

# PDC3301e *Pulse Distribution Chassis*

## *2x10 Distribution Amplifier with High-Speed Autoswitching*

**PDC3301e is a dual-input, ten-output, pulse distribution amplifier in a 1U rackmount chassis.** The PDC3301e (PDC) provides ten isolated copies of a 1 PPS - 25 MPPS pulse rate or an IRIG-B DC-Shift time code input signal and maintains the phase characteristics over a range of environmental conditions. Fault sensing of signal levels is provided on all inputs and outputs and status is easily visible via front-panel LED indicators. Control and monitoring is supported via a network port and an RS-232 serial port. The PDC is unique in the industry - no other low-cost system offers this combination of capabilities and performance.



### Output Signal Quality

PDC3301e features very high isolation between output channels. Power supply voltages are post-regulated and all output buffers are individually regulated. This feature ensures that minimal phase disturbance of adjacent channels occurs due to the accidental shorting or unterminating of an output.

### Intelligent Autoswitching

The PDC can be configured for single or dual-input operation. If two inputs are available, the PDC will continuously monitor the input signals as part of its intelligent failover switching algorithm. If an input is removed or the signal level greatly reduced, it

will automatically switch to the other input. This high-speed switching feature prevents the loss of even a single clock for pulse widths greater than 500 nanoseconds ensuring a continuous, uninterrupted pulse stream to mission critical devices.

### Alarm Input

PDC3301e is compatible with the alarm output from the Meridian II and Tycho II Precision TimeBase. If one of these units is sourcing the PDC and its alarm output goes active, then the PDC will automatically switch to the backup. This alarm input may be cascaded to multiple PDC 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 PDC 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 PDC can be configured and monitored by means of a network port (SSH) and RS-232 serial port. SNMP monitoring is supported with an Enterprise MIB and traps to interface to a network management system. The web interface is designed with security in mind, so its use is restricted to monitoring status, alarms, and configuration settings. The web interface can be completely disabled for the highest level of security.

### Dual Power Supplies

For the highest level of power source and supply fault-tolerance, the PDC 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

PDC3301e uses EndRun's power-efficient, fanless design and thermal packaging that achieves an estimated MTBF up to 30 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 output distribution of 1 PPS to 25 MPPS pulse rates or IRIG-B DC-Shift time code signal.
- Single input or autoswitching between dual inputs.
- No pulse loss with intelligent failover switching algorithm.
- Very high isolation between outputs.
- 500 picosecond differential delay between outputs.
- Ethernet port for remote control, monitoring and SNMP.
- RS-232 port for local control and monitoring.
- Dual-redundant AC or DC power supply options.
- 2-Year Warranty.
- 60-Day Money-Back Guarantee.
- Free technical support for life.



# PDC3301e Pulse Distribution Chassis Specifications



PDC3301e front and rear panel views. Shown with optional dual power supplies.

## INPUTS (A and B):

- Repetition Rate: 1 PPS - 25 MPPS.
- Time Code Formats: IRIG-B000, IRIG-B002, IRIG-B003.
- Impedance: 50Ω.
- Duty Cycle: 0-50%. Maximum is 50% high.
- Logic One: > 2.4V, < 10V.
- Logic Zero: < 0.8V, > -10V.
- Rise Time: < 100 ns.
- Fall Time: < 100 ns.
- Minimum Pulse Width: 80 nanoseconds for rates < 5 MPPS.
- Protection: Protected to 24V peak-to-peak.
- Connectors: Rear-panel female BNCs.

## OUTPUTS (1 through 10):

- Impedance: 50Ω. VSWR < 2 @ f < 500 MHz.
- Logic One: > 3.5V.
- Logic Zero: < 0.2V.
- Rise Time: < 5 ns.
- Fall Time: < 5 ns.
- Jitter: < 50 ps RMS.
- Skew Between Outputs: < ±500 ps.
- Propagation Delay: < 20 ns.
- 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.

## 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.

## NETWORK I/O

- Rear-panel RJ-45 jack.
- 10/100 Base-T Ethernet.

## NETWORK PROTOCOLS

- IPv4/IPv6.
- SSH client/server with "secure copy" utility, SCP.
- SNMP v1, v2c, v3 with Enterprise MIB.
- HTTPS (Web Interface).
- TELNET client/server. FTP and DHCP clients.
- NTP client/server.
- SYSLOG.

## SERIAL I/O PORT

- RS-232 serial I/O on DB9M jack for secure, local terminal access.
- Default Parameters: 19200 baud, 8 data bits, no parity, 1 stop bit.

## 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:

- 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.

## RELATED TIME AND FREQUENCY STANDARDS:

- Meridian II Precision TimeBase, Tycho II Precision TimeBase

## OTHER DISTRIBUTION CHASSIS:

- FDC3302e High-Performance Frequency Distribution Chassis
- TDC3303e Time Code Distribution Chassis

