

C20D Installation and Calibration Manual

1. Determine the installation location

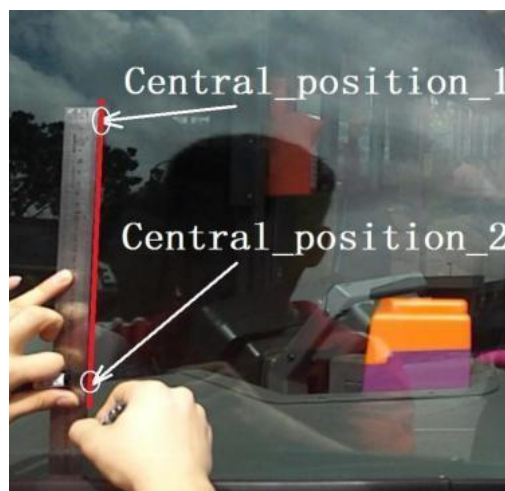
- 1) Measure the width of the front windshield with a tape measure, find the center point of the front windshield and make a mark.



- 2) In the vertical direction, at least 20 cm from the center position, locate another horizontal center point on the front windshield.



- 3) Use a marker to draw a straight line on the front windshield connecting center point with center point.



- 4) Determine a location to install the C20D camera on the center line. Meeting the following four

conditions:

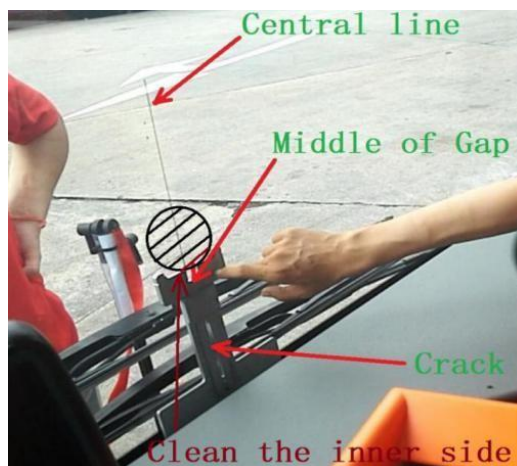
- Do not interfere with the driver's view.
- Be within the working area of the left and right windshield wipers (between the highest and lowest positions).
- Not be blocked by windshield wipers in stationary state.
- At least 20 cm from the lower edge of the windshield.

Align the top slot of the C20D with the marked center line, as shown below:



2. Camera installation

- 1) Use industrial alcohol and a cleaning cloth to clean the windshield and adhesive surface of the C20D camera. After cleaning, you need to make sure that the surface is dust-free and dry.
- 2) Use a perpendicular leveler (or a square) as an auxiliary tool for installing the C20D camera and lay it flat below the center line marked on the windshield, make sure the center of perpendicular leveler matches the center line of the front windshield



- 3) Place the lower end of the C20D camera (the end with a thread) on the perpendicular leveler, remove the 3M glue protector from the C20D camera and stick the C20D camera on the front windshield meeting the following conditions:
- The mark on the top of the C20D camera is aligned with the center line.
 - The central axis of the C20D camera coincides with the center line of the windshield.
 - The C20D camera is installed in the vertical position without tilting and windshield wipers will not block it.



- 4) After placing the C20D camera on the glass, press it down firmly so that the adhesive surface of the C20D camera and the windshield come into full contact.



- 5) After the installation is completed, clean the outside of the C20D camera area of the windshield with a cleaning cloth to make sure the image captured by the lens is clear.

