

Digital Sat TV MultiCrypt Reception Equipment

SRC011

REF. 4092

SRC111

REF. 4096



- Reception of encrypted Sat-TV programs.
- The encrypted TV programmes transmitted on QPSK channels are de-encrypted and presented on conventional VHF/UHF channels.

SRC-011

SRC-111

Output TV Spectrum	VSB (Vestigial Side Band)	
Remote mode	No	Yes
Output channel TV system	B/G/D/K/I/L	B/G
Output channel audio system	Mono*	
Output channel colour system	PAL , SECAM , NTSC	
Output channel selectable between	MHz	45 – 862

Input Section (QPSK)

Input frequencies band	MHz	950 – 2150
Input level	dBm	-65 – -25
Input loop-through gain	dB	0 (± 1)
AFC Pull-range	MHz	± 5
Symbol rate	MS/s	2 – 45

MPEG-2 Decoding Section

Video processing	Main Profile @ Main level	
Audio processing	Layer II	
Teletext - Subtitles Insertion	Yes	
Image Format Conversion	16:9 to 4:3 Pan&Scan - 16:9 to 4:3 Letter-box	

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), 0.5 – 1.0 (audio)

Video & Audio Re-modulation

Adjustable video modulation depth	%	80 – 90
Adjustable audio peak deviation	kHz	± 10 – ± 50

* When selecting a stereo audio service, the output channel sound carrier is modulated with the "L+R" sum. If the audio service selected is dual, the carrier can be modulated with any of the "audio1", "audio2" or "audio1+audio2" signals.

Output Section (TV Channel)

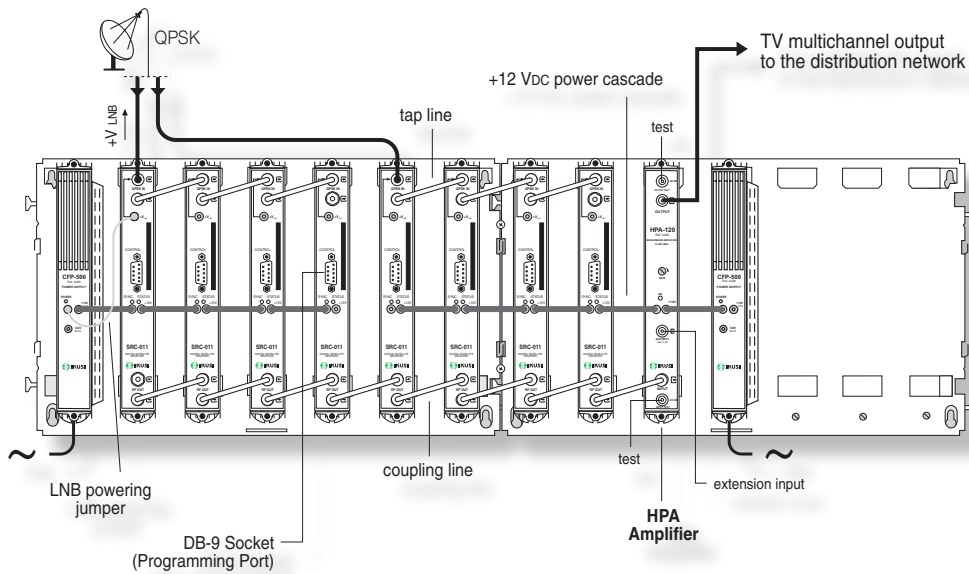
Adjustable output level	dB μ V	65 to 80	
Carrier level ratio	dB	12 / 16 (Mono; A2:Audio1), 20 (A2: Audio2)	
Group delay precorrection		-	Yes
Weighted SNR	dB	> 60	
Spurious in band	dBc	< -58	< -60
Broadband noise ($\Delta B=5$ MHz)	dBc	< -75	

General

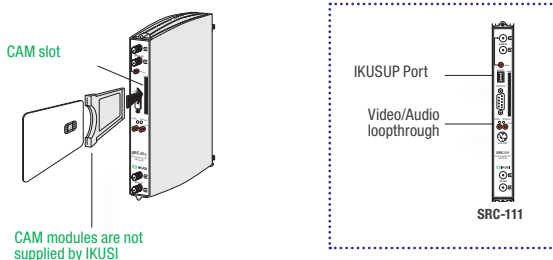
Supply Voltage	Vdc	+12	
Max. consumption (including CAM)	mA	680	
Operating temperature	°C	0 – +45	
Input RF connector type		(2x) female F	
Output RF connector type		(2x) female F	
DC connector type		banana socket	
CAM Input		Slot	
Programming interface		RS-232/DB-9	
Video/Audio loop connector type		-	mini-DIN (6 way)
IKUSUP bus connector		-	(2x) 4-pin socket
Dimensions	mm	230 x 195 x 32	

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 SRC headend for eight clear digital satellite TV programmes.



SRC HEADENDS

- Reception of encrypted Sat-TV programs. Standard DVB-S / MPEG-2 (EN 300 421).
- Receiving Modules with Common Interface (EN 50221). The encrypted TV programmes transmitted on QPSK channels are de-encrypted and presented on conventional VHF/UHF channels (VSB vestigial side band or DSB double side band; any TV system or Colour system).
- An SRC headend includes:
 - As many SRC 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 SRC headends provide a TV multichannel signal whose level is appropriate to feed the distribution network. With an SRC 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 SRC RECEIVERS

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

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

Range includes different mono sound models for VSB or DSB output channel spectrums and for available or non-available remote programming function.

Programming of each module involves the following selections and settings:

- Central Input Frequency (1 MHz steps).
- Input Symbol Rate (0.001 MS/s steps).
- 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.

Models featuring VSB output are utilizable for adjacent channel operation. If this operation is not required, existing model featuring DSB output may be used without problems. The first ones present, on the other hand, a very low broadband noise floor (< -75 dBc) that permits the use of multiple modules in a headend with very little deterioration of the CNR.

SIMPLE CABLING OF SRC HEADENDS

The SRC 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 then 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 SRC-111. The loop is not available in the so called **economical model** (SRC-011).

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. The SRC-0xx economical models do not have IKUSUP sockets and cannot therefore be programmed remotely.