The Honeycomb Bravo Throttle Quadrant is packed with innovative features.

Honeycomb Aeronautical's
Bravo Throttle Quadrant
Maximum Thrust

Left: A robust dual-mounting solution will keep the Bravo in its place with 40lb of tensile strength.

Apart from the actual throttle levers, the Bravo comes with plenty of additional features. A friction knob sets the 'stiffness' of the axis, which works smoothly and seamlessly. There is also a two-way GA-type flap switch so it is possible to use either the flap lever for flying airliners, or for general aviation we can use the two-way flap switch. Additional features include an undercarriage handle with green/red lights to indicate the status of the landing gear and a GA-style elevator trim wheel. The Bravo is also equipped with a general aviation type autopilot with backlit buttons, which can be used for selecting various modes such as heading, altitude, vertical speed and approach, etc. A five-way selector switch is used for jumping between different modes while a rotary knob dials in the settings such as desired heading or altitude. Below the autopilot, there are seven programmable two-way switches which can be assigned to operating the aircraft's systems such as pitot heat, external lights, ▶

Following the release of the Alpha Fight Control System last year, Honeycomb Aeronautical took the flight simulation market by storm, earning a reputation for producing a high-quality yoke at an unbeatable price. Now after several years in development, its second product, the Bravo Throttle Quadrant is nearing release. And like the Alpha yoke, it has sparked a great deal of interest within the flight simulation industry. So when Honeycomb's CEO, Nicki Repenning, approached us with an early version of the Bravo Throttle Quadrant, we jumped at the opportunity to find out what's in store with this highly anticipated product.

The Honeycomb Bravo Throttle Quadrant

The Bravo is designed to simulate the throttle quadrant found in General Aviation (GA) aircraft and commercial jets. It is made to be highly configurable and can be set up to replicate the controls in any number of aircraft types. The way Honeycomb has approached this is highly innovative. Essentially, the base of the throttle quadrant consists of six axes, to which it is possible to attach two sets of interchangeable handles. The first set is designed for general aviation aircraft and consists of six colour-coded handles for the throttles, props and mixture. These can be configured for single- and twin-engine piston-powered general aviation aircraft as well as turboprops. Additionally, each axis features idle-stop detents for the reverse thrust/beta range while the engine No.1 throttle has a Take-Off/Go Around (TOGA) button.

The second set of handles is for commercial jets or airliners and is loosely based on a Boeing 737-style throttle quadrant, although it can be configured for aircraft with up to four engines. It consists of four identical thrust levers along with two additional handles, one for the flaps and a second for the speed brake, which are attached to the far-right and far-left axis respectively. Like the GA set, the thrust lever for engine No.1 is also fitted with a TOGA button. Each of the engine's handles is

Above: The Bravo Throttle Quadrant is designed with a highly configurable reverse thrust design.

equipped with reverse thrust levers, which is modelled on a typical Boeing-type mechanism.

To set the Bravo up, we simply attach the relevant General Aviation or Commercial handles. Once everything is in place, any lever not used can be covered with a rubber boot to hide it away. For example, a Boeing 747 will require all six axes: four thrust levers, one flap handle and a speed brake. A Cessna 152, on the other hand, will only need two axes: one for the throttle and a second for the mixture so the remaining axes in this case can be covered by rubber boots to hide them away. To reconfigure the Bravo, simply remove the relevant rubber boot and attach the appropriate lever. It is seamless and a great way to configure a simulator for flying multiple aircraft types.

Additional features include a general aviation autopilot, annunciator lights and a switch panel. The trim wheel and undercarriage lever can also be seen in this shot.

fuel pump or cowl flaps to name a few. Finally, an annunciator panel with 14 warning lights displays the status of critical systems such as master warning/caution, engine fire, vacuum, fuel, hydraulics, oil pressure and so on.

