

Datasheet

The iVu Barcode Reader (BCR) Gen2 Series package consists of lighting, sensor, and lens. This version of the iVu BCR requires a separately available Remote Display touch screen to set up and monitor inspections. Appropriate cables and mounting brackets can be ordered for each application. Additionally, other lenses, brackets, filters and external lights are available. Installation, setup, and configuration can be done quickly without requiring a PC to configure the sensor.



Features

- No PC required to configure the sensor
- Image processing expertise is not required
- USB port for uploading and downloading of inspections and log files for easy updating and diagnostics
- Separate touch screen display mounts remotely from the sensor to allow easy access to the user interface and to view inspection images
- A RS-232 serial communications port that is used to output barcode data to other applications
- High speed processing
- Adjustable image resolution up to 752x480 pixels

The iVu BCR reads the following barcode types:

- DataMatrix (ECC 200) barcodes
- QR Code (QR and Micro QR)
- Linear barcodes: Code128, Code39, CODABAR, Interleaved 2 of 5, EAN13, EAN8, UPCE, Postnet, IMB, and Pharmacode



WARNING: Not To Be Used for Personnel **Protection**

Never use this device as a sensing device for personnel **protection**. Doing so could lead to serious injury or death. This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A sensor failure or malfunction can cause either an energized or de-energized sensor output condition.

Models

Ring Light Options	Micro Video Lens Options						C-Mount Lens Options
	4.3 mm	6 mm	8 mm	12 mm	16 mm	25 mm	
None	IVU2RBX04	IVU2RBX06	IVU2RBX08	IVU2RBX12	IVU2RBX16	IVU2RBX25	IVU2RBXC
Red	IVU2RBR04	IVU2RBR06	IVU2RBR08	IVU2RBR12	IVU2RBR16	IVU2RBR25	N/A
Blue	IVU2RBB04	IVU2RBB06	IVU2RBB08	IVU2RBB12	IVU2RBB16	IVU2RBB25	N/A
Green	IVU2RBG04	IVU2RBG06	IVU2RBG08	IVU2RBG12	IVU2RBG16	IVU2RBG25	N/A
IR	IVU2RBI04	IVU2RBI06	IVU2RBI08	IVU2RBI12	IVU2RBI16	IVU2RBI25	N/A
White	IVU2RBW04	IVU2RBW06	IVU2RBW08	IVU2RBW12	IVU2RBW16	IVU2RBW25	N/A
UV 365 ¹ ²	IVU2RB604	IVU2RB606	IVU2RB608	IVU2RB612	IVU2RB616	IVU2RB625	N/A
UV 395 ¹ ²	IVU2RB904	IVU2RB906	IVU2RB908	IVU2RB912	IVU2RB916	IVU2RB925	N/A

¹ Blue Filter Kit (FLTMB) included with UV models.



Note: This product emits UV light. Exempt Risk Group (RG 0) product. No optical hazard is considered reasonably foreseeable, even for continuous, unrestricted use (IEC 62471).



Specifications

Power **Connection**

12-pin Euro-style (M12) male connector; accessory cable required for operation (see [Power Cable — Required](#) on page 7)

USB 2.0 Host

4-pin Pico (M8) female connector; optional USB cable required for operation of USB flash drive (see [USB Cable — Optional](#) on page 9)

Power Requirements

Voltage: 10 to 30 V dc
Current: 800 mA maximum (exclusive of I/O load)

Output **Configuration**

NPN or PNP, software selectable

Demo Mode

Full tool functionality on canned images

Sensor Lock

Optional password protection

External Strobe Output

+ 5 V dc

Integrated Ring Light

Red, IR, Green, Blue, White

Output **Rating**

150 mA

Remote Display **Connection**

8-pin Euro-style (M12) female connector; accessory cable required for remote display

Acquisition

60 fps (frames per second)³

Exposure Time

0.1 ms to 1.049 s

Imager

1/3 inch CMOS 752 × 480 pixels; adjustable Field of View (FOV)

Lens Mount

Micro Video Lens models: M12 × 1 mm thread; micro video lens 4.3, 6, 8, 12, 16, 25 mm
C-Mount models: Standard C-mount (1 inch-32 UN)

