

ELO USB controller for SAW

P/N 714259-000

Electrical

Supply Voltage and Current

- +5 Vdc, nominal (+4.75 to +5.25 Vdc)
- 50 mA, typical at +5 Vdc. Average power dissipation is 0.25 W, typical
- Supply must be capable of sourcing 100mA, minimum.
- Total noise and ripple requirement must be less than 100mV (p-p) for frequencies below 1MHz, and less than 50mV (p-p) for frequencies above 1MHz.

Interface

- USB High Speed
- Plug and play compatible

Operating Modes

- IntelliTouch SmartSet protocol
- Initial/Stream/ Untouch/ Z-axis Enable Modes

Touch Resolution

- Approximately 4096x4096, size independent, 255 levels of Z (pressure)

Conversion Time

- Approximately 10.4 ms per coordinate set.

Reliability

- MTBF greater than 345,000 hours per MIL-HDBK-217-F2 using the parts stress calculation method for the ground benign environment with an ambient temperature of 25 °C

Environmental

Temperature

- Operating: 0 C to 65 C
- Storage: -25 C to 85 C

Humidity

- Operating: 10% to 90% RH, non-condensing
- Storage: 10% to 90% RH, non-condensing

Operating Altitude

- 10,000 feet

Shock and Vibration

- Three axis sine wave, 50Hz to 2kHz, 1G, 2 minutes/Octave with dwell on resonance

ESD

- Per EN 6100-4-2 1995: Level 4. Contact discharge 8kV, air discharge 15kV.

Flammability

- The printed circuit board substrate is rated 94V0. All plastic components, such as headers and connectors, are also rated 94V0.

Physical Characteristics

Construction

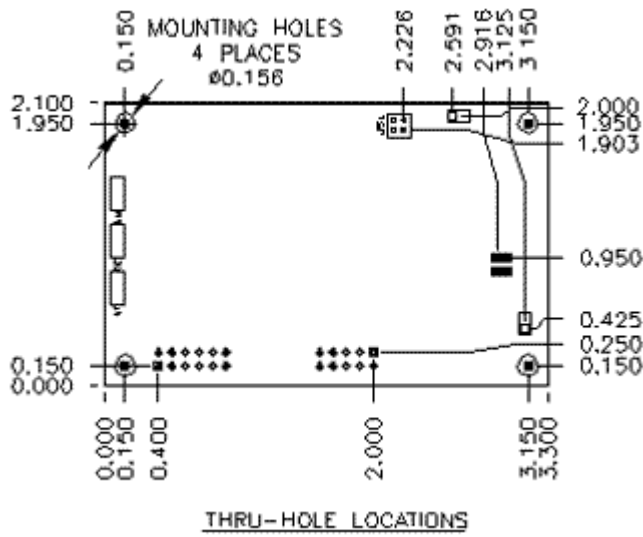
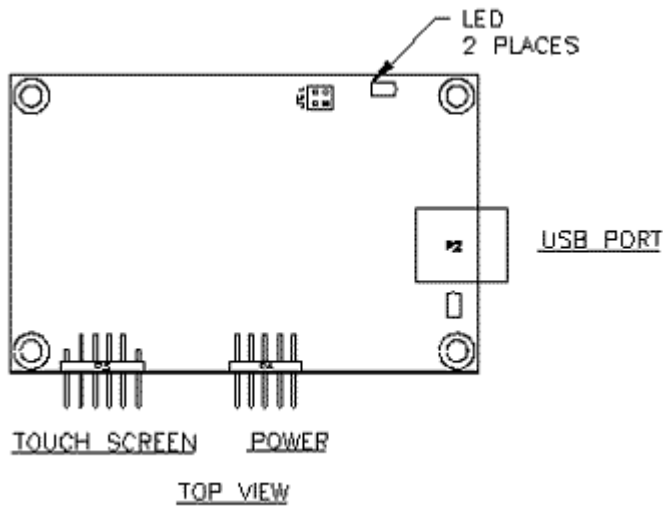
- Four-layer surface-mount design with internal ground plane for EMI suppression

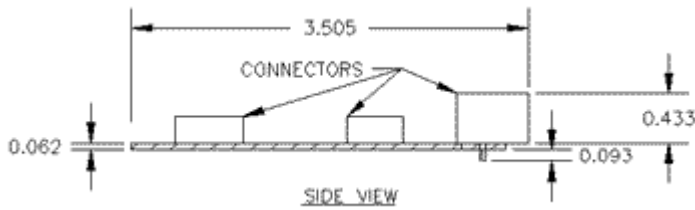
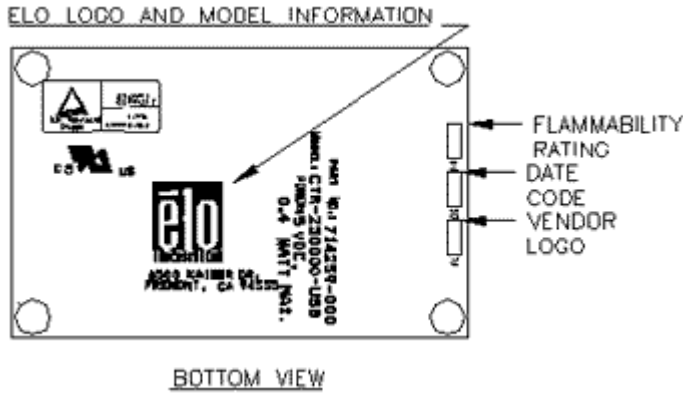
Dimensions

- Total Width: 2.36 inches (59.94 mm), including connectors
- Total Length: 3.51 inches (89.03 mm), including connector
- Total height: 0.61 inches (15.44 mm)

- All mounting holes are plated through-holes for chassis ground connection. Refer to the drawings at the end of this document.

