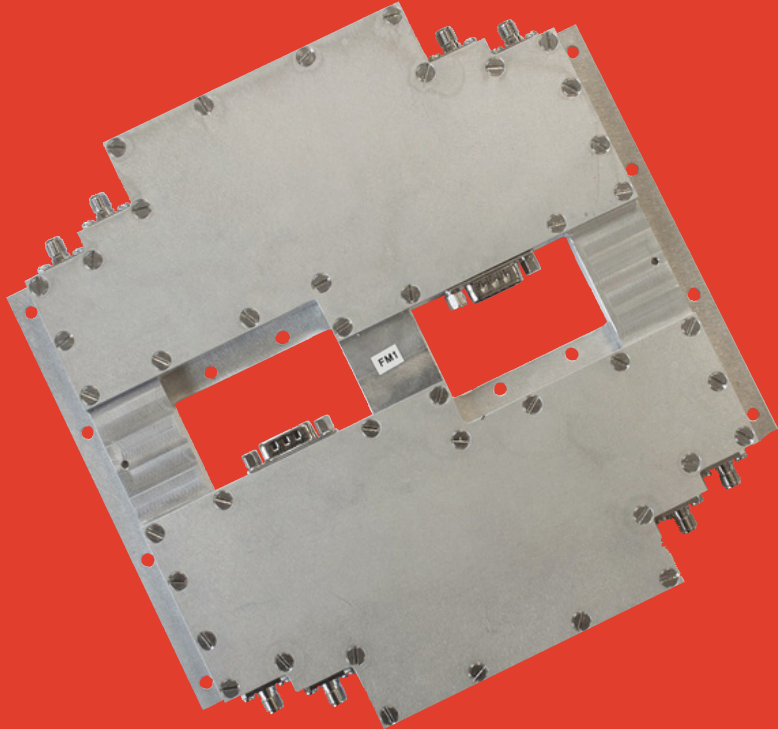


# UHF Antenna Coupling Unit



- Covers 400 MHz Band
- Connects 2 transceivers to 4 antennas
- Generates circular polarization from 4 monopoles
- Low insertion loss
- High isolation
- Low amplitude & phase error
- Fail safe

## Application

This UHF coupler is designed to control the antenna-transceiver interface for a pair of redundant UHF telemetry, tracking, and control transceivers.

## Configurations

Routes signals to and from an active transmitter to an antenna subsystem. Built-in protection prevents damage if both transmitters are mistakenly activated simultaneously.

## Operation

The subsystem consists of a 6-port stripline coupler, two transmit receive switches and control electronics. A set of 4 monopole antennas is fed in quadrature. The coupler provides the correct phasing and amplitude distribution of the signals.

The use of high-quality substrate and stripline technology assures low loss and high isolation. Pin diode switches, in combination with quarter wave lines, are used in the transmit/receive switching. This configuration provides very good isolation to the second transceiver, both in transmit and in receiving. In the event that both transmitters are accidentally switched on, no damage can occur. Switching is controlled by the transceivers. Pin diode switching time is on the order of nanoseconds. The subsystem includes forward and reflected power detectors. These signals are available at the control connector and can be used as feedback to the transmitter power control system.

