



## GoStream Mini 400 Encoder

### User Manual



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# 1. PRODUCT INTRODUCTION

## 1.1 Product Brief

The GSM 400S has four SDI inputs while the GSM 400H has 4 HDMI inputs. Both models have an HDMI output. The 400S model also has an SDI output while the 400H model has two HDMI outputs. There are also 4 x 3.5mm analog audio inputs for audio embedding and a 3.5mm analog audio output for audio de-embedding.



The front panel has PGM / feature buttons for users to control it locally. The USB3.0 interface allows the user to record in various formats. There are also record / snapshot / stream / connectivity buttons on the front panel.



The GSM 400 has one RJ45 for network connectivity. It also has an RS232 and 2 USB2.0 ports for users to connect with industrial / commercial controlling systems. The user can connect a USB keyboard and mouse to access the GSM 400 internal control interface.

## 1.2. Specification

<b>Max. FPS</b>	60/50fps @ 1920 × 1080p
<b>Recording Mode</b>	Hardware Compression
<b>Product Photo</b>	
<b>Input Interfaces</b>	<ul style="list-style-type: none"> <li>• Video 4 × HDMI (400H) or 4 × SDI (400S)</li> <li>• Audio 4 × 3.5mm</li> </ul>
<b>Output Interface</b>	<ul style="list-style-type: none"> <li>• Video 2 × HDMI (400H) or 1 x HDMI and 1X SDI (400S)</li> <li>• Audio 1 × 3.5mm</li> </ul>
<b>Video</b>	<ul style="list-style-type: none"> <li>• H.264 baseline/main/high profile</li> <li>• Support input / output resolutions 1920 × 1080P60 (output 1920 × 1080P30) 1920 × 1080(P30/P25/P24/i59.94), 1280 × 720 (P60/P59.94/P30) 1024 × 768P30, 800 × 600(P60/P30) 720 × 480(P60/P30), 720 × 576P50</li> </ul>
<b>Audio</b>	<ul style="list-style-type: none"> <li>• AAC-LC</li> <li>• Configurable bit rate range from 32Kbps to 384Kbps</li> <li>• Sample rate : 48KHz, 16bit</li> </ul>
<b>Network</b>	<ul style="list-style-type: none"> <li>• 1 × RJ45 for 10/100/1000Mbps Ethernet</li> <li>• DHCP client</li> <li>• Wifi:</li> </ul>

	<ul style="list-style-type: none"> <li>➤ 802.11b/g/n</li> <li>➤ Support 150Mbps PHY rate</li> </ul>
<b>Streaming protocols</b>	<ul style="list-style-type: none"> <li>● RTSP over UDP/TCP/Multicast/HTTP</li> <li>● RTMP public (web portal)</li> <li>● TS over IP</li> <li>● HLS</li> </ul>
<b>Misc. Features</b>	<ul style="list-style-type: none"> <li>● Web UI for system configuration</li> <li>● Firmware upgradable</li> <li>● LED indicator</li> <li>● Status with Power Recycle</li> <li>● Main function switch <ul style="list-style-type: none"> <li>➤ Record</li> <li>➤ Snapshot</li> <li>➤ Stream</li> </ul> </li> <li>● PGM mode switch <ul style="list-style-type: none"> <li>➤ Full screen</li> <li>➤ Quadview</li> <li>➤ Picture by picture</li> <li>➤ Picture in picture</li> <li>➤ PGM Loop</li> </ul> </li> <li>● Full screen switch <ul style="list-style-type: none"> <li>➤ Channel 1</li> <li>➤ Channel 2</li> <li>➤ Channel 3</li> <li>➤ Channel 4</li> </ul> </li> <li>● 2 × USB2.0 (For Keyboard and mouse usage)</li> <li>● 1 × USB3.0 (For external storage usage)</li> <li>● 1 × RS232 + 1 × RS485</li> </ul>
<b>Record Format</b>	MP4 / TS / AVI

