

iVu TG Image Sensor



Used with Remote Display

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

Features



The iVu image sensor is used to monitor parts for type, size, orientation, shape, and location. The iVu Plus Barcode Reader (BCR) sensor package consists of lighting, sensor, and lens. This version of the iVu Plus 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, set-up, 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
- Three sensors in one package—a match sensor that determines whether a pattern on a label or part matches some reference pattern; an area sensor that detects whether a particular feature (or features) is present or not; and a blemish sensor that detects flaws on parts
- USB 2.0 compliant host provided 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.
- High speed processing

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	IVURGNX04	IVURGNX08	IVURGNX12	IVURGNX16	IVURGNX25	IVURGNXC
Red	IVURGNR04	IVURGNR08	IVURGNR12	IVURGNR16	IVURGNR25	N/A
Blue	IVURGNB04	IVURGNB08	IVURGNB12	IVURGNB16	IVURGNB25	N/A
Green	IVURGNG04	IVURGNG08	IVURGNG12	IVURGNG16	IVURGNG25	N/A
IR	IVURGNI04	IVURGNI08	IVURGNI12	IVURGNI16	IVURGNI25	N/A
White	IVURGNW04	IVURGNW08	IVURGNW12	IVURGNW16	IVURGNW25	N/A
UV 365 *	IVURGN604	IVURGN608	IVURGN612	IVURGN616	IVURGN625	N/A
UV 395 *	IVURGN904	IVURGN908	IVURGN912	IVURGN916	IVURGN925	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	IVURGPX04	IVURGPX08	IVURGPX12	IVURGPX16	IVURGPX25	IVUTGPXC
Red	IVURGPR04	IVURGPR08	IVURGPR12	IVURGPR16	IVURGPR25	N/A
Blue	IVURGPB04	IVURGPB08	IVURGPB12	IVURGPB16	IVURGPB25	N/A
Green	IVURGPG04	IVURGPG08	IVURGPG12	IVURGPG16	IVURGPG25	N/A
IR	IVURGPI04	IVURGPI08	IVURGPI12	IVURGPI16	IVURGPI25	N/A
White	IVURGPW04	IVURGPW08	IVURGPW12	IVURGPW16	IVURGPW25	N/A
UV 365 *	IVURGP604	IVURGP608	IVURGP612	IVURGP616	IVURGP625	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	
UV 395 *	IVURGP904	IVURGP908	IVURGP912	IVURGP916	IVURGP925	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)



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.

