

# Hyundai Powertrain Actuators

## AT

1st Gear Lamp
1st Shift Indicator Lamp ON
1st Shift Indicator Lamp ON (Optional)
2 LAMP
2 LAMP (OPPrRgOut) Data = KPO_2 (2)
2-4/B Solenoid
26 Solenoid 6
2ND (2-4/B) Solenoid
2nd Gear lamp
2nd Shift Indicator Lamp ON
2nd Shift Indicator Lamp ON (Optional)
2ND Solenoid
3 LAMP
3 LAMP (OPPrRgOut) Data = KPO_3 (3)
35R Solenoid 3
3rd Gear lamp
3rd Shift Indicator Lamp ON
3rd Shift Indicator Lamp ON (Optional)
4th Gear lamp
4th Shift Indicator Lamp ON
4th Shift Indicator Lamp ON (Optional)
5th Gear lamp
5th Shift Indicator Lamp ON
5th Shift Indicator Lamp ON (Optional)
6th Gear Lamp
7th Gear Lamp
8th Gear Lamp
A/T control relay
A/T Control Relay Turn OFF
A/T Main Relay
Clear Adaptation Value
Clear CAN Learnable Status
Clear Learning Value
Clear Learning Values
Clear SubRom + Adaptation Data
D LAMP
D LAMP (OPPrRgOut) Data = KPO_D (6)
Damper Clutch Control Solenoid
Damper Clutch Solenoid
EEPROM initialize
fmv1
fmv2
Gear Indicator Lamp - Gear 01
Gear Indicator Lamp - Gear 02
Gear Indicator Lamp - Gear 03
Gear Indicator Lamp - Gear 04
Gear Indicator Lamp - Gear 05
Gear Indicator Lamp - Gear 06
Gear Indicator Lamp - Gear 07

Gear Indicator Lamp - Gear 08
H/C Solenoid
HOLD Lamp
L & R/B Solenoid
L LAMP
L LAMP (OPPrRgOut) Data = KPO_1 (1)
L/C Solenoid
L/U Solenoid 1
Line Pressure Control Solenoid ( VFS )
Linear solenoid valve (VFS)
LR (L&R/B) Solenoid
LR Solenoid
LR/DIR (5 speed only) Solenoid
LU Solenoid
N LAMP
N LAMP (OPPrRgOut) Data = KPO_N (7)
O/D Lamp
O/D Off LAMP
O/D Solenoid 2
OD (H/C) Solenoid
OD Lamp
OD Solenoid
ON/OFF 1
ON/OFF 2
P LAMP
P LAMP (OPPrRgOut) Data = KPO_P (9)
Parking On/Off solenoid A(Drive)
Parking On/Off solenoid C(Parking)
Parking On/Off solenoid D(PRH)
PCSV-A Solenoid
PCSV-B Solenoid
PCSV-C Solenoid
PL Solenoid
PL Solenoid 5
Pressure control solenoid A
Pressure Control Solenoid B
Pressure Control Solenoid C
Pressure Control Solenoid D
Pressure Control Solenoid E
Prohibit Intelligent Shift
R LAMP
R LAMP (OPPrRgOut) Data = KPO_R (8)
RED Solenoid
RED Solenoid (5 speed only)
RED Solenoid (5 Speed)
Reverse LAMP Relay
SBW -Parking On/Off solenoid B(Reverse)
SCSV-A Solenoid
SCSV-B Solenoid
SCSV-C Solenoid
Shift Lock

Shift Solenoid A
Shift Solenoid B
Shift Solenoid C
Shift Solenoid D
Shift Solenoid E
Shift Solenoid F
Shift solenoid-A
Shift solenoid-A (UD)
Shift solenoid-B
Shift solenoid-B (2ND)
Shift solenoid-C
Shift solenoid-C (35R)
Shift solenoid-D
Shift solenoid-D (OD)
Shift solenoid-E (SS-A)
Shift solenoid-F (SS-B)
SNOW LAMP
SOL
SOL 1
SOL 2
SOL 3
SOL 4
SOL 5
SOL 6
SOL1
SOL1 I/C
SOL2
SOL2 L/U
SOL3
SOL3 HLR/C
SOL4
SOL4 PL
SOL5
SOL5 FR/B
SOL6
SOL6 D/C
Start Relay
U/D Solenoid 4
UD (L/C) Solenoid
UD Solenoid
VFS Solenoid
AT(DCT)
1st Gear (DCT Only)
2nd Gear (DCT Only)
3rd Gear (DCT Only)
4th Gear (DCT Only)
5th Gear (DCT Only)
6th Gear (DCT Only)
Clear Learning Value
Clutch 1 (DCT Only)

