=CN1-4	“GND”	1		“GND”

Type A cable is illustrated as follows.

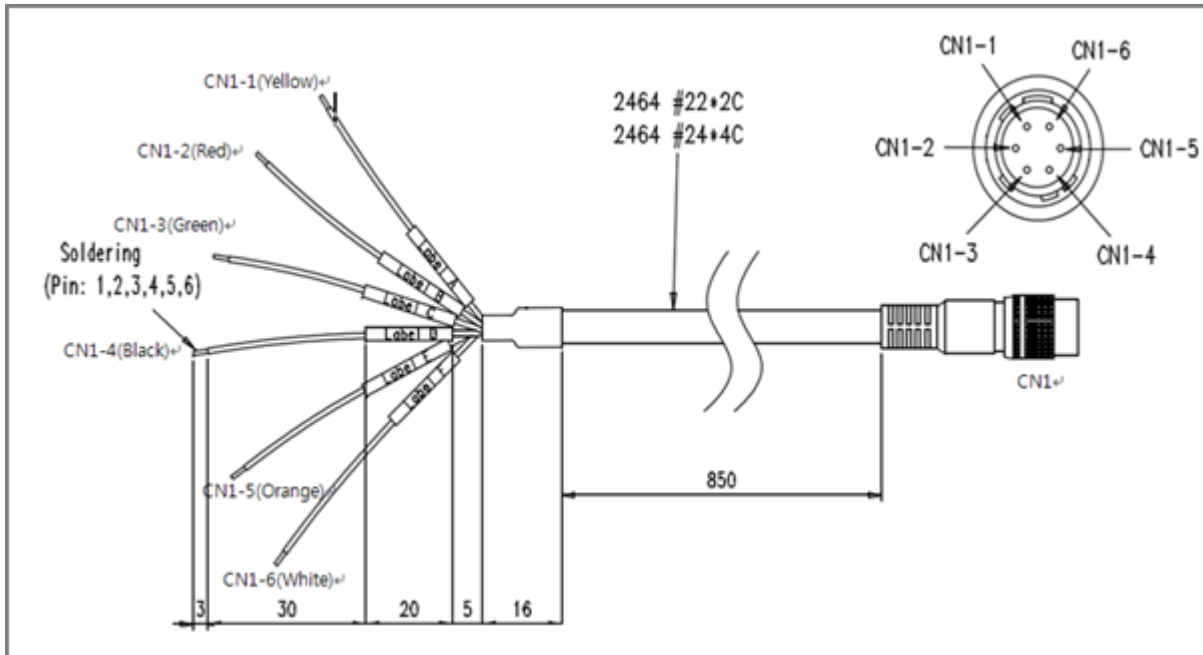


The following figure illustrates Type A cable connected to the VX GigE camera.



If you need advice for the cable, contact vieworks local dealer or vieworks technical support.

Type B cable without D-Sub connector



Connector Specification

Address	Part Name	Part No.	Qty.	Maker	Remarks
CN1	Circular Connector	HR10A-7P-6PC, Male	1	Hirose	Molding
	Label A=CN1-1	“TRIGGER+”	1		“TRIGGER+”
	Label B=CN1-2	“TRIGGER-”	1		“TRIGGER-”
	Label C=CN1-3	“STROBE+”	1		“STROBE+”
	Label D=CN1-4	“GND”	1		“GND”
	Label E=CN1-5	“RS232_RX”	1		“RS232_RX”
	Label F=CN1-6	“RS232_TX”	1		“RS232_TX”

6 How to operate Canon EF Adapter using VIS 6.X SDK

Vieworks Imaging Solution (VIS) 6.X GigE SDK provides two features (SetCustomCommand, GetCustomCommand) for operating a Canon EF Adapter (Birger Mount). To do this, run VIS 6.X Viewer and click the **Device Properties** tab to display the **BirgerMountControl** category.

