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ALFATRON ELECTRONICS GmbH

GERMANY

**API Guide for ALF-
IPK1HE and IPK1HD**

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Overview

Some API commands are based on Telnet and Http, others are based on multicast or unicast over UDP. This guide only describes the former, most of them are just setting or getting commands.

Telnet Port Number;

Connection Type	Telnet
Port No.	24
User Name	root
Password	<blank>

Settings for both TX (Encoder) and RX (Decoder)

1. IP Address Settings

Commands:

```
gbparam s ip_mode IPMODE
```

```
gbparam s ipaddr IPADDR
```

```
gbparam s netmask NETMASK
```

Description:

IPMODE	The IP mode. Value is "autoip", "static", or "dhcp". Default value is "autoip".
IPADDR	The IP address, like 169.254.9.9.
NETMASK	The subnet mask, like 255.255.0.0

Note:

Reboot the device for the settings above to take effect. You can do this by using the busybox reboot command.

2. Parameter update

Command:

```
gbparam s PARAM VALUE
```

Description:

<i>PARAM</i>	The parameter's name
<i>VALUE</i>	The parameter's value

Note:

The parameter's name and value can only contain characters "0-9", "A-Z", "a-z" and underscore (_).

3. Serial control

a) Serial parameter setting

Command:

```
soip2 -S -b RS232-PARAM
```

Description:

-S	Just means set the parameter
<i>RS232-PARAM</i>	Format: b-dps b baud rate

	d	data bits
	p	parity
	s	stop bit

b) Obtain the serial parameter setting.

Command:

soip2 -G

Response:

baud rate: *BAUD-RATE*

data bits: *DATA-BITS*

parity type: *PARITY*

stop bits: *STOP_BITS*

HEX mode: *HEX*

Description:

-G	Just means get the serial parameter
<i>BAUD-RATE</i>	Baud rate
<i>DATA-BITS</i>	Data bits
<i>PARITY</i>	Parity
<i>STOP-BITS</i>	Stop bits
<i>HEX</i>	Hex mode, "true" or "false"

c) Send serial content

Command:

soip2 -f /dev/ttyS0 -b *RS232-PARAM* [-r] [-n] -s "*CONTENT*"

Description:

<i>RS232-PARAM</i>	Format: b-dps b baud rate d data bits p parity s stop bit
[-r]	Attach a <CR> to the end of "CONTENT"
[-n]	Attach a <LF> after <CR> or to the end of "CONTENT"
<i>CONTENT</i>	The RS232 content you want to send

4. Reset to factory default

Command:

```
reset_to_default.sh
```

5. Linux busybox command

Use the common busybox commands.

6. Obtain the parameter value of the gbparam command

Command:

```
_gbparam g PARAM
```

Response:

```
VALUE
```

Description:

<i>PARAM</i>	The parameter's name
<i>VALUE</i>	The parameter's value. If the "PARAM" is not given, "VALUE" is "'PARAM' not defined"

7. Obtain the parameter value of the gbconfig command

Command:

gbconfig --show PARAM

Response:

VALUE

Description:

<i>PARAM</i>	The parameter's name
<i>VALUE</i>	The parameter's value

8. Obtain the parameter value of the gbset command

Command:

gbset PARAM

Response:

VALUE

Description:

<i>PARAM</i>	The parameter's name
<i>VALUE</i>	The parameter's value

9. IGMP autonomous report settings

Command:

```
gbparam s igmp_interval INTERVAL
```

Description:

<i>INTERVAL</i>	Report interval, the range is [0, 600] seconds. 0 means never.
-----------------	--

Note:

Reboot the device for the settings above to take effect. You can do this by using the busybox **reboot** command.

10. RS232_Mode

Command:

```
gbparam s rs232_mode RS232MODE
```

Description:

<i>RS232MODE</i>	passthrough && feedback
------------------	-------------------------

Note:

Reboot the device for the settings above to take effect. You can do this by using the busybox **reboot** command.

