



Instruction Manual

Double Heading Board DHB-202

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1. Description

- The DHB-202 is a dual channel digital interface module that allows a single input to operate two independent motor controllers.
- The DHB-202 will work with the Pro-160 / 360 and DNO controllers.
- It accepts inputs from a potentiometer, or hobbyist radio control receivers.

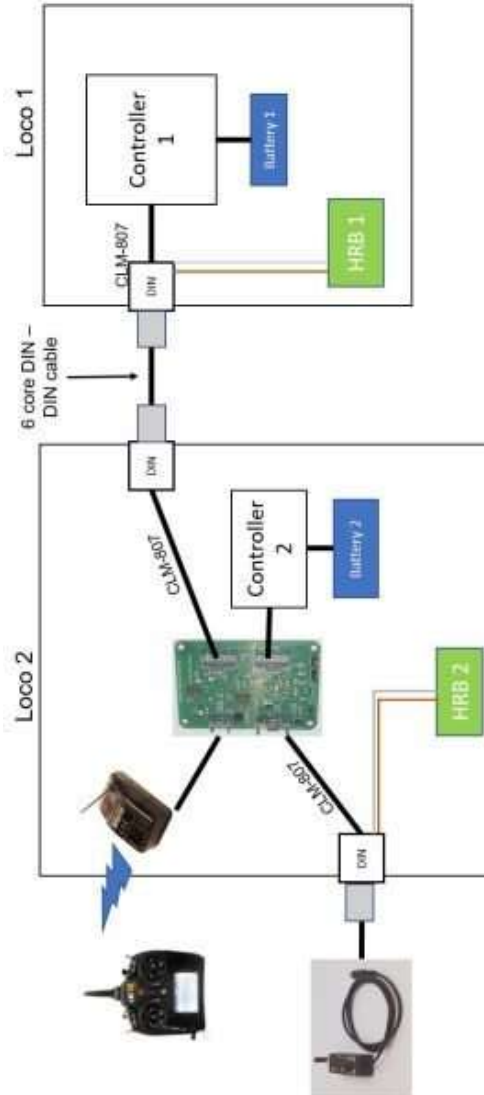
2. Connections

The DHB-202 has inputs for the following;

- **RBT** – this socket is the input for a standard 4QD RBT throttle. It should be wired in the same way as the main control input for the DNO or Pro series of controllers [see diagram].
- **RC_In** - this socket is the input for a radio control receiver. The standard white [signal], black [-ve], and red [5V] colours should be observed. It has a 5V BEC feed to power the receiver.
- **5V** – this is only required for systems with a battery voltage for controller C2 above 24V, if this socket is used then the Int_psu link **MUST** be removed.

The DHB-202 has output sockets for two controllers C1 and C2. The internal power supply is fed from C2, C2 must be connected and have power applied for the DHB-202 to work.

This diagram shows how a typical installation could be arranged.

