

IS200 Auto Mirror Closure

This project will close the mirrors of an IS200 when the alarm is set from the keyfob. The circuit then shuts itself down so not to drain power from the car. The standby current is 10mA. (0.01 of an amp).

The mirrors will open again once you switch the ignition on.

(Unless you have the door switch down of course)

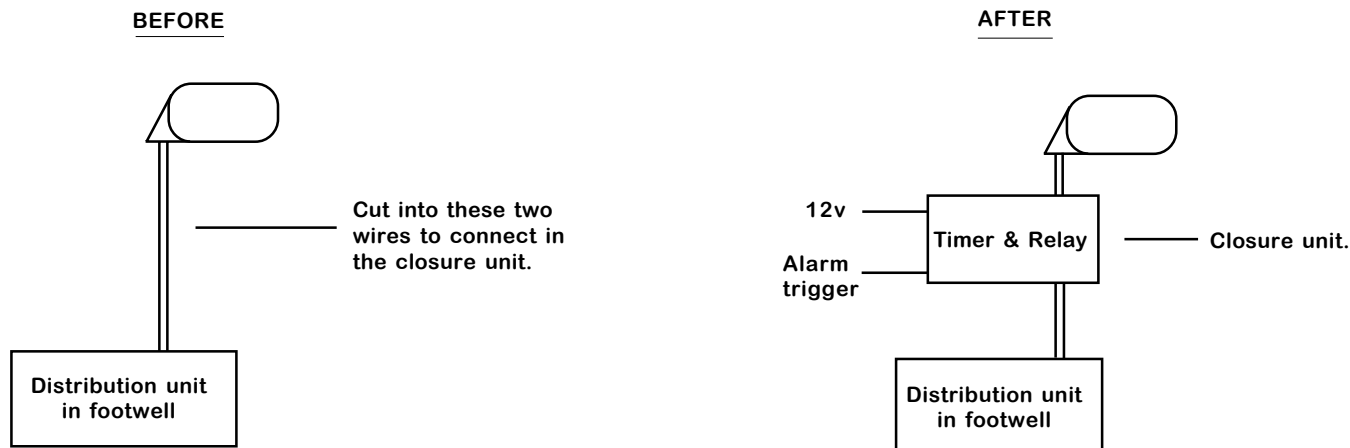
The mirror open/close facility still works as normal with or without the unit switched on.

How it works :

When you lock your doors using the keyfob, the control unit takes a signal from the alarm and starts a timer. In this timed period, it will apply power to the mirrors as if you had pressed the mirror close switch. The unit will then cut the power to the mirrors and they stay closed. This is achieved by a relay that closes when the alarm is on, applying a reverse current to the mirrors for a period of roughly 5 seconds. A permanent 12v feed is required for the unit to be able to do this.

If you don't wish to use the auto feature, simply switch it off.

Installation is relatively simple - just cut into the mirror circuit and attach the control unit.

