Make Life Easy

User Manual

Panel PC

APC-1011

Thank you for purchasing an Autonics product.
This user manual contains information about the product and its proper use,
and should be kept in a place where it will be easy to access.

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Preface

Thank you for purchaseing Autonics product.

Please familiarize yourself with the informaton contained in the Safety Precautions section before using this product.

This user manual contains information about the product and its proper use, and should be kept in a place where it will be easy to access.

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User Manual Guide

- Pleas familiarize yourself with the information in this manual before using the product.
- This manual provides detailed information on the product's features. It does not offer any guarantee concerning matters beyond the scope of this manual.
- This manual may not be edited or reproduced in either part or whole without permission.
- A user manual is not provided as part of the product package.
- Visit our website (www.autonics.com) to download a copy.
- The manual's content may vary depending on changes to the product's software and other unforeseen developments within Autonics, and is subject to change without prior notice. Upgrade notice is provided throughout the website.
- We contrived to describe this manual more easily and correctly. However, if there are any corrections or questions, please notify us these on our website.

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User Manual Symbols

Symbol	Descriptions
Note	Supplementary information for a particular feature.
Warning	Failure to follow instructions can result in serious injury or death.
Caution	Failure to follow instructions can lead to a minor injury or product damage.
Ex.	An example of the concerned feature's use.
※1	Annotation mark.

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Safety Considerations

- Following these safety precautions will ensure the safe and proper use of the product and help prevent accidents, as well as minimizing possible hazards.
- Safety precautions are categorized as Warnings and Cautions, as defined below:

Warning	**Warning**	Failure to follow these instructions may result in serious injury or death.
Caution	**Caution**	Failure to follow these instructions may result in personal injury or product damage.

Warning

- Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)
  Failure to follow this instruction may result in personal injury, economic loss or fire.
- Do not use the unit in the place where flammable/explosive/corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.
  Failure to follow this instruction may result in explosion or fire.
- Use the unit within the rated specifications.
  Failure to follow this instruction may result in fire or shortening the life cycle of the product.
- Do not connect, repair, or inspect the unit while connected to a power source.
  Failure to follow this instruction may result in fire.
- Check 'Power Wiring' and 'Serial Interface' before wiring.
  Failure to follow this instruction may result in fire.
- In preparation for product damage, communication error, or malfunction, install external limit switch, emergency stop switch, or other protection circuit.
  Failure to follow this instruction may result in personal injury, economic loss or fire.
- Since Lithium battery is embedded in the product, do not disassemble or burn the unit.
  Failure to follow this instruction may result in fire.
- Do not disassemble or modify the unit.
  Failure to follow this instruction may result in fire.
- Please contact us for battery replacement.

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Caution

- Use dry cloth to clean the unit, and do not use water or organic solvent.
  Failure to follow this instruction may result in fire.
- When connecting the power input, use AWG 23 cable or over and tighten the terminal screw with a tightening torque of 0.5 to 0.8N.m.
  Failure to follow this instruction may result in fire or malfunction due to contact failure.
- Keep metal chip, dust, and wire residue from flowing into the unit.
  Failure to follow this instruction may result in fire or product damage.
- Do not push over 2 point at the same time.
  Failure to follow this instruction may result in malfunction.

The specifications are subject to change and some models may be discontinued without notice.
Be sure to follow cautions written in the instruction manual, user manual and the technical descriptions (catalog, website).

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Cautions during Use

- Follow instructions in ‘Cautions during Use’. Otherwise, it may cause unexpected accidents.
- 24VDC power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
- Install a power switch or circuit breaker in the easily accessible place for supplying or disconnecting the power.
- Operate the product after supplying power to the product, input/output equipment, and load. If operate product before supplying power, it may result in output error or malfunction.
- Keep away from high voltage lines or power lines to prevent inductive noise.
- Do not use near the equipment which generates strong magnetic force or high frequency noise.
- Make a required space around the unit for radiation of heat, and do not block ventilation openings.
- Do not push the touch panel with a hard and sharp object or push the panel with excessive force.
  It may result in fire or malfunction.
- When skin is smeared with liquid crystal from the broken LCD, rinse with running water for over 15 minutes.
  If it gets into the eyes, rinse eyes with running water for over 15 minutes and contact a doctor.
- This unit may be used in the following environments.
  ①Indoors (in the environment condition rated in 'Specifications')
  ②Altitude max. 2,000m
  ③Pollution degree 2
  ④Installation category II

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1 Product Overview

1.1 Features

Panel PC APC-1011 is a Microsoft Windows 10 based HMI(Human-Machine Interface) or MMI(Man-Machine Interface) device.
As a display panel and a system unit integrated panel PC, the installation restrictions are less, User who is familiar with Windows 10 is able to use easily without any education.

- Familiar to user with the Microsoft Windows 10 OS
- Equipped with Quad core processor
- Fan less type with low noise, low heat and no need to replacing fan component
- Equipped with 10 inch wide IPS TFT LCD of 16,777,216 colors for realizing True color
- Possible to be touched with not only hand but also glove, pen tip or etc. with resistive type touch screen
- Lesser restrictions on place with display and system all-in-one panel PC
- Supporting various types of interface
  : HDMI, USB, VGA, Ethernet, Audio, Serial (RS232C/RS485/RS422)
- Various methods of installation
  : installing on panel, installing with holder (VESA standard 100×100mm)

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1.2 Specifications

1.2.1 General Specifications

Model		APC-1011
Power supply		24VDC⎓
Allowable voltage range		90 to 110% of power supply
Power consumption		Max. 30W
Hard disk		mSATA 64GB SSD
System memory		DDR3L 4GB
Indicator		Power indicator: green LED
Speaker		Stereo speaker 2W+2W
Watch dog timer		Watch Dog Timer(1 to 255 sec, software setting)
Battery life cycle		5 years at 25℃
Real-time controller		RTC embedded
Insulated resistance		Min. 100MΩ (at 500VDC megger)
Ground		3rd grounding (max. 100Ω)
Noise immunity		±0.5kV the square wave noise (pulse width:1 μs) by the noise simulator
Withstanding voltage		500VAC (50/60Hz) for 1 minute
Vibration	Mechanical	0.75mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 1 hour
	Malfunction	0.5 mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 1 hour
Shock	Mechanical	300m/s^2 (approx. 30G) in each X, Y, Z direction for 3 times
	Malfunction	100m/s^2 (approx. 10G) in each X, Y, Z direction for 3 times
Environ-ment	Ambient temp.	0 to 50℃, storage: -20 to 60℃
	Ambient humi.	35 to 85%RH, storage: 35 to 85%RH
Language※1		Korean, English
Protection structure		IP65 (front panel, IEC standard)
Accessory		Fixing bracket: 8, mold bracket: 1, M3 bolt for mold bracket: 2
Approval		CE KC
Weight※2		Approx. 2kg (approx. 1.6kg)

※1: Supported language can be added by downloading language pack.
For more details about language pack, please visit Microsoftwebsite.

