

How to read ELD data with FMX00A



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Terms and definitions

Acronyms and terms used in the document:

- **BT** - Bluetooth®;
- **ELD** - Electronic Logging Devices.

Introduction

This document contains information required for developing an application for receiving Electronic Logging Devices data via Bluetooth® from [FMC00A](#) and [FMM00A](#) series devices.

The ELD synchronizes with the CMV engine to automatically record:

- Engine power status
- Vehicle motion status
- Miles driven
- Engine hours
- Identification of driver/authorized user, vehicle, and motor carrier
- Duty status

Configurable parameters

ELD functionality has 3 additional parameters:

Parameter ID	Parameter Type	Default Value	Value Range		Value	Parameter Name
			Min	Max		
40000	UInt8	1	0	3	0 - Disable 1 - OBD 2 - ELD 3 - Non-OBD compliant	OBD Feature
40002	UInt16	10	2	65535	Seconds	ELD data send period
40008	UInt8	0	0	1	0 - Disable 1 - Enable	Send ELD data via Bluetooth®

ELD APP workflow

ELD functionality start to send data periodically via BT right after external BT device has been connected if OBD Feature (parameter ID 40000) is set to ELD (option 2). ELD data sending is paused if Configurator is connected. ELD data is resumed after configurator disconnects. ELD data sending resumes automatically when external BT device reconnects after connection loss.

ELD data packet structure

```
{
  "obd_vin": "4V4NC9EH4FN187825",
  "loc": "-10310092,3517679",
  "time": "1675874086",
  "can_data": "1",
  "engine_hours": "315",
  "dashboard_mileage": "919483",
  "obd_rpm": "3224",
  "obd_speed": "25",
  "ignition": "1",
  "total_fuel": "182",
  "engine_idle_hours": "156",
  "dtc_count": "2",
  "fuel_level_1": "35",
  "fuel_level_2": "46",
  "battery_voltage": "24",
  "total_idle_fuel": "3152",
  "trip_distance": "306",
  "fuel_economy": "12",
  "ambient_air_temp": "21",
  "engine_coolant_temp": "50",
  "engine_load": "89",
  "engine_throttle": "94",
  "trip_fuel_used": "17",
  "oil_temp": "90",
  "oil_pressure": "6",
  "seat_belt_status": "0",
  "cruise_control_state": "3",
  "throttle_pedal_pos": "90",
  "engine_coolant_level": "60",
  "engine_coolant_press": "4",
  "transmission_oil_temp": "60",
  "parking_brake_switch": "0",
  "brake_application_press": "9",
  "brake_pedal_pos": "32"
}
```

ELD J1939 Parameters definitions

AVL ID	Canaly ID	Parameter ID for JSON	J1939 PCN	J1939 SPN	Units	Description
1178	40000	dashboard_mileage	65217	917	km	Vehicle Total Distance
36	40140	obd_rpm	65444	190	rpm	Vehicle RPM
256	40410	obd_vin	65260	237		Vehicle VIN
1178	40000	ignition				Ignition state according to RPM, possible values: 0 - RPM=0 or 1- RPM>0
24	50090	oil_temp	65265	84	km/h	Wheel based speed
24	50090	obd_speed	65132	1424	km/h	Current coordinates (longitude and latitude), example "value": "10310092,3517679", actual position is lon=-103.10092, lat=35.17679
1202	40000	ignition	64980	10145		Indicates that the ignition (or "on") state of the engine key switch is active. This state is also known in DIN 75552 as "EL35".

• 000 = Ignition state is not active
• 001 = Ignition state is active
• 110 = Error
• 115 = Not available

