

User Manual



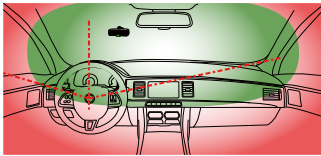
driving more safe

Drivermate Pro
(Fatigue, Distraction Detection)

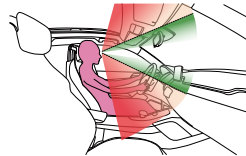
March 2020, v3.10
www.daream.com

Key Features

- 1. Fatigue, yawn, calling, smoking**
The eyelid closure, the mouth opening, finger, smart phone and cigarette are detected during driving and the alert is made in at the so called safe zone.
- 2. Distraction(e.g.: turning head left/right or up/down off the road, texting, eating/drining)**
The alarm will be made when the gaze is beyond the safe zone shown in the following figures.



Front View (gaze zone)



Side View (gaze zone)

1. Gaze zone: Green - Safe, Red - Unsafe.
2. If the gaze is at relatively stable off the green zone(e.g. reading smart phone when over 2s), the device will alert.

Spec & Standards

Device name	Drivermate Pro	
Model No.	DM-P1, DM-R1	
Face type	All, +Glasses	
Detection Scope	Face, Eye, Mouth, Head-pose, Phone & Cigarette	
Working Condition	Day and Night	
Working Distance	EFL 6mm lens	50~85cm (20~33 in), for car
	EFL 8mm lens	70~105cm (28~41 in), for truck & bus
	Fatigue	99.2% @ naked eyes / 97.4% @ glasses
	Distraction	98.2% @ all
	Calling (*)	93.3% @ all
	Yawn (*)	97.5% @ all
Recognition Rate	Smoking (*2)	91.2% @ all
Alarm Type	Speak voice, Buzz	
Input Power	DC 8~24V, 1A	
Status Output Interface	UART(RS232 and TTL), GPIO(S0, S1), and flying cable	
Working Temperature	-20°C ~ + 70°C	
Dimension & Weight	82 x 44 x 29 cm & 121g	

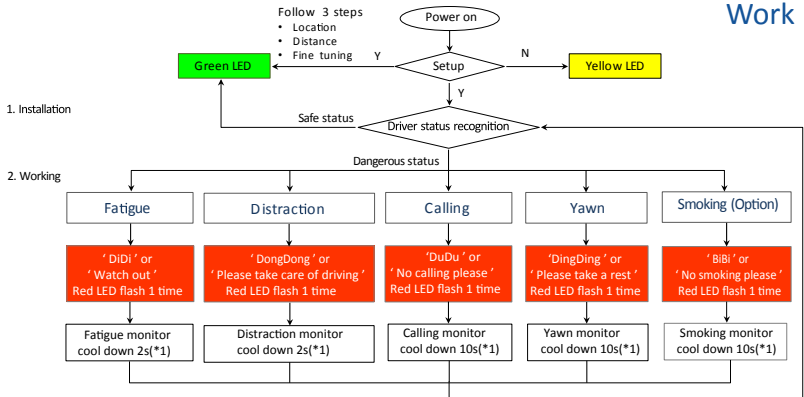
- Notes:**
1. (*) This is the optional, based on customer requirements.
2. The device is in compliance with RoHS, CE, FCC certificates, FCC ID: 2AJ86-DTDM16S1.
3. The device is designed by Daream Innovation Tech., made in China.



