

X-Band Transceiver

300W to 500W
AWMT-4000X™ series



Features

- Operating X-Band Tx: 7.90 – 8.40 GHz
Rx: 7.25 – 7.75 GHz
- 70 or 140 MHz Tx and Rx interface
- Easy to install and operate
- Compact light weight design
- Weatherproof package
- LNA operation
- Low phase noise
- Remote Monitor & Control (RS-232/RS-485)
- Relay alarm indicators
- LED status indicators
- Automatic high reflected power protection
- Harmonic Filter
- High stability internal 10MHz reference
- Downloadable PC GUI
- Redundant ready operation

Overview

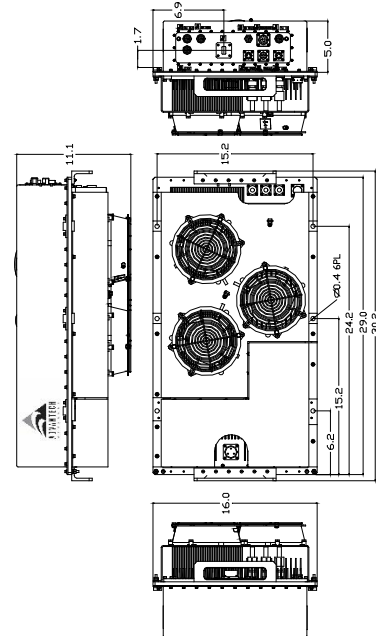
The Advantech Wireless range of transceivers uses the latest technology, local and remote control thus providing the ultimate in performance and user friendly operation at a very competitive price.

AWMT-4000X is a family of hub-mount transceivers operating in the X-band with an output power ranging from 300W to 500W. These transceivers are designed for continuous operation in the harshest outdoor environment. 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. Apart from the LNB, the complete unit is available in a single integrated package. Higher power transceivers are also available in the AWMT-X series for up to 800W.

The flexible and comprehensive monitor and control features on the transceiver ensure that it will fit into any network management system architecture. The user-friendly RS-232 interface will provide full set-up and fault monitoring facilities via a PC terminal mode communication or a hand-held terminal. The RS-485 interface will provide functional remote Monitor & Control, using the Graphic User Interface (GUI) or the Monitor & Control Panel.

Applications

The AWMT-4000X is designed to operate in the X-band with 70 MHz or 140 MHz IF interface. The unit is self-contained and is intended for mounting outdoors, close to the OMT of an antenna.



Options

- Additional L-band interface
- Phase-locked LNB
- Step size 125 KHz option
- TX or RX Reject Filters
- Remote M&C panel (Ethernet port optional)
- External 10 MHz reference with auto sensing

Accessories

- Mounting kits for transceiver installation
- Redundancy kits
- Mounting frame for redundancy applications
- Transmit Reject Filter and/or Receive Reject Filter (external)
- Remote Control Panel
- Hand-Held terminal

Redundancy

The AWMT-4000X 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. Redundancy kits are required for redundant operation.

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Technical Specifications			
Transmit Path			
Power (W)	300	400	500
P1dB min. (dBm)	+ 54	+ 55	+ 56
Gain min @ max. gain set (dB)	75	76	77
Power Consumption (W)	2400	2800	3000
Unit Weight	58 Kg (128lbs)		
Dimensions (L x W x H)	30.00" x 16.00" x 11.00" (76.20 x 40.60 x 28.00 cm)		
Transmit Path			
IF Input		RF Output	
Frequency range	70 ± 18 MHz 140 ± 36 MHz (optional)	Frequency range (Non-inverting)	7.9 - 8.4 GHz
Input Connector	Type N female	Output connector	CPR 112
Input Return Loss	18 dB / 50 Ω	Output Return	20dB (18 dB for coaxial output)
Gain Specification		Third order IMD (2 tones 5 MHz apart)	-25 dBc max at 3dB total back-off from rated P1dB
Gain control range	20 dB (0.1 dB step size)	Spurious (in band)	-55 dBc max
Gain flatness	3.0 dB p-p max over 36 MHz	Noise Power Density	-70 dBm/Hz max in TX band -110 dBm/Hz max in 7.25 - 7.75 GHz in RX band
Gain stability	3.0 dB p-p max over temp range		
Receive Path			
RF Input		Gain Specification	
RF Input Frequency	7.25 - 7.75 GHz	Gain (LNB+ Receiver)	80 dB @ max gain set
RF Input Interface	CPR-112	Gain control range	20 dB (0.1 dB step size)
Input VSWR	2.5:1	Gain flatness	±2.5 dB max over full RF band
	1.3:1 with input isolator	Gain stability	±3.0 dB max over temp. range
		Spurious	-55 dBc
		Image Rejection	50 dB
IF Output		LNA Parameters	
Frequency range	70 ± 18 MHz 140 ± 36 MHz (optional)	Noise Temperature	55°K without input isolator 65°K with input isolator
Output Level	+10 dBm	Output Interface	Type N female 50 Ω
Output Connector	Type N female / 50 Ω	Gain	60 dB
Output Return Loss	18 dB/ 50 Ω	DC power	12÷18V DC (via coaxial cable)
		LNB Parameters (optional)	
		LNB type	Phase lock to 10 MHz ref. (from Transceiver via coax. cable)
		Noise Temperature	90°K
		L-band Output Frequency	950-1450 MHz
		L-band Output Interface	Type N female 50 Ω
		Conversion Gain	60 dB
		DC power	12÷18V DC (via coaxial cable)

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Common Parameters (Tx & Rx)			
Synthesizer step size	1 MHz (option 125 KHz)	Environmental	
Frequency Stability		Cooling	Forced Air
$\pm 2 \times 10^{-8}$ over 0°C to +50°C	$\pm 2 \times 10^{-10}$ / day	Operational	-30°C to +55°C standard (-40°C to +55°C option)
Aging	$\pm 5 \times 10^{-8}$ / year	Storage	-55°C to +85°C
Phase Noise	<i>(With internal 10MHz reference)</i>	Humidity	Up to 100% condensing
Offset frequency	Phase noise (max)	Altitude	3,000 m AMSL (derated 2°C/300m)
100 Hz	-65 dBc/Hz	Power Requirements	
1000 Hz	-73 dBc/Hz	AC input voltage	220 VAC (47-63 Hz)
10 KHz	-83 dBc/Hz	AC Connector	MS3102R20-19P
100 KHz	-100 dBc/Hz	Mechanical	
Monitor & Control		Packaging	Weatherproof for outdoor use
Serial port (RS-485)	MS3112E10-6P		
Serial port (RS-232)	MS3112E10-6P		
Redundancy Port	MS3112E16-26P		
Discrete Port	MS3112E12-10P		

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