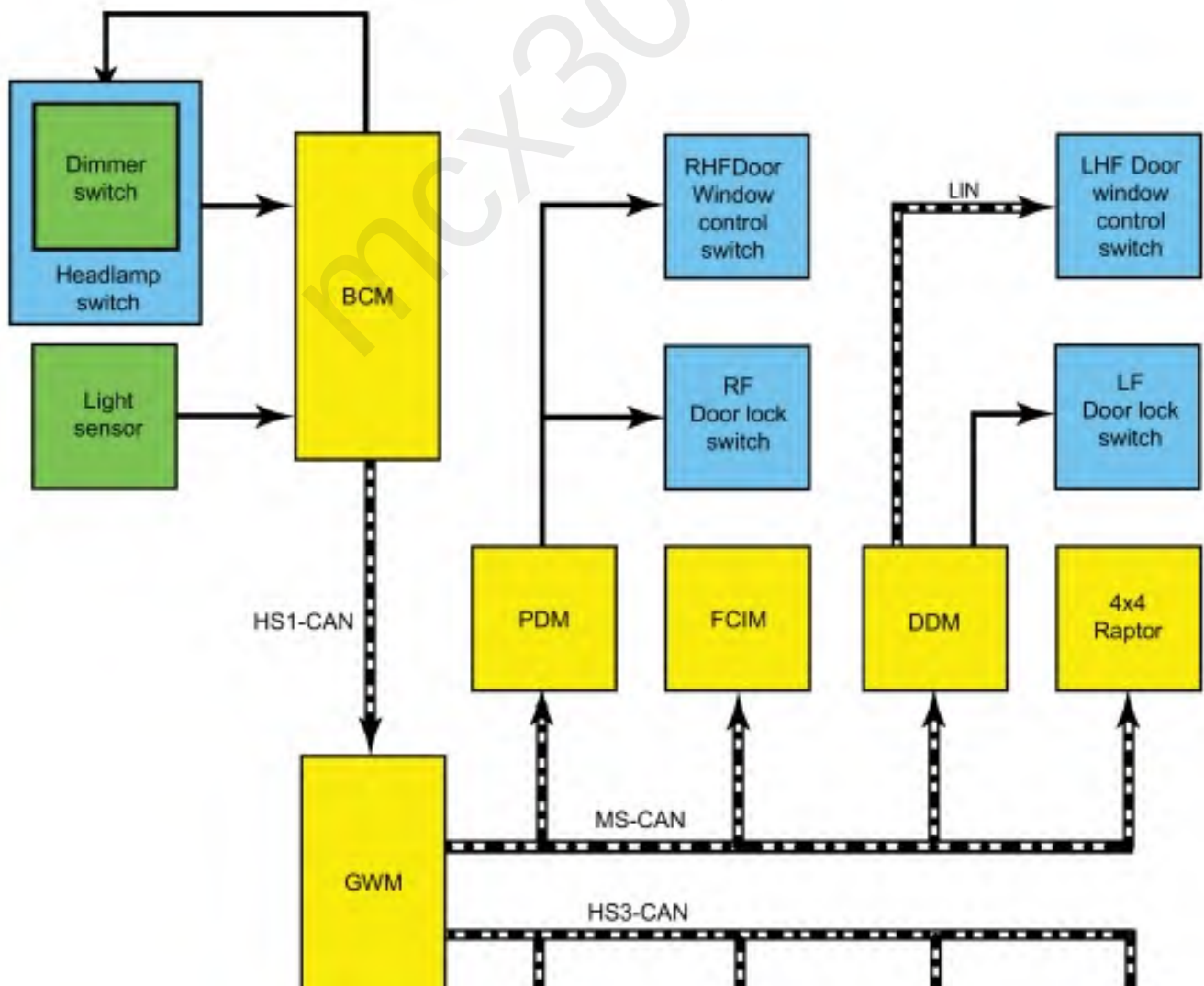
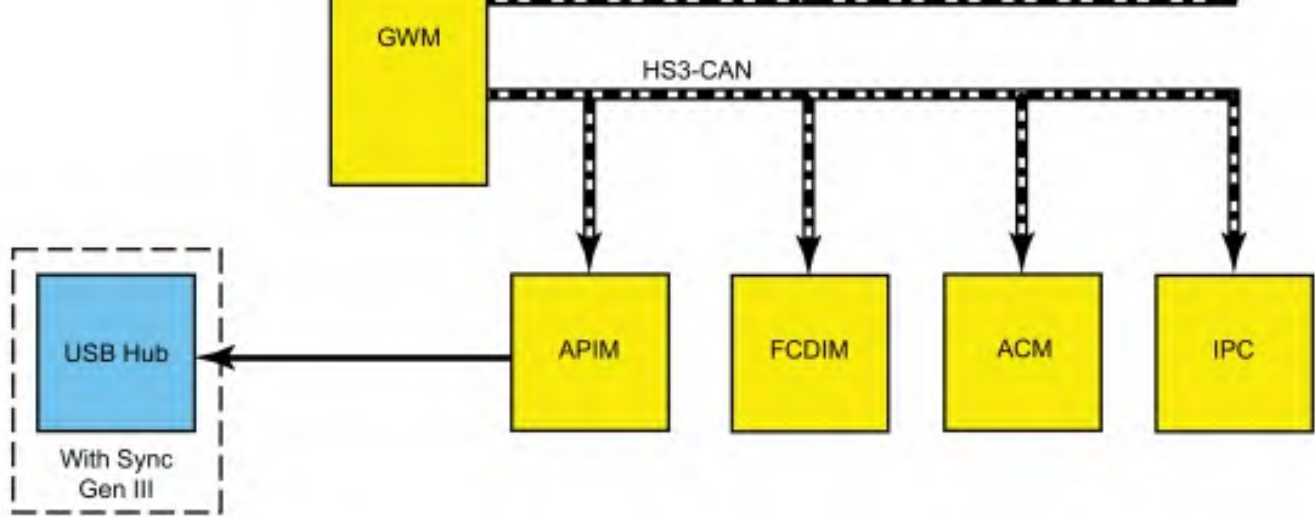


