

*FastSource 1000***FAST SWITCHING SYNTHESIZER
SPECIFICATIONS****FEATURES**

- <100 MICROSECOND SWITCHING
- LOW PHASE NOISE -130 dBc/Hz
- 2 HZ RESOLUTION
- LOW SPURIOUS
- DUAL CONFIGURATION AVAILABLE

DESCRIPTION

The Aeroflex *FastSource 1000* RF source represents a milestone in Synthesizer development and reflects years of design experience in Fast Switching Synthesis. Designed specifically to meet the needs of today's Telecommunications industry, this high speed source offers a cost effective solution without sacrificing performance. The source covers a frequency range of 4.5 MHz to 6.0 GHz with a switching speed of 100 Microseconds. Spurious levels are greater than -65 dBc and Phase noise at 1.0 GHz is greater than -130 dBc/Hz at 10 KHz offset.

FastSource 1000

Table 1: *FastSource* Frequency Synthesizer Specifications

| | | | | | | | | | | | | | |
|------------------------------------|--|---|-------|---------------|-------|-----------------|-------|------------------|-------|-----------------|-------|-----------------|-------|
| FREQUENCY RANGE: | | 4.5 MHz to 6010 MHz | | | | | | | | | | | |
| STEP SIZE: | | 2 Hz to 2000 MHz | | | | | | | | | | | |
| | | 2 Hz from 2000 to 4000 MHz | | | | | | | | | | | |
| | | 4 Hz from 4000 to 6010 MHz | | | | | | | | | | | |
| POWER OUTPUT: | | +7 dBm | | | | | | | | | | | |
| FLATNESS: | | ±1.5 dB | | | | | | | | | | | |
| OUTPUT ISOLATION | | 25 dB minimum between ports. <5 microseconds switching time between ports. | | | | | | | | | | | |
| VSWR: | | 1.8:1 | | | | | | | | | | | |
| EXTERNAL REFERENCE: | | 10 MHz, 3 dBm ±4 db, 50 Ohms | | | | | | | | | | | |
| FREQUENCY STABILITY: | | Same as Reference Oscillator | | | | | | | | | | | |
| REFERENCE OUTPUT: | | 10 MHz, +3 dBm ±2 db, 50 Ohms | | | | | | | | | | | |
| PHASE NOISE OF EXTERNAL REFERENCE: | | -130 dBc/Hz | | | | | | 100 Hz offset | | | | | |
| | | -140 dBc/Hz | | | | | | 1KHz offset | | | | | |
| | | -143 dBc/Hz | | | | | | 10 KHz offset | | | | | |
| | | -145 dBc/Hz | | | | | | 50 KHz offset | | | | | |
| SWITCHING TIME: | | <100 µseconds to within 1.0 radian of final phase | | | | | | | | | | | |
| OUTPUT PHASE NOISE: | | | | | | | | | | | | | |
| OFFSET | | <250 MHz | | .25 to <.5GHz | | 0.5 to <1.0 GHz | | 1.0 to <2.0GHz | | 2.0 to <4.0 GHz | | 4.0 to <6.0 GHz | |
| | | Typ. | Guar. | Typ. | Guar. | Typ. | Guar. | Typ. | Guar. | Typ. | Guar. | Typ. | Guar. |
| 10 KHZ | | -125 | -122 | -135 | -132 | -131 | -127 | -125 | -122 | -119 | -116 | -113 | -110 |
| 20 KHZ | | -127 | -124 | -137 | -133 | -133 | -129 | -127 | -124 | -121 | -118 | -115 | -112 |
| 100 KHZ | | -128 | -125 | -138 | -134 | -134 | -130 | -128 | -123 | -122 | -118 | -116 | -113 |
| NOISE FLOOR (10 MHZ OFFSET): | | -140 dBc/Hz | | | | | | 4.5 to 180 MHz | | | | | |
| | | -145 dBc/Hz | | | | | | 180 to 1000 MHz | | | | | |
| | | -147 dBc/Hz | | | | | | 1000 to 2000 MHz | | | | | |
| | | -138 dBc/Hz | | | | | | 2000 to 4000 MHz | | | | | |
| | | -134 dBc/Hz | | | | | | 4000 to 6010 MHz | | | | | |
| HARMONICS: | | -25 dBc maximum | | | | | | 4.5 to 6010 MHz | | | | | |

