

KamPROG for AVR

ISP programmer for AVR microcontrollers

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Kamami AVI	e programme	ming Fus	bits Lock bits	Programmer	setup					
Read	Write	Values: 0>	F 0xD1 0xFF		ito-read			•		
BODLEVEL	Brown-out	detection di	abled							
OCDEN	Г									
JTAGEN										_
SPIEN	2						1 frances			
WDTON	Г									
EESAVE	2									- American
BOOTSZ	Boot Flash	size=4096 v	ords start addre	ss=\$F000						
BOOTRST										78
CKDIV8							E	_		
CKOUT							1 FK	amp		V V
CKSEL/SUT						ALC: NOT THE REAL PROPERTY OF				
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Thank you for buying KamPROG for AVR. We hope that the power and quality of our tool allow you to appreciate the advantages of AVR microcontrollers.



ver. 1.0

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Introdcution

KamPROG for AVR is development/production programmer for Atmel AVR microcontrollers. It can be controlled by KamProg application, Bascom AVR and AVR Studio. Programmer is connected to PC USB port. KamPROG works with AVR microcontrollers that can be connected through 10-pins IDC header (Atmel standard).

Features

- Programmer for ISP-enabled AVR microcontrollers
- ▶ 10-pins IDC output header, Atmel standard pinout (Fig. 1)
- Power supply from USB port
- Operates with KamPROG application, Atmel AVR Studio and Bascom AVR
- Windows XP, Windows Vista compatible



Fig. 1. Output connector pin layout



Standard equipment

Code	Description					
KamPROG	Cable USB A/mini B					
	KamPROG for AVR programmer					
	IDC cable (1m)					

Technical assistance

For technical assistance, please contact support@kamami.com. Please provide the following data:

- Version of the operating system
- Microcontroller type used in your system and its oscillator frequency
- Detailed description of the problem



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Installation

KamPROG for AVR does not require drivers, you only need to download and install KamPROG software (*http://www.kamami.com/?content=kamprogavr*). During installation you have to decide, whether you want to install AVR Studio Plug-in (Fig. 2).

Bascom AVR (v. 1.11.9.3 and newer) supports KamPROG for AVR.

🔂 Setup - KamPROG for AVR					
Select Components Which components should be installed?					
Select the components you want to install; clear the components you do not want to install. Click Next when you are ready to continue.					
Full installation	·				
Main Files 1,9 MB					
PlugIn for Atmel AVR Studio 0,1 MB					
Current selection requires at least 2,6 MB of disk space.					
< <u>B</u> ack Next > Car	icel				

Fig. 2. KamPROG for AVR installation

Software

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On the figure 3 you can see programmer's application window.

Ki Kamami AVR programmer						
Microcontroller Memory programming Fuse bits Lock bits Programmer setup						
Supported AVR microcontroller	s	Save settings (Ctrl+S)				
ATmega128	Identify microcontroller					
ATmega1281	Circulture budge	Load settings (Ctrl+O)				
ATmega16 ATmega162	Signature bytes					
ATmega168	Auto-identify					
ATmega169P ATmega2560						
ATmega2561						
ATmega324P						
ATmega325						
ATmega3250P						
ATmega328P ATmega329						
ATmega3290P						
ATmega329P ATmega48						
ATmega64						
Almega644P ATmega645						
ATmega8						
ATmega8535						
ATmega88						
ATtiny13						
ATtiny2313 ATtiny24						
ATtiny25						
ATtiny261						
		<u> </u>				
Progress:		¥				

Fig. 3. Microcontroller tab of KamPROG for AVR application

Microcontroller tab

On this tab you can find list of supported microcontrollers. You can choose programmed device on the list or identify it using its signature bytes (*Identify microcontroller* button). If you check *Auto-identify* checkbox then device will be identified everytime you open this tab.

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Memory programming tab

To erase microcontroller's Flash memory, EEPROM memory (if EESAVE is not set), lock bits (LB, BLB0, BLB1) press *Chip erase*.

To write Flash memory enter hex file name, press *Write button* in Flash section. You can also use two additional options: *Erase chip before Flash programming* and *Verify written data*.

You can also verify written data by pressing *Verify* button and read microcontroller's Flash memory conent into hex file (*Read* button).

EEPROM section works similar (*Erase chip before Flash programming* and *Verify written data* options are not available for EEPROM).

