

# LOW-COST, AK(S,F,G)-6-30W



Low-cost 6-30W Ku-Band BUCs

## FEATURES:

- Low-Cost Solution
- Extreme Efficiency, Stability, Reliability and Performance
- Hyper-Light Package, 1 - 1.8 lbs
- Super Low Power Consumption (23/28W \* @6W)
- High Temperature Mode - up to + 60°C
- Field Replaceable IP68 Rated Fans
- Exceeds ALL IESS-308/309 Phase Noise Standards
- 3-Year Warranty
- Fan-less Design (AKS, AKF, AKG series)



## DESIGN OVERVIEW:

The low-cost Ku-Band BUCs are above and beyond the next generation of the World's Smallest feed-horn & boom-arm mountable BUCs in the industry, weighing only 1 - 1.8 lbs and handling output power up to 30W at the Ku-Band frequencies. We've picked the most mature, reliable and proven to be highly efficient amplifiers with internal overdrive protection. Each unit is vigorously tested at our California facility according to our ATP (Acceptance Testing Procedure).

## PERFORMANCE SPECIFICATIONS

|   |   |  |
|---|---|--|
| <b>Operating RF Frequency</b>   | AKS 14.0 - 14.5 GHz   |  |
|   | AKU 13.75 - 14.5 GHz  |  |
|   | AKD 13.75 - 14.5   14.0 - 14.5 GHz  |  |
|   | AKL 12.75 - 13.25 GHz   |  |
| <b>Operating IF frequency</b>   | 950 - 1700   950 - 1450 MHz   |  |
| <b>Local Oscillator</b>   | 12.80   13.05 GHz   11.80 GHz   |  |
| <b>Rated Output Power PSAT</b><br><b>Linear Power SR @ -26 dBc PLIN</b> | AK(S,F,G)6<br>6W 37.8 dBm<br>5W 37.0 dBm  |  |
|   | AK(S,F,G)8<br>8W 39.0 dBm<br>6W 37.8 dBm  |  |
|   | AK(S,F,G)10<br>10W 40.0 dBm<br>8W 39.0 dBm  |  |
|   | AK(S,F,G)12<br>12W 40.8 dBm<br>10W 40.0 dBm   |  |
|   | AK(S,F,G)16<br>16W 42.0 dBm<br>12W 40.8 dBm   |  |
|   | AK(S,F,G)20<br>20W 43.0 dBm<br>16W 42.0 dBm   |  |
|   | AK(S,F,G)25<br>25W 44.0 dBm<br>20W 43.0 dBm   |  |
|   | AK(S,F,G)30<br>30W 44.8 dBm<br>25W 44.0 dBm   |  |
|   | <b>IMD3 (two tones) 3 dB Back Off</b>   | -25 dBc max.<br>2 signal 5 MHz apart at P-LINEAR |
|   | <b>Spectral Regrowth at P-LINEAR</b><br>(QPSK at 1.5x and OQPSK at 1.0x<br>symbol rate offset with 2 dB back-off<br>from rated power) | -30 dBc  |

## SPURIOUS & PHASE NOISE

|   |                                     |             |
|---|-------------------------------------|-------------|
| <b>In-Band/Out-band Spurious</b>                        | -60 dBc max.                        |             |
| <b>Group Delay</b>                                      | Ripple 1 nsec point to point max.   |             |
| <b>AM/PM Conversion</b>                                 | 1.0°/dB max. at 3 dB output backoff |             |
| <b>Noise Power Density (TX)</b>                         | -85 dBm/Hz                          |             |
| <b>Noise Power Density (RX)</b>                         | -155 dBm/Hz (10.95 - 12.75 GHz)     |             |
| <b>Phase Noise</b><br><b>(Up Converter) (Ext. Ref.)</b> | -55 dBc/Hz @ 10 Hz                  | -115 dBc/Hz |
|   | -65 dBc/Hz @ 100 Hz                 | -135 dBc/Hz |
|   | -75 dBc/Hz @ 1 kHz                  | -150 dBc/Hz |
|   | -85 dBc/Hz @ 10 kHz                 | -155 dBc/Hz |
|   | -95 dBc/Hz @ 100 kHz                | -160 dBc/Hz |