Instrument Panel and Interior Switches Illumination - System Operation and Component Description

System Operation

System Diagram - Networked Illumination





E245608

Network Message Chart

Module Network Input Messages - ATCM, APIM, FCIM, FCDIM, ACM, IPC, DDM and PDM.

Broadcast Message	Originating Module	Message Purpose
Parklamp Status	BCM	Used to initiate dimmable backlighting through the networked modules and outputs hardwired to networked modules.
Illumination Dimming Level	BCM	Used to command the illumination dimming level for networked modules and outputs hardwired to networked modules.
Backlit LED Status	BCM	Used to provide feedback regarding illumination dimming level for networked modules and outputs hardwired to networked modules.
Day/Night Status	BCM	Used to command day/night dimming levels to the networked modules and outputs hardwired to networked modules.

Networked Illumination Operation

The networked switches and components are illuminated when the headlamp switch is in the PARK, ON, or AUTO position. The system-wide illumination dimming level is determined by the BCM based on inputs from the ambient light sensor and the dimmer switch (integral to the headlamp switch).

The BCM sends the dimming level message to the GWM on the HS-CAN1. The GWM sends the signals to their intended receiving modules on the MS-CAN and the HS-CAN3 as follows:

MS-CAN

- ATCM
- DDM
- PDM
- FCIM

HS-CAN3

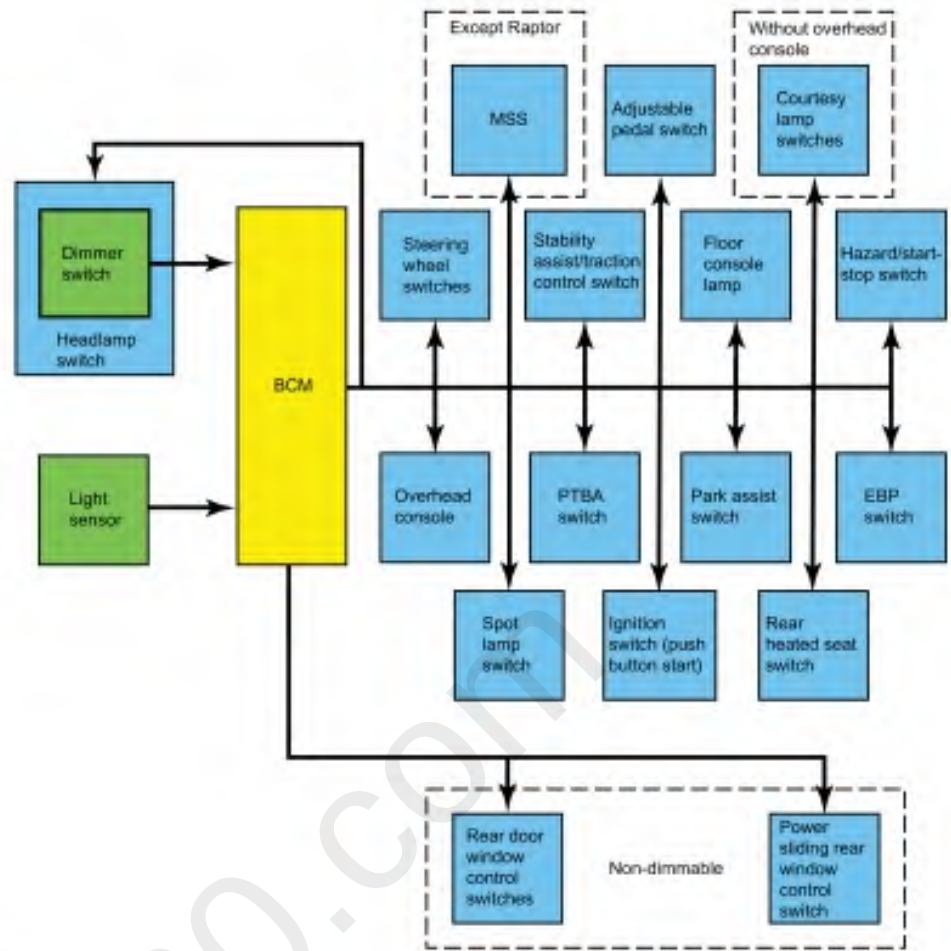
- IPC
- ACM
- APIM
- FCDIM

The receiving modules use the illumination dimming level message to determine the backlighting intensity of networked and non-networked illumination sources. If a module does not receive the illumination dimming level message or the data received is deemed invalid, the module sets a CMDTC in the respective module and the illumination defaults to full intensity.

If the IPC does not receive the dimming level or ambient light level network messages from the BCM for up to 5 seconds, the IPC illumination intensity remains at the level commanded by the last dimming level message received from the BCM. If the IPC receives invalid or no signals for more than 5 seconds, the IPC sets a DTC and defaults to full intensity.

