AD2612
DVB TS SCRAMBLER

USER'S MANUAL

april
Digital Technology

CONTENTS

1 Safety instruction

1.1 Before starting using this unit, please be sure to refer to this manual.

1.2 Do not to open the cabinet, otherwise the guarantee to repair are not available. Meanwhile touching the inside makes you in great danger of electric shock.

1.3 Please make sure to cut off the power supply if you will not use this unit in long term, and do not use any broken jack, which could result in fire or electric shock.

1.4 Wet hands are forbidden to touch the power jack, to avoid risk of electric shock.

1.5 Please pull the plug itself instead of the wire when you pull out power plug,.

1.6 Any thing flammable and metal or liquid, which will destroy the unit, must be kept out the box.

1.7 Do not place this unit in a location near a heat source such as radiator or air ducts, or in a place exposed to direct sunlight, excessive dust, moisture, rain, mechanical vibration.

1.8 Keep the device working in a good ventilative environment, if not the destruction will occur.

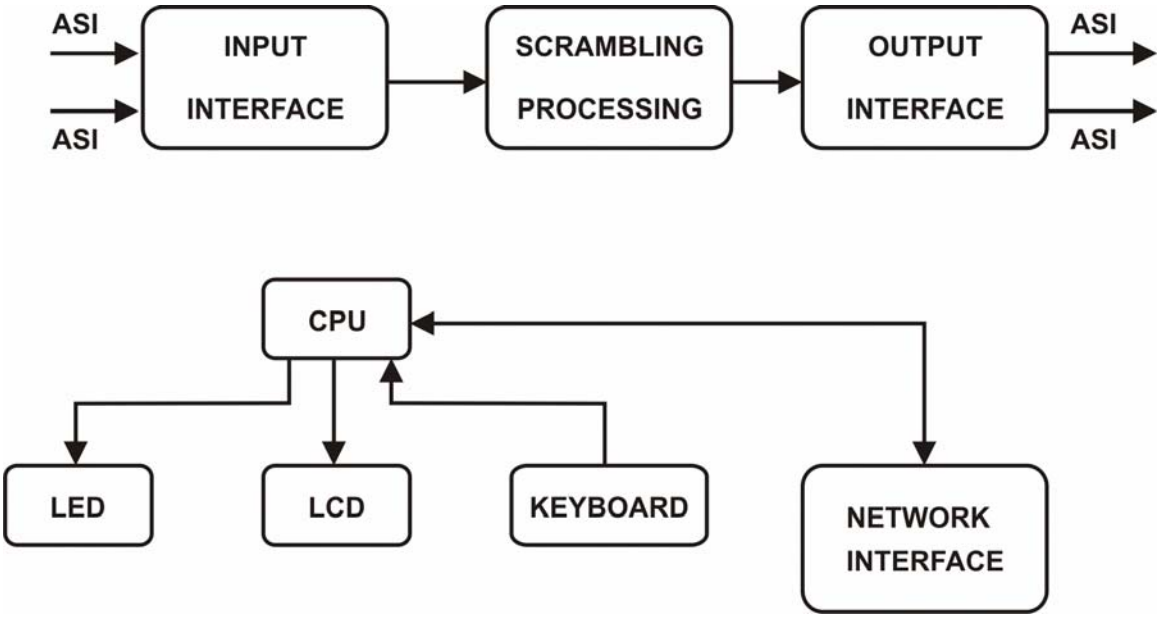
1.9 Please keep the packaging for the safety of transit.

NOTE: After all parameters are set up, please press the LOCK button. When LCD display is dark, the protection function takes effect.

2. System composition and operating principle

2.1 System composition

THE SYSTEM BLOCK DIAGRAM:



2.1.1 ASI input interface

ASI input, it's MPTS (Multi-Program Transport Stream) or SPTS. The useful data will be output and null packet、 needless data will be filtered after processing.

2.1.2 ASI output interface

ASI output after scrambling, it's scrambled MPTS (Multi-Program Transport Stream) or SPTS.

2.2 Operating principle

AD2600 DTV Scrambler receives SPTS or MPTS which up to DVB, the null packet or needless packet will be filtered. The PID could be reset if necessary and pick-up the relevant information for further processing.
Extract and process any of the program specific information (PSI) and service information (SI).
Scramble each valid net-load.
Re-identify the program clock reference (PCR) with system time clock (STC).

