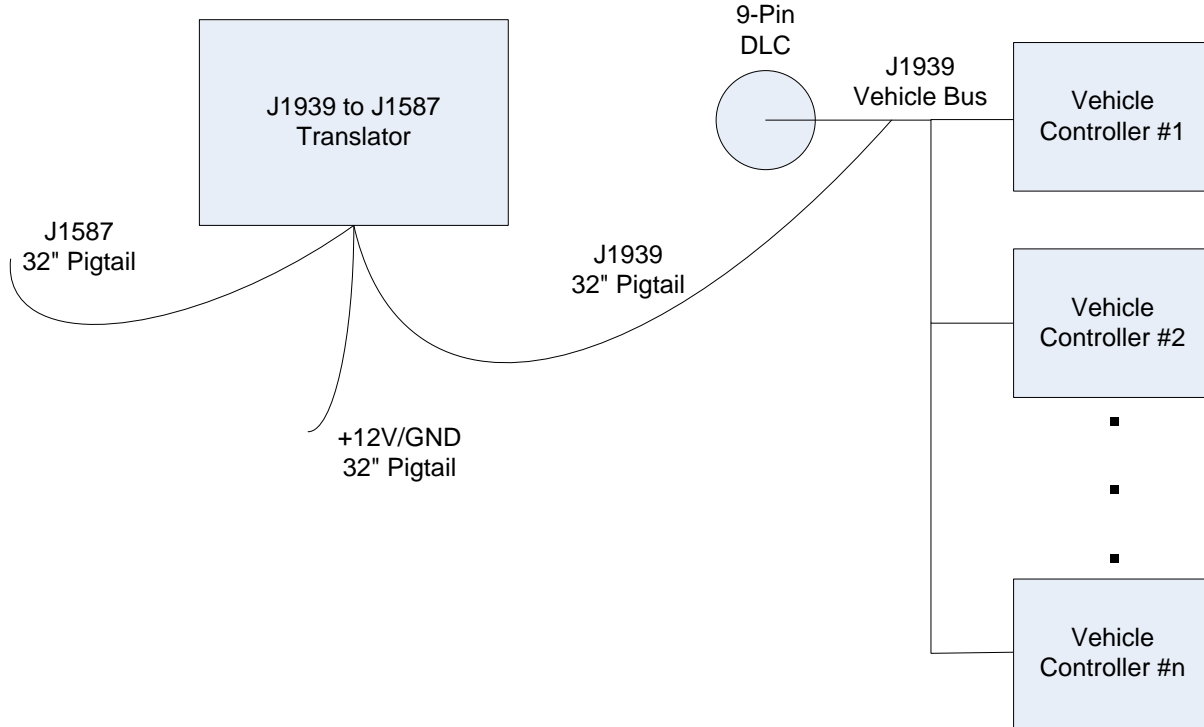


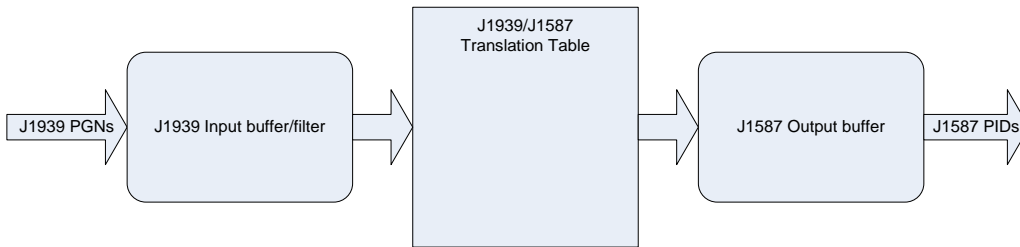
Model HDV19391587 J1939 to J1587 Translator

The B&B Electronics HDV15871939 allows J1939 data to be converted to J1587 data in an on-road heavy duty vehicle.

System Overview



Functional Firmware Diagram



General Firmware Description

The firmware should receive J1939 PGN data and compare this to the translation table. If an SPN is in the PGN that is also in the translation table, the latest value of that SPN is stored for transmission on the J1708/J1587 bus. The translation table will hold up to 20 PIDs.

