CorTU Genesis 2 Datasheet

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FEATURES

- 9 Voltage Inputs (1-5V)
- 3 Current Inputs (4-20mA)
- RS-232 Port available
- RS-485 Port available
- 8 DIP control switches
- Programming via ICSP and USB
- Board extender header
- Modular terminal blocks for device connection
- Zigbee, LoRaWAN, Bluetooth, RF configurable.
- On board Reset Button to restart onboard loaded programs

PRODUCT APPLICATION

- Instrumentation and Measurement
- Autonomous Systems
- Process Control
- Pipeline Monitoring

GENERAL DESCRIPTION

The CorTU Genesis 2 is a full featured data acquistion board that can be used to acquire data from Industrial sensors capable of output signals such as 4mA to 20mA and 1-5V. The Data Acquisition board has been designed to acquire data from 9 voltage sensors and 3 current based sensors.

The CorTU board includes a single port for a 12V or 24V power supply. This power consideration was necessary to fulfil varying industrial requirements. The board provides connection to a PC via a universal serial bus (USB) port and can provide power for the CorTU Genesis data acquisition board from the PC USB port.

The CorTU Data acquisition board has firmware configured for sensor input and output functionality. The RS-485 and RS-232 Ports are also configured via the board firmware.
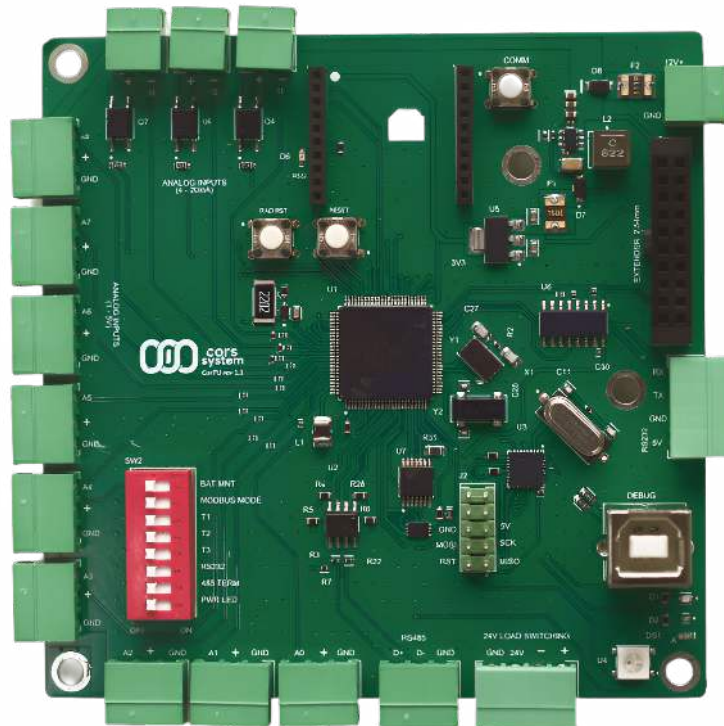
Version 1.0.0

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CORTU GENESIS 2 QUICK START GUIDE

RECOMMENDED QUICK START GUIDE

Use the following procedure to set up the Acquisition board:

1. Disconnect the CorTU Data Acquisition Board from your PC. This will ensure there is no form of partial contact or electrical short circuit during the board installation process.
2. Select the Power supply input that you intend on supplying to the data acquisition board (12V or 24V).
3. Fasten the board to a secure platform to acheive sterdy placement.
4. Connect a 12V or 24V power supply to the Power input of the CorTU board.
5. Once power has been connected, a green LED should blink twice.

BOARD TECHNICAL SPECIFICATIONS

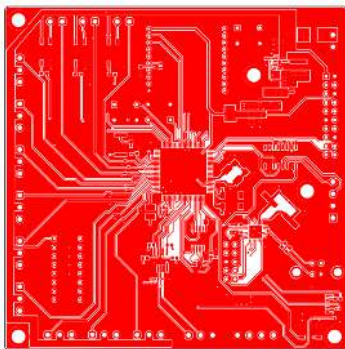| CorTU Genesis 2 Hardware Specifications	
Supply Voltage (PWR)	12V or 24V (See power port on top right)
Max Operating Current	350mA
Operating Temperature	-40 °C to 150°C
Weight	50 grams
Interfaces (onboard)	SPI , UART , I2C
Onboard Temperature Monitoring	Yes
Interfacing with external Devices	RS232, RS485
Wireless Communication	Configurable to (LoRaWAN, RF, Zigbee, BLE)
Board Dimension	92mm x 80mm
Ports	USB Type B , Pluggable Terminal Blocks
Controls	Reset Button, 8 Position DIP Switches (software configured)
Storage	2MB SPI Flash Storage
Board Extender	I2C Interface , Digital Input , Analog Input , Digital Output

