OMNIplus ON Data Packages

OMNIplus ON Data Packages - General | REST Interfaces | Event Hub Interface

With the OMNIplus ON Data Package digital services, you can integrate an extensive set of available data points from your Mercedes-Benz or Setra bus into your own fleet management system. The data interfaces are especially valuable if you already use a fleet management system tailored to your requirements. Process the data points according to your individual requirements and analyze precisely the information that is important to you. That way, you always have an overview of your entire bus fleet and transparency over relevant data for your vehicles.

The following data products are currently available:

- **OMNIplus ON Data Package light** (REST and Event Hub vehicle data interfaces)

  The data package contains signals on the following categories:
  - Battery & utilities
  - Chassis
  - Driver
  - Heating cooling ventilation
  - Information on warning messages (Telltales)
  - Powertrain
  - Windows/Doors/Flaps
  - Vehicle information
  - Vehicle position (GPS)
  - Other

- **OMNIplus ON Data Package plus** (REST and Event Hub vehicle data interfaces)

  The data package contains signals on the following categories:
  - OMNIplus ON Data Package light
  - Driver assistance systems
  - High-voltage systems
  - Lighting system
  - Tire pressure
  - Brake wear
  - Other

- **OMNIplus ON Data Package diagnostic** (REST diagnostic data interface)

  Call up the health status of your vehicle using the diagnostic functions of the OMNIplus ON Data Package. The remote diagnostic quick test is your first resort for troubleshooting control units that need repairing. It reads the hardware and software part numbers of the control units, all active and saved error codes (DTCs) and fault descriptions. Download the last remote diagnostic quick test or request a new quick test for your vehicle. The raw data from the remote diagnostic quick test is displayed on the diagnostics interface in machine-readable JSON format. This lets

you integrate the error codes directly into your workshop system, create more precise workshop orders and control your workshop capacity more efficiently.

- **OMNIplus ON Data Package driver display**

  Event Hub vehicle data interface and REST APIs for consuming the driver display events and new additional REST APIs for interpretating and translating the driver display event information.

Please note that Mercedes-Benz city buses with a production date from April 2019 and Setra and Mercedes-Benz touring coaches from production date July 2019 use the FMS 4 Standard. Vehicles which were produced before these dates transfer the data points as per the FMS3 Standard.

You can find an exact list of the data points for each data package in the appendix.
Appendix A: signal information

Interface Technology – technical documentations

In accordance with the FMS Standard, we offer you numerous further data points directly from the vehicle. Use the existing REST (REpresentational State Transfer) interfaces in order to call up historical data on the vehicle or diagnostic data (Protocol: HTTP / JSON).

At both interfaces, you receive the vehicle signals in the machine-readable JSON format, which means that you can process them further in your IT systems.

The Event Hub interface provides you with signals from your vehicle in real time. Vehicle data is published for consumption via Azure Event Hubs. Event Hubs is a scalable messaging technology for realtime data delivery. **For detailed information please download the EventHub documentation**.

REST Interfaces for historical and diagnostic data

Content

1 Release Notes

V3.9.9	news signals in Data Package plus: • 23277-23277 12VBatVolt, • 23278-23278 24VBatTemp, • 23279-23279 24VBatCurrent, • 23280-23280 GeneratorInducCur, • 14345-1-1 HVESCurrentFlow, • 14346-1-1 BatLowCellTemp, • 14347-1-1 BatHighCellTemp, • 23283-23283 DispWarnBatEmerLV deprecated signals removed from ON Data Package: • 14083-1-1 FanDriverStat, • 14133-1-1 EngineAWLCommand, • 14134-1-1 EngineRSLCommand	2023-03-09
V4.0	Introduction of optional new V2 data format (see chapter 6.2) Main changes to V1 format: New signalIDs, no translation of values, implementation of validation codes	2023-04-17
V4.0.1	Adaption of additional validation codes (see chapter 0) SNA (signal not available) and ERR (error) values are not transmitted anymore with V1 data format. With V2*/V2 SNA and ERR values can be mapped with the new implemented validation codes.	2023-04-27
V4.0.2	Adaption of validation codes (see chapter 0)	2023-05-03
V4.1.0	new signals in Data Package light: • 14087-1-1 / 4652 - telltales composite signal new signals in Data Package plus: • 14087-1-1 / 4652 - telltales composite signal • 24103-24103 / 6210 - temperature inside upper deck • 6183-6183 / 6183 - Bellow Pressure Front Axle Left Current value • 6184-6184 / 6184 - Bellow Pressure Front Axle Right Current value • 6185-6185 / 6185 - Bellow Pressure Rear Axle Left Current value • 6186-6186 / 6186 - Bellow Pressure Rear Axle Right Current value • 24100-24100 / 6204 - actual air temperature of driver area • 24102-24102 / 6206 - actual air temperature of passenger area for articulated busses (2nd signal for trailer compartment) • 23298-23298 / 6127 - Position of pantograph (up or down) REX signals: • 25117-25117/6211 - current H2 consumtion of FC in mg • 25118-25118/6212 - FuelCell Auxiliary power (Pumps and Compressor) • 25119-25119/6213 - Current power value of the fuel cell • 25120-25120/6214 - H2 Fuel Level kg • 25121-25121/6215 - H2 High Pressure • 25130-25130/6217 - High Voltage FuelCell-Side (of contactors or galvanic insulation) Voltage	2023-06-14

	adaptions: • 14145-1-1/195 engine fuel economy: attribute description has changed from average fuel economy to instant fuel economy. signal delivers instant fuel economy. deprecated signals: • 23119-23119/5129 - 12V (24V) battery voltage (signal is replaced by signal 23277-23277 / 6048) • 23120-23120/5130 - 24V battery temperature (signal is replaced by signal 23278-23278 / 6049) • 23121-23121/5131 - 24V battery current (signal is replaced by signal 23279-23279 / 6050) • 23151-23151/5559 - current value of generator's induction current (signal is replaced by 23280-23280 / 6051) • 14174-1-1/228 - IBHHVACCurrent Stat (signal is replaced by signal 14173-1-1 / 227) • 14222-1-1/277 - Inverter 1 power API2 (signal was not in use anymore)	
V4.1.1	new signals in Data Package light: • 11017-1-1/6222 - ModemRSSI new signals in Data Package plus: • 11017-1-1/6222 – ModemRSSI	2023-07-13
V5.0.0	Introduction of new V2 data format (see chapter 6.2) Main changes to V1 format: • new URLs for V2 APIs • new signalIDs (unifiedIDs) (analogous to EventHub streaming) • no translation of values (analogous to EventHub streaming), • implementation of validation codes (analogous to EventHub streaming) • only 3 active credentials per fleet can be created • elimination of parameter groups • elimination of aggregation function in historical REST API	2023-08-01
V5.0.2	new signals in Data Package plus: • 19000-61 / 4565: Axle Location Current value • 19000-62 / 4566: Axle Weight Current value • 25122-25122 / 6216 – Fuel Cell Stack Temperature In (Rex vehicle) • 25131-25131 / 6218 – Fuel Cell State Of Health (Rex vehicle) • 6509-6509 / 6509 Minimum voltage that the high voltage battery allows when connected to the DC-link • 6510-6510 / 6510 - Actual cooling mode of high voltage battery of Cooling System • 24109-24109 / 6231-HVAC heating mode driver area status	2023-10-18
V5.0.3	EventHub: Every bus data center has a buffer to save the signals while the device is offline. That buffer has its limit. Once it's reached, the bus data center overwrites old data and sets the BufferOverflow flag. The BufferOverflow Flag is set to true if there was a buffer overflow happening in the device (data is lost), otherwise null.	2024-01-24

	The new optional attribute bufferOverflow is available in the metadata (header). Buffer overflow indicates whether the device has overwritten the signal's buffer or not. true if the buffer was overwritten, otherwise null. new signals in Data Package light: • 5555 / GPS Valid Flag subsignal 508 added Mode Indicator represents validity of GPS signal. False if GPGGA-Quality is 0 (INVALID) or GNGNS-Mode contains character 'N' (No fix. Satellite system not used in position fix, or fix not valid) or GPRMC/GNRMC-Status is 'V' (Void). GPS composite signal: [{'key': 500, 'value': 0.0}, {'key': 501, 'value': 14.233334}, {'key': 504, 'value': 53.60096}, {'key': 505, 'value': 10.032449}, {'key': 506, 'value': 12}, {'key': 507, 'value': 9.260426}, {'key': 503, 'value': 251.883}, {'key': 502, 'value': 1.07}, {'key': **508**, 'value': True}] new signals in Data Package plus: • 6565-6565 / 6565 Maximum voltage that the high voltage battery allows when connected to the DC-link signal • 5555 / GPS Valid Flag subsignal 508 added Mode Indicator represents validity of GPS signal. False if GPGGA-Quality is 0 (INVALID) or GNGNS-Mode contains character 'N' (No fix. Satellite system not used in position fix, or fix not valid) or GPRMC/GNRMC-Status is 'V' (Void). GPS composite signal: [{'key': 500, 'value': 0.0}, {'key': 501, 'value': 14.233334}, {'key': 504, 'value': 53.60096}, {'key': 505, 'value': 10.032449}, {'key': 506, 'value': 12}, {'key': 507, 'value': 9.260426}, {'key': 503, 'value': 251.883}, {'key': 502, 'value': 1.07}, {'key': **508**, 'value': True}]	
V5.0.4	Introduction of new OMNIplus ON **Data Package driver display** with 3.24 OMNIplus ON release. See chapter 5.2. The Data Package driver display offers you full transparency about the driver display messages in your vehicles. The messages serve as a basis for decision-making in your control center in unpredictable operating situations and simplify communication with the drivers. This means that unnecessary vehicle replacements can be avoided through error analysis remotely during vehicle use and associated costs can be avoided. Compatibility note: The function requires hardware requirements, which will only be installed as standard from the production date of January 1, 2020. In addition, a specific configuration of the control devices is required, which can be retrofitted. For details, please contact your Digital Service Manager. Technical documentation: Information about breaking and non-breaking changes added to ON Data Package (chapter 6.1) & EventHub documentation (chapter 2.1). Information of validation codes for composite signals added (chapter 2.3, EventHub documentation). Information about connection quality added to RSSI signal in appendix A & B. new signals in Data Package light (unifiedIDs): • 256: information of remaining range • 219: air temperature inside • 160: transmission oil temperature • 5929: engine oil pressure (signal 80 is deprecated)	2024-06-10

	• 81: engine oil temperature • 4417: composite signal for tire pressure and location • 6510: actual cooling mode of high voltage battery of cooling system • 239: status main plugin-charging • 5565: status second plugin charging • 5566: status highpower charging via pantograph • 203: water in fuel indicator • 4645: energy counter HV-battery • 8886: tell tale 65: Battery pack • 8887: tell tale 66: High voltage system caution • 8888: tell tale 67: Battery pack temperature • 8889: tell tale 68: Limited performance electric motor • 8890: tell tale 69: Battery pack cooling • 83: Air Temperature Outside Current value in degrees celsius new signals in Data Package plus (unifiedIDs): • 5929: engine oil pressure (signal 80 is deprecated) • 4417: composite signal for tire pressure and location • 35: vehicle battery voltage • 194: total Engine Revolutions • 4328: secure locked status • 4329: locking Status of the Bus • 4629: actual HV-Power API1 • 4630: actual HV-Power API2 • 4650: actual HV-Power API3 • 6129: actual Power High-Power-Charging • 6135: actual Power Dual Side Charging • 8886: tell tale 65: Battery pack • 8887: tell tale 66: High voltage system caution • 8888: tell tale 67: Battery pack temperature • 8889: tell tale 68: Limited performance electric motor • 8890: tell tale 69: Battery pack cooling • 83: Air Temperature Outside Current value in degrees celsius Deprecated signals (unifiedIDs): • 4378: air temperature outside (-> use signal 83) • 80: engine oil pressure (-> use signal 5929)	
V5.0.4.1	Technical documentation ON Data Package: removal of V1 data format Technical documentation EventHub: removal of V1 data format Signal information: adapations for MIN and MAX ranges, adaptions for BEV and ICE information. Removal of signal information in V1 data format.	2024-06-20
V5.0.6	New signals in Data Package plus: • 5570 - EstimCapstatOfHealthBM01 • 5571 - EstimCapstatOfHealthBM02 • 5572 - EstimCapstatOfHealthBM03 • 5573 - EstimCapstatOfHealthBM04 • 5574 - EstimCapstatOfHealthBM05 • 5575 - EstimCapstatOfHealthBM06 • 5576 - EstimCapstatOfHealthBM07	2024-09-17

	• 5577 - EstimCapstatOfHealthBM08 • 5578 - EstimCapstatOfHealthBM09 • 5579 - EstimCapstatOfHealthBM10 • 5580 - EstimCapstatOfHealthBM11 • 5581 - EstimCapstatOfHealthBM12 • 5582 - EstimCapstatOfHealthBM13 • 5583 - EstimCapstatOfHealthBM14 • 5584 - EstimCapstatOfHealthBM15 • 5585 - EstimCapstatOfHealthBM16 • 4631 - ActualHV-PowerDCL1 • 4632 - ActualHV-PowerDCL1	
V5.0.7	New signals in Data Package light & plus: • 5097: Cruise control states • 9100: Tachograph performance • 9103: Driver time rel. States • 9106: Driver 2 time rel. States • 9107: Direction indicator • 9108: Handling information • 9109: System event • 9110: Vehicle overspeed • 9114: Enable State of doors (composite signal) • 9115, 9117, 9119, 9122, 9124, 9126, 9128, 9135, 9137, 9139: Enable Status Door 1…10 • 9116, 9118, 9120, 9123, 9125, 9127, 9134, 9136, 9138, 9140: Lock Status Door 1…10 Deprecated signals: • 4765-4821: TPM signals are deprecated. Please use TPM-composite signal 4417. • 4186/4187: lane departure warning signals are deprecated. Please use signals 4723/4724 • 194: toal engine revolutions. Please use signal 11. • 211: diesel-particle filter condition • 4180: fuel reserve tank number • 4192: brake air pressure 1. Please use signal 4585 • 4192: brake air pressure 2. Please use signal 4596 Removed signals: • 4378 air temperature outside (use signal 83) • 80 engine oil pressure (use signal 5929) Info: gps composite signal (5555): The sample rate is vehicle speed dependent. The GPS sends positions to the backend based on parameters that determine the minimum distance between positions, increasing with vehicle speed.	2025-02-04

2 Versioning

The V1 version of OMNIplus ON Data Package is not supported anymore and will be sundowned by end of year 2024. The V1 data format is not documented anymore in this technical documentation. Also the WebSocket interfaces are sundowned. For real time streaming data please use the EventHub technology (see separate technical description).

This documentation describes the current OMNIplus ON Data Package V2 APIs which are provided in the V2 data format.

The OMNIplus ON Data package interfaces have received an upgrade regarding performance and stability with the new V2 version.

3 Step-by-step instructions

Step-by-step instructions:

1. The prerequisite for the OMNIplus ON Data Package services is a telematics platform (bus data center) installed in your Mercedes-Benz or Setra vehicle.

2. Register in the OMNIplus ON customer portal and initialize your vehicles. The vehicle data must be entered here.

3. In the OMNIplus ON portal, you can book an appropriate data package in the *ON commerce - book digital services* section.

4. After confirmation of the booking by your Digital Service Manager, you can store a maximum of 3 access authorizations in the OMNIplus ON portal under – *My Organization – My offboard data interfaces – ON Data Package & ON monitor*. This is where you define for which booked vehicles you would like to release signals to the data interfaces for which time period. Finally, you receive what are known as the Client Credentials, consisting of the Client ID and Client Secret. Please handle your Client Credentials (hereinafter referred to as Credentials) with care. Please only pass them on to authorized individuals. Further information can be found in chapter “Setting up access authorization”.

5. A fleet management system uses the above-mentioned Credentials to send requests to the data interfaces. An Access Token is generated to this end. It contains all the necessary information to receive the data points for your vehicles. Further information can be found in chapter “Generating access token”.

4 Setting up access authorization / generating access token

4.1 Setting up access authorization

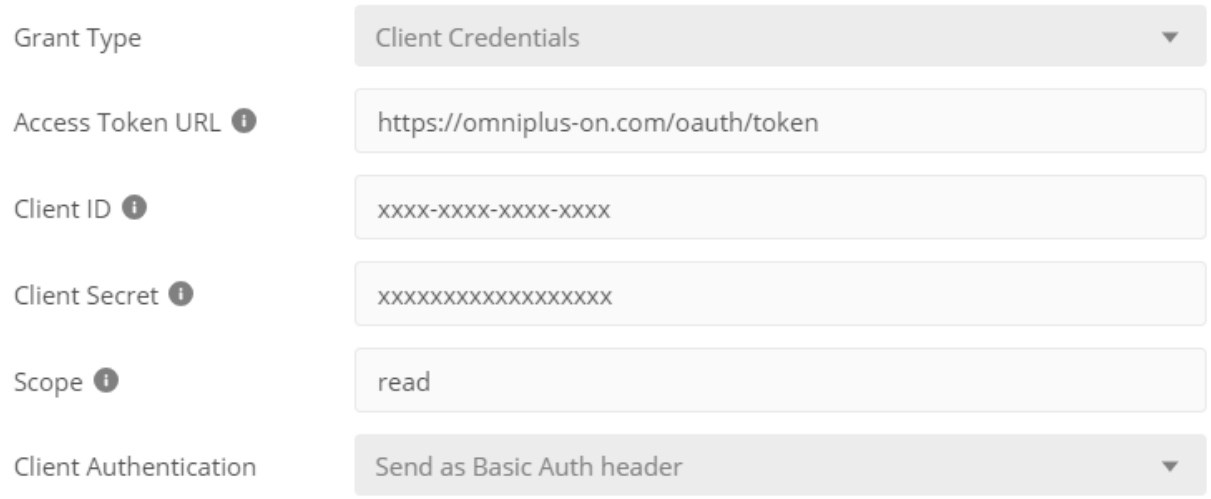
Access authorization is necessary in order to use the data interfaces described below. You can set up and manage these in the OMNIplus ON customer portal in the section *My Organisation – My offboard data interfaces – ON Data Package & ON monitor*. Via the access authorization, an access token is generated with each new request, and this activates the data points of the data package booked for the data interface. Only the OMNIplus ON roles company administrator and buyer are authorized to set up access authorizations. When setting up the access authorization, you specify for which booked vehicles signals are released to the data interfaces for which period of time. Afterward, you can print out the generated credentials (Client ID and Client Secret). Please be aware, that this is the only moment where you can view and store the created credentials. You have the opportunity to create a maximum of 3 authorizations and manage them in the OMNIplus ON portal in the *My offboard data interfaces* section.

The credentials are valid for all OMNIplus ON Data Package services. **With the introduction of the V2, only 3 active credential sets will be allowed**. So if you currently have more, it is recommended to clean up your credentials.

4.2 Generating access token

The access token is created according to the OAuth2 standard. To do this, use the valid credentials previously created in the OMNIplus ON portal. The scope parameter is not relevant for the current call.

