

iVu Bar Code Reader (BCR) Image Sensor



Used with Integrated Display

For the latest technical information about this product, including specifications, dimensions, and wiring, see www.bannerengineering.com.

Features



The iVu Plus Barcode Reader (BCR) sensor 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.

- No external PC required to configure the sensor
- Image processing expertise is not required
- USB 2.0 compliant host provided for easy updating and diagnostics
- Integrated color touch screen display
- An RS232 serial communications port that is used to output barcode data to other applications.
- High speed processing

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
 - Pharmacode



Models

NPN Models						
Ring Light Options	Micro Lens Options					C-Mount Lens Options
	4.3 mm	8 mm	12 mm	16 mm	25 mm	
None	IVUTBNX04	IVUTBNX08	IVUTBNX12	IVUTBNX16	IVUTBNX25	IVUTBNXC
Red	IVUTBNR04	IVUTBNR08	IVUTBNR12	IVUTBNR16	IVUTBNR25	N/A
Blue	IVUTBNB04	IVUTBNB08	IVUTBNB12	IVUTBNB16	IVUTBNB25	N/A
Green	IVUTBNG04	IVUTBNG08	IVUTBNG12	IVUTBNG16	IVUTBNG25	N/A
IR	IVUTBNI04	IVUTBNI08	IVUTBNI12	IVUTBNI16	IVUTBNI25	N/A
White	IVUTBNW04	IVUTBNW08	IVUTBNW12	IVUTBNW16	IVUTBNW25	N/A
UV 365 *	IVUTBN604	IVUTBN608	IVUTBN612	IVUTBN616	IVUTBN625	N/A
UV 395 *	IVUTBN904	IVUTBN908	IVUTBN912	IVUTBN916	IVUTBN925	N/A

PNP Models						
Ring Light Options	Micro Lens Options					C-Mount Lens Options
	4.3 mm	8 mm	12 mm	16 mm	25 mm	
None	IVUTBPX04	IVUTBPX08	IVUTBPX12	IVUTBPX16	IVUTBPX25	IVUTBPXC
Red	IVUTBPR04	IVUTBPR08	IVUTBPR12	IVUTBPR16	IVUTBPR25	N/A
Blue	IVUTBPB04	IVUTBPB08	IVUTBPB12	IVUTBPB16	IVUTBPB25	N/A
Green	IVUTBPG04	IVUTBPG08	IVUTBPG12	IVUTBPG16	IVUTBPG25	N/A
IR	IVUTBPI04	IVUTBPI08	IVUTBPI12	IVUTBPI16	IVUTBPI25	N/A
White	IVUTBPW04	IVUTBPW08	IVUTBPW12	IVUTBPW16	IVUTBPW25	N/A
UV 365 *	IVUTBP604	IVUTBP608	IVUTBP612	IVUTBP616	IVUTBP625	N/A
UV 395 *	IVUTBP904	IVUTBP908	IVUTBP912	IVUTBP916	IVUTBP925	N/A

* Blue Filter Kit (FLTB) included with UV models.



NOTE: UV emitted from this product. Exempt Risk Group (RG 0) product. No optical hazard is considered reasonably foreseeable, even for continuous, unrestricted use. (-IEC 62471)

Sensor Specifications

Power Connection

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

USB 2.0 Host

8-pin Euro-style (M12) female connector; optional USB cable required for operation of USB Thumb Drive (see [iVu Series: USB Cable — Optional](#))

Power Requirements

Voltage: 10 - 30V dc

Current: 800 mA maximum (exclusive of I/O load)

Output Configuration

NPN or PNP determined by model

Demo Mode

Full tool functionality on canned images

Sensor Lock

Optional password protection

External Strobe Output

+ 5V 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 X 240 pixels

Acquisition

50 fps (frames per second) max.

Exposure Time

0.1 ms to 1.049 s

Imager

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

Lens Mount

Micro Lens models: M12 X 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 Valox™ sensor housing; acrylic window

Weight: Approximately .295 kg (10.4 oz.)

