R/F Receiver and Transmitters

RECEIVER

Receiver Features and Benefits

- Extended Transmit Range
- RF Frequency
- Noise Banking Circuit
- Range Reducing Attenuator
- Punch-in Thumb Wheel Attenuator
- Backlit Signal Meter
- Separate Frequencies
- Flashing LED (Light Emitting Diode)
- Frequency Range
- Deflecting Signal Meter
- Noise Banking Circuit
- Up to 40 miles of consistent read range on the ground, depending on the capability of the transmitter used, and even greater distances from the air.
- Allows you to track to within inches of a transmitter, even if it's within an enclosure, such as a building or a locker.
- Removes most impulses and ignition noise to enhance tracking in difficult conditions.
- Responsive to both strong and weak signals.
- The Thumb Wheel Attenuator prevents swamping.
- Enhances night tracking.
- Different users can choose frequencies for individual needs.
- Matches signal beep (fix).
- Avoids interference with other signals.
- The Deflecting Signal Meter shows signal strength.
- Reduces unwanted signals.

Product Description

Receiver Type	Handles up to
100 Receiver	100 transmitters
200 Receiver	200 transmitters
300 Receiver	300 transmitters
400 Receiver	400 transmitters
500 Receiver	500 transmitters

The 100 Receiver is a sophisticated but easy to operate tracking receiver. It is used in conjunction with miniature transmitters that can be tracked 2-40 miles on the ground and even greater distances from the air.
This receiver is capable of tracking baited property such as electronic equipment, laptop computers, construction equipment, or any items that are commonly stolen. You can also track vehicles or people. Crime rates have actually gone down in areas where our tracking equipment is used.

The receiver is light-weight, less than two pounds. It is rechargeable and gives 6-8 hours of tracking capability on full charge.

The miniature transmitters that are used in tandem with this receiver are RF frequency, and the receiver can track the transmitters to buildings, homes, garages, or to virtually anywhere the transmitter is taken.

Specifications

Typical Maximum Receiving Range:	Up to 40 miles of consistent read range on the ground, depending on the capability of the transmitter, and even greater distances from the air.
Dimensions:	7" x 4" x 5" (17.8 x 10.0 x 12.7 cm)
Weight:	Less than 2 lbs. (750 gm)
Material:	Pressure controlled, airtight, and watertight case (in black, orange or yellow)
Power Supply:	10 to 15 VDC
External Adapters:	AC power (110 Volt adapter included) Car adapter (fused cigarette lighter cord included)

Internal Batteries:	Rechargeable 10-AA cell Nicard batteries (6 to 8 tracking hours on full charge)
Operating Temperature:	4 degrees to 158 degrees F (-20 degrees to 70 degrees C)
Operating Humidity:	0-95% relative humidity non-condensing
Receiving Frequency:	150-225 MHz (Other bands available upon request)
Noise Figure:	2.5 dB or better
Input Impedance:	2.5 dB or better
Frequency Stability:	+/- KHz maximum (at operating temperature)
Image and Spurious Rejection:	60 dB or better
Minimum Discernible Signal:	-150 dBm (.007 microvolts or better)
Circuit Design:	Modern dual conversion superthetrodyne circuit with 8-pole crystal filter and 40 dB AGC range
Manual Gain Range:	90 dB or better
Frequency Readout:	Digital, direct reading in 1KHz steps; analog delta tune +/- 2 KHz center frequency
Tuning:	Three-digit, dust resistant, push-wheel switches control digital quarta-locked PLL synthesizer
Frequency Reset Ability:	To +/- 500 KH
Signal Metering:	0 to 1 scale meter with high dynamic range circuit and backlit for night tracking. LED indicator gives linear signal strength-to-brightness response for night use
Noise Banking Circuit:	Removes most impulse and ignition noise tracking in difficult conditions
Antennas Available:	Omni (Non-Directional), Yaggi (Directional), Loop (Directional)