3、Main features

- Support simulcrypt and 2 ~4 different CA systems simultaneously.
- Support 2 ASI input interface and able to re-mux and scramble single or multiple programs.
- Input valid bit rate for ASI channel: 216Mbps(max)
- RJ45 ETHERNET interface, can be controlled and supervised real time from remote
- PCR correction
- Filling null packet automatically, output bit rate invariableness.
- NIT and TDT chart can be edited and inserted.
- 188 and 204 input packet automatic identification
- Two output TS packet format are available (188 and 204 packet)
- Multiple output bit rate are available (188 and 204 packet)
- Failure alarming
- LCD display
- Power off memory

4 Technical specification

4.1 Data input interface

4.1.1 ASI input interface

Input: DVB ASI interface
Connector: BNC
Impedance: 75Ω
TS standard: ISO13818-1
Input valid bit rate: 214Mbps(max)
Packet format: 188/204 bytes (automatic identification)
TS input mode: equality/burst/un-equality

4.2 Data output interface

4.2.1 ASI output interface

DVB standard
Connector: BNC
Impedance: 75Ω
TS standard: ISO13818-1
TS Packet format: 188/204 bytes (none of RS encoding for 204bytes)
TS output mode: equality

4.3 ETHERNET Interface: IEEE802.3 ETHERNET, RJ45 interface

4.4 Keep status during power off

The unit will keep status with the power being cut off, in order to auto-reset when electrified again.

4.5 Power supply

Voltage: 90~250VAC
Frequency: 50Hz± 2%
Power consumption: 25W

4.6 Operation environment

Operation temperature: 0~50°C;
Storage temperature: -25~+55°C.
Relative humidity: 10~75%

4.7 Radiation and safety

Up to GB13837-92 and GB8898-88

4.8 Mechanic characteristics

Dimension: 44.5mm(1U)*483mm*(19")*300mm

4.9 Weight

4.0kg

Note: The information contained herein is subject to change without notice.

5、Equipment connection

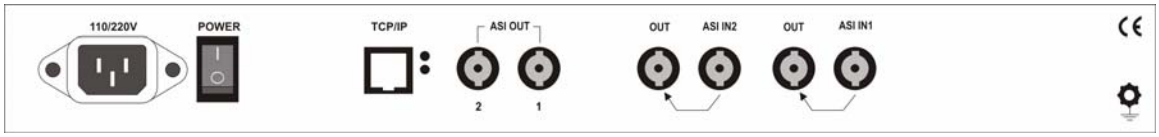
5.1 Panel display

POWER
STATUS
ALARM

5.2 Front panel sketch

5-1: AD2612Front Panel

5.3 Rear Panel Sketch



5-2:AD2612 Rear panel

6. Operation

6.1 Keyboard Function

Move RIGHT/LEFT key: choose sub-menu/move cursor
Move UP/DOWN key: setup cursor/change parameters
ENTER: confirm operations, cycle main menu under main menu
MENU: Select main menu and cancel operations
Note: 1.Be sure to press ENTER key after setup the parameters, all new parameters will take effect only without *, otherwise the old parameters will be kept.
2. The keyboard will be locked automatically in 50seconds without pressing any button.
3. If the keyboard is locked, pr

6.2 Operation mode select (keyboard unlocked)

6.2.1 Main MENU display

Press MENU to display main menu circularly

ONCE: 1.0 VIEW ALARMS
ALARMS LIST EMPTY (no alarm info)

TWICE	2.00.0 CHA01 STATUS (Input TS status) ALL PROGRAMS:026
Three times	3.00.0 CHA01 STATUS（if the second input channel is available） ALL PROGRAMS:026
Four times	4.00.0 OUT TS OUT PROGRAMS:026
Five times	5.0 BYPASS SWITCH (PID ON/OFF) OFF
Six times	6.0 NIT TABLE MODE DONOT IN NEW TABLE (Keep original NIT)
Seven times	7.0 NOW DATE 2004-01-01
Eight times	8.0 AC INFO. NUMBER 050
Nine times	9.0 CA SYSTEM CHA.01 (CA system 1 working status) DISABLE

Ten times 10.0 PARA. STATUS
WORKING AS SETTING (working status is normal)

