

## Logic Panel

# LP-TK(Modbus)(RS485)

## Technical Support Manual



LP Series



# Preface

Thank you very much for selecting Autonics products.

Please familiarize yourself with the information 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.

# Technical Support Manual Guide

- Please 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.
- This manual is not provided as part of the product package. Please visit our home-page ([www.autonics.com](http://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 through our homepage.
- We contrived to describe this manual more easily and correctly. However, if there are any corrections or questions, please notify us these on our homepage.

# Technical Support Manual Symbols

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

# Safety Precautions

- 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:

 <b>Warning</b>	<b>Warning</b>	Failure to follow the instructions may lead to a serious injury or accident.
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 <b>Caution</b>	<b>Caution</b>	Failure to follow the instructions may lead to a minor injury or accident.
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## Warning

- In case of using this unit with machinery (E.g.: nuclear power control, medical equipment, ship, vehicle, train, airplane, combustion apparatus, safety device, crime/disaster prevention equipment, etc) which may cause damages to human life or property, it is required to install fail-safe device.  
It may cause a fire, human injury or property loss.
- Do not use the Logic Panel where serious physical damage or production halt can be caused.  
It may cause a fire, human injury or property loss.
- In case using the Logic Panel touch switch for controlling, do not use the switch as an emergency switches or those related to safety that may cause physical injury or property damage in the event of a malfunction.  
It may cause a fire, human injury or property loss.
- In the event of LP defect or malfunction in the Logic Panel, an alternative circuit must be constructed on the exterior.  
It may cause a fire, human injury or property loss.
- Construct an emergency power-off circuit, safety circuit, or interlock circuit on the exterior of the Logic Panel.  
It may cause a fire, human injury or property loss.
- If an error occurs on the watchdog timer of the Logic Panel, the logic program will shut down automatically, so an alternative circuit must be constructed on the exterior.  
It may cause a fire, human injury or property loss.
- The overall system operation may malfunction due to an input error resulting from a failure in input signal detection; so an alternative circuit must be constructed on the exterior.  
It may cause a fire, human injury or property loss.
- For output signals that may cause a serious accident if the output section is damaged, a detection circuit and alternative circuit must be constructed on the exterior.  
It may cause a fire, human injury or property loss.
- In case controlling other devices through Logic Panel communication, and there is a possibility of malfunction due to communication error, an alternative circuit must be constructed.  
It may cause a fire, human injury or property loss.

- When switching the mode to RUN mode, make sure that supply power to LP, I/O unit and load first. If not, output error or miss-operation may cause.  
It may cause a fire, human injury or property loss.
- Do not use the product in an area or an environment not specified in the manual.  
It may cause a fire, human injury or property loss.
- Do not connect, inspect or repair when power is on.  
It may cause a fire or give an electric shock.
- Do not disassemble the product. Please contact us if it is required.  
It may cause a fire or give an electric shock.
- Please use the rectified power with insulation trans.  
It may cause a fire or give an electric shock.
- Do not use the power to the exceeded rated voltage.  
It may cause a fire or give an electric shock.
- This product uses lithium battery, do not disassemble or burn up.  
It may cause an explosion or a fire.
- Wire properly after checking power terminal polarity.  
It may cause a fire or a malfunction.



### Caution

- Please read all notes and cautions related to installation and wiring in the manual.  
If this is not observed, electrical shock or malfunction may occur.
- Make sure the ground wire of Logic Panel is wired separately from the ground wires of other devices. Ground resistance must be less than  $100\Omega$ , and a lead wire of which sectional area is over  $1.25\text{mm}^2$  should be used.  
If this is not observed, electrical shock or malfunction may occur.
- When connecting Logic Panel ports and constructing input/output, check the pin number and terminal block before connecting.  
It may cause a fire or a malfunction.
- Please tighten bolt on terminal block with specified tightening torque.  
It may cause a short circuit, fire or a malfunction.
- Do not press the surface of the touch panel with sharp or hard objects.  
The touch panel may be damaged.
- Keep Logic Panel at the specified temperature.  
If stored at a temperature beyond the specification, damage may occur.
- Do not inflow dust or wire dregs into the unit.  
It may cause a fire or a malfunction.
- Do not use in an area with excessive humidity or temperature.  
The Logic Panel may malfunction, or its useful life may be shortened.
- Do not close ventilating opening of this product.  
Malfunction may occur due to temperature increase.
- Keep the product out of direct sunlight or excessive dust.  
The Logic Panel may malfunction, or its useful life may be shortened.

