MDAS-3 Guidebook (PC Calibration & Installation)

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### 1.1 Introduction

Movon Advanced Driver Assistance System (MDAS) helps to drive safely by using a computer image recognition technology to prevent unintended lane departure. The LDWS alert occurs when the driver unintentionally departures the lane without turning signal operation while driving at 60kmh (37 mph) or over.

### 1.2 Notice

MDAS-3 is a driving assistant product with lane departure warning application.

MOVON doesn't cover the defects and damages caused by careless drivers, traffic violations, illegal activities, misuses and abnormal uses. MDAS-3 gives the warning as beep sounds when the vehicle changes the lane without proper signaling. The final operation and judgment will be made at the discretion of the driver.

### **1.3 Products**



### 2.1 The position of MDAS-3's camera unit

The camera unit has to be placed in the middle of windshield behind the rear-view mirror.



### 2.2 The installation process





### 2.3 MDAS-3's Connection Map



# Intro 3. Cables / Harness

#### 3.1 MDAS-3's Main cable









# 3.2 6 pin cable (connection to both Power and CAN-BUS signals)









3.4 OBD-II Adapter (connection to both Power and CAN-BUS signal via Vehicle's OBD-II)





# Chapter 1. PC Calibration (For Initial Settings / For User)

This chapter describes the procedure for initial calibration settings. Please read this guide carefully and follow the below steps.

#### 1<sup>st</sup> STEP: PC Connection

Connect the product to the PC by using the Micro USB cable with 5 pins and start the engine. And, access to the <u>http://10.0.0.1/</u> in the internet.





[5 Pin Micro USB Cable]

1. Select the language and click the "LOGIN" button. (ID: admin / PW:1234)

		N
	admin	188
l	English T LOGIN	

\* NOTE

• When connect the product to the PC, the driver installation is required. For this, please download the RNIDS driver from <u>www.mdas.co.kr/eng/</u> and install it in the PC. Before installation driver, please read the guide manual for RNDIS driver carefully.

• This webpage (<u>http://10.0.01</u>) is accessible without the internet network.

### 2<sup>nd</sup> STEP: Vehicle Data File

Select the calibration type. In case the calibration is processed by using CAN, select the "Vehicle data file (mdasinfo.dat)". In case the calibration is processed by analog cable, select the "Analog (GPIO)".

MDAS-3 C	alibration
pload vehicle data file	
Vehicle data file (mdasinfo.dat)	Analog (GPIO)
파일 선택 mdasinfo.d	at
Please click the right arrow but	ton to proceed to next step

- 1. Select the "Vehicle data file (mdasinfo.dat)" button.
- 2. Upload the saved CAN file in the "**Browse**" button and click the right arrow button ( ) to move to the next page.

#### \* NOTE

• In case the calibration through the analog cable is processed, please see the "Analog (GPIO)" chapter.

This step is to make sure the CAN communication between the CAN file and the vehicle.

- 1. Start the engine and drive slowly.
- 2. Check the speed indicated in PC calibration mode and the cluster of vehicle. If the speed difference occurs more than 5km/h, it can be modified through the speed correction button.



3. Check the turn signal indicated in PC calibration mode and the cluster of the vehicle. If the arrow icon is ON when the vehicle's turn signal is OFF, click the "Left turn signal correction" or "Right turn signal correction" button.

For example, if the right arrow icon ( ) is OFF when the vehicle's turn signal is ON, click the "**Right turn** signal correction" button.

MDAS-3 C	alibration
• • • • • •	• • • • • •
Vehicle information file che	ock
Speed	0
Turn signal 🛛 🚽	
* Speed co For accurate speed measurement, p button while driving	prrection: lease press the "Speed Correction" at 40km/h (25mi/h)
Speed co	prrection
* Turn signal If the arrow icon is on when the v versa, please press the but	correction: ehicle's turn signal is off and vice ton below for each signal.
Left turn signal correction	Right turn signal correction

# 4th STEP: Camera Angle Setup I

This step is to setup the camera angle view. Adjust the camera angle to locate the horizon between the red guide lines.





# 5th STEP: Camera Angle Setup II

For better accuracy of LDW, locate the yellow dotted line in the horizon.



## 6th STEP: Hood Line Setup

Locate the red line on the hood line of vehicle to remove the useless area under the hood line.



