



DDE Lightning PLUS™ Installation Instructions

E46 bi-Xenon, Xenon and Halogen

Thank you for purchasing the DDE Lightning Plus™ system for your BMW E46. These instructions will walk you through the few steps required to install the system. Note that this system is compatible with all versions of the E46 headlights through model year 2003.

1.0 Required Tools

Normal Installation

- Needle nose pliers
- A medium flat blade screwdriver
- An 8mm nut driver
- Ratchet with 10 and 17mm sockets
- 5mm hex socket or L wrench

2.0 Installation Notes and Warranty

Please read completely through the instructions before beginning.

The kit is very easy to install. But you must take your. The rings, once installed, are durable enough to take the rigors of driving on the street. The mounting system and installation method ensure that the rings will resist vibration and jarring extremely well. That said, the rings are very susceptible to breakage on installation. Do not attempt to flex, bend or put pressure on the ring itself. They can shatter and like any fluorescent lamp may result in flying glass if broken. It is suggested that you wear eye protection when handling the rings. All fluorescent lamps also contain small amounts of the chemical Mercury. If you break a ring do not blow the debris away or inhale the powder. Wipe up any debris with a damp paper towel and dispose of it. Handle the rings with care until they are installed inside of the bezel of the headlights and they will provide years of trouble free operation. Lamps can last for over 100,000 hours of operation.

This procedure assumes that you are familiar with your headlight wiring method. If not, please refer to your dealer for assistance as required.

Apexcone.com warrants the normal operation of this system for life. Return any non-performing component for immediate replacement.

Enjoy your product and thank you for your purchase.



DDE Lightning PLUS™ Installation Instructions

E46 bi-Xenon, Xenon and Halogen

3.0 Kit Contents

Each system contains different contents based on the application. The exception is that the hardware and supply bag for the system is universal. This means that you may have components in the kit left over that do not apply to your automobile or the installation method you choose to use. For instance, if you choose to use taps for your system to power the power supplies, you will not require the shrink wrap in your kit. Other items may also be left over. If you follow the installation instructions and have left over supplies, DON'T PANIC. It's just easier, and therefore cheaper for everyone, to use one common hardware supply kit.

This is a picture of the system as you will receive it.

It contains:

- 4 lamps
- 2 inverters
- 1 Plug –n- Play wiring harness
- 1 hardware kit
 - contents of the hardware kit:
 - 8 Tie wraps
 - 4 connectors to install on the lamps
 - 5 Add-a-Tap connectors





DDE Lightning PLUS™ Installation Instructions

E46 bi-Xenon, Xenon and Halogen

4.0 Installation Procedure



After removing your headlight assembly from the car, remove the eyebrow gasket. Lift up on the tabs as they protrude out the back of the latches to release.

Pull the gasket free and set it aside.



Release the outer cover by lifting the cover latches up.



DDE Lightning PLUS™ Installation Instructions

E46 bi-Xenon, Xenon and Halogen

Once all of the latches are released, pull the outer cover free. It is likely to be stuck to the gasket between the cover and light. Start at one corner and keep working the latches while pulling free.



Once the clear, outer cover is off, pull the inner beauty ring free. It pulls straight out at all four corners. If you've always wanted silver beauty rings, now is the time to paint them...

Twist the two protruding latches for the high beam bulb free, ¼ turn to the left and remove the bulb. Don't touch it, oil from your hands will form a hot spot and it will blow out later. If you do touch it, wash it liberally with a paper towel and rubbing alcohol. Buff dry.





DDE Lightning PLUS™ Installation Instructions

E46 bi-Xenon, Xenon and Halogen



Pull the rubber gasket free and set it aside. Note how it goes in all around the inner cylindrical bulb holder. You have to put it back in later.

From the front of the headlight, starting on the low beam side, feed the lead wires from one of the rings through to the rear opening of the high beam light. This is done by passing the wires over the top of the reflector.



The rings are very fragile. If you are confident you won't break one, then you will. You must be very cautious installing them. Once installed they withstand bumps and vibration perfectly. But getting them in must be handled delicately. Do not put any force at all onto the glass tubes. None.

Starting on one side, place one mounting clip partially over the edge of the reflector housing as shown. DO NOT PUSH IT ON COMPLETELY.



DDE Lightning PLUS™ Installation Instructions

E46 bi-Xenon, Xenon and Halogen

Once the first clip is on partially, slide the second clip on part way also. Now, moving both sides at once and handling only the clips, center the ring over the lens.



