

# Kingray

# KDM101a

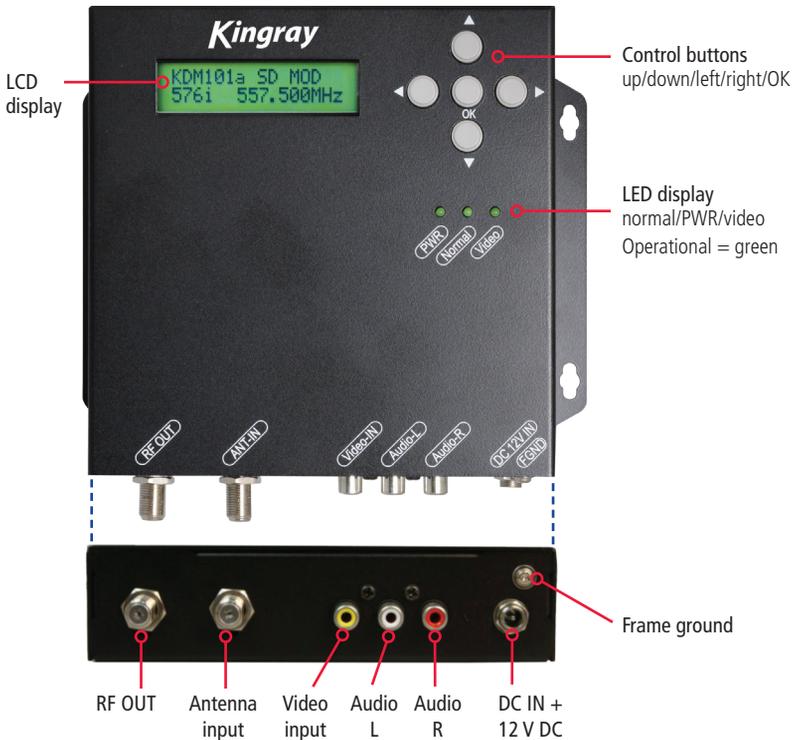
AV TO DIGITAL (DVB-T) MODULATOR



INSTRUCTION MANUAL

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## INTRODUCTION

Thank you for purchasing the Kingray KDM101a SD modulator. Please read this manual carefully prior to installation as it contains information which will ensure you achieve the best performance from your KDM101a.

## Main features

- Multiple video format compatibility including 576i (720 x 576) PAL and 480i (720 x 480).
- Audio format compatibility including MPEG-1 Layer II
- Fully comply with DVB-T standard
- Frequency range (Australia): 174 – 820 MHz
- Frequency range (New Zealand): 470 – 862 MHz
- Programmable PMT/Video/Audio/PCR PID
- Programmable channel name and logical channel number insertion.
- User friendly setup including basic and advanced menus controlled via button and display on LCD.

## SAFETY INSTRUCTIONS

All the safety and operating Instructions should be read before the product is operated. For your safety ensure all instructions are adhered to.

### Cleaning

Unplug the unit from the wall before cleaning. Do not use liquid or aerosol cleansers, use a damp cloth.

### Attachments

Do not use attachments that are not recommended by Kingray as they can cause hazards.

### Water and moisture

Do not use this product near water.

### Mounting

The KDM101a can either be wall or shelf mounted. Ensure the unit is mounted securely so as not to cause harm to anyone or to damage the product by being dislodged.

### Power cord protection

Power-supply cords should be routed so they are not pinched or placed where they could cause a trip hazard.

### Ventilation

Slots and openings in the housing are provided for ventilation to prevent overheating and ensure reliable operation. These openings should never be blocked or covered by placing the unit on a carpet, flooring, furniture or fabric surface. The unit should not be placed in a built-in structure such as a cupboard or rack unless proper ventilation is provided.

### Power sources

This unit should only be operated using the power adaptor supplied. For power adaptor specifications please see page 14 of this manual or contact your local Kingray distributor or Standard Communications branch.

### Lightning

For added protection of this unit; unplug it from the wall when left unattended or unused for long periods of time and disconnect the antenna or cable system. This will protect the product from lightning strikes or power surges.

### Object and liquid entry

Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the unit.

