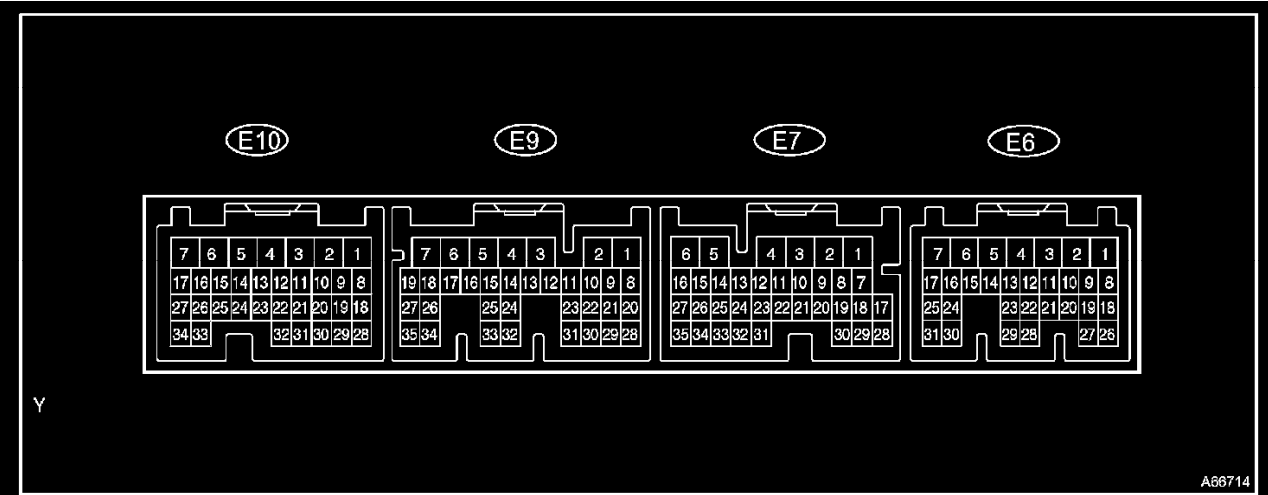


Engine Control Module: Pinout Values and Diagnostic Parameters



HINT:
 Each ECM terminal's standard voltage is shown in the table below.
 In the table, first follow the information under "Condition". Next look under "Symbols (Terminal No.)" for the terminals to be inspected. The standard voltage between the terminals is shown under "Specified Condition". Use the illustration above as a reference for the ECM terminals.

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
+B (E6-1) – E1 (E10-3)	B-R – BR	Power source of ECM	Ignition switch ON	9 to 14 V
+B2 (E6-2) – E1 (E10-3)	B-R – BR	Power source of ECM	Ignition switch ON	9 to 14 V
BATT (E6-3) – E1 (E10-3)	B-Y – BR	Battery (for measuring battery voltage and for ECM memory)	Always	9 to 14 V
+BM (E6-7) – E1 (E10-3)	L-R – BR	Power source of throttle motor	Always	9 to 14 V
MREL (E6-8) – E1 (E10-3)	B-W – BR	EFI relay	Ignition switch ON	9 to 14 V
IGSW (E6-9) – E1 (E10-3)	B-O – BR	Ignition switch	Ignition switch ON	9 to 14 V
STA (E6-12) – E1 (E10-3)	B-W – BR	Starter signal	Shift lever position P or N, ignition switch START	6.0 V or more
ST1- (E6-16) – E1 (E10-3)	R-B – BR	Stop lamp switch (opposite to STP)	• Ignition switch ON, brake pedal is depressed • Ignition switch ON, brake pedal is released	Below 1.5 V 7.5 to 14 V
VPA (E6-18) – EPA (E6-20)	L-Y – LG-B	Accelerator pedal position sensor (for engine control)	• Ignition switch ON, accelerator pedal released • Ignition switch ON, accelerator pedal depressed	0.5 to 1.1 V 2.6 to 4.5 V
VPA2 (E6-19) – EPA2 (E6-21)	W-R – LG	Accelerator pedal position sensor (for sensor malfunction detection)	• Ignition switch ON, accelerator pedal released • Ignition switch ON, accelerator pedal depressed	1.2 to 2.0 V 3.4 to 5.3 V
FC (E6-25) – E1 (E10-3)	G-R – BR	Fuel pump control	Ignition switch ON	9 to 14 V
VCPA (E6-26) – EPA (E6-20)	R – LG-B	Power source of accelerator pedal position sensor (for VPA)	Ignition switch ON	4.5 to 5.5 V
VCP2 (E6-27) – EPA2 (E6-21)	B-R – LG	Power source of accelerator pedal position sensor (for VPA2)	Ignition switch ON	4.5 to 5.5 V

