

PTR50

Tracking Receiver



The **PTR50** is a next generation tracking receiver, designed specifically to track and measure CW beacons from commercial satellites.






The **PTR series** are designed to be used for telemetry and control, typically in earth stations using large antennae.

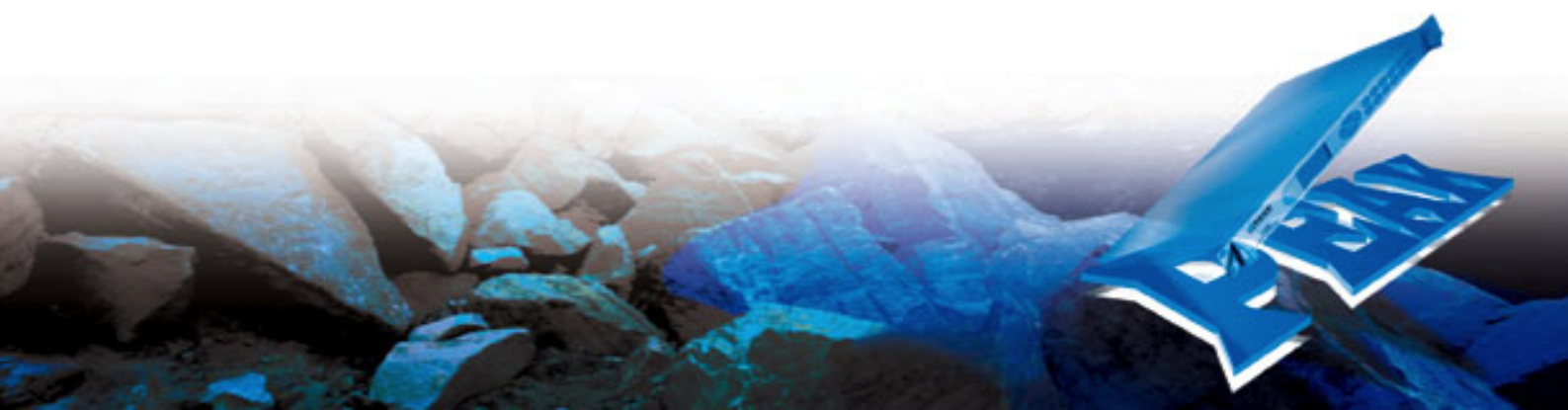
The receiver is designed as a versatile and easy-to-use unit and using the Peak Communications standard graphic display can display a digital representation of the beacon spectrum, with user selectable Resolution bandwidth settings.

The tracking band center frequency can be set accurately using the 1kHz step size Direct Digital Synthesiser (DDS) system. The unit uses a 2kHz Phase Locked Loop (PLL) system to perform signal acquisition and level measurement through coherent detection. The digital search facility sweeps the frequency to locate a signal in the acquisition band and if a signal is detected the frequency is locked immediately to this beacon. A secondary search is then initiated to look for a more intense signal within the search band. If one is detected then the locked tracking frequency is modified. The process repeats until the largest signal is found in the search band and the anti side-band device is then disabled.

A log amplifier is used to provide an output voltage representing the input power in logarithmic scale, in effect making the input power to output voltage log-conformal. The sensitivity of the logarithmic output is user selectable from the front keypad menu.

Peak Features

-  Graphical display of beacon.
-  Fast signal locking.
-  Sophisticated digital sideband rejection system.
-  Standard L-Band and SHF input options.
-  Logarithmic output range, user selectable.



PTR50 – Typical Specification

L-Band Input

Frequency Range	950-2,150MHz
Connector	50Ω, N-type (f)
Input return loss	15dB typical
Beacon input level	-70dBm nom. -60dBm max.
Aggregate power level	-20dBm max.

SHF-Band Input (Option 1)

Input Frequency options;	
Option 1a	C-Band input
Option 1b	X-Band input
Option 1c	Ku-Band input
Option 1d	DBS-Band input
Option 1e	Ka-Band input
Beacon input level	-90dBm nom. -80dBm max.
Aggregate power level	-40dBm max.

