

A89 Driver Fatigue Monitor User Guide



Applicable Model: T366

Change History

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2 Product Introduction

2.1 Product Functions

- Drowsiness alert
- Distraction alert
- Absence alert
- Smoking alert
- On Phone Call alert
- Yawning alert

2.2 Function Description

The A89 driver fatigue monitor can be used by logistics companies and long-distance bus companies to detect a driver's fatigue state and provide an early voice warning. This will help prevent accidents in a timely manner, protect fleet companies' properties, and ensure driver safety. In addition, driver behaviors can be monitored.

This monitor can detect the following six events by recognizing faces and eyeballs:

Function	Triggering Condition	Voice Warning	Photo
Drowsiness alert	<ul style="list-style-type: none"> ● When the green LED indicator is steady on and the driver closes the eyes, lowers the head, or does not keep the eyes on the road, a drowsiness alert will be generated. ● When the driver opens the eyes, the alert will be cleared. 	Please watch the road.	Upload alert photos.
Distraction alert	<ul style="list-style-type: none"> ● When the driver is distracted, looks up, or does not keep the eyes on the road, a distraction alert will be generated. ● When the driver keeps the eyes on the road, the alert will be cleared. 	Please keep your eyes on the road.	Upload alert photos.
Absence alert	<ul style="list-style-type: none"> ● When the green LED indicator is on and the driver is absent or covers the camera 	Please aim the monitor at your face.	Upload alert photos.

	<p>for more than 15 seconds, an absence alert will be generated.</p> <ul style="list-style-type: none"> When the camera can capture the driver's face, the alert will be cleared. 		
Smoking alert	<ul style="list-style-type: none"> When the green LED indicator is on and the driver is smoking, a smoking alert will be generated. When the driver is not smoking, the alert will be cleared. 	No smoking, please.	Upload alert photos.
On Phone Call alert	<ul style="list-style-type: none"> When the green LED indicator is on and the driver calls for 15 seconds, an On Phone Call alert will be generated. When the driver puts down the phone, the alert will be cleared. 	No calling, please.	Upload alert photos.
Yawning alert	<ul style="list-style-type: none"> When the green LED indicator is on and the driver is yawning, a yawning alert will be generated. When the driver is not yawning, the alert will be cleared. 	Please take a rest.	Upload alert photos.

3 Main Device and Accessories



A89 Driver Fatigue Monitor



4-pin extension cable



Bracket

4 Product Specifications

Item	Specifications
Weight	300g
Power supply	9–32 V
Average operating current	340 mA (12 V) 180 mA (24 V)
Operating temperature	-30°C to 75°C
Operating humidity	5 %–95 %
Pixel	320x240
Baud rate	115200 bps

A89 serial port cable	150 cm (length)
4-pin extension cable	40 cm (length)

5 A89 Installation

5.1 Connecting the A89 to the T366 Tracker

T366 Tracker	A89 Driver Fatigue Monitor
Power cable (red)	Power cable (red)
GND (black)	GND (black)
TX (purple)	RX (blue)
RX (brown)	TX (green)

5.2 Installing the A89

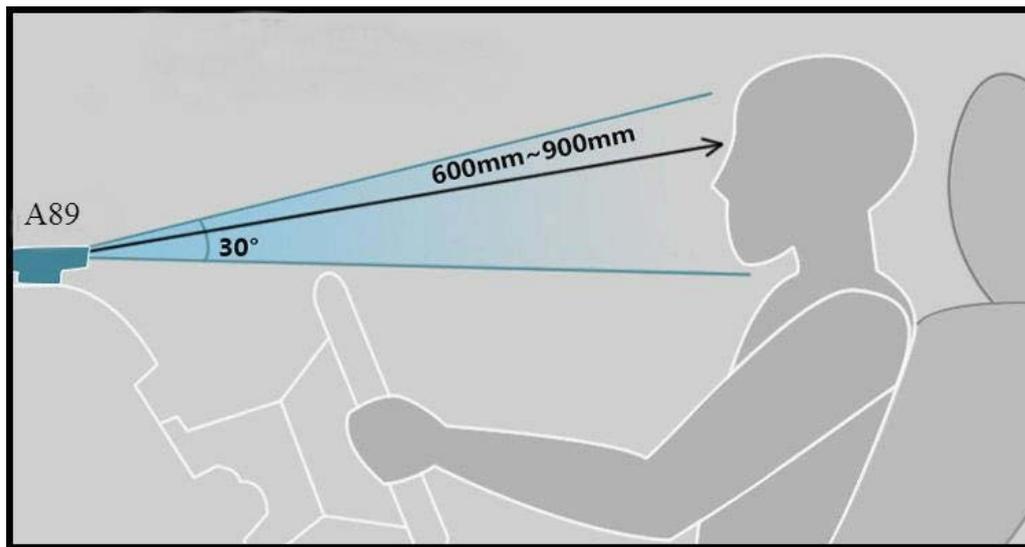
5.2.1 Finding an Installation Location

Each type of vehicle has a different internal structure. So you need to find a right location to install the A89. In general, you can install it around the dashboard (left/right/front). The installation angle between the A89 and a driver's eyes must be smaller than 30 degrees. It can be fixed on the uneven surface inside the vehicle as long as the camera can capture the driver's face.



