

Calibration of AVMS 360° Systems (Kit # AVMS-3699)

Please read thoroughly before starting installation and check that kit contents are complete.

Items Included in the Kit:

- Calibration Programmer
- Wire Harness
- SD Card
- 2 Calibration Banners
- USB flash drive w/calibration software

Tools & Supplies Needed:

- Windows-based computer
- Computer **must** have SD card reader or SD card-to-USB adapter
- User needs basic knowledge of Windows, including how to copy files, file system navigation, and how to “unzip” or uncompress files
- First-time users of the calibration software are **highly recommended** to view our walkthrough video on the Brandmotion YouTube channel



Safety Precautions:

- Work in well ventilated area that is clear of obstructions.
- Secure vehicle with tire chucks in both front and rear of tires.
- Turn vehicle accessories OFF and ensure ignition key is in OFF position.
- Wear safety goggles and snug fitting clothes.
- Use tools only for their intended purpose and which are in good repair.
- Only perform this task if confidence, skill, and physical ability permit.

NOTE: We strive to provide accurate and up-to-date installation instructions. For the latest full color instructions, as well as an installation video, please visit www.brandmotion.com

I. OBTAIN IMAGES

1. Make sure all 4 cameras have a good view of the ground and no more than 10% of the vehicle is shown in each picture (especially the side views). Check using the installed 360 system by pressing the image button to change views.
2. Move the vehicle to a flat open area.
3. Plug the programmer into the calibration port on the 360° module.



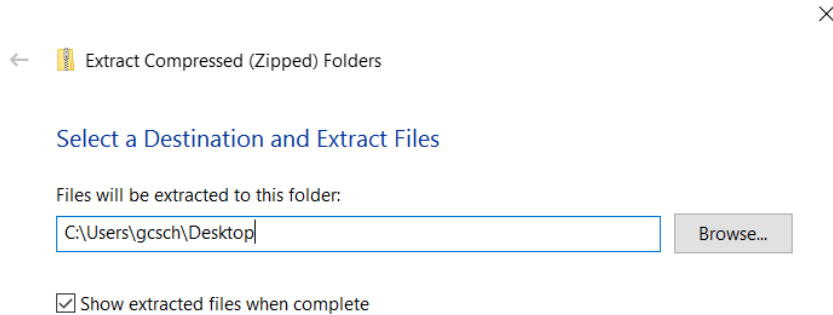
4. Insert the SD card into the programmer.
5. Lay out one of the calibration banners in front of the vehicle, about 6-12 inches from the edge of the bumpers.
6. Lay the other calibration banner in the rear of the vehicle, about 6-12 inches from the edge of the bumpers.
7. Check to see if the banners are visible from all (4) cameras by pressing the 360°/image button.
8. Use the 360°/image button to take a picture of all (4) cameras by pressing the button for 3 seconds and releasing. (*There are no banners in the pictures, pictures are for instructions only*).



9. Remove the SD card.

II. INSTALL 360 CALIBRATION SOFTWARE:

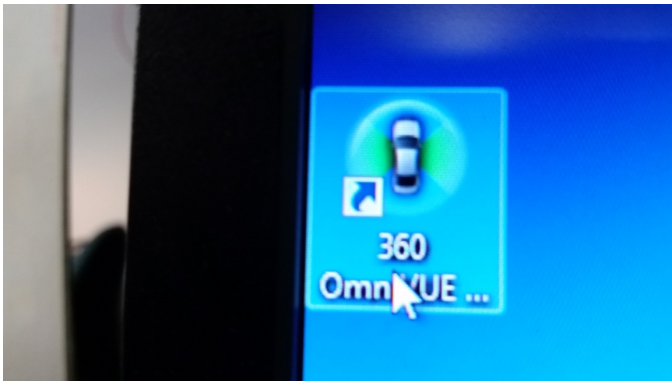
1. On the Windows-based computer, insert the USB drive. Click on and drag the "360_camera_config-2015-11-17.zip" file to your desktop to copy it.
2. Right-click on the "360_camera_config-2015-11-17.zip" file and select EXTRACT ALL from the menu. In the window that appears, make sure that the files are being extracted to a folder that starts with "C:\Users\" and ends with "\Desktop". *The "gcsch" will be replaced by your Windows user name.* Click the EXTRACT button at the bottom of the window. When the process is done, you should have a new folder on your desktop called "360 camera config".



