

Introduction of Smart Display Module



TSD Smart Knob Module is with a 1.28-inch 240x240 TFT display, an innovative product that integrates the display, UI driver board, and encoder into one complete unit.



Space-Saving Integration

Innovative inverted encoder design combines screen, PCB and sensors into an ultra-compact unit for easy installation.

Precision Manufacturing

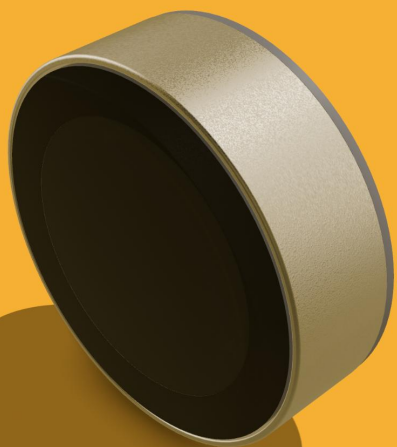
High-precision molds ensure tight coaxiality and minimal tolerances, guaranteeing consistent high yield in mass production.

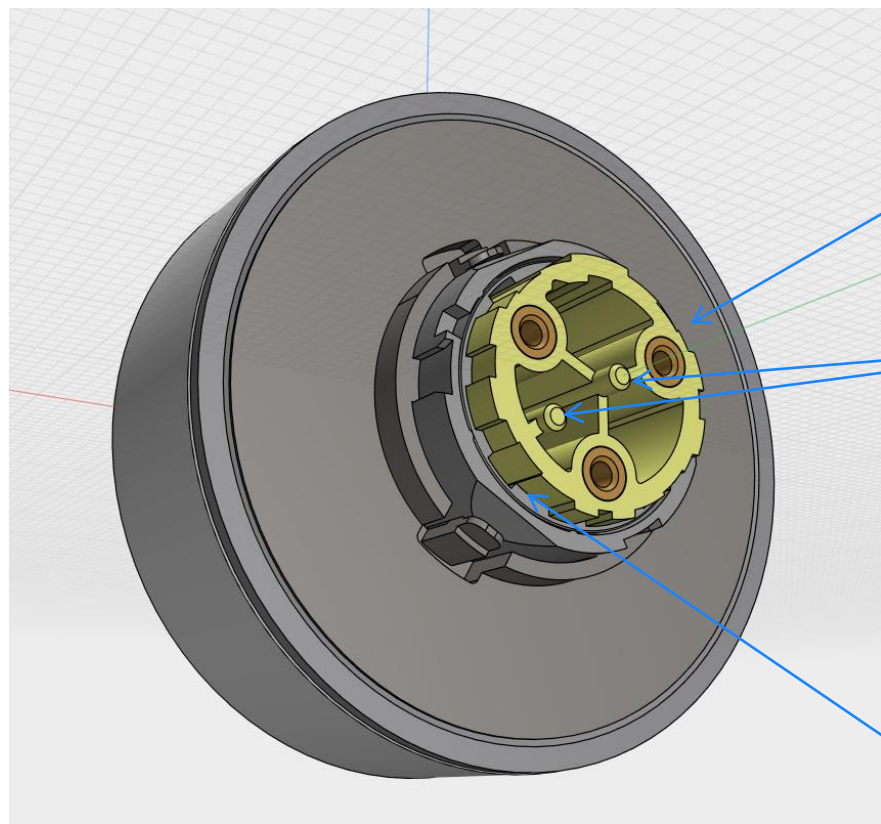
Proven Production Expertise

Mature design, assembly, and end-to-end quality control ensure reliable and stable output.

Refined Details

Seamless black effect display offers a uniform look when turn off. Ambient bottom lighting is evenly diffused with no visible segments. CNC-machined aluminum housing prevents surface defects for a flawless finish.

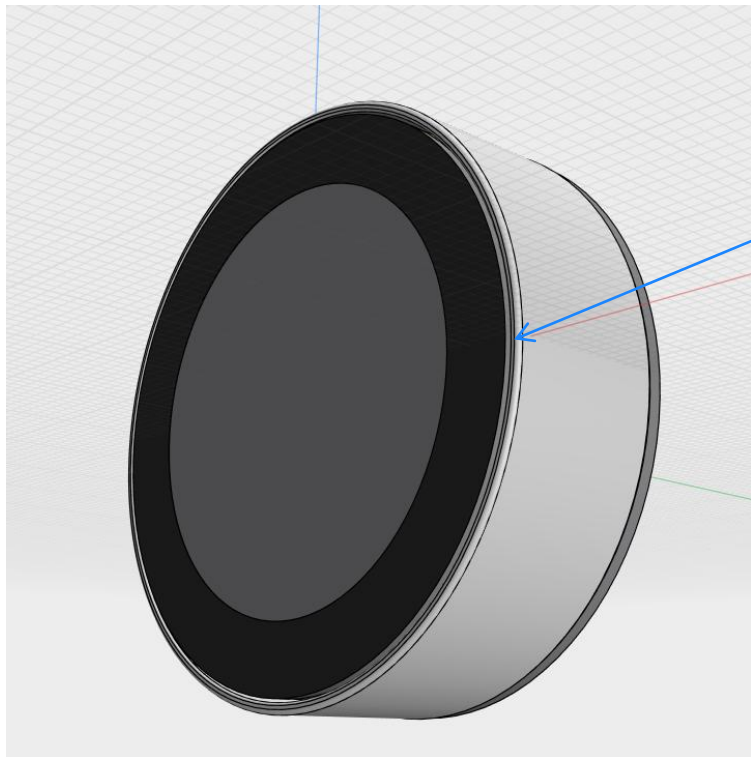




Injection-molded copper nuts: Compared to hot-pressed copper nuts, inserting the copper nut during injection molding ensures it won't fall off, significantly reducing the risk of detachment due to environmental changes and rough handling.

