SP-5004V

1x4 HDMI Splitter over Single Cat.X with HDBaseT-Lite, 4K2K, IR & RS-232

User Manual

Safety and Notice

The **SP-5004V** **1x4 HDMI Splitter over Single Cat.x with HDBaseT-Lite, 4K2K, IR & RS-232** has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the **SP-5004V** should be used with care. Please read and follow the safety instructions to protect yourself from possible injury and to minimize the risk of damage to the unit.

● Follow all instructions and warnings marked on this unit.

● Do not attempt to service this unit yourself, except where explained in this manual.

● Provide proper ventilation and air circulation and do not use near water.

● Keep objects that might damage the device and assure that the placement of this unit is on a stable surface.

● Use only the power adapter and power cords and connection cables designed for this unit.

● Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.

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INTRODUCTION

The **SP-5004V** **1x4 HDMI Splitter over Single Cat.x with HDBaseT-Lite, 4K2K, IR & RS-232** provides the most cost effective and advanced HDMI splitter solution on the market, by which the high definition video and high quality audio can be transmitted to 4 different locations without losing quality. **SP-5004V** supports all 3D formats and the true 4K 2K video!

With built-in RS-232 firmware update mechanism, the compatibility among countless HDMI sources and receivers can be further guaranteed. With the upmost 16 bit deep color video and high definition audio support, SP-5004V is suitable for high quality HDMI broadcasting, digital signage and education applications!

FEATURES

- Support HDMI Deep Color & full 3D & 4K2K@30 (HDBaseT technology)
- Extend the transmission up to 60m (198ft) from the HDMI source at Full HD 1080p 48-bit and 40m (132ft) at 4K2K@30
- HDCP & EDID Bypass
- Support full frequency IR signal from 20KHz to 60KHz
- Bi-directional IR path
- DTS-HD Master Audio and Dolby TrueHD high bit rate audio support
- Pure unaltered uncompressed 7.1ch digital HDMI over Cat.X cable transmission
- RS-232 Pass-Thru: Up to 115,200bps
- Easy installation

1. Automatic EDID learning will detect all the connected HDMI equipped monitors and analyze all the content of EDID. The EDID with minimal resolution support will be the reference EDID for incoming HDMI source players.
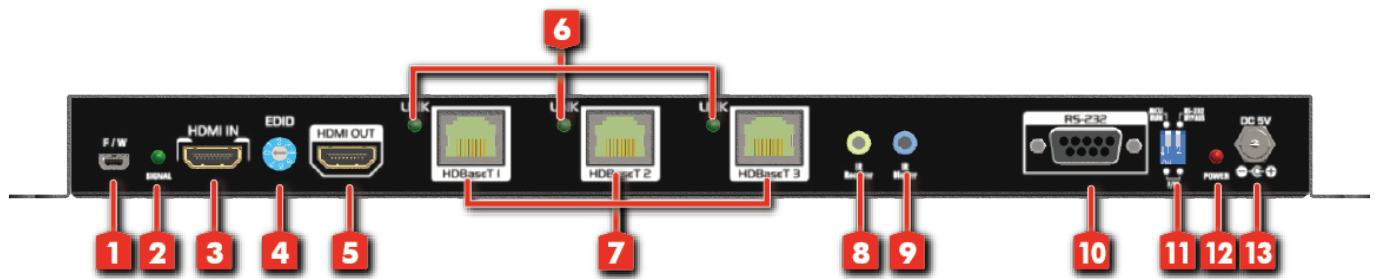
PACKAGE CONTENTS

- 1x SP-5004V
- 1x DC 5V 4A
- 1x User Manual

SPECIFICATIONS

Model Name		SP-5004V
Technical		
Role of usage		1x4 Distribution Amplifier (Splitter)
HDMI compliance		HDMI Deep Color, full 3D & 4K2K@30
HDCP compliance		Yes
Video bandwidth		Single-link 340MHz [10.2Gbps]
Video support		480i / 480p / 720p / 1080i / 1080p60 up to 36-bit color
Transmission over UTP cable (24-bit)		1080p@60 60m (198ft) [CAT5e]
Audio support		Surround sound (up to 7.1ch) or stereo digital audio
Input TMDS signal		1.2 Volts [peak-to-peak]
Input DDC signal		5 Volts [peak-to-peak, TTL]
ESD protection		[1] Human body model — ±19kV [air-gap discharge] & ±12kV [contact discharge] [2] Core chipset — ±2kV
PCB stack-up		4-layer board [impedance control — differential 100Ω; single 50Ω]
Input		1x HDMI, 3.5mm IR
Output		1x HDMI + 3x RJ-45[HDBaseT] , 3.5mm IR
IN/ OUT		RS-232
HDMI connector		Type A [19-pin female]
RJ-45 connector		WE/SS 8P8C(Reverse Mode)
Rotary switch		Yes
DIP switch		Yes
Mechanical		
Housing		Metal enclosure
Dimensions [L x W x H]	Model	322 x 122 x 26mm [12.7" x 4.8" x 1"]
	Package	494 x 225 x 70mm [1'6" x 8.9" x 2.8"]
	Carton	510 x 380 x 252mm [1'7" x 1'2" x 10"]
Weight	Model	TBA
	Package	TBA
Fixedness		1RU rack-mounting case with ears
Power supply		5V 4A DC
Power consumption		TBA
Operation temperature		0~40°C [32~104°F]
Storage temperature		-20~60°C [-4~140°F]
Relative humidity		20~90% RH [no condensation]