5.2.2 Testing the A89

Tear the protective paper down from the bottom of the bracket, put the A89 on the installation location around the dashboard, and connect the A89 to the power supply. Adjust the lens' direction according to the status of the LED indicator and aim the lens at a driver.



Connect the A89 to the bracket using a universal joint, and aim the lens at the driver. Please ensure that the lens must be installed vertically, which means that the green LED indicator and the center of the lens are vertical. Don't press the double-sided tape too hard for the first time, so that you can re-adjust the installation location easily.

Sit on the driver's seat to test whether the installation location is right. If the green LED indicator of the camera is on or is blinking, it means that the A89 has detected the driver's open eye state. Please ensure that the distance between the lens and eyes ranges from 60 cm to 90 cm. When the driver keeps the eyes on the road and the green LED indicator is on, it means that the A89 is installed normally and works properly. Ensure that the lens and the green LED indicator are vertical.

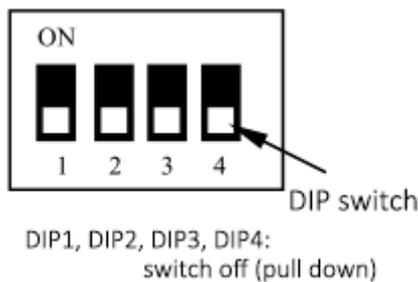
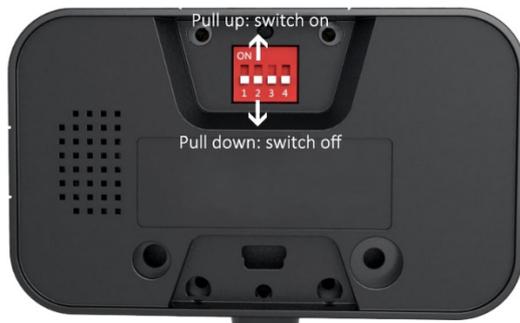
The dashboard of trucks and buses is low, so you should install the A89 on a higher location around the dashboard. If the A89 is installed in front of the driver to the left or to the right, the A89 should not be higher than the driver's eyes, and the angle between the installation location and the driver's eyes should not be higher than 30 degrees. Please ensure that the distance between the lens and eyes ranges from 60 cm to 90 cm. Sit on the driver's seat to test whether the installation location is right. If the green LED indicator of the camera is on or is blinking, it means that the A89 has detected the driver's open eye state. When the driver opens the eyes, the blinking of the green LED indicator is a normal condition, especially for the driver wearing a pair of glasses. Sometimes the green LED indicator will blink because there is something that shades the eyes. If the green LED indicator is still on or is still blinking when the driver moves slightly, it means that the installation location is right and you can drive to start your trip.



6 DIP Switch Introduction

Each person's requirements for sensitivity detection will vary as time goes by. When the people use the product for the first time, they hope that an alert will be generated immediately once they close their eyes. After a period, they may complain too many warnings and hope that an alert will be generated only when they are in a real drowsiness or distraction state. Therefore, we provide the sensitivity level function for users. After a sensitivity level is set, the real drowsiness and distraction state can be quickly detected. But the alert time of distraction and closing eyes will be different.

The DIP switch is at the back of the A89, shown in the following figures. The switch will be pushed to the off position before delivery.



The functions of DIP switches are as follows:

DIP Switch	Function
DIP1	<ul style="list-style-type: none"> Switch on: low sensitivity. When drivers close the eyes or are distracted, it will take about 5 seconds to generate an alert.

	<ul style="list-style-type: none"> ● Switch off: high sensitivity. When drivers close the eyes or are distracted, it will take about 1 or 2 seconds to generate an alert.
DIP2	<ul style="list-style-type: none"> ● Switch on: When the speed is larger than 15 km/h, an alert will be generated. ● Switch off: When the speed is larger than 30km/h, an alert will be generated.
DIP3	<ul style="list-style-type: none"> ● Switch on: The yawning alert function will be enabled. ● Switch off: The yawning alert function will be disabled.
DIP4	<ul style="list-style-type: none"> ● Switch on: The debug mode will be enabled. An alert will be generated, no matter what the speed is. This will help users test the alert function indoors or in an underground parking lot. ● Switch off: The debug mode will be disabled, and the DIP2 switch will work.