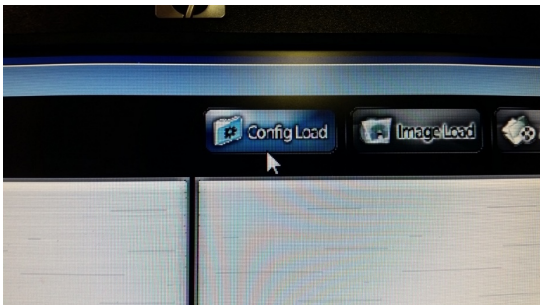
3. Install the calibration software by double-clicking on the "360 camera config" folder, then double-click the "1. Program" folder, then double-click the "OmniVUE2D_Calib-2.62.0" folder, then double-click either one of the "setup" files. Click NEXT for all of installation screens. If you see a Windows screen asking if you want to allow the software, select YES. Click CLOSE when the installation is finished.

III. CALIBRATE 360 VIEW:

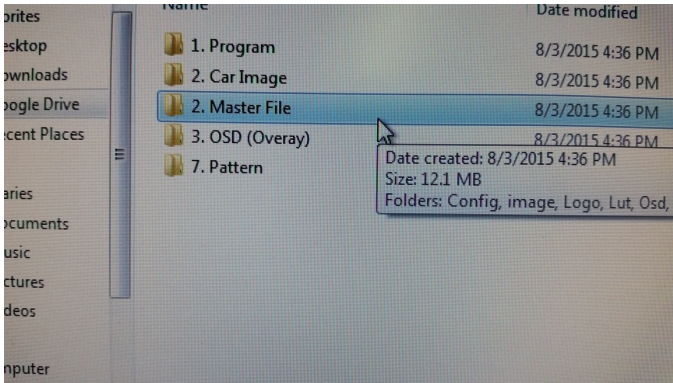
1. Click on the desktop shortcut "360 OmniVUE Calibration 2".



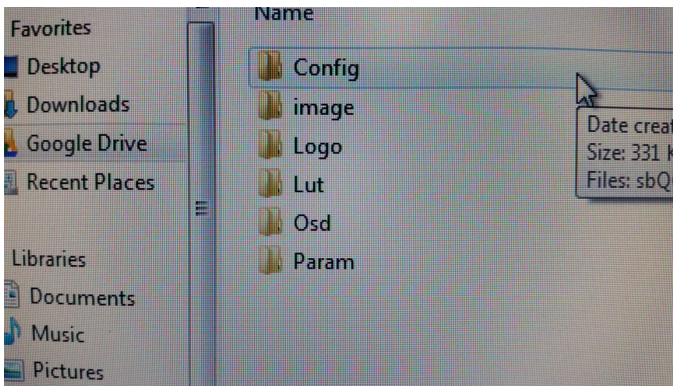
2. Insert the SD card from the programmer.
3. At the top of the OmniVUE program screen, go to "Config Load".



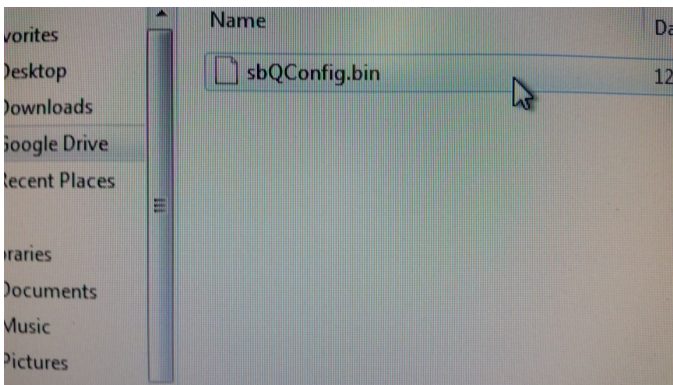
4. In the drop down menu, choose "2. Master File".



