

Cardinal 225D INDICATOR **INSTRUCTIONS**

Items Required

- PC with Microsoft Windows OS and USB port
- AVR-ISP program (Either AVRISP-U or AVRUSB)
- AVR USB interface cable (Dongle)
- Firmware HEX file downloaded from the dealer-protected software section of CardinalScale.com. Download the file from CardinalScale.com by navigating to 225 Navigator > Resource Type > Software >.
- 1. Install the AVR software on your computer if not already installed. Please note that either the AVRISP-U or AVRUSB software/hardware will work with these instructions. Otherwise, proceed to step 2.
 - Refer to Figure 1 on the next page for the AVRISP-U program.
 - Refer to Figure 2 on the next page for the AVRUSB program.



IMPORTANT! When loading the AVR program on your computer, do NOT connect the USB cable to the computer until the AVR program has been loaded and is operating.

Failure to do so could allow the computer to assign an incorrect driver to the AVR dongle.

🖓 AVR-ISP																		
File Device \	View	Se	rial N	umbe	rs	Help												
Hardware Ave	Hardware AVRISP-U 🗸 Device ATmega2560 🗸 Programmer 🚽 Setup Reset																	
1		Ŭ.,		_	- 1			mog	9200	- -	_	1.00	09.0					
Flash Memory	E	EPRI	ом м	1emo	ry	Fus	es & I	_ock	Bits	S	tatus	1						
					- 1					1								
00000000	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	<u> </u>	
00000010	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	<u> </u>	-
00000020	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	<u> </u>	
00000030	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	<u> </u>	
00000040	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	<u> </u>	
00000050	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	<u> </u>	
00000060	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	<u> </u>	
00000070	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	<u> </u>	
00000080	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	<u> </u>	
00000090	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	<u> </u>	
000000000	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	<u> </u>	
000000B0	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	<u> </u>	
000000000	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	<u> </u>	
000000000	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	<u> </u>	
000000E0	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	<u> </u>	
000000F0	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	<u> </u>	
00000100	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	<u> </u>	
HINT: Please plu	ug in	your	prog	ramm	er, o	refer	to th	e ust	o driv	er tro	ubles	hooti	ng gu	iide o	n the	insta	all CD	
AVRISP-U:	No	USB	devid	ces fo	ound												0%	

Figure 1

₩ AVRUSB				
File Device View Serial	l Numbers Help			
Hardware AVR USB ISP	P V Device	ATmega2560 V	Programmer	✓ Setup Reset
			11	
Flash Memory EEPROM	Memory Fuses &	Lock Bits Status		
00000000 FF FF F	F FF FF FF FF	FF FF FF FF F	F FF FF FF FF	<u> 222222222222222222222222222222222222</u>
00000010 FF FF F	F FF FF FF FF	FF FF FF FF F	F FF FF FF FF	<u> </u>
00000020 FF FF F	F FF FF FF FF	FF FF FF FF F	F FF FF FF FF	333333333333333333
00000030 FF FF F	F FF FF FF FF	FF FF FF FF F	F FF FF FF FF	<u> </u>
00000040 FF FF F	F FF FF FF FF	FF FF FF FF F	F FF FF FF FF	<u> </u>
00000050 FF FF F	F FF FF FF FF	FF FF FF FF F	F FF FF FF FF	<u> </u>
00000060 FF FF F	F FF FF FF FF	FF FF FF FF F	F FF FF FF FF	<u> </u>
00000070 FF FF F	F FF FF FF FF	FF FF FF FF F	F FF FF FF FF	<u> </u>
00000080 FF FF F	F FF FF FF FF	FF FF FF FF F	F FF FF FF FF	****
00000090 FF FF F	F FF FF FF FF	FF FF FF FF F	F FF FF FF FF	*****
OOOOOOAO FF FF F	F FF FF FF FF	FF FF FF FF F	F FF FF FF FF	<u> </u>
OOOOOOBO FF FF F	F FF FF FF FF	FF FF FF FF F	F FF FF FF FF	<u> </u>
OOOOOOCO FF FF F	F FF FF FF FF	FF FF FF FF F	F FF FF FF FF	<u> </u>
OOOOOODO FF FF F	F FF FF FF FF	FF FF FF FF F	F FF FF FF FF	<u> </u>
OOOOOOEO FF FF F	F FF FF FF FF	FF FF FF FF F	F FF FF FF FF	<u> </u>
OOOOOOFO FF FF F	F FF FF FF FF	FF FF FF FF F	F FF FF FF FF	<u> </u>
HINTS:				
🐥 AVR USB ISP: No USB	B devices found			0%:

Figure 2

IMPORTANT! If the message in Figure 3 appears after connecting the AVR dongle interface cable to the PC, follow the update wizard to update the firmware. Note that this will require an internet connection.

Warning! Do NOT connect the ribbon cable to the indicator during this process.

Connecting the ribbon cable to the indicator while updating the firmware may cause the indicator to fail!

🦞 AVRUSB 📃 🗖 🔀
File Device View Serial Numbers Help
Hardware AVBLISBISP V Device ATmena2560 V Programmer 2838 V Setup Beset
Flash Memory EEPROM Memory Fuses & Lock Bits Status
00000020 FF
00000030 FF
00000000 FF F
00000050 FF
00000060 FF
00000 <u>070 FF FF</u>
00000 Firmware Update Required
00000
00000 00000 ///////////////////////////
00000 Your ISP requires a firmware update to continue, please click OK to start the update wizard
00000
00000 OK Cancel 79999
00000 100000 100000 1000000
00000 010 11 11 11 11 11 11 11 11 11 11 11 11
00000100 FF F
00000110 FF
00000120 FF
00000130 FF
00000140 FF
00000120 FF
00000120 FF
00000190 FF
OOOOOIAO FF
000001B0 FF
000001C0 FF
000001D0 FF
OOOOO1EO FF
000001F0 FF F
00000200 FF F
00000210 FF
00000220 FF
HINTS:
Firmware Update Required 0%

Figure 3

2. Save the indicator firmware HEX file to a location on your computer such as My Documents.

IMPORTANT! Confirm that the indicator firmware is in a hex file format where the file name ends with .hex such as 225D.hex or if custom firmware such as B12345.hex or SO123456.hex. Should the file be compressed, the file name will end with .zip such as 225D.zip. Zip files must be decompressed before they can be loaded into the indicator. To decompress the file, save the .zip file to a location on your computer that will be easy to locate like My Documents, then open the file. The window will have an option to Extract all files. See Figure 4. Click on this and use the folder extraction wizard to decompress and save the file(s). Ensure that you select a location to save the file to such as My Documents so you can locate the file when using the AVR programmer. See Figure 5.

C:\Documents and Setti	ings\bo	b_m\My Docume	ents\225.zip			
File Edit View Favorites	Tools	Help				
G Back - O - D -	Settings	Click here to compressed f	open the ile			🗸 🏹 Co
	~	ame 🔺	Туре	Packe Has	. Size R	Date
Folder Tasks		'∃225.hex	HEX File	201 KB No	712 KB 72%	9/7/2010 4:04 PM
Other Places	۲					
My Documents						
Details	۲					
		<		IIIF		>

Figure 4



Figure 5

- 3. Power the 225D on.
- **4.** When the 225D is in the operation mode, connect the AVR dongle ribbon cable to the port labeled *P8 2560 ISP* on the 225D circuit board. See Figure 6.

IMPORTANT! Connecting the dongle to the ISP port before the indictor is fully operating will cause connection problems.



Figure 6

5. Connect the dongle to a USB port of the computer and open the AVR program.

IMPORTANT! If the message "Your ISP requires a firmware update" is displayed, see page 3 for instructions.

- 6. Click on the *Reset* button in the AVR program. A message will be displayed at the bottom left of the AVR screen in the Status Box indicating the condition of the connection. See Figure 7.
 - RED light indicates a problem with the connection.
 - GREEN light indicates a good read along with the processor detected.