### Servicing

Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

### Damage requiring service

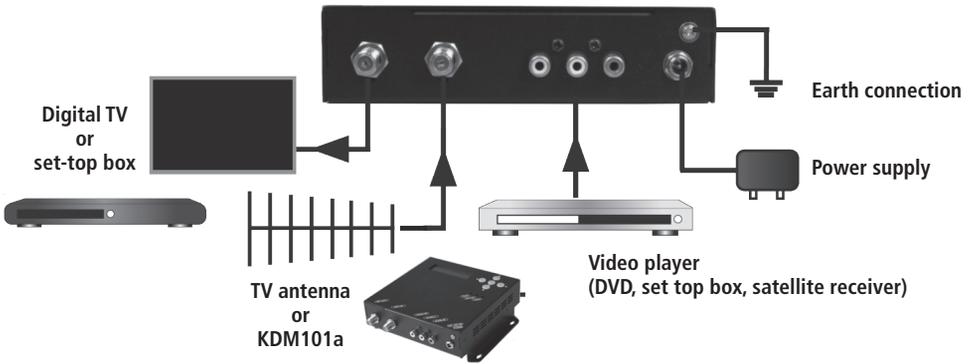
Unplug this unit from the wall and return it to your Kingray distributor or Standard Communications branch for servicing if any of the following occurs:

1. The power-supply cord or plug is damaged
2. Liquid has been spilled, or objects have fallen into the unit.
3. The unit has been exposed to rain or water
4. If the unit has been dropped or damaged in anyway

### Heat

The unit should be positioned away from any heat sources such as radiators, fireplaces, cooking stoves, or other products (including amplifiers) that produce heat.

## INSTALLATION



## GENERAL OPERATION

After boot-up press the **OK button** to enter the menus. Use the **▲** or **▼** arrows to select between basic and advanced menus.



In the **Menus** and **Submenus**, press the **▲** or **▼** arrows to scroll up or down.

In the **Settings**, press the **▲** or **▼** arrows to modify values.

In the **Menus**, press the **◀** or **▶** arrows to scroll forwards or backwards.

In the **Settings**, press the **◀** or **▶** arrows to scroll forwards or backwards.

In the **Menus**, press the **OK button** to select the Submenu.

In the **Submenus**, press the **OK button** to select the setting.

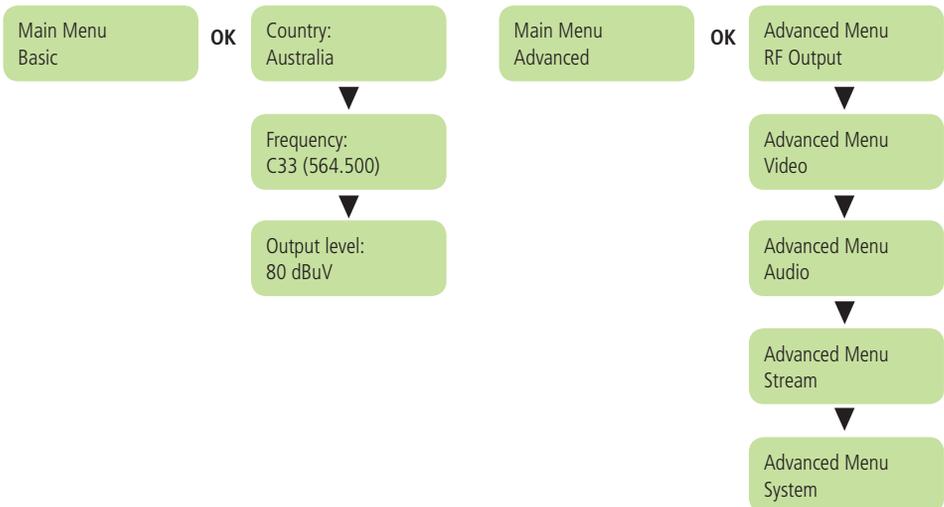
In the **Settings**, press the **OK button** to confirm the setting.

