

## Features

- **Frequency Range:** 9 kHz to 30 MHz
- **Built-in, Battery Operated Preamplifier**
- **Fiber Optic Remote Monitor/Control option**
- **Electric or Magnetic Field Measurements**
- **Individual Calibration per IEEE 291 Included**
- **Three-year Standard Warranty**

## Description

The **AL-130R** is an Active Loop Antenna (loop size: 19" x 19" [0.5 m x 0.5 m] with electrostatic shield), operating over the frequency range of 9 kHz to 30 MHz. It has a built-in, low-noise preamplifier, which increases overall measurement sensitivity as well as the overall signal to noise ratio.

The antenna is battery powered (rechargeable 6V NimH battery pack). The **AL-130R** can also be powered by the supplied charger/power adapter. The front panel has LED indicators for RF ON/OFF, power, battery low, amplifier saturation, as well as charging status.

## Construction

The **AL-130R** is designed for durability, making it the ideal choice for daily use in most environments. It is constructed using high grade aluminum, which is also powder coated for additional durability.

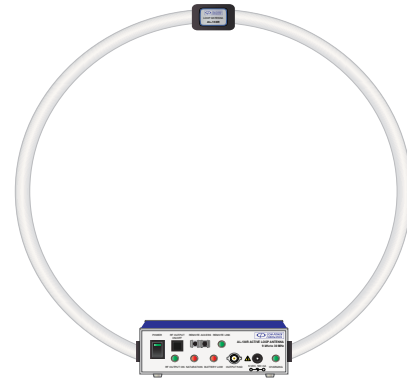
## Mounting

The **AL-130R** has a 1/4 inch x 20 threaded hole on the bottom of the preamplifier enclosure, which is used to secure the antenna to any tripod or antenna mast with a compatible mounting arrangement.

Com-Power's **AT-220** Tripod is the recommended support for this antenna. Using this tripod, the center-point of the loop can be adjusted from 0.95 meter to 1.35 meters (37" to 53").

## Calibration

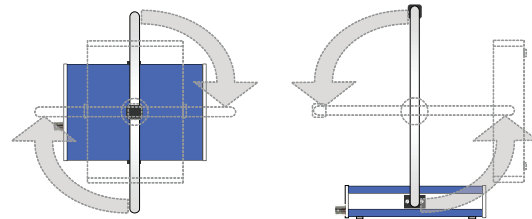
The antenna is individually calibrated using NIST Traceable equipment per IEEE 291. The calibration data, along with certificate, are provided. Recognized ISO 17025 accredited calibration is also available upon request.



## Application

The **AL-130R** Active Loop Antenna is intended for use as an EMI test antenna for qualification-level regulatory compliance measurements per most commercial product test procedures including, but not limited to, ANSI C63.4, along with most CISPR, EN, ETSI standards.

Typically, the antenna is positioned vertically with the center-point of the loop elevated one meter above the ground. The loop is then rotated about its horizontal and vertical axis to achieve the maximum reading at each frequency.



The **AL-130R** can be used for Electric field (E-Field) or magnetic field (H-Field) measurements. Factors are provided for both types of measurements.

## Remote Operation (optional)

As per ANSI C63.4-2014, the use of an active loop antenna for compliance testing is permitted in a non-shielded environment ONLY if the saturation indicator is continuously monitored during the course of testing. Com-Power's **RAI-100** Remote Antenna Interface comes in very handy for this application.

The **RAI-100** is a compact controller which is used to enable/disable the RF measurement circuit and monitor saturation and battery low indicators remotely via a fiber optic cable up to 30 mtrs in length.

### Specifications

All values are typical, unless specified.  
All specifications are subject to change without notice.

Product Name	Active Loop Antenna
Frequency Range	9 kHz to 30 MHz
Loop Size	19" x 19" (0.5 m x 0.5 m)
Nominal Impedance	50Ω (output port)
AC Adapter Output Power	6 V <sub>DC</sub> (unregulated), 500 mA
Battery Type	6 V <sub>DC</sub> NimH (rechargeable)
Average Battery Life	10-12 hours
E-Field Antenna Factors	13.4 to 16.4 (average: 14.9) [dB(m <sup>-1</sup> )]
Saturation Level	>1 V/m / >120 dBμV/m (>2.65 mA/m) / >68.5 dBμA/m
Antenna Factor Variation	±1.5 dB
Sensitivity (typical):	-3 dBuA/m @ 10 kHz -44 dBuA/m @ 1 MHz
RF Connector	BNC-type (female)
Specifications	ANSI C63.4, CISPR, EN, ETSI, etc.
Dimensions (H x W x D)	20.1" x 19.7" x 10.6" [51 x 50 x 27 cm]
Weight	5.5 lbs. [2.5 kg]

### Accessories available from Com-Power:



RAI-100 Remote Antenna Interface



AT-220 Antenna Tripod



SPA-900TG Series Spectrum Analyzer

### Also Available:

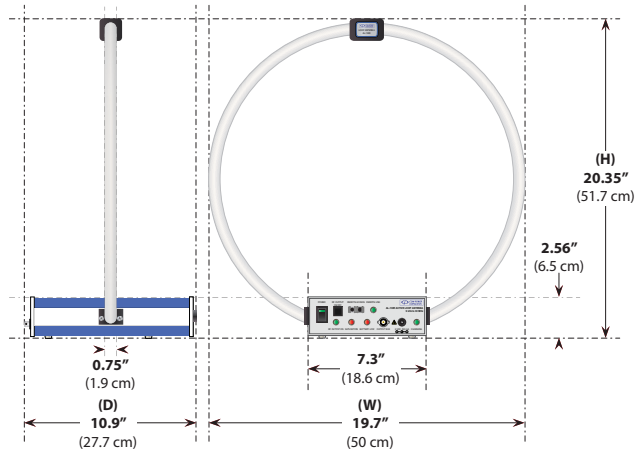
- AB-900A Biconical Antenna
- AM-741R Active Monopole Antenna
- AL-100, ALP-100, ALC-100 Log Periodic Antennas

$$\begin{matrix}
 \mathbf{H} & = & \mathbf{E} & - & 51.5 \text{ dB} \\
 \text{[H-Field]} & = & \text{[E-Field]} & - & \text{Log}^{-1} [377\Omega] \\
 \text{(magnetic field)} & & \text{(electric field)} & & \text{(impedance of air)}
 \end{matrix}$$

**MAGNETIC FIELD EQUATIONS**  
(AMPS per meter)

$$\begin{aligned}
 \text{A/m} &= \text{[E-Field] Strength (V/m)} / 377\Omega \\
 \text{dBuA/m} &= \text{[E-Field] Strength (dBV/m)} - 51.5 \\
 \text{dBuA/m} &= \text{Voltage (dBV)} + \text{[E-Field] Factor} - 51.5 \\
 \text{dBuA/m} &= \text{Voltage (dBV)} + \text{[H-Field] Factor}
 \end{aligned}$$

$$\text{H-Field Strength (dBuA/m)} = \text{Measured Voltage (dBuV)} + \text{Active H-Field Antenna Factor [dB(Ω/m)]}$$



### Active Antenna Factors (E-Field & H-Field)

