

Climate Control- Living Zone (T2)

References

FRS: url:<swap://setoolgtt.srv.volvo.com:3001/x0400000024102278>

Product Classes: B2, SLCP-BAS

Thermal System Requirements

SE-Tool link: url:<swap://setoolgtt.srv.volvo.com:3001/x04000000297F7717>

Type Type	Item Name	Item Content	FRS
 Collaboration			
 Collaboration			
 Requirement			
			Manual Climate SLCP-BAS - Accessibility url:swap://setoolgtt.srv.volvo.com:3001/x0400000028B5489D The Accessibility of the climate related parts of the HMI shall consist of Direct Access.
	Climate Settings for Living Zone - HVAC Availability	When Parking brake is applied and Vehicle Mode is one of the valid states below, Climate Settings shall be available. <ul style="list-style-type: none">• Pre-Running, Cranking and Running <p>Note: When Parking brake is applied, in the lower vehicle modes, Parked, Living, and Accessory, the Parking Climate is available.</p>	Manual Climate SLCP-BAS - Availability HVAC url:swap://setoolgtt.srv.volvo.com:3001/x0400000028B549EF The SLCP-BAS controls for the Hvac's are available at Vehicle Mode Pre-Running, Cranking and Running.
	Climate Control for Living Zone - Activation (For vehicles with Bunk HVAC)	When Vehicle Mode is Pre-Running, Cranking and Running and the Driver Experience System has requested power on from the Living Zone, the Thermal System shall activate Bunk and Front Climate and set the below settings to their stored setting. <ul style="list-style-type: none">• AUTO active/inactive• Blower setting• Temperature setting <p>Precondition: Bunk Climate is OFF.</p> <p>Bunk Climate activation is requested using the signal: LECM_BunkClimatePowerRequest = 1 (On)</p> <p>Bunk Climate power status is reported using the signal: BunkClimatePowerStatus = 1 (On)</p>	Manual Climate SLCP -BAS - Activation Front & Bunk HVAC url:swap://setoolgtt.srv.volvo.com:3001/x0400000028B54C0D The Bunk and Front Climate is activated together by Long OR Short Press on the Increase Blower Rocker Switch. If the user just makes one Short Press on the Increase Blower Rocker Switch, meaning just waking up the Climate System, the Climate Settings from previous drive cycle shall be used (as in the other Variants of LECM). If the User makes subsequent Actions with the Climate Control Devices (either on SLCP-BAS or on the DECM) those Actions will take effect.

