LEXUS V8 ENGINES LLC

Client Plug Connection Guide

3UZ 6-Speed Automatic Transmission Technical Reference

Prepared for customer installation and workshop technical reference

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Important

This guide covers the vehicle-side 9-pin 3UZ 6-speed automatic transmission client plug. The standalone harness is an engine and transmission control system, not a full chassis or body harness.

Build-Specific Confirmation

Wire colors and terminal locations should be confirmed against the exact harness supplied before the guide is issued to a customer. Do not wire by color alone; always verify pin position, circuit function, signal direction, and required polarity before final connection.

Overview

The 9-pin 3UZ 6-speed transmission client plug is supplied with Lexus V8 Engines LLC automatic transmission standalone systems. It provides the main vehicle-side connections used for shifter range outputs, sport/manual mode selection, manual shift up/down requests, and vehicle speed signal integration.

The purpose of this plug is to keep installation clean and serviceable while allowing the Toyota/Lexus ECU and 6-speed automatic transmission logic to receive the signals required for correct operation.

Standalone System Note

This is not a full vehicle plug-and-play chassis harness. The installer must still connect the required shifter, range, speed signal, indicator, and vehicle-side wiring correctly for the specific vehicle.

Connector and Terminal Reference

Use this section as the build reference for the 3UZ 6-speed automatic transmission client plug.

Item	Reference
Client Plug	9-pin automatic transmission client plug
Application	3UZ 6-speed automatic transmission
Connector	Connector 46
Terminal	Terminal 24
Standard Lead Length	12 inch / 30 cm unless otherwise noted

Quick Start: Critical Connections Required

The exact number of connections required depends on the transmission, shifter, vehicle, and final ECU configuration. For most 3UZ 6-speed automatic setups, confirm the following circuits before driving the vehicle:

Function Group	Circuits	Pin(s)	Wire Color(s)	Connection
Range Position Outputs	P / R / N / D	Pins 1, 2, 3, 4	White; Red/Black; Green/Red; Green/Yellow	12 V range outputs. Connect to the shifter/range or vehicle-side range logic as configured.
Sport / Manual Mode	S	Pin 5	Green/White	Input requiring 12 V when S mode is requested, as configured.
Manual Shift Requests	Shift Up / Shift Down	Pins 6, 7	Green; Green/Black	Ground-input request circuits. Use momentary switches or shifter contacts as configured.
Not Used	N/A	Pin 8	N/A	No customer connection used for this pin in this 9-pin configuration.
Vehicle Speed	SPD	Pin 9	Blue	Speed from cluster input. Provide a compatible speed signal to the ECU/transmission logic.

Transmission Wiring Warning

Do not wire by color alone. Confirm the function, pin location, signal direction, and required polarity before connecting to the vehicle. Incorrect range, manual-shift, or speed-signal wiring can cause no-shift, wrong gear indication, no torque converter lockup, diagnostic trouble codes, or unsafe vehicle operation.

9-Pin 3UZ 6-Speed Transmission Client Plug Pinout

Pin / Terminal	Wire Color	Lead Length	Function	Signal / Notes
Pin 1	White	12 inch / 30 cm	Park	12 V output. Park range output for shifter/vehicle-side range logic. Verify active only in Park.
Pin 2	Red / Black	12 inch / 30 cm	Reverse	12 V output. Reverse range output. Do not use to power reverse lamps unless the chassis circuit is designed for it.
Pin 3	Green / Red	12 inch / 30 cm	Neutral	12 V output. Neutral range output for ECU/shifter logic and neutral safety strategy where applicable.
Pin 4	Green / Yellow	12 inch / 30 cm	Drive	12 V output. Drive range output for normal 6-speed automatic operation.
Pin 5	Green / White	12 inch / 30 cm	S	Input - 12 V. Sport/manual mode request input. Feed 12 V only when S mode is selected, as configured.

Pin / Terminal	Wire Color	Lead Length	Function	Signal / Notes
Pin 6	Green	12 inch / 30 cm	Shift Up	Input - Ground. Momentary shift-up request. Ground this circuit to request upshift as configured.
Pin 7	Green / Black	12 inch / 30 cm	Shift Down	Input - Ground. Momentary shift-down request. Ground this circuit to request downshift as configured.
Pin 8	N/A	N/A	Not Used	No customer connection used for this pin in this 9-pin automatic transmission client plug configuration.
Pin 9	Blue	12 inch / 30 cm	SPD	Speed from cluster input. Provide a compatible vehicle speed signal to the ECU/transmission logic.