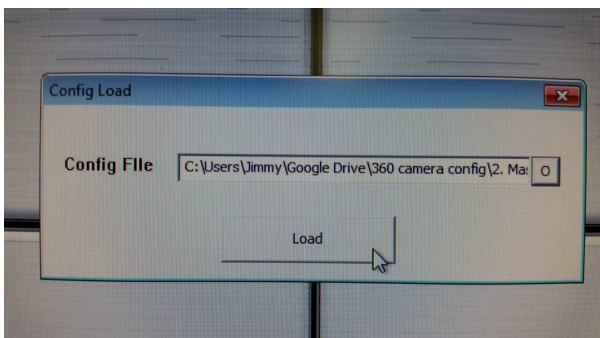
5. Click on the "Config" folder.



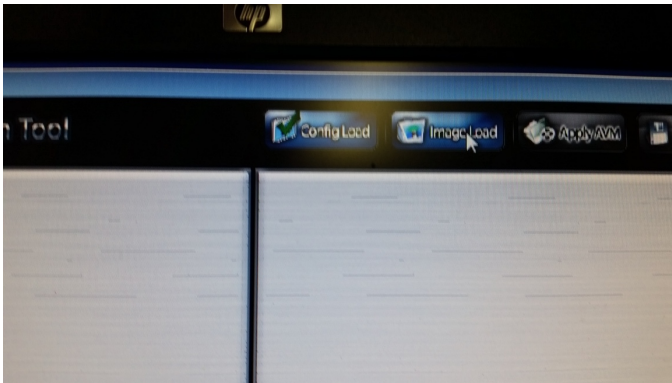
6. Click on sbQConfig.bin



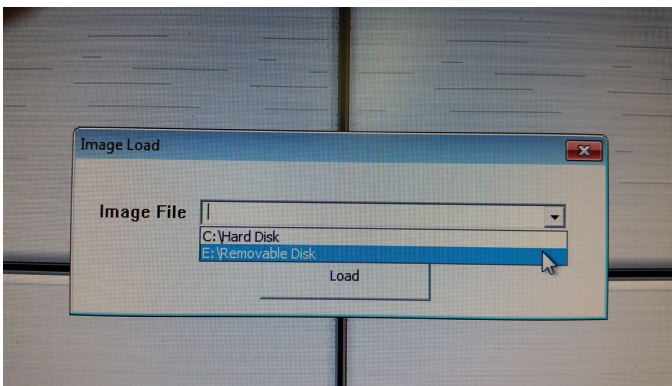
7. Click Load.



8. If done correctly, you should see a checkmark next to CONFIG LOAD. Click on IMAGE LOAD.



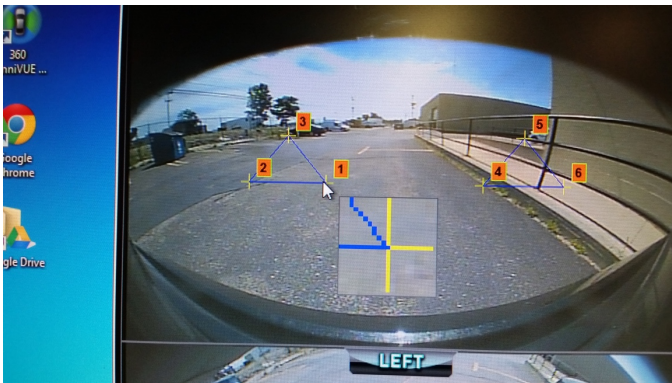
9. In drop down menu choose Removable Disk.



