

16W to 50W  
ARMA-X® series



## Features

- High gain and linearity
- Output power up to 50W (see table A)
- Gain adjustment (Local & Remote)
- Remote Monitor & Control (Local & Remote)
- Output sample monitor port
- Temperature gain compensation
- Automatic over-temperature shutdown
- Automatic high reflected power shutdown
- Infinite VSWR protection
- Power factor correction
- CE Marking

## Overview

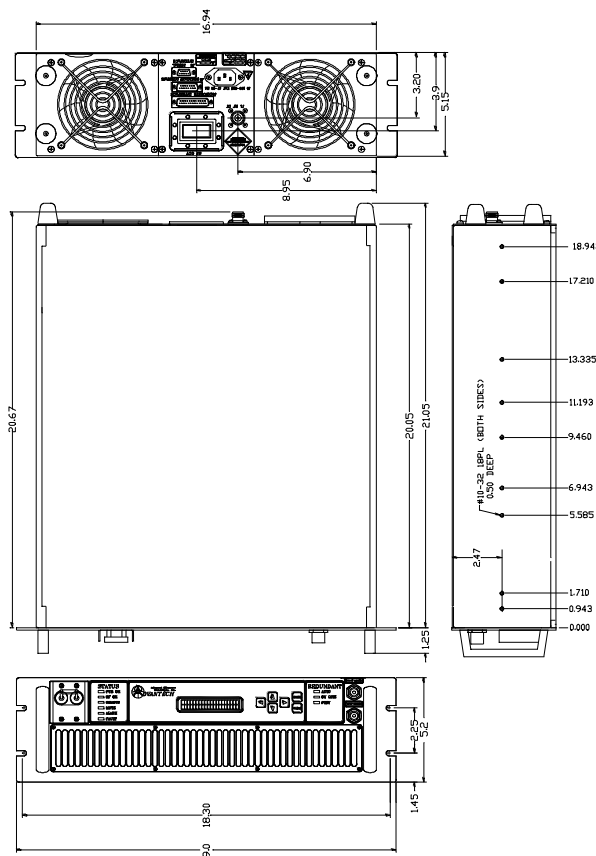
The ARMA-X® series are the rack-mount solid-state power amplifiers (SSPAs), operating in X-Band frequency range. The amplifier is an integrated unit, complete with power supply and cooling system. Intended for indoor operation, the amplifiers are of compact size and occupy three rack-mounting spaces (3 RU - 5¼") of a standard 19-inch rack. Built-in microprocessor controller provides capability for serial port interfaces (RS485) for remote monitoring and control.

Advantech's SSPAs set the industry standard for linearity and operating efficiency. Built-in design features and assembly methods incorporated with efficient combining techniques result in the trouble-free operation of the amplifier.

## Application

The featured SSPAs are designed for X-Band satellite up-link applications. They are designed for 19-inch rack mounting in a protected environment. The ARMA-X series are available in output power from 16W to 800W. For higher power Advantech provides phase-combined systems.

Other SSPAs are available for operation at other satellite frequency bands. With all the features of the ARMA-X, Advantech also offers a built-in converter.



**Table A**

| Band* | RF Band (GHz)   | Output Power (W) |
|-------|-----------------|------------------|
| X     | 7.90 – 8.40 GHz | 16 - 50          |

\*Other frequency sub-bands are available. Please consult factory.

## Options

- Integrated Block Up Converter
- RF input sample port
- Redundant system

## Accessories

- Redundancy Kit
- Shelf slides
- Remote M&C panel (Ethernet port optional)
- Receive Reject Filter

## Redundancy

With the addition of the appropriate waveguide and switch kit, the ARMA-X® amplifiers can be easily converted for the operation in 1:1 redundant configuration with full remote monitor and control capability of the redundant system via serial interface.

