

Developer Guide - Hardware Installation

This guide provides technical specifications and usage instructions for integrating external accessories via the Expansion Bay on your Segway Navimow X3 mower.

Getting Started

Step 1: **Enable API access** via the Navimow app (Settings > MOWER > Expansion Bay).

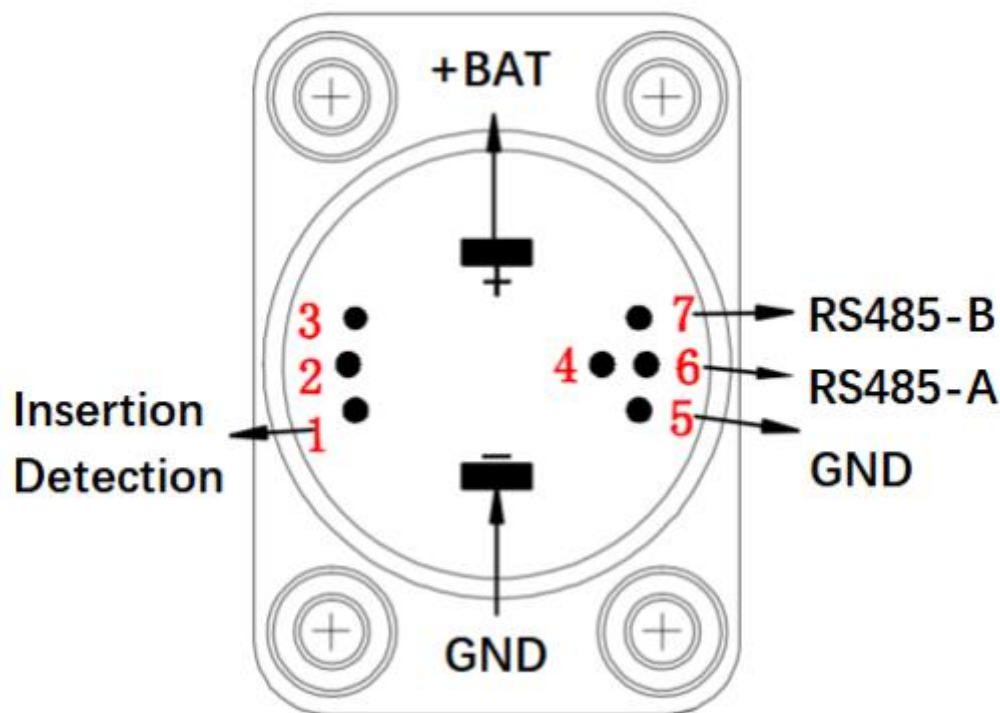
Step 2: **Design your own external accessory** to operate within the voltage/current limits. Refer to the Mechanical Design guide.

Step 3: **Connect the Insertion Detection pin to GND** to activate power output.

Step 4: **Establish RS485 communication** following 3.3 V protocol at 2 MHz.

Step 5: **Test and validate** your accessory with the mower.

1. Interface Pinout



Pin	Description	Notes
+BAT (thick)	Peripheral power supply (+)	Voltage: 18~24V

GND (thick)	Peripheral power supply (-)	Common ground
1 (thin)	Insertion Detection	Connect to GND to enable power output
2-5 (thin)	Reserved	Leave unconnected (NC)
6 (thin)	RS485-A	3.3V RS485 interface
7 (thin)	RS485-B	3.3V RS485 interface

2. Specifications

2.1 Peripheral Power Supply

- **Voltage:** 18 to 24V (equal to mower's internal battery voltage)
 - Note: Voltage may drop when the mower battery is low.
- **Current:** Up to 10A
 - Overcurrent protection triggers at >22.9A
- **Default State:** Power output is OFF
- **Power Activation Condition:**
 - Requires user approval via API access
 - Insertion Detection pin must be connected to GND (see 2.2)

Important: Do charge the mower with the external accessory. **Reverse charging (e.g. via battery packs or solar panels) is not supported.**

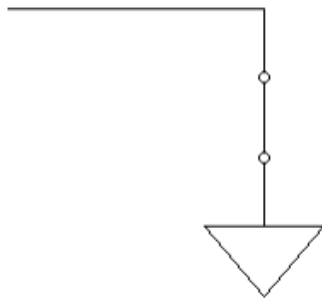
2.2 Insertion Detection

This mechanism detects whether an external accessory is connected.

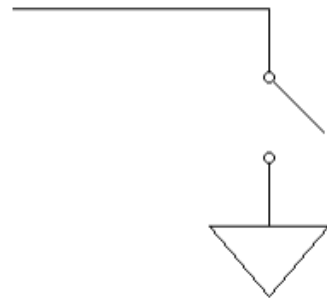
- **Connected (Pin 1 to GND):** Power supply is **enabled**
- **Disconnected (Pin 1 floating):** Power supply is **disabled**

This ensures safe and controlled power delivery to peripherals.

Insertion
Detection



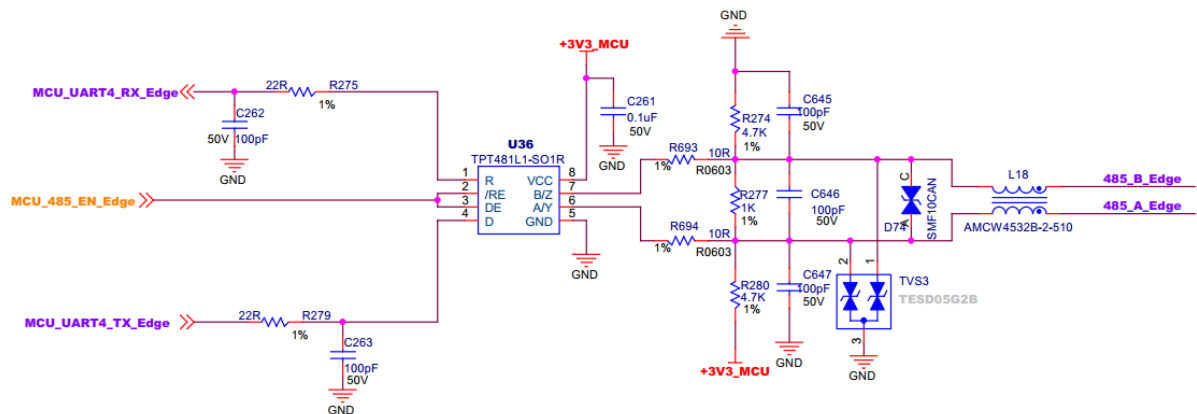
Insertion
Detection



2.3 RS485 Communication

- The Expansion Bay provides an RS485 communication bus for data exchange.
- **Electrical Requirements:** 3.3V RS485
- **Baud Rate:** 2 MHz

Please refer to the hardware schematic for implementation.



2.4 Connector Selection

Please refer to the Mechanical Design guide for details.