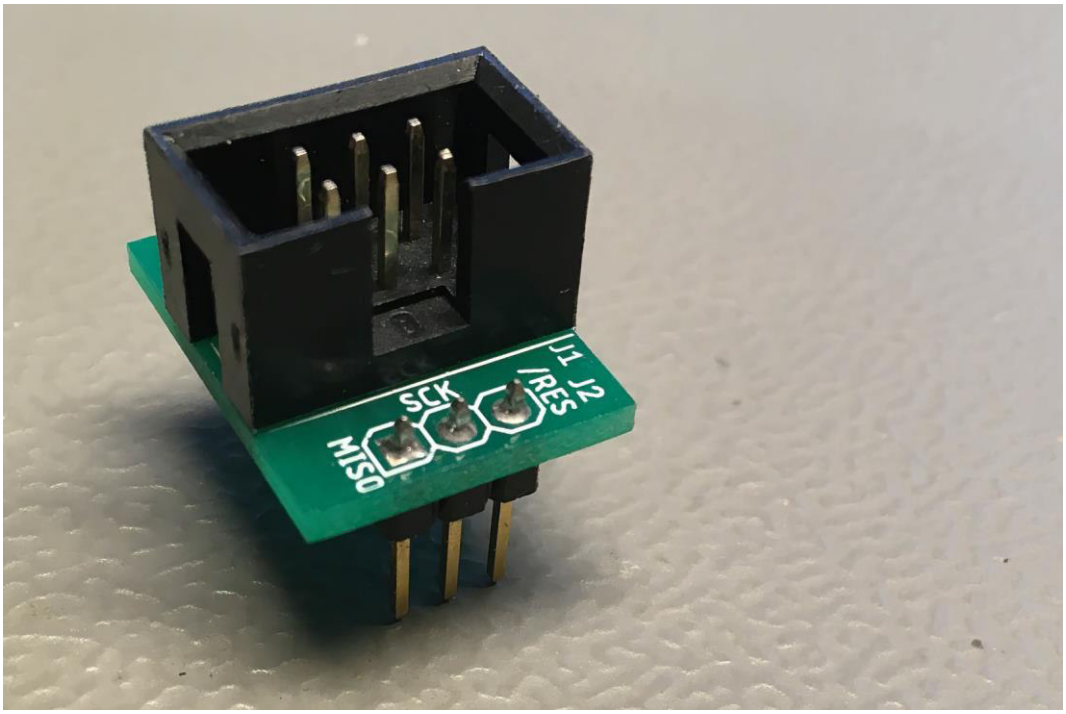
# Project Documentation

## AVR-ISP Adapter

Project number: 106

Revision: 0

Date: 04.06.2018



# AVR-ISP Bread Board Adapter Rev. 0

## Module Description

## Introduction

The purpose of this adapter is connecting the 6 pin AVR In System Programming pin header to a bread board. There is a 6 pin box connector (2x3, 2.54mm) on top and two 3 pin (2.54mm) pin header, 600 mil apart, on the bottom side of the board. This way, it fits into a standard bread board and can be wired up with the processor. The pin header fits the AVR programmers like the Microchip Atmel-ICE, the Diamex USB ISP-Programmer (Atmel AVR) or the cheap (STK500 emulating) programmers, which are available available from AliExpress or ebay etc. for less than 10€.

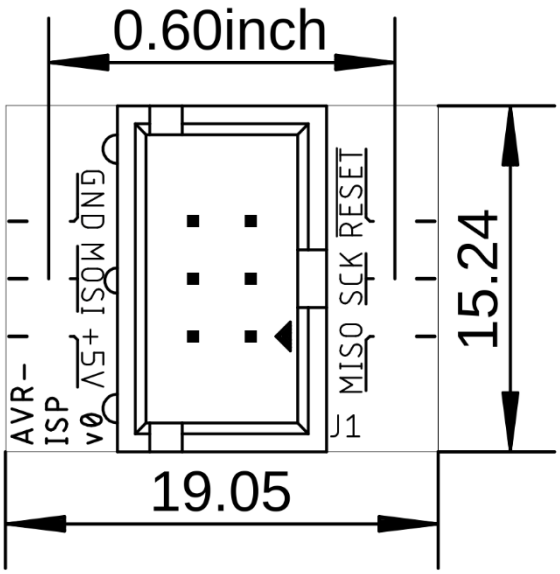



*Figure 1: Dimensions of the PCB*

## Connectors

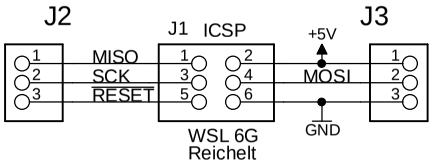
| J2 | Signal | J1 | | Signal | J3 |
|---|---|---|---|---|---|
| 1 | MISO | 1 | 2 | +5V | 1 |
| 2 | SCK | 3 | 4 | MOSI | 2 |
| 3 | | 5 | 6 | GND | 3 |

