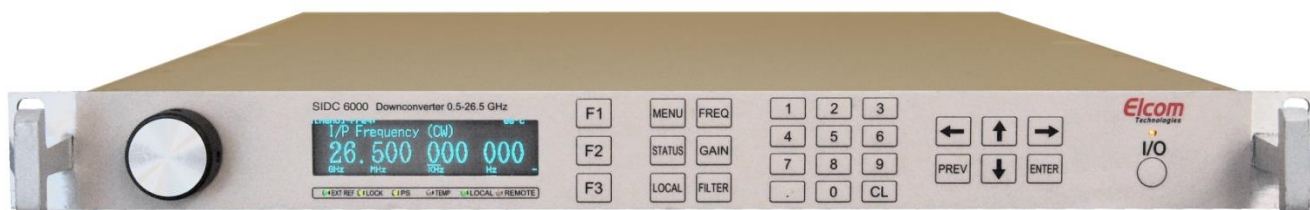




## SIDC-6007

**MICROWAVE WIDEBAND DOWNCONVERTER / TUNER UP TO 26.5 GHz  
With Strobe Input**



**WIDE FREQUENCY RANGE:  
0.5 - 26.5 GHz**

### FEATURES

- High Dynamic Range
- Fast Switching Synthesizer with 10 Hz Tuning Resolution
- Excellent Phase Noise Performance:  $< 0.5^\circ$  RMS
- 500 MHz Bandwidth 1.0 GHz CF L band output
- 70/140/160 MHz CF Selectable IF Output
- Sweep and Scan up to 500 MHz per Millisecond
- Manual and Automatic Gain Control with Adjustable Threshold
- Advanced Front Panel Alphanumeric Display
- Ethernet 10/100 BaseT, RS 232, RS422
- 1 U 19" Rack

### APPLICATION

- ELINT
- Synthetic Instrumentation
- Radio Monitoring of Broadcast Stations and IARU-monitoring
- Emission Compliancy Testing
- Direction Finding (DF) Systems
- SATCOM
- Radar Warning Receivers (RWR)



## SPECIFICATIONS AT 25°C

### INPUT CHARACTERISTICS

Frequency Range:	0.5 - 26.5 GHz
Impedance:	50 ohms
Input VSWR:	< 2.5 : 1 max
Level:	-35 dBm optimal
Input P1db comp point:	-10 dBm (20dB gain) typical
Output P1db comp point:	+18 dBm, max gain
Input IP3:	0 dBm, 20 dB gain
Output IP3:	+28 dBm, max gain
Input Protection:	+25 dBm with no damage

### Output Characteristics

Frequency:	70 MHz
Out Freq. switchable 3dB BW's:	40, 30, 20, 10, 5, 1 MHz
Gain Flatness (typ/max):	+/- 0.4 dB typical, +/- 0.6 dB max
Frequency:	140 MHz
Out Freq. switchable 3dB BW's:	80, 40 MHz min
Gain Flatness (typ/max):	+/- 0.6 dB typical, +/- 0.8 dB max
Frequency:	160 MHz
Out Freq. switchable 3dB BW's:	80, 40 MHz min
Gain Flatness (typ/max):	+/- 0.6 dB typical, +/- 0.8 dB max
L Band Output:	1.0 GHz
3 dB BW:	500 MHz min
Gain Flatness (typ/max):	+/- 1.2 dB typical, +/- 1.5 dB max
Impedance:	50 ohms
VSWR:	< 2.0 : 1 max
Signal Monitor:	-20 dBc nom



## Transfer Characteristics

Conversion Type:	Triple Conversion
Conversion Freq Sense:	Non Inverting/Inverting, Selectable for L-Band and IF
Gain:	42 dB nominal
Gain Programming Range:	42 dB
Programming resolution:	1 dB
Level Stability:	< +/-0.5 dB/day max at constant temperature
Image Rejection:	70 dBc min
LO leakage @ input:	-90 dBc max
Noise Figure:	<15 dB max
Group Delay Variation:	3 nsec p-p over 80% of 3dB BW (not including IF filter)
Reference 10 MHz:	Internal, auto locking, 10 MHz output
Frequency:	Seamless operation across complete 0.5-26.5 GHz With 500 MHz BW

## Sweep Mode

Mode 1:	F1 to F2 sweep, F step
Mode 2:	Sweep list up to 128 freq
Mode 3:	Sweep and Stop on detected signal
Threshold:	Detect all signal above threshold (+7 dBm to -35 dBm at IF out) 1dB step. At each detected signal stop for time programmed from 1 millisecond up to 60 sec
Tuning Resolution:	10 Hz max
Sweep Speed:	500 MHz / 1 millisecond
Synthesizer step Tuning :	Faster than 50 microseconds
Synthesizer random jump:	Faster than 200 microseconds
AGC:	Three settings: Fast, Med, Slow
Output Level:	Programmed from +7 dBm to -20 dBm, 1 db increment