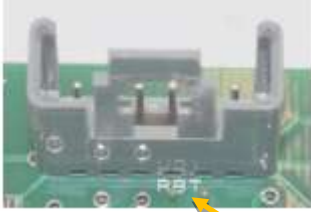


3. Settings

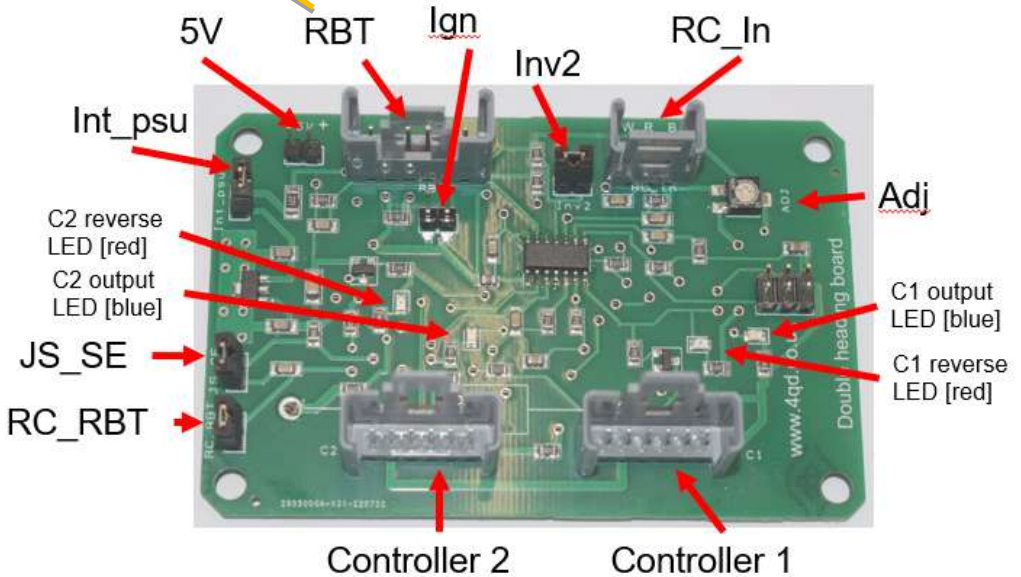
The DHB-202 has internal links and adjustments for the following;

- **RC_RBT** – if this link is present the DHB-202 will use the RBT input. If this link is absent the DHB-202 use the RC_In input.
- **JS_SE** – if this link is present the DHB-202 will operate in single ended mode. If this link is absent the DHB-202 will operate in joystick [wig-wag] mode.
- **Inv2** - if this link is present both controllers will operate in the same direction. If this link is absent controller C2 will operate in the opposite direction to controller C1 [useful for choosing between head to head, or head to tail operation].
- **Ign** – This link provides an ignition line connection for both controllers. If this link is present both controllers will switch on as soon as power is applied to controller C2. It is usually only required if you are using radio control only.
- **Int_psu** – if this link is present the DHB-202 will use its own internal power supply. This should be used for Pro-160 / 360 or DNO systems running at voltages up to 24V. For systems above 24V this link **MUST** be removed and power provided to the 5V socket from the BEC socket on the Pro-160 / 360. * see section 6 on voltages.
- **Adj** – This adjustment controls the deadband at the start of the pot travel in single ended mode, or in the middle of the pot travel in joystick mode. Fully clockwise gives 1% deadband, anticlockwise = 40%.
- **Note:** All the links and settings above [except Ign] are only read when the DHB-202 is initially switched on.

F E D C B A



F = Pot ground [0V]
E = Pot wiper input
D = Pot feed [5V]
C = Reverse input
B = Ignition input
A = Battery feed from C2 to ignition / reverse switch



4. LEDs

The DHB-202 has two blue LEDs that indicate the amount of throttle that is being applied to each controller, and two red LEDs that indicate when that controller is running in reverse.

5. Calibration

- For the Pro series
 - Both controllers will need to have the pot learn procedure carried out as described in the relevant controller manual. Use the pot learn process to set the zero, max forward, and max reverse positions.
 - Note, the controller menu setting of throttle mode / joystick should not be enabled, if required this is handled by the DHB-202.
- For DNOs
 - To give full speed both DNOs will need to have their gain adjustment set to maximum [fully clockwise].
- For RC control
 - A receiver with a suitable failsafe facility should be used and programmed appropriately.
 - It may be necessary to use the throttle trim control to set an appropriate zero [off] point.
 - It may be necessary to adjust the throttle travel setting in order to reach 100% power.

6. Voltages

The DHB-202 can operate controllers operating on different voltages BUT note that the internal PSU is powered from controller input C2 and has an absolute maximum voltage rating of 35V. If one controller is to be run at or over 36V it MUST be connected to C1 otherwise damage will occur.

7. Specification

| | |
|---------------|---|
| Voltage range | 12 – 24V using the internal PSU 25V - 84V using the Pro-160 / 360 BEC socket |
| Control input | Potentiometer [5k – 10k] Radio control [5V, 50Hz, 1mS – 3mS] |
| Output | 0.2V – 4.8V |

More information is in our knowledgebase at www.4qd.co.uk/docs/double-heading-board-notes