Clutch 2 (DCT Only)	Cylinder 4 Shut Off	Ignition Coil 04
Disable Safety Concept	Cylinder 4 Shut Off (INH_IV_4)	Ignition Coil 05
Disengage Gear (DCT Only)	Cylinder 4 shut-off	Ignition Coil 06
Reverse Gear (DCT Only)	Cylinder 5 Shut Off	Ignition Coil 1
Sequence #1	Cylinder 5 shut-off	Ignition Coil 2
Sequence #2	Cylinder 6 Shut Off	Ignition Coil 3
Sequence #3	Cylinder 6 shut-off	Ignition Coil 4
<b>Engine</b>	Cylinder 7 Shut Off	Ignition Coil Cyl. 1
A/C Clutch	Cylinder 8 Shut Off	Ignition Coil Cyl. 2
A/C compressor relay	Cylinder_1 shut-off	Ignition Coil Cyl. 3
BLM Learn	Cylinder_2 shut-off	Ignition Coil Cyl. 4
Bypass valve (onlyTCI)	Cylinder_3 shut-off	Ignition Coil Cyl. 5
CAM Phaser Intake Bank 1	Cylinder_4 shut-off	Ignition Coil Cyl. 6
CAM Phaser Intake Bank 2	Diagnostic Lamp - MIL	Ignition Coil Cyl. 7
Canister Purge Valve	Diagnostic Lamp (MIL)	Ignition Coil Cyl. 8
Canister Purge Valve (CPS)	EGR Recirculation Valve	Ignition Coil Cylinder #1
Canister Shut Off Valve clocked	EGR Solenoid.Valve	Ignition Coil Cylinder #2
Canister Shut-Off Valve	EGR Valve	Ignition Coil Cylinder #3
Canister Shut-Off Valve (LEAK TEST)	Engine Main Relay	Ignition Coil Cylinder #4
Canister Shut-Off Valve Clocked	ETC Motor	Ignition Coil Cylinder #5
Canister Vent	ETC Motor (MTC)	Ignition Coil Cylinder #6
Canister Vent Clocked	EVAP EOL	Ignition Coil Cylinder #7
CO Adjust	Evap Leakage Test	Ignition Coil Cylinder #8
Cooling Fan PWM	EVAP Service Bay	Ignition Coil Enable / Disable - Cylinder #1
Cooling Fan PWM (CFA_PWM)	E-Waste Gate valve (only TCI)	Ignition Coil Enable / Disable - Cylinder #2
Cooling Fan Relay High	Fan (High)	Ignition Coil Enable / Disable - Cylinder #3
Cooling Fan Relay High (CFA_H)	Fan (Low)	Ignition Coil Enable / Disable - Cylinder #4
Cooling fan relay high (CFH)	Fan High	Ignition Coil Enable / Disable - Cylinder #5
Cooling Fan Relay Low	FAN Low	Ignition Coil Enable / Disable - Cylinder #6
Cooling Fan Relay Low (CFA_L)	Fan PWM	Ignition Coil Enable / Disable - Cylinder #7
Cooling fan relay low (CFL)	Fuel Consumption	Ignition Coil Enable / Disable - Cylinder #8
CO-potentiometer Trim	Fuel Open Loop	Immobilizer Control Lamp
Cruise Control Main Lamp	Fuel Pump	Immobilizer Control Light
Cruise Control Set Lamp	Fuel Pump Control	Immobilizer Control Light (CNTL_IMOB)
Cruise Engage Lamp	Fuel Pump Relay	Immobilizer Lamp
Cylinder #1	Fuel pump relay (EFP)	Injector 01
Cylinder #2	Fuel System Leak Test	Injector 02
Cylinder #3	FUP_LAMP	Injector 03
Cylinder #4	Idle Cat Mon	Injector 04
Cylinder #5	Idle Speed Actuator	Injector 05
Cylinder #6	Idle Speed Actuator (ISA)	Injector 06
Cylinder #7	Ignition Coil - Cylinder #1	Injector Disable - Cylinder #1
Cylinder #8	Ignition Coil - Cylinder #2	Injector Disable - Cylinder #2
Cylinder 1 Shut Off	Ignition Coil - Cylinder #3	Injector Disable - Cylinder #3
Cylinder 1 Shut Off (INH_IV_1)	Ignition Coil - Cylinder #4	Injector Disable - Cylinder #4
Cylinder 1 shut-off	Ignition Coil - Cylinder #5	Injector Disable - Cylinder #5
Cylinder 2 Shut Off	Ignition Coil - Cylinder #6	Injector Disable - Cylinder #6
Cylinder 2 Shut Off (INH_IV_2)	Ignition Coil - Cylinder #7	Injector Disable - Cylinder #7
Cylinder 2 shut-off	Ignition Coil - Cylinder #8	Injector Disable - Cylinder #8
Cylinder 3 Shut Off	Ignition Coil 0	Limp Home Sol
Cylinder 3 Shut Off (INH_IV_3)	Ignition Coil 01	Main Relay
Cylinder 3 shut-off	Ignition Coil 02	Malfunction Indicator Lamp (MIL)
	Ignition Coil 03	O2 Heater Front