Environmental Rating

IP67

Operating Conditions

Stable Ambient Temperature: 0° to + 50° C (+32° to + 122° F)

Relative Humidity: 95%, max. relative, non-condensing

Certifications

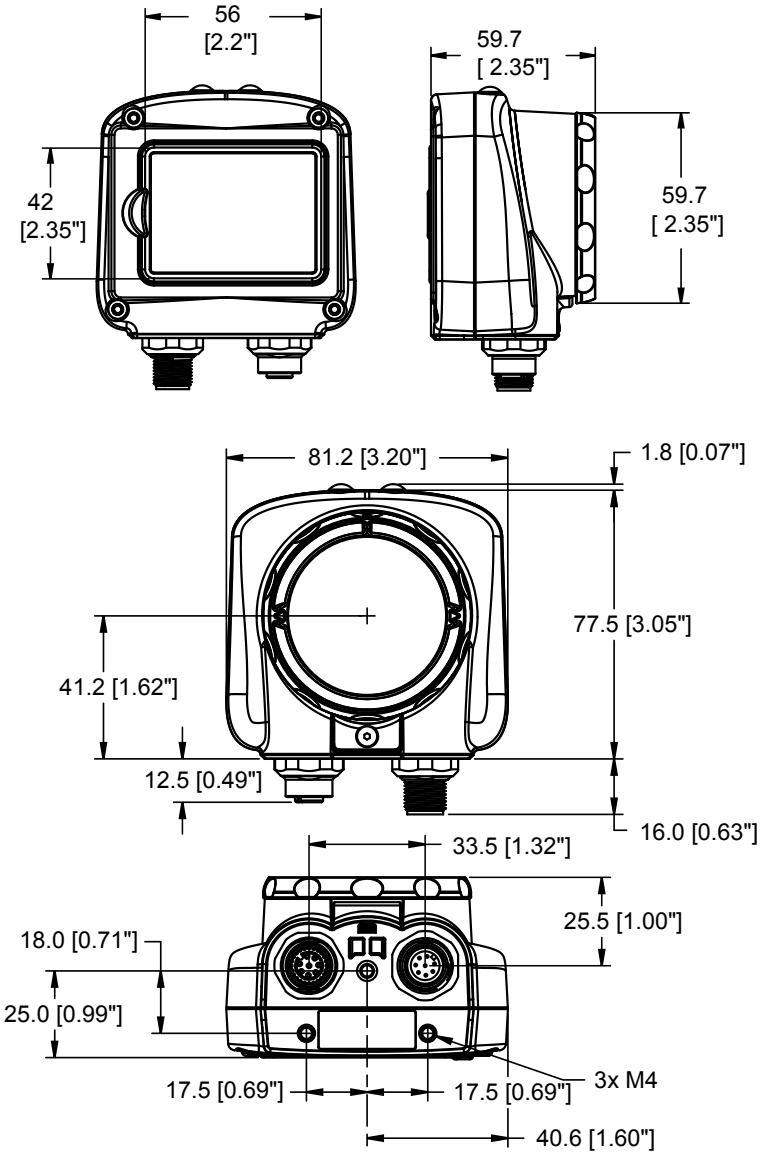


WARNING: Not To Be Used for Personnel Protection

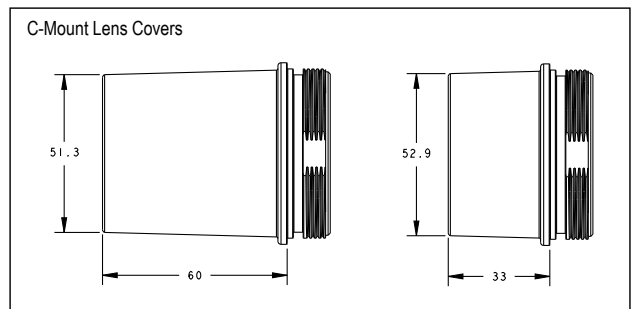
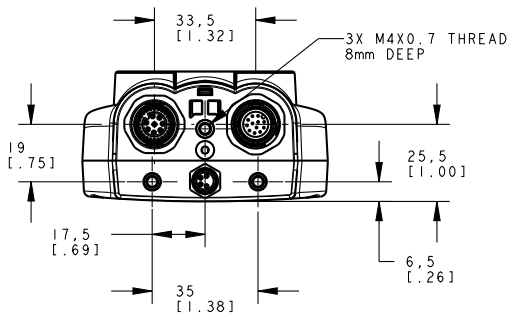
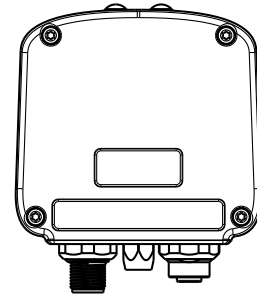
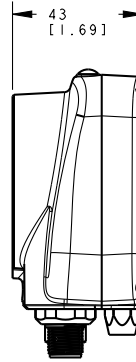
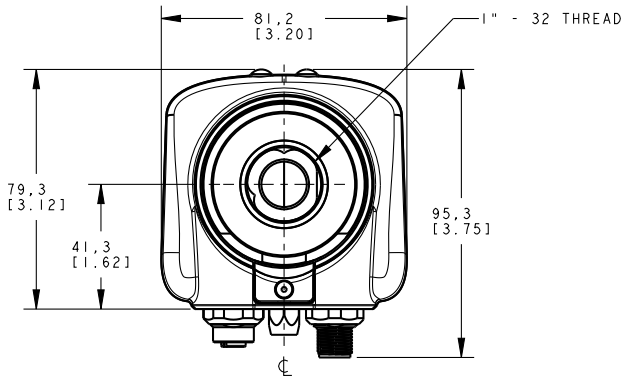
Never use this device as a sensing device for personnel protection. Doing so could lead to serious injury or death. This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A sensor failure or malfunction can cause either an energized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

