



SATDC-1000

KA BAND DOWNCONVERTER WIDE IF BANDWIDTH



WIDE FREQUENCY RANGE: 17.7 to 21.2 GHz

FEATURES

- Very High Dynamic Range
- Fast Switching Synthesizer with 1 KHz Max Tuning Resolution
- Excellent Phase Noise Performance: $< 0.5^\circ$ RMS
- Up to 500 MHz Bandwidth L band output
- 40 MHz Bandwidth 70 MHz Secondary IF Output
- Optional Manual Controlled Equalizer
- Advanced Front Panel Graphical Display
- Ethernet 10/100 BaseT, RS 232, RS422
- 1U 19" Rack Standard*
- Optional DSP Based Demodulator (DSR)

APPLICATIONS

- ELINT
- SATCOM
- Radar Warning Receivers (RWR)



SPECIFICATIONS AT 25° C

FREQUENCY

Frequency Range:	17.7 – 21.2 GHz
Tuning Resolution:	1 KHz Max
Synthesizer Tuning Speed:	1 Millisecond (For faster tuning speed contact factory)
Frequency Accuracy vs. Temperature (Internal Ref):	< +/- 0.1 PPM
Long Term Aging (Internal Ref):	< 1 PPM per Year
Phase Noise (Typical):	0.5° RMS Integrated from 100 Hz to 10 MHz.
Offset 1 Hz:	-25 dBc/Hz
Offset 10 Hz:	-55 dBc/Hz
Offset 100 Hz:	-75 dBc/Hz
Offset 1 KHz:	-85 dBc/Hz
Offset 10 KHz:	-88 dBc/Hz
Offset 100 KHz:	-90 dBc/Hz
Offset 300 KHz:	-90 dBc/Hz
Offset 1 MHz:	-120 dBc/Hz
Offset 10 MHz:	-130 dBc/Hz

RF SECTION

Input RL:	18 dB
Noise Figure:	15 dB Max (@ Max Gain)
Conversion Sense:	Inverting / Non Inverting for L Band and IF

DYNAMIC RANGE

Spurious @ Min Gain:	Carrier Dependent: -70 dBc Min @ RFinp = -20 dBm Carrier Independent: -80 dBm Max
Image Rejection:	< -80 dB
LO Radiation:	< -90 dBc Max
Input IP3:	+3 dBm @ Min Gain Setting
Output P1 dB:	+15 dBm @ Max Gain Setting



WIDEBAND L BAND OUTPUT

Center Frequency:	700 MHz (Optional 1-3 GHz)
Bandwidth (3dB):	250 MHz (Optional 500 MHz)
RF to IF Gain:	45 dB / 0.5 dB Steps
Gain Flatness Over IF BW:	1.25 dB Max Over 250 MHz
Group Delay Variation:	1 nsec Max @ 200 MHz
Manual Gain Control:	Programmed 31 dB, 0.5 dB Resolution
IF Signal Monitor:	-20 dBc
Impedance:	50 ohms
Output RL:	20 dB

IF OUTPUT

Center Frequency :	70 MHz
Bandwidth (3 dB):	40 MHz
RF to IF Gain:	45 dB / 0.5 dB Steps
Gain Flatness:	1.25 dB Max Over 40 MHz
Group Delay Variation:	3 nsec Max @ 32 MHz
Manual Gain Control (MGC):	Programmed 31 dB , 0.5 dB Resolution
IF Signal Monitor:	-20 dBc
IF Output Impedance:	50 ohm
Output RL:	20 dB



PHASE COHERENT for DF APPLICATIONS (OPT- 117):

Each converter could be configured as master LO or slave (Using External LO) by hardware jumper and software settings. The master receiver/ converter will provide LO output to slave receiver/converter. Slave receiver/converter will accept external LO and provide LO output for Next Slave. In Slave Mode, Internal RFLO will be disabled.

BUILT IN TEST (BIT)

Power Supply Voltages, Three Phase Lock Alarm, Over Temp.

CONTROL

Local Manual Control:

All Functions, via Graphical Display Keyboard and Rotary Knob

Remote Programming:

Ethernet 10/100 base T , RS 422/ RS 485 and RS232

ENVIRONMENTAL

Operating Temp Range:

0° to +50 °C

Non Operating:

-30° to +85°C

Relative Humidity:

Up to 95%, Non-Condensing

Altitude:

10,000 Feet

EMI:

Designed to Meet MIL-STD-461C, CE03 and RE02

Shock:

MIL-STD-810E, method 516.4, Procedure VI

Vibration:

MIL- STD-810E, method 514.4 Procedure I, Category 9, Figure 514.4-15

AC Power:

95 to 265 VAC, 47-63 Hz, 100 Watts

MECHANICAL

Size:

19", 1U (1.75" H X 22" D X 17" W)

Optional Packages:

8.5", 2U (3.5" H X 22"D X 8.5" W), VME 6U

Weight:

20 Pounds

REAR PANEL CONNECTORS

17.7 to 21.2 GHz RF input:

Super SMA F

L Output:

BNC F

L Monitor:

BNC F

IF Output:

BNC F

IF Monitor:

BNC F

LO Monitor:

SMA F

Ethernet:

RJ 45

Remote Interface:

DEM – 9S

Summary Alarm:

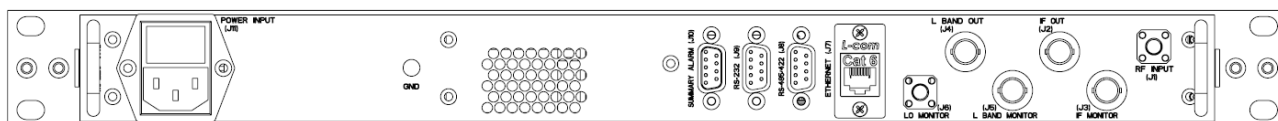
DE – 9D



OPTIONS

OPT-109	1 GHz L-band Output
OPT-110*	8.5", 2U (3.5" H X 22"D X 8.5" W)
OPT-112	Operating Temp Range (-20°C to +60°C)
OPT-117	Phase Coherent LO in/out
OPT-126	Aircraft Power Supply: 115 VAC, +/- TBD%, 400 Hz, 100 Watts
OPT-130	+28V +/-4 Vdc Input Power

* Contact factory



SATDC 1000 - REAR PANEL

* Subject to modifications

ABOUT ELCOM TECHNOLOGIES

Elcom designs and manufactures instruments and modules in the RF and Microwave frequency spectrum for broadband and narrow band applications in ATE, Aerospace/ Defense, SIGINT and commercial communications. Proprietary technologies include low phase noise fast switching direct analog synthesis, low noise indirect PLL designs, and RF DSP up to 40GHz.

FOR ADDITIONAL INFORMATION CONTACT

Elcom Technologies, Inc.

11 Volvo Drive

Rockleigh, New Jersey 07647

Tel: (201) 767-8030

Fax: (201) 767-1326

sales@elcom-tech.com

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