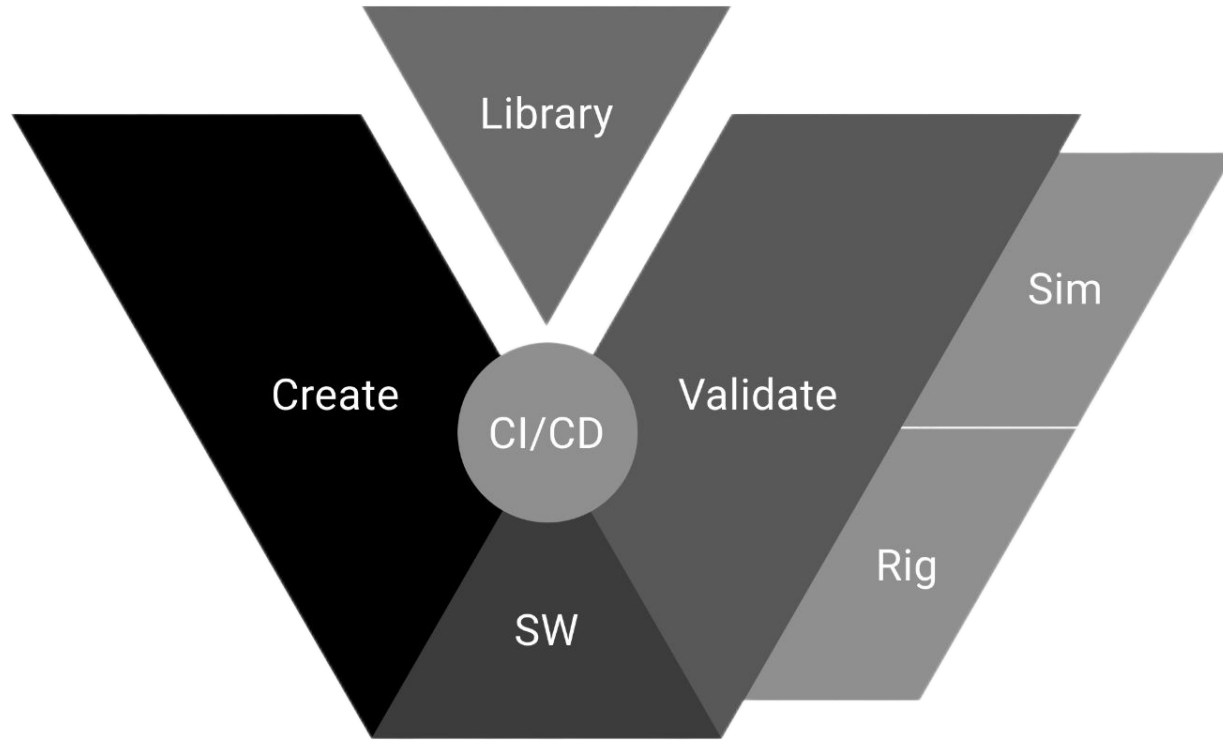




SODA.Create Overview



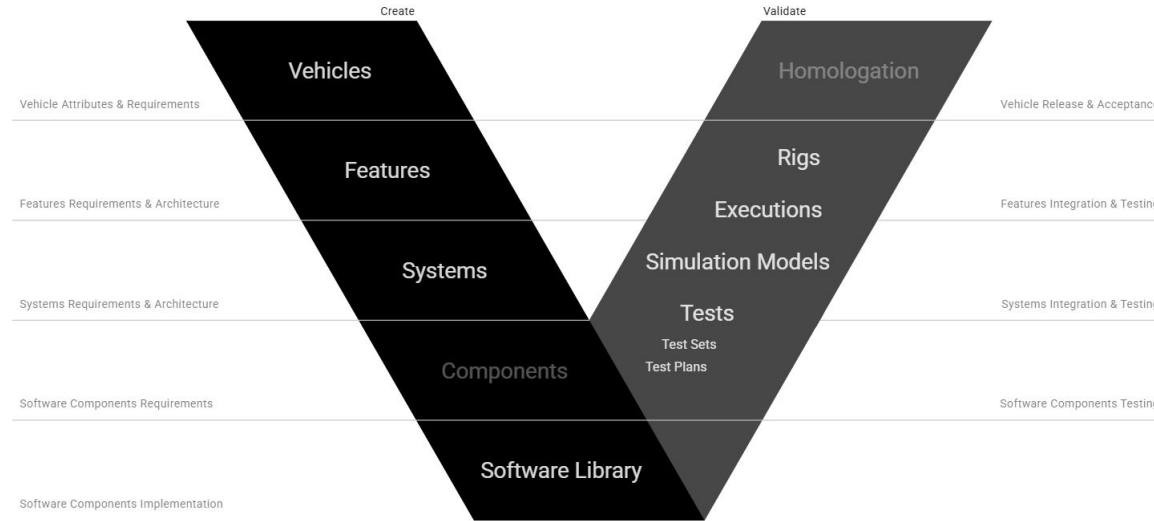
A modular solution for **Design** and **Validation** of vehicle functionality, electronic systems, and software

SODA V Studio

SODA V



Select a Project ▾



Compute and data tiers of **Create** and **Validate** are deployed in SODA cloud
Accessed via single web client

SODA.Create

SODA

- Can be used as a standalone product or as a module within SODA V
- Provides single source of truth for vehicle requirements and functional models on multiple levels, and complete traceability between them
- Allows to produce comprehensive formal design specifications with interconnected requirements and models, software-level interfaces, and guaranteed data integrity
- Enables agile iterative feature-driven design of a whole vehicle functionality and electronic systems
- Facilitates reuse of design work products between different vehicle configurations and models