## QUICK MENU GUIDE

### System Booting

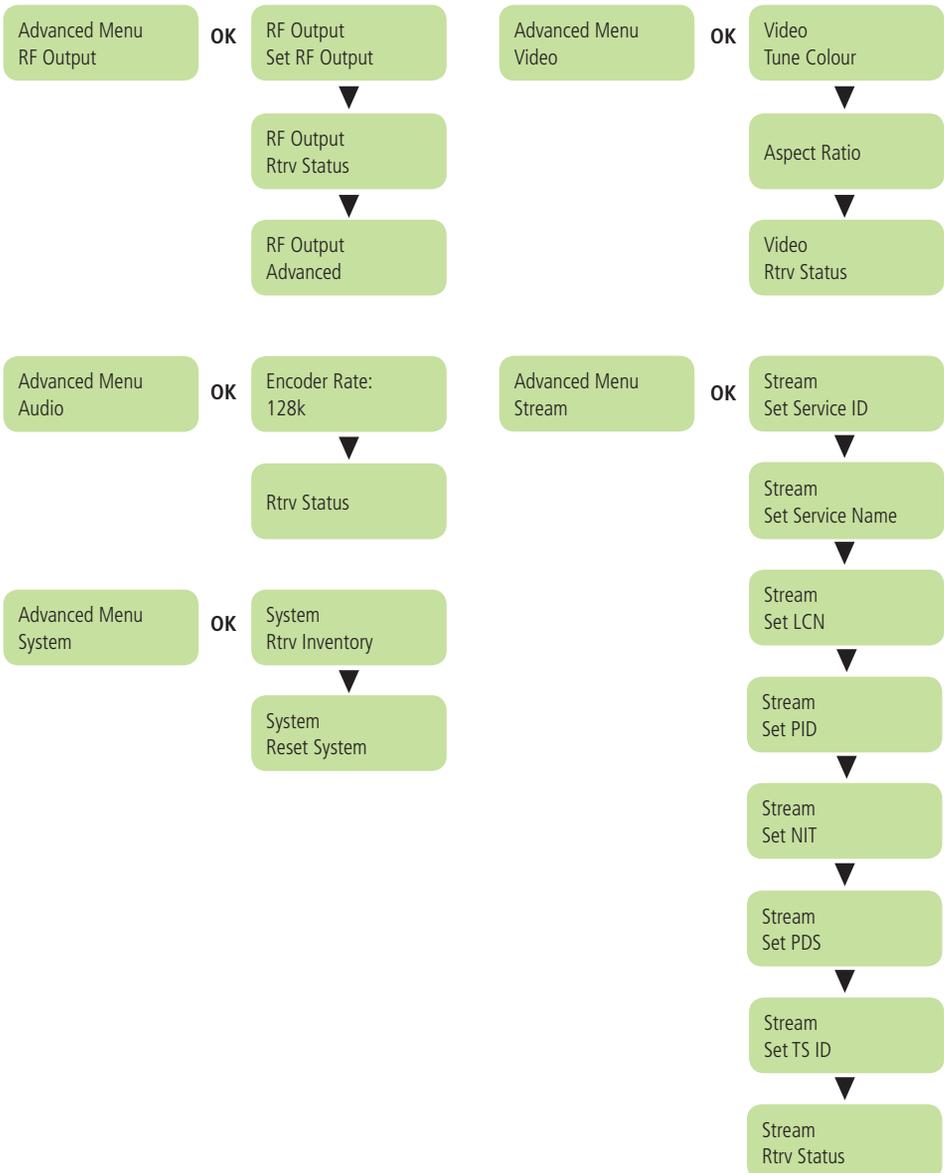


### Main Menu



## Submenu in Advanced Menu

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## Operating Adjustment via LCD and Buttons

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For 'Basic and Advanced Menu' settings, press the **OK button** to access the adjustment mode. In this mode ' \* ' will be displayed in the upper right corner. Use the ▲ or ▼ arrows to select parameter values, then press the **OK button** to confirm the setting.

## BASIC MENU

Press the **OK button** to enter the menu selecting page, then press the ▲ or ▼ arrows to select basic menu and press the **OK button** again. In this menu you can change basic parameters such as output level and frequency.

Country:  
Australia

In the basic menu, the first page is 'Country' selection.