NOTE: The correct processor for a 225D will be "Detected device: ATmega2560".

🖗 AVRUSB
File Device View Serial Numbers Help
Hardware AVPLISPISP - Davide ATmens 2550 - Programmer 2929 - Setup Reset
Flash Memory EEPROM Merroy Fuses & Lock Bits Status
000000CDevice shown must match device e F FF FF FF FF FF FF FF W RESET
0000001 detected in Status Box F FF FF FF FF FF FF FF Y Switch YYYYYY
0000002LE: A Tmom 2560 F FF FF FF FF FF FF Y Switch yyyyyy
oooooooooooooooooooooooooooooooooooooo
00000040 FF
00000050 FF
00000060 FF
00000070 FF
00000080 FF
00000090 FF
OOOOOOAO FF
000000B0 FF
000000C0 FF
OOOOOODO FF
000000E0 FF
000000F0 FF FF F1 799999999999999999999999999999
00000100 FF FF F Status Box
00000110 FF FF FRed light indicates no connection with processor r
00000120 FF FF FCrean light indicates a good read
00000130 FF FF FOrcen ight indicates a good teau
00000140 FF FF FDevice detected is displayed IE: A I mega2500
00000150 FF FF FI
00000160 FF
00000170 FF
HINT: If the device signatures are incorreplease check the device selected, lockbits or speed in setup screen
SP Initialized; Detected Device: ATmega2560 with Signature: 1E9801 - 00:01 0%

Figure 7

7. The detected device shown in the Status Box must match the Device window at the top of the screen. See Figure 7. If they do not match use the drop-down list of the Device window to select the correct device.

NOTE: The correct device for the 225D Main PC Board is ATmega2560.

Note that some revisions of the AVR software will automatically detect that the device is incorrect and ask to change to the correct device. See Figure 8.

🦉 AVRUSB 📃 🗖 🔀							
File Device View Serial Numbers Help							
kice ATmega128 - Programmer 2838 - Setup Abort							
Device celected in Device	-						
Device selected in Device recipitations (A Transport 1202) does es & ck Bits Status							
window Almegal28 does							
not match the detected device	•						
"ATmega2560". Click on YES FF	-						
to swap Device selected to FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF							
"ATmega2560"							
COCCOCIO II II II II II IF FF FF FF FF FF FF FF							
00000050 FF FF FF FF FF							
00000060 FF FF FF FF FF V Different Device D 🖃 🛄 🔀 F FF FF yyyyyyyyyyyyyyyyyyyyyyyyyyyyy							
00000070 FF							
00000080 FF FF FF FF ATmega2560 detected. F FF FF yyyyyyyyyyyyyyyyyyyyyyyyyyyyy							
00000090 FF FF FF FF Would you like to swap to this device F FF FF VVVVVVVVVVVVVVVVVVVVVVVVVVVVV							
000000A0 FF FF FF FF							
000000B0 FF FF FF FF Yyyyyyyyyyyyyyyyyyyyyyyyyy							
0000000C0 FF FF FF FF FF F FF FF yyyyyyyyyy							
000000D0 FF FF FF FF DontAsk Again F FF FF YYYYYYYYYYYYYYYY							
OOOOOOEO FF							
OOOOOOFO FF F							
00000100 FF F							
00000110 FF							
00000120 FF							
00000130 FF							
00000140 FF							
00000150 FF							
	2						
HINI: If the device signatures are incorrect please check the device selected, lockbits or speed in setup screen							
Reset: Resetting ISP 0%	;;						

Figure 8

8. Next, read the Fuse settings from the 225D Main PC Board. From the menu list at the top of the screen select *Device*, *Read*, and then *Fuses*. See Figure 9.