Create

SODA.Create Highlights

End-To-End Vehicle Feature Set



Vehicles / M1 Passenger Car / Functional Architecture 2.0.0 – Draft / Features

Select a Project ▾



Vehicle Requirements

Add: Req > Group

Features +

Feature *

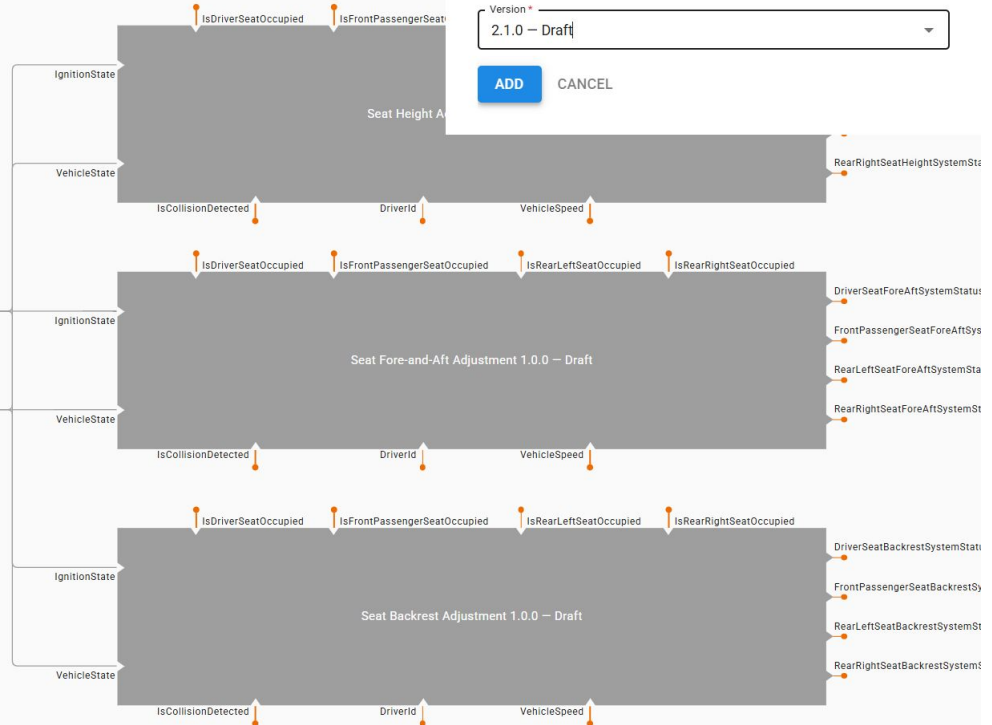
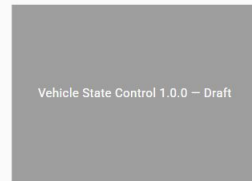
Traction Control

Version *

2.1.0 – Draft

ADD

CANCEL



Vehicle Features Library



 Features

Select a Project ▾



Features

+ Create Feature

Search

seat

×

Rear Row Seat Folding

Seat Backrest Adjustment

Seat Cushion Length Adjustment

Seat Fore-and-Aft Adjustment

 Latest: 1.0.0 — Draft ... All versions + New Version

The Seat Fore-and-Aft Adjustment feature provides the capability for the occupant to adjust the seat position forward and backward to accommodate different occupant leg lengths and reach preferences.

Seat Heating

Seat Height Adjustment

 Latest: 1.0.0 — Draft ... All versions + New Version

The Seat Height Adjustment feature provides the capability for the occupant to adjust the seat height to accommodate different occupant heights and achieve optimal pedal reach and road visibility.

Seat Lumbar Support Adjustment

Seat Side Support Adjustment

Seat Tilt Adjustment

Physical Switch with 3 States

Physical Switch with 5 States

Latest: 1.0.0 — Draft ... All versions + New Version

Physical switch interface with 5 states that allows users to manually control various functions (e.g. electric window movement) through tactile input.

Instance Roles: Driver Window, Driver Control Front Passenger Window, Driver Control Rear Left Window, Driver Control Rear Right Window, Front Passenger Window, Rear Left Window, Rear Right Window Edit Roles

Position Sensor

Pressure sensor

Radiator Fan

Rain Light Sensor

Recirculation Flap

Seat Controller

Latest: 1.0.0 — Draft ... All versions + New Version

Electronic system or component within electronic system responsible for controlling seat adjustment operation: processing user requests, producing actuation commands, managing safety functions, and communicating with other vehicle systems.

Instance Roles: Rear Left Seat Foot Rest, Rear Right Seat Foot Rest, Rear Left Seat Calf Rest Support, Rear Right Seat Calf Rest Support, Front Passenger Seat Height, Rear Right Seat Height, Rear Left Seat Height, Front Passenger Seat Backrest, Rear Left Seat Backrest, Rear Right Seat Backrest, Front Passenger Seat Fore-Aft, Rear Left Seat Fore-Aft, Rear Right Seat Fore-Aft, Front Passenger Seat Head Restraint, Rear Left Seat Head Restraint, Rear Right Seat Head Restraint, Front Passenger Seat Cushion Length, Rear Left Seat Cushion Length, Rear Right Seat Cushion Length, Rear Left Seat Lumbar Support, Rear Right Seat Lumbar Support, Front Passenger Seat Lumbar Support, Front Passenger Seat Side Support, Rear Left Seat Side Support, Rear Right Seat Side Support, Front Passenger Seat Tilt, Rear Left Seat Tilt, Rear Right Seat Tilt, Rear Left Seat Folding, Rear Right Seat Folding Edit Roles

Seat Controller with Position Memory

Seat Mat Sensor

+ NEW VERSION

1.2.0

1.1.0

1.0.0

Physical Switch with 3 States 1.0.0 – Draft

Edit Branch Fork

Physical switch interface with 3 states that allows users to manually control various functions (e.g. seat adjustment) through tactile input.

