

# Powering the IDTOUCH Wired Touchscreen Keypad

[Overview](#)

[Power Input Requirements](#)

[Primary Touchscreen](#)

[Wiring Requirements](#)

[Auxiliary Touchscreens](#)

[Wire Run Length - 12 VDC](#)

[Wire Run Length - 24 VDC](#)

[Voltage Drop and Power Planning](#)

[End-of-Line Resistor](#)

[Troubleshooting](#)

[Touchscreen reboots when the system goes into alarm](#)

[Touchscreen powers on but cannot connect to the panel](#)

[Quick Fix: Local Power Supply](#)

## Overview

This document covers power and wiring requirements for the IDTOUCH Inovonics Wired Touchscreen Keypad 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) |
|---------------|-----------------|-------------------|----------------------|
| 9.5 VDC       | 500 mA          | 650 mA            | 750 mA               |
| 12 VDC        | 500 mA          | 650 mA            | 750 mA               |
| 24 VDC        | 260 mA          | 340 mA            | 390 mA               |

**Minimum Input Voltage:** 9.5 VDC

**Maximum Input Voltage:** 24 VDC

 The IDTOUCH Wired Touchscreen Keypad does not support AC power.

## Primary Touchscreen

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

## Wiring Requirements

Communication lines must use unshielded wire. Maximum run length from the panel to the primary touchscreen 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 Touchscreens

Each touchscreen 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. Inovonics recommends an industry-standard 13.8 to 24 VDC power supply with battery backup. When using an auxiliary power supply, tie the ground of the power supply wiring into the RS485 screw terminal connection on the back of the touchscreen. The below tables are based on real-world, worst-case conditions:

#### Wire Run Length - 12 VDC

| 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

| 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 |

## Voltage Drop and Power Planning

Wire run length can significantly reduce the voltage delivered to the touchscreen. The effect is greatest when the touchscreen reaches its peak current draw. A touchscreen that operates normally at idle can still experience undervoltage during peak demand if the run is too long or the wire gauge is too small. Touchscreens spaced more evenly across the wire run length evenly balance the loading. Powering more than one touchscreen keypad off of a centralized power supply increases the current demand on the wires, therefore requiring a thicker gauge wire or a more powerful/higher voltage power supply.

## 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. The simplest method is to bridge the A and B screw terminals on the back of the touchscreen with the resistor.

## Troubleshooting

Touchscreen reboots when the system goes into alarm

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

### Resolution:

- For the primary touchscreen, confirm the run length is within the limit for the wire gauge (25 ft for 22 AWG, 180 ft for 18 AWG). If it exceeds the limit, shorten the run or replace the wire with a heavier gauge.
- For auxiliary touchscreens, confirm the DC cable from the power supply is less than 10 ft.

Touchscreen powers on but cannot connect to the panel

**Cause:** Electrical noise on the RS485 communication lines.

### Resolution:

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

#### Quick Fix: Local Power Supply

For touchscreen power problems that cannot be resolved by rewiring, a 12 to 13 VDC, 2 A power supply (commonly called a wall wart) can be used to power the touchscreen locally.

- The DC cable from the power supply to the touchscreen must be less than 10 ft.
- Mount the touchscreen near an outlet to keep this run short.
- A touchscreen powered by a wall wart does not receive battery backup and will lose power during an outage.