KEYFOB MINI PROGRAMMER QUICK START GUIDE

IMPORTANT INFORMATION

1) Do not leave the programmer connected to the PC adapter, as this will drain the battery.

LOADING FROM THE PC

1) Connect the PC adapter (dongle) to the PC parallel port.

2a) Connect the extension cable, using the end black socket, to the PC adapter. Then connect the programmer to the end grey plug of the extension cable. This method is useful where access to the PC adapter is poor.

← PC Printer Port
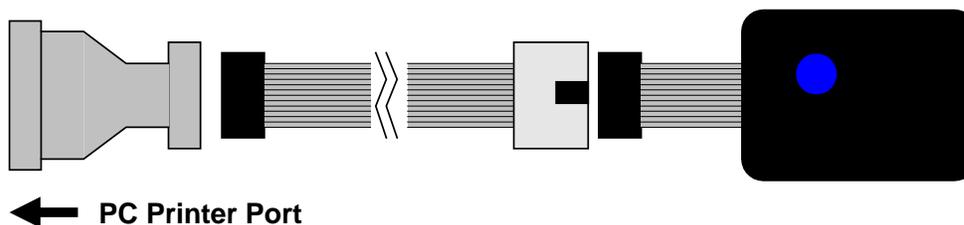
2b) Or, simply connect the PC adapter directly to the keyfob programmer

3) To load code, run the keyfob software

- Select the AVR device you want to use on the device screen
- The next screen allows you to select whether the Fuses (not Lockbits which will always appear) should be programmed. Check the **Fuse Enable** box to program fuses.

   Notes:
   - The whole AVR is erased (Flash and EEPROM) when a Flash file is selected
   - To preserve the EEPROM data, the EESAVE fuse must be enabled. This fuse prevents the EEPROM from being erased. Do not select an EEPROM file if you want to keep EEPROM data
   - To program EEPROM only, just select an EEPROM file. This will NOT work if device is locked
   - Fuses can be programmed before erase – see below. This means you can set the EESAVE fuse to preserve EEPROM data if it is not already set. Again this will not work if device is locked
- The next screens are Fuses (if Fuse Enable is checked) followed by Lock Bits screen.
   Notes:

DWEN (Debugwire Enable) and **RSTDISBL** (Reset Disable) Fuses are omitted because setting either of these fuses disables further serial programming of the AVR. Contact support if you need to set these fuses.

- The screen after Lockbits screen is for programmer settings.
  Notes:
  - Speed Settings: The keyfob should work on **Fastest** setting unless you have a very slow clock (<1MHz) or you have capacitors on programming lines. If you get programming errors when using the keyfob, try a slower setting.
  - Check **Program fuses before erase** if you want to alter behaviour, e.g. set EESAVE fuse.
- Almost there! On the next screen, make sure that the LPT port you select is the one the PC adapter is using. The time selection on this screen allows error light to stay on for a shorter or longer time, default 5 seconds.
  Note:
  The error code (1, 2, 3 etc. flashes – see below) will repeat once a second, for as long as this time – default 5 seconds.
- On the last screen, click the **Upload** button to load the keyfob programmer.

You Keyfob is now loaded and ready for use.

If the programmer or PC Adapter are not found, see *Troubleshooting* section.

PROGRAMMING THE TARGET SYSTEM

1) Connect the programmer to the target system.
   Notes:
   - The target circuit **must** be powered.

   - Minimum voltage required is 3.3V for Keyfob 4. For older keyfobs, 4V

   - Vcc must be connected to header, and all 4 GND pins should be connected to target GND
     * These pins & either pin 4 or pin 10 must be connected to Ground by target for correct operation

   - This is target layout view not end of lead

   - 0.1" (2.54mm) pitch pin headers, with polarising notch

   - A single green flash (red on v2.3.7), on LED will occur when the keyfob is first connected.

