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GL7839

Glider-Link Data Bus Translator and Demultiplexer

User Manual



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1. Introduction and Overview

The GL7839 is an electronic module that re-enables a vehicle's dash cluster and cab switch functions after they were lost due to an engine swap, repower, glider conversion, etc. This includes functions such as gauge readings, cruise control, fan override, and brake switches.

It does this by performing two functions simultaneously:

- By reading the engine data, processing it, and communicating it to the cab, and,
- By receiving instructions from the cab to control a set of switched wires for the ECM.

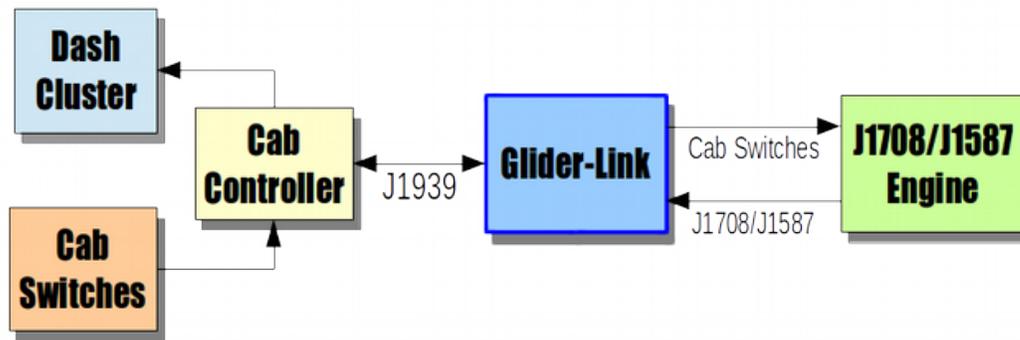


Illustration 1: Vehicle & Glider-Link Block Diagram

The GL7839 is pre-programmed for plug and play installation and requires no user configuration. It includes support for a wide variety of engine and transmission information, which is listed in section 3 - Translated Parameter List (ECM to Cab).

2. Installation

Four mounting holes on the flanges of the GL7839 are provided for mounting.

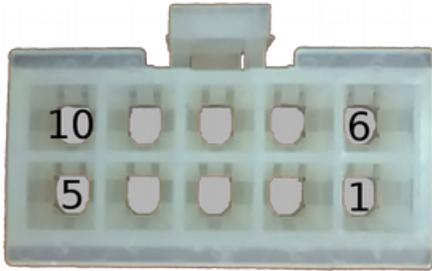
Note: The GL7839 is not waterproofed and must be mounted in the cab (e.g. inside the dash).

Electrical installation is done using the 2 included wire harnesses, referred to as harness A (with a 10-pin connector) and harness B (with a 14-pin connector). See section 2.1 - Wiring and Wire Functions.

Attention: Once installed, we recommend using the built-in USB port to scan the J1939 and J1587/J1708 databuses. This will provide a reference list of all the information available from the cab and engine as well as all the devices that are present. See the CAI ToolBox software manual for more information.

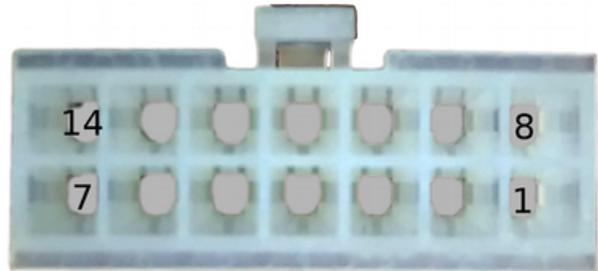
2.1 Wiring and Wire Functions

Harness “A” (10-pin)



Harness A Connector (View From Wire Side)

Harness “B” (14-pin)



Harness B Connector (View From Wire Side)

Pin Number	Wire Color	Function
1	White	J1587/J1708 -
2	Blue	J1587/J1708 +
3	Yellow	J1939 +
4	Red	12/24V+ DC (5 amp fuse required)
8	Green	J1939 -
10	Black	Chassis GND

Pin Number	Wire Color	Function
2	Tan	Parking brake switch
3	Blue	Clutch brake switch
4	Purple	Service brake switch
5	Grey	Engine retarder selection (med/high)
6	Green	Engine retarder selection (low/high)
7	Orange	Cruise resume switch
8	Brown	Cruise set switch
9	White	Cruise control enable switch
10	Yellow	Requested percent fan speed (fan override)

Note 1: These “B” harness wires are *outputs* that are switched by the Glider-Link to communicate the status of the cab switches to the ECM. These wires should only be connected to their respective inputs on the ECM. **Do NOT connect these wires to the actual switches in the cab.**

Note 2: Not all ECMs have inputs for all the wires in the “B” harness. If this is the case, tape-off the unused wires and leave them unconnected.