Construction

Black PBT sensor housing; die cast zinc back cover; acrylic window
Weight: 0.41 kg (0.90 lbs)

Environmental **Rating**

IEC IP67

Operating Conditions

Stable Ambient Temperature: 0 °C to +50 °C (+32 °F to +122 °F)
Maximum **relative** humidity: 95% maximum relative humidity (non-condensing)

Certifications

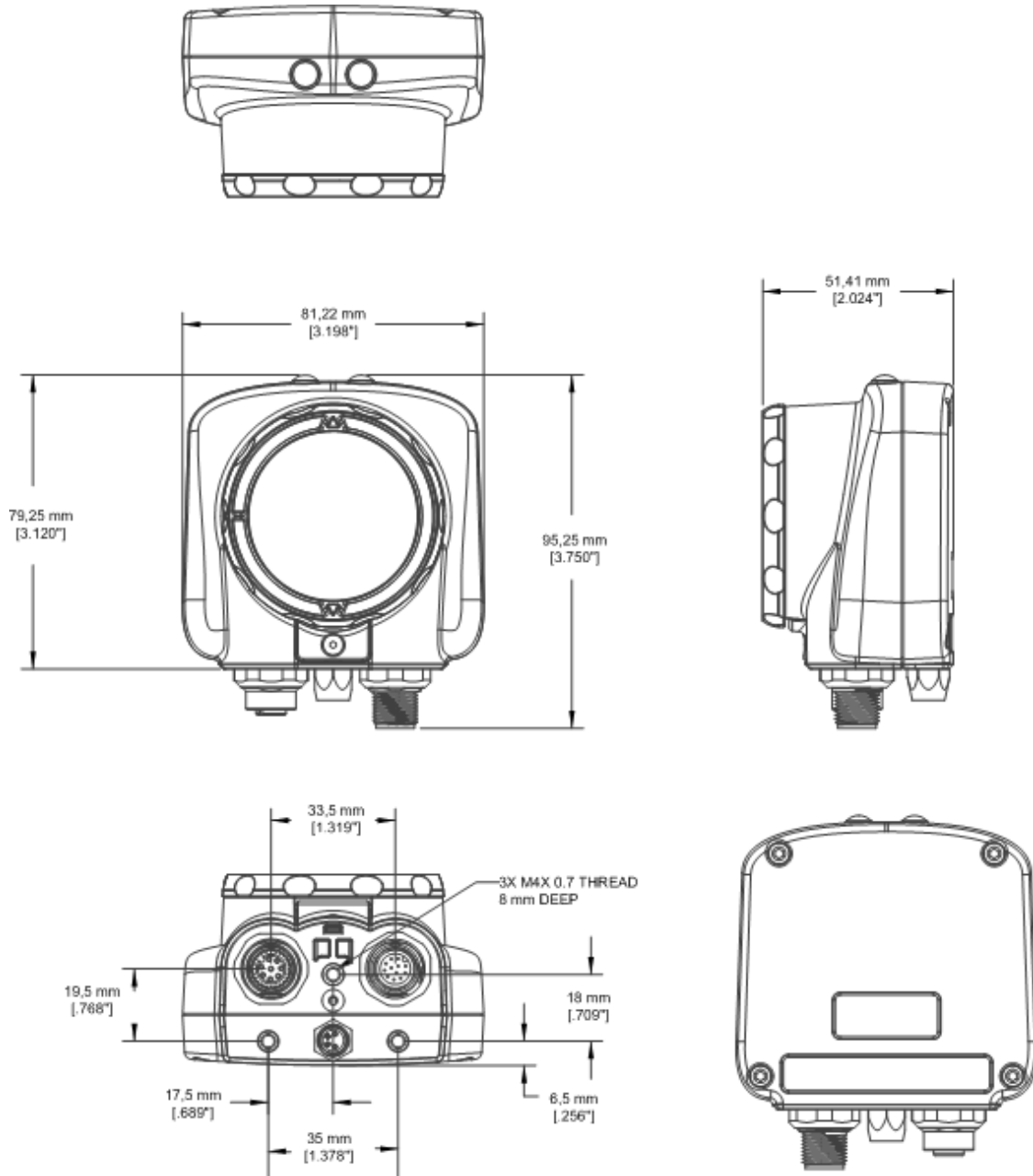


³ This value can vary based on inspection settings.