File Device View Serial Numbers Help Harc Erase vice ATmega2560 Programmer 2838 Setup Reset Copy RC Calibration Byte ses & Lock Bits Status Status Flash Ctrl+F6 Flash Ctrl+F7 Security Lockbits Flash Ctrl+F7 OOC Run F9 Flass Ctrl+F7 OOC Auto Program F5 RC Calibration Byte FF FF OOC Auto Program Options F5 RC Calibration Byte FF FF OOC Plug and Program Mode F8 FF	<
Harc Erase wice ATmega2560 Programmer 2838 Setup Rest Copy RC Calibration Byte Program ises & Lock Bits Status Status Flash Ctrl+F6 Program Flash Ctrl+F7 FF FF <td></td>	
Program Program	et
Resol Flash Ctrl+Fb Oot Verify Fig Run F9 Oot Auto Program Auto Program Options F5 Auto Program Options FF Plug and Program Mode F6 FF FF Plug and Program Mode F6 FF FF RC Calibration Byte FF FF FF FF <	-
Ooc Run F9 Security Lockbits FF	
Ooc Auto Program Options F5 F5 FF	
OOC Auto Program F5 F6 F7 F7 F7 F7 YYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYYY	
OOC Auto Program Options FF	
OOC Plug and Program Mode F8 F8 FF <	
00000000 FF F	
00000070 FF	
00000080 FF	
00000090 FF	
OOOOOOAO FF	
OOOOOOBO FF	
OOOOOOCO FF	
OUUUUUUUU FF F	
OUUUUUUEU FF	
COCCOTO FF	
COCCOLIC FF	
00000120 FF	
00000120 FF	
00000140 FF	
00000150 FF	
00000160 FF	
00000170 FF	-
HINT: If the device signatures are incorrect please check the device selected, lockbits or speed in setup screen	
ISP Initialized; Detected Device: AT mega2560 with Signature: 1E9801 - 00:01 0%	

Figure 9

9. The Fuses and Lock Bits screen will open after it reads the fuses of the indicator. The correct settings are shown in Figure 10.

IMPORTANT! Ensure that the values read, match the values shown in Figure 10. If necessary, change the values that do not match.

Failure to do so will cause the 225D to fail!

₩ AVRUSB				
File Device View Serial Numbers Help	- Pro	grammer 2020	- Setup	Recet
Flack Memory EEPPOM Memory Event Look Div	- Fio	grammer 2030	- Jetup	11636(
General Options:				5
 Enable Divide clock by 8 (CKDIV8) Enable Clock Output (CKOUT) Watchdog Always On (WDTON) Enable OCD (OCDEN) Enable JTAG (JTAGEN) EEPROM memory is preserved after Chip Erase (EESAVE) 	Brown-out I 100 : 4.3v	Detector trigger level:	_	(bits & Boot Options
	SUT:	Programmed Programmed		Fuses
Clock Sources: Device Clock Select: 1111 : Low Power Crystal Oscillator 8.0 - 16.0 MHz	•	NOTES: A checked box fuse is program logical 0)	indicates that th med (Set to	e
	SELO			
HINT:			0%	

Figure 10

10. From the menu list at the top of the screen select *Device* and then *Auto Program Options*. See Figure 11.

¥ AVRUSB						
File Device View Serial Numbers Help Harc Erase Ivice ATmega2560 Copy RC Calibration Byte Ivice St Flast Program Ivice St	▼ Programmer 2838 ▼ Setup Reset					
Read • Ge Verify Run F9 Auto Program F5 Auto Program Options Plug and Program Mode F8 hip Erase (EESAVE)	Brown-out Detector trigger level:					
	SUT: SUT0 Programmed ✓ SUT1 Programmed					
✓ SUT1 Programmed Clock Sources: Device Clock Select: 1111 : Low Power Crystal Oscillator 8.0 · 16.0 MHz CKSEL: CKSEL3 CKSEL2 CKSEL3 CKSEL2 CKSEL3						
HINT: Fuses: Read Complete	0%					

Figure 11

11. This will open the Auto Program Options window. See Figure 12. Select the options shown in Figure 12 then click *OK* to save them. Generally, when using a notebook PC, it is best to select Medium Programmer ISP Speed.