Terminals Of ECM/Pinouts (Part 1)

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
NSW (E6-30) - E1 (E10-3)	B-Y*1 - BR	Park/neutral position switch	- Ignition switch ON, shift position in P, N - Ignition switch ON, shift position except P, N	0 to 3.0 V 9 to 14 V
PTNK (E6-31) - E2 (E10-28)	P - BR	Vapor pressure sensor	Ignition switch ON Apply vacuum 4.0 kPa (30 mmHg, 1.18 in.Hg)	2.9 to 3.7 V Below 0.5
TACH (E7-1) - E1 (E10-3)	B-O - BR	Engine speed	Idling	Pulse generation
ELS3 (E7-3) - E1 (E10-3)	B-Y - BR	Electric load	- Power outlet OFF - Power outlet ON	0 to 1.5 V 7.5 to 14 V
STP (E7-4) - E1 (E10-3)	G-W - BR	Stop light switch	- Brake pedal is depressed - Brake pedal is released	7.5 to 14 V Below 1.5 V
SPD (E7-8) - E1 (E10-3)	V-W - BR	Speed signal from combination meter	Ignition switch ON, rotate driving wheel slowly	Pulse generation
SIL (E7-13) - E1 (E10-3)	W - BR	Terminal SIL of DLC3	During charge of gears	Pulse generation
TC (E7-17) - E1 (E10-3)	P-B - BR	Terminal TC of DLC 3	Ignition switch ON	9 to 14 V
W (E7-30) - E1 (E10-3)	G-R - BR	MIL	- Ignition switch ON - Idling	Below 3.0 V 9 to 14 V
CCV (E6-5) - E1 (E10-3)	L - BR	CCV	Ignition switch ON	9 to 14 V
#10 (E9-6) - E01 (E10-7) #20 (E9-5) - E01 (E10-7) #30 (E9-2) - E01 (E10-7) #40 (E9-1) - E01 (E10-7)	L - W-B R - W-B Y - W-B W - W-B	Injector	- Ignition switch ON - Idling	9 to 14 V Pulse generation
PRG (E9-23) - E1 (E10-3)	B-R - BR	EVAP VSV	Ignition switch ON	9 to 14 V
VG (E9-28) - E2G (E9-30)	R - L-W	Mass air flow meter	Idling, shift lever position P or N position, A/C switch OFF	0.5 to 3.0 V
THA (E9-29) - E2 (E10-28)	L-B - BR	Intake air temperature sensor	Idling, intake air temp. 20°C (68°F)	0.5 to 3.4 V
PSW (E9-32) - E1 (E10-3)	R-W - BR	P/S pressure switch	Ignition switch ON	9 to 14 V
HA1A (E10-1) - E04 (E9-7)	B-R - W-B	A/F sensor heater	- Idling - Ignition switch ON	Below 3.0 V 9 to 14 V
HT1B (E10-2) - E2 (E10-28)	L - BR	Heated oxygen sensor heater	- Idling - Ignition switch ON	Below 3.0 V 9 to 14 V
M+ (E10-5) - ME01 (E9-3)	B - W-B	Throttle motor	Idling	Pulse generation
M- (E10-4) - ME01 (E9-3)	W - W-B	Throttle motor	Idling	Pulse generation
OC1+ (E10-13) - OC1- (E10-12)	B-W - Y	Camshaft timing oil control valve (OCV)	Ignition switch ON	Pulse generation
IGT1 (E10-17) - E1 (E10-3) IGT2 (E10-16) - E1 (E10-3) IGT3 (E10-15) - E1 (E10-3) IGT4 (E10-14) - E1 (E10-3)	R-W - BR P - BR LG-B - BR L-Y - BR	Ignition coil with igniter (ignition signal)	Idling	Pulse generation
VC (E10-18) - E2 (E10-28)	Y - BR	Power source of sensor (specific voltage)	Ignition switch ON	4.5 to 5.5 V
VTA2 (E10-19) - E2 (E10-28)	B-R - BR	Throttle position sensor (for sensor malfunction detection)	- Ignition switch ON, accelerator pedal released - Ignition switch ON, accelerator pedal depressed	2.1 to 3.1 V 4.5 to 5.5 V
VTA1 (E10-20) - E2 (E10-28)	LG - BR	Throttle position sensor (for engine control)	- Ignition switch ON, accelerator pedal released - Ignition switch ON, accelerator pedal depressed	0.3 to 1.0 V 3.2 to 4.9 V
A1A+ (E10-21) - E1 (E10-3)	O - BR	A/F sensor	Ignition switch ON	3.3 V

