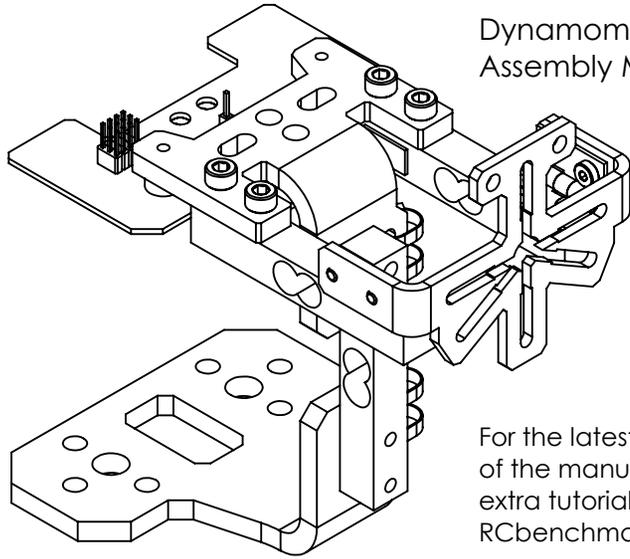


Dynamometer Series 1580
Assembly Manual 1.12



For the latest version of the manual and extra tutorials, please visit RCbenchmark.com

Included

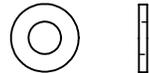
- Assembly manual (1)
- Data acquisition board (1)
- Calibration bar (1)
- Calibration weight (200g)
- Black knobs (2)
- Motor mounting part (1)
- Lower structural part (1)
- Upper structural part (1)
- Power cables (2 x 75cm)
- Load cell 2 kg (2)
- Load cell 5 kg (1)
- Hinges (2)
- Tie-wraps (≈10)
- Hex keys (3)
- Washers to install motors (1 bag)
- USB cable (1)

-RPM probes (1 + 1 extra)

-Spacers (2)



-Washers M4 (2)



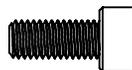
-M4 5mm (12)



-M4 12mm (4)

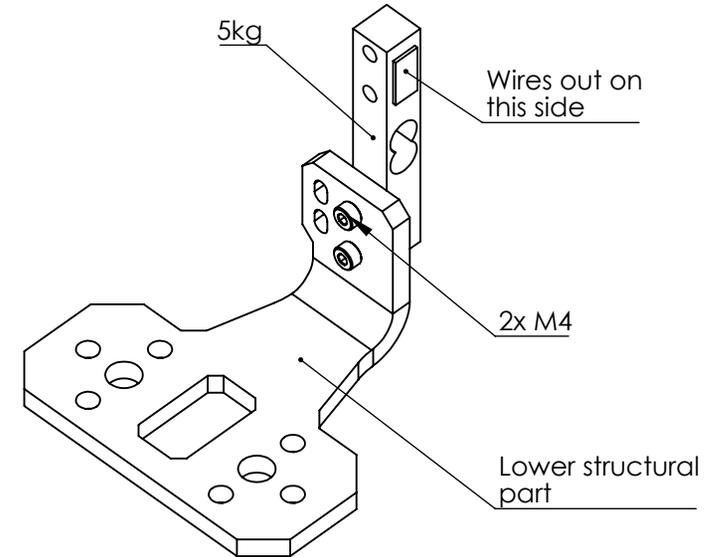


-M5 12mm (6)

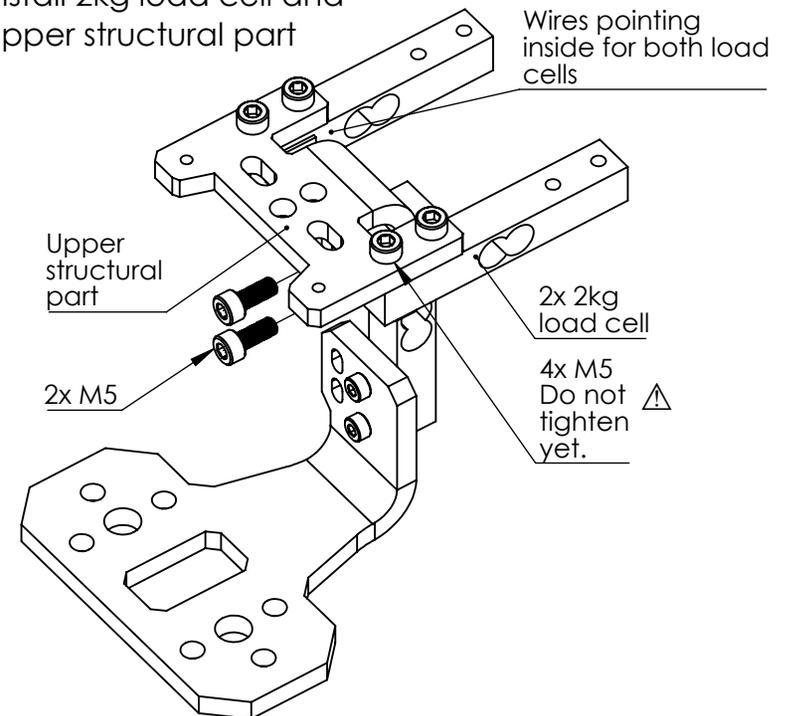


Note: for increased safety, you may use removable (blue) thread-locking fluid to secure the screws. Do not use permanent (red) fluid.

