



# Product Sheet

Multispectral Multicamera Imaging System

MSMC-2-2



MSMC-2-2

Specifications subject to change

Revised October 25, 2022

# Table of Contents

1. Description.....	3
2. Specifications .....	4
3. Drawing (Exterior).....	5
4. Drawing (Interior) .....	6
5. Camera and Sensor Geometry.....	7

# 1. Description

The MSMC-2-2 is a multispectral multicamera imaging system incorporating two multispectral cameras into a single housing. Each multispectral camera has its own lens and views the scene (object) through a plate beam splitter. The beam splitter enables each camera to observe the same scene without parallax effects. Both cameras are USB3 Vision and GenICam compliant offering many options for image acquisition software, SDKs and OS platforms. The system is supplied with Windows-based 2ndLook software providing easy setup and simultaneous recording of images from both cameras. Both cameras come hardwired in a master/follower arrangement allowing one camera to trigger the other. This ensures simultaneous image capture on both cameras. Each camera can have independent exposure settings to accommodate differences in sensitivity of each camera. The cameras and beam splitter are mounted on 3-degree of freedom (DOF) stages enabling alignment of the beam splitter and each camera to the scene (object) using an Allen key after removal of the lid. One camera has adjustments for roll, yaw and x. The second camera and beam splitter have adjustments for roll, pitch, and z. Power is provided to each camera through the USB3 interface. The housing is constructed from thick aluminum for stability and hard anodized for durability. The housing is dustproof.

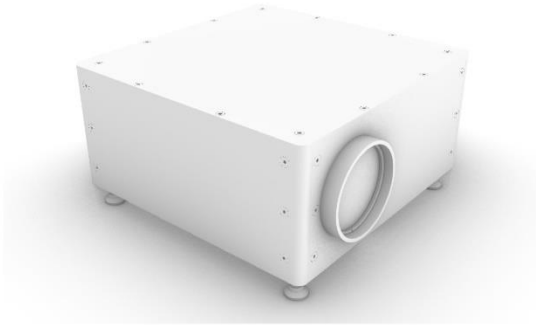
## 2. Specifications

Dimensions (H x W x D) – not including feet	116 mm x 250 mm x 250 mm
Foot adjustment	20-40 mm
Aperture	77 mm screw on protective glass filter. User replaceable.
Camera 1 options	Spectral Devices Cameras: Color, Monochrome, Biomedical, Agriculture, 8-band NIR, 8-band Visible, UV-NIR, RGB-NIR, RGB-Mono, custom
Camera 2 options	Spectral Devices Cameras: Color, Monochrome, Biomedical, Agriculture, 8-band NIR, 8-band Visible, UV-NIR, RGB-NIR, RGB-Mono, custom
Camera 1 mount	3 DOF – roll, yaw, y
Camera 2 mount	3 DOF – roll, pitch, z
Beam splitter mount	3 DOF – roll, pitch, z
Beam splitter options	Glass plate 50:50 (R/T). Other options available.
Distance between camera C-mount and Beam splitter	Adjustable from 40 mm to 80 mm
Lens options	1-inch fixed focal length, manual focus, manual iris, locking screws. Many options available.
Rear connector	2 x USB 3 Type-B (female)
Tripod mounting	4 x ¼-20 and 4 x M6 threaded holes on bottom near center
Construction	CNC 6061 Aluminum, Brass and Stainless-Steel hardware
Surface finish	Hard anodized black