O2 Heater Front (LSH\_UP)  
O2 Heater Rear  
O2 Heater Rear (LSH\_DOWN)  
O2 Heaters Front  
O2 Heaters Rear  
Oil Control Valve  
Oil Control Valve Exhaust Bank 1  
Oil Control Valve Exhaust Bank 2  
Oil Control Valve for IVVT  
Oil Control Valve for IVVT Exhaust Bank 1  
Oil Control Valve for IVVT Exhaust Bank 2  
Oil Control Valve for IVVT Intake Bank 1  
Oil Control Valve for IVVT Intake Bank 2  
Oil Control Valve Intake Bank 1  
Oil Control Valve Intake Bank 2  
Oil Control Valve(OCV) for (IVVT)  
Port Flap actuator  
Purge Cont.Sol  
Radiator Fan High  
Radiator Fan Low  
Shut off valve  
Shut Off Valve (SOV)  
Shut off valve (SOV) clocked  
Shut off valve clocked  
Shut off valve Permanently ON  
SOV\_FUEL\_H  
SOV\_FUEL\_L  
Spark Advance/Retard  
Stop ETV FAIL SAFE  
Stop No. 1 Injector  
Stop No. 2 Injector  
Stop No. 3 Injector  
Stop No. 4 Injector  
Stop No. 5 Injector  
Stop No. 6 Injector  
Tachometer  
TEC Learn  
Variable Intake Manifold 1  
Variable Intake Manifold 2  
Variable Intake Switch  
Variable Valve Lift Control  
Volume Control Valve  
Volume Control Valve (VCV)

