

TEK SC61E

Compact Scaler Switcher 6x1



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Version: SC0601E_2015V1.0

Preface

Please read the user manual carefully before using this product. Pictures shown in this manual are for reference only. Specifications are subject to change.

Trademarks

Mentioned product model and logo are trademarks. Any other trademarks mentioned in this manual are acknowledged as the properties of the trademark owner.

FCC Statement

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation.

Operation of this equipment in a residential area is likely to cause interference, in which case the user at their own expense will be required to take whatever measures may be necessary to correct the interference.

Any changes or modifications not expressly approved by the manufacture would void the user's authority to operate the equipment.



SAFETY PRECAUTIONS

To insure the best performance from this product, please read all instructions carefully before using the device. Save this manual for further reference.

- Unpack the equipment carefully and save the original box and packing material for possible future shipment
- Follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burn.
- Using supplies or parts not meeting the products' specifications may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Do not put any heavy items on the extension cable in case of extrusion.
- Do not remove the housing of the device as opening or removing housing may expose you to dangerous voltage or other hazards.
- Install the device in a place with fine ventilation to avoid damage caused by overheat.
- Keep the module away from liquids.
- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on to the housing, unplug the module immediately.
- Do not twist or pull by force ends of the optical cable. It can cause malfunction.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Unplug the power cord when left unused for a long period of time.
- Information on disposal for scrapped devices: do not burn or mix with general household waste, please treat them as normal electrical wastes.

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1. Introduction

1.1 Introduction to TEK SC61-4K

The TEK SC61-4K is a compact 6x1 unit with 6 video inputs (4 HDMI, 2 VGA), 2 auxiliary audio inputs (switched following VGA), 1 HDMI output and 3 audio outputs (1 *dual-mono* analog audio, 1 3.5mm stereo audio, 1 optical audio).

The TEK SC61-4K switches VGA or HDMI/DVI input signal to HDMI output. The unit also up-scales VGA to HDMI output and supports resolution adjustment (6 types in total). It can bypass HDMI and provides resolution capacities up to 4K& 1080p 3D and supports RS232 & IR control and EDID management.

1.2 Features

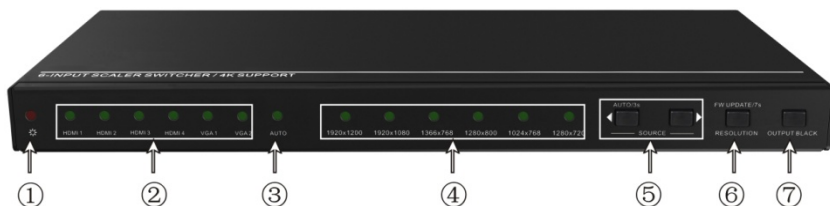
- Control -- via Front panel buttons, RS232 commands and IR Remote
- Switch -- select 6 input source to HDMI output
- Scale – scale VGA to HDMI output, user selectable output resolutions, and supports various output resolutions, such as 1920x1200 , 1920x1080 , 1360x768 , 1280x800 , 1024x768 , 1280x720
- Support HDMI 1.4, 4Kx2K&1080P 3D, compliance with HDCP1.4.
- Transmit 4Kx2K signal up to 15m.
- Support EDID management
- Two input switching modes: auto-switching or manual-switching
- LED indicator for power connect states, source selection, and output resolution selection
- Supports audio & video output management via OUTPUT BLACK button.
- Support online software upgrading
- Slim design
- Supports power-off memory
- Supports hot plugging

1.3 Package List

- 1 x TEK SC61-4K
- 2 x Mounting ears
- 4 x Screws
- 4 x Plastic cushions
- 1 x Power adapter (DC 5V 3A)
- 2 x 3-pin Pluggable terminal blocks (pitch:3.81mm)
- 1 x IR Receiver
- 1 x IR Remote (Cell battery is not included)

2. Panel Description

2.1 Front Panel



No.	Name	Description
①	Power LED	Indicator for power status <ul style="list-style-type: none"> ● Off when no power. ● Constant green light when the system is on. ● Constant red light when the system is in standby mode.
②	Inputs LED	Constant green when choosing the corresponding audio source
③	Auto-switching LED	Constant green light when enter in auto-switching mode
④	Output resolution selection LED	Constant green light when choosing the corresponding output resolution (Input is VGA)