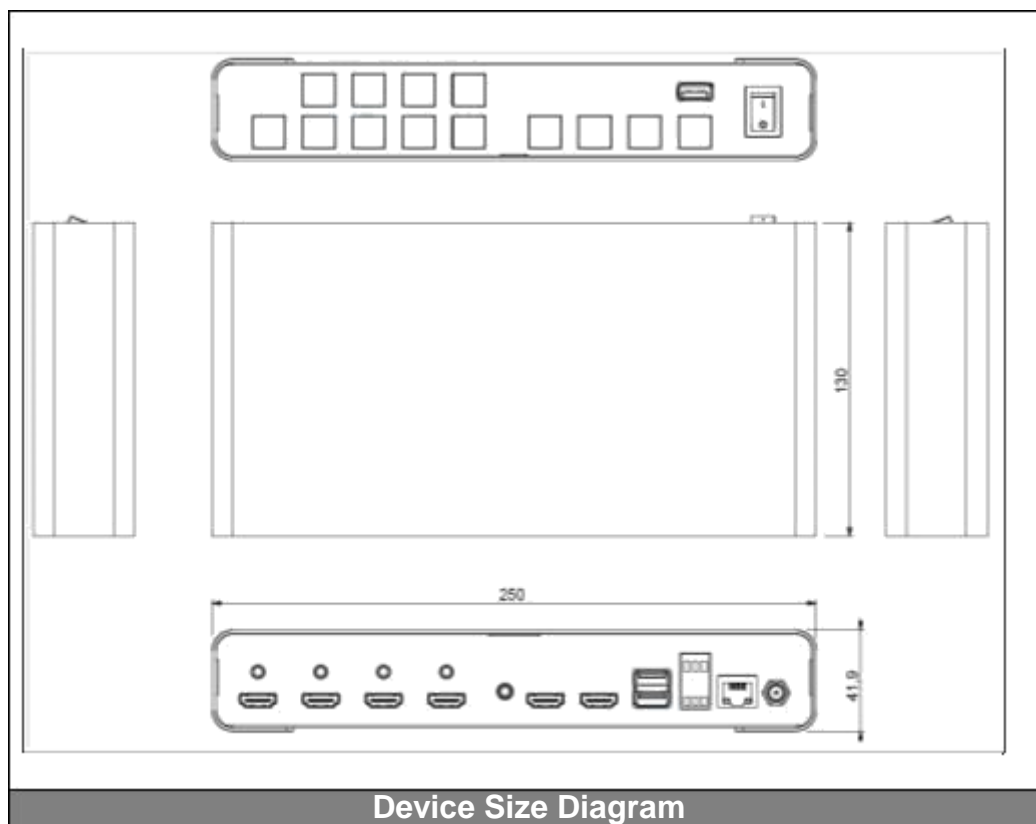
## 2. HARDWARE INSTALLATION

### 2.1. Package Contents

Item	Amount
GSM 400 Encoder	1
Power Adapter	1

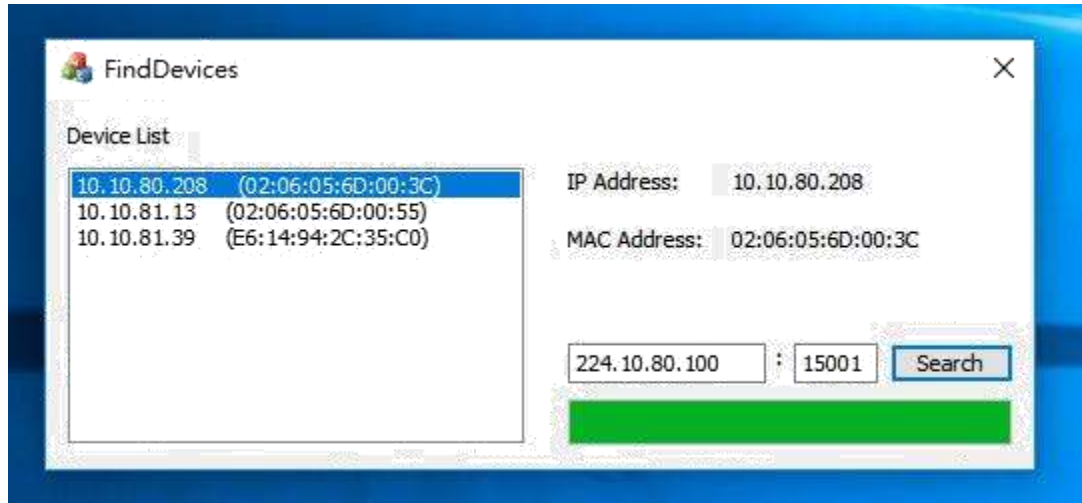
### 2.2. Device Size

Figure below is the size of the GSM 400.



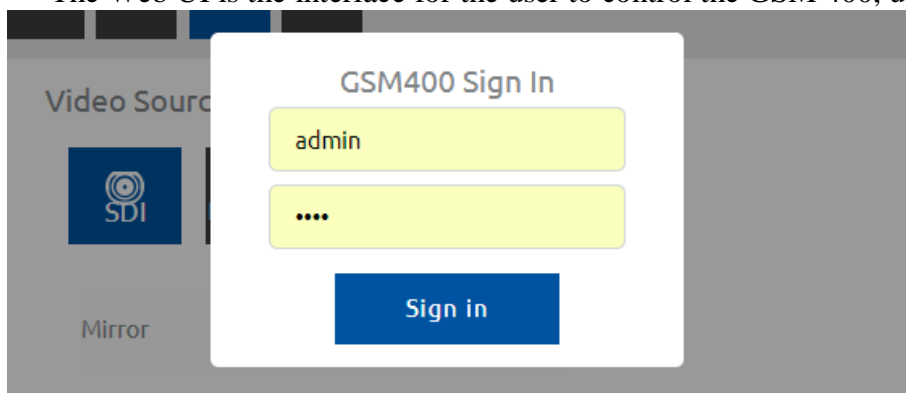
### 3. IP Finder

When the encoder is in DHCP mode you can use the IP finder to get the IP address. If you have multiple GSM 400s you can locate the one you want by the MAC address. Don't change the parameters on the right side. Just start the application and click the Search button.