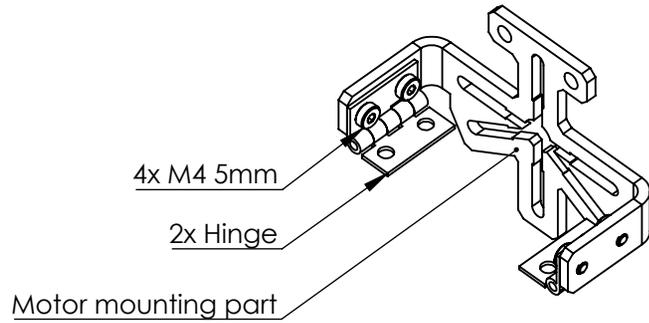
① Install 5kg load cell



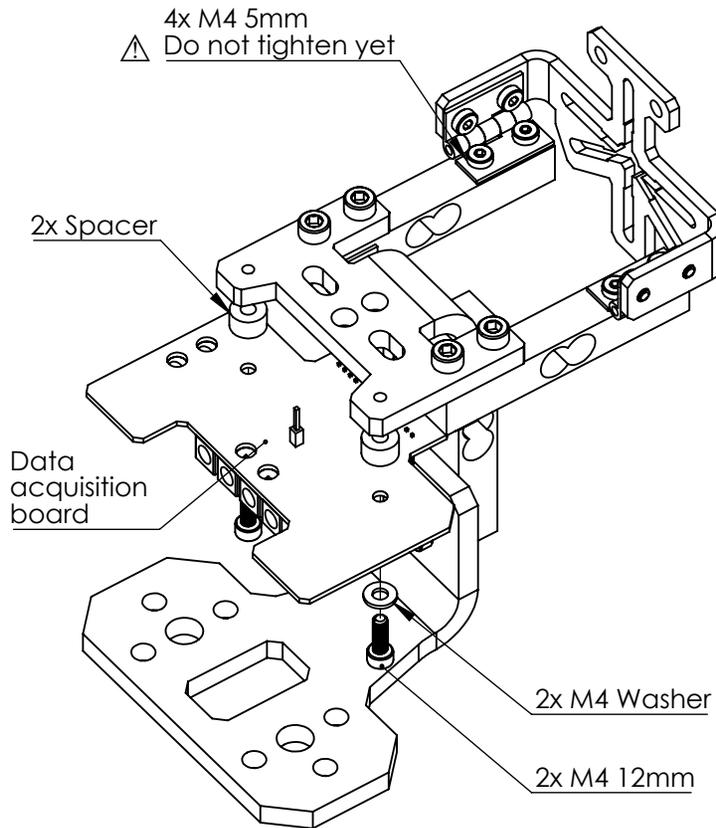
② Install 2kg load cell and upper structural part



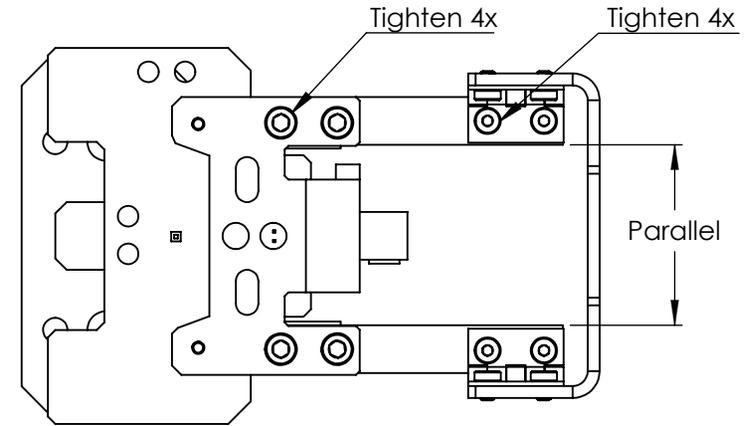
③ Attach hinges to motor mounting part



④ Assemble data acquisition board, motor mounting part, and lower structural part