1177	40640	engine_hours	63253	247	h	Total Engine hours A point in time, defined as the number of seconds that have elapsed since 00:00:00 Coordinated Universal Time (UTC), Thursday, 1 January 1970. Current timestamp used in record saving.
		time				to CAN data available or not
1180	40670	total_fuel	64777	5054	l	Fuel consumed during all or part of a journey. High resolution used for calculations and fleet management systems.
1180	40670	one_data	63257	182	l	If PCN 64777 is not available data from PCN 63257 is used.
1181	40680	engine_dls_hours	63284	233	h	Accumulated time of operation of the engine while under idle conditions.
1182	40690	dls_count	40948	4196		MIL On IFFC
48	40280	fuel_level_1	63276	96	%	Ratio of volume of fuel to the total volume of fuel storage container. When Fuel Level 2 (SPN 38) is not used, Fuel Level 1 represents the total fuel in all fuel storage containers. When Fuel Level 2 is used, Fuel Level 1 represents the fuel level in the primary or left-side fuel storage container.
1183	40700	fuel_level_2	63276	38	%	Ratio of volume of fuel to the total volume of fuel in the second or right-side storage container. When Fuel Level 2 is not used, Fuel Level 1 (SPN 96) represents the total fuel in all fuel storage containers.
1184	40710	battery_voltage	61733	9025	V	SLI battery terminal voltage
1185	40720	total_sls_fuel	63284	236	l	Accumulated amount of fuel used during vehicle operation while under idle conditions.
1186	40730	trip_distance	63217	918	m	Distance traveled during all or part of a journey.
1187	40740	fuel_economy	63286	184	km/L	Current fuel economy at current vehicle velocity.
1188	40750	ambient_air_temp	63289	171	°C	Temperature of air surrounding vehicle.
1189	40760	engine_coolant_temp	63282	119	°C	Temperature of liquid found in engine cooling system.
1192	40790	trip_fuel_used	64777	5053	l	The desired position of the Throttle valve 1 (SPN 51) that is regulating the fluid, usually oil, entering to the engine as commanded by the Engine Control unit. 0% represents no supply and 100% is full supply.
1192	40790	oil_temp	63282	175	°C	Temperature of the engine lubricant.
1193	40780	oil_pressure	63188	1135	°C	Fuel consumed during all or part of a journey.
			64751	7408	kPa	If PCN 63282 is not available data from PCN 63188 is used.
1194	40810	seat_belt_status	57344	1856		Gage pressure of oil in engine lubrication system as provided by oil pump.
						State of switch used to determine if Seat Belt is buckled
						• 000 = OK - Seat Belt is buckled
						• 010 = Error - Switch state cannot be determined
						• 115 = Not Available
						Indicates the status of the P.C. controller:
						• 0000 = Disabled
						• 0010 = Enabled
						• 0010 = Enabled, but not functional due to vehicle position not available
						• 0010 = Enabled, but not functional due to trip position not available
						• 0100 = Enabled, but not functional due to road grade info not available
						• 0100 = Enabled, but not functional due to predicted path not available
						• 0110 = Enabled, but not functional due to vehicle speed below speed threshold
						• 0110 = Enabled, but not functional due to inhibited by driver
						• 0110 = Enabled, but not functional due to inhibited by driver
						• 10010 to 11010 = SAE Reserved
						• 1110 = Error
						• 1110 = Not Available
						Accelerometer Pedal Position
						Ratio of volume of liquid found in engine cooling system to total cooling system volume. Typical monitoring location is in the coolant expansion tank.
						Gage pressure of liquid found in engine cooling system.
						Transmission Oil Temperature
						Switch signal which indicates when the parking brake is set.
						• 000 = Parking brake not set
						• 010 = Parking brake set
						• 115 = Not available
						• 115 = Error
						Gage pressure of compressed air or fluid in vehicle braking system measured at the brake chamber when brake shoe (or pad) is placed against brake drum (or disc).
						Ratio of brake pedal position to maximum pedal position.

ELD functionality settings

ELD settings

Teltonika.Configurator 1.7.53.E.ELD_R.4

Load from device

Save to device

Update firmware

Reset configuration

Load from file

Save to file

Read records

Reboot device

IMEI 350544507710435

FW 03-28.03 Rev403

Configuration 9.4.7.0

Status

Security

System

GPMS

Data Acquisition

SMS \ Call Settings

GSM Operators

Features

Accelerometer Features

Auto Geofence

Manual Geofence

Trip \ Odometer

Bluetooth

Bluetooth 4.0

Beacon List

I/O

OBID II

ELD

General

General OBD settings

OBID VIN settings

Send ELD data via Bluetooth

OBID Features

OBID Feature

Disable	OBID (Auto)
ELD	Non-OBID compliant

VIN Source

Auto

Manual

ELD data sending

Disable

Enable

ELD data send period (s)

