

# iVu BCR Gen2 Series Sensor with Integrated Display



## Datasheet

The iVu Barcode Reader (BCR) Gen2 Series package consists of lighting, sensor, lens, and display. 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
- Integrated color touch screen display
- 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	IVU2TBX04	IVU2TBX06	IVU2TBX08	IVU2TBX12	IVU2TBX16	IVU2TBX25	IVU2TBXC
Red	IVU2TBR04	IVU2TBR06	IVU2TBR08	IVU2TBR12	IVU2TBR16	IVU2TBR25	N/A
Blue	IVU2TBB04	IVU2TBB06	IVU2TBB08	IVU2TBB12	IVU2TBB16	IVU2TBB25	N/A
Green	IVU2TBG04	IVU2TBG06	IVU2TBG08	IVU2TBG12	IVU2TBG16	IVU2TBG25	N/A
IR	IVU2TBI04	IVU2TBI06	IVU2TBI08	IVU2TBI12	IVU2TBI16	IVU2TBI25	N/A
White	IVU2TBW04	IVU2TBW06	IVU2TBW08	IVU2TBW12	IVU2TBW16	IVU2TBW25	N/A
UV 365 <sup>1</sup> <sup>2</sup>	IVU2TB604	IVU2TB606	IVU2TB608	IVU2TB612	IVU2TB616	IVU2TB625	N/A
UV 395 <sup>1</sup> <sup>2</sup>	IVU2TB904	IVU2TB906	IVU2TB908	IVU2TB912	IVU2TB916	IVU2TB925	N/A

<sup>1</sup> 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).



## Sensor Specifications

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### 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

8-pin Euro-style (M12) female connector; optional USB cable required for operation of USB flash drive (see [USB Cable — Optional](#) on page 8)

### 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

### Display

68.5 mm (2.7 in) LCD Color Integrated Display 320 × 240 pixels

### Acquisition

60 fps (frames per second)<sup>3</sup>

### 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: 0.38 kg (0.85 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

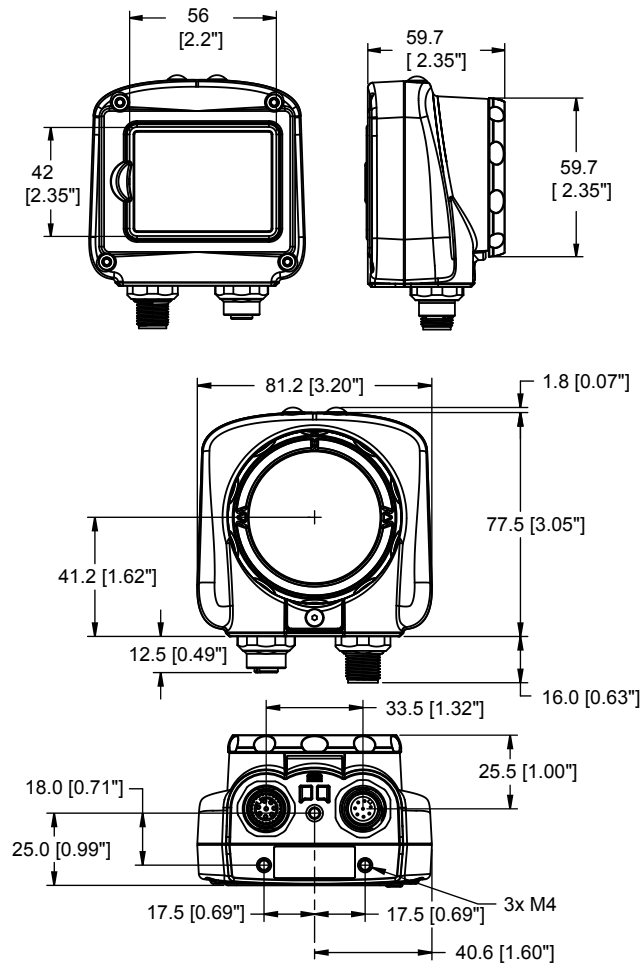


<sup>3</sup> This value can vary based on inspection settings.

