

PERIMETER PRODUCTS
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EXPOSITORY STATEMENT FOR MODEL 24000 TRANSMITTER

General Description:

The Perimeter Products Inc., Model 24000 Transmitter is the transmitter portion of a bi-static radar intrusion detection link (field disturbance sensor). The transmitter source operates with 1.6 mW output power in the 24075 to 24175 MHz band and is modulated at a 50% duty cycle at any one of six user-selectable frequencies ranging from about 9.5KHz to 16KHz. The printed circuit board, microwave source, and planar array antenna are installed in a common shielded plastic housing. The unit operates from a nominal 12VDC power source.

Operating principle:

The transmitter aims a narrow beam of RF at the receiver. Anything intruding into the beam varies the amplitude of the received signal. This amplitude variation is filtered and compared to the normal signal, causing an alarm condition.

Circuit Description:

A fixed reference frequency of 3.579MHz is provided by a crystal. The specific modulating frequency (channel) is selected by configuring a "divide by" counter using a set of switches in accordance with the installation manual. The 24GHz microwave source is powered through an FET which is switched by the modulating signal.

Antenna:

The antenna is a 64 element planar array directly attached to the source assembly. The circuit board and source/antenna assembly are connected by an internally mounted coaxial cable

Attachments:

A circuit diagram is shown at figure 1.

A block diagram with signal path and frequencies is at figure 2.

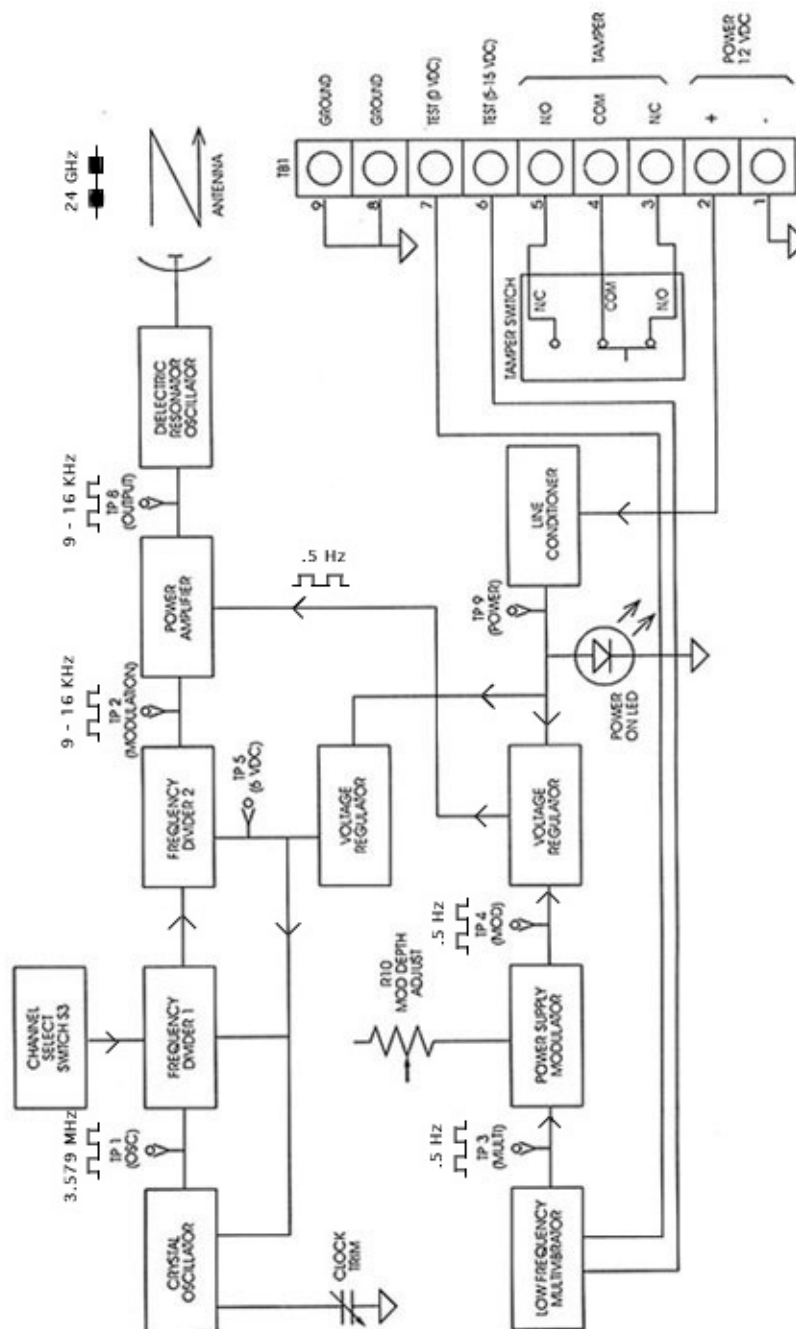


Figure 2: Block Diagram