

VS2 Machine Vision System

INSTALLATION AND DEPLOYMENT GUIDE

What's included:



1x Camera Controller



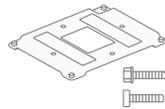
1x Camera



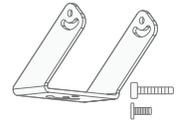
1x Controller Breakout Cable



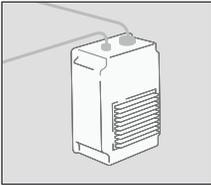
1x Camera Cable



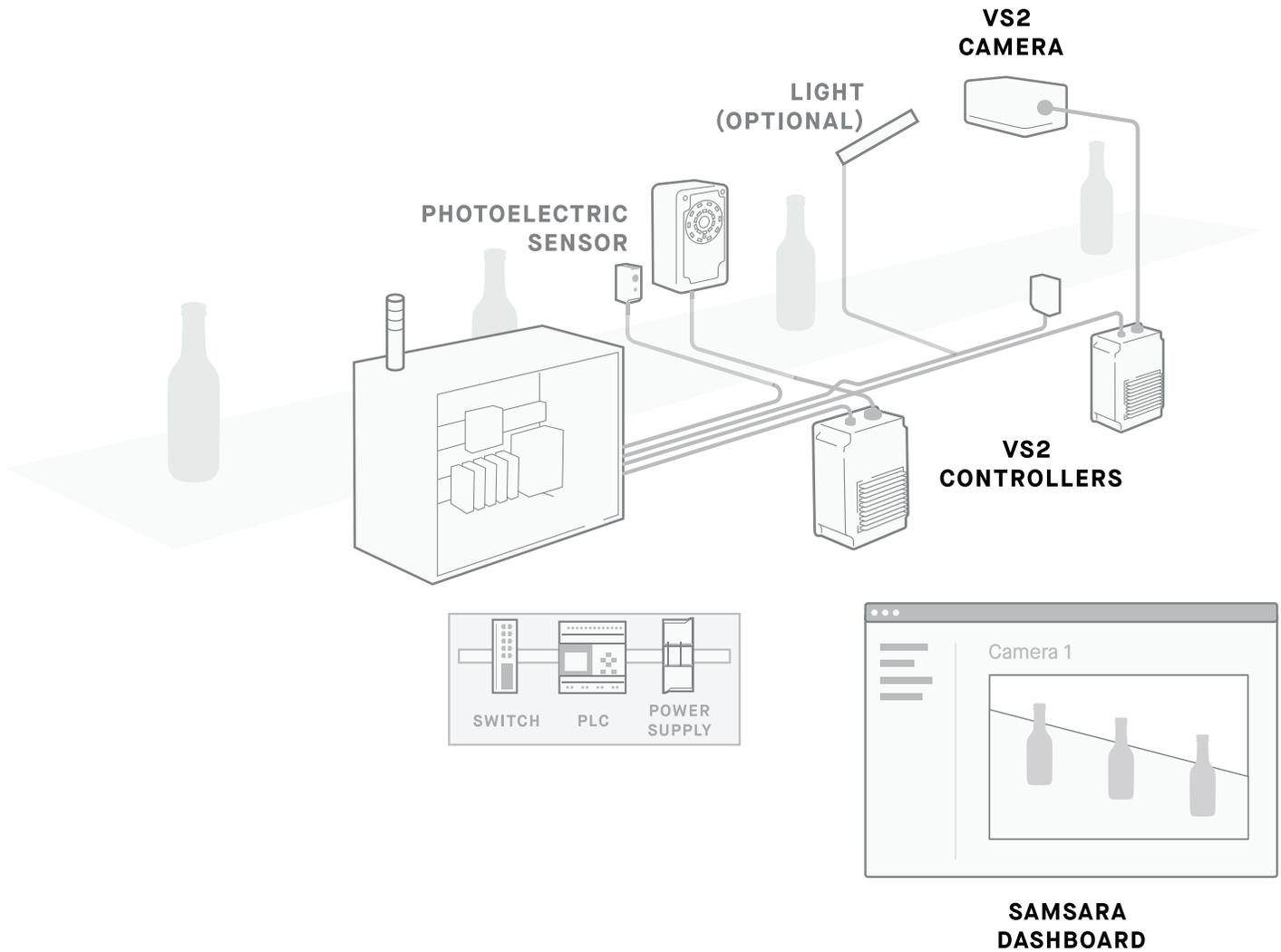
1x Controller Mounting Plate
4x Self-Tapping Screws
4x Flat-End Screws