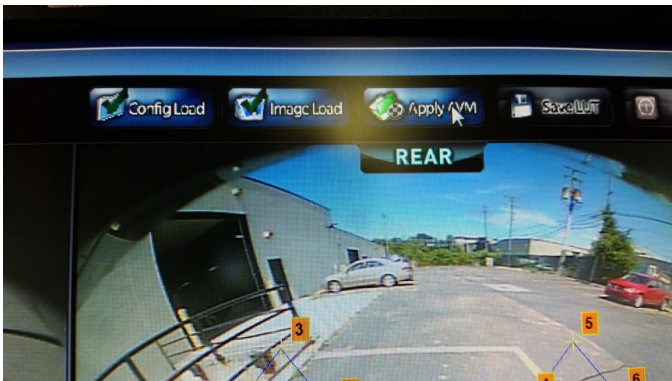
10. It will then load the (4) camera images that the programmer recorded. *(There are no banners in the pictures, pictures are for instructions only).*



11. Move the points of the triangles to match the triangles on the calibration banners. The program automatically zooms in on the points to help you match them more accurately. You can also double-click on a camera image to make it full-screen. Double-click the full-screen image to go back to the 4-camera view. Matching the points on the triangles directly affects the blended 360 image the customer will see on screen. *(There are no banners in the pictures, pictures are for instructions only).*



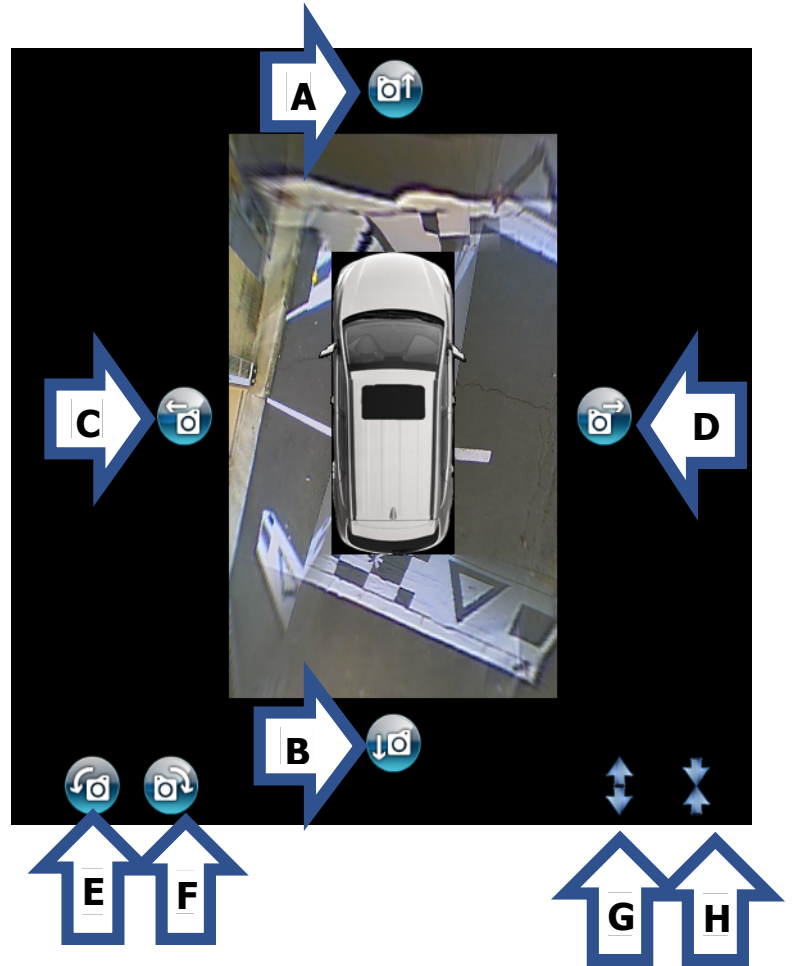
12. After you have aligned the triangles, click on APPLY AVM at the top of the screen. You may receive an error message if one of the triangle points is hidden by the vehicle body or "out of view" by the software program. Click OK to acknowledge the message and continue. *(There are no banners in the pictures, pictures are for instructions only).*



IV. ADJUST CAMERA VIEWS

You can change the alignment of the 360 image that will be on the vehicle display using the buttons around the image.

