# DroidCAL

## **Ecotrons EcoCAL for Android phones**

## User Manual

V1.4

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Web: <u>http://www.ecotrons.com</u> Email: <u>info@ecotrons.com</u>

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#### **Chapter 1** Installation

#### 1.1 Install the DroidCAL via Android photo application "Play Store"

You can download the DroidCAL via Android phone application "Play Store". Just search "Ecotrons" in Google "Play Store".

1. Open the Play Store.



2. To search ecotrons in the search bar.



3. You will search Ecotrons DroidCAL. And then click the Install button to install DroidCAL.



4. Clicks accept & download.

80 💿 🛐 🖿 🗢 🖞 🖷	3:32
۲ Apps	
ECOTRONS ECOTRONS SOFTWARE	
gpcpaid@gmail.co	om
Accept & download	
PERMISSIONS	
Storage Modify/delete SD card contents	>
Network communication	
Create Bluetooth connections	>
System tools	
Bluetooth administration, mount and	
unmount filesystems, prevent phone from sleeping	>

5. After the download is complete, the software will automatically install. The following figure DroidCAL installed the appearance of the finished



#### 1.2 Install the DroidCAL via computer

Note, different versions of Android phones, setting method may be different, specific settings,

please see the phone manual.

1. Using the phone data cable to connect your phone to your computer, "USB Mass Storage" window will pop up on the phone, and at the same time the USB icon appears on the phone's notification bar.



2. Click on the "turn on USB storage" button, Click the "OK" button in the pop-up window.



3. Open the "computer", select the disk drive corresponding to the phone's memory card, the default name is "Removable Disk".

🕒 🗢 🖭 🕨 Computer 🕨	233#2432- 11	48.9	✓ 4y Search Computer		• <b>×</b>	<u>ہ</u>
File Edit View Tools He	lp					
Organize 🔻 System prope	rties Uninstall or change a program Ma	p network drive	Open Control Panel	N= .		
<ul> <li>★ Favorites</li> <li>E Desktop</li> <li>Downloads</li> <li>Recent Places</li> <li>⇒ Libraries</li> <li>&gt; Documents</li> <li>&gt; Music</li> <li>&gt; Pictures</li> <li>&gt; Wideos</li> </ul>	Hard Disk Drives (3)     Local Disk (C:)     17.7 GB free of 39.0 GB     Local Disk (E:)     29.7 GB free of 43.4 GB     Devices with Removable Storage (2     DVD/CD-RW Drive (F:)	Local 25.7 G	Disk (D:) IB free of 29.3 GB vable Disk (G:) IB free of 1.83 GB			
🛚 🔣 Homegroup		L				

- 4. Double-click to open the "Removable Disk".
- 5. Copy and paste the "DroidCAL.apk" file and "A2L" file to "Removable Disk"

			• X
Computer	► Removable Disk (G:) ►	Disk (G:)	۶
File Edit View Tools	lelp		
Organize 🔻 Share with	Burn New folder	•	
▲ ★ Favorites	🔒 .0102 🔋 🔒 com		
Marktop	\mu .android_ 🛛 🔒 data		
Downloads	🐌 .android_secure 🛛 🔒 DCIM		
🖳 Recent Places	🔒 .doodlemobile_featureviewnew 🛛 🔒 download		
	\mu .GuoheAd 🛛 🔒 image		
4 📄 Libraries	\mu .mobo 🛛 🔒 music		
Documents	🕌 .ucdlres 💦 🔒 push		
🛛 🌙 Music	🕌 .zyudr 🔛 RMS		
Pictures	🔒 albumthumbs 🥼 ShootMe		
Videos	🎴 Android 🛛 🔒 video		
	🕌 androidesk 🛛 🔒 VIE		
🛛 🔣 Homegroup	📔 arthurcn 📄 DroidCAL.apk		
	book 📄 Simplified_S8_H1_L37_Cr1_E16.A2L		
🖌 🖳 Computer	🕌 bugreports		
🛛 🏜 Local Disk (C:)	🕌 Camera360		
Local Disk (D:)	🕌 clockworkmod		
🖻 🧰 Local Disk (E:)	🔰 cmbarcode		
🛛 🗠 👝 Removable Disk (G:)			
56 items			

- 6. Click on the phone "Turn off USB storage" button, unplug the data cable.
- 7. Find the file manager on the phone (Different phone's file manager names may be different).