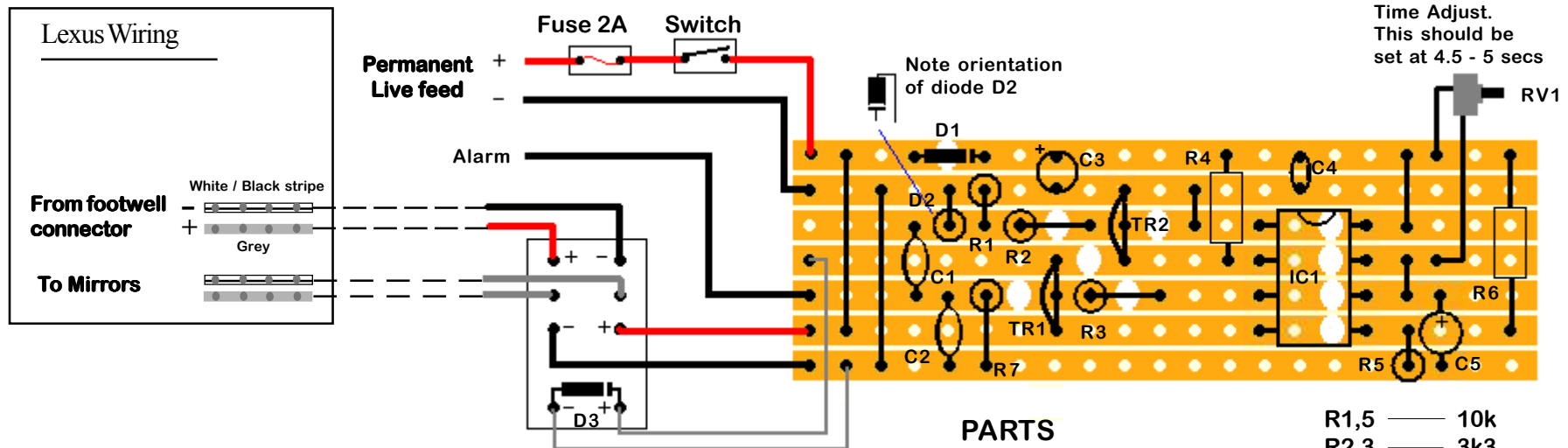


The Circuit

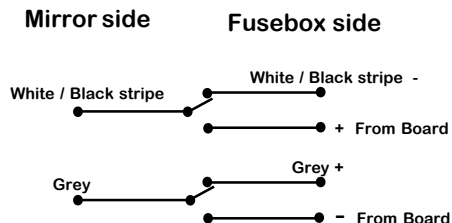
If you are building from scratch.
If using a ready built timer, goto
next page.

The mirrors on the IS200 open and close using polarity. This circuit provides reverse power to the mirrors for roughly 5 seconds when the alarm is set causing them to close. Normal operation of the mirrors is not affected.

The circuit here can be replaced with a commercially available triggered timer. You will still need the relay - just substitute the outputs from this circuit with the ones from the timer.



Due to different internal wiring of relays, make sure you connect the leads as shown. This is how it should be in the normal, non-energised state.



PARTS

Switch

Suitable box

Wire (16/02)

Veroboard

DPCO Relay

Fuse Holder + 1A Fuse

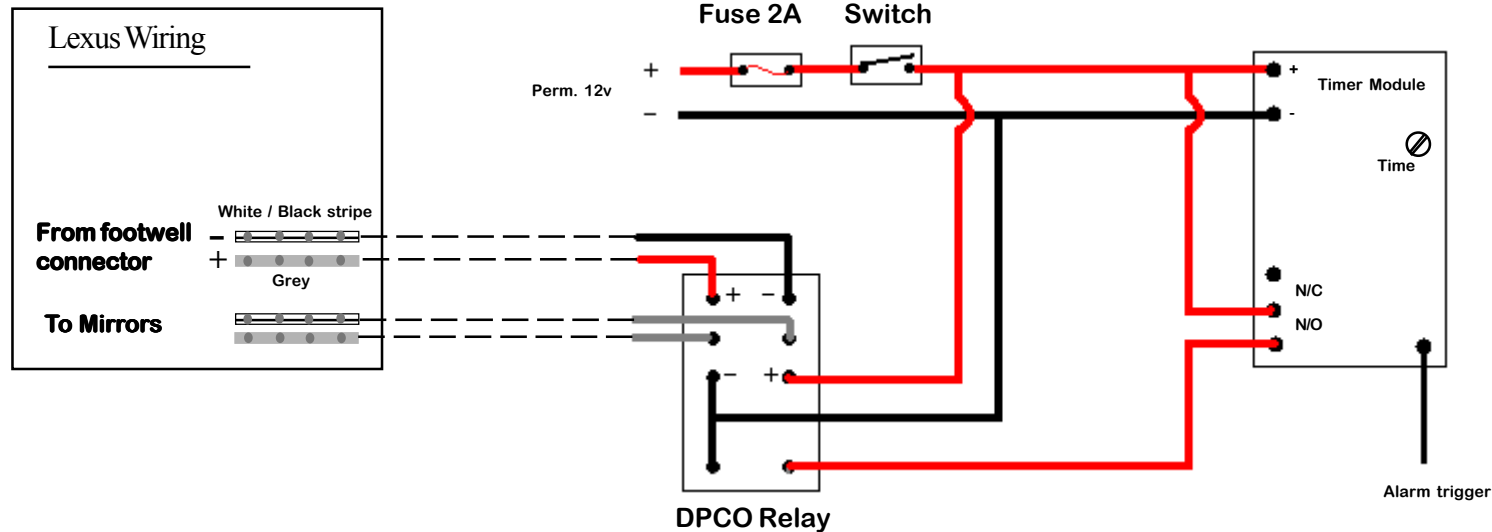
R1,5 — 10k
R2,3 — 3k3
R4 — 1k
R6 — 4k7
R7 — 100k
RV1 — 200k pot

C1,2,4 — 100nf
C3 — 100uf
C5 — 47uf

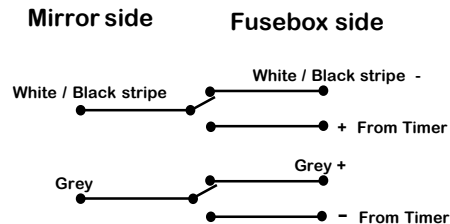
D1 — 1n4001
D2,3 — 1n4148
TR1,2 — BC547
IC1 — 555

Note : Capacitors should be rated at 30v or above.

