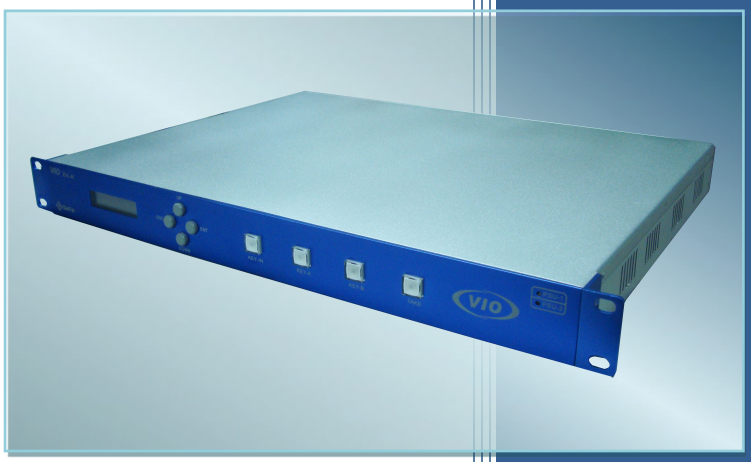
Gra-Vue
WWW.GRAVUE.COM

VIO DLK

user manual V1.6



www. gravue.com

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Notice：

Read the instruction protecting from damage. Don’t connect to power before setup and check according to security procedure.



Electric Shock

Please use grounding receptacle. For protecting the machine, please pull out the plug if it is spare for long.

Put the wires in order in case of pressure or unnecessary touch, especially be attention to the connect points.



Plug Out

In the following situation, please pull the plug:

1.Wire or plug is damaged

2.Get wet by liquid or the machine is in water

3.The machine is in rain or water

4 The machine drops down or the chassis is damaged

5. A significant abnormal performance



No Disassembly

1. Don’t repair it yourself

2. Please use designated accessories, or it may damage the machine



Keep Dry

Don’t use it in wetness nor put it in water.



No Pressure

Not to be stowed under other cargo.



No Touching

Don’t touch it in thunderstorm to avoid electricity danger.



Notice

1.Please don’t place the machine on precarious shaky carts, shelves, tripod, bracket or table. It may cause injury or damage

2.Keep away from radiation or heaters

3.Use the power specified on the label. Please pull the plug out not the wire

4.After any repair, please have a test to prove the machine works normally.

I Description

VIO DLK, the HD/SD-SDI keyer with logo, is mainly used forthe mixing of HD/SD logo, clock, and subtitles. It has internal logo options, realizing the combination of background signal, 1 inner logo and 2 external logo subtitles. It supports both manual and auto control, supports serial port, GPI and Ethernet. It has inner Webserver, supports SNMP.

VIO DLK is with high performance graphic information processing and anti-flickingtechniques. It also has bye-pass, supports HD/SD-SDI prediction output interface, providing HD/SD-SDI Clean output interface, and selective RCP for distant monitoring and control.

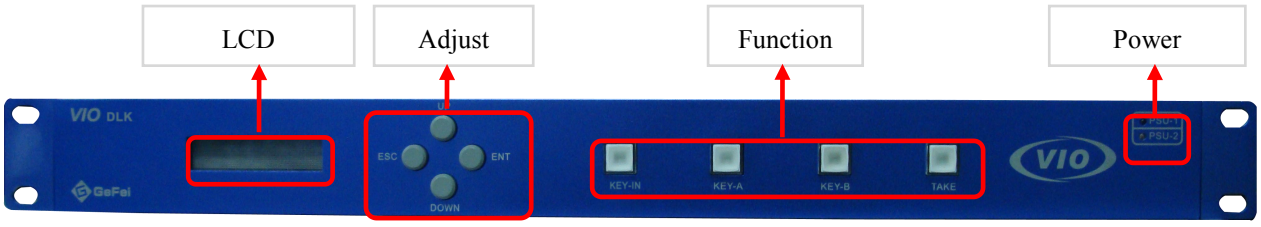
II Key Features

- 20bit internal processing, professional digital component keyer, high performance graphic information processing and anti-flicking techniques.
- Self-adaptive to different embedded SD/HD-SDI input/output
- Support 1 internal logo and 2 separate external logo
- With bye-pass
- Support RS-232, GPI and Ethernet control
- Filling and keying signal indicator
- Support external RPC control
- HD/SD-SDI prediction monitoring output
- Provide HD/SD-SDI Clean output interface

III Product Instruction

3.1 VIO DLK chassis structure and interface

3.1.1 VIO DLK front panel



1. LCD panel, display VIO DLK status and operation menu

2. Function keys: “ENT”, “ESC”, “UP” and “DOWN”

   “ESC”: Exit the current menu.

   “ENT”: Enter to the next menu and make this option effective

   “UP”: Upturning, add value, or switch between options

   “DOWN”: Down turning, reduce value or switch between options.

3. Function buttons: from left to right is KEY-IN, KEY-A, KEY-B, TAKE.

   KEY-IN: the indicator of inner keying signal and PGM background signal. if the background signal is OK, turn on the power and the indicator flicks; otherwise, it lights off.

   KEY-A: the 1st keying signal status indicator

   KEY-B: the 2nd keying signal status indicator

   TAKE: when control the PGM manually, press this button.

   (Please see the effect of each button showed below)

4. Power indicator

   It adopts dual redundant power. When power 1 is working, the corresponding indicator shows blue. As to power 2, the same.

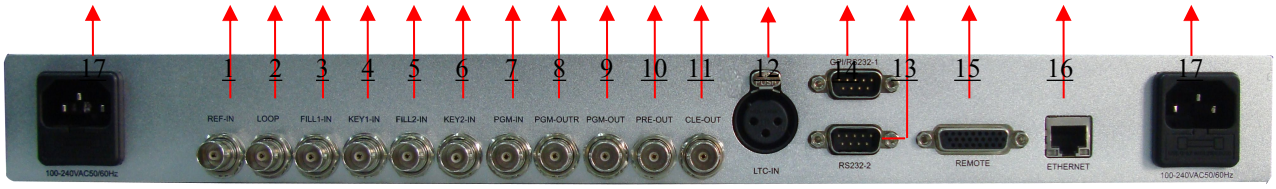
Remark:

(1) After power on, when PGM-IN is connected in right signal, the KEY-IN shows flash; otherwise, it lights off. If we press the button at this time, PRE-OUT logo shows, while PGM output logo doesn't. So we can adjust the logo's position, the corresponding indicator flashes slower. When we have done the adjustment and push the ”TAKE” button, PGM output inner logo shows and its indicator lights on and no flash. If we push the button again, the Key-IN button indicator light and fast flash.