### 4. WEB UI

The Web UI is the interface for the user to control the GSM 400, users can control them via normal PC or portable devices (EX: Android, iPhone, iPad...etc.)

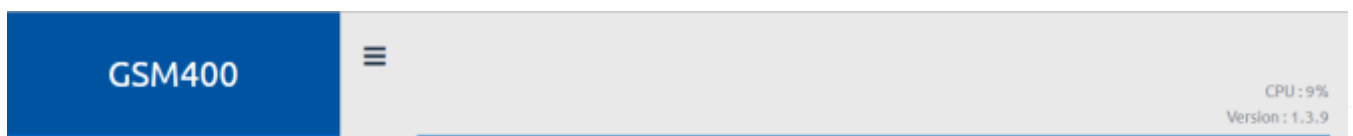


**Username: admin**

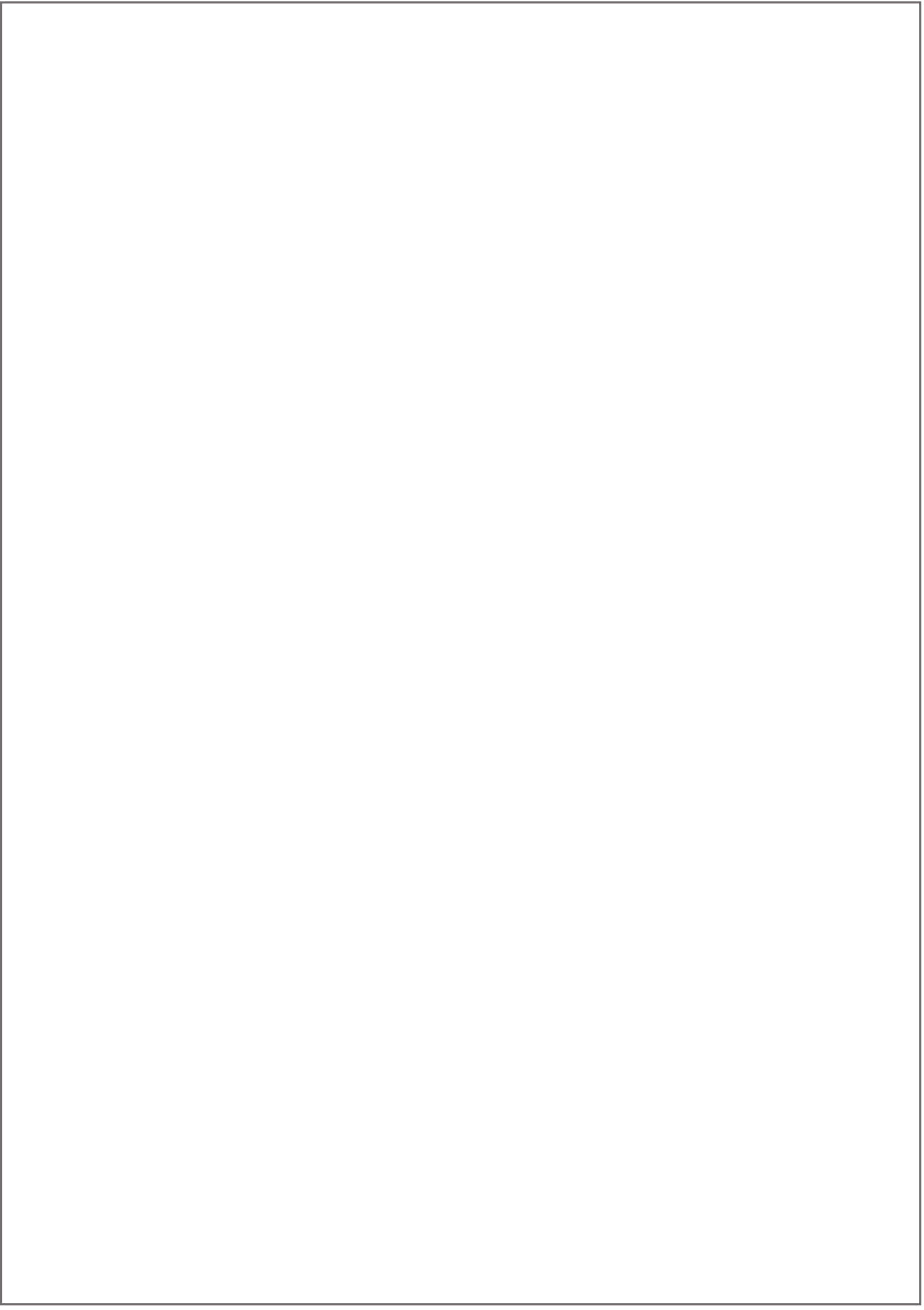
**Password: 0000 (Four zeros)**

**Default IP address: 192.168.1.23 Net Mask 255.255.255.0**

#### 4.1. Firmware



On the top right you can find the software firmware version and the processor utilization.





## 4.2. Source

The screenshot shows a web interface for configuring video and audio sources. At the top, there are four tabs labeled 1, 2, 3, and 4, with tab 4 selected. The main area is divided into two panels: 'Video Source' and 'Audio Source'. The 'Video Source' panel has three icons: SDI, IP Stream (selected), and File. Below these are fields for 'Source URL' (containing 'udp://@225.1.1.15:2015'), 'Account', and 'Password'. A 'UDP' dropdown menu is next to the URL field. The 'Audio Source' panel has four icons: Embed (selected), Line-In, Mic, and Mixer. Below these is a large empty rectangular area. At the bottom of the configuration area are 'Apply' and 'Reset' buttons. Below the configuration area is a table showing input information for four channels.

input information	Video Source	Audio Source	Resolution	Frame Rate	Channels	Bits Per Sample	Sample Frequency
Channel 1	SDI	Embed	1280x720p	29.94	2	16	48000
Channel 2	File	Embed	720x480p	29.97	2	16	48000
Channel 3	IP Stream	Embed	1280x720p	-	2	16	48000
Channel 4	IP Stream	Embed	N/A	N/A	N/A	N/A	N/A

This page contains **input signal status**, input **Video Source** and **Audio Source** selection. Users can change input video property, source and check input video information here. User can select on the top 1/2/3/4 icons to change the channel that willing to adjust.