# 7th STEP: Camera Location Setup

Measure the required length and enter the measured value. (Unit: cm)

- 1. Camera Height Length from the road to the camera lens.
- 2. Camera Center Length from the center of the windshield to camera lens ("-": Left Side, "+": Right Side)
- 3. Camera to Wheel Length from the camera to the center of the wheel
- 4. Vehicle Width Length from the left wheel to the right wheel

	MDAS-3 Calibration
Came	ra Location Setup
	Camera to wheel Camera height Vehicle width
	Camera Height 130
	Camera Center 0
	Camera to Wheel 100
	Vehicle Width 180

Setup the sensitivity of LDW warning. The distance from the wheel to lane markings is moved every 20cm by each level. The more the distance between the vehicle and the wheel, the more the LDW sensitivity is insensitive.



### 9th STEP: MDAS Setup Complete

Finally, all previous steps are completed.



# Chapter 2. PC Calibration (For Setting Modification / For User)

This chapter describes the procedure for modification settings. Please read the guide carefully and follow the steps.



- 1. Menu Description
  - 1) Update Firmware: Update the firmware with the latest version downloaded from <u>www.madas.co.kr</u>.
  - 2) Default System: Delete the previous settings.
  - 3) Change the Current Settings: Modify the previous configured value.
- 2. How to Update the Firmware
  - 1) Access to the <u>www.mdas.co.kr/eng/</u> and download the latest firmware for MDAS-3 from the notice.

		Notice		LANGUAGE :::: Select :::: V LOG	IN JOIN	N
PRODUCT					To	otal 8
TECHNOLOGY		Number	Subject	Writer	Date Vie	ews
		8 OBDII Location of	Honda Accord 2013 🖺	관리자	06-20 1	18
COMPANY		7 Firmware Update I	Manual for MDAS-10 🖺	관리자	02-18 5	55
		6 MDAS viewer inst	allation guide 🖺	관리자	01-03 6	60
NOTICE >	News	5 MDAS Viewer inst	tallation file -64bit 🖺	관리자	01-03 6	62
MY ACCOUNT	Notico	4 MDAS Viewer inst	tallation file -32bit 🖺	관리자	01-03 5	56
	Notice	3 MDAS-10 Installat	ion Guide Book. 🖺	관리자	12-23 9	92
		2 MDAS-10 User M	anual. 🖺	관리자	12-23 6	66
		1 MDAS-10 English	Version Brochure (1) 🖺 🔟	관리자	08-22 1	100

- 2) Connect the product to the PC by using the Micro USB cable.
- 3) In the internet, access to the <u>http://10.0.0.1</u>.
- 4) Click the "Update Firmware" menu.

	MDAS-3 Calibration
	Update Firmware
	Default the System
	Change the Current Settings
_	

5) Upload the downloaded firmware file through the "**Browse**" button.

	MDAS-3 Calibration
Uploa	d Firmware File
	Browse
	Update Firmware

6) Click the "Update Firmware" menu.

Upload Firmware File
C:₩Users₩손상균₩Des Browse
Update Firmware

7) If the firmware update is successfully completed, click the "**OK**" button.

load Firn	nware File
Message f	rom webpage
	Firmware Update Success, Restart System Now

- 8) The product will be automatically restarted again.
- 3. How to Default System
  - 1) Click the "Default System" menu.

Update Firmware Default the System Change the Current Settings	
Update Firmware Default the System Change the Current Settings	
Default the System Change the Current Settings	[
Change the Current Settings	
	[

2) The system initialization is completed, click the "OK" button

	MDAS-3 Calibration
Message f	Update Firmware
<u> </u>	System Initialzation Success, Restart System Now
	ОК

- 4. How to Change Current Settings
  - 1) Click the "Change the Current Settings" menu.

MDAS-3 Calibration	
Update Firmware	
Default the System	
Change the Current Settings	

2) Modify the condition for the speed and turn signal. For details, see the 3<sup>rd</sup> STEP.

# Chapter 3. How to Join Membership

This chapter describes the "How to Join Membership". To download the CAN file from the website, the membership registration is required. Please follow the below steps.

1. Access to the <u>www.mdas.co.kr/eng/</u>.



2. Click the "MY ACCOUNT" menu in the menu of the webpage.



3. Click the "Signup" menu to register the new membership.

MOVON - MDAS - Chrome		_ <b>_ X</b>
) www.mdas.co.kr/account.php		
	1	
	M VON	
	MOVON CORPORATION	
	Password	
	Remember	
	English Login	
	Singup Forget Password	
		+

4. Choose the appropriate user type between "**Personal**" and "Partner". For the successful membership application, the following information (Email Address, Password, User Name, Telephone No.) is required.