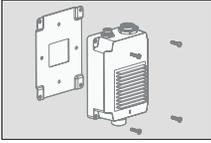


1x Camera Mount
1x 1/4-20 Flat-End Screw
4x M4 Flat-End Screws



The Samsara VS-series machine vision system is a complete solution for streamlining quality control across the factory floor. Once the system is installed, it can be programmed and updated remotely via the Samsara dashboard. This guide will walk you through the steps for deploying the system.



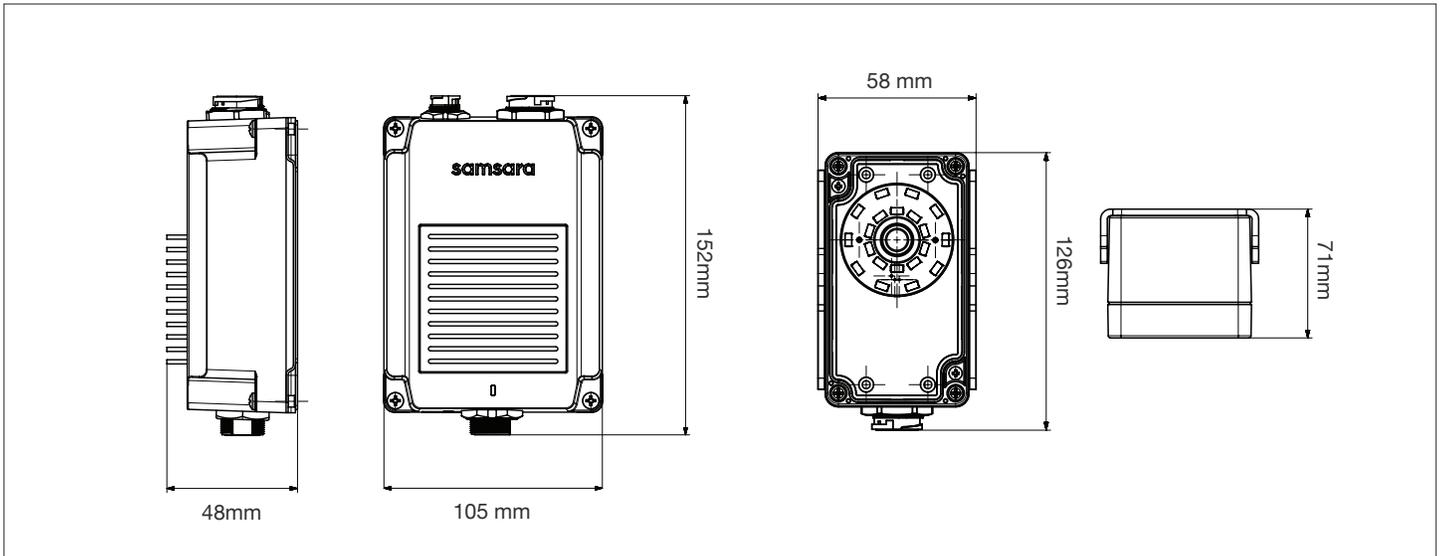


This section provides the information required for mounting the VS system including dimensions and important considerations for capturing clear images.

For additional guidance on mount brackets, external lighting, and special configurations, consult your Samsara representative.

VS2 Dimensions

Enclosure



Dimensions	Controller: 105 x 152 x 48mm (4.1 x 6.0 x 1.9 inches) Camera: 126 x 71 x 58mm (5.0 x 2.8 x 2.3 inches)
Materials	Controller: UV-stabilized polycarbonate, aluminum Mounting brackets: Powder-coated, corrosion-resistant stainless steel
Ingress protection	IP67, camera, controller, and cable connections are all washdown-rated
Industrial connectors	Power/IO, Camera: Bayonet-locking, IP67 Ethernet: RJ45 with included waterproof cap
Integrated illumination	White LEDs (5000K)

Imaging sensor

Working distance	152 to 280mm (6 to 11 inches)
Field of view	145 x 105mm at 152mm (5.7 x 4.1 inches at 6 inches) 243 x 185mm at 280mm (9.6 x 7.3 inches at 11 inches)

