

# Installation and Operating handbook

## Test Loop Translator Remote Series

Handbook Issue 1.01, 28<sup>th</sup> July 2015



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**IMPORTANT NOTE: THE INFORMATION AND SPECIFICATIONS  
CONTAINED IN THIS DOCUMENT SUPERSEDE 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

## TLTR series SHF to L-Band remote mounted Test Loop Translators



### Unit description

The TLTR Series remote mounted Test Loop Translators from Peak Communications are designed to be fully compatible with a wide range of receive equipment, to provide a monitor path from the output of the SHF amplifier. These high grade units are designed to accept the signal at SHF and provide a further conversion to the appropriate output band.

The unit is packaged in a diecast IP67 box with integral mounting lugs for easy mounting.

The TLTR series are designed to operate over a wide range of SHF power level inputs. The unit is temperature compensated to avoid long warm up periods.

The internal construction of the unit is modular which give some flexibility in accommodating customers' requirements such as gain and frequency. The unit is powered from the 5 pin connector, 10MHz reference signal can be provided via the optional TNC connector. Levels of these are given in the unit specification. Where very long lengths of cable are used gain can be incorporated as an option.

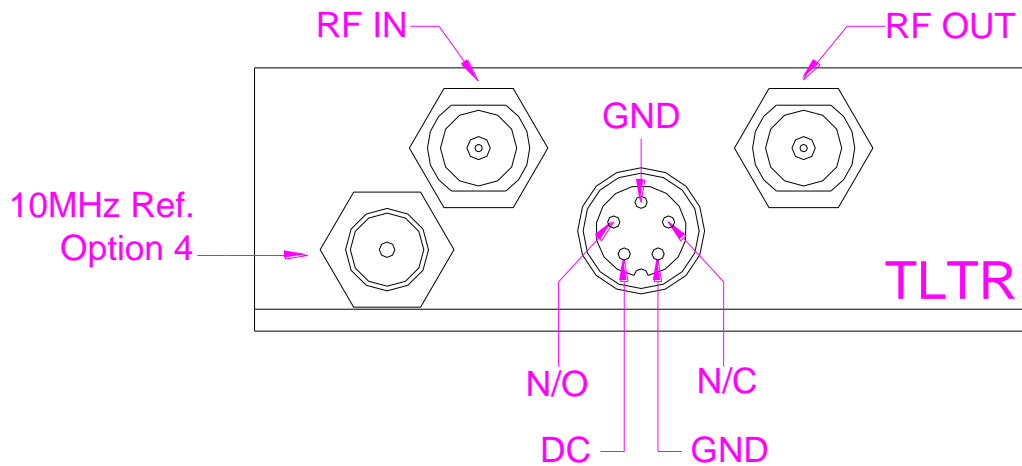
The incoming RF is passed to the mixer which is fed with an internal LO this LO is referenced by a high stability temperature compensated OCXO. At all stages the components have isolators or attenuators to ensure correct matching is maintained. The L-band or receive band signal is then passed out to the N-Type connector with no filtering unless this has been specified. The unit will not tolerate DC on any RF connectors

The TLTR units are not fitted with amplifiers as standard and have a through loss of 20dB nominal. Maximum input power with no damage is standard at +16dBm with a non compressed signal level above 5dB nominal.

The third socket on the base of the unit is for an alarm and power cable. The 'Out of lock' signal from the DRO is passed to a relay which is powered when the DRO is in lock. Both the NO and NC sides of the relay are available on this connector.

As an option a fourth socket can be fitted which is for an external 10MHz reference and is usually a TNC connector. The operation for the 10MHz system is the same for a standard unit with the same alarms and internal reference detection circuitry.. The DC and ground connections are placed on the pins, as shown in the diagram. If the above options are fitted the composite arrangement of L-Band, 10MHz and DC being fed up the RF cable does not apply to the unit.

## Installation



Connection panel view of TLTR Units

The unit has integral brackets on the box for attachment to a suitable fixture. The cables are all connected to one face which is the shorter side and the spacing of the four 5mm holes are 80mm apart and 190mm apart. The unit is cast aluminium and will break if excessive force is used.

### Operation

Attach the N-type feed wire carrying the RF signal to the socket marked 'RF IN'.

Output of the unit is an N-type socket marked 'RF OUT'. Check out all cables for shorts before connecting and ensure the connections are weatherproofed. The connections to the unit have a low DC tolerance and connecting DC to either input or output may cause damage.

- N/C (NORMALLY CLOSED) defined as; shorted to ground with no power, open circuit when working OK.
- N/O (NORMALLY OPEN) defined as; open circuit with no power, short to ground when working OK.

### The rating of the relay contacts is as follows;

Switch Voltage (Max)	100V
Switch Current (Max)	0.5A
Switch Power (Max)	10W
Contact resistance	0.2 $\Omega$
Operate/release	0.5 ms

The 10MHz reference signal, if option 4 is ordered, should be 0dBm +/-3dB. Lock can be achieved down to -10dBm, but this gets progressively more susceptible to interference.

If option 4 is ordered the alarm output is normally configured as a summary of 'external reference disconnected' or 'LO alarm' ('DRO out of lock' or 'no power to the unit'). Special configurations are available for applications where the user does not want 'external reference disconnected' to trigger an alarm.

## Maintenance

The unit is maintenance free but the following should be considered.

If the unit has been opened for any reason and the unit is in a hostile atmosphere additional sealing of the box is advised.

The only monitoring position on the DRO is the monitor pin which should read 6 volts in lock position..

## Specification

### Input

Connector N-type (f), 50Ω  
Return Loss >21dB  
Max Input power +16dBm

### Output

Connector N-Type (f), 50Ω  
Return Loss 15dB

### Transfer characteristics

Conversion Loss 20dB ±2dB at 0dB attenuation

### RF Performance

LO phase noise 75dBc/Hz @ 100Hz  
(typical) -92dBc/Hz @ 1kHz  
-100dBc/Hz @ 10kHz  
-107dBc/Hz @ 100kHz  
-125dBc/Hz @ 1MHz

### External Reference Input (Option 4)

Frequency 10MHz (5MHz factory settable)  
Connection Separate 50Ω TNC  
Level 0dBm ±3dB

### Mechanical

Width 123mm (4.85")  
Height 172mm (6.8"), plus connections & mounting flanges  
Depth 48mm (1.89")  
Construction Die-cast Aluminium, IP66 rated  
Weight 1.4kgs (3lbs) approx.

### Control System Interface

Alarms Summary alarm contacts  
Connection 5-pin circular, weatherproof (mating part supplied)  
Remote Control Ethernet option, supporting TCP-IP etc. (option 9).

### Environmental

Operating temp. -25°C to +70°C  
EMC EN 55022 part B & EN 50082-1  
Safety EN 60950

### Power Supply

Voltage +16.5 to +35VDC  
Current 500mA nom.  
Connection Fed in on 5-pin control interface connection or powered via Ethernet connection (Option 9)

**TLT2225**

Input Frequency 5.85-6.425GHz      Output Frequency      3.625-4.2GHz

**TLT585**

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

**TLT585I**

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

**TLT600**

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

**TLT642**

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

**TLT742**

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

**TLT790**

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

**TLT127**

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

**TLT137**

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

**TLT140**

Input Frequency 14.00-14.50GHz      Output Frequency      950-1450MHz

**TLT1000**

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

**TLT142**

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

**TLT180**

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

**TLT184**

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

