

# DEN 8000



**Encoder**

**4xA/V → ASI**

## **TABLE OF CONTENTS**

### **1.- SAFETY INSTRUCTIONS**

### **2.- SYSTEM PRINCIPLE**

#### 2.1 SYSTEM DIAGRAM

#### 2.2 WORKING PRINCIPLE

##### 2.2.1 VIDEO AUDIO A/D PROCESS

##### 2.2.2 A/V ENCODING

##### 2.2.3 AV TS PROCESS

##### 2.2.4 DATA OUTPUT PORT

### **3.- SPECIFICATIONS**

### **4.- EQUIPMENT CONNECTION**

#### 4.1 FRONT PANEL DISPLAY & KEY BUTTON

#### 4.2 REAR PANEL

### **5. OPERATION**

#### 5.1 BASIC PROGRAMMING

#### 5.2 MENU OPTION

##### 5.2.1 LOCK STATUS DISPLAY

##### 5.2.2 MAIN MENU DISPLAY

##### 5.2.3 ENCODER SETTING

##### 5.2.4 VIDEO SETTING

##### 5.2.5 AUDIO SETTING

##### 5.2.6 SYSTEM SETTING

##### 5.2.7 OUTPUT SETTING

##### 5.2.8 NETWORK SETTING

##### 5.2.9 SAVE CONFIG

##### 5.2.10 LOAD CONFIG.

##### 5.2.11 VERSION

##### 5.2.12 LANGUAGE

##### 5.2.13 INFORMATION ERROR

### **6.- SYSTEM FAILURE & TROUBLE SHOOTING**

#### 6.1 INDICATOR STATUS

#### 6.2 TROUBLE SHOOTING

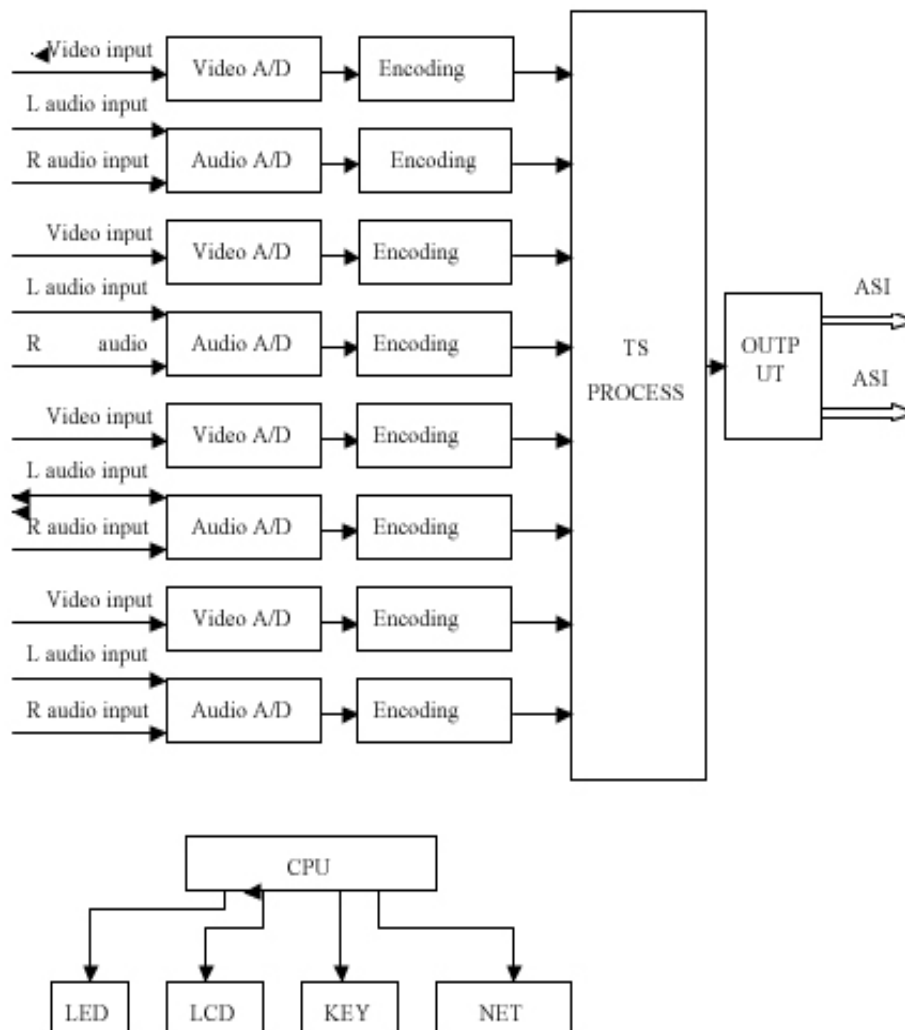
### **7.- CE MARKING**

## 1. SAFETY INSTRUCTION

- Read this manual carefully before use.
- Do not open the case without disconnecting it from the mains
- Allows the air circulation around the equipment
- Protects against the water or liquids drops on the equipment
- Do not place near to the heat sources.
- Do not obstruct the ventilation slots.

## 2. SYSTEM PRINCIPLE

### 2.1. SYSTEM DIAGRAM



## **2.2. WORKING PRINCIPLE**

The DEN 8000 encoder structure is as per above picture, which consists of AV A/C process unit, AV encoding unit, TS process unit, data output unit and CPU.

### **2.2.1 VIDEO AUDIO A/D PROCESS**

AV A/D process unit converts analog audio & video input into digital format and send it to encoding chipset. Video port supports ordinary signal source in broadcasting and various standard video & audio signal ports, including analog CVBS input and mono, stereo audio input. PAL/NTSC are both acceptable in this device.