Example: GET access token (access token URL: https://omniplus-on.com/oauth/token)



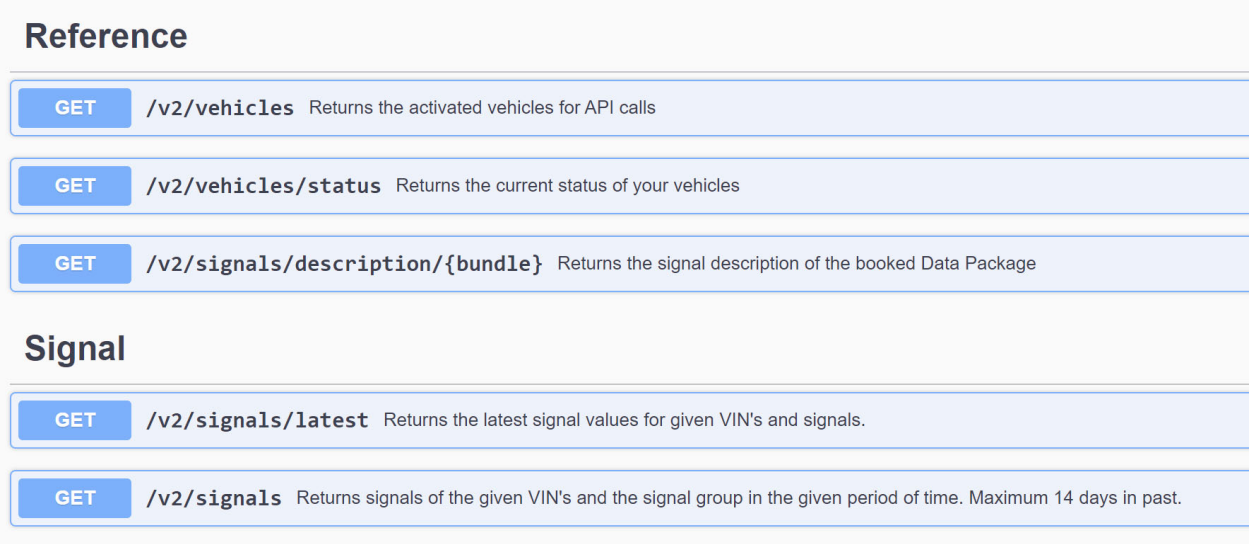
The access token is valid for 1 hour. A new access token must be generated before this hour expires.

5 REST interfaces

Use the existing REST (REpresentational State Transfer) interface in order to call up historical data on the vehicle and diagnostic data (Protocol: HTTP / JSON).

5.1 REST - Data Package light and plus

At the REST interface, you can request data points for one or several vehicles. The following requests are possible at the REST interface:

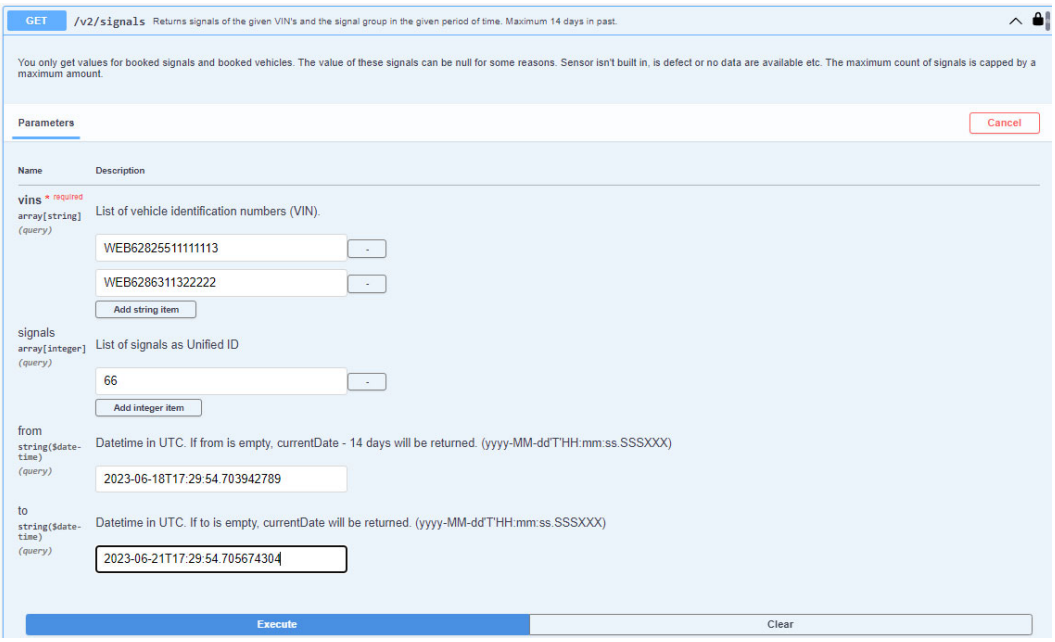


You can access the services via the following endpoint:
https://omniplus-on.com/data

You can find details for requests to the data interfaces in the Swagger documentation:
https://omniplus-on.com/data/swagger-ui.html

5.1.1 Historical data interfaces (APIs)

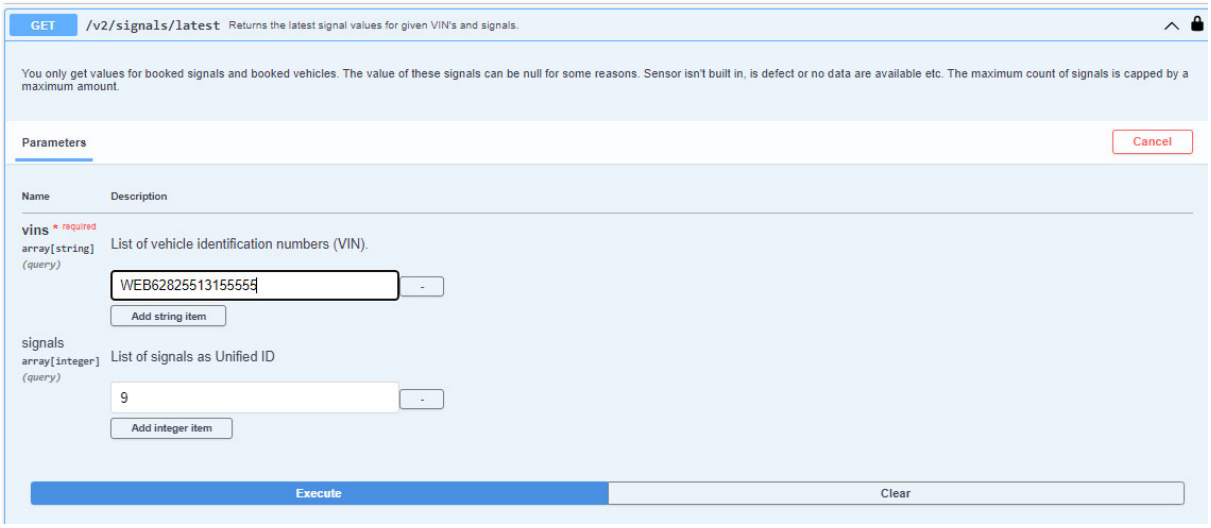
The Historical API ***v2/signals*** allows data to be retrieved up to 14 days into the past.



Shorttext	Description
Restrictions for REST interface *v2/signals*	• The maximum time period for requests are 14 days. • Please note that the query size is limited. The request size depends on the parameters number of vehicles, number of signals and the selected time period. • The result contains in maximum 500.000 values. • Queries are possible every 5 seconds. • Please also note that the requested data will only be fully available with approx. 60 minutes of latency after the signals were sent from the vehicle.

5.1.2 Last value data interfaces (APIs)

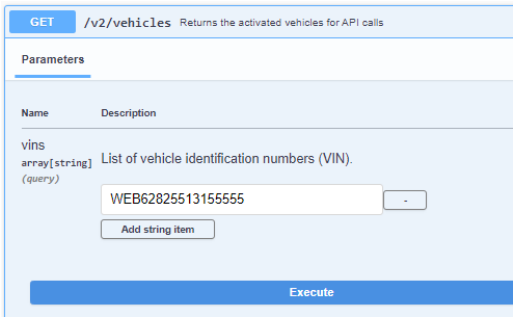
The LastValue API ***v2/signals/latest*** can be used to query the last value of a signal.



Shorttext	Description
Restrictions for REST interface *v2/signals/latest*	• Data points are available for a maximum of the last 30 days. • Queries are possible every 5 seconds.

5.1.3 Reference interfaces (APIs)

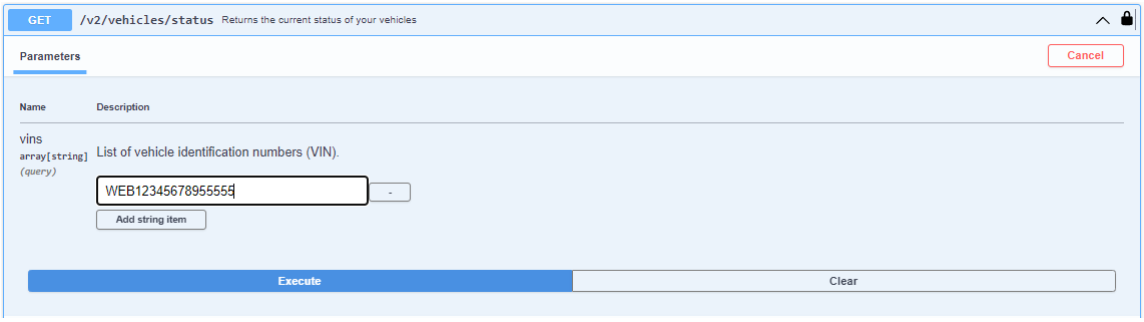
The REST API ***v2/vehicles*** provides information about the bundles (booked services).



Shorttext	Description

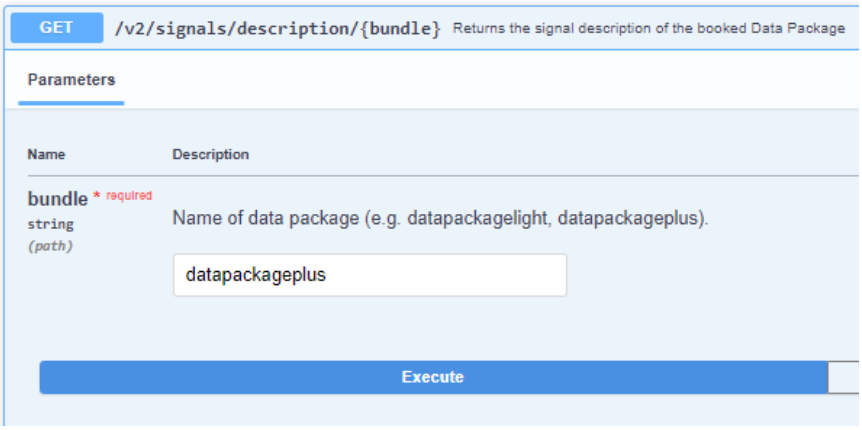
Response format	The vin and the booked bundels are in the response.
	Response body
	[
	{
	"vin": "WKK41000213119471",
	"bundles": [
	"datapackageplus"
	]
	},
	{
	"vin": "WKK41025113126123",
	"bundles": [
	"datapackageplus",
	"datapackagediagnostic"
	]
	}
	]

The REST API ***v2/vehicles/status*** provides information about the ignition switch state of each vehicle.



Shorttext	Description
ignition switch state	The ignition switch state value of each vehicle is requested.

The reference API ***v2/description*** provides signal meta information like unit, datatype, translation information (states), a short signal description (attribute description) and the signal name:



Shorttext	Description
Metadata information	You get for each signal the information of the ID (unifiedID), signal name (alias) and short description, the V2 datatype value and description of the datatype, the V2 unit value and description of the unit, information about MIN and MAX values for each signal, translation information of signal values (states), information if the signals are available for BEV (EDB) and/or ICE vehicles and if a signal is deprecated.
Response format	{ "id": "66", "alias": "IgnitionSwStat", "description": "ignition switch state", "bev": null, "ice": "1", "datatypeValue": 7, "datatypeDescription": "enum", "unitValue": 0, "unitDescription": "No unit", "min": null, "max": null, "state": "0=IGN_OFF, 10=LOCK, 1=IGN_ACC, 2=IGN_ON, 3=IGN_CRANK", "deprecated": false, "bundles": ["datapackageplus"] },
Endpoint and request parameter	• Endpoint: ***/v2/signals/description/{bundle}*** • Request parameter “bundle” is the name of the booked Data Package “datapackagelight” or “datapackageplus”. • The response is not vehicle specific, but only refers to the bundle and can also contain signals that are not present in the vehicle.

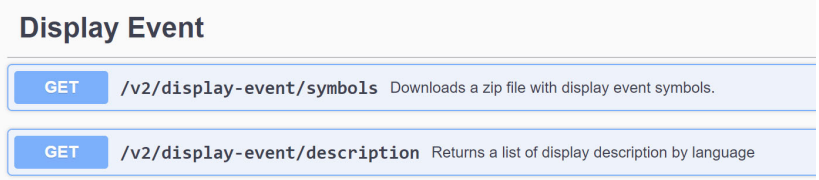
5.2 REST – Data Package driver display

The OMNIplus ON Data Package driver display offers you full transparency about the driver display messages in your vehicles. The messages serve as a basis for decision-making in your control center in unpredictable operating situations and simplify communication with the drivers. This means that unnecessary vehicle replacements can be avoided through error analysis remotely during vehicle use and associated costs can be avoided.

The data is provided via a real-time interface (EventHub) or the REST last value data interface or REST historic data interface. Precondition is a valid booking of Data Package driver display.

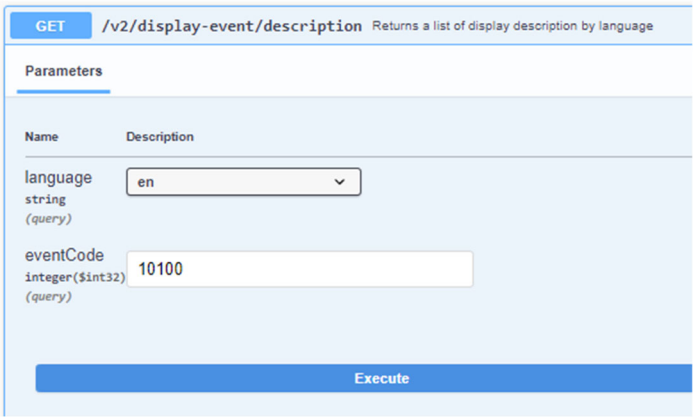
The unifiedID of this driver display signal is 4607.

To translate the driver display event messages we offer the REST interface */v2/display-event/description*.



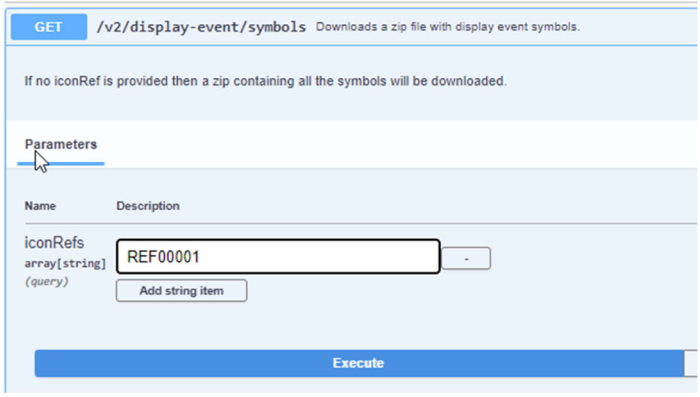
Each driver display event is defined by an unique eventCode. Every driver display event contains a short- and longtext information. With the iconRef you can request at */v2/display-event/symbols* the symbol of this display event. The requested symbols (png format) can be downloaded as a zip file. If the parameter iconRef is null all available symbols are requested.
The colour of the symbol is available at the interface */v2/display-event/description.*

REST interface ***v2/display-event/description*** for translating driver display event:




```
[
  {
    "eventCode": 10100,
    "iconRef": "REF00001",
    "color": "red",
    "longtext": "Visit workshop.",
    "shorttext": "Battery not being charged"
  }
]
```

REST interface ***v2/display-events/symbols*** for downloading driver display symbols:



You can access the display-event interfaces via the following endpoint:
https://omniplus-on.com/data

You can find details for the request at the data interfaces in the Swagger documentation:
https://omniplus-on.com/data/swagger-ui.html

5.3 REST - Data Package diagnostic

With the aid of the diagnostic data interface (OMNIplus ON Data Package diagnostics) you have the opportunity to send a request regarding the error status of the control units to your vehicle. The diagnostic data interface enables you to make the following requests:

1. Request a new diagnosis quicktest from the vehicle: *v2/diagnosis/snapshot/{vin}/request*
2. Call up the timestamp of the last diagnosis quicktest: *v2/diagnosis/timestamp/{vin}*
3. Request the vehicle's last diagnosis quicktest: *v2/diagnosis/snapshot/{vin}/latest*

At the REST interface, you receive the diagnosis data in the machine-readable JSON format, which means that you can process them further in your IT systems.

With requests 2 and 3 the data from the last diagnosis quicktest generated in the vehicle are retrieved in the OMNIplus ON backend. The requests are not restricted. Please note that a diagnosis quicktest does not replace the full diagnosis of your vehicle at a specialist workshop. The quicktest merely gives you an initial indication of the state of health of your vehicle. A workshop appointment is necessary for an extensive diagnosis.

By requesting the current diagnosis quicktest (1.) a new quicktest is generated in the vehicle and sent from your vehicle via the telematics platform to the backend. Please note that after requesting a new quicktest from the vehicle, the function is blocked for 30 minutes. After that, the function is then at your disposal again. Ensure that the ignition of your vehicle is switched on and that data reception is ensured via the mobile network to allow data to be received and sent. The newly created diagnosis quicktest is available to you after about 15 minutes (note: due to various influencing factors, the latency may deviate considerably in some cases). As soon as the requested quicktest is available in the OMNIplus ON backend, you can query it with request 3. By requesting the time stamp (2.) you have the opportunity to check whether a new quicktest has already arrived in the OMNIplus ON backend.

Please note, the timestamps of all three diagnostic requests are submitted in UTC-format.

You can access the diagnostic data interface via the following endpoint:
https://omniplus-on.com/data

You can find details for the request at the data interfaces in the Swagger documentation:
https://omniplus-on.com/data/swagger-ui.html

Endpoint and request parameters	• Endpoints: ***/v2/diagnosis/snapshot/{vin}/request*** ***/v2/diagnosis/snapshot/{vin}/latest*** ***/v2/diagnosis/timestamp/{vin}*** • Mandatory request parameter: “vin” • If the “language” parameter is missing for *v2/diagnosis/snapshot/{vin}/lastest* English will be the default language.

6 Data Format

Due to the sundown of V1 APIs the only available data format is V2 data format.

6.1 Breaking and non-breaking changes

Handling changes is one of the trickiest topics for a developer. You need to find a balance between two contradictory goals:

Continuous evolvement of your product, adding new features, and enhance old ones generate additional benefit to the customers and keep your product on competitive edge.
Knowing that continuity is paramount to your customers, so changes should have minimal impact on existing integrations.

In any case, you want to avoid / reduce the amount breaking changes, which can cause your customer's applications to fail. Therefore, it is important to differentiate between the following types of changes.

Information type	**Description**
Breaking change	A breaking change to an API involves **modifying** or **deleting existing parts of API**. If a customer is consuming a deleted resource/field/structure some parts of their application will cease to function. Modification is less likely to break applications. Even if a customer is using the resource/field/structure that is modified, there is a chance their application will continue to work as normal, depending on the implementation. Of course, modification still carry the risk to break applications or to let them behave differently than expected. Daimler Buses will announce introduction of breaking changes three months before release. Security critical and operational critical findings may be solved instantly without any prior communication.
Non-breaking change	Daimler Buses strives to implement changes to the API without affecting the customer side. In case non-breaking changes to the API are needed, they may be released at any time. Introducing **additional** and **optional parts to an API** as well as **deleting optional parts** are non-breaking changes. Since these changes don't affect existing flows, they shouldn't break customer's applications. If in these cases the customer's application break, those are not coded in best way.
Maintenance	From time to time, some maintenance activities need to be done. Those can contain all kind of changes: breaking & non-breaking changes, also changes without any adjustments on the external APIs. Maintenance

	activities can have an impact on the availability and in some cases a planned downtime.