Dimensions

Micro Lens Dimensions



C-Mount Lens Dimensions



Cable Connections for iVu Plus BCR with Integrated Display

The power and I/O cable for the iVu Plus BCR sensor is available in 2, 5, 9, and 15 m (6, 15, 30, 50') lengths. The connector on the sensor is shown below (B).

Power I/O Connections			
Pin #	Wire Color	Description	Direction
2	Brown	10-30V dc	Input
7	Blue	Common (Signal Ground)	Input
6	Pink	External Trigger	Input
5	Gray	Remote Teach	Input
1	White	Output 1	Output
8	Red	Ready	Output
4	Yellow	Strobe Out (5V dc only)	Output
3	Green	Output 2	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

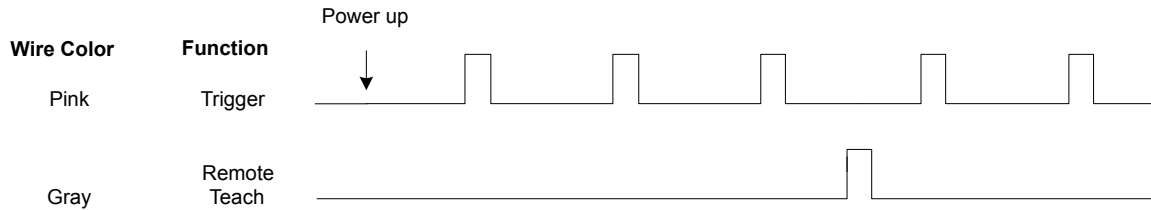
NOTE: Microlens model shown, C-Mount model connections are identical.

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 Trigger or Remote Teach input on 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

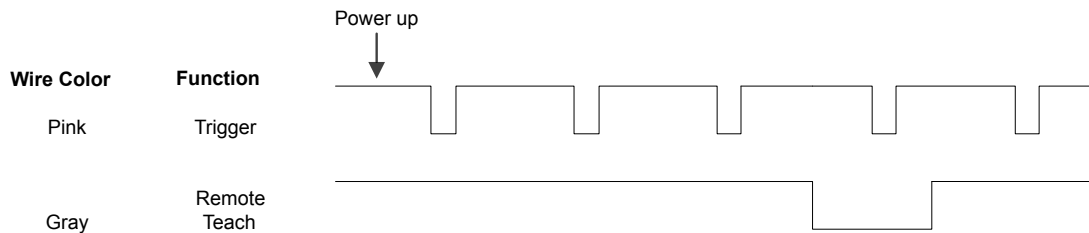
The iVu Trigger and Remote Teach input waveforms are shown below.



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

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

The iVu High-to-Low Trigger and Remote Teach input waveforms are shown below.

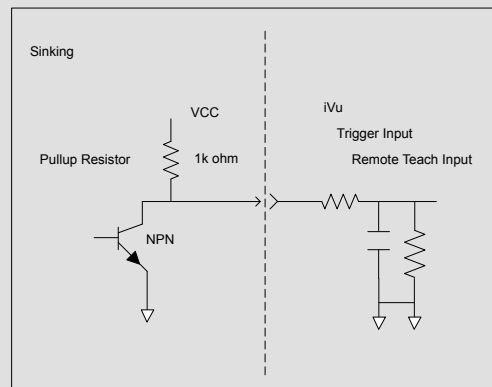


The sensor triggers from high to low, and Remote Teach behaves electrically like trigger.