Rear Panel

1. **Mini-USB:** For technical support only [firmware update]

2. **Signal LED:** Signal LED indicator

3. **HDMI IN:** Connect to a HDMI input source

4. **EDID Management Rotary control:**

MODE 0	EDID Full-HD(1080p@60) - 24bit 2D video & 7.1ch audio
MODE 1	EDID Full-HD(1080p@60) - 24bit 2D video & 2ch audio
MODE 2	EDID Ultra-HD(4K2K@30) - 24bit 2D video & 7.1ch audio
MODE 3	EDID Ultra-HD(4K2K@30) - 24bit 2D video & 2ch audio
MODE 4	EDID Full-HD(1080p@60) - 36bit 2D video & 2ch audio
MODE 5	EDID HD(1080p@30)(1080i@60)(720p@60) - 24bit 2D video & 2ch audio
MODE 6	Auto EDID analysis
MODE 7	EDID learning

5. **HDMI OUT:** Connect to a HDMI display with a HDMI male-male cable here

6. **Link RX LED:** Link indicator

7. **HDMI Signal OUT1-3:** Link to each HDMI display via a Cat-5/5e/6 cable with a HDMI over Cat.X receiver.

8. **IR Receiver:** Infrared 3.5mm socket for plugging in the extension cable of IR receiver

9. **IR Blaster:** Infrared 3.5mm socket for plugging in the extension cable of IR blaster

10. **RS-232:** Firmware update and software control

11. **Dip Switch:** Switch between normal operation mode (ByPass) or firmware update mode(switch ON)

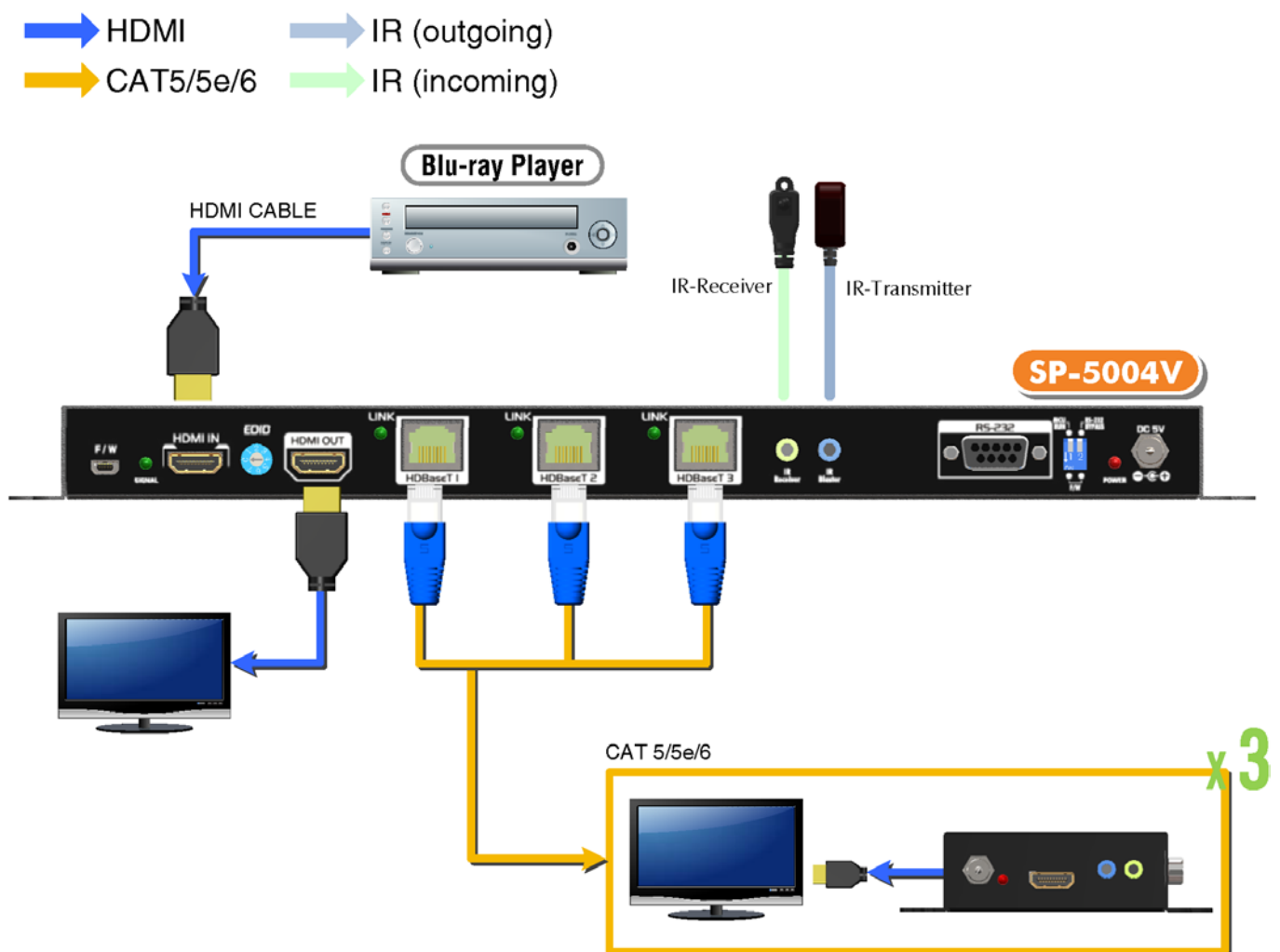12. **Power LED:** Power indicator

13. **+5V DC:** Connect to the +5VDC 4A power supply unit

HARDWARE INSTALLATION

Broadcasts HDMI signal to 4 HDMI displays!