Wiring a commercial timer



Due to different internal wiring of relays, make sure you connect the leads as shown. This is how it should be in the normal, non-energised state.



The timer Module must be set on positive pulse for the trigger.

Use the Normally Open (N/O) output.

Set the time for 4.5 / 5 seconds

Parts :

Switch

Suitable box

Wire (16/02)

Pulse Timer Module

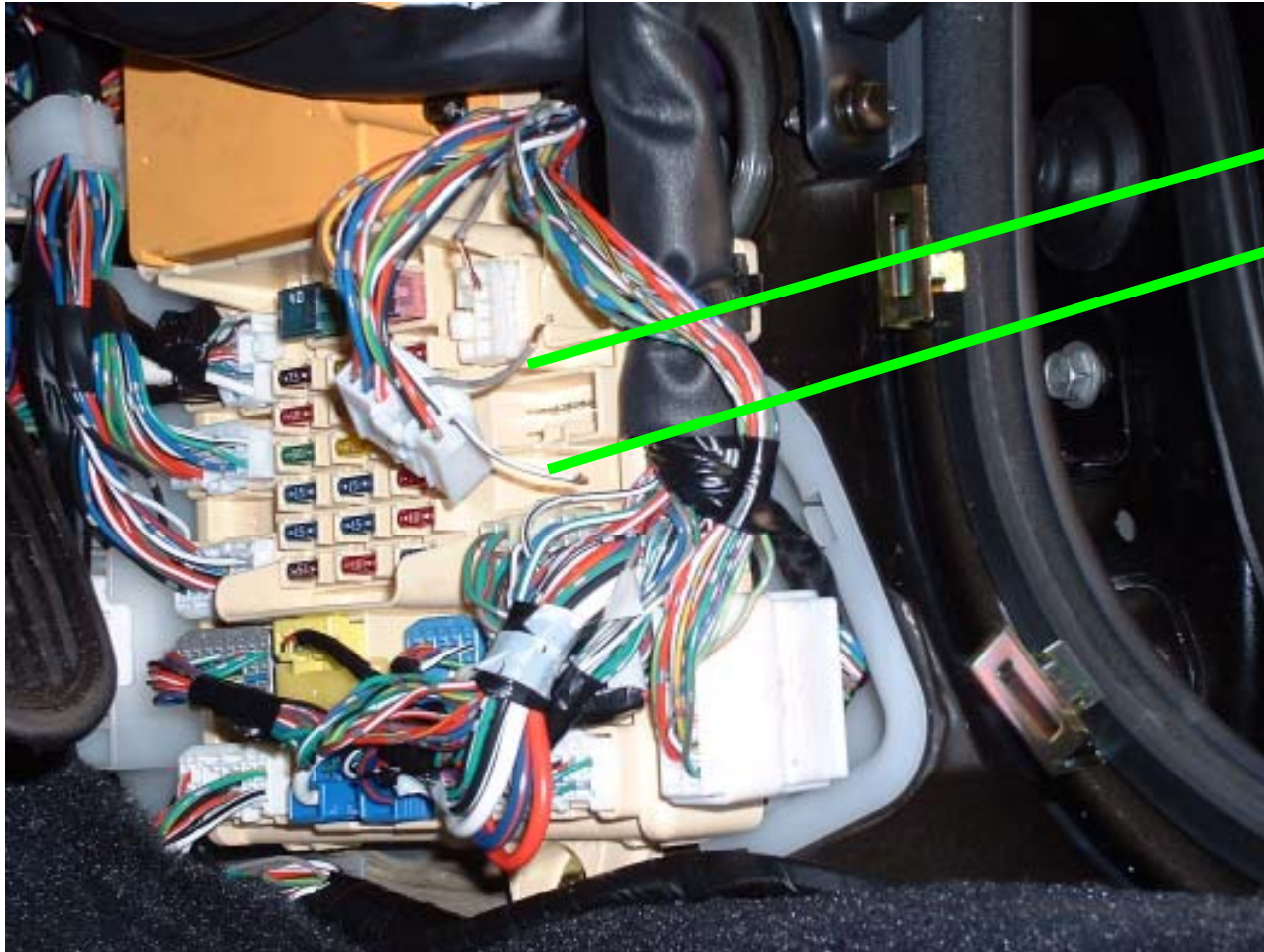
DPCO Relay

Fuse Holder + 1A Fuse

Installation

Make sure you do not have the ignition on or past the Acc position while doing this. Ideally you should disconnect the battery. I accept no responsibility for damage or loss resulting from improper installation. If you are unsure of this then DO NOT install.