## POWER CONSUMPTION

|                          | <b>AK</b> | <b>AKS / AKF / AKG</b> |
|--------------------------|-----------|------------------------|
| <b>6W 37.8 dBm PSAT</b>  | 28W       | 23W                    |
| <b>5W 37.0 dBm PLIN</b>  | 22W       | 17W                    |
| <b>8W 39.0 dBm PSAT</b>  | 35W       | 30W                    |
| <b>6W 37.8 dBm PLIN</b>  | 25W       | 20W                    |
| <b>10W 40.0 dBm PSAT</b> | 45W       | 40W                    |
| <b>8W 39.0 dBm PLIN</b>  | 35W       | 30W                    |
| <b>12W 40.8 dBm PSAT</b> | 55W       | 50W                    |
| <b>10W 40.0 dBm PLIN</b> | 45W       | 40W                    |
| <b>16W 42.0 dBm PSAT</b> | 65W       | 60W                    |
| <b>12W 40.8 dBm PLIN</b> | 55W       | 50W                    |
| <b>20W 43.0 dBm PSAT</b> | 75W       | 70W                    |
| <b>16W 42.0 dBm PLIN</b> | 65W       | 60W                    |
| <b>25W 44.0 dBm PSAT</b> | 95W       | 90W                    |
| <b>20W 43.0 dBm PLIN</b> | 80W       | 75W                    |
| <b>30W 44.8 dBm PSAT</b> | 110W      | 105W                   |
| <b>25W 44.0 dBm PLIN</b> | 95W       | 90W                    |

## ENVIRONMENT SPECIFICATIONS

|                                       |   |
|---------------------------------------|---|
| <b>Environmental MIL-STD</b>          | Compliant with MIL-STD-810E                 |
| <b>Vibration MIL-STD</b>              | MIL-STD-810F, Method 514.5 C-2<br>Transport |
| <b>Operating Temperature Range</b>    | - 40° C to + 70° C                          |
| <b>Storage Temperature Range</b>      | - 60° C to + 85° C                          |
| <b>Humidity</b>                       | 100% Condensing, IP67                       |
| <b>Shock</b>                          | 20 g peak, 11 msec, 1/2 sine                |
| <b>Altitude</b>                       | 50,000 ft, 15,240 m                         |
| <b>Fan Rating / Field Replaceable</b> | IP68  |

## MECHANICAL SPECIFICATIONS

|                   |     |  |
|-------------------|-----|--|
| <b>Dimensions</b> | AK  | 5.4" x 3.1" x 2.3"<br>(137 x 78 x 59 mm)     |
|                   | AKS | 6.1" x 3.9" x 1.4"<br>(153 x 98 x 35 mm)     |
|                   | AKF | 6.1" x 4.7" x 2.8"<br>(153 x 120 x 71 mm)    |
|                   | AKG | 5.46" x 2.52" x 1.575"<br>(139 x 64 x 40 mm) |
| <b>Weight</b>     | AK  | 1.8 lbs (0.8 kg)                             |
|                   | AKS | 1.1 lbs (0.5 kg)                             |
|                   | AKF | 1.5 lbs (0.68 kg)                            |
|                   | AKG | 0.55 lbs (250 g)                             |

## PART NUMBERING SYSTEM

- S - Slim Size Series
- F - Fan-less Series
- G - Fan-less and Slim Series
- KU - Universal Ku-Band 13.75 - 14.50 GHz
- KS - Standard Ku-Band 14.0 - 14.50 GHz
- KL - Low Ku-Band 12.75 - 13.25 GHz
- KD - Dual Ku-Band 13.75 - 14.50 GHz | 14.0 - 14.50 GHz
- 6 | 8 | 10 | 12 | 16 | 20 | 25 | 30 - Rated Power in Watts
- N | F - 50 Ohm or 75 Ohm IF Input Connector Type
- M1 - M&C Option RS232 Only
- M2 \* - RS232/485, Ethernet, SNMP, Telnet
- E - Power through MC connector
- R - 10 MHz Ref. Auto Sense | Internal Reference
- B - Custom Label
- H - High Gain +5 dB
- U - Universal Mounting Bracket
- C xxxx - Custom RAL Color Code
- X - Custom Cable

\* Advanced M&C option coming soon



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## INPUT|OUTPUT INTERFACE

|                                       |                                   |
|---------------------------------------|-----------------------------------|
| <b>IF Connector</b>                   | N-type (50 Ohm)   F-type (75 Ohm) |
| <b>Universal Prime Power via IF</b>   | + 18 - 55 VDC                     |
| <b>Output Interface</b>               | WR75 Sealed & Grooved             |
| <b>GAIN</b>                           |                                   |
| <b>Gain (Temperature Compensated)</b> | 55 dB (min) 60 dB (typ.)          |
| <b>TX Gain Flatness</b>               | ± 0.75 dB max. over 40 MHz        |
| <b>TX Gain variation 50 MHz</b>       | ± 0.5 dB                          |
| <b>TX Gain variation 500 MHz</b>      | ± 1.5 dB                          |