Instance Roles: Rear Left Seat Foot Rest, Rear Right Seat Foot Rest, Rear Left Seat Calf Rest Support, Rear Right Seat Calf Rest Support, Front Passenger Seat Height, Rear Left Seat Height, Driver Seat Height, Rear Right Seat Height, Driver Seat Backrest, Rear Left Seat Backrest, Front Passenger Seat Backrest, Rear Right Seat Backrest, Driver Seat Fore-Aft, Front Passenger Seat Fore-Aft, Rear Left Seat Fore-Aft, Rear Right Seat Fore-Aft, Driver Seat Head Restraint, Front Passenger Seat Head Restraint, Rear Left Seat Head Restraint, Rear Right Seat Head Restraint, Driver Seat Cushion Length, Front Passenger Seat Cushion Length, Rear Left Seat Cushion Length, Rear Right Seat Cushion Length, Driver Seat Lumbar Support, Front Passenger Seat Lumbar Support, Rear Left Seat Lumbar Support, Rear Right Seat Lumbar Support, Driver Control Windows Lock, Driver Seat Side Support, Front Passenger Seat Side Support, Rear Left Seat Side Support, Rear Right Seat Side Support, Driver Seat Tilt, Front Passenger Seat Tilt, Rear Left Seat Tilt, Rear Right Seat Tilt, Rear Left Seat Folding, Rear Right Seat Folding, Charge Flap Lock

Edit Roles

Created: Sergey Vinogradov, 11 Jul 2025, 10:31:18. Modified: Alexey Yakovlev, 16 Jul 2025, 13:28:58

Requirements 9

Architecture

Supports Features

Seat Backrest Adjustment...

Seat Cushion Length Adjustment...

Seat Height Adjustment

1.0.0 – Draft

Seat Fore-and-Aft Adjustment

1.0.0 – Draft

Seat Lumbar Support Adjustment...

Head Restraint Adjustment...

Rear Row Calf Rest Support Adjustment...

Rear Row Foot Rest Adjustment...

Seat Side Support Adjustment...

Seat Tilt Adjustment...

Rear Row Seat Folding...

Interactive Change Logs



Features / Seat Fore-and-Aft Adjustment 1.0.0 — Draft / Requirements Architecture

Select a Project ▾



Added Derived Link from System Requirement *Response Time Performance (1A)* to Feature Requirement *Adjustment Response Time (1A)*.

Sergey Vinogradov, 11 Jul 2025, 10:56:49

Added Derived Link from System Requirement *Operational Durability (1A)* to Feature Requirement *Operational Durability (1A)*.

Sergey Vinogradov, 11 Jul 2025, 10:56:49

Added Derived Link from System Requirement *Power Consumption (1A)* to Feature Requirement *Power Consumption (1A)*.

Sergey Vinogradov, 11 Jul 2025, 10:56:49

Added Derived Link from System Requirement *Power Efficiency (1A)* to Feature Requirement *Power Consumption (1A)*.

Sergey Vinogradov, 11 Jul 2025, 10:56:48

Added Derived Link from System Requirement *Noise Level (1A)* to Feature Requirement *Noise Level (1A)*.

Sergey Vinogradov, 11 Jul 2025, 10:56:48

Added Connection from *DriverId* to Driver Seat Fore-Aft Seat Controller with Position Memory / *DriverId* .

Sergey Vinogradov, 11 Jul 2025, 10:56:47

Added Connection from *Driver Seat Fore-Aft Electric Motor* / *MotorStatus* to Driver Seat Fore-Aft Seat Controller with Position Memory / *MotorStatus* .

Sergey Vinogradov, 11 Jul 2025, 10:56:47

Added Connection from *Driver Seat Fore-Aft Position Sensor* / *SensorStatus* to Driver Seat Fore-Aft Seat Controller with Position Memory / *SensorStatus* .

Sergey Vinogradov, 11 Jul 2025, 10:56:46

Added Connection from *Driver Seat Fore-Aft Physical Switch with 3 States* / *SwitchStatus* to Driver Seat Fore-Aft Seat Controller with Position Memory / *SwitchStatus* .

Sergey Vinogradov, 11 Jul 2025, 10:56:46

Added Connection from *IsCollisionDetected* to Driver Seat Fore-Aft Seat Controller with Position Memory / *IsCollisionDetected* .

Sergey Vinogradov, 11 Jul 2025, 10:56:46

Added Connection from *Driver Seat Fore-Aft Position Sensor* / *PositionFeedback* to Driver Seat Fore-Aft Seat Controller with Position Memory / *PositionFeedback* .

Sergey Vinogradov, 11 Jul 2025, 10:56:45

Added Connection from *Driver Seat Fore-Aft Physical Switch with 3 States* / *SwitchActivationState* to

Requirements And Traceability



Features / Seat Height Adjustment 1.0.0 – Draft / Requirements Architecture

Select a Project ▾



Vehicle Requirements

- 03010 Seat Adjustment Power and Resource Management R1A (latest)
- 03011 Seat Position Adjustment Capability R1A (latest)
- 03012 Seat Adjustment User Interface Responsiveness R1A (latest)
- 03013 Seat Adjustment Safety System Integration R1A (latest)
- 03118 Seat Position Memory and Recall R1A (latest)
- 03014 Seat Adjustment System Fault Detection R1A (latest)
- 03015 Seat Movement Safety Restriction R1A
- 03016 Seat Collision Avoidance R1A (latest)

Add: Req > Group

Feature Requirements

03110 Position Limit Enforcement R1A (latest)

Type
Functional Requirement

Title
Ignition State Off Response

Description
When value of `IgnitionState` transitions to 'Off', the feature shall complete any ongoing adjustment operations within 5 seconds and then disable all adjustment functions while maintaining position memory.

Type # to reference Port

Associated domain

ASIL
QM

Derived from:
03010 Seat Adjustment Power and Resource Management X
Derived from (Search or Drag & Drop)

SAVE IN FEATURE

CANCEL



Changes in 'derived from' links will not create new requirement revision

03111 Motor Control and Safety R1A (latest)

03114 Emergency Safety Response R1A (latest)

Add: Req → Port > Group

Requirements And Traceability



Features / Seat Fore-and-Aft Adjustment 1.0.0 — Draft / Requirements Architecture

Select a Project ▾



Vehicle Requirements

03010 Seat Adjustment Power and Resource Ma... R1A (latest)

03011 Seat Position Adjustment Capability R1A (latest)

03012 Seat Adjustment User Interface Responsi... R1A (latest)

03118 Seat Position Memory and Recall R1A (latest)

Safety

03013 Seat Adjustment Safety System Integ... R1A (latest)

03014 Seat Adjustment System Fault Detect... R1A (latest)

03015 Seat Movement Safety Restriction R1A

03016 Seat Collision Avoidance R1A (latest)

Add: Req > Group

Feature Requirements

Position Memory Storage and Recall

03362 Seat Position Memory Storage R1A (latest)

03356 Automatic Position Recall R1A (latest)

03353 Position Memory Retention R1A (latest)

03342 DriverId R1A (latest)

03352 Vehicle Speed Restriction R1A (latest)

03373 Motor Control and Safety R1A (latest) ✎ ...

The feature shall control adjustment motors with appropriate safety limits, current monitoring, stall detection, and emergency stop capabilities to ensure safe reliable operation and prevent mechanical damage or occupant injury.