The screenshot shows the 'Device Properties' window for a device named 'Guru'. The 'BirgerMountControl' category is expanded and highlighted with a red border. The properties are listed in a table format:

Property Name	Value	Action
RoiSelector	AE	
RoiOffsetX	0	
RoiWidth	6576	
RoiOffsetY	0	
RoiHeight	4384	
<input type="checkbox"/> RoiDisplay		
FanControl		
FanOperationMode	Temperature	
FanOperationTemperature	30	
BirgerMountControl		
TransmitCount	0	
TransmitBuffer		
ReceivePendingCount	83	
LatchReceiveBuffer		Execute
ReceiveCount	0	
ReceiveBuffer		
FocusZero		Execute
FocusInfinite		Execute
FocusAbsolute	0	
FocusIncremental	0	
FocusAuto	Off	
FocusPosition	654	
ApertureClose		Execute
ApertureOpen		Execute
ApertureAbsolute	0	
ApertureIncremental	0	
ApertureAuto	Off	
ApertureAutoMin	0	
ApertureAutoMax	0	
AperturePosition	32	
FlatFieldCorrection		
FfcMode	Off	
FfcTargetLevel	2047	
FfcFrames	FRAME_4	
FfcGenerate		Execute
FfcSave		Execute
FfcLoad		Execute
TransportLayerControl		
PayloadSize	43243776	
GevVersionMajor	1	
GevVersionMinor	1	
<input checked="" type="checkbox"/> GevDeviceModelsBigEndian		
GevDeviceClass	Transmitter	

Parameters	Descriptions
TransmitCount	Indicates the number of bytes stored in the Transmit Buffer.
TransmitBuffer	Indicates data buffer to be transmitted when the TransmitCount value is changed.
ReceivePendingCount	Indicates the number of bytes received through the serial interface.
LatchReceiveBuffer	Copies the pending data to the Receive Buffer.
ReceiveCount	Indicates the number of bytes stored in the Receive Buffer.
ReceiveBuffer	Indicates received data buffer. Received data has to be copied to the Receive Buffer with LatchReceiveBuffer.
FocusZero	Moves focus to the zero stop.
FocusInfinite	Moves focus to the infinity stop.
FocusAbsolute	Moves focus to absolute position. The range is configurable depending on the lens installed.
FocusIncremental	Moves focus incrementally by the value specified.
FocusAuto	Sets automatic focus control mode.
FocusPosition	Indicates current position of focus.
ApertureClose	Moves aperture to the fully stopped down limit.
ApertureOpen	Moves aperture to completely open.
ApertureAbsolute	Moves aperture to absolute position. The range is configurable depending on the lens installed.
ApertureIncremental	Moves aperture incrementally by the specified number of steps. A positive step moves towards the fully closed position while a negative step moves towards the fully opened position.
ApertureAuto	Sets the automatic aperture control mode.
ApertureAutoMin	Sets lower limit in aperture auto mode.
ApertureAutoMax	Sets upper limit in aperture auto mode.
AperturePosition	Indicates current position of aperture.



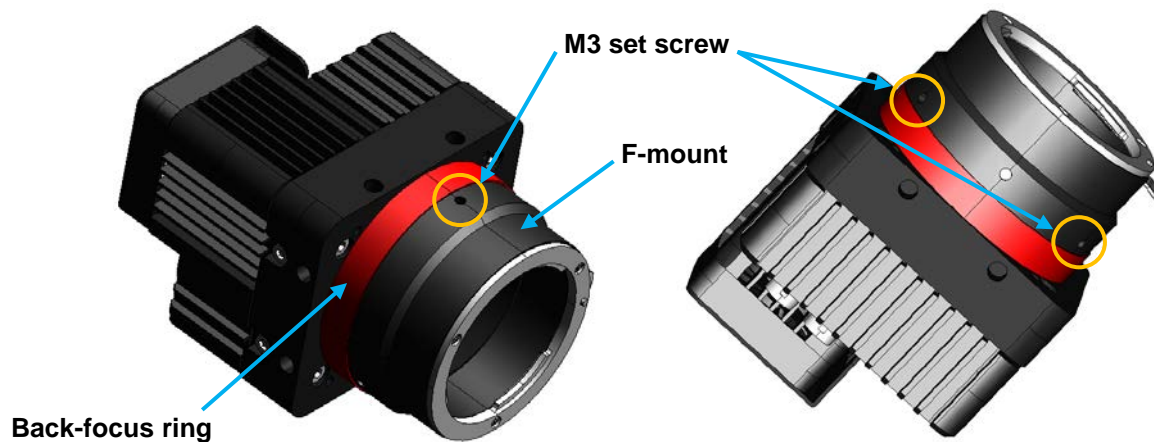
- For more information about Auto Iris and Auto Focus with Canon EF Adapter, refer to “User Manual_VX_EN.pdf”.
- For more information about how to configure the camera using two features, refer to “VwGigE_C_API_Reference Manual_EN_V2.1.pdf”.
- To use libraries provided by Birger Engineering, Inc., refer to [Birger website](#).

