

LEXUS V8 ENGINES LLC

Client Plug Connection Guide

4-Pin Cruise Control Client Plug

Cruise Control Technical Reference

Prepared for customer installation and workshop technical reference

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Important

This guide covers the vehicle-side 4-pin cruise control client plug only. The standalone harness provides the cruise-related interface circuits, but the installer must still connect the brake switch, cruise control lever, and dash indicator wiring correctly for the specific vehicle.

Build-Specific Confirmation

Always confirm wire colors, terminal locations, brake switch operation, cruise lever compatibility, and dash indicator polarity against the exact harness supplied before final customer installation.

Overview

The 4-pin cruise control client plug provides the main customer-side wiring points needed for brake switch inputs, cruise control lever input, and cruise indicator light control on applicable Lexus V8 Engines LLC standalone harness builds.

The purpose of this plug is to separate the cruise control connections from the main engine and transmission client plugs so the vehicle-side wiring remains clean, serviceable, and easy to test.

Standalone System Note

This is not a full vehicle plug-and-play chassis harness. The installer must verify the vehicle brake switch wiring, cruise switch wiring, and cluster light wiring before connecting this plug.

Quick Start: Critical Connections Required

For a complete cruise control installation, confirm the following four circuits before road testing:

Function Group	Circuit	Pin	Wire Color	Connection
Brake Switch N/O	STP	Pin 1	Yellow / White	Connect to the normally open brake switch circuit. This circuit changes state when the brake pedal is applied.
Brake Switch N/C	ST1-	Pin 2	Yellow / Blue	Connect to the normally closed brake switch circuit. This circuit should change state opposite to STP when the brake pedal is applied.
Cruise Lever	CCS	Pin 3	Yellow / Orange	Connect to the cruise control lever/switch signal circuit as configured for the build.
Cruise Indicator	P1	Pin 4	Green / Red	Connect to the cluster cruise light negative supply/control side where applicable.

Cruise Wiring Warning

Do not wire by color alone. Confirm the function, pin location, brake switch state, signal direction, and required polarity before connecting to the vehicle. Incorrect brake switch or cruise switch wiring can prevent cruise operation or stop cruise from cancelling correctly when the brake pedal is applied.

4-Pin Cruise Control Client Plug Pinout

Pin / Terminal	Wire Color	Circuit	Connects To	Notes
Pin 1	Yellow / White	STP	Brake switch N/O	Connect to the normally open brake switch circuit. This is the brake-applied signal used by the ECU/cruise logic.
Pin 2	Yellow / Blue	ST1-	Brake switch N/C	Connect to the normally closed brake switch circuit. Used as the second brake switch/cruise cancel confirmation input.

Pin / Terminal	Wire Color	Circuit	Connects To	Notes
Pin 3	Yellow / Orange	CCS	Cruise control lever	Connect to the cruise control lever/switch signal. Confirm the lever type and resistor/switch strategy before connecting.
Pin 4	Green / Red	P1	Cluster cruise light negative supply	Connect to the negative/control side of the cluster cruise indicator light. Low-current indicator circuit only.

Detailed Circuit Descriptions

Pin 1 - STP

Brake Switch Normally Open Input

- STP connects to the normally open side of the brake switch.
- This circuit is used as the brake-applied signal for the ECU/cruise control logic.
- With the brake pedal released, the normally open circuit should be open/inactive. When the brake pedal is pressed, the circuit should change state.
- Confirm the exact voltage or ground strategy on the supplied harness before connecting.
- Incorrect STP wiring can prevent cruise operation or cause the ECU to think the brake pedal is applied all the time.

Pin 2 - ST1-

Brake Switch Normally Closed Input

- ST1- connects to the normally closed side of the brake switch.
- This circuit is used as a second brake switch status/cancel confirmation input for cruise control logic.
- ST1- should change state opposite to STP when the brake pedal is applied.
- Do not join STP and ST1- together. They are separate brake switch circuits and must be tested independently.
- Incorrect ST1- wiring can stop cruise from setting, cause immediate cancel, or create brake switch diagnostic issues depending on ECU configuration.

Pin 3 - CCS

Cruise Control Lever Signal

- CCS connects to the cruise control lever or cruise control switch signal circuit.
- On Toyota/Lexus cruise systems this circuit is commonly a low-current switch/resistor network signal used for cruise commands such as ON/OFF, SET/COAST, RES/ACC, and CANCEL, depending on the lever design.
- Confirm the exact cruise lever wiring and resistance/switch strategy before connecting.
- Do not apply direct power to CCS unless the build-specific wiring diagram specifically calls for it.
- A wrong lever type or incorrect CCS wiring can cause no cruise response, incorrect cruise commands, or immediate cruise cancellation.

Pin 4 - P1

Cluster Cruise Light Negative Supply

- P1 connects to the negative/control side of the cluster cruise indicator light where the vehicle is being wired to use a dash cruise light.
- This is intended as a low-current indicator circuit only.
- Do not use P1 to power relays, lamps, or other external loads unless the harness has been specifically built for that purpose.
- If using an LED indicator, confirm polarity and make sure the LED assembly has the correct current limiting resistor.
- If the cluster already provides the positive side of the indicator internally, connect only the negative/control side as required.

Brake Switch Wiring Notes

Cruise control brake switch wiring must be treated as a safety-critical circuit. The system must be able to recognize brake application and cancel cruise immediately.

- Use a multimeter to identify the normally open and normally closed brake switch circuits before connecting the client plug.
- Confirm STP and ST1- change state cleanly when the brake pedal is pressed and released.
- Do not rely only on wire color from the vehicle. Brake switch wiring can vary between chassis, year, market, and previous modifications.
- Do not bypass or remove the factory brake-light circuit protection. Any added power feed must be correctly fused.
- After wiring, verify brake light operation and cruise cancel behavior before road testing.