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

4-pin Pico (M8) 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

Tools

Match, Area, Area with Motion

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

Remote Display Connection

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

Acquisition

100 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

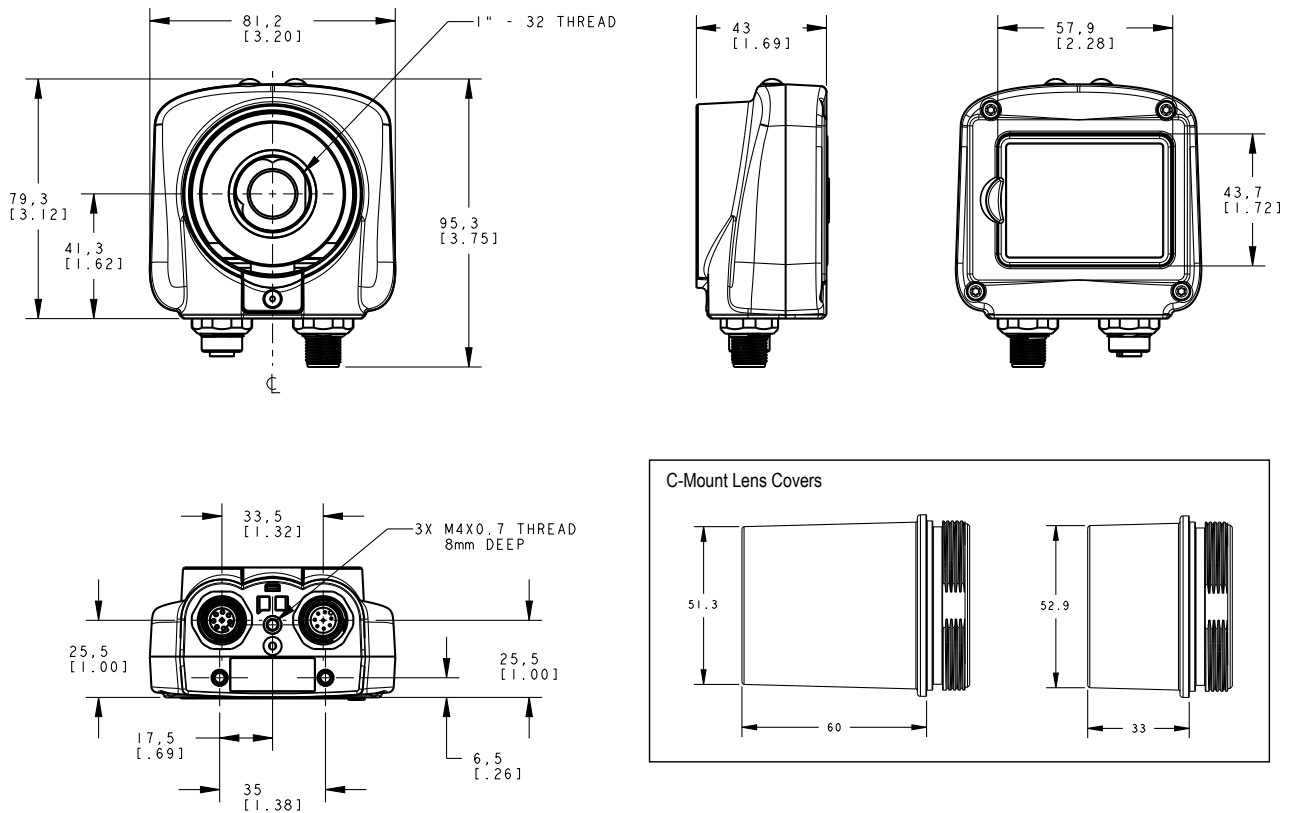
Stable Ambient Temperature: 0° to + 50° C (+32° to + 122° F)

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

Certifications

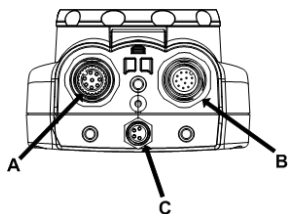


C-Mount Lens Dimensions



Cable Connections for the iVu Plus BCR with a Remote Display

The cable connections on the iVu sensor are shown below, and power I/O connections (B) are defined in the **Power I/O Connections** table below.



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

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

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

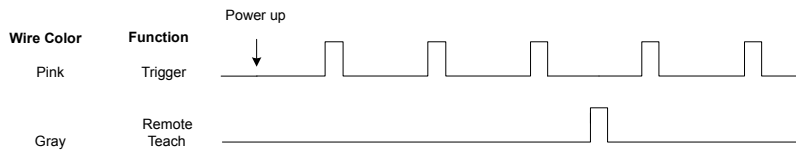
Power I/O Connections			
Pin #	Wire Color	Description	Direction
8	Red	Ready	Output
4	Yellow	Strobe Out (5V dc only)	Output
3	Green	Output 2	Output
9	Orange	Not used	N/A
10	Light Blue	Not used	N/A
11	Black	Not used	N/A
12	Violet	Not used	N/A

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

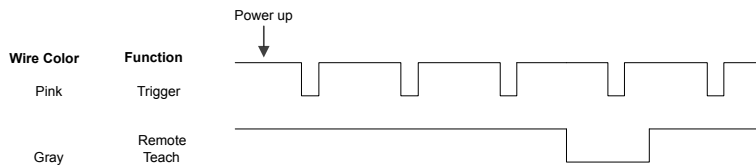
The iVu Trigger and Remote Teach input waveforms are shown below.



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.

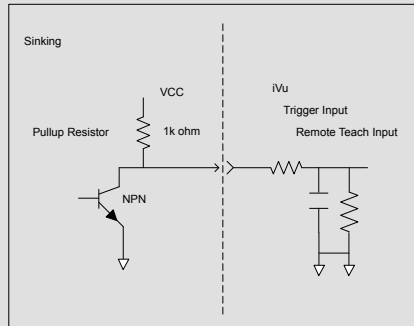


The sensor triggers from high to low, and Remote Teach behaves electrically like trigger.