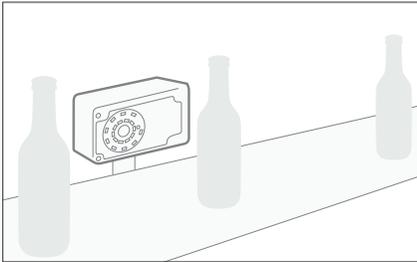
BEFORE GETTING STARTED

Mounting Considerations

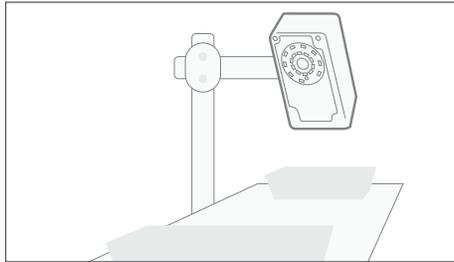
Before selecting a mounting bracket and mounting the camera, take the following considerations into account to ensure an easy installation process.

MOUNT POINT

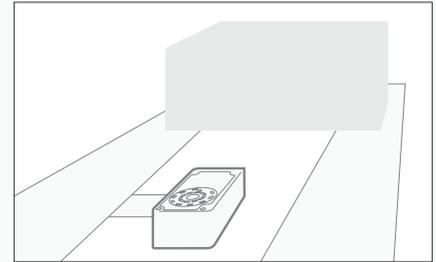
Identify where the camera should be positioned so it lines up with the product feature you plan to inspect. Some of the most common mount points are shown below.

**Beside the line**

Mounted beside a conveyor line for barcode inspection.

**Above the line**

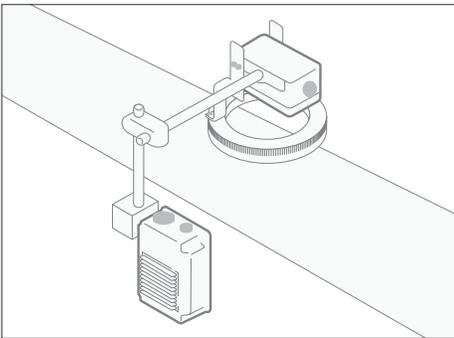
Mounted above a conveyor line for label matching.

**Under the line**

Mounted below a hugging belt conveyor for package inspection.

MOUNT STABILITY

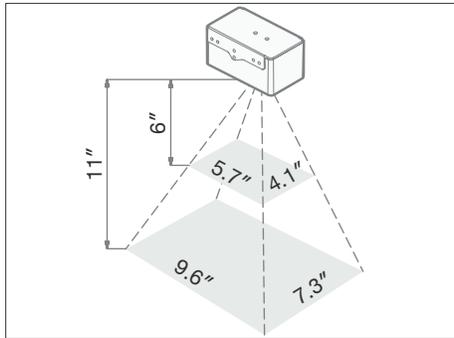
Ensure that the camera and mount are easy to clean without shifting position. Use shock mounts to minimize movement and maintain camera alignment where necessary.



A camera mounted on grooveless rods in a food manufacturing facility makes cleaning easy.

WORKING DISTANCE

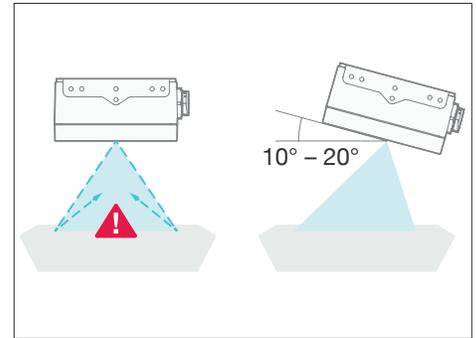
The camera should be mounted between 6 and 11 inches away from the feature you are inspecting depending on the feature's size. Use the diagram in Appendix 1 to determine the ideal distance.



When mounted 6" away, the camera has a field of view of 5.7" x 4.1".

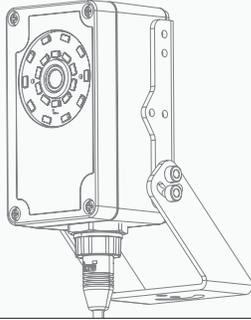
GLARE

In order to minimize glare when inspecting reflective products, tilt the camera at a 10° to 20° angle. Samsara may also recommend external lighting to reduce glare in specific applications.