At the time given by the translation table, the data values should be sent as J1587 PIDs.

Parameter Conversion Table

Description	Rate	J1587 PID	J1939 PGN	J1939 SPN
Parking Brake	1 Second	70	65265	70
Road Speed	200mS	84	65265	84
PTO Status	1 Second	89	65265	976
Cruise Control State	1 Second	85	65265	595
Cruise Control Set Speed	1 Second	86	65265	86
Throttle (Accelerator Pedal)	1 Second	91	61443	91
ATC Control Status PID	500mS	151	65103	1813 - 1819
Ambient Air Temp	10 Seconds	171	65269	171
Instantaneous Fuel Rate	200ms	183	65266	183
Instantaneous Fuel Rate (Hino)	200ms	183	65393	3000
Engine Speed (RPM)	500mS	190	61444	190
Total Distance	10 Seconds	245	65248	245
Total Distance (High Resolution)(Hino)	10 Seconds	245	65217	917
Total Engine Time (Engine Hours)	10 Seconds	247	65253	247
Total Fuel	10 Seconds	250	65257	250

Reliability Requirements

The Translator must meet the following requirements for QoS and long term reliability

- MTBF of 10 years or more
- Watchdog Timer Reset
- Operate in an on-road Class 8 vehicle for 5 years without user intervention.

Firmware Updates

- Firmware updates are done through the J1939 port.
- Firmware updates can be completed with any RP1210 hardware
- Translation table is hard-coded in firmware. Changing the translation table means updating the whole firmware image.
- PC tools for updating firmware can be provided.

Hardware Specifications

Dimensions: 3 x 2 x 1.5 in (Excluding mounting tabs)

Mounting: Two mounting tabs with screw holes

LED Indicators: None

Vehicle Bus (J1939) Connection: 32" 22AWG Twisted pair

Yellow: J1939 + (CAN High)

Green: J1939 - (CAN Low)

Monitor (J1587) Connection: 24" 32AWG Twisted pair

Brown: J1708 + (J1708 High)

Blue: J1708 - (J1708 Low)

Power Input: 16AWG 32" Red Wire fused @ 3A

Input Voltage: 10 to 40 VDC

Input Current @12 VDC: 30mA typical, 500mA max at 7.25 volts

Ground: 22AWG 32" Black wire

Operating Temperature: -40 to 85 °C (-40 to 185 °F)

Testing Requirements

1.1 Regulatory Testing Requirements

Classification for FCC Part 15 and EU compliance is not required. However we will pre-test to these limits so that we could easily acquire the certifications if a customer required.

1.2 EMC Testing Requirements

1.2.1 Radiated RF Interference

Device will comply with SAE J1113/41

1.2.2 Load Dump and Transient Protection

Device will comply with SAE J1113/11

1.2.3 ESD Immunity

Device will comply with SAE J1113/13

1.3 Environmental Testing Requirements

1.3.1 Temperature Test:

Ten (10) temperature cycles as follows with unit operating normally

1. Room (25) to -40°C in 15 minutes.
2. Soak -40°C 1 Hour with power removed from unit
3. Start unit at -40°C and ramp -40 to +85°C in 30 minutes
4. Operate at 85°C for 1 hour
5. 85 to 25°C in 15 minutes
6. Repeat steps 1 through 5 nine times for a total of 10 cycles.

1.3.2 Vibration Test:

IEC 60068-2-6

10 sweeps of 10 to 500 to 10Hz at rate 0.5 oct/min. each axis.

Level to be 10 to 36Hz, 0.06 in DA 36 to 500Hz, 40g's

Unit must remain operational during and after the test.

1.3.3 Shock Test:

IEC 60068-2-27

18 to 50g's, 11ms, ½ sine pulses, 3 each direction each axis

Unit must remain operational during and after the test.

1.3.4 Drop Test:

IEC 60068-2-32

10 Freefall drops from 1 meter onto concrete surface.

Drop 1 time on each face (6), 1 on a corner and the 3 edges of this corner.

The drop unit shall return to normal operation without physical damage.