⑤	SOURCE/AUTO	<ul style="list-style-type: none"> ● Audio source selection button: switching circularly between HDMI1, HDMI2, HDMI3, HDMI4, VGA1, VGA2. dial ◀ to select the previous one, dial ▶ to select the next one. ● Switching mode selection button □: press and hold for 3 seconds or more to enter in auto-switching mode, press and hold for 3 seconds or more again to enter in manual-switching mode.
⑥	RESOLUTION/FW UPDATE	<ul style="list-style-type: none"> ● Output resolution manual switching button for VGA input: selection circularly among 1920×1200, 1920×1080, 1360×768, 1280×800, 1024×768, 1280×720.default resolution:1920×1080 ● Firmware updating button: press and hold for 7 seconds or more to enter in software updating procedure. All LEDs will flash when the system is loading firmware.
⑦	OUTPUT BLACK	Press to switch on/off Audio & Video output.

Note: Pictures shown in this manual are for reference only, different model and specifications are subject to actual product.

2.2 Rear Panel



No.	Name	Description
①	INPUTS	<ul style="list-style-type: none"> ● HDMI: 4 HDMI/DVI video source input ports(embedded HDMI audio format : PCM). ● VGA: 2 VGA video source input ports. ● AUDIO: 2 3.5mm stereo audio source input ports, switched following the corresponding VGA.
②	OUTPUTS	<ul style="list-style-type: none"> ● HDMI: HDMI video output port.

		<ul style="list-style-type: none"> ● 3P AUDIO: <i>Dual-Mono</i> analog audio output port. ● 3.5mm AUDIO: stereo audio output port. ● OPTICAL: optical audio output port.
③	Control	<ul style="list-style-type: none"> ● FIRMWARE: Type-A USB port for updating firmware. ● RS232: Serial port, 3-pin pluggable terminal block, connect with control terminal (e.g. a PC) to control TEK SC61-4K. ● IR IN: connect to an IR Receiver, to receive IR signal send by corresponding IR remote.
④	DC 5V	Connect to a DC 5V 3A power adapter.

3. System Connection

3.1 Usage Precautions

- 1) System should be installed in a clean and suitable environment to the device's temperature and relative humidity operating specifications.
- 2) All of the power switches, plugs, sockets and power cords should be insulated and in good condition.
- 3) All devices should be connected before power on.

3.2 System Diagram

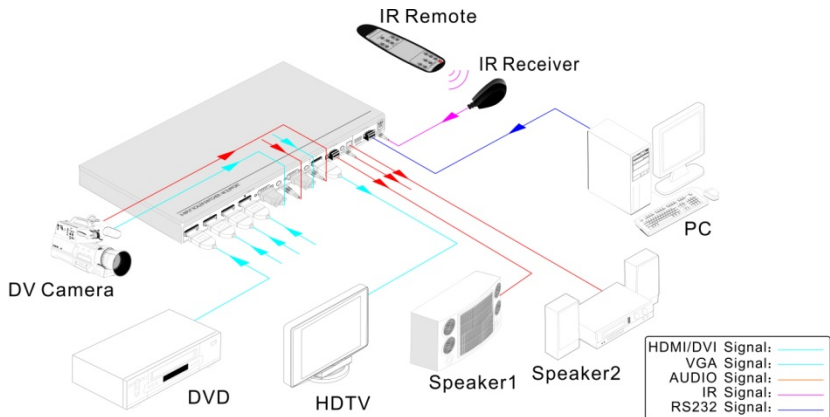


Figure 3- 1 Connection Diagram

3.3 Connection Procedures

- Step1.** Connect HDMI/DVI sources (e.g. DVD) to **HDMI** input ports of TEK SC61E with HDMI cables.
- Step2.** Connect VGA sources (e.g. DV Camera) to **VGA** input ports of TEK SC61E with VGA cables.
- Step3.** Connect sources to the **AUDIO** input ports of TEK SC61E with audio cables.
- Step4.** Connect a HDMI display (e.g. HDTV) to **HDMI** output port of TEK SC61E.
- Step5.** Connect audio amplifiers (e.g. speaker/earphone) to audio outputs of TEK SC61E.
- Step6.** Connect a control device (e.g. PC) to the **RS232** port of TEK SC61E.
- Step7.** Connect an IR Receiver (working voltage:5V) to the **IR IN** port of TEK SC61E.
- Step8.** Plug DC 5V 3A power adapter to TEK SC61E.