6.3 How to set and change parameters

6.3.1 Set system parameters

A: Press MENU once: display as follows
1.0 VIEW ALARMS
ALARMS LIST EMPTY or INPUT SIGNAL LOSS or IN TS NO SIGNAL
B: Press UP/DOWN key to view/change parameters /select functions
▼ 1.0VIEW ALARMS
CLEAR ALL ALARMS
C: Press ENTER to store change or confirm operation
1.0 VIEW ALARMS
ALL ALARMS BE CLEARED
D: Press LEFT/RIGHT to circle sub-menu

- ▸1 1.1 SET IP ADDRESS
  120.120.120.160
- ▸2 1.2 SET NET MASK
  255.255.255.000
- ▸3 1.3 SET NET GATE
  120.120.120.001
- ▸4 1.4 NET STATUS
  NOT CONNETTED or CONNETTED
- ▸5 1.5 SERIAL No.:
  XXXXXXXXXXXXXXXXX (18 digits)
- ▸6 1.6 VERSION
  H：XX.XX S:XX.XX
- ▸7 1.7 GET PRESET PARAMETER
  *FACTORY PRESET
- ▸8 1.8 RELOAD PROGRAMS（Channel resume）
  *RELOAD ALL CHANNEL INFO.

Press ENTER to resume factory default

6.3.2 Set input channel parameters

A: Press MENU twice: display as follows

2.00.0 CHA01 STATUS
ALL HAVE: 026

B: Press LEFT/RIGHT to view program's info:

▸1 2.00.1 INPUT SIGNAL
188 BYTE

▸2 2.00.2 CHANNEL TS_ID
00001

▸3 2.00.3 CHANNEL ON_ID
65535

▸4 2.00.4 IN CODE RATE (Input total data bit rate)
038.875Mbps

▸5 2.00.5 IN USED RATE (Input valid data bit rate)
026.491Mbps

Press MENU to exit above operation.

C: Press UP/DOWN to view program name

▴1 2.01.0 P01 NAME
DWtv

▴2 2.02.0 P02 NAME
NN

▴3 2.03.0 P03 NAME
RAI Inernationa
|
|
|

▴16 2.16.0 P16 NAME
RTPi

D: Press LEFT/RIGHT to view or change program parameters in the menu of program name

2.01.0 PROG01 NAME（the first program name）
DWtv

▸1 2.01.1 P01 SELECT (select output program)
SELECTTED TO OUT TS

Press UP/DOWN to change the setup, press ENTER to confirm.

NOT BE SELECTED

▸2 2.01.2 P01 CODE RATE(valid data bit rate of program 1)
004.391Mbps

▸3 2.01.3 P01 PMT PID
0A82(HEX) 2690(DEC)

▸4 2.01.4 P01 PCR PID
0A82(HEX) 2690(DEC)

▸5 2.01.5 P01 MPEG-2 V(video PID)
0901(HEX) 2305(DEC)

▸6 2.01.6 P01 MPEG-1 A(audio PID)
0902(HEX) 2306(DEC)

The setup of other programs is the same as above.

6.3.3 Set output parameters

A、Press MENU three times, display as follows

▲Three times 4.00.0 OUT TS (number of output programs)
OUT PROGRAMS:026

1▸1 4.00.1 OUTPUT TS_ID
00008（changeable）

▸2 4.00.2 OUTPUT ON_ID
65535（changeable）

▸3 4.00.3 CAT WORK MODE
MAKE A NEW TABLE (create new CAT chart)
* Press UP, DOWN to show display
NOT MAKE NEW TABLE (not to make a new CAT chart)

▸4 4.00.4 SDT WORK MODE
MAKE A NEW TABLE
* Press UP, DOWN to show display
NOT MAKE NEW TABLE

6.3.4 PID Parameter setting

A、Press MENU 5 times display as follows：

5.0 BYPASS SWITCH (PID switch ON/OFF)

OFF▼*ON

▶1 5.1 BYPASS PID0 (direct PID0)

CH1 1FFF(HEX) 8191(DEC) （changeable）

▶2 5.2 BYPASS PID1 (directPID1)

CH1 1FFF(HEX) 8191(DEC) （changeable）

▶8 5.8 BYPASS PID7 (direct PID7)

CH1 1FFF(HEX) 8191(DEC) （changeable）

6.3.5 Set network parameters

A、Press MENU five times, display as follows

6.0 NIT TABLE MODE

INSERT NEW TABLE (insert new NIT)