### **2.2.2. A V ENCODING**

AV encoding adopts MPEG-2 real-time encoding chipset, encoding the digital AV signal as MPEG-2 format. The video encoding process is according to MPEG-2 main profile (MP@ML), max bit rate is 15Mbps. The audio encoding process is done by professional audio encoding software according to MPEG-2 layer I and layer II.

### **2.2.3. A V TS PROCESS**

A V TS multiplexing includes the 4 routes ES to MPTS process. All data are MPEG-2 compliance.

### **2.2.4. DATA OUTPUT PORT**

The output TS is compliant with DVB ASI.

## **3. SPECIFICATIONS**

### **3.1. APPLICATION**

The DEN 8000 encoder transforms the 4 input analogue A/V sources into a single DVB-ASI digital stream.

### **3.2. CHARACTERISTICS**

- > Multiplexer function for up to 4 analogue A/V sources (PAL, NTSC).
- > MPEG-2 MP@ML output video encoding, bit rate 1-15Mbps.
- > MPEG-1 Layer 1, Layer 2 audio encoding.

- > Programming via front panel (keyboard + LCD display) or PC (local or remote).
- > Mountable in 19" rack.
- > Includes:
  - 4 x 3RCA-3BNC cables for 4 analogue A/V sources.
  - 1 x BNC-F(m) cable for one COFDM output.
  - 1 x user's manual.
  - 1 x 230Vac cable.

Model		DEN 8000
Reference		08200
<b>INPUTS</b>		
Video format		CVBS
Video standard		PAL, NTSC
Video connector		BNC, 75 Ohm
Audio input		1xStereo / 2xMono
Audio connectors		2xBNC, 600 Ohm
<b>OUTPUT</b>		
Standard		DVB-ASI
ASI connectors		2xBNC, 75 Ohm
Video encoding		MPEG-1, MPEG-2 MP@ML
Video Bit Rate	Mbps	1-15
Video format		Full D1, Half D1, SIF
Audio encoding		MPEG-1 Layer1, Layer 2
Audio Sample Rate		32, 44.1, 48
Power supply	Vac	90 ÷ 250
Consumption	W	25
Operating temperature		0 ÷ 45
Package dimensions	mm	580 x 580 x 135
Weight	kg	6,2

