

BMW N55



Quickstart Guide For Tuners



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EcuTek ProECU tuning tools should only be used by experienced tuners who understand the product and engine calibration.

If you do not fully understand this product then you WILL damage your engine, ECU or your vehicle.

Please ensure you fully read all EcuTek manuals BEFORE attempting to use ProECU with your laptop or your vehicle.

Use with extreme caution and understanding, at all times, if in doubt then do not proceed.

EcuTek accepts no responsibility for any damage to the engine, ECU or any part of the vehicle that results directly or indirectly from using the product.

** If you are in any doubt that you do NOT have the experienced required to use this product then you should NOT USE IT **

Retail customers

** If you have any doubt that you do NOT have the experienced required to use this product then you should NOT USE IT, you should simply contact your EcuTek Master Tuner shown clearly on the top of your Programming Kit or visit your preferred tuning shop to have a professional tuner to use it for you **

2. Introduction

ProECU for BMW N55 supports F-series models with the N55 engine including but not exclusively 235, 335, 435, 535, x5 and other models equipped with the single turbo 3.0 engine.

ProECU provides OBD unlock, ROM editing, ROM programming, data logging, data analysis and diagnostic tools in one single software suite.

ProECU provides robust security for tuners wishing to create in depth tunes that use more than the bare minimum of maps. Tuned ROM files can be locked to a specific VIN and/or a specific customer (using the ID of their USB security key)



3. Tuning Workflow

Overview

Unlike other EcuTek tuning solutions, a two-step process is required to begin tuning.

The first step is to unlock the ECU, the EcuTek licence and is also installed during this process, but it only needs to be done once, using a green EcuTek CAN cable this can take around 18 minutes.

Once unlocked, tuning is the same as most EcuTek platforms and a tuned ROM can be programmed. At the point of initial release this takes about 2m30s using a CAN cable.

Datalogging the tuned ROM to check key parameters can then be carried out. Depending on the nature of the tuning the tuned ROM can be updated and retested until the tuner is happy with the results contained with the logs.





4. ECU Unlock

The unlock process is only required the first time the ECU is programmed from stock. It allows programming of non-OEM ROM files, adds EcuTek licencing information and secures the ECU against reading by third party tools.



Preparing for unlocking

- Ensure laptop that has sufficient charge to last the unlock process.
- The car battery will also need to be in good condition
- Lights, blower, ICE switched OFF!
- If in any doubt you may want to use a low current battery charger on the car
- BEWARE OF USING CAR BATTERY CHARGER AND MAINS POWERED LAPTOP SIMULTANEOUSLY. MAINS VOLTAGE GROUND LOOPS CAN BE CREATED IN SOME CASES AND TERMINAL DAMAGE OF ECU AND/OR PC CAN OCCUR!!!!!!
- To prevent the BCM switching the ignition off automatically during a long unlock operation, keep the driver's door open before switching on ignition, then keep the door open until the unlock process is complete.

Getting Connected

Connect EcuTek Interface cable to USB port of PC and OBD port start ProECU.



Click on the "Tools" menu and select "Detect Vehicle"



Version 0.3 Last Modified 29-Oct-18





Some tuners may prefer to manually select the vehicle type:

🖉 Pro	ECU	COP LEDITE						-		×
<u> </u>	<u>T</u> ool:	<u>Options</u> <u>W</u> indows <u>H</u> elp Re	cent F	ROMs Recent Logs	Found CAN Inter	face (ID COM	5) Found K-I	Line Interfac	e (ID \$000	00005)
		Identify ECU	Í							
		Detect Vehicle								
		Manually Select Ve			A		~			
		Manually Select Single ECU			Select Vehicle		X			
					BMIV MEVD17 vehi Hortwa CAN Mazda 3 DISI ->2011 Mazda 6 DISI ->2011 Mazda 6 DISI ->2011 Mazda 2X7 DISI ->2 Mazda ZISI ->2 Mazda DISI 2010MY Mazda XV_5_Gene	cle DMY DMY >>2010MY 010MY -> eration 3	~			
						ОК	Cancel			

After the vehicle or ECU is detected or selected, the next step is chosen, the default option is set to "Program Engine ECU" but if connecting to unlock the ECU select "ECU Unlock Tool":

