

Receives signals from 4 separate antennas and provides maximal ratio combining for each of 4 independent UHF satcom channels. Transmit mode dynamically selects best antenna for uplink.



FOR MOBILE COMMUNICATIONS — ENSURES LINE-OF-SIGHT TO SATELLITE

The QDC-100 is a state-of-the-art UHF satcom quad diversity combiner from ViaSat. The combiner provides up to 6 dB signal-to-noise ratio (SNR) improvement for each of four selected UHF satcom received signals from antenna-diplexer pairs. The QDC-100 is well-suited for platforms (aircraft and surface vessels) where multiple antennas can be used to ensure line-of-sight to the satellite for non-DAMA or DAMA signals. The combiner provides SNR enhancement within 1 dB of theory for N equal inputs when receive C/No is greater than 40 dB-Hz.

UNIQUE RF SIGNAL COMBINING — LOW PHASE NOISE, HIGH SPURIOUS IMMUNITY

The QDC-100 weighs and adjusts each antenna input for amplitude and phase at each frequency, then optimally combines the antenna input to create four composite communication channels. The QDC-100 provides optimal coherent combining of multiple receive signals even during dynamic aircraft and surface vessel maneuvers.

SOPHISTICATED PROCESSING — NOT WAVEFORM-DEPENDENT

Digital signal processing algorithms form combiner metrics at the update rates required to support aircraft dynamics, and are independent of the modulation used. UHF satellites employ a hardlimiter on each individual channel such that the signal from the satellite is a constant envelope signal, regardless of the uplink signal. The combiner will acquire the satellite even when there is no uplink signal present (common for DAMA and other TDMA signals).

TRANSMIT MODE — AUTO SELECTION OF BEST ANTENNA

The combiner monitors each of the receive antennas for the strongest signal and then uses that antenna for transmission. Continual monitoring of the received signals through platform attitude changes ensures that the best antenna is constantly used. When another antenna has greater satellite gain, the QDC-100 switches to that antenna for subsequent transmissions.

HIGH COMPATIBILITY — CONTINUOUS OR BURST OPERATION

The QDC-100 is compatible with a variety of UHF receivers, transmitters, transceivers, and terminals including ARC-171/187/210, RT-1771, WSC-3, USC-42 and OZ-72 MATT. The unit operates in either continuous or burst modes and is also compatible with all MIL-STD-188-181 waveforms and future upgrades.

EASY OPERATION AND SETUP — EXTENDED WARRANTY AND SUPPORT AVAILABLE

Either the ViaSat C-12480 Control Indicator (CI) or a PC can provide the user interface for easy configuration and setup. The CI is a DZUS rail-mounted remote control unit. The single air transport rack (ATR) design houses user-replacable VME modules with an abundance of spare slots for pre-planned product improvements (P3I). Embedded modules are conduction-cooled via the coldplate chassis design. A blind-mate tray is also available for the QDC-100 so it can be easily removed and replaced. Extended product support is available through ViaSat.

SPECIFICATIONS

GENERAL CHARACTERISTICS

Operating Modes Configure, BIT, By-Pass, Operate
VME Slots 11 total, including 5 spare
Operating Frequency 243 MHz to 270.5 MHz receive
Remote Control Interface EIA-232

ANTENNA INPUTS

Inputs 4
Signal range -120 dBm to -30 dBm
Non-Damage +30 dBm
Impedance 50 ohms
Load VSWR 2:1

RF OUTPUTS

Outputs 4
Frequency Range 243 MHz to 270.5 MHz
Load Impedance 50 ohms
Load VSWR 2:1
Output Level +13 dB gain from input

CONTROL PORT

Remote EIA-232
Local EIA-232
Auto-DAMA Tune EIA-422

ANTENNA INTERFACE

Keyline Input <1V enable, >11V disable
Transmit Select 4 signals, MIL-STD-188-114A, Type II (EIA-422)

PHYSICAL CHARACTERISTICS

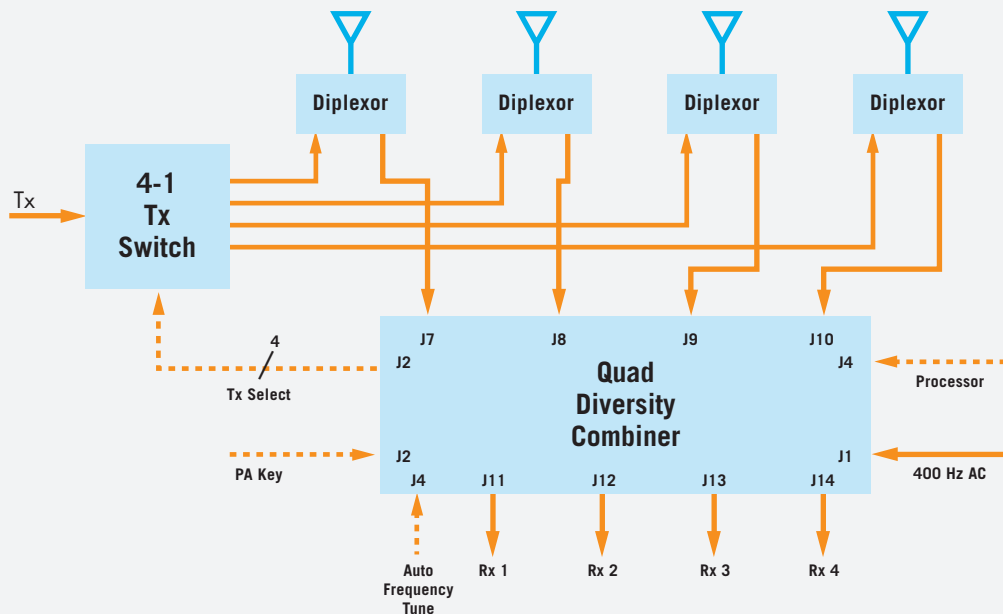
Dimensions (WHD) 10.12 x 7.62 x 19.62 in (without blind-mate tray)
Weight 45 lb

POWER SOURCE

Input Voltage 110 VAC, 400 Hz, Single Phase (MIL-STD-704A)
Power 50 Watts

ENVIRONMENTAL

Storage Temperature -40° C to 71° C (-40° F to +160° F)
Operating Temperature -25° C to 55° C (-13° F to +131° F)
Humidity <95% non-condensing
Altitude 11,000 ft
Shock Airborne Inhabited Cargo
EMI/EMC ±2 G, 20 to 500 Hz, MIL-STD-461C



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