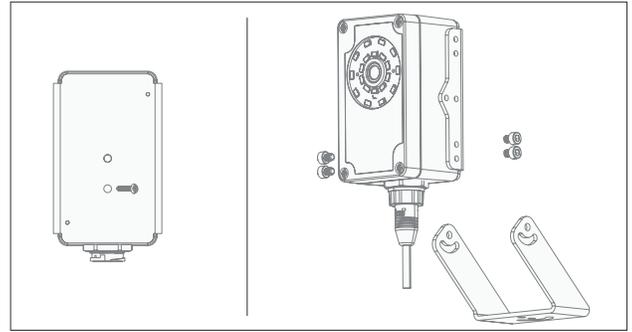


Tilt the camera to minimize glare. See Appendix 2 for details on external lighting.

Mounting Steps

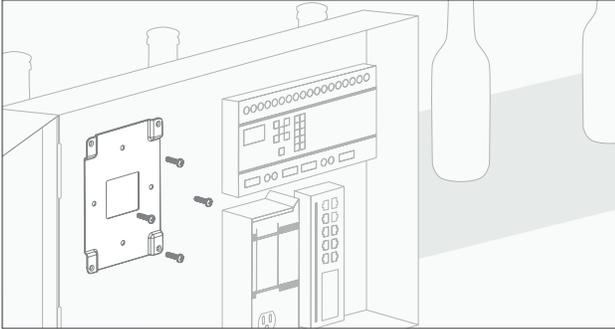


1



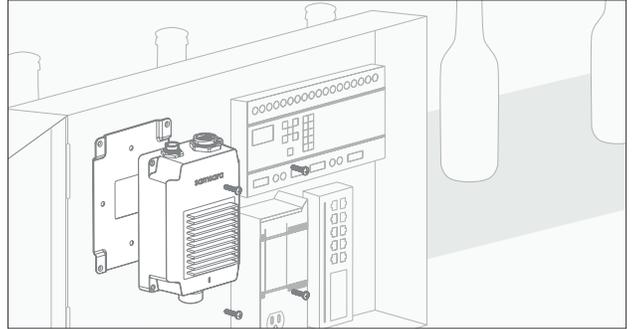
Once you have identified a mount location and installed your mount, mount the camera at the correct angle and working distance using the $\frac{1}{4}$ x 20 mounting screw or the included swivel mount and M4 screws.

2

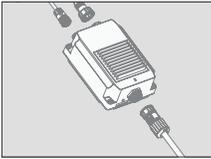


Using the self-tapping screws, install the controller mounting plate in your electrical enclosure. If you plan to connect the system via Wi-Fi, the plate and controller should be mounted outside of the enclosure near the inspection point.

3



Align the controller with the mounting bracket and attach using the flat head screws.

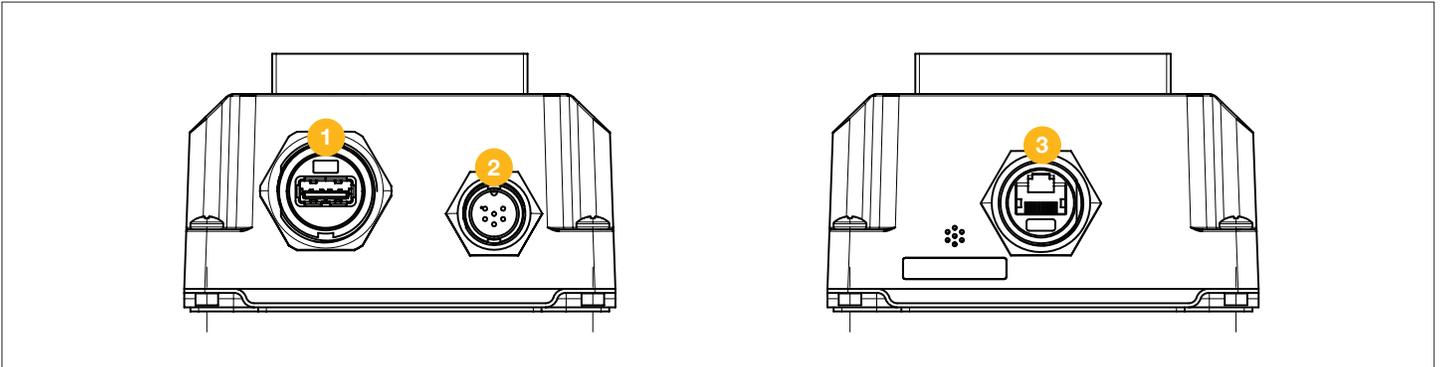


This section describes the connection of the vision system to standard components. The VS2 features ethernet and Wi-Fi for internet connectivity and supports trigger inputs and outputs from NPN and PNP devices and lines.