BOARD PRESENTATION
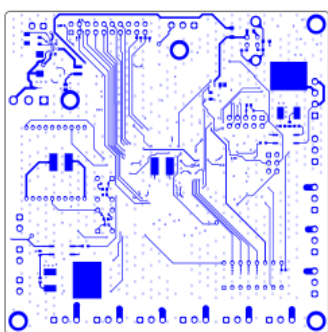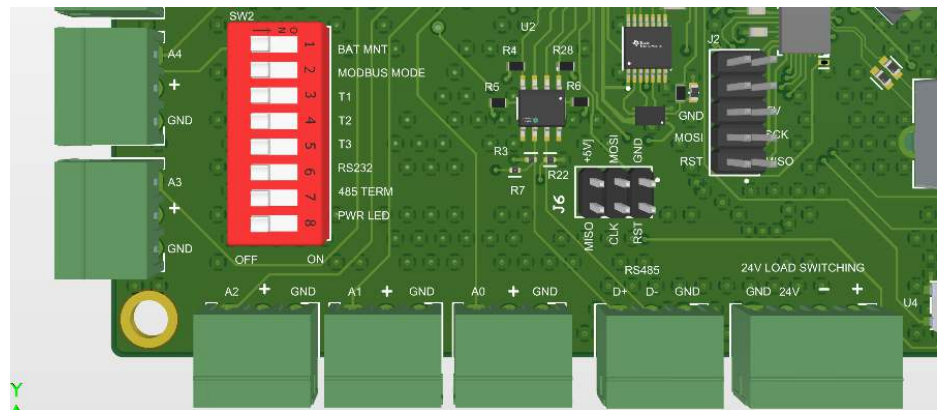
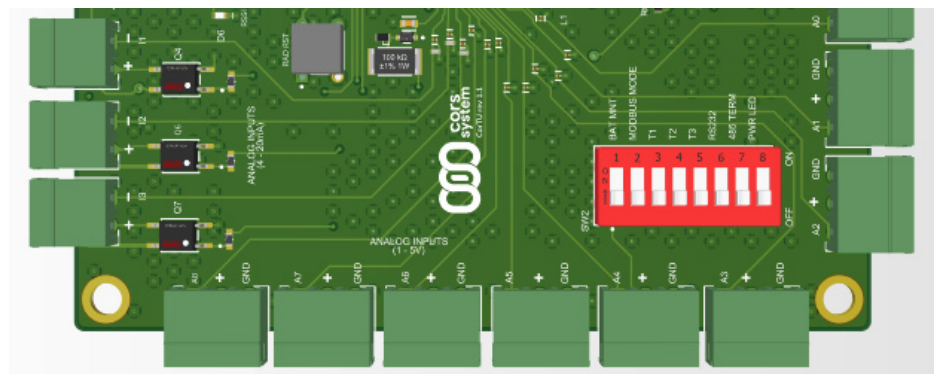**CORTU BOARD DESIGN LAYOUT Version 1.1.0**
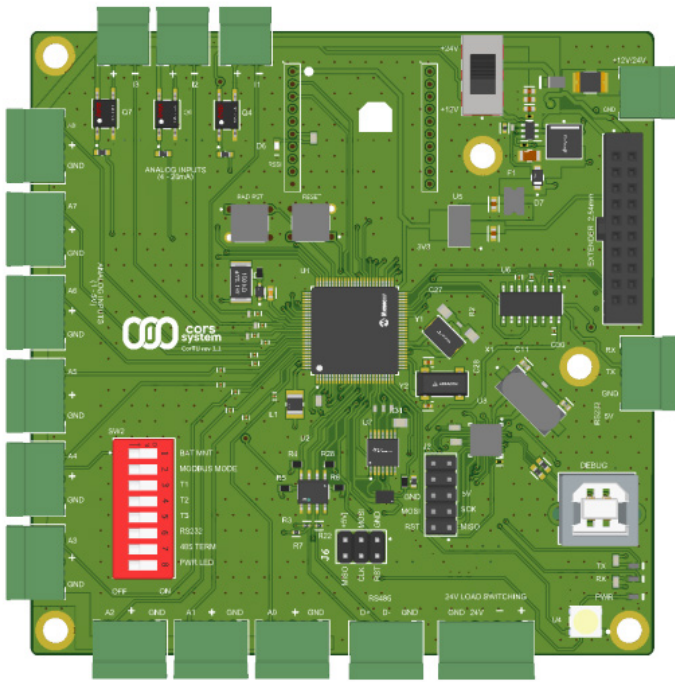
3D View (Top)
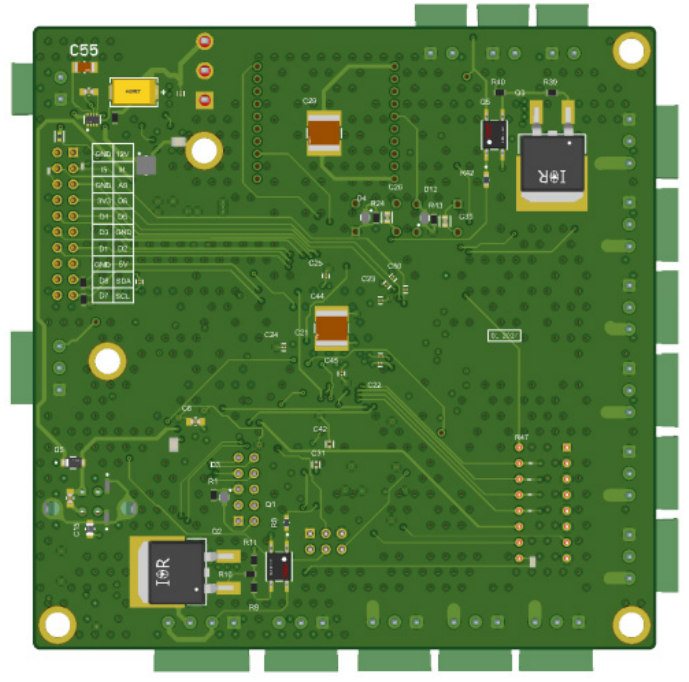
3D View (Bottom)