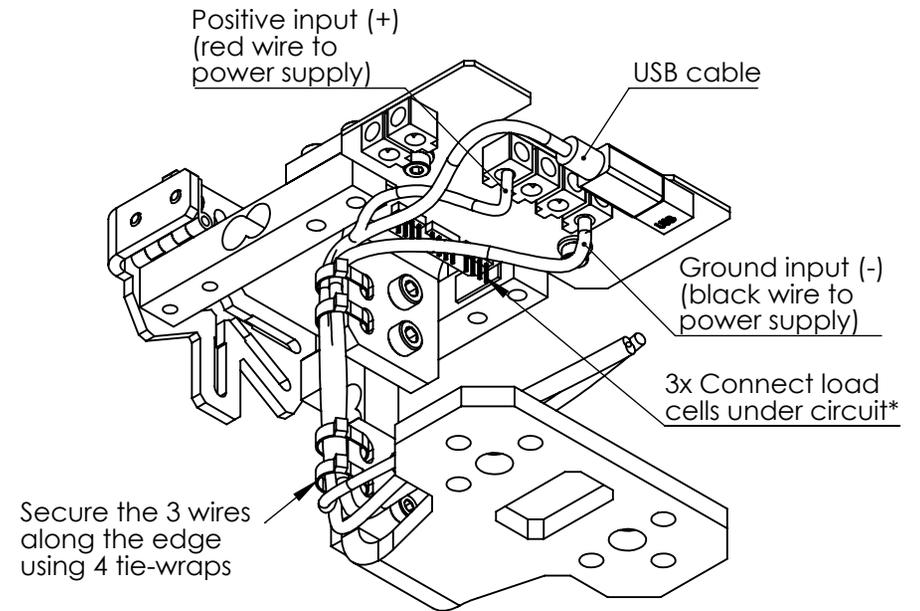


⑤ Position 2kg load cells parallel to each other and tighten



Top view

⑥ Connect in the following order: the load cells, the power cable, and the USB cable



Secure the 3 wires along the edge using 4 tie-wraps

Bottom view

*Load cell connector orientation is not important

⑦ Software installation (chrome app)

- 1) Go to www.goo.gl/ydok1q to install the app.
- 2) Launch the Chrome app from your computer.
- 3) Connect the device to a computer using the USB cable.
- 4) Press the "Connect" button in the app as seen below*.

Note: Chrome app updates are automatic.

*If a new COM port does not appear when you connect the device (as seen in the image below), you may need to install a driver. For driver installation support, visit: rcbenchmark.com/installation-and-drivers/.



⑧ Calibration

Follow the instructions provided in the app to calibrate your device. Recalibrate the device if it has been disassembled, if the wires have been moved, or every 2 months.



1) Go to the "Utilities" tab.

Calibration



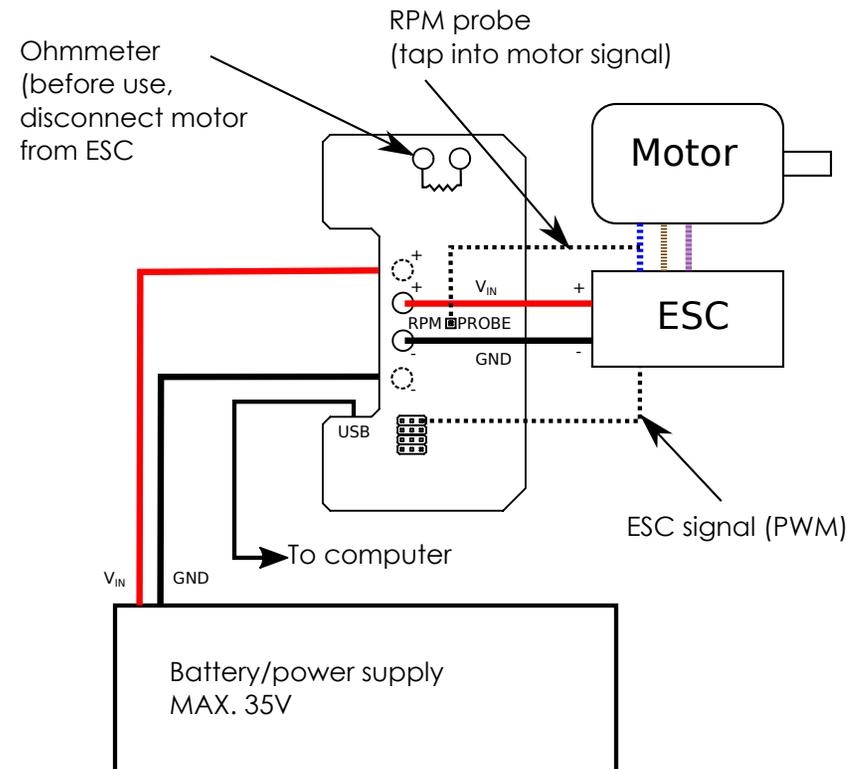
2) Calibrate the thrust.

