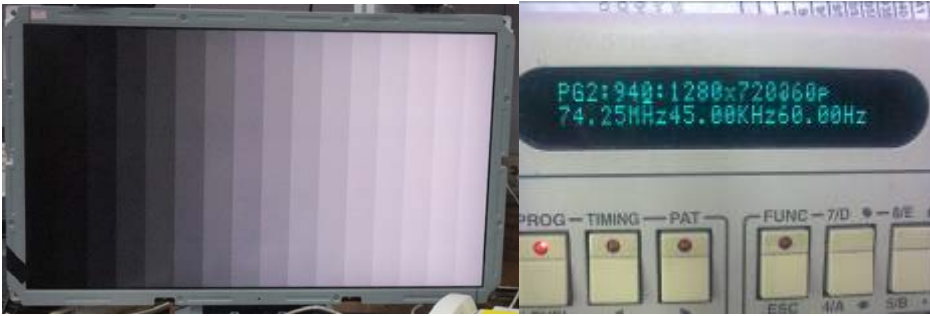


(4) Adjustment instruction

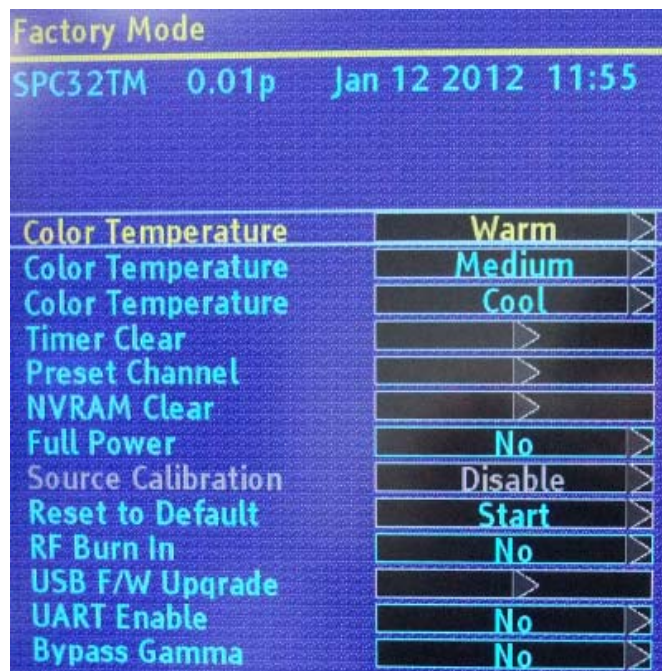
At any input source then press the “←”, “EXIT” and “OK” (Remote control within 1 sec) to enter factory mode
During Factory menu, if “MENU” key is pushed, system will exit factory mode.

4-1. Source Calibration

4-1.1. Set the signal generator to input sources Component on LCD-TV; ASTRO-859 signal setting to NTSC-M
(PG2 mode Timing 924 and Pattern 984 SMPTE Color Bar.)



4-1.2. Entering into factory Mode: Press up or down key of remote control to select “Source Calibration”, Press 「OK」 key to enter the item.



-> Source calibration performed automatically when finished that will show OK.

Repeat step 2 to do VGA input sources,

ASTRO-859 signal setting to 1024X768 60Hz. (PG2 mode: Timing 963 and Pattern 942 16step H-grayscale + white border.)



4-2. Color Temperature Adjustment & Check

4-2.1. Set the signal generator to RGB, 1024*768, 60HZ(ASTRO-859: PG1 856), Level: 77(30%) or **178(70%)**. Full white pattern. (RGB gain and offset all should not over 128, and one of RGB gain and offset have to be setting on 110.)

4-2.2. Press up or down key of remote control to select "Cool", Press 「ENTER」 key to enter the item.

RGAIN, GGAIN, B GAIN, ROFFSET, GOFFSET, BOFFSET, drive values are set for Warm, Normal, and Cool independently.

Warm Color Temperature		
R Gain	128	
G Gain	128	
B Gain	128	
R Offset	128	
G Offset	128	
B Offset	128	

4-2.3. Select 「Warm」

Step 1. First Turning Gain parts of RGB.

(1) Warm spec.:

$$x = 0.318 \pm 0.005$$

$$y = 0.331 \pm 0.005$$

(2) If the x and y value are larger than specification,

Decrease R GAIN drive from default value.

Increase B GAIN drive from default value.

(3) If the x or y or both x and y value is/are smaller than specification.

Decrease B GAIN drive from default value

(4) According to a x and y value, please following adjustment of (4)-1 or (4)-2.

(4)-1 If x value is higher than spec

Decrease R GAIN drive from default value.

Increase B GAIN drive from default value.