м	OVON CORPORATION
Personal	Partner
🖸 Email	
A Password	
A Password Confi	rm
🏜 Name	
📞 Phone	
💷 United States	

5. If the membership is successfully finished, the "Membership Completed" pop up message appears.

#### \*NOTE

- "Personal": Personal Customer / "Partner": Local Agent
- In case of "Partner", the separate approval is required from Movon Corporation.
- In case of the personal customer, the CAN file is downloaded up to 3 times.
- In phone filed, please enter the digit only (Including the country code).

This chapter describes the "How to Download the CAN file". Please read the guide carefully and follow the below steps.

1. Access to the <u>www.mdas.co.kr/eng/</u>.



2. Click the "MY ACCOUNT" menu in the menu of the webpage.



3. Enter the "Email" and "Password" that have been registered in membership application. And, click the "Login" button.

MOVON - MDAS - Chrome		
🖞 www.mdas.co.kr/account.php		
	Login Password	
	Remember English Login Singup Forget Password	
		,

4. In this webpage, select the vehicle to be installed the product.

www.mdas.co.kr/account.php				
		Language: E	nglish 🔻 🗙 Mypage	😃 Logout
▼ Search	▶ Search Result			
Manufacturer	(Total: 0 Cars)			
Model	No Manufacturer Mo	del Year Engine	e Type 🛛 Date	Details
Year 🗸	No Results, Please	e Searching for a vehicle	e using Left Filter	
차량 정보 입력				
	서울특별시 강남구 선릉로94길 7, 현죽빌딩 5층	모본 주식회사	회사홈페이지	제품홈페이지

For example, if the CAN file for 2014 Prius Toyota is needed, the file will be appeared as below image. And click the document icon (

🗎 www.mdas.co.kr/account.php					
			Language: [	English 🔹 🗙 Mypage	🖒 Logout
▼ Search Toyota × ▼ Prius × ▼ 2014 × ▼ 차양 정보 입력	Search Result (Total: 1 Cars) No Manufacturer 1 Toyota	Model Year Prius 2014	Engine Type Gasoline	Date 2014-07-23 09:46:14	Details
	서울특별시 강남구 선릉로94길 7	, 현죽빌딩 5층 모본	주식회사	회사홈페이지	제품홈페이지

5. Click the "CAN File Download" button. Before download, the CAN file is saved in the designated directory.

Prius (Toyota)				
Year : 2010 2011 2012 2	013 2014			
Speed	Direction Light	RPM	Break	HighBeam
CAN	Analog	Analog	CAN	Analog
CAN: Driver Seat	OBD2 Connector I (Line Color : 0) IN (Line Color : 0)			
			CA File Download	PDF Download Close

\*NOTE

• The general members can download the CAN files up to 3 times.

• The business partnership can download the CAN files without limit. To register the business partner, the separate approval is required by Movon.

This chapter describes the procedure for the analog connection. Please read the guide carefully and follow the below steps.

1. Select the "Analog (GPIO).



- 2. Start the engine and drive slowly.
- 3. Skip this step and move to the next page.
- 4. Check the speed indicated in PC calibration mode and the cluster of vehicle. If the speed difference occurs more than 5km/h, it can be modified through the speed correction button.



5. Check the turn signal indicated in PC calibration mode and the cluster of the vehicle. If the arrow icon is ON when the vehicle's turn signal is OFF, click the "Left turn signal correction" or "Right turn signal correction" button.

For example, if the right arrow icon is OFF when the vehicle's turn signal is ON, click the "**Right turn signal** correction" button.



6. The correction for the speed and turn signal is completed, go to the next step.

7. Adjust the camera angle to locate the horizon  ${\boldsymbol k}$ 





8. For better accuracy of LDW, locate the yellow dotted line in the horizon.



9. Locate the red line on the hood line of vehicle to remove the useless area under the hood line.



- 10. Enter the measured value by using the tapeline.
  - 1) Camera Height Distance from the road to the camera lens.
  - 2) Camera Center Distance from the center of the windshield to camera lens ("-": Left Side)
  - 3) Camera to Wheel Distance from the camera to the center of the wheel

4) Vehicle Width – Distance from the left wheel to the right wheel

MDAS-3 Calibration			
Camera Location Setup			
Camera to wheel Camera height Vehicle width			
Camera Height 130			
Camera Center 0			
Camera to Wheel 100			
Vehicle Width 180			

11. Setup the sensitivity of LDW warning. The distance from the wheel to lane markings is moved every 20cm by each level.