Select Tuning Tool	🖉 Select Tuning Tool
Vehicle:	Vehicle:
BMW MEVD17 vehicle	BMW MEVD17 vehicle
Includes the following ECUs:	Includes the following ECUs:
BMW MEVD17 ECU	BMW MEVD17 ECU
Select an operation to perform from the list below. Note: These options are also now accessible from the tools menu	Select an operation to perform from the list below. Note: These options are also now accessible from the tools menu
Program Engine ECU ECU DTC Tool - BMW MEVD17 ECU ECU Unlock Tool Vehicle DTC Tool - BMW MEVD17 vehicle	Program Engine ECU ECU DTC Tool - BMW MEVD17 ECU ECU Unlock Tool Vehicle DTC Tool - BMW MEVD17 vehicle
OK Cancel	OK Cancel



Once the ECU unlock tool has opened, click on "Query ECU" and the ECU will be detected, and its components reported:

P BMW MEVD17 ECU Unlock Tool	—	×
EMW MEVD17 ECU Unlock Tool Detected VIN: WBA Detected ECU Serial: 01 Detected ECU botloader version: 000019DE-001-059-001 Detected ECU software version: 000020DC-029-160-001 Detected ECU calibration: 000020DC-029-160-003 Detected ECU coding: 00000BA-000-046-001 10000 Flash Points currently on licence key.		
Query ECU Unlock ECU Read DTC		
Load ROM Back To Stock Clear DTC		
Ready		

Click on "Load ROM" and you will be prompted to select a 100% unmodified ROM file. The dialog box will be prefilled with the correct ROM, you should be able to click on "Open" or just hit the "Enter" key.

Name Date modified Type Size [•] OneDrive - EcuTel [•] 00001A88-029-140-001-enc.bin ⁰ 09/10/2018 11:20 EcuTek ROM File 4,100 KB [•] OneDrive - EcuTel [•] 00001B80-029-140-016-enc.bin 9/10/2018 11:20 EcuTek ROM File 4,100 KB [•] OneDrive - EcuTel [•] 00001B80-029-170-002-enc.bin 9/10/2018 11:32 EcuTek ROM File 4,100 KB [•] 00001B80-029-170-002-enc.bin 9/10/2018 11:32 EcuTek ROM File 4,100 KB [•] 00001B80-029-170-003-enc.bin 9/10/2018 11:32 EcuTek ROM File 4,100 KB 00001B80-029-180-004-enc.bin 9/10/2018 11:20 EcuTek ROM File 4,100 KB Desktop 00001B84-029-140-016-enc.bin 9/10/2018 11:22 EcuTek ROM File 4,100 KB Downloads Downloads 00001B84-029-170-003-enc.bin		^					
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If the file is successfully loaded, the progress window will be updated, and the licence status will be reported:

P BMW MEVD17 ECU Unlock Tool	-	×
BMW MEVD17 ECU Unlock Tool Detected VIN: WBA Detected ECU Serial: Detected ECU bardware version: 000019DE-001-019-001 Detected ECU botloader version: 000019DC-001-069-001 Detected ECU software version: 00002157-029-160-001 Detected ECU calibration: 000020DC-029-160-003 Detected ECU calibration: 000000BC-000-046-001 10000 Flash Points currently on licence key. User clicked "Load ROM" Loaded ROM from C:\ScuTek\ProECURomFiles\BMW\000020DC-029-160-003-enc.bin Found patch version 34261 for boot loader 000019DC-001-069-001 Created patched boot loader Unlocking this ECU will consume 300 Flash Points. Putting an ECU back to stock is free of charge.	-	×
Query ECU Unlock ECU Read DTC Load ROM Back To Stock Clear DTC		~

You are now ready to proceed with the unlock process. Click on "Unlock ECU" and progress will begin. This typically takes around 18 minutes, it is normal for the low pressure fuel pump to run.

BMW MEVD17 ECU Unlock Tool		×
Detected ECU bootloader version: 000019DC-001-069-001		^
10000 Flash Points currently on licence key		
User clicked "Load ROM"		
Loaded ROM from C:\EcuTek\ProECURomFiles\BMW\000020DC-029-160-003-enc.bin		
Found patch version 34261 for boot loader 000019DC-001-069-001		
Created patched boot loader		
Unlocking this ECU will consume 300 Flash Points.		
Putting an ECU back to stock is free of charge.		
User clicked "Unlock ECU"		
Backing up vehicle coding		
Found vehicle coding		
ECU reset		
300 Flash Points used - now 9700 Flash Points remaining.		
Erase bootloader		
Reflash bootloader		
Bootloader Signature		
ECU reset		
Detected VIN: WBA3T3		
Detected ECU Serial: 01'		
Detected ECU hardware version: 000019DE-001-019-001		
Detected ECU bootloader version: 000019DC-001-069-001		
Erase bootloader		
Reflash bootloader		
Bootloader Signature		
Kerlash code		
		~
Query ECU Unlock ECU Read DTC		
Load ROM Back To Stock Clear DTC		
Transferring Data. Progress 6%		



When the unlock process is complete the ECU will be reset and DTCs cleared. Cycle the ignition by turning off for a few seconds and then back on to restart all the other modules on the car.

