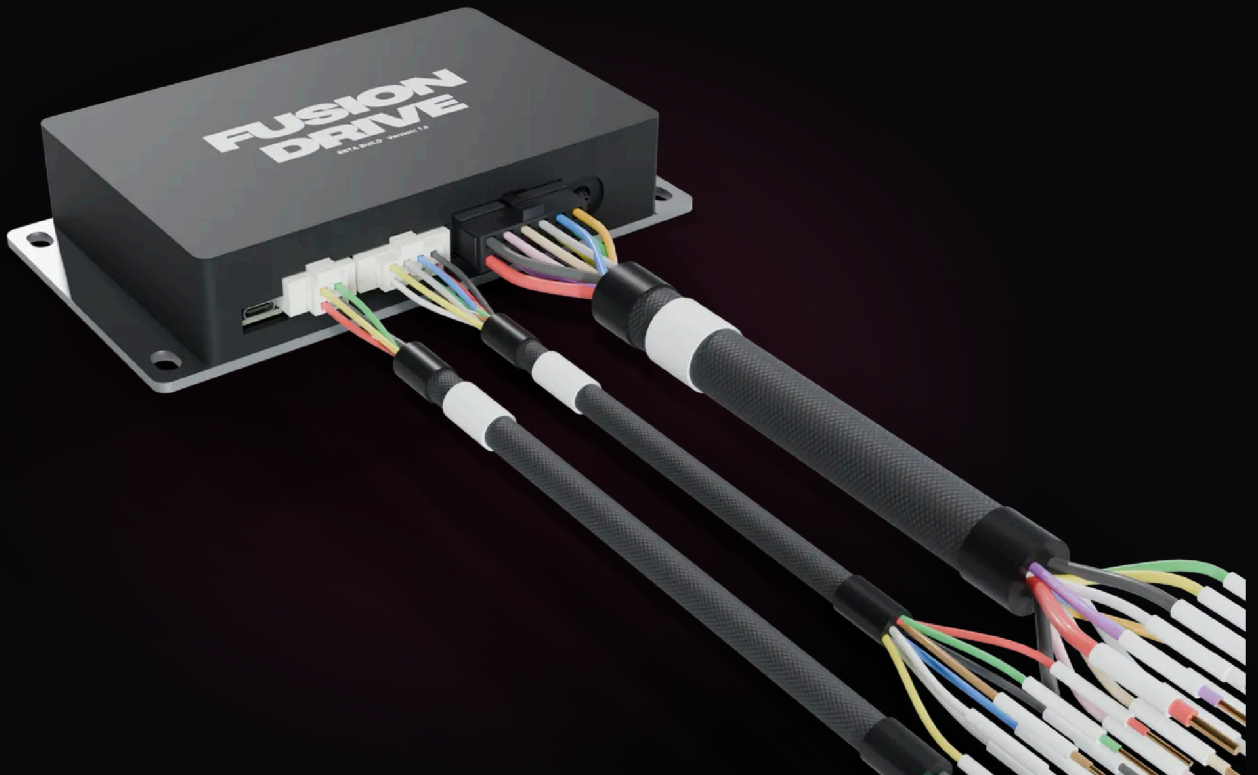




— EXACT-MODEL INSTALLATION GUIDE

GFB G-Force II

Connect this exact accessory to FusionDrive. Wiring diagrams, app setup, logging and a clear assessment of what can be retained or replaced.



Contents

1	Identify this exact product	2
2	Wiring diagrams	3
	W1 · Route A · independent boost measurement · W2 · Route A · GFB blue ground request · W3 · GFB G-Force II · direct FD valve wiring	
3	Original wiring and controller setup	9
4	FD hardware and installation record	10
5	Route A — retain the controller	11
	Independent pressure and app setup · FD preset requests — choose one input behaviour	
6	Route B — replace the controller	13
	Build and configure the new boost loop	
7	Commissioning and fault states	14
8	Automations and tuner logging	15
9	Sources and release record	16

1

— GFB G-FORCE II

Identify this exact product

Identify G-Force II model 3004 with the blue external input and the original controller/solenoid loom. Do not use the G-Force III wideband wiring guide: the G-Force II yellow wire is explicitly unused in this manual. This exact model supports a useful retained-controller ground-trigger route.