For additional guidance on integrating with both rejection and local control systems consult your Samsara representative.

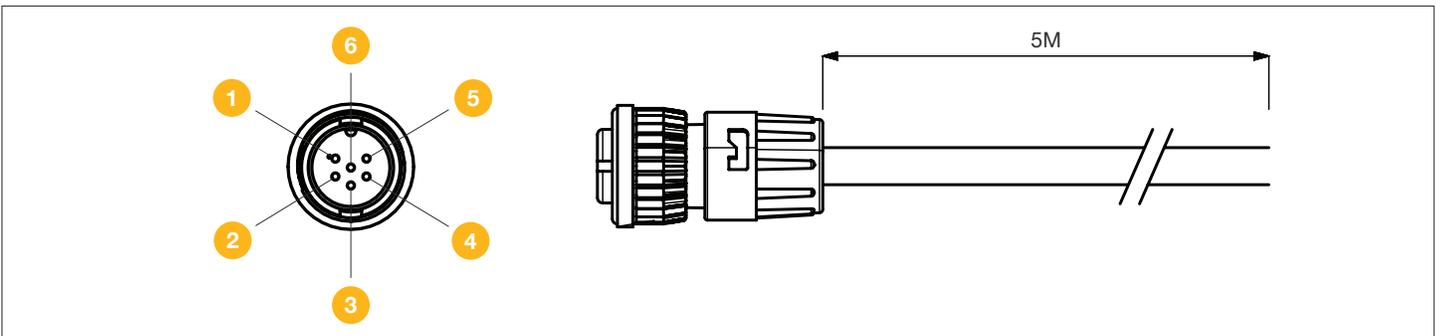
Connectors and Indicators

Controller connectors



Connector	Name	Function
1	Camera	Connects the controller to the camera.
2	Power/IO	Connects the breakout cable which provides power as well as connections to the input trigger and output.
3	Ethernet	Connects the controller to the network.

Breakout cable pin-out



Pin	Signal Name	Wire Color	Voltage Specification
1	Power	Red	12V
2	Ground	Black	—
3	Input Trigger	Green	10 – 30V
4	Input Common	White	10 – 30V
5	Output	Blue	10 – 30V
6	Output Common	Gray	10 – 30V

Wiring Steps

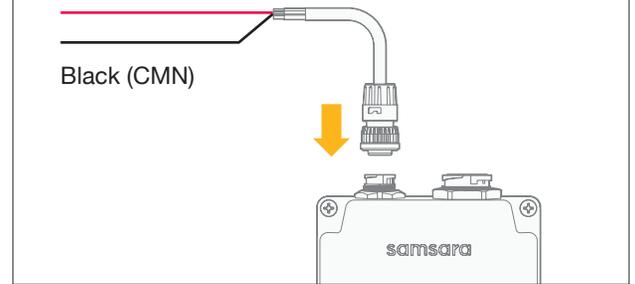
BASIC SETUP



1

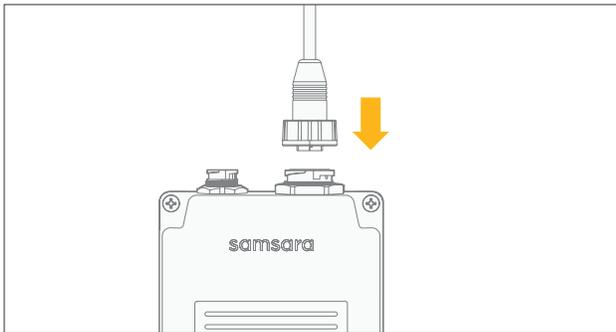
Red (10-17VDC)

Black (CMN)



