AUTO MIRROR TILT MODULE – KIA OPTIMA

THIS PRODUCT IS DESIGNED TO BE INSTALLED BY QUALIFIED TECHNICIANS ONLY. IMPROPER INSTALLATION CAN RESULT IN DAMAGE TO YOUR VEHICLE. IT IS THE INSTALLERS RESPONSIBILITY TO VERIFY ALL WIRES PRIOR TO MAKING ANY CONNECTIONS.

DUE TO THE HARSH ENVIRONMENT FOUND IN VEHICLES WE RECOMEND ALW AYS SOLDERING AND SECURELY TAPING EVERY CONNECTION MADE.

INSTALLATION (2011-2013 Kia Optima):

1. Secure the control module under the drivers side dash board in a location that allows easy access for tuning the module. To remove the lower dash board panel first remove the fuse access door. Through the fuse door opening push out on the plastic dash board end cap on the drivers side of the dashboard. With the end cap removed remove two screws that hold the lower dash board panel on and then remove two more screws on the bottom of the lower dash board panel. After all four screws have been removed gently pull out on the lower dash board panel to release the clips that hold it in place. Once the lower dash board panel is removed the traction control on/off switch wiring harness and the interior light dimmer switch will need to be unplugged. Next, unclip the OBDII port and remove the panel from the car. It is also necessary to access wiring in the drivers kick panel – to access the kick panel remove the drivers door sill plate by gently prying up on it to release the snaps. Next, gently pull out on the hood release latch until it unsnaps. Lastly, gently pry a single plastic retaining clip out of the kick panel. With the fastener removed the kick panel should pull out and can be placed outside of the vehicle.

ELECTRICAL CONNECTIONS:

1. RED - 12VDC CONSTANT POWER

a. Connect this wire to a source that reads 12 volts at all times. This wire is a red wire at Pin 1 of connector IP/A at the fuse panel. IP/A should have a gray connector and be on the drivers side of the fuse panel assembly.

2. YELLOW – 12VDC IGNITION POWER

a. Connect this wire to a source that reads 12 volts only when the ignition switch is in the 'ON' position. This wire is a blue wire at Pin 23 of connector IP/A at the fuse panel. IP/A should have a gray connector and be on the drivers side of the fuse panel assembly.

3. BLACK - GROUND

a. Connect this wire to a constant ground. This wire can be connected to the black wire in the wire harness going to the interior light dimmer switch.

4. PURPLE - REVERSE INPUT

a. Connect this wire to the vehicles reverse signal. This signal should read 12vdc whenever the transmission is placed in reverse. For Optimas with an automatic transmission this wire is blue in the drivers kick panel. For Optimas with manual transmissions this wire is blue/orange in the drivers kick panel.

5. BLUE - MIRROR 'UP' OUTPUT

a. Find and cut the Orange 'mirror up' wire in the drivers kick panel. This wire will read 12vdc when the power mirror is being motored up. Once cut, connect the mirror side (going towards back of car) of the cut wire to this Blue 'Mirror Up Output' wire.

6. GREEN - MIRROR 'UP' INPUT

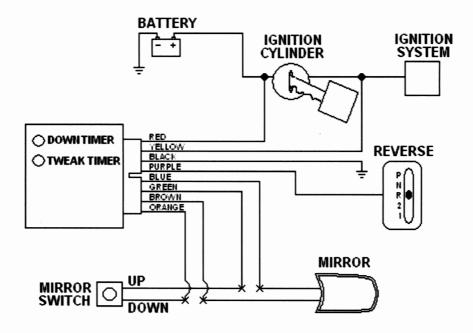
a. Connect this wire to the switch side (going towards front of car) of the Orange 'mirror up' wire found and cut in step 5.

7. BROWN - MIRROR 'DOWN' OUTPUT

a. Find and cut the Yellow 'mirror down' wire in the drivers kick panel. This wire will read 12vdc when the power mirror is being motored down. Once cut, connect the mirror side (going towards back of car) of the cut wire to this Brown 'Mirror Down Output' wire.

8. ORANGE - MIRROR 'DOWN' INPUT

a. Connect this wire to the switch side (going towards front of car) of the Yellow 'mirror down' wire found and cut in step 7.



PROGRAMMING:

The way that the mirror tilt is engaged and bypassed can be changed through software programming. The default mode, Mode 1, tilts the mirror down every time you put the car in reverse for longer then 1 second. To bypass the tilt feature you must put the car in reverse, quickly take it out of reverse, and then put it back in to reverse. Once bypassed, the car will then have to be out of reverse for ~10 seconds before you can tilt the mirrors again. Mode 1 is great for people who plan on tilting the mirror on a regular basis.