Dimensions

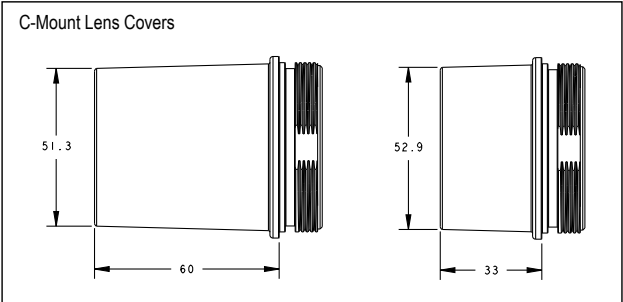
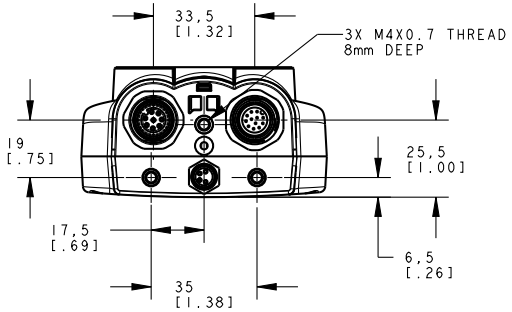
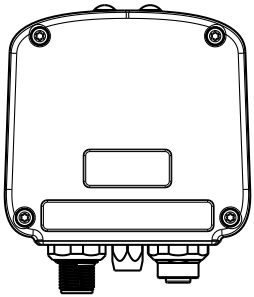
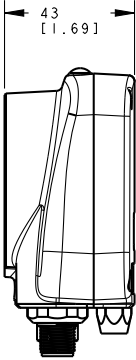
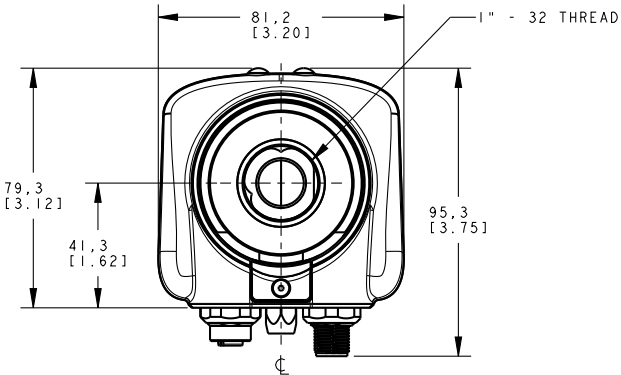
Micro Video Lens Dimensions

All measurements are listed in millimeters [inches], unless noted otherwise.



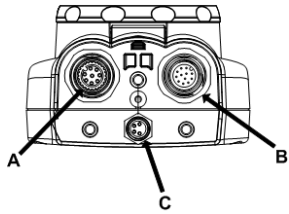
C-Mount Lens Dimensions

All measurements are listed in millimeters [inches], unless noted otherwise.



Cable **Connections** for the iVu BCR with a Remote Display

The cable connections on the iVu BCR sensor are shown below, and power I/O connections (B) are defined in [Table 1](#) on page 5.



- A Remote Display Connector
- B Power I/O Connector
- C USB Connector



Note: Micro video lens model shown. C-Mount model connections are identical.

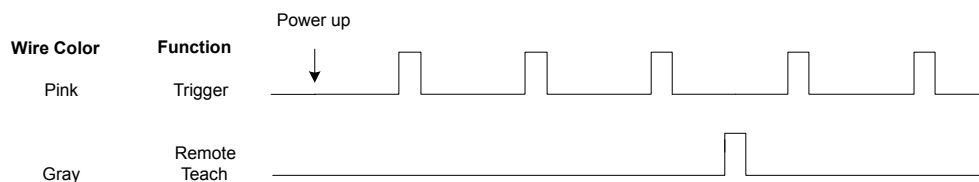
Table 1: Power I/O Connections

Pin #	Wire Color	Description	Direction
1	White	Output 1	Output
2	Brown	10-30V dc	Input
3	Green	Output 2	Output
4	Yellow	Strobe Out (5V dc only)	Output
5	Gray	Remote Teach	Input
6	Pink	External Trigger	Input
7	Blue	Common (Signal Ground)	Input
8	Red	Ready	Output
9	Orange	Not used	N/A
10	Light Blue	RS-232 TX	Output
11	Black	RS-232 Signal Ground	Output
12	Violet	RS-232 Rx	Input

