seeed studio

INDUSTRIAL PRODUCT DATASHEET

Seeed Studio XIAO Debug Mate

The Seeed Studio XIAO Debug Mate is a 3-in-1 professional development tool featuring DAPLink-compatible SWD debugging, intelligent serial monitoring and UART passthrough, precision power profiling down to µA levels, and...

SKU	UPDATED	PRICE
109990585	2026-10-16 10:52:28	$22.90(Excl. VAT)



Overview



The Seeed Studio XIAO Debug Mate is a 3-in-1 professional development tool purpose-built for the Seeed Studio XIAO ecosystem with universal compatibility with any ARM Cortex-M microcontroller via standard SWD and UART interfaces. It combines DAPLink-compatible SWD debugging powered by ESP32-S3 with full OpenOCD/PyOCD support, intelligent serial monitor and UART passthrough, precision power profiling down to µA levels, and a standalone visual feedback system with a 2.01" TFT display (240×296px) and 36-LED matrix.

Key Features

> **Note:**
>
> **The XIAO nRF54L15 series and XIAO ESP32(C3/S3/C6/C5) series does not currently support debugging feature.**

3-in-1 Professional Development Tool

- **DAPLink-Compatible SWD Interface for Professional Chip-Level Debugging**: Powered by ESP32-S3 with full OpenOCD/PyOCD support, delivering professional-grade debugging capabilities. Set breakpoints, step through code, inspect memory, and access low-level hardware operations with precision. The integrated DAPLink firmware enables seamless SWD communication between your PC and target XIAO microcontroller, bringing lab-quality debugging tools to your desktop.
- **Intelligent Serial Monitor & UART Passthrough**: Monitor communications between your XIAO and the XIAO Debug Mate, or between the XIAO Debug Mate and external UART devices (Arduino, Raspberry Pi, Grove sensors). View real-time serial data on the onboard display for instant feedback, or redirect signals to your PC for detailed analysis. This intelligent switching eliminates multiple tools by providing complete visibility into all serial communications through a single, streamlined interface.
- **Precision Power Profiling:** Track power consumption down to μA levels with three specialized measurement interfaces. Monitor voltage/current readings, ultra-low-power states, and consumption patterns with peak/valley identification. Each unit is factory-calibrated for maximum accuracy (±10% accuracy @ 1-10μA), enabling confident battery life validation and energy optimization for both standalone XIAO boards and complete XIAO-based projects—ready to use out of the box.

Standalone Visual Feedback System

Monitor key system metrics without connecting to a PC. The integrated 2.01" LCD screen displays real-time serial communications, power consumption readings, and UART data streams, while the programmable LED matrix provides instant Baud rate indicators. Perfect for on-site field testing, mobile development, and quick system power consumption checks. (Special thanks to **啊猫啊狗晒太阳 (Ah Mao Ah Gou Shai Tai Yang)** for the **design inspiration** for the LED matrix.)

Open-Source Platform Designed for XIAO with Universal Compatibility

Purpose-built for the **Seeed Studio XIAO ecosystem** with direct plug-and-play connection support—any pre-soldered XIAO board connects instantly without tedious wiring. The thoughtfully designed pin headers and sockets transform the device into a specialized expansion breadboard for XIAO development, providing abundant expansion options backed by robust power management and UART monitoring. While optimized for XIAO, the open-source design extends compatibility to any ARM Cortex-M microcontroller target via standard SWD and UART interfaces. Complete with a crisp 2.01" TFT display (240×296px) and 36-LED matrix, this versatile platform serves as both a professional debugging tool and a creative foundation for embedded projects.

Product Gallery















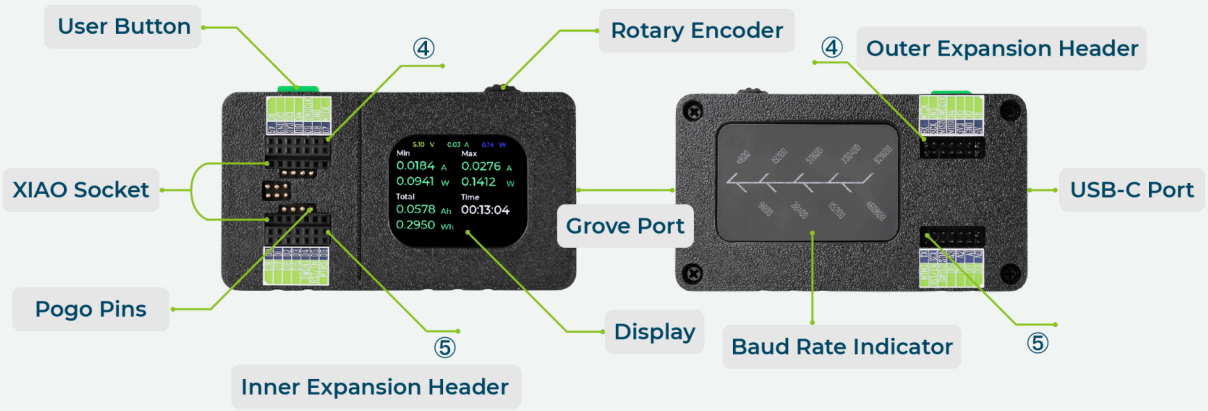




Specification

Parameter	Description
Processor	Espressif ESP32-S3
Power Input	USB-C 5V/1A
Display	2.01 inch TFT LCD with 240 x 296 resolution
LED	36-LED Matrix for Status Indication (Default: Serial Baud Rate)
User Input	1 x User Button/Boot Button 1 x Scroll Wheel 1 x Recessed Reset Button
I/O Interface	14 x XIAO Standard Pins 8 x Expansion Pins 4 x SWD Debugging Pins 1 x UART Grove Connector
Product Size	100x20x56 mm
Software	Supports DAPLink for debugging
Supported OpenOCD Target Chipset	SAMD21, nRF52840 (Sense), RP2040, RP2350, RA4M1, MG24 (Sense)
Enclosure	3D-Printed in Black PLA

Hardware Overview



Applications

- **Electronics Prototyping and Validation:** Serves as a core bench tool for engineers and makers to accelerate prototype validation and firmware development for new products, from consumer electronics to industrial controls.
- **Manufacturing & Production Line Testing:** Deployed as an automated test jig on production lines to flash firmware and perform self-checks, displaying clear Pass/Fail results to increase manufacturing throughput.
- **Field Service & On-site Maintenance:** Equips field technicians with a portable diagnostic tool to service deployed smart devices, allowing them to read logs and diagnose faults without a laptop.
- **Education:** Acts as an ideal teaching platform, enabling students to visually connect abstract concepts like debugging with hands-on hardware practice.
- **Custom Test Equipment Development:** Used as a flexible base platform for creating specialized test instruments, saving development costs by allowing engineers to quickly program it for custom validation tasks.

Part List

Seeed Studio XIAO Debug Mate	×1
Grove - 4 pin Female Jumper to Grove 4 pin Conversion Cable	x1
Grove - 4 pin Male Jumper to Grove 4 pin Conversion Cable	x1

Compliance & Logistics

HSCODE	8543709990
USHSCODE	8517180050
UPC	
EUHSCODE	8543709099
COO	CHINA

Resource Links

- https://www.seeedstudio.com/Seeed-Studio-XIAO-Debug-Mate-p-6588.html
- Enclosure for Remix on Printables
- Enclosure for Remix on Thingiverse
- Enclosure for Remix on MakerWorld

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