1. Switch off all devices, including monitors.
2. Connect to the displays.
3. Connect an HDMI source (such as a Blu-ray Disc player) to the HDMI In.
4. Plug in 5V DC power supply.
5. Power on the HDMI monitors.
6. Power on the HDMI source.

CONNECTION DIAGRAM
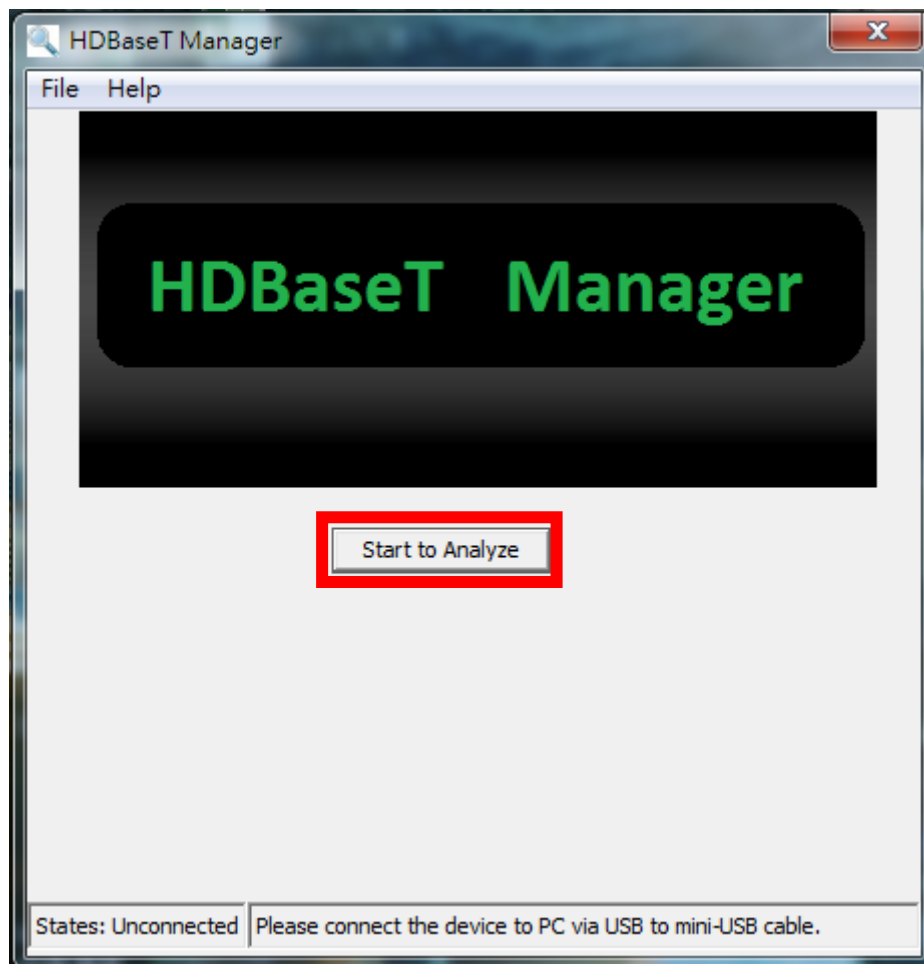
HDBaseT Manager

1. **Introduction**
   - **What is HDBaseT Manager?**

     HDBaseT Manager is the specialized software focusing on detecting the connecting environment and providing in-time investigation on the device that equipped Valens chip inside to find the potential problems in house efficiently and easily.
