

## FTSU-100

### Frequency & Time Synthesizer Unit



- Time Code, Frequency & Pulse Inputs
- Low Phase Noise Analog Outputs
- Fault Alarm Output
- 1U 19" rack mount
- 2U 19" Rack mount version available
- Frequency Synthesizer Option
- 1PPS & Time Code outputs
- Hitless changeover of reference frequency

The FTSU-100 is a high performance signal distribution amplifier designed for use with the Brandywine model PTS Precision Time System.

The versatile FTSU is designed to be a companion to the PTS family of Precision Time Systems.

The FTSU-100 is contained in a compact 1U rack-mount chassis. The FTSU accepts two sets of inputs. The inputs are the reference frequency, 1PPS, a time code and status from the PTS. The FTSU provides automatic changeover should one of the source inputs fail. Manual source select override is available on the front panel. A variety of status indicators are located on the front panel for visual feedback.

The low phase noise reference frequency outputs are generated from a low phase noise oscillator that is phase-locked to the reference frequency input. In the event of reference input failure the phase-locked oscillator will continue to provide referenced frequency outputs with a stability of  $3 \times 10^{-9}$  over temperature.

Applications for the FTSU include secure communications systems, satellite ground stations and any system requiring highly reliable frequency, time code and pulse rate outputs.

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## FTSU Specifications

### Frequency Inputs

Frequency	5 or 10 MHz, +/- 5PPM
Amplitude & Impedance	0.5-1Vrms. 1Vrms nominal, 50 Ohms
Isolation	Transformer coupled
Number of Inputs	2, SMA connectors
	Option

### Pulse Inputs

1PPS	2
Amplitude	1-6 Vpp
Input Impedance	5k Ohms, nominal
Number of Inputs	2
Connector type	SMA

### Fault Inputs

Number of Inputs	2
Signal Type	TTL
Active Level	Link selectable for active high or low
Action	Forces on-line changeover when active

### Reference Frequency Outputs

Frequency	Same as input, 5MHz or 10MHz
Output Level	+13 dBm, +/- 2dBm, short-circuit proof
Number of Outputs	Up to eight
Connector Type	SMA
Stability, without input	$3 \times 10^{-9}$ , 0 to +60C
Harmonic Distortion	-30 dBc
Cross Talk	-60 dBc
Spurious	-80 dBc
Phase Noise	See Table 1

### Synthesizer

	Derived from osc locked to reference
Number of Outputs	Up to five
Frequencies	5 MHz, 10 MHz or 64.8 MHz
Output Characteristics	Same as for Reference Frequency
Number of Outputs	Up to four. Link selectable between Reference Frequency and Synthesizer
Output Characteristics	Same as for Reference Frequency

### Time Code Out

Amplitude	2 +/- .25 Vpp into 50 Ohms
Protection	Short-circuit proof
Number of outputs	Up to eight
Connector	SMA

### Pulse Outputs

Number of outputs	Five
Output level	0 V to +4.5, +/- .5V into 50 Ohms
Pulse width	20 microseconds
Protection	Short-circuit proof
Connector	SMA

### Status Output (Alarm)

Type	Dry relay form C contacts
Link options	
Alarm function	Summary of all input/output alarms

### SSB Phase Noise,

1Hz	- 90 dBc
10Hz	-110 dBc
100 Hz	-140 dBc
1 kHz	-150 dBc
10 kHz	-155 dBc

### Table One

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