3.4 Application

TEK SC61E has many useful applications including computer rooms, monitoring, conference room, big screen displays, television education, command & control center and smart homes.

4. System Operations

4.1 Front Panel Button Control

Front panel buttons can be used for source selections, output resolution adjusting, front panel button management, software updating and output screen setting. (Please refer to chapter 2.1).

Detailed information for source selections:

There are 6 sources for choose in total, including HDMI1, HDMI2, HDMI3, HDMI4, VGA1, VGA2. Video signals support auto-switching and manual-switching (factory default). Press and hold for **SOURCE/AUTO** for **3 seconds or more** to enter in auto-switching/ manual-switching mode.

Manual-switching:

Dial to select the previous source, dial to select the next source.

Auto-switching:

In this mode, the select input source via front panel button () is not available, but both RS232 commands and the IR remote are able to switch modes. The auto LED will turn green and stay on.

The auto-switching mode abides by the following principles:

- **New input principle**

Once it has detected a new input signal, the TEK SC61E will switch to this new signal automatically.

- **Rebooting device principle**

TEK SC61E has power-off memory. Example: If the last switching mode used was auto-switching, when rebooted, the TEK SC61E will automatically enter auto-switching mode, and then detect all inputs and memorize their connection status for future rebooting using. If the last displayed signal is still available, the TEK SC61E will output the signal. If not, the unit will detect all the inputs signals with priority from HDMI1 to VGA2. When it detects the first signal, it will transfer to output.

- **Signal removing principle**

When removing the current display signal, the TEK SC61E will detect all input signals with priority from HDMI1 to VGA2. It will transfer the signal first detected to be available to output devices

Operation Examples:

- Connect HDMI2, HDMI4, and VGA2 ports with source devices, select HDMI4 to outputs.
- Press and hold for the front button **SOURCE/AUTO** for **3 seconds or more** to enter in auto-switching mode.
- Connect HDMI3 with a source device, and then it will choose HDMI3 to output.

- Remove the signal of HDMI3, the TEK SC61E will detect from HDMI1 to VGA2, and when it detects that HDMI2 is available, it will choose HDMI2 to output.
- Cut off the power of the TEK SC61E then reboot. As the unit is in auto-switching mode, it will choose HDMI2 to output.

4.2 RS232 Control

4.2.1 RS232 Communication Commands

Baud rate: 9600

Data bit: 8

Stop bit: 1

Parity bit: none

Command	Function	Feedback Example
Switch Commands		
50701%	Switch to HDMI 1 Input	Switch to HDMI 1
50702%	Switch to HDMI 2 Input	Switch to HDMI 2
50703%	Switch to HDMI 3 Input	Switch to HDMI 3
50704%	Switch to HDMI 4 Input	Switch to HDMI 4
50705%	Switch to VGA 1 input	Switch to VGA 1
50706%	Switch to VGA 2 input	Switch to VGA 2
50785%	Enable auto-switching	Auto Switching
50786%	Disable auto-switching	Manual Switching
Resolution Select Commands for VGA Input		
50619%	Change the resolution to 1360X 768	Resolution: 1360x768
50620%	Change the resolution to 1920X1200 WUXGA	Resolution: 1920x1200
50626%	Change the resolution to 1024X768 XGA	Resolution: 1024x768
50627%	Change the resolution to 1280X720 720P	Resolution: 1280x720
50628%	Change the resolution to 1280X800 WXGA	Resolution: 1280x800
50629%	Change the resolution to 1920X1080 1080P	Resolution: 1920x1080
Setup Commands		
50604%	Lock the front panel buttons	Front Panel lock
50605%	Unlock the front panel buttons	Front Panel Unlock

