STC 096

TWIN SAT - TV - TRANSMODULATOR

DVB - S/S2 TS - EDIT. DVB - C

C LINE

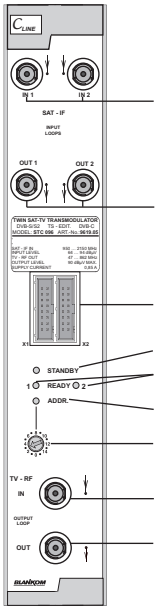


Fig. 01

DEVICE VARIANTS

STC 096	9619.05	2 x SAT - IF	QAM	[47 … 862 Mhz]

GENERAL

The SAT - TV transmodulator STC 096 is a module of the C-LINE headend system. The module converts two digital transponders of DVB-S/**S2** into the digital cable standard DVB-C (QAM). The signals will be transmodulated from the SAT - IF range into cable-TV-channels. The management of the modules will be done via the central control unit (Headend Manager / HCB 100) manually or remotly. Service information like SI-Tables, NIT, CAT...which are forwarded with the MPEG - transport stream can be read and processed. The NIT can be controlled and generated automatically as well as distributed/forwarded to furhter transmodulators via the headend controller (HCB100) The operator ID´s of the CAT can also be edited via the operation software.
The PID - filter enables blocking of up to 6 audio- and/or video data streams.
The STC 096 operates independently after adjustement/set-up. The output signals allocate an adjacent channel within cable-TV range and one space channel is also possible.
The status of the module is displayed by colored LED´s

· Red	- STANDBY	Standby mode
· Green	- READY 1, 2	Operating, channel 1, 2
· Yellow	- ADDR	Remote control access

FUNCTION DESCRIPTION

The module contains two transmodulators (1 per channel) which are designed identically until the IF - range.
A DVB-S/**S2** transponder will be selected by the tuner and converted into the I/Q - baseband. This signal will be demodulated to the MPEG - data stream afterwards and the processing of the transport stream will also be done. The conversion into the IF - range is done within the following modulator (QAM). The subsequent conversion into an adjacent channel pair within the cable-TV-range is done for both channels togehter. The symbol rate of the QAM - Modulator is adjustable.The programming of the output channels is done via transmodulator 2. Transmodulator 1 is normally one channel lower (with spare space two channels lower). The channel spacing within the TV - ranges will be considered automatically. Offset - frequencies can be programmed, too. In- and outputs are performed in loop-through technique. A voltage of 12 V is permanently available at the SAT - inputs for the remote supply of the LNB. The modules can be controlled, adjusted, programmed with the central control unit HCB 100 manually at site or remotely (Software Version from 2.22)

Special functions:	Test signal	(according adjustments)
	Carrier signal - Generator	(Signa llevel - measurement)

PROGRAMMING (Manually)

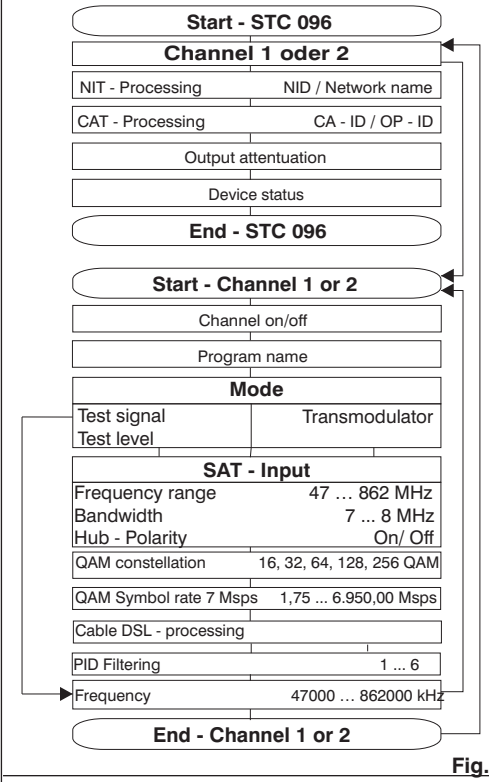


Fig. 02

Adjustment with the headend controller

Adjustment of the addresses at the bus extender BEB 100 and at the modules
Activation of the programming mode of each module by selecting the line (BEB 100) and the module position (01... 15) at the head end controller(HCB 100)
yellow LED will be lit up til the beginning of the parameter adjustment
Adjustment of the STC 096 parameter (see fig.02)
green LED is lit up
After the programming the STC 096 will be automatically switched into the operating status
yellow LED lights up briefly / green LED is lit up

Adjustment with the PC / Laptop

Condition for the remote programming is an "online - connection" after IP - standard and an ethernet connection at the PC / Laptop
Adjustment of the line / position addresses at the bus extender BEB 100 as well as at the modules
At the head end controller HCB 100 IP - address input (e.g. 192.168.001.001)
For "direct connection" between a PC and HCB 100 use a crossed patch cable (RJ 45)
For connection over a deviation use an uncrossed patch cable
HTML - browser start-up and put in IP - address as target address
If connected correctly the HTML - control surface at the PC will open up and a green LED (LINK) at the HCB 100 will be lit up
All adjustment of the modules are specified at the control surface a green LED (LINK) at the HCB 100 will be lit up

The manual instructions of the head end controller HCB 100 and the bus extender BEB 100 have to be considered!

