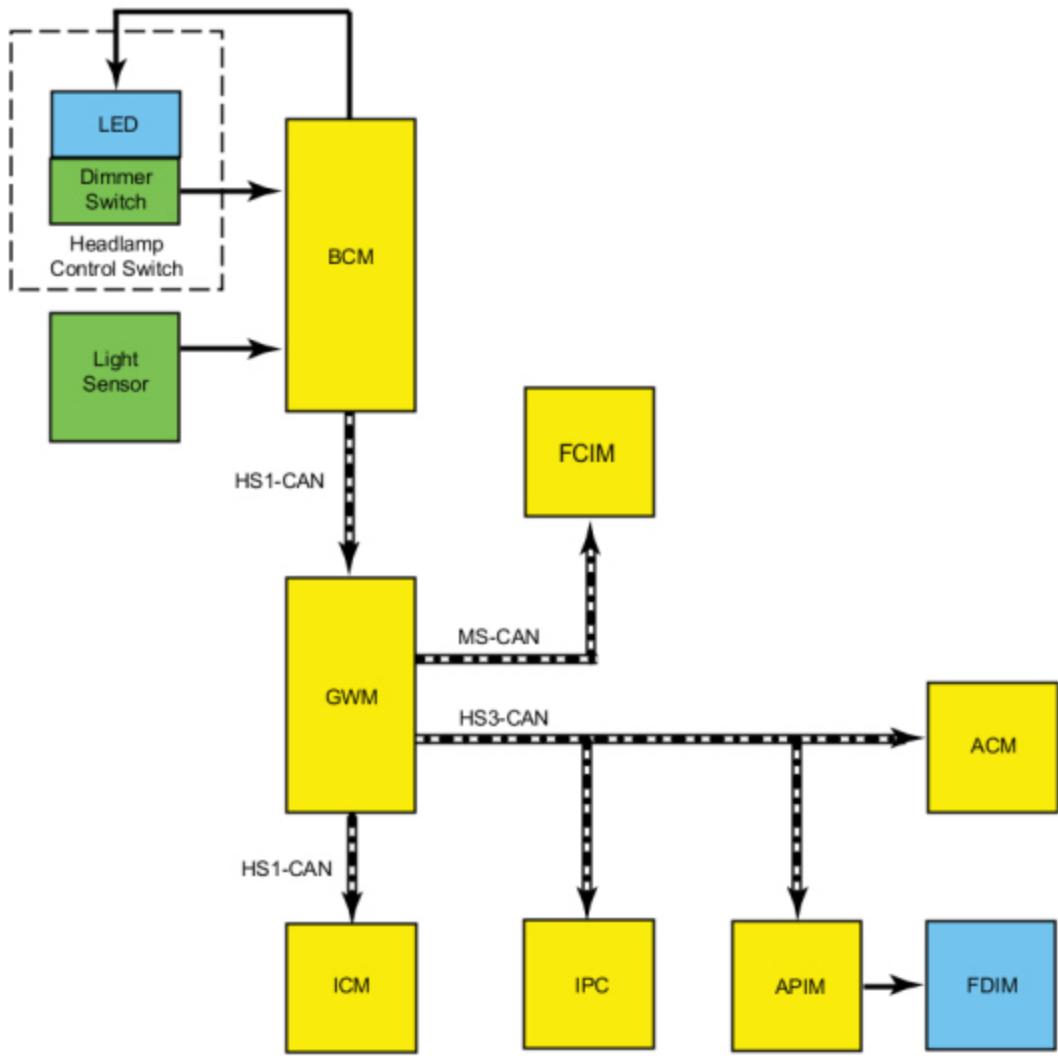


Instrument Panel and Interior Switches Illumination - System Operation and Component Description

System Operation

System Diagram - Networked Illumination



E292175

Network Message Chart

Module Network Input Messages - APIM, FCIM, GWM and IPC .

Broadcast Message	Originating Module	Message Purpose
Illumination Dimming Level	<u>BCM</u>	Used to command the illumination dimming level for networked modules and outputs that are hardwired to networked modules.

Networked Illumination Operation

The dimmable switches and components are illuminated when the parking lamps are on. The system-wide illumination dimming level is determined by the BCM. Based on the ambient light level input from the light sensor and the requested illumination dimming level input from the dimmer switch, the BCM calculates the correct dimming level. The BCM sends the illumination dimming level message to the GWM on the HS-CAN1.