	<p>Climate Control for Living Zone - Activation (For vehicles without Bunk HVAC)</p> <p>When Vehicle Mode is Pre-Running, Cranking and Running and the Driver Experience System has requested power on from the Living Zone, the Thermal System shall activate Front Climate and set the below settings to their stored setting.</p> <ul style="list-style-type: none"> • AUTO active/inactive • Blower setting • Temperature setting <p>Precondition: Front Climate is OFF.</p> <p>Front Climate activation is requested using the signal: LECM_BunkClimatePowerRequest = 1 (On)</p> <p>Front Climate power status is reported using the signal: ClimatePowerStatus = 1 (On)</p>	<p>Manual Climate SLCP-BAS - Activation front HVAC</p> <p>url:swap://setoolgtr.volvo.com:3001/x040000029269B8B</p> <p>The Front Climate is activated by Short OR Long Press on the Increase Blower Rocker Switch. If the user just makes one Short Press on the Increase Blower Rocker Switch, meaning just waking up the Climate System, the Climate Settings from previous drive cycle shall be used (as in the other Variants of LECM). If the User makes subsequent Actions with the Climate Control Devices (either on SLCP-BAS or on the DECM) those Actions will take effect.</p>
	<p>Climate Control for Living Zone - Memory</p> <p>When the Driver Experience System has requested change Temperature or Blower settings, the Thermal system shall store those settings.</p>	
	<p>Climate Control for Living Zone - Deactivation</p> <p>When Vehicle Mode is Pre-Running, Cranking and Running and the Driver Experience System has requested power off from the Living Zone, the Thermal System shall deactivate Bunk Climate.</p> <p>Note: Front Climate shall be kept active.</p> <p>Bunk Climate deactivation is requested using the signal: LECM_BunkClimatePowerRequest = 0 (Off)</p> <p>Bunk Climate power status is reported using the signal: BunkClimatePowerStatus = 0 (Off)</p>	<p>Manual Climate SLCP-BAS - Deactivation Bunk HVAC</p> <p>url:swap://setoolgtr.volvo.com:3001/x040000028B54D96</p> <p>The Bunk Climate is Deactivated by Long Press on the Decrease Blower Rocker Switch. Front Climate will stay Active.</p>
	<p>Climate Control for Living Zone - Sync (For vehicles with Bunk HVAC)</p> <p>While Front and Bunk Climate Control are active, the Thermal System shall keep the following settings synced.</p> <ul style="list-style-type: none"> • AUTO active/inactive • Blower setting • Temperature setting 	<p>Manual Climate SLCP-BAS - Sync with front Climate</p> <p>url:swap://setoolgtr.volvo.com:3001/x040000028B55128</p> <p>When Front and Bunk Climate are Active, the front and Bunk Settings (Auto, Blower Level, Tempset) shall always be Synced.</p> <p>Note: Even though the Tempsets are Synced between Front and Bunk, the Temperature Auto functionality, as well as Auto Blower and Auto Air Distribution if Active, in Front and Bunk are still working independently from each other.</p>
	<p>Climate Control for Living Zone - Controlling Cab Climate from Bunk (For vehicles without Bunk HVAC)</p> <p>When Parking Brake is applied and the Driver Experience System has requested change of settings listed below from the Living Zone, the Thermal System shall set the corresponding settings for Front Climate.</p> <ul style="list-style-type: none"> • Blower setting • Temperature setting <p>Bunk blower level is requested using the signal: BunkHVACBlowerRequest</p> <p>Bunk temperature level is requested using the signal: BunkTempRequest</p>	<p>Manual Climate SLCP-BAS - Controlling the Front Hvac from the Bunk</p> <p>url:swap://setoolgtr.volvo.com:3001/x04000002926BECE</p> <p>While parked with applied parking brake, the controls on the SLCP-BAS will affect the Front Hvac.</p>

	Climate Control for Living Zone - Parking Climate Availability	<p>When Vehicle Mode is one of the valid states below, Parking Climate Settings shall be available.</p> <ul style="list-style-type: none"> • Parked, Living, Accessory 	<p>Manual Climate SLCP-BAS - Parking Climate Availability url:swap://setoolggt.srv.volvo.com:3001/x040000028B55344</p> <p>The SLCP-BAS controls shall be available in Vehicle Modes Parked, Living, Accessory.</p>
	Climate Control for Living Zone - Deactivation of Parking Climate	<p>When Vehicle Mode is Parked, Living, Accessory and the Driver Experience System has requested deactivation of Parking Climate from the Living Zone, the Thermal System shall deactivate the Parking Climate/Parking Heater.</p> <p>Parking Climate deactivation is requested using the signal: LECM_BunkClimatePowerRequest = 0 (Off)</p>	<p>Manual Climate SLCP-BAS - Parking Climate Deactivation url:swap://setoolggt.srv.volvo.com:3001/x040000028B5549F</p> <p>The Parking Climate Deactivation from the Bunk is made by Long Press on the Decrease Blower Rocker Switch.</p>
	Climate Control for Living Zone - Activation of Parking Climate	<p>When Bunk Climate is OFF, Vehicle Mode is Parked, Living, Accessory and the Driver Experience System has requested activation of Climate Control for Living Zone, the Thermal System shall activate the Parking Climate/Parking Heater and set the below settings to their stored setting.</p> <ul style="list-style-type: none"> • Temperature setting <p>Parking Climate activation is requested using the signal: LECM_BunkClimatePowerRequest = 1 (On)</p> <p>Bunk temperature level status is reported using the signal: BunkTempStatus</p> <p>Bunk Climate power status is reported using the signal: BunkClimatePowerStatus = 1 (On)</p> <p>Front Climate power status is reported using the signal: ClimatePowerStatus = 1 (On)</p>	<p>Manual Climate SLCP -BAS - Parking Climate Activation url:swap://setoolggt.srv.volvo.com:3001/x040000028B553F3</p> <p>The Parking Climate Activation from the Bunk is made by a short Press OR Long Press on the Increase Blower Rocker Switch.</p> <p>The Climate settings shall be the same as the previous Parking Climate session.</p> <p>Note: This will start the PH-CAB2 which is the only available Parking Climate Actuator available with SLCP-BAS. Neither of the Hvac's are activated.</p>