- Do not use or store in a place with shock or vibration.  
The Logic Panel may malfunction, or its useful life may be shortened.
- When liquid crystal from the broken LCD is smeared with skin, wash it for 15 minutes. If it is gotten in the eye, wash it for 15 minutes and contact with the medical specialist for more information.
- In cleaning unit, do not use water or an oil-based detergent and please use dry towels.  
It may cause an electric shock or a fire.
- Please separate as an industrial waste when disuse this unit.
- To change the battery, contact the store or an authorized technician.
- The manufacturer is not liable for damages that occur due to causes for which the manufacturer is not responsible, damages that occur due to an extraordinary situation, secondary damages, compensation for accidents, damages occurring on other products, compensation for other processes, and damage and loss of opportunity to the user due a malfunction of the product, regardless of the predictability of the accident.
- Note that this device is KCC certified for commercial use. Make proper applications for the product.

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# 1 System

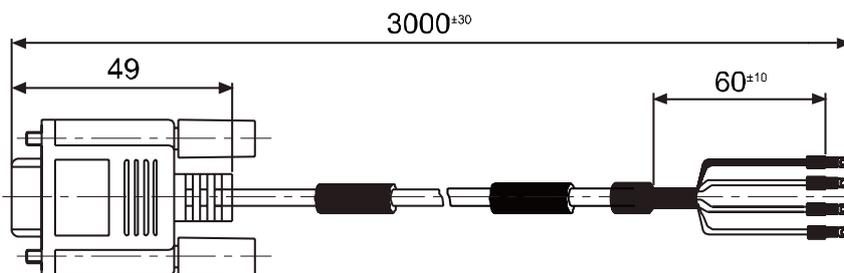
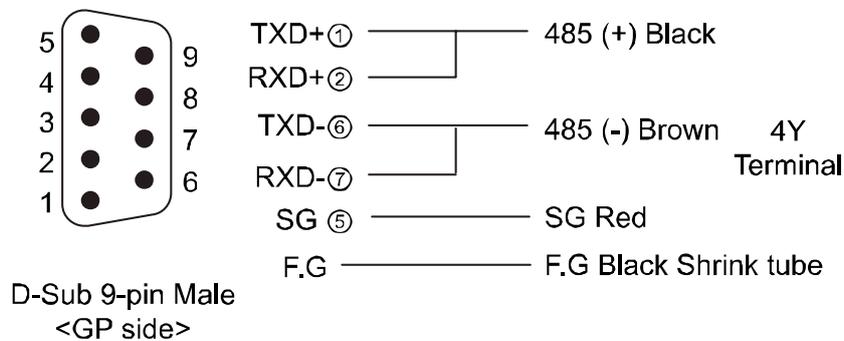
## 1.1 Version

Software	Version	Note
GP Editor	V4.01 (build 023)	—
LP-S070 Firmware	V1.20	Release : 2016.01.26
Ms Windows	Windows 7	—

## 1.2 Connections



## 1.3 Communication cable connection and dimensions (communication cable model: C3M5P03-D9M0-T4Y0)



(unit: mm)