- 8. Open the file manager.(The default name of memory card is sdcard)
- 9. Find "DroidCAL.apk" file in the memory card.



10. Click DroidCAL.apk to install it.



11. Click the "Done" button, the installation was successful.

‡ : <b>≜</b> :	<b>nii 💈 </b> 10:36
	DroidCAL
✓ Application ins	talled
Open	Done

#### Chapter 2 Using DroidCAL

#### **2.1** Connecting the Bluetooth Device

Ecotrons Bluetooth adapter is designed to set up the communication between Ecotrons ECU and a Bluetooth-capable mobile device, like a smart phone, a laptop or a tablet, without a wired connection. It is a plug-in device to the Ecotrons EFI kit. The idea is simple, to remove the wired connection. And the application is cool, to log ECU data and tune your fuel injection system via your mobile phone (Android phone for now. iPhone app is yet to be developed).

Previously, our customers have to put a laptop into the backpack during riding a bike to log data. And the wired connection has to be secured by extended serial cable, or worse, a serial cable plus an USB adaptor to the laptop. Often users have to use duct tape to secure the wired connection, during highway driving. Now with this Bluetooth adapter, you can set up the Bluetooth communication between the ECU and your Droid phone, and drop you phone in the pocket and start to drive. The data are logged seamlessly via Bluetooth communication. No more worrying about the dropped serial cable, or the USB connection shaken down.

Further more, you can even use the Droid phone as a display or multi-gauge, by fixing it on the cluster. Your phone will display real time RPM, TPS, lambda, temperatures, MAP sensor, etc.



Ecotrons Bluetooth module

Ecotrons Bluetooth spec:

- Plug-in to a DB9 sub (RS232 connector)
- Connect to 12v battery directly

- Generic Bluetooth Communication
- Compatible to other Bluetooth devices
- No other parts needed for Bluetooth communication
- 1. Connect the Bluetooth module 12V+ to the 12V battery positive electrode, and connect 12Vto the negative terminal of battery.
- 2. Plug the Bluetooth module into the Ecotrons ECU harness, with the DB9-sub connector.



#### **2.2** Load A2L file

1. On the phone menu find the DroidCAL icon. Click DroidCAL to run the software.



2. The first time you run the DroidCAL, software will load a demo A2L, interface is shown below.

🥖 🖞 🍈		al 🔋	0 10:57
Ecotrons Dro	oidCAL		
Accelerati	on		
TPS	0.0	.0	100.0
NB O2	0.0	.0	1.0
RPM	0.0	.0	8000.0
SPARK	-50.0	.0	50.0
MAP	0.0	.0	1000.0
FUEL1	0.0	.0	10.0
FUEL2	0.0	.0	10.0
		0	Menu
You are runnir loaded. You m	ng in demo ay need to	mode, and de load your owr	mo A2L is n A2L.

3. Press the DroidCAL menu button  $\rightarrow$  Load A2L file.

💋 🌵 🏥		ull 💈	10:57
Ecotrons Dro	oidCAL		
Accelerati	on		
TPS	0.0	.0	100.0
NB O2	0.0	.0	1.0
RPM	0.0	.0	8000.0
SPARK	-50.0	.0	50.0
MAP	0.0	.0	1000.0
FUEL1	0.0	.0	10.0
	0.0	.0	10.0
Load A2L file	Diagnosis		Settings
Hide buttons	Help		Exit

4. Select the A2L file to be loaded.

🥖 📐 🌵 🖷	al 🗎	🛈 10:45
Please select the file		
ttpod		
androidesk		
KKDownApps		
arthurcn		
music		
tmp		
bugreports		
DCIM		
clockworkmod		
wandoujia		
.0102		
Android		
.android_secure		
LOST.DIR		
Simplified_S8_H1_L37	7_Cr1_E	16.A2L