	<p>Climate Control for Living Zone - Feedback</p> <p>Thermal System shall report the Bunk Climate Status to the Driver Experience System.</p> <p>Front Climate power status is reported using the signal: ClimatePowerStatus = 0 (Off) or 1 (On)</p> <p>Bunk Climate power status is reported using the signal: BunkClimatePowerStatus = 0 (Off) or 1 (On)</p> <p>Front blower level status is reported using the signal: HVACBlowerLevelStat_BlowerLevel</p> <p>Bunk blower level status is reported using the signal: BunkHVACBlwrLvlStat_BlowerLevel</p> <p>Front temperature level status is reported using the signal: CabTempStatus</p> <p>Bunk temperature level status is reported using the signal: BunkTempStatus</p>	<p>Manual Climate SLCP-BAS - User Feedback HVAC</p> <p>url:swap://setoolggt.srv.volvo.com:3001/x040000028B5C844</p> <p>When Bunk Climate is Active, it shall be Indicated by lighting the LED on the Blower Rocker Switch.</p>
	<p>Climate Control for Living Zone - Feedback for Parking Climate</p> <p>Thermal System shall report the Parking Climate Status to the Driver Experience System.</p> <p>Parking Climate status is reported using signal: ParkingClimate_IndicationCmd</p>	<p>Manual Climate SLCP-BAS - Parking Climate User Feedback</p> <p>url:swap://setoolggt.srv.volvo.com:3001/x040000028B5C95D</p> <p>When Parking Climate is Active it shall be indicated by lighting the LED on the Blower Rocker Switch.</p>

	<p>Climate Control for Living Zone - Temperature Setting</p> <p>When the Driver Experience System has requested change of temperature level, the Thermal System shall set the temperature level to the requested level.</p> <p>Note: The temperature value for the minimum and maximum limits should be 17°C and 27°C or 62F and 82F.</p> <p>Note: Trying to set a temperature value lower than 17°C or 62F will activate the LOW/MIN setting function.</p> <p>Note: Trying to set a temperature value higher than 27°C or 82F will activate the HIGH/MAX setting function.</p> <p>Bunk temperature level is requested using the signal: BunkTempRequest</p> <p>Bunk temperature level status is reported using the signal: BunkTempStatus</p> <p>Front temperature level is requested using the signal: CabTempRequest</p> <p>Front temperature level status is reported using the signal: CabTempStatus</p>	<p>Temperature Range SLCP-BAS</p> <p>url:swap://setoolgtr.srv.volvo.com:3001/x040000028B6C85D</p> <p>The Temperature Range for SLCP-BAS shall be the same as Temperature Range US</p> <p>For PC B1 & B2:</p> <p>Ability to set target CAB air temperature in the range:</p> <p>62 - 82 °F or 17 - 27 °C</p>
	<p>Climate Control for Living Zone - Temperature Increments</p> <p>It shall be possible to set target temperature in steps of 1°C or 2F increments</p>	<p>Temperature Increments SLCP-BAS</p> <p>url:swap://setoolgtr.srv.volvo.com:3001/x040000028B6C893</p> <p>The resolution of the Temperature Increments shall be same as Temperature Increments US</p> <p>For PC B1 & B2:</p> <p>Ability to set target CAB air temperature in the steps of:</p> <p>2 °F increments or 1 °C increments</p>
	<p>Climate Control for Living Zone - Manual Blower Setting (For vehicles with Bunk HVAC)</p> <p>When the Driver Experience System has requested change of blower level, the Thermal System shall set the Front and Bunk blower level to the requested level.</p> <p>Bunk blower level is requested using the signal: BunkHVACBlowerRequest</p> <p>Front blower level is requested using the signal: HVACBlowerRequest</p>	