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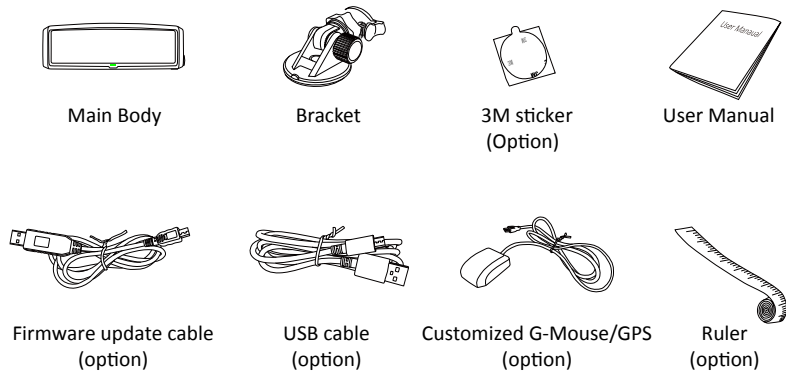
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Work Flow



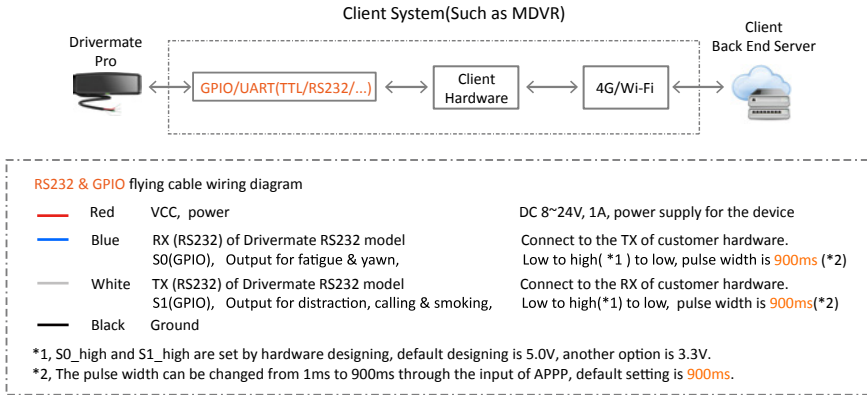
1. (1) Cool down means that the device doesn't alert about the same dangerous status. Cool down time & alert time is impacted by sensitivity, which have 3 levels(Low, Med, High) and can be selected by phone Apps. For distraction and fatigue status, the 3 levels(Low, Med, High) are 2s,4s and 10s. For other status, the 3 levels are 10s,30s and 60s.
2. RS232 or GPIO trigger signal output (not shown) is always with alerting.
3. Alert output has 3 Apps options: all way On, all way Off (no matter the speed) or ONLY high speed On(>30Km/h is the default setting). This function of Only high speed on requires device to connect a extra GPS receiver, otherwise the device status LED stay green and no alert because device judges the speed is 0Km/h. Only GPIO model support to connect a extra G-mouse, RS232 model can't support it.

Comp & Basics



Work with Your System

It is just a step away for the connection, and the following diagram shows the generic flowchart on the standard version of Drivermate Pro model (GPIO/UART).



Warning

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the device.

Note:
This device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, which can be determined by turning the device off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the device and receiver.
- Connect the device into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To maintain compliance with FCC's RF Exposure guidelines, This device should be installed and operated with minimum distance between 20cm the radiator your body: Use only the supplied antenna.

UART(RS232) Protocol

Daream Drivermate supports more than 2 UART(RS232) protocols: compatible with T/ISATL12—2017 (Chinese short name is “苏标”) and Daream private protocol to send up to 8-bit frames (characters), baud rate is 115200, has 1 stop bit and no parity.

Byte No.	Length	Content	Description
0~1	2	Packet header	Fixed data (0x55 0xAA)
2	1	Data type	Alert data (0x01)
3	1	Status number	0x01 (Indicates the packet contains only 1 driving status)
4	1	Status	Safe (0x00), Idle (0xFF), Fatigue (0x01), Distraction (0x02), Calling (0x03), Head turn left (0x04), Head turn right (0x05), Absence (0x06), Smoking (0x07), Yawning (0x08) (*Remark)
5	1	Reserved bit	Output 0x00 if there is no meaning
6~7	2	CRC	The checksum of the first 6 bytes, from the low bit to the high bit

For example: Daream Drivermate output packet: 0x55 0xAA 0x01 0x01 0x01 0x00 0x02 0x01, which means that device detects the driver's status is fatigue.