Appendix How to adjust Back focus

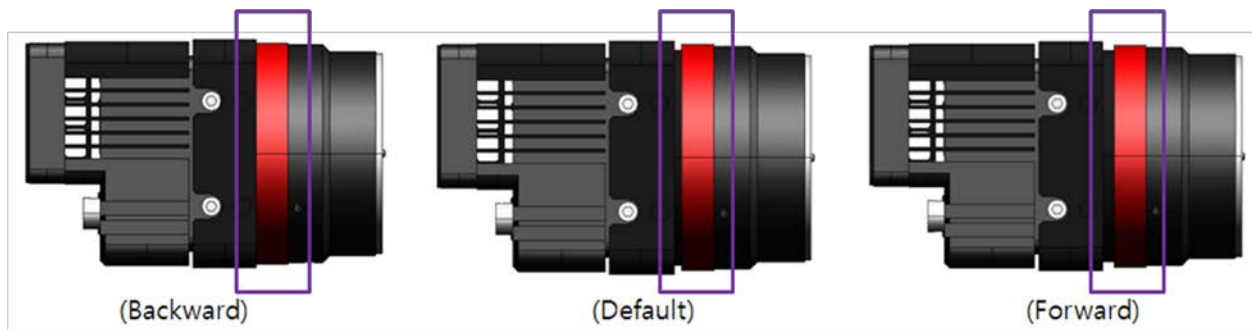


Make sure to follow the procedures described below. Otherwise, it may result in damage to the camera.

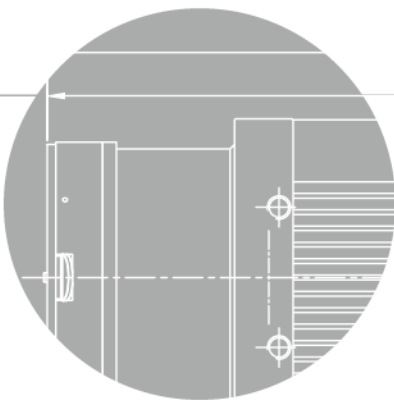
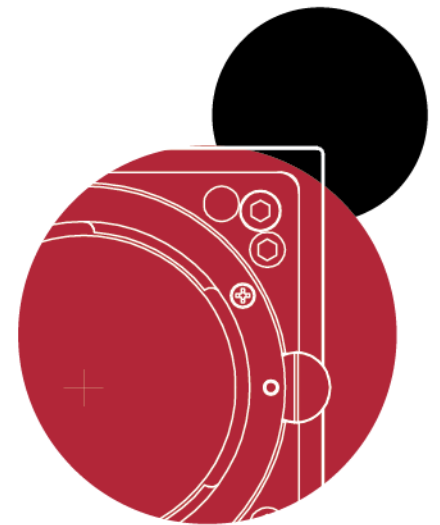
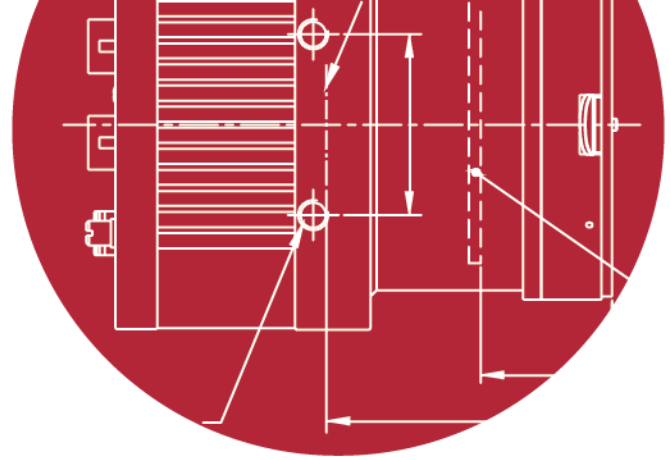
1. Using a 1.5 mm hex wrench, loosen three set screws until the tip of each screw is reached to the surface of F-mount.



2. Rotate the Back-focus ring by hand either clockwise or counterclockwise to locate the right focus. As rotating the back-focus ring, F-mount moves forward or backward.



3. After taking the focus, tighten the three set screws.
4. Tighten the Back-focus ring as well.



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