Before mentioned topics apply to ON Data Package APIs, Event Hubs, message schema and signal configuration.

Examples:

	Breaking changes	**Non-breaking changes**
API	• New endpoint connection address is introduced • Mandatory request parameters are removed or added.	• Additional optional request parameter is offered. • New service is offered with a new API.
Message schema	• Removing properties that were an obligatory part of the response message like signal ID, timestamp, values. • Adding new obligatory properties to a message. If newly introduced properties are crucial for processing the signals it would be considered a breaking change.	• Adding new optional properties to a message. Introducing a new property that does not necessarily be considered on the customer side is a non-breaking change • Removal of optional properties in a message. Removing a property that is not crucial for the processing of signals is considered non-breaking. Customer must be able to handle the removal of optional properties in their applications
Signal configuration	• Change of crucial signal properties, e.g. signal ID. • Removal of signals in the Data Packages	• Change of signal meta data e.g. signal name or signal description • Change of signal frequency (sample rate)

6.2 Data Format

6.2.1 Signal IDs (UnifiedIDs)

Shorttext	Description
UnifiedIDs	Each signal has a unique unifiedID. E.g. signal ignition switch state: unifiedID = 66. UnifiedIDs are mandatory. At *v2/description* API or at the attachment "Appendix A" of this technical documentation you find the overview of all available signals for each Data Package.

6.2.2 Signal values

Shorttext	Description
Response data format	The data format provides the data values without translation. The translation information is offered at the reference *v2/description* API. Please note: the data format is very similar to the data format that is offered at the EventHub data interface. Data format of a response example for the ignition switch state signal: The unifiedID for the ignition switch state signal is 66. The data "value" is not translated ("0" = "IGN_OFF"). The timestamp is submitted in UTC-format. Treatment is currently not relevant information `{ "id": 66, "vin": "WEB12345678901234", "values": [ { "value": 0, "timestamp": 1681473238869, "treatment": 1 } ] }`
Composite signal format for GPS and Telltales signals	Gps signal (unifiedID = 5555) and telltales signal (unifiedID = 4652) are composite signals. You find detailed information about the GPS keys 500 – 508 at the reference *v2/signals/description* API or at the appendix A. We also offer a telltales composite signal in the same format (unifiedID = 4652).

```
{
  "id": 5555,
  "vin": "WEB12345678901234",
  "values": [
   {
    "keyValue": [
     {
      "key": 500,
      "value": 0
     },
     {
      "key": 501,
      "value": 116.30001
     },
     {
      "key": 504,
      "value": 49.513115
     },
     {
      "key": 505,
      "value": 8.49086
     },
     {
      "key": 506,
      "value": 7
     },
     {
      "key": 507,
      "value": 0.6745546
     },
     {
      "key": 503,
      "value": 321.63
     },
     {
      "key": 502,
      "value": 17.68
     }
     {
      "key": 508,
      "value": True
     },
    ],
    "timestamp": 1681465852000
   }
```

	Telltales composite signal: [{ "id": 4652, "vin": "WEB62864013139886", "values": [{ "keyValue": [{ "key": 4867, "value": 0 }, { "key": 4868, "value": 0 }, { "key": 4869, "value": 0 }, { "key": 4870, "value": 0 }, { "key": 4871, "value": 0

6.2.3 Validation codes

Shorttext	Description
validation codes	The V2 data format offers validation codes. Validation codes provide information if the signal value is not valid. The payload gets extended with the validation code only for signals where the validation fails. Validation codes will appear in the form [1002, 2001]. Example: `{ "id": 4, "vin": "WEB12345678901234", "values": [ { "value": 439.8003, "timestamp": 1681473238869, "treatment": 1 "validationCodes": [ 1002, 2001 ] } ] }`

Detailed validation finding codes

Code	Name	Description
0	ERROR_DURING_VALIDATION	During the signal validation an error occured. The signal may not be trusted.
1	ERROR_SIGNAL_STATE_ERROR	An ecu sent a signal value that indicates an error.
2	SPEC_STATE_MAPS_TO_ERROR	An ecu sent a signal and according to the signal mapping service the current value maps to an error.
3	SIGNAL_STATE_INVALID_VALUE	An ecu sent a signal value that indicates an invalid value.
4	SIGNAL_STATE_INVALID_TYPE	An ecu sent a signal that indicates an invalid type.

1001	SIGNAL_STATE_NOT_AVAILABLE	An ecu sent a signal that indicates a signal not available.
1002	SPEC_STATE_MAPS_TO_SIGNAL_NOT_AVAILABLE	An ecu sent a signal and according to the signal mapping service the current value maps to "signal not available".
1003	GENERAL_KEY_VALUE_VIOLATION	Indicating one or more KeyValues in the composite signal (e.g. 4417 tirepressure or 4652 telltales) were malformed. Check single validation codes of KeyValues in composite signal to get more information.
2001	SPEC_VIOLATED_NO_SPEC_DEFINITION_FOUND_IN_SMS	variations of spec violated
2002	SPEC_VIOLATED_VALUE_LT_THAN_DEFINED_MIN	
2003	SPEC_VIOLATED_VALUE_GT_THAN_DEFINED_MAX	
2004	SPEC_VIOLATED_DEFINED_AS_ENUM_BUT_NO_ENUM_DEFINED_FOR_GIVEN_INT	
2005	SPEC_VIOLATED_NO_MAPPING_FOUND_IN_SMS	
2006	SPEC_VIOLATED_VALUE_RECEIVED_IS_BOOL_BUT_HAS_NO_BOOL_DEF_IN_SMS	
2007	SPEC_VIOLATED_VALUE_RECEIVED_IS_BOOL_BUT_DEF_IN_SMS_DOES_NOT_MATCH_BOOL_STATES	
2008	SPEC_VIOLATED_MORE_COMPOSITE_SIGNALS_FOUND_IN_SMS_THEN_RECEIVED	
2009	SPEC_VIOLATED_MORE_COMPOSITE_SIGNALS_RECEIVED_THAN_FOUND_IN_SMS	
2010	SPEC_VIOLATED_VALUE_IS_NULL	
2011	SPEC_SMS_TYPE_UNKNOWN	
2012	SPEC_VALUE_TYPE_SMS_TYPE_MISMATCH	
2013	SIGNAL_DEPRECATED	

Validation codes always come as a *list* or *not at all.*

Not at all:
In this case, there are no validation findings and most likely everything is good with the signal data.

List:
The lower the number of the first digit the more severe is the finding.
It can be that one signal has multiple validation findings.

Examples for using the validation codes:
If you have a use case like "show gps position and speed on a map", then we would recommend that you filter out all data that have a validation findings, as you don't' want to bother with data cleaning in all its details. You just want the valid data to be visible on plots.

If you want to build a connectivity quality dashboard that shows you how often the vehicles send accurate data and problematic data, you may want to count the occurance of the different findings.

If you have a use case, where you need to know the health of your vehicle components or want to do advanced analytics, you may want to pay special attention to all the different detailed findings.

6.2.4 Treatment Value

Shorttext	**Description**
Treatment information	Currently, the value for the treatement information is not yet significant and is always “1”.

7 Notes

The prerequisite for the use of the data interfaces is a telematics platform (bus data center) installed in your vehicle. Please note that the data interface only makes values available on change. If values remain the same, no new data points are sent to the OMNIplus ON backend from the telematics platform. Depending on the data point the telematics platform can send them a maximum of 100ms. A time delay is possible due to the data transmission route to the OMNIplus ON backend.

Daimler Buses GmbH reserves the right to add additional data points to or remove them from the existing data packages. The availability of vehicle signals and the values received depend on the vehicle equipment installed and thus vary for each vehicle. The actual availability of signals is not guaranteed by Daimler Buses GmbH. The prerequisite for capturing data on the OMNIplus ON backend is a functioning power supply in the vehicle via the starter battery and a mobile data connection from the vehicle. On vehicles with a battery disconnect switch, correct operation of the battery disconnect switch is assumed. Excessive use of electronic devices in the vehicle without interim battery charging with the engine running can result in the battery discharging. A longer non-operational time can also result in the telematics unit in the vehicle switching off. This interrupts the mobile data connection to the vehicle.

Please note the current data protection regulations when further processing the data points. The current terms of use of the OMNIplus ON Portal apply. You can find these under *OMNIplus ON Customer Portal – Your Profile – Terms of Use*.

If you have any questions on setting up the OMNIplus ON Data Packages services please contact your Digital Service Manager (DSM).

8 Appendix A: signal information

Overview of Data Package light and Data Package plus data points

Some data points are only available for electric vehicles (BEV) or for diesel vehicles (ICE).

unifiedID	category	signal_name	attribute_description	datatype_V2_value	datatype_V2_description	unit_V2_value	unit_V2_description	min_V2	max_V2	state_V2	sample_rate (ms) on change*	FMS 5	VDV 238	BEV (electric bus)	ICE (combustion engine)	Data Package light	Data Package plus	Data Package driver display	depre-cated	remarks
18	BatteryUtilities	TotalFuelUsed	total fuel used	3	double	6	Litre (l)	0	4211081		500	x		1	1	x	x		false	20.06.2024: signal available for BEV and ICE vehicles but valid signals only for ICE vehicles.
25	BatteryUtilities	FuelLev	fuel level	5	float	1	Percentage (%)	0	100		30000	x		0	1	x	x		false	
33	BatteryUtilities	AdBlueTankLev	adblue tank level	4	float	1	Percentage (%)	0	100		30000			0	1	x	x		false	
35	BatteryUtilities	BatteryVoltage	vehicle battery voltage	3	double	10	Volt (V)	0	3,4028E+38		2000			1	1		x		false	15.03.2024: new signal, release 5.0.4
62	BatteryUtilities	AdblueSeverityStat	adblue severity state	7	enum	0	No unit			0=Great equal than reserve, 1=Less than reserve, 2=EMPTY	2000			0	1		x		false	
203	BatteryUtilities	WaterInFuelIndicator	water in fuel indicator	7	enum	0	No unit			0=OFF, 1=ON	30000	x		0	1	x	x		false	22.02.2024: FMS 5 standard; signal added to Data Package light;
221	BatteryUtilities	BatVoltLev	battery voltage current value	4	float	10	Volt (V)	0	3212,75		500		x	1	1		x		false	
4179	BatteryUtilities	FuelReserveState	fuel reserve state	7	enum	0	No unit			0=NO_RESV, 1=RESV	2000			0	1		x		false	
4180	BatteryUtilities	FuelReserveStatTankNumber	fuel reserve tank number	7	enum	0	No unit			0=NO_RESV, 1=RESV	2000			0	1		x		true	28.01.2025: signal is deprecated.
4460	BatteryUtilities	EngineOilReplVolCval	engine oil replenishment volume current value	4	float	6	Litre (l)	-10	15		60000			0	1		x		false	
4540	BatteryUtilities	GVCFuelTankCapacity	gvc fuel tank capacity	5	int	6	Litre (l)	0	5000		86400000			1	1	x	x		false	20.06.2024: signal available for BEV and ICE vehicles but valid signals only for ICE vehicles.
5119	BatteryUtilities	MaxUreaLev	maximum urea level current value	5	int	6	Litre (l)	0	250		2000			0	1		x		false	
5120	BatteryUtilities	OilTempTorqueConverterCval	oil temperature torque converter current value	4	float	12	Degree Celsius (C)	-273	1734,96875		1000			0	1		x		false	
5126	BatteryUtilities	OilReplRequ	oil replenishment request	7	enum	0	No unit			0=NACT, 1=ACTIVE	1000			0	1		x		false	
5127	BatteryUtilities	DispOfOilLevRepl	display of oil level replenish current state - oil level sensing and oil replenish state	7	enum	0	No unit			0=No text indication only volume indication, 1=Too high oil level, 10=No oil level sensing, switched off, 2=High oil level, 3=Low oil level, 4=Too low oil level, 5=Oil level sensing in progress after engine off, 6=No oil level sensing, engine running, 7=No oil level sensing, vehicle inclination, 8=Oil level ok, 9=No oil level sensing, sensor error	1000			0	1		x		false	
6048	BatteryUtilities	12VBatVolt	12V (24V) battery voltage	4	float	10	Volt (V)	4	18		1000			1	1		x		false	new signal, release 3.9.9. available in March with new configuration.
6049	BatteryUtilities	24VBatTemp	24V battery temperature	5	int	12	Degree Celsius (C)	0	254		1000			1	1		x		false	new signal, release 3.9.9
6050	BatteryUtilities	24VBatCurrent	24V battery current	5	int	28	Ampere (A)(amp)	-1500	200		1000			1	1		x		false	new signal, release 3.9.9
6105	BatteryUtilities	DispWarnBatEmerLV	low voltage battery charge state is too low to send warning for over temperature signal	7	enum	0	No unit			0=NO_WARN, 1=PRE_WARN, 2=WARNING	1000			1	0		x		false	new signal, release 3.9.9, MUX firmware update necessary (A0024480303), signal only available for EDB.
8	Chassis	BrakeSwStat	brake switched	7	enum	0	No unit			0=OFF, 1=ON	2000	x		1	1	x	x		false	
16	Chassis	RetarderLev	retarder level	7	enum	0	No unit			0=OFF, 5=LEVEL5, 1=LEVEL1, 2=LEVEL2, 3=LEVEL3, 4=LEVEL4	2000			1	1	x	x		false	
34	Chassis	HandBrakeStat	parking brake status	7	enum	0	No unit			0=OFF, 1=ON	2000	x		1	1	x	x		false	
90	Chassis	SteeringWheelAngle	steering wheel angle	3	double	14	Radian (rad)	-31,37	31,3750234		500	x		1	1	x	x		false	
97	Chassis	RetarderPercentTorque	retarder percent torque	5	int	1	Percentage (%)	-125	125		30000	x		0	1	x	x		false	
98	Chassis	BrakePedalPos	brake pedal position	4	float	1	Percentage (%)	0	100		500	x		1	1	x	x		false	please note: do not use any more signal_ID 14036-1-1. instead please use 14047-1-1
109	Chassis	EmergBrakeWarnStat	emergency brake state	7	enum	0	No unit			0=OFF, 1=ON	2000			1	1		x		false	
158	Chassis	BSYawRate	bs yaw rate	3	double	19	Radian per second (rad/s)	-3,92	3,91996582		100			1	1		x		false	
193	Chassis	RetarderTorqueDemand	retarder percent torque demand	5	int	1	Percentage (%)	-125	125		30000			0	1	x	x		false	
222	Chassis	HaltBrakeMode	halt brake mode current state from BS	7	enum	0	No unit			0=INACT, 5=INDEF3, 1=ACT, 2=ACTERR, 3=DISENGENG, 4=INDEF2	2000			1	1		x		false	
251	Chassis	PowedVehWeight	powered vehicle weight current value chassis level control module	5	int	25	Kilogram (kg)	0	642550		1000			1	0		x		false	05.07.2023: signal only valid for BEV vehicles. For ICE vehicles please use signal 14034-1-1 (unifiedId 21).
284	Chassis	RetarderSwMaxPos	retarder switch maximum position current state	5	int	0	No unit	0	15	0=MP0, 1=MP1, 2=MP2, 3=MP3, 4=MP4, 5=MP5	2000			0	1		x		false	
4192	Chassis	BrakeAirPressure1	brake air pressure 1	5	int	13	Kilopascal (kPa)	0	2000		1000			0	1	x	x		true	29.01.2025: signal is deprecated. Please use signal 4585
4193	Chassis	BrakeAirPressure2	brake air pressure 2	5	int	13	Kilopascal (kPa)	0	2000		1000			0	1	x	x		true	29.01.2025: signal is deprecated. Please use signal 4596
4417	Chassis	TirePressureModule	Provides TPM information as per ISO 11992-2 and sends out the whole 64bits payload. Will be processed in backend and placeholder unifiids will be filled with result for Pressure, Temperature and Battery Durability: 4765 till 4821	2	bytes	0	No unit				2000	x	x	1	1	x	x		false	10.12.2024: composite signal for TPM; 15.03.2024: new signal, release 5.0.4
4466	Chassis	TPMWarnStatus	TPM warning status	7	enum	0	No unit			0=OK, 1=YLWWARN, 2=REDWARN	30000			1	1		x		false	
4565	Chassis	Axle Location Current value	axle location current value	7	enum	0	No unit	0	254	15=1.Axle (0F), 31=2.Axle (1F), 47=3.Axle (2F), 63=4.Axle (3F), 79=5.Axle (4F)	2000			1	1		x		false	23.10.2023: new signal, release 5.0.2. Signal is not available for coaches. only for low floor vehicles. standard signal for BEV. Optional for citaro vehicles with sales code H240 (apartnumber: A.010.447.52.17).
4566	Chassis	Axle Weight Current value	axle weight current value	4	float	25	Kilogram (kg)	0	32127,5		2000			1	1		x		false	23.10.2023: new signal, release 5.0.2. Signal is not available for coaches. only for low floor vehicles. standard signal for BEV. Optional for citaro vehicles with sales code H240 (apartnumber: A.010.447.52.17).
4585	Chassis	ServiceBrakeAirPressureCircuit1	service brake air pressure circuit #1 from ICUC	5	int	13	Kilopascal (kPa)	0	2000		1000	x	x	1	1	x	x		false	30.01.2025: sample rate changed from 30000 to 1000ms
4596	Chassis	ServiceBrakeAirPressureCircuit2	service brake air pressure circuit #2 from ICUC	5	int	13	Kilopascal (kPa)	0	2000		1000	x	x	1	1	x	x		false	30.01.2025: sample rate changed from 30000 to 1000ms
4746	Chassis	BrakeWearFA1LtWhl	brake wear front axle 1 left wheel	4	float	1	Percentage (%)	0	100		1000		x	1	1		x		false	
4747	Chassis	BrakeWearFA1RtWhl	brake wear front axle 1 right wheel	4	float	1	Percentage (%)	0	100		1000		x	1	1		x		false	
4748	Chassis	BrakeWearRA1LtWhl	brake wear rear axle 1 left wheel	4	float	1	Percentage (%)	0	100		1000		x	1	1		x		false	
4749	Chassis	BrakeWearRA1RtWhl	brake wear rear axle 1 right wheel	4	float	1	Percentage (%)	0	100		1000		x	1	1		x		false	
4750	Chassis	BrakeWearAALtWhl	brake wear articulated axle left wheel	4	float	1	Percentage (%)	0	100		1000		x	1	1		x		false	
4751	Chassis	BrakeWearAARtWhl	brake wear articulated axle right wheel	4	float	1	Percentage (%)	0	100		1000		x	1	1		x		false	
4765	Chassis	TirePressureA1Ltln	1. axle left inner pressure	4	float	13	Kilopascal (kPa)	0	1391,5		500		x	1	1		x		false	07.11.2024: please use TPM-composite signal 4417 for all tire information
4766	Chassis	TireTempA1Ltln	1. axle left inner temperature	5	int	12	Degree Celsius (C)	-40	125		500		x	1	1		x		false	07.11.2024: please use TPM-composite signal 4417 for all tire information
4767	Chassis	TireBatDurabilityA1Ltln	1. axle left inner battery durability	7	enum	37	Month (m)				86400000		x	1	1		x		false	07.11.2024: please use TPM-composite signal 4417 for all tire information
4768	Chassis	TirePressureA1Rtln	1. axle right inner pressure	4	float	13	Kilopascal (kPa)	0	1391,5		500		x	1	1		x		true	04.02.2025: please use TPM-composite signal 4417 for all tire information
4769	Chassis	TireTempA1Rtln	1. axle right inner temperature	5	int	12	Degree Celsius (C)	-40	125		500		x	1	1		x		true	04.02.2025: please use TPM-composite signal 4417 for all tire information
4770	Chassis	TireBatDurabilityA1Rtln	1. axle right inner battery durability	7	enum	37	Month (m)				86400000		x	1	1		x		true	04.02.2025: please use TPM-composite signal 4417 for all tire information
4771	Chassis	TirePressureA2LtOu	2. axle left outer pressure	4	float	13	Kilopascal (kPa)	0	1391,5		500		x	1	1		x		true	04.02.2025: please use TPM-composite signal 4417 for all tire information
4772	Chassis	TireTempA2LtOu	2. axle left outer temperature	5	int	12	Degree Celsius (C)	-40	125		500		x	1	1		x		true	04.02.2025: please use TPM-composite signal 4417 for all tire information
4773	Chassis	TireBatDurabilityA2LtOu	2. axle left outer battery durability	7	enum	37	Month (m)				86400000		x	1	1		x		true	04.02.2025: please use TPM-composite signal 4417 for all tire information
4774	Chassis	TirePressureA2Ltln	2. axle left inner pressure	4	float	13	Kilopascal (kPa)	0	1391,5		500		x	1	1		x		true	04.02.2025: please use TPM-composite signal 4417 for all tire information
4775	Chassis	TireTempA2Ltln	2. axle left inner temperature	5	int	12	Degree Celsius (C)	-40	125		500		x	1	1		x		true	04.02.2025: please use TPM-composite signal 4417 for all tire information
4776	Chassis	TireBatDurabilityA2Ltln	2. axle left inner battery durability	7	enum	37	Month (m)				86400000		x	1	1		x		true	04.02.2025: please use TPM-composite signal 4417 for all tire information
4777	Chassis	TirePressureA2Rtln	2. axle right inner pressure	4	float	13	Kilopascal (kPa)	0	1391,5		500		x	1	1		x		true	04.02.2025: please use TPM-composite signal 4417 for all tire information
4778	Chassis	TireTempA2Rtln	2. axle right inner temperature	5	int	12	Degree Celsius (C)	-40	125		500		x	1	1		x		true	04.02.2025: please use TPM-composite signal 4417 for all tire information
4779	Chassis	TireBatDurabilityA2Rtln	2. axle right inner battery durability	7	enum	37	Month (m)				86400000		x	1	1		x		true	04.02.2025: please use TPM-composite signal 4417 for all tire information
4780	Chassis	TirePressureA2RtOu	2. axle right outer pressure	4	float	13	Kilopascal (kPa)	0	1391,5		500		x	1	1		x		true	04.02.2025: please use TPM-composite signal 4417 for all tire information
4781	Chassis	TireTempA2RtOu	2. axle right outer temperature	5	int	12	Degree Celsius (C)	-40	125		500		x	1	1		x		true	04.02.2025: please use TPM-composite signal 4417 for all tire information
4782	Chassis	TireBatDurabilityA2RtOu	2. axle right outer battery durability	7	enum	37	Month (m)				86400000		x	1	1		x		true	04.02.2025: please use TPM-composite signal 4417 for all tire information
4783	Chassis	TirePressureA3LtOu	3. axle left outer pressure	4	float	13	Kilopascal (kPa)	0	1391,5		500		x	1	1		x		true	04.02.2025: please use TPM-composite signal 4417 for all tire information
4784	Chassis	TireTempA3LtOu	3. axle left outer temperature	5	int	12	Degree Celsius (C)	-40	125		500		x	1	1		x		true	04.02.2025: please use TPM-composite signal 4417 for all tire information

