In Vehicle Monitoring System (IVMS)

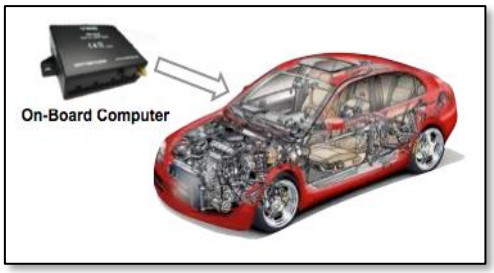
A Driver Overview

1 Introduction to In Vehicle Monitoring System (IVMS)

The following document has been created to ensure you, as a driver, are fully aware of the operation of the IVMS installed in to the vehicle you are driving.

IVMS is a proactive tool that is used to improve driver's behavior and optimize vehicle fleet performance.

Your vehicle is fitted with an On-Board Computer that is connected to the vehicle's sensors to measure speed, acceleration, braking and other optional devices.



The On-Board Computer will activate an audible alarm inside the vehicle cabin if the pre-defined thresholds are exceeded such as exceeding the allowed speed and accelerating or braking aggressively. The audible alarm is designed to inform you as the driver when you are driving outside of the limits and allow you to modify your current driving style and reduce the likelihood of being involved in a motor vehicle crash.

All occurrences of exceeding the defined thresholds are recorded and used for reporting purposes to assist supervisors and managers in determining at risk drivers.

2 Driving with IVMS

The IVMS is intended to assist you to operate the vehicle in a safe and controlled manner. The following section explains how to identify yourself to the On-Board Computer and drive within the limits.

2.1 Driver Identification

In order to use a vehicle installed with an IVMS system, you will require a Blue or Red Driver Plug that shall be referred to as a **Driver Identification Key.** The nominated IVMS administrator issues this Driver Identification Keys.

Driver Identification Key

This key stores the driver's unique identification code and vehicle access. Whilst driving, all driving data is referenced to the driver identification code.

Driver Identification Receptacle

The Driver ID receptacle is located on the dashboard near the steering wheel. This is where the Driver Identification is inserted prior to taking a trip in the vehicle. It has a red flashing LED light that will flash approximately once every second when not in use. Should the LED light not be flashing at all, turn the ignition to on for 10 seconds to 'wake up' the On-Board Computer.

The driver must insert the drivers' key into the driver ID receptacle and hold it there until **two beeps are heard**. This means that the driver has been identified and has access to use the vehicle. At this moment, the driver's key can be removed from the driver's ID socket.

If the driver does identify themselves in the vehicle a constant beeping on and off will continue until the driver is identified.

2.2 Acceleration and Braking

When driving the vehicle, the acceleration and braking should be smooth and consistent to demonstrate safe following distances and that harsh braking actions are not required.

The On-Board Computer measures the acceleration and braking rates by calculating the change in speed over time. The measurement is called miles – per hour – per second (m/h/s). This means the On-Board Computer is measuring the number of miles per hour change within one second.

The threshold for the acceleration and braking is set between depending on the vehicle type. When the threshold is exceeded the alarm will sound a short time after, notifying you that the limit was exceeded and the occurrence will be saved as an event.

2.3 Over Speeding

The On-Board Computer is continuously monitoring on a second by second basis the vehicle speed in relation to the preset speed limit defined by the company. The speed limits may vary from location to location so care should be taken to abide by all posted limits and to reduce speed when the road or weather conditions degrade.

Geo-Fences will be implemented strategically for high risk areas such as major cities, towns, points of interest or known “black spots”, for example intersections with a high rate of incidents. The Geo-Fences may have a reduced speed limit inside the geo-graphical zone where appropriate.

Your company should communicate the respective threshold speed limits and governed locations. If your organization has opted for potential delays in recording violations or warnings that you are encroaching on a speed limits these may be advised to the drivers.

Speeding violations will be known by an audible buzzing in the vehicle’s cab.

Sample Geo-Fences

3 Reporting

3.1 RAG Reporting

Your driving performance will be scored using the RAG report that is reviewed by your line manager. The RAG Report categorizes drivers into groups of Red, Amber and Green, based on the exceeded thresholds while driving.

Drivers are classified into one of three groups:

- Red: drivers have a RAG score of > 5. Red drivers require immediate improvement of the driving performance and abilities.
- Amber: drivers have a RAG score of 2-5. Drivers repeatedly appearing as Amber need to seek coaching.
- Green: drivers have a RAG score of < 2. Green drivers are conforming to the company requirements however should aim for continuous improvement to achieve a score of 0.