IMPORTANT: Make sure the selected options match those shown in Figure 12.

Failure to do so will cause the 225D to fail.

🦞 AVRUSB			X
File Device View S	Serial Numbers Help		
nardware JAVR USI	BISP VICE Al mega2560 Programmer 2838	Setup	ieset
Flash Memory EEF	Auto Program Options		
General Options: Enable Divide ck Enable Clock Ou Watchdog Alway Enable OCD (OC Enable JTAG (JT EEPROM memor	Programmer ISP Speed Medium You should change this if verify errors occur on slow targets or on fast PC's above 2.5GHz. Programming fuses first will ensure that the maximum programming speed for your selected CKSEL settings are written before the device starts to program.]	Lockbits & Boot Options
Clock Sources: Device Clock Sele 11111 : Low Power CKSEL: CKSEL:	 Reload Files Program fuses first ✓ Read EEPROM ✓ Erase Device Copy RC Calibration Byte Increment Serial Number ✓ Program Flash Memory Flash Verification ✓ Program EEPROM Memory EEPROM Verification ✓ Program Fuses Program Lockbits ✓ Run 	ates that the (Set to	Fuses
	OK		
HINT:	- Late	0%	
ruses, nead Lom	piere	0%	

Figure 12

12. Next, load the hex file into the AVR so that it can be transferred to the 225D. From the menu list at the top of the screen select *File*, *Load*, and then *Flash*. See Figure 13.

¥ AVRUSB			X
File Device View Serial Numbers Help			
Load Flash Ctrl+O	▼ Pro	grammer 2838 💌 Setup R	eset
Save EEPROM Ctrl+Alt+O			
Reload V Fuses & Lock Bits; 5	tatus		_
Import old AVRISP projects			5
Load Project Settings (IV8)	-		kbit
N1			\$ 00 E
Exit	2:10	2017 g. g. g. g. (3	Boot
EEPROM memory is preserved after Chip Erase (EESAVE)	Brown-out [Detector trigger level:	Opti
	100 : 4.3v	•	suo
	SUT:		2
		Programmed	ses
	1 30111	- ogrammed	\square
Clock Sources:		A checked how indicates that the	
1111 : Low Power Crustal Oscillator 8.0 - 16.0 MHz	•	fuse is programmed (Set to	
CKSEL	_	logical UJ	
CKSEL3 CKSEL2 CKSEL1 C	KSELO		
]	
LINT]
Fuses: Read Complete		0%	14
Fuses: Read Complete		0%	.4

Figure 13

13. Browse to the location where you saved the hex file (.hex). Then click on the file to highlight it and click *Open* to select it. *The suggested location to store this file in Step 2 was in My Documents*. See Figures 14 and 15. Figure 14 shows a standard 225D hex file while Figure 15 shows a custom firmware hex file. **NOTE:** Some custom firmware files could also start with the letter "B" such as "B12345".

IMPORTANT: It is critical to select a file that ends in .hex. Failure to do so will cause the 225D to fail.



Figure 14

¥¥ 1	VRUSB						
File	Device View Ser	ial Numbers Help)				
Harc	Loading Flash I	Buffer				?	eset
Flas	Look in:	C \$0123985		•	🗢 🗈 💣 📰	•	
000		0 50123985.he	ex				
000	My Recent Documents						
000	Desktop						
000	My Documents						
000							
000	My Computer						
000	My Network Places	File name: Files of type:	S0123985.hex Auto-detect (*.*)		•	Open Cancel	
000	00180 FF FF	FF FF FF FF	FF FF FF FF	FF FF FF F	FFFFF YYYY	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	77 <u>~</u>
HINT	: Fuses: Read Complet	te				0%	

Figure 15

14. Now that the flash file is successfully loaded, a confirmation message will be displayed in the Status Box at the bottom of the AVR screen. NOTE: A good hex file will always start with OC 94 for the first two bits. See Figure 16.