G-Force II front-panel illustration from the official GFB manual, page 2.

Route A — keep it: Ground-request control and independent boost logging; no state acknowledgment.

Route B — replace it: Conditional new FD installation; match the FD output, load and sensors and commission every required function.

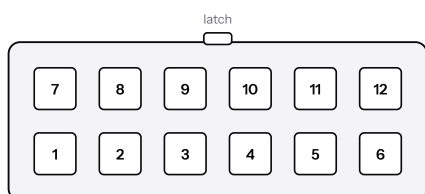
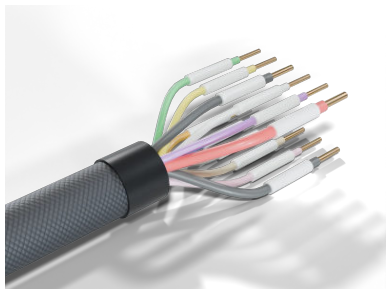
2

— GFB G-FORCE II

Wiring diagrams

Start here for the actual wire connections. First locate the FD leads, then choose the drawing for the route you are installing.

Harness B • J6 • 12-way

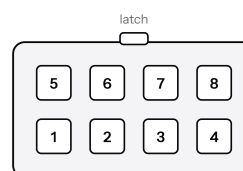
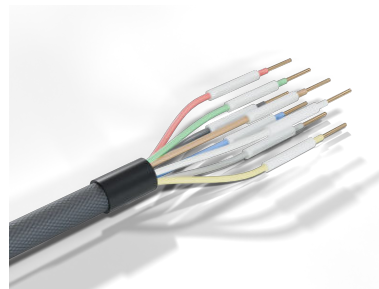


Bottom row, left to right: 1 BATT+ · 2 AUX1 · 3 IGN · 4 GND · 5 CAN2 H · 6 CAN2 L
Top row, left to right: 7 GND · 8 AUX2 · 9 OUT4 · 10 OUT3 · 11 OUT2 · 12 OUT1

Looking into the plug's mating face with the latch at the top

Original FusionDrive harness reference. Look into the plug mating face with the latch at the top. Wire drawings show logical terminal positions.

Harness C • J8 • 8-way



Bottom row, left to right: 1 IN1 · 2 IN2 · 3 IN3 · 4 +5V OUT
Top row, left to right: 5 IN4 · 6 IN5 · 7 IN6 · 8 GND

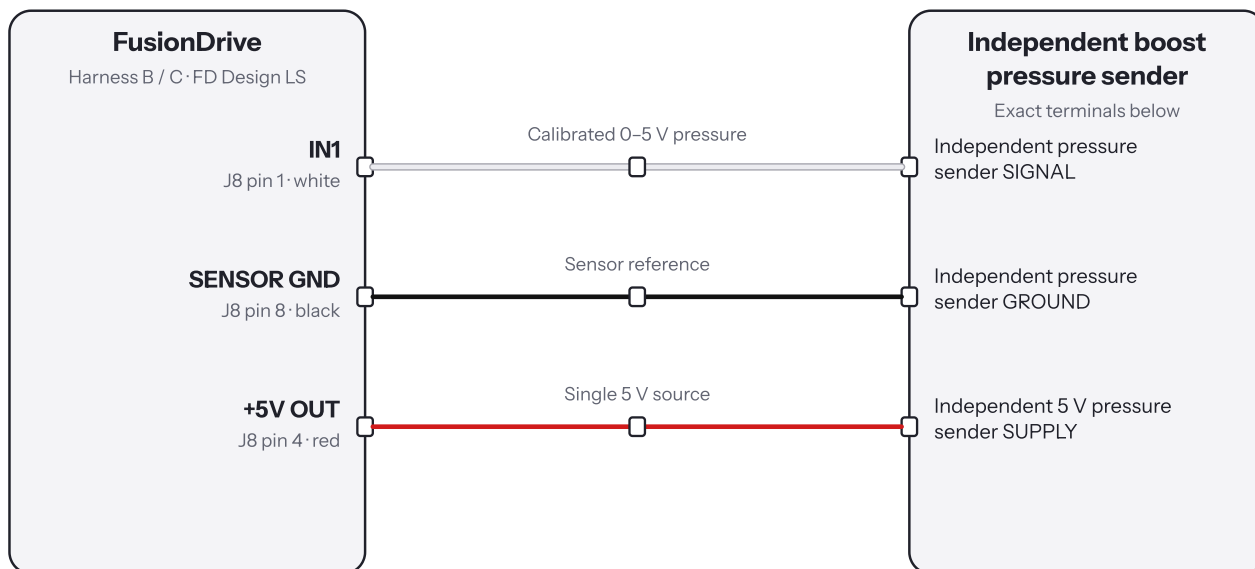
Looking into the plug's mating face with the latch at the top

