CrispAVR-USB Infosheet

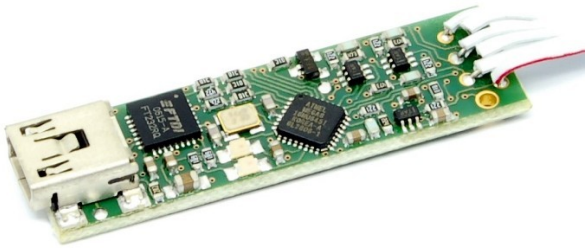
STK500 V2 compatible AVR ISP adapter with USB interface for all AVR processors with ISP interface.

BASIC SPECIFICATIONS

Module	Host Interface	Target Interface	Status Indicator	Compatibility
CrispAVR-USB	USB UART converter with virtual COM port	AVR ISP interface with target voltages from 1.65V to 5.5V	2 LEDs (green and orange)	Atmel STK500 V2

Connectors

- PC connection with standard mini-USB cable
- 6 pin ISP header with standard Atmel pinout
- a 10 pin ISP header is not provided, but can be built easily (see pin configuration for details) or purchased from chip45.



Compatibility

- STK500 V2 software compatible
- can be used with all popular PC programs (e.g. AVR-Studio, WinAVR, uisp, PonyProg)

Supported Devices

- The programmer is operating system independent and can program all Atmel AVR processors with ISP interface! Up to latest devices like ATmega2560! Even many AT89xxx processors can be programmed.
- Due to level shifters at the ISP interface, target voltage from 1.65V to 5.5V are supported.

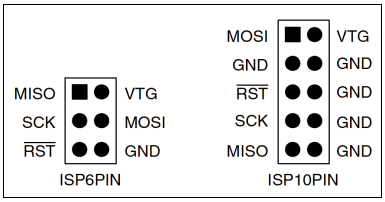
SCOPE OF DELIVERY

CrispAVR-USB is sealed in transparent plastic and comes ready-for-use with 30cm ISP cable attached. A USB cable (A<->miniB, 1.80m) is included.

PIN CONFIGURATION

CrispAVR-USB comes with a 6 pin ISP header with standard Atmel pinout, as shown in the right picture. Wrong polarity connection is detected automatically (green LED flashes fast) and will not harm the target.

In case the target provides just a 10 pin ISP header, a simple adapter can be built. See the pinout right for details.



USAGE

Using the CrispAVR-USB requires installation of a virtual COM port USB driver, which is available from the CrispAVR-USB download page. Follow the installation instructions from the driver manufacturer. After installation a new virtual COM port will show up in the Windows device manager (Gerätemanager), when the CrispAVR-USB is connected to the PC. Most programs like AVR-Studio will detect the CrispAVR-USB as STK500 programmer automatically and will work as usual.

As long as no target is connected and the CrispAVR-USB is properly connected to the PC, the green LED will pulsate slowly and softly.

Target Connection

The CrispAVR-USB is connected to the target through a 6pin ISP header. Wrong polarity is detected automatically and the green LED will flash fast. In case the connection is correct and the target processor is detected properly, the green LED will be permanently on.

Target Programming

During target programming, the green LED will remain on and the orange LED will go on, too, until programming is finished.

TERMINAL MODE

The CrispAVR-USB provides an interactive terminal mode for setting two basic system parameters. Open a terminal session (use TeraTerm or Hyperterminal) with 115200 baud, 8 data bits, no parity, 1 stop bit to the virtual COM port installed by the USB driver and hit “Enter” twice – a message should appear.

Major and minor STK500 version number

First, the major and minor software version numbers, which are returned by the CrispAVR-USB to the host

software, can be set. This is useful to avoid AVR-Studio mentioning an old STK500 version and suggesting to update the firmware on every startup. The CrispAVR-USB cannot be updated from AVR-Studio.

Pulling down reset on target detection
Second, pulling down reset on ISP connection can be disabled. Pulling down reset is used to detect a wrong polarity connected ISP header. This might disturb sensitve applications and can be disabled.

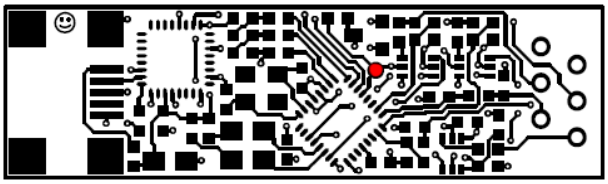
The settings entered during terminal mode are stored in the CrispAVR-USB permanently and remain until changed again with terminal mode.

OPERATING CHARACTERISTICS

Symbol	Parameter	Condition	Min	Typ	Max	Units
Vbus	Supply Voltage USB		3.3		5.25	V
Vtg	Target Supply Voltage		1.65		5.5	V
Icc	Current drawn from target supply voltage Vtg for level shifters power supply	1.65V to 5.5V target voltage			3	µA
T	Operating Temperature (industrial temperature range on request)		-20		+70	°C

FIRMWARE UPDATE

The firmware of the CrispAVR-USB can be updated with a second ISP adapter and a test cable with at least one sharp probe:

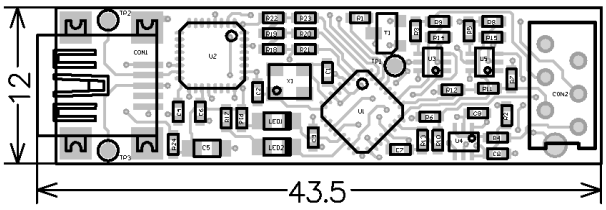


- connect the CrispAVR-USB's ISP header 1:1 to the second ISP adapter
- connect the (not necessarily sharp) test cable end to the second ISP adapter's reset signal (see ISP pinout above)
- press and hold the sharp test cable probe through the plastic enclosure (shrinking tube) of the CrispAVR-USB to the internal test pad (see red dot in the picture on the right)
- now the level shifter directions are reversed and the internal ATmega8 can be programmed just like any other AVR target

New firmware versions will be made available on the CrispAVR-USB page at http://www.chip45.com.

PHYSICAL DIMENSIONS

See right. Values are [mm] unless otherwise noted.



DESIGN AND HANDLING GUIDELINES

This module – just like any other semiconductor devices – is susceptible to damage by ESD. Suitable precautions should be taken when handling and transporting devices. The possible damage to devices depends on the circumstances of the handling and transporting, and the nature of the device. The extent of damage can vary from immediate functional or parametric malfunction to degradation of function or performance in use over time. Devices suspected of being affected should be replaced.

DEVELOPMENT TOOLS

CrispAVR-USB is compatible with any PC software supporting an STK500 ISP adapter, e.g.:

- Atmel AVR Studio: http://www.atmel.com/dyn/products/tools_card.asp?tool_id=2725
- WinAVR compiler toolset: http://winavr.sourceforge.net/