Motor Speed control operation  
Motor Torque control operation

## HCU

E/C Fluid Pressure Compensate  
Engine Test Off  
Engine Test On  
LDC Test

## MCU

EWP control operation  
Motor and HSG Resolver Auto-Calibration

# Hyundai Body Actuators

## AC

Blower Fan

Blower Fan – High

Blower Fan – Low

Blower Fan – Medium

Blower Fan – Off

Compressor OFF

Compressor ON

Def door

Driver air mix door

Driver air mix door – 0%

Driver air mix door – 100%

Driver air mix door – 50%

Driver mode door

Driver mode door – Def

Driver mode door – Floor

Driver mode door – Vent

Driver mode door (Def) – 0%

Driver mode door (Def) – 100%

Driver mode door (Def) – 50%

Driver mode door (Floor) – 0%

Driver mode door (Floor) – 100%

Driver mode door (Floor) – 50%

Driver mode door (Vent) – 0%

Driver mode door (Vent) – 100%

Driver mode door (Vent) – 50%

E-Comp

Intake door

Intake door – Fresh

Intake door – Recirc

Normal mode

Pass air mix door

Passenger air mix door – 0%

Passenger air mix door – 100%

Passenger air mix door – 50%

Passenger mode door – Def

Passenger mode door – Floor

Passenger mode door – Vent

PTC Heater ON

Rear air mix door – 0%

Rear air mix door – 100%

Rear air mix door – 50%

Rear blower fan – High

Rear blower fan – Low

Rear blower fan – Medium

Rear blower fan – Off

Rear mode door – B/L

Rear mode door – Floor

Rear mode door – Vent

Rear vent door – Close

Rear vent door – Open

## ADM

Door Courtesy Lamp

Door Lock Out

Door Unlock Out

Illumination Out

OSRVM Defog

OSRVM Down

OSRVM Left

OSRVM Right

OSRVM Up

Power Window Down Out

Power Window up Out

## AFLS

Both actuator test

HLL actuator test

LED AFLS AIM'G Mode

## BCM

2-Turn Unlock / Dead Lock Output

2-Turn Unlock Relay

Activate Bumper Antenna

Activate Hat Shelf Antenna

Activate Interior1 Antenna

Activate Interior2 Antenna

Activate LH Side Antenna

Activate RH Side Antenna

Activate Trunk1 Antenna

Activate Trunk2 Antenna

Adjustable Pedal On Off Signal Output

As Seat Belt Indicator

Assist Seat Belt Indicator

Assist Seat Belt Indicators

ATM Shift Lock Solenoid

ATM Solenoid

Auto Light Power

Auto Light Sensor 5V Ref

AV Tail Output

Back Up Signal Output

BH : Room Lamp. VI : Front Room Lamp

Burglar Alarm Indicator

Burglar Horn Output

Burglar Horn RLY

Buzzer

Central Door Lock Indicator

Central Door Lock RLY

Central Door Unlock RLY

Chime

Chime Bell

Chime Buzzer

Chime Buzzer (Door warning)

Chime Buzzer(Door Warning)

D\_DRL RLY (EC)

Day Running light

Defogger Output

Defogger & Deicer RLY

Defroster relay

Door Lock Output

Door Lock Relay

Door unlock Output

Door Unlock Relay

Door Warning LED

Dr Seat Belt Indicator

Dr Unlock Relay

Dr Unlock Relay(DEAD Lock)

Driver Door Unlock RLY

Driver Seat Belt Indicator

DRL EUROPE Output(DEDICATED LAMP)

ESCL ENABLE(ESCL only)