NOTE: If the device used to trigger or remote teach the iVu Plus BCR is a sinking device (that is, NPN), then there are two options regarding the use of a pull-up resistor:

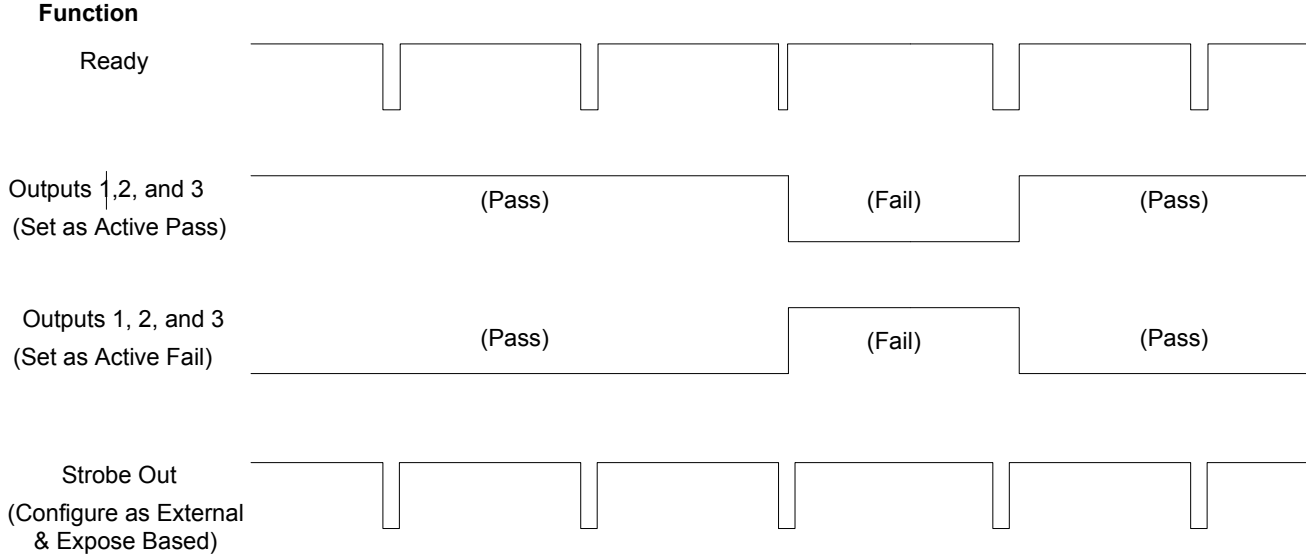
Option 1: Put a pull-up resistor, rated approximately 1k ohm, between the sensor's positive (+) voltage and the sensor's input as shown below.



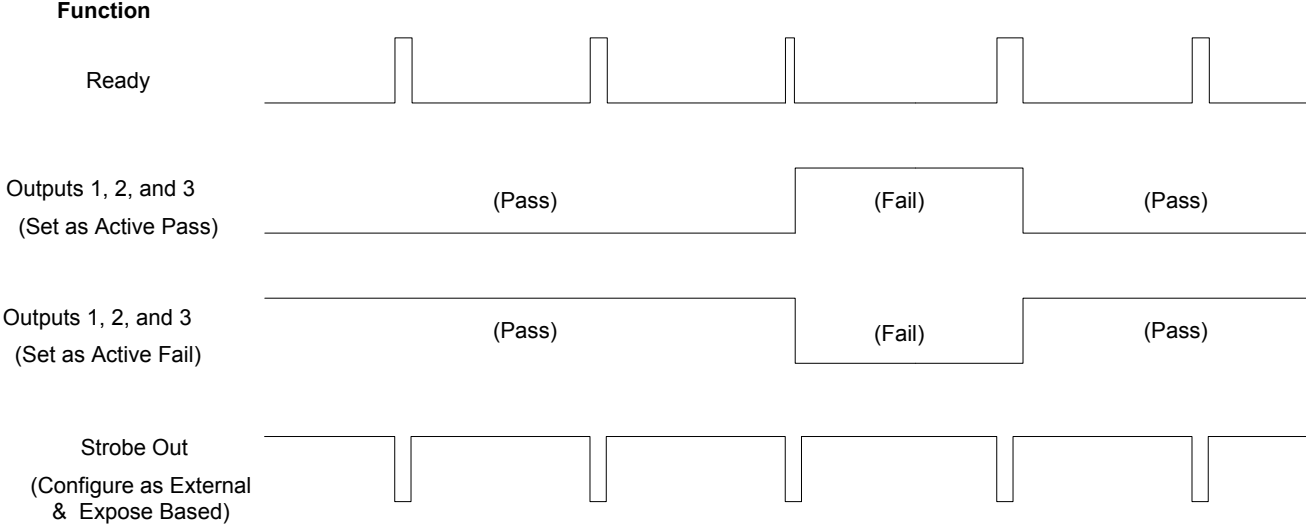
Option 2: Enable the Input Pullup in the iVu Plus BCR software (**Main Menu > System > Discrete I/O > Input Pullup**).

