



## Description

### Integrated Body Control Unit (IBU)

Integrated body control unit has integrated several functions including body control module (IBU), smart key unit (SMK), and tire pressure monitoring system (TPMS).

#### 1. Body Control Module (IBU) Functions

Burglar Alarm	Liftgate Burglar Alarm	Issues an alarm depending on the liftgate operation.
	Panic Alarm	Generates warning sound and displays flasher lamp (horn & flasher) depending on the panic signal.
	Security Lamp Control	Controls security lamp in vehicle alert status.
Heating Wire	Door Mirror Heating Wire	The defogger and deicer function prevents and removes fog and frost from the mirror and window using the rear window heating wire switch (defogger switch).
	Rear Window Heating Wire Control	
External Lamp	Tail Lamp	Turns on / off the tail lamp automatically. It also turns off the tail lamp automatically when the driver forgot to turn off the lamp switch.
	Auto Light	Turns on/off the tail lamp and head lamp automatically depending on whether it is day or night when the head lamp switch is placed at Auto.
	Welcome Light	The welcome light function turns on the head lamp and tail lamp for 15 seconds when an unlock signal is detected while vehicle door is locked.
	Escort Function	<p>Turns on the escort lamp when the power is turned off while the head lamp is on.</p> <ul style="list-style-type: none"> <li>– It turns on the head lamp and maintains the state for 20 minutes if ignition is turned off while the head lamp is on.</li> <li>– The head lamp remains on only for 30 seconds when the driver seat door is opened and closed during the 20-minute period.</li> <li>– The head lamp turns off when remote control lock button is pressed twice while the head lamp is on.</li> </ul>
	Head Lamp (Low Beam / High Beam)	Controls high beam / low beam depending on the head lamp switch (multi-functional switch).
	Daytime Driving Light Control	Controls the daytime driving light lamp depending on the conditions at the time of vehicle start.
Internal Lamp	Engine Start Maintenance Button Lamp	Turns on/off the SSB lamp depending on vehicle power conditions, door open / closed status, and alert mode.
	Room Lamp	Turns on/off the interior lamp depending on vehicle power conditions and door open / closed status.
	Rheostat	Controls the brightness of interior electrical lamps (instrument cluster, HUD, AVN, etc.) depending on rheostat switch input.
Steering Wheel Heating Wire	Steering Wheel Heating Wire Control	Controls steering wheel heating wire based on steering wheel heating wire switch.
Liftgate	Liftgate Release Control	Releases the liftgate lock and issues a warning depending on the liftgate switch input.
Front / Rear Parking Assist	PAS Display	Receives a signal from parking assist sensor through LIN communication and displays it on the instrument cluster.
	PAS Warning	Detects obstacles in front and rear sides using the parking assist sensor (PAS sensor) in the case of gear input (R or D) and issues a warning if there is an obstacle.
Warning	Seat Belt Reminder and Indicator Lamp	Issues a warning if the seat belt is not fastened, and prevents pattern activation if the vehicle is driven while the seat belt is not fastened.
	Key Reminder Warning	Issues a warning if the driver seat door is open while ACC is on.
	Parking Brake Warning	Generates a warning sound if vehicle speed exceeds 5 km/h while IGN is on and parking brake is on.
	Sunroof Open Warning	Issues a warning if the key is removed and the driver leaves the vehicle while the sunroof is open.
Wiper and Washer		

	Wiper (Low / High / Mist / Auto)	IBU receives wiper switch signal via B-CAN and sends the data to wiper motor (embedded) via LIN communication.
	Front Washer	IBU sends the washer switch signal to front washer motor.