ASIL: C

03359 Occupancy-Based Operation R1A (latest)

03360 Emergency Safety Response R1A (latest)

03364 Position Limit Enforcement R1A (latest)

03365 Fault Detection and Response R1A (latest)

03366 Adjustment Status Communication R1A (latest)

03370 User-Requested Seat Adjustment Operation R1A (latest)

03371 Ignition State Off Response R1A (latest)

03351 Seat Adjustment System Availability R1A (latest)

Add: Req Port > Group

Requirements And Traceability



Features / Seat Height Adjustment 1.0.0 – Draft / Requirements Architecture

Select a Project ▾



Feature Requirements

- 03095 Automatic Position Recall R1A (latest)
- 03096 Seat Position Memory Storage R1A (latest)
- 03097 Occupancy-Based Operation R1A (latest)
- 03100 Fault Detection and Response R1A (latest)
- 03110 Position Limit Enforcement R1A (latest)
- 03098 Ignition State Off Response R1A (latest)
- 03111 Motor Control and Safety R1A (latest)
- 03114 Emergency Safety Response R1A (latest)
- 03102 Adjustment Status Communication R1A (latest)
- 03113 User-Requested Seat Adjustment Operation R1A (latest)
- 03117 Vehicle Speed Restriction R1A (latest)
- 03099 Adjustment Response Time R1A (latest)
- 03101 Operational Durability R1A (latest)
- 03103 Position Accuracy and Repeatability R1A (latest)
- 03104 Position Memory Retention R1A (latest)
- 03105 Temperature Range R1A (latest)
- 03106 Electromagnetic Compatibility R1A (latest)
- 03107 Power Consumption R1A (latest)

03108 Safety Response Performance R1A (latest)

Add: Req Port Group

Systems

- Front Passenger Seat Height Physical Switch with 3 States
- Rear Left Seat Height Physical Switch with 3 States
- Driver Seat Height Physical Switch with 3 States
- Rear Right Seat Height Physical Switch with 3 States

- Front Passenger Seat Height Seat Controller
- Rear Right Seat Height Seat Controller
- Rear Left Seat Height Seat Controller
- Rear Left Seat Height Position Sensor
- Rear Right Seat Height Position Sensor
- Driver Seat Height Position Sensor
- Front Passenger Seat Height Position Sensor
- Front Passenger Seat Height Electric Motor
- Rear Right Seat Height Electric Motor
- Driver Seat Height Electric Motor
- Rear Left Seat Height Electric Motor
- Driver Seat Height Seat Controller with Position Memory

Requirements And Traceability

Vehicle Requirements

03014 Seat Adjustment System Fault Detection R1A (latest)

The vehicle shall detect and respond appropriately to faults in seat adjustment system to prevent unsafe conditions and maintain occupant protection.

Hazard: System malfunction leading to unsafe seat position or movement

Severity: S2 / Exposure: E3 / Controllability: C2

Mitigation: Continuous monitoring and safe state transition

ASIL: B

Vehicles: M1 Passenger Car 2.0.0

03012 Seat Adjustment User Interface Responsiveness R1A (latest)

03015 Seat Movement Safety Restriction R3A (latest)

The vehicle shall prevent unsafe seat movement during vehicle operation to avoid loss of vehicle control or occupant injury.

Hazard: Uncontrolled seat movement during driving or other unsafe conditions

Severity: S3 / Exposure: E3 / Controllability: C3

Mitigation: Movement restriction based on vehicle state

ASIL: C

Vehicles: M1 Passenger Car 2.0.0

Revision mismatch between Vehicle and Feature

03016 Seat Collision Avoidance R1A (latest)

Add: Req > Group

Seat Height Adjustment 1.0.0 – Draft

03110 Position Limit Enforcement R1A (latest)

03098 Ignition State Off Response R1A (latest)

03111 Motor Control and Safety R1A (latest)

03114 Emergency Safety Response R1A (latest)

03102 Adjustment Status Communication R1A (latest)

03113 User-Requested Seat Adjustment Operation R1A (latest)

03117 Vehicle Speed Restriction R1A (latest)

03099 Adjustment Response Time R1A (latest)

03101 Operational Durability R1A (latest)

03103 Position Accuracy and Repeatability R1A (latest)

03104 Position Memory Retention R1A (latest)

03105 Temperature Range R1A (latest)

03106 Electromagnetic Compatibility R1A (latest)

03107 Power Consumption R1A (latest)

03108 Safety Response Performance R1A (latest)

03109 Vibration Resistance R1A (latest)

03112 Seat Adjustment System Availability R1A (latest)

03115 Noise Level R1A (latest)

03116 User Interface Responsiveness R1A (latest)

03099 VehicleSpeed R1A (latest)

CSV (ZIP) Requirements Import, Export, Round-Trip



Vehicles / Passenger Car M1 / Functional Architecture 1.0 – Draft / Features / Export Requirements

Select a Project ▾



Vehicle Requirements

☒ Select All

☒ [🔗](#) 00002 ECE R48 - Installation of lighting and light-signalling devices

☒ [🔗](#) 00003 ECE R121 - Identification of controls, tell-tales and indicators

☒ [🔗](#) 00004 ECE R21 - Interior fittings

☒ [🔗](#) 00005 ECE R129 - Enhanced Child Restraint Systems (ECRS)

☒ [🔗](#) 00006 ECE R58 - Rear underrun protective devices (RUPDs)

☒ [🔗](#) 00007 ECE R3 - Retro-reflecting devices

☒ [🔗](#) 00008 ECE R4 - Illumination of rear registration plates

☒ [🔗](#) 00009 ECE R6 - Direction indicators R1A (latest)

Uniform provisions concerning the approval of direction indicators for power-driven vehicles and their trailers.