DC Output

Voltage Range	±10VDC Option 3a; 0-10VDC Option 3b; ±5VDC
Slope	Logarithmic, 0.5dB/V, 2dB/V, 5dB/V & 10dB/V, user selectable from front panel menu
Connector	BNC (f)
Impedance	0Ω (ideal voltage source, maximum current 5mA)
Adjustment range	Output adjustable to 0V for input power levels from -60dBm to -100dBm

Transfer Characteristics

Post-detection time constant	150mS
Step Size	1kHz
Search range	±20kHz, ±50kHz, ±100kHz, ±200kHz, ±500kHz, user selectable

Tracking Parameters

PLL noise (IF) bandwidth	2kHz, fixed
Threshold lock reacquisition	35dBHz
Average search time	3s (for bandwidth of 2kHz)

Video section (Beacon Display)

Resolution bandwidths	2kHz, 50kHz, 1MHz, user selectable from front panel menu
Display	Graphical

Block DownConverter/ LNB Drive

Output reference	10MHz at 0dBm nominal
DC supply	+22.5 volts regulated at 0.5A
Connection	Fed on L-band cable
Control	Switchable from front panel

L-Band Monitor (Option 2)

Connection	50Ω, BNC
Level	-20dBc ±3dB

External Reference Input

Frequency	Factory selectable 5 or 10MHz
Connector	50Ω, BNC
Level	0dBm ±3dB
Phase Noise	To be better than 50dBc/Hz of output Phase Noise

Internal Reference

Frequency	10MHz
Adjustment	±1.0ppm, stepped 0.02ppm

Stability

Stability	<5 x 10 ⁻¹⁰ over 1s, <5 x 10 ⁻⁹ per 12 hrs
Ageing	<5 x 10 ⁻⁷ per year
Temp. stability	<5 x 10 ⁻⁸ over 0 to 40°C

Mechanical

Width	19", standard rack mount
Height	1U (1.75")
Depth	534mm (21"), plus connectors
Construction	Stainless Steel chassis
Weight	Approx. 8kg (18lbs)

Environmental

Operating temp.	0° to +50°C
EMC	EN55022 part B & EN50082-1
Safety	EN60950

Power Supply

Voltage	85-132/170-265VAC, auto-select
Frequency	50/60Hz
Power	30Watts

Control System

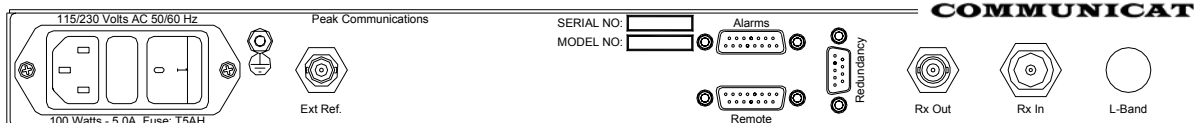
Remote control	RS232/RS485 port Ethernet option; Embedded web server & SNMP network management support (option 9).
Alarms	LO lock fail PSU fail External alarm inputs Summary failure relay (form C) Out of lock alarm (form C)

Options

- 1a) C-Band input.
- 1b) X-Band input.
- 1c) Ku-Band input.
- 1d) DBS-Band input.
- 1e) Ka-Band input.
- 2) L-Band monitor output (for SHF input options).
- 3a) Output voltage range 0-10VDC
- 3b) Output voltage range ±5VDC
- 9) Ethernet interface with embedded web server & SNMP
- 10) Attenuator options (please consult factory)

Note; Some of the above options have an impact on the general performance specification, factory guidance should be sought if this is thought to be critical.

Rear Panel View



Peak Communications reserves the right to alter the specifications of this equipment without prior notice. PTR50-310810.

Peak Communications Ltd, 22 West Park Street, Brighouse, HD6 1DU, England

Tel; +44 (0)1484 714200 Sales; +44 (0)1484 714229 Fax; +44 (0)1484 723666 Email; sales@peakcom.co.uk Web; www.peakcom.co.uk