※2: The weight includes packaging. The weight in parenthesis is for unit only.

※Environment resistance is rated at no freezing or condesation.

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1.2.2 Performance Specifications

System performance	
CPU	Integrated IntelJ3160/1.6GHz Quad core processor, TDP 6W
Operating system	Windows 10 IoT Enterprise Entry (64bit)
Display peroformance	
LCD type	IPS TFT Color LCD
Touch method	Resistive
Resolution	WXGA 1280×800
Contrast	16:10
Display area	216.96×135.6mm
Color	16,777,216 color
LCD view angle	Within 85° of top/bottom/left/right
Backlight	White LED
Backlight MTBF	500,000 hrs (LED Backlighting)
Luminance	350cd/m2
Interface type	
HDMI	1
USB	USB 3.0 HOST: 1, USB 2.0 HOST: 2
VGA	1
Ethernet	Gigabit Ethernet: 2
Audio	1
Serial	RS232C/RS422/RS485: 1 (jumper pin setting)

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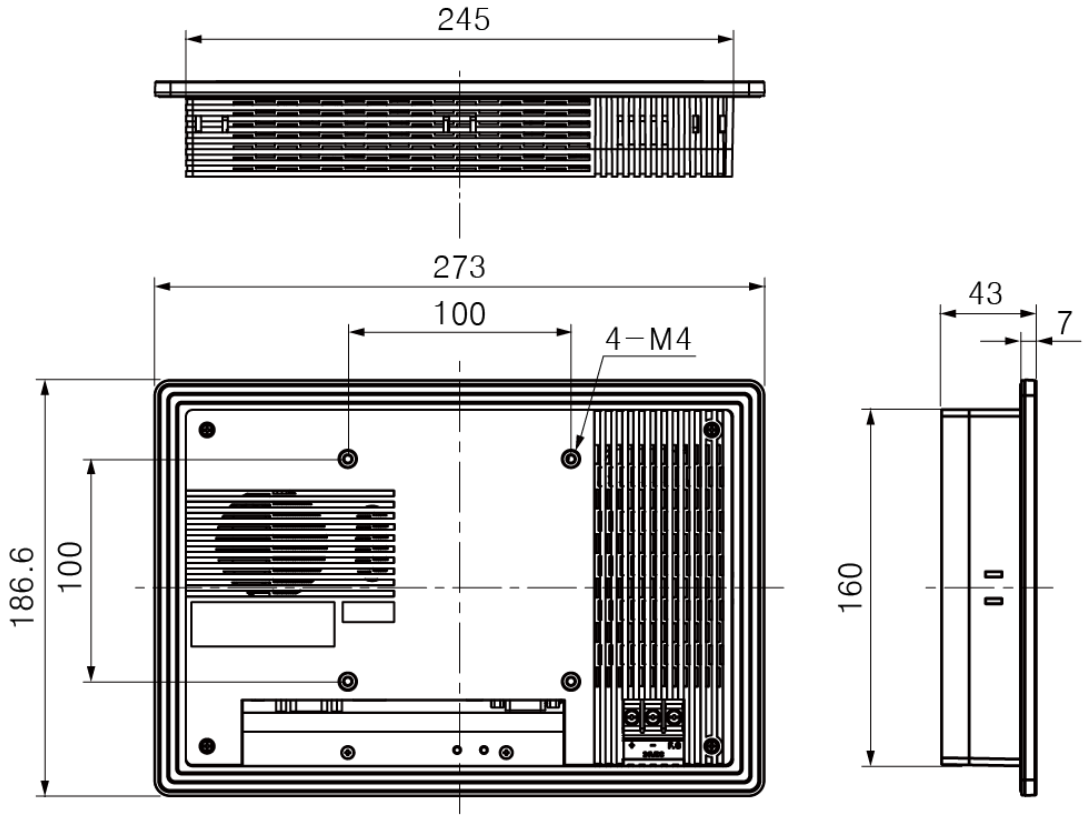
1.3 Dimensions

1.3.1 Main Device

(unit: mm)



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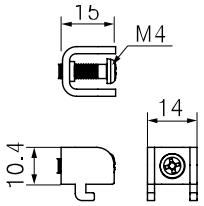
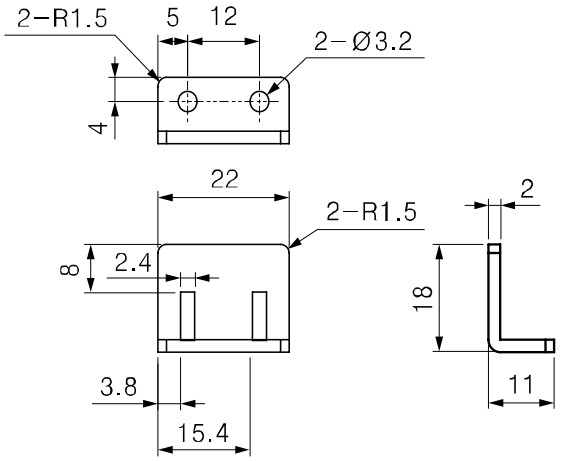
1.3.2 Bracket