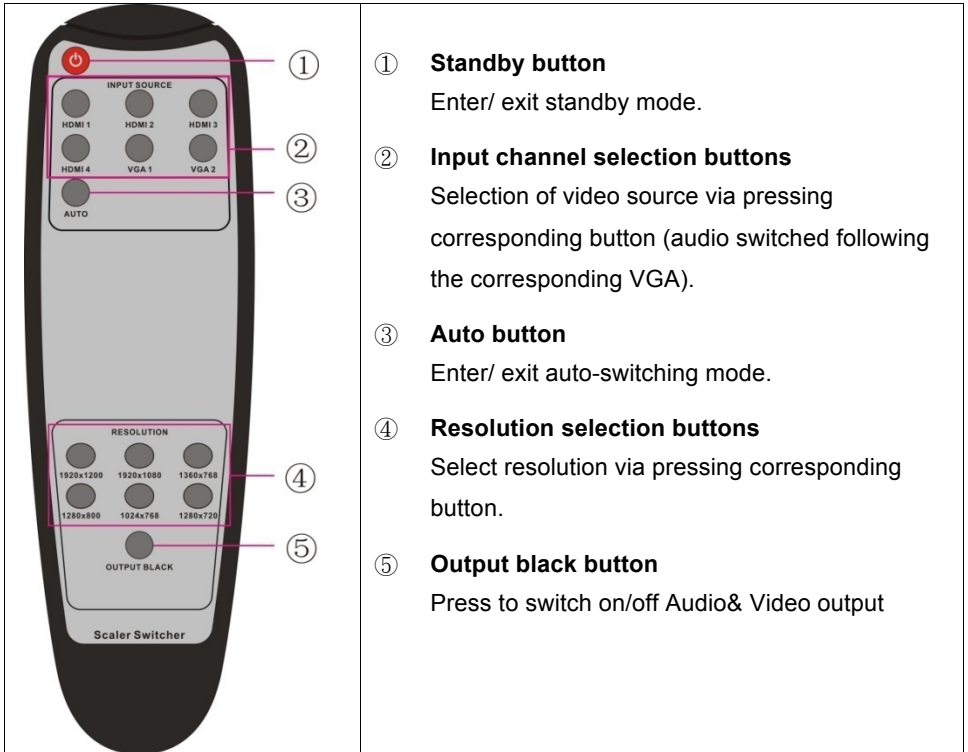
502xx%	Set the brightness to xx (xx ranges from 0 to 99) for VGA input	Brightness: xx
503xx%	Set the contrast to xx (xx ranges from 0 to 99) for VGA input	Contrast: xx
504xx%	Set the saturation to xx (xx ranges from 0 to 99) for VGA input	Saturation: xx
505xx%	Set the sharpness to xx (xx ranges from 0 to 99) for VGA input	Sharpness: xx
50607%	Adjust the color temperature for VGA input	Color Temperature: xx (xx= Cool/ Medium/ Warm/ User.)
50608%	Set the aspect ratio for VGA input	Aspect Ratio: xx (xx= 16:9/ 4:3/ auto/)
50614%	Set the picture mode for VGA input	Picture Mode: xx (xx= dynamic/ standard/ mild/ user)
50615%	Set SM audio mode for VGA input	Sound Mode: xx Sound Mode: xx (xx= standard/ music/ movie/ sports/ user)
50677%	Stretch downwards from top (decrease image height)	Output height adjust xx
50648%	Enable HDMI embedded audio output	Embedded Audio Output: enable
50649%	Disable HDMI embedded audio output	Embedded Audio Output: disable
50606%	Auto-adjust the input parameter for (VGA only)	VGA Input Auto
50699%	Check the system version	Version Vx.x.x
50697%	Exit standby mode	Wake up!
50797%	Enter standby mode	Go to standby!
50698%	Software update	
50617%	Reset to factory defaults	Factory Reset
50772%	Set the EDID date of all input ports: bypass mode	EDID:bypass mode
50773%	Set the EDID date of all input ports: 1080P&PCM 2ch	EDID:1080P&PCM 2ch

50774%	Set the EDID date of all input ports:1080P&5.1ch	EDID:1080P&5.1ch
50775%	Set the EDID date of all input ports:1080P 3D&5.1ch	EDID:1080P3d&5.1ch
50776%	Set the EDID date of all input ports:1080i&PCM 2ch	EDID:1080i&PCM 2ch
50777%	Set the EDID date of all input ports:4K&PCM 2ch	EDID:4K&PCM 2ch
50787%	Set the EDID date of all input ports:user	EDID:user
Inquire Commands		
50631%	Check the input source	Input: xx
50632%	Check the output resolution	Resolution: xx
50633%	Check the image mode	Picture Mode: xx
50634%	Check the audio mode	Sound Mode: xx
50635%	Check the image aspect ratio	Aspect Ratio: xx
50636%	Check the brightness	Brightness: xx
50637%	Check the contrast	Contrast: xx
50638%	Check the saturation	Saturation: xx
50639%	Check sharpness	Sharpness: xx
50640%	Check the color temperature	Color Temperature: xx
50652%	Check Digital audio output status	Embedded Audio Output: enable/disable
50754%	Check the panel locked status	Front Panel Lock/UnLock
50778%	Acquire EDID s	EDID:xx
Adjustment Commands for VGA input		
50670%	Move the image to left	Output Position Adjust X xx
50671%	Move the image to right	Output Position Adjust X xx
50672%	Move the image up	Output Position Adjust Y xx
50673%	Move the image down	Output Position Adjust Y xx
50674%	Stretch left from left side (increase	Output Width Adjust xx