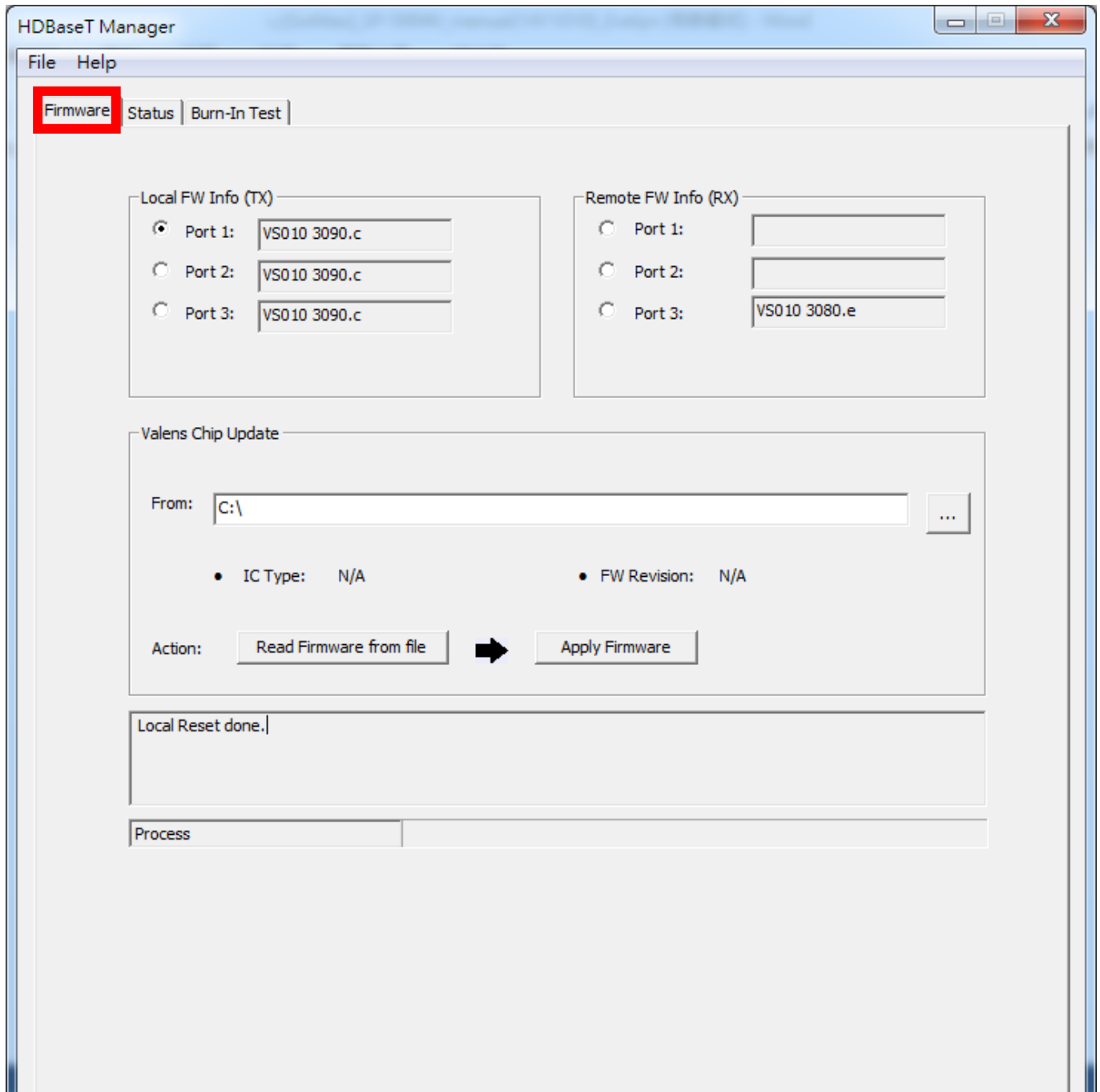
   - **How does HDBaseT Manager help?**

     HDBaseT Manager offers the service in 4 parts

     ➢ Firmware: Enable the viewer to quickly understand the firmware version and update the firmware.

     ➢ Status: Easily to know the status and environment of connection condition.

     ➢ Burn-In Test: Allow the engineer or installer to get a technical file that reveal the unusual situation for analyze accurately.
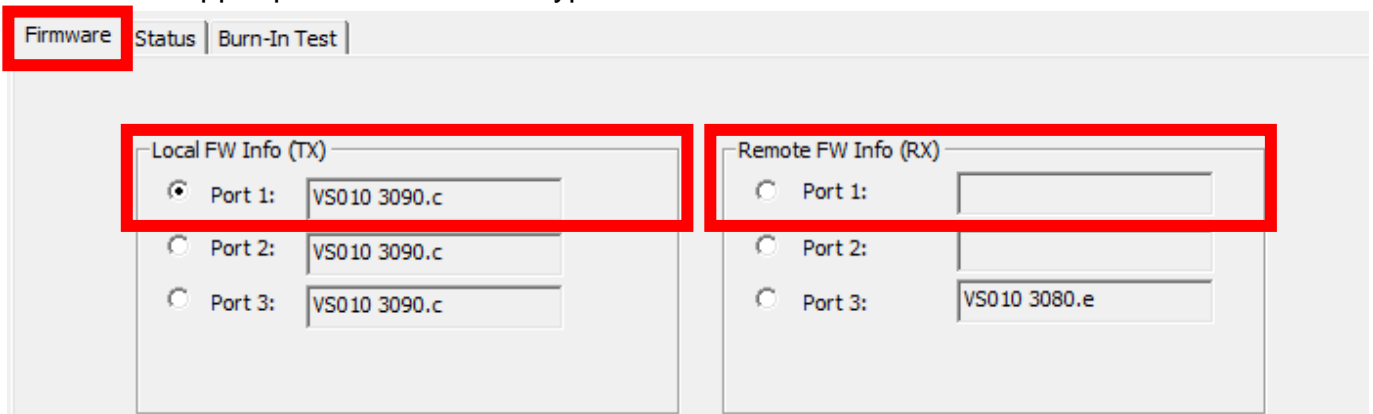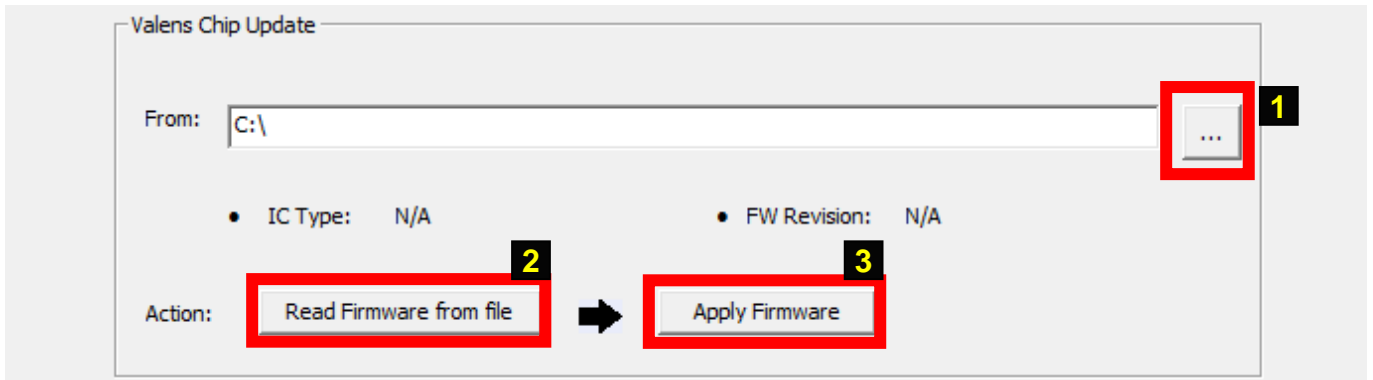
2. Firmware