Country: \*  
Australia

Press the **OK button** to access the adjustment mode. The LCD display will show '\*' in the upper right corner. You can now press the ▲ or ▼ arrows to select the country you require. Press the **OK button** to save.

→ **Australia and New Zealand.**

Frequency:  
C33 (564.5 MHz)

Use the same steps as above

Output Level:  
80 dBuV

Use the same steps as above

## ADVANCED MENU

### RF Output

RF Output:  
Setup RF Output

Following the main Submenu flow charts (pages 4 and 5) enter the 'Setup RF Output' mode.

Country:  
Australia

Press the **OK button** to enter the next page for country selection.

Country: \*  
Australia

Press the **OK button** to access the adjustment mode. The LCD display will show an '\*' in the upper right corner. You can now press the ▲ or ▼ arrows to select the country you require. Press the **OK button** to save.

→ **Australia and New Zealand.**

Frequency:  
C33 (564.5 MHz)

Use the same steps as above to set the Frequency (C6-C69).

Output Level:  
80 dBuV

Use the same steps as above to set the Output Level (70-85 dBuV).

Carrier:  
8K

Use the same steps as above to set the Carrier (2K, 8K).

Constellation:  
QAM64

Use the same steps as above to set the Constellation (QAM16, QAM64).

FEC:  
3/4

Use the same steps as above to set the FEC (1/2, 2/3, 3/4, 5/6, 7/8).

Guard Interval:  
1/32

Use the same steps as above to set the Guard Interval (1/4, 1/8, 1/16, 1/32).

Are you sure?

y

When all the items in 'Setup RF Output' are done, there will be a confirmation on the display. Press ▲ or ▼ arrows to select YES or NO. Select 'y' for yes, all the settings above will be stored in the memory. Select 'n' for no to cancel.

## Retrieve Status

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Following the main Submenu flow charts (pages 4 and 5) enter the 'Retrieve Status' mode, you can check the parameters of your previous settings in 'Setup RF Output'.

## RF Output Advanced

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RF Output:  
Advanced

Following the main Submenu flow charts (pages 4 and 5) enter the 'RF Output Advanced' mode.

Freq Offset:  
No Offset

Press the **OK button** to enter Freq Offset. Press the **OK button** to access Freq Offset adjustment mode. Use the ▲ or ▼ arrows to set the offset. Press the **OK button** to save.

RF Output:  
Enable

Use the same steps as above to Enable/Disable the RF Output Enable mode.

Are you sure?

y

When all the items in 'RF Output Advanced' are done, there will be a confirmation on the display. Press ▲ or ▼ arrows to select YES or NO. Select 'y' for yes, all the settings above will be stored in the memory. Select 'n' for no to cancel.

## Video

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Advanced Menu:  
Video

Following the main Submenu flow charts (pages 4 and 5) enter the 'Advanced Menu Video' mode. Press the **OK button** to enter the Submenu.

Tune Colour:

Press the **OK button** to access Video Set Quality mode.

Aspect Ratio:

Press the **OK button** to enter the next page to set the Aspect Ratio. Press the **OK button** to enter the Adjustment Mode. Use the ▲ or ▼ arrows to set the Aspect Ratio rate (4:3, 16:9), Press the **OK button** to save.

Rtrv Status

Press the **OK Button** to enter the retrieve status mode to check the parameters.

## Tune Colour

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Cont:  
21

Press the ▼ arrow to select tune colour, press the **OK button** to enter the Submenu. Press the **OK button** to access the adjust mode. Press the ► arrow to advance to the next character and the ▲ or ▼ arrows to set. Press the **OK button** to save (0-255).

Bright:  
20

Use the same steps as above to set – Bright (0-99).

Hue:  
25

Use the same steps as above to set – Hue (0-99).

Satur:  
35

Use the same steps as above to set – Saturation (0-99).

Sharpness:  
14

Use the same steps as above to set – Sharpness (0-99).

Are you sure?

y

When all the items in 'Video Tune Colour' are done, there will be a confirmation on the display. Press ▲ or ▼ arrows to select YES or NO. Select 'y' for yes, all the settings above will be stored in the memory. Select 'n' for no to cancel.