Drawings





Note: Side view values represent typical dimensions.

Connectors and Pin Definitions

- The connector configuration permits the controller to be placed in-line between the touchscreen and a USB hub or host attachment.

USB Output Connector

The USB connector, P2, is a USB Series "B" receptacle as specified in section 6.5 of the USB specification, version 1.1. The pins are numbered as shown in the figure below.

Figure 1. P2, USB board-mounted header and cable-mounted plug

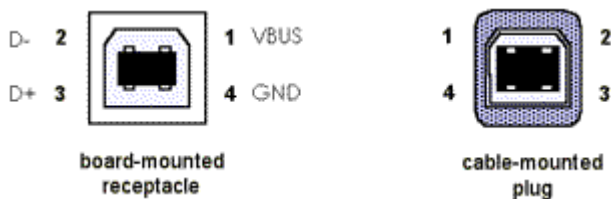


Table 1. USB connector pin numbers and signal names

P2 pin number	Signal name	Standard wire color
1	VBUS	RED
2	D-	WHITE
3	D+	GREEN
4	GND	BLACK
shell	shield	drain wire

Touchscreen Connector

The touchscreen connector, P3, is a dual row by six position header with 0.025 inch square pins spaced on 0.100 centers. P3 mates with the Berg Mini-Latch receptacle on the IntelliTouch touchscreen cable. The pins are numbered as shown in the figure. The withdrawal force exceeds 3.9 lbs.

Figure 2. Pin diagram for touchscreen connector, P3, as viewed from connector mating surfaces

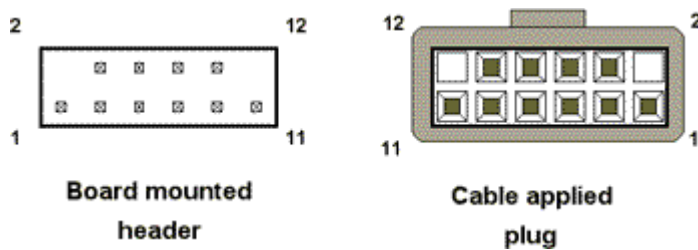


Table 2. IntelliTouch touchscreen connector pin numbers and signal descriptions

Signal name	P3 pin	Signal function
Chassis	1	frame ground for cable shield
none	2	connector key
Y rcv +	3	
Y xmt +	4	
Y rcv -	5	
Y xmt -	6	analog ground

analog gnd	7	analog ground
X xmt -	8	analog ground
X rcv -	9	
X xmt +	10	
X rcv +	11	
none	12	connector key

Power Connector, P4

The power connector, P4, is a 2 row by five-position header with 0.025-inch pins on 0.100 centers. The header is compatible with insulation displacement cable (IDC) connectors such as Berg series 71600, series 71602, series 66900, and series 66902, Molex style 40312, Amp series 746285 and series 746288 receptacles. The header is also compatible with crimp termination, discrete wire receptacles and housings including Berg Mini-Latch housings and Mini-PV receptacles, Molex series 70450 connectors, and the Amp AMPMODU Mod. IV connector family. Pin numbering schemes for discrete wire connectors differ between manufacturers.

Refer only to the following figure for pin number locations. Signal connections are shown in the table following.

Figure 3. P4, Power connector board-mounted header and cable-mounted plug

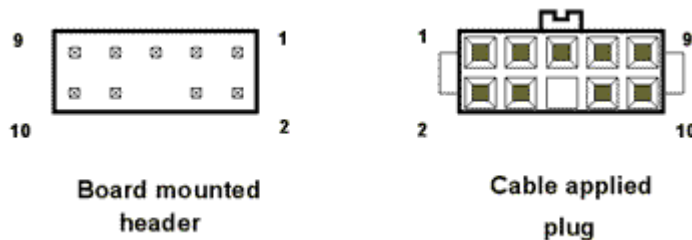


Table 3. Power connector, P4, pins and signal descriptions

Signal name	P4 pin	Signal function
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+Regulated Pwr	1	+5 volts DC +/- 5%
Pwr Com	2	Supply voltage common
reserved	3	no connection allowed
Pwr Com	4	Supply voltage common
n/c	5	
n/c	6	key location
n/c	7	
Frame ground	8	
n/c	9	
reserved	10	no connection allowed

LED Diagnostic Characteristics

A green LED (D1) indicates controller status as follows:

LED Blink Rate	Function
Once per second	Normal condition, untouched state
On continuously	Touched state
Twice per second	Error detected

A second LED (D6) indicates USB status as follows:

LED State	Function
OFF	Controller is not enumerated on USB
ON	Controller is enumerated on USB, but there is no data transfer
Blinking	USB data transfers between controller and host are occurring

Agency Approvals

- Elo controllers are "CNR/USR" UL Recognized Components for USA and Canada, Category NWGQ2, Information Technology Equipment Including Business Equipment.

- Elo controllers are TUV Bauart certified as components.
- Elo controllers have been tested for compliance with FCC Part 15 Class B limits*.
- Depending on the application, it may be necessary to pay special attention to system grounding and shielding, and it may be necessary to apply ferrite suppressor beads.