Settings only for TX (Encoder)

1. Video stream settings

a) H.264 stream settings

Commands:

```
gbconfig --enc-rc-mode=RCMODE
```

```
gbconfig --cbr-avg-bitrate=BITRATE
```

```
gbconfig --vbr-max-bitrate=BITRATE
```

```
gbconfig --vbr-min-qp=QP
```

```
gbconfig --vbr-max-qp=QP
```

```
gbconfig --fixqp-iqp=QP
```

```
gbconfig --fixqp-pqp=QP
```

```
gbconfig --enc-gop=GOP
```

```
gbconfig --enc-fps=FPS
```

```
gbparam s venc_big_stream_enable=ENABLE
```

```
gbparam s pure_audio_stream_enable=ENABLE
```

```
gbconfig --max-enc-res=RESOLUTION
```

```
gbparam s enc_mode H264
```

Note:

To make all video stream settings take effect, use the **e_reselect** command.

Description:

<i>RCMODE</i>	H.264 rate control mode. Value is "vbr", "cbr", or "fixqp".
<i>BITRATE</i>	H.264 stream bitrate. Value ranges from

	128 to 30000. Its unit is "kbps".
<i>QP</i>	H.264 QP value. Value ranges from 0 to 51
<i>GOP</i>	H.264 GOP. Value ranges from 1 to 65535. DO not set a very big value for GOP.
<i>FPS</i>	H.264 frame rate. Value ranges from 1 to 60.
<i>ENABLE</i>	Enable or disable the stream. "y", enable. "n", disable.
<i>RESOLUTION</i>	Max encoding resolution. Values: 1920x1080 1280x720
<i>H264</i>	set the TX encoding h264 stream.

b) MJPEG stream HTTP URI and its settings

Commands:

HTTP Meth od	GET
URI	http://IP:PORT/stream?resolution= <i>RESOLUTION</i> &fps= <i>FPS</i> &bitrate= <i>BITRATE</i>

Description:

<i>RESOLUTION</i>	MJPEG resolution. Value is "cif" (default) or "480P".
<i>FPS</i>	MJPEG frame rate. Value ranges from 1 to 30 (default).
<i>BITRATE</i>	MJPEG stream bitrate. Value ranges from 128 to 2000. Its unit is "kbps". Default value is

	512.
<i>IP</i>	The IP address of the device.
<i>PORT</i>	It is 80.

Note:

The query string of HTTP after quotation mark "?" is optional. If set, this configuration will affect all MJPEG streams.

2. Audio mute control

Command:

```
gbconfig --line-out --mute=MUTE
```

Description:

<i>MUTE</i>	Mute or unmute the line-out audio. "y", mute "n", unmute
-------------	--

3. Audio delay control

Commands:

```
gbconfig --lipsync-audio-delay=LIPSYNC_DELAY  
gbconfig --audio-delay=DELAY
```

Description:

<i>LIPSYNC_DELAY</i>	Set delay for audio in [100, 500] ms, default
----------------------	---

	value is 100, this is used for system lip sync.
<i>DELAY</i>	Set delay for audio in [0, 500] ms, default value is 0, this is used for intended purpose.

Note:

The final audio latency is equal the sum of TX's *LIPSYNC_DELAY*, TX's *DELAY*, RX's *LIPSYNC_DELAY* and RX's *DELAY*.

4. EDID import

Command:

```
setEDID -s "hex string"
```

Note:

setEDID -i filename. You can select the bin file

5. UNICAST&&MULTICAST

```
gbconfig --work-pattern=unicast/multicast
```

6. Audio lpcm&&aac

```
gbconfig --audio-enc-type=lpcm/aac
```

7. aac enc bitrate

```
gbconfig --audio-enc-bitrate=value[128/192/240 ...]
```

Settings only for RX (Decoder)

1. Source selection

Commands:

```
gbset vi SOURCE
```

```
gbconfig --source-select=SOURCE
```

```
gbconfig --vsource-select=SOURCE
```

```
gbconfig --asource-select=SOURCE
```

```
e e_reconnect
```

Description:

'gbconfig --vsource-select' is same as 'gbset vi', 'gbconfig --asource-select' set the audio source selection, if dose not set 'gbconfig --asource-select', the audio selection will follow the video selection.

'gbconfig --source-select' set the video source and audio source at the same time.

<i>SOURCE</i>	TX MAC address. It does not include colons (:) such as "341B22000001".
---------------	--

Note:

The **e e_reconnect** command will connect a single RX to a new TX. If multiple RX are required to be switched to several TX simultaneously, do not use this command.

