Advanced Microwave Technologies, Inc.
ADVANTECH

IS0 9001 certified

C-Band Transceivers

2W - 150 W
AWMT-2000C Series

INTRODUCTION

AWMT-2000C® is ADVANTECH's new family of hub-mount transceivers operating in the C-band. These transceivers are designed for continuous operation in the harshest outdoor environment. Except for the LNB, the complete unit is available in a single integrated package. The built-in microprocessor controller provides for external monitoring and control of the operating parameters, and for the redundancy control. The LNB is connected to the transceiver with a single coaxial cable. Higher power transceivers are also available.

FEATURES

- ***Easy to install and operate***
- ***Compact light weight design***
- ***Weatherproof single package***
- ***Two Frequency Synthesizers (1 MHz step) for independent operation in Tx and Rx***
- ***High stable phase-locked LNB.***
- ***Superior phase noise***
- ***Remote Monitor & Control (RS232 / RS485)***
- ***Relay form "C" contacts available***
- ***Alarm LED display for Tx and Rx***
- ***Protection against thermal runaway and out-of-lock conditions***
- ***Automatic high power reflected power protection***
- ***No external switch controller required for 1:1 redundancy***
- ***Independent 1:1 redundant operation in Tx and Rx***
- ***Built-in Receive Reject Filter***

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APPLICATION

The AWMT-2000C is designed to operate in the C-band with an IF frequency of 70 or 140 MHz (Option) in the transmit and the receive directions. The unit is self-contained and is intended for mounting outdoors, near the hub of an antenna. When used in conjunction with Advantech SPL/ACTwireless modems, AWMT-2000C terminal is ideal for single- or multiple- carriers over a 36 MHz or 72 MHz bandwidth.

REDUNDANT OPERATION

The AWMT-2000C series of transceivers may be configured to operate in 1:1 redundancy mode. No extra controller is required for redundancy operation, as the built-in controller in each amplifier provides this function. Especially, 1:1 redundant operation is independent in Tx and Rx.

MONITOR AND CONTROL

An onboard microprocessor monitors and controls all operational parameters and system status of the AWMT-2000C. This powerful M&C system enables the user to locally and remotely control functions such as output power and transmit/receive channel frequencies. The M&C system also controls a sophisticated digital temperature compensation system, ensuring the highest gain stability over temperature and frequency of any transceiver package available.
The AWMT-2000C has universal RS-232 interface compatibility capable of operating with dumb terminals, Laptop/PC emulating terminals, hand-held terminals and PDAs without proprietary software. The versatile configuration provides two M&C ports: one RS-232 and one RS-485. If one indoor M&C computer or one indoor remote control panel is adopted, the RS-485 serial port will be used with Advantech M&C software.

Two kinds of controllers are available from Advantech:

- Hand-Held Terminal, suitable for in the field installation setup.
- Remote Control Panel, suitable for indoor rack mounting to provide permanent monitoring and control capabilities. It might be used for both configuration standalone and redundancy

MAJOR OPTIONS

Transmit frequency bands (GHz)
Band 1 5.850 – 6.425 GHz
Band 2 6.425 – 6.725 GHz (CP)
Band 3 6.725 – 7.025 GHz (CI)

Receive frequency bands (GHz)

Band 1 3.625 – 4.200 GHz
Band 2 3.400 – 3.700 GHz (CP)
Band 3 4.500 – 4.800 GHz (CI)

Bandwidth
Narrow band (40MHz), 70MHz IF
Wide band (80 MHz), 140MHz IF

Accessories
Mounting Kits for transceiver installation
Redundancy kits
Mounting frame for redundancy applications
Transmit Reject Filter
Remote Control Panel
Hand-Held terminal

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SPECIFICATIONS

Transmit

Power	P1dB min.	Gain min.
2W	33 dBm	58 dB
5W	37dBm	62 dB
10W	40 dBm	65 dB
25W	43 dBm	68 dB
50W	46 dBm	70 dB
60W	47 dBm	70 dB
80W	48 dBm	71 dB
100W	49 dBm	71 dB
150W	51 dBm	71 dB

IF input

Frequency range	70 ± 18 MHz
	(140 ± 36 MHz optional)
Input Level	-25 to -5 dBm
Input Connector	Type N female
Connector Impedance	50 Ω (75 Ω optional)
Input VSWR	1.3: 1 max. at 50 Ω

RF output

Frequency range	5.850 – 6.425 GHz 6.425 – 6.725 GHz (CP) 6.725 – 7.025 GHz (CI)
Output connector	N type (F) for 2W – 10W CPR-137G for 25W – 150W
Output VSWR	1.3:1 max.