	Climate Control for Living Zone - Manual Blower Setting (For vehicles without Bunk HVAC)	<p>When the Driver Experience System has requested change of blower level, the Thermal System shall set the front and bunk blower level to the requested level.</p> <p>Front blower level is requested using the signal: HVACBlowerRequest</p>	
	Climate Control for Living Zone - Manual Blower Setting Increments	<p>The number of manual blower speed increments shall be 1 step (Min = 1 and Max = 10).</p>	<p>Manual Blower Speed Increments SLCP-BAS url:swap://setoolgtt.srv.volvo.com:3001/x040000028B6C8DD</p> <p>The number of Manual Blower Speed Increments shall be same as Manual Blower Speed Increments 1-10</p> <p>Every blower speed increment shall be distinctive and the user shall notice a difference in air flow speed</p> <p>1-10 steps 1 = minimum speed to generate minimum air flow 10 = full speed</p>
	Climate Control for Living Zone - Front Deactivation Inhabitation Sync (For vehicles with Bunk HVAC)	<p>When Front and Bunk Climate Control are active and synched and the Driver Experience System has requested deactivation of Parking Climate from Driving Zone, the Thermal System shall keep Front and Bunk synced and prevent the Front Parking Climate from deactivating.</p> <p>Front Climate activation is requested using the signal: <code>LECM_BunkClimatePowerRequest = 0 (Off)</code></p> <p>Front Climate power status is reported using the signal: <code>ClimatePowerStatus = 1 (On)</code></p> <p>Bunk Climate power status is reported using the signal: <code>BunkClimatePowerStatus = 1 (On)</code></p>	<p>Manual Climate SLCP-BAS - Sync Indication url:swap://setoolgtt.srv.volvo.com:3001/x04000002A475CEE</p> <p>When both Front and Bunk Hvac's are active and Synced, the HMI shall always indicate that Sync is active (same indication as in variants equipped with SLCP-LUX).</p> <p>Note: This requirement implicates that Sync shall not be possible to deactivate with the button if both Front and Bunk Hvac's are active.</p>

Tech Report Information

Overview

Manual Climate settings for the Living Zone give the user opportunity to take control over one or more Climate Actuators (Blower Level, Temperature setting). Manual Climate Settings are available whenever Living Zone Climate is active. Living Zone Climate is available when Parking brake is applied and Vehicle Mode Pre-Running, Cranking and Running or with Parking Climate in Vehicle Mode Parked, Living and Accessory. When Living Zone is inactive it can be activated, that will also activate the Cab Climate. When in AUTO, the auto function in Front and Bunk are still working independently from each other. When Front and Living Zone Climate are active, the settings (Auto, Blower Level, Temperature setting) shall always be synced (If there is no Bunk HVAC, the LECM-BAS will control the front HVAC only). These settings shall also be remembered from the last session the Climate system was active. Auto can only be activated from the Front. The number of Manual Blower Speed Increments for Living Zone shall be same as Manual Blower Speed Increments 1-10. The temperature range and the increments shall be the same as for Cab Climate.

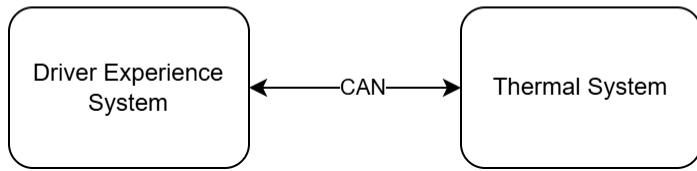
When in Parking Climate the HVACs are inactive and only the Parking Heater is active. In Parking Climate it is only possible to change the target temperature.

