

## Improved Butterfly Mount Backup Camera with Metal Housing Universal Fit

### KIT FEATURES

- High-quality metal housing
- 1/4-inch CMOS camera
- AHD & CVBS compatible
- Defeatable Parking Lines
- 110-degree viewing angle
- 0.5 lux night vision
- IP68 Rating (water-resistant & dust proof)
- Wire length
  - Camera Cable: 0.61m / 2ft
  - Extension Cable: 6.7m / 22ft

### INSTALLATION TOOLS & ACCESSORIES REQUIRED

- 5/64" twist drill bit
- Drill
- #1 Phillips Screwdriver
- Electrical tape
- Zip ties
- Alcohol Prep Pads
- Wire loom (convoluted plastic 1/4" or Techflex braided)
- Solder and soldering iron or solderless connectors for wire splicing
- Misc. panel removal and hand tools for vehicle disassembly

### KIT COMPONENTS

- A) Camera and wiring • B) Camera • C) Hardware



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Visit [iBeamUSA.com](http://iBeamUSA.com) for more detailed information about the product and up-to-date vehicle specific applications

**ATTENTION:** With the key out of the ignition, disconnect the negative battery terminal before installing this product. Ensure that all installation connections, especially the air bag indicator lights, are plugged in before reconnecting the battery or cycling the ignition to test this product.  
**NOTE:** Refer also to the instructions included with the aftermarket accessory before installing this device.

# INSTALLATION

## Camera Mounting:

1. Find a suitable location for mounting the camera.
2. The TE-BFC is a surface mount design and works best when mounted to horizontal surfaces with a slight downward angle.
3. The supplied 90 degree mounting bracket may be bent to adjust the camera angle and can be reversed or rotated on the camera body by unscrewing the camera trim.
4. The TE-BFC displays a mirrored image and is designed for rear view applications only. If used as a front view camera, the display will need mirroring capabilities.

**BEST PRACTICE** is to make connections before drilling or mounting to allow viewing the camera on your screen, verifying proper operation with optimum angle and a view free of obstructions.

### Bracket Mounting:

1. After a mounting location is determined, Apply several layers of blue painter's tape to the selected mounting location to protect the paint or finish.
2. Temporarily connect the camera and place it in its mounting position.
3. View the image on your display to verify proper orientation and viewing angle.  
When satisfied with the position, mark the screw positions through the bracket onto the painter's tape with a felt tip marker.
4. Remove the camera and inspect the area behind the mounting location for screw clearance.
5. Drill the marked holes with a 5/64" drill bit.
6. Peel the backing from one side of the supplied self-adhesive foam mounting tape and adhere it to the camera bracket taking care to align the mounting holes.
7. Remove the pre-punched area of the adhesive tab around the mounting holes.
8. Remove the painter's tape from the mounting area and clean the surface with an alcohol prep pad or glass cleaner. Remove the remaining backing from the foam adhesive pad and mount the camera by pressing firmly while aligning the mounting holes.
9. Install the supplied #6x3/8" mounting screws by hand using a #1 Philips screwdriver. Once mounted, the view may be fine tuned by gently bending the mounting bracket vertically or horizontally.
10. If the image is not parallel to the horizon, loosen the camera trim and rotate the camera as necessary. A properly aligned camera will show a sliver of the rear bumper at the bottom of your screen.

## WIRING CONNECTIONS

### RED WIRE

1. The **RED** wire connects to +12-volt switched voltage to power the camera. It runs through the length of the video cable and either end may be used.
2. If the **RED** wire is connected to the +12-volt reverse light wire in the back of the vehicle, the other side of the **RED** wire exiting the **YELLOW RCA** connector at the opposite end of the video cable will be supplied 12-volts that can be used to trigger the reverse input of the radio in the dash.
3. If a stable 12+ reverse voltage is not available at the camera location (some vehicles with LED lighting use an unsuitable pulsed DC voltage on reverse lights), it can be supplied at the opposite end of the cable to the **RED** wire at the **YELLOW RCA** connector.
4. If the display has the ability to display the camera while in forward motion, 12-volts switched accessory power may be connected to either end of the **RED** wire, but the radio will need a separate

+12-volt reverse wire connected to activate its reverse screen.

**NOTE:** Many aftermarket radio installation data interface harnesses can supply both 12V reverse and switched accessory power.

5. The **BLACK** wire connects to ground (a metal, non-painted surface or factory ground wire) If the ground is made outside the vehicle, paint, undercoating or dielectric grease should be applied over the ground connection for corrosion resistance.
6. The **WHITE** loop controls parking guide lines. Its behavior is affected by the Green loop (See table at right)
7. The **GREEN** loop enables AHD (Analog HD) video output. This higher resolution method of transmission gives superior quality images, but is only compatible with AHD capable monitors and displays.  
  
Uncut, the camera displays standard NTSC video at 480i resolution.  
  
Cut, the camera transmits at 720p resolution.