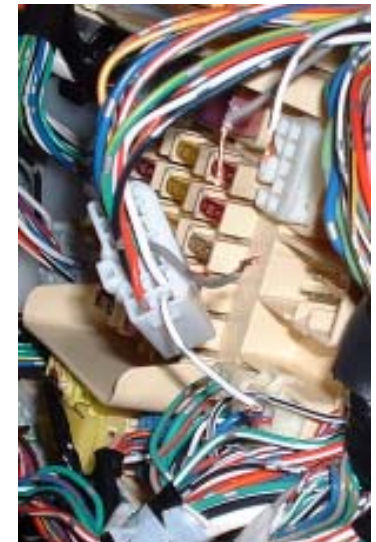
Firstly, remove the kickplate exposing the main drivers side distribution board. You then need to identify the wires controlling the mirrors. Take out the connector from the distribution board and cut the control wires. As you can see, from the right, they are the first and fourth lines.



Grey = Positive

White with
black stripe = negative.

Closeup



Now extend these wires. It will be hard to get cable of the same colour, so use black and red to identify the polarity easily. I prefer to use heat shrink tubing instead of insulation tape.



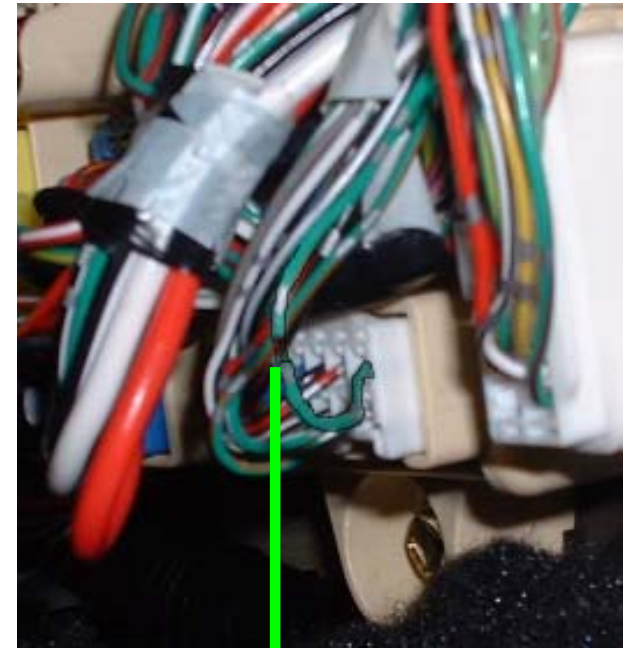
Put the wires into a sheath or use insulation tape to protect them.

Make sure you don't get them mixed up ! You need to be able to identify which pair comes from the connector and which ones go to the mirrors.

THIS IS VERY IMPORTANT !



Now locate the alarm trigger wire. This is in the lower right connector, coloured green. Do NOT CUT this wire. Simply bear it's sheathing and connect to it. You can also use a scotchblock for this.



Bear and connect to here. It is the first connection from the right.



I have used a white wire for my connection to the alarm

Now tape them up and put the connector back into the distribution board. Also, tape the wires back up in the loom. I have my control unit on the yellow box you can see in the top left of the picture. Route the cables towards that area.

Sorry for the quality of pic!



