

# FDC3300 *Frequency Distribution Chassis*

## *2x10 Autoswitch Distribution Amplifier*

### **The FDC3300 is a dual-input, ten-output, frequency distribution amplifier in a 1U rackmount chassis.**

The FDC3300 provides ten isolated copies of a 10 kHz - 10 MHz input signal. Fault sensing of signal levels is provided on all inputs and outputs and status is easily visible via front-panel LED indicators. FDC3300 is monitored and controlled via a serial port and optional Ethernet network port. Dual power supplies are optionally available to provide the highest reliability for mission critical applications. The FDC3300 is unique in the industry - no other low-cost system offers this combination of capabilities and performance.



### **Output Signal Quality**

The FDC3300 features low-signal distortion and low-additive phase noise along with high isolation between output channels. Power supply voltages are post-regulated and all output buffers are individually regulated, ensuring very low output spurious noise levels. For ultimate performance in signal level distribution, see the FDC3302 High-Performance Frequency Distribution Chassis.

### **Autoswitching**

The FDC3300's fault-tolerant design supports dual frequency reference inputs. The health of the input

signals are continuously monitored and, if a signal is not present or amplitude greatly reduced, it will automatically switch to the other input. This failover feature ensures that your critical signals are always present should one of the inputs become unavailable or its level compromised.

### **Alarm Input**

FDC3300 is compatible with the alarm output signal from the Meridian II and Tycho II Precision TimeBase. If one of these time and frequency standards is sourcing the FDC3300 and its alarm output goes active, FDC3300 will automatically switch to the backup source. This alarm input may be cascaded to multiple FDC3300 units to support bank switching by simply connecting the inputs with coaxial cable and BNC T-adapters.

### **Status Indicators**

Front panel LEDs provide you at-a-glance status of the distribution chassis. The FDC3300 provides LED indicators for the power supply(ies), the two inputs, all output signals and a summary alarm indicator. The summary alarm is also available as an open-collector output.

### **Control and Status Monitoring**

The FDC3300 can be configured and monitored by means of an RS-232 serial port. Both the switch and output status can be monitored in this way. For remote control and monitoring, a network port is available as an optional upgrade.

### **Dual Power Supplies**

For the highest level of power source and supply fault-tolerance, the FDC3300 Frequency Distribution Chassis supports dual redundant, AC or DC power supplies. The two power supplies can be any combination of AC/AC, AC/DC, or DC/DC.

### **High Reliability**

The FDC3300 uses EndRun's power-efficient, fanless design and thermal packaging that achieves an estimated MTBF of over 20 years. The system is made in America, backed by a two-year warranty, a 60-day money-back guarantee, and supported by EndRun's top notch technical support team free of charge!

### **FEATURES**

- 10-channel, broadband sine wave distribution (10 kHz to 10 MHz).
- Single input or autoswitching between dual inputs.
- Very low added phase noise.
- High port-to-port isolation.
- Very low distortion.
- RS-232 port for control and monitoring.
- Ethernet port option for remote control and monitoring.
- Dual-redundant AC or DC power supply options.
- 2-Year Warranty.
- 60-Day Money-Back Guarantee.
- Free technical support for life.



# FDC3300 Frequency Distribution Chassis Specifications



FDC3300 front and rear panel views. Shown with optional dual power supplies and Ethernet interface.

## INPUTS (A and B):

- Frequency Range: 10 kHz to 10 MHz.
- Impedance:  $50\Omega$ , SWR <1.1.
- Amplitude: +13 dBm full performance, +3 dBm minimum, +19 dBm maximum.
- A Input to B Input Isolation: > 90 dB, full frequency range.
- Protection: Protected to 24V peak-to-peak.
- Connectors: Rear-panel female BNCs.

## OUTPUTS (1 through 10):

- Impedance:  $50\Omega$ , SWR <1.3.
- Unity Gain: 0 dB, +/- 1dB.
- Harmonics: < -45 dBc.
- Spurious: < -90 dBc.
- Port-to-Port Isolation: > 70 dB.
- SSB Phase Noise @ 10 MHz and +13 dBm output level:
 

At 1 Hz	< -120 dBc/Hz.
At 10 Hz	< -140 dBc/Hz.
At 100 Hz	< -150 dBc/Hz.
At 1 kHz	< -155 dBc/Hz.
At 10 kHz	< -155 dBc/Hz.
- Protection: Outputs may be shorted to ground with no damage.
- Connectors: Rear-panel female BNCs.

## EXTERNAL ALARM INPUTS (A and B):

- Normal State: TTL low.
- Alarm State: TTL high or high Z (internal 10k pull-up).
- Connectors: Rear-panel female BNCs.

## ALARM OUTPUT:

- All fault indicators are summed providing a common alarm output.
- Open collector, 40 VDC max, 100 mA max saturation current.
- High impedance when fault condition exists.
- Connector: Rear-panel female BNC.

## CONSOLE PORT:

- RS-232 serial port on DB9M connector for control and status information.
- User-selectable port settings: 9600 to 57600 baud; 7 or 8 data bits; odd, even or no parity; 1 or 2 stop bits. Factory default settings: 19200,8,n,1.

## SYSTEM STATUS INDICATORS:

- Input LEDs: Green when a valid signal is detected and red when the signal is absent.
  - Output LEDs: Green when the output signal is OK and red when a short is detected.
  - Power LEDs: Green when the power supply is OK, and red when a fault condition exists.
  - Alarm LED: Red when any fault condition exists.
- All fault indicators are summed to provide one common fault.

## POWER:

- 90-264 VAC, 47-63 Hz, 0.5A Max. @ 120 VAC.
- 110-370 VDC, 0.5A Max. @ 120 VDC.
- 3-Pin IEC 320 on rear panel, 2-meter cord included.

## SIZE:

- Chassis: 1.75"H x 17"W x 10.75"D.
- Weight: < 5 pounds.

## ENVIRONMENTAL:

- Operating Temperature: 0° to +50° C.
- Storage Temperature: -40° to +85° C.
- Operating Humidity: 5% to 90% RH, non-condensing.
- Storage Humidity: 5% to 95% RH, non-condensing.

## COMPLIANCE:

- CE, FCC, RoHS, WEEE.

## OPTIONS:

- Network Port: Ethernet 10/100Base-T; RJ-45 connector. Protocols include: SSH, DHCP, Telnet, SNMP MIB-II (management variables only).
- Dual-redundant AC or DC power supplies. Combinations can be AC/AC, AC/DC, or DC/DC.
- DC power supply: -48, +12, +24/28, or +125 VDC.

## OTHER DISTRIBUTION CHASSIS:

- FDC3302 High-Performance Frequency Distribution Chassis
- PDC3301 Pulse Distribution Chassis
- TDC3303 Time Code Distribution Chassis

## RELATED TIME AND FREQUENCY STANDARDS:

- Meridian II Precision TimeBase
- Tycho II Precision TimeBase