In Mode 2 the mirror tilt is bypassed when the transmission is placed in reverse for more then 1 second. To tilt the mirrors you must put the transmission in reverse, quickly take it out of reverse, and then put it back in to reverse. This mode is designed for people who don't need the mirrors tilted under most circumstances, but encounter situations where the tilt is desired.

Programming is accomplished BEFORE the module is powered up. To select Mode 2 turn both adjustment knobs on the top of the unit to the complete counter clockwise position. With both knobs fully adjusted plug the module in. When the module first powers up it will check to see if both knobs are in the 'programming' position and will store the programmed value in non-volatile EEProm memory.

To select Mode 1, before plugging the module in set both adjustment knobs on the top of the unit to the full clockwise position. With both knobs fully adjusted plug the module in. These modules are factory programmed to Mode 1 and programming is not required if Mode 1 is to be used.



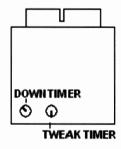
NOTE: If the module has already been powered up please unplug it, make the programming adjustments and wait at least 30 seconds before plugging the module back in.

TUNING:

In order for this module to work properly it must be tuned for the car that it has been installed in. This is done by adjusting the small knobs on the top of the module. There are two knobs total, the left knob is the 'Down Timer' adjustment and the right knob is the 'Tweak Timer' adjustment.

NOTE: It is important to park the car in a manner that mirror adjustments can be made. For this reason it recommended (but not necessary) to park the car on a curb.

Tuning starts with the Down Timer knob. Turn the Down Timer knob all the way to the clock wise position and adjust the Tweak Timer knob to 50% of its travel.



As you turn the Down Timer knob in the counter-clockwise position you will add time to the down stroke of the mirror. Slowly increase this value, testing it after each adjustment. Once the mirror tilts down the require amount the Down Timer tuning is complete. The Down Timer is fully adjustable between 0 and ~4 seconds.

NOTE: It may be necessary to reposition the mirror to its normal position occasionally during this tuning step.

Next, the Tweak Timer must be tuned. While the Tweak Timer is set to 50% the mirror will travel up the exact same amount of time that it traveled down. In most cases, this will cause the mirror to not return to its exact original position. The Tweak Timer allows for the mirror to

travel up either shorter or longer then it traveled down. As the knob is adjusted in the counter-clockwise position it will add up to ~ 1 total second to the up travel time. As the knob is adjusted toward the clockwise position it will subtract up to ~ 1 total second of travel time.

Tilt the mirror 2-3 times and observe the position where the mirror returns. If it finishes lower then it started turn the knob slightly counter-clockwise. If it finishes higher then it started at turn the knob slightly clockwise and retest.

Tuning this system is critical to the overall accuracy of the module. If not tuned properly it may be necessary to readjust the mirror after every tilting cycle. If tuned properly it may still be necessary to slightly adjust the mirror, but not before a minimum of 10 tilting cycles.

Please note that this is strictly a time based tilting system and it may be required to retune the Down Timer if the mirror is adjusted to a new start position. This module is best suited for a 'one driver' car where mirror adjustments are kept to a minimum. Once set, the Tweak Timer shouldn't need anymore adjustment unless the mirror motor is replaced or the mirror motor starts to wear out.

OPERATION:

In 'Mode 1' the module will look for the transmission to be placed in reverse for longer then 1 second. If this occurs the mirror will tilt down X amount of seconds (X = 0-6 seconds based on Down Timer). The mirror will stay tilted until the car has been shifted out of reverse for ~ 10 consecutive seconds. At this point the mirror will move up X + / - Y seconds (X = 0-6 seconds based on Down Timer and Y = + / - 0-1 second based on Tweak Timer). If the ignition is turned off while the car is in reverse the module will still return the mirror to the starting position. If the car is started in reverse the mirror will NOT tilt. If the transmission is placed in reverse for less then 1 second and then placed back in reverse within 1 second the mirror tilt cycle will be skipped. The transmission must stay out of reverse for at least ten seconds before a new tilting cycle can be started. By requiring the transmission to stay out of reverse for at least ten seconds it is possible to parallel park without the mirrors tilting unintentionally.

In 'Mode 2' the engage and bypass features are reversed, meaning that the transmission must be in reverse for less then one second and then placed back in reverse within 1 second in order for the mirrors to tilt. All other features are the same.

For product questions or support Email: Sales@K5AutoMirrorModule.Com