## Dimensions

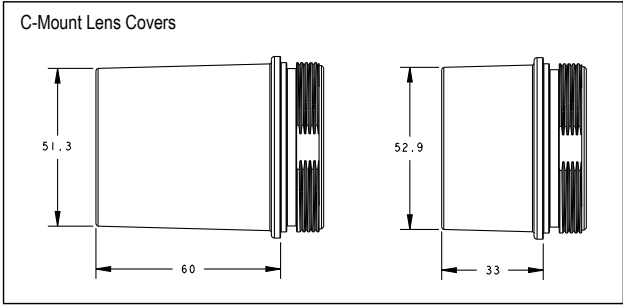
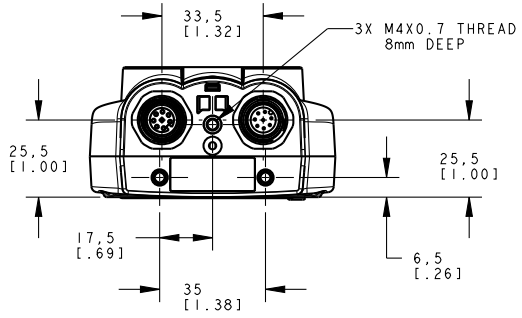
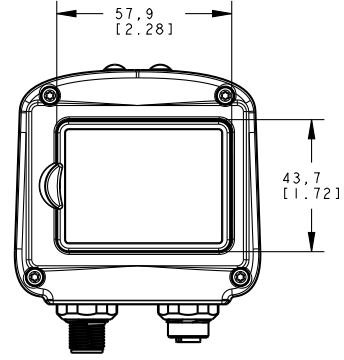
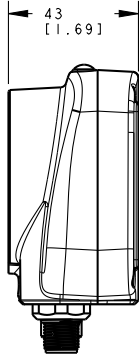
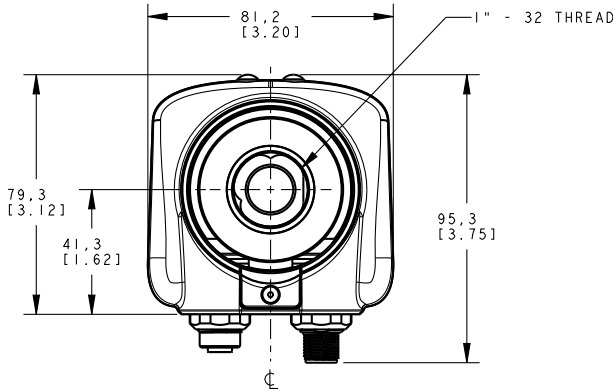
### Micro Video Lens Dimensions

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 iVu BCR with Integrated Display

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



- A USB Connector
- B Power I/O Connector



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

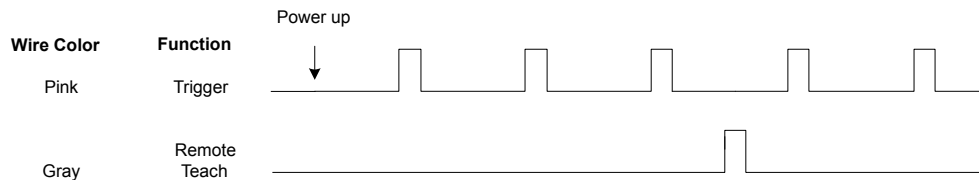
Table 1: Power I/O Connections

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.

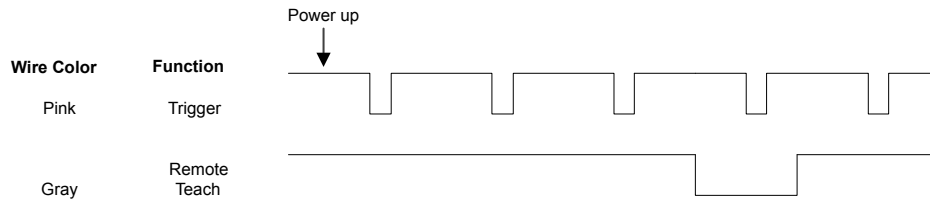


Note:

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:

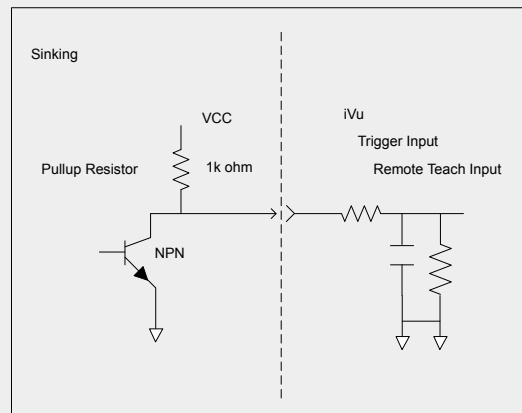
Table 3: Required iVu Input Signal Voltage