### 4.2.1. Video Source (Local)

This screenshot is a zoomed-in view of the 'Video Source' configuration panel from the previous image. It shows the 'IP Stream' icon selected, the 'Source URL' field with 'udp://@225.1.1.15:2015', and the 'UDP' dropdown menu. The 'Account' and 'Password' fields are empty. The 'Apply' and 'Reset' buttons are at the bottom of the panel.

The user can change the video and audio sources here.

### 4.2.1. Video Source (Streaming)



The video source can be certain IP streams; HLS and RTSP are supported. Please check on other protocols. If the source is the encoder itself then for RTSP the format is;

**rtsp://(Account):(Password)@(GSM 400 IP address):(RTSP port)/(Session name)**

A screenshot of the "Main Streaming" configuration form. It includes fields for "Encoder Source" (set to "Main Encoder"), "Stream Type" (set to "RTSP"), "RTSP port" (554), "RTSP HTTP Port" (8554), "Account" (root), "Password" (root), and "Session Name" (session0.mpg).

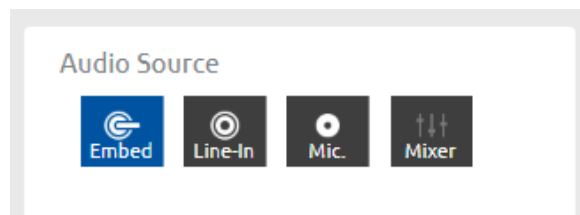
The example shown here is for an HLS stream  
In this case it is;

<http://96.68.145.220/HLS/encoder1.m3u8>.

This is one of our test streams, if you wish to test this then contact us as we don't keep it running all the time.

A screenshot of the "Video Source" configuration panel. It shows tabs for "1", "2", "3", and "4", with "3" selected. Below the tabs are icons for "SDI", "IP Stream", and "File". The "Source URL" field contains the text "http://96.68.145.220/HLS/encoder1.m3u8". There are also empty fields for "Account" and "Password". At the bottom are "Apply" and "Reset" buttons.

## 4.2.2. Audio Source



In the audio source block, the user can select from **Embedded** audio, 3.5mm audio **Line-in**, **Microphone** input or **Mixer**.

## 4.2.3. Input Signal Status

Input Information	Video Source	Audio Source	Resolution	Frame Rate	Channels	Bits Per Sample	Sample Frequency
Channel 1	HDH1	Embedded					
Channel 2	HDH1	Embedded					
Channel 3	HDH1	Embedded					
Channel 4	HDH1	Embedded					

In input information block, user can check signal status and signal format.