5. Successfully loaded A2L file.

		uli 🧯	🛈 11:45
Ecotrons Dro	oidCAL		
Accelerati	on		
TPS	0.0	.0	100.0
NB O2	0.0	.0	1.0
uLsb2	-1.0	.0	4.0
RPM	0.0	.0	8000.0
SPARK	-50.0	.0	50.0
MAP	0.0	.0	1000.0
FUEL1	0.0	.0	10.0
	•	0	Menu
A2L file Load o start measurin	completed, ig data.	press Play but	ton to
10 million (10 mil			

## 2.3 Start measuring

1. If the user needs to measure the data, click the play button.

<i>7</i>		ati 🧯	11:45 🛈
Ecotrons Dro	oidCAL		
Accelerati	on		
TPS	0.0	.0	100.0
NB O2	0.0	.0	1.0
uLsb2	-1.0	.0	4.0
RPM	0.0	.0	8000.0
SPARK	-50.0	.0	50.0
MAP	0.0	.0	1000.0
FUEL1	0.0	.0	10.0
	•	0	Menu
A2L file Load o start measurir	completed, 1g data.	, press Play bu	tton to

2. First start measuring, if the phone's Bluetooth is not connected, it will request to turn on the Bluetooth function. The user clicks on the yes button, and automatically turns on Bluetooth.

🥖 🖞 🝵		ull 🔋	🛈 11:54
Ecotrons D	roidCAL		
Accelerat	tion		
TDC			
IF S			
MB O1	) 0.0		1.0
	luetooth p equest	ermission	.0
R An ar is re S tur	oplication equesting n on Blue want to	on your pl permissior tooth. Do y do this?	none n to ou
	Yes	No	
	۲	0	Menu
A2L file Load start measur	l completed, ing data.	press Play bu	tton to

3. Bluetooth function is turned on; the software will automatically search for available Bluetooth connections, and a list of available connections. Click Ecotronsxxxx (xxxx: Bluetooth module serial number, for example EcotronsA130) to connect. If no Ecotronsxxxx, the phone is not successful connected to the ECU.



- 4. First time connection may be required to enter a password, and the password is "1234".
- 5. Start measuring data.

🥖 🖞 🏐		* 🖬 🖻	🛈 14:18
Ecotrons DroidCAL			
Acceleratio	on		
TPS	0.0	35.16	100.0
NB O2	0.0	.45	1.0
RPM	0.0	5051.5	8000.0
SPARK	-50.0	28.5	50.0
MAP	0.0	448.05	1000.0
FUEL1	0.0	4.99	10.0
FUEL2	0.0	.0	10.0
$\bigcirc$		0	Menu
Measuring data until click the r	a now, da ecord bu	ta will not be re tton.	corded,

6. If you want to stop measuring, please click the stop button.

#### 2.4 Data Recording

After the start measuring, the user can click the record button to record data.

🥖 🖞 🍵		्र वा 💈	🛈 14:19
Ecotrons Dro	idCAL		
Acceleratio	on		
TPS	0.0	35.16	100.0
NB O2	0.0	.45	1.0
RPM	0.0	5060.5	8000.0
SPARK	-50.0	28.5	50.0
MAP	0.0	453.63	1000.0
FUEL1	0.0	5.04	10.0
FUEL2	0.0	.0	10.0
		0	Menu
Recording data "Ecotrons" dire	now, the ctory.	data will be sav	ved at

The user can click on the stop button to stop the data recording.

#### **2.5** Show all recorded variables.

- 1. By default, DroidCAL shows only a few important variables, but DroidCAL actually recorded variables far more than these. Click Menu→Settings, open settings menu.
- 2. Select Show all recorded variables.



