

General Specifications

Electrical Capacity (Resistive Load)

Power Level:	6V DC maximum
Maximum Current:	Upper electrode 100mA/division number; lower electrode 100mA/division number; between upper and lower electrodes 0.5mA

Other Ratings

Linearity:	±2.5% maximum (after 4-point calibration)
Expected Operational Life:	Input (finger): 10,000,000 operations minimum Character (stylus): 100,000 operations minimum
Touch Activation Force:	0.03 ~ 0.3N maximum
Chattering Time:	10 milliseconds maximum at ON/OFF
Light Transmission:	79% typical (value at full wavelength)
Surface Hardness:	3H minimum (JIS K5400)

Environmental Data

Operating Temperature Range:	-20°C ~ +80°C (-4°F ~ +176°F)
Operating Humidity Range:	-20°C ~ +60°C (-4°F ~ +140°F) Less than 90% RH (no condensation). Exceeding 60°C 133.8g/m ³ (no condensation)
Storage Temperature Range:	-40°C ~ +80°C (-40°F ~ +176°F)
Storage Humidity Range:	-40°C ~ +60°C (-40°F ~ +140°F) Less than 95% RH (no condensation). Exceeding 60°C 142.9g/m ³ (no condensation)



Applications

- Industrial Automation
- Communication Systems
- POS, Cash Registers
- ATMs
- Medical Equipment
- Gaming/Entertainment
- Broadcast
- Food Service

Distinctive Characteristics

Exceptional durability and endurance promote the Series ZE Touch Screens as the ideal companions for integrating with devices intended for repetitive use.

The multi-touch resistive touch screen employs a unique 4-wire cell system, and enables light touch operation similar to a smartphone, while utilizing the resistive film method.

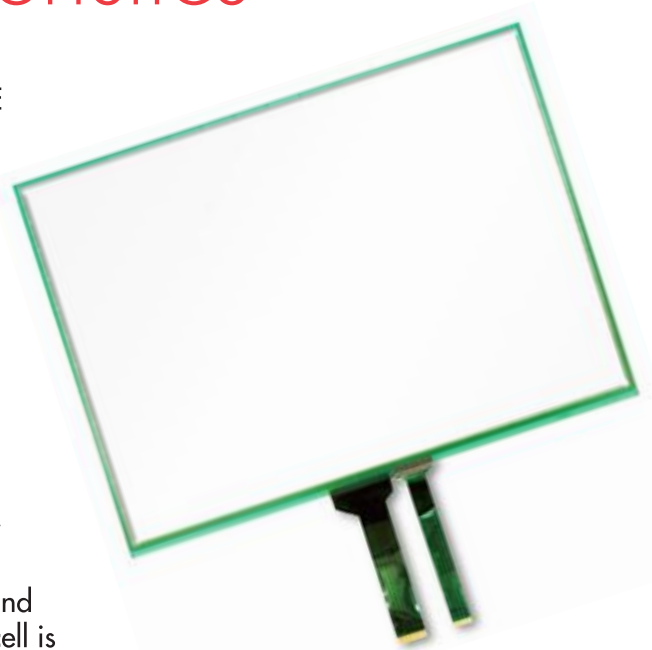
Robust performance in the midst of coarse elements of a harsh, rugged environment, including a high resistance to noise. Simplifies typically complex manufacturing processes.

The touch panel surface is a pattern of fine cells in vertical and horizontal directions, and input information touching each cell is detected by a dedicated controller. This facilitates precise two-point pressing.

Choice of input methods: finger, gloved hand or stylus.

Glare resistant ITO film reduces reflection from fluorescent lighting and sunlight.

Expanded design capabilities in wide screen sizes: 7.0", 10.1" and 15.6".