	image width)	
50675%	Pull right from left side (decrease image width)	Output Width Adjust xx
50676%	Stretch upwards from top side (increase image height)	Output Height Adjust xx
50678%	Enable screen output adjusting	Enter Output Position Adjust
50679%	Disable screen output adjusting	Exit Output Position Adjust

4.3 IR control

The TEK SC61E utilizes a remote to control it. Here is brief description of IR remote.



4.4 Firmware Updating

The TEK SC61E supports firmware updating via USB flash disk. The procedure is as follows:

- Step1.** Copy the file “**MERGE.bin**” to the root directory of a USB flash disk. (Make sure the file is copied to the root directory for normal use.)
- Step2.** Plug the USB flash disk to TEK SC61E **FIRMWARE** port on its rear panel.
- Step3.** Press the button “**RESOLUTION/FW UPDATE**” for **7 seconds or more** to update the firmware automatically. Or send command **50698%** to update software.

5. Specification

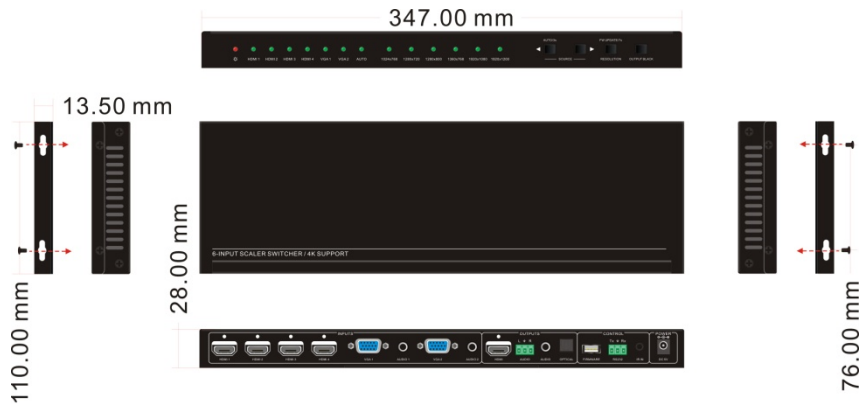
Video Input		Video Output	
Input	4 HDMI, 2 VGA	Output	1 HDMI
Input Connector	4 female HDMI (Type-A) 2 female VGA (15Pin)	Output connector	1 female HDMI
Video Signal	HDMI/DVI,VGA	Video Signal	HDMI
Resolution	HDMI: up to 4Kx2K VGA: output resolution selectable		
Standard	Compliant with VGA&DVI HDMI1.4, HDCP 1.4		
Audio Input		Audio Output	
Input	2 stereo audio for VGA	Output	1 <i>Dual-Mono analog audio</i> 1 <i>stereo audio</i> 1 <i>optical audio</i>
Input Connector	1 3.5mm jack	Output Connector	1 3-pin pluggable terminal block (3.81mm) 1 3.5mm jack 1 SPF fiber connector
Control parts			
Control Ports	RS232, IR remote	Pin configuration	2 = TX, 3 = RX, 5 = GND
Panel Control	Front Panel Button		
General			
Power Supply	DC 5V 3A	Power Consumption	3.8 (Max)
Dimension (W*H*D)	W347 x H28 x D110 mm	Weight	0.63Kg
Temperature	0°C ~ 50°C	Reference Humidity	10% ~ 90%
Transmit Distance	4Kx2K≤15m		

Note: The TEK SC61E supports 4K & 1080p 3D HDMI signal, please adopt quality HDMI cables compliant with HDMI1.4 for reliable transmission when connecting