3. DroidCAL will display all the recorded variables.

🥖 🖞 👘		* all 🔋	🛈 14:20
Ecotrons Dro	bidCAL		
Accelerati	on		
Mat			
MAP	0.0	421.95	1000.0
nInj	0.0	14461.0	65535.0
Pld	0.0	309.65	2559.961
FUEL1	0.0	4.75	10.0
FUEL2	0.0	.0	10.0
B_Afr	0.0	.0	1.0
	0.0	.0	1.0
$\bigcirc$	•	0	Menu
Recording dat "Ecotrons" dir	a now, the ectory.	data will be sa	ved at

#### **2.6** Display value instead of bar

You can also use the current value of the variable instead of the bar shows. Click Menu $\rightarrow$ Settings, select Display value instead of bar.



The changes will take effect the next time you start the program.

💋 🜵 플ः Ecotrons DroidCAL	* 📲 💈 🛈 14:21
Acceleration	
TPS	35.156%
NB O2	0.4517V
RPM	5050Rpm
SPARK	28.500CrA
MAP	446.13hPa
FUEL1	4.9480ms
FUEL2	0.0000ms
	O Menu
Measuring data now, data until click the record but	a will not be recorded, ton.

## **2.7** Change variables text size

If your screen is too big or too small, the variable text display inappropriate, you can easily modify the text size. Click Menu $\rightarrow$ Settings, select Change variables text size.

🥖 🖞 🗂 🛛 🖇 📶 💈 🕥 14:40
Ecotrons DroidCAL
Show all recorded variables
Display value instead of bar
Measure acceleration by phone
Keep the screen on
Auto hide buttons
Change variables text
size
Select recorded variables
Select displayed variables

You can make changes as needed; the default text size is 30.



#### **2.8** Select recorded variables

You may need to modify the variables to be recorded, click Menu $\rightarrow$ Settings $\rightarrow$  Select recorded variables.



The variables have been selected on the left; the right is the optional variable. Click the list on the left to remove variable, Click the list on the right to add variables.

First select the variable to add to 20ms, 100ms or Syn, and then click the right of the list to add variables. Can select the variable to add to the three rate of 20ms, 100ms, Syn. Click the OK button after selected.

🥖 🖞 👘	* 📶 💈 🛈 14:41				
Ecotrons DroidCAL					
Selected	All				
Tps	RAM_SelfLearnHi				
uLsb	story				
Current_Timer	SLM_StableCondi				
Err CrankSensin	tion				
g_Flag	SLM_Tps_StableR				
fLc	ef				
Last Falling Edg	SLM_N_StableRef				
e_Timer	SLM_StableCoun				
Last Rising Edge	ter				
Timer	SLM_fLamAdIn_S				
Search:	Next				
💿 20ms 💿 100ms 💿 syn					
Load from file	ОК				

#### **2.9** Select displayed variables

You may need to modify the variables to be displayed, click Menu $\rightarrow$ Settings $\rightarrow$  Select displayed variables.



The variables have been selected on the left; the right is the optional variable. Click the list on the left to remove variable, Click the list on the right to add variables. Click the OK button after selected.

🥖 🖞 🖷	* 📶 💈 🛈 14:42			
Ecotrons DroidCAL				
Selected	All			
Tps	Tps			
UbAdc	uLsb			
IgaOut	Current_Timer			
Ν	Err_CrankSensin			
Мар	g_Flag			
Та	fLc			
Tm	Last_Falling_Edge _Timer			
uLsb				
tInj0	Last_Rising_Edge			
tInj1	_Timer			
,	Last_Rising_Edge			
Search:	Next			
Load from file	ОК			

## 2.10 Exit DroidCAL

If you want to exit the DroidCAL, click Menu $\rightarrow$ Exit.

🥖 🖞 🛎		ull	0 10:57
Ecotrons Dro	idCAL		
Acceleratio	on		
TPS	0.0	.0	100.0
NB O2	0.0	.0	1.0
RPM	0.0	.0	8000.
SPARK	-50.0	.0	50.0
MAP	0.0	.0	1000.0
FUEL1	0.0	.0	10.0
	0.0	.0	10.
Load A2L file	Diagnosis		Settings
Hide buttons	Help		Exit

### Chapter 3 Uninstall DroidCAL

If you want to uninstall DroidCAL. First exit DroidCAL, and then click on the phone Settings  $\rightarrow$  Applications  $\rightarrow$  Manage applications  $\rightarrow$  DroidCAL. Click the Uninstall button to uninstall the software.

