

RTR51

Remote Mounted, 'CW' Beacon Tracking Receiver



The **RTR51** is a next generation remote mounted tracking receiver, designed specifically to track and measure 'CW' beacons from commercial satellites. Primarily an L-Band input receiver, the unit is designed to be used for telemetry and control, typically in earth stations using medium to large antennae or for smaller antenna in typically SOTM /mobile applications.

The receiver is designed as a versatile and easy-to-use unit, with the primary user interface being via remote control.

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 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.

The **RTR51** unit is designed for fast signal acquisition and locking achieving acquisition times of <1s average (<2s max.), for combinations of lower search ranges (search bandwidths) and higher sweep rate settings.

Peak Features

-  Rugged weatherproof housing
-  Fast signal acquisition and locking (<1s average)
-  Sophisticated digital sideband rejection system
-  Logarithmic output range, user selectable
-  Optional BDC/ LNB powering



RTR51 – Typical Specification

L-Band Input

Frequency range	945-2150MHz
<i>Note: For other frequency ranges (S-Band etc.), please contact the factory</i>	
Connector	N-type (f), 50Ω
Input return loss	15dB
Beacon input level	-70dBm nom -60dBm max
Aggregate power level	-20dBm max
Option 6;	Increases the above power levels by 20dB

DC Output

Voltage range	±10VDC
Slope settings	Logarithmic, 0.5, 2, 5 & 10dB/V
Connector	TNC (f)
Impedance	0Ω (ideal voltage source, maximum current 5mA)
Adjustment range	Adjustable to 0V for input power level between -60dBm & -100dBm

Transfer Characteristics

Post-detection time constant	150mS
Step size	1kHz
Search ranges	±20, ±50, ±100, ±200 & ±500kHz
Sweep rate	2.5, 5, 10, 20, 40, 80, 120 & 240kHz/s

Tracking Parameters

PLL noise (IF) bandwidth	2kHz, fixed
Threshold lock reacquisition	35dBHz (for sweep rates ≤40kHz/s)
Average search time	<1s (for search ranges of ±50kHz and with sweep rates ≥80kHz/s)

(see application note AN0025)

BDC/ LNB Drive (option 8)

DC supply	+16 volts regulated at 0.5A
Connection	Fed on L-band cable
Control	Switchable via remote control

Mechanical

Width	145mm (6")
Height	250mm (10"), plus connectors
Depth	30mm (1.2")
Mounting	Rear blind fasteners, M4
Construction	Aluminium, IP66 rated
Weight	Approx. 1kg (2lbs)

Environmental

Operating temp	-10° to +50°C
Option 12;	-40°C to +50°C (less solar gain), with extended warm-up time for cold start operation
Humidity	0-100% condensing
EMC	EN55022 part B & EN50082-1
Safety	EN60950

Power Supply

Voltage	+18 to +24VDC
Power	25 Watts max
Connection	Multi-pin circular, weatherproof (mating part supplied)

Control System

Remote control	Ethernet; embedded web server & SNMP network management support
Option 9 ;	RS232/RS485 port
Connection	Multi-pin circular, weatherproof (mating part supplied) external adaptor to weatherproof RJ45 supplied
Alarms	Summary failure alarm (relay form C) Out of lock alarm (relay form C)
Connection	Multi-pin circular, weatherproof (mating part supplied)

Options

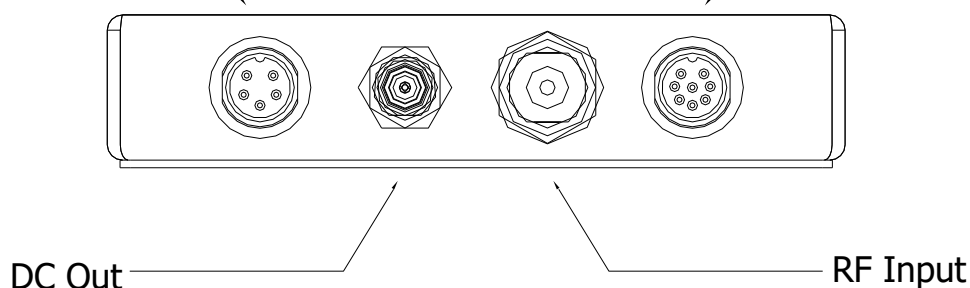
- 6) Higher input power level
- 8) DC drive for BDC/ LNB
- 9) RS232/485 interface
- 12) Low temperature operation to -40°C
- 16) Factory pre-set IP address

Note; the addition of options can modify the typical specification, for details please consult the factory

Connection panel view

Power / Interface

Ethernet / Remote



ESATCOM INC.

3628 Francis Lewis Blvd.

Flushing, NY 11358

www.esatcom.com

Tel: 718.799.0084

Email: sales@esatcom.com