Protocol of communication between the “Serial 1“ AVR−Programmer and the PC−Software

Parameters of communication

38400 baud, 8 databits, 1 stopbit, no parity, no handshake

Enable programming mode

PC−Software	*AVR−Programmer*
Send 0x50 *This sets the target into programming mode.* Await 0x06 *This is the acknowledge for the action*	
	Send 0x06 *Acknowledge that the target has been set to programming mode.*

Disable programming mode

PC−Software	*AVR−Programmer*
Send 0x52 *This sets the target into standard mode.* Await 0x06 *This is the acknowledge for the action*	
	Send 0x06 *Acknowledge that the target has been set to standard mode.*

Erase the target

PC−Software	*AVR−Programmer*
Send 0x65 *This erases the target.* Await 0x06 *This is the acknowledge for the action.*	
	Send 0x06 *Acknowledge that the target has been erased.*

Read device code

PC−Software	***AVR−Programmer***
Send 0x73 *This asks the target to identify the type of device.* Await 0x06 *This is the acknowledge for the action.* Await three bytes that identify the type of device *The combination of the bytes identifies the type of device.*	
	Send 0x06 *Acknowledge that the target has identified itself.* Send three bytes that identify the type of device *(Byte0/Byte1/Byte2)* *(0x1E/0x90/0x01) –> AT90S1200* *(0x1E/0x91/0x01) –> AT90S2313* *(0x1E/0x92/0x01) –> AT90S4414* *(0x1E/0x93/0x01) –> AT90S8515* *(0x00/0x01/0x02) –> device is locked*

Write the lock bits

PC−Software	***AVR−Programmer***
Send 0x6C *This prepares the target for receiving one byte containing the status of the lock bits.* Await 0x0A *This is the request to send the byte.*	
	Send 0x0A *Acknowledge that the target has been prepared for receiving the byte and request to send it.* Await the byte for writing the lock bits.
Send the byte containing the status of the lock bits. *0x00: No lock bits set* *0x02: Further programming of flash disabled* *0x06: Further programming of flash and verify disabled* Await 0x06 *This is the acknowledge for the action.*	
	Send 0x06 *Acknowledge that the lock bits have been written.*

Write to the flash memory

PC–Software	***AVR–Programmer***
Send 0x46 *This prepares the target for receiving four bytes for writing into the flash memory.* Await 0x0A *This is the request to send the four bytes.*	
	Send 0x0A *Acknowledge that the target has been prepared for receiving the four bytes and request to send them.* Await four bytes for writing into flash memory.
Send four bytes containing the address and the data for writing into flash memory *Byte0: Highbyte of address* *Byte1: Lowbyte of address* *Byte2: Highbyte of data* *Byte3: Lowbyte of data* Await 0x06 *This is the acknowledge for the action.*	
	Send 0x06 *Acknowledge that the four bytes received have been written to flash memory.*
This procedure has to be performed for each memory cell.	

Read from the flash memory

PC−Software	***AVR−Programmer***
Send 0x66 *This prepares the target for transmitting two bytes read from the flash memory.* Await 0x0A *This is the request to send the two address bytes of the flash memory cell to be read.*	
	Send 0x0A *Acknowledge that the target has been prepared for reading the specified flash memory cell and request to send the two address bytes.* Await the two address bytes of the flash memory cell to be read
Send the two address bytes *Byte0: Highbyte of address* *Byte1: Lowbyte of address* Await 0x06 *This is the acknowledge for the action.* Await the content of the specified memory cell *Byte0: Highbyte of data* *Byte1: Lowbyte of data*	
	Send 0x06 *This is the acknowledge that the flash memory cell has been read* Send two bytes containing the read data from the specified flash memory cell
This procedure has to be performed for each memory cell.	

Write to the EEPROM memory

PC−Software	***AVR−Programmer***
Send 0x44 *This prepares the target for receiving three bytes for writing into the EEPROM memory.* Await 0x0A *This is the request to send the three bytes.*	
	Send 0x0A *Acknowledge that the target has been prepared for receiving the three bytes and request to send them.* Await three bytes for writing into EEPROM memory.
Send three bytes containing the address and the data for writing into EEPROM memory *Byte0: Highbyte of address* *Byte1: Lowbyte of address* *Byte2: Data* Await 0x06 *This is the acknowledge for the action.*	
	Send 0x06 *Acknowledge that the three bytes received have been written to EEPROM memory.*
This procedure has to be performed for each memory cell.	

Read from the EEPROM memory

PC−Software	***AVR−Programmer***
Send 0x64 *This prepares the target for transmitting one byte read from the EEPROM memory.* Await 0x0A *This is the request to send the address bytes of the EEPROM memory cell to be read.*	
	Send 0x0A *Acknowledge that the target has been prepared for reading the specified EEPROM memory cell and request to send the two address bytes.* Await the two address bytes of the EEPROM memory cell to be read
Send the two address bytes *Byte0: Highbyte of address* *Byte1: Lowbyte of address* Await 0x06 *This is the acknowledge for the action.* Await the content of the specified memory cell *Byte0: Databyte*	
	Send 0x06 *This is the acknowledge that the EEPROM memory cell has been read* Send byte containing the read data from the specified EEPROM memory cell
This procedure has to be performed for each memory cell.	