Section 4.4
Acm2 Input Sensors and Output Actuators

The ACM2 input sensors are listed in Table "ACM2 Input Sensors" .

Sensor	Function
Air Pressure Sensor	Senses system air pressure to maintain 3 Bar > DEF pressure for proper dosing. Sensor is also used for air pressure system leak testing.
DEF Level Sensor	DEF (DEF) level tank sensor used for on-board diagnostics (OBD) and driver warning indicators.
DPF Inlet Pressure Sensor	Used for regen calculation. The catalyzed DPF function is to convert HC and CO emissions during active regeneration as well as to convert NO to NO2 to support the NOx conversion in the SCR.
DPF Outlet Pressure Sensor	Used for regen calculation. The catalyzed DPF function is to convert HC and CO emissions during active regeneration as well as to convert NO to NO2 to support the NOx conversion in the SCR.
DPF Outlet Temperature Sensor	Temperature measured at the outlet of the after-treatment system that is installed within the exhaust system of the vehicle. It's located after the DPF that is within the after-treatment unit.
DOC Inlet Temperature	Monitors exhaust temperature coming into the DOC. Used for regen calculation and to support soot oxidation and convert HC injected during active regeneration.
DOC Outlet Temperature	Temperature measured between the DOC and the DPF in the after-treatment assembly located in the exhaust system of the vehicle.
DOC Outlet Temperature Inboard	Monitors exhaust temperature exiting out of the DOC. Used for regen calculation and to support soot oxidation and convert HC injected during active regeneration.
DOC Outlet Temperature Outboard	Monitors secondary exhaust flow temperature exiting out of the DOC. Used for regen calculation and to support soot oxidation and convert HC injected during active regeneration.
SCR Inlet Temperature	Used for NOx calculation
Smart NOx Sensor (DPF Outlet)	Measures the NOx concentration, air/fuel ration and equilibrium oxygen partial pressure in the exhaust gas.
Smart NOx Sensor (SCR Outlet)	Measures the NOx concentration, air/fuel ration and equilibrium oxygen partial pressure in the exhaust gas.
DEF Pressure Sensor	Provides a Metering Unit pressure signal so the DEF is kept in a required pressure range.
DEF Temperature Sensor	Proper DEF flow is a function of the temperature sensor input and balanced operation of the electronic controls.

Table 1. ACM2 Input Sensors

The ACM2 output actuators are listed in Table "ACM2 Output Actuators" .

Actuator	Description
Air Pressure Limiting Solenoid Valve	Master control solenoid allows vehicle compressed air supply to activate DEF control. The ACM2 controlled solenoid facilitates DEF dosing or system purging to prevent freezing.
Pressure Limiting Valve	Operates as a pressure regulator. Air pressure is regulated to approximately 5.5 Bar through the valve for proper system operation.
Overflow Valve	Operates as a system check valve. When a calibrated minimum air pressure is reached the valve opens allowing pressure to the downstream devices.

Air Control Unit Set (12V)	Supplies air to dosing valve to atomize DEF for dosing. Air pressure purges system to prevent freezing.
Metering Unit (12V)	Provides control flow for DEF dosing for SCR function. Atomizes DEF for SCR injection.
Supply Unit (12V)	Provides a filtered DEF flow and stores a small DEF volume to maintain pressure. A permanent magnet brush motor is used to pump DEF.
Cooling Water Valve	Provides engine coolant upon command to flow through the supply unit and DEF tank to prevent freezing.
Metering Unit Diffuser Heater	Prevents freezing by providing heat for air pressure upon command, for DEF atomizing and SCR function.
Metering Unit AUX Heater	Prevents freezing of DEF between the dosing valve and nozzle
Line Heaters	Prevents freezing of DEF in lines between engine, DEF tank, and Dosing Valve.

Table 2. ACM2 Output Actuators

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