For either bi-Xenon or regular Xenon, the ring needs to be installed until the raised rim of the reflector housing snaps into the first selector groove on the ring clips.

If you push or pull on the glass tube, it will break. Work only on the clips.

On the high beam side (or both, for halogen only lamps) the ring clips will be installed farther onto the reflector housing; to the second clipping position. Note on some Xenon housings the top of the reflector housing is angled and one clip goes on to the second position and one is installed on the first position. Look at the leading edge of the housing from above to see if you have an angled reflector or not. On halogen only lamps, the housing is straight across and the second clip position is used on both sides.

Careful! Getting the clip past the first locking position to the second would require excessive force to achieve by just pushing on it. Use a small flat blade screwdriver to pry open the clip and simultaneously push it over the ridge to the second locking position. Remember to push **ONLY** on the clips, never the glass tube.

See the next frame for more detail.





DDE Lightning PLUS™ Installation Instructions

E46 bi-Xenon, Xenon and Halogen



This is a close-up of the action required to push the clip to the second position.

Check the rings to make sure the low and high beam rings are centered on the lens. Repeat for the other headlight.



Now let's turn our attention to the electrical portion of the headlight install. Pull both sets of ring wiring out from the rear of the high beam access area. **DO NOT PULL HARD ON THE LEADS.** They make break at the lamp. Some slack should be left and the leads should never be taut. Additionally, **NEVER** try to tidy up the wiring by twisting the leads together. These are high frequency AC lamps and twisting the wire together will bleed the signal through capacitance to each other and the lamps will either not function or be very dim. Also, the leads cannot be extended. The combined length of wire from the power supply to the ring cannot exceed 16 inches.

There is no polarity to the ring wiring. But you must pair up the wires from each ring. The left and right wire from the low beam ring is one pair, the two wires from the high beam are the other pair. Once paired, there is no positive or negative polarity to the individual wires in the pair.

Keeping the ring wires paired, replace the high beam access cover. Be sure to push in the center section adequately to allow the bulb to go back in. Note that the ring leads just come out around the edge of the rubber covering. You could poke a small access hole for them with an ice pick if you wished. But this method is adequate and ensures a water-tight lamp.



Once seated, notice the two separated sets of leads emerging from the cover. Make sure again there is room to replace the bulb.

Hook the rubber boot all the way around the edge.





Push the bulb high beam back in fully. Remember not to touch the glass with your fingers.

Twist the two locking tabs on the bulb clockwise. Pull to test that both tabs are engaged.



Reinstall the beauty ring by pushing back in at all four corners. Check that it clears the ring and clips at the top.

Remember to paint those beauty rings if you've always wanted silver!



DDE Lightning PLUS™ Installation Instructions

E46 bi-Xenon, Xenon and Halogen

Replace the outer clear cover. This would be an excellent time to make sure it is perfectly clean, inside and out. Look where the installer is pointing with her right index finger. Ensure this tab is between the guides. If it bends one of the tabs inward and you don't catch it, the light will not be waterproof.



There is a similar guide tab on the other end and it is even easier to accidentally get caught between the cover and the gasket.

Once you have the cover loosely seated, push it back closed and make sure to push the locking tabs down over the latches. Note that they will appear to be latched but this is almost a 2 point latch and you need to make sure to physically push and lock each and every tab. Not doing so will allow water in under high pressure such as car washing. Water in a Xenon light = \$450 - 700 in repairs.

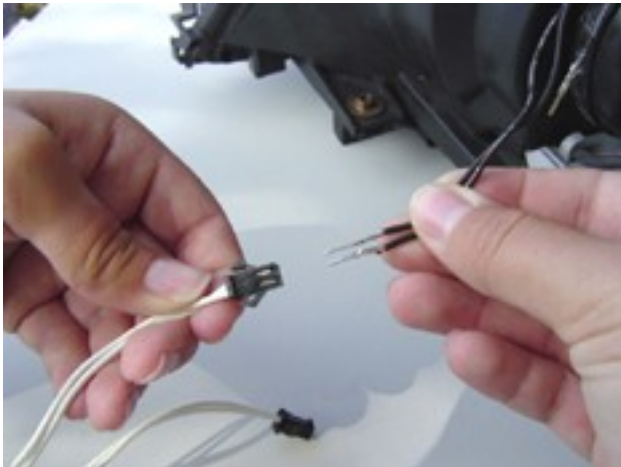
Double check your work.