<b>₽</b> ∰	* 📶 💈 🛈 14:57
ECOTRONS ECOTRONS I	DroidCAL
Force stop	Uninstall
Storage	
Total	628KB
Application	208KB
Data	420KB
Clear data	Move to SD card
Cache	
Cache	0.00B
	Clear cache
Launch by default	
No defaults set.	

#### Chapter 4 Frequently Asked Questions

#### 4.1 Add variables to be recorded

You may need to modify the variables to be recorded, click Menu $\rightarrow$ Settings $\rightarrow$  Select recorded variables.



The variables have been selected on the left; the right is the optional variables. Click the list on the left to remove variable, Click the list on the right to add variables.

First select the variable to add to 20ms, 100ms or Syn, and then click the right of the list to add variables. Can select the variable to add to the three rate of 20ms, 100ms, Syn. Click the OK button after selected.

🥖 🖞 🖷	* 📶 💈 🛈 14:41			
Ecotrons DroidCAL				
Selected	All			
Tps	RAM_SelfLearnHi			
uLsb	story			
Current_Timer	SLM_StableCondi			
Err_CrankSensin	tion			
g_Flag	SLM_Tps_StableR			
fLc	ef			
Last_Falling_Edg	SLM_N_StableRef			
e_Timer	SLM_StableCoun			
Last_Rising_Edge	ter			
Timer	SLM_fLamAdIn_S			
Search:	Next			
20ms 100ms syn				
Load from file	ОК			

For example, add StepPos and LamWO2 to the 20ms list.

1. Select option 20ms, click the StepPos and LamWO2 in the "ALL" list.

🥖 🖞 🗂	* 📶 💈 🛈 15:03				
Ecotrons DroidCAL					
Selected	All				
Tps	ULSD				
uLsb	uPot				
Current_Timer	tEngOff				
Err CrankSensin	StepPos				
g_Flag	B_Pwf				
fLc	Current_Timer				
Last_Falling_Edg e_Timer	Last_Falling_Edge _Timer				
Last_Rising_Edge	Last_Rising_Edge _Timer				
Search:	Next				
💿 20ms 💿 100ms 💿 syn					
Load from file	ОК				

2. StepPos and LamWO2 will be added to the 20ms list. Click "OK" button, finished adding variables.

🥖 🖞 🌐	* 📶 💈 🛈 15:04			
Ecotrons DroidCAL				
Selected	All			
_Timer_Bak	nInj			
Nraw	N			
uMap	RPM			
uPot	LamDsr			
uTa	LamWO2			
uTm	fAst			
uTps	fAstWmp			
StepPos	fLcAd			
LamWO2	fLamAdIn			
Search:	Next			
📀 20ms 💽 100ms 💽 syn				
Load from fi	le OK			

3. Return to the main window, you can see the selection of variables have been added to the list.

🥖 🖞 🍈		*	ul	۶	$\odot$	15:05
Ecotrons Dro	idCAL					
Acceleratio	on					
uTm	0.0		.0			5.0
uTps	0.0		.0			5.0
StepPo	0.0		.0			640.0
S						
Lamba	0.7		.0			1.3
RPM	0.0		.0			8000.0
FI	0.0		.0			3072.0
$\bigcirc$		E	)	Ι	M	enu
A2L file Load completed, press Play button to start measuring data.						

4. If you can't fond StepPos or LamWO2, click Menu→Settings→Show all recorded variables.

Ecotrons DroidCAL
Show all recorded variables
Display value instead of bar
Measure acceleration by phone
Keep the screen on
🗹 Auto hide buttons
Change variables text size
Select recorded variables
Select displayed variables