

# Transmission Control Module (TCM) I/O Signal

AUTOMATIC TRANSMISSION (DIAGNOSTICS)

## 5. Transmission Control Module (TCM) I/O Signal

### A: ELECTRICAL SPECIFICATION

TO **B55**

7	6	5	4	3		2	1
19	18	17	16	15	14	13	12
27	26		25	24		23	22
35	34		33	32		31	30

TO **B54**

6	5		4	3	2	1
16	15	14	13	12	11	10
27	26	25	24	23	22	21
35	34	33	32	31		30

AT-03733

#### NOTE:

The measurement should be performed after warming up.

Item	Connector No.	Terminal No.	Measuring condition	Measured value	Resistance between terminal and chassis ground	Remarks
P/L solenoid output	B54	6	Engine ON, "P" range, accelerator OFF, brake ON	3.5 — 7.5 V	3 — 9 Ω (ATF temperature 20°C (68°F))	Drive frequency: 300 Hz
I/C oil pressure switch input	B54	20	While driving at 1st-3rd of manual mode	6 V or more		
			While driving at 4th or 5th of manual mode	Less than 1.5 V		
Power GND	B54	12	Always	Approx. 0 V	—	
CAN communication line (+)	B55	21	—	—	—	
CAN communication line (-)	B55	20	—	—	—	
ATF temperature sensor 1 input	B54	17	Ignition switch ON ATF oil temperature 20°C (68°F)	3.5 — 4.3 V	2.5 — 7.0 kΩ	When measuring the resistance, be sure to disconnect the connector and perform the measurement with TCM alone.
			Ignition switch ON ATF oil temperature 80°C (176°F)	1 — 2.2 V	0.3 — 0.8 kΩ	
Back-up power supply	B55	24	Ignition switch ON	8 V or more	—	
			Ignition switch OFF			
I/C solenoid output	B54	3	While driving at 1st-3rd of manual mode	5 V or more	3 — 9 Ω (ATF temperature 20°C (68°F))	Drive frequency: 300 Hz
			While driving at 4th or 5th of manual mode	Less than 1.5 V		

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Item	Connector No.	Terminal No.	Measuring condition	Measured value	Resistance between terminal and chassis ground	Remarks
H & LR/C solenoid output	B54	5	While driving at 2nd of manual mode	5 V or more	3 — 9 Ω (ATF temperature 20°C (68°F))	Drive frequency: 300 Hz
			While driving at 1st, 3rd-5th of manual mode	Less than 1.5 V		
Power GND	B54	13	Always	Approx. 0 V	—	
Analog GND	B54	18	Always	Approx. 0 V	—	
Fr/B solenoid output	B54	4	While driving at other than 4th of manual mode	5 V or more	3 — 9 Ω (ATF temperature 20°C (68°F))	Drive frequency: 300 Hz
			While driving at 4th of manual mode	Less than 1.5 V		
L/U solenoid output	B54	7	When lock-up	3 V or more	3 — 9 Ω (ATF temperature 20°C (68°F))	Drive frequency: 300 Hz
			When not lock-up	Less than 1 V		
D/C solenoid output	B54	1	While driving at 1st or 5th of manual mode	5 V or more	3 — 9 Ω (ATF temperature 20°C (68°F))	Drive frequency: 300 Hz
			While driving at 2nd-4th of manual mode	Less than 1.5 V		
D/C oil pressure switch input	B54	22	While driving at 1st or 5th of manual mode	6 V or more	—	
			While driving at 2nd-4th of manual mode	Less than 1.5 V		
Subaru Select Monitor communication line	B55	8	Ignition switch ON	8 V or more	—	
			Ignition switch OFF	Less than 1 V		
Sensor GND (analog)	B54	16	Always	Approx. 0 V	—	
H&LR/C oil pressure switch input	B54	14	While driving at 2nd of manual mode	6 V or more	—	
			While driving at 3rd-5th of manual mode	Less than 1.5 V		
Fwd/B solenoid output	B54	19	While driving at 1st or 2nd of manual mode	5 V or more	—	Drive frequency: 300 Hz
			While driving at 3rd-5th of manual mode	Less than 1.5 V		
Fwd/B oil pressure switch input	B54	21	While driving at 1st or 2nd of manual mode	Less than 1.5 V	—	
			While driving at 3rd-5th of manual mode	6 V or more		
Front vehicle speed sensor input	B54	24	While driving at 2nd and 20 km/h (12 MPH) of manual mode	Approx. 500 — 700 rpm	—	Use the Subaru Select Monitor.
			While driving at 4th and 80 km/h (50 MPH) of manual mode	Approx. 2,000 — 2,500 rpm		Use the Subaru Select Monitor.
Inhibitor switch 1 input	B54	8	Ignition switch ON, "P" range	Less than 0.5 V	—	
			Ignition switch ON, "N" range	5 V or more		
Inhibitor switch 2 input	B54	9	Ignition switch ON, "P" range	5 V or more	—	
			Ignition switch ON, "D" range	Less than 0.5 V		