Mounting

The Bravo is equipped with a dual-mounting kit, which has been adapted from the Alpha Flight Controls. Firstly, there are two metal clamps that can be used to secure the throttle quadrant to a desktop. The second is a sizeable micro-suction cup, which is attached to a removable mounting plate on the base of the throttle quadrant. The suction cup fixes the throttle quadrant to a desktop with a tensile strength of 40lb to hold it securely in place. Word of caution: any dust particles may compromise the seal and can cause the suction cup to break free, so you need to be sure the surface is clean. The mounting plate can, however, be separated from the base and cleaned with soapy water to regenerate the tensile strength or stickiness to its original form. I found that as long as I attached it to a clean and smooth surface, the unit stayed firmly in place. If the metal clamps are used in conjunction with the suction cup, it makes the Bravo sit rock-solid to the desk, which is great for mounting it permanently in one place.

The throttle quadrant is loosely based on the popular Boeing 737 twin-engine jet.

Installation

The Bravo comes in attractive packaging, which is easily on a par with Apple products. Inside, there is the Bravo Throttle Quadrant itself, the removable base with the suction cup, two boxes for the General Aviation and Commercial handles, a USB C cable and a short manual with brief instructions on how to set everything up. Installation is quick and easy. The Bravo is 'Plug and Play' and connects to the PC via a single USB C cable so there is no power supply necessary. Not only is USB C the fastest USB standard currently available, the connector is unidirectional and can be plugged in both ways, and in my experience USB C is more robust than Micro or Mini USB connectors.

The Bravo is compatible with all the major flight simulators including Prepar3D, X-Plane and FSX. However, it is necessary to download and install drivers to make some of the features operational such as the annunciator and switch panel. It is also supported natively by the new Microsoft Flight Simulator (MFS), so there is no need to download any drivers in this particular case.

Flight test

To see how the Bravo compared across the board, we tried it out in MFS, X-Plane, Prepar3D and FSX.

After downloading and installing the drivers in X-Plane, setting the Bravo up was very straightforward. All the buttons and switches worked seamlessly and the axes behaved as expected, so no issues there. The X-Plane user interface allows you to create multiple hardware profiles for different aircraft, so changing to other types was only a question of swapping the relevant handles and covering the remaining ones in rubber.

Microsoft Flight Simulator worked straight out of the box and there was no need to install any drivers as they are part of the simulator. Many of the controller assignments in MFS were automatically loaded, so it appears there are already some aircraft profiles in place. It is still early days but according to Honeycomb, more aircraft profiles will be made available moving forward. It is still of course possible to create your own custom profiles within the simulator.

The Bravo is supported in Prepar3D and FSX although it is necessary to download the
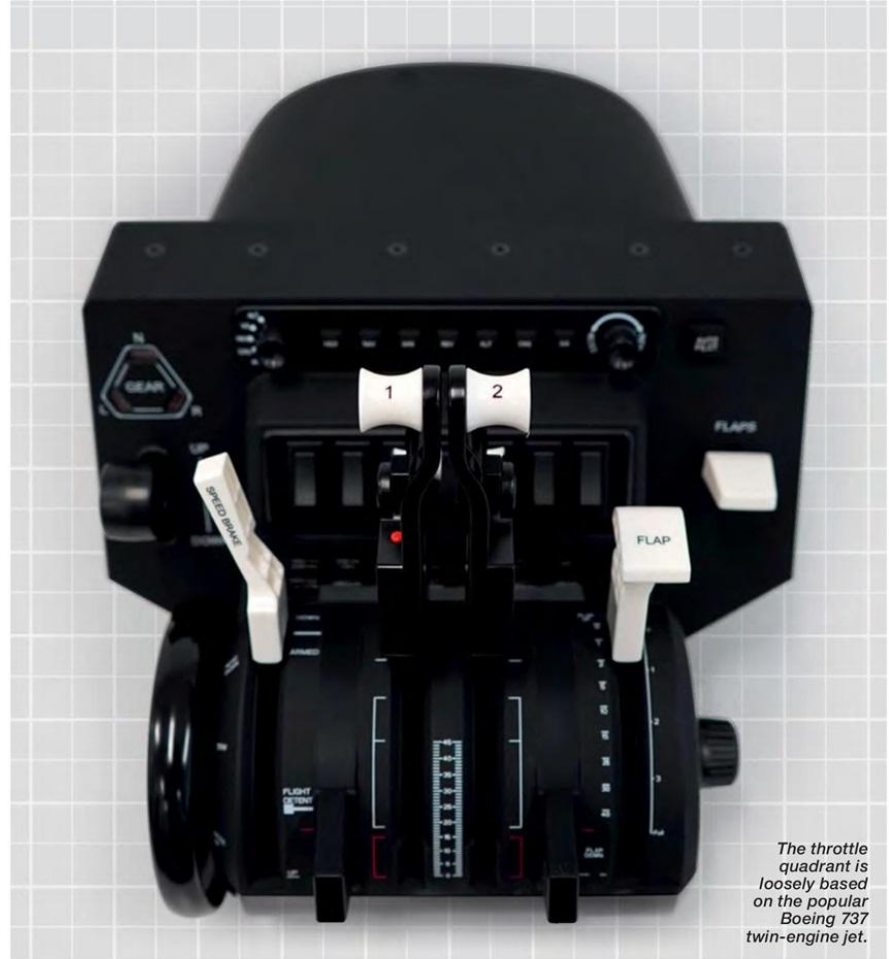
The Bravo is made to be highly configurable and can be set up to replicate the controls found in any number of aircraft types, including four-engine airliners.