TARGET CONNECTOR FOR AVR PROGRAMMERS

MOSI	1	2	VCC
LED OPTIONAL	3	4	GND
RESET	5	6	GND*
CLK	7	8	GND*
MISO	9	10	GND

Recommended ISP Circuit

This diagram shows a typical ISP circuit that will work with the Keyfob Programmer. Please read the notes for more detail.
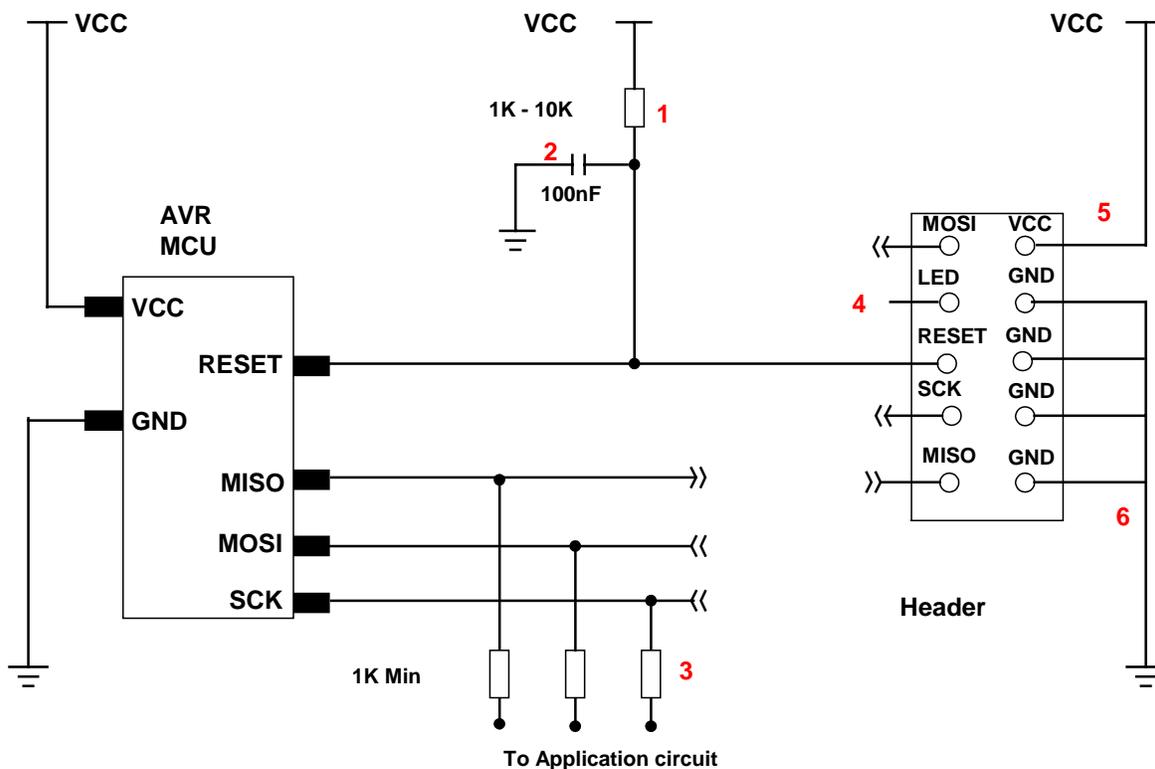
1) This resistor should be fitted. It can larger than 10K if required, but not smaller than 1K

2) Again 100nF is a typical value. We suggest a minimum of 10nF.

3) Programming lines should be isolated from application circuit with series resistors, especially if application circuits force the state of the AVR pins. In exceptional cases, a multiplexer may be needed to isolate these lines. Capacitors should be avoided on these lines, if possible. If capacitors must be fitted, then the programming speed may need to be reduced – see *Keyfob Software* section

4) Optional LED line. This can be connected to an indicator LED if desired, or used to drive a multiplexer. It is **LOW** during programming

5) Vcc must be connected to header. **Vcc must be >= 3.3V**

6) GND pins. We recommend that all GND pins are connected. If not, then either pin 4 or pin 10 MUST be connected – these are programmer Ground. Pin 6 is connected to programmer battery but can be omitted. Pin 8 MUST be connected as it is the mode pin. The programmer uses this pin to check if it is connected to a PC or a target.

2) Press the button to start programming
3) LED Codes.

Normal operation:
A single green flash (red on v2.3.7), when the programmer is plugged into a powered target.
Then, after pressing the button, the LED turns green for the duration of programming.

At the end of programming the green LED switches off. If programming was successful, the LED stays off. The keyfob must be disconnected from the target and plugged in again before another programming cycle can start.