# X-Band Rack-mount SSPA

| Technical Specifications               |                       | 16W                                                                                                    | 20W                                   | 25W                                         | 30W                           | 40W                         | 50W   |
|----------------------------------------|-----------------------|--------------------------------------------------------------------------------------------------------|---------------------------------------|---------------------------------------------|-------------------------------|-----------------------------|-------|
| Electrical Characteristics             |                       |                                                                                                        |                                       |                                             |                               |                             |       |
| Availability in this series            |                       |                                                                                                        |                                       |                                             |                               |                             |       |
| X                                      |                       | √                                                                                                      | √                                     | √                                           | √                             | √                           | √     |
| Output power (Psat) (dBm)              |                       | +42                                                                                                    | +43                                   | +44                                         | +45                           | +46                         | +47   |
| Output power (P1dB) (dBm)              |                       | +41                                                                                                    | +42                                   | +43                                         | +44                           | +45                         | +46   |
| Power gain at maximum gain setting     |                       | 56 dB min                                                                                              |                                       |                                             |                               |                             |       |
| Operating frequency range              |                       | 7.90 – 8.40 GHz                                                                                        |                                       |                                             |                               |                             |       |
| Max input power without damage         |                       | +10 dBm                                                                                                |                                       |                                             |                               |                             |       |
| Gain slope                             |                       | 0.6 dB max over 40 MHz                                                                                 |                                       |                                             |                               |                             |       |
| Gain flatness over 500 MHz             |                       | ±1.0 dB max                                                                                            |                                       |                                             |                               |                             |       |
| Gain variation over temperature        |                       | ±1.5 dB over full operating temperature range                                                          |                                       |                                             |                               |                             |       |
| Gain variation over 24 hours           |                       | ±0.25 dB max at constant temperature & drive level                                                     |                                       |                                             |                               |                             |       |
| Gain adjustment range                  |                       | 20 dB min. (0.1 dB resolution)                                                                         |                                       |                                             |                               |                             |       |
| Input return loss                      |                       | 18 dB                                                                                                  |                                       |                                             |                               |                             |       |
| Output return loss                     |                       | 19 dB                                                                                                  |                                       |                                             |                               |                             |       |
| Noise power density                    |                       | -70dBm/Hz max in TX band<br>-110 dBm/Hz max 7.25 – 7.75 GHz RX band                                    |                                       |                                             |                               |                             |       |
| Spurious at rated power                |                       | -65 dBc, max                                                                                           |                                       |                                             |                               |                             |       |
| Harmonics at rated power               |                       | -60 dBc, max                                                                                           |                                       |                                             |                               |                             |       |
| AM/PM conversion at rated power        |                       | 2.5°/dB max. at P1dB,<br>1°/dB max. at 3 dB back-off                                                   |                                       |                                             |                               |                             |       |
| Third order IMD (2 tones 5 MHz apart)  |                       | -25 dBc max. at 3 dB total back-off from rated P1dB                                                    |                                       |                                             |                               |                             |       |
| Group delay                            |                       | Linear: 0.02 nsec/MHz max.<br>Parabolic: 0.003 nsec/MHz <sup>2</sup> max.<br>Ripple: 1.0 nsec p-p max. |                                       |                                             |                               |                             |       |
| Residual AM<br>(F* - frequency in kHz) |                       | 0-10 kHz<br>10 kHz - 500 kHz<br>500 kHz - 1 MHz                                                        |                                       | -45 dBc<br>-20 (1.25+log F*) dBc<br>-80 dBc |                               |                             |       |
| Power Requirements                     |                       |                                                                                                        |                                       |                                             |                               |                             |       |
| AC input voltage                       |                       | 90-264 VAC auto ranging (47-63 Hz)                                                                     |                                       |                                             |                               |                             |       |
| Power consumption (nominal)            |                       |                                                                                                        | 250W                                  | 315W                                        | 370W                          | 430 W                       | 510 W |
| Mechanical Characteristics             |                       |                                                                                                        |                                       |                                             |                               |                             |       |
| Panel height                           |                       | 3 RU of 19" rack                                                                                       |                                       |                                             |                               |                             |       |
| Weight                                 |                       | 13 kg (29lbs)                                                                                          |                                       |                                             |                               |                             |       |
| Interfaces:                            | RF input<br>RF output | N-Type (F)<br>CPR-112 contact                                                                          | Redundancy<br>RS-485<br>Discrete port | D-sub 15S<br>D-sub 9S<br>D-sub 25S          | AC Line<br>Output sample port | IEC 320 inlet<br>N-Type (F) |       |
| Environmental Conditions               |                       |                                                                                                        |                                       |                                             |                               |                             |       |
| Operating temperature:                 |                       | 0°C to +50°C                                                                                           |                                       |                                             |                               |                             |       |
| Humidity                               |                       | 5%-95%, non-condensing                                                                                 |                                       |                                             |                               |                             |       |
| Altitude                               |                       | 10,000' AMSL, de-rated 2°C/1,000' from AMSL                                                            |                                       |                                             |                               |                             |       |

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