## Aspect Ratio

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Aspect Ratio:

Press the **OK button** to enter the next page to set the Aspect Ratio. Press the **OK button** to enter the Adjustment Mode. Use the ▲ or ▼ arrows to set the Aspect Ratio (4:3, 16:9), Press the **OK button** to save.

## Retrieve Video Status

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In 'Retrieve Status' mode, you can check the parameters of your previous settings in 'Video'. Follow the main and Submenu flow charts (pages 4 and 5).

## Audio

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Advanced Menu:  
Audio

Following the main Submenu flow charts (pages 4 and 5) enter the 'Advanced Menu System'. Press the **OK button** to enter the Submenu.

Encoder Rate:  
128K

Press the **OK button** to enter 'Adjustment Mode' using the ▲ or ▼ arrows to adjust the Encoder Rate then press the **OK button** to save (128K, 256K, 384K).

Audio Rtrv

Press the **OK button** to enter the retrieve status to check the Encoder Rate.

## Stream

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Advanced Menu:  
Stream

Following the main Submenu flow charts (pages 4 and 5) enter the 'Advanced Menu System'. Press the **OK button** to enter the Submenu.

### Set Service ID

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Stream:  
Set Service ID

Following the main Submenu flow charts (pages 4 and 5) enter the 'Stream Set Service ID' mode. Press the **OK button** to enter the Submenu.

Service ID:  
256

Press the **OK button** to access Edit Mode. Set the service ID using the ▲ or ▼ arrows, use the ► arrow to advance to the next digit. Press the **OK button** to save (1-65535).

Are you sure?

y

When all the items in 'Service ID' are done, there will be a confirmation on the display. Press ▲ or ▼ arrows to select YES or NO. Select 'y' for yes, all the settings above will be stored in the memory. Select 'n' for no to cancel.

### Set Service Name

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Stream:  
Set Service Name

Press the **OK button** to enter 'Stream Set Service Name'.

Service Name:  
KINGRAY SD MOD

Press the **OK button** to enter the next page to set the Service Name.

Service Name: \*  
KINGRAY SD MOD

Press the **OK button** to enter the 'Adjustment Mode'. The LCD display will show an '\*' in the upper right corner. Now press the ▲ or ▼ arrows to edit the Service Name. 0-9 and A-Z can be used up to 15 characters. Press the ► arrow to advance to the next character and the ▲ or ▼ arrows to set. Press the **OK button** to save.

Are you sure?

y

When the 'Service Name' has been set, there will be a confirmation on the display. Press ▲ or ▼ arrows to select YES or NO. Select 'y' for yes, all the settings above will be stored in the memory. Select 'n' for no to cancel.

### Set LCN

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Stream Set LCN

Following the main Submenu flow charts (pages 4 and 5) enter the 'Stream Set LCN'. Press the **OK button** to enter the Submenu.

LCN:  
1

Press the **OK button** to enter LCN mode. Press the **OK button** to access edit mode. Now press the ▲ or ▼ arrows to set the LCN. Press the ► arrow to advance to the next character and the ▲ or ▼ arrows to set. Press the **OK button** to save (1-1023).

Are you sure?

y

When all the items in 'Stream Set LCN' are done, there will be a confirmation on the display. Press ▲ or ▼ arrows to select YES or NO. Select 'y' for yes, all the settings above will be stored in the memory. Select 'n' for no to cancel.

## Set PID

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PMT:  
1328

Press the ▼ arrow to enter 'Stream Set PID'. Press the **OK button** to enter the Submenu PMT. Press the **OK button** to enter edit mode. Set the PID using the ▲ or ▼ arrows, use the ► arrow to advance to the next digit. Press the **OK button** to save (32-8190 excluding 71).

PCR:  
769

Use the same steps as above to set the PCR (32-8190).

Video:  
33

Use the same steps as above to set the Video (32-8190).

Audio  
34

Use the same steps as above to set the Audio (32-8190).

Are you sure?

y

When all the items in 'Stream Set PID' are done, there will be a confirmation on the display. Press ▲ or ▼ arrows to select YES or NO. Select 'y' for yes, all the settings above will be stored in the memory. Select 'n' for no to cancel.