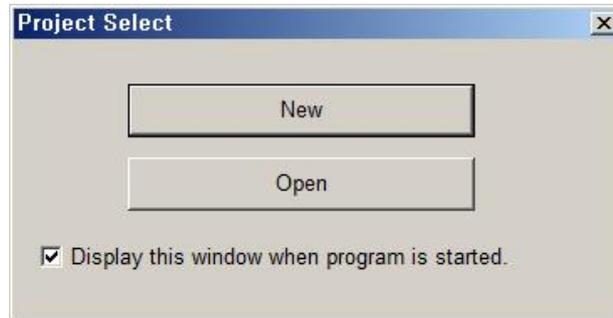


## 2 Communication Setting

### 2.1 GP Editor Setting

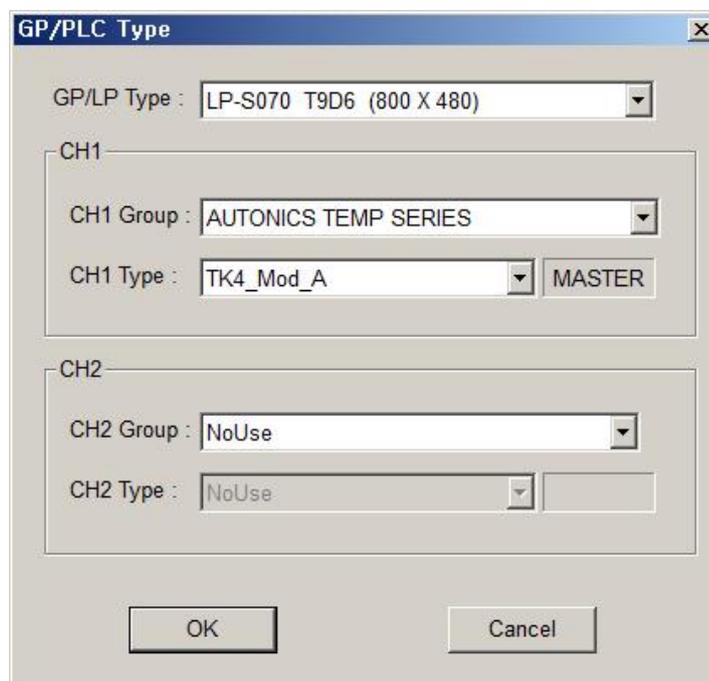
1st Select [Project] – [New] on menu.

If you have the saved file, open the project at [Load].



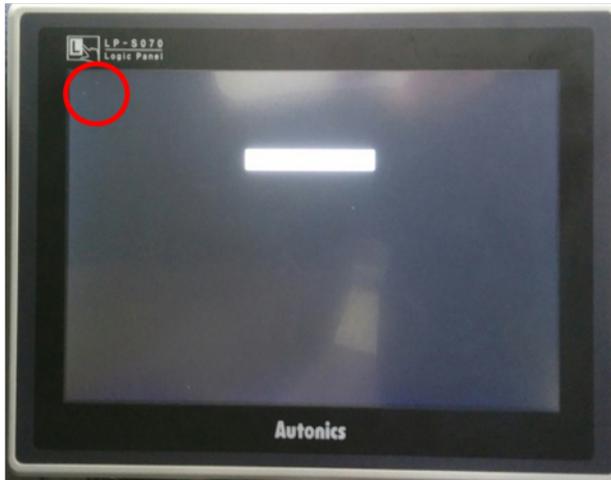
2nd At GP/PLC Type dialog box, set GP/LP Type and CH1 Group/Type.

Item	Setting
GP / LP Type	LP-S070 T9D6
CH1 Group / Type	AUTONICS TEMP SERIES / TK4_Mod_A
CH2 Group / Type	No Use



## 2.2 LP-S070 Setting

1st Touch top-left of the LP.



2nd Touch 'Environment'.



3rd Touch 'Serial Communication'.



4th At serial communication, set as below.

	PROTOCOL	PORT	
CH1	TK4_Mod_A V2.5M	RS-422	SET
CH2	No Use	RS-232C	SET



5th Touch right 'SET' and set as below.

Item	Setting	Note
Baud rate	9600	User setting
Flow control	XON/XOFF	Fixed
Parity bit	None	User setting
Data bit	8-bit	User setting
Stop bit	2-bit	User setting



## 2.3 TK4M Setting

1st Supply power to the TK unit. Press the MODE key to enter parameter setting group.

2nd Enter *PR4* and set the communication settings as below.

Parameter	Display	Setting	Note
Communication address	<i>Adr5</i>	01	User setting
Communication speed	<i>bP5</i>	96	User setting
Communication parity bit	<i>Prty</i>	none	Fixed
Communication stop bit	<i>StP</i>	2	User setting
Communication response waiting time	<i>r54t</i>	20	User setting
Communication write	<i>Cony</i>	EnA	Fixed

\* Hold the MODE key over 3 sec while in setting mode to return to RUN mode.

\* Hold the MODE key for 1.5 sec while in setting mode to move to other parameter group.