Original FusionDrive harness reference. Look into the plug mating face with the latch at the top. Wire drawings show logical terminal positions.

Wire colours match the FD flying leads; the accessory segment uses its documented colour where known. A small sleeve marks an insulated splice. Match the lead label and cavity number. Harness B AUX1/AUX2 are low-side ground sinks. OUT1–4 supply positive voltage from the dedicated feed. Harness C inputs accept conditioned 0–5 V signals. Never join competing supplies or output drivers.

1. **W1 • Route A • independent boost measurement**
2. **W2 • Route A • GFB blue ground request**
3. **W3 • GFB G-Force II • direct FD valve wiring**

2.1 W1 • Route A • independent boost measurement



Wire colours: FD loom at left; documented accessory wire at right. Small sleeve = insulated splice.

Connector positions here are logical; use the mating-face drawings to locate FD cavities.

The original boost controller remains complete. These wires belong to a NEW qualified pressure sender, not its existing sensor harness.

Terminal-to-terminal wiring schedule

From	To	Signal / electrical condition
Independent pressure sender SIGNAL	FD IN1 • J8 pin 1	Calibrated 0–5 V pressure 0–5 V only
Independent pressure sender GROUND	FD sensor GND • J8 pin 8	Sensor reference No load current
Independent 5 V pressure sender SUPPLY	FD sensor supply • J8 pin 4	Single 5 V source Only if this exact sensor is 5 V qualified

OFF / released: Native boost controller retains authority. FD sensor loss must be flagged, not displayed as fresh zero.

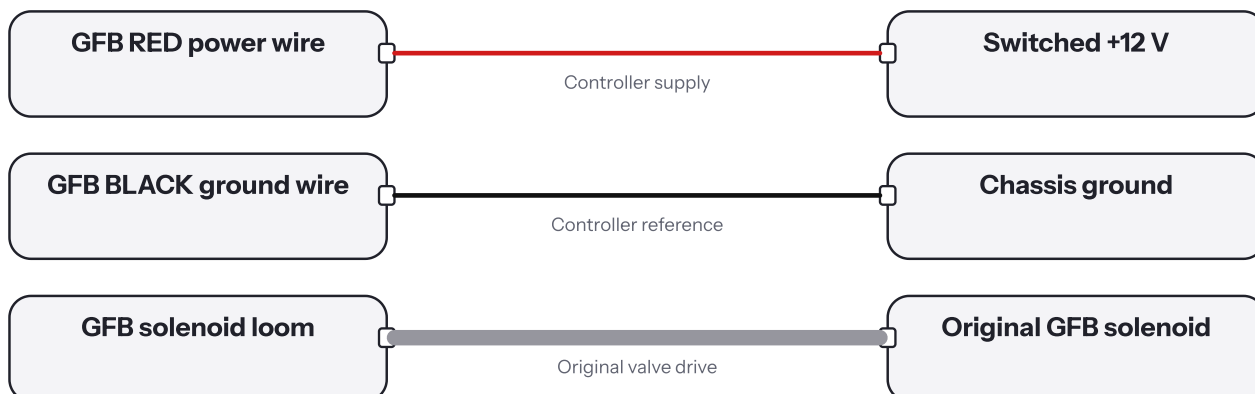
ON / active: FD reads actual pressure; no FD command reaches the native valve.

