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2017 FORD Edge OEM Service and Repair Workshop Manual

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RKE (remote keyless entry) data	GWM (gateway module A)	MS-CAN (medium speed-controller area network) 1	• RTM (radio transceiver module)
Satellite radio alert status	APIM (SYNC module)	HS-CAN3 (high-speed controller area network 3)	• ACM (audio front control module)
Satellite radio status	APIM (SYNC module)	HS-CAN3 (high-speed controller area network 3)	• ACM (audio front control module) • DSP (audio digital signal processing module)
Satellite radio status	ACM (audio front control module)	HS-CAN3 (high-speed controller area network 3)	• APIM (SYNC module) • IPC (instrument panel cluster)
Snow plow mode	HVAC (heating, ventilation and air conditioning) module	MS-CAN (medium speed-controller area network) 1	• SCMG (driver multi-contour seat module) • SCMH (passenger multi-contour seat module) • GWM (gateway module A)
Snow plow mode	GWM (gateway module A)	HS-CAN1 (high-speed controller area network 1)	• BCM (body control module)
Snow plow mode	GWM (gateway module A)	HS-CAN3 (high-speed controller	• IPC (instrument panel cluster)

		area network 2)	
Steering wheel heat request	HVAC (heating, ventilation and air conditioning) module	MS-CAN (medium speed-controller area network) 1	• GWM (gateway module A)
Steering wheel heat request	GWM (gateway module A)	HS-CAN2 (high-speed controller area network 2)	• SCCM (steering column control module)
Steering wheel message center switch data	SCCM (steering column control module)	HS-CAN2 (high-speed controller area network 2)	• GWM (gateway module A)
Steering wheel message center switch data	GWM (gateway module A)	FD-CAN (Flexible Data Rate Controller Area Network)	• ABS (anti-lock brake system) module
Stop/start drive mode indicator	PCM (powertrain control module)	FD-CAN (Flexible Data Rate Controller Area Network)	• GWM (gateway module A)
Stop/start drive mode indicator	GWM (gateway module A)	HS-CAN1 (high-speed controller area network 1)	• BCM (body control module)

			- SCMH (passenger multi-contour seat module)
Suspension data	VDM (vehicle dynamics control module)	FD-CAN (Flexible Data Rate Controller Area Network)	- ABS (anti-lock brake system) module
SYNC alerts	APIM (SYNC module)	HS-CAN3 (high-speed controller area network 3)	- ACM (audio front control module) - DSP (audio digital signal processing module)
TCU (telematic control unit module) activation request	APIM (SYNC module)	HS-CAN3 (high-speed controller area network 3)	- TRM (trailer module) / TBM (trailer brake control module) - GWM (gateway module A)
TCU (telematic control unit module) activation request	GWM (gateway module A)	FD-CAN (Flexible Data Rate Controller Area Network)	- ABS (anti-lock brake system) module - IPMA (image processing module A) - PCM (powertrain control module) - PSCM (power steering control module) - SOBDMC (secondary on-board diagnostic control module C)
TCU (telematic control unit module) activation request	GWM (gateway module A)	HS-CAN1 (high-speed controller area network 1)	- BCM (body control module)

Controller Area Network (CAN) Module Communications Network - System Operation and Component Description

418-00A Controller Area Network (CAN) Module Communications Network	2022 F-150
Description and Operation	Procedure revision date: 06/24/2022

Controller Area Network (CAN) Module Communications Network - System Operation and Component Description

System Operation

Overview

Multiplexing is a method of sending 2 or more signals simultaneously over a single circuit. Multiplexing allows 2 or more electronic modules (nodes) to communicate over a twisted wire pair [data (+) and data (-)] network. The information or messages that can be communicated on these wires consists of commands, status or data. Multiplexing reduces the weight of the vehicle by reducing the number of redundant components and electrical wiring.

