SMARTWITNESS

DDC-200

Driver Distraction Camera

User Guide v1.0

smartwitness.com

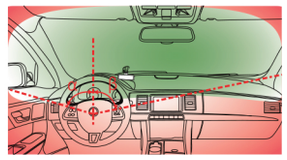
Key Features

1. Fatigue (e.g.: drowsiness, micro-sleep, or yawning)

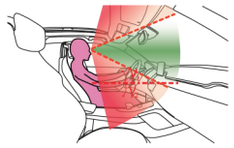
The eyelid closure is detected during the driving and the alarming is made even though the gaze is at the so called safe zone – a zone with gaze on the road.

2. Distraction (e.g.: texting, phone calling, or eating/drinking)

The alarm will be made when the gaze is beyond the safe zone shown in the following figures.



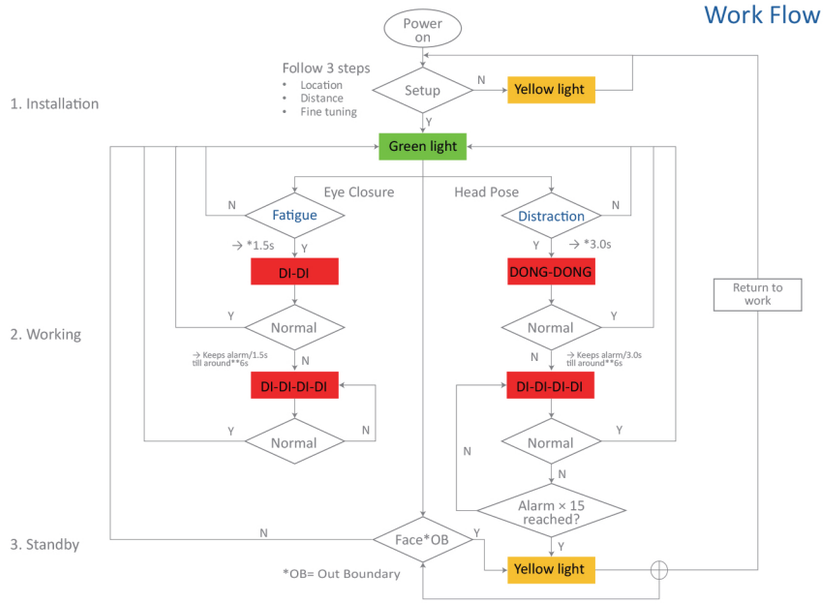
Front View (gaze zone)



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 cell phone when over 3s), the device will alarm as DI-DI with consideration under the Fatigue function.

Work Flow



1). Red Light (not shown) is always with Alarming (buzz).

2). * Sensitivity with 3 levels (Low, Normal, High) can be selected by the phone App.

3). ** The blind driving distance@6s will be 100 ~ 167m (speed @80 ~ 100kmh).

Spec & Standards

Face Type	All, + Glasses
Detection Scope	Face, Eye, Mouth & Head Pose
Working Condition	Day and Night
Working Distance	Naked Eye: 65 ~ 105cm (2.1 ~ 3.4 feet)
	with Glasses: 70 ~ 100cm (2.3 ~ 3.3 feet)
Fatigue Rate	99.2% @naked eyes (97.4% @glasses), 1.5s ~
Distraction Rate	98.2% @all, 3.0s ~
Alarm Type	Buzz (or Mute)
Input Power	DC 12 ~ 24V, 1A
Status Output	GPIO
Working Temperature	-20 °C ~ + 70°C
Dimension	78 x 40 x 25 mm
Weight	100g

Notes:

The device is in compliance with CE, FCC, RoHS Certificates
The device is Made in China.

Creating Values

Safety is the first priority on the driving (in vehicle industry), but how to get well control on the RISK is the Industry BIG concerns. This motivation speedups the IT and other industry giant players jumping into this market, and particularly into the fleet sectors. Whatever we can name of the applications as ADAS, DVR, GPS, UBI, is striving for the safety management as well.

In general, driver-related factors contribute to over 80% of large truck collisions and over 90% of light passenger vehicle collisions.

A comprehensive study has shown that inattention (Distraction), excessive speed, failure to yield and unsafe lane changes are among the top causes of truck collisions.

Daream is devoted to Active Safety (driver-related factors) applications, while current solutions are considered as Passive Safety (ADAS, etc.) category which may require more cams mounted, more video recordings, and heavy workload of event analysis...

"Driving more Safe" is not just saying words, our product - Drivermate with its real-time Fatigue & Distraction detections can make it possible for the better control of the driver's risk.

⚠ 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.

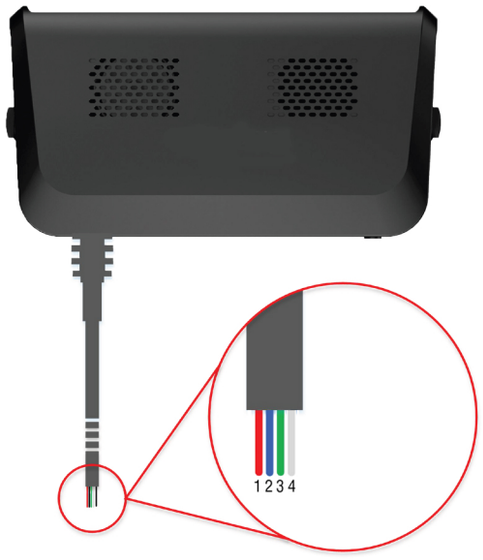
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the device.

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.