Link instruction: Chose regulatory act from the short list and then look for the document with the highest number in this order: Series of Amendments (if applicable) > Revision (if applicable) > Amendment to Revision

[📄](#) UN Regulation No 6 / Effective: 06/07/2022

[🔗](#) Document Link

☒ [🔗](#) 00010 ECE R7 - Position, stop and end-outline lamps

☒ [🔗](#) 00011 ECE R10 - Electromagnetic compatibility

☒ [🔗](#) 00012 ECE R11 - Door latches and hinges

☒ [🔗](#) 00013 ECE R12 - Steering mechanism

☒ [🔗](#) 00001 ECE R79 - Steering equipment

☒ [🔗](#) 00015 ECE R13-H - Braking of passenger cars

Export 125

Select Format

CSV ▾

☒ Include Attachments

[🔗](#) Documentation

EXPORT & DOWNLOAD

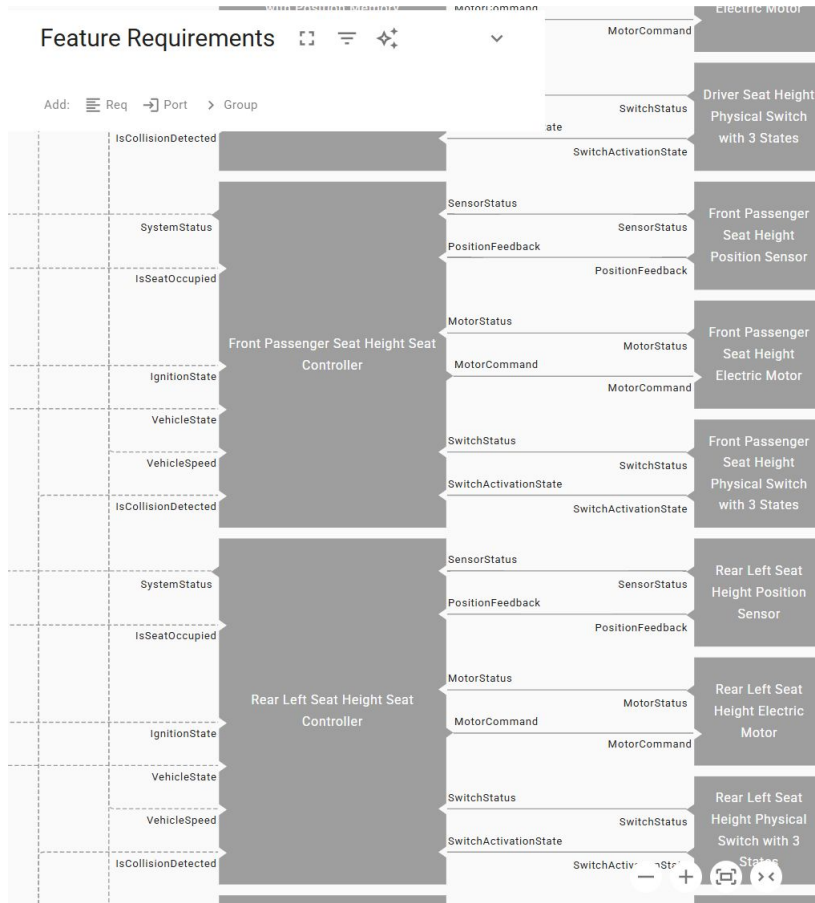
CANCEL

Built-In Diagrams With Instances And Connections



Features / Seat Height Adjustment 1.0.0 – Draft / Requirements Architecture

Select a Project ▾



Systems +

Front Passenger Seat Height Physical Switch with 3 States

Rear Left Seat Height Physical Switch with 3 States

Driver Seat Height Physical Switch with 3 States

Physical Switch with 3 States Instance Role

Rear Right Seat Height

(None)

Rear Left Seat Foot Rest

Rear Right Seat Foot Rest

Rear Left Seat Calf Rest Support

Rear Right Seat Calf Rest Support

Front Passenger Seat Height

Rear Left Seat Height

Driver Seat Height

Rear Right Seat Height

Driver Seat Backrest

Rear Left Seat Backrest

Front Passenger Seat Height Electric Motor

Rear Right Seat Height Electric Motor

Driver Seat Height Electric Motor

Rear Left Seat Height Electric Motor

Driver Seat Height Seat Controller with Position Memory

Built-In Diagrams With Embedded Requirements



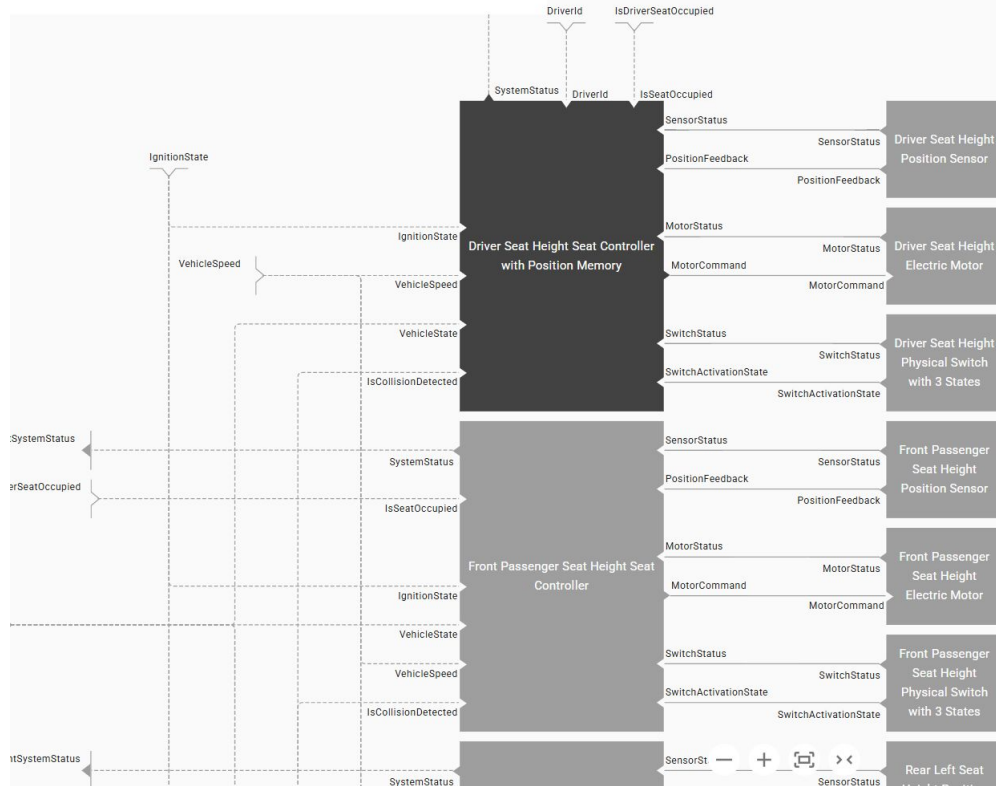
Features / Seat Height Adjustment 1.0.0 – Draft / Requirements Architecture

