

TOTALVIEW USER GUIDE



Important Notices

Title: TotalView User Guide

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Features

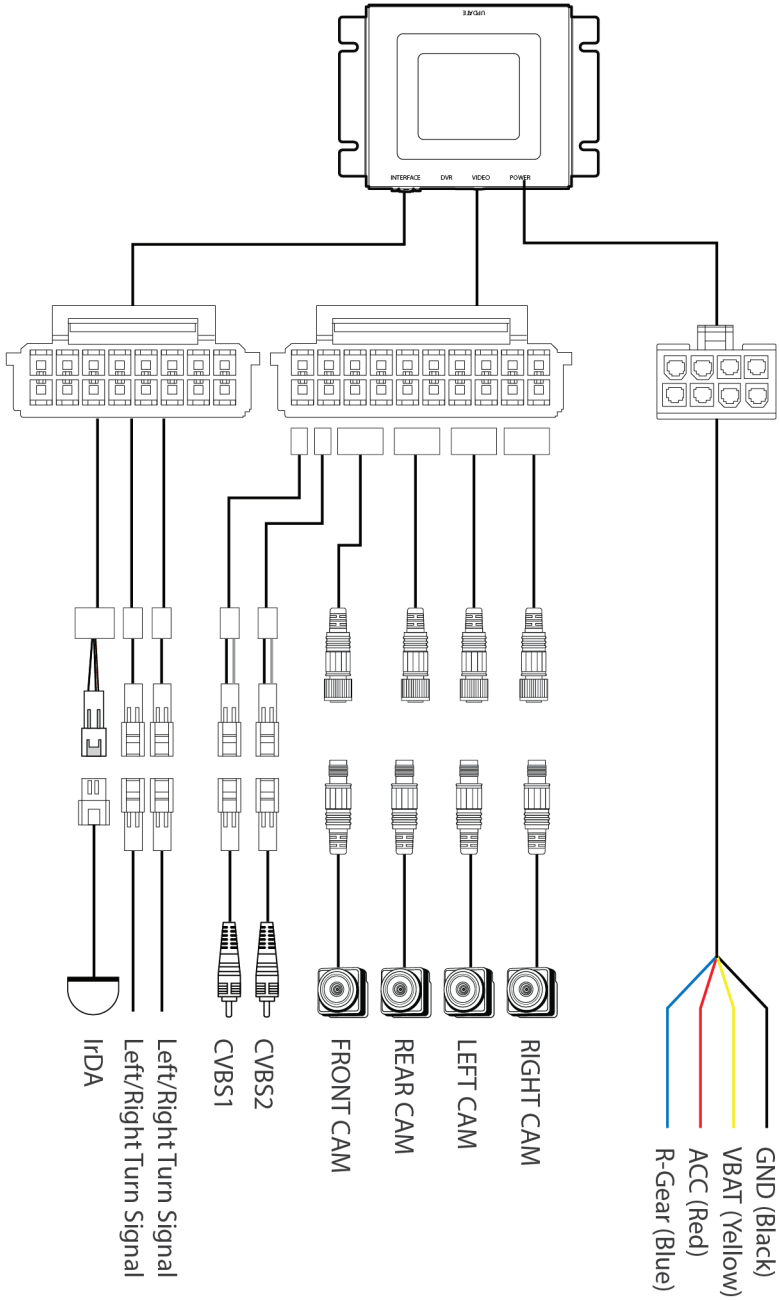
- Works automatically for seamless 360° views
- Split-screen provides additional detailed front, rear, left, and right side views
- Four cameras housed in rugged IP67-rated aluminum housings
- Compatible with any Safety Vision monitor
- Installs easily on multiple vehicle body types

Parts Included

- Electronic Control Unit (ECU), fasteners (*SD Card for calibration not included*)
Fasteners are:
 - 4× M4 self-tapping screws with a round washer Phillips heads
- Power connection cables
- Monitor video-in cable to connect to ECU
- Reverse signal wire
- Left and right signal wires
- INTERFACE harness
- VIDEO harness
- POWER harness
- Video output cables to monitor and DVR (optional)
- Camera extension cables (×4)
- Camera, mounting plates, covers, drill template and fasteners (×4)
Fasteners are:
 - 2× M3 machine screws with a round Phillips heads
 - 2× M3 self-tapping screws with countersunk Phillips heads
- Screw covers (2 per camera)

Installation

Main Wiring Diagram



Electronic Control Unit (ECU)

ECU Installation Locations

When deciding on a mounting location for the ECU, ensure you take into account that the calibration process will require access to each side of the unit:

- To insert and remove the SD card
- To plug and unplug the power connector

Install it in a covered, dry, but accessible location. Also consider cable lengths when laying out the location of the unit.