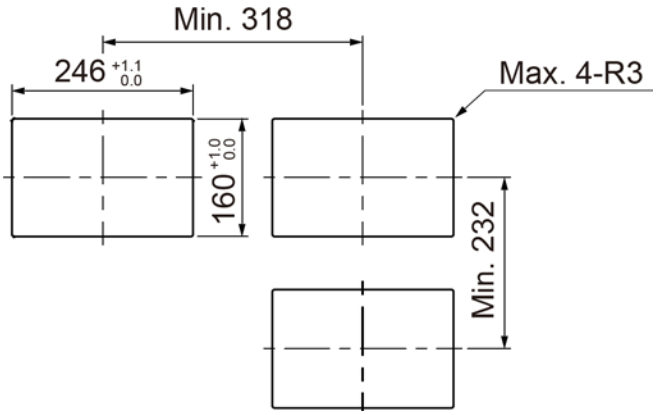
(1) Fixing bracket



(2) Mold bracket



1.3.3 Panel Cut-out



※Panel thickness: Max. 4mm

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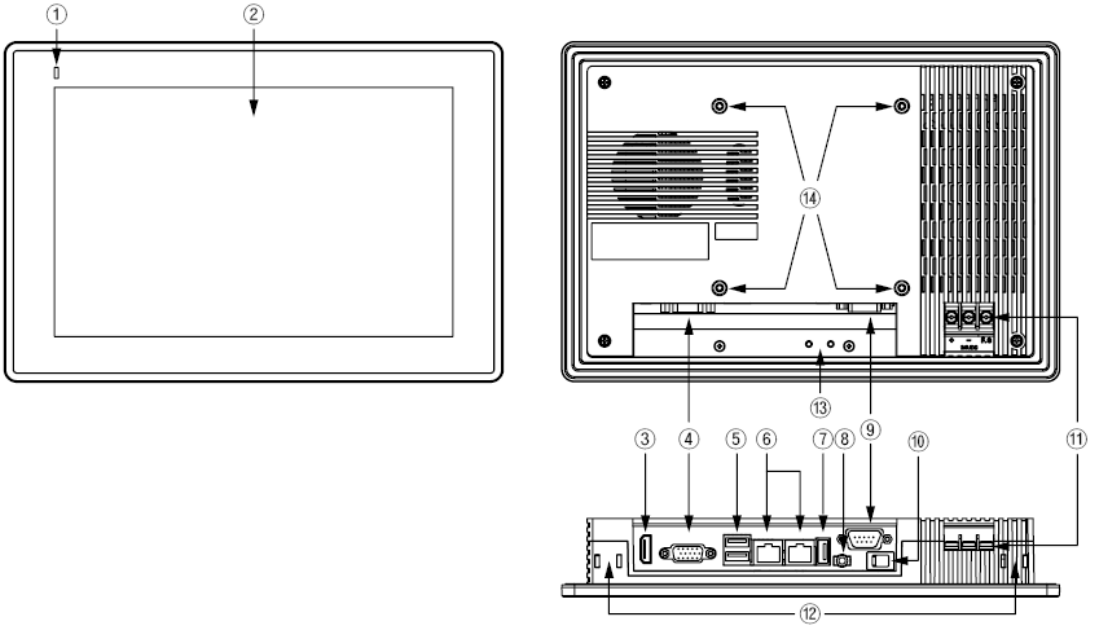
1.4 Unit Description



No.	Description
①	Operation indicator (green LED)
②	LCD screen
③	HDMI
④	VGA
⑤	USB 2.0
⑥	Ethernet
⑦	USB 3.0
⑧	Audio
⑨	RS232C/RS485/RS422(jumper pin setting)
⑩	Power switch
⑪	Power terminal
⑫	Fixing bracket mounting slot
⑬	Mold bracket mounting hole
⑭	VESA hole

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1.5 Communication Interface

1.5.1 Serial Interface

(1) Changing serial interface

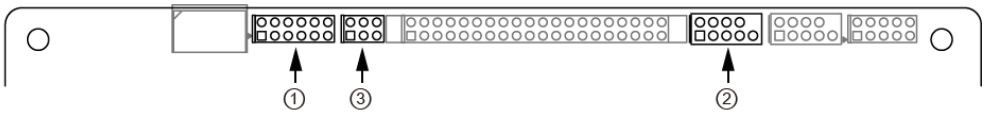
1st Open the rear case of APC-1011 with a screw driver.

2nd Set the serial interface selecting jumper pin(①) with the jumper bar to serial interface to use.

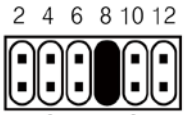
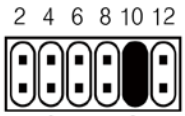
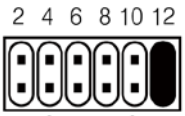
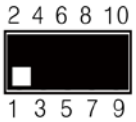
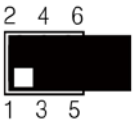
3rd When setting to RS232, connect the D-sub connector to COM2(②).

When setting to RS485/RS422, connect the D-sub connector to JP12(③).

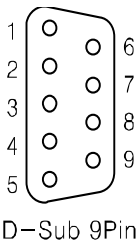
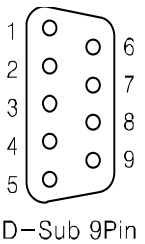
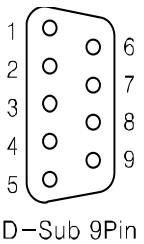
※For more details, refer to the below image and table.



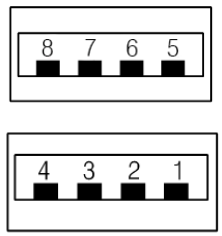
<Inside of APC-1011>

No.	Name	RS232C(default)	RS485	RS422
①	Serial interface setting jumper pin			
②	COM2		-	
③	JP12	-		

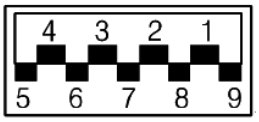
(2) D-sub connector by type of serial interface

Port	Pin		Port	Pin		Port	Pin	
RS232C  D-Sub 9Pin Female	1	DCD	**RS422**  D-Sub 9Pin Female	1	TXD-	**RS485**  D-Sub 9Pin Female	1	DATA-
	2	RXD		2	TXD+		2	DATA+
	3	TXD		3	RXD-		3	Disable
	4	DTR		4	RXD+		4	Disable
	5	GND		5	GND		5	Disable
	6	DSR		6	GND		6	Disable
	7	RTS		7	Disable		7	Disable
	8	CTS		8	Disable		8	Disable
	9	RI		9	Disable		9	Disable