When both Front and Bunk are synched and the deactivation of the Parking Climate from Driving Zone is requested, the Parking Climate will not be deactivated and both Front and Bunk will be kept active.

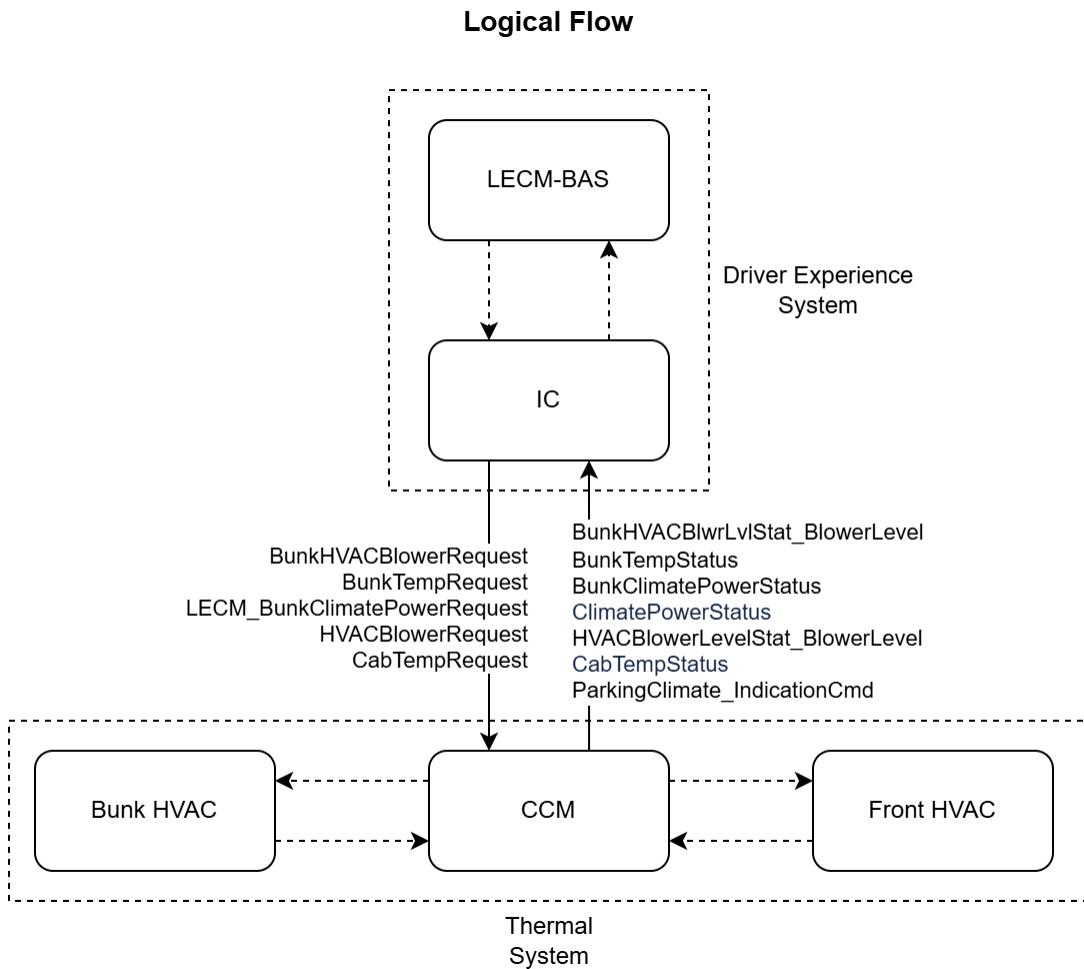
Logic Structure

The interacting systems are the Thermal System and the Driver Experience System which use CAN signals and internally LIN signals.