(4)-2 If y value is higher than spec,

Decrease B GAIN drive from default value

Step 2. When finish Gain parts, then turning OFFSET parts

Select 「Normal」

(1) Medium spec.: (Same as the Gain session)

$$x = 0.289 \pm 0.005$$

$$y = 0.306 \pm 0.005$$

(2) If the x and y value are larger than specification,

Decrease R OFFSET drive from default value.

Increase B OFFSET drive from default value.

(3) If the x or y or both x and y value is/are smaller than specification.

- Decrease B OFFSET drive from default value
- (4) According to a x and y value, please following adjustment of (4)-1 or (4)-2.
- (4)-1 If x value is higher than spec
 Decrease R OFFSET drive from default value.
 Increase B OFFSET drive from default value.
- (4)-2 If y value is higher than spec,
 Decrease B OFFSET drive from default value
 Step 3. When finishing OFFSET parts, then recheck Gain parts .until Both of them meet the target specification
- Step 3. Then select 「Cool」 using same way to adjust the setting.

4-2.4. Exit Factory Mode:
 After finish adjusting color temperature press [MENU] to exit factory mode.

(5) Items of Factory menu

When in PC/ Component/ Video (Composite)/ ANT inputs then press the “Left -> Exit -> Enter” key of remote control to enter factory mode..

During Factory menu, if “MENU” or “EXIT” key is pushed, system will exit factory mode.

Press up and down key can move high light item from Color Temperature -> Timer Clear -> Preset Channel->NVRAM Clear-> Full Power -> Source Calibration -> Reset to Default -> RF Burn In -> USB F/W Upgrade -> UART Enable-> Bypass Gamma.

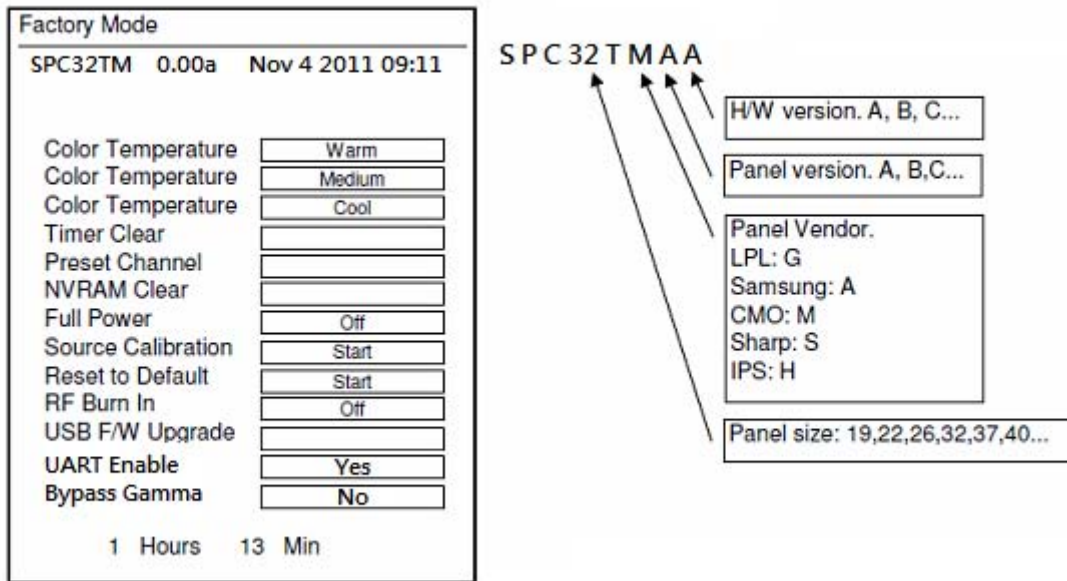
The Timer Clear, NVRAM Clear and Reset to Default items will have a check dialog “yes or no” to do or not.

Push “Enter” key can select high light item function. (Press left and right can adjust value)

Display panel Burn in Time on the bottom.

Display model name, firmware version and released date on top.

Factory Mode OSD



- 1) Factory Color Temp data edit
 Press up or down key can select high light item function
 Press enter key to enter the item.
 -Color temp default preset No (Warm, Medium, Cool).
 -R, G, B data for each preset
 Press “Up” or “Down” key to select “R”, “G”, “B” item
 Press “Left” or “Right” key to set the “R”, “G”, “B” value
 Press “MENU” or “EXIT” item to exit to factory mode
- 2) Timer Clear
 Reset the timer which records hours of LCD panel burn in
 This item will have a check dialog “yes or no” to do or not.
 - Time in factory mode: Time function shall be displayed automatically. Saving the total time of system

power on (LCD turn on), and count the time automatically. The timer is continuous and saved (per 10 minutes) forever, unless it will be reset by doing "Timer Clear".