1.5.2 USB 2.0 Interface

USB HOST	Pin	
	1	5V
	2	D1-
	3	D1+
	4	GND
	5	5V
	6	D1-
	7	D1+
	8	GND

1.5.3 USB 3.0 Interface

USB HOST	Pin	
	1	5V
	2	D1-
	3	D1+
	4	GND
	5	SSRX1-
	6	SSRX1+
	7	GND
	8	SSTX1-
	9	SSTX1+

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1.5.4 Ethernet Interface

RJ-45 for Giga LAN

- Crossover – Cable

PC1		Cable color		PC2	
Signal	Pin no.			Pin no.	Signal
Tx+	1	White	Orange	3	Rx+
Tx-	2	Orange		6	Rx-
Rx+	3	White	Green	1	Tx+
	4	Blue		4	
	5	White	Blue	5	
Rx-	6	Green		2	Tx-
	7	White	Brown	7	
	8	Brown		8	

Tx: Transmit Data, Rx: Receive Data

In case of connecting with ethernet router, use direct cable.

- Straight(Direct) through – Cable

PC1		Cable color		PC2	
Signal	Pin no.			Pin no.	Signal
Tx+	1	White	Orange	1	Rx+
Tx-	2	Orange		2	Rx-
Rx+	3	White	Green	3	Tx+
	4	Blue		4	
	5	White	Blue	5	
Rx-	6	Green		6	Tx-
	7	White	Brown	7	
	8	Brown		8	

Tx: Transmit Data, Rx: Receive Data

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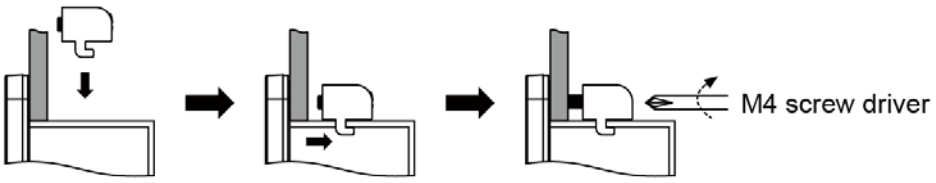
2 Installation

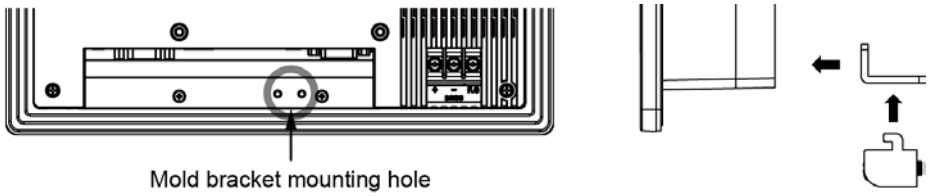
2.1 Product Installation

(1) Installing on panel

1st Set APC-1011in panel.
2nd Set fixing bracket in slots (3 in top, 2 in bottom, 2 in side).
3rd Tighten fixing brackets with the M4 screw driver with the tightening torque of 0.3 to 0.5N·m.



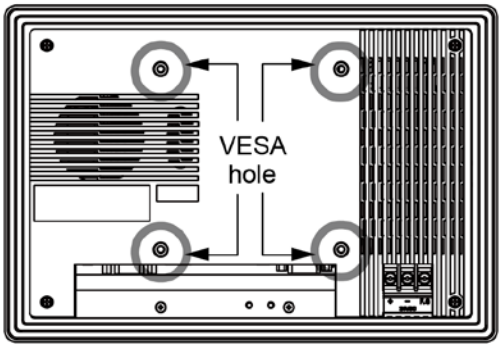
4th When additional fixing bracket is in need on the bottom, connect the mold bracket on the rear of the product, before set fixing bracket. Tighten mold bracket with the M3 screw driver with the tightening torque of 0.3 to 0.5N·m.



※ When using the mold bracket, install it with included bolt(M3×8mm).
If you use bolt out of specification, it my result in product damage.

(2) Installing with holder

You have to purchase 100×100mm holder separately. Autonics does not have dedicated holder.
Fix the purchased holder to the VESA hole on the rear of the product, using M4 Screw driver.
Way to fix holder can be different according to each holder.



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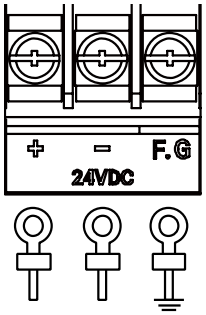
2.2 Power Wiring

- For power supply, use the power line of which cross section is at least 0.75mm^2 and use the wire of which cross section is at least 1.25mm^2.
- Use round terminal with at least 3mm of internal diameter and less than 6mm of external diameter.
- Do not supply power before connecting power line.
- Check the power polarity.
- Tighten the terminal screw with 0.5 to 0.8 N·m torque.
- Ground resistance should be less than 100Ω and ground it separately.



Caution

Caution for power wiring

- Before connecting power line, must check power polarity.
- Do not connect the power when the power is supplied.
- Observe following allowable voltage change range of power voltage.

Power voltage	24VDC
Allowable voltage change range	21.6 to 26.4VDC

- When connecting power, supply power with the power supply which has inner protection circuit. If the power supply which does not have inner protection circuit is used, protection circuits such as fuse must be installed before using this.

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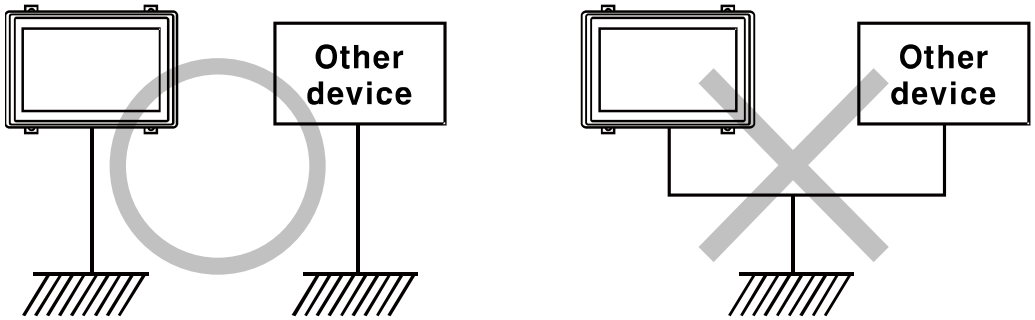
2.2.1 Ground Wiring



Caution

Caution for ground wiring

- Connect max. 100Ω of ground resistance.
- Diameter of cable for ground wiring connection should be over than 2 ㎟.
- As above figure, separate from other device's ground wire.