Qualification: Select and calibrate an exact sender. Do not parallel an undocumented OEM sensor.

Accessory-side connections - 1

GFB G-Force II · accessory-side connections

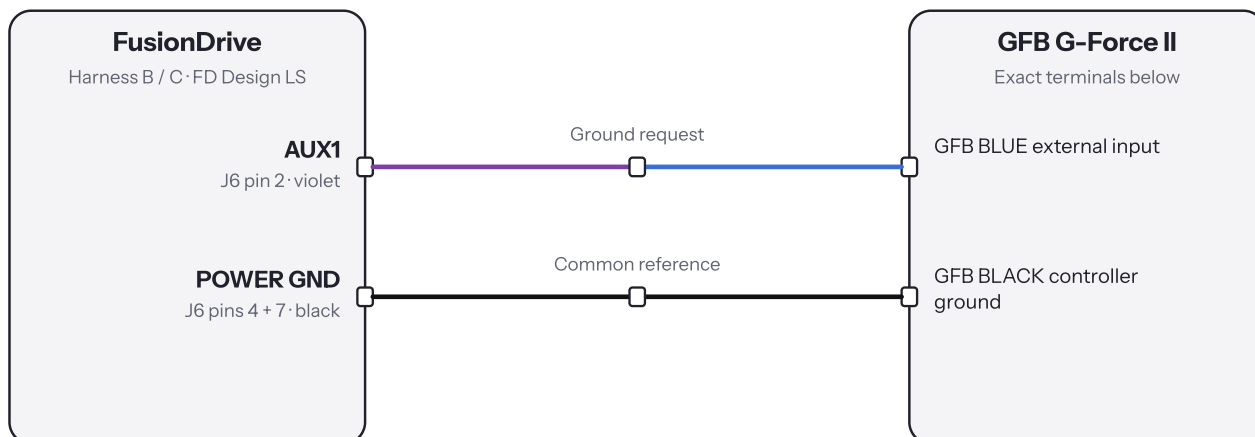
Accessory connections for the selected route. Grey bands are complete looms; blue dashes are pressure hoses.



Match the exact harness/revision in the source manual. Unspecified wire colours are drawn black.

Complete the accessory-side circuit for the selected route. Retain or transfer connections as specified in the installation steps; do not join competing supplies or output drivers.

2.2 W2 • Route A • GFB blue ground request



Wire colours: FD loom at left; documented accessory wire at right. Small sleeve = insulated splice.

Connector positions here are logical; use the mating-face drawings to locate FD cavities.

Choose native PRE OR SCr. A pulse requests a step/scramble, not an acknowledged state.