## 4.3. Encoder

1234PGM

Main Encoder

Resolution

Same as Input

Frame Rate

Same as Input

Profile

Main

Level

Level 41

Entropy

CABAC

GOP

30

Video Bitrate ( bps )

6 M

Audio Bitrate ( bps )

256 K

Crop-X

0

Crop-Y

0

Crop-Width

0

Crop-Height

0

Color Range

Full Color

Sub Encoder

Resolution

Same as Input

Frame Rate

Same as Input

Profile

Main

Level

Level 41

Entropy

CABAC

GOP

30

Video Bitrate ( bps )

2 M

Audio Bitrate ( bps )

256 K

Crop-X

0

Crop-Y

0

Crop-Width

0

Crop-Height

0

Color Range

Full Color

Apply

Default

Encoder page contains **Main Encoder** and **Sub Encoder** 2 parts, which allows user to change video and audio encode, this page also provides user to change sub streaming encoder.

### 4.3.1. Main Encoder/Sub Encoder

Main Encoder

Resolution

Same as Input

Frame Rate

Same as Input

Profile

High

Level

Level 41 ( FHD )

Entropy

CABAC

GOP

120

Video Bitrate ( bps )

24 M

Audio Bitrate ( bps )

256 K

Color Range

Full Color

**Resolution options:** Same as input, 1920\*1080, 1280\*720 and 720\*576, 720\*480, 640\*480, 320\*240, and 160\*120 resolutions

Same as Input

1920 \* 1080

1280 \* 720

720 \* 576

720 \* 480

640 \* 480

320 \* 240

160 \* 120

**Framerate options:** Same as input, 60, 50, 30, 25, 20, 15, 12.5, 10, 5, and 1.

Same as Input

60.00

50.00

30.00

25.00

20.00

15.00

12.50

10.00

5.00

1.00

**Profile options:** high, main and baseline.

**Level options:** 41, 40, 32, 31, 30, 22, 21, 20, 13, 12, 11, 10, and 1b.

Level 41

Level 40

Level 32

Level 31

Level 30

Level 22

Level 21

Level 20

Level 13

Level 12

Level 11

Level 10

Level 1b

**Entropy:** The GSM 400 supports both CAVLC and CABAC entropy encoding options.

**GOP:** H264 group of pictures setting (from 255~1).

255
240
200
120
100
60
50
30
25
20
15
10
5
3
2
1

**Video Bitrate (bps):**

64 M
32 M
24 M
16 M
12 M
8 M
6 M
4 M
2 M
1 M
512 K
256 K

**Audio Bitrate (bps):** Audio bitrate select (from 256\*1024~32\*1024)

256 * 1024
128 * 1024
64 * 1024
32 * 1024

**ColorRange:** Select between Full Color or Limited Color.

Full Color
Limited Color

## 4.4. Record

The screenshot shows a web interface for recording. At the top, there are five tabs: 1, 2, 3, 4, and PGM. Tab 3 is selected. Below the tabs, there are two main sections: 'Main Record' and 'Sub Record'. Each section contains four settings: 'Encoder Source' (a dropdown menu), 'File Name' (a text input field), 'Type' (a dropdown menu), and 'Duration (min)' (a dropdown menu). In the 'Main Record' section, 'Encoder Source' is set to 'Main Encoder', 'File Name' is 'CH03\_MAIN\_%Y%M%D\_%h%m%s\_%i', 'Type' is 'MP4', and 'Duration' is '120'. In the 'Sub Record' section, 'Encoder Source' is set to 'Disable', 'File Name' is 'CH03\_SUB\_%Y%M%D\_%h%m%s\_%i', 'Type' is 'MP4', and 'Duration' is '120'. At the bottom of the 'Main Record' section, there are two buttons: 'Apply' and 'Default'. At the bottom of the 'Sub Record' section, there are two buttons: 'Start Record' and 'Stop Record'.

The record page allows user to change the video format that recorded to USB3.0 disk drive. On the top 1/2/3/4/PGM is the channel that desired to record; and the 2 block in the middle is the main/sub record format.

### 4.4.1. Main Record/Sub Record

The screenshot shows the 'Main Record' settings form. It has four settings: 'Encoder Source' (a dropdown menu with 'Main Encoder' selected), 'File Name' (a text input field with 'ch01\_main.mp4'), 'Type' (a dropdown menu with 'MP4' selected), and 'Duration (min)' (a dropdown menu with 'Unlimitation' selected).

**Encoder source:** Choices are; Main Encoder, Sub Encoder and disable selections.

**File name:** The file name setting, this would be the file name recorded.

**Type:** Decide needed file type; MP4, TS or AVI

**Duration:** Choices are; Unlimitation, 60, 30, 5, and 1 minutes for user to set. Recording will automatically stop when the time is up.