5

Feature Set

Ignition Monitoring

Odometer unit type

Automatic

No conversion

Convert from miles

OEM Reset

OBID II

Input Name	Current Value	Units	Priority	Low Level	High Level	Event Only	Operand
Distance Traveled MIL On	-	km	None Low High Panic	0	0	Crash Yes No	Monitoring
Relative Fuel Rail Pressure	-	kPa	None Low High Panic	0	0	Crash Yes No	Monitoring
Direct Fuel Rail Pressure	-	kPa	None Low High Panic	0	0	Crash Yes No	Monitoring
Commanded EGR	-	%	None Low High Panic	0	0	Crash Yes No	Monitoring
EGR Error	-	%	None Low High Panic	0	0	Crash Yes No	Monitoring
Fuel Level	81	%	None Low High Panic	0	0	Crash Yes No	Monitoring
Distance Traveled Since Codes Clear	-	km	None Low High Panic	0	0	Crash Yes No	Monitoring
Barometric Pressure	-	kPa	None Low High Panic	0	0	Crash Yes No	Monitoring
Control Module Voltage	-	V	None Low High Panic	0	0	Crash Yes No	Monitoring
Absolute Load Value	-	%	None Low High Panic	0	0	Crash Yes No	Monitoring
Ambient Air Temperature	-	°C	None Low High Panic	0	0	Crash Yes No	Monitoring

J1939 IO elements



Load from device

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Update firmware

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Load from file

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Reboot device


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Status

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GPRS

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Accelerometer Features

Auto Geofence

Manual Geofence

Trip \ Odometer

Bluetooth

Bluetooth 4.0

Beacon List

I/O

OBD II

ELD

ELD parameters

Input Name	Current Value	Units	Priority				Low Level	High Level	Event Only			Operand
ELD Mileage	12	km	None	Low	High	Panic	0	0	Crash	Yes	No	Monitoring
Engine RPM	224	rpm	None	Low	High	Panic	0	0	Crash	Yes	No	Monitoring
ELD Ignition	1		None	Low	High	Panic	0	0	Crash	Yes	No	Monitoring
ELD Ignition Switch Status	3		None	Low	High	Panic	0	0	Crash	Yes	No	Monitoring
ELD Total Fuel Used	73	l	None	Low	High	Panic	0	0	Crash	Yes	No	Monitoring
ELD Engine Idle Hours	81	h	None	Low	High	Panic	0	0	Crash	Yes	No	Monitoring
ELD DTC Count	48		None	Low	High	Panic	0	0	Crash	Yes	No	Monitoring
Fuel Level	30	%	None	Low	High	Panic	0	0	Crash	Yes	No	Monitoring
ELD Fuel level 2	23	%	None	Low	High	Panic	0	0	Crash	Yes	No	Monitoring
ELD Battery Voltage	1	V	None	Low	High	Panic	0	0	Crash	Yes	No	Monitoring
ELD Total Idle Fuel Used	152	l	None	Low	High	Panic	0	0	Crash	Yes	No	Monitoring
ELD Trip Distance	6	km	None	Low	High	Panic	0	0	Crash	Yes	No	Monitoring
ELD Fuel Economy	15	km/l	None	Low	High	Panic	0	0	Crash	Yes	No	Monitoring
ELD Ambient Air Temperature	6	°C	None	Low	High	Panic	0	0	Crash	Yes	No	Monitoring
Coolant Temperature	-26	°C	None	Low	High	Panic	0	0	Crash	Yes	No	Monitoring
ELD Engine Load	62	%	None	Low	High	Panic	0	0	Crash	Yes	No	Monitoring
ELD Engine Throttle	49	%	None	Low	High	Panic	0	0	Crash	Yes	No	Monitoring
ELD Oil Temperature	-62	°C	None	Low	High	Panic	0	0	Crash	Yes	No	Monitoring
ELD Trip Fuel Used	63	l	None	Low	High	Panic	0	0	Crash	Yes	No	Monitoring
ELD Oil Pressure	12	kPa	None	Low	High	Panic	0	0	Crash	Yes	No	Monitoring