Terminal-to-terminal wiring schedule

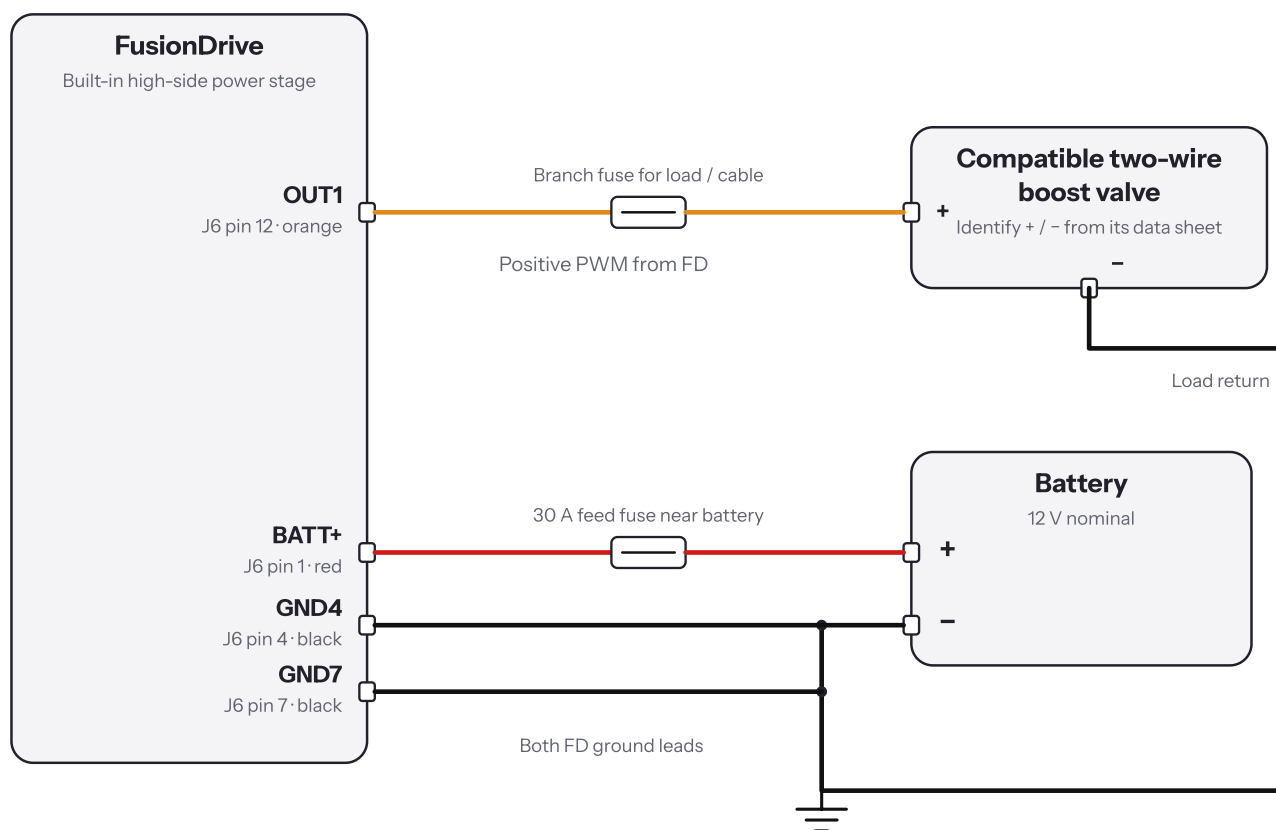
From	To	Signal / electrical condition
FD AUX1 · J6 pin 2	GFB BLUE external input	Ground request Sink to request; release to idle
FD GND · J6 pin 4 / 7	GFB BLACK controller ground	Common reference Defined ground reference

OFF / released: Released: no new request; selected preset persists and an active scramble timer may continue.

ON / active: Ground: native input function executes.

Qualification: Measure released voltage, sink current and accepted timing; never connect the unused yellow wire.

2.3 W3 • GFB G-Force II • direct FD valve wiring



OUT1-4: designed 10 A each, shared 30 A fused feed. Verify actual running / start current and heat.

Disconnect both old controller/load wires. Use the load maker's required suppression and PWM frequency.

Disconnect both original driver-to-load conductors. FD supplies the load positive side from its dedicated fused feed; the load negative returns to rated power ground. Use an external power interface only when this load exceeds FD capacity or requires a different electrical drive.

Terminal-to-terminal wiring schedule

From	To	Signal / electrical condition
Battery positive through suitable fuse (30 A maximum shared feed)	FD BATT+ · J6 pin 1 · red	Dedicated load supply Positive 12 V
FD GND · J6 pin 4 · black	Rated common power ground	First FD ground Ground
FD GND · J6 pin 7 · black	Rated common power ground	Second FD ground Ground
FD OUT1 · J6 pin 12 · orange via suitable branch fuse	Compatible two-wire boost valve positive	PWM load supply High-side positive
Compatible two-wire boost valve negative	Rated power ground	Load return Ground

OFF / released: FD output off removes its sourced load command. Verify the load is inactive, no alternate feed/backfeed remains, and the installation retains its required mechanical or independent protection.

ON / active: The saved FD controller or automation drives the assigned output only when its configured conditions permit. A duty request does not prove measured flow, valve movement or fan speed.

Qualification: FD has four high-side PWM power outputs designed for 10 A each, sharing a 30 A fused feed. A compatible load connects directly to an OUT; no additional driver is needed within its current, inrush, voltage and switching requirements. AUX1/2 are separate 1 A-class low-side sinks. Verify the complete installation on the delivered board; four simultaneous 10 A loads exceed the shared budget. Match load polarity, frequency, suppression, return wiring and physical OFF response; a manufacturer kit name does not establish those values.