* Press UP/DOWN to display as follows in second line

DONOT IN NEW MODE (Keep origin NIT)

▶1 6.1 NIT VERSION

00001（read only）

▶2 6.2 NETWORK ID

00001（read only）

▶3 6.3 NETWORK NAME

T（read only）

▶4 6.4 CHANNELS IN NIT

001（read only）

6.3.6 SI Parameter setting

A、Press MENU 7 times，display as follows：

7.0 NOW DATE

2003-08-01（changeable）

▶4 7.1 NOW TIME

00-38-01（changeable）

▸5 7.2 TDT TABLE MODE

INSERT NEW TABLE

* Press UP/DOWN to display as follows in second line

DONOT IN NEW MODE (Keep original EMM)

6.3.7 AC information parameter status

A、Press MENU 8 times，display as follows：

8. AC INFO. NUMBER

002

6.3.8 CA Status

A、Press MENU 9 times，display as follows：

9.0 CA SYSTEM CHA.01 (CA system 1 working status)

DISABLE (read only)

6.3.9 Output parameter setting

A、Press MENU 11 times，display as follows：

10.0 PARAMETER STATUS

WORKING AS SETTING

* Press UP/DOWN to display as follows in second line

REBUILDING PARA (rebuild parameter?)

*Press ENTER to execute

B、Press LEFT, RIGHT to view and change output data; press ENTER to confirm setting; press MENU to exit current mode

▸1 10.1 OUTPUT TS RATE

050.00Mbps (changeable)

*Press ENTER to execute

7 System errors and debugging

7.1 Indicator lights

There are three LED indicator lights.
1)“POWER” lights up (Red) means power switch on and working orderly.
2) “ STATUS” lights up(Green) means the status of input signal of unit is in order.
3) “ALARM” lights up(Green) means unit is working orderly.

7.2 Trouble Shooting

7.2.1 The ”POWER” indicator does not illuminate.

Please check the wire to make sure the wire is connected to the socket properly and the power switch is on.

7.2.2”STATUS” illuminates (in red)

This means the equipment is in status of parameters setup.

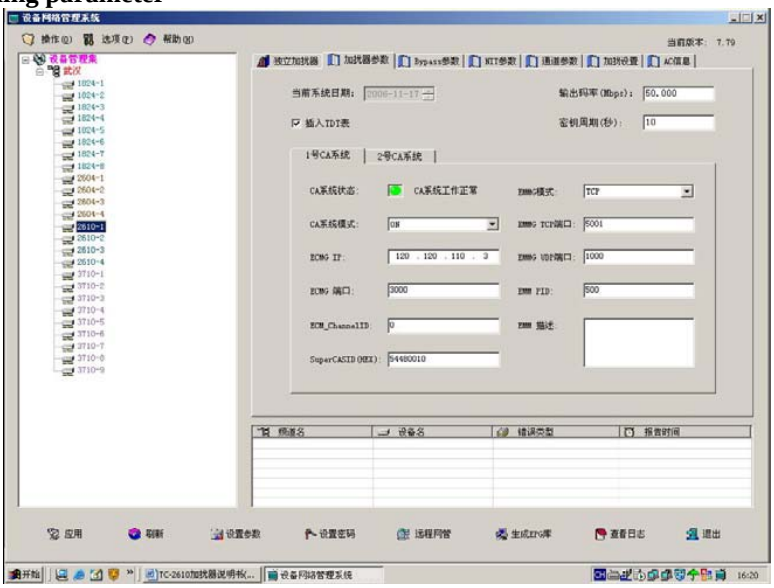
7.2.3”AlARM”flashes

This means the equipment is out of order for some faults. Please debug according to the instruction from LED.
It means no input signal or input signal from ASI isn’t in order if it shows “IN TS NO SIGNAL”.
Please check ASI input signal source and connect cable.