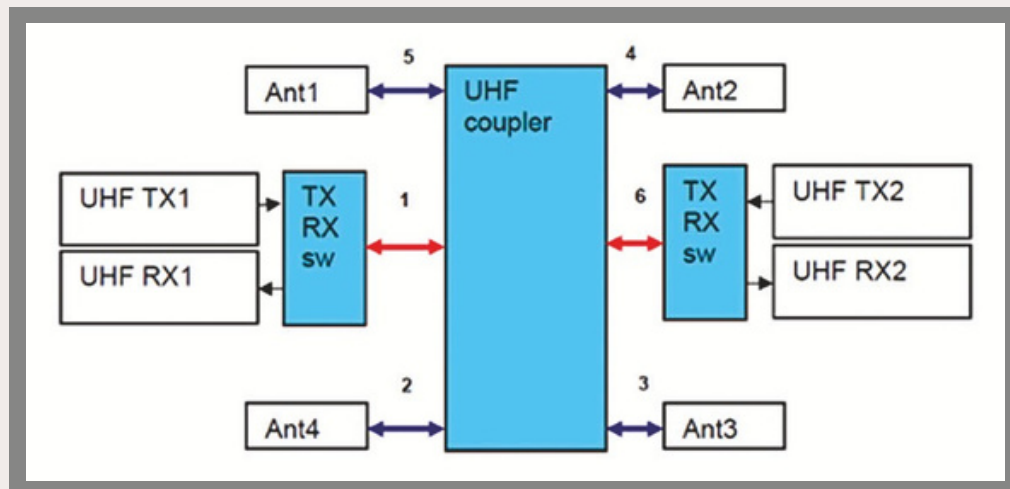


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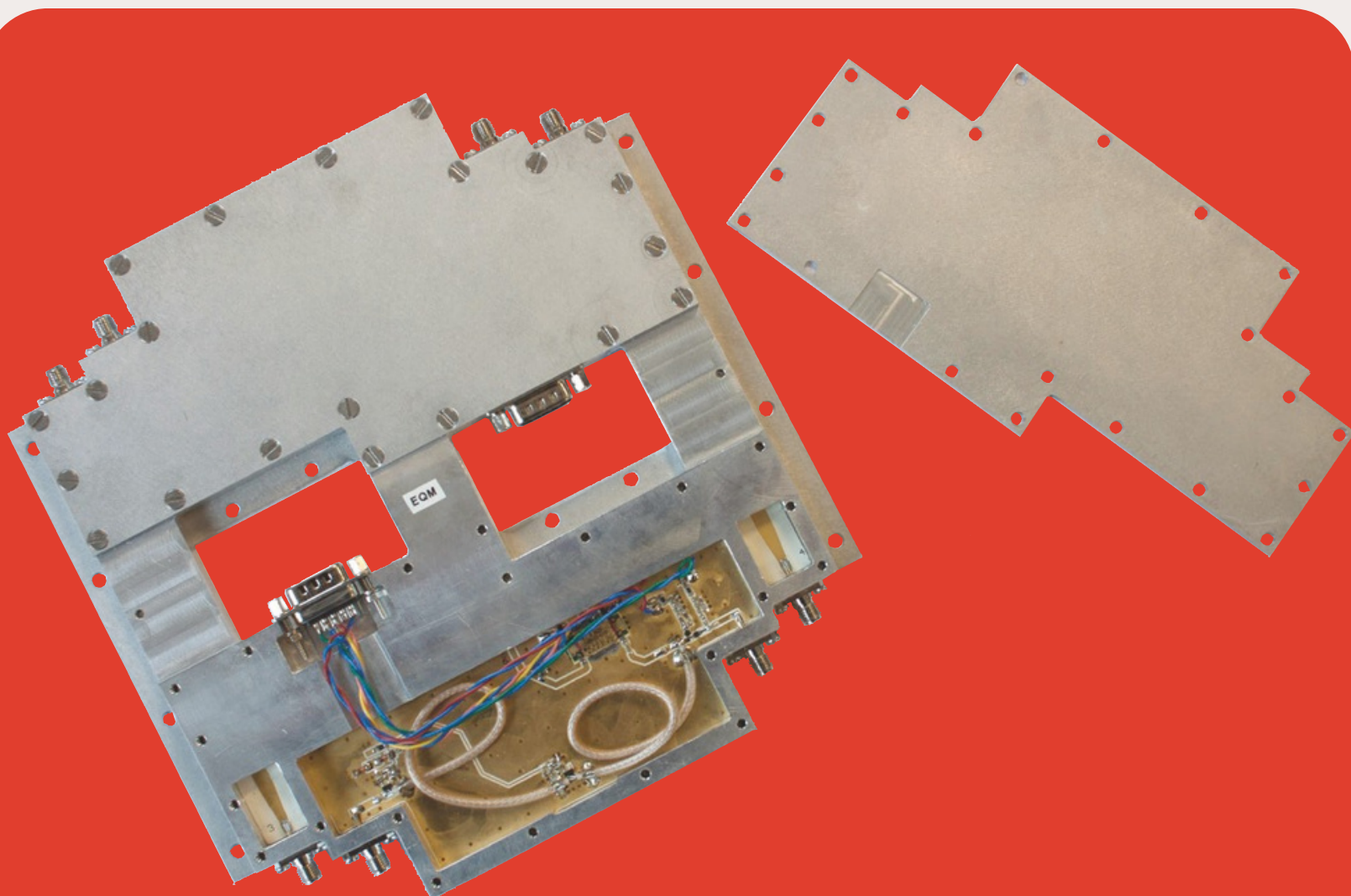
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# UHF Antenna Coupling Unit

Block diagram for the flight model of the satellite UHF coupler/ switch for interfacing redundant TTC transponders to a circularly polarized antenna system.



