

J1939 Breakout Box User Guide

(DG-J1939-BoB Kit)

Thank you for using the DG Technologies' J1939 Breakout Box (BoB). This a breakout box for use with J1939 HD truck applications. The J1939 BoB has the following features:

J1939 Connectors

There are three J1939 9-pin connectors provided on the box. These are the black type-1 connectors and will accept either a type-1 or type-2 (green) mating connector. All three J1939 connectors are wired together, along with the banana jacks on the top of the BoB.

There is one J1939 connector at the top of the BoB. This would normally be connected to the truck diagnostic connector.

There are two more J1939 connectors at the bottom of the BoB. These connectors provide a means for you to connect one or two diagnostic tools.

J1939 M2M cable

Included in the J1939 BoB kit is a detachable cable for connecting to a truck diagnostic connector. This is a male-to-male cable and it does not matter which end is connected to the truck or the BoB. The cable may be removed when using the J1939 BoB on the desktop or bench. Replacement cables are available separately if the cable is lost or damaged.

Banana Jacks

All 9 pins of the 9-pin Deutsch J1939 connector are brought out to banana jacks on the top surface. The top label clearly identifies the signal function on each pin.

Power LED

There is an LED mounted between the Ground and Battery banana jacks. This LED will indicate the voltage connection, whether supplied through one of the J1939 connectors or through the banana jacks.

Green LED = normal Battery connection on pins A (Gnd) and B (+Battery)

Red LED = reversed Battery connection on pins A and B (or correct power connection for CAT products)

CAN Bus terminating jumpers

There are 3 banana jack jumpers included with 120-ohm resistors mounted. These jumpers may be inserted across the 2 CAN lines if termination is needed when monitoring the bus. There is no polarity for this terminator so it does not matter which way the terminating plug is inserted.

CAN Bus Activity Monitor

There is a Red banana jack jumper with a red LED mounted. If you are unsure whether there is an active CAN bus, you can insert the red jumper into a CAN channel to get a visual indication of CAN Bus activity. The LED will either flicker or light continuously if there is CAN traffic on that channel. Place the red jumper across the CAN bus with the tab protruding from the side of the jumper to the CAN Bus HIGH side. If you do not see any activity on that channel you can try reversing the plug and see if the LED flickers. (Once you have confirmed CAN Bus activity, remove the LED jumper when using a diagnostic tool to monitor the bus)

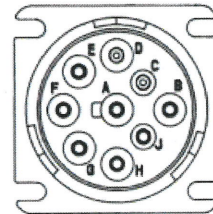
Common pinouts for the 9-pin J1939 connector

There are several different pinouts used by various heavy-duty vehicle manufacturers. The power pins, the first CAN channel, and the J1708 pins are common. The second (and maybe third) CAN channels vary across different manufacturers.

Shown below are the most common pinouts.

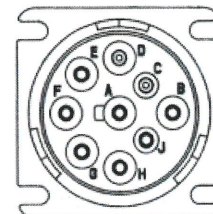
7.3. 9-Pin Deutsch – SAE Standard Heavy-Duty Truck Connector

Pin	Value
A	Ground
B	+12V
C	CAN/J1939 Hi
D	CAN/J1939 Lo
E	CAN/J1939 Shield
F	J1708/J1587 Hi
G	J1708/J1587 Lo
H	OEM Specific
J	OEM Specific



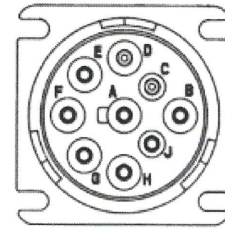
7.4. 9-Pin Deutsch – Freightliner Cascadia (H,J Used for Dual CAN)

Pin	Value
A	Ground
B	+12V
C	CAN/J1939 Hi
D	CAN/J1939 Lo
E	CAN/J1939 Shield
F	J1708/J1587 Hi
G	J1708/J1587 Lo
H	CAN 2 Hi
J	CAN 2 Lo



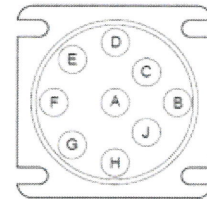
7.5. 9-Pin Deutsch – PACCAR (J Used for ISO9141 K-Line)

Pin	Value
A	Ground
B	+12V
C	CAN1/J1939 Hi
D	CAN1/J1939 Lo
E	CAN1/J1939 Shield
F	J1708/J1587 Hi
G	J1708/J1587 Lo
H	OEM Specific
J	ISO9141 K-Line



7.6. 9-Pin Deutsch – CAT Industrial Connector – (J1708/J1587, J1939, CAT Data Link)

Pin	Value
A	+12V
B	Ground
C	CAN Shield
D	CAT Data Link (CDL) Hi
E	CAT Data Link (CDL) Lo
F	CAN/J1939 Lo
G	CAN/J1939 Hi
H	ATA/J1587/J1708 Lo
J	ATA/J1587/J1708 Hi



Note that the Power and Ground connections for CAT Data Link are reversed from the other pinouts..

7.7. 9-Pin Deutsch – CNH (Dual CAN and E Used for ISO9141K-Line)

Pin	Value
A	Ground
B	+12V
C	CAN1/J1939 Hi
D	CAN1/J1939 Lo
E	ISO9141 K-Line
F	N/C
G	N/C
H	CAN2/J1939 Hi
J	CAN2/J1939 Lo