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3 Software

3.1 Software list

3.1.1 Comprehensive Device Management Program [DAQMaster]

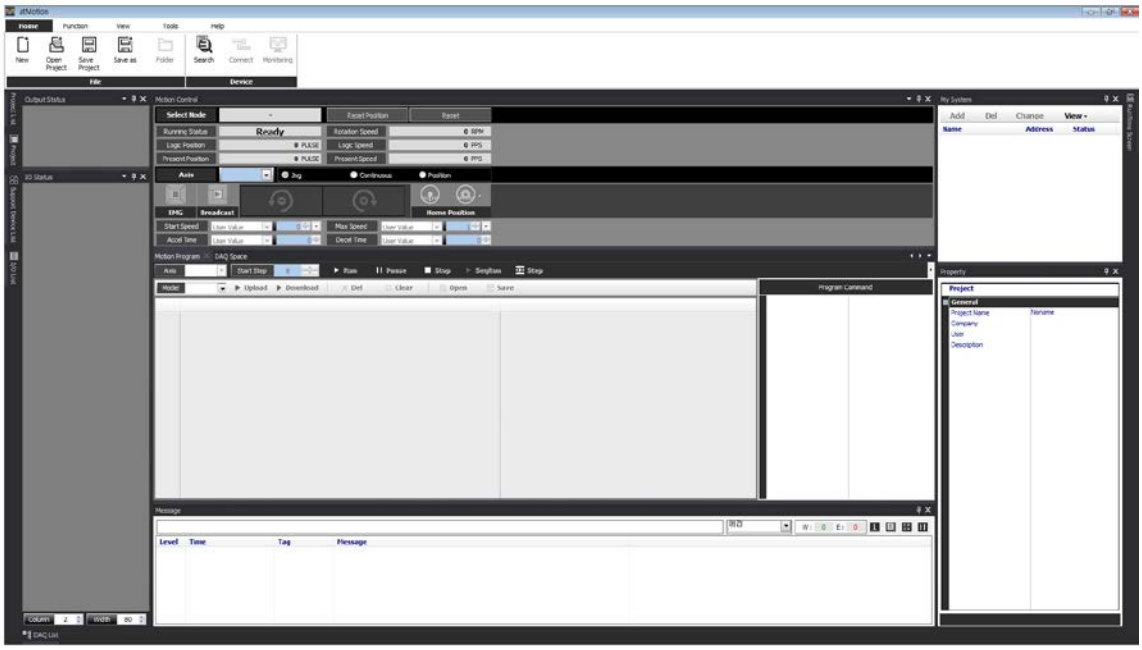
DAQMaster is a comprehensive device management program that can be used with Autonics communication supporting products.

DAQMaster provides GUI control for easy and convenient management of parameters and multiple device data monitoring.

3.1.2 Comprehensive Motion Device Management Program [atMotion]

atMotion is a comprehensive motion device management program that can be used with Autinics motion controller (AiC-D, PMC-2HSP/2HSN, PMC-1HS/2HS, PMC-4B-PCI).

atMotion provides GUI control for easy and convenient parameter setting and monitoring data management of multiple devices.



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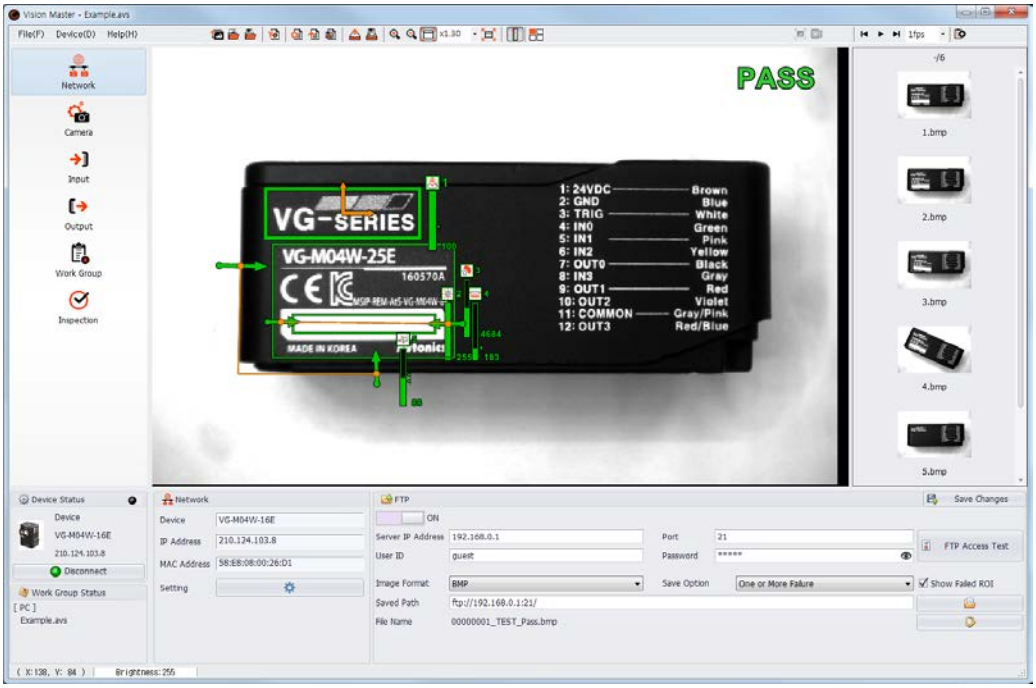
3.1.3 Vision Sensor Program [Vision Master]

Vision Master is the vision sensor program that is connected with VG Series, Autonics vision sensor, to utilize it.

Vision Master provides graphic user interface to make setting parameter and managing monitoring data of vision sensor easy.

It is connected with vision sensor through Ethernet (TCP/IP) and exchange data with vision sensor.