*the data interface only makes values available on change. If values remain the same, no new data points are sent from the vehicle to the backend

unifiedID	category	signal_name	attribute_description	datatype_V2_value	datatype_V2_description	unit_V2_value	unit_V2_description	min_V2	max_V2	state_V2	sample_rate (ms) on change*	FMS 5	VDV 238	BEV (electric bus)	ICE (combustion engine)	Data Package light	Data Package plus	Data Package driver display	depre-cated	remarks
4785	Chassis	TireBatDurabilityA3LtOu	3. axle left outer battery durability	7	enum	37	Month (m)				86400000		x	1	1		x		true	04.02.2025: please use TPM-composite signal 4417 for all tire information
4786	Chassis	TirePressureA3Ltln	3. axle left inner pressure	4	float	13	Kilopascal (kPa)	0	1391,5		500		x	1	1		x		true	04.02.2025: please use TPM-composite signal 4417 for all tire information
4787	Chassis	TireTempA3Ltln	3. axle left inner temperature	5	int	12	Degree Celsius (C)	-40	125		500		x	1	1		x		true	04.02.2025: please use TPM-composite signal 4417 for all tire information
4788	Chassis	TireBatDurabilityA3Ltln	3. axle left inner battery durability	7	enum	37	Month (m)				86400000		x	1	1		x		true	04.02.2025: please use TPM-composite signal 4417 for all tire information
4789	Chassis	TirePressureA3Rtln	3. axle right inner pressure	4	float	13	Kilopascal (kPa)	0	1391,5		500		x	1	1		x		true	04.02.2025: please use TPM-composite signal 4417 for all tire information
4790	Chassis	TireTempA3Rtln	3. axle right inner temperature	5	int	12	Degree Celsius (C)	-40	125		500		x	1	1		x		true	04.02.2025: please use TPM-composite signal 4417 for all tire information
4791	Chassis	TireBatDurabilityA3Rtln	3. axle right inner battery durability	7	enum	37	Month (m)				86400000		x	1	1		x		true	04.02.2025: please use TPM-composite signal 4417 for all tire information
4792	Chassis	TirePressureA3RtOu	3. axle right outer pressure	4	float	13	Kilopascal (kPa)	0	1391,5		500		x	1	1		x		false	07.11.2024: please use TPM-composite signal 4417 for all tire information
4793	Chassis	TireTempA3RtOu	3. axle right outer temperature	5	int	12	Degree Celsius (C)	-40	125		500		x	1	1		x		false	07.11.2024: please use TPM-composite signal 4417 for all tire information
4794	Chassis	TireBatDurabilityA3RtOu	3. axle right outer battery durability	7	enum	37	Month (m)				86400000		x	1	1		x		false	07.11.2024: please use TPM-composite signal 4417 for all tire information
4795	Chassis	TirePressureA4LtOu	4. axle left outer pressure	4	float	13	Kilopascal (kPa)	0	1391,5		500		x	1	1		x		false	07.11.2024: please use TPM-composite signal 4417 for all tire information
4796	Chassis	TireTempA4LtOu	4. axle left outer temperature	5	int	12	Degree Celsius (C)	-40	125		500		x	1	1		x		false	07.11.2024: please use TPM-composite signal 4417 for all tire information
4797	Chassis	TireBatDurabilityA4LtOu	4. axle left outer battery durability	7	enum	37	Month (m)				86400000		x	1	1		x		false	07.11.2024: please use TPM-composite signal 4417 for all tire information
4798	Chassis	TirePressureA4Ltln	4. axle left inner pressure	4	float	13	Kilopascal (kPa)	0	1391,5		500		x	1	1		x		false	07.11.2024: please use TPM-composite signal 4417 for all tire information
4799	Chassis	TireTempA4Ltln	4. axle left inner temperature	5	int	12	Degree Celsius (C)	-40	125		500		x	1	1		x		false	07.11.2024: please use TPM-composite signal 4417 for all tire information
4800	Chassis	TireBatDurabilityA4Ltln	4. axle left inner battery durability	7	enum	37	Month (m)				86400000		x	1	1		x		false	07.11.2024: please use TPM-composite signal 4417 for all tire information
4801	Chassis	TirePressureA4Rtln	4. axle right inner pressure	4	float	13	Kilopascal (kPa)	0	1391,5		500		x	1	1		x		false	07.11.2024: please use TPM-composite signal 4417 for all tire information
4802	Chassis	TireTempA4Rtln	4. axle right inner temperature	5	int	12	Degree Celsius (C)	-40	125		500		x	1	1		x		false	07.11.2024: please use TPM-composite signal 4417 for all tire information
4803	Chassis	TireBatDurabilityA4Rtln	4. axle right inner battery durability	7	enum	37	Month (m)				86400000		x	1	1		x		false	07.11.2024: please use TPM-composite signal 4417 for all tire information
4804	Chassis	TirePressureA4RtOu	4. axle right outer pressure	4	float	13	Kilopascal (kPa)	0	1391,5		500		x	1	1		x		false	07.11.2024: please use TPM-composite signal 4417 for all tire information
4805	Chassis	TireTempA4RtOu	4. axle right outer temperature	5	int	12	Degree Celsius (C)	-40	125		500		x	1	1		x		false	07.11.2024: please use TPM-composite signal 4417 for all tire information
4806	Chassis	TireBatDurabilityA4RtOu	4. axle right outer battery durability	7	enum	37	Month (m)				86400000		x	1	1		x		false	07.11.2024: please use TPM-composite signal 4417 for all tire information
5128	Chassis	RetarderSwPos	retarder switch position, function assignment will be done within the CPC (e.g. retarder brake or engine brake or both)	7	enum	0	No unit			0=POS0, 1=POS1, 2=POS2, 3=POS3, 4=POS4, 5=POS5	1000			0	1		x		false	
6183	Chassis	BelwPressFrontAxleLeft	Bellow Pressure Front Axle Left Current value	4	float	13	Kilopascal (kPa)	0	6245,5		1000			0	1		x		false	14.06.2023: new signal, release 4.1.0
6184	Chassis	BelwPressFrontAxleRight	Bellow Pressure Front Axle Right Current value	4	float	13	Kilopascal (kPa)	0	6245,5		1000			0	1		x		false	14.06.2023: new signal, release 4.1.0
6185	Chassis	BelwPressRearAxleLeft	Bellow Pressure Rear Axle Left Current value	4	float	13	Kilopascal (kPa)	0	6245,5		1000			0	1		x		false	14.06.2023: new signal, release 4.1.0
6186	Chassis	BelwPressRearAxleRight	Bellow Pressure Rear Axle Right Current value	4	float	13	Kilopascal (kPa)	0	6245,5		1000			0	1		x		false	14.06.2023: new signal, release 4.1.0
105	Driver	SeatBeltSw	seat belt switch state	7	enum	0	No unit			0=OFF, 1=ON	2000		x	0	1		x		false	
4717	Driver	DriverCardStat1	driver card 1 inserted	5	int	0	No unit	0	1	0=NOT_AVAILABLE, 1=AVAILABLE	2000	x		1	1	x	x		false	
4718	Driver	DriverCardStat2	driver card 2 inserted	5	int	0	No unit	0	1	0=NOT_AVAILABLE, 1=AVAILABLE	2000	x		1	1	x	x		false	
4719	Driver	DriverId1	driver-id 1	0	string	0	No unit				2000	x		1	1	x	x		false	
4720	Driver	DriverId2	driver-id 2	0	string	0	No unit				2000	x		1	1	x	x		false	
9100	Driver	PerformanceStatICUC	Indicates the tachograph performance; including electronic or mechanical analysis, instrument analysis, speed sensor analysis, mass storage analysis, and printer analysis	7	enum	0	No unit			0=NORM, 1=ANALYSIS	2000	x	x	1	1	x	x		false	04.02.2025: new signal, release 5.0.7
9103	Driver	DTmRelatedStatICUC	Tachograph: indicates if the driver approaches or exceeds working time limits (or other limits)	7	enum	0	No unit			0=NORMAL, 1=LIMIT1, 2=LIMIT2, 3=LIMIT3, 4=LIMIT4, 5=LIMIT5, 6=LIMIT6, 13=OTHER	2000	x	x	1	1	x	x		false	04.02.2025: new signal, release 5.0.7
9106	Driver	D2TmRelatedStatICUC	Tachograph: indicates if the second driver approaches or exceeds working time limits (or other limits)	7	enum	0	No unit			0=NORMAL, 1=LIMIT1, 2=LIMIT2, 3=LIMIT3, 4=LIMIT4, 5=LIMIT5, 6=LIMIT6, 13=OTHER	2000	x	x	1	1	x	x		false	04.02.2025: new signal, release 5.0.7
9107	Driver	DirIndStatICUC	Tachograph direction indicator current state speedometer. Indicates the direction of the vehicle	7	enum	0	No unit			0=FWD, 1=REV	2000	x	x	1	1	x	x		false	04.02.2025: new signal, release 5.0.7
9108	Driver	HandlingInfoStatICUC	Indicates that handling information for the tachograph is present. Information could include 'no printer paper', 'no driver card', etc	7	enum	0	No unit			0=NOEVENT, 1=EVENT	2000	x	x	1	1	x	x		false	04.02.2025: new signal, release 5.0.7
9109	Driver	SysEventStatICUC	Tachograph system event current state. Indicates that a tachograph event has occurred	7	enum	0	No unit			0=NOEVENT, 1=EVENT	2000	x	x	1	1	x	x		false	04.02.2025: new signal, release 5.0.7
9110	Driver	OverSpdStatICUC	Tachograph: vehicle overspeed. Indicates whether the vehicle is exceeding the legal speed limit set in the tachograph	7	enum	0	No unit			0=NOVR, 1=OVR	2000	x	x	1	1	x	x		false	04.02.2025: new signal, release 5.0.7
9	DriverAssistanceSystems	CoastingStat	coasting state	7	enum	0	No unit			0=OFF, 1=ON	2000			0	1		x		false	
10	DriverAssistanceSystems	CruiseControlStat	cruise control mode activated	7	enum	0	No unit			0=OFF, 1=ON	2000	x		1	1	x	x		false	
46	DriverAssistanceSystems	EcoRollActiveStat	eco roll active state	7	enum	0	No unit			0=LOW_N1, 1=HIGH_N2, 2=ECO_E	2000			0	1		x		false	
51	DriverAssistanceSystems	CurrentAccInterventions	ACC intervention counter	5	int	0	No unit	0	66530		2000			1	1		x		false	
52	DriverAssistanceSystems	CruiseControlMode	cruise control mode	7	enum	0	No unit			0=NONE, 5=ADAPTIVE_CC_PLUS, 1=ROAD_SPEED_LIMITER, 2=COMBINED_CC, 3=DRIVE_CC, 4=ADAPTIVE_CC	2000			1	1		x		false	
73	DriverAssistanceSystems	ABADriverActStat	ABA driver activation state	7	enum	0	No unit			0=OFF, 1=ON	2000			1	1		x		false	
74	DriverAssistanceSystems	LDDriverActStat	lane departure warning activation state	7	enum	0	No unit			0=OFF, 1=ON	2000			0	1		x		false	
111	DriverAssistanceSystems	ABADistanceWarnStat	ABA distance warning state	7	enum	0	No unit			0=OFF, 1=ON	2000			1	1		x		false	
130	DriverAssistanceSystems	AccDistanceMode	ACC current distance mode	7	enum	0	No unit			0=Distance mode 0 (largest distance), 1=Distance mode 1, 2=Distance mode 2, 3=Distance mode 3, 4=Distance mode 4, 5=Distance mode 5, 6=Distance mode 6, 7=Distance mode 7, 8=Distance mode 8, 9=Distance mode 9, 10=Distance mode 10, 11=Distance mode 11, 12=Distance mode 12, 13=Distance mode 13, 14=Distance mode 14 (shortest distance)	30000			1	1		x		false	

*the data interface only makes values available on change. If values remain the same, no new data points are sent from the vehicle to the backend

unifiedID	category	signal_name	attribute_description	datatype_V2_value	datatype_V2_description	unit_V2_value	unit_V2_description	min_V2	max_V2	state_V2	sample_rate (ms) on change*	FMS 5	VDV 238	BEV (electric bus)	ICE (combustion engine)	Data Package light	Data Package plus	Data Package driver display	depre-cated	remarks
132	DriverAssistanceSystems	ABAOpticalAcousticalWarnStat	optical and acoustical warning ABA requested state	7	enum	0	No unit			0=No Warn, 1=Warn vehicle, 2=Warn Pedestrian	2000			1	1		x		false	
136	DriverAssistanceSystems	AccSetDistanceModeStat	ACC set distance mode state	7	enum	0	No unit			0=DISTMD_0, 5=DISTMD_5, 10=DISTMD_10, 14=DISTMD_14, 1=DISTMD_1, 6=DISTMD_6, 9=DISTMD_9, 13=DISTMD_13, 2=DISTMD_2, 12=DISTMD_12, 7=DISTMD_7, 3=DISTMD_3, 11=DISTMD_11, 8=DISTMD_8, 4=DISTMD_4	2000			1	1		x		false	
153	DriverAssistanceSystems	CCSetSpeedCval	speed value set in cruise control	3	double	5	Kilometre per hour (km/h)	0	255		30000			0	1		x		false	
169	DriverAssistanceSystems	BlindSpotMonitoringStat	blind spot monitoring enable current state	7	enum	0	No unit			0=OFF, 1=ON	2000			1	1		x		false	
170	DriverAssistanceSystems	BSMTractorZoneRightStat	blind spot monitoring tractor zone right current state	7	enum	0	No unit			0=OFF, 1=TNAV, 2=ON, 3=INFO, 4=WARN	2000			1	1		x		false	
171	DriverAssistanceSystems	CruiseControlHystSpeed	cruise control current hysteresis speed value	4	float	5	Kilometre per hour (km/h)				500			1	1		x		false	
172	DriverAssistanceSystems	CruiseControlLowerHystSpeed	cruise control lower hysteresis speed current value	4	float	5	Kilometre per hour (km/h)				500			0	1		x		false	
183	DriverAssistanceSystems	IPPCCurrentStat	IPPC current state	7	enum	0	No unit			0=IPPC_OFF, 5=PREDCC_INIT, 1=PREDCC, 6=PREDSHFT_INIT, 2=PREDSHFT, 7=PREDCC_PREDSHFT_INIT, 3=PREDCC_PREDSHFT, 8=INTRURBN, 4=INIT	2000			0	1		x		false	
185	DriverAssistanceSystems	ACCOpticalWarnRequ	ACC optical warning request	7	enum	0	No unit			0=OFF, 1=ON	30000			1	1		x		false	
188	DriverAssistanceSystems	CruiseControlEnableSwStat	cruise control enable switch requested state	7	enum	0	No unit			0=OFF, 1=ON	2000	x		1	1	x	x		false	
4186	DriverAssistanceSystems	LDWLeftVRDU	lane departure warning: left lane (vehicles built before 2015)	7	enum	0	No unit			1=ON, 0=OFF	2000			0	1		x		true	04.02.2025: signal is deprecated and will be removed in July 2025. B2E vehicles built before 2015 are using this signal
4187	DriverAssistanceSystems	LDWRightVRDU	lane departure warning: right lane (vehicles built before 2015)	7	enum	0	No unit			1=ON, 0=OFF	2000			0	1		x		true	04.02.2025: signal is deprecated and will be removed in July 2025. B2E vehicles built before 2015 are using this signal
4188	DriverAssistanceSystems	MDASWarnLevStat0	MDAS warning state level0	7	enum	0	No unit			1=ON, 0=OFF	2000			1	1		x		false	
4189	DriverAssistanceSystems	MDASWarnLevStat1	MDAS warning state level1	7	enum	0	No unit			1=ON, 0=OFF	2000			0	1		x		false	
4226	DriverAssistanceSystems	LDImminentStatLeft	state of left lane departure signal imminent state	7	enum	0	No unit			0=OFF, 1=ON	2000			0	1		x		false	
4227	DriverAssistanceSystems	LDImminentStatRight	state of right lane departure signal imminent state	7	enum	0	No unit			0=OFF, 1=ON	2000			0	1		x		false	
4723	DriverAssistanceSystems	LDWLeftMPC	lane departure warning: left lane (vehicles built after 2015)	7	enum	0	No unit			1=On, 0=Off	2000			0	1		x		false	all vehicles built after 2015 are using this signal
4724	DriverAssistanceSystems	LDWRightMPC	lane departure warning: right lane (vehicles built after 2015)	7	enum	0	No unit			1=On, 0=Off	2000			0	1		x		false	all vehicles built after 2015 are using this signal
5097	DriverAssistanceSystems	CruiseControlStat	Cruise Control states indicates the current state, or mode, of operation by the cruise control device	7	enum	0	No unit			0=OFFDIS, 1=HOLD, 2=ACC, 3=DEC, 4=RES, 5=SET, 6=OVRD	1000	x	x	1	1	x	x		false	04.02.2025: new signal, release 5.0.7
5121	DriverAssistanceSystems	DriverSwStatActivateHorn	indicates the state of the driver's switch to activate the horn	7	enum	0	No unit			0=NPSDM, 1=PSDM	1000			1	1		x		false	
5123	DriverAssistanceSystems	ATC_ASRdriverInfoSignal	this parameter commands the ATC/ASR driver information signal, for example a dash lamp	7	enum	0	No unit			0=OFF, 1=ON, 2=FLASH	1000			1	1		x		false	
5153	DriverAssistanceSystems	DCM1RequHaltBreak	the DCM1 sends a request for the halt break to prevent the vehicle from driving off when standing at the bus stop	7	enum	0	No unit			0=NACT, 1=ACTIVE	1000			1	1		x		false	available for vehicles with B2E E/E-architecture with production date from 2022/02
5154	DriverAssistanceSystems	DCM2RequHaltBreak	the DCM2 sends a request for the halt break to prevent the vehicle from driving off when standing at the bus stop	7	enum	0	No unit			0=NACT, 1=ACTIVE	1000			1	1		x		false	available for vehicles with B2E E/E-architecture with production date from 2022/02
5155	DriverAssistanceSystems	DCM3RequHaltBreak	the DCM3 sends a request for the halt break to prevent the vehicle from driving off when standing at the bus stop	7	enum	0	No unit			0=NACT, 1=ACTIVE	1000			1	1		x		false	available for vehicles with B2E E/E-architecture with production date from 2022/02
5156	DriverAssistanceSystems	DCM4RequHaltBreak	the DCM4 sends a request for the halt break to prevent the vehicle from driving off when standing at the bus stop	7	enum	0	No unit			0=NACT, 1=ACTIVE	1000			1	1		x		false	available for vehicles with B2E E/E-architecture with production date from 2022/02
5157	DriverAssistanceSystems	ATCOFFSwRequ	ATC off switch request	7	enum	0	No unit			0=NPSD, 1=PSD	1000			1	1		x		false	available for vehicles with B2E E/E-architecture with production date from 2022/02
5558	DriverAssistanceSystems	RainSensorCstat	rain-sensor current status	7	enum	0	No unit			0=NO_ERR, 2=NOT DEFINED	1000			1	1		x		false	
134	FMS	FmsSWVersion	FMS software version	0	string	0	No unit				86400000	x		0	1	x	x		false	
83	HeatingCoolingVentilation	AirOutsideTemp	Air Temperature Outside Current value in degrees celsius	4	float	12	Degree Celsius (C)	-273	173496875		2000	x		1	1	x	x		false	15.03.2024: new signal, release 5.0.4. Signal 4378 is deprecated and replaced by signal 83.
95	HeatingCoolingVentilation	BarometricPressure	barometric pressure	3	double	13	Kilopascal (kPa)	0	125		30000			0	1		x		false	
219	HeatingCoolingVentilation	AirTempInside	air temperature inside	4	float	12	Degree Celsius (C)	-273	1734,96875		30000	x	x	1	1	x	x		false	22.02.2024: FMS 5 standard; signal added to Data Package light;
220	HeatingCoolingVentilation	IBHFuelTankLev	indicates fuel level of diesel tank for IBH	5	int	1	Percentage (%)	0	100		30000			1	0		x		false	
223	HeatingCoolingVentilation	IBHActReadyStat	IBH activation ready current state	7	enum	0	No unit			1=RDY, 0=NRDY	2000			1	1		x		false	
224	HeatingCoolingVentilation	IBHCirculationPumpStat	IBH circulation pump current state	7	enum	0	No unit			0=OFF, 1=ON	2000			1	1		x		false	
225	HeatingCoolingVentilation	IBHCoolingWaterTemp	IBH cooling water temperature current value	5	int	12	Degree Celsius (C)	-50	200		30000			1	1		x		false	
226	HeatingCoolingVentilation	IBHFuelSupplyValveStat	status valve IBH fuel supply	7	enum	0	No unit			0=OFF, 1=ON	2000			1	1		x		false	
227	HeatingCoolingVentilation	IBHCurrentStat	IBH current state	7	enum	0	No unit			0=OFF, 1=ON	2000			1	1		x		false	
229	HeatingCoolingVentilation	RedMessageFireToilette	red message fire in toilette with auxillary heating	7	enum	0	No unit			0=OFF, 1=ON	30000			1	1		x		false	25.11.2024: the signal is only available with sales code HT03 (toilet in winterproof desgin)
4369	HeatingCoolingVentilation	TempInsideLowerDeck	temperature inside value lower deck	4	float	12	Degree Celsius (C)	-50	75		30000			1	1		x		false	
4626	HeatingCoolingVentilation	RequHeatingPowBrakeResistor	requested heating power at brake resistor(s)	4	float	20	Kilowatt (kW)	-1600	1612,75		30000			1	0		x		false	
5117	HeatingCoolingVentilation	StatusACcompressorClutch	status of the air conditioning compressor clutch	7	enum	0	No unit			0=OFF, 1=ON	2000		x	1	1		x		false	
5118	HeatingCoolingVentilation	AmbientAirPressureCval	ambient air pressure current value	4	float	11	Millibar (mbar)	250	1500		1000			0	1		x		false	
5660	HeatingCoolingVentilation	HVACHeatingModePasArea	HVAC heating mode passenger area status	7	enum	0	No unit			0=NACT, 1=ACTIVE	2000			1	1		x		false	
5661	HeatingCoolingVentilation	HVACPowBrakeReistHeat	HVAC power of the brake resistor for heating	7	enum	0	No unit			0=NACT, 1=ACTIVE	2000			1	0		x		false	
6204	HeatingCoolingVentilation	AmbTempDrArea_Cval	Temperature driver area	4	float	12	Degree Celsius (C)	-50	75		1000			1	1		x		false	23.10.2023: signal now also available for BEV; 14.06.2023: new signal, release 4.1.0; 18.09.2023: signal n/a for BEV
6206	HeatingCoolingVentilation	AmbTempPsgAreaBack_Cval	Room temperature passenger area back	4	float	12	Degree Celsius (C)	-50	75		1000			1	1		x		false	23.10.2023: signal now also available for BEV; 14.06.2023: new signal, release 4.1.0; 18.09.2023: signal n/a for BEV
6210	HeatingCoolingVentilation	TempInsdUpperDeck	Temperature inside value upper deck.	4	float	12	Degree Celsius (C)	-50	75		30000			0	1		x		false	14.06.2023: new signal, release 4.1.0
6231	HeatingCoolingVentilation	HVACHeatingModeDriverArea	HVAC heating mode driver area status	7	enum	0	No unit			0=Not active (no activation), 1=Active (activation)	2000		x	1	1		x		false	23.10.2023: new signal, release 5.0.2
231	HighVoltageSystem	ChargingContactorsStat	status charging contactors	7	enum	0	No unit			0=OPEN, 1=CLOSED	2000			1	0		x		false	
232	HighVoltageSystem	ChargeCouplerLockingStat	status charge-coupler locking mechanism	7	enum	0	No unit			0=OPEN, 1=CLOSED	2000			1	0		x		false	
233	HighVoltageSystem	ChargeCouplerProximityStat	status charge-coupler proximity detect	7	enum	0	No unit			0=NO, 1=YES	1000			1	0		x		false	
234	HighVoltageSystem	HVACDesiredPreconding	desired preconditioning HVAC	7	enum	0	No unit			0=WARM, 1=HEAT, 2=COOL, 3=NO	30000			1	0		x		false	
235	HighVoltageSystem	VehSideIsolationDisableRequ	disable vehicle-side isolation monitoring request	7	enum	0	No unit			0=OFF, 1=ON	30000			1	0		x		false	
236	HighVoltageSystem	HighPowChargeRequ	enable highpower charge/charging request	7	enum	0	No unit			0=NOT_ACTIVE, 1=ACTIVE	30000			1	0		x		false	
237	HighVoltageSystem	HighVoltChargeRequ	state of high-voltage charge start request	7	enum	0	No unit			0=NOT_ACTIVE, 1=ACTIVE	2000			1	0		x		false	
238	HighVoltageSystem	InputPinVoltEnable	input pin high voltage enable status VCCU	7	enum	0	No unit			0=DSABL, 1=ENBL	30000			1	0		x		false	
239	HighVoltageSystem	StatusPluginCharging	status plugin-charging	7	enum	0	No unit			0=NOT_ACTIVE, 1=ACTIVE	1000	x	x	1	0	x	x		false	22.02.2024: FMS 5 standard; signal added to Data Package light; 12.02.2024: 3 different charging signals available depending of inbuilt hardware: 239 = main pluging charging; 5566: second plugin charging; 5565: highpower charging via pantograph
240	HighVoltageSystem	PluginChargeIsolationStat	status plugin-charger isolation monitoring	7	enum	0	No unit			0=NOT_ACTIVE, 1=ACTIVE	2000			1	0		x		false	
241	HighVoltageSystem	HVACStoredDesiredPrecon	stored desired preconditioning HVAC	7	enum	0	No unit			0=WARM, 1=HEAT, 2=COOL, 3=NO	30000			1	0		x		false	
242	HighVoltageSystem	StoredDesiredPreconditioning	stored desired preconditioning	7	enum	0	No unit			0=NO, 1=YES	30000			1	0		x		false	
243	HighVoltageSystem	PrecondtioningStat	preconditioning state	7	enum	0	No unit			0=NOT_ACTIVE, 1=ACTIVE, 2=DESD	2000		x	1	0		x		false	
244	HighVoltageSystem	IsolationStat	isolation status	7	enum	0	No unit			0=SAFE, 1=WARN, 2=FAULT	2000			1	0		x		false	
245	HighVoltageSystem	ElectricDrivetrainReady	electric drivetrain ready state	7	enum	0	No unit			0=NRDY, 1=RDY	2000		x	1	0		x		false	
246	HighVoltageSystem	HighVoltPowNet	status high-voltage powernet enabled	7	enum	0	No unit			0=NOT_ACTIVE, 1=ACTIVE	2000			1	0		x		false	
247	HighVoltageSystem	VehOperationRequ	vehicle operation request state	7	enum	0	No unit			0=NOT_ACTIVE, 1=ACTIVE	2000			1	0		x		false	
248	HighVoltageSystem	TimeToDriveOff	time until scheduled drive-off (count-down)	5	int	22	Minute (min)	0	250		30000			1	0		x		false	
249	HighVoltageSystem	BatDischargeRemainingTime	remaining time battery discharing current value ENM	5	int	22	Minute (min)	0	60000		30000			1	0		x		false	
250	HighVoltageSystem	BatChargeRemainingTime	remaining charge/charging time current value ENM	5	int	22	Minute (min)	0	60000		30000			1	0		x		false	

*the data interface only makes values available on change. If values remain the same, no new data points are sent from the vehicle to the backend

unifiedID	category	signal_name	attribute_description	datatype_V2_value	datatype_V2_description	unit_V2_value	unit_V2_description	min_V2	max_V2	state_V2	sample_rate (ms) on change*	FMS 5	VDV 238	BEV (electric bus)	ICE (combustion engine)	Data Package light	Data Package plus	Data Package driver display	depre-cated	remarks
252	HighVoltageSystem	BatIsolationResistance	HV battery isolation resistance	5	int	26	Kiloohm (kohm)	0	64255		30000			1	0		x		false	
253	HighVoltageSystem	SetTimeToDriveOff	set time until drive-off	4	float	24	Hour (h)	0	24		30000			1	0		x		false	
254	HighVoltageSystem	MaxCellVolt	HB maximum cell voltage current value	4	float	10	Volt (V)	0	64,255		30000		x	1	0		x		false	
255	HighVoltageSystem	MinCellVolt	HB minimum cell voltage current value	4	float	10	Volt (V)	0	64,255		30000		x	1	0		x		false	
256	HighVoltageSystem	RemainingVehRange	information of remaining range	4	float	17	Kilometre (km)	0	1002,378		2000	x	x	1	0	x	x		false	22.02.2024: FMS 5 standard; signal added to Data Package light;
257	HighVoltageSystem	BatInternalResistance	internal battery resistance	4	float	23	Ohm (ohm)	0	12,851		30000			1	0		x		false	
259	HighVoltageSystem	BatAverageCellTemp	average battery cell temperature (sae: hybrid battery lowest cell temperature)	3	double	12	Degree Celsius (C)	-40	210		500		x	1	0		x		false	
260	HighVoltageSystem	CurrentEnergyConsumption	current energy consumption current value ENM	4	float	21	Kilowatt hour per kilometre (kWh/km)	-320	322,55		500			1	0		x		false	
261	HighVoltageSystem	AverageEnergyConsumption	average energy consumption current value ENM	4	float	21	Kilowatt hour per kilometre (kWh/km)	-320	322,55		500			1	0		x		false	
262	HighVoltageSystem	BatMomVolt	momentary HV-battery voltage	4	float	10	Volt (V)	0	3212,75		500		x	1	0		x		false	
263	HighVoltageSystem	BatDCLinkVolt	battery DC link voltage (sae: HVES voltage level)	4	float	10	Volt (V)	0	3212,75		500			1	0		x		false	
264	HighVoltageSystem	MomChargeEnergy	momentary available charge energy	4	float	27	Kilowatt hour (kWh)	0	3212,75		1000		x	1	0		x		false	
265	HighVoltageSystem	MomDischargeEnergy	momentary available discharge energy	4	float	27	Kilowatt hour (kWh)	0	3212,75		30000		x	1	0		x		false	
266	HighVoltageSystem	BatTargetPow	battery target power that the battery requires	4	float	20	Kilowatt (kW)	-1600	1612,75		30000			1	0		x		false	
267	HighVoltageSystem	BatPredMidTermCharge	predicted battery charge power mid-term	4	float	20	Kilowatt (kW)	0	3212,75		30000			1	0		x		false	
268	HighVoltageSystem	BatPredShortTermCharge	predicted battery charge power short-term	4	float	20	Kilowatt (kW)	0	3212,75		30000			1	0		x		false	
269	HighVoltageSystem	BatPredMidTermDischarge	predicted battery discharge power mid-term	4	float	20	Kilowatt (kW)	0	3212,75		30000			1	0		x		false	
270	HighVoltageSystem	BatPredShortTermDischarge	predicted battery discharge power short-term	4	float	20	Kilowatt (kW)	0	3212,75		30000			1	0		x		false	
271	HighVoltageSystem	BatPow	battery power	4	float	20	Kilowatt (kW)	-1600	1612,75		100			1	0		x		false	
273	HighVoltageSystem	MaxPowLimitCharging	maximum power limit plugin-charging	4	float	20	Kilowatt (kW)	0	3212,75		30000			1	0		x		false	
274	HighVoltageSystem	MaxPowLimitDischarging	maximum power limit vehicle2grid	4	float	20	Kilowatt (kW)	0	3212,75		30000			1	0		x		false	
275	HighVoltageSystem	ActualChargingPow	actual power plugin-charging	4	float	20	Kilowatt (kW)	-1600	1612,75		1000			1	0		x		false	
276	HighVoltageSystem	Inverter1PowAPI1	inverter 1 power api1	4	float	20	Kilowatt (kW)	-1600	1612,75		1000			1	0		x		false	09.12.2024: API1 (276) and in articulated vehicles also API 3 (278) is used to drive the HVAC compressor(s) motor for climatization of the passenger compartment
278	HighVoltageSystem	Inverter1PowAPI3	inverter 1 power api3	4	float	20	Kilowatt (kW)	-1600	1612,75		1000			1	0		x		false	09.12.2024: API1 (276) and in articulated vehicles also API 3 (278) is used to drive the HVAC compressor(s) motor for climatization of the passenger compartment
279	HighVoltageSystem	ConverterOutputPowAPI1	momentary converter LV output power DC-HV to DC-LV converter in api1	4	float	20	Kilowatt (kW)	-1600	1612,75		1000			1	0		x		false	
280	HighVoltageSystem	ConverterOutputPowAPI2	momentary converter LV output power DC-HV to DC-LV converter in api2	4	float	20	Kilowatt (kW)	-1600	1612,75		1000			1	0		x		false	
281	HighVoltageSystem	ConverterOutputPowAPI3	momentary converter LV output power DC-HV to DC-LV converter in api3	4	float	20	Kilowatt (kW)	-1600	1612,75		1000			1	0		x		false	
282	HighVoltageSystem	ConverterOutputPowDCL1	momentary converter LV output power DC-HV to DC-LV converter DCl 1	4	float	20	Kilowatt (kW)	-1600	1612,75		1000			1	0		x		false	
283	HighVoltageSystem	ConverterOutputPowDCL2	momentary converter LV output power DC-HV to DC-LV converter DCl 2	4	float	20	Kilowatt (kW)	-1600	1612,75		1000			1	0		x		false	
375	HighVoltageSystem	HVESCurrentFlow	Battery current (SAE: HVES Current Flow)	4	float	28	Ampere (A)(amp)	-1600	1612,75		500		x	1	0		x		false	new signal, release 3.9.9
376	HighVoltageSystem	BatLowCellTemp	battery lowest cell temperature	4	float	12	Degree Celsius (C)	-40	210		2000		x	1	0		x		false	new signal, release 3.9.9
377	HighVoltageSystem	BatHighCellTemp	battery highest cell temperature	4	float	12	Degree Celsius (C)	-40	210		2000		x	1	0		x		false	new signal, release 3.9.9
4157	HighVoltageSystem	SOCdispCval	state of charge (SOC) for the display and other human interaction purposes	4	float	1	Percentage (%)	0	100		1000	x	x	1	0	x	x		false	SNA = 127,5
4628	HighVoltageSystem	CpowValueDriveTrain	current power value drive train	4	float	20	Kilowatt (kW)	-1600	1612,75		500			1	0		x		false	
4629	HighVoltageSystem	ActualHV-PowerAPI1	actual hv-power api1	4	float	20	Kilowatt (kW)	-1600	1612,75		2000			1	0		x		false	15.03.2024: new signal, release 5.0.4, API1-3 can convert DC/DC and DC/AC. for full auxiliary consumptions of API1-3 and DC1-2 use signals 4629, 4630, 4650, 4631, 4632
4630	HighVoltageSystem	ActualHV-PowerAPI2	actual hv-power api2	4	float	20	Kilowatt (kW)	-1600	1612,75		2000			1	0		x		false	15.03.2024: new signal, release 5.0.4, API1-3 can convert DC/DC and DC/AC. for full auxiliary consumptions of API1-3 and DC1-2 use signals 4629, 4630, 4650, 4631, 4632
4631	HighVoltageSystem	ActualHV-PowerDCL1	actual hv-power dcl1	4	float	20	Kilowatt (kW)	-1600	1612,75		2000			1	0		x		false	26.09.2024: new signal, release 5.0.6, DCLs are DC/DC converters, for full auxiliary consumptions of API1-3 and DC1-2 use signals 4629, 4630, 4650, 4631, 4632
4632	HighVoltageSystem	ActualHV-PowerDCL2	actual hv-power dcl2	4	float	20	Kilowatt (kW)	-1600	1612,75		2000			1	0		x		false	26.09.2024: new signal, release 5.0.6, DCLs are DC/DC converters, for full auxiliary consumptions of API1-3 and DC1-2 use signals 4629, 4630, 4650, 4631, 4632
4645	HighVoltageSystem	EnergycCounterHV-Bat	energy counter HV-battery	5	int	27	Kilowatt hour (kWh)	0	16777213		2000	x	x	1	0	x	x		false	22.02.2024: FMS 5 standard; signal added to Data Package light;
4650	HighVoltageSystem	ActualHV-PowerAPI3	actual hv-power api3	4	float	20	Kilowatt (kW)	-1600	1612,75		2000			1	0		x		false	15.03.2024: new signal, release 5.0.4, API1-3 can convert DC/DC and DC/AC. API3 signal for EDB vehicles only available for articulated bus. for full auxiliary consumptions of API1-3 and DC1-2 use signals 4629, 4630, 4650, 4631, 4632
5565	HighVoltageSystem	StatusHighPowCharging	status high-power-charging	7	enum	0	No unit			0=NACT, 1=ACT	1000	x	x	1	0	x	x		false	22.02.2024: FMS 5 standard; signal added to Data Package light; 12.02.2024: 3 different charging signals available depending of inbuilt hardware: 239 = main pluging charging; 5566: second plugin charging; 5565: highpower charging via pantograph
5566	HighVoltageSystem	StatusPluginChargingVCCS	status plugin-charging VCCS	7	enum	0	No unit			0=SWITCHED_OFF, 1=SWITCHING_ON_1, 2=SWITCHING_ON_2, 3=SWITCHING_ON_3, 4=SWITCHED_ON, 5=SWITCHING_OFF, 6=WELDED_FLOW, 7=WELDED_NO_FLOW	1000	x		1	0	x	x		false	22.02.2024: FMS 5 standard; signal added to Data Package light; 12.02.2024: 3 different charging signals available depending of inbuilt hardware: 239 = main pluging charging; 5566: second plugin charging; 5565: highpower charging via pantograph
5570	HighVoltageSystem	EstimCapstatOfHealthBM01	estimated capacity state of health BM01	4	float	1	Percentage (%)	0	100,398438		1000			1	0		x		false	01.10.2024: new signal estimated state of health (SoH) battery module 1, release 5.0.6. Please note: the estimated SoH-signal is only available for NMC2 and NMC3 vehicles with the newest battery software. Please update the battery software in the workshop. If there is value "0" then the battery modul is not built in the bus.
5571	HighVoltageSystem	EstimCapstatOfHealthBM02	estimated capacity state of health BM02	4	float	1	Percentage (%)	0	100,398438		1000			1	0		x		false	01.10.2024: new signal estimated state of health (SoH) battery module 2, release 5.0.6. Please note: the estimated SoH-signal is only available for NMC2 and NMC3 vehicles with the newest battery software. Please update the battery software in the workshop. If there is value "0" then the battery modul is not built in the bus.
5572	HighVoltageSystem	EstimCapstatOfHealthBM03	estimated capacity state of health BM03	4	float	1	Percentage (%)	0	100,398438		1000			1	0		x		false	01.10.2024: new signal estimated state of health (SoH) battery module 3, release 5.0.6. Please note: the estimated SoH-signal is only available for NMC2 and NMC3 vehicles with the newest battery software. Please update the battery software in the workshop. If there is value "0" then the battery modul is not built in the bus.
5573	HighVoltageSystem	EstimCapstatOfHealthBM04	estimated capacity state of health BM04	4	float	1	Percentage (%)	0	100,398438		1000			1	0		x		false	01.10.2024: new signal estimated state of health (SoH) battery module 4, release 5.0.6. Please note: the estimated SoH-signal is only available for NMC2 and NMC3 vehicles with the newest battery software. Please update the battery software in the workshop. If there is value "0" then the battery modul is not built in the bus.
5574	HighVoltageSystem	EstimCapstatOfHealthBM05	estimated capacity state of health BM05	4	float	1	Percentage (%)	0	100,398438		1000			1	0		x		false	01.10.2024: new signal estimated state of health (SoH) battery module 5, release 5.0.6. Please note: the estimated SoH-signal is only available for NMC2 and NMC3 vehicles with the newest battery software. Please update the battery software in the workshop. If there is value "0" then the battery modul is not built in the bus.
5575	HighVoltageSystem	EstimCapstatOfHealthBM06	estimated capacity state of health BM06	4	float	1	Percentage (%)	0	100,398438		1000			1	0		x		false	01.10.2024: new signal estimated state of health (SoH) battery module 6, release 5.0.6. Please note: the estimated SoH-signal is only available for NMC2 and NMC3 vehicles with the newest battery software. Please update the battery software in the workshop. If there is value "0" then the battery modul is not built in the bus.
5576	HighVoltageSystem	EstimCapstatOfHealthBM07	estimated capacity state of health BM07	4	float	1	Percentage (%)	0	100,398438		1000			1	0		x		false	01.10.2024: new signal estimated state of health (SoH) battery module 7, release 5.0.6. Please note: the estimated SoH-signal is only available for NMC2 and NMC3 vehicles with the newest battery software. Please update the battery software in the workshop. If there is value "0" then the battery modul is not built in the bus.

