Sri Sai Communications Private Limited

SatCom & Defense Communication Systems & Products

DATASHEET

Ku Band Test Loop Translator (Dual LO)

Model No : KUDTLT-6001

Introduction

The unit converts input frequency band of Set 1 (12.75 to 13.00 GHz) and Set 2 (13.00 to 13.25 GHz) to the Output signal band of Set 1 (10.70 to 10.95 GHz) and Set 2 (11.20 to 11.45 GHz) with Dual LO provides frequency conversion of Ku-Band earth terminal uplink transmit carrier signals to earth terminal downlink receive carrier signals for the purpose of the ground station system checkout in Ku Band. Main features related to Gain, gain flatness, phase noise, spurious levels etc., are highlighted in this data sheet. The unit is remotely controlled and monitored through different protocols like TCP/IP, RS422 et., The unit is housed in a 1RU chassis with agile features to cater for reliability and mechanical stability. Unit operates on 230V AC input power and the environmental specs catered for use in indoor controlled operations.

Features

- Excellent phase noise of Local Oscillators with OCXO internal reference
- Very low in-band and out-of-band spurious
- M&C integration through TCP IP, RS422, etc., Integration Protocols
- Remote Management through Web Interface Console
- On-board state-of-the-art microcontroller
  - Auto selectable Int./Ext. Reference
  - Memory storage facility for data recall
- Parameters like gain, frequency, etc are varied and displayed either on front panel or remote frontend
- Smart monitoring capabilities via TCP IP Remote
- Interface and M&C Applications

FRONT PANNEL VIEW

BACK PANNEL VIEW

Frequency	Input	Output	LO
SET 1	12.75 – 13.00 GHz	10.70 – 10.95 GHz	2.05 GHz
SET 2	13.00 - 13.25 GHz	11.20 – 11.45 GHz	1.80 GHz
Conversion Loss	20 dB		
Amplitude Response	± 0.5 dB over any 116 MHz ± 1.5 dB over output frequency band		
Frequency stability	± 1 x 10^{7} (0 to 50º C)		
I/P & O/P Return Loss	15 dB min		
Level Control	25 dB typical in 1 dB steps		
Output Phase Noise	- 65 dBc @ 100 Hz - 75 dBc @ 1KHz - 85 dBc @ 10 KHz		
Internal Reference	Present		
External Reference input	External reference @ 10 MHz and with input level not to exceed +10 dBm		
Spurious	- 40 dBc In-Band - 50 dBm Out-Of-Band		
Connectors – RF input & RF output	"N" – Type female Output RF - N Type (F) & Input IF - BNC (F)		
Summary Alarm	Remote M & C port for summary fault indication for any fault in lock status of LO, Power supply and control failure.		
Mute	Rejection of 50 dB min		
Remote Interface & Control	RS422 Protocol provided for M&C development for controlling and monitoring of the unit		
Input AC voltage	230/240 VAC ±10%, 47 – 63 Hz		
Environmental	Temp. 0 – 60° C, 0 – 95% relative humidity and 9000 ft MSL		
Type	Outdoor Mount		