iVu Trigger, Remote Teach, and I/O Waveforms

The iVu has two input signals—Trigger and Remote Teach. The default setting is to detect the low to high transition. This setting can be changed in the Main Menu > System > Discrete I/O > Input Polarity screen on the sensor.

PNP (Low-to-High) Trigger and Remote Teach Input Waveforms



The sensor triggers from low to high, and Remote Teach behaves electrically like trigger.

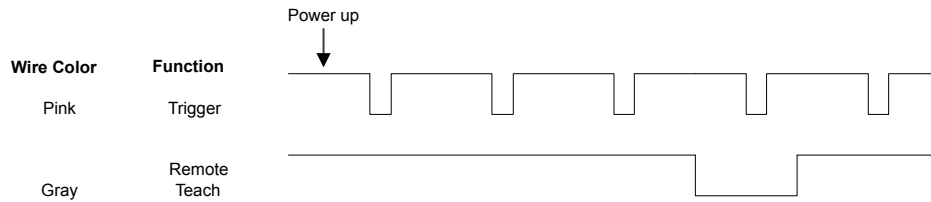


Note:

Table 2: Required iVu Input Signal Voltage

	ON	OFF
PNP	+10 to 30 V dc	< 2 V dc

NPN (High-to-Low) Trigger and Remote Teach Input Waveforms



The sensor triggers from high to low, and Remote Teach behaves electrically like trigger.



Note:

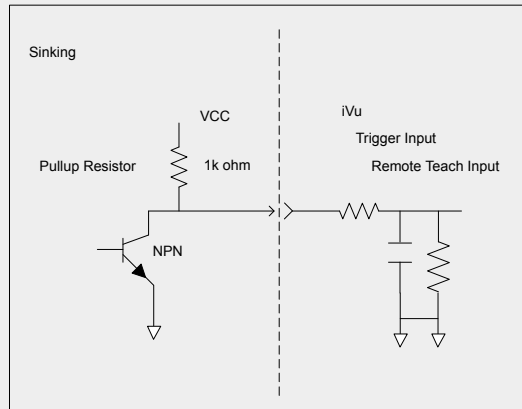
Table 3: Required iVu Input Signal Voltage

	ON	OFF
NPN	< 2 V dc	+10 to 30 V dc



Note: If the device used to trigger or remote teach the iVu BCR is a sinking device, these are the options regarding the use of a pull-up resistor:

Option 1: Put a pull-up resistor, rated approximately 1k ohm, between the sensor's positive (+) voltage and the sensor's input as shown below.



Option 2: Enable the Input Pullup in the iVu BCR software (Main Menu > System > Discrete I/O > Input Pullup).