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Item	Connector No.	Terminal No.	Measuring condition	Measured value	Resistance between terminal and chassis ground	Remarks
Ignition power supply	B54	27	Ignition switch ON	8 V or more	—	
			Ignition switch OFF	Less than 1 V		
Rear vehicle speed sensor input	B54	23	While driving at 2nd and 20 km/h (12 MPH) of manual mode	Approx. 500 — 700 rpm	—	Use the Subaru Select Monitor.
			While driving at 4th and 80 km/h (50 MPH) of manual mode	Approx. 2,000 — 2,500 rpm		Use the Subaru Select Monitor.
Fr/B oil pressure switch input	B54	15	While driving at other than 4th of manual mode	Less than 1.5 V	—	
			While driving at 4th of manual mode	6 V or more		
Turbine speed sensor 1 input	B54	26	2nd of manual mode, turbine speed sensor is 2,000 rpm (Read from Subaru Select Monitor)	Approx. 0 rpm	—	Use the Subaru Select Monitor.
			4th of manual mode, turbine speed sensor is 2,000 rpm (Read from Subaru Select Monitor)	Approx. 1,900 — 2,100 rpm		Use the Subaru Select Monitor.
Inhibitor switch 3 input	B54	10	Ignition switch ON, "R" range	5 V or more	—	
			Ignition switch ON, "D" range	Less than 0.5 V		
Control GND1	B55	23	Ignition switch ON	Approx. 0 V	—	
			Ignition switch OFF			
Control GND2	B55	22	Ignition switch ON	Approx. 0 V	—	
			Ignition switch OFF			
Inhibitor switch 4 input	B54	11	Ignition switch ON, "P" range	Less than 0.5 V	—	
			Ignition switch ON, "D" range	5 V or more		
Back-up light relay output	B55	13	Ignition switch ON, "R" range	Less than 1 V	90 — 110 Ω (ATF temperature 25°C (77°F))	
			Ignition switch ON, other than "R" range	8 V or more		
AWD solenoid output	B54	2	Engine ON, "P" range or "N" range, accelerator OFF	Less than 1 V	3 — 9 Ω (ATF temperature 20°C (68°F))	Drive frequency: 300 Hz
			Engine ON, "D" range, accelerator OFF, brake ON	2 V or more		
Turbine speed sensor 2 input	B54	25	2nd of manual mode, turbine speed sensor is 2,000 rpm (Read from Subaru Select Monitor)	Approx. 1,200 — 1,500 rpm	—	Use the Subaru Select Monitor.
			4th of manual mode, turbine speed sensor is 2,000 rpm (Read from Subaru Select Monitor)	Approx. 1,900 — 2,100 rpm		Use the Subaru Select Monitor.

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Item	Connector No.	Terminal No.	Measuring condition	Measured value	Resistance between terminal and chassis ground	Remarks
PN signal output	B55	11	Ignition switch ON, Other than "P" range or "N" range	8 V or more	—	
			Ignition switch ON, "P" range or "N" range	Less than 1 V	—	
Ignition power supply 1	B55	26	Ignition switch ON	8 V or more		
			Ignition switch OFF			
Ignition power supply 2	B55	19	Ignition switch ON	8 V or more		
			Ignition switch OFF	Less than 1 V		
Ignition power supply 3	B55	18	Ignition switch ON	8 V or more		
			Ignition switch OFF	Less than 1 V		
Ignition power supply 4	B55	25	Ignition switch ON	8 V or more		
			Ignition switch OFF			