External Buzzer output

Flasher Sound Relay

Fold Mirror Relay

Foot Lamp

Fr Deicer Relay

Front fog lamp

Front fog lamp indicator

Front Fog Lamp Output

Front Fog Output

Front Wiper Relay

Hazard Indicator

Hazard Lamp + Flasher buzzer output

Hazard Output

Hazard Relay

Head lamp high

Head lamp high indicator

Head Lamp High Output

Head lamp low

Head Lamp Low Control Output

Head Lamp Low GND Control Output

Head Lamp Low Output

Head Lamp Output

Head Lamp Relay

Head Lamp Washer

High speed wiping relay

Horn

Horn Output

Horn Relay

Horn Relay Drive

IGN Key hole illumination

IGN Key Illumination

Ignition Key Hole Illumination  
 Interior Lamp Autocut  
 Interior Lamp Autocut Relay Output  
 Interior1 Antenna Interior2 Antenna  
 Internal Chime Buzzer  
 IOD RLY  
 Key illumination  
 Key illumination (non-ESCL only)  
 Key Inter Lock Solenoid  
 KEY SOLENOID  
 Left turn signal + Flasher buzzer output  
 Lock Relay  
 Low speed wiping relay  
 Luggage Lamp RLY  
 Micro Burglar Relay Drive Output  
 Micro MTS Burglar Alarm Output  
 MTS  
 Navi WakeUp Output  
 Navi Wakeup Signal Output  
 O\_RPASOFF\_IND1  
 Over Speed Warning Indicator  
 Panel Lights Trip Computer Output  
 Perform LF Antenna Check for Bumper Ante  
 Perform LF Antenna Check for Hat Shelf Ant  
 Perform LF Antenna Check for Interior1 Ant  
 Perform LF Antenna Check for LH Side Ante  
 Perform LF Antenna Check for RH Side Ante  
 Perform LF Antenna Check for Trunk1 Ante  
 Perform LF Antenna Check for Trunk2 Ante  
 Perform SCI Diagnosis for Enternal Receiver  
 Perform SCI Diagnosis for ESCL\_COM  
 Power Feed To Sunroof Relay Coil  
 Power Window Output  
 Power Window Relay  
 Power Window RLY  
 RC Seat Belt Indicator  
 Rear Defog Switch Indicator Output  
 Rear Fog Lamp RLY  
 Rear Fog Lamp Switch Indicator Output  
 Rear fog lamp x  
 Rear Fog Output  
 Rear LH Power Window Down  
 Rear LH Power window Up  
 Rear RH Power Window Down  
 Rear RH Power window Up  
 Rear Room Lamp for only VI  
 Rear Seat Warmer Left  
 Rear Seat Warmer LH Relay  
 Rear Seat Warmer RH Relay  
 Rear Seat Warmer Right  
 Rear Wiper Output  
 Rear Wiper Relay  
 Rear Wiper RLY

Right turn signal + Flasher buzzer output  
 RL Seat Belt Indicator  
 Room Lamp  
 Room Lamp Output  
 RPAS Buzzer  
 RPAS Buzzer Output  
 RPAS OFF IND  
 RPAS SW Indicator  
 Rr Defogger Relay  
 Rr Fog Relay  
 RR Seat Belt Indicator  
 Safety P/Wdw ECU  
 Safety Power Window  
 Safety Power Window Enable  
 Seat Belt Indicators  
 Security Indicator  
 Security LED  
 Security Led output  
 Sound Mute Signal Output  
 Start Inhibit RLY  
 Start Inhibition output  
 Start Inihabit Output  
 Starter Inhibit Relay  
 Static Bending Light(LHD)  
 Static Bending Light(RHD)  
 T/Gate Glass Open Relay  
 T/Gate Warning LED  
 Tail AV  
 Tail Lamp Output  
 Tail Lamp Relay  
 Tail Lamp Relay/DRL Unit  
 Tail Lamp RLY  
 Trunk Release  
 Trunk Release Output  
 Trunk Release Relay  
 Trunk Room Lamp for only VI  
 Trunk(=Tail Gate) Release Output  
 Turn LH Output  
 Turn RH Output  
 Unlock Relay  
 VAS  
 VAS Switch Indicator Output  
 Windshield Defog Switch Indicator Output  
 Wiper LOW Output  
 Wiper Relay  
 Wiper RLY

## DDM

Door Courtesy Lamp  
 Door Lock Out  
 Door Unlock Out  
 Folding Motor Power Feed  
 Illumination Out

OSRVM Defog  
 OSRVM Down  
 OSRVM Left  
 OSRVM Right  
 OSRVM Up  
 Power Window Down Out  
 Power Window up Out  
 Safety Power Window Auto Down Out  
 Safety Power Window Auto Up Out  
 Safety Power Window Down Out  
 Safety Power Window Up Out

## FAM

Burglar Alarm Siren  
 Front Washer  
 IGN2 Control  
 Left Fog Lamp  
 Left Headlamp High  
 Left Headlamp Low  
 Left Lamp Park  
 Left Turn Signal  
 Rear Washer  
 Right Fog Lamp  
 Right Headlamp High  
 Right Headlamp Low  
 Right Lamp Park  
 Right Turn Signal  
 Viper Low High State  
 Viper On Off  
 Windshield Defog Timer