J2 and J3 are pin headers placed on the bottom side of the PCB and fit into a bread board

## Revision History

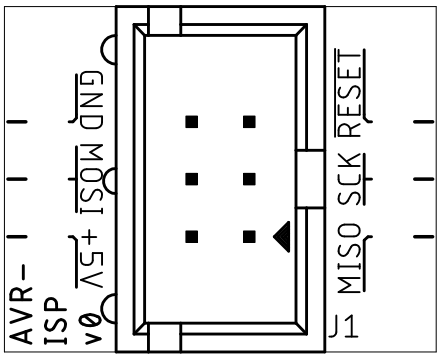
### Rev. 0

- Fully working prototype




| | | | |
|---|---|---|---|
| Title: ISP-Adapter for AVR<br>for Breadboard | | Doc.–No.: 106-1-01-00 | |
| | | Draft.: Petersen | |
| Date: 24.09.2023 19:26 | | Rev.: 0 | Page 1/1 |
| File: AVR_ISP | | | |
| open source hardware<br>http://github.com/svenpetersen1965 | | | A4 |

| Sven Petersen 2018 | Doc.-No.: 106-2-01-00 | |
|---|---|---|
| | Cu:35µm | Cu-Layers: 2 |
| AVR_ISP | | |
| 24.09.2023 19:24 | | Rev.: 0 |
| placement component side | | |



| Sven Petersen 2018 | Doc.-No.: 106-2-01-00 | |
|---|---|---|
| | Cu:35µm | Cu-Layers: 2 |
| AVR_ISP | | |
| 24.09.2023 19:24 | | Rev.: 0 |
| placement solder side | | |

| Sven Petersen 2018 | Doc.-No.: 106-2-01-00 | |
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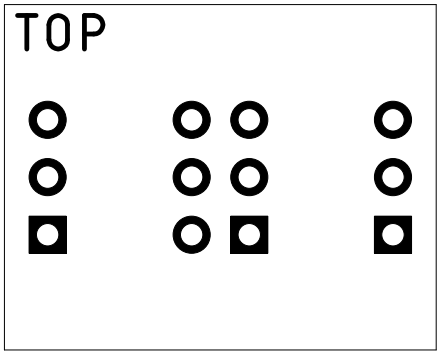
| AVR_ISP | | |
| 24.09.2023 19:24 | | Rev.: 0 |
| top | [redacted] | |



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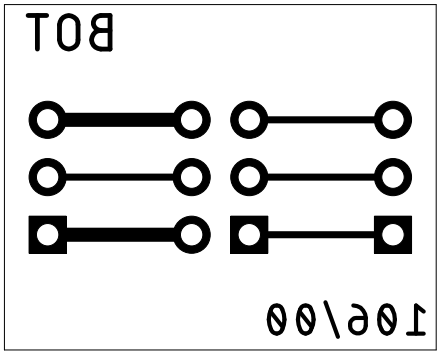
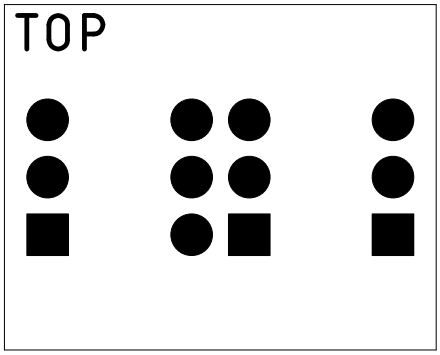
| 24.09.2023 19:24 | | Rev.: 0 |
| bottom | [redacted] | |



| Sven Petersen 2018 | Doc.-No.: 106-2-01-00 | |
|---|---|---|
| | Cu:35µm | Cu-Layers: 2 |
| AVR_ISP | | |
| 24.09.2023 19:24 | | Rev.: 0 |
| stopmask component side | | |