iVu Output Waveforms

PNP Outputs



NPN Outputs



Accessories




Power Cable — Required



Model	Length	Description
MQDC2S-1206	2 m (6 ft)	12-pin cable, straight
MQDC2S-1215	5 m (15 ft)	
MQDC2S-1230	9 m (30 ft)	
MQDC2S-1250	16 m (50 ft)	

USB Cable — Optional

Model	Length	Description
MQDEC-8005-USB	.15 m (6")	USB cable, straight
MQDEC-801-USB	.30 m (1')	
MQDEC-803-USB	.90 m (3')	
MQDEC-810-USB	3 m (10')	
MQDEC-8005RA-USB	.15 m (6")	USB cable, right angle
MQDEC-801RA-USB	.30 m (1')	
MQDEC-803RA-USB	.90 m (3')	
MQDEC-810RA-USB	3 m (10')	

Bracket Choices

Model	Description	Mounting Bracket
SMBIVURAL	Right angle, left mounting bracket	
SMBIVURAR	Right angle, right mounting bracket	
SMBIVUB	Bottom mounting bracket kit	

Model	Description	Mounting Bracket
SMBIVUU	U-shape mounting bracket kit  <div style="border: 1px solid gray; padding: 5px; display: inline-block; margin-left: 20px;"> <p>NOTE: Banner recommends that cables with right-angle connectors be used with this bracket kit.</p> </div>	



NOTE: Micro Lens models shown

Micro Lens Accessories

Micro Lens Choices

Model	Lens Description
LMF04	4.3 mm lens
LMF06	6 mm lens
LMF08	8 mm lens
LMF12	12 mm lens
LMF16	16 mm lens
LMF25	25 mm lens

Micro Lens Filter Choices — Optional

Model	Description
FLTMR	Red filter kit
FLTMB	Blue filter kit
FLTMG	Green filter kit
FLTMI	IR filter kit

C-Mount Lens Accessories

C-Mount Lens Choices

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

Model	Lens Description
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

Banner Engineering Corp Limited Warranty

Banner Engineering Corp. warrants its products to be free from defects in material and workmanship for one year following the date of shipment. Banner Engineering Corp. will repair or replace, free of charge, any product of its manufacture which, at the time it is returned to the factory, is found to have been defective during the warranty period. This warranty does not cover damage or liability for misuse, abuse, or the improper application or installation of the Banner product.

THIS LIMITED WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES WHETHER EXPRESS OR IMPLIED (INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE), AND WHETHER ARISING UNDER COURSE OF PERFORMANCE, COURSE OF DEALING OR TRADE USAGE.

This Warranty is exclusive and limited to repair or, at the discretion of Banner Engineering Corp., replacement. **IN NO EVENT SHALL BANNER ENGINEERING CORP. BE LIABLE TO BUYER OR ANY OTHER PERSON OR ENTITY FOR ANY EXTRA COSTS, EXPENSES, LOSSES, LOSS OF PROFITS, OR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES RESULTING FROM ANY PRODUCT DEFECT OR FROM THE USE OR INABILITY TO USE THE PRODUCT, WHETHER ARISING IN CONTRACT OR WARRANTY, STATUTE, TORT, STRICT LIABILITY, NEGLIGENCE, OR OTHERWISE.**

Banner Engineering Corp. reserves the right to change, modify or improve the design of the product without assuming any obligations or liabilities relating to any product previously manufactured by Banner Engineering Corp.



more sensors, more solutions

www.bannerengineering.com - tel: 763-544-3164