

VTC4020 Satellite Transceiver 20 Watt



Features

- Complete Transceiver for Satellite Transmission and Reception
- Low Cost
- Built-in Monitor and Control Capability
- Converter and Power Amplifier in Single Housing
- Digital Gain Compensation



Description

The Vitacom C-band 20 Watt Transceiver, model VTC4020, is designed to provide a low-cost, high-performance solution for satellite communications' networks. The transceiver is designed with an industry-standard 70 MHz interface to be able to interface with a wide range of commercially-available modems, including the Vitacom M500 family of modems. The transceiver operates over the Intelsat band of 5850 to 6425 MHz on the transmit side and 3625 to 4200 MHz on the receive side.

The transceiver consists of two outdoor units, the converter/power amplifier module, and the low noise amplifier (LNA). The converter/power amplifier module is designed to mount on the kingpost or feed support arm of the antenna. The LNA is designed with a WR-229 waveguide input to mount directly to the receive port of the antenna.

Monitor and Control

The operation of the transceiver is controlled by a microprocessor-based computer mounted inside the transceiver. This M&C card controls the operation of the transceiver, including the built-in digital gain control. Via the RS-232 interface, the operator can control the transmit and receive gains of the unit, the transmit and receive frequencies, and the power amplifier mute. In addition, the operator can monitor the status of the transceiver.

Built-in Surge Suppressor

Each transceiver includes a built-in AC line surge suppressor in series with the AC input of the unit. The surge suppressor is designed to work in conjunction with the customer UPS to insure that the transceiver continues to operate during and after power line spikes and surges.

Power Supply

The VTC4020 20 Watt transceiver is designed to operate from 115 V/230 VAC via an autoranging power supply. Careful design has resulted in low power consumption by the transceiver, reducing the amount of fan cooling required. This greatly improves the reliability of the unit and reduces the need for periodic site visits for maintenance.

Redundancy

Each Vitacom transceiver has built-in programmed intelligence to allow fully redundant operation. This integrated and economical approach brings redundant capability to a level suitable for even low cost remote stations. The addition of a second transceiver, appropriate waveguide switches/cables, and the waveguide control unit results in an economical redundant earth station.

Installation

Vitacom has designed installation kits to mount the transceiver to a wide range of available antennas. These installation kits include detailed drawings and installation procedures for installing the transceiver on specific antennas. The transceiver weighs approximately 33 lbs. Vitacom technical support can provide assistance in determining the best location for mounting the transceiver.

When the installation kit is ordered, all necessary connectors are provided for the required cables. Supply of all the miscellaneous parts required for the installation helps speed the process and provides a consistent, high-quality installation every time.



VTC4020 Satellite Transceiver 20 Watt Specifications

Transmit RF Input

Frequency Range	52 - 88 MHz
Connector	Type-N female
Impedance	75 Ohms nom
VSWR	<2.0:1
Input Level	P1dB GCP obtained with input of -25 dBm nominal

Transmit RF Output

Frequency Range	5850 to 6425 MHz
IF Bandwidth	36 MHz Instantaneous

Power Level, 1 dB GCP

10-Watt Transceiver	+43 dBm min over temp and frequency
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Gain	68 dB nom
Gain Flatness	+/- 2.0 dB/36 MHz
Gain Stability -40C to +50C	+/- 1.5 dB
Gain Stability 24 hours	+/- 0.25 dB
Frequency Stability -40C to +50C	+/-5 x 10 ⁻⁷
Gain Control	0 to -15 dB, 1 dB steps

Frequency Stability/Aging

Per Day	5 x 10 ⁻⁹ Max
Per Year	5 x 10 ⁻⁷ Max

Spurious Outputs

Dependent, at rated power	- 50 dBc max
Independent	- 10 dBm max
Harmonic Outputs	- 30 dBc max at rated power
Third Order IMD Products	- 30 dBc (relative to each carrier) with 2 carriers each at -10 dB rel to rated P1 dB GCP and -20 dBc for 2 carriers each at - 6 dB rel to rated P1 dB GCP
Output Connector	Type-N female
Output VSWR	2.0:1 max

Receive RF Input

Frequency Range	3.625 - 4.2 GHz
Input level	-65 dBm nom
Input Impedance	50 ohm nom
Connector	Type-N female
LNA Bias	+ 15 volts on center conductor
LNA Current	100 mA nom

Receive RF Output

Frequency Range	52 - 88 MHz
IF Bandwidth	36 MHz Instantaneous
Transfer Gain	40 dB min, without LNA
Gain Control	0 to -15 dB, 1 dB steps
Output level	+10 dBm min at 1 dB GCP

Gain Flatness, 36 MHz	+/- 2 dB max
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Low Noise Amplifier

Noise Temperature	40K (**)
Frequency Range	3.625-4.2 GHz
Input Level	-115 dBm nom
Input Impedance	50 ohm nom
LNA Input Connector	WR-229 CPR-G
LNA Output Connector	Type-N female

Synthesizer (Specifications apply to transmit at 6 GHz and receive at 4 GHz)

Step Size	2.5 MHz
Type	Single synthesized

Phase Noise

Offset	Level
0.1 kHz	-60 dBc/Hz
1 kHz	-70 dBc/Hz
10 kHz	-80 dBc/Hz
100 kHz	-90 dBc/Hz
1000 kHz	-100 dBc/Hz

Monitor and Control System

Local Signal level	RS-232
Local Emulation	VT-100
Local Data Rate	9600 baud
Local Data	8 data bits, 1 stop bit, no parity

Input Power

AC Voltage	115/230 VAC +/-10%
AC Power	200 Watts nom

Environmental Conditions

Temperature Range	-40° deg C to +50° deg C
Humidity	100%, Condensing

Mechanical Specifications

18" L x 8.5" W x 7" H	33 lbs.
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Specifications subject to change without notice.

(**)Lower Noise Temps available.

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