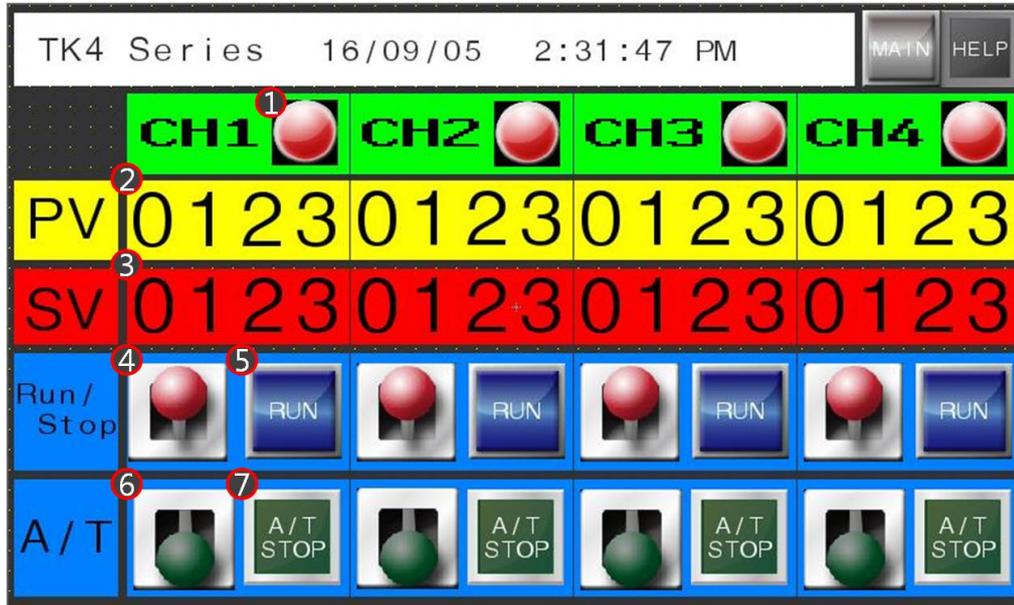
\* Press the MODE key after the setting and it is saved.

\* If there is no additional key operation within 30 sec after entering into setting mode, it will be automatically returned to RUN mode and previous set value will be remained.

\* Check that RS485 communication models are only available communication.

### 3 Examples

#### 3.1 LP-S070 Drawing



#### 3.2 LP-S070 – TK4M connection

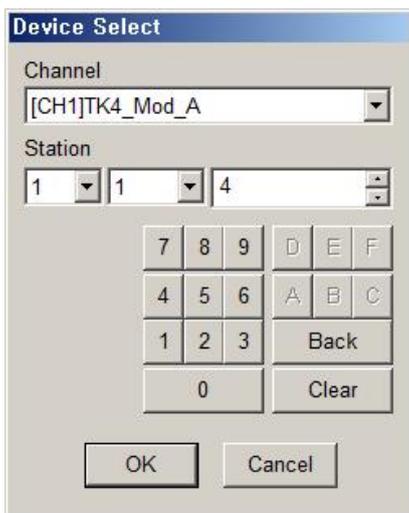
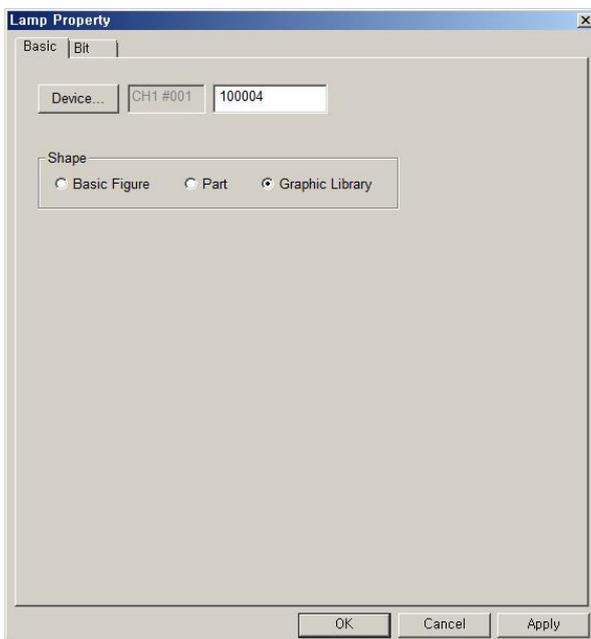
LP-S070				
Item	Tag Property	Usage	Device	Setting range
①	Lamp	Control output 1 indicator	100004	0 : OFF 1 : ON
②	Numeral display	Present value	301001	-1999 to 9999
③	Numeral input	Setting value	400001	Within L-Sv to H-Sv
④	Touch key	Control output run/stop	000001	0 : RUN 1 : STOP
⑤	Lamp	Control output status	000001	0 : RUN 1 : STOP
⑥	Touch key	Auto-tuning run/stop	000002	0 : OFF 1 : ON
⑦	Lamp	Auto-tuning status	000002	0 : OFF 1 : ON

### 3.3 GP Editor Drawing

#### 3.3.1 Control output 1 indicator

Select [Draw]–[Lamp] at menu.  
Click 'Device' to set the device as below.