(2) For KEY-A, KEY-B, if there are no external key and fill (any of them) signals connected, the two indicators are off.

(3) If there are right key and fill signals, the KEY-A or KEY-B indicator will light and fast flash. At this time if we push the KEY-A or KEY-B, the PRE-OUT logo shows, the PGM-OUT logo clean doesn't, if now we adjust the logo and other settings, the KEY-A or KEY-B indicator will light and slow flash. After we have done the adjustment and push "TAKE", the KEY-A or KEY-B button indicator lights and no flash. now the PGM-OUT logo shows. If we push the button again, the Key-A or Key-B, all outputs disappear and the indicator return to fast flash.

3.1.2 VIO DLK back panel



Interfaces on back panel and functions:

1___REF-IN: external BB locking signal input interface. Support PAL and NTSC analog video black signals.

2___LOOP: external signal loop output interface

3___FILL1-IN: Channel A fill signal input interface (See details in Specification)

4___KEY1-IN: Channel A key signal input interface (See details in Specification)

5___FILL2-IN: Channel B fill signal input interface (See details in Specification)

6___KEY2-IN: Channel B key signal input interface (See details in Specification)

7 PGM-IN: background signal input interface (See details in Specification)

8 PGM-OUTR：PGM output interface, supports bypass loop through output

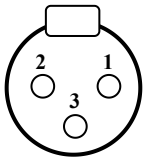
9 PGM-OUT：PGM output interface

10 PRE-OUT：preview output interface

11 CLE-OUT：Clean signal output interface

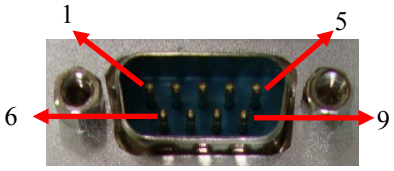
12 LTC-IN：LTC timing input interface. Support EBU and SMPTE. The pins are definite as below:

LTC interface	Pin definition
1	GND
2	+
3	—



13 RS232-2: No.2 series communication interface. Used to connected to computer, you can control key on or off by separate software through RS232. The pins are definite as below:

VIO DLK RS232 interface	Pin definition
2	TX
3	RX
5	GND



Note: The computer can also control the inner logo generator display or no display, includes four bugs and one clock. Control and command:

Serial rate 9600, 1 stop bit, 8 data bits, no check bit

The RS232 protocol is:

0xaa, 0x55, 0x40, 0x11 -- logo1 upload logo

0xaa, 0x55, 0x40, 0x12 -- logo1 remove logo

0xaa, 0x55, 0x40, 0x21 -- logo2 upload logo

0xaa, 0x55, 0x40, 0x22 -- logo2 remove logo

0xaa, 0x55, 0x40, 0x31 -- logo3 upload logo

0xaa, 0x55, 0x40, 0x32 -- logo3 remove logo

0xaa, 0x55, 0x40, 0x41 -- logo4 upload logo

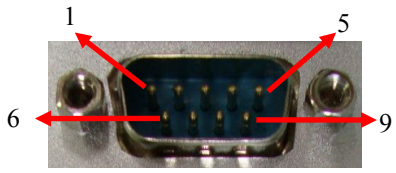
0xaa, 0x55, 0x40, 0x42 -- logo4 remove logo

0xaa, 0x55, 0x40, 0x51 -- time code upload T-C

0xaa, 0x55, 0x40, 0x52 -- time code remove T-C

14 GPI/RS232-1：GPI and No.1 series communication interface The inner logo generator and two external key signals can be controlled by GPI trigger signal. RS232-1 is used to connected with timing clock, complete timing via series port interface. The pins are definite as below:

VIO DLK RS232 interface	Pin definition
2	TX
3	RX
5, 6	GND
7	KEYIN-GPI-IN
8	KEYA-GPI-IN
9	KEYB-GPI-IN

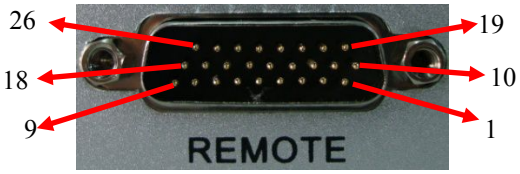


Note: GPI trigger mode is the edge (low) trigger mode, the GPI-IN pin is connected to corresponding GND to trigger the key signal, once again to trigger to down the key signal.

15 REMOTE: RCP interface Below is the pin definite of host machine and RCP:



host machine REMOTE interface



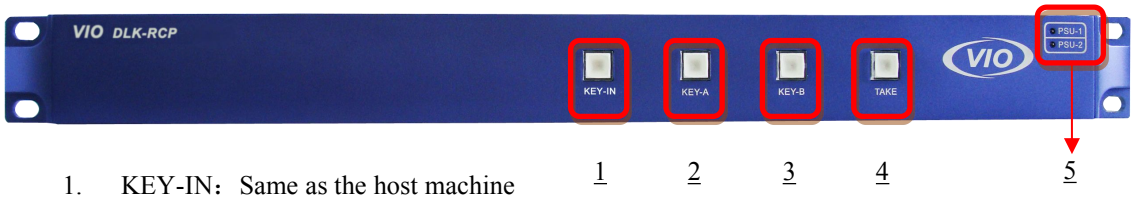
VIO DLK REMOTE interface	Pin definition	VIO DLK-RCP REMOTE interface
1	GND	1
2	KEYB-LED	2
4	TAKE-LED	4
6	GND	6
7	GND	7
10	PSU1-LED	10
11	PSU2-LED	11
12	KEY-IN-LED	12
14	KEYA-LED	14
16	GND	16
17	GND	17
18	GND	18
21	KEY-IN-Button	21
22	KEYA-Button	22
23	KEYB-Button	23
24	TAKE-Button	24

