



MULTI-INNO TECHNOLOGY CO., LTD.

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TOUCH PANEL SPECIFICATION

Model : MI0970CAP-C

Customer :

Approved	
Commont	

Revision	1.0
Engineering	
Date	2012-10-05
Our Reference	

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■ APPLICATION

DVD player, UMPC, POS, MID

■ GENERAL SPECIFICATIONS

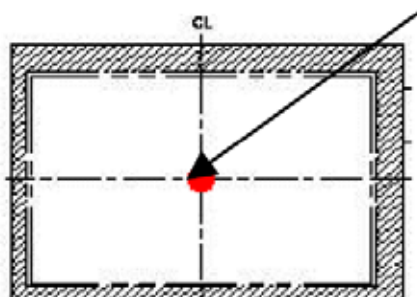
Composition: 9.7 inch Capacitive Touch Panel (CTP).

Interface: USB for the CTP.

Item	Specification	Unit
Type	Transparent type projected capacitive touch panel	
Input mode	Human's finger	
Finger	10	
Outline Dimension	246.1(W) x 185.83(H) x 1.75 (D)	mm
Active area	197.61(W)(typ.) x148.46(H)(typ.)	mm
Transparency	$\geq 85\%$	%
Haze	$\leq 1.0\%$	%
Hardness	7H (min) [by JIS K5400]	Pencil hardness
Weight	TBD(typ)	g
Report rate	Max:122	Points/sec
Response time	15	ms
Point hitting life time	1,000,000 times min.	Note 1

Note 1: Use 8 mm diameter silicon rubber/force 3N to knock on the same point twice per second (no-operating), after test function check pass.

central point



■ ABSOLUTE MAXIMUM RATINGS

Symbol	Description	Min	Typ	Max	Unit	Notes
VCC	Supply voltage	-0.3	-	4.0	V	
Vio	DC input voltage	-0.3	-	VCC+0.3	V	

■ ELECTRICAL CHARACTERISTICS

Symbol	Description	Min	Typ	Max	Unit	Notes
VCC	Supply voltage	-	5	-	V	
GND	Supply voltage	-	0	-	V	

■ PIN CONNECTIONS

No.	Name	I/O	Description
1	VCC	P	Power
2	D-	Signal	USB Signal
3	D+	Signal	USB Signal
4	NC	-	No Connect
5	RESET	I	CTP Reset
6	GND	P	Ground

Note: Interface protocol please refer to Universal Serial Bus Specification Revision 1.1

■ APPEARANCE SPECIFICATION

1 Inspection condition

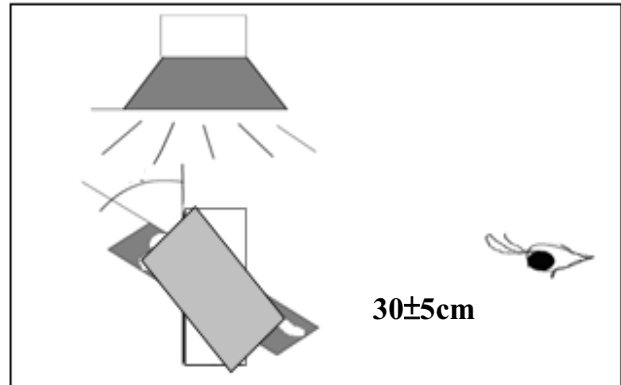
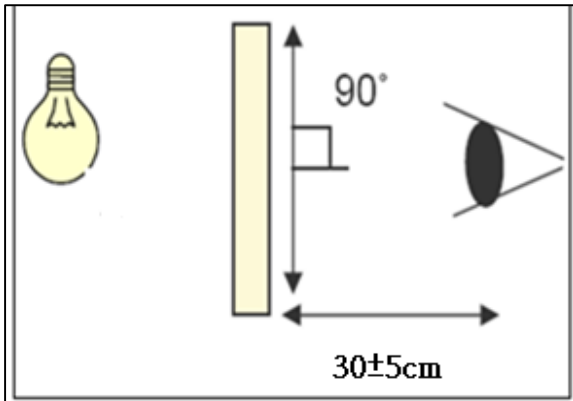
1.1 Inspection conditions