P BMW MEVD17 ECU Unlock Tool -	o ×
Unlocking this ECU will consume 300 Flash Points.	^
Putting an ECU back to stock is free of charge.	
User clicked "Unlock ECU"	
Backing up vehicle coding	
Found vehicle coding	
ECU reset	
300 Flash Points used - now 9700 Flash Points remaining.	
Irase bootloader	
Reflash boolloader	
Bootloader Signature	
200 reset	
Detected VIN: WEASI	
Detected ECU Serial: 01/	
Detected ECU hardware Version: 0000192-001-019-001	
Deflase bootlaader	
Rotlader Simsture	
Beflash onde	
Deflach mans	
Performing DTC Operations on BMW MEVD17 ECU	
Clearing DTCs	
Now cycle the ignition to ensure codes are cleared	
DTCs Cleared.	
Clearing DTCs Completed.	
End of DTC Operations on BMW MEVD17 ECU	
ECU Unlock Complete. Please cycle the ignition	
	~
Ouerv ECU Unlock ECU Read DTC	
Load POM Back To Stock Clear DTC	
Edda Kolwi Back To Stock Chear Die	
Ready	

ECU Unlock Troubleshooting

- In some cases, it may be necessary to do a second vehicle-wide clear DTC operation after the ECU unlock process and/or an additional ignition power cycle.
- If for whatever reason unlocking is interrupted or fails, it should be possible to restart the process without issue.
- After an unlock failure, it is possible the ECU is partly blank and will not communicate using normal OBD commands, thus the vehicle cannot be detected. If you close and reopen ProECU for whatever reason (eg laptop ran out of battery) you will need to manually select the vehicle, do not rely on autodetect.
- If restarting an unsuccessful ECU unlock operation, it is possible (but rare) the ECU will have been left without an EcuTek licence. If this should occur, please use an additional license and contact EcuTek support to get your licence points balance corrected.



5. ROM Editing

Introduction

ProECU for tuners provides comprehensive ROM editing tools. You can start by opening a ROM from the "File" menu in ProECU.

🔌 ProECU		– 🗆 X
Eile Tools Options Windows Help	Recent ROMs Recent Logs	Found CAN Interface (ID COM9) Found K-Line Interface (ID \$0000009)
Open ROM File		
Recent ROMs >		
Find ROM		
Compare ROM Files		
Open Log File		
Recent Logs		
Find Log File		
Merge Log files		
View Flash Log File		
Save Screenshot to file F6		
Exit		

Alternatively, you can drag'n'drop the ROM file of your choice from a windows explorer window. ROM files are located in vehicle specific subfolders of C:\Ecutet\ProECURomFiles





Once your ROM file is open, you can navigate through the maps available for calibration.

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To get started tuning, check your BMW rom folder for example ROM files and read our knowledgebase article covering a basic tune on BMW N55:

https://ecutek.zendesk.com/hc/en-gb/articles/360000508017-BMW-F-Series-435i-example-ROM

(Tuners will need to be logged into our Zendesk portal to access this article)



6. ECU Programming

To begin programming, click on the "Tools" pulldown menu and select "



ProECU will pre-load the last loaded or saved ROM ready for programming, if you have been editing and saving a ROM file it will ready to program. Otherwise you can click on "Choose ROM File" or drag a ROM file into the programming window from windows explorer.

Click on "Query ECU" to read details of the ECU connected to the PC such as the CALID and EcuTek licence and programming information.