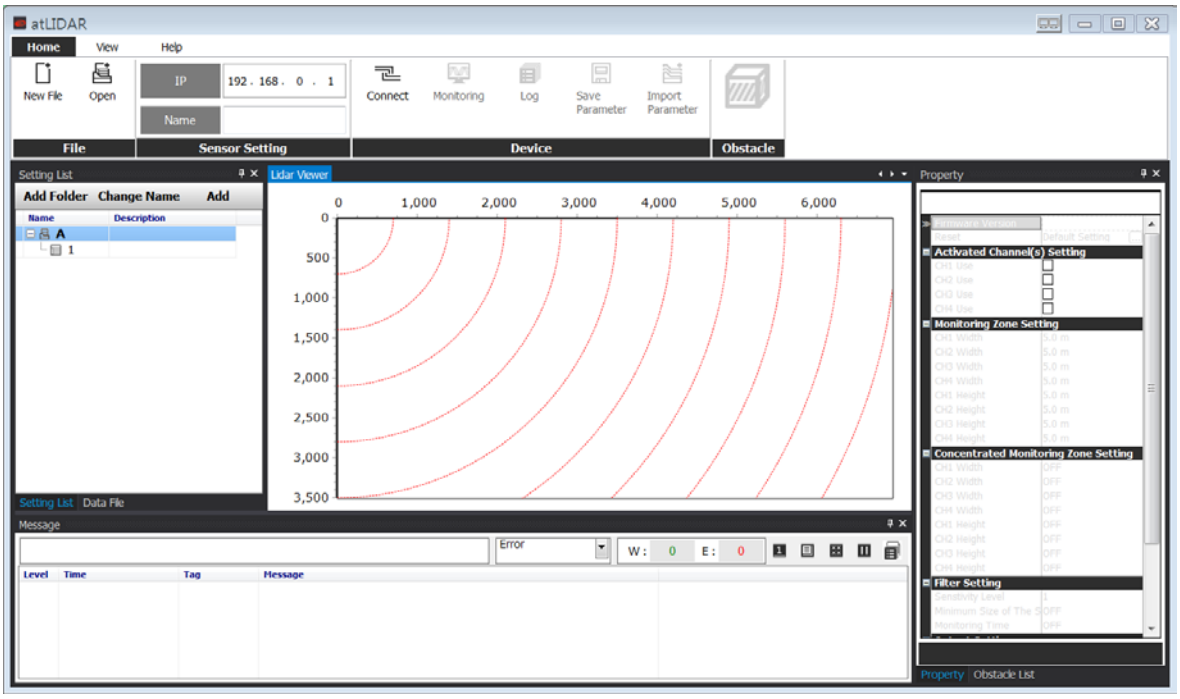


3.1.4 Comprehensive Laser Scanner Management Program [atLidar]

atLidar is laser scanner management program that can be used with laser scanner LSE-4A5R2.

atLidar is the management program for laser scanner installation, parameter settings, status information and monitoring data, etc.

This program communicates with the laser scanner via Ethernet communication.



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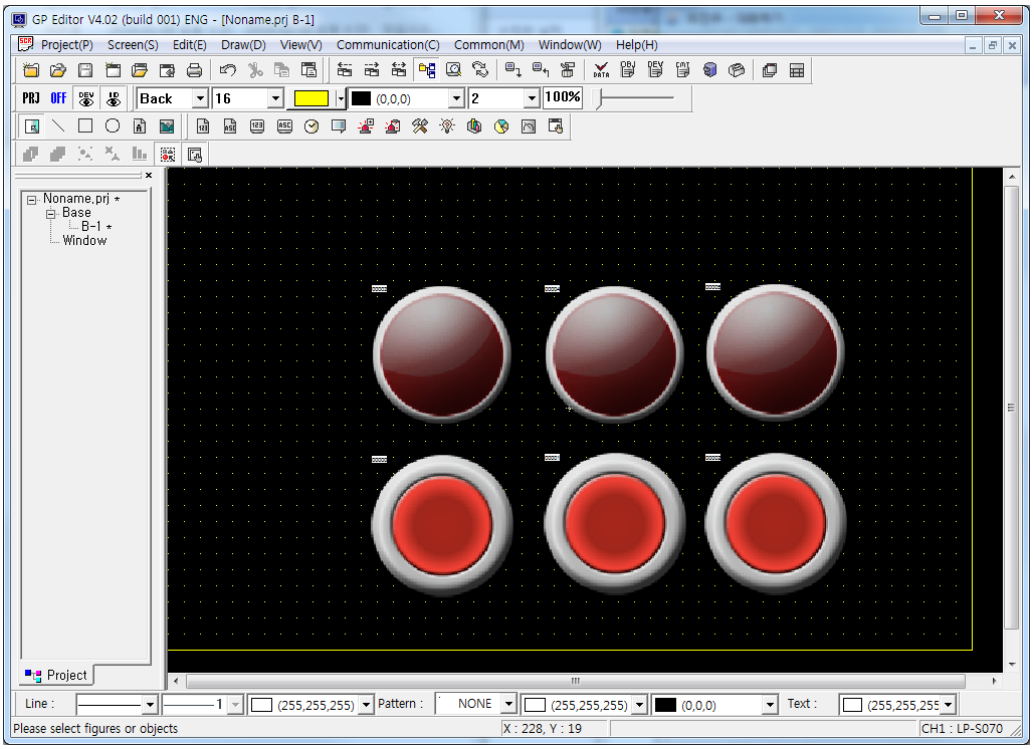
3.1.5 Drawing Program for GP/LP Panel [GP Editor]