Logical Context

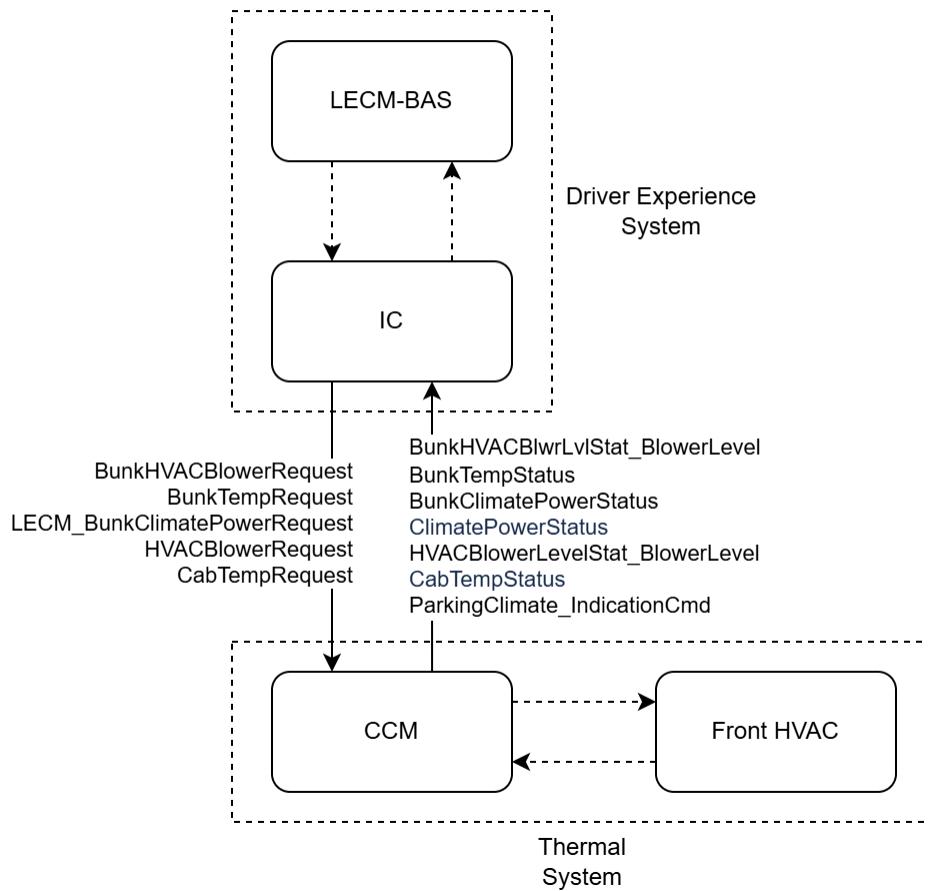


Logical Flow for the vehicles with Bunk HVAC

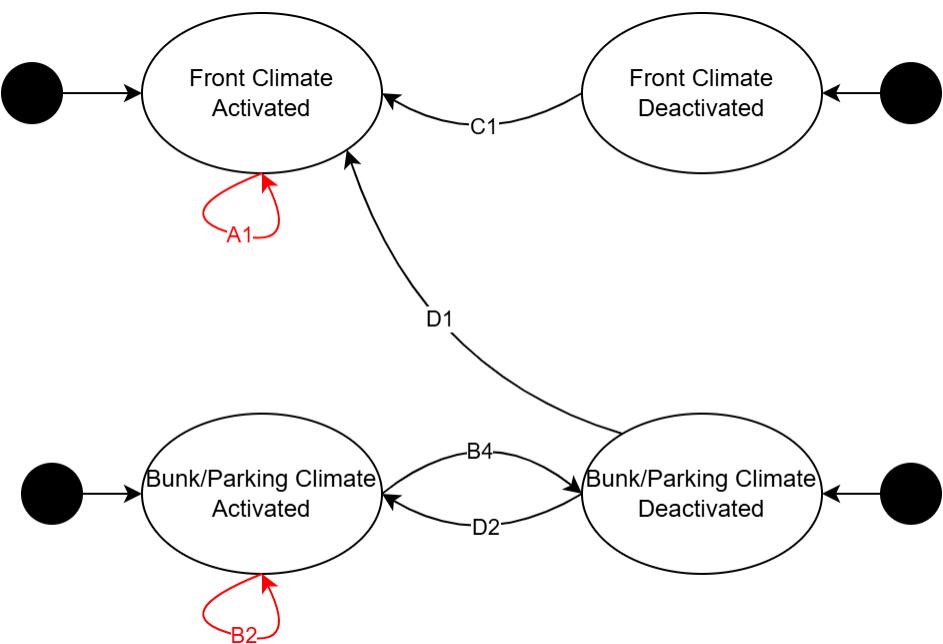


Logical Flow for the vehicles without Bunk HVAC

Logical Flow



States and Modes



State Name	State Description
Front Climate Activated	Front Climate is active.
Bunk/Parking Climate Activated	Bunk/Parking Climate is active.
Front Climate Deactivated	Front Climate is inactive.
Bunk/Parking Climate Deactivated	Bunk/Parking Climate is inactive.

	Sink	Front Climate Activated	Bunk/Parking Climate Activated	Front Climate Deactivated	Bunk/Parking Climate Deactivated
Source	-	1	2	3	4
Front Climate Activated	A	A1	N/A	N/A	N/A
Bunk/Parking Climate Activated	B	B1	N/A	N/A	B4
Front Climate Deactivated	C	C1	C2	N/A	N/A
Bunk/Parking Climate Deactivated	D	D1	D2	N/A	N/A

Transition	Precondition	Trigger	Action
A1, B1	Front Climate is active. Bunk/Parking Climate is active. Front and Bunk are synched.	Deactivation of Bunk Climate is requested from the Driving Zone.	Bunk/Parking Climate is kept active. Front Climate is kept active.
B4	VM = Pre-Running, Cranking and Running Front Climate is active. Bunk/Parking Climate is active.	Deactivation of Bunk Climate is requested from the Living Zone.	Bunk/Parking Climate is deactivated. Front Climate is kept active.
