

Installation and Operating handbook

Test Loop Translator Series

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EN 55022 CLASS B
EN 50082-1
EN 60950



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**IMPORTANT NOTE: THE INFORMATION AND SPECIFICATIONS
CONTAINED IN THIS DOCUMENT SUPERCEDE ALL PREVIOUSLY
PUBLISHED INFORMATION CONCERNING THIS PRODUCT**

PEAK COMMUNICATIONS Ltd maintains a continuing programme of product improvement and therefore reserves the right to change specifications without notice

INTRODUCTION

The Test Loop Translator series units are commonly used to monitor the output of a transmit path.

The units consist of an RF strip, which is a classical mixer stage and a control PCB to monitor the system and provide a stable reference for the Local Oscillator.

The units are housed in 19 inch 1'U' high chassis, suitable for rack mounting, are 400 mm deep and may be fitted with rack slides if required.

SPECIFICATIONS (May change dependent on frequency and options fitted)

TLT2225

Input Frequency	5.85-7.025GHz	Output Frequency	3.625-4.8GHz
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TLT585

Input Frequency	5.85-6.65GHz	Output Frequency	3.4-4.2GHz
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TLT585I

Input Frequency Spectrum)	5.85-6.65GHz	Output Frequency	4.2-3.4GHz (Inverted
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TLT600

Input Frequency	5.85-6.65GHz	Output Frequency	950-1750MHz
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TLT600DSA

Input Frequency	5.85-6.65GHz x 2	Output Frequency	950-1750MHz x 2
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TLT642

Input Frequency	6.425-6.725GHz	Output Frequency	3.425-3.725GHz
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TLT742

Input Frequency	7.90-8.40GHz	Output Frequency	7.25-7.75GHz
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TLT790

Input Frequency	7.90-8.40GHz	Output Frequency	950-1450MHz
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TLT127

Input Frequency	12.75-13.50GHz	Output Frequency	950-1700MHz
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TLT137

Input Frequency	13.75-14.50GHz	Output Frequency	950-1700MHz
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TLT140

Input Frequency	14.0-14.50GHz	Output Frequency	950-1450MHz
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TLT1000

Input Frequency	13.75-14.50GHz	Output Frequency	11.85-12.60GHz
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TLT142

Input Frequency	12.25-12.75GHz	Output Frequency	3.70-4.20GHz
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TLT180

Input Frequency	17.3-18.1GHz	Output Frequency	950-1750MHz
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TLT184

Input Frequency	17.3-18.4GHz	Output Frequency	950-2050MHz
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TLT672

Input Frequency	5.85-6.725GHz	Output Frequency	950-1825MHz
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Conversion Loss	20dB \pm 2dB at 0 attenuation setting
Maximum Input power	+ 16 dBm
Attenuator range (If fitted)	0-30dB
Resolution	Continuously variable
Output phase noise	-72 dBc/Hz @ 100 Hz -74 dBc/Hz @ 1 kHz -80 dBc/Hz @ 10 kHz -90 dBc/Hz @ 100 kHz -108 dBc/Hz @ 1 MHz
Input connector	SMA female 50 ohms (N Type Optional)
Output connector	SMA female 50 ohms (N Type Optional)
Input Return Loss	21dB
Output Return Loss	15dB
Operating temperature	-20°C to +60°C
Input to Output Isolation	30dB min
Output spurious Carrier/noncarrier related	-35dBc at 0dBm, -35dBm max
Output frequency stability	$\pm 5 \times 10^{-8}$ from 0 to 40 ⁰ C, (after 10 minute warm up period)
Weight	4.5 Kg approx.
Safety	Compliant to EN 60950 safety requirements
Power supply	230 volts AC \pm 10 %, 115 volts AC \pm 10 % (switch selectable) 50 Watts max

EMC AND SAFETY

EMC

The Test Loop Translator series have been designed to comply with the following standards;

Emissions : EN 55022 Class B; Limits and methods of measurement of radio interference characteristics of Information Technology Equipment.

Immunity : EN 50082 Part 1; Generic immunity standard, part 1: Domestic, commercial and light industrial environment.

The equipment must be operated with its lid on at all times. If it is necessary to remove the lid for routine servicing or fault finding then it is essential that the lid is fitted back correctly before normal operation.

For the Alarm and Remote Control data interfaces all 'D' type connectors must have grounding fingers on the plug shell to guarantee continuous shielding. The back-shells must comply to the requirements of VDE 0871 and FCC 20708, providing at least 40 dB of attenuation from 30 MHz to 1 GHz.

Connecting cables must be of the shielded type

Operation of the equipment in a non standard manner will invalidate compliancy to these standards.

Safety

To ensure safety of operator the Test Loop Translator series units have been designed to comply with the following safety standard;

EN 60950 Safety of information technology equipment, including electrical business machines.

Before operation the user must ensure that the installation complies with the information given.