## Set NIT

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OrgNetwork ID:  
8228

Press the ▼ arrow to enter 'Stream Set NIT'. Press the **OK button** to enter the original 'Original Network ID'. Press the **OK button** to enter edit mode, use the ▲ or ▼ arrows to set ID. Press the ► arrow to advance to the next character and the ▲ or ▼ arrows to set. Press the **OK button** to save (1-65535).

Network ID:  
12800

'Network ID' is then displayed. Use the same steps as above to enter the Network ID (1-65535).

Network Name  
NETWORK

'Network Name' is then displayed. Use the same steps as above to enter the Network Name. (A-Z, 0-9, 7 Characters).

Network Ver:  
12

'Network Version' is then displayed. Use the steps above to enter the Network Version (1-31).

Are you sure?

y

When all the items in 'Stream Set NIT' are done, there will be a confirmation on the display. Press the ▲ or ▼ arrows to select YES or NO. Select 'y' for yes, all the settings above will be stored in the memory. Select 'n' for no to cancel.

## Set PDS

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Private Data:  
00000037

Use the ▼ arrow to enter 'Stream Set PDS', press the **OK button** to enter 'Private Data'. Press the **OK button** to enter edit mode and use the ▲ or ▼ arrows to set the first private data number. Press the ► arrow to advance to the next character and the ▲ or ▼ arrows to set. Once set, press the **OK button** to save (8 Hex).

Are you sure?

y

When all the items in 'Stream Set PDS' are done, there will be a confirmation on the display. Press ▲ or ▼ arrows to select YES or NO. Select 'y' for yes, all the settings above will be stored in the memory. Select 'n' for no to cancel.

## Set TS ID

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TS ID:  
1

Use the ▼ arrow to enter 'Stream Set TS ID', press the **OK button** to enter TS ID. Press the **OK button** to enter edit mode. Use the ▲ or ▼ arrows to set the first number of the TS ID. Press the ► arrow to advance to the next digit and ▲ or ▼ arrows to set (1-65535). Press the **OK button** to save (1-65535).

Are you sure?  
y

When all the items in 'Stream Set TS ID' are done, there will be a confirmation on the display. Press ▲ or ▼ arrows to select YES or NO. Select 'y' for yes, all the settings above will be stored in the memory. Select 'n' for no to cancel.

## Retrieve Status

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Following the main Submenu flow charts (pages 4 and 5) enter the 'Advanced Menu System'. In 'Retrieve Status' mode. Press **OK button** to check the parameters of your previous settings in 'Stream'.

## System

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Advanced Menu  
System

Following the main Submenu flow charts (pages 4 and 5) enter the 'Advanced Menu System'. Press the **OK button** to enter the Submenu.

System:  
Rtrv Inventory

Press the **OK button** to enter the next page, you can check both hardware and software versions.

System Info:  
HW:1.00 SW:1.00

Press the ► arrow to access the next page for more information. Press the **OK button** to exit.

System Info:  
Sep 25 2015

Press the ◀ arrow to exit.

## Reset System

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System  
Reset System

Following the main Submenu flow charts (pages 4 and 5) enter the 'Advanced Menu System'.

Rset Mode:  
Hard Reset

Use the **OK button** to enter 'System Reset System', press the **OK button** to enter 'Reset Mode'. Use the ▲ or ▼ arrows to select between either Hard, or Default Reset Once set press the **OK button** to exit the edit mode.

Rst Mode  
Reset to default y

Are you sure?  
y

When the system reset is selected, there will be a confirmation on the display. Press ▲ or ▼ arrows to select YES or NO. Select 'y' to reset the system, or select 'n' to not reset the system.