## IMS

Pedal Backward Motor  
 Pedal Forward Motor  
 Power Seat FR Height Down Motor  
 Power Seat FR Height Up Motor  
 Power Seat Recline Backward Motor  
 Power Seat Recline Forward Motor  
 Power Seat RR Height Down Motor  
 Power Seat RR Height Up Motor  
 Power Seat Slide Backward Motor  
 Power Seat Slide Forward Motor

## RAM

Back Up Lamp Back Up Warning System Un  
 Door Lock  
 Door Unlock  
 Fuel Filler Door Solenoid  
 Left Turn Signal Lamp  
 Left/Right Tail Licence Side Marker  
 LH PSD Open Close Signal  
 LQG Motor Close  
 LQG Motor Open

LSD Power Window Down

LSD Power Window Up

Luggage Lamp LS

Map Lamp LS

Park Signal

PSD PTG On Off Signal

PTG Open Close Signal

Rear Blower Switch Rear Monitor

Rear Defog

Rear Fog Lamps

Rear Wiper Motor

RH PSD Open Close Signal

Right Turn Signal Lamp

Room Lamp LS

Room Lamp LS Door

RQG Motor Close

RQG Motor Open

RSD Power Window Down

RSD Power Window Up

Start Signal

SSB ILLU

SSB LED AMBER

SSB LED BLUE

## SRS-AIRBAG

change from assembly mode to normal mo

Erase PODS ECU Faults

PODS re-zero

## SKU

Activate AST Side Antenna

Activate Bumper Antenna

Activate DRV Side Antenna

Activate Interior1 Antenna

Activate Interior2 Antenna

Activate Interior3 Antenna

Activate Interior4 Antenna (reserved)

Activate Trunk1 Antenna

ESCL Enable

External Buzzer

HOLDER ILL

IMMO LAMP

Key Out Lamp

O ACC

O IGN1

O IGN2

O STARTER

O\_ACC

O\_STARTER

Perform Current Key check

Perform ESCL open check (ESCL Only)

Perform LF Antenna Check for AST Side Ant

Perform LF Antenna Check for Bumper Ante

Perform LF Antenna Check for DRV Side Ant

Perform LF Antenna Check for Interior1 Ant

Perform LF Antenna Check for Interior2 Ant

Perform LF antenna check for Interior3 Ant

Perform LF antenna check for Interior4 Ant

Perform LF Antenna Check for Trunk1 Ante

Perform SCI Diagnosis for External Receiver

Perform SCI Diagnosis for ESCL\_COM (ESCL

# Hyundai Chassis Actuators

## 4WD

AWD Mode Select  
Lamp control  
Torque control command  
Torque Coupling Control

## AAF

Active Air Flap Test  
Manually Actuator Flap Close  
Manually Actuator Flap Open

## ABS

ASV Front Left Valve  
ASV front right valve  
Brake Lamp Control  
DBC Brake Lamp Relay  
Disable the valve relay shutdown  
Disable valve relay shutdown  
Electric shuttle valve (ESV-L)  
Electric shuttle valve (ESV-R)  
Electric Shuttle Valve : ESV-L  
Electric Shuttle Valve : ESV-R  
ELECTRIC SHUTTLE VALVE(ESV-L)  
ELECTRIC SHUTTLE VALVE(ESV-R)  
ESP specific valve HSV1  
ESP specific valve HSV1 (not available for ABS)  
ESP specific valve HSV2  
ESP specific valve HSV2 (not available for ABS)  
ESP specific valve USV1  
ESP specific valve USV1 (not available for ABS)  
ESP specific valve USV2  
ESP specific valve USV2 (not available for ABS)  
ESS Brake Lamp Relay  
ESV primary valve  
ESV secondary valve  
ESV-L Control  
ESV-R Control  
Front left valve (IN)  
Front Left Valve (inlet)  
Front Left Valve (Input)  
Front left valve (OUT)  
Front Left Valve (outlet)  
Front Left Valve (Output)  
Front right valve (IN)  
Front Right Valve (inlet)  
Front Right Valve (Input)  
Front right valve (OUT)  
Front Right Valve (outlet)  
Front Right Valve (Output)  
High Pressure Switch Valve 1