1.1.1 Inspection Distance : 30 ± 5 cm

1.1.2 View Angle:

(1) Inspection that light pervious to the product: $90 \pm 15^\circ$

(2) Inspection that light reflects on the product: $90 \pm 15^\circ$



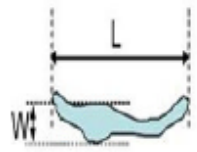
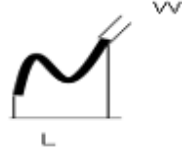
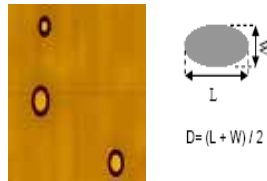

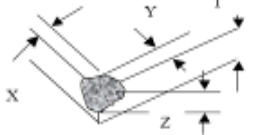
1.2 Environment conditions :

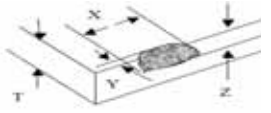

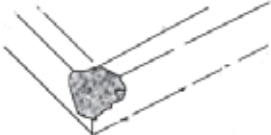
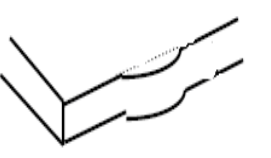
Ambient Temperature :	$25 \pm 5^\circ\text{C}$
Ambient Humidity :	30~75%RH
Ambient Illumination	600~800 lux

2 Inspection Parameters

Appearance inspection standard (D: diameter, L: length; W: width, Z: height, T: glass thickness)

Inspection item	Inspection standard		Description
	SPEC (unit: mm)	Acceptable	
Foreign material in dot shape	$D \leq 0.5$	Ignored	 $D = (L + W) / 2$
	$0.5 < D \leq 0.8, \text{distance} > 5$	$n \leq 3$	
	$D > 0.8$	0	

Foreign material in line shape	SPEC	Acceptable	 L : Long W : Width
	$W \leq 0.05$ and $L \leq 7$	Ignored	
	$0.05 < W \leq 0.08$, $L \leq 7$, distance > 5	$n \leq 3$	
	$W > 0.08$ or $L > 7$	0	
Contamination	It is acceptable if the dirt can be wiped.		
Scratch	SPEC	Acceptable	
	$W \leq 0.05$ and $L \leq 7$	Ignored	
	$0.05 < W \leq 0.08$, $L \leq 7$, distance > 5	$n \leq 3$	
	$0.08 < W \leq 0.1$, $L \leq 7$, distance > 5	$n \leq 2$	
	$W > 0.1$ or $L > 7$	0	
Inspection item	SPEC		Description
Bubble	SPEC (unit: mm)	Acceptable	 $D = (L + W) / 2$
	$D \leq 0.2$	Ignored	
	Non visible area	Ignored	
	$0.2 < D \leq 0.3$, distance > 5	$n \leq 3$	
	$D > 0.3$	0	
Cover & Sensor Crack	Prohibited		
Cover angle missing	SPEC (unit: mm)	Acceptable	
	Side/Bottom	Ignored	
	It is prohibited if the defect appears on the front.	0	
Inspection item	SPEC		Description

Cover edge break	SPEC (unit: mm)	Acceptable	
	$X \leq 2.0, Y \leq 2.0, Z \leq T$	Ignored	
	$X > 2.0, Y > 2.0, Z > T$	0	
Sensor angle missing/edge break	SPEC (unit: mm)	Acceptable	 
	Damage circuit or function.	0	
	It can be seen from the front of cover visible area.	0	
Sensor flange	SPEC (unit: mm)	Acceptable	
	Do not affect assembly.	Ignored	
Ink	SPEC (unit: mm)	Acceptable	
	word unclear, inverted, mistake, break line	0	
Bubble under protection film	SPEC (unit: mm)	Acceptable	
	NA		
Function	Prohibited		

3 Sampling Condition

Unless otherwise agree in written, the sampling inspection shall be applied to the incoming inspection of customer.

Lot size: Quantity of shipment lot per model.

Sampling type: normal inspection, single sampling

Sampling table: MIL-STD-105E

Inspection level: Level II

Class of defects	Definition		
	Major	AQL 0.65%	It is a defect that is likely to result in failure or to reduce materially the usability of the product for the intended function.
	Minor	AQL 1.5%	It is a defect that will not result in functioning problem with deviation classified.

■ QUALITY ASSURANCE

1 Test Condition

1.1 Temperature and Humidity(Ambient Temperature)

Temperature : $25 \pm 5^{\circ}\text{C}$

Humidity : $65 \pm 5\%$

1.2 Operation

Unless specified otherwise, test will be conducted under function state.