## 4.5. Streaming

The screenshot shows a web interface for configuring GSM 400 streaming. At the top, there are five tabs: 1, 2, 3, 4, and PGM. Tab 3 is currently selected. Below the tabs, there are two main configuration panels: 'Main Streaming' and 'Sub Streaming'. Each panel contains the following fields: 'Encoder Source' (a dropdown menu), 'Stream Type' (a dropdown menu), 'RTSP port' (a text input field), 'RTSP HTTP Port' (a text input field), 'Account' (a text input field), 'Password' (a text input field), 'Session Name' (a text input field), and 'Multicast' (a dropdown menu). At the bottom of the interface, there are four buttons: 'Apply', 'Default', 'Start Stream', and 'Stop Stream'.

This page contains the GSM 400 streaming settings; user can decide which encoder's stream will send out and select streaming type here.

On the top 1/2/3/4/PGM is the channel that desired steaming; and the 2 blocks in the middle are the main/sub streaming format.

### 4.5.1. Main Streaming/Sub Streaming

This screenshot shows the 'Main Streaming' configuration panel. The 'Encoder Source' dropdown is set to 'Main Encoder'. The 'Stream Type' dropdown is set to 'RTSP'. The 'RTSP port' text input field contains '554', and the 'RTSP HTTP Port' text input field contains '8554'. The 'Account' text input field contains 'root', the 'Password' text input field contains 'root', and the 'Session Name' text input field contains 'session0.mpg'.

**Encoder Source:** User can select between main encoder and sub encoder.

**Streaming Type:** Here are RTSP, RTMP, and TS streaming type GSM 400 available.

**RTSP port:** RTSP server port

**RTSP HTTP Port:** RTSP HTTP server port

**Account:** RTSP account, setting this for other users to link with RTSP mode.

**Password:** RTSP password, setting this for other users to link with RTSP mode.

**Session Name:** RTSP Session name.

## 4.6. Snapshot

1 2 3 4 PGM

Snapshot

Capture  
Enable

File Name  
CH03\_%Y%M%D\_%h%m%s\_%i

Type  
BMP

Apply Default

### 4.6.1. Snapshot

Snapshot

Capture

File Name

Type

**Capture:** Select Enable or Disable

**File Name:** Time and date codes are supported

**Type:** Select the snapshot file format; BMP or JPEG

## 4.7. CG

1 2 3 4 PGM

CG

CG Layer  
Layer 0

CG Type  
Text

Text  
CH01 %Y%M%D %h:m:s

Location-X  
50

Location-Y  
50

Foreground Color  
R: 255, G: 255, B: 255

Text Size  
36

Apply Default Start CG Stop CG

The user can change on screen display content here; a **Text** label, place (Location-X, Location-Y) and color (Background Color, Foreground Color) or a **Graphics** file.