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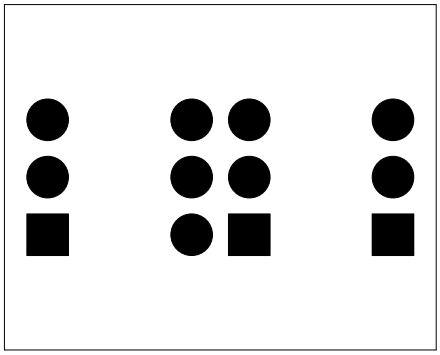
| AVR_ISP | | |
| 24.09.2023 19:24 | | Rev.: 0 |
| stopmask solder side | | |



| Sven Petersen 2018 | Doc.-No.: 106-2-01-00 | |
|---|---|---|
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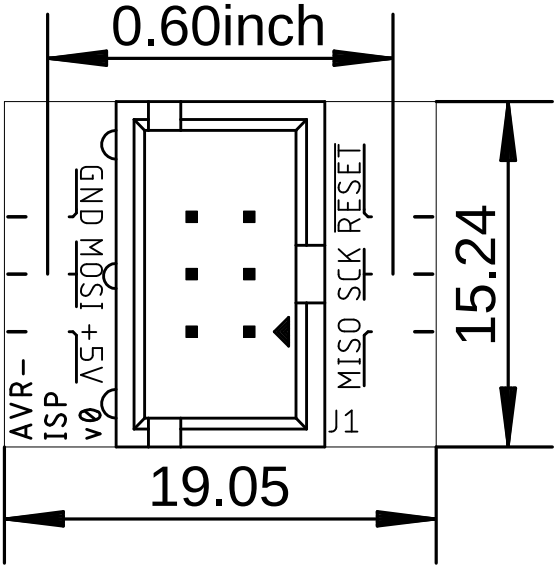
| AVR_ISP | | |
| 24.09.2023 19:24 | | Rev.: 0 |
| placement component side measures | | |



# AVR-ISP Bread Board Adapter Rev. 0

## Test Description

## Setup

- AVR-ISP Adapter Rev. 0
- Bread board
- A minimum Arduino UNO circuit wired up on the bread board
- Diamex USB ISP-Programmer (Atmel AVR)
- Arduino IDE (v2.0.4)

## Execution

The circuit as shown in the schematic doc.-no. 106-1-02-00 was wired up on the bread board. The programmer was set to output 5V supply voltage for the connected circuit.

The AVR-ISP adapter was connected to the bread board and wired up with the ATmega328P processor.