### 3. Drawing (Exterior)

MSMC-2-2

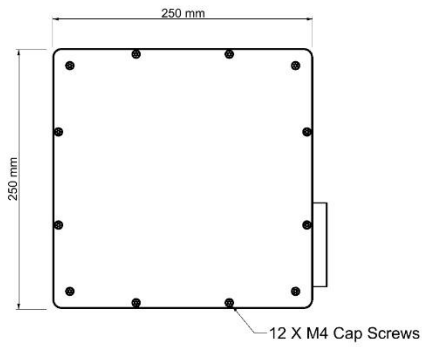
RENDERED FRONT VIEW



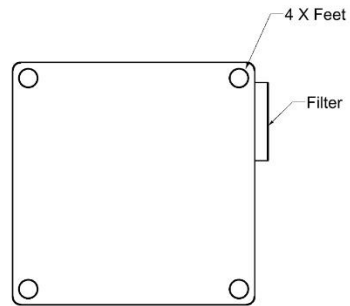
RENDERED BACK VIEW



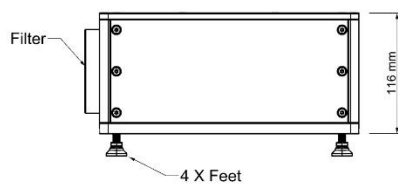
TOP VIEW



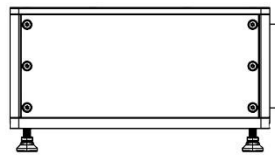
BOTTOM VIEW



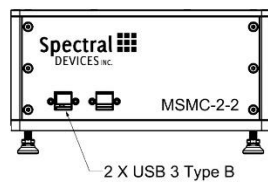
FRONT VIEW



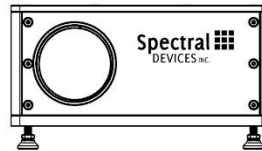
BACK VIEW



LEFT VIEW



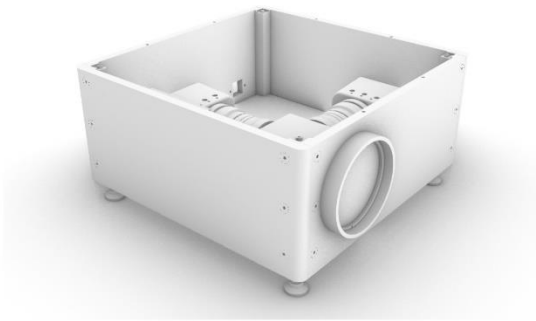
RIGHT VIEW



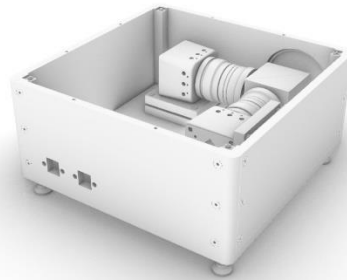
# 4. Drawing (Interior)