2. RS232 Source selection

Command:

```
gbconfig --ssource-select=SOURCE
```

Description:

'gbconfig --ssource-select' set the RS232 source.

<i>SOURCE</i>	TX MAC address. It does not include colons (:) such as "341B22000001".
---------------	--

3. Video stream settings

Command:

```
gbconfig --low-delay=VALUE
```

Description:

<i>VALUE</i>	Set "y" to enable the low delay mode. Set "n" to disable the low delay mode. (Default)
--------------	---

4. Video wall settings

Command:

```
e e_vw_enable_M_N_x_y
```

Description:

<i>M</i>	The VW has " <i>M</i> +1" rows.
<i>N</i>	The VW has " <i>N</i> +1" columns.
<i>x</i>	The RX is in the row " <i>x</i> +1" of the VW.

<i>y</i>	The RX is in the column "y+1" of the VW.
----------	--

5. Output resolutions settings

Commands:

```
gbset fvo RESOLUTION
```

```
gbconfig --hdcp-method=HDCPMETHOD
```

```
gbparam s fource_output_color_space COLORSPACE  
e e_reoutput
```

Description:

<i>RESOLUTION</i>	<p>The output resolution.</p> <p>Value must be set to the following.</p> <p>AUTO</p> <p>1080P_60</p> <p>1080P_50</p> <p>1080P_30</p> <p>1080P_25</p> <p>1080P_24</p> <p>720P_60</p> <p>720P_50</p> <p>576P_50</p> <p>480P_60</p> <p>640X480_60</p> <p>800X600_60</p> <p>1024X768_60</p> <p>1280X720_60</p> <p>1280X800_60</p> <p>1280X1024_60</p>
-------------------	---

	1366X768_60 1440X900_60 1600X1200_60 1920X1080_60 1920X540_60
<i>HDCPMETHOD</i>	HDCP policy method. Value is "follow" (default), "enable", or "disable". <ul style="list-style-type: none"> • follow: means that HDCP in output follows HDCP policy in input. • enable: means that HDCP-encrypted content is always output. • disable: means that non-HDCP encrypted content is always output.
<i>COLORSPACE</i>	The output color space. Value is "auto" (default), "yuv", or "rgb".

Note:

After the "force_output_color_space" parameter is set, the command **e e_reoutput** must be implemented to make the settings take effect.

6. CEC control

Commands:

e e_cec_system_standby

e e_cec_one_touch_play

cec -s "*ADDR OPCODE, ADDR OPCODE, ...*"

Description:

e e_cec_system_standby	Set the CEC display into standby mode.
e e_cec_one_touch_play	Turn on the CEC display immediately.
<i>ADDR OPCODE</i>	"Addr" means source+dest address. "OPCODE" means CEC operation code.

Example:

cec -s "40 04"	<ul style="list-style-type: none"> "40": "4" means source address, "0" means dest address. "04" means the image view on operation code.
cec -s "ff 36"	<ul style="list-style-type: none"> "ff" means the broadcast. "36" means the standby operation code.

7. Audio mute control

Commands:

gbconfig --hdmi-out-audio --mute=MUTE

gbconfig --line-out --mute=*MUTE*

Description:

<i>MUTE</i>	Mute or unmute the line-out audio.
-------------	------------------------------------

	y, mute n, unmute
--	----------------------

8. Audio delay control

Commands:

```
gbconfig --lipsync-audio-delay=LIPSYNC_DELAY
gbconfig --audio-delay=DELAY
```

Description:

<i>LIPSYNC_DELAY</i>	Set delay for audio in [100, 500] ms, default value is 200, this is used for system lip sync.
<i>DELAY</i>	Set delay for audio in [0, 500] ms, default value is 0, this is used for intended purpose.

Note:

The final audio latency is equal the sum of TX's *LIPSYNC_DELAY*, TX's *DELAY*, RX's *LIPSYNC_DELAY* and RX's *DELAY*.

9. OSD control

Commands:

```
gbparam s osd_disp_mode OSD_MODE
osd_on.sh
osd_off.sh
```

Description:

<i>OSD_MODE</i>	"follow" means when the video lost, OSD will follow the no source image, "independence" means OSD only display when command <code>osd_on.sh</code> called.
<code>osd_on.sh</code>	Turn on the IP/Mac OSD information.
<code>osd_off.sh</code>	Turn off the IP/Mac OSD information in 'independence' mode or when video is displaying in 'follow' mode.