## M&C INTERFACE

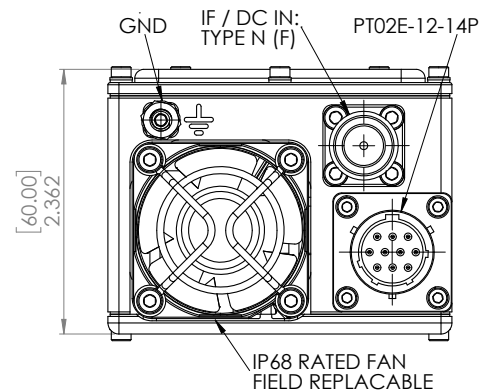
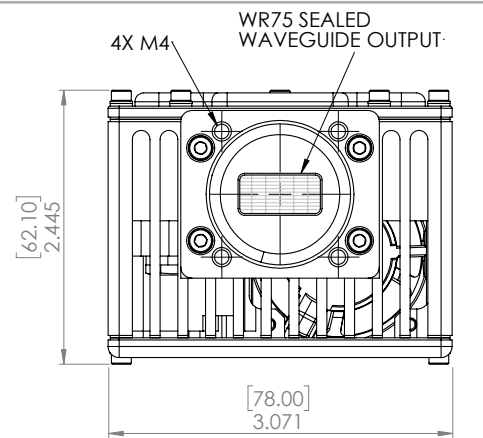
|                                       |   |
|---------------------------------------|---|
| <b>Advanced Monitor &amp; Control</b> | RS232 (RS485, Ethernet Web Page Based, Telnet)* |
| <b>ALARMS</b>                         | PLL LOCK, HPA, MUTE, TX                         |
| <b>Stealth PLIN Operation Mode</b>    | LED Shut-Off   Silenced fan                     |

## PROTECTION

|                         |             |         |
|-------------------------|-------------|---------|
| VOLTAGE                 | OVERTEMP    | CURRENT |
| SMART ALARMS IN THE M&C | MICROPHONIC |         |

## COMPLIANCE INFORMATION

MIL-STD-188/164C DO-160G ROHS, REACH, WEEE  
MIL-STD-461E



2892 S Santa Fe Ave, Bldg, 115 San Marcos CA 92069

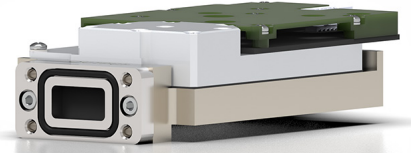
# FAN-LESS OPTIONS:



AKS - Fan-less Series



AKS - Slim Size Series

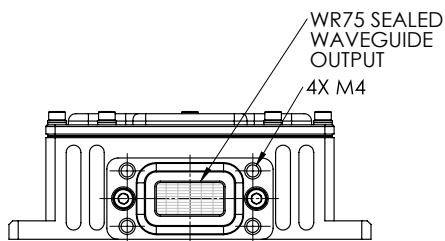
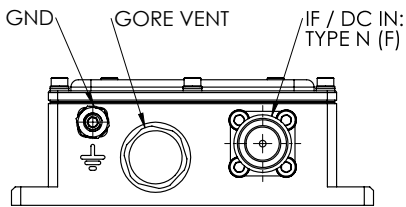


AKG - Fan-less & Slim Series

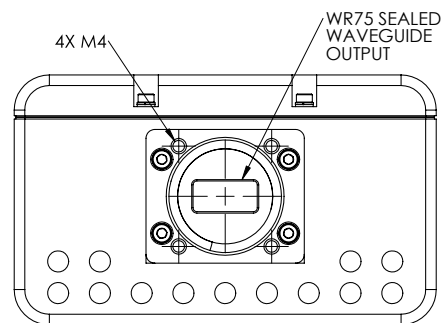
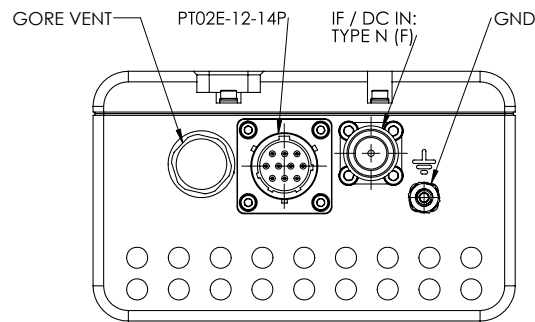
## FEATURES:

- AKF - Fan-less series - convection cooled housing
- AKS - Slim Size series - external cooling is required
- AKG - Fan-less & Slim series - Non-IP housing, external cooling is required

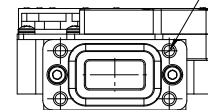
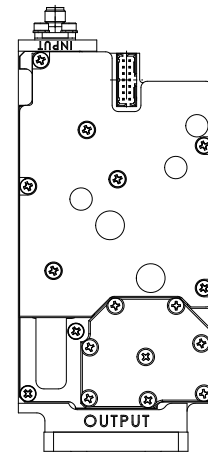
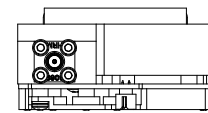
## SLIM SERIES



## FANLESS SERIES



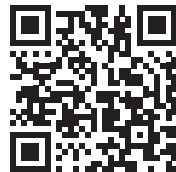
## FANLESS AND SLIM SERIES



4 x  $\varnothing$  0.130 [3.30] THRU ALL  
M4 - 6H THRU ALL  
✓  $\varnothing$  0.173 [4.40] X 90.000°, Near Side  
✓  $\varnothing$  0.173 [4.40] X 90.000°, Far Side



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