16 ETHERNET: Ethernet network interface, which is auto adaptive to 10\100\1000Mbps.

Websever, see the details in Webpage control description

17 AC dual-Power interface: support AC 100~240VAC 50/60Hz

3.1.3 VIO DLK RCP front panel



1. KEY-IN：Same as the host machine
2. KEY-A：Same as the host machine
3. KEY-B：Same as the host machine
4. TAKE：Same as the host machine

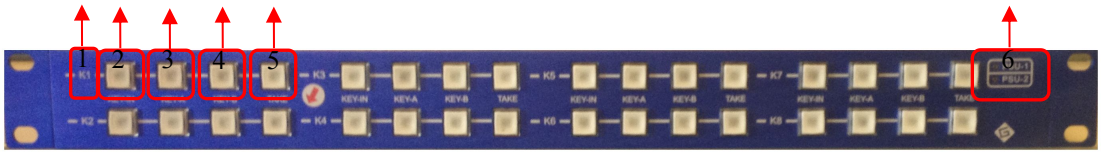
5. Power Indicator: it indicates working status of the power. It adopts dual redundant power. When power 1 is working, the corresponding indicator shows blue. As to power 2, the same.

3.1.4 VIO DLK RCP back panel



Remote interface: connect with the host machine Its pin definition refers to Host REMOTE interface description.

3.1.5 VIO DLK RCP-O front panel



1. K1: channel 1

2. KEY-IN：Same as the host machine

3. KEY-A：Same as the host machine

4. KEY-B：Same as the host machine

5. TAKE：Same as the host machine

6. Power Indicator: it indicates working status of the power. It adopts dual redundant power. When power 1 is working, the corresponding indicator shows blue. As to power 2, the same.

K2, K3~K8: channel 2, channel 3~ channel 8, same as K1.

Notes: K1, K2~K8 are used independently for control

3.1.6 VIO DLK-RCP-O back panel



Remote-K1 interface: connect with the host machine The pin definition is below:



host machine REMOTE interface



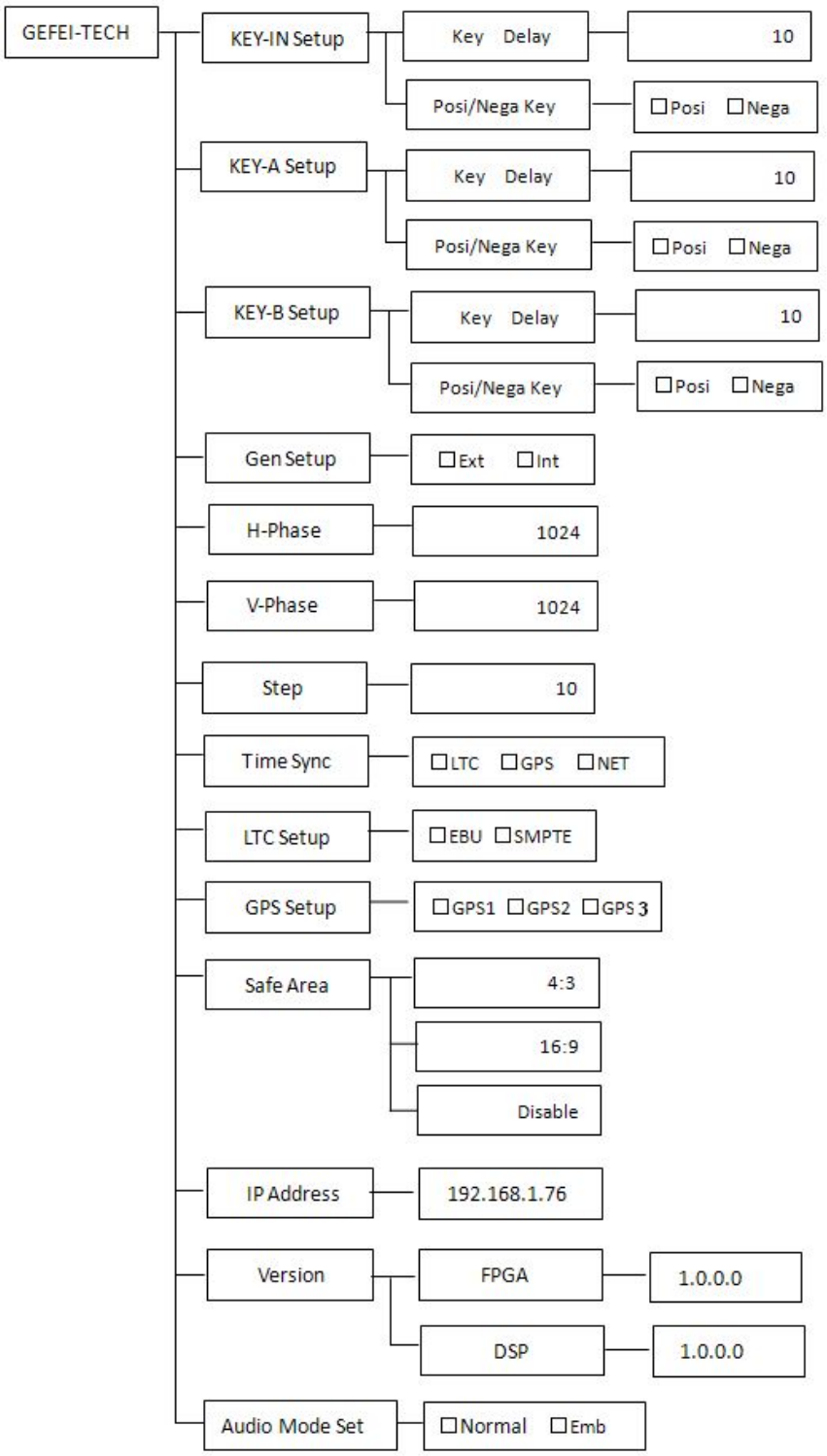
VIO DLK-RCP-O REMOTE interface

VIO DLK REMOTE interface	Pin definition	VIO DLK-RCP-O REMOTE interface
1	GND	1
2	KEYB-LED	2
4	TAKE-LED	4
6	GND	6
7	GND	7
10	PSU1-LED	
11	PSU2-LED	
12	KEY-IN-LED	12
14	KEYA-LED	14
16	GND	16
17	GND	17
18	GND	18
21	KEY-IN-Button	21
22	KEYA-Button	22
23	KEYB-Button	23
24	TAKE-Button	24

Remote-K2~Remote-K8: the same as Remote -K1

Notes: since VIO DLK-RCP-O has power supply, you don't need to connect Remote-K1~Remote-K8.