Supported Input Resolutions

Format	Resolution
HDMI/DVI	800x600@60Hz, 800x600@72Hz, 800x600@75Hz, 1024x768@42Hz, 1024x768@60Hz, 1024x768@70Hz, 1024x768@75Hz, 1024x768@85Hz, 1152x864@75Hz, 1280x768@60Hz, 1280x768@75Hz, 1280x768@85Hz, 1280x960@60Hz, 1280x960@85Hz, 1280x1024@60Hz, 1280x1024@75Hz, 1280x1024@85Hz, 1365x1024@60Hz, 1365x1024@60Hz, 1600x1024@60Hz, 1600x1200@60Hz, 1600x1200@65Hz, 1600x1200@70Hz, 1600x1200@75Hz, 1600x1200@85Hz, 1680x1050@60Hz, 1792x1344@60Hz, 1856x1392@60Hz, 1856x1392@75Hz, 1920x1080@60Hz, 1920x1200@60Hz, 1920x1440@60Hz, 3840x2160@24Hz, 3840x2160@30Hz, 3840x2160@25Hz, 4096x2160@24Hz, 4096x2160@25Hz, 4096x2160@30Hz,
VGA	800x600@60Hz, 800x600@72Hz, 800x600@75Hz, 1024x768@60Hz, 1024x768@70Hz, 1024x768@75Hz, 1280x768@60Hz, 1280x768@75Hz, 1280x960@60Hz, 1280x1024@60Hz, 1280x1024@75Hz, 1365x1024@60Hz, 1365x1024@75Hz, 1600x1024@60Hz, 1600x1200@60Hz, 1600x1200@65Hz, 1600x1200@70Hz, 1600x1200@75Hz, 1680x1050@60Hz, 1792x1344@60Hz, 1920x1080@60Hz, 1920x1200@60Hz

6. Panel Drawing



7. Troubleshooting & Maintenance

If your problem persists after following the above troubleshooting steps, seek further help from authorized dealer or our technical support.

Problems	Causes	Solutions
Power LED doesn't work or no response to any operation	Fail connection of power cord	Make sure the power cord connection is normal
	Power adapter doesn't suitable	Please replace the power adapter with factory default
No output image on display when switching	Fail or loose connection	Make sure the connection is enable
Output image with snowflakes or ghosting	Bad quality of the connecting cable	Please replace high quality cable.
	Over the transmission distance	please replace the proper distance cable
Cannot control the device via front panel button	Front panel buttons are locked	Send command 50605% to unlock it
Cannot select source via SOURCE/AUTO buttons	In auto-switching mode	Press it and hold for 3 seconds or more to enter in manual-switching mode
Cannot control the device by control device (e.g. a PC) through RS232 port	Wrong RS232 communication parameters	Type in correct RS232 communication parameters.
	Broken RS232 port	Send it to authorized dealer for checking.
Cannot control the device via IR remote	The battery has run off.	Change for new battery.
	The IR remote is broken.	Send it to authorized dealer for repairing.
	Beyond the effective range of the IR signal or not pointing at the IR receiver	Adjust the distance and angle and point right at the IR receiver.

Cannot control the device	The device has already been broken.	Send it to authorized dealer for repairing.
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8. Support

If problems appear when running the TEK SC61E, please refer to this user manual. Any transport costs are borne by the users during the warranty.

1) Product Limited Warranty: We warrant that this product will be free from defects in materials and workmanship for **three years**, which will begin from on the day of purchasing (The purchase invoice shall prevail).

Proof of purchase in the form of a bill of sale or receipted invoice as evidence that the unit is within the Warranty period must be presented to obtain warranty service.

2) What the warranty does not cover:

- Warranty expiration.
- Factory applied serial number has been altered or removed from the product.
- Damage, deterioration or malfunction caused by:
 - Normal wear and tear
 - Use of supplies or parts not meeting our specifications
 - No certificate or invoice as the proof of warranty.
 - The product model showed on the warranty card does not match with the model of the product for repairing or had been altered.
- Damage caused by force majeure.
- Servicing not authorized.
- Any other causes which does not relate to a product defect
- Delivery, installation or labor charges for installation or setup of the product

3) Technical Support: Please email our support department, and inform us the following information about your product.

- Product version and name.
- Detailed failure situations.
- How to reproduce