Controller Boards for Multi-Touch Resistive Touch Screens

DISTINCTIVE CHARACTERISTICS

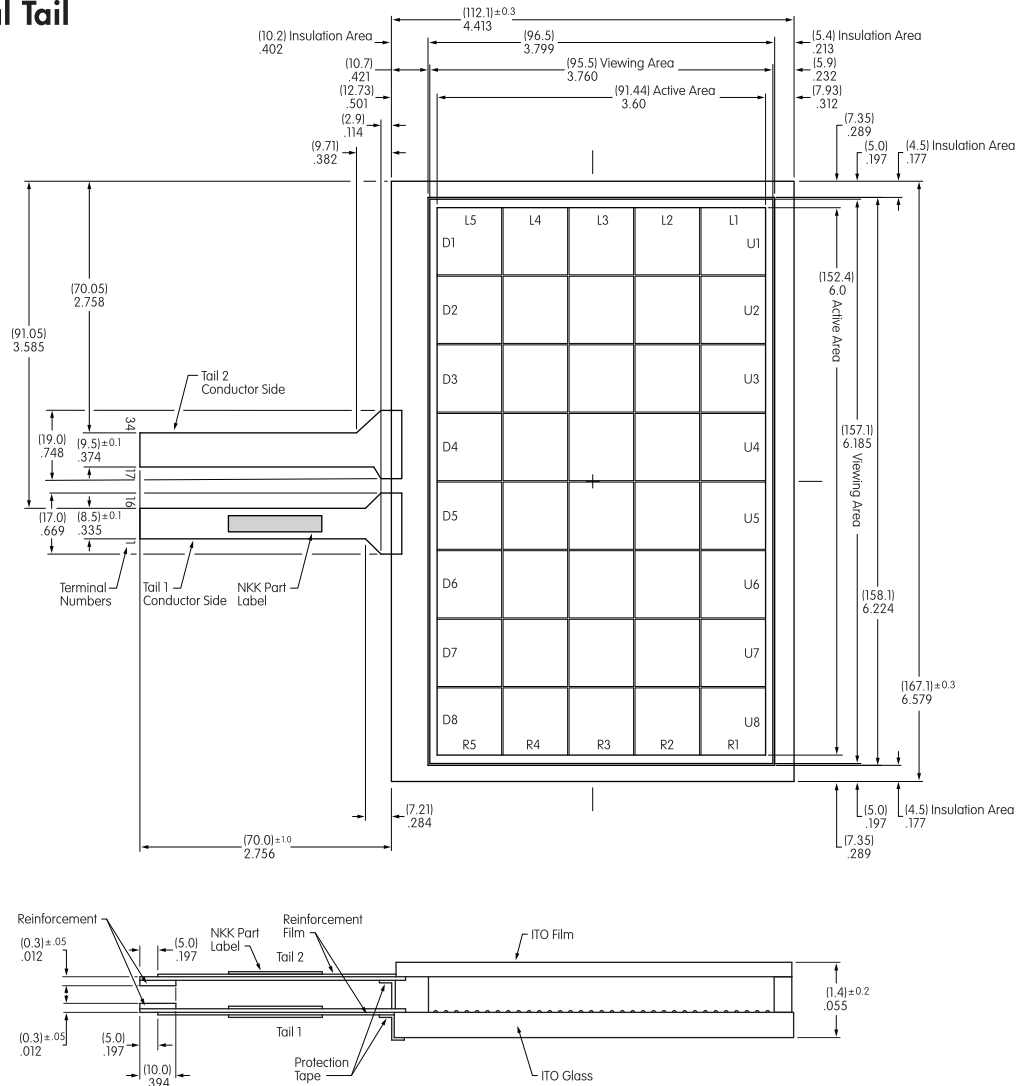
- Engineered to partner with Series ZE Touch Screens, resulting in smooth, effortless operation
- High specification touch controller boards with fast rates of coordinate output
- Supports USB interface
- Controller board ZE256-234E-MTR2000 is for 10.1" and larger touch screens. Controller board ZE257-234F-MTR2010 is for the 7.0" touch screen.



