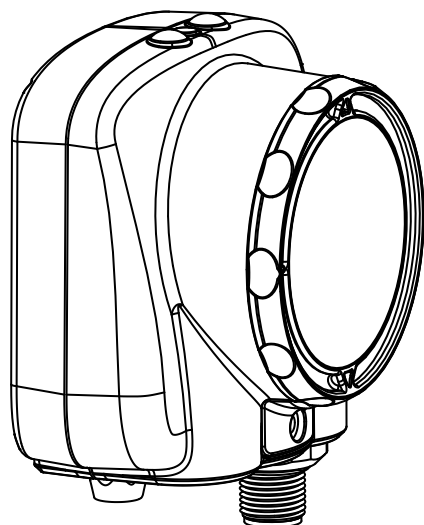


iVu Plus Image Sensor

Integrated Display



The iVu Plus sensor is used to monitor parts for type, size, orientation, shape, and location. The package consists of lighting, sensor, and lens. This version of the iVu Plus has an integrated display 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.

- No external PC required to configure the sensor
- Image processing expertise is not required
- Multiple inspections that facilitate storing and controlling up to 30 inspections for fast product turnover
- Four sensor types in one package—a match sensor that determines whether a pattern on a label or part matches some reference pattern; a sort sensor that can recognize and sort up to ten different patterns within the same inspection; 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
- Ethernet communications that provides for enhanced control of, and communications with, the sensor
- An RS232 serial communications port
- High speed processing



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

Never use this product as a sensing device for personnel protection. Doing so could lead to serious injury or death. This product 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 deenergized sensor output condition. Consult your Banner Safety Products catalog for safety products that meet OSHA, ANSI and IEC standards for personnel protection.

Models

Ring Light Options	Lens Options					
	4.3 mm	6 mm	8 mm	12 mm	16 mm	25 mm
None	IVUPTGX04	IVUPTGX06	IVUPTGX08	IVUPTGX12	IVUPTGX16	IVUPTGX25
Red	IVUPTGR04	IVUPTGR06	IVUPTGR08	IVUPTGR12	IVUPTGR16	IVUPTGR25
Blue	IVUPTGB04	IVUPTGB06	IVUPTGB08	IVUPTGB12	IVUPTGB16	IVUPTGB25
Green	IVUPTGG04	IVUPTGG06	IVUPTGG08	IVUPTGG12	IVUPTGG16	IVUPTGG25
IR	IVUPTGI04	IVUPTGI06	IVUPTGI08	IVUPTGI12	IVUPTGI16	IVUPTGI25
White	IVUPTGW04	IVUPTGW06	IVUPTGW08	IVUPTGW12	IVUPTGW16	IVUPTGW25

Specifications

Power Connection

12 -pin Euro-style (M12) male connector; accessory cable required for operation

USB 2.0 Host

4-pin Pico (M8) female connector; optional USB cable required for operation of USB Thumb Drive

Ethernet Connection

4-pin Pico (M8) male connector

Power Requirements

Voltage: 10-30V dc; **Current:** 1A maximum (exclusive of I/O load)