The GWM distributes the message to the following components:

HS-CAN1

- ICM

MS-CAN

- FCIM

HS-CAN3

- IPC
- APIM

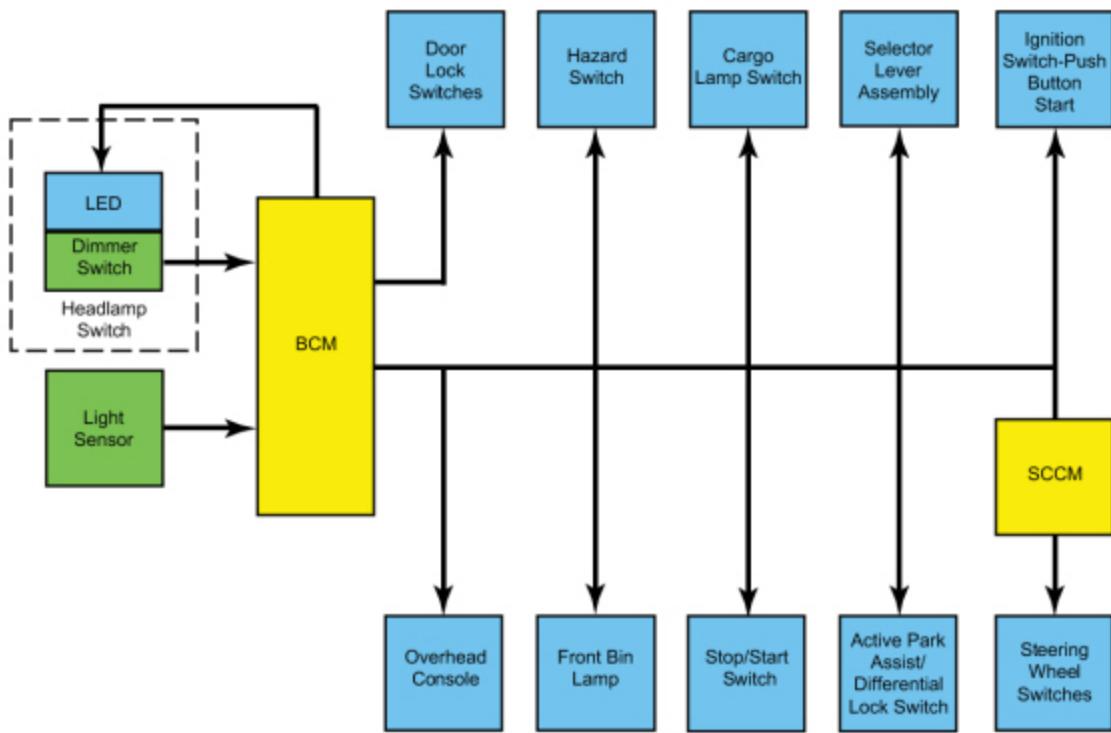
The receiving modules use the illumination dimming level message to determine the backlighting intensity of internal and external non-networked illumination sources. If a module does not receive the illumination dimming level message or the data received is deemed invalid, the module sets a DTC in continuous memory and defaults to full nighttime 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 remains at the last level based on the last message received. If the IPC receives invalid or no signals for more than 5 seconds, the IPC defaults to full night illumination level.

On vehicles equipped with autolamps, if the exterior lamps are activated during the daytime, the message center illumination remains at full intensity and does not dim from the illumination dimmer switch. If the vehicle travels under a bridge or through a tunnel, the low level of ambient light causes the illumination level of the message center to change to the level set by the illumination panel dimmer switch. The message center illumination changes back to full intensity when the intense ambient light is restored.

The hazard switch is integral to the FCIM and cannot be serviced separately.

System Diagram - Non-Networked Illumination



E292176

Non-Networked Illumination Operation

Based on the ambient light level input from the light sensor and the requested illumination dimming level input from the dimmer switch, the BCM calculates the correct dimming level for the non-networked illumination sources. The BCM provides a pulse-width modulated voltage to all non-networked illumination sources.

Field-Effect Transistor (FET) Protection

Field-Effect Transistor (FET) protection is used to protect the BCM output drivers from damage in the event an excessive current draw is detected on a BCM output. Each illumination circuit connected to the BCM is separately protected. Refer to the System Diagram in this section 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 - System Operation and Component Description](#) (419-10 Multifunction Electronic Modules, Description and Operation).

Component Description

Dimmer Switch

The illumination dimmer switch is a momentary contact switch that is integral to the headlamp switch. The headlamp switch is non-networked to the BCM. When the illumination dimmer switch is pressed up or down, the switch completes a ground circuit to the BCM corresponding to the desired action (increase or decrease illumination brightness).

Copyright © 2019 Ford Motor Company