## 4. EQUIPMENT CONNECTION

### 4.1. FRONT PANEL DISPLAY AND KEY BUTTON



- 1 LCD
- 2 Error indicator
- 3 POWER indicator
- 4 Directional arrow key
- 5 Enter
- 6 Exit
- 7 ENC 1~ENC4 Encoder Indicator

**LEFT, RIGHT:** move the cursors

**UP, DOWN:** change parameters

**ENTER:** confirm and operate

**Exit:** back to upper menu or cancel the setting

Note :

- A、press ENTER and EXIT to unlock if device is in lock status
- B、keyboard auto lock after 60 seconds without operation
- C、in lock status, press “down” to see IP menu

## 4.2. REAR PANEL



- 1 CH1 A/V input
- 2 CH2 A/V input
- 3 CH3 A/V input
- 4 CH4 A/V input
- 5 ASI port (optional )/IP out( optional)
- 6 ASI output port 1
- 7 ASI output port 2
- 8 Ethernet port
- 9 Power switch

## 5. OPERATION

### 5.1. BASIC PROGRAMMING GUIDE

- Switch on the power switch 9; the Front panel “Power” LED will be on
- Connect the A/V inputs: Yellow RCA to “CVBS”; White RCA to “L” input & Red RCA to “R” input. When an useful signal is detected, the front panel ENC 1, ENC 2, ENC 3 or ENC 4 will be on
- Connect the ASI output port 6 or 7 to the DMT 8000 ASI Input
- The output bit rate is factory preset at 26 Mbps and each encoder at 6 Mbps. Both parameters can be modified by programming
- Service name edition ( Example Encoder 1): Section 5.2.6.4
  - **Encoder 1 > System > Program Name**

If one of the inputs is not used, this input could be removed from the output MUX  
 Entering in: **Encoder x > Multiplexing > YES/NO: Section 5.2.3**

### 5.2. MENU OPTION

#### 5.2.1. LOCK STATUS DISPLAY

DEN 8000 4IN 1 Encoder  
 PG:04 BR: 00.000Mbps

#### 5.2.2. MAIN MENU DISPLAY

1. Encoder 1
2. Encoder 2
3. Encoder 3
4. Encoder 4
5. Output setting
6. Network setting
7. Save config.
8. Load config.
9. Version No.
10. Language
11. Error info

**5.2.3. ENCODER SETTING:** Each encoder can be programmed using Up/Down keys and pressing ENTER to confirm.

- 1.1 Multiplexing
  - 1.1.1 Yes/No
- 1.2 Video
- 1.3 Audio
- 1.4 System



**5.2.4. VIDEO SETTING:** Select video config, LCD display as below :

1.2.1 Video Enable  
 1.2.2 Video mode  
 1.2.3 GOP  
 1.2.4 Brightness  
 1.2.5 Contrast  
 1.2.6 Saturation  
 1.2.7 Hue  
 1.2.8 Compression