If AHD or Parking guideline adjustments are necessary, cut the white and green loops according to desired functions desired. (Outlined in Table A, above)

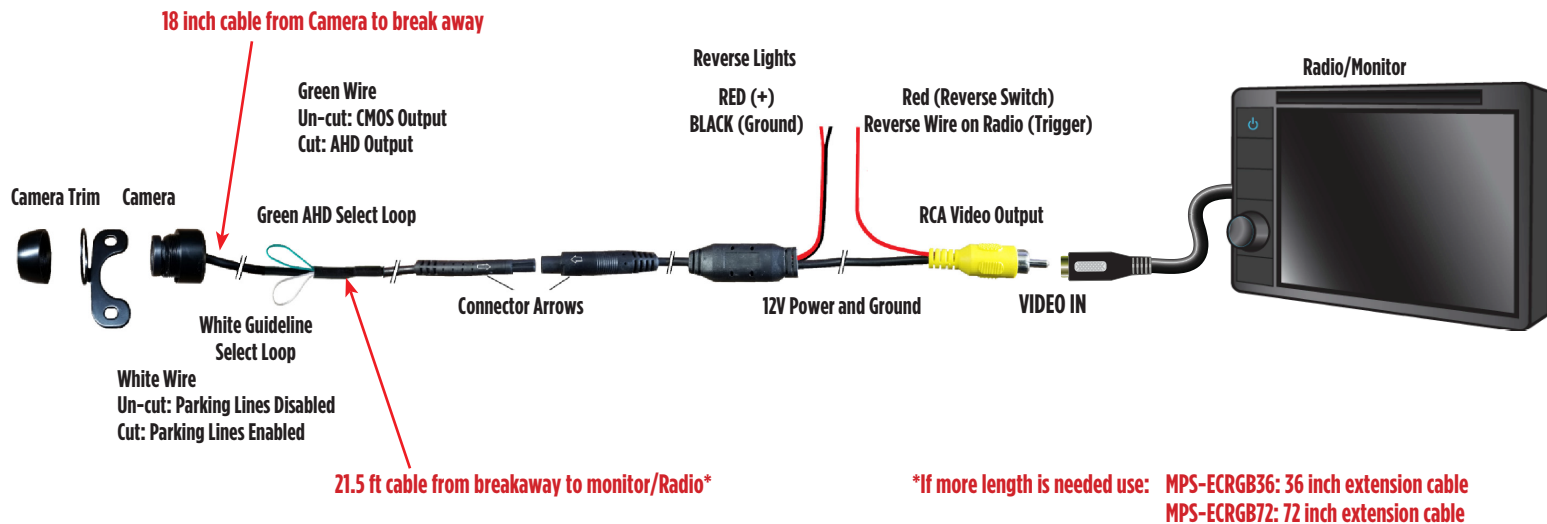
1. **WHITE** loop controls parking guide lines. Its behavior is affected by the **GREEN** loop.
2. **GREEN** loop enables AHD (Analog HD) video output. The higher resolution method of transmission gives superior quality images, but is only compatible with AHD capable monitors and displays.
3. **UNCUT**, the camera displays standard NTSC video at 480i resolution.
4. **CUT**, the camera transmits at 720p resolution. (See Table A, below).

**Table A: Resolution and Wiring Functions**

Resolution	Parking Guide Lines	White Loop	Green Loop
480i (CVBS NTSC)	Off	Uncut	Uncut
480i (CVBS NTSC)	On	Cut	Uncut
720p (AHD)	Off	Cut	Cut
720p (AHD)	On	Uncut	Cut

**Note:** The camera must have 12V removed and reapplied before any loop function changes are recognized.(See page 6 for Harness Installation steps)

## WIRING THE CAMERA



## HARNESS INSTALLATION

1. The 21.5' video cable is run between the radio or video display and the camera. It may be easier to run the cable from the front of the car towards the rear as the camera connector is more compact.
2. Avoid placing the video cable where it can get pinched, damaged or caught up in moving parts under the dash and seating areas.
3. Do not run the cable close to existing wiring as noise could be introduced resulting in a poor image.
4. At the rear of the car where the cable may be exposed to weather, use protective wire loom and route the cable away from hot exhaust.
5. Tie up any excess cable with zip ties.

### YELLOW RCA

**The Yellow RCA** connects to the reverse or video input of the radio or display.

**The 4-Pin Black camera** and cable connectors mate with arrows and keyway matching. Connect firmly but do not force.

**BEST PRACTICE** is to use existing wire paths and grommets when routing new cables. Any holes drilled to the exterior of the vehicle should have appropriate grommets and weatherproofing applied.

## SPECIFICATIONS

TE-BFC	Reverse Camera
Sensor	H63 CMOS
Resolution NTSC (CVBS)	720H x 480V
Resolution (AHD)	1280H x 720V
Video Signal	110°(H) / 170°(Diagonal)
S/N Ratio	AHD/CVBS (Composite Video)
Current Consumption	.05 Lux
Power Supply	DC 12V
Operating Temp	3.3V
Viewing Angle	Mini 4PIN with Guideline/AHD Loops
Water-Resistant	6.5 meters (21.5 feet)
Minimum Illumination	90mA
S/N Ratio	>52dB
Warranty	3 years
Water Resistance	IP68 (dustproof/water tight 1.5M)
Operating Temperature	-40°C - 80°C



## **TE-BFC** INSTALLATION INSTRUCTIONS



Having difficulties? We're here to help.



Contact our Tech Support line at:

**386-257-1187**



Or via email at:

[techsupport@metra-autosound.com](mailto:techsupport@metra-autosound.com)

### **Tech Support Hours (Eastern Standard Time)**

Monday - Friday: 9:00 AM - 7:00 PM

Saturday: 10:00 AM - 5:00 PM

Sunday: 10:00 AM - 4:00 PM



**Metra recommends MECP  
certified technicians**