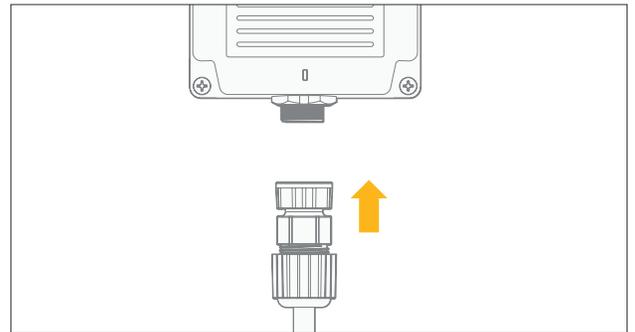
Connect breakout cable to controller and wire the red (POS+) and black (NEG-) wires to the correct terminals on the unplugged power supply.

2



Connect the controller to the camera using the camera cable.

3



Connect the controller to an active internet connection via ethernet.

Note: Contact Samsara if you would like to receive units pre-configured with Wi-Fi credentials.

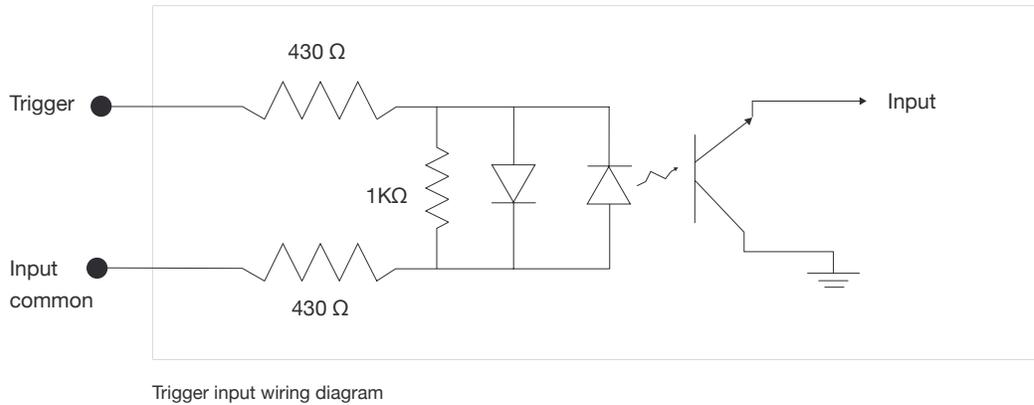
CONNECTING A TRIGGER INPUT

Triggering from an NPN device

Connect the Input common wire (white) to +10-30VDC and the Trigger wire (green) to the output of the trigger.

Triggering from a PNP device

Connect the Input common wire (white) to +0-3VDC and the Trigger wire (green) to the output of the trigger.



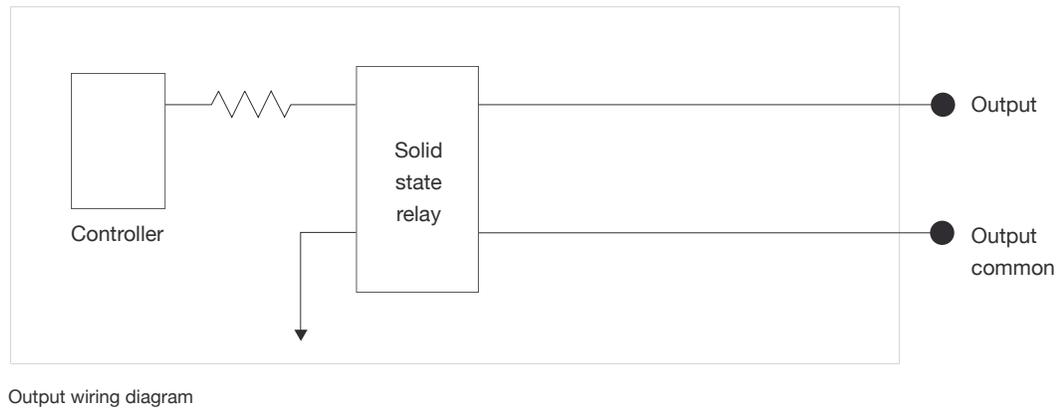
CONNECTING AN OUTPUT

Connect for an NPN line

Connect the Output common wire (gray) to the negative supply voltage and connect the Output wire (blue) to the desired device.