3. Translated Parameter List (ECM to Cab)

PID	Description
19	Extended Range Engine Oil Pressure*
44	Attention/Warning Indicator Lamp Status **
51	Engine Intercooler Temperature
52	Transmission Synchronizer Clutch Value
84	Road Speed
91	Percent Accelerator Pedal Position
92	Percent Engine Load
94	Fuel Delivery Pressure
96	Fuel Level
98	Engine Oil Level
99	Engine Oil Filter Differential Pressure
100	Engine Oil Pressure
101	Crankcase Pressure
102	Boost Pressure
103	Turbocharger #1 Speed
104	Turbo Oil Pressure
105	Intake Manifold Temperature
109	Coolant Pressure
110	Engine Coolant Temperature
111	Coolant Level
124	Transmission Oil Level
127	Transmission Oil Pressure

PID	Description
158	Battery Potential (Voltage) – Switched
166	Rated Engine Power
168	Battery Potential (Voltage)
172	Air Inlet Temperature
173	Exhaust Gas Temperature
174	Fuel Temperature
175	Engine Oil Temperature
176	Turbo Oil Temperature
177	Transmission Oil Temperature
182	Trip Fuel
183	Fuel Rate (Instantaneous)
184	Instantaneous Fuel Economy
185	Average Fuel Economy
186	Power Takeoff Speed
189	Rated Engine Speed
190	Engine Speed
194	Transmitter System Diagnostic Code and Occurrence Count Table ***
245	Total Vehicle Distance
247	Total Engine Hours
250	Total Fuel Used

* Both PID19 and PID100 are translated to SPN100. If Both PIDs are available simultaneously, PID19 will be used.

** If PID44 is not available, the Glider-Link will provide a self-generated value based on the presence of active trouble codes from the engine.

*** The Glider-Link makes use of both proprietary and standard trouble code definitions in order to fully support the translation of PID194. Please contact us for more information.

4. Switched Output Wires (Glider-Link to ECM)

The Glider-Link provides the following switched outputs for the ECM:

- Parking brake switch
- Service brake switch
- Clutch switch
- Fan override switch
- Engine retarder switches (2)
- Cruise on/off switch
- Cruise set switch
- Cruise resume switch

These are the wires found on the “B” harness and are switched to ground by the Glider-Link. They should **only** be connected to their respective inputs on the ECM, or left disconnected. Using these outputs incorrectly may cause damage to the Glider-Link.

