

FTSU-100D

Advanced Frequency/Time Distribution Amplifier



Features

- Network Enabled Distribution Amplifier
- Frequency & Pulse Inputs/Outputs
- Low Phase Noise Reference Frequency Outputs
- Fault Alarm Output
- 1U 19" rack mount
- Frequency Synthesizer Option
- Hitless switching of reference
- Programmable amplitude
- Propagation delay compensation

The FTSU-100D is a high performance signal distribution amplifier designed for use with Brandywine high precision time and frequency sources.

The FTSU-100D is contained in a compact 1U rack-mount chassis. The FTSU accepts two sets of inputs, comprising the reference frequency (typically 10MHz), 1PPS, and status from the source. The FTSU provides automatic changeover should one of the on-line source inputs fail. Manual source select override is available on the front panel, or from the Ethernet interface.

A variety of status indicators are located on the front panel for visual feedback, together with manual controls for source selection.

The reference frequency outputs are generated from a low phase noise ovenized quartz oscillator (OCXO) 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 3×10^{-9} over temperature. Changeover between references is smooth with no glitch on the output.

A 10/100 baseT Ethernet interface provides full control over the functionality of the system, including reference reflection, output amplitude (on a per channel basis), 1PPS propagation delay (on a per channel basis).

User control of the unit is via a built-in Web Browser with user-friendly graphical interface, or via SNMP for system applications.

Applications for the FTSU 100D include secure communications systems, satellite ground stations, digital television broadcasting and any system requiring highly reliable frequency, and pulse rate outputs.

FTSU-100D Specifications

Frequency Inputs

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

Pulse Inputs

| | |
|------------------|------------------|
| 1PPS | 2 |
| Amplitude | 1-6 Vpp |
| Input Impedance | 50 Ohms, nominal |
| Number of Inputs | 2 |
| Connector Type | QMA |

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 | +8 to +15dBm, short-circuit proof |
| Number of Outputs | 8 |
| Connector Type | QMA |
| Stability, without input | 3X10 ⁻⁹ , 0 to +60C |
| Harmonic Distortion | -30 dBc |
| Cross Talk | -80 dBc |
| Spurious | -80 dBc |
| Phase Noise | See Table 1 |

Synthesizer (option)

| | |
|------------------------|---------------------------------|
| Number of Outputs | 8 |
| Frequencies | 5 MHz, 10 MHz or 70 MHz |
| Output Characteristics | Same as for Reference Frequency |
| Number of Outputs | 8 |
| Output Characteristics | Same as for Reference Frequency |

Network Interface

| | |
|----------------|-------------------------|
| Interface Type | 10/100 base T |
| Protocols | HTTP, SNMPV1, FTP, DHCP |
| Connector | RJ45 |

Console Port

| | |
|----------------|-----------------|
| Interface Type | RS232 |
| Parameters | 115200, N, 8, 1 |
| Connector | DB9 |

Pulse Outputs

| | |
|-------------------------|---|
| Number of outputs | 8 |
| Output Level | 0 V to +2.5V into 50 Ohms 0-5 V open circuit |
| Pulse Width | 20 microseconds |
| Protection | Short-circuit proof |
| Connector | QMA |
| Propagation Delay Comp. | 0-1 sec. in 1ns steps |

Status Output (Alarm)

| | |
|----------------|---|
| Type | Dry relay form C contacts Ethernet |
| Alarm Function | Summary of all input/output alarms (relay) Individual input and output (Ethernet) |

Table 1

SSB Phase Noise@10 MHz

| | |
|---------|----------|
| 1Hz | -90 dBc |
| 10 Hz | -115 dBc |
| 100 Hz | -140 dBc |
| 1 kHz | -150 dBc |
| 10 kHz | -155 dBc |
| 100 kHz | -157 dBc |

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