ROM File to Program C:XEcuTek\ProECURemFiles\BMW\000020DC-029-160-003- enc.bin Drag ROM Here to Open Choose BOM File Drag ROM Here to Open Choose BOM File Programming Sequence 10:36:35: Selected ROM File: C:\EcuTek\ProECURemFiles\BMW\000020DC-029-160- 03: Sei 35: Selected ROM File: C:\EcuTek\ProECURemFiles\BMW\000020DC-029-160- 03: Sei 35: Selected ROM File: C:\EcuTek\ProECURemFiles\BMW\000020DC-029-160- 000020DC-029-160-003 - N55 3 Series MT EU ECU Version 000020DC-029-160-003 - N55 3 Series MT EU Compatible 000020DC-029-160-003 ECU Registration Details 000020DC-029-160-003 Commant I 19:36:43: ECU is fully programmed. Program Count 19:36:43: ECU is fully programmed. Program Date I::36:52: ECU contains a EcuTek licence Read Registration Details Check ECU Connection Querp ECuTek Read DTCs Sub Cramet to Elia Sub Cramet to Elia	BMW MEVD17 ECU Programming Tools	Close					
Drag ROM Here to Open Choose <u>R</u> OM File Programming Sequence It:::::::::::::::::::::::::::::::::::	ROM File to Program C:\EcuTek\ProECURomFiles\BMW\000020DC-029-160-003- enc.bin	18:36:35: Date & Time: 24/10/2018 18:36:35 Version 1.0.0.34353 18:36:35: Dongle ID: 6C A8 39 9700 Flash Points currently on licence key. 18:36:35: EcuTek Vehicle Interface: Firmware 2.3.0 18:36:35:					
Programming Sequence Query ECU Program ECU Is 36:35: ROM Files Program ECU ECU Version 000020DC-029-160-003 - N55 3 Series MT EU Is 36:43: Date 4 Time: 24/10/2018 18:36:43 Version 1.0.0.34353 Is 36:43: Date 5 Time: 24/10/2018 18:36:43 Version 1.0.0.34353 Is 36:43: Date 5 Time: 24/10/2018 18:36:43 Version 1.0.0.34353 Is 36:43: Date 5 Time: 24/10/2018 18:36:43 Version 1.0.0.34353 Is 36:43: Date 5 Time: 24/10/2018 18:36:43 Version 1.0.0.34353 Is 36:43: Calibration ID =: COU200C-029-160-003* Is 36:43: Calibration ID = '000020DC-029-160-003* Is 36:43: ECU Is fully programmed. Is 36:43: ECU Is fully programmed. Is 36:43: ECU Is fully programmed. Is 36:52: ECU contains a EcuTek licence Program Date Licences in ECU Read DTCs Sump Details for EcuTek Read DTCs Sump Screenphot to File Sump Screenphot to File	Drag ROM Here to Open Choose <u>R</u> OM File	18:36:35: Selected ROM File: C:\EcuTek\ProECURomFiles\BMW\000020DC-029-160- 003-enc.bin 18:36:35: ROM File STD: CD216521					
Compatible Outcode - 02.9 + 100 + 000 ROM Files Is:36:43: Comment Is:36:43: Programmer ID Is:36:43: Program Count Is:36:43: Drogram Date Is:36:43: Licences in ECU EcuTek Licence Read Registration Details Check ECU Connection Qump Details for EcuTek Read DTCs	Query ECU Program ECU ECU Version 000020DC-029-160-003 - N55 3 Series MT EU C 110	<pre>18:36:35: ROM File CLC: CD216521 18:36:43: ### User Selected 'Program ECU' 18:36:43: Date & Time: 24/10/2018 18:36:43 Version 1.0.0.34353 18:36:43: Dongle ID: 6C A8 39 9700 Flash Points currently on licence key. 18:36:43: EcuTek Vehicle Interface: Firmware 2.3.0</pre>					
ECU Registration Details 18:36:43: The following ROM file version is compatible with this ECU: Comment Programmer ID Program Count 18:36:43: ECU is fully programmed. Program Date 18:36:52: ECU contains a EcuTek licence Read Registration Details Check ECU Connection Dump Details for EcuTek Read DTCs Save Screenshot to File Save Screenshot to File	ROM Files	18:36:43: 18:36:43: VIN: WEAL 18:36:43: Calibration ID = '000020DC-029-160-003' 18:36:43: ECU = 000020DC-029-160-003 - N55 3 Series MT EU					
Programmer ID ISOUTION BOOMED State Concurs Program Count ISOUTION BOOMED State Concurs Program Date ISOUTION BOOMED STATE State Concurs Licences in ECU EcuTek Licence Read Registration Details Check ECU Connection Dump Details for EcuTek Read DTCs Save Screenshot to File Save Screenshot to File	ECU Registration Details Comment	18:36:43: The following ROM file version is compatible with this ECU: 000020DC-029-160-003 18:36:43: ECU is fully programmed. 18:36:43: ECU has been coded					
Program Date Licences in ECU EcuTek Licence Read Registration Details Check ECU Connection Dump Details for EcuTek Read DTCs Clear DTCs Save Screenshot to File	Programmer ID Program Count	18:36:52: ECU contains a EcuTek licence					
Read Registration Details Check ECU Connection Dump Details for EcuTek Read DTCs	Licences in ECU EcuTek Licence						
Dump Details for EcuTek Read DTCs Clear DTCs Save Screenshot to File	Read Registration Details Check ECU Connection						
Clear DTCs Save Screenshot to File	Dump Details for EcuTek Read DTCs						
	Clear D <u>T</u> Cs Sa <u>v</u> e Screenshot to File						

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7. Datalogging

To get started logging your target car, simply load a ROM into ProECU and switch to the "Live Data" tab of the ROM window.