Controller Boards are Compatible with USB

TYPICAL 7.0 DIMENSIONS

4-Wire Cell Resistive with Horizontal Tail



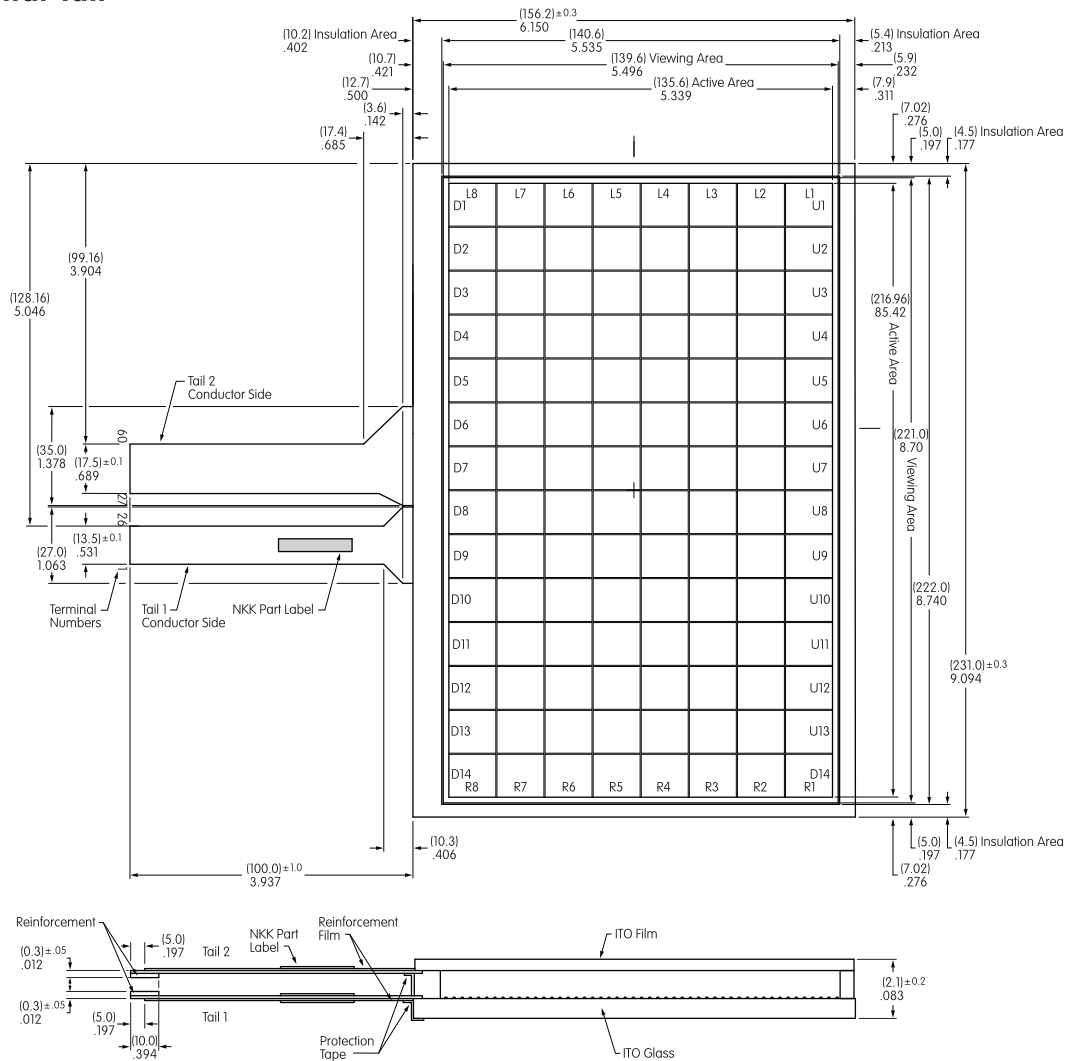
Tail 1	Pins	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
	Signal	R1	R2	R3	R4	R5	NC	NC	SDR	NC	NC	L5	L4	L3	L2	L1	SUL		
Tail 2	Pins	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
	Signal	U6	U7	U8	SUR	D8	D7	D6	D5	D4	D3	D2	D1	SDL	U1	U2	U3	U4	U5

