



# Ku-Band Test Loop Translator Module

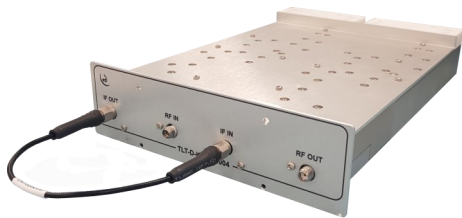
## Ku-Band to Ku-Band

### Typical applications:

- Teleports & Earth Stations
- Satellite Operations
- Government & Defence applications
- Telemetry, Tracking & Command
- High Resilience applications

TLT-D-K3K1-1003-S5S5 is a Ku band input to Ku band output Test Loop Translator designed to be housed in the 1U GENUS chassis, with 60dB of variable attenuation and LO synthesised frequency. The 1U chassis has the capacity for up to 16 hot-swap RF modules (dependant upon module type fitted). Contact ETL for module types available.

### TLT Module



#### TLT Module

Compact form factor allowing multiple modules to be housed in the Genus chassis. Each module occupies 8 slots in the chassis.



#### Frequency Conversion

Input Frequency: 12.75—14.5GHz  
Output Frequency: 10.7—12.75GHz



#### Variable Attenuation

60dB of available attenuation.



#### Hot Swap & replaceable

RF TLT modules

### Chassis Options



**Local control & monitoring** via HMI high resolution touchscreen



**Flexible Module Configurations** choose from a mixture of TLT modules with different operating frequencies.



**Resilience** from dual redundant hot-swap power supplies & field replaceable CPU & HMI



**Remote control & monitoring** via RJ45 Ethernet port with SNMP & web browser interface



**Compact indoor & outdoor** chassis options, which can be part populated



**Field replaceable Internal 10MHz reference source** and external reference inject port with auto detection



**Secure protocols** with SNMPv3 and HTTPS



Indoor Chassis



Outdoor Unit





GENERAL SPECIFICATIONS			
Operating Frequency Range	Input	12.75 GHz—14.5 GHz	
	Output	10.7 GHz—12.75 GHz	
LO Frequency Control Range		± 750 MHz (Instantaneous bandwidth is reduced when LO not set to centre frequency)	
LO Step Size		1 KHz	
Instantaneous Bandwidth		1 GHz (At LO centre frequency)	
Internal Reference Stability		±0.05 ppm over 0 to 50°C	
External Reference		Input Freq. 10 MHz. Auto detection (External reference optional)	
External Reference Level		+3 dBm ±3 dB	
Conversion Gain		0 ± 3.0 dB (At 0 dB attenuation setting)	
Flatness	10.7 - 12.75 GHz	±3.0 dB	
	Any 1 GHz	±2.0 dB	
	Any 500 MHz	±1.0 dB	
	Any 40 MHz	±0.5 dB	
Impedance		50 ohms	
Attenuation Control Range		0 to 60 dB	
Attenuation Control Steps		0.25 dB ±0.20 Over full operating band	
Input Return Loss		14 dB typ. 10 dB min.	
Output Return Loss		14 dB typ. 10 dB min.	
Max Input Power Level		0 dBm (Operational)	
Absolute max Input Power Level		+15 dBm (For no damage)	
In-band Spurious	Non-carrier related	< -60 dBm	At 0 dBm input, min attenuation. Non-harmonic
	Carrier related (>1 MHz Offset)	< -30 dBc	
Out-band Spurious	Non-carrier related	< -65 dBm	At 0 dBm input, min attenuation. Non-harmonic
	Carrier related (>1 MHz Offset)	< -30 dBc	
Harmonics		-30 dBc max. At 0 dBm input, min attenuation.	
LO Breakthrough		< -60 dBm max.	
Mute function		80 dB min	
Number of modules per chassis		1 max	Module 8 slots wide; 16 slots per chassis
Spectral Inversion		Non-inverting	
MTBF		>80,000 hrs MTBF of each TLT Module	
RF ports		SMA	

Note 1: The specification is subject to regular reviews and will be updated from time to time as part of our continuing product development and improved spec accuracy.

Note 2: Operation beyond the quoted limits stated above may cause instantaneous and permanent damage.

Note 3: All specs are for 50 Ohm connectors unless detailed otherwise.

ETL SYSTEMS LIMITED  
Coldwell Radio Station  
Madley  
Hereford  
England HR2 9NE

TELEPHONE  
+44 (0)1981 259020

WEB  
www.etlsystems.com

EMAIL  
info@etlsystems.com





**ETL Systems**

New technologies  
in RF distribution

Model Number:  
TLT-D-K3K1-1003-S5S5

**PHASE NOISE**

PHASE NOISE	
100 Hz	-70 dBc / Hz (typical)
1 KHz	-80 dBc / Hz (typical)
10 KHz	-80 dBc / Hz (typical)
100 KHz	-85 dBc / Hz (typical)
1 MHz	-100 dBc / Hz (typical)

Note 1: The specification is subject to regular reviews and will be updated from time to time as part of our continuing product development and improved spec accuracy.

Note 2: Operation beyond the quoted limits stated above may cause instantaneous and permanent damage.

Note 3: All specs are for 50 Ohm connectors unless detailed otherwise.

ETL SYSTEMS LIMITED  
Coldwell Radio Station  
Madley  
Hereford  
England HR2 9NE

TELEPHONE  
+44 (0)1981 259020

WEB  
[www.etlsystems.com](http://www.etlsystems.com)

EMAIL  
[info@etlsystems.com](mailto:info@etlsystems.com)