The equipment is designed to operate in a static 19 inch rack system conforming to IEC 297-2. Operation of the equipment in transportable vehicles equipped with the means of providing a stable environment is permissible. Operation of the equipment on board vehicles, ships or aircraft without means of environmental conditioning will invalidate the safety compliancy; please contact the factory for further advice. Operation of the equipment in an environment other than that stated in the specifications will also invalidate the safety compliancy. The equipment must not be operated above 2000 metre altitude, extremes of temperature; excessive dust, moisture or vibration; flammable gases; corrosive or explosive atmospheres.

Installation

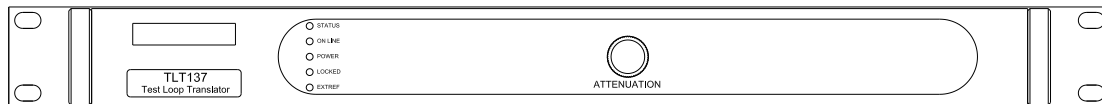
The equipment is classified in EN 60950 as a pluggable equipment class A for connection to the mains supply, as such it is provided with a mains inlet cord suitable for use in the country of operation. In normal circumstances this will be of an adequate length for installation in the rack. If the mains cord proves to be too short then any replacement must have a similar type fuse (if fitted) and be manufactured to similar specification: check for HAR, BASEC or HOXXX-X ratings on the cable. The connector ends should be marked with one of the following : BS1636A (UK free plug 13 amp); BSI, VDE, NF-USE, UL, CSA, OVE, CEBEC, NEMKO, DEMKO, SETI, IMQ, SEV and KEMA-KEUR for the IEC 6 amp free socket. Schuko and North American free plugs must have similar markings.

The installation of the equipment and the connection to the mains supply must be made in compliance to local or national wiring regulations for a category II impulse over voltage installation. The positioning of the equipment must be such that the mains supply socket outlet for the equipment should be near the equipment and easily accessible or that there should be another suitable means of disconnection from the mains supply.

The equipment is designed to operate from a TN type power supply system as specified in EN 60950. This is a system that has separate earth, line and neutral conductors. The equipment is not designed to operate with an IT power system which has no direct connection to earth.

UNIT DESCRIPTION

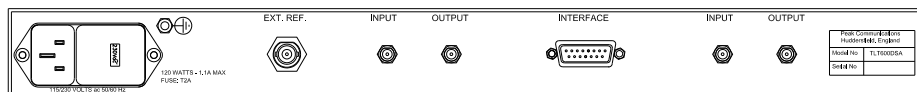
The Test Loop Translator Series units generally have front panel has 5 indicator lights which are as follows. (Some units have only 1 indicator light front panel)



- STATUS** Normally lit GREEN but will turn RED with any internal failure causing an alarm
- ON LINE** Lit GREEN only when unit selected or external adapter is fitted
- POWER** Lit GREEN when status of 5 Volt supply is OK
- LOCKED** Lit GREEN when the internal LO is correctly locked on frequency
- EXT REF** Lit YELLOW if 10MHz External Reference is in use (Option may not be fitted)

An Internal alarm is caused by an out of lock Local Oscillator, power supply lost to LO

Rear panel connections



- INPUT** Input frequency should not exceed +16dBm
- OUTPUT** Output in the frequency range of the specified unit. Calculation of the relative frequencies at L and Ku band is
 Output frequency = Input frequency – Local Oscillator frequency
- INTERFACE** Digital interface with the following signals

Ground	1	9	PSU OK - N/Closed
PSU Common	2	10	LO OK - N/Closed
LO Common	3	11	Not used
Not used	4	12	Not used
Not used	5	13	Not used
Audio Alarm enable	6	14	Not used
Audio Alarm enable	7	15	Not used
Not used	8		

Notes: To disable the internal audible alarm remove short from pins 6 and 7

OPERATION

Ensure the voltage selector on the rear of the panel is set to the correct setting. The unit is factory set at 230 Volts

On switching on the unit the STATUS indicator on the front of the unit should turn GREEN if all is OK.

If an alarm condition continues to show check alarm conditions on the rear panel

Connect the signal in to the INPUT SMA connector taking note of the power of the signal being input.

Output from the unit is from the output marked OUTPUT. The output SMA connector is rated to 18GHz and is a precision connector. Ensure a good quality connector is used to avoid poor contacts.

Alarms

The relay contacts used are normally open i.e. if the unit is not powered or has a fault the relay will not be energised. In normal operating conditions the relays are energised and the contacts are closed

The PSU and LO alarms on the D type connector can be chained to give a summary alarm. A typical configuration could be to link pin 3 to pin 9, pin 4 to pin 10 then connect a piece of twin wire to pins 2 and 11. In normal conditions these 2 wires should show continuity.

Typically if pins 1 and 2 are joined in addition to the above an alarm indication would be a non grounding signal

Alarms are due to the following reasons

1. 5 Volt rail drops to 0 Volts. The unit will indicate a PSU failure.
2. DRO is out of lock. The unit will alarm when the DRO phase volts drop below 2 Volts or exceed 12 Volts.

Internal adjustments

1. Internal frequency reference adjust (factory set) is potentiometer located near the crystal