

RTD-01 Digital Telephone Delay System



A number of years ago, a Telephone Delay System to prevent the inadvertent broadcasting of "Profane Words or Language" were a Mandatory requirement by the Broadcast Authorities of the time

Things has changed, "Bad or Profane Language" are generally now tolerated by most members of the public, but Lawsuits and Litigation as a result of accidental broadcasting of Slanderous and Libellous material is on the increase, and becoming a concern to Broadcasters and their Liability Insurers to the point where a Telephone Delay System may be declared a Mandatory item by Insurers

The overall concept of the RTD-01 Digital Telephone Delay System is Novel and Differs from other available Delay Systems making it possibly unique

The majority of currently available Delay Systems operate as "Catch Up" systems where the system starts in zero delay, and gradually over a few minutes increase delay to the required 7 seconds or so

The principle of operation is to find small program pauses such as short breaks between words, and stretch these pauses slightly, to eventually reach a safe amount of delay

The "Catch Up" method is quite an elegant way of going into and out of delay and is fine for Speech

It does however cause some audible degradation on certain types of Music where the slight stretching of pauses can sound quite strange and disturbing

Another problem with "Catch Up" delay systems exist for Commercial Radio Stations feeding Network Stations where the delay system cause timing problems relating to triggering of Network Commercials

Commercials played to air at Remote Network Stations are usually different to those played at the Network Parent or "Hub" Station and are normally triggered from the Network Parent Station

This leads to timing problems using a "Catch Up" delay system as the delay can vary anywhere from 0 to 7 seconds making it difficult, if not impossible to synchronize remote commercial starts

The alternate method, is a "Fixed Delay, Fill In System", a once common method of providing delay, originally using a 7 second endless "Looped" NAB Tape Cartridge for the delay, and another Cartridge for the "Fill In" to cover the 7 second gap when going into delay

By the way, we have absolutely no idea why 7 Seconds were the then chosen amount of delay

Monophonic "Digital" Delay Units of very moderate performance became available in about 1975 and were based on "Bucket Brigade" technology, still requiring a Tape Cartridge for "Fill In"

Due to reliability problems with Tape Cartridges, true digital "Catch Up" delay systems are now the norm, despite their rather high price and the problem to some users, with the Network Commercial Trigger Pulses

The RTD-01 Delay System is a “Fixed Delay, Fill In” system providing 10 seconds delay, with the commercial trigger pulses carried through the delay chain when operating in delay, thus providing perfect timing for Network Commercial Starts

10 seconds has been chosen as a suitable delay time for safety, with 10 second “Fill-In” considered to be long enough duration to deliver a proper Station ID or Stinger

The RTD-01 will hold 4, 10 second “Stingers”, recorded on a removable Compact Flash Media card

The audio recordings on the Compact Flash Media card are readily changed using a Personal Computer, a suitable Audio Editing Program such as Cool Edit and a USB Compact Flash Memory Card Reader

The recording format on the Compact Flash Media Card use MP 3 Audio Compression, Stereo, 48 KHz Sampling Rate with a minimum of Bit Rate of 160 K Bits per Second recommended for quality

The Audio Delay section operates in 24 Bit Linear Mode, Stereo at 96 KHz Sampling Rate, aligned to allow for a headroom of about 18 dB above + 4 dBu making audio quality of the RTD-01 transparent and unlike other delay systems on the market, virtually impossible to overload

The relatively modest price of RTD-01 system makes it economically viable to install a system in each On-Air Studio as no complex and expensive switching is required in the Control Room

This is particularly important in “Commercial Dual License Stations” where the switching around a shared delay unit becomes an absolute nightmare

