New buckling spring keyboards re-create IBM’s iconic Model F for modern computers

Enlarge / Model F Labs’ Classic Style F104 Model F keyboard starts at $420.

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IBM’s Model F keyboards are prized among keyboard enthusiasts. Introducing buckling spring switches over a capacitive printed circuit board (PCB) in the early 80s, they’re considered the grandfather of mechanical switches. Despite their prestige, Model F keyboards were no more by the following decade and, due to outdated technologies, have become very rare and can be tough to use with a modern computer. Targeting retro keyboard fans who don’t want to deal with long searches, repairs, or mods, Model F Labs re-creates IBM’s Model F keyboards with modern OS support, and it recently introduced the iconic buckling spring switches in a classic full-sized keyboard, as well as some unique form factors.

Buckling springs

With the tactile buckling of the internal spring and the click of the flipper against the capacitive PCB, the keys in IBM’s Model F keyboards inspired today’s mechanical switches. Popular in banks, they replaced IBM’s beam spring keyboards

with a lower-cost design that was also less bulky. Early Model F keyboards had keycaps that were the same size, and keycaps were also removable for customization.

By 1985, IBM was making Model M keyboards, also popular among keyboard collectors today, with keys featuring a buckling spring over the membrane and lower manufacturing costs.

However, the keys in Model M keyboards are generally considered heavier than those of the Model F. Model F keyboards are also considered more repairable, according to Model F Labs, which says they “can be taken apart piece by piece and reassembled with just a pair of pliers and a screwdriver,” and that its “top inner assembly is designed with steel tabs that slide into the bottom inner assembly” easily.

Enlarge / Model F Labs demoing the buckling spring in its keyboards.

And while the Model F and Model M (which popularized today’s US keyboard layouts) have their place in keyboard history, the older Model F is harder to find (a bunch of former IBM and Lexmark employees even brought back the Model M under the Unicomp brand).

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As The Register put it, “The OG of IBM clicky keyboards is the Model F, but as they are now over 40 years old, they’re even more scarce [than Model M keyboards]. And there’s worse news. If you can find one, the [80286-based IBM] PC/AT keyboard uses a 5-pin DIN connector, which only requires a passive adapter to convert to PS/2 format.

“The original [IBM Personal Computer] and [IBM Personal Computer XT] keyboard uses the same connector, but a different protocol,” The Register continues. “If you can find an early 1980s keyboard from around the time that the [80286-based IBM PC/AT] was becoming widespread, if you’re even luckier, it will have a slider switch underneath allowing you to choose PC or AT mode.”

Model F for future

Since 2017, Model F Labs has been re-creating Model F keyboards through a group of dedicated keyboard enthusiasts. Work has entailed creating CAD files, working with PCB and product designers, developing a capacitive controller, and learning about different keyboard materials. Built to work with personal devices that were barely imaginable in the ’80s, the company says its keyboards work with Windows, Mac, Linux, Android, and iOS, connecting via a detachable USB-A cable. Given smallish manufacturing runs, Model F Labs says it doesn’t know how long each keyboard will stay in stock.

As of April 1, Model F claims to have sold over $2,454,000 worth of keyboards, and on Friday, it announced new designs. Compared to Model F Labs’ original re-creations, the numpad-less F62 Kishaver and F77, the new models have more modern layouts and designs and offer more niche form factors.

First, there’s the Classic Style F104 Model F and its smaller version, the Ultra Compact F104 Model F. With a full-size layout and the option to pick vintage or vibrant—like red and teal—chassis colors, they look surprisingly versatile. Unlike

true Model F keyboards with plastic chassis, Model F Labs' recreations use (painted or powder-coated) aluminum cases. That should give the keyboards that vintage heft, but Model F Labs' website doesn't offer weight or dimensions for the new keyboards. The company also uses dye-sublimated PBT keycaps created with newly made injection molds.

"The layouts and cases of these regular/full size Model F boards were modeled after the later-production Model M keyboards and their more standardized/modernized layouts, but with the same Model F internal components and XT-quality dye sublimated keycaps as with the original F62/F77 project," Model F Labs' announcement announcing the new keyboards said.

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