



Ford Motor Company

Subsystem Part Specific Specification
Engineering Specification



1 HUD_Display Unit Selection – CGEA1.3

1.1 Functional Description

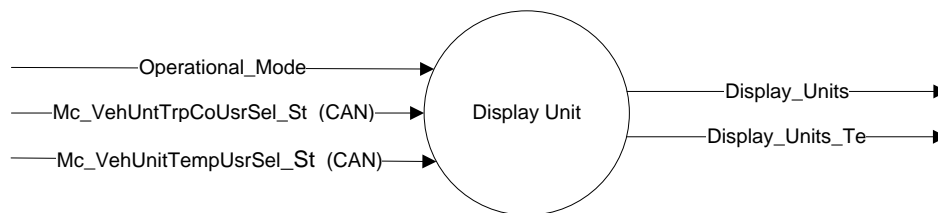
The purpose of the display unit selection feature is to follow the display unit being used in the vehicle and to be used for the HUD display.

The display unit selection in HUD is a client function of the cluster where the vehicle display unit being used is determined. Cluster as the server is responsible for the integrity, accuracy, selection of the vehicle display unit while HUD as a client is responsible for HUD display only.

1.2 Interfaces

1.2.1 Interface Context Diagram (I/O Block Diagram)

Display Language Context Diagram



1.2.2 Inputs

1.2.2.1 IR-REQ-300049/A-Internal

- Operational_Mode

1.2.2.2 **MUX Signals**

1.2.2.2.1 SIG-REQ-300050/A-Mc_VehUntTrpCoUsrSel_St (from IPC)

Signal Name	Size (bits)	Detail	Units	Res.	Offset	State Encoded	Min	Max
Mc_VehUntTrpCoUsrSel_St	1		SED	1	0		0 (0x0)	1 (0x1)
		TripComputer_metric				0x0		
		TripComputer_imperial				0x1		

**1.2.2.2.2 SIG-REQ-300051/A-Mc_VehUnitTempUsrSel_St**

Signal Name	Size (bits)	Detail	Units	Res.	Offset	State Encoded	Min	Max
Mc_VehUnitTempUsrSel_St	1		SED	1	0		0 (0x0)	1 (0x1)
		Temperature_deg_c				0x0		
		Temperature_deg_f				0x1		

1.2.3 Outputs**1.2.3.1 IR-REQ-300052/A-Internal**

- Display_Units
- Display_Units_Te



1.3 Function/Performance

1.3.1 F-REQ-300053/A-Operational Modes

Mode	Differentiating Vehicle Conditions
Sleep Mode	Display unit selection OFF
Limited Mode	Display unit selection OFF
Normal Mode	Display unit selection On
Crank Mode	Display unit selection On

1.3.2 Voltage Levels

Refer to the HUD Features Table located in the Operational Modes and Voltage Range Strategies Section of this SPSS.

1.3.3 Human-Machine Interface

1.3.3.1 Visual

1.3.3.1.1 Indicator Graphics / Display Format

Refer to Graphics Section in the Master Document Section in this SPSS.

1.3.3.1.2 Indicator Color Coordinates

None

1.3.3.1.3 Indicator Characteristics

None

1.3.3.2 Audio

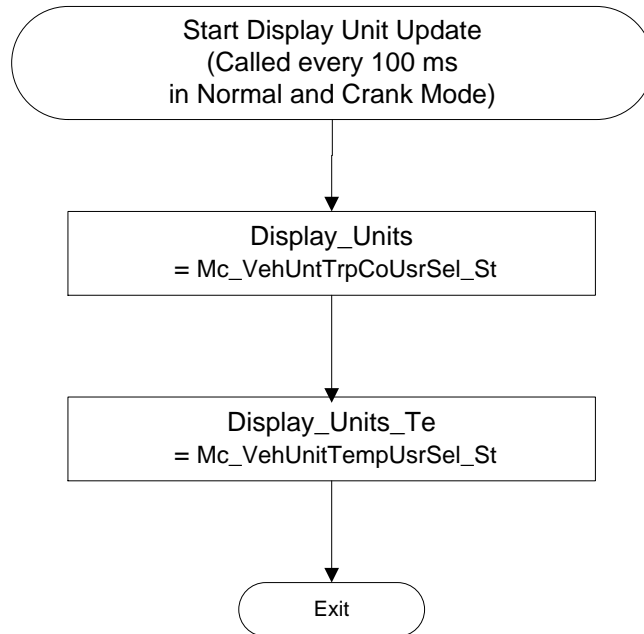
None.

1.3.4 PFM-REQ-300054/A-System Accuracy

- Within a 100msec of receiving a message that results in a change of state the HUD will update the display to the proper status.

1.3.5 Operation: Performance and Functional

1.3.5.1 Subsystem Algorithm Flowchart / State Diagram

**1.3.5.1.1 F-REQ-300056/A-Subsystem Flowchart****1.3.5.2 F-REQ-300121/A-Operation Description (supports algorithm flowchart /state diagram)**

- This is a straight pass-through from CAN signal to HMI

1.3.5.3 FS-REQ-300057/A;1-Function Safety Classification (EMC)

B

1.3.5.4 NVM-REQ-300058/A-Memory Storage

Parameter Name	Description	Value at Battery Connect	Value at Module Wake-up
Operational_Mode	4 state indicator for cluster operational mode	Limited	Limited or Normal or Crank
Display_Units	Mirror the CAN signal from IPC, and used by HMI	Default(0x0)	Default (Last Known)
Display_Units_Te	Mirror the CAN signal from IPC, and used by HMI	Default(0x0)	Default (Last Known)
Mc_VehUnitTrpCoUsrSel_St	CAN signal from IPC	Default (0x0)	Do Not Init



Parameter Name	Description	Value at Battery Connect	Value at Module Wake-up
Mc_VehUnitTempUsrSel_St	CAN signal from IPC	Default (0x0)	Do Not Init

1.3.5.5 Prove Out

No

1.3.5.6 Reconfigurable Telltale

No

1.3.5.7 Message Center Msg

No

1.4 Error Handling

None

1.4.1 Missing Message Strategy

The signals will be declared missing as per the Diagnostics section of this SPSS.

1.4.2 Invalid Message Strategy

None

1.5 Diagnostics**1.5.1 Self Test**

None

1.5.2 Engineering Test Mode

None

**1.5.3 Part II Performance****1.5.3.1 DTC-REQ-300059/A-Supported Diagnostic Trouble Codes (DTCs)**

DTC	Description
C15500	Lost communication with IPC

1.6 Reference Specification

IPC- Display Unit Selection Control Function - CGEA1.3_v2.4



1.7 Revision History

SPSS Module Revision History

Revision Level	Name	Change Description	Date
1.0	M. Ye	Initial release	4/24/2014
1.1	P.Dendukuri	Initial VSEM RM Release	03/06/2018