MSMC-2-2

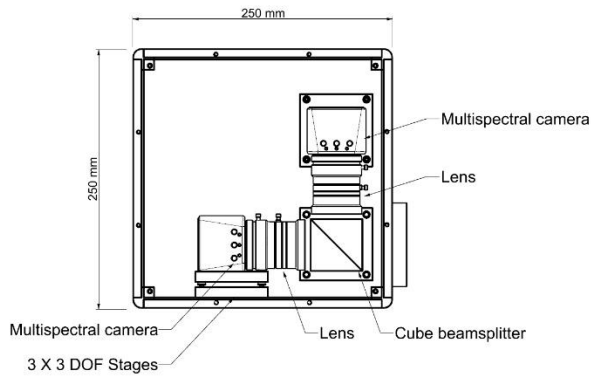
RENDERED FRONT VIEW



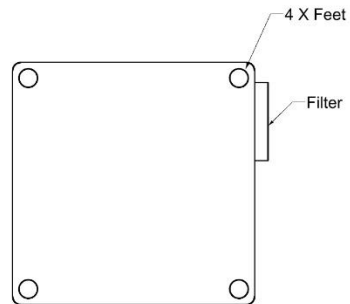
RENDERED BACK VIEW



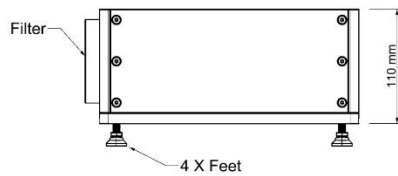
TOP VIEW



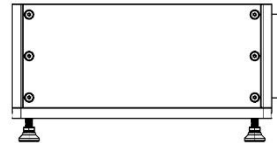
BOTTOM VIEW



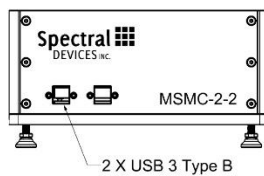
FRONT VIEW



BACK VIEW



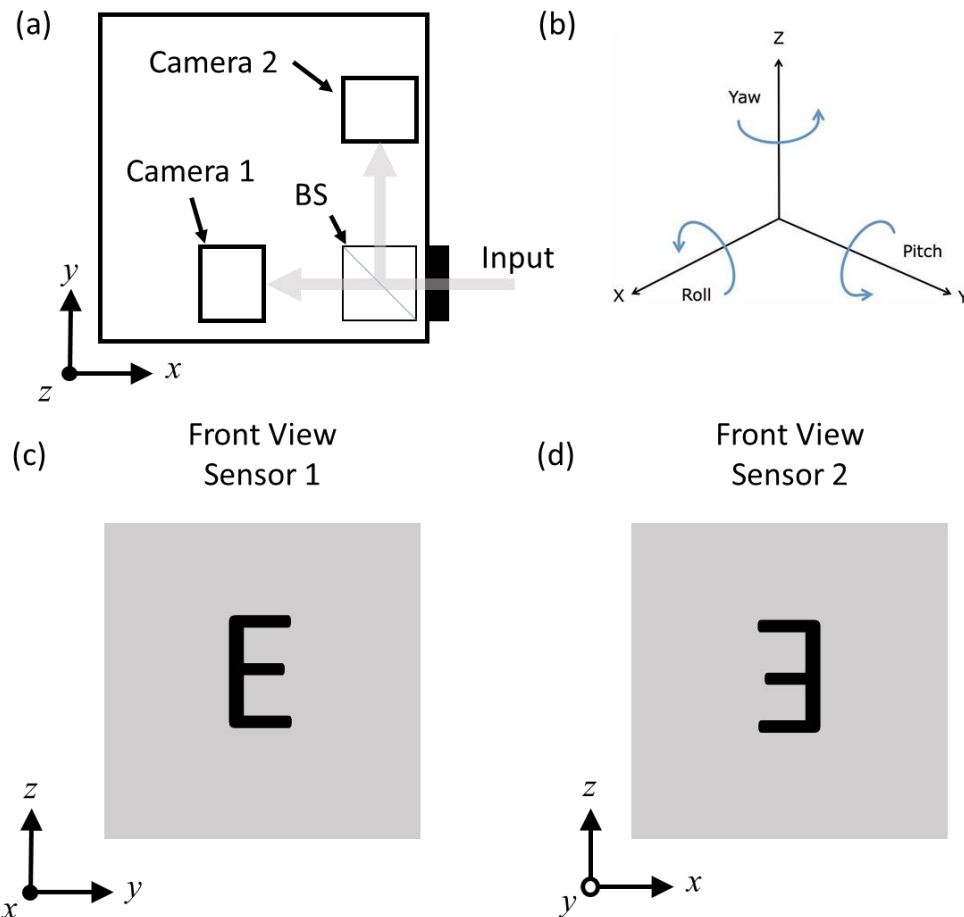
LEFT VIEW



RIGHT VIEW



## 5. Camera and Sensor Geometry



(a) General layout of cameras within the MSMC-2-2 showing orientation of cameras with respect to the beam splitter (BS) and the MSMC-2-2 coordinate system.

(b) Definition of yaw, pitch and roll with respect to the MSMC-2-2 coordinate system.

(c) Front view of sensor inside camera 1 and its relationship to the coordinate system of the MSMC-2-2. The letter 'E' indicates the orientation of the image of an object.

(d) Front view of sensor inside camera 2 and its relationship to the coordinate system of the MSMC-2-2. The orientation of the letter 'E' indicates that the image of the object is a mirror image of the image obtained with camera 1. The image is flipped horizontally in software during operation.