When the exterior lamps are activated during the daytime, the message center illumination remains at full intensity and does not dim due to the day/night status message received from the light sensor. When the vehicle travels through an area where ambient light is decreased, the illumination intensity of the message center decreases. The message center illumination resumes full intensity when increased ambient light is detected.

System Diagram - Non-Networked Illumination



E245902

Non-Networked Illumination Operation

The BCM calculates the correct intensity for the dimmable non-networked illumination sources based on the ambient light intensity input from the light sensor and the requested illumination intensity level input from the dimmer switch (integral to the headlamp switch). The BCM provides a PWM voltage to all non-networked illumination sources.

The non-networked, non-dimmable switches are illuminated whenever the accessory delay relay is energized with the ignition switch ON or OFF.

Field-Effect Transistor (FET) Protection

Field-Effect Transistors (FETs) are used to protect the BCM illumination drivers from damage if the circuit is shorted to ground or experiences excessive current draw. Refer to the System Wiring Diagram to view the different groups of BCM non-networked illumination outputs. For a full description of Field-Effect Transistor (FET) protection, Refer to: Module Controlled Functions (419-10 Multifunction Electronic Modules) .

Component Description

Dimmer Switch

The illumination dimmer switch is a momentary contact switch, integral to the headlamp switch, providing a non-networked input to the BCM. When the dimmer switch is pressed up for increased illumination intensity, and down for decreased illumination intensity, a ground signal received by the BCM on the corresponding terminal is interpreted as a request to increase or decrease the illumination intensity.

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