## Frequency Reference

External Reference: 10 MHz, 0 dBm +/- 2 dBm

Internal Ref Output: 0 dBm, +/- 2 dBm

Phase Noise (typ) @ 10 GHz

offset from carrier

Offset 100 Hz: -68 dBc/Hz

Offset 1 KHz: -90 dBc/Hz

Offset 10 KHz: -96 dBc/Hz

Offset 100 KHz: -104 dBc/Hz

Offset 1 MHz: -117 dBc/Hz

## Local Control:

Advanced Front Panel Alphanumeric Display

Programming Frequency and Attenuation Settings: via front panel keyboard /LCD display and via RS232, RS422 and RS485 remote interfaces (including rotary knob)

Programmable Setting: stored in non-volatile memory

## Local Alarms

Power Supply Status, three LO lock status, fan failure, programmable temp warning, programmable over temp trip point displayed at LED and indicated on a common LCD display , and indicated via remote interface

## Remote Interface

RS422, RS485 and RS232 and Ethernet operated remotely

Protocol: TCP/IP

## IF TEST POINT

L-band monitor: -20 dBc

IF Signal Monitor: -20 dBc



## Rear Panel Connectors

RF:	SMA-F
IF:	BNC-F
IF Signal Monitor:	BNC-F
Remote Interface:	DEMS-9S for RS422, RS485 and RS232
Summary Alarm:	DE-9P
External Reference Input:	BNC-F
Reference Output:	BNC-F
Ethernet:	RJ45
Strobe Input:	SMA-F

## Environmental

### Operating:

Ambient Temperature:	0 to +60c (tested 0 - 50c)
Relative Humidity:	up to 95% at +30c
Atmospheric Pressure:	up to 10,000 ft

### Non-Operating:

Ambient Temperature:	-30 to +70c
Relative Humidity:	up to 95% at +40c
Atmospheric Pressure:	up to 40,000 ft
Shock and Vibration:	Rough handling

## Primary Power Requirements

Voltage:	95 to 260 VAC
Frequency:	47-63 Hz

## Physical:

Weight:	33 lbs nom
Overall dimensions:	19" x 1.75" x 22" max (1U ht.)

\*Specifications are subject to change without notice.



## Specification for fast scanning "Strobe"

### 1. General

The purpose of the required modification is fast setting of the down-converter for fast scanning, including consideration of the communication delay from a distant controller.

### 2. Mode of operation

- a. Additional remote command will define the desirable tuning parameters prior to the actual tuning, then a separate command from the strobe line will execute the tuning. After the remote command is received the unit will not change its tuning frequency until a direct command is received via, Strobe lines.
- b. The remote command will include: initial tuning frequency and frequency step.
- c. When the first Strobe is received, the unit will tune to the tuning frequency as described in the remote command. On further sequential Strobe commands, the unit will increase its tuning frequency by the frequency step parameter.

### 3. Strobe input electrical requirements

Logic Type: RS422 (transmission is one directional only: Strobe Rx+ and Strobe Rx- lines)

Connector: DB9 - should be implemented as a separate additional connector.

Activation: Rising edge (Strobe Rx+ goes from "0" to "1", Strobe Rx- goes from "1" to "0").

### 4. Remote command format

The additional remote command should be as short as possible, so that when transmitted through RS422 or RS232 the transmission delay will be small. These commands will be in addition to any existing commands.

Suggested textual format for the new command: ZFFFFFFJJJ

Z (1 byte) - Command descriptor character (note that there is no space character after this character, and therefore is has to be unique).

FFFFFF (6 bytes) -Initial tuning frequency with 0.1 MHz resolution and maximal value of 26.5GHz. Example: value of 010236 is for frequency of 1023.6 MHz (note that there are always 6 characters, and if required zero characters are added in the beginning).

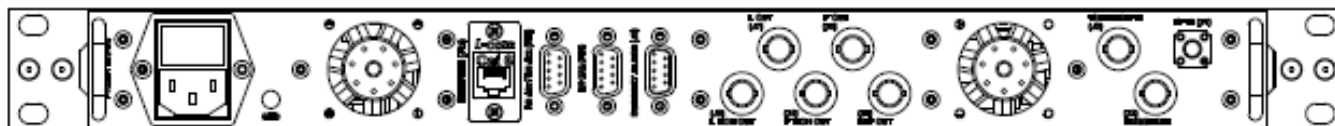
JJJ (3 bytes) - Frequency step size with 0.1 MHz resolution and maximal value of 99.9MHz. Example: value of 023 is for step size of 2.9 MHz (always 3 characters).

(Using 38400bps RS422, total transmission duration will be about 2.2msec)

Response: The unit will reply with a short acknowledge response message, containing only 1 character. At that time the unit will be ready to accept Strobe commands.

### 5. Processing and tuning times

- a. The unit will be ready to accept Strobe commands within 3 msec from the moment the last character of the frequency message arrives at the RS422/RS232 input.
- b. Total tuning time for the unit will be 0.3 msec max from the moment the Strobe command arrives until the down-converter is tuned .



REAR PANEL

## **ABOUT FEI-ELCOM TECH, Inc**

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.

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