Typical Dimensions

Part Number	Screen Size in Inches	Key Area Dimensions	Viewing Area Dimensions	External Dimensions	Panel Thickness	Terminal Detail 0.02" (0.5mm) Pitch
ZE253-234B-MTR070W	7.0	6.0" x 3.6" (152.4mm x 91.44mm)	6.185" x 3.760" (157.1mm x 95.5mm)	6.579" x 4.413" (167.1mm x 112.1mm)	0.055" (1.4mm)	Length 2.756" (70.0mm)

TYPICAL 10.1 DIMENSIONS

4-Wire Cell Resistive with Horizontal Tail



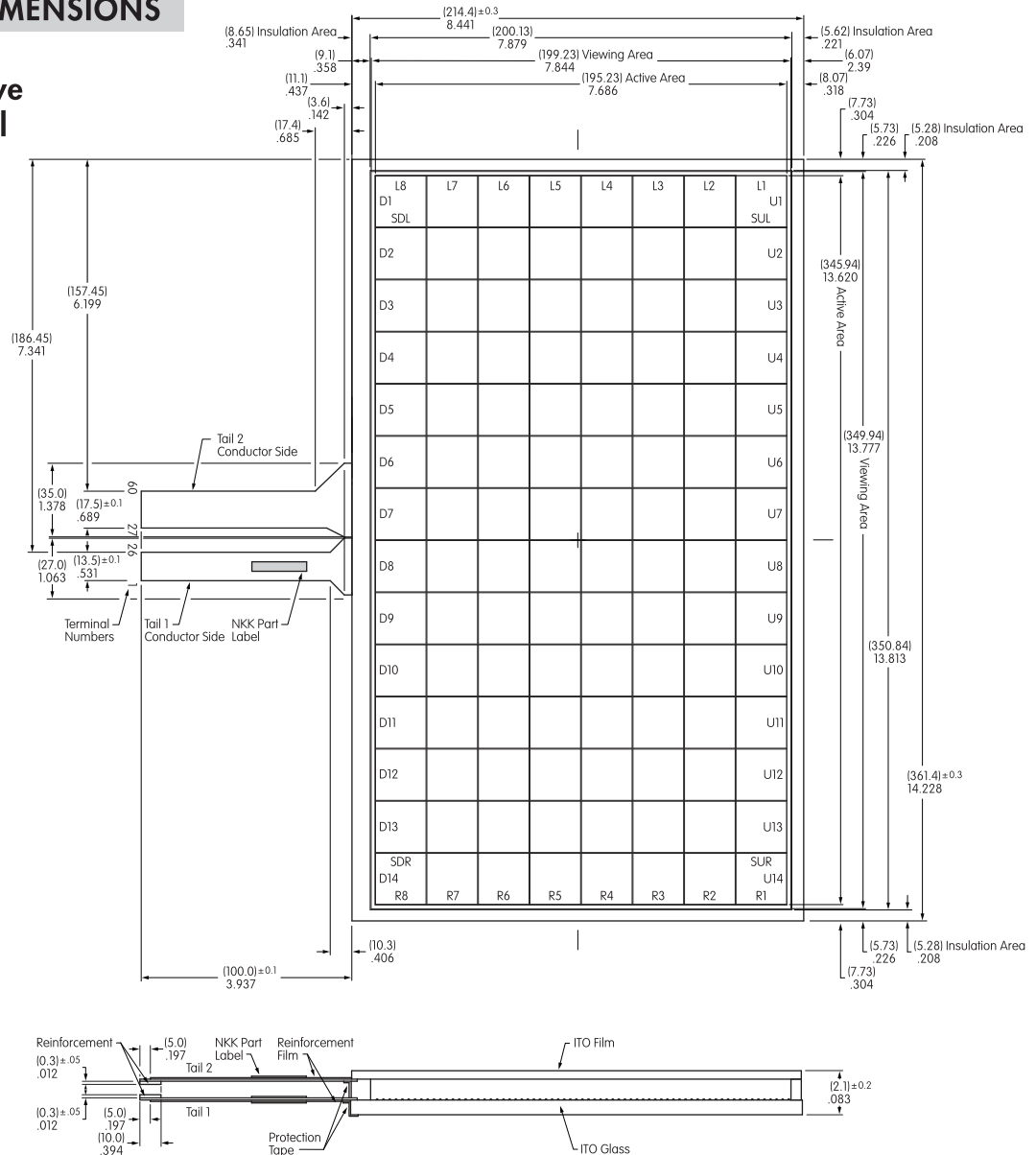
Tail 1	Pins	1	2	3	4	5	6	7	8	9	10	11	12	13				
	Signal	R1	R2	R3	R4	R5	R6	R7	R8	NC	NC	NC	NC	SDR				
	Pins	14	15	16	17	18	19	20	21	22	23	24	25	26				
	Signal	NC	NC	NC	NC	L8	L7	L6	L5	L4	L3	L2	L1	SUL				
Tail 2	Pins	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
	Signal	U9	U10	U11	U12	U13	U14	NC	SUR	NC	D14	D13	D12	D11	D10	D9	D8	NC
	Pins	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
	Signal	D7	D6	D5	D4	D3	D2	D1	SDL	U1	U2	U3	U4	U5	U6	U7	U8	NC