Output Configuration

NPN or PNP, software selectable

Tools

Multi-inspection sensor with Area, Blemish, Match, and Sort tools

Demo Mode

Full tool functionality on canned images

Sensor Lock

Optional password protection

External Strobe Output

+ 5V dc

Integrated Ring Light

Models with Red, IR, Green, Blue, White or no integrated ring light

Output Rating

150 mA

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

M12 X 1 mm thread; micro video lens 4.3, 6, 8, 12, 16, 25 mm

Construction

Black Valox™ sensor housing; acrylic window

Environmental Rating

IP67

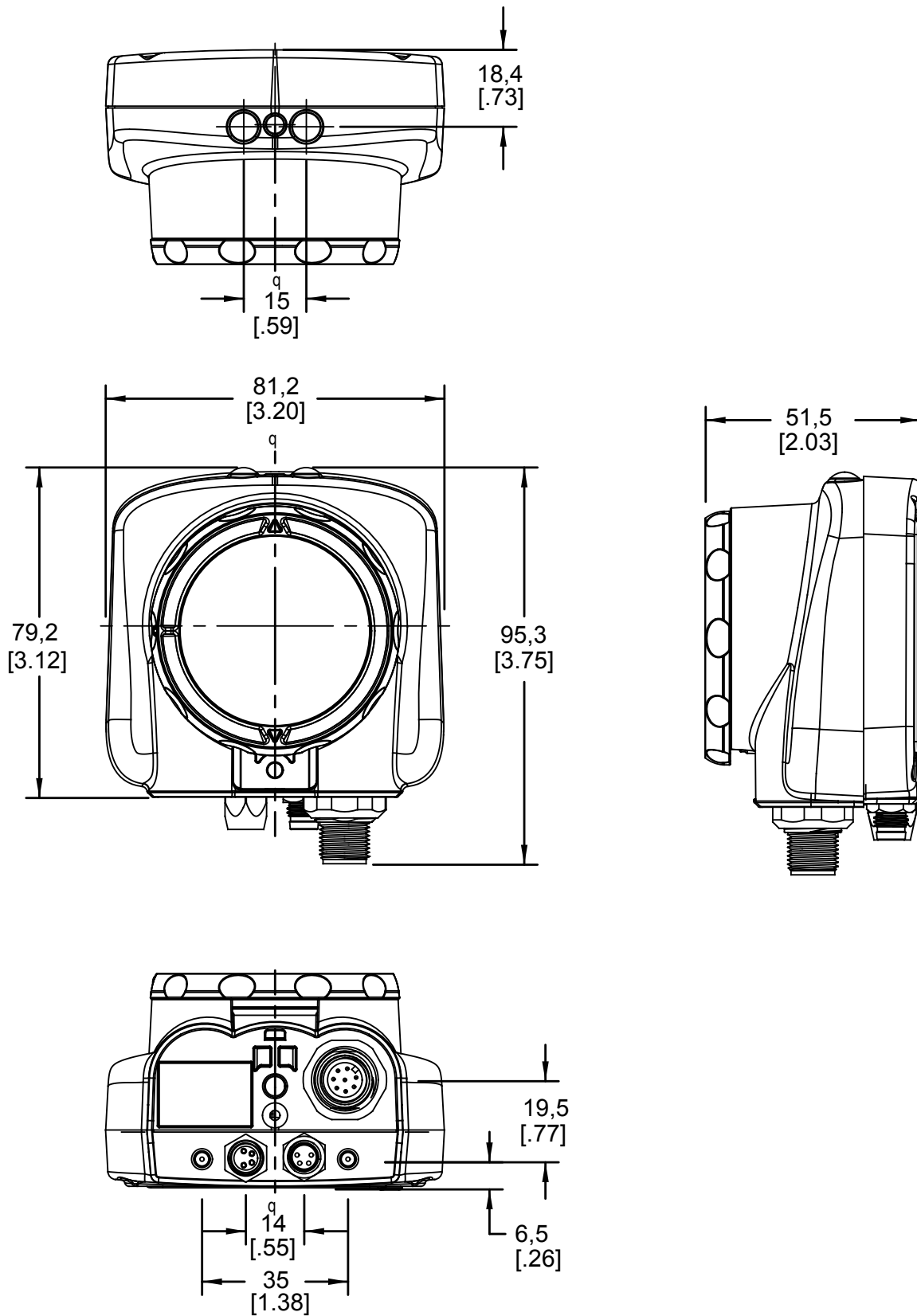
Operating Conditions

Stable Ambient Temperature: 0° to + 45° C (+32° to + 113° F)