- A. Move 360 image UP
- B. Move 360 image DOWN
- C. Move 360 image LEFT
- D. Move 360 image RIGHT
- E. Rotate 360 image anti-clockwise
- F. Rotate 360 image clockwise
- G. Enlarge 360 image
- H. Decrease 360 image



The menu on the left side of the screen lets you change settings and adjust cameras.

The screenshot shows a settings menu with the following sections:

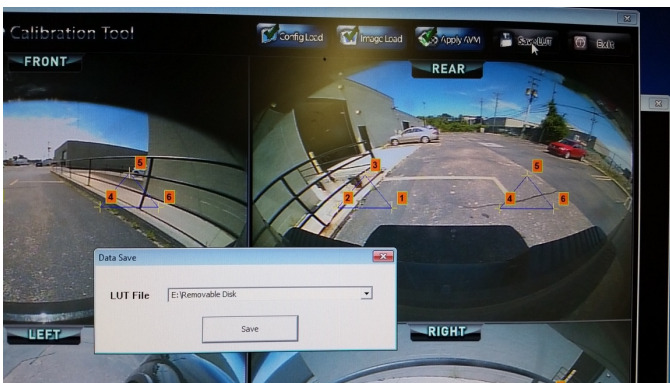
- Vehicle Dimensions:** Overall width (1850 mm), Overall length (4650 mm), Overall height (0 mm).
- LUT Version:** 1 . 0
- Select a View:** sbQ
- Surround View Property:** Enter length of marker (mm), Mask Type (Predefined), Front FOV (150), Rear FOV (150), Line Width (4 pixel), Line Color, Show Overlay Blend (checkbox), Load Car Image, Apply.
- Parking Line Property:** Parking Line Assistance

1. **VEHICLE DIMENSIONS:** Change "Overall width" and "Overall length" to larger numbers to increase the size of the black box in the 360 display. Lower numbers will decrease the size of the black box. "Overall height" is not used.
2. **LUT VERSION:** is not used and does not change.
3. **SELECT A VIEW:** allows you to preview the different camera views and make appropriate changes. You have the same buttons as in the main 360 view: move image UP, DOWN, LEFT, or RIGHT; rotate ANTI-CLOCKWISE or CLOCKWISE; ENLARGE or DECREASE image size.
 - a. sbQ: previews full 360 image
 - b. VIEW_FRONT: previews front camera image
 - c. VIEW_FRONT_FULL: previews full-screen front camera image
 - d. VIEW_REAR: previews rear camera image
 - e. VIEW_REAR_FULL: previews full-screen rear camera image
 - f. VIEW_LEFT: previews left camera image
 - g. VIEW_LEFT_FRONT: previews
 - h. VIEW_RIGHT: previews right camera image
 - i. VIEW_RIGHT_FRONT: previews
4. **SURROUND VIEW PROPERTY:** increasing this number above 1000 (default) will zoom 360 preview image in. Decreasing this number below will zoom 360 preview image out. SELECT A VIEW must be "sbQ" for you to see any changes.
5. **MASK TYPE:** allows you to change how the 4 camera views are blended together in the main 360 image. We recommend using either "Predefined", "Blending Auto", or "Blending FOV".
6. **FRONT FOV and REAR FOV:** only available in "Blending FOV", "Line 1", or "Line 2". Allows you to change the viewable angle of the front and rear cameras up to a maximum of 185 degrees.
7. **LINE WIDTH and LINE COLOR:** is not used.
8. **SHOW OVERLAY BLEND:** makes the blended areas more clear so you can see how the software is combining camera images that overlap.
9. **LOAD CAR IMAGE and APPLY:** Selects a car image to be overlaid on the black box that should accurately represent the customer's vehicle.
 - a. Change the MASK TYPE to "Blending Auto" and click on LOAD CAR IMAGE.
 - b. Choose "2. CAR IMAGE"
 - c. Choose the vehicle that most accurately represents the customer's vehicle and click OPEN in the bottom right corner.
 - d. Align the vehicle over the black box, and use the "handles" to change the size of the image. The handles in the corners change the size while the handles in the middle adjust only that side of the image.