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unifiedID	category	signal_name	attribute_description	datatype_V2_value	datatype_V2_description	unit_V2_value	unit_V2_description	min_V2	max_V2	state_V2	sample_rate (ms) on change*	FMS 5	VDV 238	BEV (electric bus)	ICE (combustion engine)	Data Package light	Data Package plus	Data Package driver display	depre-cated	remarks
5577	HighVoltageSystem	EstimCapstatOfHealthBM08	estimated capacity state of health BM08	4	float	1	Percentage (%)	0	100,398438		1000			1	0		x		false	01.10.2024: new signal estimated state of health (SoH) battery module 8, release 5.0.6. Please note: the estimated SoH-signal is only available for NMC2 and NMC3 vehicles with the newest battery software. Please update the battery software in the workshop. If there is value "0" then the battery
5578	HighVoltageSystem	EstimCapstatOfHealthBM09	estimated capacity state of health BM09	4	float	1	Percentage (%)	0	100,398438		1000			1	0		x		false	01.10.2024: new signal estimated state of health (SoH) battery module 9, release 5.0.6. Please note: the estimated SoH-signal is only available for NMC2 and NMC3 vehicles with the newest battery software. Please update the battery software in the workshop. If there is value "0" then the battery
5579	HighVoltageSystem	EstimCapstatOfHealthBM10	estimated capacity state of health BM10	4	float	1	Percentage (%)	0	100,398438		1000			1	0		x		false	01.10.2024: new signal estimated state of health (SoH) battery module 10, release 5.0.6. Please note: the estimated SoH-signal is only available for NMC2 and NMC3 vehicles with the newest battery software. Please update the battery software in the workshop. If there is value "0" then the battery
5580	HighVoltageSystem	EstimCapstatOfHealthBM11	estimated capacity state of health BM11	4	float	1	Percentage (%)	0	100,398438		1000			1	0		x		false	01.10.2024: new signal estimated state of health (SoH) battery module 11, release 5.0.6. Please note: the estimated SoH-signal is only available for NMC2 and NMC3 vehicles with the newest battery software. Please update the battery software in the workshop. If there is value "0" then the battery
5581	HighVoltageSystem	EstimCapstatOfHealthBM12	estimated capacity state of health BM12	4	float	1	Percentage (%)	0	100,398438		1000			1	0		x		false	01.10.2024: new signal estimated state of health (SoH) battery module 12, release 5.0.6. Please note: the estimated SoH-signal is only available for NMC2 and NMC3 vehicles with the newest battery software. Please update the battery software in the workshop. If there is value "0" then the battery
5582	HighVoltageSystem	EstimCapstatOfHealthBM13	estimated capacity state of health BM13	4	float	1	Percentage (%)	0	100,398438		1000			1	0		x		false	01.10.2024: new signal estimated state of health (SoH) battery module 13, release 5.0.6. Please note: the estimated SoH-signal is only available for NMC2 and NMC3 vehicles with the newest battery software. Please update the battery software in the workshop. If there is value "0" then the battery modul is not built in the bus.
5583	HighVoltageSystem	EstimCapstatOfHealthBM14	estimated capacity state of health BM14	4	float	1	Percentage (%)	0	100,398438		1000			1	0		x		false	01.10.2024: new signal estimated state of health (SoH) battery module 14, release 5.0.6. Please note: the estimated SoH-signal is only available for NMC2 and NMC3 vehicles with the newest battery software. Please update the battery software in the workshop. If there is value "0" then the battery
5584	HighVoltageSystem	EstimCapstatOfHealthBM15	estimated capacity state of health BM15	4	float	1	Percentage (%)	0	100,398438		1000			1	0		x		false	01.10.2024: new signal estimated state of health (SoH) battery module 15, release 5.0.6. Please note: the estimated SoH-signal is only available for NMC2 and NMC3 vehicles with the newest battery software. Please update the battery software in the workshop. If there is value "0" then the battery
5585	HighVoltageSystem	EstimCapstatOfHealthBM16	estimated capacity state of health BM16	4	float	1	Percentage (%)	0	100,398438		1000			1	0		x		false	01.10.2024: new signal estimated state of health (SoH) battery module 16, release 5.0.6. Please note: the estimated SoH-signal is only available for NMC2 and NMC3 vehicles with the newest battery software. Please update the battery software in the workshop. If there is value "0" then the battery
5819	HighVoltageSystem	HvBatEmergDisReq	high voltage battery emergency display request	7	enum	0	No unit			0=NOEMERG, 1=EMERG	1000			1	0		x		false	05.07.2023: vehicles with LMP batteries provide "0" for "No Emergency" values, vehicles with NMC batteries provide null values for "No Emergency".
6121	HighVoltageSystem	ChrgCoupProxyDet_Stat	Status charge-coupler proximity detect	7	enum	0	No unit			0=NO, 1=YES	1000	x		1	0		x		false	
6127	HighVoltageSystem	StatPosHPChargDev	Status Position High-Power Charging Device	7	enum	0	No unit			2=MID, 1=CHRG, 0=ROAD	1000			1	0		x		false	14.06.2023: new signal, release 4.1.0
6129	HighVoltageSystem	HighPwrChrg	Actual Power High-Power-Charging	4	float	20	Kilowatt (kW)	-1600	1612,75		1000			1	0		x		false	15.03.2024: new signal, release 5.0.4
6135	HighVoltageSystem	PwrDualChrg	Actual Power Dual Side Charging	4	float	20	Kilowatt (kW)	-1600	1612,75		1000			1	0		x		false	15.03.2024: new signal, release 5.0.4
6509	HighVoltageSystem	HVBatDCMinVoltage	Minimum voltage that the high voltage battery allows when connected to the DC-link	4	float	10	Volt (V)	0	3212.75		2000		x	1	0		x		false	23.10.2023: new signal, release 5.0.2
6510	HighVoltageSystem	HVBatCoolMode	Actual cooling mode of high voltage battery of cooling system	7	enum	0	No unit			0=HV-Cooling Mode Sleep, 1=HV-Cooling Mode Start, 2=HV-Cooling Mode Cooling, 3=HV-Cooling Mode Climatisation,	2000	x	x	1	0	x	x		false	22.02.2024: FMS 5 standard; signal added to Data Package light; 23.10.2023: new signal, release 5.0.2
6565	HighVoltageSystem	HVBatDCMaxVoltage	Maximum voltage that the high voltage battery allows when connected to the DC-link signal	4	float	10	Volt (V)	0	3212.75		2000		x	1	0		x		false	17.01.2024: new signal, release 5.0.3
4607	ICUC	EventcodeNumICUC	event code of an active message on icuc	5	int	0	No unit	0	65534		1000			1	1		x	x	false	
4763	ICUC	ICUCeventIES	eventcode_dmux1: first part of event code number from dmux in ies vehicles	5	int	0	No unit	0	65534		1000			0	1		x	x	false	only applicable in IES vehicles on FMS CAN
4764	ICUC	ICUCeventIES	eventcode_dmux2: second part of event code number from dmux in ies vehicles	5	int	0	No unit	0	65534		1000			0	1		x	x	false	only applicable in IES vehicles on FMS CAN
5665	ICUC	DateTimeSecCvalICUC	date time second current value from ICUC	4	float	9	Second (s)	0	59,75		2000	x		1	1	x	x		false	
5666	ICUC	DateTimeMinCvalICUC	date time minute(s) current value from ICUC	5	int	22	Minute (min)	0	59		2000	x		1	1	x	x		false	
5667	ICUC	DateTimeHourCvalICUC	date time hour(s) current value from ICUC	5	int	24	Hour (h)	0	250		2000	x		1	1	x	x		false	
5668	ICUC	DateTimeMonthCvalICUC	date time month current value from ICUC	5	int	37	Month (m)	1	12		2000	x		1	1	x	x		false	
5669	ICUC	LocalMinOffsetCvalICUC	local minute(s) offset current value from ICUC	5	int	22	Minute (min)	-59	59		2000	x		1	1	x	x		false	
5670	ICUC	LocalHourOffsetCvalICUC	local hour(s) offset current value from ICUC	5	int	24	Hour (h)	-23	23		2000	x		1	1	x	x		false	
5671	ICUC	DateTimeDayCvalICUC	date time day current value from ICUC	4	float	44	Day (D)	0,25	31,75		2000	x		1	1	x	x		false	
5672	ICUC	DateTimeYearCvalICUC	date time year current value from ICUC	5	int	45	Year (Y)	1985	2235		2000	x		1	1	x	x		false	
4215	LightingSystem	TurnSignalCommandLeft	state of left turn signal	7	enum	0	No unit			0=OFF, 1=ON	2000		x	1	1		x		false	
4216	LightingSystem	TurnSignalCommandRight	state of right turn signal	7	enum	0	No unit			0=OFF, 1=ON	2000		x	1	1		x		false	
4224	LightingSystem	TurnSignalSwRequLeft	state of left turn signal switch	7	enum	0	No unit			0=DACT, 1=ACT	2000			1	1		x		false	
4225	LightingSystem	TurnSignalSwRequRight	state of right turn signal switch	7	enum	0	No unit			0=DACT, 1=ACT	2000			1	1		x		false	
5149	LightingSystem	MSFPassCompIlluminUpRocker	MSF switch passenger compartment illumination upper rocker	7	enum	0	No unit			0=NPSD, 1=PSD	1000			1	1		x		false	available for vehicles with B2E E/E-architecture with production date from 2022/02
5150	LightingSystem	MSFPassCompIlluminLowRocker	MSF switch passenger compartment illumination lower rocker	7	enum	0	No unit			0=NPSD, 1=PSD	1000			1	1		x		false	available for vehicles with B2E E/E-architecture with production date from 2022/02
5151	LightingSystem	MSF-SwInteriorLightingRocker1	MSF-switch for interior lighting i/li (double rocker), rocker 1	7	enum	0	No unit			0=NPSD, 1=PSD	1000			0	1		x		false	available for vehicles with B2E E/E-architecture with production date from 2022/02
5152	LightingSystem	MSF-SwInteriorLightingRocker2	MSF-switch for interior lighting i/li (double rocker), rocker 2	7	enum	0	No unit			0=NPSD, 1=PSD	1000			0	1		x		false	available for vehicles with B2E E/E-architecture with production date from 2022/02
5556	LightingSystem	ErrorStatusRainLightSensor	error status rain-light-sensor	7	enum	0	No unit			0=NO ERR	1000			1	1		x		false	
5557	LightingSystem	LightSensorCstat	light-sensor current status	7	enum	0	No unit			0=NO ERR, 2=NOT DEFINED	1000			1	1		x		false	
2	Powertrain	EnginePercentTorque	engine percent torque	4	float	1	Percentage (%)	-125	125		500	x		0	1	x	x		false	
4	Powertrain	EngineTorque	engine torque	4	float	2	Newton metre (Nm)	-5000	5000		1000			0	1	x	x		false	
11	Powertrain	EngineSpeed	engine speed	4	float	3	Revolutions per minute (rpm)	0	8031,875		500	x		0	1	x	x		false	