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:

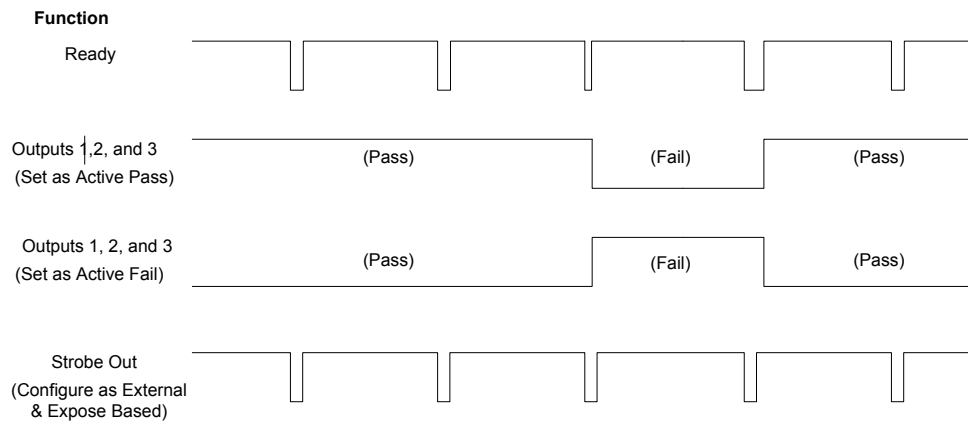
Option 1: Put a pull-up resistor, rated approximately 1k ohm, between the sensor's positive (+) voltage and the sensor's input as shown below.



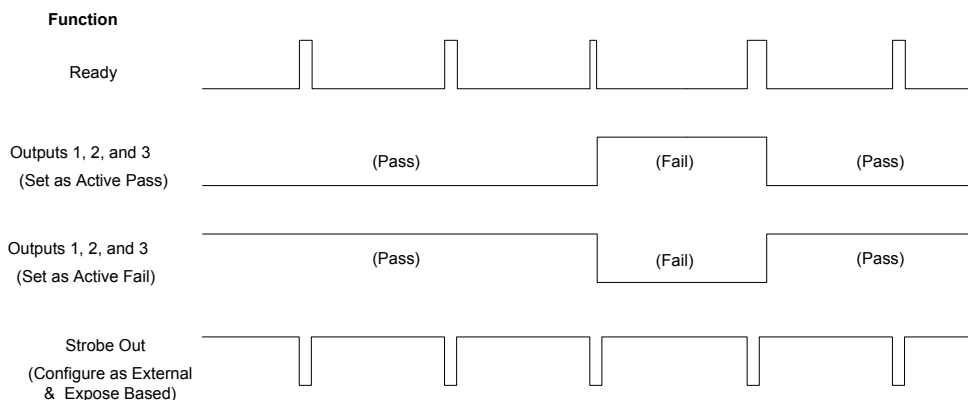
Option 2: Enable the Input Pullup in the iVu Plus BCR software (**Main Menu > System > Discrete I/O > Input Pullup**).

iVu Output Waveforms

PNP Outputs



NPN Outputs



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)	

Remote Display — Required for Setup

Model	Description	Data Sheet
RD35	3.5" Diagonal Remote Touch Screen	p/n 149171

Cordsets

Table 1: Cordsets

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

Table 2: 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)	8-pin cable, straight, M12-Molex Mounting Bracket (SMBRD35) Stylus
IVURD-MXK-815	4.57 m (15 ft)	8-pin cable, straight, M12-Molex Mounting Bracket (SMBRD35) Stylus
IVURD-MXK-830	9.14 m (30 ft)	8-pin cable, straight, M12-Molex Mounting Bracket (SMBRD35) Stylus

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



NOTE: All cable kits include a bracket/docking station and stylus.




USB Cable — Optional

Model	Length	Description
PSG-4M-4005-USB	.15 m (6")	USB cable, straight
PSG-4M-401-USB	.30 m (1')	
PSG-4M-403-USB	.90 m (3')	
PSG-4M-410-USB	3 m (10')	
PSG-4M-416-USB	4.8 m (16')	

USB Memory — Optional

Model	Description
IVU-USBFD2	USB Flash Drive 2 GB

Bracket Choices

Model	Description	Mounting Bracket
SMBIVURAL	Right angle, left mounting bracket	
SMBIVURAR	Right angle, right mounting bracket	
SMBIVUU	U-shape mounting bracket kit	



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
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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