

FR-TEC's

Raptor Mach 1 HOTAS and Raptor Mach 2

More than a joystick and throttle

Left: A close-up of the Raptor Mach 1 flight stick.

I'm no warmonger but if you're going to fight a war, you have to have the right equipment. This is true regardless of whether that's for real or in a simulated world. The products under review here are suitable for any Windows platform and any type of flight simulator, combat or otherwise. Yet the features and functions do lean more towards those who fly fighter aircraft. Naturally if you're also an aspiring jet jockey then the Hands-On Throttle And Stick (HOTAS) controls are important and need to be top-notch, because if they're not comfortable to hold and silky smooth in operation, it can affect your control of the aircraft, particularly on long missions, which, I guess, is why such equipment is so expensive. However, it's good to see that these latest products from Far Eastern company FR-TECH are unlikely to break the bank.

Raptor Mach 1 HOTAS

There are three products in this review, the first one I looked at is in fact a combination set of flight stick and separate (included) throttle, which is called the 'Raptor Mach 1 HOTAS'. As such, they're quite a cost-effective choice. Together they provide the complete control options for any flight-related simulator, offering up to 32 different actions between them.

Although not as feature-rich as the Mach 2

Below: Close-up of the Throttle controller, which can be bought separately.

Flying the Russian Su-25T during a training mission in DCS.



Review system

Intel i7 9700K 3.60GHz processor with Corsair liquid cooler.
32GB DDR4 3200MHz RAM
Gigabyte GTX 1080Ti, 11GB GDDR5 video card
1 x 1TB Crucial NVMe M.2 SSD
1 x 6TB Samsung hard drive.
32-inch 4K iiyama monitor

(which we'll cover later), it's quite a realistic-looking stick that is in fact heavier than its stable-mate. This is due to the hefty metal base that can also be desk- or panel-mounted via the pre-drilled holes at each corner. That said, it has large non-skid pads underneath, which hold it firmly in position without being fixed.

The stick is ideally suited for right-hand use, (although in my opinion it seems to work quite well using either hand). It's designed to be connected to the USB port, located on the throttle, which is then connected to a USB port on your PC. Like any other controller, it's important to calibrate your throttle and stick in Windows first, before setting them up in your chosen simulator. (In fact there's another article in this issue explaining exactly how to do that – starting on page 56 – Ed.)

Unusually, there are two hat switches on the stick; the one at the top is a conventional 8-position version, while the second (on the left) consists of four buttons in an up, down, left and right configuration. In addition, there's a sliding mode switch mounted directly below the hat marked BVR, NAV and VIS. This effectively repurposes almost every switch on the stick and throttle to an alternative button. This means you can use each button for three different actions.

The main trigger on the front of the stick is a two-button control: the first pressure activates button one, then applying full pressure activates button two. So effectively, you could have an arm and then fire control. Finally, there's a small button set in the handle

with a flip-up activation lever. Again, it's up to the pilot to define what this, and the other buttons I haven't mentioned, will be assigned to.

In action, I found the Mach 1 to be very responsive, in fact quite typical of a digital controller with a very smooth control curve. The handle itself is quite comfortable with a large wrist and thumb rest built in, which also doubles as a self-centring twist-style rudder control. If I have to be critical, I would say that the top section of the Mach 1 stick feels a little clunky.

I tested it with Microsoft Flight Simulator (MFS), Prepar3D, DCS and X-Plane with no issues at all. Although MFS would not allow me to set the 8-way hat switch properly, it

recognised the inputs okay but insisted on adding the primary positions and the offset ones together. However, it was not an issue in any of the other platforms - in fact, X-Plane was by far the easiest to set up. It immediately identified every axis, button and rotary control when moved or pushed, then offered up the appropriate option for editing.

The Raptor Throttle

The throttle component of this combo is a physically substantial product, with a smooth weighted action and an adjustable friction control. It also has enough buttons on board to satisfy most pilots. In fact, as the manual suggests, after setting up your controls it



Above: The Microsoft Flight Simulator setup is relatively straightforward, other than the hat switch.

would be wise to write them all down.