3. Camera calibration

Wide angle lens



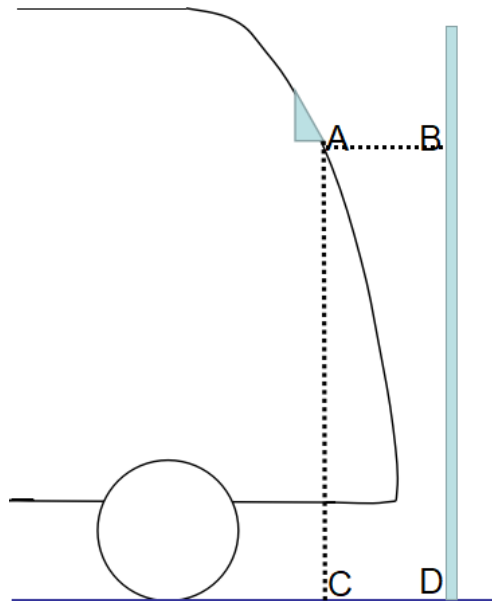
Telephoto lens



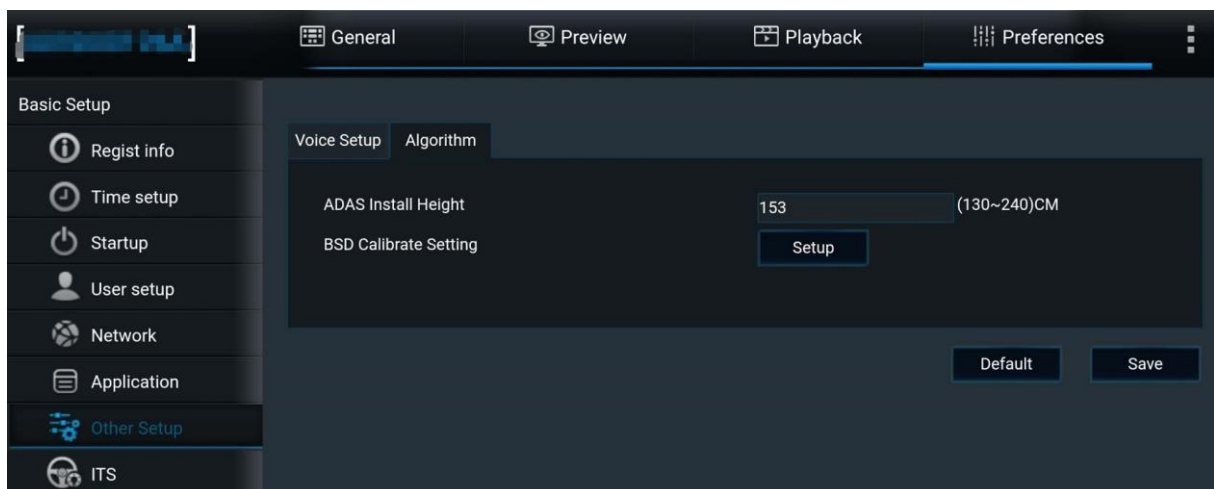
1. Open the C20D rear panel
2. Adjust the sensor holder for camera calibration, the left side is the telephoto lens sensor holder and in the middle is the wide-angle lens sensor holder.

3.1 Calibration of telephoto camera

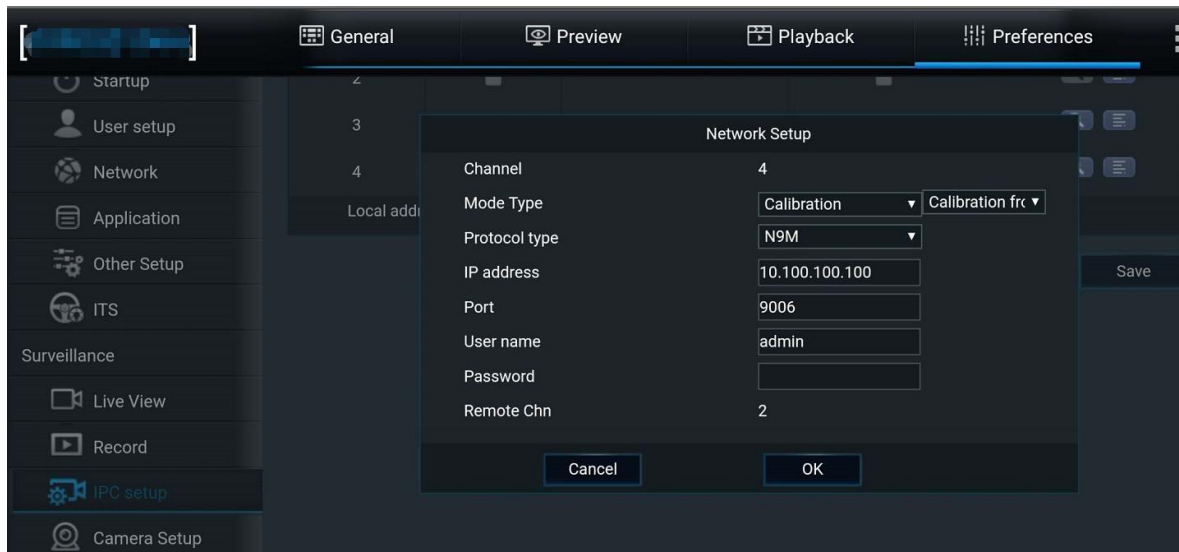
- 1) Determine the height of the C20D telephoto camera perpendicular to the ground. As shown in the figure below, A is the position of the C20D camera. At a small distance in front of the vehicle corresponding to the camera (about 20 cm is enough), place a reference object on it (secure with a leveler) BD. Use a tape measure to measure the distance | AC | through | BD |



- 2) Enter the interface "Preference-> Basic setup->Other Setup -> Algorithm parameters" in O&M and enter the value of measured installation height | BD | and save it.



- 3) Enter the following path: preference->Surveillance->IPC setup, select the telephoto lens, click the edit button to enter the following interface, and then change the mode from normal to calibration, and select the calibration front. Save the change and then go back to the preview view interface and



- 4) Use a tape measure to measure a distance of 20M forward from the lens installation position (at the front of the car) and place an eye-catching horizontal strip at 20 meters.

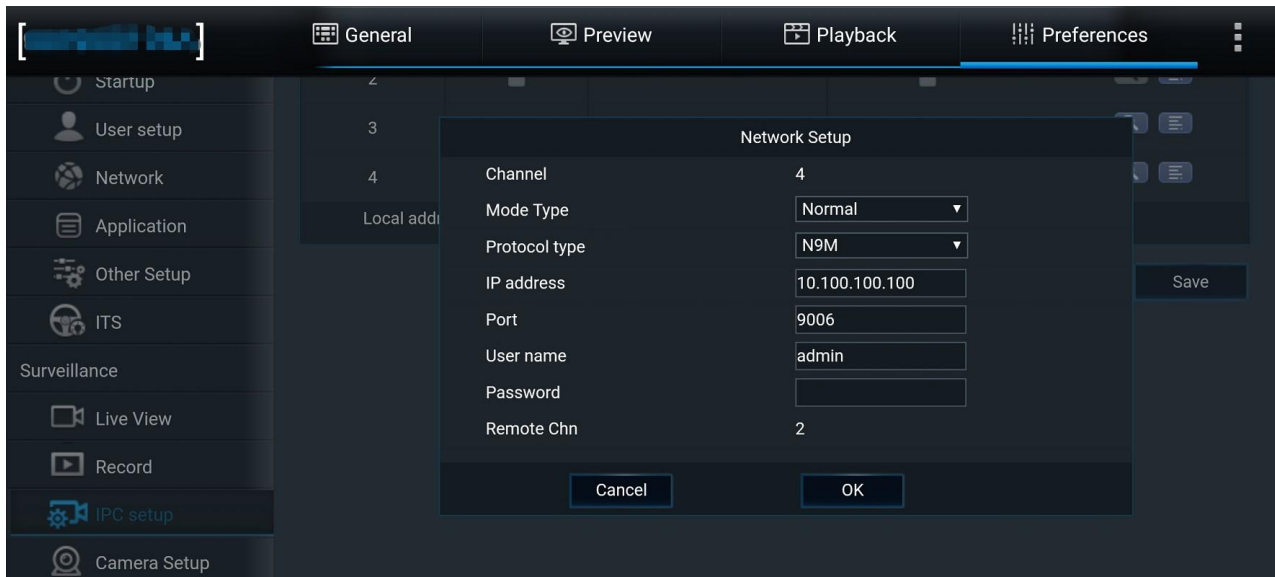


- 5) Adjust the camera angle, make the 20-meter calibration line match the object placed on the O&M screen, this will adjust the tilt angle of the C20D telephoto lens.



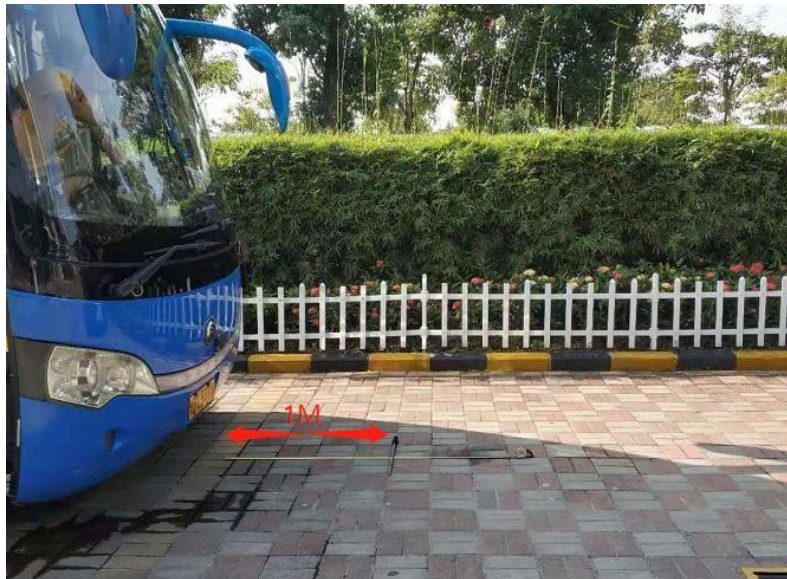
- 5) tighten the cross screw on the sensor holder

6) enter the following path: Preference-> surveillance->IPC setup, select the telephoto lens edit button and change the mode from calibration back to normal. Click OK button and then save the change.



3.2 Wide angle camera calibration

1) Use a tape measure to measure a distance of 1 meter forward from the lens position (at the front of the bus) and place a striking horizontal strip at 1 meter.



2) Adjust the angle of the camera so that the 1 meter calibration line coincides with the lower edge on the video screen, this calibration will achieve the correct tilt angle for the C20D wide angle lens.



- 1) Tighten the screw crosswise.
- 2) Cover the rear panel of C20D.