**The adapter fit into the bread board without a problem.**

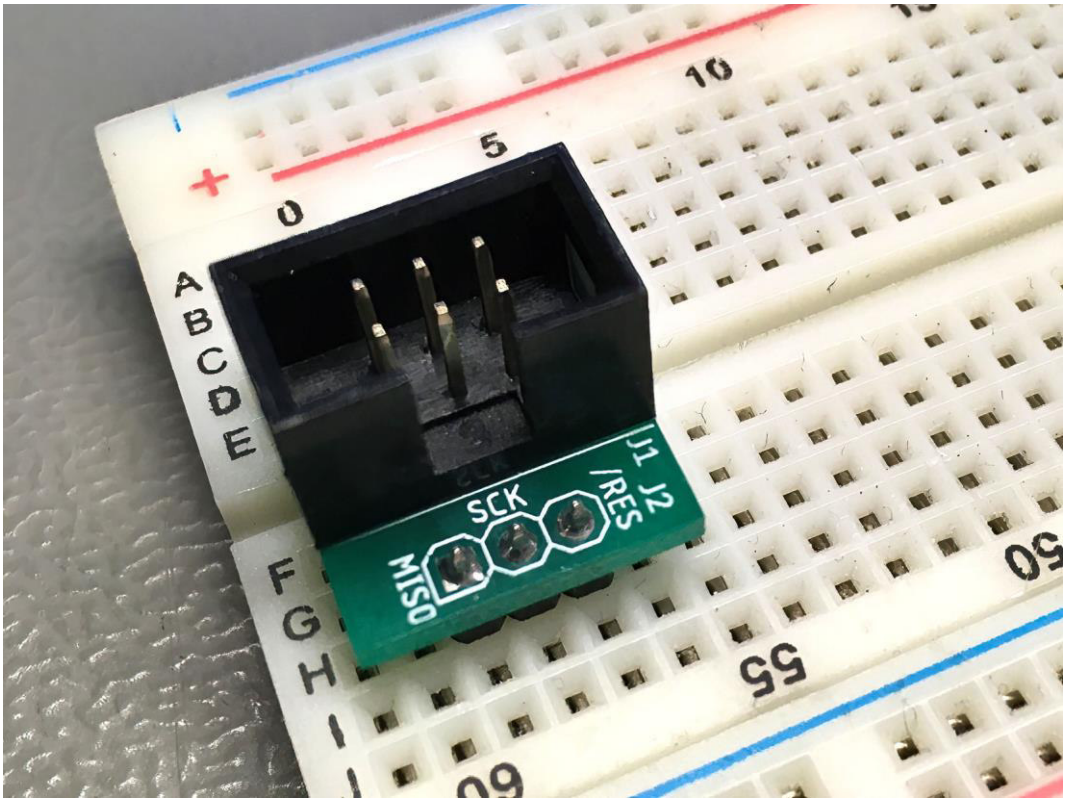



*Figure 1: The AVR-IS adapter connected to a bread board*

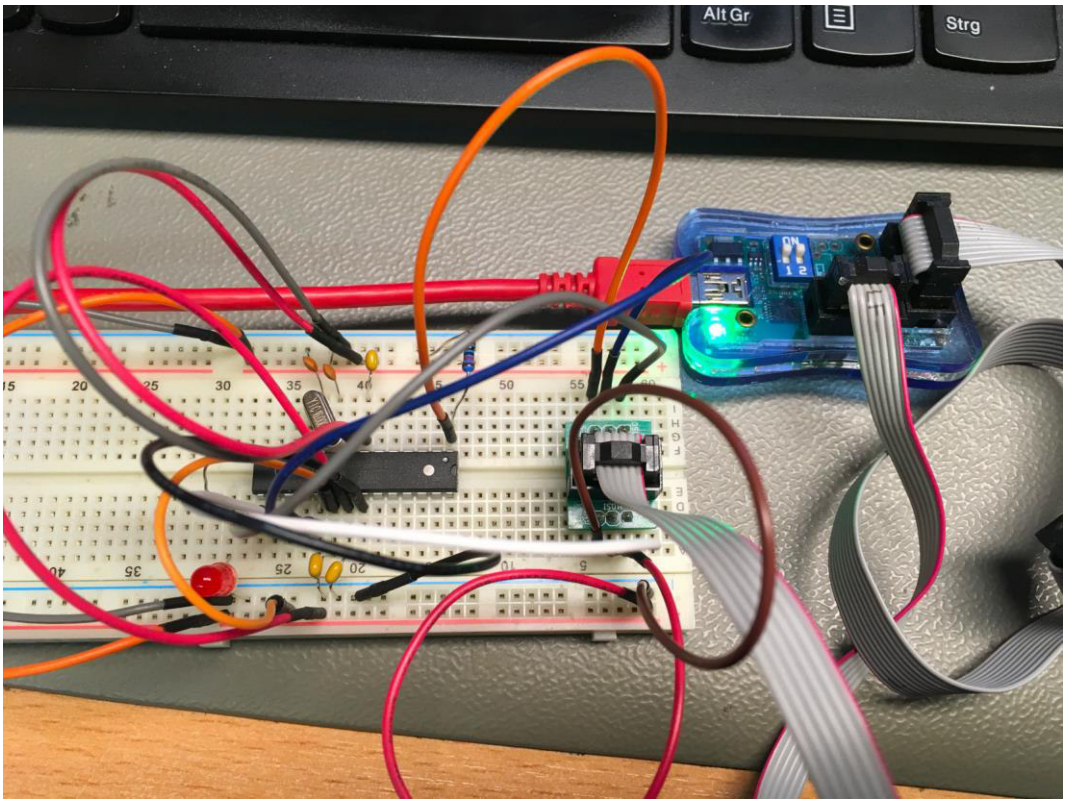



*Figure 2: The test circuit wired up on the breadboard , programmer connected*

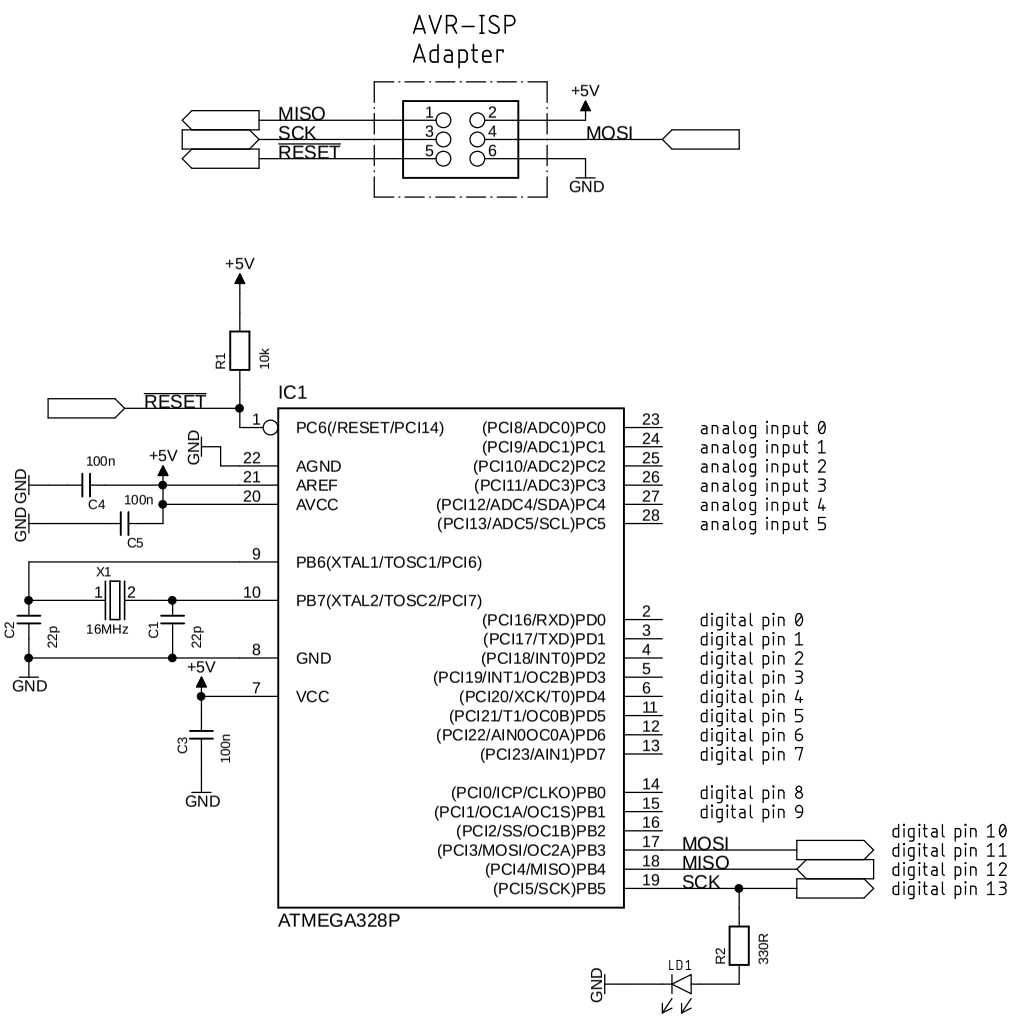
The programmer type (STK500) was selected in the Arduino IDE (Tools→…). The port for the programmer was selected. The board type (Arduino Uno) was selected.

Now, the boot loader for Arduino Uno was programmed (Tools→Burn Bootloader). This **worked without complains**.

Finally, the blink_led13 sketch was programmed via the programmed (Sketch→Upload using programmer). The **programming worked out without complaints**. The LED started blinking.

# Conclusion

**The AVR-ISP adapter Rev. 0 is fully functional.**




| | | | |
|---|---|---|---|
| Title: Test Circuit<br>Bare Minimum Arduino Uno | | Doc.–No.: 106–1–02–00<br>Draft.: Sven Petersen | |
| Date: 24.09.2023 16:18 | Rev.: 0 | Page 1/1 | |
| File: AVR_ISP_TestCircuit | | | |
| | | | A4 |

# AVR-ISP Adapter Rev. 0
# Bill of Material Rev. 0.0

| Pos. | Qty | Value | Footprint | Ref.-No. | Comment |
|---|---|---|---|---|---|
| 1 | 1 | 106-2-01-00 | 2 Layer | PCB Rev. 0 | 2 layer, Cu 35$\mu$, HASL, 19.1mm x 15.2mm, 1.6mm FR4 |
| 2 | 1 | WSL 6G | 2X03WV | J1 | box pin header, 2x3pin, 2.54mm pitch |
| 3 | 2 | 1x3 | 1X03 | J2, J3 | pin header 1x3pin, 2.54mm pitch |