The vehicle has 2 module communication networks connected to the remote DLC (data link connector) , located under the instrument panel. The communication networks are:

- DIAG1

- DIAG2

    (Not used on this vehicle)

The vehicle has 7 communication networks that do not communicate directly with the diagnostic scan tool. The GWM (gateway module A) translates the messages on the 7 networks and transfers the signals to the DIAG1 circuits at the remote DLC (data link connector) . Messages communicated on the FD-CAN (Flexible Data Rate Controller Area Network) , HS-CAN1 (high-speed controller area network 1) , HS-CAN2 (high-speed controller area network 2) , HS-CAN3 (high-speed controller area network 3) , HS-CAN4 (high-speed controller area network 4)
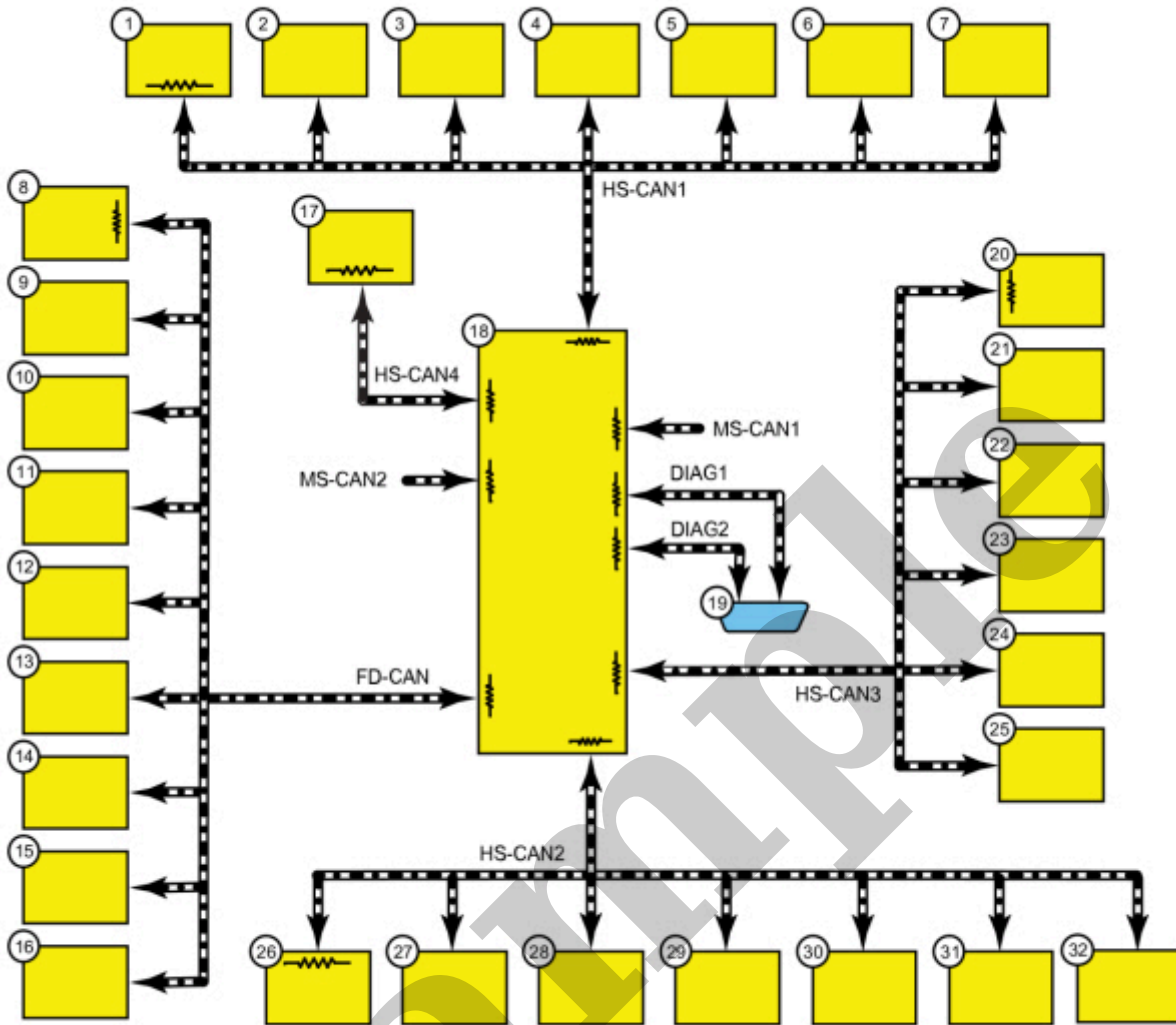
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Item	Description
1	BCMC (body control module C) [BJB (battery junction box)]
2	ACCM (air conditioning control module)
3	BCM (body control module)
4	BECM (battery energy control module)
5	DCACA (Direct Current/Alternating Current Converter Module A)