***Remark:** The default version firmware released from Aug. 2019 includes 4 kinds of driving status as: "Normal(0x00)", "Fatigue(0x01)", "Distraction(0x02)" & "Calling(0x03)".

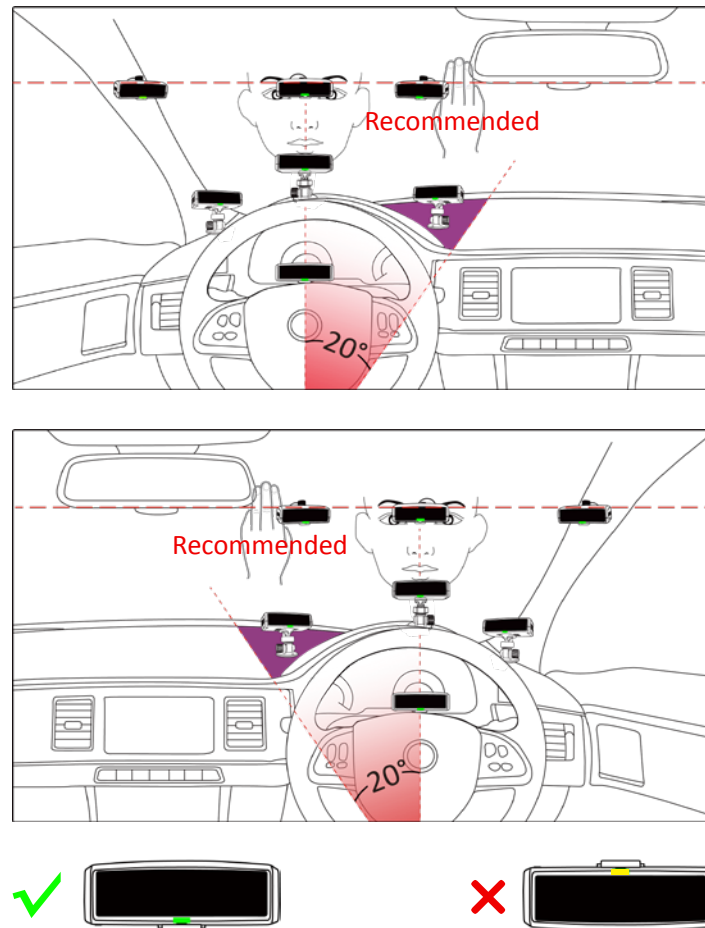
FAQ

- Q1: What is the major function of Drivermate?**
A: Drivermate is a device to detect the driving behaviour simultaneously and alarming if the driver is in distraction, fatigue, calling, yawn, or smoking state, to prevent car accident and save driver's life.
- Q2: How does Drivermate work?**
A: Drivermate can capture the eyelid closure for the fatigue, the head pose (up/down, left/right off the road) for the distraction, mouth open for the yawn, phone for the calling, cigarette for the smoking, make the alarm to the driver for the prevention of driving accident.
- Q3: Is it easy to install?**
A: Yes, just a 3 steps: 1). Stick to the recommended or proper installation location (see User Manual for detailed location), 2). Turn on the power, 3). Make your face straight to the device for setup, and the green light displays, then here you go!
- Q4: Is it easy to use?**
A: Yes, just power on and setup, then all go!
- Q5: Can Drivermate work at night?**
A: Yes, it works round-the-clock environment, including at extreme sunlight or darkest outside.
- Q6: Can it work under eye glasses or sunglasses?**
A: Yes, our world-class algorithm embedded can work well under most kinds of glasses. But for some very thick lens and special coating lens, such as infrared blocking lens, it may affect the detection rate.
- Q7: Can it be connected with other devices?**
A: Yes, our product support the GPIO/UART (RS232) interface and provide SDK/API solutions. While for small business unit (SME), we recommend the standalone model (Bluetooth) to connect with the phone/smart bands through the Apps (iOS, Android) management.
- Q8: Does it fit for various vehicles?**
A: Yes, the device can support both left and right handed wheels, and small cars or big vehicles.
- Q9: Is it annoying?**
A: Up to your control system. Drivermate APP provides the function on the "Alarm On/Off" settings, which is easy to manage.
- Q10: Is there any privacy issue for the Drivermate use?**
A: No, Drivermate is NOT a CCTV system, footage is NEVER saved in during the driving.