10.1 Inch Wide Touch Screens

Part Number	Screen Size in Inches	Key Area Dimensions	Viewing Area Dimensions	External Dimensions	Panel Thickness	Terminal Detail 0.02" (0.5mm) Pitch
ZE254-234C-MTR101W	10.1	8.542" x 5.339" (216.96mm x 135.6mm)	8.701" x 5.496" (221.0mm x 139.6mm)	9.094" x 6.150" (231.0mm x 156.2mm)	0.083" (2.1mm)	Length 3.937" (100.0mm)

TYPICAL 15.6 DIMENSIONS

4-Wire Cell Resistive with Horizontal Tail



Tail 1	Pins	1	2	3	4	5	6	7	8	9	10	11	12	13				
	Signal	R1	R2	R3	R4	R5	R6	R7	R8	NC	NC	NC	NC	SDR				
	Pins	14	15	16	17	18	19	20	21	22	23	24	25	26				
	Signal	NC	NC	NC	NC	L8	L7	L6	L5	L4	L3	L2	L1	SUL				
Tail 2	Pins	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
	Signal	U9	U10	U11	U12	U13	U14	NC	SUR	NC	D14	D13	D12	D11	D10	D9	D8	NC
	Pins	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
	Signal	D7	D6	D5	D4	D3	D2	D1	SDL	U1	U2	U3	U4	U5	U6	U7	U8	NC

15.6 Inch Wide Touch Screens

Part Number	Screen Size in Inches	Key Area Dimensions	Viewing Area Dimensions	External Dimensions	Panel Thickness	Terminal Detail 0.02" (0.5mm) Pitch
ZE255-234D-MTR156W	15.6	13.620" x 7.686" (345.94mm x 195.23mm)	13.777" x 7.844" (349.94mm x 199.23mm)	14.228" x 8.441" (361.4mm x 214.4mm)	0.083" (2.1mm)	Length 3.937" (100.0mm)

Multi-Touch Resistive Touch Screen Controller Boards

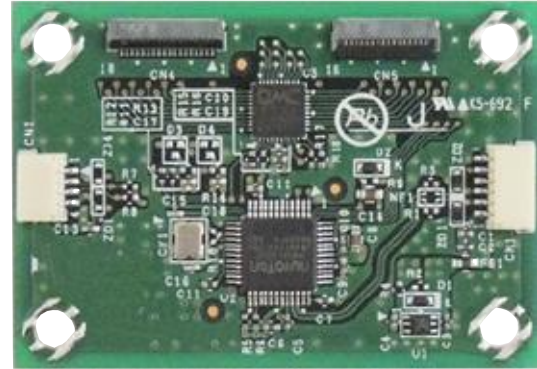
DISTINCTIVE CHARACTERISTICS

- Multi-touch resistive touch screen controller boards that recognize dual inputs
- High specification touch controller with fast rate of coordinate output
- Controller boards support USB interface