## High Pressure Switch Valve 2

IFL Control  
IFR Control  
Inlet valve FL  
Inlet valve FR  
Inlet valve RL  
Inlet valve RR  
IRL Control  
IRR Control  
Motor  
Motor Control  
OFL Control  
OFR Control  
ORL Control  
ORR Control  
Outlet valve FL  
Outlet valve FR  
Outlet valve RL  
Outlet valve RR  
Pump  
Rear left valve (IN)  
Rear left valve (IN) (3 Channel : Rear valve IN)  
Rear Left Valve (inlet)  
Rear Left Valve (Input)  
Rear left valve (OUT)  
Rear left valve (OUT) (3 Channel : Rear valve OU)  
Rear Left Valve (outlet)  
Rear Left Valve (Output)  
Rear right valve (IN)  
Rear right valve (IN) (3 Channel : not supported)  
Rear Right Valve (inlet)  
Rear Right Valve (Input)  
Rear right valve (OUT)  
Rear right valve (OUT) (3 Channel : not supporte)  
Rear Right Valve (outlet)  
Rear Right Valve (Output)  
SIS disable (safety software)  
Speed limit disable  
Speed limit disable (for Vveh > 10km/h)  
Speed limit disable (for Vveh >= 10km/h)  
Speed limit disable (for Vveh ≥ 10km/h)  
TC Front Left right (TCL)  
TC Front Left Valve (TCL)  
TCS FL Valve Control  
TCS FR Valve Control  
TCS Front Left Valve  
TCS front left valve (Traction valve (TCL))  
TCS front left valve (TRACTION VALVE(TCL) )  
TCS Front Left Valve : TCL  
TCS Front Right Valve  
TCS front right valve (Traction valve (TCR))

## TCS front right valve (TRACTION VALVE(TC

TCS Front Right Valve : TCR  
TCS primary valve  
TCS secondary valve  
Traction Control Valve 1  
Traction Control Valve 2  
Valves and Motor Control

## AHB

Apply Valve Solenoid #1  
Apply Valve Solenoid #2  
Cut Valve Solenoid  
Motor  
Release Valve Solenoid #2  
Release Valve Solenoid#1

## ECS

Actuator control – hard/soft (hard)  
Actuator control – soft/hard (soft)  
Actuator control – soft/soft (medium)

## EHPS

Actuator Test

## EPB

Control Motor by Force Input  
Latching and Mounting Position  
Unjam Motor

## ESP

ASV Front Left Valve  
ASV front right valve  
Disable the valve relay shutdown  
Disable valve relay shutdown  
Electric shuttle valve (ESV-L)  
Electric shuttle valve (ESV-R)  
ELECTRIC SHUTTLE VALVE(ESV-L)  
ELECTRIC SHUTTLE VALVE(ESV-R)  
ESP specific valve HSV1  
ESP specific valve HSV1 (not available for A  
ESP specific valve HSV2  
ESP specific valve HSV2 (not available for A  
ESP specific valve USV1  
ESP specific valve USV1 (not available for A  
ESP specific valve USV2  
ESP specific valve USV2 (not available for A  
ESS Brake Lamp Relay  
Front left valve (IN)  
Front Left Valve (Input)  
Front left valve (OUT)  
Front Left Valve (Output)  
Front right valve (IN)

Front Right Valve (Input)  
 Front right valve (OUT)  
 Front Right Valve (Output)  
 Inlet valve FL  
 Inlet valve FR  
 Inlet valve RL  
 Inlet valve RR  
 Motor  
 Outlet valve FL  
 Outlet valve FR  
 Outlet valve RL  
 Outlet valve RR  
 Pump  
 Rear left valve (IN)  
 Rear left valve (IN) (3 Channel : Rear valve IN)  
 Rear Left Valve (Input)  
 Rear left valve (OUT)  
 Rear left valve (OUT) (3 Channel : Rear valve OU)  
 Rear Left Valve (Output)  
 Rear right valve (IN)  
 Rear right valve (IN) (3 Channel : not supported)  
 Rear Right Valve (Input)  
 Rear right valve (OUT)  
 Rear right valve (OUT) (3 Channel : not supporte)  
 Rear Right Valve (Output)  
 SIS disable (safety software)  
 Speed limit disable (for Vveh > 10km/h)  
 Speed limit disable (for VVeh >= 10km/h)  
 Speed limit disable (for Vveh ≥ 10km/h)  
 TCS Front Left Valve  
 TCS front left valve (Traction valve (TCL))  
 TCS front left valve (TRACTION VALVE(TCL) )  
 TCS Front Right Valve  
 TCS front right valve (Traction valve (TCR))  
 TCS front right valve (TRACTION VALVE(TCR) )

