

Universal Controller

G-A1 Standard Set with Carrier Board

The G-A1 is a state-of-the-art universal controller (flight controller) developed based on the Pixhawk Autopilot v6X Standard. It adopts STM32H753 double-precision floating-point FMU processor, and STM32F103 IO coprocessor. It also uses independent buses and power supplies. Multiple IMUs, each with its 6-axis inertial sensors, pressure/temperature sensors, and a geomagnetic sensor are designed for safety and rich expansion capabilities. With an integrated 10/100M Ethernet Physical Layer (PHY), the G-A1 can also communicate with the mission computer (airborne computer), high-end surveying and mapping cameras, and other UxV-mounted equipment for high-speed communications, meeting the needs of advanced UxV systems.



Benefits

Compatibility: Design based on the industry-standard Pixhawk Autopilot v6X

Development-friendly: Open SDK to support developers to customize applications

Communication: High-speed Ethernet connection supports data transmission

Stability: Three redundant sensors improve data accuracy and stability

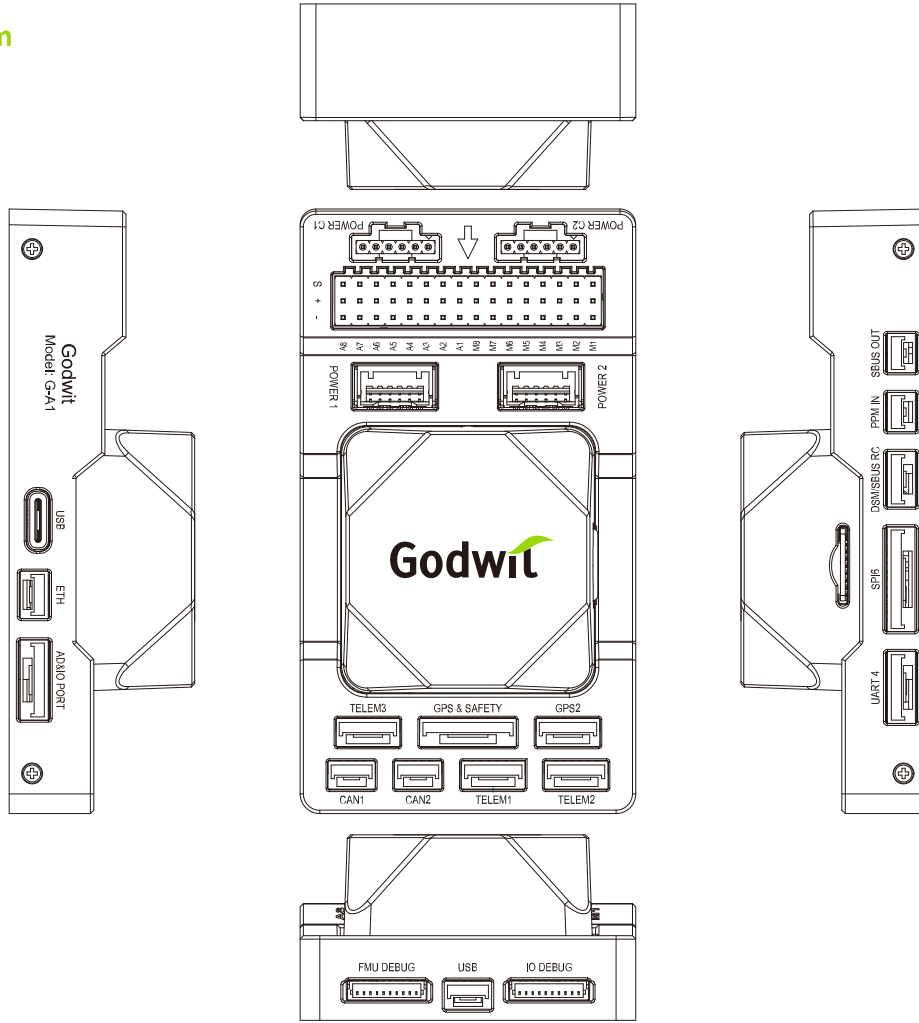
Expandability: Supports a variety of external devices, including Ethernet devices and CAN modules

Trustworthy: Trusted quality and reliability through a non-red supply chain

Specifications

FMU Processor	STM32H753 (Arm® Cortex®-M7, 480MHz)
IO Processor	STM32F103 (Arm® Cortex®-M3, 72MHz)
Memory	2 Mbytes of flash memory and 1 Mbyte of RAM
Sensors	<ul style="list-style-type: none"> • Bosch BMI088 IMU sensor (vibration isolated) • TDK InvenSense ICM-42688-P IMU sensor x2 (one vibration isolated) • TDK ICP-20100 Barometric Pressure and Temperature Sensor x2 (one vibration isolated) • PNI RM3100 Geomagnetic Sensor (vibration isolated)
IO Interface	<ul style="list-style-type: none"> • 2 CAN Buses (CAN1 and CAN2) • 3 TELEM Ports (TELEM1, TELEM2 and TELEM3) • 2 GPS Ports (Safety switch/LED/buzzer, and GPS2) • 1 PPM IN • 1 SBUS OUT • 2 USB Ports (1 TYPE-C and 1 JST GH1.25) • 1 10/100Base-T Ethernet Port • 1 DSM/SBUS RC • 1 UART 4 • 1 AD&IO Port • 2 Debug Ports (1 IO Debug and 1 FMU Debug) • 1 SPI6 Bus • 2 Power Inputs with I2C bus (Power 1 and Power 2) • 2 Power Inputs with CAN bus (Power C1 and Power C2) • 16 PWM Servo Outputs (A1-8 from STM32H753 on FMU board, and M1-8 from STM32F103 on IO board) • 1 MicroSD Socket (Push-Pull, supports SD 4.1 & SDIO 4.0 in two databus modes: 1 bit (default) and 4 bits)
Power Requirement	4.6V to 5.7V
Current Ratings	<ul style="list-style-type: none"> • TELEM1 and GPS2 output current: 1.5A (max.) • All other ports combined output current: 1.5A (max.)
Operating Temperature	-40°C to +55°C / -40°F to 131°F
Storage Temperature	-40°C to +70°C / -40°F to 158°F
Operating Humidity	5% to 95% (Non-condensing)
Casing Material	ABS (carrier board), Aluminum Alloy (IMU cover)
Dimensions	92.2 (L) x 51.2 (W) x 28.3 (H) mm / 3.55 (L) x 1.93 (W) x 0.94 (H) in
Accessory	Cables (optional), Extension Board (optional)
Weight	Net Product: 77.6g / 2.73oz (carrier board with IMU) Accessory Pack: 53.4g
Certification	CE, FCC, UKCA, BSMI, VCCI, RoHS, REACH

Application Diagram



Interface Definition