iVu Output Waveforms

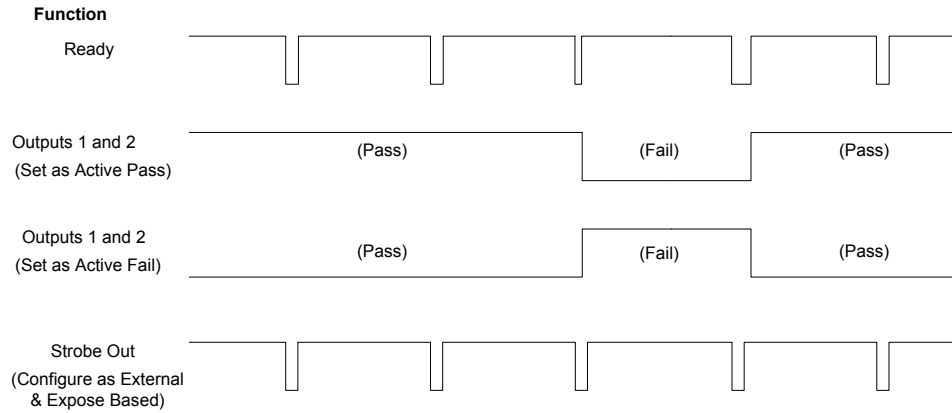


Figure 1. PNP Outputs

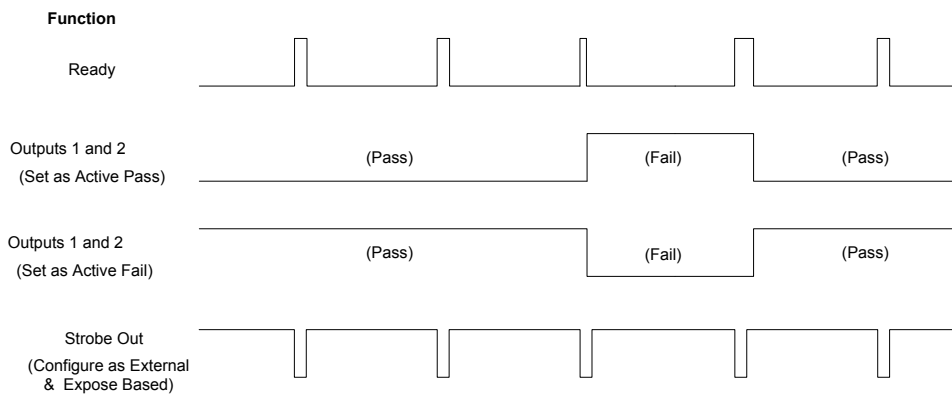


Figure 2. NPN Outputs



Note:

Table 4: Expected iVu Output Signal Voltage

	ON	OFF
PNP	+V	< 2 V dc
NPN	< 2 V dc	+V

Accessories

Power Cable — Required

12-Pin M12/Euro-Style Cordsets with Open Shield				
Model	Length	Style	Dimensions	Pinout (Female)
MQDC2S-1206	1.83 m (6 ft)	Straight		<ul style="list-style-type: none"> 1 = White 2 = Brown 3 = Green 4 = Yellow 5 = Gray 6 = Pink 7 = Blue 8 = Red 9 = Orange 10 = Light Blue 11 = Black 12 = Violet
MQDC2S-1215	4.57 m (15 ft)			
MQDC2S-1230	9.14 m (30 ft)			
MQDC2S-1250	15.2 m (50 ft)			
MQDC2S-1275	22.9 m (75 ft)			

Remote Display — Required for Setup

Model	Description	Data Sheet
RD35	89 mm (3.5 in) Diagonal Remote Touch Screen	p/n 149171
RDM35	89 mm (3.5 in) Diagonal Machine-Mountable Remote Touch Screen	p/n 166096

RD35 Remote Display Accessory Kit

Table 5: Cordset Kits

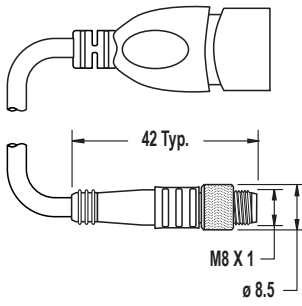
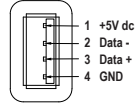

Model	Length	Description
IVURD-MXK-803	0.91 m (3 ft)	8-pin cable, straight, M12-Molex Mounting Bracket (SMBRD35) Stylus
IVURD-MXK-806	1.83 m (6 ft)	
IVURD-MXK-815	4.57 m (15 ft)	
IVURD-MXK-830	9.14 m (30 ft)	
IVURD-MXK-850	15.2 m (50 ft)	
IVURD-MXK-803RA	0.91 m (3 ft)	8-pin cable, right-angle, M12-Molex Mounting Bracket (SMBRD35) Stylus
IVURD-MXK-806RA	1.83 m (6 ft)	
IVURD-MXK-815RA	4.57 m (15 ft)	
IVURD-MXK-830RA	9.14 m (30 ft)	
IVURD-MXK-850RA	15.2 m (50 ft)	

RDM35 Remote Display Accessory Kit

Table 6: Cordset Kits

Model	Length	Description
IVURDM-QDK-803	0.91 m (3 ft)	8-pin cable, straight, M12-M12 Mounting bracket (SMBRDM35) Stylus
IVURDM-QDK-806	1.83 m (6 ft)	
IVURDM-QDK-815	4.57 m (15 ft)	
IVURDM-QDK-830	9.14 m (30 ft)	
IVURDM-QDK-850	15.2 m (50 ft)	
IVURDM-QDK-803RA	0.91 m (3 ft)	8-pin cable, right-angle, M12-M12 Mounting bracket (SMBRDM35) Stylus
IVURDM-QDK-806RA	1.83 m (6 ft)	
IVURDM-QDK-815RA	4.57 m (15 ft)	
IVURDM-QDK-830RA	9.14 m (30 ft)	
IVURDM-QDK-850RA	15.2 m (50 ft)	

USB Cable — Optional

4-Pin Threaded M8/Pico-Style to USB Cordsets with Shield—Double Ended				
Model	Length	Style	Dimensions	Pinout
PSG-4M-4005-USB	0.15 m (6 in)	Straight Pico QD/ USB		 <p>Male</p>  <p>1 = Red 2 = White 3 = Black 4 = Green</p>
PSG-4M-401-USB	0.31 m (1 ft)			
PSG-4M-403-USB	0.91 m (3 ft)			
PSG-4M-410-USB	3 m (10 ft)			

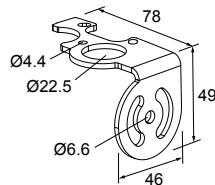
USB Flash Drive — Optional

Model	Description
IVU-USBFD2	USB Flash Drive 2 GB

Brackets

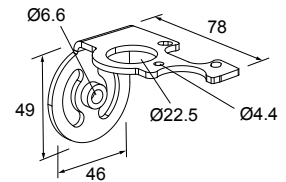
SMBIVURAL

- Right-angle bracket for mounting sensor from the left
- 12-ga. stainless steel
- Hardware included



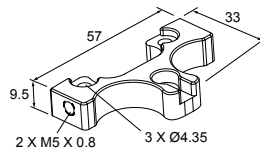
SMBIVURAR

- Right-angle bracket for mounting sensor from right
- 12-ga. stainless steel
- Hardware included



SMBIVUU

- U-shaped swivel bracket kit
- 14-ga. stainless steel
- Hardware included



Note: Use cables with right-angle connectors with this bracket kit.

Micro Video Lens Accessories

Micro Video Lens Models

Model	Lens Description
LMF04 ⁴	4.3 mm lens

⁴ Due to the flexibility of the replaceable lenses, focus mechanism, and imager field-of-view settings, it is possible with the 4.3 mm lens to experience reflections from the internal strobe on the inspection image. To eliminate this effect, the field-of-view can be limited to the system default of 320×240 (or 640×480 for fine), the working distance to the object should be no more than about 8 inches, or an external strobe should be used instead of the internal ring light.

Model	Lens Description
LMF06	6 mm lens
LMF08	8 mm lens
LMF12	12 mm lens
LMF16	16 mm lens
LMF25	25 mm lens

Micro Video Lens Filters — **Optional**

Model	Description
FLTMR2	Red and dark red filter kit
FLTMI	Infrared filter kit
FLTMB	Blue filter kit
FLTMG	Green filter kit

C-Mount Lens Accessories

C-Mount Lens Models

Model	Lens Description
LCF04	4 mm Lens - no threads for filter
LCF08	8 mm Lens - no threads for filter
LCF12	12 mm Lens - no threads for filter
LCF16	16 mm Lens, aperture lock - no threads for filter
LCF25R	25mm lens
LCF25LR	25mm lens with focus locking
LCF50L1R	50mm lens with focus locking, plastic
LCF50L2R	50mm lens with focus locking, metal (will not fit ring)
LCF75LR	75mm lens with focus locking, metal (will not fit ring)

C-Mount Lens Enclosure Choices

Model	Description
IVUSLC50-P	Sealed C-mount lens enclosure
IVUSLC75-P	

C-Mount Lens Filters — **Optional**

Model	Description
FLTR	Red filter kit
FLTB	Blue filter kit
FLTG	Green filter kit
FLTI	IR Filter kit

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