





Application note **NEP-5000 firmware updating procedure**

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Document history

The Observator range is in continuous development and so specifications may be subject to change without prior notice. When in doubt about the accuracy of this document, contact the Observator Group.

Reference documents	
Type of document / tool	Product type and name (incl. url)
Software	<u>NEP-5000</u>
CFG files	<u>NEP-5000</u>
Datasheet	<u>NEP-5000</u>
Manual	<u>NEP-5000</u>
Application notes	NEP-5000-SDI-12 option with Campbell logger
	NEP-5000-SDI-12 option for H-522+ & H-500XL loggers
	NEP-5000-SDI-12 option with Hydrospider logger
	NEP-5000-SDI-12, RS485 and analogue: wiper operations
	NEP-5000 multi-point calibration
	NEP-5000 firmware updating procedure
	Pressure calibration
	Shroud installation
	Temperature calibration
	Wiper replacement
Videos	<u>NEP-5000</u>

Revision history

Date	Amendments	Company, position
2018-03-11	Initial document creation	Observator Australia, Document Controller
2018-04-09	Introduced document control	Observator Australia, Document Controller
2019-04-12	Update reference to "driver" for NEP-5000 manual	Observator Australia, Document Controller
2019-07-03	Quality review	Observator Australia, Operation Manager
2020-01-30	Updated document format	Observator Australia, Document Controller
2022-10-09	Update video links	Observator Australia, Document Controller

Procedure sign-off:

Date	Company, position	Status
2018-04-09	Observator Australia, Document Controller	Finished
2019-12-06	Observator Australia, Managing Director	Approved
2020-03-05	Observator Group, Communication Officer	Approved





Distribution list

Date

Company, position





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1 Firmware updating procedure

This application note explains how to update the firmware on the NEP-5000 Analite series turbidity probes.

Connect the probe to your Windows machine and launch the Original Equipment Manufacturer (OEM) calibration software (refer to the section "Install calibration module driver" in "<u>NEP-5000 manual</u>".

1. Press "Tools" from the bar and select "Firmware Programmer."

File Edit View Tools Connections Help Store Calibration	💀 OE	M NEW	/ V2_003	D	-	
Start Calibration	File	Edit	View	Tools Connections Help		
Calibration >				Firmware Programmer		
				Calibration +		

Figure 1.A: Select firmware programmer option

2. Ensure all the settings are the same as in the Figure 1.B.

e Edit	2_0030				-		>
	View Tools Connections H	sip					
*							
	Firmware Programmer						
	- Dep 1						
	Select CPU		Select Baud				
	ATxmega32A4	✓	9600 🗸				
	C:\Users\Ludovic\Desktop\NEPOE	M2017_C2 2.030- web \hex\OEMNEW 2-003	10 - Turbidity hex				
- T	Connect						
	corrieu.						
	Step3						
					^		
	Attach your probe to the (Communication/Calibration Mo	dule (COMCAL_1) and Press C	connect to Upload			
	Firmware						
ut Wind							
ut Wind					~		
ut Wind >>COM >>COM			0		~		
ut Wind >>COM >>COM >>COM			0		× .::		
ut Wind >>COM >>COM >>COM			0		v .:i	F	

Figure 1.B: Verify the settings

Note: The path location for the hex file is: [C:\NEPOEM2017_C2 2.030-web|hex|OEMNEW 2- 0030- Turbidity.hex].





3. Press "Connect" button and a pop-up window appears, press "ok".

🧟 Firmware, Programmer		
Step1 Select CPU ATxmega32A4	Select Baud 9600 V	
C:\Users\Ludovic\Desktop\NEPOEM2017_C2 2.030-web\hex\OEMNEW 2-00	10 - Turbidity hex	
Step2		
Connect.		
Restart your device		
	×	
Sep3	Restart upur device - Turn the nower OFE and ON again	
Start Farmoure Ubdate	Hestan your device - tain the power of r and one again	
	OK	\sim
Attach your probe to the Communication/Calibration Mo	dule (COM	
		~
	0	

Figure 1.C: Connect to the probe

4. Hard press the "RESET" button on the calibration module (blue box) and the probe will be connected in Boot Loader Mode.



Figure 1.D: Calibration module reset





5. Press "Start Firmware Update" button.

🖶 Firmware_Programmer		
Step 1 Select CPU ATsmega 32A4 C:\Usen\Ludovic\Desktop:\NEPOEM2017_C2 2.030-web\hex\OEMNEW 2.0030 - Turbidty.hex	Select Baud 9600 V Vex]
Step2 Connect. Boot loader mode		
Step 3 Start Firmware Update		
Restart your device Reset Found Reset Found Reset Found Reset Found Boot loader mode at 13:14.01.0367591		<
	0	×.
Fig	ure 1.E: Select firmware update	

Note: Make sure your computer does not go to sleep while performing the update.