### 4.7.1. OSD Setting

OSD

OSD Layer

Layer 0

OSD Type

Text

Text

CH01 %Y.%M.%D %h:%m:%s

Location-X

50

Location-Y

50

Width

0

Height

0

Foreground Color

FFFFFF

Background Color

0

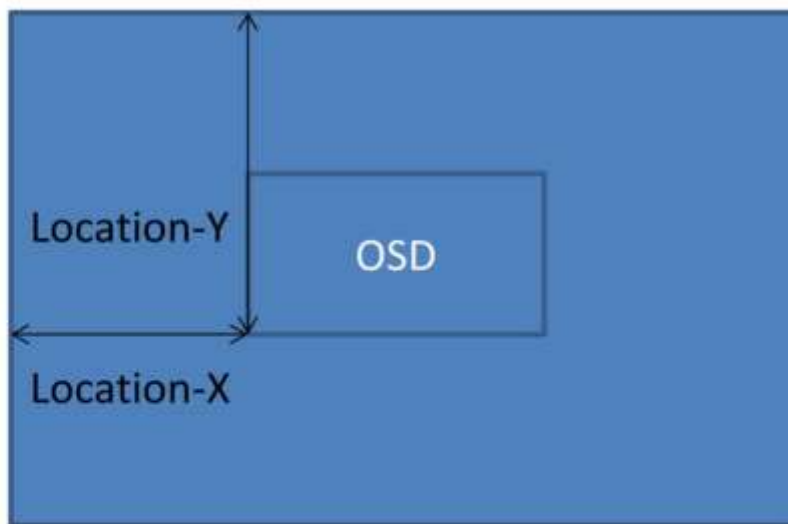
Text Size

36

**OSD Layer:** Each Input has up to 4 layers

**OSD Type:** Each layer can be text or a graphics file

**Text:** Text label for channel 1~4 and PGM



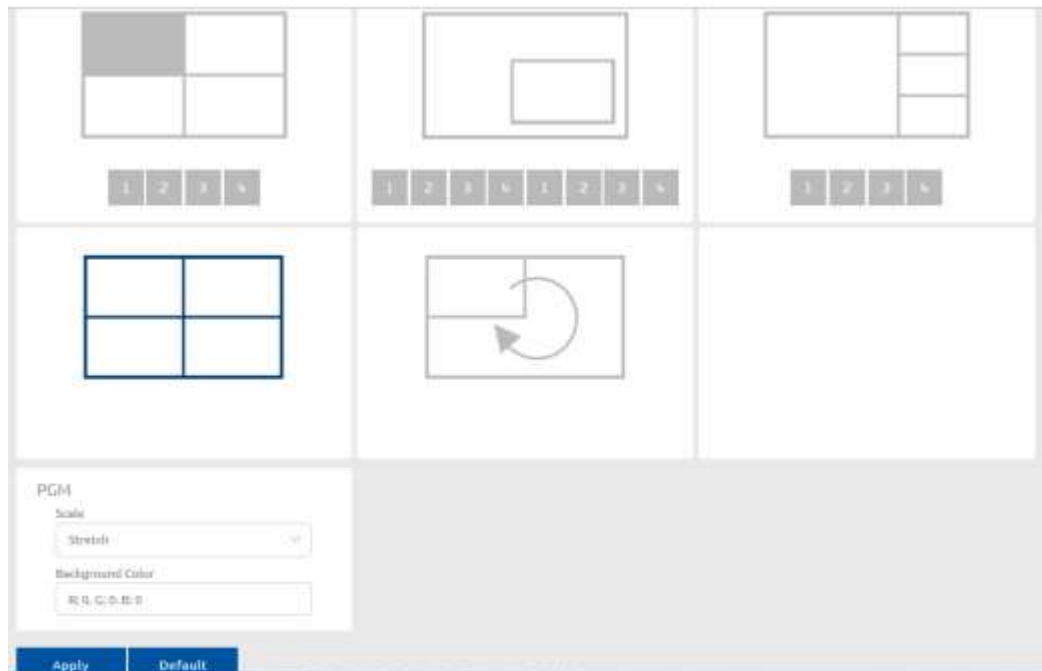
**Location-X:** OSD offset of X axis

**Location-Y:** OSD offset of Y axis

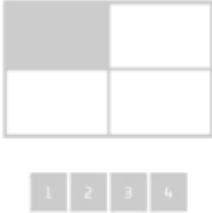
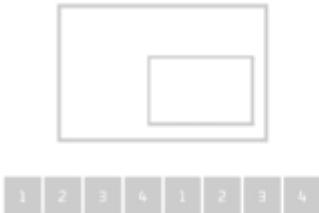
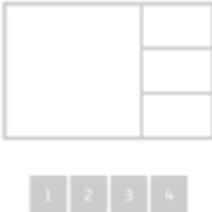
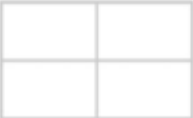

**Background Color:** OSD background color.

**Foreground Color:** OSD foreground color.

#### 4.8. PGM



This page contains the program (PGM) video output layout selections.

<b>Full Screen Mode</b>	 <p>Full screen mode will display a single channel input</p>
<b>Picture in Picture Mode</b>	 <p>For picture in picture mode, first channel select is the main channel, the second channel selection is the minor channel.</p>
<b>Picture by Picture Mode</b>	 <p>Picture by picture mode will display all 4 channels in one screen, but there will be a main channel in the right. There is also a main channel selection in the bottom</p>
<b><u>Quadview</u> Mode</b>	 <p>This mode will display all 4 channels in one screen.</p>
<b>PGM Loop Mode</b>	 <p>PGM Loop mode will automatically loop all channels.</p>

## 4.9. Monitor

The screenshot displays two side-by-side configuration panels for video output. The left panel is for HDMI, featuring a 'Frame Rate' dropdown set to '60.00', a 'Display Mode' dropdown set to 'PGM', and a 'Volume' slider set to '128'. The right panel is for SDI, featuring a 'Frame Rate' dropdown set to '60.00' and a 'Volume' slider set to '128'. At the bottom of the HDMI panel are 'Apply' and 'Default' buttons.

These 2 blocks are used to control the output modes, framerate and volume. For the HDMI model both outputs are HDMI, this is the SDI model's output.

## 4.10. System

The screenshot shows a 'System' settings page with several sections. The 'Network Setting' section on the left includes fields for DHCP (set to 'Disable'), Static IP (10.24.20.44), Subnet Mask (255.255.0.0), Default Gateway (10.24.1.2), Primary DNS (75.75.75.75), Secondary DNS (8.8.8.8), Host IP Address (10.24.20.44), and Network Status (0). The 'Time Setting' section includes a 'Type' dropdown (set to 'Automatically from the internet') and an 'NTP Server' field (time.google.com). The 'Account and Password' section has 'New Account' (admin) and 'New Password' (new) fields. The 'Firmware Update' section has a 'File Path' field and 'Browse' and 'Update' buttons. The 'Disk Format' section has a 'Device' dropdown (Device0: USB (2.000)) and a 'Format Type' dropdown (FAT), with a 'Format' button. The 'System Control' section at the bottom has 'Restore to Default' and 'Reboot' buttons. 'Apply' and 'Default' buttons are at the bottom left.

