inovonics®

Tech note

Powering the IDTOUCH1 Touchpad

Preliminary

Introduction

This document covers power and wiring requirements for the IDTOUCH1 touchpad in primary and auxiliary configurations, along with power planning and troubleshooting guidance for installers.

Power Input Requirements

Input Voltage	Standby Current	Operating Current	Peak Current (Alarm)
12 VDC	500 mA	650 mA	750 mA
24 VDC	260 mA	340 mA	390 mA

Minimum Input Voltage: 12 VDC

Maximum Input Voltage: 24 VDC

The IDTOUCH1 touchpad does not support AC power.

Voltage Drop and Power Planning

Wire run length can significantly reduce the voltage delivered to the touchpad. The effect is greatest when the touchpad reaches its peak current draw. A touchpad that operates normally at idle can still experience undervoltage during peak demand if the wire run is too long or the wire gauge is too small. Powering more than one touchpad keypad with a centralized power supply increases the current demand on the wires, therefore requiring a thicker gauge.

Primary Touchpad

The primary touchpad is powered by the panel through the RS485 wired bus. During a power outage, batteries installed inside the panel enclosure provide backup power to the primary touchpad. The panel supplies 13.8 V on the RS485 rails.

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Wiring Requirements

Communication lines must use unshielded wire. Maximum run length from the panel to the primary touchpad depends on wire gauge:

Wire Gauge	Maximum Run Length
22 AWG	70 feet
20 AWG	120 feet
18 AWG	180 feet
16 AWG	300 feet

Auxiliary Touchpads

Each touchpad beyond the primary (first) must be powered from a source other than the Gateway Mark II. Choice of power supply can vary so long as it supports the values in “Power Input Requirements” on page 1.

Inovonics recommends an industry-standard 12 to 24 VDC power supply with battery backup. When using an auxiliary power supply, tie the negative terminal of the external power supply into the RS485 negative terminal on the back of the touchpad.

The tables below are based on real-world, worst-case conditions:

Wire Run Length - 12 VDC Supply Voltage

Wire Gauge (AWG)	Length Limit Recommendation	Length Limit Recommendation (Multiple)
22	Less than 70 ft	Less than 20 ft
20	70 - 110 ft	< 40 ft
18	110 - 170 ft	< 60 ft
16	170 - 270 ft	< 90 ft
14	270 - 420 ft	< 140 ft
12	420 - 670 ft	< 220 ft

Wire Run Length - 24 VDC Supply Voltage

Wire Gauge (AWG)	Length Limit Recommendation	Length Limit Recommendation (Multiple)
22	Less than 320 ft	Less than 110 ft
20	320 - 500 ft	< 170 ft
18	500 - 800 ft	< 270 ft
16	800 - 1270 ft	< 420 ft
14	1270 - 2030 ft	< 680 ft
12	2030 - 3220 ft	< 1070 ft

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End-of-Line Resistor

Wire runs longer than 100 ft require an end-of-line (EOL) resistor of 100 to 120 ohms across the RS485 A and B signal lines at the last device. Devices connected to the RS485 bus between the last device and the panel must not have an EOL resistor installed. The simplest method is to bridge the A and B screw terminals on the back of the touchpad with the resistor.

Troubleshooting

Touchpad reboots when the system goes into alarm

Cause

The wire run is too long for the wire gauge. During an alarm, the touchpad reaches its peak current draw. On a long or undersized run, this drops the voltage available at the touchpad and causes the processor to brown out and reboot.

Resolution

- For the primary touchpad, confirm the run length is within the limit for the wire gauge in the tables above. If it exceeds the limit, shorten the run or replace the wire with a heavier gauge.
- For auxiliary touchpads, confirm the input voltage and available current over the wire is within minimum and maximum limits described above.

Touchpad powers on but cannot connect to the panel

Cause

Electrical noise on the RS485 communication lines.

Resolution

- Install a 100- to 120- ohm EOL resistor across the A and B screw terminals on the back of the touchpad, if one is not already installed.
- If the issue persists, press the PB button to reset any eFuse faults on the line.

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Quick Fix: Local Power Supply

For touchpad power problems that cannot be resolved by rewiring, a 12 VDC, 2 A regulated power supply (commonly called a wall wart) can be used to power the touchpad locally. Unregulated power is not recommended.

- The DC cable from the power supply to the touchpad must be less than 10 ft.
- Mount the touchpad near an outlet to keep this run short.

A touchpad powered by a wall wart does not receive battery backup and will lose power during an outage.

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