6. Please wait until the firmware update is completed. This may take up to 12 minutes.

	mware_Programmer]	Support of Support States	
🛃 File Edit View	Tools Connections Help		_ @ ×
•			
Que 1			
Select CPU		Select Baud	
ATxmega32A4	· ····	9600 -	
C:\NEPOEM2014_C2 2.014	McVan OEM\hex\OEMNEW 2-0014 - Turbidity.he	x	
Step 2			
Connect.			
Boot loader mode	3		
Step3			
Stop		Run New Firmware	
Restart your device			*
Reset Found			
Boot loader mode at	13:01:43.4608144		
Done		OEMINE W 2-0014 - Turbidity nex	
Programing started			
Programing Page 1 o Programing Page 2 o	of 126 Page Verified		
r rogrammig r ago z r			
		417 - C 22260 - 4	v
1.05.41 PM 22/01/2015		41/ 01 32230Bytes	

Figure 1.F: Firmware update screenshot





OEM NEW V2_0014 - [Firmware_Programmer]	100 A		
🖳 File Edit View Tools Connections Help			_ & ×
Q			
Select CPU	Select Baud		
ATxmega32A4	9600 👻		
C:\NEPOEM2014_C2 2.014\McVan OEM\hex\OEMNEW 2-0014 - Turbidity.hex			
Step2			
Connect.			
Boot loader mode			
Step 3			
Stop .		Run New Firmware	
Programing Page 68 of 126. Page Verified			*
Programing Page 69 of 126 Page Verified			
Programing Page 70 of 126 Page Verified			
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riograming rage 05 01 120			· · · · · · · · · · · · · · · · · · ·
	20992 of 32256Bytes		
2:05:34 PM 21/01/2015			

Figure 1.G: Firmware update screenshot

Note: After successful completion of the firmware update, the sensor requires that you reapply the factory calibration (the last good calibration) back to the sensor.

7. Download the factory calibration files from the "<u>Analite website</u>" based on your probe serial number. Right click and select "download link as CFG":

Note: To download a single file from the list, right click and select "Save Link as". Make sure you select Save as Configuration (CFG) format. You can also use the "find or search" tool in your browser to locate files.





8. To reapply the previous good calibration, select "Import from file" to load calibration data from the sensors [serial number] CFG file.

Disconnect	Advance	- Import		Import from	Export to sensor		Save calibration
eneral Sensor Stage	OutPut Stage Wiger Controll Int	emal Sensors		sensor	and save		
Contor Stage							
Firmware Version(Fac	ctory only) version		Sensor ID (RS485	/422,RS232,TT	L,USB)		
C2-0027 - Turb		Read	Sensor ID As num	ber (0-9) 1		SET	
PC software vers	ion						
C2-0030 - Turb							
Sensor firmware revi Please use matching To update or downg	sion do not match with PC software.) revisions. rade please use "Tools > firmware pr	ogramer" tool.					
Serial Number(Facto	ry only)						
Serial Number (7 digi	ts) 108859	Read					
Password		10					
Update passwor	d 🗹 Sensor enable	SET					
Available Sensor Op	tions(Factory only)	0.00112					
Analog interface	✓ R5485/11L/R5232/058	30112					
Temperature	MODBUS Available opti currently atta	ons for the ched sensor.					
100050							
alibration & con	figuration data has been	imported from :	attached sense	Nr.			
amponention de	ta tables have been imp	arted from otto	shad consor				

Figure 1.H: Import calibration file

9. Select the correct CFG file according to the serial number.







10. After opening the file, the software will display its basic file information on the screen. Please verify this information and press "OK".

Calibration file export file info	
ОК]

Figure 1.J: Import file information

11. Then press "YES" to upload imported file data to the sensor and save.

		ched senar (
The configuration file data has loaded in wish to apply the new imported calibrat	n to the PC calibration interfac ion data file to the attached se	e.Do you ensor?

Figure 1.K: Apply changes

12. Please wait until the process is fully completed. This may take a few minutes.

Sign rate set Bone Setting Up of slew_rate Done	36%	
>>Setting up of low range linearity comper	sations. Please wait(5-12s)	

- Figure 1.L: Apply changes
- 13. Successful completion of data uploaded to the sensor should display as follows. Press "OK".

Available Sensor Options(Factory only) Image: Analog interface Image: RS485/TTL/RS232/USB S Image: Temperature MODBUS Available options for currently attached Successful data synchronizing without errors. OK	
ave_to_eeprom Done 100% Save_to_eeprom Done 100% Successful data synchronizing without errors.	

Figure 1.M: Apply changes

14. Firmware update is now fully completed.





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