1.3 Container

Unless specified otherwise, vibration test will be conducted to the product itself without putting it in a container.

1.4 Test Frequency

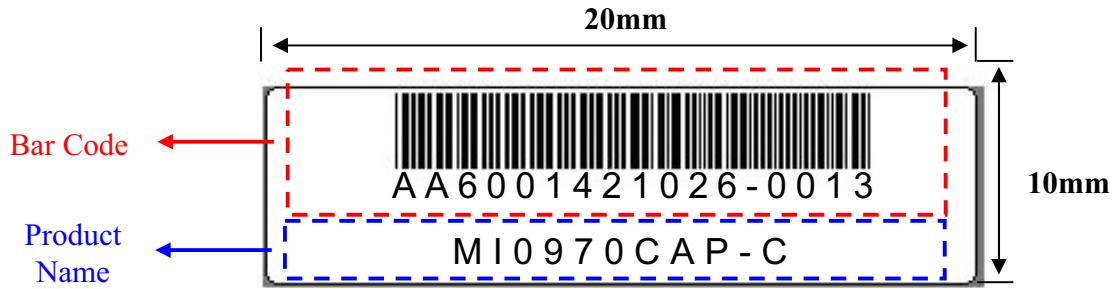
In case of related to deterioration such as shock test. It will be conducted only once.

1.5 Test Method

Reliability Test Item & Level		Test Level
No.	Test Item	
1.	Low Temperature Storage Test	T= -30°C , 120hrs after 24 hrs at room temperature and test.
2.	High Temperature Storage Test	T= 80°C , 120hrs after 24 hrs at room temperature and test.
3.	High Temperature and High Humidity Storage Test	T= 60°C , 90%RH, 120hrs after 24 hrs at room temperature and test.
4.	Thermal Cycling Test (No operation)	-20°C 30min ~ 70°C 30 min , 100 Cycles after 24 hrs at room temperature and test.
5.	Vibration Test (No operation)	Frequency : 10 ~ 55 Hz Amplitude : 1.5 mm Sweep time : 11 mins Test Period: 6 Cycles for each direction of X, Y, Z
6.	ESD TEST	Air Discharge : $\pm 15\text{KV}$ Indirect Contact Discharge : $\pm 8\text{KV}$