🕼 Kamami AVR programmer 📃 🗖 🔀
Microcontroller Memory programming Fuse bits Lock bits Programmer setup
Chip erase
Flash
Erase chip before Flash programming Verify written data
Write Verity Read
EEPROM
Verify written data
write venry Read
~
Progress:

Fig. 4. Memory programming tab of KamPROG for AVR application

Fuse bits and Lock bits tabs

Here you can set fuse bits and lock bits values.

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Be careful while changing fuse bits values. Some combinations can make microcontroller not accessible using SPI! For more informations see microcontroller's documentation.

🜃 Kamami AV	VR programmer
Microcontroller	Memory programming Fuse bits Lock bits Programmer setup
Read	Write Values: 0xE1 0x93 0xFD Auto-read
M103C	
WDTON	
OCDEN	
JTAGEN	
SPIEN	
СКОРТ	
EESAVE	
BOOTSZ	Boot Flash size=2048 words start address=\$F800
BOOTRST	
BODLEVEL	Brown-out detection level at VCC=2.7 V
BODEN	
CKSEL/SUT	Int. RC Osc. 1 MHz; Start-up time: 6 CK + 64 ms

Fig. 5. fuse bits tab of KamPROG for AVR application

Microcoptrollor		
Microconcroller	Memory programming Puse bits bits Programmer setup	
Read	Write Byte value: 0xFF Auto-read	
BLB1	No lock on SPM and LPM in Boot Section	
BLBO	No lock on SPM and LPM in Application Section	
LB	No memory lock features enabled.	-

Fig. 6. Lock bits tab of KamPROG for AVR application

Programmer setup tab

Here you can set ISP frequency and read programmers firmware version. Make sure that ISP frequency is less than microcontroller frequency divided by 4.

Ki Kamami AVR programmer	
Microcontroller Memory programming Fuse bits Lock bits Programmer setup	
ISP frequency 100 kHz	
Firmware version: 1.0	Kamami Lwowska 5 05-120 Legionowo Poland www.kamami.com
Reading firmware version. Firmware version: 1.0. Reading ISP frequency succeded.	<u>^</u>
Reading Infiniware version. Firmware version: 1.0. Reading ISP frequency succeded.	
Progress:	⊠

Fig. 7. Programmer setup tab of KamPROG for AVR application

AVR Studio 4

If you selected KamPROG for Atmel AVR Studio plug-in option during installation, then you can use KamPROG in Atmel AVR Studio 4. If there is no Kamami AVR programmer item in *Tools* menu and there is no Kamami toolbar, then open *Plug-in Manager* (*Tools>Plug-in Manager*) and check *Kamami_AVR_programmer* in the list, restart AVR Studio. Now you can open programmer's application (*Tools>Kamami AVR programmer>Connect*) and write Flash memory (*Tools>Kamami AVR programmer>Write Flash*), both operations can be done using toolbar.

Write Flash works only when project's output hex file has the same name as project file!



Fig. 8. KamPROG for AVR controls in Atmel AVR Studio 4

2	🖗 AVR Studio Plug-in Manag	er			×
1	ile <u>D</u> ebug Help				
	Name ✓ Atmel AVR Assembler (Project) ✓ Kamami_AVR_programmer ✓ AVR GCC (Project) ✓ STK500	Vendor Atmel Atmel Atmel	Comments AVR Assembler IDE Compiler plug-in for avr-gcc AVR Starter Kit		
					_
				Save and Evit Duit	1

Fig. 9. Atmel AVR Studio Plug-in window

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Command line

You can also use command line tool – KamPROGAVRc.exe – to work with KamPROG AVR. First you have to go to KamPROG AVR folder (default path is *C:\Program Files\KamPROGAVR*), then type in *KamPROGAVRc* and press *Enter* to display help.

Examples

- Performing chip erase of autodetected device:
 - KamPROGAVRc -d -r -s 2
 - -d chip autodetection
 - -r chip erase
 - -s 2 set SPI frequency to 50kHz (omitting this parameter sets frequency to 100kHz)
- Reading ATmega8 fuse bits
 - KamPROGAVRc -c ATmega8 -B
 - -c ATmega8 connected device is ATmega8
 - -B read fuse bits
- ▶ Writing led.hex into autodetected device's Flash memory:
 - KamPROGAVRc -d -f led.hex
 - -f led.hex write led.hex into device's Flash memory

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