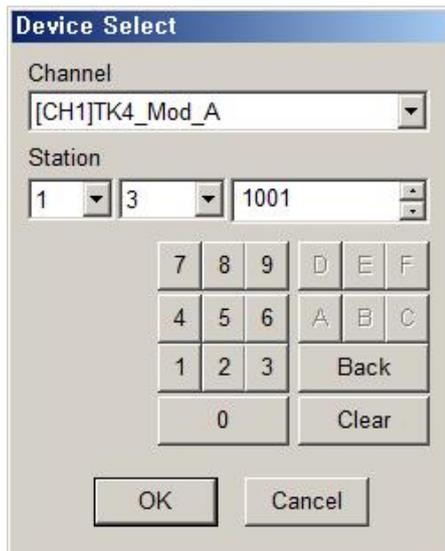
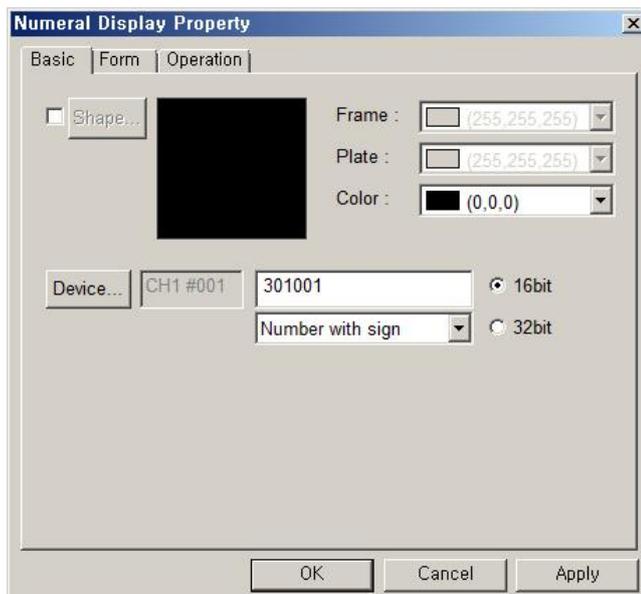
Items	Setting
Channel	[CH1] TK4_Mod_A
Station	1
Device	100004



### 3.3.2 Present value

Select [Draw]–[Numeral Display] at menu.  
Click 'Device' to set the device as below.

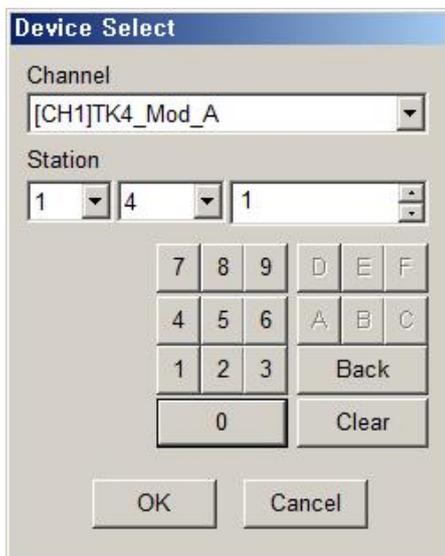
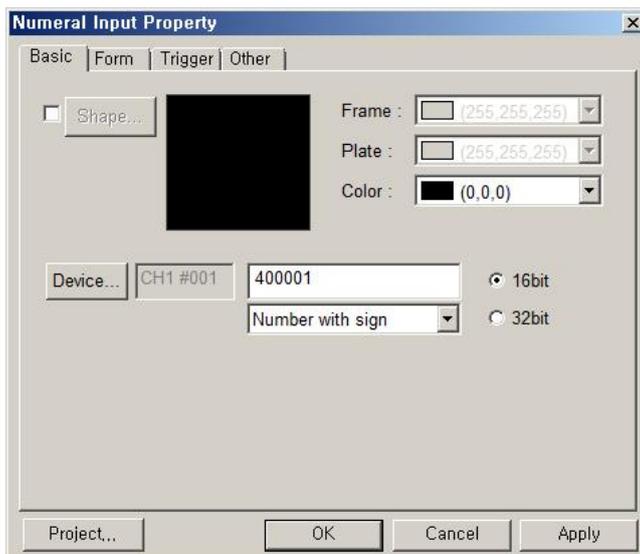
Items	Setting
Channel	[CH1] TK4_Mod_A
Station	1
Device	301001



### 3.3.3 Setting value

Select [Draw]–[Numeral Input] at menu.  
Click 'Device' to set the device as below.