8. Network management

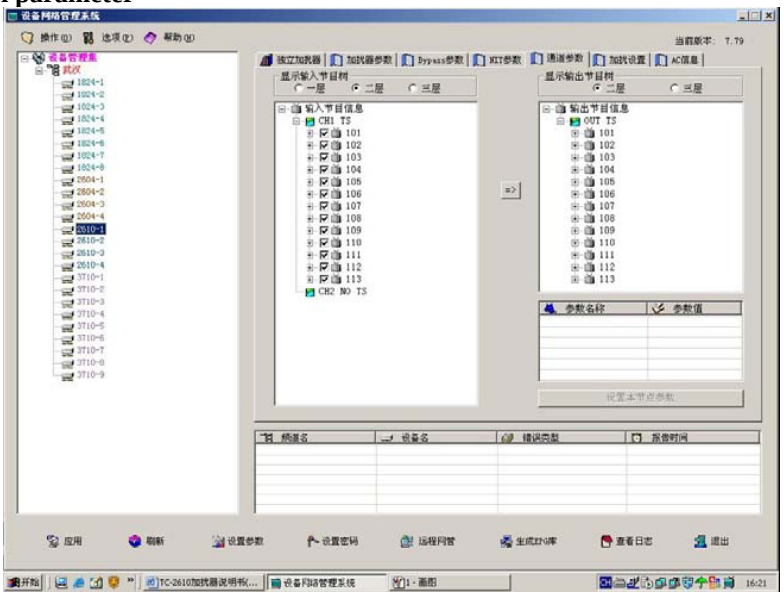
The unit could be controlled remotely via network management software. It needs authorization. Please refer to 《NMS user's manual》

Scrambling parameter



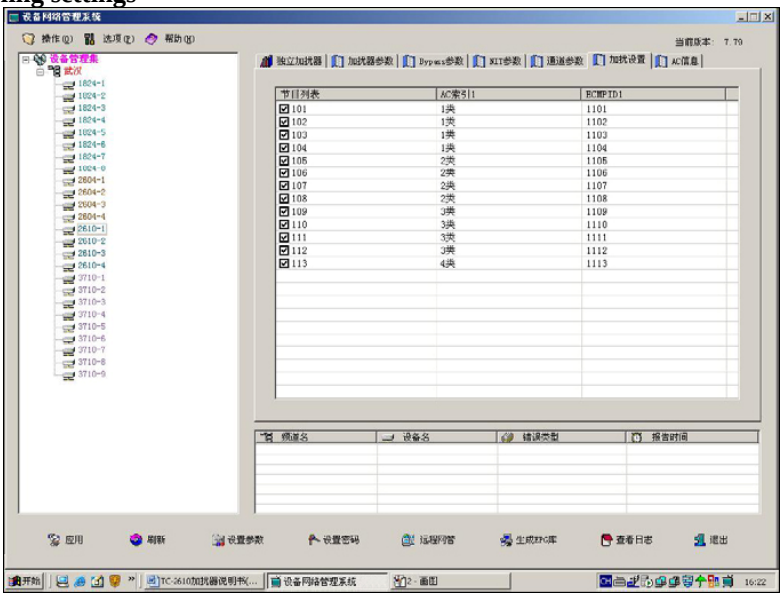
Parameters: output bit rate, key period, switch between 2 CA systems

Channel parameter



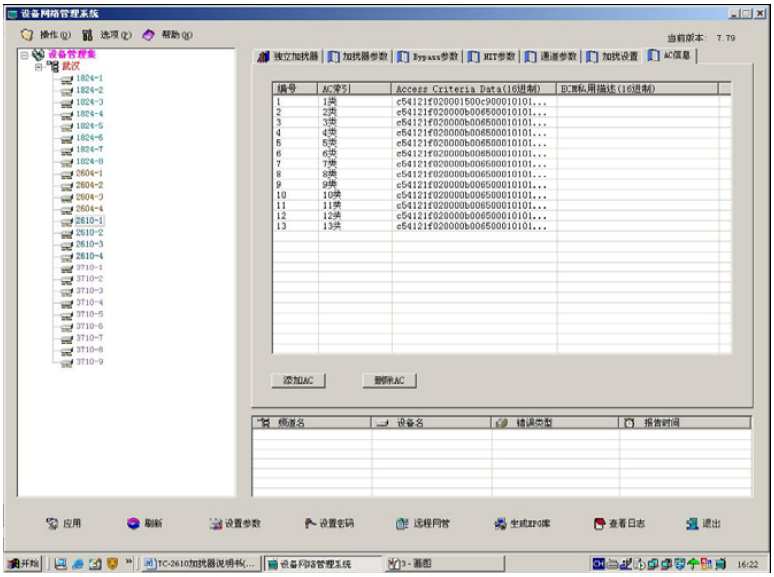
Parameters: input programs

Scrambling settings



Parameters: scramble and product package

AC Infomation



Parameters: record and search AC information