Keep in mind the length of the monitor cable, as it isn't shipped with a video cable extension, and the supplied video cable will need to reach the ECU from the monitor position.

ECU Installation Requirements

Ventilation

Install the ECU away from any sort of heat outlet, heater, or AC blower.

Do not operate the ECU in a closed-in area or restrict ventilation in any way.

The ECU requires air circulation to maintain optimum operating temperature and provide best performance.

Do not expose the ECU to moisture.

Secure surfaces

Do not mount the ECU to a plastic panel or other surface that cannot support the ECU's weight or is subject to constant vibration.

Mounting orientation

The ECU can be installed horizontally, vertically, or upside down.

Clearance around the ECU and (optional) DVR

Allow sufficient clearance: at least six (6) inches in front of the ECU and two (2) inches on each side for removal of the security front cover and

easy access to the hard drive and USB ports.

Allow sufficient clearance behind the DVR for power, signal, and camera cables.

Power, Signal, Camera cables

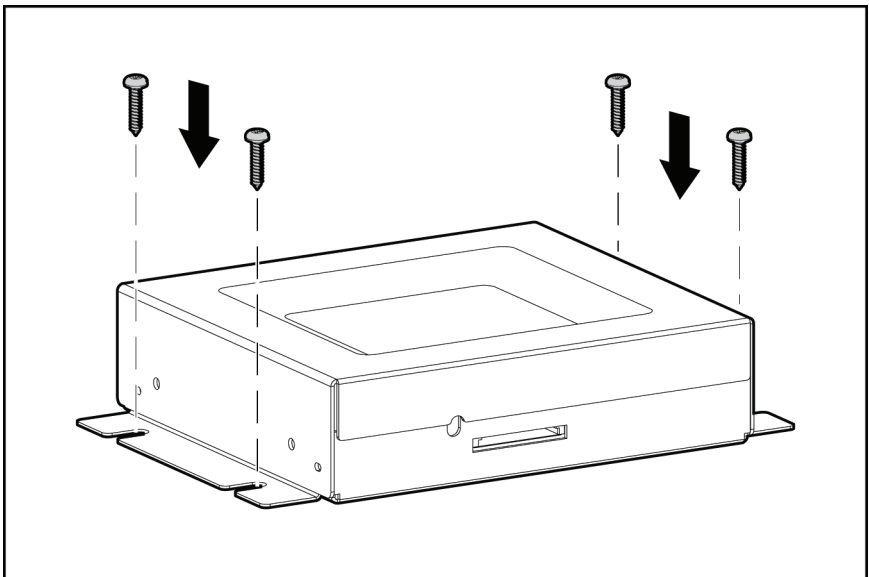
Provide enough slack on the power cable to prevent any force from being exerted on the connectors.

A single 4-inch diameter loop is sufficient.

Avoid right angle bends in the Ethernet cables.

ECU Installation

1. Install with SD card slot accessible, and leave room to connect cables in the back.
2. Choose a location as described above, and use the unit to mark drill positions.
3. Drill screw holes.
4. Mount the ECU with the supplied four M4 self-tapping screws (Use optional install plate for easier removal).



TotalView Cameras

Determining Camera Locations

The effective angle range of the TotalView cameras is 150° parallel to the side of the vehicle. The cameras need to be mounted as high up and as close to the centers of the vehicle sides as possible for maximum view overlap during the calibration stage. Shorter vehicles may require cameras to be mounted lower or off center.

All four cameras in the TotalView package are the same, and require 150° of unimpeded view from a parallel perspective of the vehicle. The view must not include side mirrors, as shadowing may occur and tends to produce parallel lines (shadow lines) in the calibration software. All cameras must be mounted at the furthest point toward the outside of the vehicle body while minimizing image capture of the vehicle itself or protruding equipment, to avoid shadowing.

Installation positions may vary different according to the type of vehicle.

Camera Installation Guidelines

Camera position

Test position before mounting - confirm that camera positions will capture the required video before drilling holes in the vehicle.

Mounting surface

Mount to secure surfaces only - do not mount the camera to movable or flexible surfaces.

Mounting orientation

Ensure cameras are horizontally level.