Detailed Circuit Descriptions

Park

Park Range Output

- Identifies when the shifter or range switch is in the Park position.
- This circuit is listed as a 12 V output in this 3UZ 6-speed client plug configuration.
- Depending on the build, this may be used by the ECU, the vehicle starter inhibit circuit, the dash indicator circuit, or a combination of these systems.
- Do not bypass the factory or aftermarket neutral safety strategy unless a safe replacement circuit is installed.
- Verify Park status with a scan tool or electrical test before first drive.

Reverse

Reverse Range Output

- Identifies when the shifter or range switch is in Reverse.
- This circuit is listed as a 12 V output in this 3UZ 6-speed client plug configuration.
- On some installations this signal may be used for ECU range information, reverse light activation, camera activation, or chassis-side reverse indication.
- Do not assume this wire can power reverse lamps directly unless the harness or vehicle-side circuit was built for that purpose.
- Verify that Reverse is only active when the shifter is in the Reverse position.

Neutral

Neutral Range Output

- Identifies when the shifter or range switch is in Neutral.
- This circuit is listed as a 12 V output in this 3UZ 6-speed client plug configuration.
- This signal can be important for ECU idle strategy, start authorization, gear status, and diagnostic logic.
- The vehicle should only crank in Park or Neutral if the neutral safety circuit is used.
- Incorrect Neutral wiring can cause starting, idle, or transmission logic issues.

Drive

Drive Range Output

- Identifies the main forward driving range.
- This circuit is listed as a 12 V output in this 3UZ 6-speed client plug configuration.
- This signal allows the ECU or transmission logic to know when the vehicle is in normal automatic Drive operation.
- Verify Drive status before road testing.
- Do not connect this circuit to heavy-load devices.

S

Sport / Manual Mode Input

- Used to request the S mode or sport/manual shift mode function on the 3UZ 6-speed automatic setup.
- This circuit is listed as an input that requires 12 V when the function is requested.
- The 12 V feed should be clean, fused where required, and connected only as configured for the shifter or switch being used.
- Do not tie this circuit permanently to 12 V unless the build specifically requires that strategy.
- Verify S mode status before road testing manual shift operation.

Shift Up

Manual Shift-Up Input

- Used for the driver-requested manual upshift command when the shifter or paddle/switch is moved to the upshift position.
- This circuit is listed as a ground-input request circuit.
- Use a momentary switch, shifter contact, or paddle switch that grounds the circuit only during the shift-up request.
- This is a low-current ECU/transmission control input, not a power circuit.
- Verify the shift-up request with scan data or electrical testing before road testing.

Shift Down

Manual Shift-Down Input

- Used for the driver-requested manual downshift command when the shifter or paddle/switch is moved to the downshift position.
- This circuit is listed as a ground-input request circuit.
- Use a momentary switch, shifter contact, or paddle switch that grounds the circuit only during the shift-down request.
- Do not connect this circuit to 12 V.
- Verify the shift-down request with scan data or electrical testing before road testing.

Vehicle Speed

Vehicle Speed Signal / SPD

- Provides the ECU/transmission control system with a speed signal from the vehicle cluster or approved speed-signal source.
- Correct vehicle speed input is important for shift timing, torque converter lockup, overdrive operation, diagnostics, and drivability.
- Confirm the source of the speed signal: factory cluster output, transmission sensor, transfer case sensor, GPS/speed converter, or signal conditioner.
- The ECU must receive a compatible signal type and pulse rate for the calibration being used.
- Incorrect or missing vehicle speed signal can cause shift complaints, lockup complaints, speed-related DTCs, or poor drivability.

Range Output Signal Summary

Range	Shifter Marking	Pin	Wire Color	Purpose
Park	P	Pin 1	White	12 V Park status output. Used for Park status / start safety strategy where applicable.
Reverse	R	Pin 2	Red / Black	12 V Reverse status output. Used for Reverse status and possible reverse lamp/camera integration.
Neutral	N	Pin 3	Green / Red	12 V Neutral status output. Used for Neutral status / start safety strategy where applicable.
Drive	D	Pin 4	Green / Yellow	12 V Drive status output. Used for normal automatic Drive range.