Note:

After the "osd_disp_mode" parameter is set, the command **e e_reconnect** must be implemented to make the settings take effect.

10. Sink's EDID information

Command:

```
cat /var/tmpfs/monitor info
```

11. Stream Rotate

Command:

```
e e_vw_rotate_N
```

Note: N = 90 or 180 or 270

Note:

After the "e e_vw_rotate_N" parameter is set, the command **e e_reconnect** must be implemented to make the settings take effect.

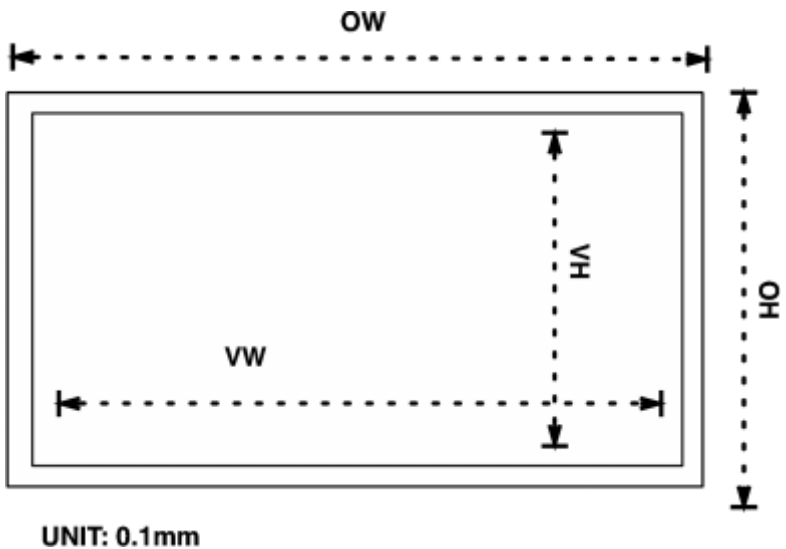
12. Eliminate display border

Command:

```
e e_vw_moninfo_vw_ow_vh_oh
```

Note:

After the "e e_vw_moninfo_vw_ow_vh_ohf" parameter is set, the command e e_reconnect must be implemented to make the settings take effect.



13. Audio volume control

Commands:

```
gbconfig --hdmi-out-audio --level-up
```

```
gbconfig --hdmi-out-audio --level-down
```

```
gbconfig --hdmi-out-audio --level-control=LEVEL
```

```
gbconfig --line-out --level-up
gbconfig --line-out --level-down
gbconfig --line-out --level-control=LEVEL
```

Description:

<i>LEVEL</i>	Range from -100 to 12 dB.
--------------	---------------------------

14. PNG settings

a) PNG upload URI

Commands:

HTTP Method	POST
URI	http:// <i>IP</i> : <i>PORT</i> /upload_png

Description:

<i>IP</i>	The IP address of the device.
PORT	It is 80.

b) PNG display control

Commands:

```
gbconfig --png-overlay-pos-h=POSH
gbconfig --png-overlay-pos-v=POSV
gbconfig --png-overlay-enable=ENABLE
```

Note:

After change the PNG position, please send 'gbconfig --png-overlay-enable=y' to make the settings take effect.

Description:

<i>POSH</i>	PNG image horizontal coordinates. [0, 1919]
<i>POSV</i>	PNG image vertical coordinates. [0, 1079]
<i>ENABLE</i>	Enable or disable the stream. "y", enable. "n", disable.

15. 'NO SOURCE' image settings

a) upload URI

Commands:

HTTP Method	POST
URI	http:// <i>IP</i> : <i>PORT</i> /upload_bg

Description:

<i>IP</i>	The IP address of the device.
PORT	It is 80.

