

KITT Gadgets: Eject, Surveillance mode, computer printout

hardware revision: 2.0
manual revision: 1.2



Enrich and empower your replica with gadgets that mount below the main dash area!

There are currently three gadgets: eject, surveillance mode and computer printout. They all share the same printed circuit board, however it is populated with different parts and different firmware. Therefore there are some instructions common to all three gadgets, and other instruction specific to the single gadget.

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Common instructions

Power Supply Connection

Power supply connections are on screw terminals, marked +12V and GND.

Connect negative supply, or ground, to **GND** screw terminal post. Typically you'll use a black wire.
Connect +12V or +13,8V supply into **+12V** screw terminal post. Typically you'll use a red wire.

This board is not fused, please provide a fuse yourself before this board.

This board is NOT reverse polarity protected. Please pay attention not to swap power supply wires.

Please don't connect anything to **COM** screw terminal post.



GND +12V

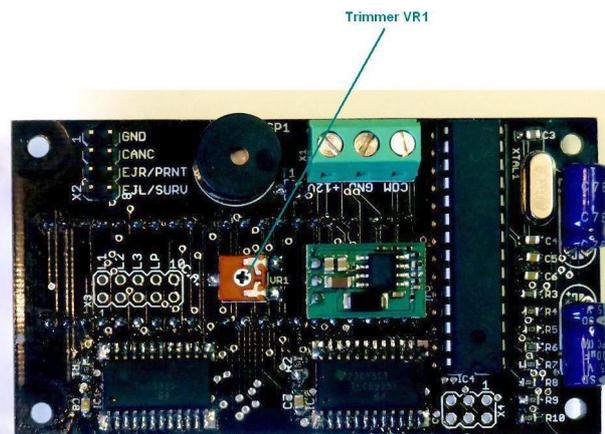
Speed adjust

Use a small screwdriver on **VR1** trimmer to change the speed of the light and sound effect.

Turn clockwise to increase speed.
Turn counterclockwise to reduce speed.

Use a plastic screwdriver, if you have one, so that it's not conductive and won't damage the board. You can use a metal screwdriver, but please pay attention to touch just the trimmer, and not to touch pins, pads and traces on the board: touching any powered electronic board with a metal object can damage it because it short circuits live signals.

Currently only eject gadget supports speed adjust.



Pushbuttons connection

External pushbuttons connect to the 4x2 pin header.
Use one 2x1 female header per each button.

Eject uses three pushbuttons, to connect to:

CANC: Cancel pushbutton

EJR/PRNT: Eject Right pushbutton

EJL/SURV: Eject Left pushbutton

Computer Printout uses one pushbutton, to connect to:

EJR/PRNT: Printout pushbutton

Surveillance Mode uses one pushbutton, to connect to:

EJL/SURV: Surveillance pushbutton

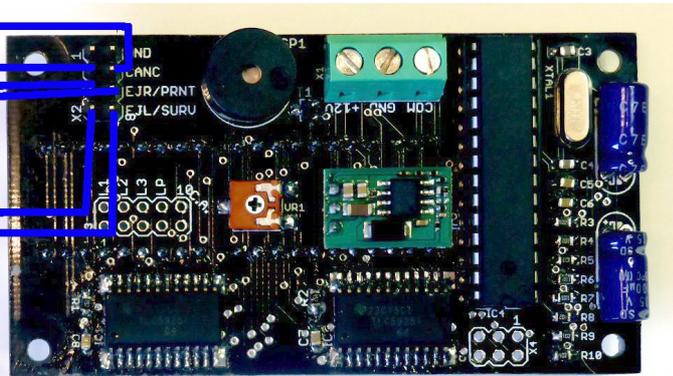


Up to three pushbuttons:

CANC

EJR/PRNT

EJL/SURV



Advanced connection option (for advanced users only).

You may use 4 wires instead of 6 wires for 3 pushbuttons.

Use right column of 1x4 pin headers. Don't use left column.

Find GND (common) signal on first pin of right column, then the three pushbutton inputs on the other three pins.

Left column of 1x4 pin headers that you don't use, actually carries GND signal on all four pins.

LEDs connection

External LEDs connect to the 5x2 pin header.
Use one 2x1 female header per each LED.
No external resistor is needed between led and board.

Computer Printout gadget uses three LED outputs:

L1 : Computer Printout Yellow Led

L2 : Computer Printout Red Led

L3 : Computer Printout Green Led

Eject and surveillance don't use LED outputs.



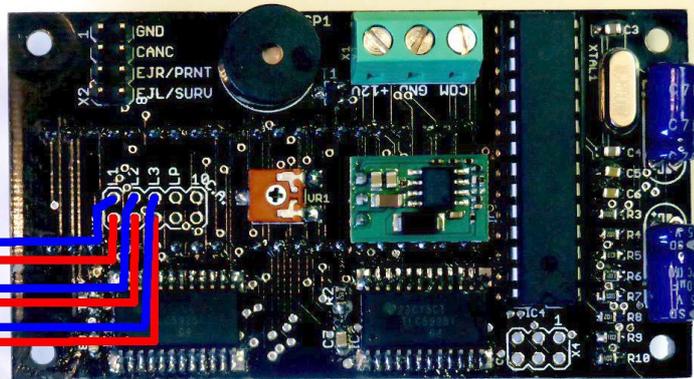
Up to four LEDs:

L1

L2

L3

LP (not used)



LED is polarized part: if inserted backwards in this circuit it won't get damaged, but it won't light up. So just insert the LED any orientation, if it works, you're done. If it doesn't work, swap it 180°, and you're done. If you already know which is Anode and which is Katode on LED, then Katode goes in the top row, Anode in the bottom row.

Advanced connection option (for advanced users only). You may use 5 wires instead of 10 wires for 4 LEDs.
Use top row 5x1 pin headers in picture. Don't use bottom row.

Find 4 constant current sinks, low side, for LEDs Katodes, in the first 4 pins.

Find a +5V power output supply for the common Anodes of the LEDs, on fifth pin.

Bottom row 5x1 pin headers, that you don't use, all of them actually carries +5V power output on all 5 pins.

Functionality at power up

When you power up the board, nothing apparently happens.

The LED bargraphs stay OFF, and Buzzer emits no sounds.

But the circuit is working: it's ready to accept pushbuttons events by user and respond accordingly with light and audio effects.

Eject instructions

Functionality

Press the Eject Left or Eject Right pushbuttons: the bargraph will fill up, in synhc with audio effect. You can adjust speed for the visual light effect and synched audio effect with the trimmer VR1.

You may fill up the bargraph completely with a longer press, or just partially with a shorter press. You may resume and/or complete a partial fill, pushing more.

A press on the CANCEL pushbutton will empty any full or partially filled bargraphs. Just like in the TV-Show, if you're quick, you can cancel an eject, if you don't want to do it any longer.

After a timeout, the bargraph will just empty by themselves. Just like in the TV-Show, if you're not quick at canceling the Eject, it will just take place, say bye-bye to the person sitting next to you, and KITT is ready again for next eject. The part of actually ejecting the person is not implemented by this board, please get rid of her/him yourself by using any other mean of your choice ;-)

Buttons location advice

You can use and connect any pushbutton in your replica.

We advice to use the provided black pushbutton that fits in the eject overlay for CANC.

We advice to use Eject L and Eject R pushbuttons on the switchpods for EJL and EJR.

Connecting to switched-to-gnd buttons

A pushbutton will have two wires. Connect both with a 2x1 female header. One side of the pushbutton goes to the right column (which are the actual pushbutton inputs of the board), the other side goes to the left column (where the board actually provides GND on all pins).

If you use switchpod PADs (or any other switched-to-gnd buttons), you won't get two wires, but just one wire. This is because Switchpod automatically connects the pushed button to GND internally. So use right column point of connection on eject board, and don't use left column. The connection to GND is done automatically by switchpod, and you don't need to do it.

Surveillance mode instructions

Functionality

Button connects to **EJL/SURV**.

Press the button once: Surveillance Mode will start doing its cyclic audio and visual effects.

Press the button again: Surveillance Mode will stop doing its cyclic audio and visual effects.

Always ON

If you don't want to use the internal toggle on/off logic for the pushbutton programmed into the Surveillance Mode, but prefer powering it up and it immediately starts effect, cut off power and it will stop (because unpowered), please insert a jumper in EJR/PRNT. If this jumper is present, the Surveillance Mode will just be "always on". You can switch it off by cutting off power to it.

Sound ON/OFF

If you find the sound annoying, it can be disabled.

Button connected to CANC. A single press on the button will toggle sound on or off.

This setting is stored in non volatile memory and will remain the same after a power cycle.

Computer printout instructions

Functionality

Button connects to **EJR/PRINT**

Press the button: computer printout will do an audio and visual effects sequence on LEDs and Buzzer.

Always ON

If you don't want to use the internal toggle on/off logic for the pushbutton programmed into the Computer Printout, but prefer powering it up and it immediately starts effect, please insert a jumper in EJR/PRINT. If this pushbutton input starts already closed at power up, the board will do the sound and visual effect immediately at power up.

Illuminated Pushbutton

If you use the square illuminated pushbutton that fits the overlay, please note that this device is actually comprised of two devices in one. It has both a 12V lamp, and a pushbutton. In fact you have four connection terminals on this device.

Two terminals are for the pushbutton. These connect to the EJR/PRNT pushbutton input on our board.

Two terminals are for the lamp. Since you want lamp always on as in the TVShow, this lamp is not controlled by the board, instead, you just connect it to 12V power supply yourself, so that it's always lighted up.