3

— GFB G-FORCE II

Original wiring and controller setup

Current app workflow: Configure this installation from its function in Settings. Controls provides live actions and the Dashboard provides glance controls; use a card's edit menu to return to setup. A configured output remains visible even when disabled. Enabled rules operate their assigned enabled outputs automatically; there is no extra output mode to select. Live Off, On or duty takes over a generic output until you choose Resume automation. Setup keeps the electrical limits, calibration and response settings. Assigned boost, WMI and nitrous outputs use their controller-specific actions, preserving sensor protections and any paired fuel/stage logic. Nitrous Arm allows its configured activation conditions to operate; it is not an unconditional spray command.

Setup and vehicle data: Starting presets remain editable; Add Sensor includes calibration and fine tuning before Create. Use dedicated IGN, fresh running-engine OBD evidence, or both for vehicle activity; a dedicated IGN wire is optional when valid OBD evidence is available. If the pressure hose is unused, explicitly select OBD pressure in setup. A valid atmospheric sensor reading cannot identify a disconnected hose. These app choices do not change the product-specific electrical compatibility or limitations described below.

These are the original circuits that remain connected in Route A. They are not extra FD wires. Match the exact manual and photograph the working loom before changes. A keyed harness assembly is retained intact; unspecified cavities are not invented.

Original connection	Original destination	Purpose
GFB RED power wire	Switched +12 V	Controller supply
GFB BLACK ground wire	Chassis ground	Controller reference
GFB solenoid loom	Original GFB solenoid	Original valve drive

The G-Force II stores six boost presets plus the scramble selection in its seven-position preset cycle. In the native MENU, choose INPUT: OFF disables the blue lead, PrE makes it step through presets, and SCr makes it request scramble. Tap MENU to move through options and hold MENU to exit. Record Duty, Gain, Sensitivity, overboost threshold and scramble settings before changing the input mode.

Manufacturer wiring and settings: [pages 3–4 wiring](#); [5–12 settings](#).

4

— GFB G-FORCE II

FD hardware and installation record

This design uses **FD Design LS**. J8 inputs are conditioned 0–5 V: IN1/2/3 are pins 1/2/3; IN4/5/6 are pins 5/6/7. J8-4 supplies 5 V sensors and J8-8 is sensor ground. Never join two 5 V regulators or put pump current through sensor ground. Direct pulse/frequency sensors need a documented receiver; these inputs are not pulse counters.

AUX1/J6-2 and AUX2/J6-8 are nominal 1 A-class ground sinks, not voltage supplies or DACs. Grounds are J6-4/7. OUT1-4 are high-side channels J6-12/11/10/9, supplied from J6-1. The outputs are designed for 10 A each within the shared 30 A fused feed. Reserve channels after checking all boost, WMI, nitrous and automation assignments. Drawings show terminal roles, not an invented mating-face pinout.

Record the installed harness revision, sensor transfers, units, channel map and fuse/driver details. This is an installation-design review, not a claim that the paired products have been electrically tested together. A conditional driver drawing remains conditional until its exact hardware has passed commissioning.

Direct high-side OUT drive requires separate qualification of coil current, voltage, flyback, thermal limits and frequency on the real LS board. The drawing does not establish those ratings. Unknown driver/load requirements remain unresolved before engine-load testing.

5

— GFB G-FORCE II

Route A — retain the controller

For preset selection, connect FD AUX1/J6-2 to the GFB BLUE external-input lead only after checking the released voltage and sink current against the actual LS hardware. Share the defined controller ground with J6-4/7. A ground pulse is a request; there is no position acknowledgment. Insulate the unused yellow lead. Leave the GFB red/black supplies, solenoid and manifold pressure connection intact.

Use wiring diagram W1 in the Wiring diagrams chapter for the exact connections. Return here for the installation and app setup steps.