7 Configuring the A89 on Meitrack Manager

7.1 Setting the GPRS Event

On the **Event** tab page, locate **Driving Behavior**, and select **GPRS**. When the A89 detects an alert, a GPRS event will be sent to the MS03 tracking platform.

Authorize

Event	SMS Header	Setting	SMS				Call				GPRS
			<input type="checkbox"/>								
Fuel Filling	Fuel Filling		<input type="checkbox"/>								
Ult-Sensor Drop	Ult-Sensor Drop		<input type="checkbox"/>								
Sharp Turn to Left	Harsh Cornering	...	<input type="checkbox"/>								
Sharp Turn to Right	Harsh Cornering	...	<input type="checkbox"/>								
Output 1 Active	Out1 Active		<input type="checkbox"/>								
Output 2 Active	Out2 Active		<input type="checkbox"/>								
Output 1 Inactive	Out1 Inactive		<input type="checkbox"/>								
Output 2 Inactive	Out2 Inactive		<input type="checkbox"/>								
Driving Behavior										<input checked="" type="checkbox"/>	

7.2 Selecting a Peripheral

On the **Peripheral** tab page, set **RS232 EXT** to **Driver Fatigue Monitor** and **Baud Rate** to **115200**.

Peripheral

RS232 EXT Setting

7.3 Selecting Alerts

If you do not set **Alarm Enable**, no alerts and GPRS events will be generated and no photos will be taken. Also, there

will be no voice warnings.

Fatigue Driving Function Setting

Alarm Enable No Human Image Look Around Smoking Calling

This function is only available for the A89. When you restore the T366 tracker to factory settings, the default parameter of this function cannot be restored.

7.4 Setting the Alert Volume

There are 3 alert volume levels: Mute, Low, and High.

Alarm Volume Level

If **Alarm Volume Level** is set to **Mute**, the A89 will not make alert sounds, but alert events and photos will be sent to the MS03 tracking platform.

8 Setting Parameters by Command

Setting the Driver Fatigue Function (SMS/GPRS) – C90	
Sending	C90,A,B,C,D,E
Reply	C90,OK/<Error code>
Command Description	
<p>1. Parameter A: indicates the alert volume. The parameter value is 0, 1, 2, and 225. Decimal. 0: No sound. 1: Medium volume. 2: High volume. 225: reserved for DIP switches. Parameter B, C, D, and E: indicates an alert. Decimal. B: Absence alert. 0: function disabled. 1: function enabled. C: Distraction alert. 0: function disabled. 1: function enabled. D: Smoking alert. 0: function disabled. 1: function enabled. E: On Phone Call alert. 0: function disabled. 1: function enabled.</p> <p>2. If you want to read the parameters, send C90.</p> <p>3. Parameter settings must be complete.</p> <p>4. If the network connection is poor or parameter settings are not correct, an error code will be replied.</p>	
Example	
<pre>@@R35,863725036977468,C90,2,1,1,1,1*5B \$\$R28,863725036977468,C90,OK*19</pre>	

9 GPRS Protocol About Alert Event 114

Driver fatigue alert (event code 114). For details, see the assisted event info of Meitrack GPRS	Driver fatigue alert Format: A B C A : indicates the A89 version. The parameter value is 01 . Decimal. B : indicates the alert type. Contains 2	<pre>\$\$b185,863725036977468,AAA, 114,22.513633,114.057243,180 704002342,A,11,24,40,288,0.9,2 9,1,50063,460 1 252F 00003BF 9,0000,0001 0000 0000 019B </pre>
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Protocol.	characters; decimal. <ul style="list-style-type: none"> ● 01: Mild fatigue ● 02: Moderate fatigue ● 03: Severe fatigue ● 04: Distraction alert ● 05: Absence alert ● 06: On Phone Call alert ● 07: Smoking alert ● 08: Yawning alert C: indicates the additional alert information. Contains at most 32 characters. Decimal. The parameter value is the name of a photo.	04CA,01 08 180704002340_Yawning.jpg,,3,,,30,41*E2 It indicates version 01, a yawning alert, photo name 180704002340_Yawning.jpg.
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10 Querying Reports and Photos from the MS03 Platform

10.1 Querying Driver Fatigue Time Statistics Reports

To view alert statistics information during different time periods, choose **Reports**, and click **Fatigue driving time statistics**.