2.1 Check the current firmware version

■ The upper part reveals the IC type and firmware version on the TX and RX.
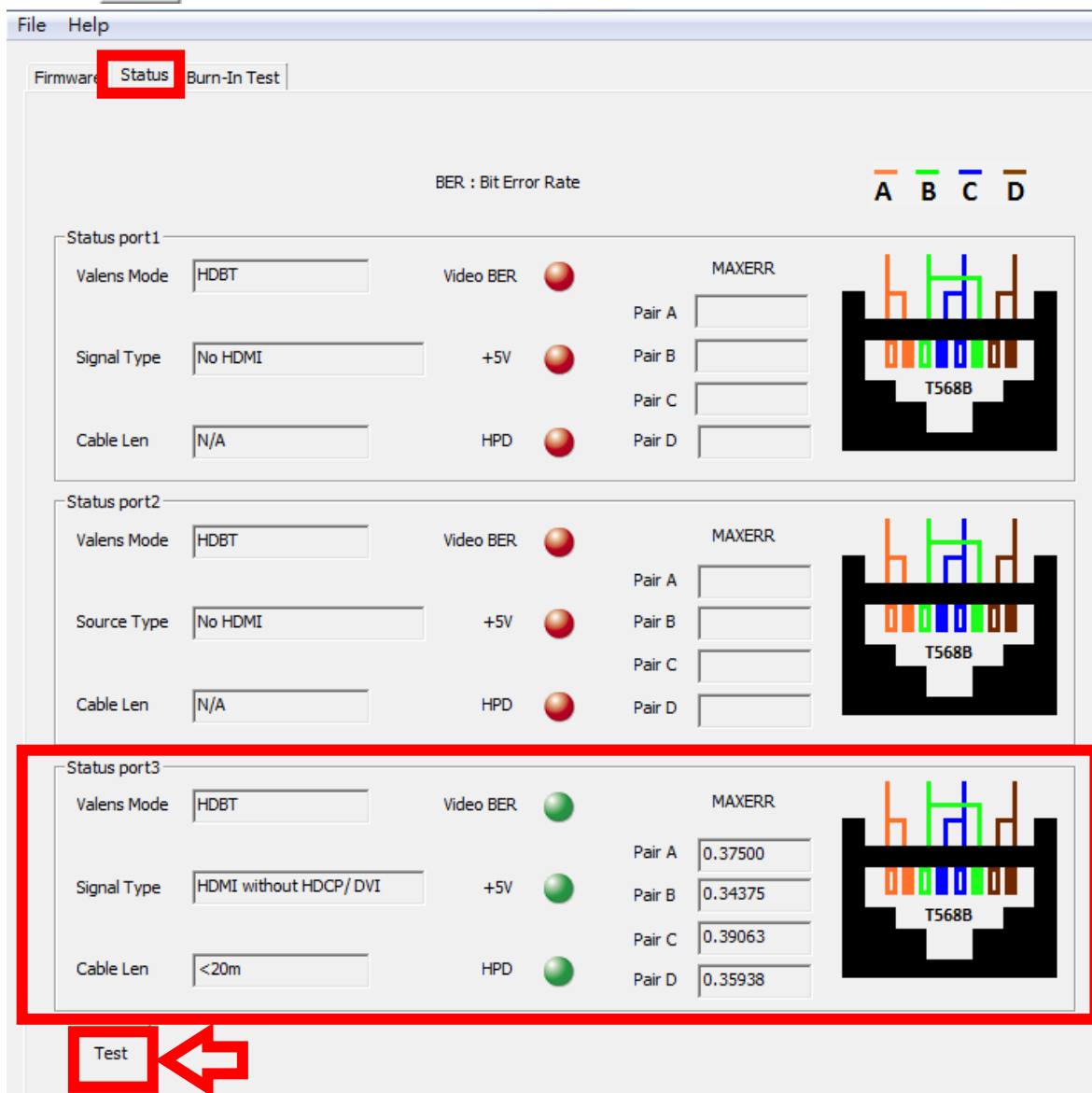
2.2 Update the require firmware

■ In the lower parts, we will see the information as below.
  ➢ Step 1: Select the firmware file from your PC.
  ➢ Step 2: Review the file information of the selected firmware.
  ➢ Step 3: Select [Apply Firmware] to get firmware updated and verified at the same time.
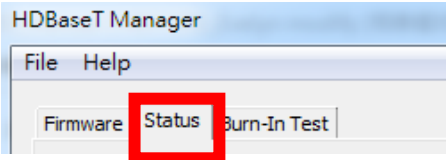