Select a Project ▾



Feature Requirements

Add: Req Port > Group



Driver Seat Height Seat Controller with Position Memory



Created: Sergey Vinogradov, 11 Jul 2025, 10:48:08. Modified: Sergey Vinogradov, 11 Jul 2025, 10:48:41

- 02633 Status Monitoring R1A (latest)
- 02634 Ignition State Off Response R1A (latest)
- 02635 Memory Position Recall R1A (latest)
- 02636 Seat Position Memory Storage R1A (latest)
- 02637 Switch Processing and Motor Control R1A (latest)
- 02624 Environmental Robustness R1A (latest)
- 02626 Response Time Performance R1A (latest)
- 02627 Position Control Accuracy R1A (latest)
- 02628 Memory Capacity and Retention R1A (latest)
- 02629 Safety Response Performance R1A (latest)
- 02630 Monitoring Reliability R1A (latest)
- 02600 DriverId R1A (latest)
- 02601 VehicleSpeed R1A (latest)
- 02602 IsSeatOccupied R1A (latest)
- 02603 VehicleState R1A (latest)

Add: Req Port Param > Group

Requirements Revisions



Vehicle Requirements

Feature Requirements

03015 Requirement Revisions



3A

Alexey Yakovlev, 15 Jul 2025, 17:30:20

2A

Alexey Yakovlev, 15 Jul 2025, 17:30:13

1A (IN FEATURE)

Sergey Vinogradov, 11 Jul 2025, 10:36:01

Seat Movement Safety Restriction R3A (latest)



The vehicle shall prevent unsafe seat movement during vehicle operation to avoid loss of vehicle control or occupant injury.

Hazard: Uncontrolled seat movement during driving or other unsafe conditions

Severity: S3 / Exposure: E3 / Controllability: C3

Mitigation: Movement restriction based on vehicle state

ASIL: C

Custom Data Types Revisions



Vehicle Requirements



System Requirements



04170 Enum Revisions



3A (USED)

Alexey Yakovlev, 7 Aug 2025, 13:52:13

2A

Alexey Yakovlev, 7 Aug 2025, 13:51:14

1D

Alexey Yakovlev, 7 Aug 2025, 13:52:00

1C

Alexey Yakovlev, 7 Aug 2025, 13:51:36

1B

Alexey Yakovlev, 7 Aug 2025, 13:51:30

1A

Alexey Yakovlev, 7 Aug 2025, 13:49:18

IgnitionState R1D



Value	Name	Description
0	Off	
1	Accessory	
2	On	
3	Start	

A 02622 Vehicle Speed Safety Restriction R1A (Selected)

A 02625 Software Endpoints R1A (Selected)

Add: Req Port Param Group

Feature Branches Merge And Compatibility Checks



Systems / Electric Motor 1.0.0 – Draft / Requirements

Select a Project ▾



← Add from Features

↩ Add All w/o Conflicts ⚙ Display Only Conflicts

Seat Height Adjustment 1.0.0 – Draft:

⚙ 02401 Stall Detection R1A (latest)

⚙ 02391 MaximumCurrentLimit R1A

Maximum allowable motor current before fault detection.

Data Type: **single** / Unit: **A** / Range: **[10.0, 50.0]** / Default Value: **30.0**

Seat Fore-and-Aft Adjustment 1.0.0 – Draft:

⚙ 02401 Stall Detection R1A (latest)

⚙ 02391 MaximumCurrentLimit R1A

Maximum allowable motor current before fault detection.

Data Type: **single** / Unit: **A** / Range: **[10.0, 50.0]** / Default Value: **30.0**

Feature ▾

Version ▾

ADD

System Requirements + ⚙ ⚙ ⚙

⚙ 02396 Emergency Stop Response R1A (latest)

⚙ 02397 Position Monitoring R1A

⚙ 02398 Command Execution R1A (latest)

⚙ 02399 Response Time Performance R1A (latest)

⚙ 02398 Power Efficiency R1A (latest)

⚙ 02399 Operational Durability R1A (latest)

⚙ 02400 Environmental Robustness R1A (latest)

⚙ 02402 Power Consumption R1A (latest)

⚙ 02403 Noise Level R1A (latest)

⚙ 02391 MaximumCurrentLimit R2A (latest)

↔ 02387 MotorStatus R1A (latest)

→ 02388 MotorCommand R1A (latest)

⚙ 02392 StallDetectionTimeout R1A (latest)

⚙ 02393 MotorSpeedControl R1A (latest)

⚙ 02394 CommandResponseTime R1A (latest)

⚙ 02395 StallDetectionThreshold R1A (latest)

Add: ⚙ Req → Port ⚙ Param > Group

Highlight Requirements
Add All w/o Conflicts
Remove

Feature Branches Merge And Compatibility Checks



Systems

/ Electric Motor 1.0.0 – Draft

/ Requirements

Select a Project



AY



← Add from Features

✓ Add All w/o Conflicts

☒ Display Only Conflicts

Seat Height Adjustment 1.0.0 – Draft ✓

Seat Fore-and-Aft Adjustment 1.0.0 – Draft ✓

Seat Backrest Adjustment 1.0.0 – Draft ✓

Feature

Version

ADD

System Requirements + ☒ ☒ ✨

⚙ 02396 Emergency Stop Response R1A (latest)