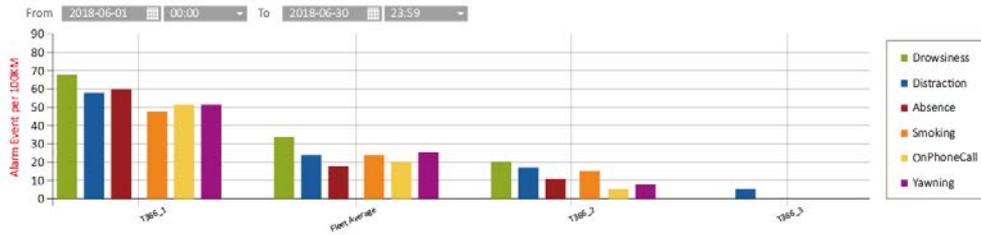
10.2 Querying Driver Fatigue Trip Statistics Reports

To view alert statistics information during different trips, choose **Reports**, and click **Fatigue driving trip statistics**.

Trucker name	Start point	Parking location	Start time	End Time	Trip / Kilometre	Drowsiness	Distraction	OnPhoneCall	Absence	Smoking	Yawning
T366	33.225595,35.306470	33.866836,35.514265	2018-06-05 20:11:26	2018-06-05 21:45:08	86.51	0	1	1	0	0	0
T366	33.859825,35.505203	33.576295,35.381523	2018-06-12 22:43:38	2018-06-13 00:12:03	41.64	0	2	1	0	1	2
T366	33.225608,35.306560	33.225613,35.306496	2018-06-14 18:09:58	2018-06-14 19:19:38	12.49	0	0	0	0	0	0
T366	33.225648,35.306500	33.858986,35.513405	2018-06-16 19:09:50	2018-06-16 21:10:23	89.35	0	0	0	1	0	0
T366	33.894228,35.475596	33.873045,35.515401	2018-06-17 18:28:27	2018-06-17 20:09:09	23.12	0	1	0	0	0	0
T366	33.851149,35.510898	33.788076,35.487056	2018-06-19 20:36:05	2018-06-19 21:31:36	12.41	0	0	0	0	0	0
T366	33.788340,35.488516	33.509740,35.445405	2018-06-21 14:48:40	2018-06-21 16:02:14	43.32	0	0	0	0	1	0
T366	33.184160,35.457598	33.723670,35.452926	2018-06-23 02:15:25	2018-06-23 03:59:08	85.69	1	0	0	0	0	2
T366	33.857211,35.506520	33.866805,35.514008	2018-06-23 20:02:01	2018-06-23 21:01:05	11.11	0	0	1	0	0	0

10.3 Querying Driver Fatigue Mileage Statistics Reports

To view alert statistics information per 100 km, choose **Reports**, and click **Fatigue driving mileage statistics**.



10.4 Querying Alert Reports

To view all alert events detected by the A89, choose **Reports**, and click **Event Report**.

DZ_T366_7468(70)	Drowsiness(Distraction)	2018-07-03 19:24:25	2018-07-03 19:24:56	Valid	40.00	22.513591	114.057210
DZ_T366_7468(70)	Drowsiness(Severe Fatigue)	2018-07-03 19:30:04	2018-07-03 19:30:19	Valid	40.00	22.513608	114.057160
DZ_T366_7468(70)	Drowsiness(Moderate Fatigue)	2018-07-03 19:26:28	2018-07-03 19:26:42	Valid	40.00	22.513611	114.057166
DZ_T366_7468(70)	Drowsiness(Mild Fatigue)	2018-07-04 08:29:54	2018-07-04 08:30:10	Valid	40.00	22.513591	114.057230
DZ_T366_7468(70)	Drowsiness(OnPhoneCall)	2018-07-03 19:40:13	2018-07-03 19:40:24	Valid	40.00	22.513493	114.057120
DZ_T366_7468(70)	Drowsiness(Yawning)	2018-07-04 08:23:42	2018-07-04 08:24:06	Valid	40.00	22.513633	114.057243

10.5 Querying Alert Photos

To view all alert photos captured by the A89, choose **Reports**, and click **Photo Report**.



T366_9604(7Q)_180710073321_Distr
action.jpg



T366_9604(7Q)_180710074758_Distr
action.jpg



T366_9604(7Q)_180710074936_Dro
wsiness.jpg



A89_testing_180717080739_Yawning.jpg



DZ_T366_7468(70)_180704002236_A
bsence.jpg

If you have any questions, do not hesitate to email us at info@meitrack.com.