



Electronic Corporation

A Member of Bird Technologies Group

30303 Aurora Road
Solon, Ohio 44139-2794
(440) 248-1200 • www.bird-electronic.com

Instruction Sheet

Bird 4030 Relative Field Strength Element

Introduction

The Bird 4030 Relative Field Strength Element is used with Bird 43, 4430 or 4431 Wattmeters. It plugs into the line section like a standard element, however applying RF power to the line section is not necessary. The 4030 is a self-contained unit that transforms a wattmeter into an ultrasensitive broad-band instrument for checking relative RF field intensity. Its nonreactive solid state circuitry is sensitive enough to detect even low level RF signal emission.

The primary use of the Model 4030 is tuning antennas and output stages of base or handheld transceivers. It can also be used to adjust the output of garage door openers, radio control transmitters or other transmitting devices with frequencies within the 1 to 1000 MHz frequency range.

Installation

CAUTION
No RF line connections are required for the Bird 4030.
Do not apply power to the RF section.

The Bird 4030 is compatible with and may be used in all Bird THRULINE® Wattmeters with a 30 µA meter movement and that use standard or peak type elements. If a peak-reading wattmeter is used, the wattmeter must not be in peak mode.

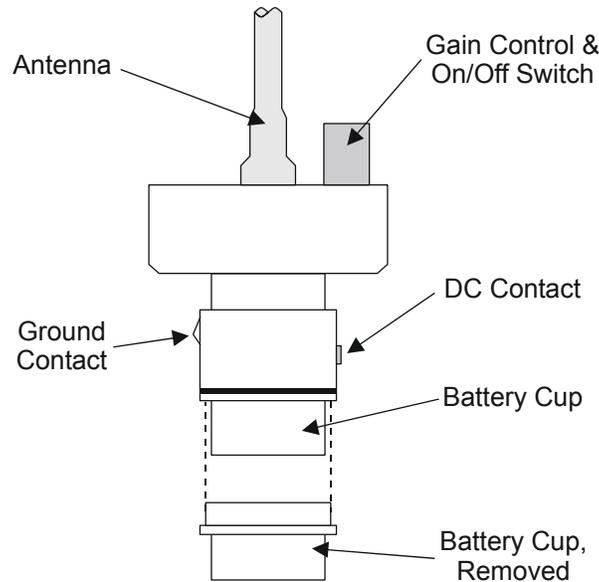
Insert the 4030 in the wattmeter line section so that the text on it is upright, with the locating pins against the steps in the socket. When fully inserted, it will not rotate.



Theory of Operation

Normally, field strength meters have resonant reactive networks where the RF signal is detected and then rectified to a half-wave current. This signal is then indicated on a sensitive microammeter. This method, of course, is limited and not very useful for weak signals.

The Bird 4030 Field Strength Element uses a broad-band nonreactive solid state circuit. This circuit amplifies the detected RF signal and delivers a dc voltage to the microammeter proportioned to the signal magnitude. The amplification is regulated by the gain control allowing the unit to be used for very low to high RF signal conditions.



Operation

The Bird 4030 and THRULINE® Wattmeter combination is very simple to operate. There is only one control, the GAIN CONTROL on the front face of the unit, which is also the ON/OFF switch. Follow the steps below for proper operation.

1. Turn the gain control slightly clockwise until it clicks on. Place the unit several feet from the transmitting antenna.
2. Turn on the RF power and adjust the gain on the 4030 until the pointer is about half of fullscale. If the pointer does not move significantly, move the unit closer to the antenna.
3. Adjust the antenna and/or transmitter output according to the manufacturers instructions to get the maximum possible reading on the meter.
4. When done, return the gain control to the OFF position.

👉 NOTE: For maximum battery life, turn the 4030 OFF when not using it.

Maintenance

The only maintenance the Bird 4030 requires is occasional battery replacement. To replace the batteries:

Requirement: Three 3 volt Lithium cells, Bird P/N 5-1475-1, or equivalent

1. Hold the 4030 with both hands and “break off” the gold plated battery cup - it is a tight snap fit. Don't try to pull the battery cup straight off! Do not lose the insulating sleeve that lines the cup.
2. Replace the three cells with their negative sides toward the bottom of the cup. Do not get finger grease (skin oil) on the cells, the cup bottom, or the contacting spring. Wipe the contact surfaces carefully with a clean cloth if necessary.
3. Snap the battery cup back on, then rotate it to assure proper seating.

Specifications

Frequency Range	1 – 1000 MHz
Typical Sensitivity (Gain at full)	1 W @ 150 MHz radiated power from a CW source will cause a full-scale deflection at a distance of eight feet.
Output Characteristics	Compatible with 30 μ A meters
Temperature	
Operating	0 to 50 °C (32 to 122 °F)
Storage	-20 to +50 °C (-4 to +122 °F)
Dynamic Range (Gain Control)	30 dB nominal
Battery	Three 3V Lithium-Manganese Dioxide cells 100 hour min. life
Dimensions (excluding antenna)	2” H x 1.7” Dia. max. (51 x 44 mm)
Weight, including batteries	3 oz. (0.85 g) nominal