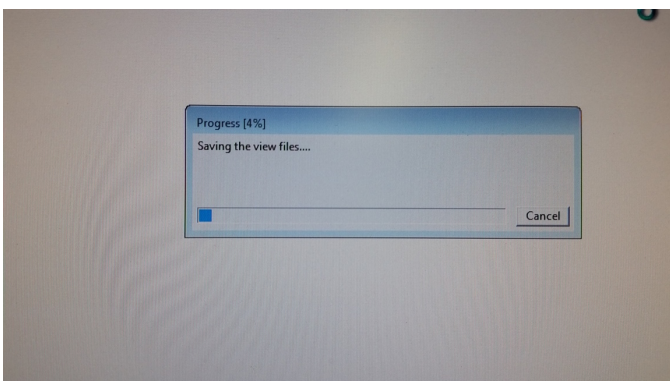
- e. Once the image is arranged and positioned correctly, click APPLY (next to LOAD CAR IMAGE) to save the car image.
10. PARKING LINE ASSISTANCE: Only available when SELECT A VIEW is either VIEW_REAR or VIEW_REAR_FULL. Allows you to place static parking lines in the rear camera preview image.
 - a. Change SELECT A VIEW to either VIEW_REAR or VIEW_REAR_FULL.
 - b. Click PARKING LINE ASSISTANCE
 - c. Choose "3. OSD (Overlay)"
 - d. Click on "000.bmp" (file name is three zeroes, not letter O), and click OPEN in the bottom right corner. If you have already selected parking lines and want to remove them, select "000 delete.bmp"
 - e. Use the picture tools to move the image to best fit the parking lines.

V. SAVING CALIBRATION FILES

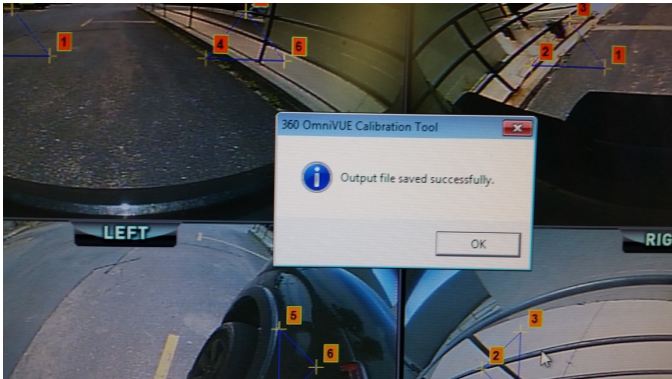
1. Once you have completed all of the adjustments, you need to save the completed calibration back to the SD card. Click on SAVE LUT at top of screen. (*There are no banners in the pictures, pictures are for instructions only*).



2. In the drop down menu choose Removable Disk.
3. Then click Save.



4. You will get a message, "Output file saved successfully". (There are no banners in the pictures, pictures are for instructions only).



5. Next click EXIT at the top of the screen.
6. Remove the SD card from the computer and take it to the vehicle. Turn the vehicle ignition on.
7. Once the vehicle is running, insert the SD card into the programmer.
 - a. If using a factory screen on a 2015 – current F150 **ONLY**, press the 360° one time to turn on system. Next, temporarily ground the RED wire in the harness on the key box then release. (This wire may be in the harness and you will have to cut the insulation back to access it). The images will start to load. (Make sure the vehicle is not in reverse.)
 - b. For all other vehicles, excluding the 2015 – current F150, press the power button once on the key box. The images will start to load. (Make sure the vehicle is not in reverse.)
8. After all the images load, unplug the programmer from the 360° module.
9. Press the image button to see all the images and the stitching of the 360° view.
10. If all images are correct, cleanup wiring and reassemble vehicle.
11. Fold up calibration banners and box up with programmer, SD card, wire harness and USB drive.