Certifications

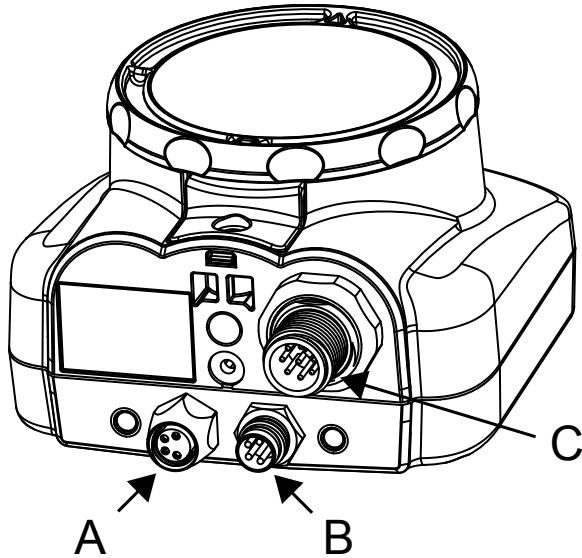


Dimensions



Cable Connections for the iVu Plus Sensor

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



A	USB Connector
B	Ethernet Connector
C	Power I/O Connector

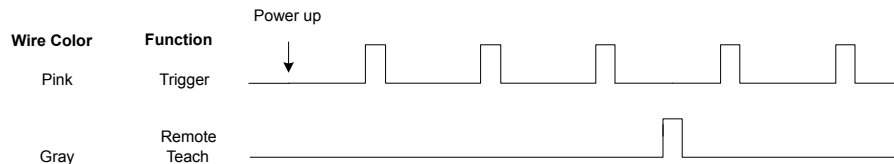
Power I/O Connections			
Pin #	Wire Color	Description	Direction
2	Brown	10-30V dc	Input
7	Blue	Common (Signal Ground)	Input
6	Pink	External Trigger	Input
5	Gray	Remote Teach	Input
1	White	Output 1	Output
8	Red	Ready	Output
4	Yellow	Strobe Out (5V dc only)	Output
3	Green	Output 2	Output
9	Orange	Output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

iVu Low-to-High Trigger and Remote Teach Input Waveforms

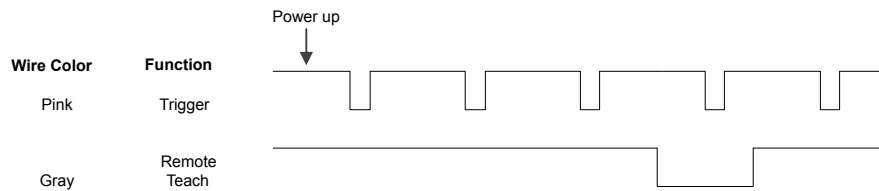
The iVu Trigger and Remote Teach input waveforms are shown below.



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

iVu High-to-Low Trigger and Remote Teach Input Waveforms

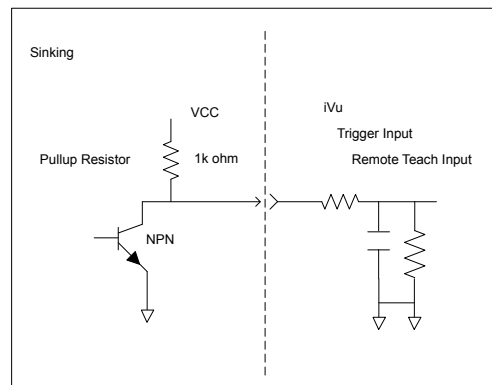
The iVu High-to-Low Trigger and Remote Teach input waveforms are shown below.



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 is a sinking device (that is, NPN), then there are two options regarding the use of a pull-up resistor:

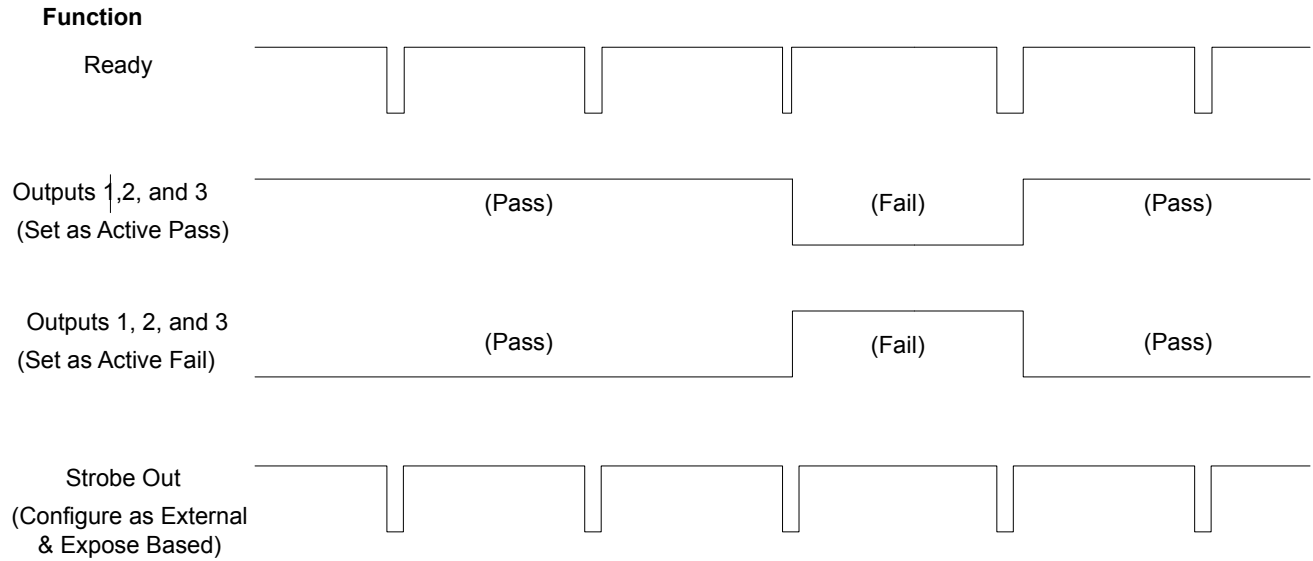
Option 1: Put a pull-up resistor, rated approximately 1k ohm, between the sensor's positive (+) voltage and the sensor's input as shown below.



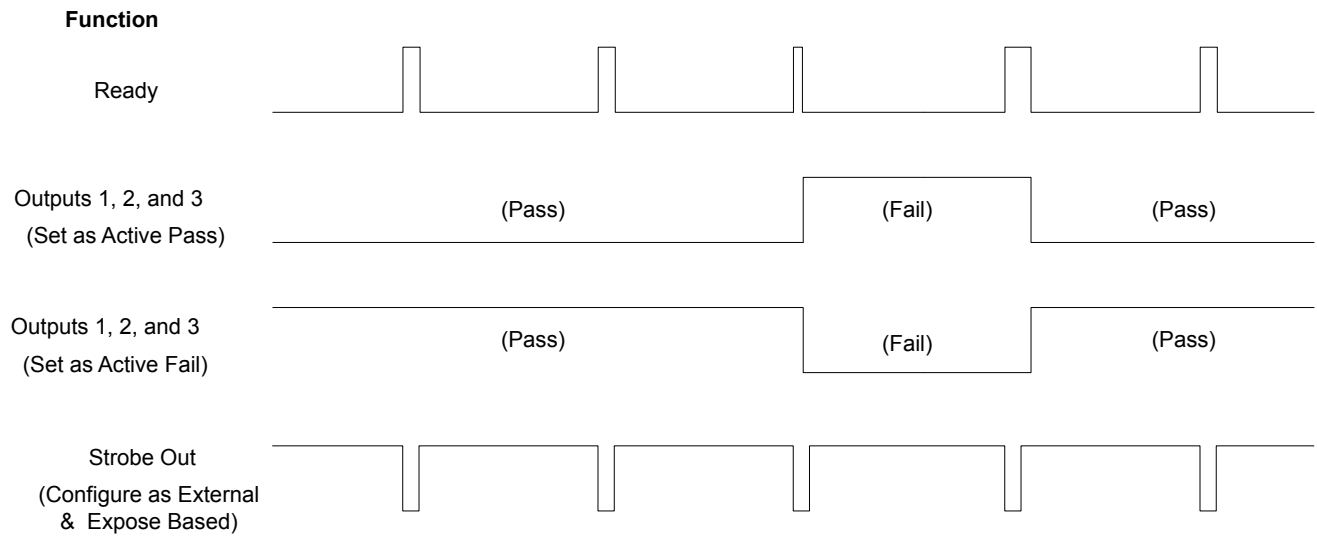
Option 2: Enable the Input Pullup in the iVu Plus software (**Main Menu > System > Discrete I/O > Input Pullup**).