3.2 Menu instruction



Power on and press ENT to see the menu, it shows as:

(Every parameter value can be saved independently according to different input signal format.)

1) **KEY-IN Setup**: inner key setting, includes the key delay adjustment and positive or negative key settings.

   a) **Key Delay**: key delay setting, adjust the inner key signal delay time. Through the up and down buttons to adjust inner key delay value, the range is 0—32.

   b) **Posi/Nega Key**: positive and negative button, adjust the inner key signal.

2) **KEY-A Setup**: channel A key setting, includes the key delay adjustment and positive or negative key settings.

   c) **Key Delay**: key delay setting, adjust channel A key signal delay time. Through the up and down buttons to adjust inner key delay value, the range is 0—32.

3) **KEY-B Setup**: channel B key setting, includes the key delay adjustment and positive or negative key settings.

   a) **Key Delay**: key delay setting, adjust channel B key signal delay time. Through the up and down buttons to adjust inner key delay value, the range is 0—32.

   b) **Posi/Nega Key**: positive and negative button, adjust channel B key signal.

4) **Gen Setup**: phase lock mode setting. "EXT" is exteral phase lock and "INT" is interal phase lock.

5) H-Phase: horizontal phase setting. Adjust the phase values by UP and DOWN buttons, the adjustment range of the phase value differs according to different input signal formats.

6) V-Phase: setting of vertical phase. Adjust the phase values by UP and DOWN buttons, the adjustment range of the phase value differs according to different input signal formats.

7) Adjust Step: adjust step value setting. Set the step when adjust parameters. Adjust the step values by UP and DOWN key buttons , the values are:1,5,10,50,100.

8) Time Sync: The built-in code timing mode. Including LTC, GPS (serial) and NET three ways.

9) LTC Setup：LTC time code format selection. Including the EBU and SMPTE.

10) GPS Setup: GPS clock selection. You can select respectively three protocol GPS clock to do timing. The following are three GPS clock protocol formats:

GPS 1：Baud rate：4800

protocol of serial port： AA 00 XX XX XX XX HOUR MIN SEC

XX XX XX XX Represent the year, month, day and check bit

Such as TVZ3100 GPS timing clock, made by Qingdao Guangdiansuo.

GPS 2：Baud rate：9600

protocol of serial port： 40 40 02 FD HOUR MIN SEC

Such as GPS timing clock, made by LangWay.

GPS 3：Baud rate：2400

protocol of serial port： EB 90 HOUR MIN SEC

Such as GPS timing clock, made by Hangzhou Boshi.

Through UP and DOWN buttons to select the GPS mode according your GPS clock, push ENT to affect it. The system will automatically timing every 5 seconds.

11) Safe Area：Auxiliary safety area mark settings. This function effects only in the PRE-OUT to output a preview windows with superposition of safety mark, according to HD SDI signal input there are three selection: "4:3", "16:9" and "Disable".

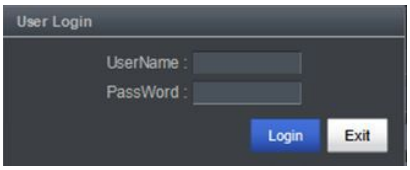
12) IP Addr: show the IP address.

13) Version: display FPGA、DSP version.

14) Audio Mode Set: SDI audio output mode. “Normal” mode is the default mode which supports 16ch audio output. “Emb” mode supports 8ch. Audio special for VIO DLK works with VIO ALC.

3.3 WEB control instruction

Be sure the control host computer and VIO DLK were connected by Ethernet interface cable. Please set the host IP address to "192.168.1.**", because the VIO DLK default IP address is "192.168.1.76". Ethernet interface support 10/100/1000M self-adaptive network. Run the PING command on PC to confirm the connection is OK, open IE, enter the IP address: 192.168.1.76 and click enter, the remote control interface shows as below. There appears a login dialog box, enter the user name admin and password 000000, click login to enter to the operation UI of remote control.



3.3.1 General introduction

Open the webpage, the label is the main menu as below: Besides Logo set, there are Logo file, Key set, User, Network, Help and Exit.



Logo set: the inner logo display parameters setting. Adjust logo position and change logo, etc.

Logo file: mange the logo files, include upload, delete and preview,etc.

Key set: display the keyer's working status and set key parameters.

User: manage use Id and password; the default user name: admin Default password: 000000 After you change the password, the new will be effective in next login.

Network: manage the IP address, upload the software program. You cannot change the Mac address. After change IP or other parameters, it will be effective after restart. When the network is OK, type in the new IP address to enter the WEB control interface.

Version upgrade is here. Find the upgrade program, click "Update" until finished, then restart the machine.