It is possible to replicate the throttle layout of complex single-engine piston-powered aircraft such as the Cessna 182 Skylane or the Piper PA-28 Arrow.

detent on the axis but the downside is the speed brakes will work in reverse.

Conclusion

In terms of innovation and features, Honeycomb has done an excellent job with the Bravo Throttle Quadrant. For me, the star of the show are the interchangeable throttle/thrust levers, which can be set up in seconds, and hiding any unused levers under rubber covers is ingenious for those of us who don't like 'loose ends'. The buttons and switches feel firm and the flexibility of the reverse thrust function is excellent. As with the Alpha yoke, the mounting kit is robust and works brilliantly. The Bravo is compatible with all the leading simulator platforms while also working on Windows and MAC, which is excellent news for X-Plane users flying on an Apple.

As with the Alpha yoke, the build quality is excellent and the price is highly competitive. To top that, it also comes with a five-year warranty and free lifetime technical support so I have no hesitation in awarding the Bravo Throttle Quadrant a score of 95% and our Platinum award. Great job!

By Richard Benedikz

PC Pilot Verdict

At a glance: The combination of excellent build quality, flexibility and precision, provides an authentic flying experience at an unbeatable price.
Developer: Honeycomb Aeronautical
Price: $249.99/£229.99/€249.99
Website: https://flyhoneycomb.com

PC Pilot Score: 95

drivers for full functionality, which as far as I could see was for the annunciator, switch panel and autopilot backlighting. But it can be configured like any other controller, either via the default controller setup or from FSUIPC.

In terms of control inputs, the movement of the levers was smooth and precise with the right amount of travel. The friction of the throttles can be adjusted, which is a nice touch as it prevents throttle creep, typically caused by buffeting and vibrations. Personally, I like to dial in quite a high friction and this was easily done. I find a lot of flight sim throttles to be far too light so I was pleased to see this was not the case with the Bravo. All the switches and buttons operated with reassuring clicks and when dropping the undercarriage, you were greeted with a satisfying thump. Overall, the combination of a flexible throttle setup and a well-thought-out button and switch layout will take you a long way in achieving a keyboard-free flight simulation experience, in particular when combined with the Alpha Flight Controls yoke. For those of you who want a challenge, practising single-engine procedures in twins with a realistic throttle setup is an excellent way to fine-tune your flying skills.

The reverse thrust function is outstanding. Essentially, each axis has independent dual-function reverse thrust, so there is an option for going below idle into the reverse thrust/beta range like on turboprops. Alternatively, with the Commercial handles the levers are lifted to engage reverse thrust similarly to what you would do on a Boeing jet.

There are a few minor niggles I would like to highlight. While the GA throttles felt about the right size, the Commercial handles felt a bit on the small side. Similarly, while the responsiveness of the trim wheel

was excellent, the actual movement felt a bit on the light side. I would also have liked to have seen a spoiler arm function and an autothrottle disconnect switch. With the former, it is possible to get the speed brakes to arm using the bottom

Here we have the throttle layout for a typical general aviation twin, which is ideal for aircraft like the Piper PA-44 Seminole or Cessna 310 for example.