3. Status (Connecting)

3.1 Click [Test] **button in the corner to get all the information of connecting.**

4. Check the status of connecting

4.1 In upper part, it will reveal the Valens Mode and Source type of different ports.

4.2 If connected successfully, you will see the status as below:

4.3 If fail to connect, you will get the status as below:

4.4 Indication radio the light to recognize the connection condition.

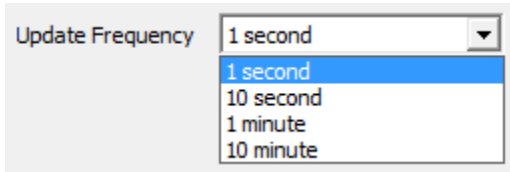■ **To review the status of connecting, HDBaseT Manager analyze in 4 directions.**

NO.	Item	Definition
1	Cable Len	To measure the cable length
2	Video BER	The Bit Error divided of the transferred bits during a studies time interval (video bit error rate)
3	HPD	Hot Plug Detect when you plug in or unplug, re-initializing the HDMI link if necessary
4	MAXERR	MAXERR is used to denotes the largest error between the samples of the original signal and the reconstructed signal

- **If the status is good, the light should always keep green.**
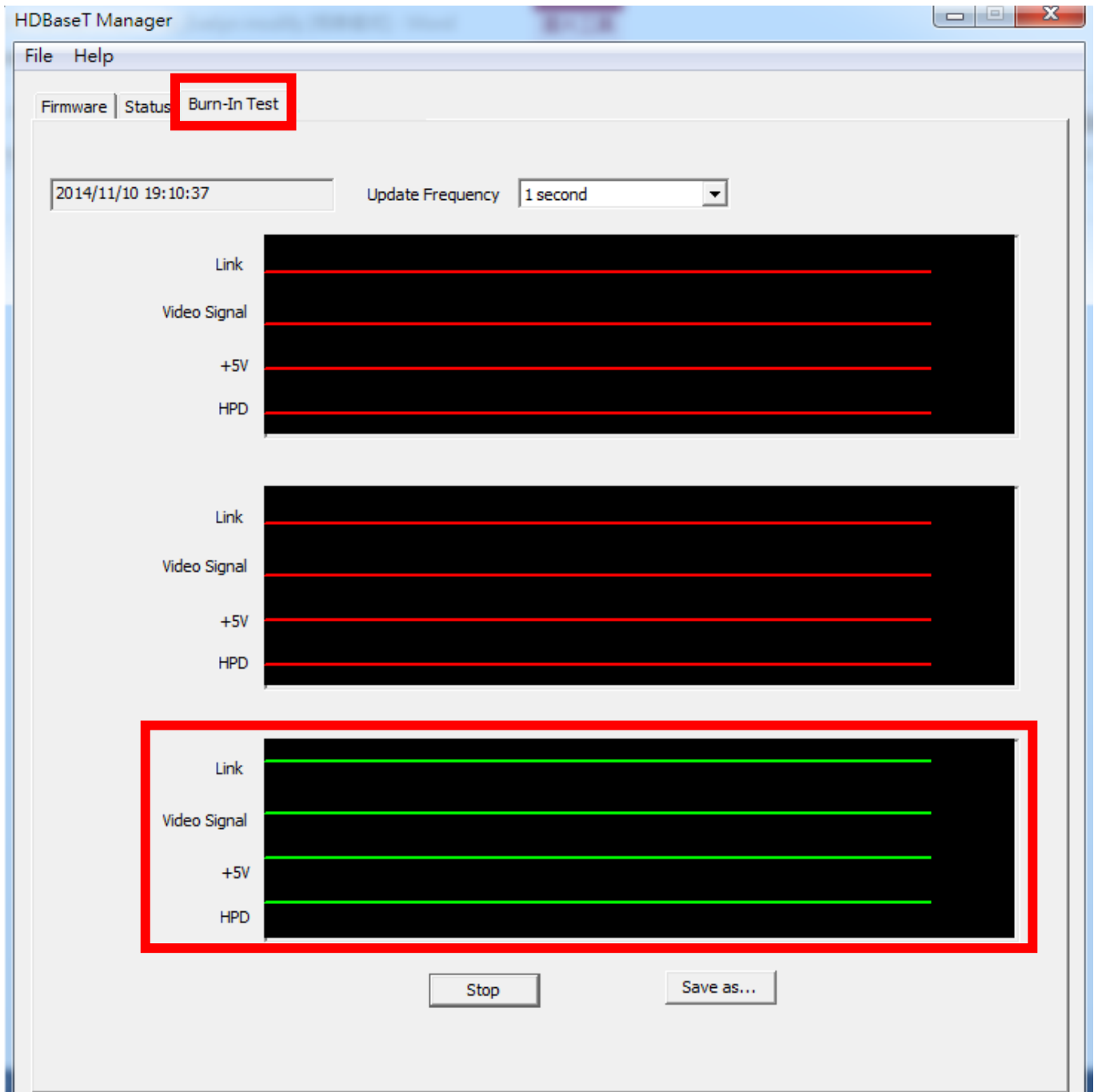- **If the status is bad, the light will turn to yellow or red.**