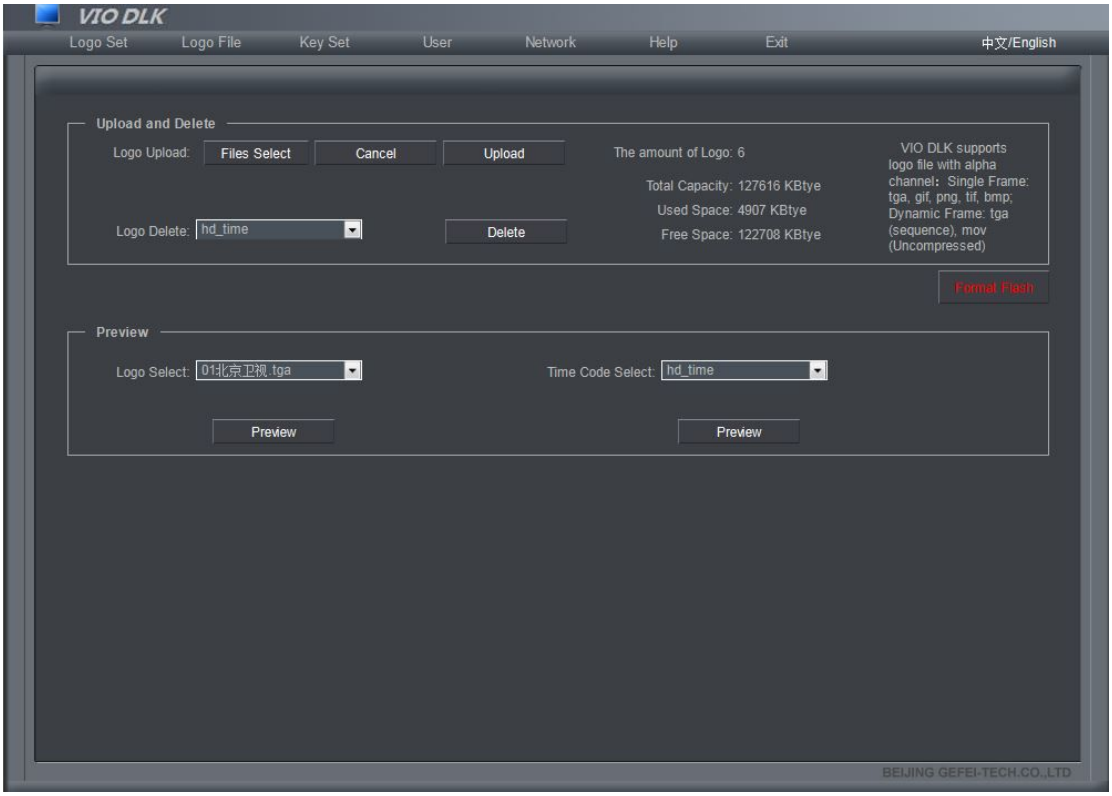
Please close all protection system like firewall before upgrade. After upgrade succeeds, a dialog box pops up. Don't close webpage or shut off the power until it is finished.

Help: the inner software version information and other information of webpage.

Exit: log out, same to the "Close" button of web page.

3.3.2 Logo File

In order to make it easier for new users in operation, we first introduce the "Logo file", then introduce "logo set".）



Below is the logo file manage page. It is used to upload new files, delete the no-used files and preview logo files.

1Logo upload:

The valid logo file format (32bit, include valid logo alpha channel):

Still frame：TGA、GIF、PNG、TIF、BMP

Animation:：MOV、TGA file series（the animation file can be logo file or time clock type）

Press Files Select, pick out the logo file you want on Files Select, then click "Open" and you can find the file on webpage. If you are sure to upload the logo, click Upload, the logo will appear on Remove Logo. If you don't want the selected file, click " Cancel " (you can also click "Delete" beside "Files Select", upload will be canceled.

Notes:

a) For the single frame (TGA、GIF、PNG、TIF、BMP、MOV), we can upload it on "Files Select" directly;

b) For the TGA series file, we can select them all at once and upload them totally. But there are some special requirement for the series: ◆ The files should have same size and all are in TGA format.

◆ The file name must be formed as name+number sequence, name part must be the same,

TVlogo-01.TGA

TVlogo-02.TGA

⋮

TVlogo-50.TGA

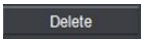
Please note do not use eleven files series to form an animation logo file. The eleven files series is special defined for time code files. The TGA sequence of eleven files will be defaulted to time code files.

c) There are more special requirement for clock font type: it commands that the usage and file name definition should be the same as TGA logo file uploading, it also commands the TGA file should be component of eleven file, the number sequence must be from “0” to “10”. The file named "***0.TGA" and its content should be "0"; the file named "***9.TGA", and the content must be "9"; the file named "***10.TGA", and the content must be “:”.

d) **The firewall must be closed when we do some operation such as upload file\modify parameters\upload the new program version.**

2 Logo delete:

All the files can be listed "Logo delete". Both the name and the suffix format of signle file can be displayed. The TGA sequence and time code files only show the name, no number sequence and file format is displayed.

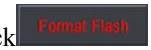
Choose the file and press 

to delete the logo.

3 Memory space information and useful information:

On the up-right square, there is some useful information. They are total space\used space and spare space. And some information to indicate you the right file format requirement.

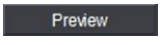
4 Format Flash:

When it cannot read logo files because of wrong Flash operation, click 

to format Flash, it will clear up all stored logo files.

5 Preview logo and time code:

We can preview the still logo file, animation and clock font type here. The animation only support the firs frame preview. The clock support be displayed as “88:88:88”type. Please note the clock build-in system only cannot be preview and delete.

Find drop-down list, click 

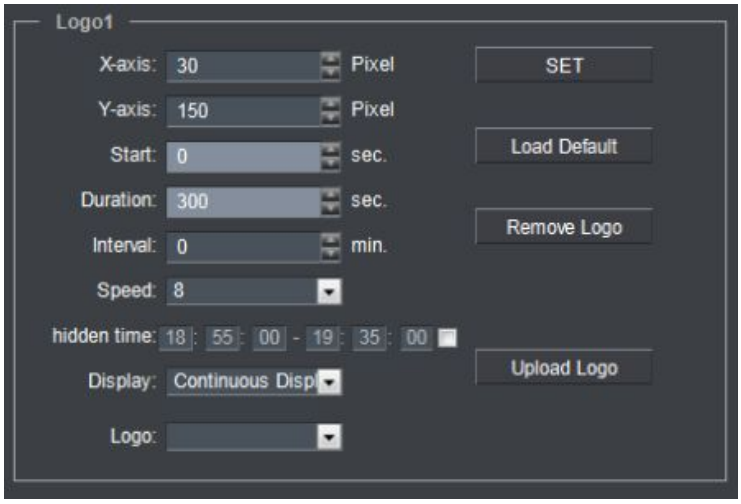
the square will display the image and file size like.