3) Calibrate the torque and the weight.

Safety instructions

- 1) Do not work alone.
- 2) Always wear safety goggles.
- 3) When testing, use a safety enclosure around the test device.
- 4) Never stand in the plane of rotation of the propeller.
- 5) High currents can cause fires and burns. Use wires rated for the current used.
- 6) Do not reverse polarity. Damage will occur.
- 7) Do not short the circuit or the power source.
- 8) Do not use voltages over 35V.
- 9) Always disconnect the power source before manipulating the equipment.

⑨ Power system schematic

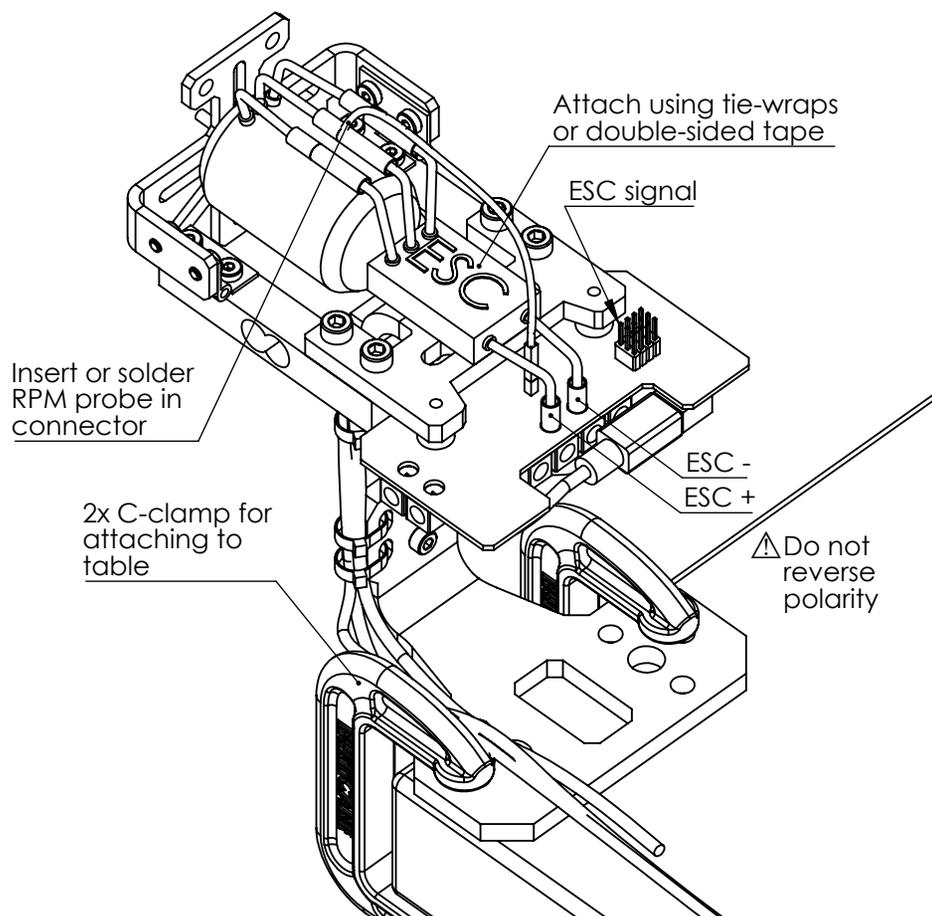


10 Secure all wires, the ESC, and the device

Dangling wires may cause errors in the thrust and torque measurements. Secure all wires and the ESC using tie-wraps or double-sided tape. Wires from the motor to the ESC may be secured along the load cells. If the motor has stiff wires, it is recommended to perform a torque calibration for high precision measurements.

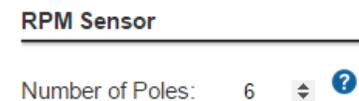
Secure the device to a table using c-clamps or bolts.

11 Inrunner motor, ESC, and speed probe installation example.



12 Speed measurement

In the "Setup" tab of the app, indicate the number of poles for the motor you are using. Press the ? icon for help on pole counting.



13 Motor and propeller testing

The mechanical load on the motor is controlled by changing the throttle and by installing a propeller of different size or pitch. You may also perform your tests at multiple voltages.

You can manually control the motor for your tests and record your data manually or continuously. These options are available in the "Manual Control" tab.

You can also use the supplied scripts in the "Automatic Control" tab to test and record motor data automatically.

If you have special testing requirements, you can use our very powerful scripting functionality. You have access to the full power of Javascript, can control the dynamometer, export data, and much more through our API. Example applications include motor certification for production or repeatable tests for characterization and research.

14 Support and suggestions

For questions regarding the installation of the device, please contact us at support@rcbenchmark.com

You can send us feedback and bug reports anonymously directly from the app in the "Welcome" tab.