Controller Boards			
Part No.	Type	Compatible Touch Screen	Communication Protocol
ZE256-234E-MTR2000	Multi-touch	10.1" W & 15.6" W	USB
ZE257-234F-MTR2010	Multi-touch	7.0" W	USB



For Use with 10.1" Wide and 15.6" Wide ZE Touch Screens



For Use with 7.0" Wide ZE Touch Screens

General Specifications

Items	Rating	Notes
Operating Temperature	-20°C ~ +85°C (-4°F ~ +185°F) (no condensation)	
Storage Temperature	-20°C ~ +85°C (-4°F ~ +185°F) (no condensation)	
Supply Voltage	4.75V DC ~ 5.25V	
Current Consumption	45mA typical	5.0V at multi-touch
Linearity Error	±2LSB maximum	
Maximum Multi-Touch Points	2 points	
Coordinate Resolution	Data Length: 10bit (1024 x 1024)	

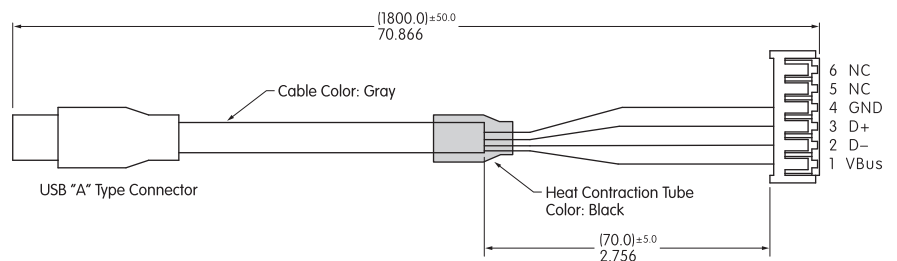
Absolute Maximum Ratings

Items	Minimum	Typical	Maximum
Touch Screen Power Supply	-0.3V	—	+6.0V

OPTIONAL ACCESSORY

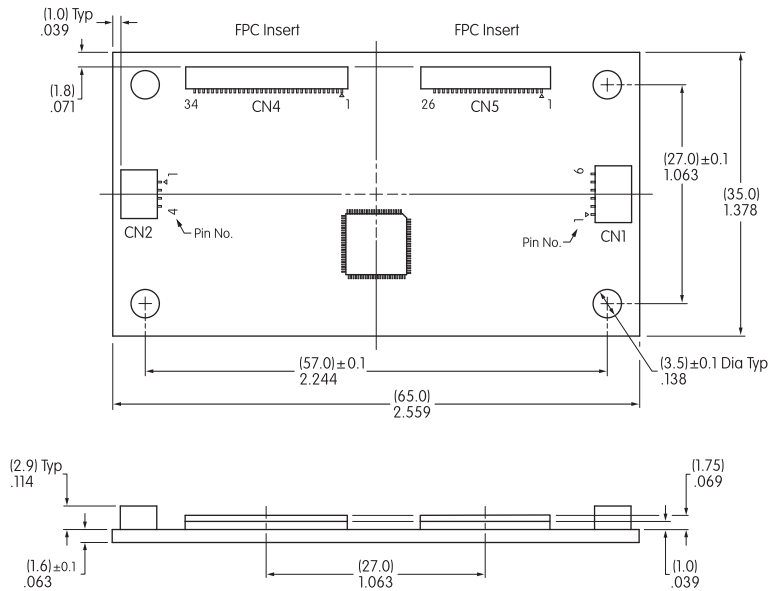
ZE258-234G-10USB Controller Cable

This Controller Cable connects to the Series ZE controller boards ZE256-234E-MTR2000 or ZE257-234F-MTR2010 to the PC for USB communications.