5.1 Independent pressure and app setup

Connect the illustrated dedicated pressure sender to IN1/J8-1, J8-8 reference and its qualified supply. A 5 V sender may use J8-4 only if its data sheet and aggregate supply load permit it. This drawing does not tap the original controller's sensor. Alternatively use FD's onboard pressure barb with correctly routed manifold plumbing; record that choice instead of fitting an unnecessary sender. Avoid long, restricted or leaking hoses that distort transient readings.

In **Sensors**, name the source `Actual boost`, enter its real transfer and units, and check zero plus known pressures against a reference. Distinguish absolute MAP from gauge boost: subtract the correct barometric reference where required. Save to the ESP, then reload and confirm. A documented CAN/OBD source can be logged too, but must retain its actual update rate and missing-data indication.

Keep FD's internal boost output unassigned and its boost controller OFF while the original controller owns the valve. Recording boost does not require enabling an unused actuator. Read native boost mode from the original display; no dashboard label can supply state acknowledgment that the product does not transmit.

Use wiring diagram W2 in the Wiring diagrams chapter for the exact connections. Return here for the installation and app setup steps.

5.2 FD preset requests — choose one input behaviour

For **PrE**, open **More > Boost Control > Third-party EBC > Controller setup > Custom EBC**. Select one wire, seven groups and looping. Set the pulse duration only after a bench test proves reliable single steps; FD allows 1–5000 ms, but that range is not a GFB timing specification. The default 100 ms pulse and minimum 100 ms released interval also require validation. Keep ignition restore off and tap **Save EBC setup**. Wait for confirmed device readback before editing names with **Configure Boost Group Names → Save Names**. Select the physically displayed P1 on GFB and synchronize FD to Group 1 before testing P2 through P6 and the scramble position. A manual GFB button press, missed pulse or controller reset can invalidate the count.

Leave **Restore EBC State on Ignition On OFF** initially. Saving changed model/group configuration resets FD's estimated group; it does not reset the GFB hardware. Only enable restore after the actual controller startup, Group 1 baseline and all requested steps are proven, including FD's five-second readiness delay. Never describe an estimated preset as measured pressure.

For native **SCr**, leave the external-EBC configuration unassigned by selecting **Not Configured** and tapping **Save EBC setup**. Configure AUX1 as a named bounded binary scramble request, released at zero and sinking at 100%; no PWM or competing rule owns it. Its native scramble timer starts on release, so releasing AUX does not necessarily end scramble immediately. Test the installed duration and return to the previous mode with a dummy setup first. Do not use preset stepping and scramble behaviour on the same input at once. Grounding this lead requests native behaviour; it does not bypass native overboost protection.

6

— GFB G-FORCE II

Route B — replace the controller

The original GFB valve can be reused only after the exact coil, PWM and transient requirements have been qualified against the selected new driver. Otherwise fit a documented conventional PWM valve. Remove both old driver conductors and keep GFB electrically out of the new valve circuit. Its blue input is no longer used when the original controller has been removed.

Replacement removes GFB preset selection, native scramble timing, gain/sensitivity algorithm, overboost response and the local display. FD provides its own boost profiles and protections after new calibration. Retaining GFB keeps those proven native behaviours; the FD group label is an estimate of the requested preset, not proof of actual boost or proof that a pulse was accepted.

6.1 Build and configure the new boost loop

Use wiring diagram W3 in the Wiring diagrams chapter for the exact connections. Return here for the installation and app setup steps.

- 1 Power down, label the loom and disconnect both old valve conductors. Insulate them. Fit a compatible two-wire valve with OUT1/J6-12 to positive and its negative to rated power ground. Feed J6-1 through the selected fuse and connect both FD grounds. Never join two drivers.
- 2 Follow the exact valve/wastegate manual to establish the pneumatic OFF route. Check base-pressure behaviour with a controlled pressure source before tuning; PID cannot correct wrong plumbing.
- 3 OUT1 is designed for 10 A within the shared 30 A feed. Verify valve current, inrush, frequency and suppression. Prove FD output off, power loss and reboot return the valve to its base-pressure state. Only a capacity or electrical mismatch needs an external power interface.
- 4 In **More > Outputs**, enable/name the command, enter the qualified frequency and start at zero. Select the same channel in **More > Boost Control > Fusion Boost > Configure Fusion Boost > Connection**. Save/read back ownership.
- 5 Select actual feedback, units, required sources, maximum ages and explicit failure response. Qualify RPM, gear/speed and scheduled sources individually; missing data must not become a valid zero. Set conservative limits and fallback.
- 6 Use Manual only for a safe output test. Measure an Open Loop duty/base-pressure curve before tuning Closed Loop PID. PID is the closed-loop mode. Start at base pressure and never copy native-controller gain numbers.
- 7 Configure profiles, tables, correction bounds, maximum duty and protection. **Save Fusion Boost settings**, acknowledge and reload from ESP. Power-cycle and verify saved settings, output ownership and physical OFF behaviour without the phone.