## CHANNEL TABLE LIST – AUSTRALIA

### Appendix A

Channel	Channel Frequency MHz	Dig. Central Frequency MHz	Channel	Channel Frequency MHz	Dig. Central Frequency MHz	Channel	Channel Frequency MHz	Dig. Central Frequency MHz
Band III			36	582–589	585.5	LTE		
6	174–181	177.5	37	589–596	592.5	52	694–701	697.5
7	181–188	184.5	38	596–603	599.5	53	701–708	704.5
8	188–195	191.5	39	603–610	606.5	54	708–715	711.5
9	195–202	198.5	Band V			55	715–722	718.5
9A	202–209	205.5	40	610–617	613.5	56	722–729	725.5
10	209–216	212.5	41	617–624	620.5	57	729–736	732.5
11	216–223	219.5	42	624–631	627.5	58	736–743	739.5
12	223–230	226.5	43	631–638	634.5	59	743–750	746.5
Band IV			44	638–645	641.5	60	750–757	753.5
27	519–526	522.5	45	645–652	648.5	61	757–764	760.5
28	526–533	529.5	46	652–659	655.5	62	764–771	767.5
29	533–540	536.5	47	659–666	662.5	63	771–778	774.5
30	540–547	543.5	48	666–673	669.5	64	778–785	781.5
31	547–554	550.5	49	673–680	676.5	65	785–792	788.5
32	554–561	557.5	50	680–687	683.5	66	792–799	795.5
33	561–568	564.5	51	687–694	690.5	67	799–806	802.5
34	568–575	571.5				68	806–813	809.5
35	575–582	578.5				69	813–820	816.5

## CHANNEL TABLE LIST – NEW ZEALAND

### Appendix A

Channel	Channel Frequency MHz	Dig. Central Frequency MHz	Channel	Channel Frequency MHz	Dig. Central Frequency MHz	Channel	Channel Frequency MHz	Dig. Central Frequency MHz
Band IV			Band V			E54	734–742	738
E21	470–478	474	E38	606–614	610	E55	742–750	746
E22	478–486	482	E39	614–622	618	E56	750–758	754
E23	486–494	490	E40	622–630	626	E57	758–766	762
E24	494–502	498	E41	630–638	634	E58	766–774	770
E25	502–510	506	E42	638–646	642	E59	744–782	778
E26	510–518	514	E43	646–654	650	E60	782–790	786
E27	518–526	522	E44	654–662	658	E61	790–798	794
E28	526–534	530	E45	662–670	666	E62	798–806	802
E29	534–542	538	E46	670–678	674	E63	806–814	810
E30	542–550	546	E47	678–686	682	E64	814–822	818
E31	550–558	554	E48	686–694	690	E65	822–830	826
E32	558–566	562	LTE			E66	830–838	834
E33	566–574	570	E49	694–702	698	E67	838–846	842
E34	574–582	578	E50	702–710	706	E68	846–854	850
E35	582–590	586	E51	710–718	714	E69	854–862	858
E36	590–598	594	E52	718–726	722			
E37	598–606	602	E53	726–734	730			

## RECOMMENDED MPEG-2 CODE RATE

### Appendix B

Modulation Constellation	FEC	7 MHz Bandwidth				8 MHz Bandwidth			
		Guard Interval				Guard Interval			
		1/4	1/8	1/16	1/32	1/4	1/8	1/16	1/32
16QAM	1/2	8.70	9.67	10.24	10.55	9.95	11.06	11.71	12.06
	2/3	11.61	12.90	13.66	14.07	13.27	14.75	15.61	16.09
	3/4	13.06	14.51	15.36	15.83	14.93	16.59	17.56	18.10
	5/6	14.51	16.12	17.07	17.59	16.59	18.43	19.25	20.11
	7/8	15.24	16.93	17.93	18.47	17.42	19.35	20.49	21.11
64QAM	1/2	13.06	14.51	15.36	15.83	14.93	16.59	17.56	18.10
	2/3	17.41	19.35	20.49	21.11	19.91	22.12	23.42	24.13
	3/4	19.59	21.77	23.05	23.75	22.39	24.88	26.35	27.14
	5/6	21.77	24.19	25.61	26.39	24.88	27.65	29.27	30.16
	7/8	22.86	25.40	26.89	27.71	26.13	29.03	30.74	31.67

## SPECIFICATIONS

### Video

Input format:	CVBS
Encoding format:	MPEG2 Video (ISO/IEC 13818-2) / MPEG2 MP@ML
Video resolutions:	PAL 576i (720 x 576)
Connector:	RCA (75 Ω)

### Audio

Input format:	Stereo L/R channel
Encoding format:	MPEG-1 Audio Layer II (ISO/IEC 11172-3)
Connector type:	RCA (10K Ω)

