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FlexEnable makes a historic breakthrough, bringing disruptive flexible display technology to mass market with customer shipments now underway

The world's first mass-produced OTFT display is here.



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Cambridge (UK), 17 June 2024 – FlexEnable, the leader in the development and production of flexible organic electronics for active optics and displays, today announced that the world's first mass-produced consumer product incorporating organic transistor technology has started shipping. The device, called Ledger Stax, is a secure crypto wallet developed by French company and market-leader Ledger. FlexEnable partnered with display manufacturing companies DKE (Shanghai) and Giantplus (Taiwan) to realise Ledger's design for a credit card-sized product with an E Ink display uniquely wrapped around a 180-degree bend.

Ledger Stax features a display radius of curvature never before achieved in an ePaper display product, made possible by the use of highly flexible organic thin-film transistors (OTFTs), comprising organic materials and process IP developed, supplied and licensed by FlexEnable.

With fully qualified manufacturing now underway at DKE and Giantplus, FlexEnable's OTFT technology is the first and only organic transistor in mass production. Made of polymers instead of silicon, these OTFTs are manufactured directly onto plastic sheets instead of glass and are much thinner, lighter and shatterproof compared to today's glass displays. The manufacture of these flexible OTFT backplanes by Giantplus, a leading Taiwanese display maker, paves the way for a new generation of flexible displays and optical modules with form factors not imaginable until now, for applications including AR/VR optics, ePrivacy screens, automotive smart windows and Organic LCDs.



Ledger Stax features the world's first mass-produced OTFT display. Image credit: Ledger

Chuck Milligan, CEO of FlexEnable, said: "We are extremely proud to have collaborated with Ledger, whose innovative product design and dedication to bringing new technology to market have enabled us to achieve this breakthrough. We have also been very impressed by our partners DKE, who developed a volume production capability to achieve the first ever 180-degree bend lamination of flexible ePaper displays, and Giantplus, the first fab to implement our unique transistor materials and patented low-temperature process technology into mass production.

The launch of Ledger Stax represents a significant milestone, not just for our company, but for the entire display industry, and the billion-dollar ePaper display market is just the beginning. As we ramp up production of FlexiOM materials to meet growing demand for Ledger Stax, the established supply chain is now primed to support a range of future applications in AR/VR optics and beyond, to meet the volume needs of our brand partners."

About FlexEnable

FlexEnable's award-winning flexible technology platform, together with its unique FlexiOM™ materials, brings transformational possibilities to products including AR and VR optics, ePrivacy screens, automotive smart windows and displays. The organic thin-film transistor (OTFT) backplane process developed by FlexEnable, allows transistors to be manufactured at less than 100°C – by far the lowest temperature process for transistor manufacturing in the world. This allows,

for the first time, commonly available and optically ideal flexible bio-degradable substrates such as TAC film to be used instead of glass. FlexEnable's game-changing technology is used to make active-matrix flexible displays and flexible active liquid crystal (LC) optical films which are thin, light and conformable to almost any surface. OTFT display technology is already on the market today incorporated into a consumer product – a crypto wallet device with an E Ink display uniquely wrapped around a 180-degree bend.

Today, FlexEnable has around 550 patents and patent applications globally for OTFT and LC cell materials, processes and device architectures. With an established supply chain for OTFT production, FlexEnable has technology transfer programmes and mass production underway with several leading display manufacturers in Asia as well as commercial programmes with some of the world's biggest brands in consumer electronics.

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About Ledger

Celebrating its 10 year anniversary in 2024, Ledger is the world leader in digital asset security for consumers and enterprises. Ledger offers connected devices and platforms, with more than 6M devices sold to consumers in 180 countries and 10+ languages, 100+ financial institutions and commercial brands. Over 20% of the world's crypto assets are secured by Ledger.

Ledger is the digital asset solution secure by design. The world's most internationally respected offensive security

team, Ledger Donjon, is relied upon as a crucial resource for securing the world of digital assets. With over 14 billion dollars hacked, scammed or mismanaged in 2023 alone, Ledger's security brings peace of mind and uncompromising self-custody to its community.

LEDGER is a trademark held by Ledger SAS.

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