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unifiedID	category	signal_name	attribute_description	datatype_V2_value	datatype_V2_description	unit_V2_value	unit_V2_description	min_V2	max_V2	state_V2	sample_rate (ms) on change*	FMS 5	VDV 238	BEV (electric bus)	ICE (combustion engine)	Data Package light	Data Package plus	Data Package driver display	depre-cated	remarks
12	Powertrain	HighestGearStat	highest gear active	7	enum	0	No unit			0=OFF, 1=ON	2000	x		0	1	x	x		false	
22	Powertrain	CurrentFuelConsumption	current fuel consumption	3	double	8	Gram per revolution (g/rev)	0	1,25		30000			0	1		x		false	
23	Powertrain	StandStill	vehicle stands still	7	enum	0	No unit			0=OFF, 1=ON	30000			1	1	x	x		false	
24	Powertrain	VehStat	vehicle state	7	enum	0	No unit			0=ENGINE_ON, 1=IGNITION_ON, 2=IGNITION_OFF	2000			1	1	x	x		false	
26	Powertrain	TotalEngineHours	total engine hours	6	long	9	Second (s)	0	7,5799E+11		3600000	x		0	1	x	x		false	
37	Powertrain	AverageSpeed	average speed	3	double	5	Kilometre per hour (km/h)	0	3,4028E+38		500			1	1	x	x		false	
41	Powertrain	TotalAdBlueUsed	total adblue consumption current value from ICUC	3	double	6	Litre (l)	0	4211081		500			0	1		x		false	
47	Powertrain	ExecutedKickdownCount	number of kickdowns	5	int	0	No unit	0	2147483647		30000			0	1		x		false	
63	Powertrain	CurrentGear	current gear	7	enum	0	No unit			-152=REVERSE_GEAR_27, -125=NEUTRAL, -120=GEAR_5, -115=GEAR_10, -132=REVERSE_GEAR_7, -101=GEAR_24, -147=REVERSE_GEAR_22, -100=GEAR_25, -111=GEAR_14, -133=REVERSE_GEAR_8, -105=GEAR_20, -128=REVERSE_GEAR_3, -143=REVERSE_GEAR_18, -96=GEAR_29, -137=REVERSE_GEAR_12, -124=GEAR_1, -119=GEAR_6, -136=REVERSE_GEAR_11, -97=GEAR_28, -151=REVERSE_GEAR_26, -104=GEAR_21, -129=REVERSE_GEAR_4, -148=REVERSE_GEAR_23, -116=GEAR_9, -144=REVERSE_GEAR_19, -112=GEAR_13, -123=GEAR_2, -140=REVERSE_GEAR_15, -155=REVERSE_GEAR_30, -108=GEAR_17, -103=GEAR_22, -130=REVERSE_GEAR_5, -98=GEAR_27, -113=GEAR_12, -135=REVERSE_GEAR_10, -150=REVERSE_GEAR_25, -145=REVERSE_GEAR_20, -118=GEAR_7, 126=PARK, -154=REVERSE_GEAR_29, -122=GEAR_3, -107=GEAR_18, -126=REVERSE_GEAR_1, -109=GEAR_16, -139=REVERSE_GEAR_14, -146=REVERSE_GEAR_21, -114=GEAR_11, -141=REVERSE_GEAR_16, -134=REVERSE_GEAR_9, -99=GEAR_26, -102=GEAR_23, -117=GEAR_8, -131=REVERSE_GEAR_6, -138=REVERSE_GEAR_13, -95=GEAR_30, -149=REVERSE_GEAR_24, -106=GEAR_19, -121=GEAR_4, -127=REVERSE_GEAR_2, -142=REVERSE_GEAR_17, -110=GEAR_15, -153=REVERSE_GEAR_28	2000	x		1	1	x	x		false	
64	Powertrain	CoolantLevStat	coolant level state	7	enum	0	No unit			0=NO_WARN, 1=PRE_WARN, 2=WARNING	2000			0	1		x		false	
65	Powertrain	CoolantTempStat	coolant temperature state	7	enum	0	No unit			0=NO_WARN, 1=PRE_WARN, 2=WARNING	2000			0	1		x		false	
66	Powertrain	IgnitionSwStat	ignition switch state	7	enum	0	No unit			0=Ignition off, 10=Ignition lock, 1=Ignition accessory (15R), 2=Ignition on (15), 3=Ignition crank (50)	2000	x		1	1	x	x	x	false	13.11.2023: FMS 5 standard;
72	Powertrain	EngineCoolantTemp	engine coolant temperature	5	int	12	Degree Celsius (C)	-40	210		30000	x		0	1	x	x		false	
79	Powertrain	AcceleratorPedalPos	accelerator pedal position	4	float	1	Percentage (%)	0	100		500	x		1	1	x	x		false	
81	Powertrain	EngineOilTemp	engine oil temperature	3	double	12	Degree Celsius (C)	-273	1734,96875		30000	x	x	0	1	x	x		false	22.02.2024: FMS 5 standard; signal added to Data Package light;
113	Powertrain	EngineIdleCurrentStat	engine idle	7	enum	0	No unit			0=OFF, 1=ON	2000			1	1		x		false	20.06.2024: signal available for BEV and ICE vehicles but valid signals only for ICE vehicles.
116	Powertrain	EnginePercentTorqueHiRes	engine percent torque signal high resolution	3	double	1	Percentage (%)	-125	125		500			0	1		x		false	
133	Powertrain	ClutchSwStat	clutch switch state	7	enum	0	No unit			0=PEDAL_RELEASED, 1=PEDAL_DEPRESSED	2000	x		0	1	x	x		false	
144	Powertrain	EngineFuelRate	amount of fuel consumed by engine per unit of time	4	float	18	Litre per hour (l/h)	0	3212,75		2000	x		1	1	x	x		false	20.06.2024: signal available for BEV and ICE vehicles but valid signals only for ICE vehicles.
160	Powertrain	TransmissionOilTemp	transmission oil temperature	3	double	12	Degree Celsius (C)	-273	1734,96875		3600000	x	x	0	1	x	x		false	22.02.2024: FMS 5 standard; signal added to Data Package light;
167	Powertrain	AcceleratorPedalKickDownSwStat	accelerator pedal kickdown switch state	7	enum	0	No unit			0=PASSIVE, 1=ACTIVE	2000			1	1		x		false	
194	Powertrain	TotalEngineRevolutions	total engine revolutions	6	long	3	Revolutions per minute (rpm)	0	4211081215		2000			0	1		x		true	27.01.2025: the signal 194 is deprecated. Use signal 11 engine speed. 15.03.2024: new signal, release 5.0.4
195	Powertrain	EngineFuelEconomy	instant fuel economy	3	double	30	Kilometre per litre (km/l)	0	125,5		30000	x		0	1	x	x		false	14.06.2023: attribute description has changed from average fuel economy to instant fuel economy. signal delivers instant fuel economy.
211	Powertrain	DPFcond	diesel-particle filter condition	7	enum	0	No unit			0=NEW, 1=CLEAN	2000			0	1		x		true	28.01.2025: signal is deprecated.
330	Powertrain	EcoPowSwOverStat	ecopower switch over state	7	enum	0	No unit			0=NPSD, 1=PSD	2000			0	1		x		false	available for vehicles with BZE E/E-architecture with production date from 2022/02
4191	Powertrain	EngineOilLevWarnStatHigh	high engine oil level state	7	enum	0	No unit			0=OK, 1=PREWARN, 2=WARN	2000			0	1		x		false	
4613	Powertrain	TempPostDPFCval	temperature post-DPF current value	4	float	12	Degree Celsius (C)	-40	1000		2000			0	1		x		false	
5560	Powertrain	RotationSpeedAlternator	actual rotation speed of the alternator	4	float	3	Revolutions per minute (rpm)	0	32127,5		1000			0	1		x		false	please note: gear ratio is not considered
5561	Powertrain	Alternator1OperStatus	alternator 1 operating status	7	enum	0	No unit			0=NCHRG, 1=CHRG	1000	x		0	1	x	x		false	
5562	Powertrain	Alternator2OperStatus	alternator 2 operating status	7	enum	0	No unit			0=NCHRG, 1=CHRG	1000	x		0	1	x	x		false	
5563	Powertrain	Alternator3OperStatus	alternator 3 operating status	7	enum	0	No unit			0=NCHRG, 1=CHRG	1000	x		0	1	x	x		false	
5664	Powertrain	PopupDPFzoneReqStat	popup DPF zone requested state	7	enum	0	No unit			0=NONE, 1=NONE1, 2=POP2, 3=POP3, 4=POP4, 5=POP5, 6=POP6, 7=POP7, 8=POP8, 9=POP9	2000			0	1		x		false	
5716	Powertrain	EngineOilLevWarnStatLow	low engine oil level state	7	enum	0	No unit			0=NWARN, 1=PRMN, 2=WARN	2000			0	1		x		false	
5929	Powertrain	EngineOilPressureMCM	Engine Oil pressure Current value	4	float	15	Bar (bar)	0	10		2000	x		0	1	x	x		false	15.03.2024: new signal, release 5.0.4, use signal 5929 instead of signal 80; FMS 5 standard, signal added to Data Package light/plus;
6051	Powertrain	GeneratorInducCur	current value of generator's induction current	5	int	28	Ampere (A)(amp)	0	254		1000			0	1		x		false	new signal, release 3.9.9; FUP A0034456440 is needed for receiving valid data.
6211	Rex	H2Consumption	current H2 consumtion of FC in mg	5	int	46	Milligram (mg)	0	65533		1000			1	0		x		false	14.06.2023: new signal, release 4.1.0
6212	Rex	HVPowerFCG	FuelCell Auxiliary power (Pumps and Compressor)	4	float	20	Kilowatt (kW)	-1600	1612,75		1000			1	0		x		false	14.06.2023: new signal, release 4.1.0
6213	Rex	CurrPowerFC	Current power value of the fuel cell	4	float	20	Kilowatt (kW)	-1600	1612,75		1000			1	0		x		false	14.06.2023: new signal, release 4.1.0
6214	Rex	H2FuelLevelKg	H2 Fuel Level kg Current value	4	float	25	Kilogram (kg)	0	50		1000			1	0		x		false	14.06.2023: new signal, release 4.1.0
6215	Rex	H2HighPressure	H2 High Pressure current value	4	float	15	Bar (bar)	0	1000		1000		x	1	0		x		false	14.06.2023: new signal, release 4.1.0
6216	Rex	FCStackTemp	FC Stack Temperature In Current value	5	int	12	Degree Celsius (C)	-40	210		1000		x	1	0		x		false	23.10.2023: new signal, release 5.0.2
6217	Rex	HVFuelCellside	High Voltage FuelCell-Side (of contactors or galvanic insulation) Voltage Current value"	3	double	10	Volt (V)	0	3212,75		1000			1	0		x		false	14.06.2023: new signal, release 4.1.0

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unifiedID	category	signal_name	attribute_description	datatype_V2_value	datatype_V2_description	unit_V2_value	unit_V2_description	min_V2	max_V2	state_V2	sample_rate (ms) on change*	FMS 5	VDV 238	BEV (electric bus)	ICE (combustion engine)	Data Package light	Data Package plus	Data Package driver display	depre-cated	remarks
6218	Rex	FCStateHealth	FC State Of Health Current value	5	int	1	Percentage (%)	0	100		1000			1	0		x		false	23.10.2023: new signal, release 5.0.2
4652	Telltales	Telltales	telltales data group signal for telltales 4822-4885	8	list	0	No unit				2000	x		1	1	x	x		false	14.06.2023: new signal, release 4.1.0. composite signal for telltales. telltales data group (4822 = cooling air conditioning, 4823 = high beam, 4824 = low beam dipped beam , 4825 = turn signals , 4826 = hazard warning, 4827 = provision for disabled or handicapped persons , 4828 = parking brake , 4829 = brake failure/brake system malfunction , 4830 = hatch open , 4831 = fuel level, 4832 = engine coolant temperature, 4833 = battery charging condition, 4834 = engine oil, 4835 = position lightsside lights , 4836 = front fog light , 4837 = rear fog light , 4838 = park heating , 4839 = engine / mil indicator , 4840 = service call for maintenance , 4841 = transmission fluid temperature , 4842 = transmission failure/malfunction, 4843 = anti-lock brake system failure , 4844 = worn brake linings , 4845 = windscreen washer fluid/windshield washer fluid , 4846 = tire failure/malfunction , 4847 = malfunction/general failure , 4848 = engine oil temperature , 4849 = engine oil level , 4850 = engine coolant level , 4851 = steering fluid level , 4852 = steering failure , 4853 = height control (levelling) , 4854 = retarder , 4855 = engine emission system failure (mil indicator) , 4856 = ESC indication , 4857 = brake lights , 4858 = articulation , 4859 = stop request , 4860 = pram request , 4861 = bus stop brake , 4862 = adblue level , 4863 = raising , 4864 = lowering , 4865 = kneeling , 4866 = engine compartment temperature , 4867 = auxillary air pressure , 4868 = air filter clogged , 4869 = fuel filter differential pressure , 4870 = seat belt , 4871 = EBS , 4872 = lane departure indication , 4873 = advanced emergency braking system , 4874 = ACC , 4875 = trailer connected, 4876 = ABS trailer 1, 2, 4877 = airbag, 4878 = EBS trailer 1, 2, 4879 = tachograph indication , 4880 = ESC switched off , 4881 = lane departure warning switched off , 4882 = engine emission filter (soot filter) , 4883 = electric motor failures , 4884 = adblue tampering , 4885 = multiplex system)
4822	Telltales	TellTalesStat1	tell tale 1: cooling air conditioning	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4823	Telltales	TellTalesStat2	tell tale 2: high beam, main beam	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4824	Telltales	TellTalesStat3	tell tale 3: low beam, dipped beam	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4825	Telltales	TellTalesStat4	tell tale 4: turn signals	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4827	Telltales	TellTalesStat6	tell tale 6: provision for disabled or handicapped persons	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4828	Telltales	TellTalesStat7	tell tale 7: parking brake	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4829	Telltales	TellTalesStat8	tell tale 8: brake failure/brake system malfunction	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4830	Telltales	TellTalesStat9	tell tale 9: hatch open	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4831	Telltales	TellTalesStat10	tell tale 10: fuel level	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	20.06.2024: signal available for BEV and ICE vehicles but valid signals only for ICE vehicles.
4832	Telltales	TellTalesStat11	tell tale 11: engine coolant temperature	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	20.06.2024: signal available for BEV and ICE vehicles but valid signals only for ICE vehicles.
4833	Telltales	TellTalesStat12	tell tale 12: battery charging condition	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4834	Telltales	TellTalesStat13	tell tale 13: engine oil	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4836	Telltales	TellTalesStat15	tell tale 15: front fog light	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	available for B2E+ vehicles; in B2E vehicles only SNA value available
4837	Telltales	TellTalesStat16	tell tale 16: rear fog light	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	available for B2E+ vehicles; in B2E vehicles only SNA value available
4838	Telltales	TellTalesStat17	tell tale 17: park heating	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4839	Telltales	TellTalesStat18	tell tale 18: engine / mil indicator	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4840	Telltales	TellTalesStat19	tell tale 19: service, call for maintenance	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4841	Telltales	TellTalesStat20	tell tale 20: transmission fluid temperature	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4842	Telltales	TellTalesStat21	tell tale 21: transmission failure/malfunction	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4843	Telltales	TellTalesStat22	tell tale 22: anti-lock brake system failure	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4844	Telltales	TellTalesStat23	tell tale 23: worn brake linings	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4845	Telltales	TellTalesStat24	tell tale 24: windscreen washer fluid/windshield washer fluid	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x	x	1	1	x	x		false	
4846	Telltales	TellTalesStat25	tell tale 25: tire failure/malfunction	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4847	Telltales	TellTalesStat26	tell tale 26: malfunction/general failure	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4848	Telltales	TellTalesStat27	tell tale 27: engine oil temperature	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4849	Telltales	TellTalesStat28	tell tale 28: engine oil level	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4850	Telltales	TellTalesStat29	tell tale 29: engine coolant level	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4851	Telltales	TellTalesStat30	tell tale 30: steering fluid level	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4852	Telltales	TellTalesStat31	tell tale 31: steering failure	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4853	Telltales	TellTalesStat32	tell tale 32: height control (levelling)	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4854	Telltales	TellTalesStat33	tell tale 33: retarder	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4855	Telltales	TellTalesStat34	tell tale 34: engine emission system failure (mil indicator)	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	20.06.2024: signal available for BEV and ICE vehicles but valid signals only for ICE vehicles.
4856	Telltales	TellTalesStat35	tell tale 35: ESC indication	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4857	Telltales	TellTalesStat36	tell tale 36: brake lights	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	INFO value available when brake light has a fault
4858	Telltales	TellTalesStat37	tell tale 37: articulation	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4859	Telltales	TellTalesStat38	tell tale 38: stop request	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4860	Telltales	TellTalesStat39	tell tale 39: pram request	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4861	Telltales	TellTalesStat40	tell tale 40: bus stop brake	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4862	Telltales	TellTalesStat41	tell tale 41: adblue level	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	20.06.2024: signal available for BEV and ICE vehicles but valid signals only for ICE vehicles.
4863	Telltales	TellTalesStat42	tell tale 42: raising	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4864	Telltales	TellTalesStat43	tell tale 43: lowering	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4865	Telltales	TellTalesStat44	tell tale 44: kneeling	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4866	Telltales	TellTalesStat45	tell tale 45: engine compartment temperature	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4867	Telltales	TellTalesStat46	tell tale 46: auxillary air pressure	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4868	Telltales	TellTalesStat47	tell tale 47: air filter clogged	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4869	Telltales	TellTalesStat48	tell tale 48: fuel filter differential pressure	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4870	Telltales	TellTalesStat49	tell tale 49: seat belt	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4871	Telltales	TellTalesStat50	tell tale 50: EBS	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4872	Telltales	TellTalesStat51	tell tale 51: lane departure indication	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4873	Telltales	TellTalesStat52	tell tale 52: advanced emergency braking system	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4874	Telltales	TellTalesStat53	tell tale 53: ACC	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4876	Telltales	TellTalesStat55	tell tale 55: ABS trailer 1,2	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4878	Telltales	TellTalesStat57	tell tale 57: EBS trailer 1,2	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4879	Telltales	TellTalesStat58	tell tale 58: tachograph indication	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4880	Telltales	TellTalesStat59	tell tale 59: ESC switched off	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4881	Telltales	TellTalesStat60	tell tale 60: lane departure warning switched off	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4882	Telltales	TellTalesStat61	tell tale 61: engine emission filter (soot filter)	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	20.06.2024: signal available for BEV and ICE vehicles but valid signals only for ICE vehicles.
4883	Telltales	TellTalesStat62	tell tale 62: electric motor failures	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
4884	Telltales	TellTalesStat63	tell tale 63: adblue tampering	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	20.06.2024: signal available for BEV and ICE vehicles but valid signals only for ICE vehicles.
4885	Telltales	TellTalesStat64	tell tale 64: multiplex system	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	
8886	Telltales	TellTalesStat65	tell tale 65: Battery pack	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	20.06.2024: please note: signal is also available for ICE vehicles but valid values only for BEV vehicles. 15.03.2024: new signal, release 5.0.4
8887	Telltales	TellTalesStat66	tell tale 66: High voltage system caution	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	20.06.2024: please note: signal is also available for ICE vehicles but valid values only for BEV vehicles. 15.03.2024: new signal, release 5.0.4
8888	Telltales	TellTalesStat67	tell tale 67: Battery pack temperature	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	20.06.2024: please note: signal is also available for ICE vehicles but valid values only for BEV vehicles. 15.03.2024: new signal, release 5.0.4

