

## FDU-160i

### Advanced Frequency Distribution Amplifier



#### Features

- **Network Enabled Frequency Distribution Amplifier**
- **Dual Frequency Inputs with Auto Failover**
- **Low Phase Noise Reference Frequency Outputs**
- **Programmable per channel amplitude**
- **1U 19" rack mount**
- **Redundant Hot Swappable Power Supplies**

The FDU-160i is a high performance signal distribution amplifier designed for use with Brandywine high precision time and frequency sources.

The FDU-160i is contained in a compact 1U rack-mount chassis. The FDU accepts two sets of inputs, comprising the reference frequency (typically 10MHz) and status from the source. The FDU provides automatic changeover should one of the on-line source inputs fail. Manual source select override is available on the front panel, or through the Ethernet interface.

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

A 10/100 base T Ethernet interface provides full control over the functionality of the system, including reference selection and output amplitude (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 FDU-160i include secure communications systems, satellite ground stations, digital television broadcasting and any system requiring highly reliable frequency outputs.

## FDU-160i Specifications

### Frequency Inputs

Frequency 10 MHz, +/- 5PPM  
 Amplitude & Impedance 0.5-1Vrms, 50 Ω  
 Isolation Transformer coupled

Number of Inputs 2  
 Connector Type BNC  
 Input Selection Manual, Auto

### Fault Inputs

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

### Frequency Outputs

Number of Outputs 16  
 Frequency Same as Input  
 10MHz (std),  
 Optional 1-20, 1, 5 MHz  
 Output Level 5dBm to +13dBm, short-circuit proof

Connector Type BNC  
 Harmonic Distortion -40 dBc  
 Cross Talk -80 dBc  
 Spurious -80 dBc

Additive Phase Noise@10MHz\*\*  
 1Hz -132 dBc  
 10 Hz -142 dBc  
 100 Hz -155 dBc  
 1 kHz -163 dBc  
 >10 kHz -163 dBc

Specification valid when levels are set to +13 dBm

### Network Interface

Interface Type 10/100 base T  
 Protocols HTTP, DHCP, SNMP  
 V2c, IPV4  
 Connector RJ45

### Console Port

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

### Display

Display Type 16 bicolor LED  
 Functions Output status, Ethernet settings

### Status Output (Alarm)

Type Dry relay form C contacts  
 Ethernet SNMP trap  
 Alarm Function Summary of all input/output alarms (relay)  
 Individual input, output, power (Ethernet)

### Power

Redundancy Dual redundant  
 Single supply maintains complete unit  
 Voltage 90-240 VAC 50/60Hz (std)  
 18-36V DC Optional  
 36-72VDC Optional  
 Power Consumption <15W

### Environmental and Safety

Temperature  
 Operating -10 to +55°C non condensing  
 Storage -40 to +85°C  
 Product Safety EN60950-1: 2006 +  
 A11:2009 +A1:2010 A12:2011  
 EMC EN55022 Class A  
 EN50082-2  
 FCC Chapter 15 Class A

### Ordering Information

Advanced Frequency Distribution Amplifier  
 Basic Unit Includes Dual AC Power Supplies  
 022050001 2 i/p 10MHz, 16 output 10MHz  
 022050002 2 i/p 5MHz, 16 output 5MHz  
 022050003 2 i/p 1MHz, 16 output 1MHz  
 022050004 1 ea i/p 5MHz, 10MHz, 8 ea. o/p 5, 10 MHz\*  
 022050005 2 input, 16 output 1-20 MHz\*\*  
 Power Options (order separately)  
 022060001 Substitute 18-36 DC power for AC  
 022060002 Substitute 36-72 DC power for AC

The FDU-160i may be used with many of Brandywine's precision frequency sources such as the RG 2111 for distribution of precision frequency outputs.  
 RG 2111 part number 001-0230

\* No Auto-switch applicable to 022050004

\*\* Not applicable to 022050005

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