⚙ 02404 Current Monitoring R1A

⚙ 02405 Motor Command Execution R1A (latest)

☒ 02397 Response Time Performance R1A (latest)

☒ 02398 Power Efficiency R1A (latest)

☒ 02399 Operational Durability R1A (latest)

☒ 02400 Environmental Robustness R1A (latest)

☒ 02402 Power Consumption R1A (latest)

⚙ 02391 MaximumCurrentLimit R1A

☒ 02403 Noise Level R1A (latest)

☒ 02387 MotorStatus R1A (latest)

☒ 02388 MotorCommand R1A (latest)

⚙ 02392 StallDetectionTimeout R1A (latest)

⚙ 02393 MotorSpeedControl R1A (latest)

⚙ 02394 CommandResponseTime R1A (latest)

⚙ 02395 StallDetectionThreshold R1A (latest)

⚙ 02401 Stall Detection R1A (latest)

Add: ☒ Req ☒ Port ⚙ Param > Group

Ports And Parameters Referenced In Requirements



Features / Seat Height Adjustment 1.0.0 – Draft / Requirements Architecture

Select a Project ▾



Feature Requirements ▾



Add: Req Port > Group



← Driver Seat Height Seat Controller with Position Memory ▴



Created: Sergey Vinogradov, 11 Jul 2025, 10:48:08. Modified: Sergey Vinogradov, 11 Jul 2025, 10:48:41

02622 Vehicle Speed Safety Restriction R1A (latest) ✎ ...

When the value of \rightarrow *VehicleSpeed* is greater than \otimes *SpeedRestrictionThreshold*, the system shall set \leftarrow *MotorCommand* to 'Stop' and \leftarrow *SystemStatus* to 'SpeedRestricted' to prevent unsafe seat movement during vehicle operation.

ASIL: C

02615 SpeedRestrictionThreshold R1A (latest) ✎ ...

Maximum vehicle speed above which seat adjustment is restricted.
Data Type: **single** / Unit: **km/h** / Range: **[0.0, 20.0]** / Default Value: **5.0**

Value Override: not set ✎

02623 Emergency Safety Response R1A (latest)

02625 Software Endstops R1A (latest)

02631 System Status Adjusting R1A (latest)

02632 Fault Detection R1A (latest)

02633 Status Monitoring R1A (latest)

02634 Ignition State Off Response R1A (latest)

02635 Memory Position Recall R1A (latest)

02636 Seat Position Memory Storage R1A (latest)

Add: Req Port Param > Group

Ports And Parameters Referenced In Requirements



Systems / Electric Motor 1.0.0 – Draft / Requirements

Select a Project ▾



Vehicle Requirements

Add: Req > Group

Features

- > Head Restraint Adjustment
- > Rear Row Calf Rest Support Adjustment
- > Rear Row Foot Rest Adjustment
- > Rear Row Seat Folding
- > Seat Backrest Adjustment
- > Seat Cushion Length Adjustment
- > Seat Fore-and-Aft Adjustment
- > Seat Height Adjustment
- > Seat Lumbar Support Adjustment
- > Seat Side Support Adjustment
- > Seat Tilt Adjustment

System Requirements

Type

Functional Requirement

Title

Current Monitoring

Description *

The motor shall continuously monitor current consumption and when current exceeds \$, shall immediately stop operation to prevent damage and set `MotorStatus` to 'Fault'.

Type # to reference Port, \$ to reference Parameter

ASIL

B

Derived from:

Derived from (Search or Drag & Drop)

SAVE

CANCEL

📎

📎

🔗

⚙️ CommandResponseTime

⚙️ StallDetectionTimeout

⚙️ StallDetectionThreshold

⚙️ MaximumCurrentLimit

⚙️ MotorSpeedControl

02405 Motor Command Execution R1A (latest)

02397 Response Time Performance R1A (latest)

02398 Power Efficiency R1A (latest)

02399 Operational Durability R1A (latest)

02400 Environmental Robustness R1A (latest)

02402 Power Consumption R1A (latest)

02391 MaximumCurrentLimit R1A

02403 Noise Level R1A (latest)

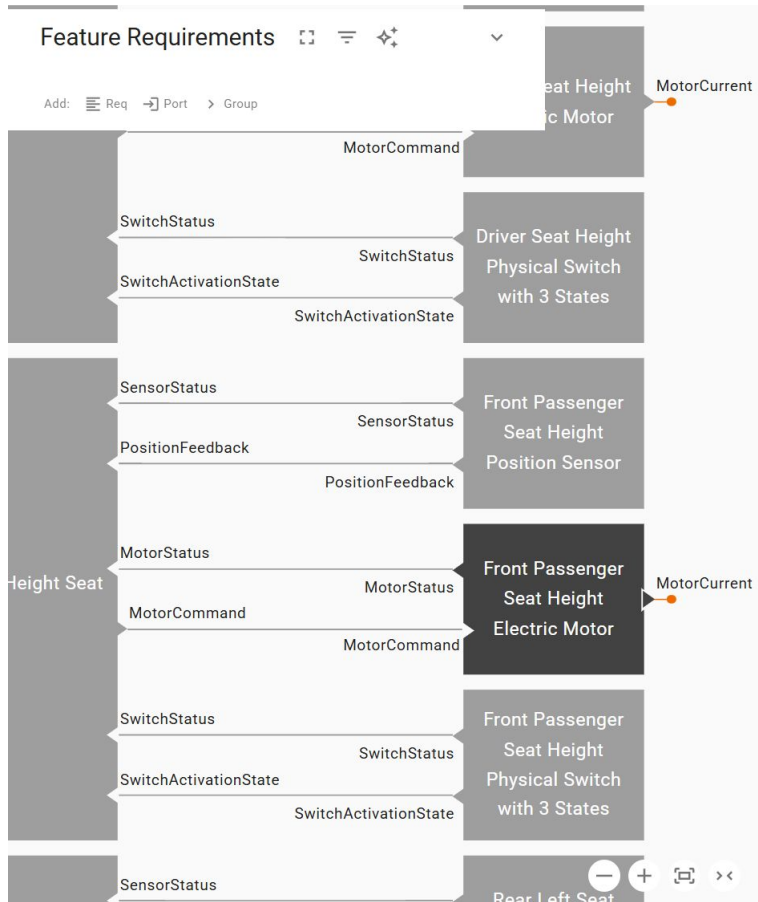
Add: Req Port Param > Group

Integrity Issues Highlights



Features / Seat Height Adjustment 1.0.0 – Draft / Requirements Architecture

Select a Project ▾



← Front Passenger Seat Height Electric Motor



Created: Sergey Vinogradov, 11 Jul 2025, 10:47:55. Modified: Sergey Vinogradov, 11 Jul 2025, 10:48:27