## TCS

ASV front left valve  
 ASV Front Right Valve  
 ASV1  
 ASV2  
 Disable the valve relay shutdown  
 Disable valve relay shutdown  
 Electric shuttle valve (ESV-L)  
 Electric shuttle valve (ESV-R)  
 ELECTRIC SHUTTLE VALVE(ESV-L)  
 ELECTRIC SHUTTLE VALVE(ESV-R)  
 ESP specific valve HSV1  
 ESP specific valve HSV1 (not available for ABS)  
 ESP specific valve HSV2  
 ESP specific valve HSV2 (not available for ABS)  
 ESP specific valve USV1  
 ESP specific valve USV1 (not available for ABS)

ESP specific valve USV2  
 ESP specific valve USV2 (not available for ABS)  
 ESS Brake Lamp Relay  
 Front left valve (IN)  
 Front Left Valve (Input)  
 Front left valve (OUT)  
 Front Left Valve (Output)  
 Front right valve (IN)  
 Front Right Valve (Input)  
 Front right valve (OUT)  
 Front Right Valve (Output)  
 Inlet valve FL  
 Inlet valve FR  
 Inlet valve RL  
 Inlet valve RR  
 Motor  
 Outlet valve FL  
 Outlet valve FR  
 Outlet valve RL  
 Outlet valve RR  
 Pump  
 Rear left valve (IN)  
 Rear left valve (IN) (3 Channel : Rear valve IN)  
 Rear Left Valve (Input)  
 Rear left valve (OUT)  
 Rear left valve (OUT) (3 Channel : Rear valve OU)  
 Rear Left Valve (Output)  
 Rear right valve (IN)  
 Rear right valve (IN) (3 Channel : not supported)  
 Rear Right Valve (Input)  
 Rear right valve (OUT)  
 Rear right valve (OUT) (3 Channel : not supporte)  
 Rear Right Valve (Output)  
 SIS disable (safety software)  
 Speed limit disable (for Vveh > 10km/h)  
 Speed limit disable (for VVeh >= 10km/h)  
 Speed limit disable (for Vveh ≥ 10km/h)  
 TC Front Left right (TCL)  
 TC Front Left Valve (TCL)  
 TC Front right Valve (TCL)  
 TCS Front Left Valve  
 TCS front left valve (Traction valve (TCL))  
 TCS front left valve (TRACTION VALVE(TCL) )  
 TCS Front Right Valve  
 TCS front right valve (Traction valve (TCR))  
 TCS front right valve (TRACTION VALVE(TCR) )  
 USV1  
 USV2

## TPMS

AGC Select Output, requires security level 3.  
 All Lamps  
 All LEDs

All LEDs, requires security level 1.  
 Buffered Micro' clock output  
 Diagnostic Lamp  
 Diagnostic LED  
 Front  
 Front Left LF Initiator  
 Front Left Location Lamp  
 Front Left Location LED  
 Front Left Location LED, requires security le  
 Front Right Initiator  
 Front Right Location Lamp  
 Front Right Location LED  
 Front Right Location LED, requires security  
 LF Initiator DC Supply, requires security lev  
 LF Initiator Supply  
 LPW LED, requires security level 1.  
 MIL LED, requires security level 1.  
 Rear  
 Rear Left initiator  
 Rear Left initiator (negative response)  
 Rear Left Location Lamp  
 Rear Left Location LED  
 Rear Left Location LED, requires security le  
 Rear Right Initiator  
 Rear Right Location Lamp  
 Rear Right Location LED  
 Rear Right Location LED, requires security l  
 TREAD Lamp  
 TREAD LED