

## ICprog-AVR 2.0 KANDA

### I. FEATURES

The *ICprog-AVR 2.0 KANDA* is the smallest available AVR910 compatible USB-programmer for Atmel AVR microcontrollers available at the market. Since it uses the page programming mode it operates very fast.

Features:

- **AVR910-compatible:** 10-pin KANDA connector
- **PC-connection:** USB
- **Bootloader:** included, simple Firmware updating by using *In-Circuits* easy-to-use *ICprog-AVR Updater*. Download of Update-Software at [www.ic-board.de](http://www.ic-board.de)
- **Programmer software:** AVR-Studio by Atmel (AVRprog.exe), avrdude or compatible AVR910 programming software.
- **Power supply:** via USB, ability to supply peripheral circuits with up to 100mA max.
- **Size L x B x H (mm<sup>3</sup>):** 50 x 20 x 14.6
- **Weight (g):** 10
- **supported AVR microcontrollers**

#### ATmega:

ATmega48, ATmega88, ATmega168, ATmega8, ATmega16, ATmega32, ATmega64, ATmega103, ATmega128, AT90CAN128, ATmega1280, ATmega1281, ATmega640, ATmega161, ATmega162, ATmega163, ATmega169, ATmega164, ATmega324, ATmega644, ATmega329, ATmega3290, ATmega649, ATmega6490 ATmega8515, ATmega8535

#### ATtiny:

ATtiny10, ATtiny12, ATtiny13, ATtiny15, ATtiny26, ATtiny2313, ATtiny25, ATtiny45, ATtiny85, ATtiny24, ATtiny44, ATtiny84

#### AT90S:

AT90S1200, AT90S2313, AT90S2323, AT90S2333, AT90S2343, AT90S4414, AT90S4433, AT90S4434, AT90S8515, AT90S8534, AT90S8535, AT90S8544

### II. INSTALLATION AND SOFTWARE

First the Windows driver for the programmer has to be installed: Connect the programmer to a running PC. Following that an automatic installation procedure will start which requires the path to the device driver.

Linux also supports the ICprog-AVR programmers. The ICprog-AVR use a CP2102 USB-to-UART bridging device. Almost all Linux Distributions support the CP2102.

For programming we recommend to use the free tool *avrdude*. You can download it from our site [www.ic-board.de](http://www.ic-board.de). **The ICprog-AVR 2.0 KANDA uses a Baudrate of 115200 Baud and the Programmer-Type is AVR910.** To program an ATmega8 with the test.hex-file, the

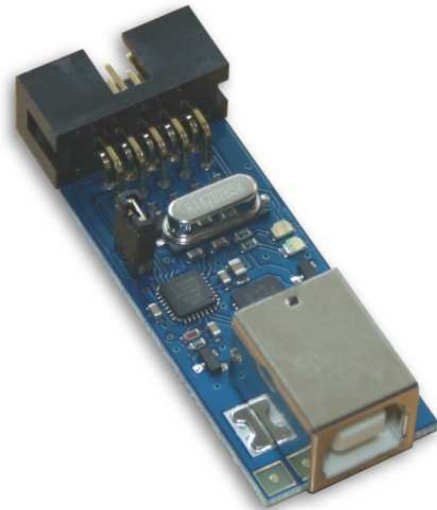


Figure 1. *ICprog-AVR 2.0 KANDA*

command line for *AVRdude* should look like this:

```
avrdude -p ATMEGA8
        -P COM3
        -b 115200
        -c avr910
        -e
        -U flash:w:test.hex
```

Also the free AVR Studio by Atmel with the included tool *avrprog.exe* is suggested.

**The ICprog-AVR 2.0 KANDA which appears as an additional virtual COM-Interface has to be assigned to one of the interfaces COM1 to COM4 because AVRprog checks only this range for available programmers.**

### III. LEDs AND JUMPER

The two LEDs on the programmer serve for control purposes:

- LED D1 (green) lights while programming. As soon as the programmer gets power, the internal bootloader starts up and turns on the green LED. Now you can either do firmware upgrades or start your downloading tool to program your chips.
- LED D2 (red) lights, if the programmer is connected to a PC via USB.

When the jumper J3 is closed the voltage at the Vcc pin of J2 is 4.5V which can supply targets with up to 100mA. **ATTENTION - only close the jumper J3 if you are sure that the Target current will not exceed 100mA and the voltage of 4.5Volts is not to high for the target! If the target requires an different supply voltage or the estimated current exceeds 100mA, then the jumper J3 should be open and the target self-powered!**

#### IV. PIN ASSIGNMENT

The ICprog-AVR 2.0 KANDA supports the interface as shown in table 1. Both interfaces run in parallel and do not require a selection by software. Figure 2 depicts the pin assignment of the KANDA connector.

Pin#	Name	Pin#	Name
1	MOSI	2	Vcc
3	/LED	4	GND
5	/RESET	6	GND
7	SCK	8	GND
9	MISO	10	GND

table 1. Pin Assignment Programming Interfaces

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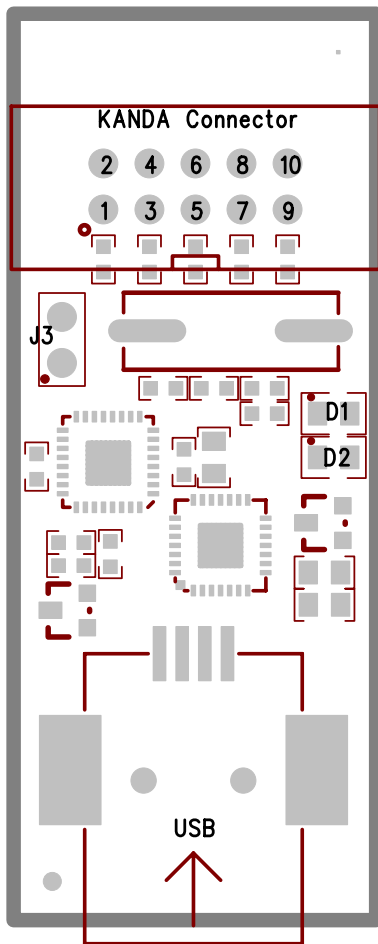


Figure 2. Top View