	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

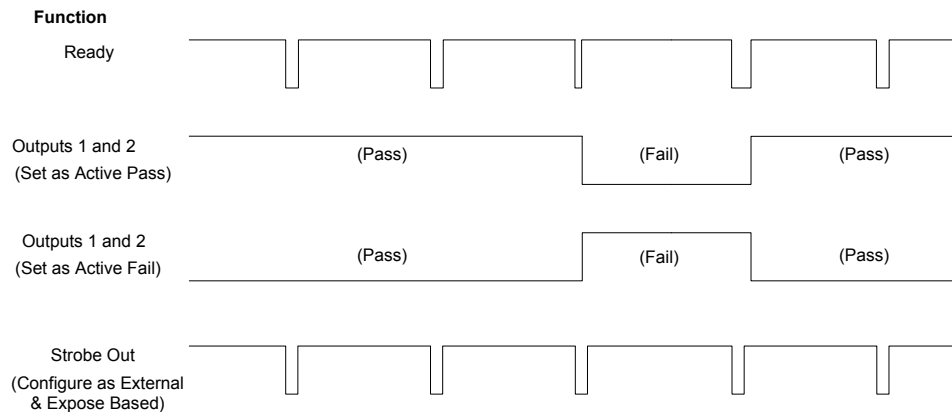


Figure 1. PNP Outputs

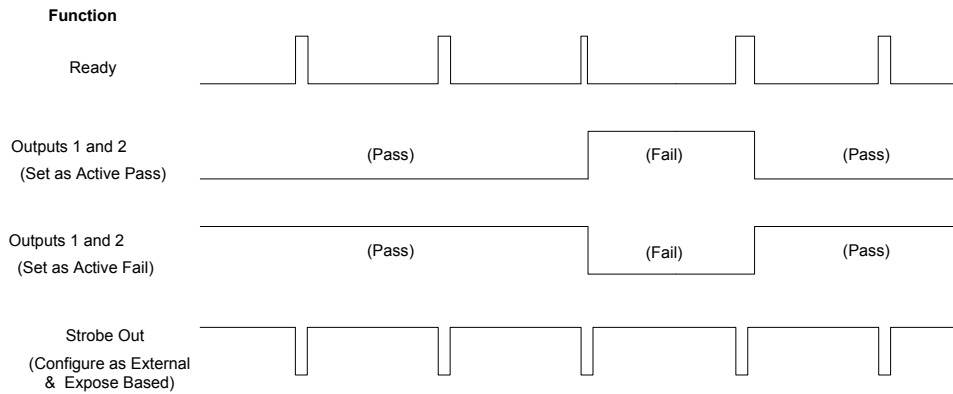


Figure 2. NPN Outputs

Note:

Table 4: Expected iVu Output Signal Voltage

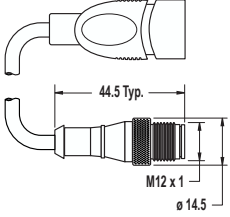
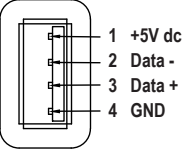
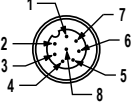
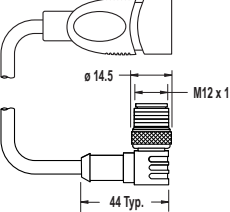
	ON	OFF
PNP	+V	< 2 V dc
NPN	< 2 V dc	+V

## 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		
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)			

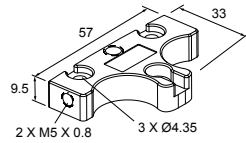
## USB Cable — Optional

8-Pin Threaded M12/Euro-Style to USB Cordsets—Double Ended				
Model	Length	Style	Dimensions	Pinout
MQDEC-8005-USB	0.15 m (6 ft)	Straight Euro QD/USB		 <p>Male</p> 
MQDEC-801-USB	0.31 m (1 ft)			
MQDEC-803-USB	0.91 m (3 ft)			
MQDEC-810-USB	3 m (10 ft)			
MQDEC-8005RA-USB	0.15 m (6 ft)	Right-Angle Euro QD/USB		
MQDEC-801RA-USB	0.31 m (1 ft)			
MQDEC-803RA-USB	0.91 m (3 ft)			
MQDEC-810RA-USB	3 m (10 ft)			

## Brackets

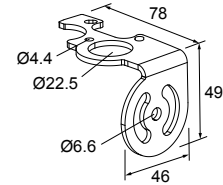
### SMBIVUB

- Bottom mounting bracket
- Black anodized aluminum
- Hardware included



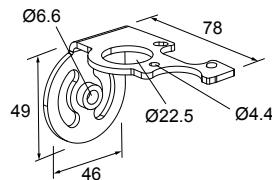
### SMBIVURAL

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



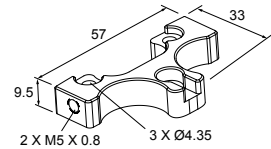
### SMBIVURAR

- 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 <sup>4</sup>	4.3 mm lens
LMF06	6 mm lens
LMF08	8 mm lens

<sup>4</sup> 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 <b>Description</b>
LMF12	12 mm lens
LMF16	16 mm lens
LMF25	25 mm lens

### Micro Video Lens Filters — **Optional**

Model	<b>Description</b>
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 <b>Description</b>
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	<b>Description</b>
IVUSLC50-P	Sealed C-mount lens enclosure
IVUSLC75-P	

### C-Mount Lens Filters — **Optional**

Model	<b>Description</b>
FLTR	Red filter kit
FLTB	Blue filter kit
FLTG	Green filter kit
FLTI	IR Filter kit

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