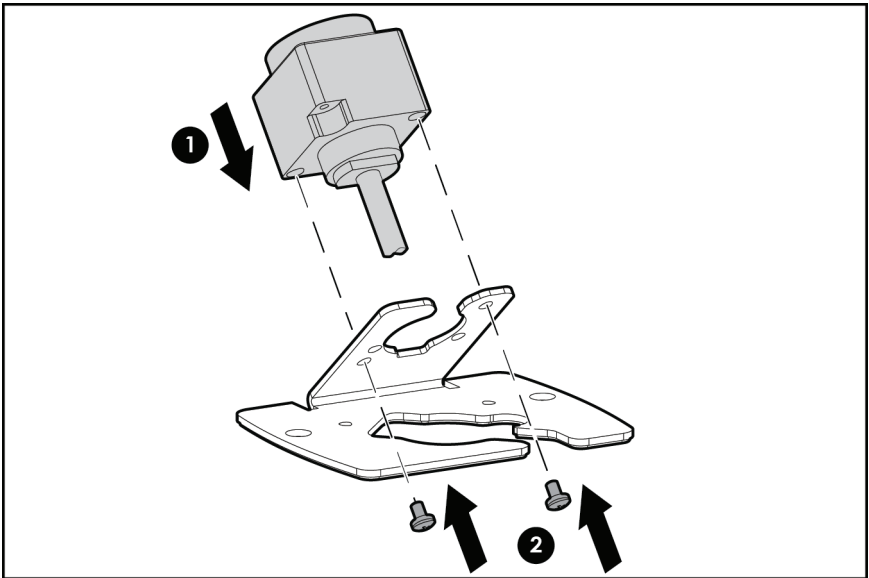
Mirrors

Mount at a height where camera views will not be obstructed by mirrors.

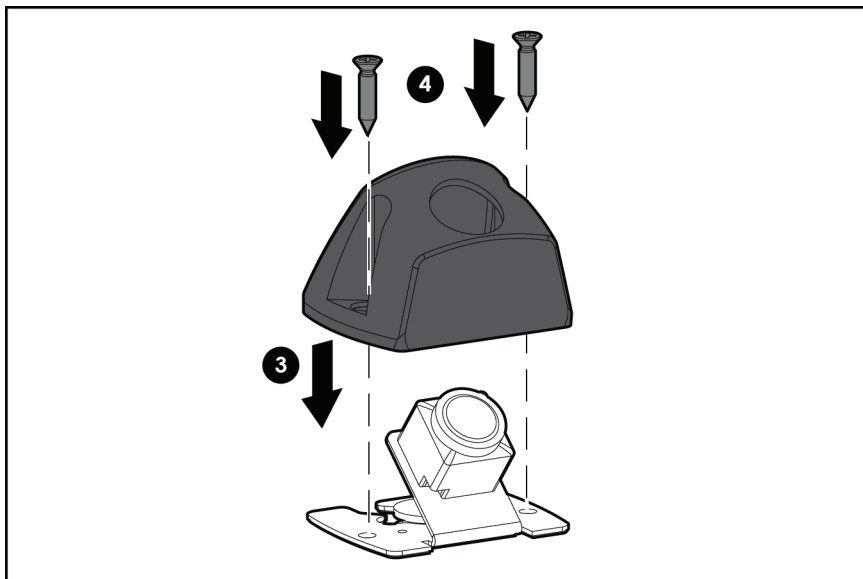
Camera Installation

Use Velcro or tape to adhere the camera to the vehicle for testing before drilling holes.

1. Clean the area where the camera is to be installed.
2. Apply the included adhesive template, or use it to mark two screw holes and cable hole in the desired mounting location.
3. Secure camera to mounting plate with the supplied two M3 machine screws



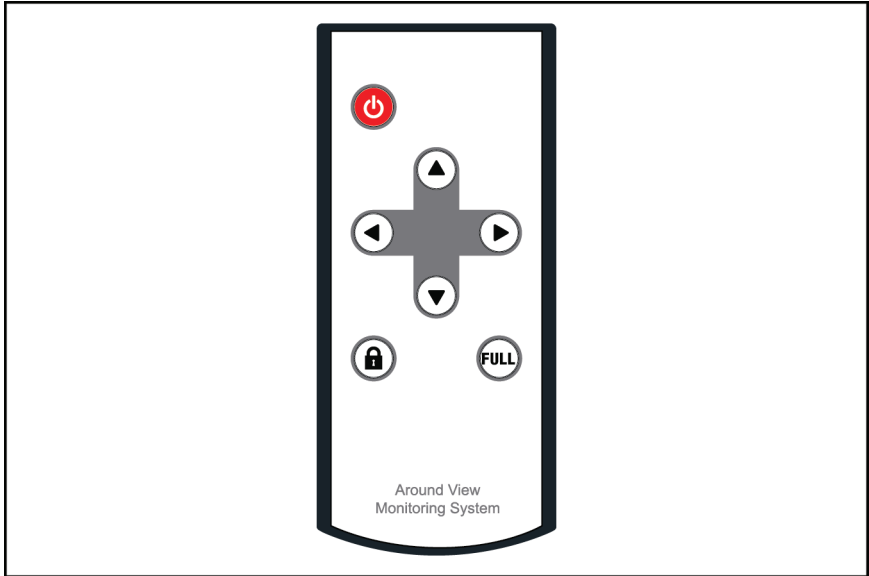
4. Thread camera cable through the mounting plate center hole and fit the grommet on the hole's edges.
5. Remove the adhesive on the back of the mounting plate.
6. Place the base on the vehicle surface and align to the drilled holes.