3.3.3 Logo Set

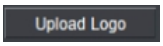


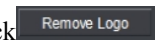
The label page is used to change display content and position of 4 displayed logos and 1 timing code logo. It is also used in setting of sync timing clock.

(We choose the “logo1” to describe how to set logo parameters.)



1 Logo select, change and remove:

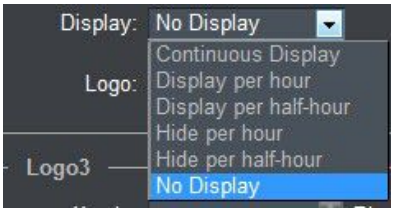
In the functional area of Logo 1, use pull-down list to select the logo files stored, then click 

to select or change current displayed logo. Also you can click 

to remove or cancel current selection, this operation will not delete the logo from the memory.

2 Logo display mode:

By setting display mode, you can control the logo display status. It shows as follows,



Continuous display: the logo will always display on the video.

Display per hour: the logo shows every full clock.

Display per half -hour: the logo shows every half clock.

Hide per hour: the logo conceals every full clock.

Hide per half-hour: the logo conceals every half clock.

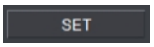
No display: the logo will not appear on the video anytime.

3 Logo display position and time:

Via 

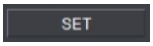
to adjust the logo’s position on X axis, and via



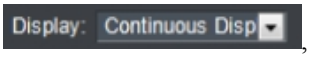
to adjust the logo’s position on Y axis. Click 

to let the adjustment take effect.

Via 

to set logo’s display time. The setting of starting time and duration time always effect with display mode. Click 

to take effect.

For example: the logo needs to show every half an hour and lasts from the first 30 seconds before half clock to the first 30 seconds after half clock, then you can set as follows: select Display per half -hour at 

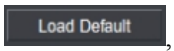
, enter "-30" at 

so the logo and time appear at the first 30 seconds before half, enter "60" at 

means the logo and time will last for 60 seconds. Click 

to take effect.

It also works in the setting of Conceal of one hour and Conceal of half an hour, but has contrary effect.

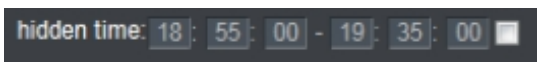
If we want to give up the modify, we should click 

, this operation will back to the factory default parameter values, all modify parameters will lost. The default parameters are:

Start time---0, Duration---0, Display mode---Continuous display

According to the different PGM input format, the parameter values of X and Y axis are different, but the positions of 4 logos are almost the same. Logo 1 shows at top left corner, Logo 2 shows at top right corner, Logo 3 shows at left bottom, Logo 4 shows at right bottom and Timing Code shows in middle.

4 Logo conceal duration：



Via Set conceal duration and the logo is disappeared during this time. Put a tick on  to make it effective.

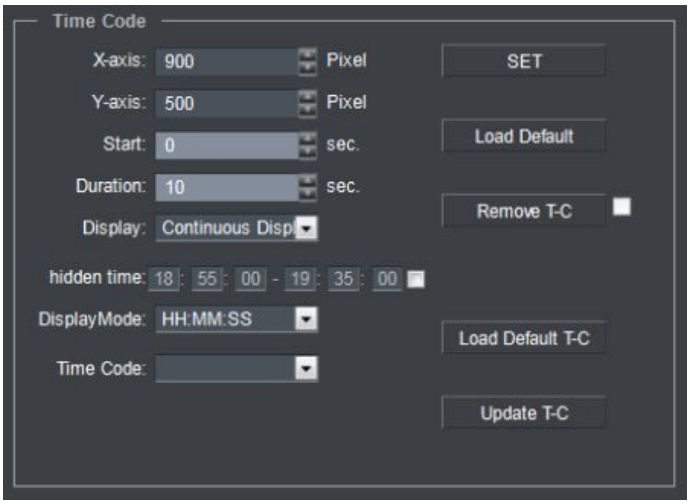
5 Animation logo interval:

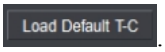
It also works for setting the interval of animation logo. Duration should be 0~30 minutes. Set time step as 1 minute.

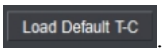
6 Animation logo speed:

It works for setting the speed of animation logo as well. The speed should be 0~8. 0 means the logo is still and 8 is the normal speed.

7 Time code(clock) display:



Basically, the time code display setting is same as logo setting but provides a new button 

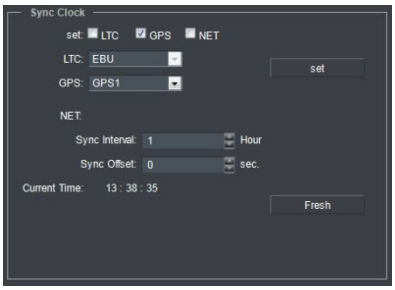
. Click the button and it will show the default timing code format. There is a default time code file without name displayed. You can delete it and only preview it by 

.

Via Set conceal duration and the logo is disappeared during this time. Put a tick on  to make it effective.

In "Display mode" you can choose the way of display, it provides HH:MM:SS, HH:MM and HH:MM(Flash). It show as Hour:Minute:Second, Hour:Minute , and Hour:Minute(the colon in the middle means second, flicker).

8 Sync Clock:



It is mainly used to select timing mode and set timing parameter.

Timing Mode: LTC, GPS and NET

LTC: LTC timing mode, we can select “EBU” code or “SMPTE” code

GPS:GPS timing via series port, GPS1, GPS2 and GPS3. Specific parameter definitions refers to the description of item 10 of 3.2

NET: in net-timing, it timings once automatically when the webpage opened. In order to make up the time error because of lack of network in a long time, it provides sync interval and sync offset.