Touch Screen Controller Board for USB

ZE256-234E-MTR2000



USB Connector - 6 Pins

CN	Pin No.	Pin Name	Terminal
CN1	1	Vbus	USB Power Input (5V)
	2	D-	USB D-
	3	D+	USB D+
	4	GND	USB GND
	5	RESET	Terminal for Rest, Active L
	6	GND	GND for Reset

UART Connector - 4 Pins

CN	Pin No.	Pin Name	Terminal
CN2	1	V _{CC}	DC Power Input
	2	TXD	UART Communications
	3	RXD	UART Communications
	4	GND	GND

Touch Screen Connector 1

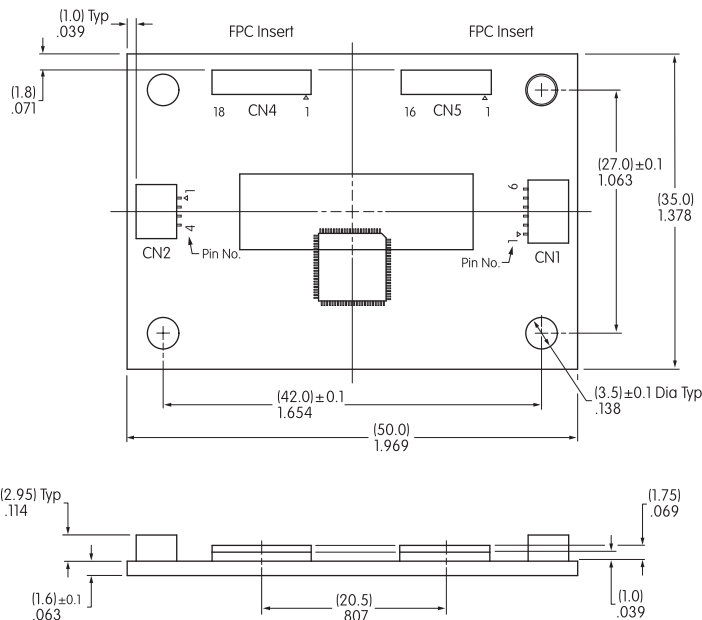
CN	Terminal
CN4	Touch Screen Connector 34 Pins

Touch Screen Connector 2

CN	Terminal
CN5	Touch Screen Connector 26 Pins

Touch Screen Controller Board for USB

ZE257-234F-MTR2010



USB Connector - 6 Pins

CN	Pin No.	Pin Name	Terminal
CN1	1	Vbus	USB Power Input (5V)
	2	D-	USB D-
	3	D+	USB D+
	4	GND	USB GND
	5	RESET	Terminal for Rest, Active L
	6	GND	GND for Reset

Touch Screen Connector 1

CN	Terminal
CN4	Touch Screen Connector 18 Pins

Touch Screen Connector 2

CN	Terminal
CN5	Touch Screen Connector 16 Pins

HANDLING, STORAGE & OPERATING PRECAUTIONS

Handling Precautions

- When opening product, take precaution with up/down and front/back directions. Glass edges are not chamfered, and corners or edges can be sharp. Wear gloves when handling the product.
- Do not pick up the product by the tail or pull the tail area.
- Use gloves or finger cots to prevent fingerprints on surface.
- When handling the product, hold it outside of the viewing area.
- Avoid stacking multiple products or placing other items on the product.
- Clean with a soft cloth and ethanol. Do not use any cleaning agents other than ethanol.
- Store product in original package and store at the temperature and humidity range specified.
- Do not store in an environment with acids or other corrosive gases or where condensation may occur.
- Do not use or store product where it may be exposed to water, organic solution or acid.
- Do not use excessive force when using or cleaning product, as it may result in malfunction.



Operating Precautions

- Operate with fingers or a touch screen stylus only.
- Do not press hard with a pen or similar object between viewing area and key area.
- Avoid operating product under direct sunlight.

Other Precautions

- Not suited for use in critical control systems without proper fail-safe design consideration.
- Products are guaranteed based on evaluation of standards within the moisture tolerance and usage temperature range, but not guaranteed to operate perpetually at this temperature.
- Calibration data from one touch panel should not be applied to another panel; each should be calibrated individually.
- Recalibration is necessary if connector has been removed from the tail and reconnected.
- All specifications based on the tested touch screens only. Evaluate the products after installation.

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