*the data interface only makes values available on change. If values remain the same, no new data points are sent from the vehicle to the backend

unifiedID	category	signal_name	attribute_description	datatype_V2_value	datatype_V2_description	unit_V2_value	unit_V2_description	min_V2	max_V2	state_V2	sample_rate (ms) on change*	FMS 5	VDV 238	BEV (electric bus)	ICE (combustion engine)	Data Package light	Data Package plus	Data Package driver display	depre-cated	remarks
8889	Telltales	TellTalesStat68	tell tale 68: Limited performance electric motor	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	20.06.2024: please note: signal is also available for ICE vehicles but valid values only for BEV vehicles. 15.03.2024: new signal, release 5.0.4
8890	Telltales	TellTalesStat69	tell tale 69: Battery pack cooling	7	enum	0	No unit			0=OFF, 1=RED, 2=YEL, 3=INFO	1000	x		1	1	x	x		false	20.06.2024: please note: signal is also available for ICE vehicles but valid values only for BEV vehicles. 15.03.2024: new signal, release 5.0.4
19	VehicleInformation	TotalVehDistance	total vehicle distance	6	long	4	Metre (m)	0	2,1055E+10		1000	x		1	1	x	x		false	
20	VehicleInformation	VehSpeed	vehicle speed	3	double	5	Kilometre per hour (km/h)	0	250,996094		1000	x		1	1	x	x		false	
21	VehicleInformation	VehWeight	vehicle weight	4	float	7	Tonne (t)	0	642550		30000	x		0	1	x	x		false	30t = error value signal only valid for ICE vehicles. For BEV vehicles please use signal 251 (powered vehicle weight)
38	VehicleInformation	VIN	vin	0	string	0	No unit				86400000	x		1	1	x	x		false	
366	VehicleInformation	GVCVehBrand	gvc vehicle brand	7	enum	0	No unit			0=MB, 5=MTU, 1=DAIBUS, 6=WS, 9=BBENZ, 2=UM, 7=ON_HW_PP, 3=FTL, 8=MBBRAS, 4=FUSO	86400000			1	1	x	x		false	
4182	VehicleInformation	XYAccelerationX	acceleration in x direction	4	float	16	Metre per second squared (m/s^2)	-12,5	12,5		100	x	x	1	1	x	x		false	13.11.2023: FMS 5 standard;
4183	VehicleInformation	XYAccelerationY	acceleration in y direction	4	float	16	Metre per second squared (m/s^2)	-15,69	15,6875		100	x	x	1	1	x	x		false	13.11.2023: FMS 5 standard;
4268	VehicleInformation	GVCVehLine	gvc vehicle line	7	enum	0	No unit			0=BR0, 1=BR1, 2=BR2, 3=BR3, 4=BR4, 5=BR5, 6=BR6, 7=BR7, 8=BR8, 9=BR9, 10=BR10, 11=BR11, 12=BR12	86400000			1	1	x	x		false	
4278	VehicleInformation	GVCVehModel	gvc vehicle model	7	enum	0	No unit			0=Flat Bed Truck, 1=Special Purpose Vehicle, 2=Dump Truck, 3=Concrete Mixer, 4=Semitrailer Tractor, 5=Municipal Vehicle, 6=Fire Brigade Vehicle, 7=Bus Mercedes, 8=Bus Setra, 9=Bus Chassis, 10=Power Pack, 11=Bus FUSO, 12=reserved, 13=reserved, 14=reserved	86400000			1	1	x	x		false	
4574	VehicleInformation	VehOperationTime	vehicle operation time current value maintenance system	5	int	9	Second (s)	0	4211081215		30000			0	1	x	x		false	
6222	VehicleInformation	ModemRSSI	Signal quality metrics. GSM mode [0-8=poor, 9-14=fair, 15-21=good, 22-27=very good, 28-31=excellent, 99=not known or not detectable], LTE mode [0-13=poor, 14-18=fair, 19-23=good, 24-29=very good, 30-31=excellent, 99=not known or not detectable]	5	int	0	No unit	0	99	0=-113dBm ,1=-111dBm ,2=-109dBm ,3=-107dBm ,4=-105dBm ,5=-103dBm ,6=-101dBm ,7=-99dBm ,8=-97dBm ,9=-95dBm ,10=-93dBm ,11=-91dBm ,12=-89dBm ,13=-87dBm ,14=-85dBm ,15=-83dBm ,16=-81dBm ,17=-79dBm ,18=-77dBm ,19=-75dBm ,20=-73dBm ,21=-71dBm ,22=-69dBm ,23=-67dBm ,24=-65dBm ,25=-63dBm ,26=-61dBm ,27=-59dBm ,28=-57dBm ,29=-55dBm ,30=-53dBm ,31=-51dBm ,99=Not known or not detectabled	2000			1	1	x	x		false	06.06.2024: information for RSSI connection quality added: RSSI value for GSM mode [0-8 = poor, 9-14 = fair, 15-21 = good, 22-27 = very good, 28-31 = excellent, 99 = not known or not detectable]; RSSI value for LTE mode [0-13 = poor, 14-18 = fair, 19-23 = good, 24-29 = very good, 30-31 = excellent, 99 = not known or not detectable]; 13.07.2023: new signal, release 4.1.1, East London software on bus data center necessary.
17	VehiclePosition	RoadLev	road level in meter	3	double	4	Metre (m)	-1000	10000		500			1	1		x		false	
5555	VehiclePosition	GpsData	gps data signal group (500 = accuracy factor, 501 = altitude, 502 = estimated accuracy, 503 = heading, 504 = latitude, 505 = longitude, 506 = satellite count, 507 = speed, 508 = validity of gps signal)	8	list	0	No unit							1	1	x	x		false	27.01.2025: the sample rate is vehicle speed dependent; The GPS sends positions to the backend based on configurable parameters that determine the minimum distance between positions, increasing with vehicle speed, up to a maximum of 200m; 10.12.2024: composite signal for GPS; 12.02.2024: additional information to subsignal 502: Estimated accuracy (as a floating-point number) originated from GPS receiver. Reflects the estimated accuracy in meters. The better the reception, more satellites, the lower the value (e.g ~15 with 7 satellites, ~30 with 5 satellites) is. The accuracy estimate value as provided by the ublox gnss is a Circular Error Probable (CEP). In a circular normal distribution, the radius of the circle containing 50 percent of the individual measurements being made, or the radius of the circle within which there is a 50 percent probability of being located. This means, single position informations can be far worse than the accuracy value. 24.01.2024: subsignal 508 added to gps composite signal. Mode Indicator represents validity of GPS signal. False if GPGGA-Quality is 0 (INVALID) or GNGNS-Mode contains character 'N' (No fix. Satellite system not used in position fix, or fix not valid) or GPRMC/GNRMC-Status is 'V' (Void). 22.02.2023: changes in V2 data format. See also attribute description for details: 500 = accuracy factor, 501 = altitude, 502 = estimated accuracy, 503 = heading, 504 = latitude, 505 = longitude, 506 = satellite count, 507 = speed, 508 = validity of gps signal
27	WindowsDoorsFlaps	RampStat	ramp state	7	enum	0	No unit			0=INSIDE, 1=OUTSIDE	2000	x		1	1	x	x		false	
4204	WindowsDoorsFlaps	DoorStat1	door 1 state	7	enum	0	No unit			0=CLOSE, 1=OPEN	2000	x		1	1	x	x		false	
4205	WindowsDoorsFlaps	DoorStat10	door 10 state	7	enum	0	No unit			0=CLOSE, 1=OPEN	2000	x		1	1	x	x		false	
4206	WindowsDoorsFlaps	DoorStat2	door 2 state	7	enum	0	No unit			0=CLOSE, 1=OPEN	2000	x		1	1	x	x		false	
4207	WindowsDoorsFlaps	DoorStat3	door 3 state	7	enum	0	No unit			0=CLOSE, 1=OPEN	2000	x		1	1	x	x		false	
4208	WindowsDoorsFlaps	DoorStat4	door 4 state	7	enum	0	No unit			0=CLOSE, 1=OPEN	2000	x		1	1	x	x		false	
4209	WindowsDoorsFlaps	DoorStat5	door 5 state	7	enum	0	No unit			0=CLOSE, 1=OPEN	2000	x		1	1	x	x		false	
4210	WindowsDoorsFlaps	DoorStat6	door 6 state	7	enum	0	No unit			0=CLOSE, 1=OPEN	2000	x		1	1	x	x		false	
4211	WindowsDoorsFlaps	DoorStat7	door 7 state	7	enum	0	No unit			0=CLOSE, 1=OPEN	2000	x		1	1	x	x		false	
4212	WindowsDoorsFlaps	DoorStat8	door 8 state	7	enum	0	No unit			0=CLOSE, 1=OPEN	2000	x		1	1	x	x		false	
4213	WindowsDoorsFlaps	DoorStat9	door 9 state	7	enum	0	No unit			0=CLOSE, 1=OPEN	2000	x		1	1	x	x		false	
4237	WindowsDoorsFlaps	RoofHatch0Stat	roof hatch state	7	enum	0	No unit			0=CLS, 1=AER, 2=BLD, 3=OPN, 4=EMGOPN	2000			0	1		x		false	
4238	WindowsDoorsFlaps	RoofHatch1Stat	roof hatch state	7	enum	0	No unit			0=CLS, 1=AER, 2=BLD, 3=OPN, 4=EMGOPN	2000			0	1		x		false	
4239	WindowsDoorsFlaps	RoofHatch2Stat	roof hatch state	7	enum	0	No unit			0=CLS, 1=AER, 2=BLD, 3=OPN, 4=EMGOPN	2000			0	1		x		false	
4240	WindowsDoorsFlaps	RoofHatch3Stat	roof hatch state	7	enum	0	No unit			0=CLS, 1=AER, 2=BLD, 3=OPN, 4=EMGOPN	2000			0	1		x		false	
4241	WindowsDoorsFlaps	RoofHatch4Stat	roof hatch state	7	enum	0	No unit			0=CLS, 1=AER, 2=BLD, 3=OPN, 4=EMGOPN	2000			0	1		x		false	
4328	WindowsDoorsFlaps	SecureLockedStatus	secure locked status	7	enum	0	No unit			0=NOTLCKD, 1=LCKD , 2=ERR	2000			0	1		x		false	15.03.2024: new signal, release 5.0.4
4329	WindowsDoorsFlaps	Locking Status of the Bus	locking status of the bus	7	enum	0	No unit			0=NOTLCKD, 1=LCKD , 2=ERR	2000			0	1		x		false	15.03.2024: new signal, release 5.0.4
4640	WindowsDoorsFlaps	DoorClosed	doors closed global status signal which indicates the actual position of the doors	7	enum	0	No unit			0=AT_LEAST1, 1=CLS_LAST, 2=ALL_CLS	2000	x		1	1	x	x		false	

*the data interface only makes values available on change. If values remain the same, no new data points are sent from the vehicle to the backend

unifiedID	category	signal_name	attribute_description	datatype_V2_value	datatype_V2_description	unit_V2_value	unit_V2_description	min_V2	max_V2	state_V2	sample_rate (ms) on change*	FMS 5	VDV 238	BEV (electric bus)	ICE (combustion engine)	Data Package light	Data Package plus	Data Package driver display	depre-cated	remarks
5133	WindowsDoorsFlaps	StatEmergSwFrontWingDoor1	status indication of the emergency switch at the front wing of door 1	7	enum	0	No unit			0=INACTIVE, 1=ACTIVE	1000			1	1		x		false	available for vehicles with B2E E/E-architecture with production date from 2022/02
5134	WindowsDoorsFlaps	StatEmergSwRearWingDoor1	status indication of the emergency switch at the rear wing of door 1	7	enum	0	No unit			0=INACTIVE, 1=ACTIVE	1000			1	1		x		false	available for vehicles with B2E E/E-architecture with production date from 2022/02
5135	WindowsDoorsFlaps	StatEmergSwRearWingDoor2	status indication of the emergency switch at the rear wing of door 2	7	enum	0	No unit			0=INACTIVE, 1=ACTIVE	1000			1	1		x		false	available for vehicles with B2E E/E-architecture with production date from 2022/02
5136	WindowsDoorsFlaps	StatEmergSwFrontWingDoor2	status indication of the emergency switch at the front wing of door 2	7	enum	0	No unit			0=INACTIVE, 1=ACTIVE	1000			1	1		x		false	available for vehicles with B2E E/E-architecture with production date from 2022/02
5137	WindowsDoorsFlaps	StatEmergSwRearWingDoor3	status indication of the emergency switch at the rear wing of door 3	7	enum	0	No unit			0=INACTIVE, 1=ACTIVE	1000			1	1		x		false	available for vehicles with B2E E/E-architecture with production date from 2022/02
5138	WindowsDoorsFlaps	StatEmergSwFrontWingDoor3	status indication of the emergency switch at the front wing of door 3	7	enum	0	No unit			0=INACTIVE, 1=ACTIVE	1000			1	1		x		false	available for vehicles with B2E E/E-architecture with production date from 2022/02
5139	WindowsDoorsFlaps	StatEmergSwFrontWingDoor4	status indication of the emergency switch at the front wing of door 4	7	enum	0	No unit			0=INACTIVE, 1=ACTIVE	1000			1	1		x		false	available for vehicles with B2E E/E-architecture with production date from 2022/02
5140	WindowsDoorsFlaps	StatEmergSwRearWingDoor4	status indication of the emergency switch at the rear wing of door 4	7	enum	0	No unit			0=INACTIVE, 1=ACTIVE	1000			1	1		x		false	available for vehicles with B2E E/E-architecture with production date from 2022/02
5141	WindowsDoorsFlaps	StatIndicReversInpADoor1	status indication of the reversion input a at door 1	7	enum	0	No unit			0=NREV, 1=REV	1000			1	1		x		false	available for vehicles with B2E E/E-architecture with production date from 2022/02
5142	WindowsDoorsFlaps	StatIndicReversInpBDoor1	status indication of the reversion input b at door 1	7	enum	0	No unit			0=NREV, 1=REV	1000			1	1		x		false	available for vehicles with B2E E/E-architecture with production date from 2022/02
5143	WindowsDoorsFlaps	StatIndicReversInpADoor2	status indication of the reversion input a at door 2	7	enum	0	No unit			0=NREV, 1=REV	1000			1	1		x		false	available for vehicles with B2E E/E-architecture with production date from 2022/02
5144	WindowsDoorsFlaps	StatIndicReversInpBDoor2	status indication of the reversion input b at door 2	7	enum	0	No unit			0=NREV, 1=REV	1000			1	1		x		false	available for vehicles with B2E E/E-architecture with production date from 2022/02
5145	WindowsDoorsFlaps	StatIndicReversInpADoor3	status indication of the reversion input a at door 3	7	enum	0	No unit			0=NREV, 1=REV	1000			1	1		x		false	available for vehicles with B2E E/E-architecture with production date from 2022/02
5146	WindowsDoorsFlaps	StatIndicReversInpBDoor3	status indication of the reversion input b at door 3	7	enum	0	No unit			0=NREV, 1=REV	1000			1	1		x		false	available for vehicles with B2E E/E-architecture with production date from 2022/02
5147	WindowsDoorsFlaps	StatIndicReversInpADoor4	status indication of the reversion input a at door 4	7	enum	0	No unit			0=NREV, 1=REV	1000			1	1		x		false	available for vehicles with B2E E/E-architecture with production date from 2022/02
5148	WindowsDoorsFlaps	StatIndicReversInpBDoor4	status indication of the reversion input b at door 4	7	enum	0	No unit			0=NREV, 1=REV	1000			1	1		x		false	available for vehicles with B2E E/E-architecture with production date from 2022/02
5673	WindowsDoorsFlaps	WiperSwStat	indicates the state of the wiper switch	7	enum	0	No unit			0=OFF, 1=INT1_AUTO, 2=INT2, 3=INT3, 4=INT4, 5=INT5, 6=LOW, 7=HIGH	1000		x	1	1		x		false	
9114	WindowsDoorsFlaps	AllDrRlsStat	All Doors Released Current State composite indication of all bus door status. Enabled means the bus doors are able to be automatically opened or closed.	7	enum	0	No unit			0=DSABL, 1=ENBL	2000	x	x	1	1	x	x		false	04.02.2025: new signal, release 5.0.7
9115	WindowsDoorsFlaps	DLDr01EnablStat	The MUX transmits the enable status of bus door 1. Enabled means the bus doors are able to be automatically opened or closed	7	enum	0	No unit			0=DSABL, 1=ENBL	2000	x	x	1	1	x	x		false	04.02.2025: new signal, release 5.0.7
9116	WindowsDoorsFlaps	DLDr01LkStat	The MUX transmits the lock status of bus door 1	7	enum	0	No unit			0=NOTLCKD, 1=LCKD	2000	x	x	1	1	x	x		false	04.02.2025: new signal, release 5.0.7
9117	WindowsDoorsFlaps	DLDr02EnablStat	The MUX transmits the enable status of bus door 2. Enabled means the bus doors are able to be automatically opened or closed	7	enum	0	No unit			0=DSABL, 1=ENBL	2000	x	x	1	1	x	x		false	04.02.2025: new signal, release 5.0.7
9118	WindowsDoorsFlaps	DLDr02LkStat	The MUX transmits the lock status of bus door 2	7	enum	0	No unit			0=NOTLCKD, 1=LCKD	2000	x	x	1	1	x	x		false	04.02.2025: new signal, release 5.0.7
9119	WindowsDoorsFlaps	DLDr03EnablStat	The MUX transmits the enable status of bus door 3. Enabled means the bus doors are able to be automatically opened or closed	7	enum	0	No unit			0=DSABL, 1=ENBL	2000	x	x	1	1	x	x		false	04.02.2025: new signal, release 5.0.7
9120	WindowsDoorsFlaps	DLDr03LkStat	The MUX transmits the lock status of bus door 3	7	enum	0	No unit			0=NOTLCKD, 1=LCKD	2000	x	x	1	1	x	x		false	04.02.2025: new signal, release 5.0.7
9122	WindowsDoorsFlaps	DLDr04EnablStat	The MUX transmits the enable status of bus door 4. Enabled means the bus doors are able to be automatically opened or closed	7	enum	0	No unit			0=DSABL, 1=ENBL	2000	x	x	1	1	x	x		false	04.02.2025: new signal, release 5.0.7
9123	WindowsDoorsFlaps	DLDr04LkStat	The MUX transmits the lock status of bus door 4	7	enum	0	No unit			0=NOTLCKD, 1=LCKD	2000	x	x	1	1	x	x		false	04.02.2025: new signal, release 5.0.7
9124	WindowsDoorsFlaps	DLDr05EnablStat	The MUX transmits the enable status of bus door 5. Enabled means the bus doors are able to be automatically opened or closed	7	enum	0	No unit			0=DSABL, 1=ENBL	2000	x	x	1	1	x	x		false	04.02.2025: new signal, release 5.0.7
9125	WindowsDoorsFlaps	DLDr05LkStat	The MUX transmits the lock status of bus door 5	7	enum	0	No unit			0=NOTLCKD, 1=LCKD	2000	x	x	1	1	x	x		false	04.02.2025: new signal, release 5.0.7
9126	WindowsDoorsFlaps	DLDr06EnablStat	The MUX transmits the enable status of bus door 6. Enabled means the bus doors are able to be automatically opened or closed	7	enum	0	No unit			0=DSABL, 1=ENBL	2000	x	x	1	1	x	x		false	04.02.2025: new signal, release 5.0.7
9127	WindowsDoorsFlaps	DLDr06LkStat	The MUX transmits the lock status of bus door 6	7	enum	0	No unit			0=NOTLCKD, 1=LCKD	2000	x	x	1	1	x	x		false	04.02.2025: new signal, release 5.0.7
9128	WindowsDoorsFlaps	DLDr07EnablStat	The MUX transmits the enable status of bus door 7. Enabled means the bus doors are able to be automatically opened or closed	7	enum	0	No unit			0=DSABL, 1=ENBL	2000	x	x	1	1	x	x		false	04.02.2025: new signal, release 5.0.7
9134	WindowsDoorsFlaps	DLDr10LkStat	The MUX transmits the lock status of bus door 10	7	enum	0	No unit			0=NOTLCKD, 1=LCKD	2000	x	x	1	1	x	x		false	04.02.2025: new signal, release 5.0.7
9135	WindowsDoorsFlaps	DLDr08EnablStat	The MUX transmits the enable status of bus door 8. Enabled means the bus doors are able to be automatically opened or closed	7	enum	0	No unit			0=DSABL, 1=ENBL	2000	x	x	1	1	x	x		false	04.02.2025: new signal, release 5.0.7
9136	WindowsDoorsFlaps	DLDr08LkStat	The MUX transmits the lock status of bus door 8	7	enum	0	No unit			0=NOTLCKD, 1=LCKD	2000	x	x	1	1	x	x		false	04.02.2025: new signal, release 5.0.7
9137	WindowsDoorsFlaps	DLDr09EnablStat	The MUX transmits the enable status of bus door 9. Enabled means the bus doors are able to be automatically opened or closed	7	enum	0	No unit			0=DSABL, 1=ENBL	2000	x	x	1	1	x	x		false	04.02.2025: new signal, release 5.0.7
9138	WindowsDoorsFlaps	DLDr09LkStat	The MUX transmits the lock status of bus door 9	7	enum	0	No unit			0=NOTLCKD, 1=LCKD	2000	x	x	1	1	x	x		false	04.02.2025: new signal, release 5.0.7
9139	WindowsDoorsFlaps	DLDr10EnablStat	The MUX transmits the enable status of bus door 10. Enabled means the bus doors are able to be automatically opened or closed	7	enum	0	No unit			0=DSABL, 1=ENBL	2000	x	x	1	1	x	x		false	04.02.2025: new signal, release 5.0.7
9140	WindowsDoorsFlaps	DLDr07LkStat	The MUX transmits the lock status of bus door 7	7	enum	0	No unit			0=NOTLCKD, 1=LCKD	2000	x	x	1	1	x	x		false	04.02.2025: new signal, release 5.0.7

*the data interface only makes values available on change. If values remain the same, no new data points are sent from the vehicle to the backend