There are five programmable buttons on the throttle and two assignable rotary controls. These are useful for things like zooming your view or making more precise adjustments to your trim. Near the front, there's also an 8-way hat control that simply shadows the hat on the stick, however, it can't be programmed separately.

As you advance the throttle, the lever reveals a row of stripes that grow wider, providing a visual cue to the amount of throttle being applied.

While it doesn't have all the bells and whistles typical of a Thrustmaster Warthog throttle, it's the most inexpensive standalone model currently on sale but that's certainly no reflection on the quality of the product.

The Raptor Mach 2

The Raptor Mach 2 is a standalone flight stick which, works perfectly well with the Raptor Throttle 1 looked at in the first part of this review. In fact, the throttle mentioned is also available as a standalone product, so potentially it could be used with a flight stick from another supplier, should you already have one.

At first sight, the Mach 2 stick certainly looks and feels the part, a factor that's confirmed by its weight when you pick it up. Like the Mach 1, it has a solid metal base with pre-drilled holes in case you want to mount it permanently in position. Personally, I didn't find that necessary, although it did wander around my polished desk until I realised the corner base pads had peel-off covers that, once removed, hold it down solid as a rock.

Installation is practically the same as with the Mach 1, except that you have to connect the stick directly to the PC, not the throttle (if you're using one). You also have to hold down the 'Mode' button as you connect it to your USB port. Red and green LEDs will then illuminate to verify the connection. These LEDs are also used to show which Mode is currently active.

Like all good quality flight sticks, the Mach 2 is bristling with buttons and is also equipped with a small slider on the left side that can be

Well designed with plenty of options, the Raptor Mach 2 is a great flight stick.



System Requirements:

Microsoft Windows XP, 7, 8, 10 - PC system combined with any flight simulator or combat simulator platform

You want buttons? We've got buttons!

The Mach 2 provides up to 29 individual actions using a combination of the Mode and Shift buttons, which means some of them can have up to four different actions. It also has dedicated buttons for flaps, starter and eject, which are clearly marked with legends for these functions. However, they can be programmed differently if you prefer. On the top of the stick are two further buttons designed as fire/launch controls. The top one can be covered with a flap to avoid accidental firing. When this is flipped over, it acts as a trigger for the second button. All these configurations are handled by a 32-bit ARM-based processor, combined with some internal button set-up memory.

The Raptor in use

Flying with the Raptor Mach 2 is both comfortable and a pleasure because its design is well-thought-out and the more robust yet compact shape of the stick makes operating the controls effortless (for me anyway). After quite a short time, I was able to navigate around the buttons without taking my eyes off the screen, although I must admit I tended not to use all the button combinations on board the Mach 2, because I generally have other dedicated panels already programmed... and if I do my head hurts! However, I'm aware that those more experienced fighter pilots like our own Derek 'Baron' Davis are very adept at remembering them all.

Conclusion

While I've slanted this review towards combat simulators, these units could also work perfectly well with civilian aircraft, particularly the Airbus family of airliners, which are equipped with a slide throttle and side sticks and there are general aviation aircraft also fitted with stick controls.

I must say that it has been quite a while since I last reviewed a HOTAS setup, but I'm pleased to say that it has been quite a pleasant experience as both the FR-TEC Raptor Mach 1 HOTAS and Raptor Mach 2 performed very well indeed.

By Joe Lavery

PCP

Airbus airliners are fitted with a slide throttle and side stick.



PC Pilot Verdict:

At a glance: If you're looking to buy an inexpensive though feature-rich HOTAS setup, then this new Raptor range from FR-TEC should be on your list of likely candidates.

Developer: FR-TEC

Distributor: Contact Sales Ltd

Price:

Raptor Mach 1 HOTAS (stick and throttle): £149.99

Raptor Mach 2 Flight Stick: £114.99

Raptor Stand-alone Throttle: £49.99

Website: <https://contactsimulations.co.uk>

Raptor Mach 1 HOTAS (stick and throttle): 85%

Raptor Mach 2 Flight Stick: 90%

Raptor Throttle: 85%

Overall Score:

