



# ANTENNAS AND COUPLERS

Product Catalogue

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## Professional Communications

### HF Antennas



## RH6221

### 125-Watt WideBand Mobile Automatic Antenna System

Meeting MIL-STD-810 for shock and vibration, the fully weatherproof, fully immersible RH6221 ensures rapid link establishment and the highest level of communication reliability, under any operational condition.

**The RH6221 provide users with essential benefits and features**

#### Fast, automatic link establishment

- The RH6221 automatically seek the optimum tuning point at all communication conditions.
- An embedded memory facility automatically stores any configuration required to tune to a specific frequency. Whenever that frequency is called on subsequent uses, the RH6221 quickly reconfigure to the required frequency. Whenever variations affect communication quality, the RH6221 automatically re-tune the antenna to optimize signal quality.

#### Highly reliable HF radio communications

- Utilizing advanced microprocessor-controlled technology, the RH6221 provide precise and continuous tuning over the entire 1.6-30 MHz operating spectrum.

#### User-friendliness

The RH6221 can quickly and easily be mounted to a wide variety of vehicles, requiring no drilling, no special fitting nor special tools.



#### RH6221

Frequency Band:	1.6 - 30 MHz
Input Power:	125 W PEP & AVG
Tune power:	6.5-7.5 Watts
Tuned Antenna Input Impedance:	50 Ohm with VSWR $\leq$ 1.4
Azimuth Radiation Pattern:	Omni-directional $\pm$ 1 dB
Tuning Time from Memory:	< 300ms
Memory capacity:	Over 4400 memory settings
DC power requirements:	12 Volts DC, 1.2 Amp. supplied by radio
Duty cycle:	Designed for voice and full duty data applications
Antenna Height:	7FT (2.13m) fiberglass antenna supplied as standard. Additional lengths are available.
Tuner weight:	5.0 kg
Operation Temperature Range:	-30°C to +60°C
Storage temperature:	-40°C to +85°C
Humidity:	95% @ 50°C
Housing dimensions	530 x 128 x 114 mm

## **RH6229/RH62210**

### **NEW GENERATION HF NVIS ANTENNAS**



#### **Magnetic Half-Loop Antenna**

- Built-in High Efficiency Automatic Tuner
- Multiple Antenna variations for implementing exact and required radiation patterns
- 0-600 mi. operation without skip zone
- Low sensitivity to electrical noise
- 0-100 miles, received signal SNR is 10db stronger than typical Whip Antennas
- Support for continuous duty data systems
- Collocation improvement
- Omni-directional for NVIS communication
- Easy to install

**RH6229/RH62210 TECHNICAL SPECIFICATIONS**

Frequency Band:	1.6 - 30 MHz
Input Power:	< 125 W PEP and AVG
Tuned Antenna Input Impedance:	50 Ohm with VSWR < 1.5
Azimuth Radiation Pattern:	Omni-directional
Tuning Time from Memory:	< 300ms
Tuning RF Power:	7 w
Power supply:	12VDC, current less than 1A (24 VDC for HLA-6125)
Tuner Dimensions:	19.92"x10.24"x9.84" (505 x 260x250 mm)
Radiating Element Dimensions:	6'x 3" or 9'x4" (1.8x0.07 m or 2.74x 0.1 m)
Tuner weight:	15.4 lbs (7 kgs)
Operation Temperature Range:	-40 to 149°F (-40 to 65° C)

## RH6212

### NEW GENERATION HF NVIS ANTENNAS

#### Half-Loop Antenna

- Built-in High Efficiency Automatic Tuner
- Multiple Antenna variations for implementing exact and required radiation patterns
- 0-600 mi. operation without skip zone
- Low sensitivity to electrical noise
- 0-100 miles, received signal SNR is 10db stronger than typical Whip Antennas
- Support for continuous duty data systems
- The best solution for manpack and vehicle based applications with limited installation space
- Omni-directional for NVIS communication
- Light and compact



#### RH6212 TECHNICAL SPECIFICATIONS

Frequency Band:	1.5 - 30 MHz
Input Power:	< 25 W PEP and AVG
Tuned Antenna Input Impedance:	50 Ohm with VSWR < 1.4
Azimuth Radiation Pattern:	Omni-directional
Tuning time by algorithm	< 1s
Tuning Time from Memory:	< 2.0ms
Tuning RF Power:	3-6 W
Power supply:	12VDC, current less than 0.6A
Tuner Dimensions:	10"x 7.2"x 2.6"(256 x 183 x 65 mm)
Radiating Element Dimensions:	8.2' ÷ 13' (2.5m ÷ 4m)
Tuner weight:	4.8 lbs (2.2 kgs)
Operation Temperature Range:	-22 to 149°F (-30 to 65° C)

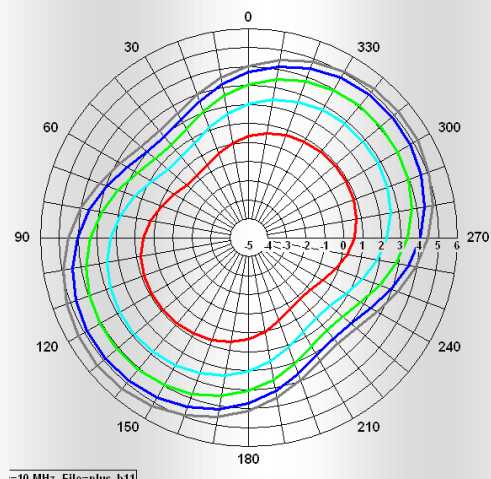
**RH6212 meets all MIL-STD-810F environmental requirements**

**RH62211****NEW GENERATION HF NVIS ANTENNAS**

## RH62211

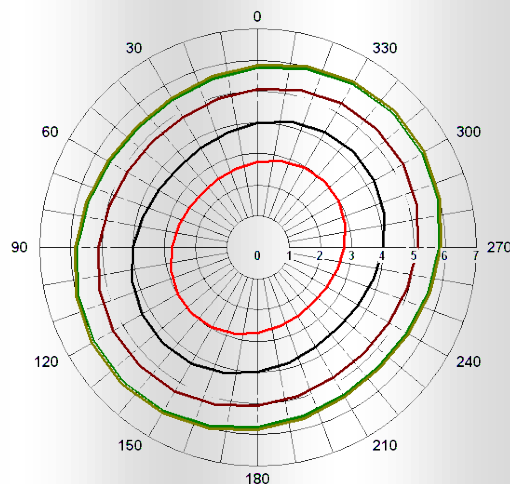
- The Electrical Antenna design consists of an active tuner for 2 horizontal dipoles in 90 deg deviation.
- Built-in High Efficiency Automatic Tuner
- Multiple Antenna variations for implementing exact and required radiation patterns
- Installation height 3-50 ft depended on Operational Requirements and the required Elevation and Azimuth angles
- The RH62211 is the best solution for Naval applications and Land based applications with limited installation space

### Medium Range



— Total Gain, Theta=40, Freq=10 MHz,  
 — Total Gain, Theta=40, Freq=11 MHz,  
 — Total Gain, Theta=40, Freq=12 MHz,  
 — Total Gain, Theta=40, Freq=13 MHz,  
 — Total Gain, Theta=40, Freq=14 MHz.

### Short Range NVIS



— Total Gain, Theta=20, Freq=2 MHz,  
 — Total Gain, Theta=20, Freq=3 MHz,  
 — Total Gain, Theta=20, Freq=4 MHz,  
 — Total Gain, Theta=20, Freq=5 MHz,  
 — Total Gain, Theta=20, Freq=6 MHz,  
 — Total Gain, Theta=20, Freq=7 MHz,  
 — Total Gain, Theta=20, Freq=8 MHz,  
 — Total Gain, Theta=20, Freq=9 MHz.

#### RH62211 TECHNICAL SPECIFICATIONS

Frequency Band:	1.6 - 30 MHz
Input Power:	125 W PEP and AVG
Tuned Antenna Input Impedance:	50 Ohm with VSWR $\leq$ 1.5
Azimuth Radiation Pattern:	Omni-directional $\pm 1$ dB
Tuning Time from Memory:	< 300ms
Tuning RF Power:	7 w
Power supply:	12VDC, current less than 1.2A (24 VDC for HTDA-7125)
Tuner Dimensions:	19.09"x17.13"x9.84" (485 x 435x250 mm)
Antenna Height:	3 - 50 ft. (0.9 – 15 m)
Radiating Element Dimensions:	27 ft (8.2 m)
Tuner weight:	33 lbs (15 kgs)
Radiating Element weight:	3.3 lbs. (1.5 kgs)
Operation Temperature Range:	-22 to 149°F (-30 to 65° C)
Wind without ice:	100 mi/h (160 km/h)

## RH6213

### NEW GENERATION HF NVIS ANTENNAS

#### RH6213

- The Electrical Antenna design consists of an active tuner for horizontal dipole and whip antenna.
- Built-in High Efficiency Automatic Tuner
- Multiple Antenna variations for implementing exact and required radiation patterns
- The RH6213 is the best solution for manpack and vehicle based applications with limited installation space
- Meets all MIL-STD-810F environmental requirements

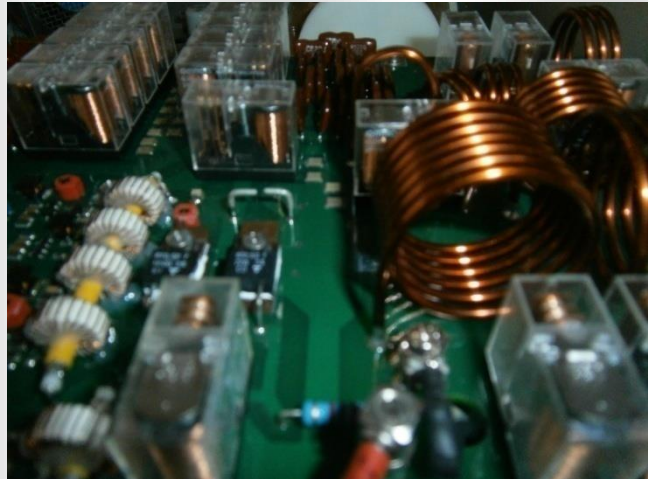


#### RH6213 TECHNICAL SPECIFICATIONS

Frequency Band:	1.5 - 30 MHz
Input Power:	20 W PEP and AVG
Tuned Antenna Input Impedance:	50 Ohm with VSWR $\leq$ 1.5
Azimuth Radiation Pattern:	Omni-directional $\pm$ 1 dB
Tuning time:	1 s
Tuning Time from Memory:	< 2 ms
Tuning RF Power:	3...6 W
Power supply:	12V DC, current less than 0.6A
Tuner Dimensions:	10"x 7.2"x 2.6"(256 x 183 x 65 mm)
Whip element height:	16 ft. (5 m)
Dipole elements length:	27 ft (8.2 m)
Tuner weight:	4.8lbs (2.2 kgs)
Operation Temperature Range:	-22 to 149°F (-30 to 65° C)
Storage Temperature Range:	-22...149°F (-40...85°C)
Control interface:	RS-232 or by RF cable or two wire

**RH6213 meets all MIL-STD-810F environmental requirements**

## Professional Communications HF Antenna Tuners Family



## RH6211

RH6211 is the antenna tuning unit designed to match 25W transmitter output with 1.5-2.7 m whip antenna in HF range (1600 ...30000 kHz). RH6211 provides the antenna input impedance transformation to 50  $\Omega$  active resistance with VSWR less than 1.4 . RH6211 is designed as a single board to be integrated into the radio.

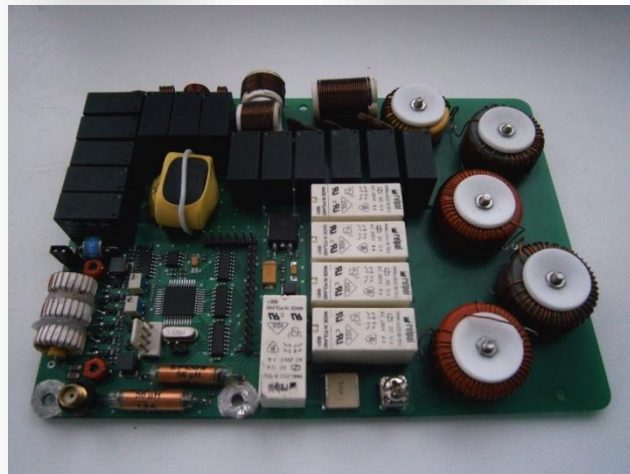


### Technical Specifications

Frequency band	1600...30000 kHz
Input Power (peak)	$\leq 25$ W
Input power (average)	$\leq 25$ W
Input impedance	50 $\Omega$ ; VSWR $\leq 1.4$
Tuning time (by algorithm)	$\leq 3$ s
Tuning time (from memory)	$\leq 0.3$ s
Tuning power	3-6 W
Power supply voltage	+12V DC ; 0.3A
Dimensions (without tray)	190 x 120 x 40 mm
Weight	0.4 kg
Operation temperature range	- 30 + 60 ° C
Storage temperature	- 40 +85 ° C
Humidity	95% ; 20 $\div$ 85 ° C

## RH6214

RH6214 is the antenna tuning unit designed to match 60W transmitter output with 1.5-2.7 m whip antenna in HF range (1600 ...30000 kHz). RH6214 provides the antenna input impedance transformation to 50  $\Omega$  active resistance with VSWR less than 1.4 . RH6214 is designed as a single board to be integrated into the radio and it is available in two versions: with or without power reduction at lower part of frequency range, that leads to the different cost of the versions.



### Technical Specifications

	RH6214
Frequency band	1600...30000 kHz
Input Power (peak)	
- for 4.-30 MHz band	$\leq 60 \text{ W}$
- for 1.6-4.0 MHz band	$\leq 30 \text{ W}$
Input power (average)	$\leq 30 \text{ W}$
Input impedance	50 $\Omega$ ; VSWR $\leq 1.4$
Tuning time (by algorithm)	$\leq 3 \text{ s}$
Tuning time (from memory)	$\leq 0.3 \text{ s}$
Tuning power	3-6 W
Power supply voltage	+12V DC ; 0.3A
Dimensions	190 x 120 x 40 mm
Weight	0.4 kg
Operation temperature range	- 30 + 60 ° C
Storage temperature	- 40 +85 ° C
Humidity	95% ; 20 ÷85 ° C

## RH6227

A matching device RH6227 is designed to match 150 W transmitter output with 4-6 m whip antenna in HF range (1500 ... 30000 kHz). RH6227 provides the antenna input impedance transformation to 50 ohm active resistance with VSWR less than 1.4 . RH6227 has waterproof aluminum housing and can be mounted with 4 M6 screws. Antenna isolator is located on the top of the device and provides connection to the antenna with a copper braid or wire. RH6227 is connected to the transmitter with 50 Ohm coaxial cable and the control/power cable of up to 20 m length.



### TECHNICAL SPECIFICATIONS

Frequency range:	1500...30000 kHz
Input power:	less than 150 W
Input impedance (matched):	50 Ohm, VSWR $\leq 1.4$
Tuning time according to the algorithm	less than 2.5 sec
Tuning time from memory on pre-programmed frequencies	less than 2 msec
RF setting power	14-20 W
Control interface:	RS232/RS422
Antennas	Whip antennas, 4-6 m
Supply voltage	(27 $\pm$ 2) V with current less than 1.0A
Dimensions	398x267x128mm
Weight	11.2 kg
Operation Temperature Range:	-22 to 149°F (-30 to 65° C)
Storage Temperature Range:	-22...149°F (-40...85°C)

## RH6231

RH6231 is designed to match the transmitter with 10 m Whip or 7-30 m Wire antennas input impedance within 1500 ... 30000 kHz frequency range. RH6231 provides transformation of the antenna input impedance to 50 ohm active resistance with VSWR less than 1.4. RH6231 has waterproof aluminum housing and can be mounted with 4 M8 screws. Antenna isolator is located on the top of the device and provides connection to the antenna. RH6231 has 50 Ohm RF input connector for HF transmitter and the control cable connector (for up to 30 m remote control).

RH6231 can be supplied for marine environment with appropriate protection (as option)



### TECHNICAL SPECIFICATIONS

Frequency range:	1500...30000 kHz
Input power:	500 W (PEP and average)
Input impedance:	50 $\Omega$ , VSWR less than 1.4
Tuning time according to the algorithm	less than 5 sec
Tuning time from memory on pre-programmed frequencies	less than 0.3 sec
Antennas	10 m Whip, 7-30 m Wire
Supply voltage	+48VDC with the current less than 2A
Dimensions	
- without protrusions	560x360x202 mm
- with the protruding parts	670x370x206 mm
Weight	20 kg
Operation Temperature Range:	-22 to 149°F (-30 to 65° C)
Storage Temperature Range:	-22...149°F (-40...85°C)

## RH6233

RH6233 is designed to match the transmitter with 10 m Whip or 7-30 m Wire antennas input impedance within 1500 ... 30000 kHz frequency range. RH6233 provides transformation of the antenna input impedance to 50 ohm active resistance with VSWR less than 1.4. RH6233 has waterproof aluminum housing and can be mounted with 4 M8 screws. Antenna isolator is located on the top of the device and provides connection to the antenna. RH6233 has 50 Ohm RF input connector for HF transmitter and the control cable connector (for up to 30 m remote control).



### TECHNICAL SPECIFICATIONS

Frequency range:	1500...30000 kHz
Input power:	1000 W PEP
Input impedance:	50 $\Omega$ , VSWR less than 1.4
Tuning time according to the algorithm	less than 5 sec
Tuning time from memory on pre-programmed frequencies	less than 0.3 sec
Antennas	10 m Whip, 7-30 m Wire
Supply voltage	+48VDC with the current less than 2A
Dimensions	
- without protrusions	560x360x202 mm
- with the protruding parts	670x370x206 mm
Weight	20 kg
Operation Temperature Range:	-22 to 149°F (-30 to 65° C)
Storage Temperature Range:	-22...149°F (-40...85°C)

## RH6251

RH6251 is designed to match the transmitter with 10 m Whip or 7-30 m Wire antennas input impedance within 1500 ... 30000 kHz frequency range. RH6251 provides transformation of the antenna input impedance to 50 Ohm active resistance with VSWR less than 1.4 (without power reduction till VSWR =5.0) RH6251 has air cooled aluminum housing for installation inside a communication site (building or shelter vehicle). Antenna isolators are located on the top of the device and provide connection to the antenna: 2 symmetrical outputs (600 Ohm) and 1 non-symmetrical output (50 Ohm). Antenna switch is located inside the device. RH6251 has 50 Ohm RF input connector for HF transmitter and the control cable connector (for up to 20 m remote control).

RH6251 has short and open circuit protection and appropriate failure alarms.



### TECHNICAL SPECIFICATIONS

Frequency range:	1500...30000 kHz
Input power:	5000 W PEP (without power reduction for VSWR<5.0)
Input impedance:	50 $\Omega$ ( non-symm)/600 Ohm (symm) VSWR less than 1.4
Tuning time according to the algorithm	less than 5 sec
Tuning time from memory on pre-programmed frequencies	less than 0.3 sec
Tuning power	10 W
Antennas	10 m Whip, 7-30 m Wire
Supply voltage	220 V AC (AC/DC converter is built-in)
Dimensions	600x600x1000 mm
Weight	60 kg
Operation Temperature Range:	-22 to 149°F (-30 to 60° C)
Storage Temperature Range:	-22...149°F (-40...85°C)