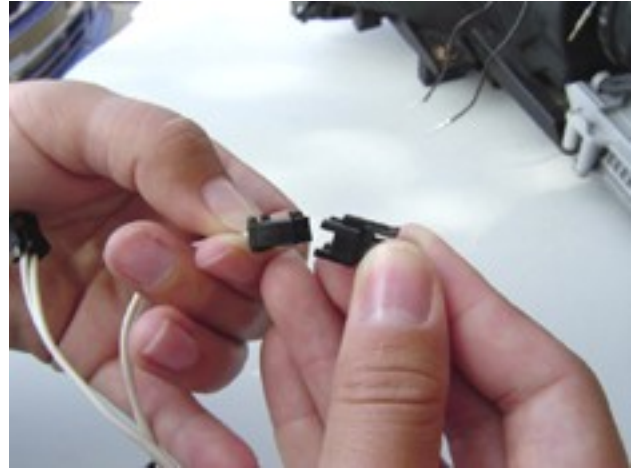
Replace the gasket.

The power supplies convert the 12 volt dc electrical supply from the car to high frequency ac voltage. It isn't dangerous but you shouldn't handle the white output wires with the car running. It will give you a severe 'tickle'



We needed to leave off the connectors on the rings to give you a small enough lead to be able to feed it over the top of the reflector. Some lights are very tight fitting. To install the ring wires to the power supplies, you need to put the pins into the four loose black connector shells in the hardware kit.

Note that on the output wiring of the power supply there is a small triangular catch. This is oriented 'UP'. So is the corresponding latch on the loose connector.



Insert the wires from one ring into the loose connector shell as shown. Note that there is a small barb or tang on one side of the connector pin. This gets inserted 'UP' in the shell as shown. If this barb is flattened accidentally, it can be lifted back up to about a 45 degree angle with a needle or pin.

You might want to use a small pair of needle nose pliers to push the pin in until the tang or barb catches and the wire cannot be pulled back out. Be careful not to tear the insulation on the wire. If you do, insulate it with a small piece of tape or preferably, silicone sealant. High frequency AC voltage will easily arc to surrounding metal so any insulation tears need to be repaired.





DDE Lightning PLUS™ Installation Instructions

E46 bi-Xenon, Xenon and Halogen



There are two outputs on each power supply. Either one can go to either ring. Plus in as shown. Note the tab to latch orientation on the connectors.

We are showing this section of installation outside of the vehicle for photographic clarity but you need to unplug the power supplies after testing to more easily replace the lamp into the car.



Once the headlight is reinstalled into the car, peel the double sided tape and locate your power supplies in a convenient place. The underside of the radiator cross brace over the top of the headlight is a convenient place and mostly weatherproof.



DDE Lightning PLUS™ Installation Instructions

E46 bi-Xenon, Xenon and Halogen

Locate the Plug -n- Play wiring harness and uncoil it. The relay attaches to a stud with a 10mm stud on the inner fender of the car on the passenger side, just below the front battery jump starting post.



First remove the 10mm nut on the mounting stud. In the picture, follow the yellow wire downward in the picture. It is behind and below the shock tower and the remote battery post. Put the ground lug eye lug and relay over the stud and reattach the 10mm nut. Tighten snugly. Then remove the 17mm nut on the battery post. CAUTION! The post has un-fused connection directly to the battery. Touching your ratchet to metal such as the hood or fender WILL lead to arcing. Remove the battery connection in the trunk or use extreme caution not to let your tools touch metal and this connection at the same time. Install the yellow, fused power supply connection and retighten the battery post nut. Close cover.

Route the harness to the headlights along the fenders and along the rear wiring chase that goes along the area above the firewall. You can either place the harness into this wire chase or just tie wrap the harness to it.





DDE Lightning PLUS™ Installation Instructions

E46 bi-Xenon, Xenon and Halogen



The blue wire in the harness is the trigger wire to turn on the Lightning™ system. Open the power junction box on the driver's side of the car with a 5mm hex key and attach one of the T-Taps in your hardware kit to the red and white stripped wire with yellow dots as shown. This lead will stay powered up about 10 seconds after the car is turned off. Your Lightning™ system will stay powered up as a walk away feature so you can admire it every time you leave the car. The system is so bright that most people use this feature as a pathway light when exiting the car!

This completes your installation. Check carefully for loose tools and close up everything to keep it watertight. Thank you once again for your purchase. Please call or send email to info@apexcone.com if you have any questions.