iVu Output Waveforms

PNP Outputs



NPN Outputs



Accessories

Power Cable — Required

Model	Length	Description
IVUC-1206	2 m (6')	12-pin cable, straight
IVUC-1215	5 m (15')	
IVUC-1230	9 m (30')	
IVUC-1250	16 m (50')	
IVUC-1275	23 m (75')	
IVUC-1206RA	2 m (6')	12-pin cable, right angle
IVUC-1215RA	5 m (15')	
IVUC-1230RA	9 m (30')	
IVUC-1250RA	16 m (50')	
IVUC-1275RA	23 m (75')	

Ethernet Cable Options

Model	Length	Description
IVUC-E-406	2 m (6')	4-pin Pico to RJ45 Ethernet cordset
IVUC-E- 415	5 m (15')	
IVUC-E- 430	9 m (30')	
IVUC-E- 450	16 m (50')	
IVUC-E- 475	23 m (75')	

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')	

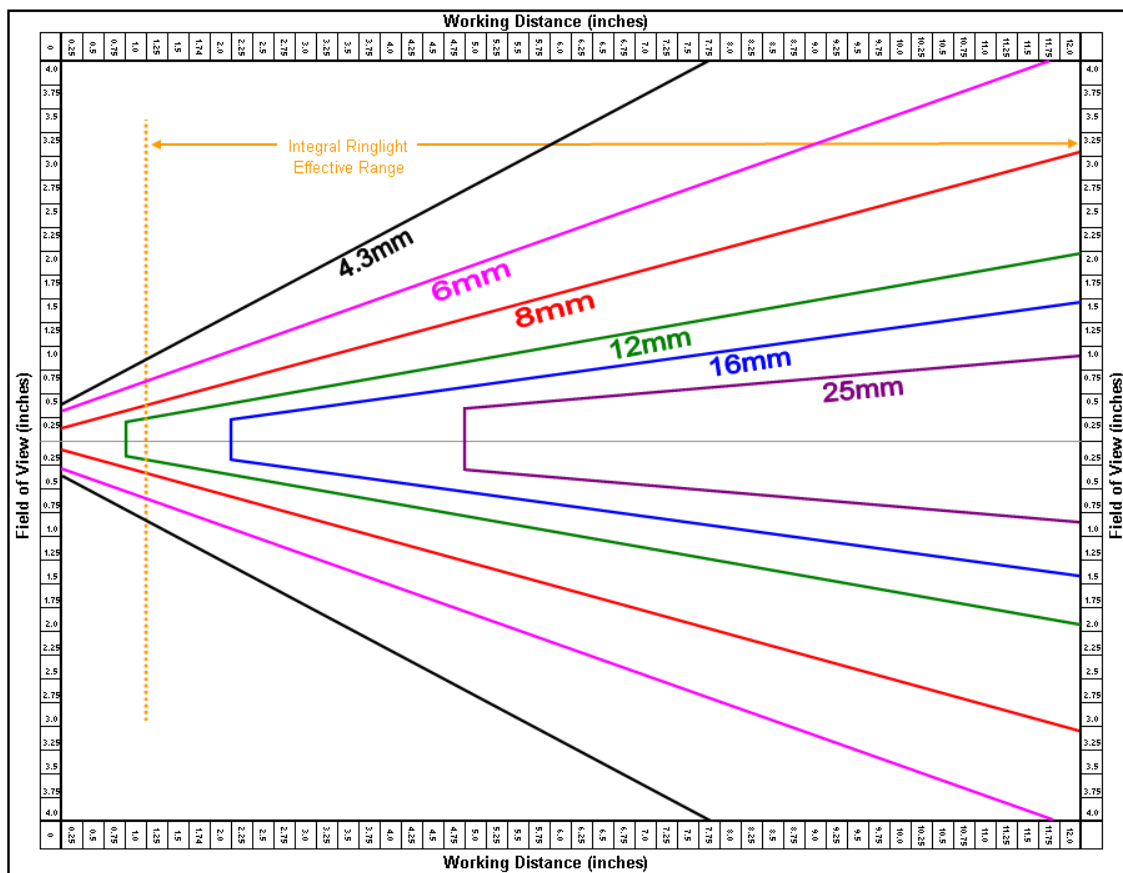
USB Memory — Optional

Model	Description
IVU-USBF02	USB Flash Drive 2 GB

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

iVu Lens Chart





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Filters — Optional

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

Bracket Choices

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