**5.2.4.1. VIDEO ENABLE.** The user can switch ON/OFF the video at the output

1.1.1 VIDEO  
 ENABLE  
 1 On  
 0 Off

**5.2.4.2. VIDEO MODE:** Three options can be chosen ( Auto, NTSC or PAL)

1.1.2 Video mode  
 Auto  
 NTSC  
 PAL

**5.2.4.3. VIDEO GOP:** Four structures could be chosen, the IBBP is recommended

1.1.3 GOP  
 I  
 IP  
 IBP  
 IBBP

**5.2.4.4. BRIGHTNESS:** The image brightness is adjusted

1.1.4 Brightness  
 127

**5.2.4.5. CONTRAST :** The video contrast is adjusted

1.1.5 Heft Contrast  
 127

**5.2.4.6. SATURATION:** The color saturation is adjusted

1.1.6 Saturation  
 127

**5.2.4.7. HUE:** The color hue is adjusted

1.1.7 Color  
+000

**5.2.4.8. VIDEO COMPRESSION:** The user can select one of them

1.1.8 Video compression  
D1  
3/4D1  
2/3D1  
HD1  
SIF

**5.2.5. AUDIO SETTING :** The following parameters can be settled

1.2.1 Coding Type  
1.2.2 Sampling Freq.  
1.2.3 Output bit rate  
1.2.4 Audio mode

**5.2.5.1. AUDIO ENCODING TYPE :** Two options can be chosen

1.2.1 Audio Encoding  
Layer1  
Layer2

**5.2.5.2. SAMPLING FREQUENCY:** There are three sampling rates to select

1.2.2 Sampling rate  
48 KHz  
32 KHz  
44.1 KHz

**5.2.5.3. AUDIO BITRATE SETTING:** One of them can be chosen

1.2.3 Output bit rate  
384Kbps  
256Kbps  
128Kbps  
96 Kbps  
64 Kbps

**5.2.5.4. AUDIO MODE:** There are the following options

1.2.4 Audio mode  
Stereo  
Joined Stereo  
Dual  
Single Channel  
Single

**5.2.6. SYSTEM SETTING:** The programmable parameters are

2.4.1 Encoding bitrate  
2.4.2 Bitrate mode  
2.4.3 Program provider  
2.4.4 Program name  
2.4.5 Program number  
2.4.6 PMT PID  
2.4.7 VIDEO PID  
2.4.8 AUDIO PID  
1.3.9 PCR PID

**5.2.6.1. ENCODING BITRATE:** In this menu we can set the output bit rate of each encoder, 6Mbps is settled as a factory default

2.4.1 Encoding bitrate  
06.000Mbps

**5.2.6.2. BIT RATE MODE:** In this menu the user can select the bit rate mode. CBR is recommended

2.4.2 Bitrate mode  
CBR  
VBR

**5.2.6.3. PROGRAM PROVIDER:** The program provider name could be edited

2.4.3 Provider  
DTV

**5.2.6.4. PROGRAM NAME:** The name of the program can be edited

2.4.4 Progr name  
Encoder.1

**5.2.6.5. PROGRAM NUMBER:** The user can set the program number

2.4.5 Progr number  
0001

**5.2.6.6. PMT PID:** The user can set the PMT and PID

2.4.6PMT PID  
0256

**5.2.6.7. VIDEO PID:** The user can set the video PID number

2.4.7VIDEO PID  
0257

**5.2.6.8. AUDIO PID:** The user can set the audio PID number

2.4.8 AUDIO PID  
0258

**5.2.6.9. PCR PID :** The user can set the PCR PID number

2.4.9 PCR PID  
0259

**5.2.7. OUTPUT SETTING: Press up/down to select the configuration**

5 Output setting  
5.1 Output bit rate  
5.2 TS ID

**5.2.7.1. OUTPUT BITRATE:** The user can set the total output bit rate

5.1 Output bit rate  
026.000Mbps

It should be higher than the total value of the 4 channel's bit rate.

If each channel encoding bit rate is 6 mbps, the total value is 24 mbps, therefore it should be settled 26 for example.

