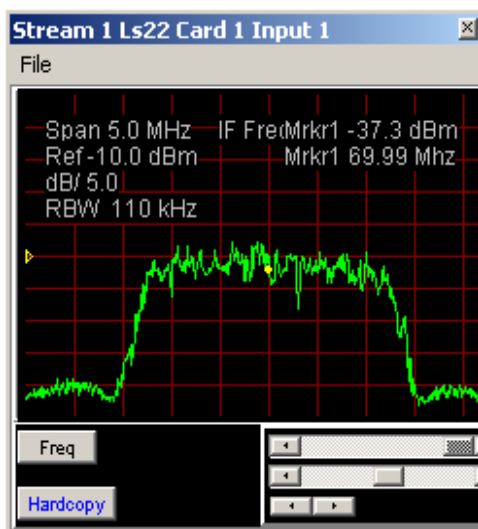
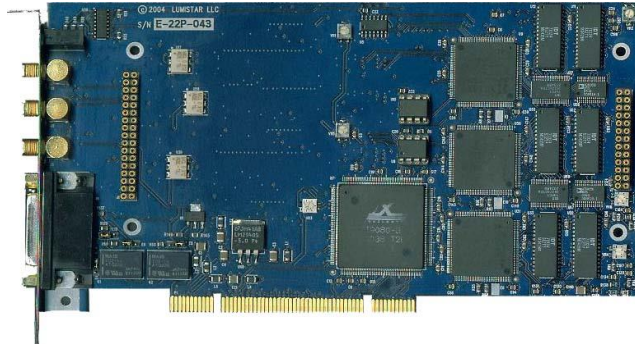


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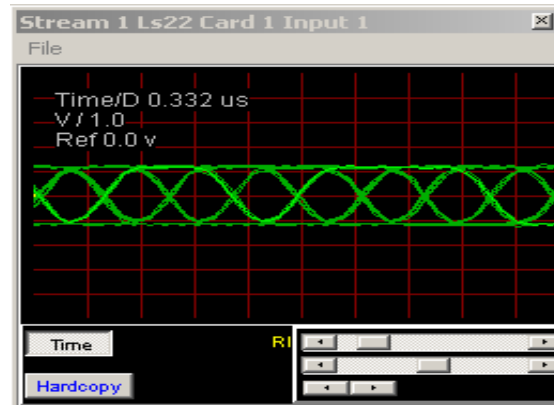
## LS-22-SE Spectral and Oscilloscope Display with Bit Sync Option Data Sheet

### Description:

The Lumistar LS-22-SE Spectral and O-Scope Display Series is designed to allow spectral, video eye pattern, and data displays when using Lumistar RF receivers, IF receivers, Diversity Combiners and bit synchronizers. The LS-22-SE is a single PCI slot instrument which allows the display of spectral and time domain information using the Lumistar LDPS Software. Single, dual (LS-22-2SE), and triple (LS-22-3SE) channel versions are available. The single channel LS-22-SE allows selection of one time or one spectral display at a time. Simultaneous display of spectral and time domain is achievable with the dual channel LS-22-2SE, and the LS-22-3SE allows three displays of either type at the same time. The new 2<sup>nd</sup> generation version LS-22 card has an integral FM demodulator, Post-D Combiner, Improved spurious-free dynamic-range and increased sampling for cleaner display.



The Lumistar LS-40-DB Bit Synchronizer Daughterboard can be installed on the LS-22-SE card, allowing a full function bit synchronizer with spectral and eye pattern displays in a single short length PCI board.



### Key Features:

- Spectral Display with up to 20 MHz Bandwidth - accepts 70 MHz IF Inputs from any RF/IF receiver/Pre-D Combiner and displays up to 3 spectral plots.
- 40 MHz Oscilloscope - accepts up to 3 channels of analog information such as baseband data, bit synchronized data, or AM waveform displays
- Accepts LS-40-DB Bit Synchronizer Daughterboard to output data & clock
- Short PCI board (7 5/8 inch long)

Lumistar, Inc.

3186 Lionshead Ave Ste 100

Carlsbad, CA 92010

PHONE: 760-431-2181

FAX: 760-431-2665

EMAIL: [sales@lumistar.net](mailto:sales@lumistar.net)

[www.lumi-star.com](http://www.lumi-star.com)

*Specifications are subject to change. Please verify the latest specifications at time of order.*

5/6/2020

## SPECIFICATIONS:

### Spectral Display Inputs:

Display Bandwidth	Up to 20 MHz
Number of Channels	Up to 3 depending on the model chosen
Input Frequency	70 MHz IF from Lumistar LS-25 Series Receivers or LS-33 Pre-Detection Diversity Combiner
Input Signal Level	-20 dBm Nominal
Resolution BW	110 kHz

### Oscilloscope Display Inputs:

Oscilloscope Bandwidth	40 MHz
Number of Channels	Up to 3 depending on the model chosen
Baseband PCM Inputs	Baseband PCM inputs can be simultaneously applied to the scope and optional bit synchronizer. These signals can be from any compatible receiver
Other Analog Inputs	The scope can be used for other analog inputs: <ul style="list-style-type: none"><li>▪ Bit Synchronizer Output</li><li>▪ AM Output from any receiver</li><li>▪ AGC Output from any receiver</li></ul>
Input Signal Level	4 Volts p-p for full-scale oscilloscope deflection

### Other Inputs and Outputs:

Status	A TTL-compatible status line is provided
Aux Status Triggers (up to 3)	Used for external trigger input for the oscilloscope display
Auxiliary Bit Sync Input	Used when bit sync is not associated with scope

### Bit Synchronizer Outputs:

NRZ-L Data and Clock	TTL Level
Tape Output	PCM Code selectable

Test Output

bi-polar output for Instrumentation tape recorder  
Pseudo-random test pattern can be enabled from the bit synchronizer with  $2^{15}-1$  PRN sequence. This output is bi-polar.

### Environmental:

Operating Temperature	0° to +50° C
Non-Operating Temp	-25° to +70° C
Operating Humidity	0 to 90% (Non-condensing)
Non-Operating Humidity	Protect from moisture and contamination

### Physical:

Form Factor	PCI board - 7 5/8 inches long
Daughterboard	Accepts LS-40-DB Bit Synchronizer Daughterboards
IF Input Connections	SMA (3)
Other Inputs/Outputs	D-Series Connector with 26 female contacts
Breakout cable	Cable assembly to BNC I/O included
Current Required (typ)	+5 V = 680ma +12 V = 25ma -12 V = 10ma

### Applicable Models:

Without Bit Synchronizer	LS-22-SE Single Display LS-22-2SE Dual Display LS-22-3SE Triple Display
With Bit Synchronizer	LS-22-SEB Single Display LS-22-2SEB Dual Display LS-22-3SEB Triple Display