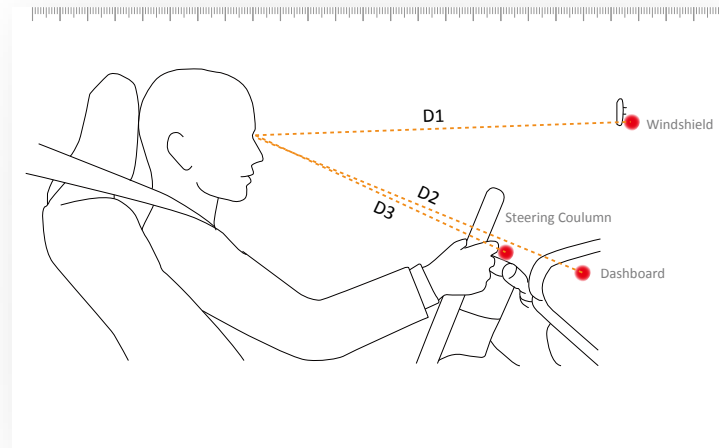
Notice: The image shown here is indicative only. If there is inconsistency between the image and the actual product, the actual product shall govern.

Easy Installation

Step 1: Selecting the Location



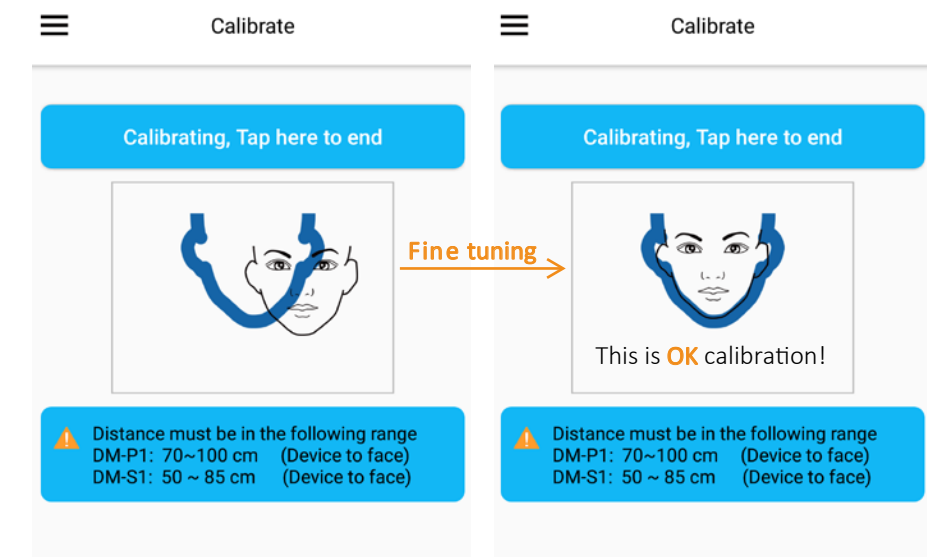
Step 2: Defining the Distance



1. The distance between eye and device (D1, D2, D3) **MUST be within range as the below:**
 - EFL 8mm lens: 70~105cm, 90cm is recommended, (for truck & bus)
 - EFL 6mm lens: 50~85cm, 70cm is recommended, (for car)
2. Mount the device in the range @ your favorite installation spot.
(Windshield is recommended, device has the highest performance when be installed at windshield).