Terminals Of ECM/Pinouts (Part 2)

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
IGF1 (E10-23) - E1 (E10-3)	W-R - BR	Ignition coil with igniter (ignition confirmation signal)	- Ignition switch ON - Idling	4.5 to 5.5 V Pulse generation
OX1B (E10-25) - E2 (E10-28)	L*3 - BR BR*4 - BR	Heated oxygen sensor	Maintain engine speed at 2,500 rpm for 2 minutes after warming up	Pulse generation
G2+ (E10-26) - NE- (E10-34)	O*3 - G L*4 - G	Camshaft position sensor	Idling	Pulse generation
NE+ (E10-27) - NE- (E10-34)	R - G	Crankshaft position sensor	Idling	Pulse generation
KNK1 (E10-29) - EKNK (E10-30)	W - B	Knock sensor	Maintain engine speed at 4,000 rpm after warming up	Pulse generation
A1A- (E10-31) - E1 (E10-3)	W - BR	A/F sensor	Ignition switch ON	3.0 V
THW (E10-32) - E2 (E10-28)	G-Y - BR	Engine coolant temperature sensor	Idling, engine coolant temp. 80°C (176°F)	0.2 to 1.0 V

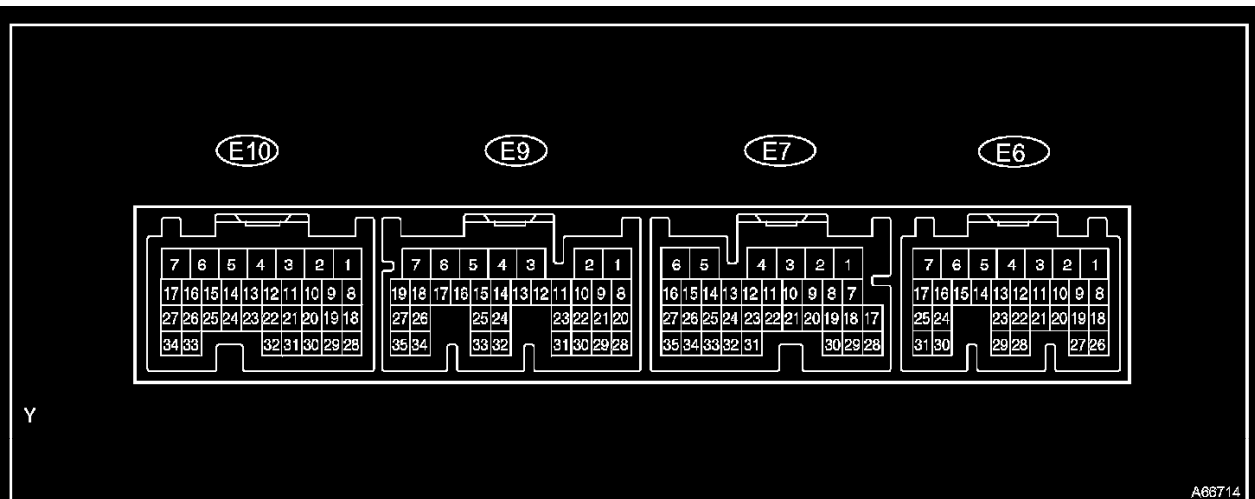
*1: A/T

*2: M/T

*3: TMC Made

*4: TMMK Made

Terminals Of ECM/Pinouts (Part 3)

**HINT:**

Each ECM terminal's standard voltage is shown in the table below.

In the table, first follow the information under "Condition". Next look under "Symbols (Terminal No.)" for the terminals to be inspected. The standard voltage between the terminals is shown under "Specific Condition". Use the illustration above as a reference for the ECM terminals.