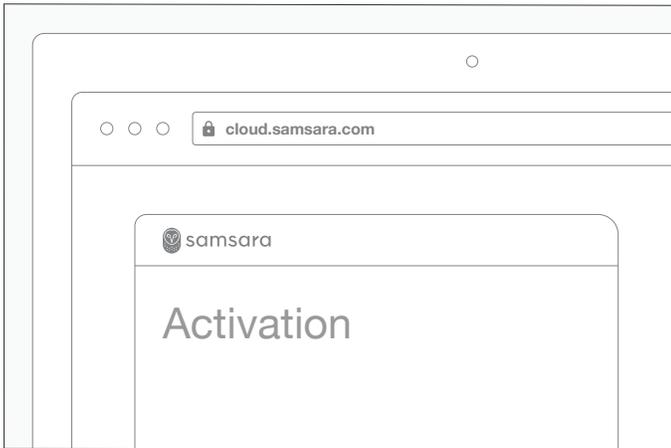
Connect for a PNP line

Connect Output Common wire (gray) to the positive supply voltage and connect the Output wire (blue) to the desired device.

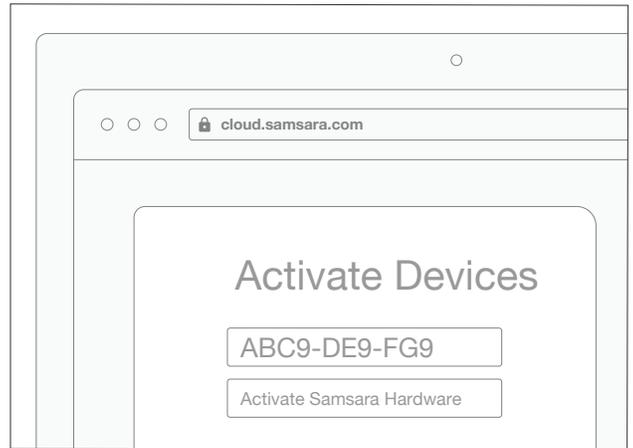




This section walks you through the steps you should take to set up your hardware in the Samsara dashboard.



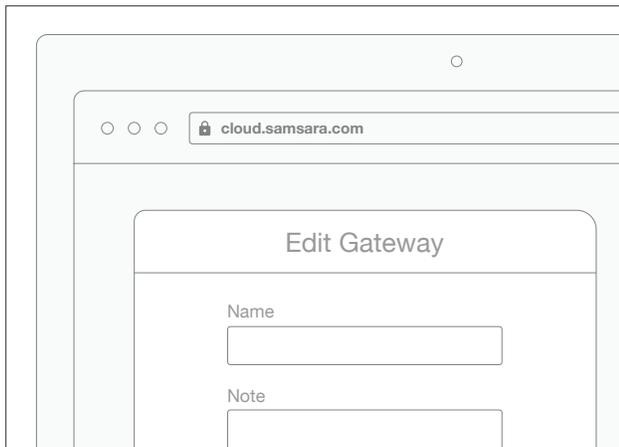
1



Go to cloud.samsara.com, create an account, and follow the on-screen steps to activate your hardware.

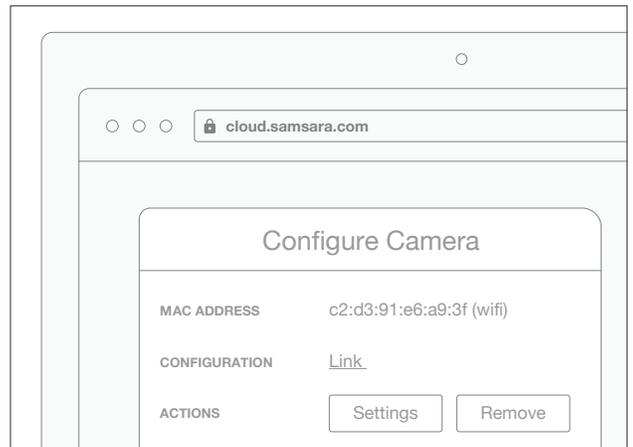
You can find your serial number on the back of the controller or its box.

2



Your newly activated controller will populate in the dashboard. Click Settings to rename the controller.

3



Your camera is now ready to be configured with inspection programs. Click Link to start the configuration.

VS2 Ring Light and Mount

Samsara offers an externally mounted ring light for applications where additional lighting is required to reduce glare and provide a clear image. Consult your Samsara representative for additional details.