### Modulator

Standard:	DVB-T (ETSI EN 300 744)
Bandwidth:	7/8 MHz
Carriers:	2K / 8K
Constellation:	16QAM / 64QAM
Guard interval:	1/4, 1/8, 1/16, 1/32
Code rate:	1/2, 2/3, 3/4, 5/6, 7/8
Frequency range:	174~862 MHz
Output level:	70~85 dBuV
MER:	>38 dB

### System

PID setting:	PMT / Video / Audio / PCR
Channel name:	15 characters
PSI:	NID/ONID/PDS/TS ID
Logical channel number:	Up to 1023

### Control

Local operation	LCD panel
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### General Characteristics

Type:	Wall mount
Dimensions:	36.5 x 150 x 150 mm
Power source:	DC 12V (10.5 to 13.0 V) SMPS (100~240 VAC / 50 Hz) / 1A
Power consumption:	10 W

## STANDARD COMMUNICATIONS WARRANTY AGAINST DEFECTS

This warranty against defects is given by Standard Communications Pty Ltd ACN 000 346 814 (We, us, our or GME). Our contact details are set out in clause 2.7.

### 1. Consumer guarantees

- 1.1 Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.
- 1.2 To the extent we are able, we exclude all other conditions, warranties and obligations which would otherwise be implied.

### 2. Warranty against defects

- 2.1 This warranty is in addition to and does not limit, exclude or restrict your rights under the Competition and Consumer Act 2010 (Australia) or any other mandatory protection laws that may apply.
- 2.2 We warrant our goods to be free from defects in materials and workmanship for the warranty period (see warranty table) from the date of original sale (or another period we agree to in writing). Subject to our obligations under clause 1.2, we will at our option, either repair or replace goods which we are satisfied are defective. We warrant any replacement parts for the remainder of the period of warranty for the goods into which they are incorporated.
- 2.3 To the extent permitted by law, our sole liability for breach of a condition, warranty or other obligation implied by law is limited.
  - (a) in the case of goods we supply, to any one of the following as we decide –
    - (i) the replacement of the goods or the supply of equivalent goods;
    - (ii) the repair of the goods;
    - (iii) the cost of repairing the goods or of acquiring equivalent goods;
  - (b) in the case of services we supply, to any one of the following as we decide –
    - (i) the supplying of the services again;
    - (ii) the cost of having the services supplied again.
- 2.4 For repairs outside the warranty period, we warrant our repairs to be free from defects in materials and workmanship for three months from the date of the original repair. We agree to re-repair or replace (at our option) any materials or workmanship which we are satisfied are defective.

- 2.5 We warrant that we will perform services with reasonable care and skill and agree to investigate any complaint regarding our services made in good faith. If we are satisfied that the complaint is justified, and as our sole liability to you under this warranty (to the extent permitted at law), we agree to supply those services again at no extra charge to you.
- 2.6 To make a warranty claim you must before the end of the applicable warranty period (see warranty table), at your own cost, return the goods you allege are defective, provide written details of the defect, and give us an original or copy of the sales invoice or some other evidence showing details of the transaction.
- 2.7 Send your claim to:  
Standard Communications Pty Ltd.  
PO Box 96 Winston Hills, NSW 2153, Australia.  
Tel: (02) 8867 6000 Fax: (02) 8867 6199  
Email: servadmin@gme.net.au
- 2.8 If we determine that your goods are defective, we will pay for the cost of returning the repaired or replaced goods to you, and reimburse you for your reasonable expenses of sending your warranty claim to us.

### 3. What this warranty does not cover

- 3.1 This warranty will not apply in relation to:
  - (a) goods modified or altered in any way;
  - (b) defects and damage caused by use with non Standard Communications products;
  - (c) repairs performed other than by our authorised representative;
  - (d) defects or damage resulting from misuse, accident, impact or neglect;
  - (e) goods improperly installed or used in a manner contrary to the relevant instruction manual; or
  - (f) goods where the serial number has been removed or made illegal.

### 4. Warranty period

- 4.1 We provide the following warranty on GME and Kingray products. No repair or replacement during the warranty period will renew or extend the warranty period past the period from original date of purchase.

Product Type	Warranty Period
Standalone digital modulators	2 years



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