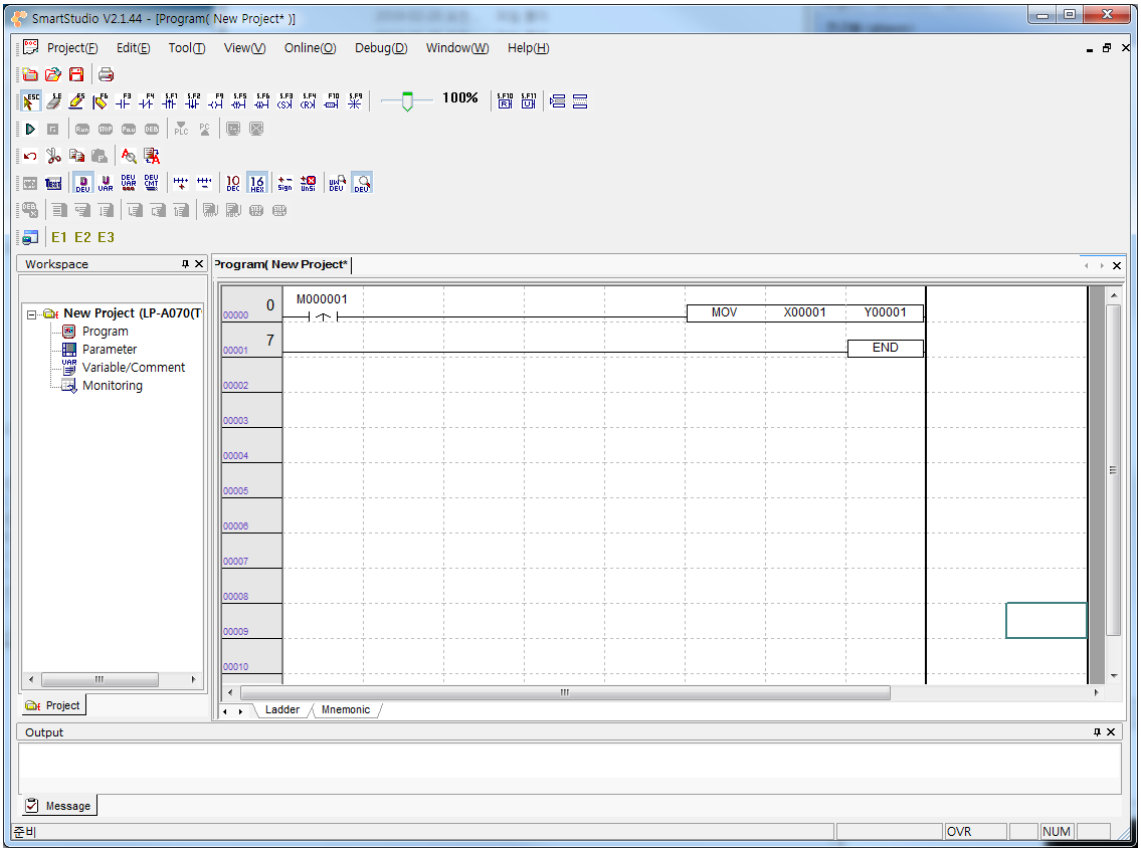
All data of GP/LP user screen is edited in exclusive software GP Editor.

After editing screen data including forms, layout, properties of tags and etc., download data to GP/LP, it starts to monitor by the screen data of GP/LP.



3.1.6 Logic Panel Programing Program [SmartStudio]

SmartStudio is the exculsive software to write program and debug for LP series.



3.2 Software Installation

Vision Master is intalled as a factory default.

To use other program, please follow the instruction below.

(1) Installation via PC

1st Download program to install from Autonics website (www.autonics.com).
2nd Save the downloaded installation file in a USB driver and plug the USB driver to USB port of APC-1011 to move the installation file.
3rd Touch the installation file in APC-1011 to install the program.

(2) Direct installation

1st Plug LAN cable to Ethernet port of APC-1011 to connect to Internet.
2nd Access to Autonics website (www.autonics.com) in APC-1011 to download program.
3rd Touch the downloaded installation file in APC-1011 to install the program.

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4 Operating Panel PC

Describes the operation procedure from when the power is supplied on APC-1011 to when the software is executed.

4.1 Power Supplying Checklist

Please check the following list below, before supplying the power on APC-1011.

No	Checklist	Descriptions
1	Installation status	Check all the mounting brackets are properly installed.
		Check the mounting brackets are tightened with appropriate torque.
2	Ground	Check the ground is separated from other devices.
		Check the 3rd grounding.
3	Power cable	Check the wiring connections for polarity.
		Check the terminal screw tightness.
4	Power	Check the power supply voltage.
		Check the power is installed separately from other devices.

4.2 Operation Procedure

Make sure that the connectors are well connected to each interface.

↓

Supply the power and turn on APC-1011.

↓

Wait untill the boot finishes and the screen is displayed.

↓

Whe the Windows is ready to use, run the program.

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5 Settings

5.1 Touchside Settings

Touchside program is a program for hardware device setting.
Touchsid's setting menu is as blow.

<table>
<tr><th>Tab</th><th colspan="2">Menu</th><th>Descriptions</th></tr>
<tr><td rowspan="2">General</td><td>Installed Touchscreen Controllers</td><td>-</td><td>Displays the recognized touchscreen controller on the system.</td></tr>
<tr><td>Monitor Mapping</td><td>-</td><td>In case of using multiple monitors,
maps the touchscreen to the monitors.</td></tr>
<tr><td rowspan="6">Setting</td><td>Beep</td><td>-</td><td>Set the touch buzzer.</td></tr>
<tr><td>Linearization Style</td><td>-</td><td>When performing linear calibration on the 'Tools' tab, set the number of adjust points.</td></tr>
<tr><td>Double Click Time/Area</td><td>-</td><td>Set the double click time/area.</td></tr>
<tr><td rowspan="2">Touch Mode</td><td>-</td><td>Set the touch mode.
<table>
<tr><td>Normal Mode</td><td>Support click and drag function
Support drag mode at click</td></tr>
<tr><td>Click on Touch</td><td>Recognize as click when touching (drag function is not supported)</td></tr>
<tr><td>Click on Release</td><td>Recognize after touch is released (drag function is not supported)</td></tr>
<tr><td>Click on Touch-Cursor Fixed</td><td>Moving cursor after click recognition with click on-touch method (fixed)</td></tr>
<tr><td>Click on Release-Cursor Fixed</td><td>Moving cursor after click recognition with click on-release method (fixed)</td></tr>
<tr><td>Background Mode</td><td>Support click and drag function
Support drag mode after click 1 sec</td></tr>
</table></td></tr>
<tr><td>Option</td><td>Set the touch-related detail functions.</td></tr>
<tr><td rowspan="5">Tools</td><td>Linearization Curve</td><td>-</td><td>Check the current calibration data.</td></tr>
<tr><td>4 Points Calibration</td><td>-</td><td>Run 4-point alignment to match the screen.</td></tr>
<tr><td>Clear and Calibrate</td><td>-</td><td>Run 4-point alignment after clearing the calibration data.</td></tr>
<tr><td>Linearization</td><td>-</td><td>Run the precision calibration to improve accuracy.</td></tr>
<tr><td>Draw Test</td><td>-</td><td>Run the draw test to check the calibration status.</td></tr>
<tr><td rowspan="3">Display</td><td>Display</td><td>-</td><td>Check the current display status.</td></tr>
<tr><td>Operation Mode</td><td>-</td><td>Set the touch functioning area on the screen.</td></tr>
<tr><td>Other</td><td>Other</td><td>Set the touch functioning area on the screen in detail.</td></tr>
</table>