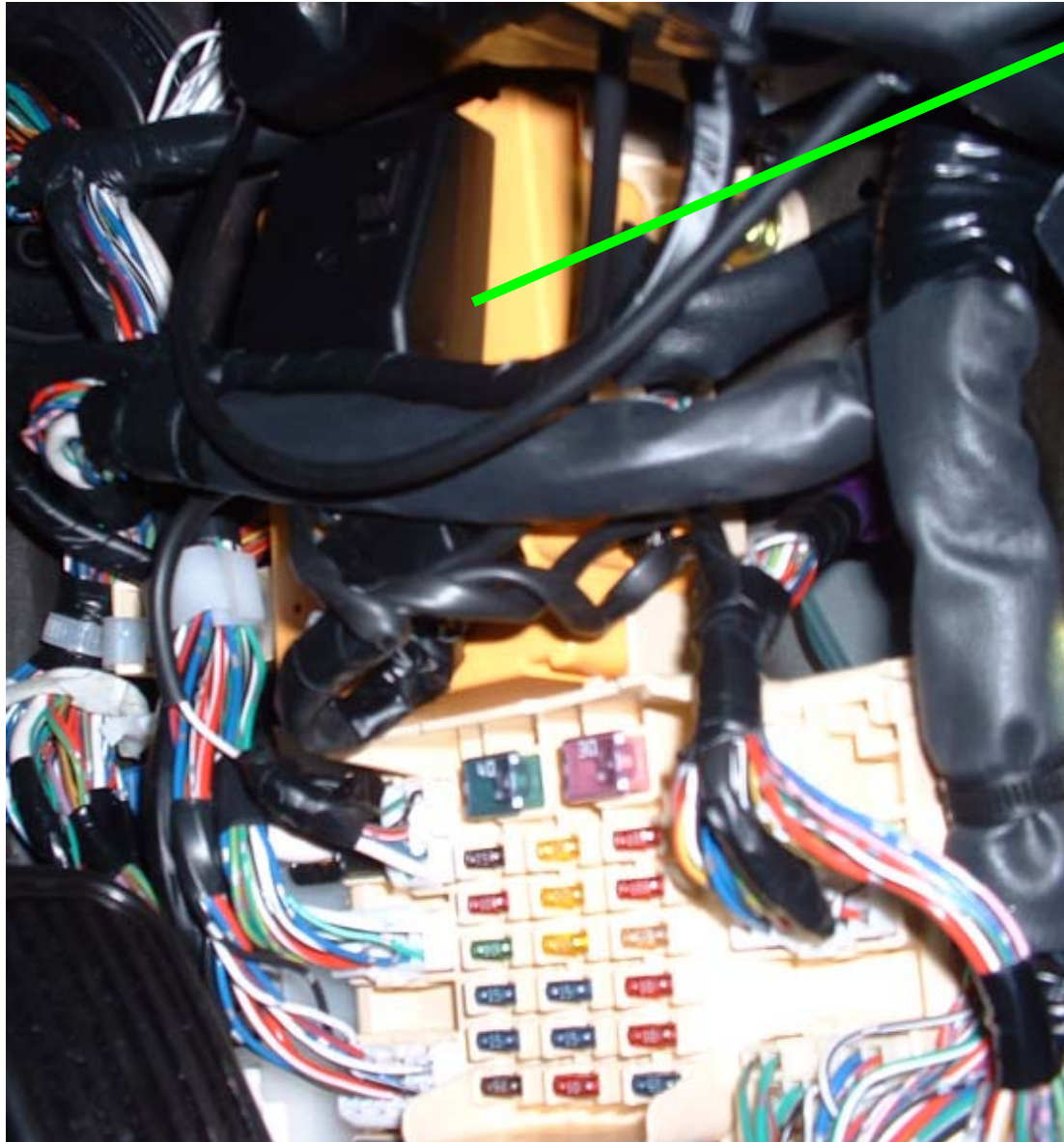
Select a permanent Positive and earth for the power. I already had one for my mobile phone taken from the ignition but there are a few there that can supply ample power. If you are testing for a permanent live around the ignition area, DO NOT touch the yellow wire. This is for the airbag and can trigger it.

You **MUST** have an inline fuse. 2A is sufficient for this. Connect the wires to the control unit. As I'm testing it, I just used a standard chock type screw connector. When it's complete I'll use a more suitable connector.



Here it is connected : live +-, alarm trigger, feed from distribution block and output to mirrors.

Now mount your control box. Make sure you have it high enough above the kickplate to be able to get to the switch in case you want to disable the facility.



Here it is, nice and neatly out of the way.

Now you must test the unit. Leave it switched off for now. Put the keys in the ignition and switch to Acc. Test your mirrors still function normally using the mirror switch on the door.

If they do not function correctly, disconnect and check the wiring before going any further.

With the ignition still on Acc., switch the unit on. Your mirrors may close the first time it is powered up. This is ok, they will open again after the timed period. Check your mirrors open and close as normal using the door switch.

Take the keys out of the ignition, close your door and set the alarm as normal. This should close the mirrors. Switch off the alarm and put the keys in the ignition and turn to Acc. The mirrors will now open again.

That is all there is to it.