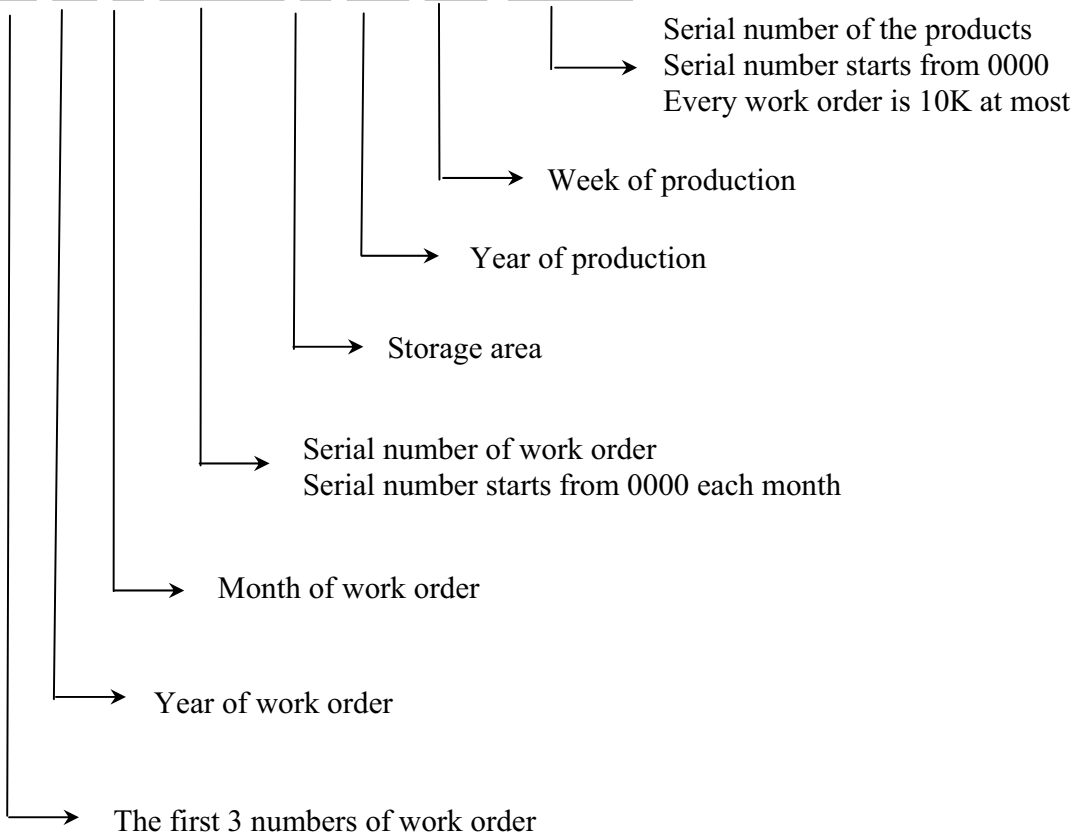
■ CTP PRODUCT LABEL DEFINE

CTP Product Label style:



BarCode Define:

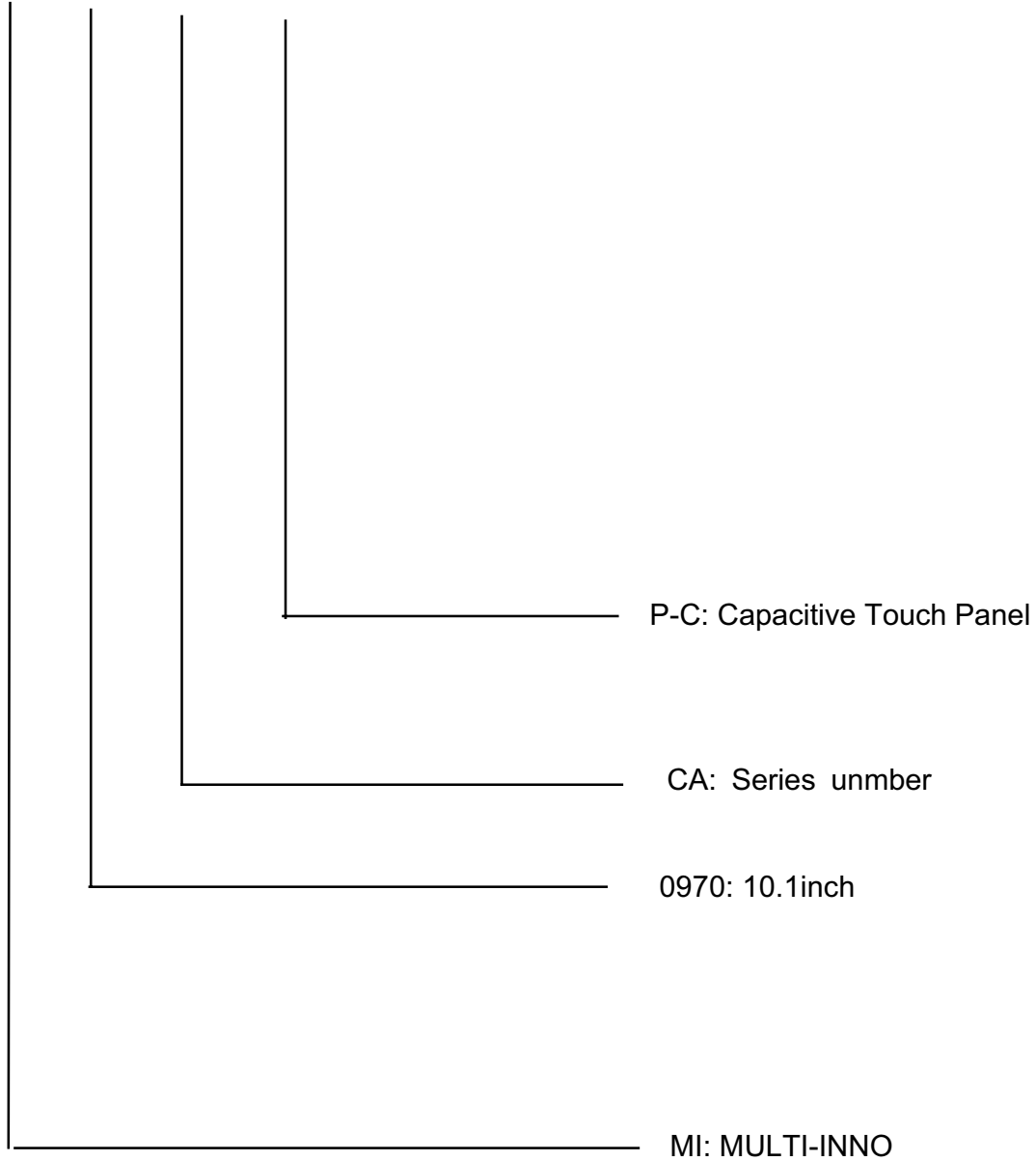
A A 6 0014 2 10 26-0013





Product Name Define:

MI 0970 CA P_C



■ PRECAUTIONS IN USE CTP

1. ASSEMBLY PRECAUTIONS

- (1) Since Touch Panel is consist of glass, please be careful your hands to be injured during handing. You must wear gloves during handing.
- (2) Do not touch, push or rub the exposed touch panel, tweezers or anything harder than HB pencil lead. And please do not rub with dust clothes with chemical treatment.
- (3) Do not stack the touch panels together. Do not put heavy objects on touch panel.
- (4) Please do not take a CTP to pieces and reconstruct it. Resolving and reconstructing modules may cause them not to work well.
- (5) Please excessive force or strain to the panel or tail is prohibited, Do not lift touch panel by cable(FPC).
- (6) Use clean sacks or glove to prevent fingerprints and/or stains left on the panel. Extra attention and carefulness should be taken while handling the glass edge.
- (7) Please pay attention for the matters stated below at mounting design of touch panel enclosure.
Enclosure support to fix touch panel must be out of active area.(do not design enclosure presses the active area to protect from miss put)

2. OPERATING PRECAUTIONS

- (1) Please be sure to turn off the power supply before connecting and disconnecting signal input cable.
- (2) Please do not change variable resistance settings in CTP. They are adjusted to the most suitable value. If they are changed, it might happen CTP does not satisfy the characteristics specification
- (3) Be careful for condensation at sudden temperature change. Condensation makes damage to sensor or electrical contacted parts.
- (4) CTP has high frequency circuits. Sufficient suppression to the electromagnetic interference shall be done by system manufacturers. Grounding and shielding methods may be important to minimize the interference.
- (5) Touch the panel with your finger or stylus only to assure normal operation. Any sharp edged or hard objects are prohibited.
- (6) Operate the panel in a steady environment. Abrupt variation on temperature and humidity may cause malfunction of the panel.

3. ELECTROSTATIC DISCHARGE CONTROL

- (1) The operator should be grounded whenever he/she comes into contact with the CTP. Never touch any of the conductive parts such the copper leads on the FPC and the interface terminals with any parts of the human body.

- (2) The CTP should be kept in antistatic bags or other containers resistant to static for storage.
- (3) Only properly grounded soldering irons should be used.
- (4) If an electric screwdriver is used, it should be well grounded and shielded from commutator sparks.
- (5) The normal static prevention measures should be observed for work clothes and working benches; for the latter conductive (rubber) mat is recommended
- (6) Since dry air is inductive to statics, a relative humidity of 50-60% is recommended.

4. STORAGE PRECAUTIONS

- (1) When you store touch panel for a long time, it is recommended to keep the temperature between 0°C-40°C without the exposure of sunlight and to keep the humidity less than 90%RH.
- (2) Please do not leave touch panel in the environment of high humidity and high temperature such as 60°C 90%RH
- (3) Please do not leave touch panel in the environment of low temperature; below -20°C.

5. OTHERS

For the packaging box, please pay attention to the followings:

- a. Please do not pile them up more than 5 boxes. (They are not designed so.) And please do not turn over.
- b. Please handle packaging box with care not to give them sudden shock and vibrations. And also please do not throw them up.
- c. Packing box and inner case for CTP are made of cardboard. So please pay attention not to get them wet. (Such like keeping them in high humidity or wet place can occur getting them wet.)

6. LIMITED WARRANTY

Unless otherwise agreed between MULTI-INNO and customer, MULTI-INNO will replace or repair any of its CTP which is found to be defective electrically and visually when inspected in accordance with MULTI-INNO acceptance standards, for a period on one year from date of shipment. Confirmation of such date shall be based on freight documents. The warranty liability of MULTI-INNO is limited to repair and/or replacement on the terms set forth above. MULTI-INNO will not responsible for any subsequent or consequential events.