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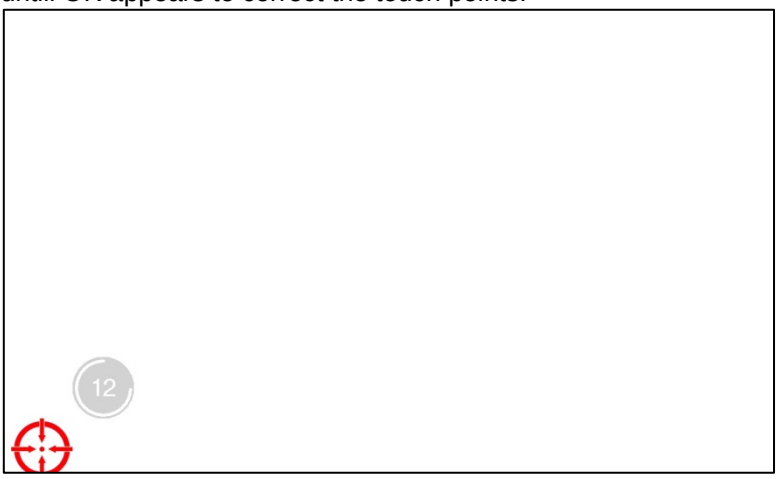
Tab	Menu		Descriptions
Edge Compensation	Edge Parameters	-	Corrects the touch area for corner parts in detail.
	Edge Compensation	-	Corrects the touch area for edge parts in detail.
Hardware	Hardware Informations	-	Check hardware device informations.
	Hardware Setting	-	Set the parameter value of the touch controller firmware in detail.
About	Informations	-	Check Touchside software informations.

5.1.1 Touch Settings

Through the touch points calibration, touching the exact point is possible.

1st Run the 'Touchside' program on the desktop.
2nd Set the 'Linearization Style' on 'Setting' tap.
3rd Click the 'Linearization' on 'Tools' tap.
When the caliblation screen shows up, touch and hold the 9 touch points in sequence untill OK appears to correct the touch points.



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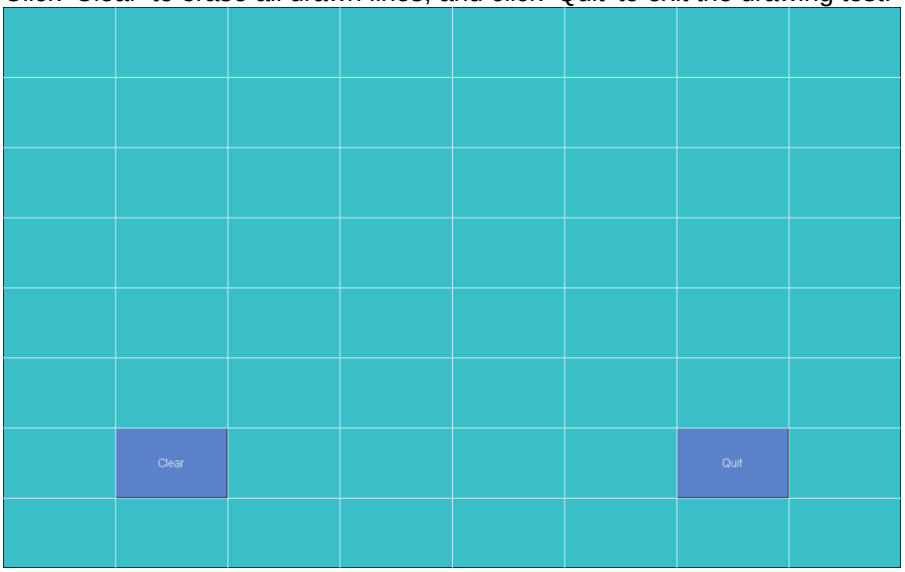
5.1.2 Draw Test

Draw a line to verify that the touch point matches the actual action point.

1st Run the ‘Touchside’ program on the desktop.
2nd Click ‘Draw Test’ on ‘Tools’ tap.
3rd When the test screen shows up, draw lines on the screen to make sure the touch point matches the actual action point.
Click ‘Clear’ to erase all drawn lines, and click ‘Quit’ to exit the drawing test.



5.2 Windows Settings

Please refer to Microsoft for corresponding contents such as changing system languange, system setting, account management and etc.

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6 Maintenance

6.1 Routine Maintenance

The inspections are required for every day/week.

Checklist	Details	Criteria	Solution
Environment	Temperature	0 to 50℃	Control ambient temperature
	Humidity	35 to 85% RH	Control ambient humidity
	Vibration	No vibration	Establish anti-vibration measures
APC-1011's attached status	Check the bracket screw loosening	Attached without shaking	Tighten the screw
Comm. cable connection status	Check the cable connecting screw loosening	Cable connection must be securely tightened	Tighten the screw Use genuine cable

6.2 Regular Maintenance

The inspections are required for monthly.

Checklist	Details	Criteria	Solution
Power supply voltage	Measure the power supply voltage	Within the allowable voltage range	Replace the power supply
Leakage and dustproof	Leakage and dustproof condition	No leakage and dusts must not to be accumulated	Establish leakage and dustproof measures
Flammable gas	Flammable gas exposure	Not to be exposed to flammable gas	Establish flammable gas measures

Caution

Caution for regular maintenance

- Make sure to use a standard measuring devices, when inspecting the power supply voltage.
- When the defect is found, please record and notify us the defect in detail.
- When replacing the product, make sure to turn the power off.
- When removing dust or dirt, use a dry cloth that does not contain water or detergent.

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* Dimensions or specifications on this manual are subject to change and some models may be discontinued without notice.

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