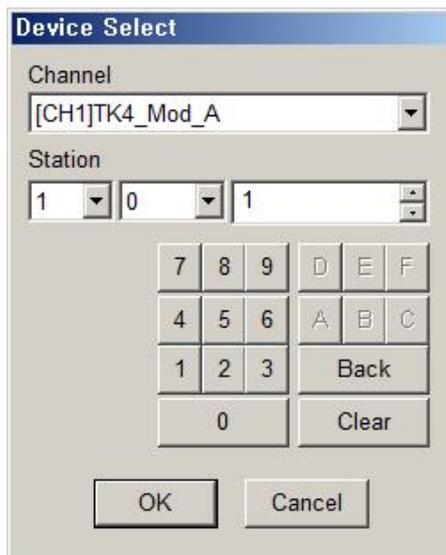
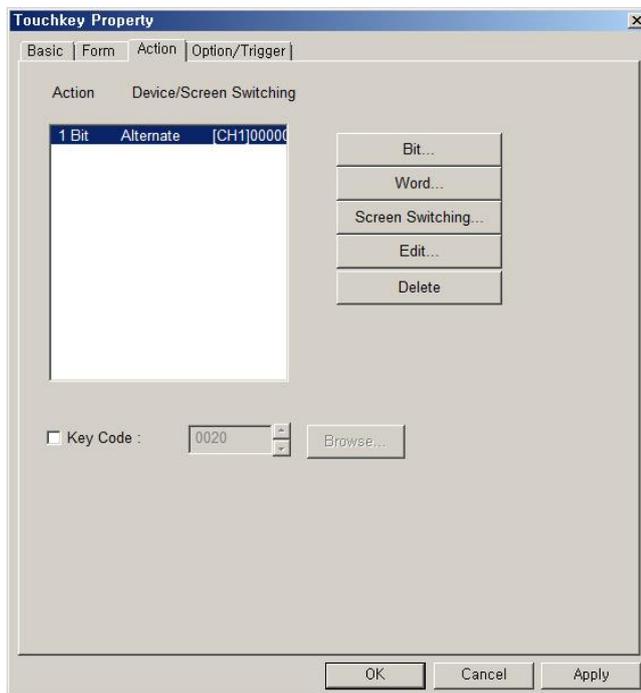
Items	Setting
Channel	[CH1] TK4_Mod_A
Station	1
Device	400001



### 3.3.4 Control output run/stop

Select [Draw]-[Touch Key]-[Action]-[Bit].  
Click 'Device' to set the device as below.

Items	Setting
Channel	[CH1] TK4_Mod_A
Station	1
Device	000001



At 'Basic' tab, set display trigger as below.

The screenshot shows the 'Touchkey Property' dialog box with the 'Basic' tab selected. The 'Display Trigger' section has the 'Bit' radio button selected. Below it, the 'Device...' button is followed by a text field containing 'CH1 #001' and another text field containing '000001'. The 'Shape' section has the 'Graphic Library' radio button selected. At the bottom, there are 'OK', 'Cancel', and 'Apply' buttons.

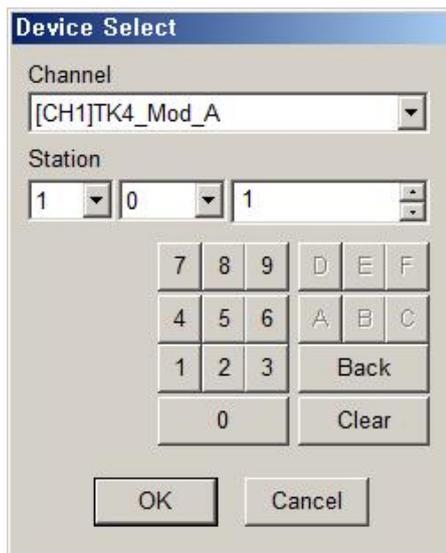
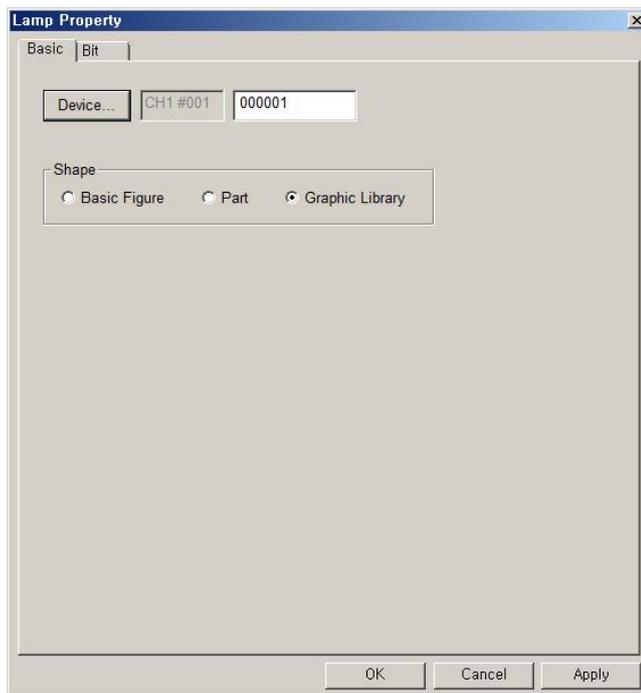
The screenshot shows the 'Device Select' dialog box. The 'Channel' dropdown menu is set to '[CH1]TK4\_Mod\_A'. The 'Station' section has three dropdown menus with values '1', '0', and '1'. Below this is a numeric keypad with buttons for digits 0-9 and letters D, E, F, A, B, C. There are also 'Back' and 'Clear' buttons. At the bottom, there are 'OK' and 'Cancel' buttons.