* Calibration with APP

Step 3: Fine Tuning



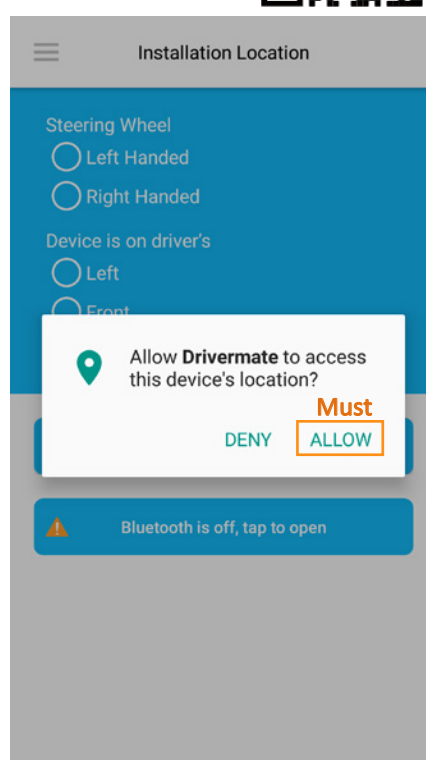
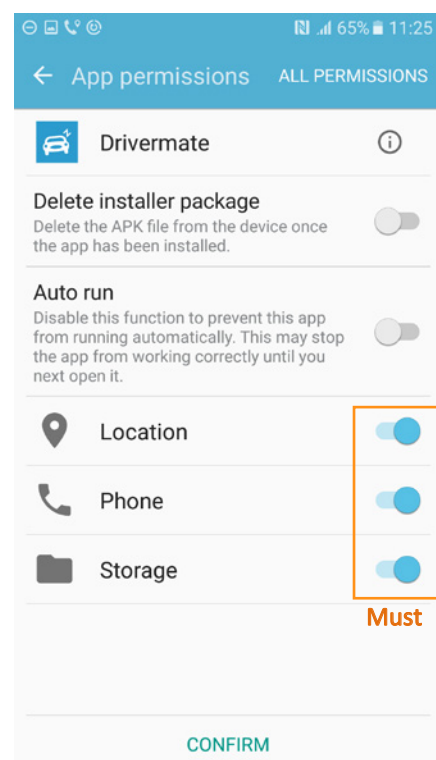
*Working with the phone (Apps), doing the following steps:

1. Fix the bracket with corrective installation distance.
2. Tap the begin button, a black face outline is displayer if your face is in the view filed of the lens.
3. Rotate slightly the device (far/close, up/down, left/right) till the face outline is overlapping with the blue line.
4. Tap the top button to end the calibration.
5. Screw tight the device, and the calibration is done.

Note: Suggest to check the calibrating by APP after doing step-5.

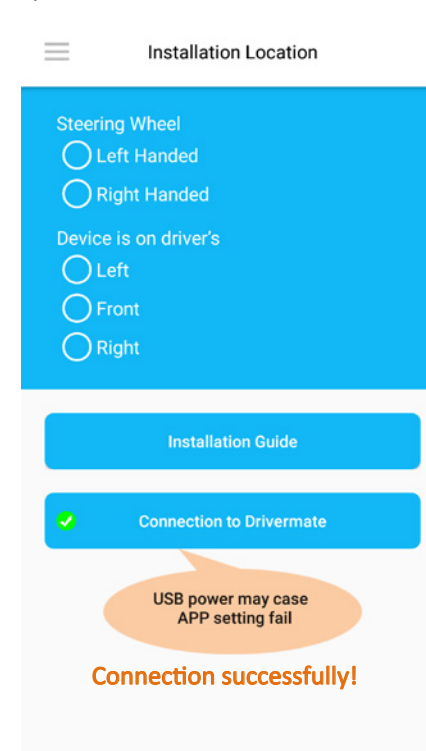
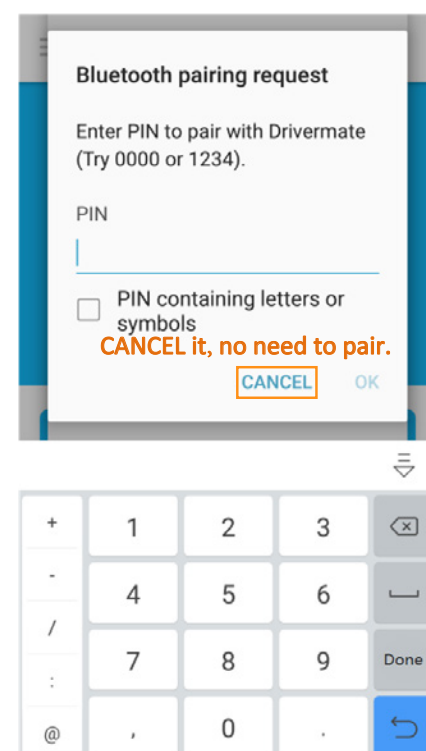
APP Installation