TECHNICAL DATAS

SAT - IF - Input

Frequency range		950 ... 2150 MHz
Adjustement grid		1 MHz
AFC - Range		MHz
AGC - Level range		64 ... 94 dBµV
Connector		F - socket
Impedance		75
Bridging loss		1,0 dB
LNC - Remote supply		12 V / 400 mA

DVB-S Demodulator / Decoder

Modulation		QPSK
Symbol rate		10 … 30 MSps
Coderate (Vitterbi)	QPSK	1/2, 2/3, 3/4, 5/6, 6/7, 7/8
Roll off		35 %
Signal processing (Standard)		ETS 300 421 (DVB - S)

***DVB-S2* Demodulator / Decoder**

Modulation		QPSK,**8PSK**
Symbol rate		10 … 30 MSps
Coderate (LDPC)	QPSK	1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
	8PSK	3/5, 2/3, 3/4, 5/6, 8/9, 9/10
Roll off		20, 25, 35 %
Signal processing (Standard)		ETS 302 307 (***DVB - S2***)

QAM - Modulator

Symbol rate	1,725 - 6,9 MSps
QAM - Constellation	16; 32; 64; 128; 256
Roll off	15 %
Modulation Error Rate (MER)	40 dB
Test signals	64 QAM (6 MSps)
Measurement signal	unmod.carrier (Signal level)
Shoulder attenuation	45 dB

Output converter / RF - Output

Max. Output levell	90 dBµV
Level tuning range	-10 dB
Level - degree steps	0,5 dB
Channel allocation	Adjacent channel (one space channel possible)
Outut impedance	75
Return loss	14 dB
Signal to Noise ration (S/N)	55 dB
Symbol rate	1,725 - 6.95 MspS
Roll off	15 %
Inter leaving	Conv. I=12
Forward Error Correction/ FEC	Reed Solomon (204, 188,8)
Connector	F - socket
Bridging attentuation	1 dB
Ouput frequency range	47 ... 862 MHz
Adjustment grid	250 kHz

Operating parameter

Voltage / Current	12 V (0,2 V) / 1,1A
Ripple of the supply voltage	10 mV_{ss}

Environmental conditions

Temperature range	-10 ... +55 °C
Relative humidity	80 % (not condensating)
Mounting	vertical
Mounting location	dry, splash proof

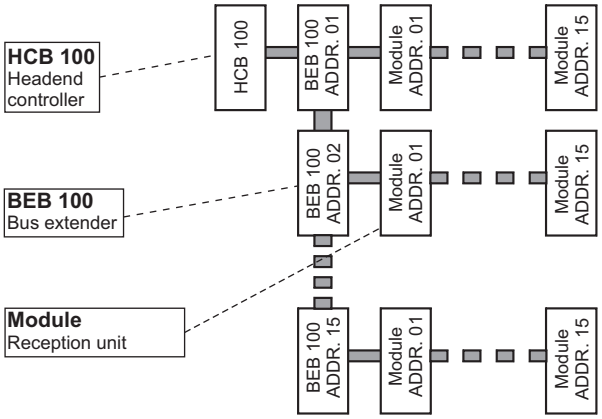
Physical information

Dimensions (W x H x L)	
without 19" - Adapter	50 x 276 x 148 mm
with 19" - Adapter	50 x 301 x 148 mm
Weight	1392 g

Delivery content

1 x BUS - connector
3 x F - connection cables á 140 mm

HEAD END BUS STRUCTURE



The number of the possible module connections (00 ... 15) to a BEB 100 depends on the total power consumption of this line!

Fig. 03

SECURITY AND OPERATING INSTRUCTIONS

When assembling, starting-up and adjusting the modules, it is necessary to consider the system specific references in the manual instruction!

The modules may only be installed and started up by authorized technical personnel!

When assembling the modules into the receiving points, the adherence of the EMV regulations is to be secured!

The assembly and wiring have to be done without voltage!

All active modules may only be operated with the head end controller HCB 100 or bus extender BEB 100!

The main voltage for all power supply units is 230 V, 50 Hz.

With all work the defaults of the DIN EN 50083 have to be considered!
Especially the safety relevant execution of the DIN EN 50083/1 is necessary!

Options and other TV standards available upon request!

Changings due to technical procresses are possible.

Part N°: 9619.05

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