27	ATCM (all terrain control module)
28	GSM (gear shift module)
29	HCM (headlamp control module)
30	OCS (occupant classification system) module
31	RCM (restraints control module)
32	SASM (steering angle sensor module)

MS-CAN (medium speed-controller area network) 1 AND MS-CAN (medium speed-controller area network) 2

6	PDM (passenger door module)
7	RTM (radio transceiver module)
8	SCMG (driver multi-contour seat module)
9	SCMH (passenger multi-contour seat module)
10	DSM (driver front seat module)
11	RBM (running board control module)

Module Network Chart

Module Name	Network Type	Terminating Module
ABS (anti-lock brake system) module	FD-CAN (Flexible Data Rate Controller Area Network)	No
ACCM (air conditioning control module) (if equipped)	HS-CAN1 (high-speed controller area network 1)	No
ACM (audio front control module)	HS-CAN3 (high-speed controller area network 3)	No
APIM (SYNC module)	HS-CAN3 (high-speed controller area network 3)	No
ATCM (all terrain control module)	HS-CAN2 (high-speed controller area network 2)	No
BCM (body control module)	HS-CAN1 (high-speed controller area network 1)	No
BCMC (body control module C) [BJB (battery junction box)]	HS-CAN1 (high-speed controller area network 1)	No
BECM (battery energy control module) (if equipped)	HS-CAN1 (high-speed controller area network 1)	No

HCM (headlamp control module) (if equipped)	HS-CAN2 (high-speed controller area network 2)	No
HVAC (heating, ventilation and air conditioning) module	MS-CAN (medium speed-controller area network) 1	Yes
IPC (instrument panel cluster)	HS-CAN3 (high-speed controller area network 3)	Yes
IPMA (image processing module A)	FD-CAN (Flexible Data Rate Controller Area Network)	No
OCS (occupant classification system) module	HS-CAN2 (high-speed controller area network 2)	No
PACM (pedestrian alert control module) (if equipped)	HS-CAN1 (high-speed controller area network 1)	No
PCM (powertrain control module)	FD-CAN (Flexible Data Rate Controller Area Network)	No
PDM (passenger door module) (if equipped)	MS-CAN (medium speed-controller area network) 1	No
PSCM (power steering control module)	FD-CAN (Flexible Data Rate Controller Area Network)	Yes
RGTM (rear gate trunk module) (if equipped)	MS-CAN (medium speed-controller area network) 2	No
RTM (radio transceiver module)	MS-CAN (medium speed-controller area network) 1	No
RCM (restraints control module)	HS-CAN2 (high-speed controller area network 2)	No
SASM (steering angle sensor module) (if equipped)	HS-CAN2 (high-speed controller area network 2)	No
SCCM (steering column control module)	HS-CAN2 (high-speed controller area network 2)	Yes

The GWM (gateway module A) communicates with the 7 Controller Area Networks (CANs). The OBD (on-board diagnostic) remote DLC (data link connector) is connected to the GWM (gateway module A) and is the interface with the diagnostic scan tool.

For diagnostic scan tool access, a remote DLC (data link connector) is mounted under the driver side instrument panel with a harness connected to the GWM (gateway module A) . The GWM (gateway module A) translates messages across all 7 vehicle CANs. The GWM (gateway module A) is the only module on the vehicle with this ability. The GWM (gateway module A) also serves as a termination module for each of the networks to which it is connected.

The module communication networks connected to the remote DLC (data link connector) are DIAG1 and DIAG2. DIAG1 is the only network that communicates directly with the diagnostic scan tool. The other communication networks on DIAG1 do not communicate directly with the diagnostic scan tool. DIAG2 does not directly communicate with the diagnostic scan tool but it allows a connection to the trailer MS-CAN (medium speed-controller area network) 2 circuits. The GWM (gateway module A) translates the messages from the FD-CAN (Flexible Data Rate Controller Area Network) , HS-CAN1 (high-speed controller area network 1) , HS-CAN2 (high-speed controller area network 2) , HS-CAN3 (high-speed controller area network 3) , HS-CAN4 (high-speed controller area network 4) , MS-CAN (medium speed-controller area network) 1 and MS-CAN (medium speed-controller area network) 2 to DIAG1 which transfers the signals to the diagnostic scan tool.