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
+B (E6-1) - E1 (E10-3)	B-R - BR	Power source of ECM	Ignition switch ON	9 to 14 V
+B2 (E6-2) - E1 (E10-3)	B-R - BR	Power source of ECM	Ignition switch ON	9 to 14 V
BATT (E6-3) - E1 (E10-3)	B-Y - BR	Battery (for measuring battery voltage and for ECM memory)	Always	9 to 14 V
+BM (E6-7) - E1 (E10-3)	L-R - BR	Power source of throttle motor	Always	9 to 14 V
MREL (E6-8) - E1 (E10-3)	B-W - BR	EFI relay	Ignition switch ON	9 to 14 V
IGSW (E6-9) - E1 (E10-3)	B-O - BR	Ignition switch	Ignition switch ON	9 to 14 V
STA (E6-12) - E1 (E10-3)	B-W - BR	Starter signal	Shift lever position P or N, ignition switch START	6.0 V or more
ST1- (E6-16) - E1 (E10-3)	R-B - BR	Stop lamp switch (opposite to STP)	- Ignition switch ON, brake pedal is depressed - Ignition switch ON, brake pedal is released	Below 1.5 V 7.5 to 14 V
VPA (E6-18) - EPA (E6-20)	L-Y - LG-B	Accelerator pedal position sensor (for engine control)	- Ignition switch ON, accelerator pedal released - Ignition switch ON, accelerator pedal depressed	0.5 to 1.1 V 2.6 to 4.5 V
VPA2 (E6-19) - EPA2 (E6-21)	W-R - LG	Accelerator pedal position sensor (for sensor malfunction detection)	- Ignition switch ON, accelerator pedal released - Ignition switch ON, accelerator pedal depressed	1.2 to 2.0 V 3.4 to 5.3 V
FC (E6-25) - E1 (E10-3)	G-R - BR	Fuel pump control	Ignition switch ON	9 to 14 V
VCPA (E6-26) - EPA (E6-20)	R - LG-B	Power source of accelerator pedal position sensor (for VPA)	Ignition switch ON	4.5 to 5.5 V
VCP2 (E6-27) - EPA2 (E6-21)	B-R - LG	Power source of accelerator pedal position sensor (for VPA2)	Ignition switch ON	4.5 to 5.5 V

Terminals Of ECM/Pinouts (Part 1)