— GFB G-FORCE II

Commissioning and fault states

Use a pressure source and dummy electrical load before controlling the vehicle. Record actual input voltage, pulse/driver behaviour, pressure and response time beside each result.

Test	Retained controller	FD replacement
FD off or restarting	Original boost remains independent	Driver released; physical base-pressure path
Phone disconnected	Native controls unchanged; saved ESP rules persist	Saved ESP loop continues; no phone dependency
Request/duty zero	No invented remote-OFF claim	Valve command OFF; actual pressure checked
Sensor missing/stale	Flag unavailable measurement; retain native safety	Prevent/cut control using saved fallback
Controller reset	Recheck original selected mode	Recheck saved settings and output ownership
Excess measured boost	Original protection still functions	Commission FD limit and physical response
Manual local mode change	Reconcile any estimated group count	Removed controller has no authority
Recovery	Fix cause and re-test before normal load	Deliberate reset and safe demand before resuming

Only after these tests pass should a tuner progress from low load with independent boost monitoring. A logged software OFF event is not proof that a stuck valve physically released.



— GFB G-FORCE II

Automations and tuner logging

Log actual boost, RPM, throttle, available lambda, selected source age, output command, control mode and automation events. Overlay requested change, measured pressure rise and any intervention separately. Annotate original-controller mode if it is not digitally reported. A requested logging rate cannot create faster OBD measurements or expose an untransmitted native algorithm.

A useful first automation is an alert on measured boost exceeding the commissioned threshold, with a separately tested response on an output FD actually owns. Avoid a second rule writing duty to the same output as the boost controller. For a retained controller without a documented command interface, the alert does not remotely turn that controller off. Save/reload rules and test the exact stale-source and recovery cases with the phone disconnected.



— GFB G-FORCE II

Sources and release record

- [GFB G-Force II official instruction manual](#). Reviewed pages 3–4 wiring; 5–12 settings.
- FD basis: `local V1_LS_HARDWARE_LIMITATIONS.md`, input/output configuration and the matching boost/WMI views and protocol, reviewed 12 September 2026. This establishes intended configuration and terminal roles; it does not replace electrical testing.
- Manufacturer image provenance and SHA256: `local expansion-control/image-manifest.json`. The identification image is not a connector pinout.

Installer release record: vehicle, exact controller/serial, FD firmware and LS board revision, sensors and transfers, channel ownership, driver/load/fuse selections, native settings, protective limits, measured response, test date and responsible installer. Mark each truth-table row with a real result. Unqualified components or missing transfers remain open work; they are not permission to assume compatibility.



Questions?

Documentation · fusiondrive.io/docs

Support · in the app: [More](#) → [Settings](#) → [Device & firmware](#) → [Report an Issue](#)

Review library · [Local FD V3](#) / [accessory-integration](#) / [model-guides](#)

FusionDrive switches real current to real loads and can control boost, water/methanol injection and nitrous. Fuse every feed and every load, respect the ratings in the specifications, and set failsafes before you drive. Configure and tune with the vehicle stationary. The installer is responsible for compliance with local vehicle regulations. Independent local review draft. Exact-model electrical compatibility and the commissioning tests in this guide have not received physical sign-off. Product photographs and manufacturer names identify equipment only; no manufacturer endorsement is implied. Follow the matching original manual and the qualification requirements for each proposed interface. No universal replacement or load-rating approval is given.