16. osd show

osd_show -o {INDEX} -s {CONTENT} -f {FONT} -p {POSITION} -c {INDEX}

For example: osd_show -o 1 -s "1234"

-o {INDEX}:open OSD show , INDEX is the corresponding serial number [1-7]

-s {CONTENT}: Displays the contents of the string

-f {FONT}:font size

-p {POSITION}: Displayed position

-c {INDEX}: close OSD show

Only for TX

HDCP setting

TX support HDCP in default, if need off the HDCP support。

command : *gbconfig --hdcpc-enable VALUE*

Note : VALUE is y or n。

Example :

```
/# gbconfig --hdcpc-enable y  
/# gbconfig --show --hdcpc-enable  
y  
/#
```

Mute/Unmute analog audio

command :

```
gbconfig --line-out --mute=MUTE  
gbconfig --show --line-out --mute
```

Explanation : MUTE is y or n。

```
/# gbconfig --line-out --mute=y  
/# gbconfig --show --line-out --mute  
y  
/#
```

audio delay control

Command 1 :

```
gbconfig --lipsync-audio-delay=LIPSYNC_DELAY  
gbconfig --show --lipsync-audio-delay
```

Command 2 :

```
gbconfig --audio-delay=DELAY  
gbconfig --show --audio-delay
```

Explanation :

LIPSYNC_DELAY : value is [100,500], default is 200。 unit : ms。

DELAY : value [0,500],default is 0。 unit : ms。

Only for IP output audio stream, not for line out, the delay will be amount of above two。

Example :

```
/# gbconfig --lipsync-audio-delay=100  
/# gbconfig --show --lipsync-audio-delay  
100  
/#gbconfig --audio-delay=100  
/#gbconfig --show --audio-delay  
100  
/#
```

Only for RX :

Mute/Unmute analog audio

Command :

```
gbconfig --line-out --mute=MUTE  
gbconfig --show --line-out --mute
```

Explanation : MUTE is y or n.

Example :

```
/# gbconfig --line-out --mute=y  
/# gbconfig --show --line-out --mute  
y  
/#
```

Analog audio level control

Command :

```
gbconfig --line-out --level-up  
gbconfig --line-out --level-down  
gbconfig --line-out --level-control=LEVEL  
gbconfig --show --line-out --level
```

Explanation : LEVEL range between -100 and 12dB. ◦

Example :

```
/# gbconfig --line-out --level-control=0  
/# gbconfig --line-out --level-up  
/# gbconfig --show --line-out --level
```

```
1
/# gbconfig --line-out --level-down
/# gbconfig --show --line-out --level
0
```

Mute/Unmute HDMI audio output

Command :

```
gbconfig --hdmi-out-audio --mute=MUTE
gbconfig --show --hdmi-out-audio --mute
```

Explanation : MUTE is y or n.

Note : IPM4000 does not support. For IPD915V2, it will affect analog audio output at the same time.

Example :

```
/# gbconfig --hdmi-out-audio --mute=y
/# gbconfig --show --hdmi-out-audio
y
/#
```

HDMI out audio level control

Command :

```
gbconfig --hdmi-out-audio --level-up
gbconfig --hdmi-out-audio --level-down
gbconfig --hdmi-out-audio --level-control=LEVEL
gbconfig --show --hdmi-out-audio --level
```

Explanation : LEVEL range between -100 and 12dB.

Example :

```
/# gbconfig --hdmi-out-audio --level-control=0
/# gbconfig --show --hdmi-out-audio --level
0
/# gbconfig --hdmi-out-audio --level-up
/# gbconfig --show --hdmi-out-audio --level
1
```

```
/# gbconfig --hdmi-out-audio --level-down  
/# gbconfig --show --hdmi-out-audio --level  
0
```

Audio delay control

Command :

Command 1 :

```
gbconfig --lipsync-audio-delay=LIPSYNC_DELAY
```

```
gbconfig --show --lipsync-audio-delay
```

command 2 :

```
gbconfig --audio-delay=DELAY
```

```
gbconfig --show --audio-delay
```

Explanation :

LIPSYNC_DELAY : value is [100,500],default 200。 unit : ms。

DELAY : value is [0,500],default 0。 unit : ms。

These commands, for both HDMI out audio and line out, the delay will be amount of two commands。

Command 1 adjust device driver buffer, command 2 adjust application buffer, so command 2 is priority for use in setup。

Example :

```
/# gbconfig --lipsync-audio-delay=100
```

```
/# gbconfig --show --lipsync-audio-delay
```

```
100
```

```
/#gbconfig --audio-delay=100
```

```
/#gbconfig --show --audio-delay
```

```
100
```

```
/#
```