3.2 Example of RAG Report

Augmented Summary RAG Report

[redacted]

From 1/8/2017 To 1/9/2017

Driver	Distance (mi)	Harsh Accel Occurrences (mph/s)	Accelerations per 100 mi	Harsh Brake Occurrences (mph/s)	Decelerations per 100 mi	Over Speed Max (mph)	Overspeeding Duration	For Each 10 Sec Per mi	RAG Score
Mendez [redacted]	59.79	0	0.00	0	0.00	78	00:00:08	1.33	1.33
Ivy, Bria [redacted]	69.21	0	0.00	1	1.44	74	00:00:00	0.00	1.44
Benda [redacted]	135.62	2	1.47	0	0.00	64	00:00:00	0.00	1.47
Hamill [redacted]	30.39	0	0.00	0	0.00	78	00:00:05	1.64	1.64
Jackson [redacted]	120.03	0	0.00	2	1.66	71	00:00:00	0.00	1.66
Tramme [redacted]	98.37	0	0.00	0	0.00	68	00:00:18	1.82	1.82
Stephen [redacted]	141.01	0	0.00	0	0.00	77	00:00:26	1.84	1.84
Ford, S [redacted]	51.87	0	0.00	1	1.92	71	00:00:00	0.00	1.92
Prestwo [redacted]	88.69	0	0.00	2	2.25	74	00:00:00	0.00	2.25
Scott, D [redacted]	78.12	0	0.00	2	2.56	70	00:00:00	0.00	2.56
Bryant, [redacted]	33.00	0	0.00	1	3.03	71	00:00:00	0.00	3.03
Banks, [redacted]	155.13	0	0.00	6	3.86	77	00:00:07	0.45	4.31
Trahan, [redacted]	67.89	0	0.00	3	4.41	71	00:00:00	0.00	4.41
Ervin, J [redacted]	19.16	0	0.00	1	5.21	53	00:00:00	0.00	5.21
Minor, J [redacted]	18.85	2	10.60	0	0.00	58	00:00:00	0.00	10.60
Totals	**12,530.20**	**5**	**0.03**	**43**	**0.34**	**78**	**00:03:18**	**0.15**	**0.52**

Speed measure : Fixed Speed
Tracer, MIX2000, VT & AT Excluded

Created 1/9/2017 1:06 PM By Russell.DaSilva@mixtelematics.com

Page 6 of 6

3.3 RAG Score Calculation

The RAG (Red – Amber – Green) report displays the drivers performance for a selected time period.

The score is based on the drivers distance travelled for the period, the number of Harsh Acceleration, Harsh Braking events and total Over Speeding time. The formula is as follows:

Speed Score = ((Speeding Time / 10) / Trip Distance) * 100
Acceleration Score = (Number Acceleration Occurs / Trip Distance) * 100
Deceleration Score = (Number Brake Occurs / Trip Distance) * 100
Total Score = Speed Score + Acceleration Score + Deceleration Score

The red, amber and green thresholds are base on the calculated score.

- Green : 0 – 2.0 – Low Risk Driver
- Amber : >2.0 – 5.0 – Medium Risk Driver
- Red : > 5.0 – High Risk Driver

Driver Name	Distance (Km)	Acceleration Counts	Accelerations per 100 Km	Deceleration Counts	Decelerations per 100 Km	Highest Speed (Km/h)	Overspeeding Time	For Each 10 Sec Per Km	Total Score
John Pybus	109.6	0	0.00	0	0.00	61.0	00:00:00	0.00	0.00

- Name of Driver Key used to disarm vehicle
- Total distance the driver has driven for the reported period
- Average number of Harsh Acceleration Events per 100km
- Average number of Harsh Braking Events per 100km
- Total time Over Speeding in hrs:mins:sec
- Final RAG Score
- Total number of times the Harsh Acceleration Event was recorded
- Total number of times the Harsh Braking Event was recorded
- Highest Speed during the reporting period. Not included in the score, just for reference
- Average time Over Speeding for Each 10 seconds per kilometer

Note - In the US the unit of measurement will be miles and miles per hour

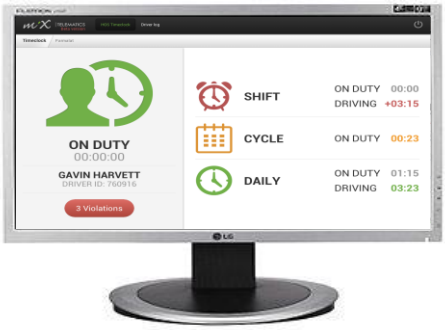
4 Hours of Service Drivers

Drivers who will be operating Hours of Service vehicles will undergo further training to utilize the components of this solution.

The following products will be used to capture Hours of Service.

RED Driver ID & ROVI (In-Cab device)

HOS Timeclock



Should you have any questions relating to the IVMS installed in the vehicle, please contact your assigned IVMS Administrator or supervisor who can log a support call with MiX Telematics.