FastSource 1000

Table 1: *FastSource* Frequency Synthesizer Specifications

| | | |
|---------------------|--|----------------------|
| SUBHARMONICS: | <p>-60 dBc, Typical -50 dBc Max except for components at FC noted below</p> <p>@ FC=4.0 to 4.25, 5F/2 may be -45 dBc. @ Offsets $\leq \pm 2.8$ MHz from the carrier, spurs will be as follows:</p> <p>FC < 180 MHz: -60 dBc. 180 MHz<FC<1.0 GHz: -66 dBc. 1.0 GHz<FC<2.0 GHz: -60 dBc. 2.0 GHz<FC<4.0 GHz: -54 dBc. 4.0 GHz<FC<6.01 GHz: -48 dBc.</p> <p>For 1.0 GHz<FC <2GHz, fixed spurs at the following frequencies may be -60 dBc: 1175, 1225, 1275, 1325, 1375, 1425, 1475, 1525, 1575 & 1625 MHz</p> | |
| SPURIOUS | -65 dBc maximum | 4 to 2000 MHz |
| | -60 dBc maximum | 2000 to 4000 MHz |
| | -55 dBc maximum | 4000 to 6010 MHz |
| | <p>For FC less than 180 MHz a spur may exist between 1609 MHz and 1960 MHz at -35 dBc: A fixed 800 MHz spur may exist at -60 dBc all carrier frequencies</p> | |
| RESIDUAL FM: | <7 Hz | 4.5 to 2000 MHz |
| | <16 Hz | 2000 to 4000 MHz |
| | <32 Hz | 4000 MHz to 6010 MHz |
| FREQUENCY CONTROL: | Parallel BCD negative true with strobe. Strobe normally low, trigger on trailing edge | |
| OUTPUT FAULT | TTL level logic, "1" normal operation | |
| REMOTE ON/OFF (RF): | <p>0 MHz = Off On/Off ratio: < 25 dBc</p> | |
| LOGIC CONNECTOR: | 50 Pin receptacle, AMP 554216-3 | |
| INITIALIZATION: | Unit will initialize with RF Off | |
| RANDOM VIBRATION | 10 Hz to 300 Hz @ 1.2G RMS | |
| POWER: | 105 TO 125 VAC, 50-60Hz | |
| DIMENSIONS: | 16.75" W X 5.22" H X 23.86" D | |
| TEMPERATURE RANGE: | +10 ^o to +45 ^o C | |
| CONFIGURATION | <p>S = Single Synthesizer D = Dual, Two independent synthesizers in a common chassis</p> | |

Note- Specifications subject to change without notice

PROGRAMMING INPUT
(BCD CONNECTOR)

| SIGNAL | PIN | PIN | SIGNAL: |
|--|-----|-----|----------------|
| Logic Ground | 50 | 25 | NC |
| 400 MHz | 49 | 24 | Strobe |
| NC | 48 | 23 | NC |
| NC | 47 | 22 | NC |
| NC | 46 | 21 | Chassis Ground |
| Fault | 45 | 20 | 8 MHz |
| 200 MHz | 44 | 19 | 4 MHz |
| 100 MHz | 43 | 18 | 2 MHz |
| NC | 42 | 17 | 1 MHz |
| 80 MHz | 41 | 16 | 20 MHz |
| 40 MHz | 40 | 15 | 10 MHz |
| MUX | 39 | 14 | 2 GHz |
| 800 MHz | 38 | 13 | 1 GHz |
| 8 Hz | 37 | 12 | 2 Hz |
| 4 Hz | 36 | 11 | 4 GHz |
| 80 Hz | 35 | 10 | 20 Hz |
| 40 Hz | 34 | 9 | 10 Hz |
| 800 Hz | 33 | 8 | 200 Hz |
| 400 Hz | 32 | 7 | 100 Hz |
| 8 kHz | 31 | 6 | 2 kHz |
| 4 kHz | 30 | 5 | 1 kHz |
| 80 kHz | 29 | 4 | 20 kHz |
| 40 kHz | 28 | 3 | 10 kHz |
| 800 kHz | 27 | 2 | 200 kHz |
| 400 kHz | 26 | 1 | 100 kHz |
| Note: Mating Connector is 3M P/N 3564-1001 (50 Pin Ribbon. Bail mount, Plug) | | | |