MCS-1000

Two Channel Phase Coherent Receiving System

Data Sheet

intelligentRFsolutions

FEATURES

- 0.5-20 GHz tuning range
- Two RF input channels
- RF preselection using sub-octave filters
- 1 kHz tuning resolution
- Selectable 70/140/160 MHz IF output
- Phase noise 0.2 degrees RMS typical
- Consistent phase between channels
- Four selectable IF bandwidths
- Selectable AM, FM, LOG video, audio output

DESCRIPTION

The MCS-1000-02 is a two channel, phase coherent system suitable for very accurate time of arrival (TOA) applications. Based on the extremely reliable SMR-5550i receivers, this system uses proven receiver technology to insure optimum performance. A common, phase-locked LO is shared between both channels for each frequency down-conversion stage, facilitating phase coherency and low phase noise between channels.

Each channel is controlled from the front panel inputs or via Ethernet or RS-232 inputs. A GUI is also provided for remote control.

This equipment does not contain provisions for the installation of an intelligence database (i.e. threat signal parametric data).

Export of this equipment is subject to U.S. Government export controls. An export license which is issued by the U.S. Government on a case-by-case basis will be required.

MCS-1000 SPECIFICATIONS

Frequency coverage	0.5 to 20 GHz
RF input connector	SMA Type
Maximum safe RF input	+20 dBm
Frequency resolution	1 kHz
External reference input	10 MHz, 0 dBm
Internal reference output	10 MHz, +3 dBm ±1 dB
Internal reference accuracy and aging	3 x 10^{-7} after 1 hr. warmup Aging less than 1 x 10^{-6} per year
Phase noise	0.2° rms, typical
Input VSWR	2.5:1, maximum
Preselection	Suboctave filters
Channel-to-channel phase drift	≤5° over constant gain, frequency, and temperature
LO radiation	− 90 dBm, max. antenna conducted
Image rejection	60 dB, minimum; 70 dB, typical
1 dB compression (input level)	−15 dBm, bypass bandwidth, 30 dB attenuation
Third order input intercept point	−5 dBm, minimum; 0 dBm, typical
LO spurious	−55 dBc, maximum
Tuning speed	150 ms, maximum
Group delay	3.6 ns p-p, typical. 80% of 95 MHz BW at 160 MHz IF Output
Remote control	Ethernet 100BaseT and RS-232

IF Outputs (Variable Gain)	
Frequency	70 MHz, 140 or 160 MHz, Selectable
Noise figure	≤15 dB, maximum at 30 dB gain (at −20 dBm rated output level)
Output IP3	+15 dBm, minimum at 20 dB gain (at −20 dBm rated output level)
Rated output level	−20 dBm, −15 dBm, −10 dBm, or −5 dBm; user selectable
Absolute gain	+60 dB to −10 dB (at −20 dBm rated output level)
Manual gain adjustment range (MGC)	0 to 70 dB of attenuation control in 1 dB steps
Automatic gain control range (AGC)	70 dB, minimum
Bypass/wideband bandwidths	50 MHz at 70 MHz IF 95 MHz at 140/160 MHz IF
AC power	100 to 130 Vac, 50 to 60 Hz, 200 W
Operating temperature	0° C to +50° C
Storage temperature	−10° C to +65° C
Operating humidity	≤ 90%, Non-condensing at 40º C
Storage humidity	≤ 95%, Non-condensing
Size	3.5” H x 19” W x 22” D (8.9 cm H x 48.3 cm W x 55.9 cm D)
Weight	40 lbs (18.1 kg)

MCS-1000-2 REAR PANEL

WARRANTY

All intelligentRFsolutions equipment is warranted for one year, except for damage caused by accident or misuse, provided the equipment is returned for repair to the plant in Sparks, Maryland U.S.A

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