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
NSW (E6-30) - E1 (E10-3)	B-Y*1 - BR	Park/neutral position switch	- Ignition switch ON, shift position in P, N - Ignition switch ON, shift position except P, N	0 to 3.0 V 9 to 14 V
PTNK (E6-31) - E2 (E10-28)	P - BR	Vapor pressure sensor	Ignition switch ON Apply vacuum 4.0 kPa (30 mmHG, 1.18 in.Hg)	2.9 to 3.7 V Below 0.5
TACH (E7-1) - E1 (E10-3)	B-O - BR	Engine speed	Idling	Pulse generation
ELS3 (E7-3) - E1 (E10-3)	B-Y - BR	Electric load	- Power outlet OFF - Power outlet ON	0 to 1.5 V 7.5 to 14 V
STP (E7-4) - E1 (E10-3)	G-W - BR	Stop lamp switch	- Brake pedal is depressed - Brake pedal is released	7.5 to 14 V Below 1.5 V
SPD (E7-8) - E1 (E10-3)	V-W - BR	Speed signal from combination meter	Ignition switch ON, rotate driving wheel slowly	Pulse generation
SIL (E7-13) - E1 (E10-3)	W - BR	Terminal SIL of DLC3	During charge of gears	Pulse generation
TC (E7-17) - E1 (E10-3)	P-B - BR	Terminal TC of DLC 3	Ignition switch ON	9 to 14 V
W (E7-30) - E1 (E10-3)	G-R - BR	MIL	- Ignition switch ON - Idling	Below 3.0 V 9 to 14 V
CCV (E6-5) - E1 (E10-3)	G - BR	CCV	Ignition switch ON	9 to 14 V
#10 (E9-6) - E01 (E10-7) #20 (E9-5) - E01 (E10-7) #30 (E9-2) - E01 (E10-7) #40 (E9-1) - E01 (E10-7)	L - W-B R - W-B Y - W-B W - W-B	Injector	- Ignition switch ON - Idling	9 to 14 V Pulse generation
PRG (E9-23) - E1 (E10-3)	B-R - BR	EVAP VSV	Ignition switch ON	9 to 14 V
VG (E9-28) - E2G (E9-30)	R - L-W	Mass air flow meter	Idling, shift lever position P or N position, A/C switch OFF	0.5 to 3.0 V
THA (E9-29) - E2 (E10-28)	L-B - BR	Intake air temperature sensor	Idling, intake air temp. 20°C (68°F)	0.5 to 3.4 V
PSW (E9-32) - E1 (E10-3)	R-W - BR	P/S pressure switch	Ignition switch ON	9 to 14 V
HA1A (E10-1) - E04 (E9-7)	B-R - W-B	A/F sensor heater	- Idling - Ignition switch ON	Below 3.0 V 9 to 14 V
HT1B (E10-2) - E2 (E10-28)	L - BR	Heated oxygen sensor heater	- Idling - Ignition switch ON	Below 3.0 V 9 to 14 V
HT1C (E7-5) - E2 (E10-28)	L - BR	Heated oxygen sensor heater	- Idling - Ignition switch ON	Below 3.0 V 9 to 14 V
M+ (E10-5) - ME01 (E9-3)	B - W-B	Throttle motor	Idling	Pulse generation
M- (E10-4) - ME01 (E9-3)	W - W-B	Throttle motor	Idling	Pulse generation
OC1+ (E10-13) - OC1- (E10-12)	B-W - Y	Camshaft timing oil control valve (OCV)	Ignition switch ON	Pulse generation
IGT1 (E10-17) - E1 (E10-3) IGT2 (E10-16) - E1 (E10-3) IGT3 (E10-15) - E1 (E10-3) IGT4 (E10-14) - E1 (E10-3)	R-W - BR P - BR LG-B - BR L-Y - BR	Ignition coil with igniter (ignition signal)	Idling	Pulse generation
VC (E10-18) - E2 (E10-28)	Y - BR	Power source of sensor (specific voltage)	Ignition switch ON	4.5 to 5.5 V
VTA2 (E10-19) - E2 (E10-28)	B-R - BR	Throttle position sensor (for sensor malfunction detection)	- Ignition switch ON, accelerator pedal released - Ignition switch ON, accelerator pedal depressed	2.1 to 3.1 V 4.5 to 5.5 V
VTA1 (E10-20) - E2 (E10-28)	LG - BR	Throttle position sensor (for engine control)	- Ignition switch ON, accelerator pedal released - Ignition switch ON, accelerator pedal depressed	0.3 to 1.0 V 3.2 to 4.9 V
A1A+ (E10-21) - E1 (E10-3)	O - BR	A/F sensor	Ignition switch ON	3.3 V

Terminals Of ECM/Pinouts (Part 2)

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
IGF1 (E10-23) - E1 (E10-3)	W-R - BR	Ignition coil with igniter (ignition confirmation signal)	- Ignition switch ON - Idling	4.5 to 5.5 V Pulse generation
OX1B (E10-25) - E2 (E10-28)	BR - BR	Heated oxygen sensor	Maintain engine speed at 2,500 rpm for 2 minutes after warming up	Pulse generation
OX1C (E7-27) - E2 (E10-28)	B - BR	Heated oxygen sensor	Maintain engine speed at 2,500 rpm for 2 minutes after warming up	Pulse generation
G2+ (E10-26) - NE- (E10-34)	L - G	Camshaft position sensor	Idling	Pulse generation
NE+ (E10-27) - NE- (E10-34)	R - G	Crankshaft position sensor	Idling	Pulse generation
KNK1 (E10-29) - EKNK (E10-30)	W - B	Knock sensor	Maintain engine speed at 4,000 rpm after warming up	Pulse generation
A1A- (E9-31) - E1 (E10-3)	W - BR	A/F sensor	Ignition switch ON	3.0 V
THW (E10-32) - E2 (E10-28)	G-Y - BR	Engine coolant temperature sensor	Idling, engine coolant temp. 80°C (176°F)	0.2 to 1.0 V
IAC+ (E10-21) - E1 (E10-3)	O - BR	Intake manifold runner valve motor	When switching IG to ON	Pulse generation
IAC- (E10-31) - E1 (E10-3)	W - BR	Intake manifold runner valve motor	When switching IG to OFF	Pulse generation

*1: A/T

*2: M/T

Terminals Of ECM/Pinouts (Part 3)