IMPORTANT: Do NOT load a program that starts with anything other than OC 94 as in Figure 16.

Failure to do so will cause the 225D to fail.

VRUSB - FLASH 225. hex														X						
File Device	View	/ Se	rial N	umbe	ers I	Help														
Hardware	VR	USB I	SP		-	Dev	ice	ATr	negaí	2560		-	Prog	ram	mer	283	38 🔻	Setu	P Re	eset
					-			,					Ĭ				_			
Flash Memory EEPROM Memory Fuses & Lock Bits											tatus									
00000000	DC.	04	27	10	19	05	19	05	19	05	19	05	19	05	19	05				~
00000010	18	35	18	95	00	94	20	33	00	94	70	33	00	94	CO.	33		30″n	30~13	
00000020	nc	4	ac	80	18	95	18	95	18	95	18	95	nc	94	88	75	□″œ€□•[1.0.0		
00000030	18	95	E.	95	18	95	18	95	18	95	18	95	OD	94	2 D	C6	0.0.0.	1.0.0	·D″-E	
00000040	18	95	18	95	18	95	18	95	18	95	18	95	18	95	18	95	0.0.0.0			
00000050	18	95	18	5	18	95	18	95	18	95	18	95	18	95	18	95	0.0.0.			
00000060	1	a	1.61	-	1					95	18	95	OD	94	DE	B5	0.0.0"	«µ□•□	•0″Þµ	
00000070	00000070 1 Good files always start with:												18	95	18	95	0.0.0.			
00000080	1	oc	94							95	18	95	18	95	18	95	0.0.0.			
00000090	0									95	18	95	18	95	18	95	0″V90″.	910 • 01	••••••	
04000000	18	95	18	95	18	95	18	95	18	95	18	95	18	95	18	95	0.0.0.		•	
000000B0	18	95	18	95	18	95	18	95	18	95	18	95	18	95	18	95	0.0.0.		••••••	
00000000	18	95	18	95	18	95	18	95	18	95	18	95	OD	94	С6	B6			•0″ƶ	
000000000	OD	94	F5	B6	18	95	18	95	OD	94	36	Β7	OD	94	65	Β7	□″õ¶⊡•[- 0″6	·O″e·	
000000E0	18	95	18	95	49	44	20	20	20	20	20	20	20	20	20	20	D.D.ID			
000000F0	20	20	41	43	43	55	4D	55	4C	41	54	4F	52	OD	OA	00	ACCUI	MULAT	ORDDD	
00000100	2 D	2D	2 D	2D	2 D	2D	2D	2 D	2D	2 D	2 D	2D	20	20	2D	2 D				
00000110	2D	2D	2D	2D	2D	2D	2D	2D	2D	2D	OD	OA	00	42	49	4E			DOBIN	
00000120	ЗD	25	64	00	42	49	4E	25	64	ЗD	25	39	6C	64	20	20	=%dDBI	V\$d=\$	91d	
00000130	00	20	42	49	4E	20	25	64	00	25	38	6C	64	20	50	69	D BIN :	¢d⊡%8	ld Pi	
00000140	65	63	65	73	00	6B	65	79	28	00	61	73	74	65	72	69	ecesOk	≘у(⊡а	steri	
00000150	73	6B	29	00	33	29	00	36	29	00	39	29	00	65	6E	74	sk)03)[36)09)Dent	
00000160	65	72	29	00	32	29	00	35	29	00	38	29	00	30	29	00	er)02)0	15)08	00)0	
00000170	31	29	00	34	29	00	37	29	00	74	69	6D	65	29	00	6E	1)04)0	7) 🗆 ti	me) 🗆 n	~
HINT:																				
🗧 Flash File I	Load	: File	loade	ed (Ini	tel He	ex-32)) - 00:	00									0%	\$ <mark>.</mark>		:

Figure 16

15. Once the flash file has been successfully loaded into the AVR and the Fuse settings and Auto Program Options have been verified, either press F5 on the computer keyboard or select *Auto Program* from the *Device* menu to begin programming. See Figure 17.