5. Product Dimensions

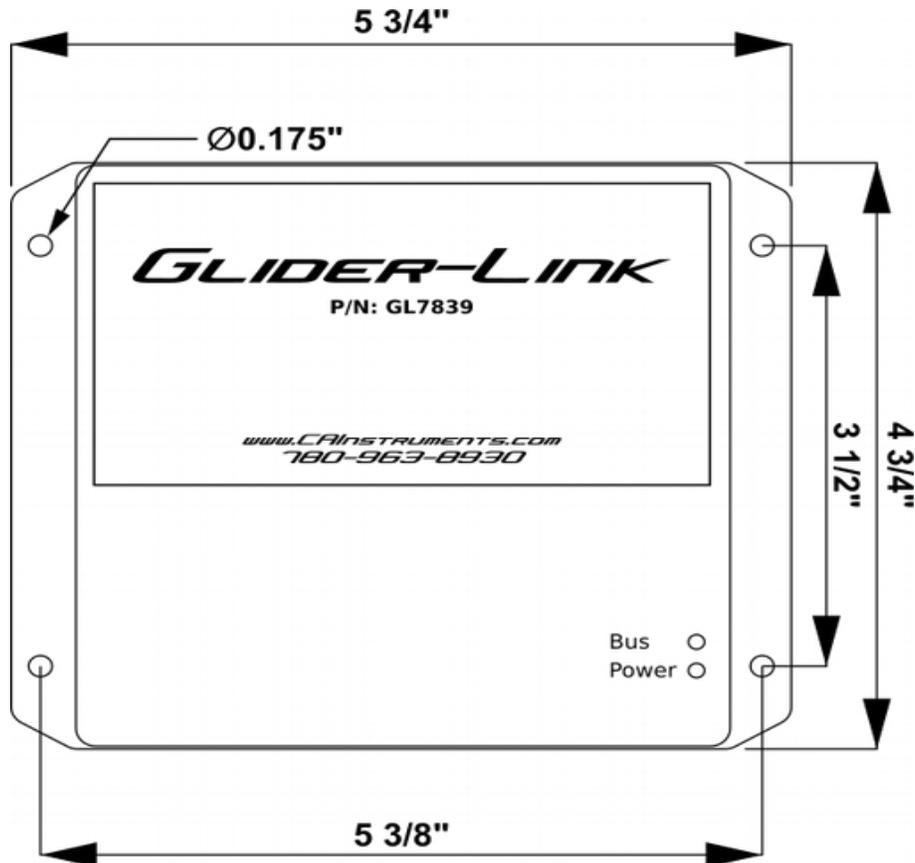


Illustration 2: Mounting dimensions

6. Troubleshooting

6.1 Scanning the J1939 and J1587/J1708 Databuses

Start any troubleshooting by performing scans of the J1939 and J1587/J1708 databuses using the GL7839's built-in USB and the CAI ToolBox software. This will often reveal useful information for determining problem causes and will speed up the troubleshooting process. For more information, refer to the CAI ToolBox user manual.

6.2 LED Status Indicators

The GL7839 has 2 diagnostic LEDs on its front face, labeled BUS and POWER. The POWER LED is lit when the power is supplied. The BUS LED will pulse blue when the GL7839 is receiving J1587/J1708 data, otherwise the LED will pulse green or flash if there's an error.

See the chart below for a full list of error/operating modes.

LIGHTS	STATUS	ACTION
BUS: <i>Off</i> POWER: <i>Off</i>	No power	-Check the connections to 12/24V power and chassis gnd -Check that any connected fuses are not blown
BUS: <i>Pulsing Green</i> POWER: <i>Solid Red</i>	Not receiving J1587/J1708 data	-Check the connections to the J1587/J1708 bus -Check the J1587/J1708 databus voltage -Ensure other devices on the bus are powered and working
BUS: <i>Flashing Yellow</i> POWER: <i>Solid red</i>	No J1939 databus detected	-Check connections to the J1939 databus -Check the J1939 databus voltage -Ensure other J1939 databus devices are powered and working -Ensure the J1939 databus has proper terminating resistors installed
BUS: <i>Pulsing blue</i> POWER: <i>Solid red</i>	Everything is OK; J1587/J1708 data is being received	
BUS: <i>Pulsing purple</i> POWER: <i>Solid red</i>	Everything is OK; device is in J1939 analyzer mode or J1587/J1708 analyzer mode	
BUS: <i>Flashing yellow/red</i> POWER: <i>Solid red</i>	Device is in flash mode	-Cycle power to the GL7839 -If the GL7839 powers immediately into flash mode, contact CAI technical support.

6.3 Checking the J1587/J1708 and J1939 Databus Voltages

Make sure the GL7839 is powered and the vehicle ignition is on. With a voltage meter set to DC, measure the voltages on the J1587/J1708+, J1587/J1708-, J1939+, and J1939- wires separately. Each wire must be measured relative to ground.

WIRE	EXPECTED VOLTAGE
J1587/J1708 +	3.5V – 4.5V
J1587/J1708 -	0.5V – 1.5V

WIRE	EXPECTED VOLTAGE
J1939 +	2.5 – 3.5V
J1939 -	1.3V – 2.3V

7. Electrical Specifications

Num	Rating	Min	Typical	Max	Unit
1	Operating Voltage	9.0	12.0	30.0	V
2	Transient Voltage (Max 3 positive transients, 60 seconds intervals)	-	-	80.0	V
3	Power Consumption (12VDC Supply)	-	60	150	mA
4	Operating Temperature	-40	-	80.0	°C
5	Repetitive Reverse Polarity Voltage (Voltage at NET-C relative to NET-S)	-	-	200	V
6	Reverse Polarity Duration (NET-C @ +100V relative to NET-S)	-	-	∞	s

8. Contact and Technical Support

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