Wiring Diagram and Connecting Output Wires to Trigger SmartWitness Devices

KP1S, CP2

Connect DDC200 Green & White wires to the KP1S/CP2 Alarm Input 1 (orange wire)

CP4, CRX

Connect DDC200 Green wire to CP4/CRX Alarm Input 1 and White wire to CP4 Alarm Input 2

1) Red [Power -> IGN+]
2) Blue/Black [Ground -> BAT(-)]
3) Green [Fatigue -> 5V out]
4) White [Distraction -> 5V out]

Output Data

NO	ITEM		OUTPUT	DDC-200 GPIO	DDC-200 UART
1	function	1.1	fatigue	yes	yes
		1.2	distraction	yes	yes
2	configuration	2.1	add alarm (preset)	-	-
		2.2	*alarm sound (on/off)	yes	yes
		2.3	volume adjustable	-	-
		2.4	installation position	yes	yes
		2.5	vibration (with Bands)	-	-
		2.6	sensitivity	yes	yes
3	status report	3.1	green (LED)	yes	yes
		3.2	yellow (LED)	yes	yes
		3.3	red light (LED)	yes	yes

Notes:

1. *Apps (iOS or Android) is also recommended for Small business (SME), when there is no hardware system
2. *Alarm On/Off: all way & low speed (<20kmh)

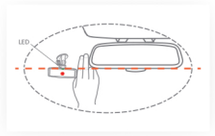
SMARTWITNESS

SmartWitness USA, LLC
1016 Lunt Ave
Schaumburg, IL 60193
www.smartwitness.com

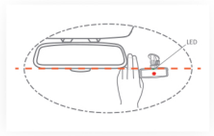
Easy Installation

Step 1: Selecting the Location

1. *Windshield



Left Handed



Right Handed

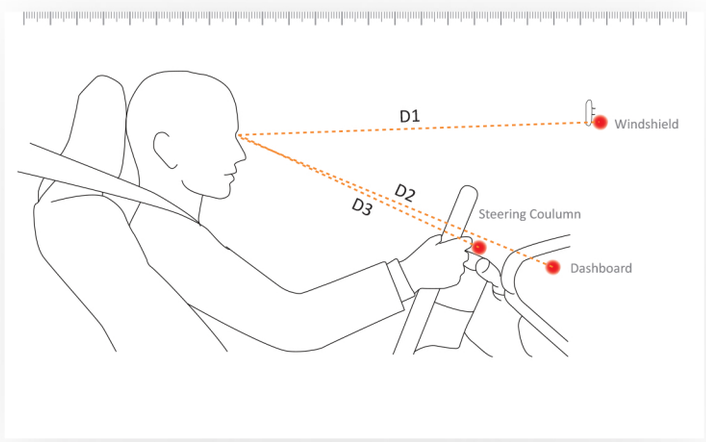
— two fingers width
— same horizon line

2. Dashboard

3. Steering Column

*Device upside down

Step 2: Defining the Distance

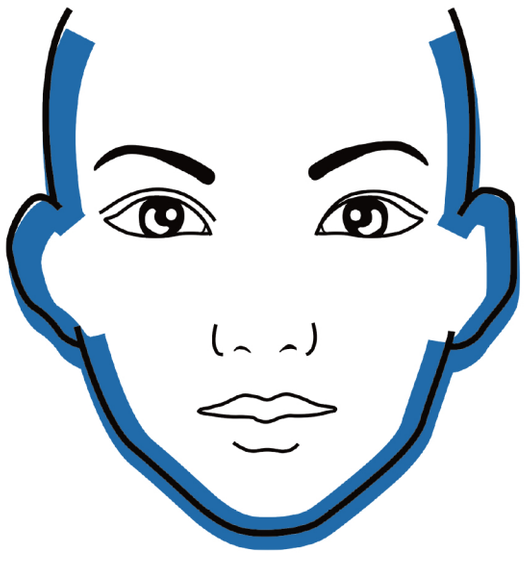


1. The distance between eye and device (D1, D2, D3) MUST be within range of 65 ~ 105cm @naked eyes, and 70 ~100cm @glasses.
2. Mount the device in the range@your favorate installaton spot.

Contents

Calibration

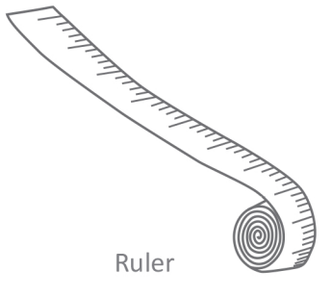
Step 3: Fine Tuning



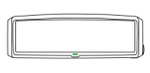
1. Rotate slightly the device (up/down, left/right) till the face outline is overlapping with the blue line.
2. Screw tight the device, and it is ready for the use.

Android Application download
smartwitness.com/software/DDC200.apk

Comp & Basics



Ruler

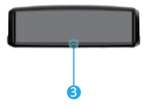


Main Body

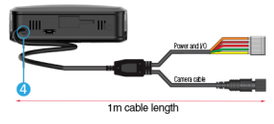
Stand

User Manual

1 Infrared LEDs
2 Camera Lenses



3 Status LED



4 Fly Cable

Ops Precautions

Some specially coated corrective lens (inc. much thicker ones) and/or sunglasses can reduce the detection rate.

When hair blots out the eye, the device may make the alarming as fatigue function.

When the face is not in the detection scope, the yellow light keeps on (the device may not be at the working state).

When the strong sunlight is straight on the device (from side windows) or on driver's face (from front windshield), the device may reduce the detection rate.

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