7. Remove the adhesive on the camera lens.
8. Place the camera cover over the camera.
9. Fasten the cover to the vehicle with the supplied two M3 self-tapping screws.
10. Cover the screws with the black round adhesive screw covers.
11. Seal the camera base with waterproof caulk.
12. Inside the vehicle, connect the camera cable to the extension cable.
13. Run the extension cable to the ECU and connect them.

Repeat process for each additional camera.

Remote Control



BUTTON	DESCRIPTION
	Power On/Off
FULL	Full View (Front/Rear)
	Lock View Mode
	Top + Front View
	Top + Rear View
	Top + Left View
	Top + Right View

Connecting to Signals and Power

The TotalView system requires six electrical connections to the vehicle:

- Power for ECU and monitor
- Ignition (switched or accessory) for ECU and monitor
- Vehicle ground
- Left turn signal
- Right turn signal
- Reverse for ECU and monitor

All required system inputs are 12V (or 24V) positive inputs.

1. Run wires from the ECU POWER harness to left turn, right turn, and reverse signals. All signals must be positive.
2. Run wires from the ECU POWER harness to ignition, power, and ground.

Testing and Calibration

Power on the system and check the basic functionality.

Note: The 360 view itself will not display correctly until you calibrate the system.

1. Test that the monitor comes on and shuts off after ignition is turned on/off and switches views when the turn signals and reverse gear are engaged.
2. Test remote control that the button switches views.
3. Calibrate the system

Composition of Screen



1. 360° stitched view (4 cameras)
2. View icon
3. Notice
4. Front, rear view screen

Using the System

When the ignition is turned on, the monitor displays a split-screen: the left side is a blended (stitched) 360° “bird’s eye” view of all 4 camera images, and the right side shows the forward camera. The image on the right changes, based on vehicle operation:



Top + Front View



Top + Rear View

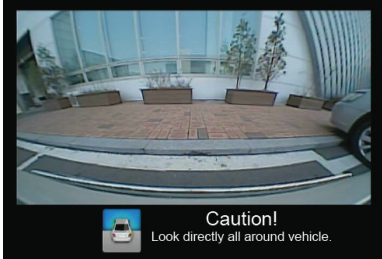


Top + Left View



Top + Right View

In the 360 view, the picture of the vehicle itself (seen from above) is a static image, selected during system configuration. Activating a turn signal or shifting the vehicle into reverse gear over-rides the current view. Cancelling the turn signal or shifting out of reverse returns to the default (360/forward-facing) view.



Front Full View



Rear Full View

Specifications

SPECIFICATIONS	
Part No. SV-360-4CBE	
Video Input	NTSC, front/rear/right/left (4 channels)
Video Output	NTSC, CVBS (SD) (2 channels)
Resolution	800 × 480
Field of View	195° (horizontal)
Power Consumption	<12 W
Input Voltage	12 V ~ 24 V DC
Operating Temperature	-22° F to approx. 167° F (-30° C to approx. 75° C)
Storage Temperature	-40° F to approx. 185° F (-40° C to approx. 85° C)
Dimensions (w × h × d)	6.24 in × 4.54 in × 1.34 in (158.4 mm × 115.4 mm × 34 mm)
Weight	.71 lb (322 g)
Certifications	MIL-STD-810

FCC Compliance Statement

NOTE

This device has been tested and found to comply with the limits for a ***Class A digital device***, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference in which case the user will be required to correct the interference at his own expense.

CAUTION

Any changes or modifications in construction of this device which are not expressly approved by the party responsible for the compliance could void the user's authority to operate the equipment.

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