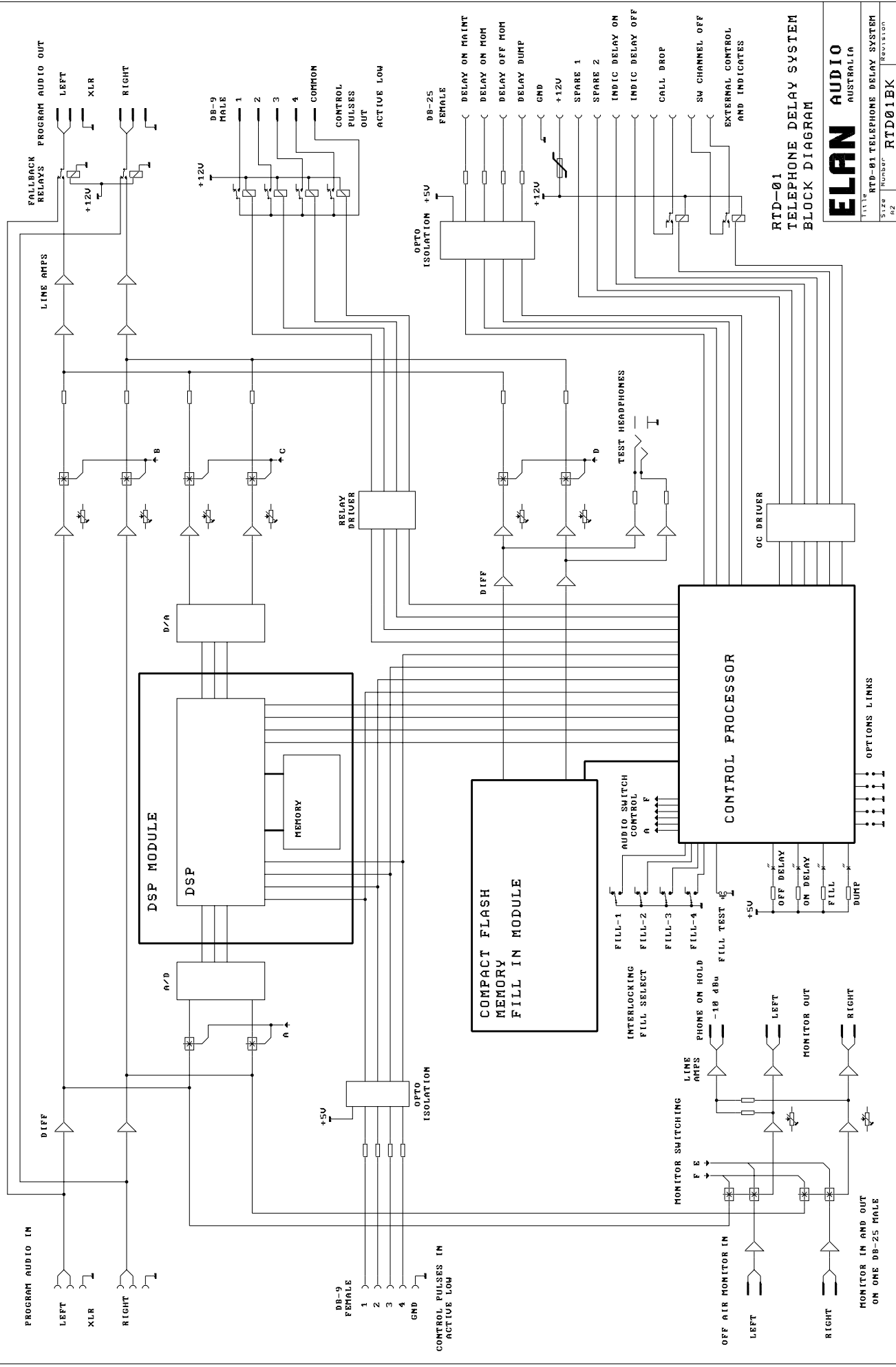
As a possibly unique operational enhancement, the RTD-01 feature Stereo Monitor Switching and a Monophonic –10 dBu Telephone on Hold Feed, controlled by its Systems Control Processor to automatically select the required monitor source

Main features of the RTD-01 system

- Balanced Line Level Stereo In and Out on XLR Connectors
- 10 Second Fixed Delay using 24 Bit Linear quantification at 96 KHz Sampling Rate
- 18 dB Headroom above + 4 dBu
- Click Free Audio Switching going in and out of Delay
- 4 x individual Commercial Trigger Pulses following Delay Status
- Commercial Trigger Pulse circuit, Opto-isolated in, Relay Isolated Out
- 4 x Selectable 10 Second “Fill-In Stingers” on Compact Flash Media card
- “Stinger” Test Switch and Test Headphone Outlet
- Automatic, Balanced Line Stereo Monitor Switching In and Out on XLR Connectors
- Balanced Line Monophonic – 10 dBu Telephone On Hold Feed
- Simple and Versatile Interface to external control switches and indicators
- Telephone Call “Drop Off” facility when “Dump” button is pressed
- Telephone Input Module “Switch Off” when “Dump” button is pressed
- Program In and Out Connectors arranged to allow complete By-Pass
- Commercial Trigger Pulse Connectors arranged to allow complete By-Pass
- Fallback Relay giving Automatic By-Pass in case of RTD-01 Failure

Summary of Unique Features

- Compact Flash Memory storage of Fill-In Audio
- 4 operator selectable “Fill-In Stingers”
- 24 Bit 96 KHz Sampling with 18 dB Headroom
- Monitor Switching incorporated in the system
- Mono, Telephone On Hold feed
- Input and Output connections arranged to allow By-Pass and removal of unit
- Relay to drop Telephone Hybrid off on “Dump”
- Relay to drop Mixer Input Channel off on “Dump”
- Versatile and simple interfacing to Real-Life Broadcast Systems



RID-01
TELEPHONE DELAY SYSTEM
BLOCK DIAGRAM

ELAN AUDIO	
AUSTRALIA	
FILE	RID-01 TELEPHONE DELAY SYSTEM
Size	Number
DATE	RTD01BK
REV	Revision
DATE	18-SEP-2004
FILE	RID01BK.V
DATE	0-3-00

