Digital Sat TV MultiCrypt Reception Equipment

Data Sheet

IKUSI velatia

SHC111

REF. 4460

- Receives a digital TV signal modulated with QPSK or 8PSK, using MPEG2 or MPEG4 compression format, takes one channel from the input TS and outputs the selected channel in analogical format, modulated in a lateral vestigial RF carrier. The TV formats managed by the modules can be SD (Standard Definition) or HD (High Definition).
- The input signal can be free or encrypted by a conditional access system. The module opens the encrypted channel using a Common Interface card.
- It's possible the insertion, external processing and reinsertion of the audio and video signal in base band format.

Model		SHC-111
Input Section (QPSK/8PSK)		
Input frequencies band	MHz	950 - 2150
Step	MHz	1
Input level	dBm	-25 ... -65
Input loop-through attenuation	dB	0 ±4
AFC Pull-range	MHz	±5
Symbol rate	MS/s	2 - 45 DVB-S ; 2 - 45 DVB-S2
Impedance	Ω	75
Digital Processing Section		
DVB Processing		EN 300 468
Video decoding		MPEG-4 AVC /H.264 HP@L4 MPEG-2 MP@HL (ISO/IEC 13818-2)
Frequency Line conversion		No
Active Format Descriptor support		Yes
Supported Aspect Ratio		4:3 , 16:9 , 14:9
Audio decoding		MPEG-1 Layer I/II ; MPEG-2 Layer II
Teletext - Subtitles Insertion		Yes
Aspect Ratio Correction		Yes (Pan&Scan , Letter-Box)
Firmware upgrade by user		Yes, RS-232 configuration interface
External Video/Audio Loop		
Video and audio L/R output levels	Vpp	1.0 (video) ; 0 - 2.0 (audio)
Video and audio L/R input levels	Vpp	0.9 - 1.1 (video) - 1.0 (audio)
V/A Re-modulation Section		
Adjustable video modulation depth	%	80 - 90
Adjustable audio peak deviation	kHz	±10 - ±50
Output Section (TV Channel)		
Output TV Spectrum		VSB (Vestigial Side Band)
Remote mode		No
Adjustable output level	dBµV	65 to 80

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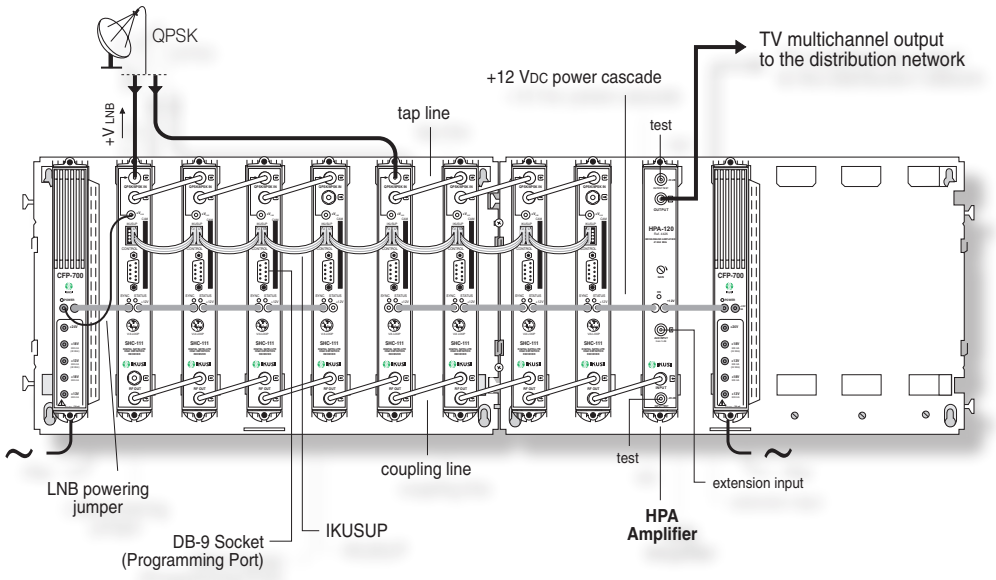
Carrier level ratio	dB	12 / 16
Output loop-through attenuation	dB	1.0 (typ) ; 1.8 (max)
Group delay precorrection		No
Weighted SNR	dB	60
Spurious in band	dBc	< -59
Broadband noise (ΔB=5 MHz)	dBc	< -75
Output channel TV system		B / G / D / K / K' / I / L
Output channel audio system		Mono
Output channel colour system		PAL, SECAM
Output channel selectable betwenn	MHz	45 - 862