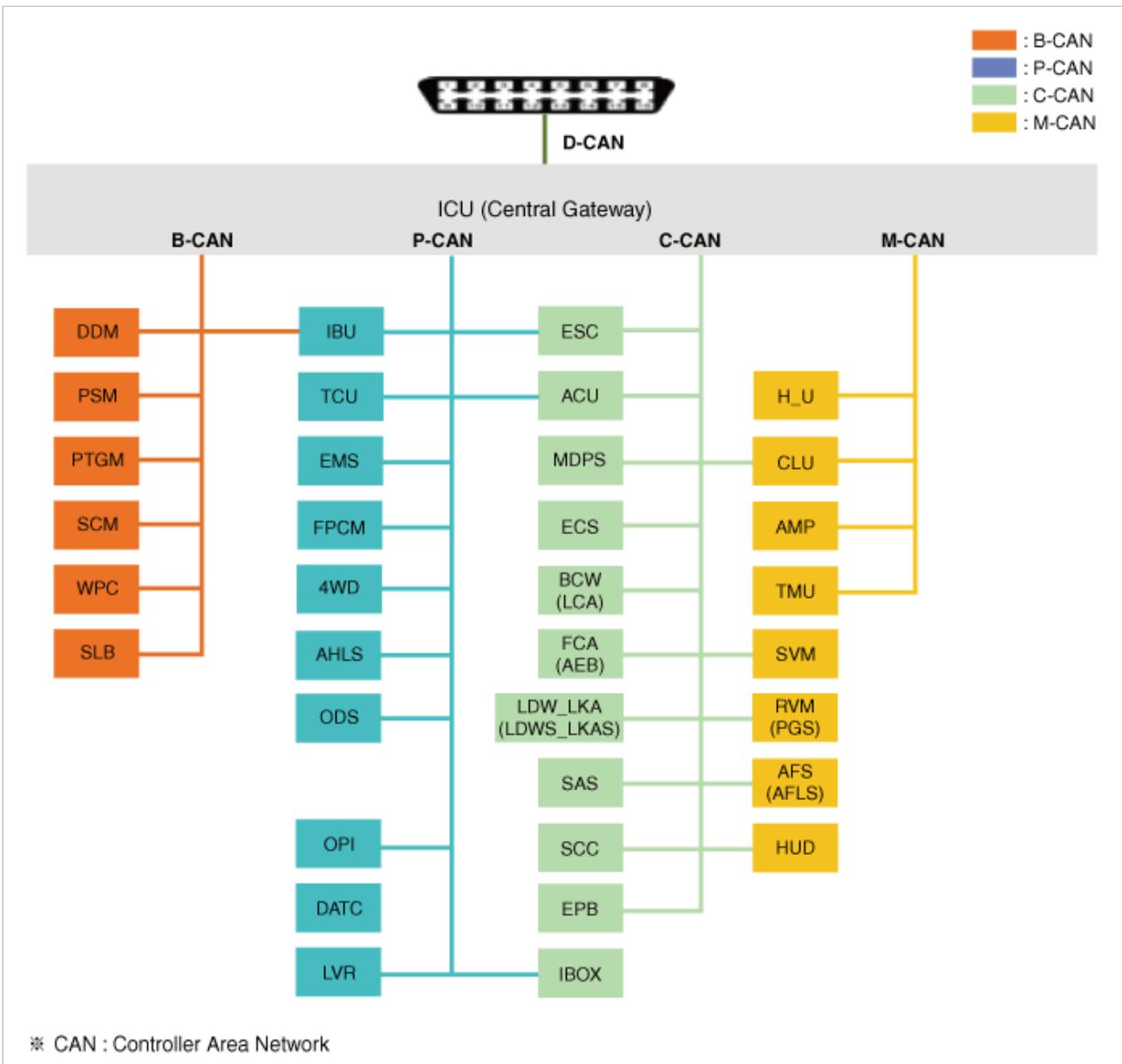
## 2. Smart Key Unit (SMK) Functions

SMK	Door Lock and Unlock	Locks/Unlocks the door based on the door unlock signal and the signal from push buttons on the driver seat / passenger seat outside handles.
	SMK Welcome Light	Controls door mirror and puddle lamp after smart key authentication when the driver with smart key approaches the vehicle.
	Smart Trunk	Opens the trunk if the driver with valid smart key stays in front of the rear bumper (within LF antenna range) for 3 seconds or more.
SMK Warning	Key Reminder 1	When the driver attempts to lock the door, it checks if there is a smart key inside the vehicle and unlocks the door if there is one.
	Key Reminder 2	Checks the door lock status for 0.5 seconds after the vehicle door is closed and unlocks the door and generates a warning sound using the external buzzer if the door is locked.
	Door Lock Warning 1	Generates a warning sound with the external buzzer if the driver tries to leave the vehicle while ACC or IGN is on.
	Door Lock Warning 2	Generates a warning sound with the external buzzer if the driver tries to lock the door and leave the vehicle while one or more doors are open.
	Door Lock Warning 3	Searches for a smart key inside the vehicle when the driver tries to lock the door, and issues a warning and does not lock the door if there is a smart key inside.
	Key Out Lamp Warning	If the vehicle moves at 3 km/h or less while ACC or IGN is on and the door is open, it searches for the smart key every 3 seconds and blinks the warning lamp if there is no smart key.
SMK RKE (Remote Keyless Entry)	Door Lock / Unlock	Locks/Unlocks the door based on the door unlock signal and the signal from push buttons on the driver seat / passenger seat outside handles.
	Panic	Performs vehicle panic and panic stop functions based on the panic button signal.
	Window Open	Opens/Closes vehicle window based on the smart key signal.
Engine Start	Start Stop Button (SSB), Immobilizer, Start Relay Power Control, SSB Lamp Control	

## 3. Tire Pressure Monitoring System (TPMS) Functions

Tire pressure monitoring system continuously monitors pressure and temperature inside the tire in order to warn the driver of the changes in tire pressure that may have influence on vehicle driving conditions. TPMS control module analyzes the data from the WE (Wheel Electronic) sensor attached inside each wheel and determines the tire conditions and generates a signal that is necessary for warning lamp control.

## Communication Network Diagram



Abbreviation	Explanation
ACU	Airbag Control Unit
AFL	Adaptive Front-Lighting System
AMP	Amplifier
AUDIO	Audio Head Unit
SVM	Surround View Monitor
B_CAN	Body Controller Area Network
BCW	Blind-Spot Collision Warning
C_CAN	Chassis Controller Area Network
CDP	Compact Disk Player
CLU	Cluster Module
DATC	Dual Automatic Temp Control
DDM	Driver Door Module
ECM	Engine Control Module
F_PUMP	Fuel Pump Control Module
HUD	Head Up Display
IBU	Integrated Body Control Unit

ICU	Integrated Central Control Unit
IFB	Interface Box
IMS	Integrated Memory System
LDW	Lane Departure Warning
LKA	Land Keeping Assist
M_CAN	Multi media Controller Area Network
MDPS	Motor Driven Power Steering
MFC	Multi Function Camera
MTC	Manual Temp Control
ODS	Occupant Detection System
P_CAN	Powertrain Controller Area Network
PCM	Powertrain control module
PTG	Power Liftgate Module
RVM	Rear View Monitor
SCC	Smart Cruise Control
SCM	Steering Column Module
TCM	Transmission Control Module
VDC	Vehicle Dynamic Control
WPC	Wireless Power Charger