### 3.3.5 Control output status

Select [Draw]–[Lamp] at menu.

Click 'Device' to set the device as below.

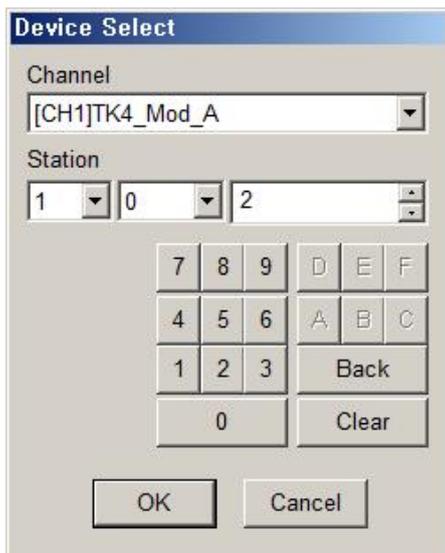
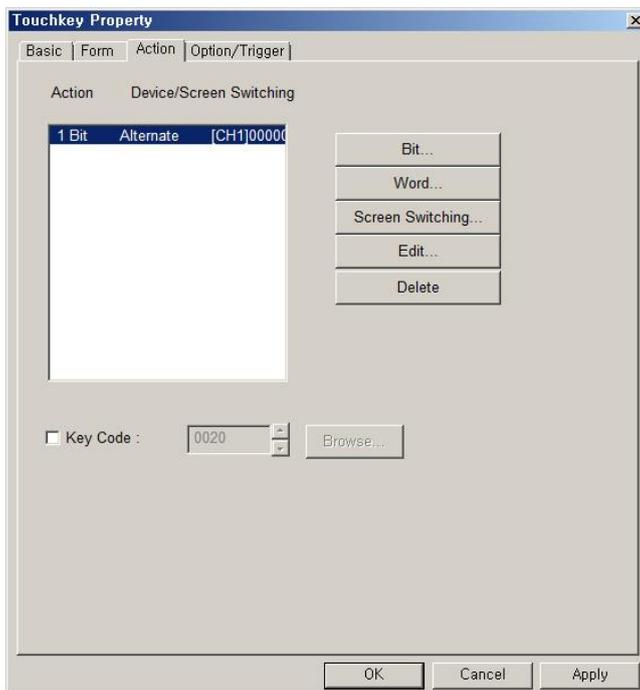
Items	Setting
Channel	[CH1]TK4_Mod_A
Station	1
Device	000001



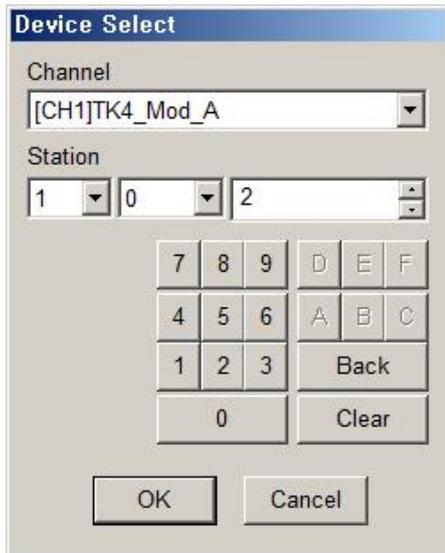
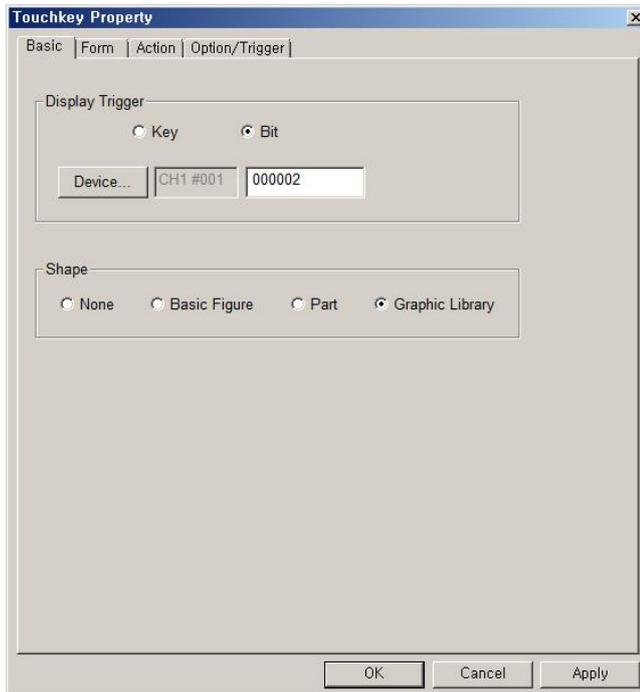
### 3.3.6 Auto-tuning run/stop

