

**IMPORTANT NOTICE:** Robert Bosch LLC and the manufacturers whose vehicles are accessible using the CDR System urge end users to use the latest production release of the Crash Data Retrieval system software when viewing, printing or exporting any retrieved data from within the CDR program. Using the latest version of the CDR software is the best way to ensure that retrieved data has been translated using the most current information provided by the manufacturers of the vehicles supported by this product.

## CDR File Information

User Entered VIN	1GDY7RFF2G1901028
User	M. Mikhailov
Case Number	02464402-2021
EDR Data Imaging Date	12/06/2021
Crash Date	11/28/2021
Filename	1GDY7RFF2G1901028_ACM.CDRX
Saved on	Monday, December 6 2021 at 14:48:04
Imaged with CDR version	Crash Data Retrieval Tool 21.3
Imaged with Software Licensed to (Company Name)	U-haul Engineering Services
Reported with CDR version	Crash Data Retrieval Tool 21.3
Reported with Software Licensed to (Company Name)	U-haul Engineering Services
EDR Device Type	Airbag Control Module
Event(s) recovered	NONE

## Comments

TM1886T

Benchtop image

## Data Limitations

### Recorded Crash Events:

There are two types of recorded crash events for Front, Side, and Rear (FSR) Events. The first is the Non-Deployment Event. A Non-Deployment Event records data but does not deploy the air bag(s). The minimum SDM Recorded Vehicle Velocity Change, that is needed to record a Non-Deployment Event, is five MPH [8 km/h]. A Non-Deployment Event contains Pre-Crash and Crash data. The oldest Non-Deployment event can be overwritten by a Deployment Event, if all three records are full and the Non-Deployment Event is not locked. A Non-Deployment Event can be overwritten by a more recent Non-Deployment Event if all three records are full and the Non-Deployment is older than approximately 250 ignition cycles. Also, a Non-Deployment event can be recorded if one of the following occurs without the Deployment of any of the frontal air bags, side air bags, or roll bars:

- Pretensioner(s) only Deployment
- Head Rest Deployment
- Battery Cut-Off Deployment

The second type of SDM recorded crash event for FSR Events is the Deployment Event. It also contains Pre-Crash and Crash data. Deployment Events cannot be overwritten or cleared by the SDM.

Rollover Events contains Pre-Crash and Crash data. Rollover event follow the same rules as FSR Deployment events. The SDM can store up to three Events.

### Data:

For FSR Events, SDM Recorded Vehicle Velocity Change reflects the change in velocity that the sensing system experienced during the recorded portion of the event. SDM Recorded Vehicle Velocity Change is the change in velocity during the recording time and is not the speed the vehicle was traveling before the event, and is also not the Barrier Equivalent Velocity. For Deployment and Non-Deployment Events, the SDM will record up to 300 milliseconds of data after time zero. The SDM will also record up to 300 milliseconds of Vehicle Acceleration data after time zero.

For Rollover Events, the SDM may record Lateral Acceleration, Vertical Acceleration, and Roll Rate data, if the SDM is rollover capable. This data reflects what the sensing system experienced during the recorded portion of the event. For Rollover Deployment Events, the SDM will record up to 700 milliseconds of data before the Deployment criteria is met and 290 milliseconds after the Deployment criteria is met.

-Deployment loops may be displayed as being deployed in a Non-Deployment event record, if a Deployment event is qualified during the Non-Deployment event. That is, if two or more events are occurring at the same time and one is a Non-Deployment event and one of the others is a Deployment event, and the Deployment event is qualified while the Non-Deployment is still active, the deployed loops may be recorded in the Non-Deployment event record.

-Time between events is recorded in 10 msec intervals and is displayed in seconds for a maximum time of 655.33 seconds.

-The Maximum SDM Recorded Vehicle Velocity Change may occur between the recorded 10 millisecond sample points of the SDM Recorded Vehicle Velocity Change.

-Event Recording Complete will indicate if data from the recorded event has been fully written to the SDM memory or if it

has been interrupted and not fully written.

-SDM Recorded Vehicle Speed accuracy can be affected by various factors, including but not limited to the following:

- Significant changes in the tire's rolling radius
- Final drive axle ratio changes
- Wheel lockup and wheel slip

-Brake Switch Circuit Status indicates the open/closed state of the brake switch circuit.

-Pre-Crash data is recorded asynchronously. The 0.5 second Pre-crash data value (most recent recorded data point) is the data point last sampled before Time Zero. That is to say, the last data point may have been captured just before Time Zero but no more than 0.5 second before Time Zero. All subsequent Pre-crash data values are referenced from this data point.

-Pre-Crash Electronic Data Validity Check Status indicates "Data Invalid" if:

- The SDM receives a message with an "invalid" flag from the module sending the pre-crash data

-Pre-Crash Electronic Data Validity Check Status indicates "Data Not Available" if:

- No data is received from the module sending the pre-crash data

-For diesel powered vehicles, the data displayed as Throttle Position (%) is actually the data for the Air Inlet Flap Position. This is not the same as the throttle position for a gasoline powered engines.

-Belt Switch Circuit Status indicates the status of the seat belt switch circuit.

-The ignition cycle counter will increment when the power mode cycles from OFF/Accessory to RUN. Applying and removing of battery power to the module will not increment the ignition cycle counter.

-Ignition Cycles Since DTCs Were Last Cleared can record a maximum value of 253 cycles and can only be reset by a scan tool.