Installation positioning design: Two distinct positioning posts ensure the knob is correctly oriented on the first try, eliminating misalignment and costly rework. The intuitive design — featuring a central alignment post and an offset locking post — allows for quick, foolproof installation with a simple twist, dramatically improving assembly efficiency.

Industry-leading minimum wobble: Precision-engineered shaft achieves an ideal clearance balance—reducing overall wobble without compromising press-and-rebound feel.



Smooth Knob Operation: Precision molds ensure extremely high dimensional accuracy and roundness for every part.

Small and Uniform Outer Ring Gap: The gap between the outer edge of our display screen and the inner edge of the metal outer ring is designed to be 0.3mm. Too large a gap would affect aesthetics, while too small a gap would reduce the overall tolerance of the parts and assembly.

Strict Quality Inspection: 100% inspection for jamming issues in both the inner and outer rings ensures that no jammed part leaves the production line, preventing customer inconvenience.



Extensive Hardware Configurations:

Hardware Customization: We offer a wide selection of standard products for customers to choose from, with main chips and Flash memory freely. Customization is supported.

Appearance Customization: Color and design customization is available upon request.

Software Customization: For customers lacking development resources or capabilities, we can provide software development assistance or undertake customized software development.

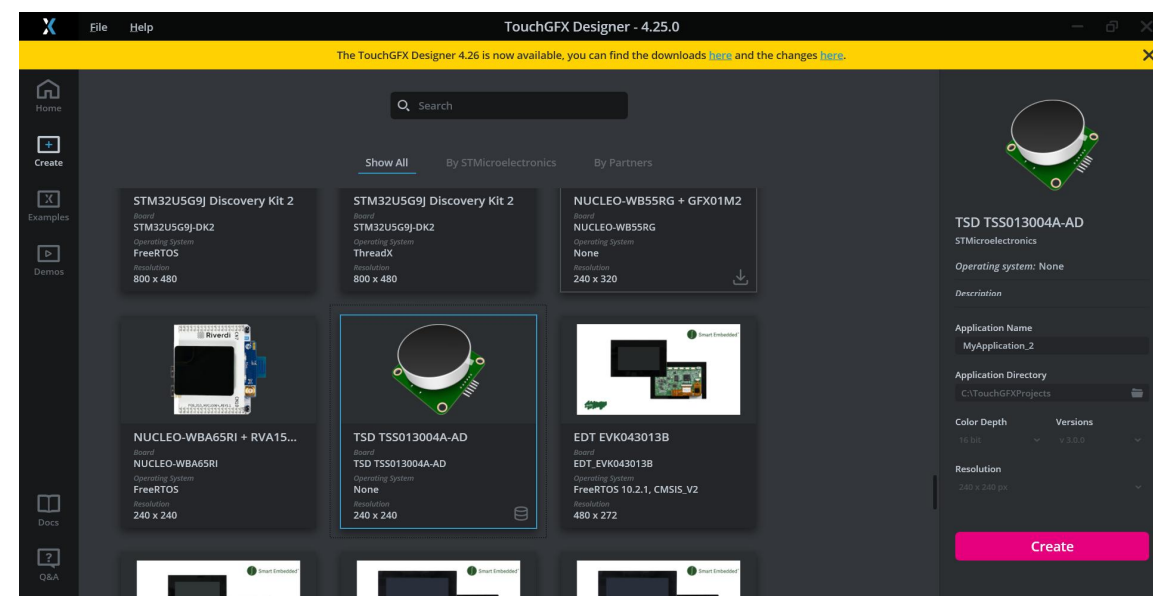
MCU	Clock Speed	Flash	SRAM	I/O port
STM32G070	64MHz	128KB	36KB	4x UART serial ports, 2x SPI interfaces, ADC and others
STM32G0B0	64MHz	512KB	144KB	6x UART serial ports, 3x SPI interfaces, ADC and others
STM32C071	48MHz	128KB	36KB	4x UART serial ports, 2x SPI interfaces, ADC and others
STM32C091	48MHz	256KB	36KB	4x UART serial ports, 1x SPI interfaces, ADC and others



As the authorized partner of STMicroelectronics, TSD have developed various smart display modules design with STM32 controller, ensuring the reliability, versatility, and ease of use of the product software.

All models come with compatible secondary development packages containing basic software and examples, perfectly compatible with ST's official development environment, STM32CubeIDE, enabling code compilation and TouchGFX visual UI development. The C071 and C091 versions can be directly downloaded from ST's official development tools.

In the future, we will adapt more STM32 models to meet diverse application scenarios, including the STM32H5 series, STM32U0 series, and STM32U5 series. Customized designs are always welcome.





Application:

The smart knob module is an excellent choice for the smart home and appliance applications, by offering the complete HMI solution, we could help you innovate faster and deliver better products to market.





**Welcome to contact us for
more information**

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