If there is an error, then LED will **Flash Red** with an error code. This error code will repeat every second, so do not confuse a single flash once a second with five flashes!
**Error code – LED turns red:**

1 flash   - Device not responding
2 flashes   - Erase failed
3 flashes   - Programming failed
4 flashes   - Fuse write failed

USING THE KEYFOB PC ADAPTER WITH AVRISP SOFTWARE

During code development, you may find it convenient to only have one PC adapter for both the Keyfob and AVRISP software, so we have made the Keyfob PC Adapter compatible with both.

1) Connect the Keyfob PC adapter (dongle) to the PC parallel port.

2) Connect the extension cable to the PC adapter (single socket end).

2) Connect the extension cable to the target system, using the middle black socket.

NB AVR ISP software is not supplied with the Keyfob Programmer Starter Kit.

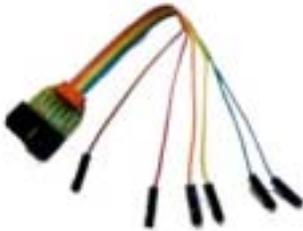**← PC Printer Port**

Plug into target
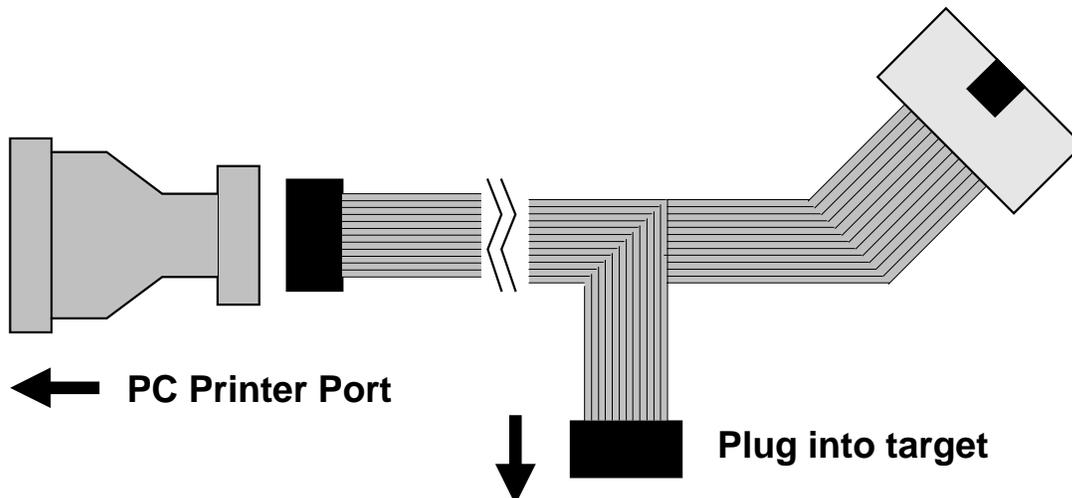
SIX WAY ADAPTERS

Because of the need to connect more than 1 GND pin, the adapter should connect GND pins together. So, the adapter is not as straight forward as it first appears.
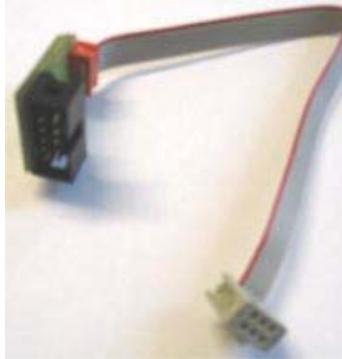
Adapters from the 10-way DIL interface to 6-way flying leads, 6-way DIL (3 x 2 0.1" pin header), and 6-way Micromatch connectors are available from Kanda.
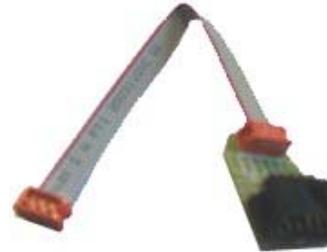
Order Codes are:

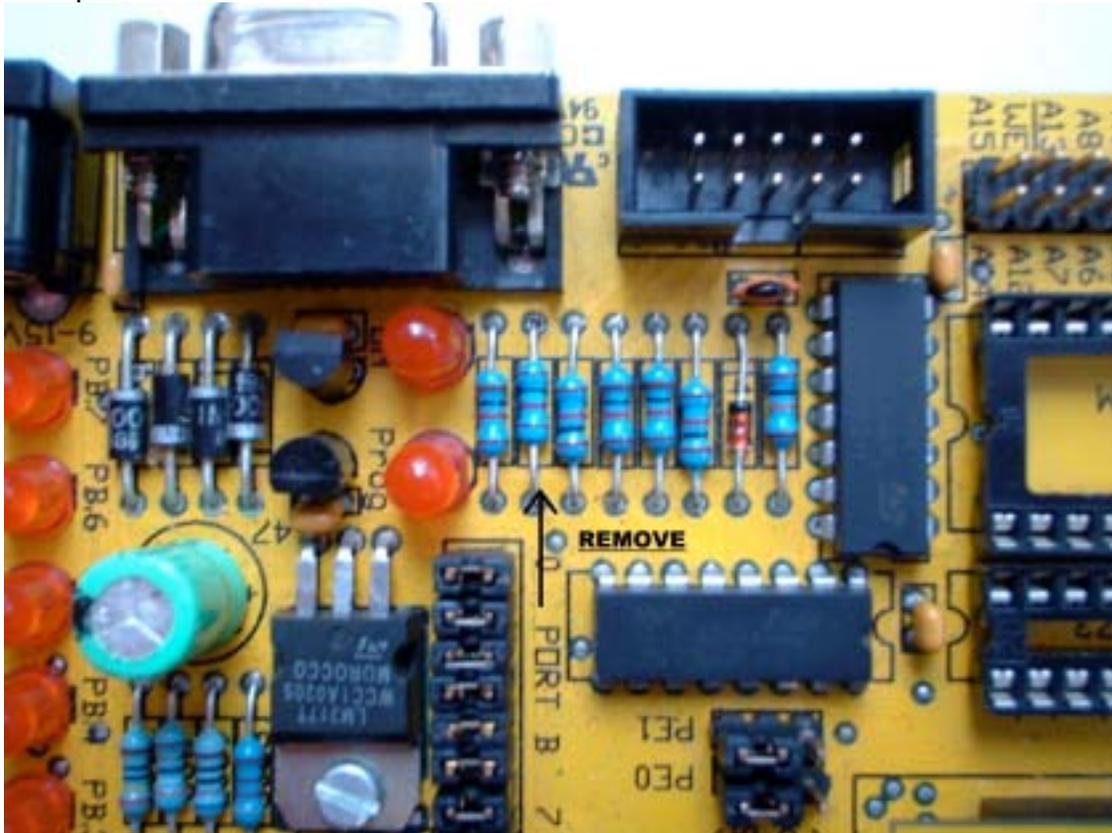**10FLEX6**   10DIL6   10MICR6

USING STK300 with THE KEYFOB PROGRAMMER

1) The original design of the STK300 reset circuit does not comply with the requirements of the programmer.

To allow programming of older STK300's, a small modification to the STK300 is required.

Check the value of the resistor indicated. If the value is 1K, it should be removed. STK200 requires no modification.

SAVING SETTINGS

The settings you have used can be saved for use again, in a FOB (.fob) file.

To save settings, click on **Save Fob button** on last page, and give the file a name.

To load a FOB settings file, click on **Browse button** on first screen and select the FOB file to load.

Note:
If you try and change device with a FOB file loaded, you may get unpredictable results. We advice you to NOT load a FOB file if you intend to change device as the fuses could be very different.

TROUBLESHOOTING

Error message: "Dongle was not detected – check connections and parallel port settings"
1) Ensure dongle (PC adapter) is connected to printer port
2) Check port setting – LPT1, LTP2 etc.
3) In BIOS, make sure port is set to EPP v1.9 or ECP
4) Some early versions of XP poll printer port – if you have early XP version, load service packs

Error Message: "Programmer is not responding – check connections and battery power"
1) Check that programmer is connected to PC as shown on Page 1
2) Check battery in the keyfob programmer

Programming Errors – RED Flashes on LED when programming
1) Ensure your target circuit is wired correctly as shown in connection diagram on Page 3
2) Check target is powered with at least 3.3V
3) Slow down programmer speed in software – especially if you have capacitors on programming lines or other unusual circtuitry.

BATTERY

The Keyfob Programmer uses a standard 12V battery as used in car keyfobs. These are commonly available from electronics suppliers and motor factors.

SIZE: 23A - 26mm x 10mm Diameter (1 inch x 0.4 inches)
TYPE: ALKALINE

VOLTAGE: 12V
CAPACITY: 38mAH (current drawn not specified).

Further Information

Please contact support@kanda.com for technical support or go to our website support pages for latest software.

See **www.kanda.com/support**

Contact details

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