ΨA	🍄 AVRUSB - FLASH 225.hex															×						
File	Device	View	Se	rial N	umbe	rs	Help	÷.														
Harc	Erase						IV	ice	ATr	negaź	2560		-	Prog	ram	mer	283	38 🔻	Se	tup	Rea	set
	Сору	RC C	alibra	ation	Byte				,				- 1	Ĭ				_				_
Flas	Progr	am					► 1S	es & l	.ock	Bits	SI	tatus										
000	Read						۰L	10	0.5	10	0.5	10		10	0.5	10	0.5	D#200.				
000	Verify						•	10	22	10	95	10	95	10	95	18	95		201	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	32	8
000	Run					F9	Ē	18	95	18	95	18	95	nc.	94	88	7F	П″œ€П•	n•n•	-D-D"	<u>к</u> П	
000	Auto	Progr	am			E5	5	18	95	18	95	18	95	OD	94	2D	CG	0.0.0.	0.0		-Æ	
000	Auto	Progr	am O	otion	5	<u> </u>	5	18	95	18	95	18	95	18	95	18	95	0.0.0.	0.0			
000	Plug a	and Pi	ogra	m Mo	de	F8	5	18	95	18	95	18	95	18	95	18	95	D-D-D-	0.0		•	
000	00000	10	30	10	30	00	-94	AB	B5	18	95	18	95	OD	94	DE	B5	0.0.0~	«µD	•□•□~	Þμ	
000	000070	18	95	18	95	18	95	18	95	18	95	18	95	18	95	18	95	D • D • D •	---	• • • • •	•	
000	000080	18	95	18	95	18	95	18	95	18	95	18	95	18	95	18	95	0.0.0.	0.0	•••••	•	
000	000090	OD	94	56	B6	OD	94	85	B6	18	95	18	95	18	95	18	95	O"V90"	9TD •	•••••	•	
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Figure 17

16. While programming, a progress bar will be displayed in the Status Box located at the bottom right of the AVR screen along with a message indicating the current activity being performed. See Figure 18.

φ	Y AVRUSB																					
Fil	e Device	View	Se	rial N	umbe	ers	Help														Minimi	ze
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		37113	5501	01			007	100	Jon.	logaz		-	_	ing	rann	mor	1200	~ _				
Fla	ash Memory		EPR	ом м	lemo	y)	Fus	es & I	.ock	Bits	S	tatus	1									
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0	0000050	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00					
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0	0000090	00	00	00	00	00	00	00	00	00	00	00	00	00	00	7F	96				- 0000	
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0	0000120	03	00	00	03	04	00	2	01	00	03	05	01	01	00	00	00					
0	0000130	01	1E	00	00	00	97	00	00	00	00	00	00	00	00	00	00					
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Figure 18

17. When programming is complete, the Status Box located at the bottom of the AVR screen will display a confirmation message "Auto Program Complete" along with a GREEN light. See Figure 19.

If an error occurs during programming a RED light will be displayed along with an error in the Status Box. If this occurs, first confirm that all settings are correct, save a copy of the EPROM from AVR to your hard drive, go to Auto Program options and remove the check next to Read EEPROM, and try to program again.

IMPORTANT: Indicator setup and calibration data are stored in the EEPROM. If the EEPROM file is lost or corrupted the indicator will require setup and calibration.

φ,	🖓 AVRUSB																			
File	Device	View	Se	rial N	umbe	ers	Help													
Han	dware	VBI	ISB I	SP		-	Dev	ice	ΔTn	репай	2560		-11	Prog	ram	mer	283	88 -	Setun E	leset
			5501	51			Dev	ice	10.11	legaz			-	ing	rann	mer	1200			
Flas	h Memory		EPR	OM N	1 Memory Fuses & Lock Bits Status															
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Figure 19

- **18.** The update of the 225D indicator is now complete.
- **19.** Disconnect the dongle from the circuit board and confirm the indicator operation.

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