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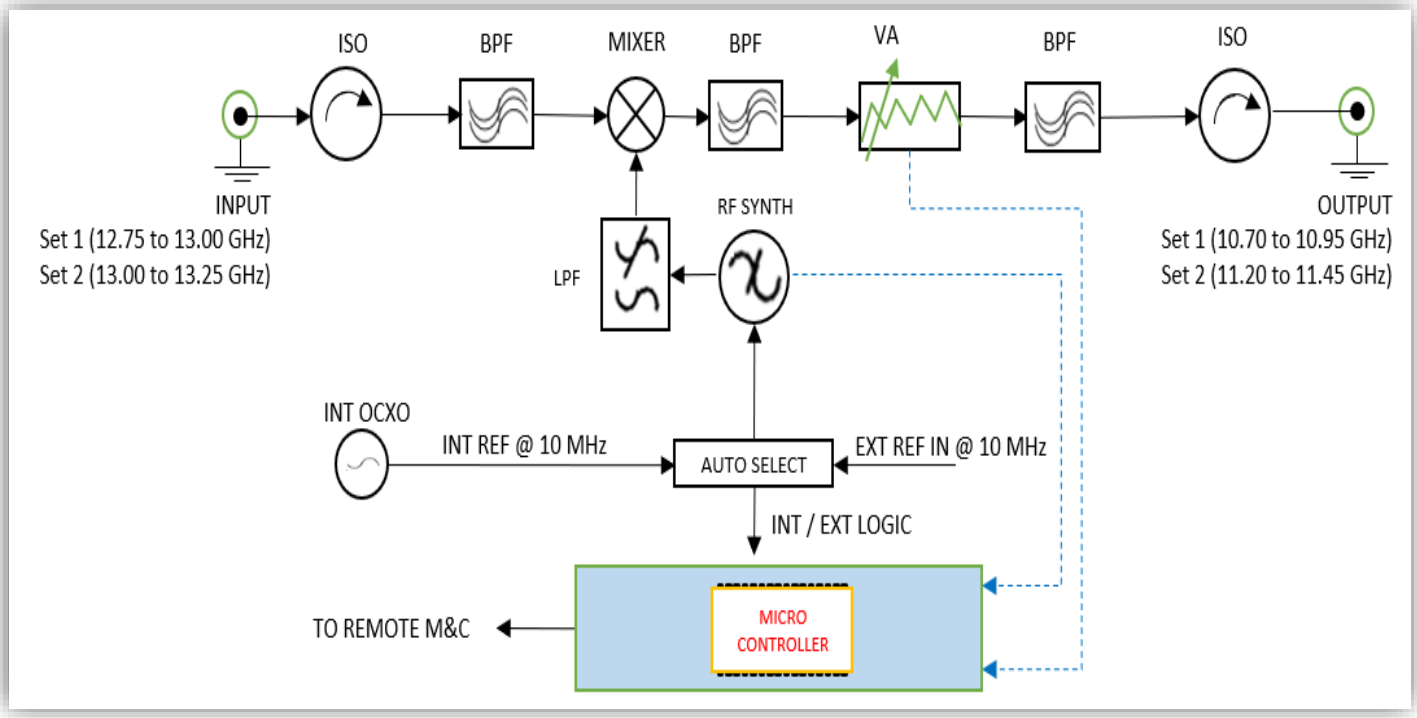
BLOCK DIAGRAM



Ku-Band TLT Band Coverage Calculations						
❖ Ku-Band TLT Unit utilizes Mixer for covering LO frequency LO1 – 2.05 GHz for Set 1 and LO 2 – 1.80 GHz for Set 2 for yielding output frequency range from Set 1 (10.70 to 10.95 GHz) and Set 2 (11.20 to 11.45 GHz) for the corresponding input range of Set 1 (12.75 to 13.00 GHz) and Set 2 (13.00 to 13.25 GHz)						
❖ The mixer needs very high LO drive power due to very low LO frequency range for converting Ku-Band Input to Ku-Band output frequency						
❖ The two sets of fixed frequencies that is frequency LO1 – 2.05 GHz for Set 1 and LO 2 – 1.80 GHz for Set 2 will be converted to corresponding two ranges in the output band						
❖ Due to very high LO drive level, the mixer will produce harmonic frequencies which will span into the desired output frequency range for each LO						
❖ The following table shows the frequency coverage						
LO	***LO Freq.***	***Freq. Set***	***Output Freq. Range***		***Input Freq. Range***	
1	2.05 GHz	Set 1	12.75 GHz	13.00 GHz	10.70 GHz	10.95 GHz
2	1.80 GHz	Set 2	13.000 GHz	13.25 GHz	11.20 GHz	11.45 GHz

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