Transmitter Features and Benefits

Miniature Size - Some transmitters are about the size of a regular paper clip.
Power - The most powerful transmitters in the world for their size.
Extended Read Range - Up to 25 miles of read range on the ground, and even greater distances in the air.
Very Low Battery Consumption - Up to 2 years life on some batteries.
Long-Term Durability - Four + years under normal conditions.
Tough Casing - transmitters are sealed in epoxy.
Flexible Antenna - Horsehair Antenna
Motion Activated Units - These transmitters use a mercury switch to detect movement.
Light Activated Units - These transmitters stay in Sleep Mode until they see light equivalent to a 15 watt bulb.

- The transmitters are easy to conceal even in small objects.
- You get the best power and size combination available on the market.
- Tracking time is reduced and tracking is easier, even when tracking on the ground.
- A reduced level of maintenance is required.
- The transmitters don't require maintenance and they can be reused over and over again.
- The transmitters are extremely reliable under adverse weather conditions and not very vulnerable to physical damage.
- The antenna is not obstructive when concealing a transmitter in small objects.
- When not moving, transmitters are using either limited power (fast/slow transmitters) or NO power (fast/sleep transmitters). You can also tell when the transmitter is moving.
- When in the dark, these transmitters use NO power and are ideal for using in sealed packages

Product Description

Mini Flat

This transmitter is a tracking device operated by a micro controller. It's about the size of a paper clip and is sealed in epoxy. It outputs a single 20 msec to 30 msec RF pulse, and has a repetition rate of about 40 beats per minute The output level is typically +2dBm into a 50-ohm load.

Mini Boxed

The features of the Mini Boxed transmitter are identical to the Mini Flat except for the way the transmitter is encased. The Mini Boxed is encased in a sturdy commercial potting cup.

Motion Activated (Fast/Sleep Mode)

This transmitter is a tracking device operated by a micro controller that contains a Sleep Mode program that keeps the transmitter inactive until it is moved. Once moved, the transmitter activates and transmits until it is reset with a magnet or the battery runs out. When the magnet is removed, the transmitter will output an 11 second continuous RF pulse and then delay for one minute so that you can place the transmitter in the object. It will then pulse three times to indicate that is in standby mode.

It's normally used as passive theft protection so that little battery consumption is needed and yet you can be aware when an object has been stolen.

Motion Activated (Fast/Slow Mode)
This transmitter is a tracking device operated by a micro controller that contains a Motion program. It's turned on and off by using a magnet. When the magnet is removed, the transmitter turns on and outputs an 11 second continuous RF pulse and then begins normal transmission. It then beeps at a rate of 40 beats per minute. When it senses motion, the beep rate changes to a rate of 96 beats per minute. When the transmitter has been still for 15 seconds, the pulse rate drops back to 40 beats per minute. After a transmitter is installed in an object, a magnet is used to reset the micro controller.

It's normally used to track objects when it's important to know where the object is at all times and when the object is being moved.

Light Activated
This transmitter is a tracking device operated by a micro controller that contains a Light Activation program. After this transmitter is installed in an object, a magnet is used to reset the micro controller. When the magnet is removed, the transmitter outputs in a 10 second continuous RF pulse and then begins to transmit every 5 seconds. When exposed to a light level equivalent to a 15-watt bulb at 12 feet or greater for at least two seconds, the transmitter will change speed and beep once per second until either reset by the magnet or the battery runs out
With the magnet attached, the power to the micro controller is disabled, and the transmitter consumes less than 5 micro-watts. This increases to 75 micro-watts when the transmitter is armed, waiting for the Light to hit the Light Sensor. When the transmitter is transmitting, it consumes up to 500 micro-watts. The Light-Activated Transmitter is intended for concealment in a package so that you can be informed that the package has been opened. It has also been used very successfully to replace a breakwire.