5. Burn-In Test

5.1 Select the required polling period and click [Start] button to get the data

Update Frequency | 1 second ▼ |
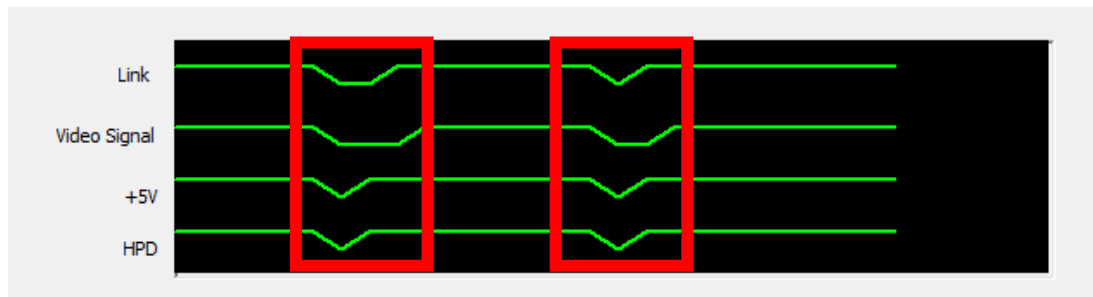| 1 second |
| 10 second |
| 1 minute |
| 10 minute |

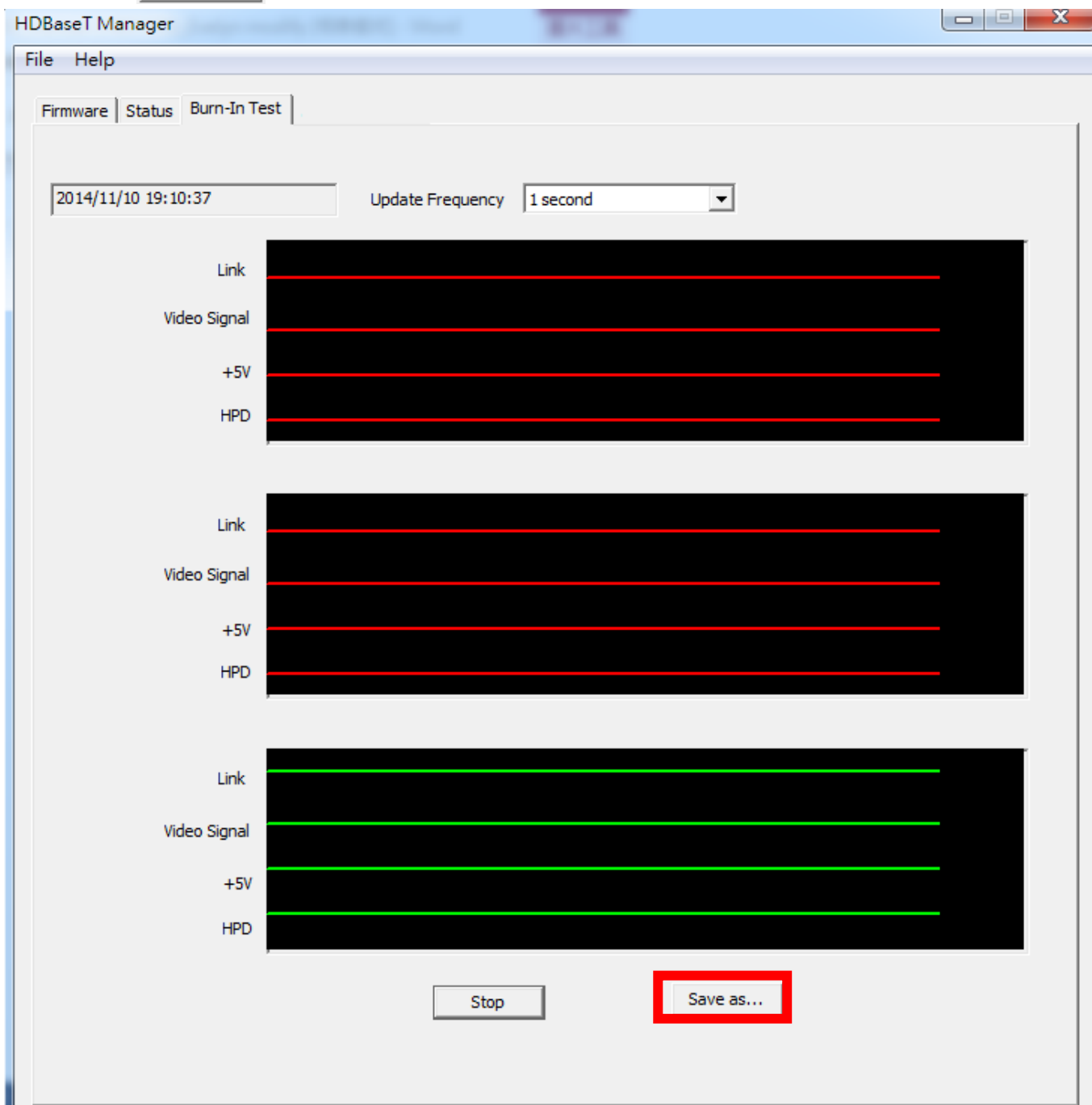### 5.2 Get the technical file to analyze the unusual situation

- If the connection is fine, the lines will stay straight all the time and the color should always keep green.

