3500B-002

DVB-T OFDM MODULATOR

General

This unit is COFDM modulator conforming to DVB-T standard (EN300 744) that is terrestrial digital broadcasting system in Europe, Australia, Taiwan and etc. Transport stream (TS) of MPEG-2 standard is input and coding of DVB-T standard and modulation are made, and then IF signal is output.
By combining with Eiden § 4222A-001, 4220C-006 ALL CHANNEL UP CONVERTER, 4223A 1W UP CONVERTER (Designated Channel) and etc., signal source for development and production of TV and IRD can be configured.
This unit corresponds to all systems of 6, 7 and 8MHz. Corresponding to DVB-T system of all bandwidth by 1 unit is possible.

Features

- Possible to vary ±3500Hz of IF frequency 36.15MHz (common for 6～8MHz) in 1Hz step.
- Equipped IF monitor output other than IF output (Level is －10dBm for both terminals)
- Equipped 2 kinds, DVB-ASI and DVB-SPI, and each has 1 route of each HP/LP, as input interface of transport stream (TS).
- Stuffing function is provided as the standard, so that bit rate to be input can be set voluntarily in regulated range.
- Setting and confirmation of each parameter are easy by employing liquid crystal monitor of 40 characters×4 lines.
- Instant call out of user setting parameter is possible by using 15 parameter banks.
- Input/Output of 10MHz reference are equipped.
- Confirmation on which alarm is occurred is done easily on liquid crystal display as several alarms are provided.
- Possible to correspond to hierarchy transmission (HP/LP) as the standard.
- Possible to memorize up to Max. 256 events for failure contents and occurrence time during modulator operation as having log function.
- Possible to transmit TS up to max. 8 programs (But, only in" MANUAL " " HP "operation.
  At the time of hierarchy transmission, when seamless" AUTO " LP "is selected, transmission up to 4 programs becomes possible.)

Composition

Main Unit ……1
- Dimensions 425(W)×99(H)×430(D) mm (Excluding projections)
- Weight Approx. 10 kg

Accessories
- Power Cable (Including 3pin→2pin converter) ……1
- Rack Mount Adapter……1set
- Instruction Manual and Test Result Sheet ……1

Power Source
- Input Voltage Allowable Range : AC90V～AC250V (50Hz/60Hz)
- Power Consumption : Approx. 100VA

Operating Environment
- Temperature : +0°C～+ 40°C
- Humidity : Less than 90%RH (No dew generation)

Rating

• Input Interface

DVB-SPI Input

Number of Terminal	Each 1 route for HP/LP is equipped.
Connector	Dsub 25pin (Female) (Base is inch size)
Electrical Specifications	LVDS (Conforming to TIA-644)

DVB-ASI Input

Number of Terminal	Each 1 route for HP/LP is equipped.
Connector	BNC Receptacle
Impedance	75Ω
Electrical Specifications	Conforming to SMPTE-259M (270MHz)

10MHz Reference Input

Input Signal	Sine Wave
Connector	BNC Receptacle
Impedance	50Ω
Input Level Range	0dBm±2dB (Sine Wave)

Remote Input
- RS-232C interface
- GP-IB interface

• Output Interface

IF Output, IF Monitor Output

Output Signal	COFDM Modulated Wave (Band 6, 7, 8MHz)
Connector	BNC Receptacle
Impedance	50Ω
Output Frequency	36.15MHz (Frequency Variation Range ±3500Hz (1Hz step)
Output Level	－10dBm±0.5dB

Base Band Output

Output Signal	Depending on BASEBAND MONITOR setting
Connector	BNC Receptacle
Impedance	50Ω
Output Frequency	Depending on BASEBAND MONITOR setting
Output Level	Depending on BASEBAND MONITOR setting

10MHz Reference Output

Output Signal	Sine Wave
Connector	BNC Receptacle
Impedance	50Ω
Output Frequency	10MHz
Output Level	+10dBm±2dB

Trigger Output

Electrical Specifications	TTL
Connector	BNC Receptacle
Impedance	50Ω

1st LOCAL Output

Output Signal	Sine Wave
Connector	BNC Receptacle
Impedance	50Ω
Output Frequency	6M : 121.285714MHZ 7M : 124.000000MHz 8M : 126.714285MHz
Output Level	0dBm±2dB

2nd LOCAL Output

Output Signal	Sine Wave
Connector	BNC Receptacle
Impedance	50Ω
Output Frequency	176.15MHz (Frequency Variation Range ±3500Hz (1Hz step)) (But, setting is geared with IF OUT output)
Output Level	0dBm±2dB

Performance

IF Frequency Deviation	36.15MHz±50ppm
IF Frequency Level Stability	－10dBm±0.5dB
Output Return Loss	Less than 15dB
Spurious Level	Less than 60dBc at 36.15MHz±25MHz (But, D/U from average power)
IM	Less than 50dB (Measured at 4.2MHz apart from center)
MER	40dB Typ. (Measured by HP89440A Vector Signal Analizer)

Function

• Setting Function for Transmission Parameter (PARAM Key)

Number of Transmission Carrier	2K, 8K
Guard Interval	1/32, 1/16, 1/8, 1/4
Constellation	QPSK, 16QAM, 64QAM
HP Code Rate	1/2, 2/3, 3/4, 5/6, 7/8
LP Code Rate	1/2, 2/3, 3/4, 5/6, 7/8
α value Setting	α=1, 2, 4 (Only at hierarchy transmission)

• Setting Function for Input Interface (INPUT Key)

TS Interface	ASI, SPI
Packet Length	188, 204
Reference	INTERNAL, EXTERNAL, TS
Reference Mode	MANUAL, AUTO
Bit Rate Adaptation	ON (Always ON)
Input TS Selection	[SEAMLESS MANUAL] ([HP] , [LP]) [SEAMLESS AUTO] ([HP→LP] , [HP←→LP])

• Changing Function for Output Interface (OUTPUT Key)

Modulation Data Selection	Input TS, PRBS23-1 (3 kinds), CW, Carrier hole
Carrier Hole Width	Number of Carrier 1,10, 50, 100 lines
Carrier Hole Position	64 steps
Peak Margin Setting	7～17dB
Spectrum Polarity	REVERSE, NORMAL
Frequency Offset	±3500Hz (1Hz step)
Base Band Monitor Signal Selection	Orthogonal Modulation Output, Mapping Output, IFFT Output, Filter Output.
System Selection	6M, 7M and 8M

• Memory Bank Function (BANK Key)
- Setting Recall Function (RECALL)
- Setting Storage Function (STORE)
- Stored Parameter Confirmation Function (STATUS)
- Write Inhibit Function (WRITE INHIBIT)
- Memory Initializing Function (STORE BANK CLEAR)

• Local Function
Operation is switched from REMOTE operation→LOCAL.

• Lock Function
Function not to accept key operation.

• Log Function
Condition change of modulator can be memorized up to max. 256 events. The time when condition is changed can be remained also in record as calendar function is equipped.

• Status Monitor Function
Alarm information issued in modulator can be confirmed on display.
- TS Input Abnormal Detection.
- 10MHz REFERENCE Input Abnormal Detection .
- TS Input Rate Abnormal Detection
- IF OUTPUT output level Abnormal Detection
- IF MONITOR output level Abnormal Detection
- LOCAL REFERANCE Abnormal Detection
- LOCAL Output Level Abnormal Detection
- FAN Abnormal Detection, Power Supply Abnormal Detection , System Abnormal Detection,
- Input Switching Warning, REFERENCE Switching Warning

• Configuration Browser Function
Version information for hardware and software of modulator can be confirmed.