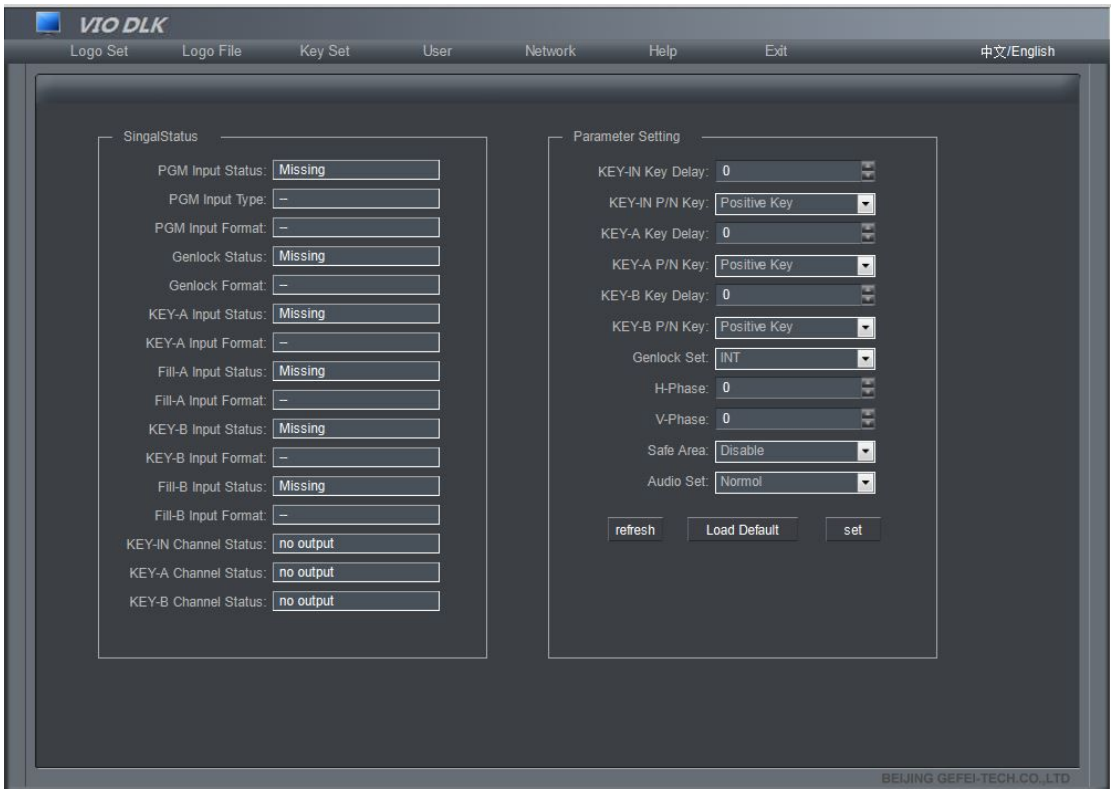
When there is no network for automatically timing, the machine will compensate for a certain time (sync offset) every period (sync interval).

Sync interval”: the setting step is 0.5hour, the range is 0..5~100 hour;

“Sync Offset”: the setting step is 0.5 second, the range is -100~+100 second.

Choose any timing mode of the 3 timing modes above, the other two will be unavailable automatically.

3.3.4 Key setting



This tab page includes “signal status” and “key parameters”.

Signal Status is used to display current signal’s format and status information, it can't be changed.

Parameter Setting is used to set the controllable parameter of keying function. The control item in webpage is same as the control item in LCD menu. Click "refresh" button so it will be synchronous with the parameter in LCD menu, click "set" button so that the parameter in webpage will take effect. "Load default" make all settings back to defaults. Default value is:

Inner key delay: 0

Inner key(positive or negative): positive

A channel key delay: 0

A key(positive or negative): positive

B channel key delay: 0

B channel key(positive or negative): positive

Lock mode: external

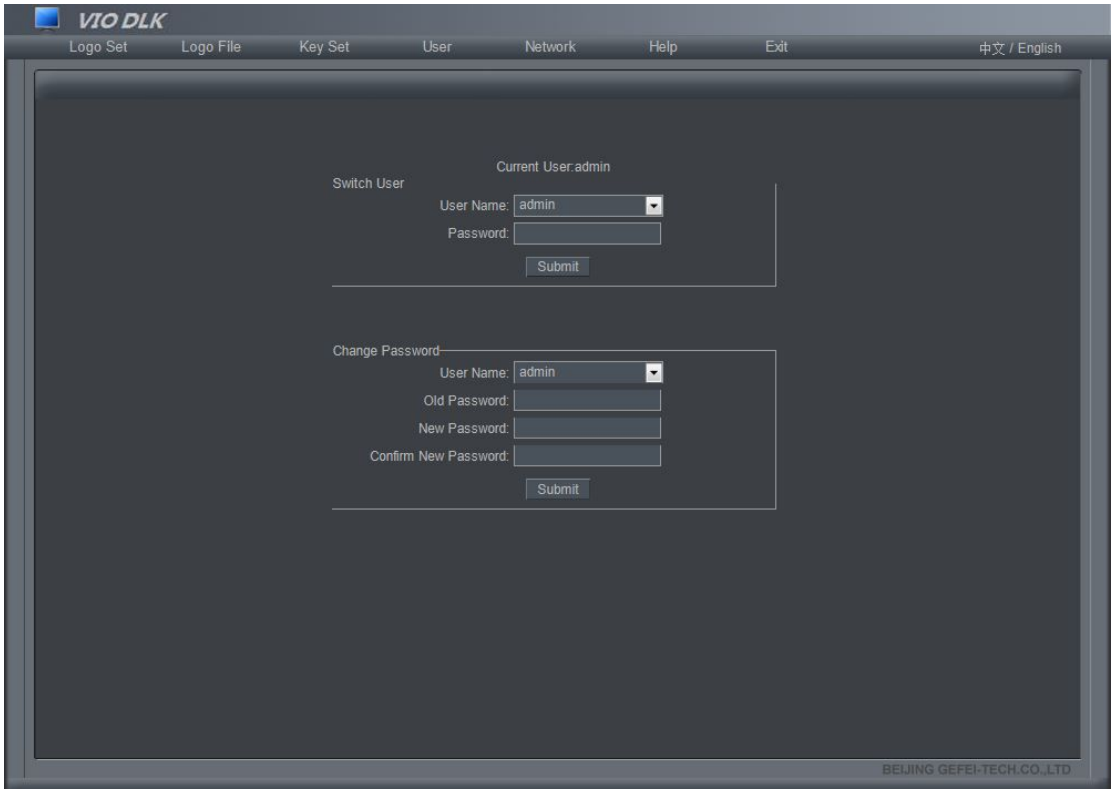
H-Phase: 0

V-Phase: 0

Safe mark display: Disable

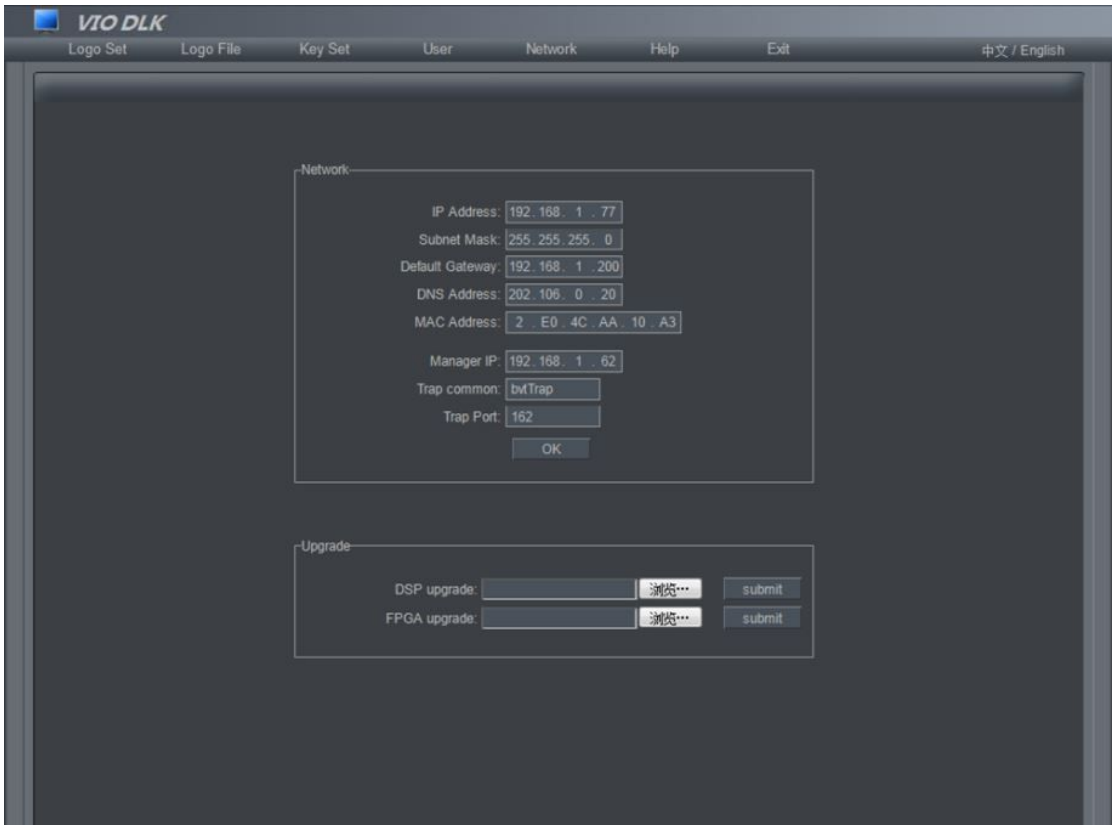
Audio Mode Set: Normal

3.3.5 User



The default user name is admin, the default password is 000000; User can modify the password or add a new account. Click "submit" and it affects when next login.

3.3.6 Network



You can connect VIO DLK to web directly, or connect with exchanger. The default IP is 192.168.1.76 and you can modify it. You cannot change the Mac address. Notes, any IP should be different from MFC, otherwise you can't enter the control interface. Cross-ruling is OK.

You can set the web parameter of local and distant controller. After change the IP, click "Submit" and it will tell you "Setting succeed, restart to affect it.". Shut off the power and power on again, open the webpage and enter IP.

Support online upgrade, click preview and find the file path, then click start. After upgrade it will tell you "Update succeed, restart to affect it." Please log out first and shut off power then power on again, refresh the webpage.

Notes, please close all protection system like firewall before upgrade. After upgrade succeeds, a dialog box pops up. Don't close webpage or shut off the power until it is finished.

3.3.7 Help



This page shows the current software version and other information.

3.3.8 Exit

Log out the web page.

IV Technical Specifications

Reference Input:

Signal type:	Analog composite sync.signal
Input Interface:	1*CVBS, BNC
Format:	PAL/NTSC
Impedance:	75 Ω

Digital Video Input:

Input interface:	5*SD/HD-SDI, BNC (Include FILL1-IN, KEY1-IN, FILL2-IN, KEY2-IN and PGM-IN)
Impedance:	75 ohms
Format：	SD：SMPTE 259M-C (270Mb/s) HD：SMPTE 292M (1.485Gb/s) 525i59.94/625i50 720p50/59.94 1080i 50Hz/59.94Hz 1080p 25Hz/29.97Hz
Maximum cable length:	SD-SDI: <160M (Belden1694) HD-SDI: <100M (Belden1694)

Digital Video Output:

Output interface	4*SD/HD-SDI, BNC (Include, PGM-OUTR, PGM-OUT, PRE-OUT and CLE-OUT)
Impedance:	75 Ω
Signal level：	800mV±10%
Overshooting：	< 80mV
Jitter：	< 135ps（100kHz）
Rise and fall time:	< 270ps（20%到 80%）

Rise and fall time difference: < 100ps

DC Level Shift: 0V±500mV

Control interface:

Number： RS2323*2，Ethernet*1，Remote*1，LTC*1

LTC: XLR，female

Serial type： DB9，male

Ethernet type： RJ45

Remote： DB26，Female

Consumption:

Machine consumption： dual power 2X250W redundant

Chassis parameter:

345mm×440mm×44mm (length x width x height)

19’ 1Ustandard

Weight：3kg

V Service and Support

Technical support:

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Fax：010-58858189

Website:

Website: www.gravue..com

E-mail：bvt_jszc@ gefei-tech..com

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