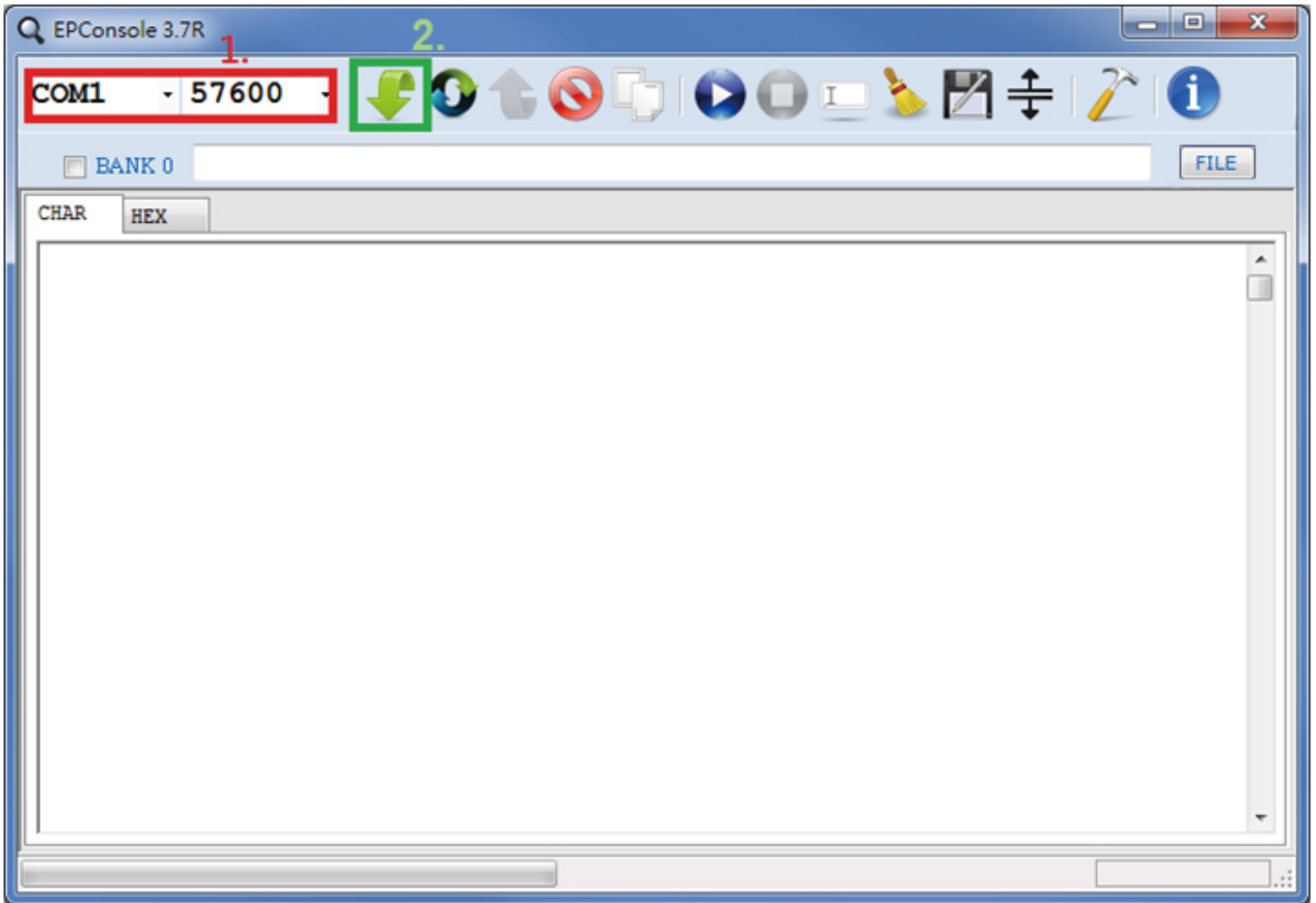## 5.3 If there is error detected, you will drops as shown below

5.4 Select [Save as...] and send the file to the engineer for analyzing.

1. While connecting a new monitor to the splitter, experiencing a short period of time without display might be expected. The splitter will do Automatic EDID learning which analyzes the newly connected monitor to see if the EDID for the HDMI input is necessary to update!

2. For firmware update through RS232, users MUST turn the power off, set the dip switch to "ON", and then connect an RS232 cable between PC and device. Open the firmware update software, **[1]** set the correct com port and baud rate (57600 is recommended), **[2]** click the "File" button to direct to the firmware HEX or BIN file, power on the device and press "Program MCU" symbol to firmware update. Once update process is done, please power off the device and set the dip switch back to "1".

WARRANTY

The SELLER warrants the **SP-5004V** **1x4 HDMI Splitter over Single Cat.x with HDBaseT-Lite, 4K2K, IR & RS-232** free from defects in the material and workmanship for 1 year from the date of purchase from the SELLER or an authorized dealer. Should this product fail to be in good working order within 1 year warranty period, The SELLER, at its option, repair or replace the unit, provided that the unit has not been subjected to accident, disaster, abuse or any unauthorized modifications including static discharge and power surge. This warranty is offered by the SELLER for its BUYER with direct transaction only. This warranty is void if the warranty seal on the metal housing is broken.

Unit that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for 90 days from the day of reshipment to the BUYER. If the unit is delivered by mail, customers agree to insure the unit or assume the risk of loss or damage in transit. Under no circumstances will a unit be accepted without a return authorization number.

The warranty is in lieu of all other warranties expressed or implied, including without limitations, any other implied warranty or fitness or merchantability for any particular purpose, all of which are expressly disclaimed.

Proof of sale may be required in order to claim warranty. Customers outside Taiwan are responsible for shipping charges to and from the SELLER. Cables and power adapters are limited to a 30 day warranty and must be free from any markings, scratches, and neatly coiled.

The content of this manual has been carefully checked and is believed to be accurate. However, The SELLER assumes no responsibility for any inaccuracies that may be contained in this manual. The SELLER will NOT be liable for direct, indirect, incidental, special, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. **Also, the technical information contained herein regarding the SP-5004V features and specifications is subject to change without further notice.**