C1, D1	VM = Pre-Running, Cranking and Running Parking Brake applied.	Activation of Front and Bunk Climate is requested from the Living Zone.	Front Climate is activated. Bunk/Parking Climate is activated. Below settings to their stored setting. <ul style="list-style-type: none">• AUTO setting• Blower setting• Temperature setting
D2	VM = Parked, Living, Accessory	Activation of Bunk Climate is requested from the Living Zone.	Bunk/Parking Climate is activated. Below settings to their stored setting. <ul style="list-style-type: none">• Temperature setting

Interface Specification

The signal routes are based on "TEA2+ T2 Network Topology – Volvo Trucks NA and Mack Trucks (PC B1 & B2) – 2025W22 (P6700" in [T2_Architecture](#).

Signal Name	Source	Via	Sink	Integration Status
BunkHVACBlowerRequest	IC	SCIM	CCM	Previously integrated
BunkHVACBlwrLvlStat_BlowerLevel	CCM	SCIM	IC	Previously integrated
BunkTempRequest	IC	SCIM	CCM	Previously integrated

BunkTempStatus	CCM	SCIM	IC	Previously integrated
LECM_BunkClimatePowerRequest	IC	SCIM	CCM	Previously integrated
BunkClimatePowerStatus	CCM	SCIM	IC	Previously integrated
ClimatePowerStatus	CCM	SCIM	IC	Previously integrated
HVACBlowerRequest	IC	SCIM	CCM	Previously integrated
HVACBlowerLevelStat_BlowerLevel	CCM	SCIM	IC	Previously integrated
CabTempRequest	IC	SCIM	CCM	Previously integrated
CabTempStatus	CCM	SCIM	IC	Previously integrated
ParkingClimate_IndicationCmd	CCM	SCIM	IC	Previously integrated