- 1, Search 'Driversmate', NOT 'Drivermate', in Apple store or Google Play.
Or scan the QR code for downloading the Android APP.
- 2, Install Driversmate,
all the permissions are necessary.



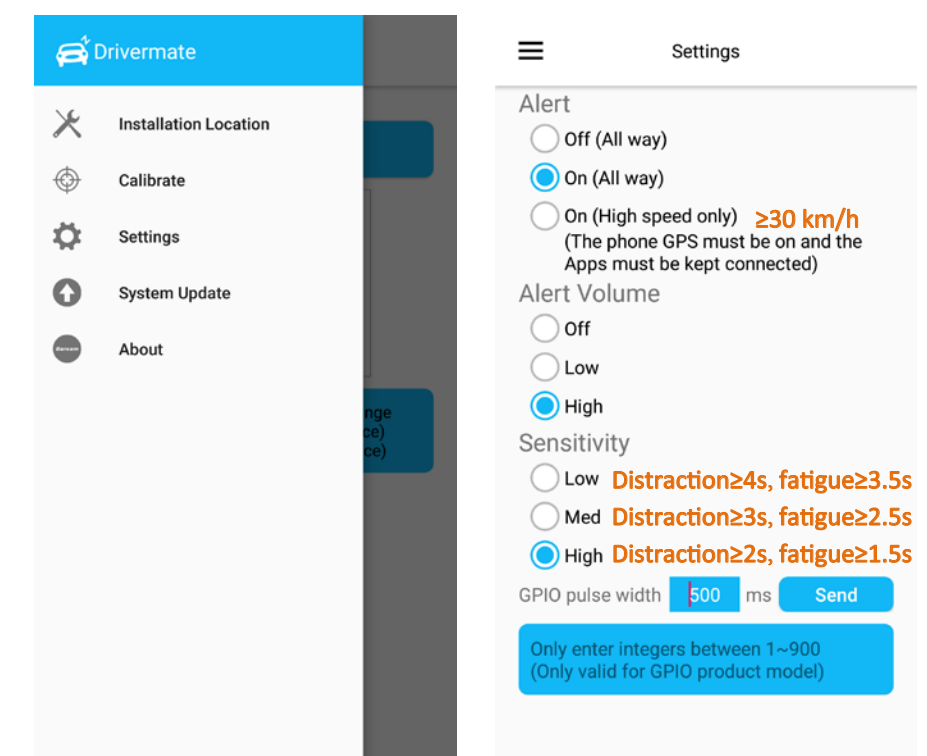
APP Connection

APP automatically connects devices by recognizing Bluetooth name without entering PIN to pair. If Bluetooth name was changed, the APP connection failed, please try to restore the Bluetooth name to factory setting by pressing and holding the device backside button for 1 second.
The device can't be connected by 2 phones at the same time.



APP Menu & Settings

For the Alert option 'On (High speed only)', if it was selected but without the APP connection, the setting won't active unless a external G-mouse was connect to Drivermate, and the G-mouse UART baud rate must be 115200.



Note: The APP screen shots are from android version 2.2.5, and may be different with the latest APP version.