12. All previous steps are successfully completed.

# Chapter 6. RNDIS Driver Setup

This chapter describes the "How to Setup the RNDIS Driver". To access to the <u>http://10.0.0.1</u> to download the CAN file, the "RNDIS Driver Setup" in user's PC is required. Please read the guide carefully and follow the below steps.

- 1. Connect the product to the PC with Micro USB cable.
- 2. Select the "**Computer**" of the "**Start**" and click one time with the right mouse button.



3. Select the "Properties" and click one time with the left mouse button.



4. Click the "Device Manager" menu of "System" one time with the left mouse button.

Control Panel + !	System and Security   System		Search Control Panel
Control Panel Home Device Manager Remote settings System protection Advanced system settings	View basic information Windows edition Windows 7 Enterprise Copyright © 2009 Microso Service Pack 1	about your computer ft Corporation. All rights reserved.	•
	System		
	Rating:	5.1 Windows Experience Index	
	Processor:	Intel(R) Core(TM) i7-4702MQ CPU @ 2.20GHz 2.20 GHz	
	Installed memory (RAM):	4.00 GB (2.44 GB usable)	
	System type:	32-bit Operating System	
	Pen and Touch:	No Pen or Touch Input is available for this Display	
	Computer name, domain, and	workgroup settings	
	Computer name:	skson	Schange settings
	Full computer name:	skson	
	Computer description:		
	Workgroup:	WORKGROUP	
See also	Windows activation		
Action Center	Windows is activated		genuine
Windows Update	Product ID: 55041-008-133	36886-86299 Change product key	Microsoft
Performance Information and Tools			Learn more online

5. Click the "RNDIS/Ethernet Gadget" of "Other device".



6. Click the "Update Driver" button.

F	NDIS/Ethe	ernet Gadget Prop	perties X		
	General	Driver Details			
	1	RNDIS/Ethemet (	Gadget		
		Device type:	Other devices		
		Manufacturer:	Unknown		
		Location:	Port_#0001.Hub_#0008		
	Device status The drivers for this device are not installed. (Code 28) To find a driver for this device, click Update Driver.				
1			~		
			Update Driver		
			OK Cancel		

7. Click the "Brows my computer for driver software" menu.

	BE THE MARKENING PROPERTY OF	X
0	Update Driver Software - RNDIS/Ethernet Gadget	
	How do you want to search for driver software?	
	Search automatically for updated driver software Windows will search your computer and the Internet for the latest driver software for your device, unless you've disabled this feature in your device installation settings.	1
	Browse my computer for driver software Locate and install driver software manually.	
		Cancel
Sele	ct the "Network adapters" menu and click the "Next" button.	
	R To And Starting Property .	×
$\bigcirc$	Update Driver Software - RNDIS/Ethernet Gadget	
	Select your device's type from the list below.	
	Common hardware types:	
	🖉 Mice and other pointing devices	*
	Microsoft Common Controller For Windows Class	

Update Driver Software - RNDIS/Ethernet Gadget	
Select your device's type from the list below.	
Common hardware types:	
Mice and other pointing devices	*
🕼 Microsoft Common Controller For Windows Class	
Mobile devices	
Jan Modems	
Nonitors	
Multifunction adapters	
The Multi-port serial adapters	=
💽 Network adapters	
network Client	
Network Protocol	
Retwork Service	
Non-Plug and Play Drivers	<b>.</b>
	Next Cancel

9. Select the "Microsoft Corporation" in Manufacturer and select the "Remote NDIS Compatible Device". And, Click the "Next" button.

<b>()</b>	Update Driver Software - RNDIS/Ethernet Gadget
Se	Iect Network Adapter Click the Network Adapter that matches your hardware, then click OK. If you have an installation disk for this feature, click Have Disk.
	Ianufacturer       Network Adapter:         Iarvell       Remote NDIS based Internet Sharing Device         Iicrosoft       Remote NDIS Compatible Device         Internet Inc       Have Disk         This driver is digitally signed.       Have Disk         Tell me why driver signing is important
	Next Cancel
10. The " <b>Upc</b>	late Driver Warning" pop up message appears. And, click the "Yes" button.
	Update Driver Warning
	Installing this device driver is not recommended because Windows cannot verify that it is compatible with your hardware. If the driver is not compatible, your hardware will not work correctly and your

- cannot verify that it is compatible with your hardware. If the driver is not compatible, your hardware will not work correctly and your computer might become unstable or stop working completely. Do you want to continue installing this driver?
- 11. The "Installing driver software" message appears.