Fabrication View (Top)

Fabrication View (Bottom)

COMMUNICATION SPECIFICATIONS

The CorTU Genesis data acquisition board offers comprehensive communication capabilities tailored for diverse industrial needs. Equipped with built-in support for LoRa, Bluetooth, and RF communication in the 900MHz to 2.4GHz range, it ensures seamless connectivity in various environments.
The LoRa functionality is powered by an onboard Module, enabling peer-to-peer LoRa communication as well as connection to any LoRaWAN Certified gateway. This allows for robust long-range data transmission, ideal for industrial settings with large distances or obstructed environments.

Additionally, the board maintains compatibility with Bluetooth technology, facilitating easy wireless communication with nearby devices. Furthermore, its RF capabilities ensure flexibility in communication protocols and frequency ranges. With these features, the CorTU Genesis provides a versatile solution for acquiring and transmitting data, meeting the demands of modern industrial applications.

Onboard LoRa Module

LoRa Specifications	
Supply Voltage (PWR)	2.0V - 3.6V
Interfaces	UART/I2C/GPIO/SPI
Dimensions	25.4 x 32.3 mm
Supported bands:	EU433, CN470, RU864, IN865, EU868, AU915, US915, KR920, and AS923
Power Consumption	1.69uA in sleep mode
Antenna Type	SMA, UFL

APPLICABLE SENSORS

The CorTU Genesis Data Acquisition Board supports a range of pressure transmitters and temperature sensors, including the WIKA E-10 pressure sensor, offering both 4-20mA and 1-5V output options. Additionally, sensors with RS-232 or RS-485 connectivity, such as the Siemens SITRANS P DS III pressure transmitter and the Honeywell STT700 temperature transmitter, provide versatile data acquisition solutions for industrial applications.

Some Applicable 1-5V Sensors

WIKA - E10

IMP LR

IMP LR

Some Applicable 4-20mA Sensors

TPHA

RWRAPS

ONBOARD INTERFACES

The inclusion of SPI (Serial Peripheral Interface) and I2C (Inter-Integrated Circuit) components on the CorTU Genesis board offers several benefits. These interfaces enable efficient communication with various peripheral devices, enhancing flexibility and expandability.

SPI facilitates high-speed, full-duplex communication with devices like sensors, ADCs, and DACs, optimizing data transfer in real-time applications.

Meanwhile, I2C supports multi-device communication using only two wires, conserving board space and simplifying connections, making it ideal for networking sensors, memory, and other peripherals.

ORDERING INFORMATION

To order the CorTU data acquisition board please visit www.corssystem.com for more information.

REVISION HISTORY

Table 1. Document revision history

Date	Revision	Changes
25 - March -2024	1.0	Initial release.
19 - April -2024	1.1	Revised release