- 3) Preset channel
Load preset channel for production line. (Refer 4.4.4 Preset channel table).
- 4) NVRAM CLEAR
Initialize program's default values to NVRAM for following adjustment items accuracy.
In factory mode it is the first and important step to make sure all values are default value and correct
- Reset settings: Gamma table, Channel table (Favorite channel, Channel label etc.), Model table (H/V Position, Clock, Phase), Source dependent setting (Contrast, Brightness etc.), Common setting (Volume, Language etc.), Parental Control (Rating, Password etc), Closed Caption.
To avoid a mistake initial process after factory setting is done. This item will have a check dialog "yes or no" to do the initial or not.

Notice:

After this item is processed then the DUT needs to be powered off then AC powered off.

- 5) Full power
This is for power consumption testing.
To measure the maximum power consumption of TV set, we adjust the value of following items to maximum.
- Video: Contrast maximum value, Brightness maximum value, Backlight maximum value.
- Audio: Volume maximum value, Bass default value, Treble default value.
Press enter key to turn on Full Power and OSD stay display until press enter key to recover from Full Power
- 6) Source Calibration
Source Calibration (gain/offset) must be adjusted color by firmware automatic adjustment in PC, Composite and Component input source.
This item will have a result dialog "OK" or "NG".
- 7) Reset to Default
Reset all settings of OSD menu to default value.
- Reset settings: Channel table, Model table (H/V Position, Clock, Phase), Source dependent setting (Contrast, Brightness etc.), Common setting (Volume, Language etc.), Parental Control (Rating, Password etc), Closed Caption.
- 8) RF Burn In
Use "snow" pattern for burn in. Selected items are "On" and "Off".
While turn on burn in mode, firmware will automatically turn off "Auto power off" function.
If there is no power supply suddenly, firmware will re-enter burn in mode automatically when power supply is back
Pressed the "Power" key, firmware will automatically turn off burn in mode.
Burn in mode: Source is "ANT/Cable" and channel is NTSC channel 3.
- 9) USB F/W Upgrade
Upgrade firmware through USB.
- 10) UART Enable
Enable to communicate with Auto-Alignment system.
- 11) Bypass Gamma
For factory test value of gamma.

(6) Performance check

6-1 TV function

Connect RF to the center signal source, enter Channel menu → auto tuning, check if there are channels be skipped, check if the picture and speaker are normal.

6-2 AV terminals

Input Video signal, check if the picture and sound are normal.

6-3 YPbPr terminal

Input YUV signal (VG859 signal generator), separately input the YUV signals listed in table4 and check if the display and sound are normal at any situation (power on, channel switch and format convert, etc.)

Table4 YUV signal format

MODE	FREQ	PERIOD	SYNC POLARITY	PIXEL CLOCK	Display	SYNC WIDTH	BACK PORCH
	LINE(kHz) FRAME (Hz)	LINE (pixel) FIELD (lines)	LINE FIELD	(MHz)	LINE (pixel) FRAME (lines)	LINE (pixel) FRAME (lines)	LINE (pixel) FRAME (lines)
59.94Hz 720x480i	15.734	1716	Negative	27	1440	124	114
	59.94	525	Negative		480	3	15
59.94Hz 720x480P	31.469	858	Negative	27	720	62	60
	59.94	525	Negative		480	6	30
60Hz 1280x720P	45	1650	Positive	74.25	1280	40	220
	60	750	Positive		720	5	20
60Hz 1920X1080i	33.75	2200	Positive	74.25	1920	44	148
	60	1125	Positive		1080	5	15
60Hz 1920X1080P	67.5	2200	Positive	148.5	1920	44	148
	60	1125	Positive		1080	5	36

6-4 VGA terminal

Input VGA signal (VG848 signal generator), separately input the signals listed in table5 and check the display and sound. If the image is deflection of the Horizontal and vertical, select Menu->Setup->Auto Adjust to perform auto-correct.

Table5 VGA signal format

Mode	FREQ	PERIOD	SYNC POLARITY	PIXEL CLOCK	Display	SYNC WIDTH	BACK PORCH
	LINE(kHz) FRAME(Hz)	LINE (pixel) FIELD(lines)	LINE FIELD	(MHz)	LINE (pixel) FRAME(lines)	LINE (pixel) FRAME (lines)	LINE (pixel) FRAME (lines)
VGA 60Hz 640x480	31.469	800	Negative	25.175	640	96	40
	59.941	525	Negative		480	2	25
SVGA 60Hz 800x600	37.879	1056	Positive	40	800	128	88
	60.317	628	Positive		600	4	23
XGA 60Hz 1024x768	48.363	1344	Negative	65	1024	136	160
	60.004	806	Negative		768	6	29
WXGA 60Hz 1280x768	47.776	1664	Negative	79.5	1280	128	192
	59.87	798	Positive		768	7	20
WXGA 60Hz 1360x768	47.712	1792	Positive	85.5	1360	112	256
	60.015	795	Positive		768	6	18

6-5 HDMI terminal

Input HDMI signal (VG859 signal generator), separately input the signals listed in table6 and check the display and sound (32 KHz, 44.1 KHz, 48 KHz) at any situation (power on, channel switch and format convert, etc.)