This chapter describes the installation procedure with using OBDII adaptor. Please read the guide carefully and follow the below steps.

- 1. Installation
  - 1) Make sure of the standard components.



[Video In-Out Cable] [Cable Clips & Tie] 2) Remove the double-sided tape off the product.



3) Attach the product to the windshield glass with the camera lens located in the middle of the vehicle using the double-sided tape. After installing the product, remove the lens cap. To enhance the performance of the product, it is recommended to install the product between left 5cm and right 5cm in the center.



- \* NOTE
- Clean any foreign matter and moisture from the where the product will be installed.

4) Adjust aligns the horizontality with using the adjustment knob of the product.



5) Connect the OBDII adaptor with the 6 pin cord to the 6 pin power cable provided in the package.





- [6 Pin Cord of Main Cable]
- 6) Connect the OBDII adaptor to the OBD (On board Diagnostics System) port of the vehicle.



- \* NOTE
- Normally, OBDII port is located underneath the driver's side of the dash or near the gear stick.
- Please connect the plug into the port appropriately. If the device is connected inappropriately, it could cause damage or malfunction to the product.
- To find the OBDII port position by vehicle model, please visit our web site (<u>www.mdas.co.kr/eng/</u>) after login. For membership registration in the website, please see the "**How to Join Membership**" chapter.

This chapter describes the installation procedure with using analog cable. Please read the guide carefully and follow the below steps.

1. Remove the double-sided tape off the product.



2. Attach the product to the windshield glass with the camera lens located in the middle of the vehicle using the double-sided tape. After installing the product, remove the lens cap. To enhance the performance of the product, it is recommended to install the product between left 5cm and right 5cm in the center.



3. Adjust aligns the horizontality with using the adjustment knob of the product.





4. Connect the 4 pin analog cable to the 4 pin cord of the main cable.



[4 Pin Cord of Main Cable]



[4 Pin Analog Cable]

- 5. Connect the Right & Left turn signal of 4 pin analog cable to the analog turn indicator of the vehicle.
- 6. Connect the speed signal of 4 pin analog cable to the analog turn signal indicator of the vehicle.
- 7. Connect the power cable to the 6 pin main cable.
- 8. Connect the ACC, VCC and GND in the power cable to the related fuse pin of the vehicle.

#### \* NOTE

• Line Colors & Cable Labels

Cable Type	Power Cable (6 Pins)	Analog Cable (4 Pins)
Line Colors & Labels	· White Line: CAN H	· Red Line: SIG R
	· Yellow Line: CAN L	· White Line: SIG L
	· Blue Line: ACC	· Green Line: Speed
	· Red Line: ACC	· Black Line: RSV
	· Black Line: GND	

• The analog turn and speed signal indicator's position may vary according to vehicle models.

This chapter describes the product operation with using OBDII adaptor. Please read the guide carefully and follow the below steps.

- 1. Install the product in the vehicle and start the engine.
- 2. 3 LED lights will blink simultaneously and a beeping sound will occur every 2 seconds. (Checking if the vehicle supports CAN: Controller Area Network)
- 3. 10 seconds later, press the "LDW" button (Middle Button), 3 LED lights will blink and beeping sound will occur for 1 minute. (Setup the hood line.)
- 4. Beeping sound will occur for 3 minutes and 3 LED lights will blink alternately. (Setup the optical horizon of the camera.)
- 5. Finally, after all previous steps are completed, only the middle LED light should blink with a beeping sound.

\* NOTE

- To complete properly the final setup, the speed should be maintained at more than 30km/h.
- To complete calibration in a short time, it is recommended to drive the vehicle in suburban and residential areas. The time to calibrate the device is different according to the traffic circumstances.
- The right & Left LED light of the product is operated according to the turn signals.

• In the case these is a failure in the setup process, the left and right lights will blink. In this case, follow the "**PC Calibration**" and "**Installation with Using Analog Cable**" given in this guide or visit the nearest designated automotive repair retailer.