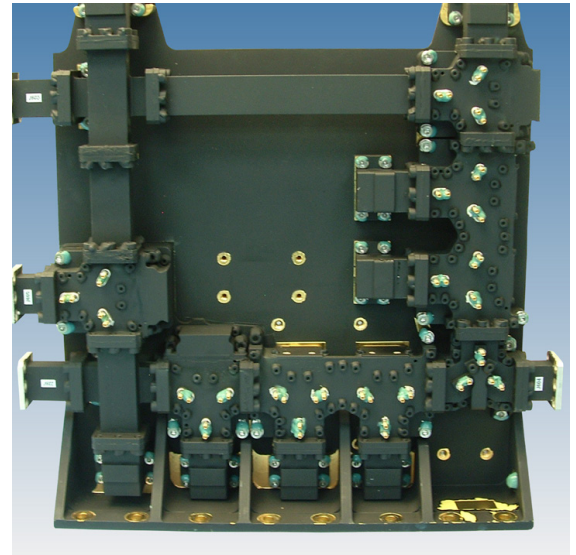


KU/KA-BAND FERRITE DUPLEXERS

Honeywell, a major international supplier of high technology microwave and electronic equipment to the space industry, designs and manufactures ultra-reliable RF switching solutions. Ferrite-based duplexers are used to implement RF front-end subsystems on Earth Observation satellites.

Key Features

- Available at standard Ku-band or Ka-band altimeter frequencies
- High peak and average power
- Low transmit and receive loss
- High transmit and receive Isolation
- Fast RF switching time
- Capable of operating at high pulse repetition frequencies (PRF)



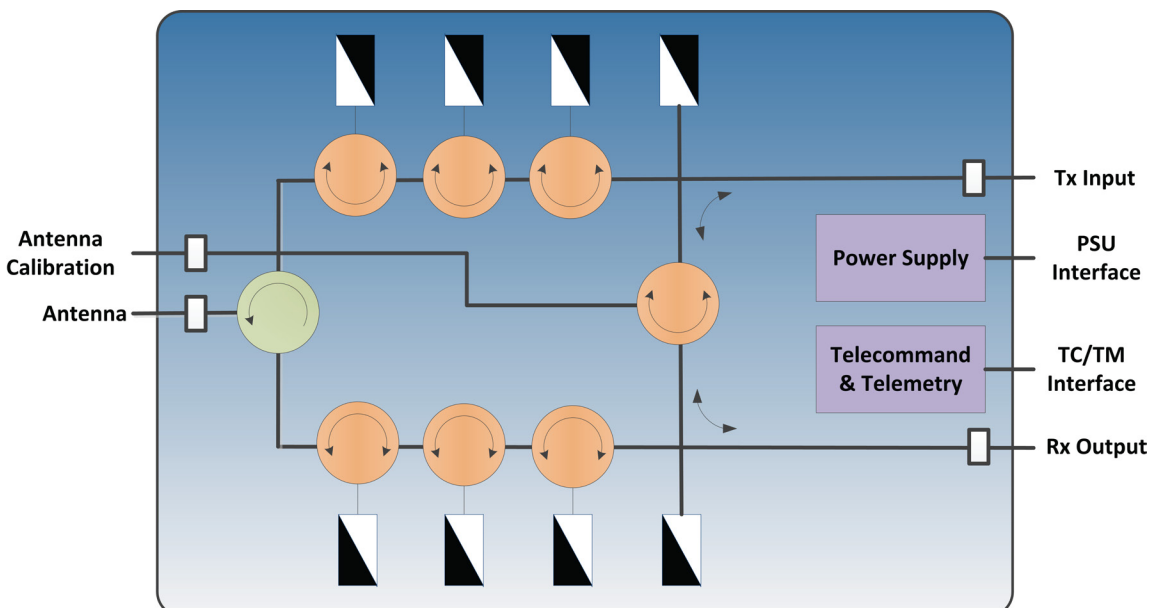
Typical Duplexer

Technical Description

Honeywell's Ku-band and Ka-band duplexers are used to provide rapid efficient transmit/receive switching for a range of Earth Observation missions including altimeters and scatterometers. Each duplexer consists of a circulator which routes the RF signal from the high power amplifier (transmit) input to the antenna feed, and routes the return echo from the antenna to the LNA (receive) output. A number (application specific) of switching elements are located in the transmit and receive paths in order to protect the sensitive receive circuitry during transmit mode.

Each switching element consists of a ferrite-based single pole double throw (SPDT) switch with a load on its unused output. The ferrite switches are controlled by electronic switch drivers. A switchable calibration path between transmit and receive ports is also provided. A power supply interface and TC/TM interface are also integrated into the unit.

Block Diagram



Key Specifications

PARAMETER	VALUE
Centre Frequency (Ku, Ka)	13.575 GHz, 35.75 GHz
Bandwidth	Up to 500 MHz
TRANSMIT MODE	
Transmit Insertion Loss	< 0.6 dB (3 switches)
Receive Isolation	> 95 dB (3 switches)
RECEIVE MODE	
Receive Insertion loss	< 0.6 dB (3 switches)
Transmit Isolation	> 80 dB (3 switches)
CALIBRATION MODE	
Calibration Loss	100 +/- 2 dB
Transmit to Receive Isolation	> 140 dB
GENERAL	
Port Return Loss	> 21 dB
RF Switching Time	< 1µsec
Switching Rate	10 kHz
Temperature Range	-20 to +50°C
Transmit Power Level	> 150W CW / 3kW Peak
Size	265 x 105 x 260 mm
Mass	< 4 kg

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