Table6 HDMI signal format

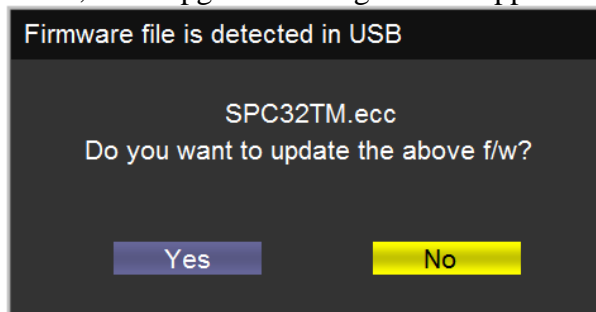
FREQ	FREQ	PERIOD	SYNC POLARITY	PIXEL CLOCK	Display	SYNC WIDTH	BACK PORCH
MODE	LINE(kHz) FRAME(Hz)	LINE (pixel) FIELD(lines)	LINE FIELD	(MHz)	LINE (pixel) FRAME (lines)	LINE (pixel) FRAME (lines)	LINE (pixel) FRAME (lines)
VGA 60Hz 640x480	31.469 59.94	800 525	Negative Negative	25.175	640 480	96 2	40 25
SVGA 60Hz 800x600	37.879 60.317	1056 628	Positive Positive	40	800 600	128 4	88 23
XGA 60Hz 1024x768	48.363 60.004	1344 806	Negative Negative	65	1024 768	136 6	160 29
WXGA 60Hz 1280x768	47.776 59.87	1664 798	Negative Positive	79.5	1280 768	128 7	192 20
WXGA 60Hz 1360x768	47.712 60.015	1792 795	Positive Positive	85.5	1360 768	112 6	256 18
59.94Hz 720x480i	15.734 59.94	1716 525	Negative Negative	27	1440 480	124 3	114 15
59.94Hz 720x480P	31.469 59.94	858 525	Negative Negative	27	720 480	62 6	60 30
60Hz 1280x720P	45 60	1650 750	Positive Positive	74.25	1280 720	40 5	220 20
60Hz 1920X1080i	33.75 60	2200 1125	Positive Positive	74.25	1920 1080	44 5	148 15
60Hz 1920X1080P	67.5 60	2200 1125	Positive Positive	148.5	1920 1080	44 5	148 36
24Hz 1920x1080P	27 24	2750 1125	Positive Positive	74.25	1920 1080	44 5	148 36

6-6 other functions check

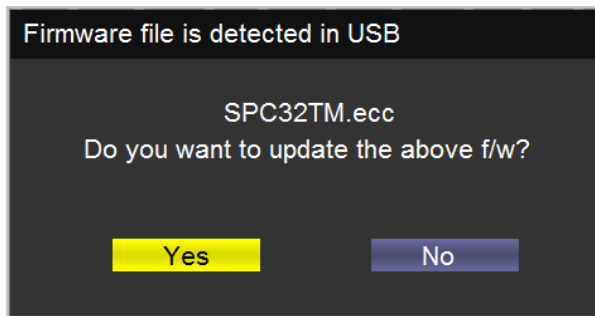
a) Check the turn on/turn off timer, sleep timer, picture/sound mode, OSD, stereo and analog TV Teletext, etc.

(7) Firmware update process

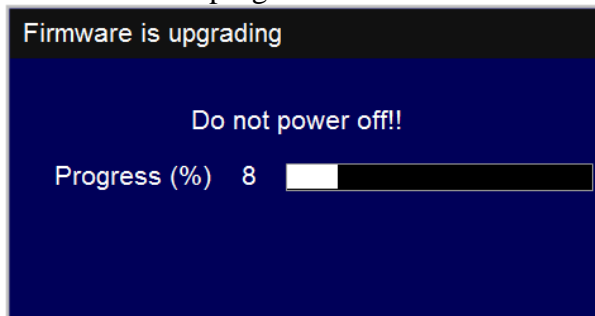
- (1) Plug the USB with the firmware file named SPC32TM.ecc
- (2) If system detect SPC32TM.ecc, USB upgrade message would appear automatically.



- (3) Press Left key to select Yes, and then press OK key to start the upgrading.



(4) Upgrading is starting, please wait for the progress finish.



(5) When the progress completed, please follow the instruction to remove USB and restart by AC off then on.