**5.2.7.2. TS ID:** The user can set the TS ID

5.2 TS ID  
00000

**5.2.8. NETWORK SETTING :** The user can define the following Network parameters for Ethernet local or remote access

6.1 IP address  
192.168.000.131

6.2 Sub net mask  
255.255.255.000

6.3 gateway  
192.168.000.001

6.4 NMS UDP port  
2009

6.5 MAC address  
00-45-34-84-02-21

**5.2.9. SAVE CONFIG:** Press ENTER to save

7. Save Config.  
Please Wait

**5.2.10. LOAD CONFIG:** The user can choose one of them

8 Load conf.  
8.1 Load Saved Config  
8.2 Default Config

**5.2.11. VERSION:** The Software and Hardware version are displayed

9. Version  
SW: 1.14 HW: 1.03

**5.2.12. LANGUAGE:** The display language is English

10 Languages  
English

**5.2.13. ERROR MESSAGES:** The display shows the systems errors

11 Error info  
..  
..  
04: ASI Unlocked

## **6. SYSTEM FAILURE OR TROUBLE SHOOTING**

### **6.1. INDICATOR STATUS**

There are 2 LED Indicators

1“POWER”: Green means right powering

2 “ERROR”: Red means system error



### **6.2. TROUBLE SHOOTING**

**6.2.1 “POWER” OFF.-** Check the mains connection

**6.2.2 “ERROR” ON .-** System error, check the display read-out

**6.2.3 ENC INDICATOR OFF.-** Check the A/V input connection and verify the type of analogue signal (1 Vpp CVBS Video)

**7.- CE MARKING**

	<p><b>DECLARACION DE CONFORMIDAD</b>  <b>DECLARATION DE CONFORMITÉ</b>  <b>DECLARATION OF CONFORMITY</b>  <b>DECLARAÇÃO DE CONFORMIDADE</b></p>						
<p>Fabricante/ Fabricant/ Manufacturer/ Fabricante :</p>	<p><b>FAGOR ELECTRONICA, S.COOP.</b></p>						
<p>Dirección/ Adresse/ Address/ Direção :</p>	<p><b>Bº San Andrés s/n - P.O. Box 33</b>  <b>20500 MONDRAGON</b>  <b>(Guipúzcoa) Spain</b></p>						
<p>NIF / VAT :</p>	<p><b>F-20 027975</b></p>						
<p>Declara bajo su exclusiva responsabilidad la conformidad del producto :          Declare, sous notre responsabilité, la conformité du produit :          Declare under our own responsibility the conformity of the product :          Declara exclusiva responsabilidade a conformidade do producto :</p>							
<p style="text-align: center;"><b>DEN 8000</b></p>							
<p>Según los requerimientos de las Directivas del Parlamento Europeo:          Selon les especifications des Directives du Parlament Européen :          According to the specifications of directives of the European Parliament:          Com as especificações da Directivas do Parlamento Europeu:</p>							
<table style="margin-left: auto; margin-right: auto;"> <tr> <td><b>EMC</b></td> <td><b>2004/108/EC</b></td> </tr> <tr> <td><b>LVD</b></td> <td><b>2006/95/EC</b></td> </tr> <tr> <td><b>RoHS</b></td> <td><b>2011/65/EC</b></td> </tr> </table>		<b>EMC</b>	<b>2004/108/EC</b>	<b>LVD</b>	<b>2006/95/EC</b>	<b>RoHS</b>	<b>2011/65/EC</b>
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<b>RoHS</b>	<b>2011/65/EC</b>						
<p>Para su evaluación se han aplicado las Normas:          Pour l'évaluation ont été appliqués les Normes:          For the evaluation, the following Standards were applied:          Para a avaliação, os seguintes Normas foram aplicados :</p>							
<table style="margin-left: auto; margin-right: auto;"> <tr> <td><b>EN 55013 :2001 + A1 : 2003 + A2 : 2006</b></td> </tr> <tr> <td><b>EN 55020 :2007</b></td> </tr> <tr> <td><b>EN 61000-3-2 : 2006 + A1 :2009</b></td> </tr> <tr> <td><b>EN 61000-3-2 : 2008</b></td> </tr> </table>		<b>EN 55013 :2001 + A1 : 2003 + A2 : 2006</b>	<b>EN 55020 :2007</b>	<b>EN 61000-3-2 : 2006 + A1 :2009</b>	<b>EN 61000-3-2 : 2008</b>		
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<b>EN 61000-3-2 : 2008</b>							
<p>Fecha:  <b>Oct. 2011</b>          Date:</p>	<p>Firma:    <b>J.M. Saiz</b>          Signature:</p>						
<p style="text-align: right;"><b>Jefe Calidad Tratamiento de Señal</b>  <b>Head of Quality Dept., Signal Processing</b></p>							

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