Cruise Lever Wiring Notes

The CCS circuit must be connected to a compatible cruise lever or switch circuit. Many Toyota/Lexus cruise levers use a signal/resistor strategy rather than separate heavy-current switch outputs.

Item	Check
Correct Lever Type	Confirm the cruise lever or switch is compatible with the ECU/cruise logic being used.
CCS Signal	Connect only the proper cruise switch signal to CCS. Do not use CCS as a power feed.
Ground Reference	Confirm whether the cruise lever requires a dedicated ground/reference circuit through the vehicle or harness.
Command Verification	Verify cruise switch commands with scan data or electrical testing where possible before road testing.

Cruise Indicator Light Notes

The P1 circuit is provided for the cluster cruise indicator light where applicable. It should be treated as a low-current dash indicator control circuit, not as a general-purpose output.

- Confirm whether the vehicle cluster expects a ground-side/negative control or a positive feed before connecting.
- If the original cluster already contains the cruise indicator lamp or LED, identify the correct negative/control side before wiring P1.
- If using an aftermarket light, use a low-current lamp or LED with the correct resistor and polarity.
- Do not connect P1 directly to high-current bulbs, relays, or other accessories.

Expected Resistance / Ohms Testing Reference

Important Testing Note

Resistance checks must be done with the cruise lever and brake switch disconnected from any powered circuit. Do not ohm-test a circuit while it is connected to an energized ECU or vehicle power supply.

If a customer is using a different Toyota-style cruise control lever, the lever should be checked with a digital multimeter before it is connected to the CCS circuit. Measure between the cruise lever CCS signal wire and the lever common/ground reference terminal. On many Toyota/Lexus levers this common/reference side is identified as ECC, E2, or ground, depending on the year and model.

The values below are the common Toyota-style cruise control lever resistance ranges used for CCS resistor-ladder testing. The exact factory service manual for the donor ECU should always be treated as the final authority, but these ranges are useful for confirming that an alternate lever is in the correct Toyota range.

Lever Position	Command	Expected Resistance	Notes
Released / No Command	No button or lever command active	Open circuit / OL, typically 10 k Ω or higher	The ECU should not see a command when the lever is released.
ON-OFF / Main	Main cruise switch held or pressed, where applicable	Below 1 Ω to 2.5 Ω	Some lever designs have a separate main switch strategy; verify the exact lever type.
RES / ACC	Resume / Accelerate command	210 to 270 Ω	Toyota service data often shows a tighter range around 216 to 264 Ω .
SET / COAST	Set / Coast command	560 to 700 Ω	Toyota service data often shows a tighter range around 567 to 693 Ω .
CANCEL	Cancel command	1,380 to 1,700 Ω	Toyota service data often shows a tighter range around 1,386 to 1,694 Ω .

Brake Switch Resistance Check

The brake switch should also be tested before connecting STP and ST1-. STP and ST1- must change state opposite each other when the brake pedal is pressed.

Circuit	Switch Type	Pedal Position	Expected Resistance	Notes
STP	Brake switch N/O	Brake released	Open circuit / OL	Circuit should close only when brake pedal is pressed.
STP	Brake switch N/O	Brake pressed	Below 1 Ω	Brake-applied signal active.
ST1-	Brake switch N/C	Brake released	Below 1 Ω	Normally closed circuit active with pedal released.
ST1-	Brake switch N/C	Brake pressed	Open circuit / OL	Circuit opens when brake pedal is pressed.

Compatibility Note

If the lever values do not match the Toyota-style ranges, do not connect the lever directly to CCS. The lever may need to be changed, re-pinned, re-resistorized, or adapted so the ECU sees the correct command values.

First Test Checklist

Item	Check
Pinout	Confirm all four pins match the supplied harness before making final connections.
STP	Brake switch N/O circuit changes state when the brake pedal is applied.
ST1-	Brake switch N/C circuit changes state opposite to STP.
Brake Lights	Vehicle brake lights operate normally after wiring.
CCS	Cruise lever commands are recognized correctly where scan data or testing is available.
P1 / Cruise Light	Cruise indicator operates correctly and is not overloaded.
Cancel Test	Cruise cancels immediately when the brake pedal is pressed.
DTC Check	Check for brake switch, cruise switch, or related ECU fault codes after testing.

Troubleshooting Quick Reference

Symptom	Items to Check
Cruise will not set	Check STP/ST1- states first. If the ECU sees brake applied or conflicting brake switch status, cruise may not engage.
Cruise sets then cancels	Check brake switch adjustment, STP/ST1- backfeed, loose brake switch connector, or incorrect CCS command wiring.
No response from lever	Check CCS continuity, lever compatibility, ground/reference circuit, and resistance/switch values.
Cruise light does not work	Check P1 polarity, cluster lamp/LED feed, current limiting, and whether the ECU/build supports the indicator output.

Included With System

- Standalone harness cruise control interface wiring where applicable.
- 4-pin cruise control client plug.
- STP and ST1- brake switch input circuits.
- CCS cruise control lever/switch input circuit.
- P1 cruise indicator light negative/control circuit where applicable.

Final Installation Note

When wired correctly, the cruise control client plug allows the required brake switch, cruise lever, and cruise indicator connections to be kept separate from the main engine and transmission wiring, making the system easier to install, diagnose, and service.

Best Practice

For best results, all cruise control client plug wiring should be soldered or professionally crimped, insulated correctly, strain-relieved, labeled, and routed away from exhaust heat, sharp edges, pedals, linkages, steering shafts, 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.