-Dynamic Deployment Event Counter tracks the number of Deployment events that have occurred during the SDM's lifetime.

-Dynamic Event Counter tracks the number of qualified events (either Deployments, Non-deploy, or Rollover events) that have occurred during the SDM's lifetime.

-For Deployment Events, DTC B0052 (Deployment commanded) shall be recorded with the remainder of the data for this event even though it occurred after Event Enable.

-Once a firing loop has been commanded to be deployed, it will not be commanded to be deployed again during the same ignition cycle. Firing loop times for subsequent deployment type events, during the same ignition cycle, will record the deployment times as N/A.

-The GM parameter name is displayed in parentheses after the NHTSA Part 563 parameter name.

-The reported range of the longitudinal and lateral acceleration values is approximately  $\pm 50$  g.

-All data should be examined in conjunction with other available physical evidence from the vehicle and scene.

#### Data Source:

All SDM recorded data is measured, calculated, and stored internally, except for the following:

- Vehicle Status Data (Pre-Crash) is transmitted by the Body Control Module, via the vehicle's communication network.
- The Belt Switch Circuit is wired directly to the SDM.

#### Data Element Sign Convention:

The following table provides an explanation of the sign notation for data elements that may be included in this CDR report. Directional references to sign notation are all from the perspective of the driver when seated in the vehicle facing the direction of forward vehicle travel.

Data Element Name	Positive Sign Notation Indicates
Longitudinal Acceleration	Forward
Longitudinal Velocity Change	Forward
Lateral Acceleration	Left to Right
Lateral Velocity Change	Left to Right
Vertical Acceleration	Downward
Roll Rate	Clockwise Rotation

#### Hexadecimal Data:

Data that the vehicle manufacturer has specified for data retrieval is shown in the hexadecimal data section of the CDR report. The hexadecimal data section of the CDR report may contain data that is not translated by the CDR program. The control module contains additional data that is not retrievable by the CDR tool.

01048\_SDM11P-autoliv\_r013

## System Status at Time of Retrieval

Dynamic Deployment Event Counter	0
Multi-Event, Number of Events (Dynamic Event Counter)	0
Dynamic OnStar Notification Event Counter	0
Ignition Cycle, Download (Ignition Cycles at Investigation)	9002
End Model Part Number	00CF83A1
System Type	Autoliv
Software Module Identifier 1	00CF62F5
Software Module Identifier 2	0501CC2F
Manufacturing Traceability Data, Component Identifier	AS
Manufacturing Traceability Data, Part Number/Broadcast Code	9649
Manufacturing Traceability Data, Supplier Code	E
Manufacturing Traceability Data, Traceability Number	050005042
ESS # 1 Traceability Data, Component Identifier	AU
ESS # 1 Traceability Data, Part Number/Broadcast Code	0000
ESS # 1 Traceability Data, Supplier Code	E
ESS # 1 Traceability Data, Traceability Number	000000000
ESS # 2 Traceability Data, Component Identifier	AT
ESS # 2 Traceability Data, Part Number/Broadcast Code	0000
ESS # 2 Traceability Data, Supplier Code	E
ESS # 2 Traceability Data, Traceability Number	000000000
ESS # 3 Traceability Data, Component Identifier	00
ESS # 3 Traceability Data, Part Number/Broadcast Code	0000
ESS # 3 Traceability Data, Supplier Code	E
ESS # 3 Traceability Data, Traceability Number	000000000
ESS # 4 Traceability Data, Component Identifier	AD
ESS # 4 Traceability Data, Part Number/Broadcast Code	0000
ESS # 4 Traceability Data, Supplier Code	E
ESS # 4 Traceability Data, Traceability Number	000000000
ESS # 5 Traceability Data, Component Identifier	00
ESS # 5 Traceability Data, Part Number/Broadcast Code	0000
ESS # 5 Traceability Data, Supplier Code	E
ESS # 5 Traceability Data, Traceability Number	000000000
ESS # 6 Traceability Data, Component Identifier	00
ESS # 6 Traceability Data, Part Number/Broadcast Code	0000
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ESS # 6 Traceability Data, Traceability Number	000000000
ESS # 7 Traceability Data, Component Identifier	00
ESS # 7 Traceability Data, Part Number/Broadcast Code	0000
ESS # 7 Traceability Data, Supplier Code	E
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ESS # 8 Traceability Data, Traceability Number	000000000

## Hexadecimal Data

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1040  FF FF FF FF FF FF FF FF FF FF
1050  FF FF FF FF FF FF FF FF FF FF
1060  FF FF FF FF FF FF FF FF FF FF
1070  FF FF FF FF FF FF FF FF FF FF
1080  FF FF FF FF FF FF FF FF FF FF
1090  FF FF FF FF FF FF FF FF FF FF
1100  FF FF FF FF FF FF FF FF FF FF
1110  FF FF FF FF FF FF FF FF FF FF
1120  FF FF FF FF FF FF FF FF FF FF
1130  FF FF FF FF FF FF FF FF FF FF
1140  FF FF FF FF FF FF FF FF FF FF
1150  FF FF FF FF FF FF FF FF FF FF
1160  FF FF FF FF FF FF FF FF FF FF
1170  FF FF FF FF FF FF FF FF FF FF
1180  FF FF FF FF FF FF FF FF FF FF
1190  FF FF FF FF FF FF FF FF FF FF
1200  FF
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