The functionality of the coupler is indicated with the parts in blue



# UHF Antenna Coupling Unit

## Specifications of a standard unit:

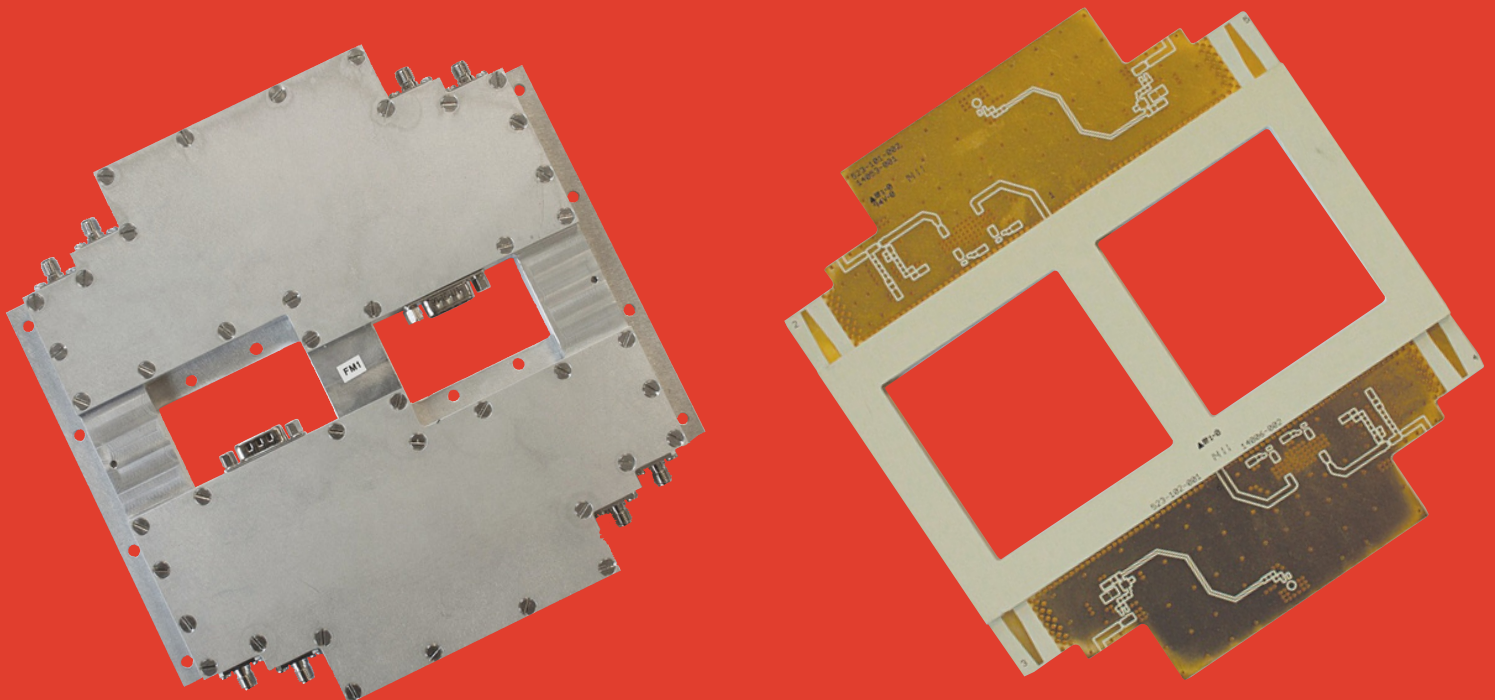
These can be modified to meet your specific requirements.

Parameter	Value
Electrical Specifications	
Frequency Band	400 MHz
Insertion Loss	Max. 1dB (typ 0.6db)
Isolation between RX-TX ports	Min. 25dB
Isolation between TX-TX ports	Min. 60dB
TX RF input power (Typ.)	5W
Amplitude Error	Max. 0.2dB
Phase Error	Max. 1 °
RF Connector type	SMA female
Control interface connector	9-pin sub D, male
Power Supply	Max. 30mA @ 7V Max. 80mA @ 16V
Operating temperature range	-40°C to +70°C -40°F to +158°F
Mechanical Specifications	
Dimensions	18 x 20 x 1.4cm
Weight	1.1kg – 2.4lbs.

## Optional Custom Modifications:

Other Frequencies on request

TNC, N connectors



# UHF Antenna Coupling Unit

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- OMP uses state-of-the-art circuit and 3D electromagnetic simulations tools
- OMP uses rapid prototyping for fast turnaround
- We will work with our customers on the integration of products designed
- We work with selected partners for agency approval.

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