Most commonly used functions:

- Map Access Initialises connection to ECU and displays live data values (Hotkey: Del)
- Log to File If connected, starts and stops logging to file (Hotkey: Ins)
- Open Last Log Shortcut to open the last saved logfile for analysis.

ROM - 000020DC-029-160-003-enc.bin (000020DC-029-160-003 - NS	55 3 Series		- [×
<u>File View Colouring Logging</u>					
Map Access O Log to File O Auto Logging Log Mar	k0 Op	en Last I	Log	Find	d log
Maps Live Data Keying RaceROM Live Graphs					_
Name A	Lipite	Mini	Or	Max	
Logged Parameters	Units	PHE 8	cur	Max	~
Accelerator Position	% Pedal		n/a	n/a	
Ambient Air Temperature	°C		n/a	n/a	
Boost Pressure (pre-throttle)	hPa		n/a	n/a	
Boost Pressure Error	hPa		n/a	n/a	
Coolant Temperature	°C		n/a n/a	n/a	
Finding Load Desired	%		n/a	n/a	
Engine Oil Pressure	hPa		n/a	n/a	
Engine Oil Temperature	°C		n/a	n/a	
Engine Relative Cylinder Fill	%		n/a	n/a	
Engine Speed	rpm		n/a	n/a	
Engine Temperature	°C		n/a	n/a	
Exhaust Cam Angle	Crank		n/a	n/a	
	°C		n/a	n/a	
Fuel Injection Quantity cylinder 1	ma/stk		n/a	n/a	
✓ Fuel Mass Flow Rate	kg/h		n/a	n/a	
→ Fuel Rail Pressure Actual Filtered (Io-res)	MPa		n/a	n/a	
Fuel Trim Long Term Bank 1	%		n/a	n/a	
Fuel Trim Short Term Bank 1	%		n/a	n/a	
Gear Actual (0-6)	- • Court		n/a	n/a	
Ignition Timing ✓ Ignition Timing Cylinder 1	° Crank		n/a	n/a	
	° Crank		n/a	n/a	
Inlet Cam Angle Desired	° Crank		n/a	n/a	
✓ Intake Air Temperature smoothed	°C		n/a	n/a	
Intake Valve Lift	mm		n/a	n/a	
Intake Valve Lift Target	mm		n/a	n/a	
Knock Condition Detected	0/1		n/a	n/a	
Lambda Actual Bank 1	-		n/a	n/a	
Mapifold Absolute Pressure (Filtered)	h D a		n/a	n/a	
Manifold Absolute Pressure (Filtered)	ka/h		n/a	n/a	
Mass Airflow Sensor period	us		n/a	n/a	
Throttle Actual - Relative to Closed Position (lo-res)	% Thr		n/a	n/a	
Torque Actual at Clutch	Nm		n/a	n/a	
Torque Desired for Desired Load	Nm		n/a	n/a	
✓ Torque Desired for Gearshift	Nm		n/a	n/a	
Vehicle Speed	km/h		n/a	n/a	
Wastegate Duty Cycle	76		n/a	n/a	
All Parameters	0/1		n/a	n/a	
Accelerator Angle	dea		n/a	n/a	
- Accelerator in sport mode	0/1		n/a	n/a	
Accelerator Position	% Pedal		n/a	n/a	
Accelerator Position (lo-res)	% Pedal		n/a	n/a	
Actual Injection Mode Cylinder 1	-		n/a	n/a	
Actual Injection Mode Cylinder 2	-		n/a	n/a	
Actual Injection Mode Cylinder 3	-		n/a	n/a	
Actual Injection Mode Cylinder 5	-		n/a	n/a	
Actual Injection Mode Cylinder 5			n/a	n/d p/a	
Actual Inlet valve opening	° Crank		n/a	n/a	v
File CRC was '5463 B486' when loaded.			1		•

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8. Support

Technical support

EcuTek provides primary product support via email, support portal and telephone, from 9:00 to 18:00 UK time. Support engineers are on hand to assist you apply your tuning knowledge using our tools, but EcuTek doesn't provide general tuition for basic tuning skills.

We encourage our dealers to register on our Zendesk customer support portal, to more easily submit and track support requests, and gain access to tuner-only knowledge base articles.

Go to https://ecutek.zendesk.com/hc/en-gb/ and click on "Sign In" to get started.