S Mode and Manual Shift Notes

The S input, Shift Up input, and Shift Down input are related to sport/manual shift operation, but they should not be treated as the same circuit. Confirm the shifter or switch behavior before final wiring.

Circuit	Type	Description
S	12 V input	Requests S mode / sport-manual shift mode depending on configuration.
Shift Up	Ground input	Momentary upshift request. Ground only during the upshift command.
Shift Down	Ground input	Momentary downshift request. Ground only during the downshift command.

Best Practice
Test S mode, Shift Up, and Shift Down with the vehicle safely stationary before road testing. Confirm that each input changes state correctly and that no input is stuck active.

Vehicle Speed Signal Notes

Vehicle speed wiring is one of the most important parts of a successful automatic transmission swap. Many shift complaints are caused by a missing, incorrect, noisy, or incompatible speed signal.

- Confirm the speed signal source before wiring Pin 9.
- Route speed signal wiring away from ignition coils, alternator wiring, starter wiring, and other high-noise circuits where possible.
- Use shielded wiring or a signal conditioner if required by the installation.
- Confirm vehicle speed data with a scan tool before road testing at speed.

First Test and Road-Test Checklist

Item	Check
Park / Neutral	Vehicle only cranks in a safe range where neutral safety is used. Confirm Park and Neutral status.
Reverse	Reverse status and reverse lights/camera operate correctly where connected.
Drive	Drive range is recognized correctly before driving.
S Mode	S input changes state correctly when sport/manual mode is selected.
Shift Up / Shift Down	Manual shift inputs respond correctly and are not stuck active.
Vehicle Speed	Scan tool shows vehicle speed when the vehicle moves.
Transmission Fluid	ATF level and cooler line routing confirmed before road test.

Item	Check
DTC Check	Check for transmission, range, manual shift, and speed-signal related fault codes.

Installation Notes

Shifter and Range Wiring

- Test the shifter and range wiring with a multimeter before final connection.
- Confirm which circuits are active in each shifter position and make sure there is no overlap or backfeed between positions unless the factory circuit design requires it.
- Label each shifter/range wire before connecting it to the client plug.
- Use the transmission service manual or wiring diagram where available.
- Do not connect multiple range wires together unless specifically instructed.

Ground-Input Shift Wiring

- Shift Up and Shift Down are ground-input request circuits in this 9-pin configuration.
- Use clean switch grounds and avoid routing these wires near high-current or high-noise circuits.
- Do not feed Shift Up or Shift Down with 12 V.
- If using paddle switches, confirm both the common terminal and each switch output before connecting.

Power and Protection

- Good grounding and clean power supply are critical for automatic transmission control.
- Poor grounds, voltage drop, or backfeed can cause false range signals and unstable operation.
- Use clean engine, chassis, and battery grounds.
- Protect all added circuits with correct fusing where power is supplied by the vehicle.

Reverse Light Wiring

Reverse light wiring may remain part of the vehicle chassis harness or may be integrated through the shifter/range wiring depending on the swap. Do not assume the transmission client plug wire is designed to carry reverse lamp current unless the build-specific instructions say so.

Included With System

- Standalone engine and transmission harness integration.
- 9-pin 3UZ 6-speed automatic transmission client plug.
- Required range output wires: Park, Reverse, Neutral, and Drive.
- S mode, Shift Up, and Shift Down input circuits where applicable.
- Vehicle speed signal input wiring where applicable.
- OBD2 diagnostic port as part of the engine management system.
- Bench test or startup verification where applicable.

Final Installation Note

When wired correctly, the Lexus V8 Engines standalone automatic transmission system is designed to allow the 3UZ 6-speed automatic transmission and ECU logic to operate cleanly in a swap application while keeping the vehicle-side wiring simple and serviceable.

Best Practice

For best results, all transmission client plug wiring should be soldered or professionally crimped, insulated correctly, strain-relieved, and routed away from exhaust heat, sharp edges, driveshafts, linkages, and moving suspension components.

Lexus V8 Engines LLC
Website: www.lexusv8.com
Technical support and build-specific wiring requirements should be confirmed during the harness build process or through the client form.