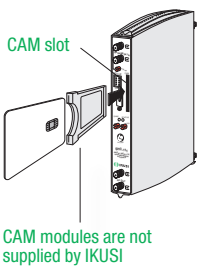
General

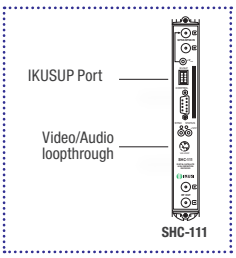
Supply Voltage	VDC	+12
Max. consumption (including CAM)	A	1.2
Operating temperature	ºC	0 ... +45
Input/output RF connector type		(2x) Female F
DC connector type		banana socket
CAM Slot		PCMCIA CAM, frotal insertion
Programming interface		RS-232/DB9 male
Video/Audio loop connector type		mini-DIN (6 way)
IKUSUP bus connector		(2x) 4-pin socket
Dimensions	mm	230 x 170 x 32 (without connectors)
Weight	kg	1.5

Each module is packed with:
- 2 F plug bridges, 64 mm length, for input tap line and output coupling line.
- 1 DC plug bridge, 53 mm length, for connection of +12 VDC voltage.



— **Example of SHC headend for eight clear digital saltellite TV programmes.**





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SHC HEADENDS

- Reception of encrypted Sat-TV programs. Standard DVB-S/S2 / MPEG-2 & MPEG-4 (EN 300 706 Level 1.5).
- Receiving Modules with Common Interface (EN 50221). The encrypted TV programmes transmitted on QPSK/8PSK channels are de-encrypted and presented on conven-tional VHF/UHF channels (VSB vestigial side band any TV system or Colour system).
- An SHC headend includes:
  - As many SHC Receiving Modules as de-encrypted TV programmes to be distributed. At each module, one CAM (Conditional Access Module) containing the Operator's Smart Card must fit the front panel slot.
  - One HPA Amplifier that amplifies the sum of the receivers' output TV channels.
  - One or more CFP Power Supplies.
  - One or more Rack-Frames or wall-fixing Base-Plates. The base-plates can be joined horizontally.
  - Usually, housing units for the base-plates.
  - If the headend is large, one or more AMX-400 combiners.

The SHC headends provide a TV multichannel signal whose level is appropriate to feed the distribution network. With an SHC installed in the headend, the end user does not require a Set Top Box or any additional devices to view the de-encrypted digital TV programs being distributed. An extension input at the HPA amplifier allows easy coupling of the wideband 47-862 MHz signal provided by another existing headend.

FUNCTIONAL DESCRIPTION OF SHC RECEIVERS

An SHC receiving module with CAM + Operator's Smart Card inserted, carries out a complete channel processing from the input to the output:

- tunes a QPSK/8PSK Sat-IF digital channel in the 950-2150 MHz band,
- selects an encrypted TV programme from the multiplex being received, and
- de-encryptes and presents it on a conventional TV channel that is selectable throughout the 45-862 MHz band.

Programming of each module involves the following selections and settings:

- Central Input Frequency (1 MHz steps).
- Input Symbol Rate (2-45 MS/s steps DVB-S ; 2-45 MS/s DVB-S2).
- TV Programme and Audio Service. (Or a Radio Programme. Image will be black).
- Parameters of the output TV channel (video carrier frequency, TV system, colour system, video modulation depth, audio modulation index, carrier level ratio, output level).
- Image Format. Possible conversions are 16:9 to 4:3 Pan&Scan and 16:9 to 4:3 Letter-Box.

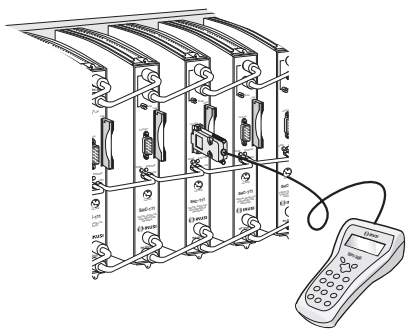
SIMPLE CABLING OF SHC HEADENDS

The SHC receiving modules feature two directionally coupled input and output ports. Sat-IF signal can therefore be directly fed into the input port of the first module, which in turn passes it through the coupler to the next and so forth. On the output side, the same procedure is repeated which forms the channel coupling. The sum of the combined channels is turn connected in the same way to the drive amplifier —the HPA module or an external wideband amplifier— which then feeds the distribution network. For power connection, each module has two DC banana sockets that allow to build a +12 VDC cascade. A third banana socket is available to connect the power for the attached LNB.

An external video/audio loop, which is switched under control software, is available on model SHC-111.

Local programming is carried out with the SPI-300 unit, which is connected to each module individually. Remote programming is possible only if an HMS control unit is installed in the headend (firmware programming control SPI-300, must be version 3.8 or higher).

Firmwares of modules and programming unit can be updated. The corresponding files are downloaded from www.ikusi.com.



SPI-300

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