↗ 02387 MotorStatus R1A (latest)

→ 02388 MotorCommand R1A (latest)

⚙ 02391 MaximumCurrentLimit R1A

Maximum allowable motor current before fault detection.
Data Type: single / Unit: A / Range: [10.0, 50.0] / Default Value: 30.0

Value Override: 25.0

↗ 02390 MotorCurrent R1A (latest)

Sends current motor current consumption for monitoring.
Data Type: single
Default Value: 0.0
Min: 0.0
Max: 50.0
Unit: A

Port is not used in any requirement

⚙ 02392 StallDetectionTimeout R1A (latest)

⚙ 02393 MotorSpeedControl R1A (latest)

⚙ 02394 CommandResponseTime R1A (latest)

⚙ 02395 StallDetectionThreshold R1A (latest)

Add: Req → Port ⚙ Param > Group

Comprehensive Software Parameters Specifications

Vehicle Requirements


Add:  Req > Group

Features

- ▼ Head Restraint Adjustment
 - > 1.0.0 – Draft
 - > Seat Backrest Adjustment
 - > Seat Cushion Length Adjustment
 - > Seat Fore-and-Aft Adjustment
 - > Seat Height Adjustment
 - > Seat Lumbar Support Adjustment
 - > Seat Side Support Adjustment
 - > Seat Tilt Adjustment

System Requirements +

Type

 Per-Instance Calibration Software Parameter

Title *

EmergencyResponseTime

Description

Maximum response time for emergency safety override.

Value Type

Scalar

Unit

s

Min

0.01

Default Value *

0.05

SAVE

CANCEL

Data Type *

single

boolean

double

int8

int16

int32

int64

single

string

uint8

uint16

uint32

+ Create New Enum

→ 02604 IsCollisionDetected R1A (latest)

→ 02603 VehicleState R1A (latest)

↗ 02622 Vehicle Speed Safety Restriction R1A (latest)

↗ 02625 Software Endstops R1A (latest)

↗ 02631 System Status Adjusting R1A (latest)

↗ 02632 System Status Off Parameter R1A (latest)

Library With Standard And Custom Data Types



Systems / Seat Controller with Position Memory 1.0.0 — Draft / Requirements

Select a Project ▾



Create New Enum



Title *

IgnitionState

Description

Value	Name	Description	
<p>Value *</p> <p>0</p>	<p>Name *</p> <p>Off</p>	<p>Description</p>	×
<p>Value *</p> <p>1</p>	<p>Name *</p> <p>Accessory</p>	<p>Description</p>	×
<p>Value *</p> <p>2</p>	<p>Name *</p> <p>On</p>	<p>Description</p>	×
<p>Value *</p> <p>3</p>	<p>Name *</p> <p>Start</p>	<p>Description</p>	×

+ Add Value

CREATE

CANCEL

Lists With Grouping, Ordering, Filtering



Systems / Seat Controller with Position Memory 1.0.0 – Draft / Requirements

Select a Project ▾



Vehicle Requirements

FEATURES

▼ Head Restraint Adjustment

▼ 1.0.0 – Draft

03468 Seat Adjustment System Avail... R1A (latest)

03469 Adjustment Response Time R1A (latest)

03466 Safety Response Performance R1A (latest)

03485 Adjustment Status Communi... R1A (latest)

03477 Motor Control and Safety R1A (latest)

03476 Position Limit Enforcement R1A (latest)

03463 Fault Detection and Response R1A (latest)

03470 Position Accuracy and Repe... R1A (latest)

03481 Emergency Safety Response R1A (latest)

03478 User-Requested Seat Adjust... R1A (latest)

03483 Occupancy-Based Operation R1A (latest)

03479 Vehicle Speed Restriction R1A (latest)

03473 Electromagnetic Compatibility R1A (latest)

03472 Temperature Range R1A (latest)

03467 Vibration Resistance R1A (latest)

03471 Position Memory Retention R1A (latest)

03484 Ignition State Off Response R1A (latest)

03480 Automatic Position Recall R1A (latest)

03482 Seat Position Memory Storage R1A (latest)

> Seat Backrest Adjustment

> Seat Cushion Length Adjustment

> Seat Fore-and-Aft Adjustment

> Seat Height Adjustment

> Seat Lumbar Support Adjustment

System Requirements

▼ Position Memory Storage and Recall

02636 Seat Position Memory Storage R1A (latest)

02635 Memory Position Recall R1A (latest)

02628 Memory Capacity and Retention R1A (latest)

02613 MemoryRecallTimeout R1A (latest)

02600 DriverId R1A (latest)

> Emergency Response ...

02622 Vehicle Speed Safety Restriction R1A (latest)

02625 Software Endstops R1A (latest)

02631 System Status Adjusting R1A (latest)

02634 Ignition State Off Response R1A (latest)

02632 Fault Detection R1A (latest)

02633 Status Monitoring R1A (latest)

02637 Switch Processing and Motor Control R1A (latest)

02627 Position Control Accuracy R1A (latest)

02624 Environmental Robustness R1A (latest)

02626 Response Time Performance R1A (latest)

02630 Monitoring Reliability R1A (latest)

02601 VehicleSpeed R1A (latest)

Add: Req Port Param > Group



Way Forward