Select [Draw]–[Touch Key]–[Action]–[Bit].  
Click 'Device' to set the device as below.

Items	Setting
Channel	[CH1]TK4_Mod_A
Station	1
Device	000002



At 'Basic' tab, set display trigger as below.

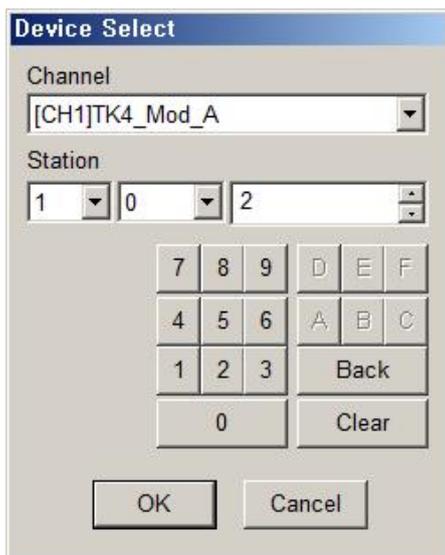
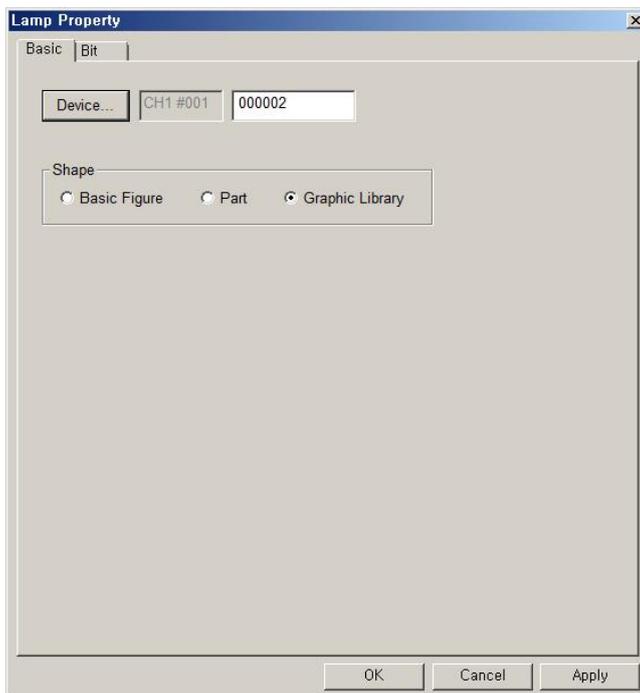


### 3.3.7 Auto-tuning status

Select [Draw]–[Lamp] at menu.

Click 'Device' to set the device as below.

Items	Setting
Channel	[CH1] TK4_Mod_A
Station	1
Device	000002



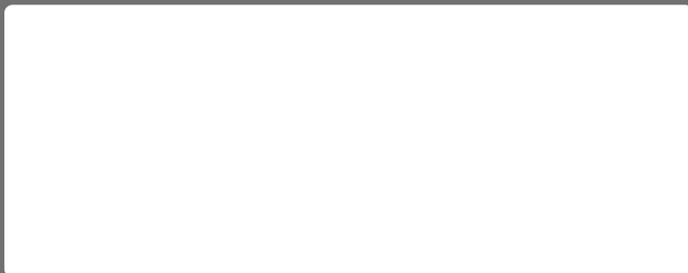


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