

Bootloader

Smart GLCD 240x128

Bootloader software represents irreplaceable tool for transferring program from a PC to microcontroller on SmartGLCD

for

1. Programming with bootloader

For programming, microcontroller use bootloader program which is preinstaled in to MCU memory. To transfer .hex file from a PC to MCU you need bootloader software (**mikroBootloader**) which can be downloaded from:



http://www.mikroe.com/eng/products/view/443/ smartglcd-240x128-board/

After software is downloaded unzip it to desired location and start mikroBootloader software.





Figure 1-1: mikroBootloader software



Connect SmartGLCD with a PC before starting mikroBootloader software

Identifying device COM port



Figure 1-2: Identifying COM port



In Device Manager you can see which COM port is assigned to mikromedia (in this case COM5)

step 1 - Choosing COM port

mikroElektronika Bootloader v2.0.0.0	
mikroBootloader	Select MCU PIC16 👻
1 Setup COM Port: COM1 port Baud Rate: 9600	Change 0 Conn Rx Tx Settings 0 A
2 Connect Connect	Setup Settings Port COM5 • •
3 Choose Browse HEX file for HEX	Baud rate 115200 • • Data bits 8 03 •
4 Start Begin uploading	Stop bits I Parity None
Bootloading progress bar	Flow control Software
: No files opened,	

Figure 1-3: Selecting COM port

- 01 CI 02 Se 03 Se 04 CI
 - Click on Change Settings button
 - Select USB COM port (in this case COM5)
 - Set Baud rate to 115200
 - Click OK button

step 2 - Connecting with a PC

💫 mikroElektronika Bootloader v2.0.0.0		- • -
mikroBootloader	Select MCU	PIC18 🗸
Setup port COM Port: Baud Rate: COM5 115200 Ch Setup	ange tings in	Conn Rx Tx
2 Connect Connect	story Window up: Port COM5.	*
3 Choose Browse for HEX		
4 Start Begin uploading		-
Bootloading progress har		Show Activity
: No files opened.		

Figure 1-4: Connecting mikromedia with mikroBootloader

0	1
0	2

From drop down list Select MCU chose PIC18

Reset SmartGLCD and within 5s click on Connect button

step 3 - Browse for .hex file

🔁 mikroElektronika Bootloader v2.0.0.0				×
mikroBootioader Select MC	U	PIC	18	•
Setup COM Port: COM5 Change Settings	Signals	Conn	Rx @	Tx @
2 Connect with MCU Disconnect History Wind Setup: Port COM Waiting MCU ress	dow 5. ponse			*
3 Choose Browse of HEX • 01				
4 Start bootloader Uploading				-
Bootloading progress bar		s	how A	ctivity
: No files opened.				

Figure 1-5: Browsing for .hex file



Click on Browse for HEX and from pop-up window (figure 3-6) select .hex file which will be uploaded to MCU memory

step 4 - Select .hex file

Oversite a Maridat							
Organize + New Toli	ser				800 4	L	
🔶 Favorites	Name	Date modified	Туре	Size			
Secent Places	SmartGLCD.h	ex 🌔 12.1.2011 10:50	HEX File	16 K	в		
E Desktop	-						
🔰 Downloads							
词 Libraries 🛛 🗉		-					
Documents							
a) Music							
Pictures							
Videos							
Computer							
Computer							
Computer							
Local Disk (C:)							
Computer Coll Disk (C:) Local Disk (D:) Local Disk (D:) mikro (E:) DVD Drive (F:) M: *							

Figure 1-6: Selecting .hex file



step 5 - Uploading .hex file

🔁 mikroElektronika Bootloader v2.0.0.0		
mikroBootloader	Select MCU	PIC18 👻
1 Setup COM Port: COM5 port Baud Rate: 115200	Change Settings	onn Rx Tx
2 Connect Disconnect 3 Choose Browse for HEX file For HEX	History Window Setup: Port COM5. Waiting MCU response Connected. Opened: C:\Project\SmartGI	D.hex
4 Start Begin uploading	01	-
Bootloading progress bar)	Show Activity
: C:\Project\SmartGLCD.hex		

Figure 1-7: Begin uploading



Click on Begin uploading button to start .hex file transfer from a PC to microcontroler

step 6 - Progress bar

mikroElektronika Bootloader v2.0.0.0	
mikroBootloader	Select MCU PIC18
1 Setup COM Port: COM5 Baud Rate: 115200	Change Settings
2 Connect with MCU Disconnect 3 HEX file Browse for HEX	History Window Setup: Port COM5. Waiting MCU response Opened: C:\Project\SmartGLCD.hex Uploading
4 Start Stop uploading	-
Bootloading progress bar	Show Activity
: C:\Project\SmartGLCD.hex	

Figure 1-8: Bootloading progress bar



Via progress bar you can monitor .hex file uploading process

step 7 - Reset MCU

mikroElektr	onika Bootloader v2.0.0.0			X
mikro	Bootloader	Select MCU	PIC18	•
Setup	Success			Tx
- port	Reset MCU.			•
2 Conner with M	Uploading program h	as finished.	01	*
3 Choose HEX fil	Show details		• OK	
4 Start bootlo	ader Uploading Co	mpleted successfully.		-
Bootloadin progress h	g Mar		Show Ac	tivity
: C:\Project\Sma	rtGLCD.hex			

Figure 1-9: Uploading is finished



01 Click on OK button after uploading is finished. Reset MCU and you can see product of your work

Tips and Tricks: Speed-up UART data transfer

🚽 Device Manager 📃 🗖 💌	USB Serial Port (COM5) Properties	Advanced Settings for COM5
File Action View Help	General Port Settings Driver Details	COM Port Number: COM5
Image: Second	02 Bits per second: 9600 V Data bits: () V Parity None V Stop bits: () How control: None V 03 Advanced Reatore Defaults	COM Port Number: COM5 USD Transfer Sizes Select lower settings to correct performance problems at low baud rates. Select higher settings for faster performance. Receive (Bytes): 4096 Transmit (Dytes): BM Options Select lower settings to correct response problems Select lower settings to correct response problems Select lower settings to correct response problems Latency Timer (meec): Timeouts Event O
Un Scan for hardware changes		Minimum Read Timeout (msec):
Properties	OK Cance	Minimum Write Timeout (mser): 0 v Dicable I

note

If .hex file transfer from your PC to MCU is to slow you can try to speed-up data transfer by seting latency time of COM port to 1. To change latency time go to Device manager:

- 01 Right click on USB Serial Port (COM5) and click on Properties
- 02 In USB Serial Port (COM5) Properties select Port Settings tab
 - Click on Advanced... button