Gain specification

Attenuator range	20 dB
Attenuator step size	1 dB (0.1 dB optional)
Gain flatness	2.0 dB P-P max. 36 MHz 3.0 dB P-P max. 72 MHz
Gain stability	±1.5 dB max. -40°C to +55°C
Intermodulation Product (IMD3)	-26 dBc (2 carriers each at 6 dB back-off from P1dB)
Spurious.	-55 dBc max.
Synthesizer step size	1 MHz

Frequency stability

-40°C to +55°C	+/-2 x 10^{-8} / day
Aging	+/-1 x 10^{-7} / year

Phase noise

Offset frequency	Phase noise
100Hz	-63 dBc/Hz max.
1000 Hz	-73 dBc/Hz max.
10 KHz	-83 dBc/Hz max.
>100 KHz	-93 dBc/Hz max.

Receive

Phase Locked Low Noise Block (PL LNB)

RF Input Frequency	3.625 – 4.200 GHz 3.400 – 3.700 GHz (CP) 4.500 – 4.800 GHz (CI)
RF Input Interface	CPR-229G
Noise Temperature at 25°C	45°K typical
Gain	60 dB typical
External Reference for LNB	10MHz (supplied from Transceiver)
L-band Output Frequency	950-1750 MHz
L-band Output Interface	Type N female 50 Ω.

Down Converter (exclude LNB)

RF Input

Frequency Range	950-1750 MHz
Input Connector	Type N female
Connector Impedance	50 Ω
Input VSWR	1.3: 1 max at 50 Ω

IF Output

Frequency range	70 ± 18 MHz
	(140 ± 36 MHz optional)
Output Level	+14 dBm at P1dB
Output Connector	Type N female
Connector Impedance	50 Ω (75 Ω optional)
Output VSWR	1.3: 1 max at 50 Ω

Gain specification

Gain	35 dB min.
Attenuator range	20 dB
Attenuator step size	1 dB (0.1 dB optional)
Gain flatness	2.0 dB P-P max. 36 MHz band 3.0 dB P-P max. 72 MHz band
Gain stability	±3.0 dB max. -40°C to +55°C
Noise Figure	10 dB
Spurious	-55 dBc
Image Rejection	60 dB
Synthesizer step size	1 MHz

Frequency stability

-40°C to +55°C	+/-2 x 10^{-8} / day
Aging	+/-1 x 10^{-7} / year

Phase Noise

Offset frequency	Phase noise
100Hz	-63 dBc/Hz max.
1000 Hz	-73 dBc/Hz max.
10 KHz	-83 dBc/Hz max.
>100 KHz	-93 dBc/Hz max.

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Monitor & Control

Serial port (RS-485)	MS3112E10-6P
Serial port (RS-232)	MS3112E8-3P
Redundancy Port	MS3112E14-19P

Environmental

Cooling	2W to 10W – Convection
	25W to 150W – Forced Air
Operational	-40°C to +55°C standard
	-50°C to +55°C option
Storage	-55°C to +85°C
Humidity	up to 100% condensing
Altitude	3,000 m AMSL(derated 2°C/300m)

DC Output to LNB

+18V DC at RF IN connector

Power requirements

AC input voltage	MS3102R16-10P
	120VAC ± 15% or 220 VAC ±15% , 47 to 63 Hz

Mechanical

Dimensions	9.8”x6.27”x16.15” (2W to 10W)
	9.8”x9.15"x16.15” (25W to 60W)
	9.8"x9.15"x18.5" (80W & 150W)
Packaging	Weatherproof for outdoor use

ADVANTECH reserves the right to change the above specifications without prior notice

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