In the system page, user can set account /password, system reboot, format attached USB disk, check network status/setting and **Firmware Update** here.

### 4.10.1. Network Setting



Network Setting

DHCP  
Enable

Static IP  
192.168.1.200

Subnet Mask  
255.255.255.1

Default Gateway  
192.168.1.1

Primary DNS  
192.168.1.100

Secondary DNS  
0.0.0.0

**DHCP:** Enable/disable DHCP feature. When you disable DHCP, please provide necessary network parameters.

**Static IP:** Setting GSM 400 static IP.

**Subnet Mask:** Setting GSM 400 subnet mask.

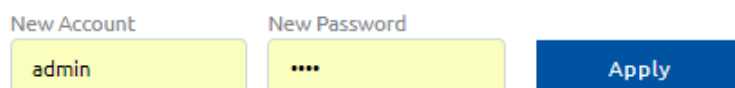
**Default Gateway:** Setting GSM 400 default gateway.

**Primary DNS:** Setting GSM 400 primary DNS.

**Secondary DNS:** Setting GSM 400 secondary DNS.

### 4.10.2. Account and Password

#### Account and Password



New Account  
admin

New Password  
....

Apply

User can assign new account and password here.

### 4.10.3. Firmware Update



Firmware Update

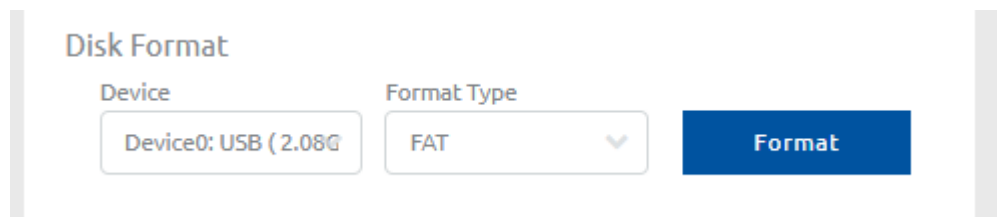
File Path

Browse

Update

Press the **Browse** button to select the new firmware and **Update** button to update it, **during firmware update, please don't turn off the power and wait until the upgrade progress completes.**

### 4.10.4. Disk Format



Disk Format

Device  
Device0: USB (2.08G)

Format Type  
FAT

Format

The user can format a USB flash drive here.

4.10.5. System Control

System Control

Restore to Default

Reboot

Restore to default will erase all settings and back to original, and Reboot button will restart the GSM 400.

4.11. Status

Input Information

	Video Source	Audio Source	Resolution	Frame Rate	Channels	Bits Per Sample	Sample Frequency
Channel 1	SDI	Embedded	1280x720p	59.94	2	16	48000
Channel 2	File	Embed	1280x80p	59.94	2	16	48000
Channel 3	IP Stream	Embedded	1280x720p	-	2	16	48000
Channel 4	IP Stream	Embedded	NA	NA	NA	NA	NA

Record Status

		Encoder Source	Resolution	Frame Rate	Video Bitrate ( kbps )	Audio Bitrate ( kbps )
Channel 1	Main	NA	NA	NA	NA	NA
	Sub	NA	NA	NA	NA	NA
Channel 2	Main	NA	NA	NA	NA	NA
	Sub	NA	NA	NA	NA	NA
Channel 3	Main	NA	NA	NA	NA	NA
	Sub	NA	NA	NA	NA	NA
Channel 4	Main	NA	NA	NA	NA	NA
	Sub	NA	NA	NA	NA	NA
PGM	Main	NA	NA	NA	NA	NA
	Sub	NA	NA	NA	NA	NA

Stream Status

		Encoder Source	Resolution	Frame Rate	Video Bitrate ( kbps )	Audio Bitrate ( kbps )
Channel 1	Main	Main	1280x720p	59.940000000000004	694	2568
	Sub	Disable				
Channel 2	Main	Main	1280x720p	59.940000000000004	694	2568
	Sub	Disable				
Channel 3	Main	NA	NA	NA	NA	NA
	Sub	NA	NA	NA	NA	NA
Channel 4	Main	NA	NA	NA	NA	NA
	Sub	NA	NA	NA	NA	NA
PGM	Main	NA	NA	NA	NA	NA
	Sub	NA	NA	NA	NA	NA

User can check the GSM 400 status here (Including input signals, recording and streaming)