Transmitters - Specifications - Power					
					
	Mini Flat	**Mini Boxed**	**Motion (Fast/Slow)**	**Motion (Fast/Sleep)**	**Light Activated**
DC Current:					
Average	<0.2 mA	<0.2 mA	<0.2 mA	<0.2 mA	<0.2 mA
Peak	<0.5 mA	<0.5 mA	<0.5 mA	<0.5 mA	<0.5 mA
Not Active	0 mA	0 mA	0 mA	0 mA	0 mA
Power Supply:	3.6 VDC Lithium Battery				

Approximated Battery Life:	**Transmit Mode**
Tadiran C Size TL-2000	1 year
Tadiran D Size TL-2300	2 years
Keeper II Size LTC-16M-S2	6 months
Panasonic BR 2/3 A 3 Volt	6 months
Ultra Life Lithiium Thin Cell 3 Volt U3VF-K-T	40 days
Ultra Life Lithiium Thin Cell 3 Volt U3VF-L-T	20 days

Transmitters - Specifications - Physical					
					
	Mini Flat	Mini Boxed	Motion (Fast/Slow)	Motion (Fast/Sleep)	Light Activated
Material:	Epoxy Potted	Epoxy Filled Polyurethane Box			
Dimensions*:					
Inches	1.00" x 0.25" x 0.13"	0.750" x 0.35" x 0.35"	0.90" x 0.50" x 0.38"	0.90" x 0.50" x0.38"	1.00" x 1.00" x 0.25"
Centimeters	2.54 x 0.63 x 0.33	1.90 x 0.88 x 0.88	2.28 x 1.27 x 0.96	2.28 x 1.27 x 0.96	2.54 x 2.54 x0.63
Weight*:					
Ounces	Less than 0.5	Less than 0.5	Less than 0.5	Less than 0.5	Less than 0.5
Grams	Less than 15	Less than 15	Less than 15	Less than 15	Less than 15
Battery Wires:					
Positive	Red 26 AWG copper wire extending from unit				
Negative	Black 26 AWG copper wire extending from unit				
* Not including battery					

Transmitters - Specifications - Transmission					
					
	Mini Flat	**Mini Boxed**	**Motion (Fast/Slow)**	**Motion (Fast/Sleep)**	**Light Activated**
Typical Maximum Transmitting Range:	Up to 25 miles of consistent read range (40 km) on the ground, and even greater distances in the air.				
Frequency :	150-225 MHz (other bands available on request)				
Pulse Width:	25 msec + / - 10% (typical)	25 msec + / - 10% (typical)	30 msec + 0.2% (typical)	30 msec + 0.2% (typical)	25 msec + / - 10% (typical)
Accuracy:	+2.5 KHz maximum @ -20 and +70 C				
Frequency Aging:	+0.75 KHz maximum drift in one year				
Output Power*:	+ 2 dBm into 50 ohm load	+ 2 dBm into 50 ohm load	+ 2 dBm into 50 ohm load	1 mw or 0 dB into 50 ohm load.	1 mw or 0 dB into 50 ohm load.
Controlled By :	Microcontroller Program				
On/Off By :	Magnet	Magnet	Magnet	Magnet	Magnet
Activated By :	Always Active	Always Active	Motion	Motion	Light**
Typical Beats Per Minute:					
Off***	0	0	0	0	0
On****	40 +/- 10%	40 +/- 10%	40 +/- 10%*****	0	12 +/- 10%
Active	40 +/- 10%	40 +/- 10%	96 +/- 10%	120 +/- 10%	60 +/- 10%

Transmitters - Specifications - Environmental	
Temperature:	
Operating	-22 degrees to 150 degrees F (-25 degrees to 50 degrees C)
Storage	-40 degrees to 150 degrees F (-40 degrees to 50 degrees C)
Humidity:	
Operating	0-95% relative humidity non-condensing
Storage	0-95% relative humidity non-condensing
General:	Transmitter is sealed in epoxy; however the wires will allow moisture ingress under some conditions. The module should be protected from in-climate weather.

Prices

R/F Receiver: **US $ 25,000**
Transmiter Unit: **US $ 1,000 each**