

# Precision. Control. Reliability.

D22

DIGITAL BROADCAST DELAY



The D22 is a dedicated two-In/two-Out digital delay, designed to comply with the demanding needs of the broadcast industry, providing seamless "on the fly" delay-updating without audio clicks, pitch changes and/or other unwanted sonic artifacts.

## Applications

The D22's ability to seamlessly update the delay either via the Tap key, the Adjust wheel or the Nudge keys, makes it ideal for on-air situations (Earthlink Compensation), and it is a perfect match for TV stations with a need to synchronize picture and sound (Lip Sync).

## Unique User Interface

The resolution of the delay can be displayed in frames, sub-frames, milliseconds and sub-milliseconds, allocated individually to each of the two delay time controls. The Tap control has a Preview mode for previewing the tapped delay time before it is inserted in the actual audio chain, and an Instant mode that inserts the tapped delay time immediately. For a more "fixed" environment, the User Interface also has a Keyboard Lock function.

## Remote Options

The D22 can be remote controlled via RS-485, allowing the user to change Delay time or even the full setup from a distance. GPI (General Purpose Impulse) allows external control of Tap Tempo as well as master fade on the Output.

## Ultimate Hardware

The D22 comes with 24 bit AES/EBU and S/PDIF digital interface and 24 bit A/D-D/A converters. The Delay algorithm itself

carries a full 24 bit signal through to the Output, and when bypassing the D22, true 24 bit resolution is maintained, leaving the digital signal untouched. When used in analog setups the D22 contains Relays, enabling hardwired bypass to ensure uninterrupted signal flow in the event of an unexpected loss of power to the unit.

## Features:

- ▶ Seamless Delay update - No clicks, pitch changes and / or other unwanted artifacts
- ▶ Digital I/O's: AES/EBU, S/PDIF, Wordclock BNC 75ohm
- ▶ 5200 ms Delay per channel
- ▶ Analog 24 bit A/D-D/A converters
- ▶ True 24 bit delay resolution compatible with Dolby®E
- ▶ Sample Rates:
  - Internal 44.1, 48kHz / External 32, 44.1, 48kHz
- ▶ Sample Rate Conversion from 31-49kHz
- ▶ Total Recall via programmable setups
- ▶ Tap Delay time - Instant or Preview
- ▶ Delay time in: frames (various resolutions), sub-frames, fields, milliseconds and sub-milliseconds (0.1 ms increments)
- ▶ Separate Adjust wheel and Nudge keys for Delay time adjustment
- ▶ Independent Dial/Nudge key resolution
- ▶ Build-in digital Output Fader (remote controllable)
- ▶ Remote capabilities: RS-485 (Input only) for Recall Setup, Delay time adjustment & GPI for external control of the digital Output Fader or Tapped Delay time
- ▶ User Interface Lock mode for "Set & Forget" purposes

# D22

## DIGITAL BROADCAST DELAY



The D22 features AES/EBU & S/PDIF digital I/O's

GPI Input for Tap Tempo, Bypass, or for connecting a Digital Master Fader.

The internal auto-sensing power supply automatically accepts and adjusts itself to 100-240V, 50/60Hz.

Analog balanced I/O.

Accurate Sample Rate synchronization can be achieved via the D22 word clock BNC Input.

RS-485 remote control connectors.

### Technical specifications:

#### Digital Inputs and Outputs

Connectors: XLR (AES/EBU) RCA Phono (S/PDIF)  
 Formats: AES/EBU (24 bit), S/PDIF (24 bit), EIAJ CP-340, IEC 958  
 Output Dither: HPF TPDF dither 8-20 bit  
 Word Clock Input: BNC, 75 Ohm, 0.6 to 10 Vpp  
 Sample Rates: 32 kHz, 44.1 kHz, 48 kHz  
 Processing Delay: 0.2 ms @ 48 kHz  
 Frequency Response DIO: DC to 23.9 kHz  $\pm$  0.01 dB @ 48 kHz

Frequency Response: < -60 dB, 10 Hz to 20 kHz  
 Crosstalk: typical -90 dB @ 1 kHz

#### EMC

Complies with: EN 55103-1 and EN 55103-2  
 FCC part 15, Class B  
 CISPR 22, Class B

#### Safety

Certified to: IEC 60065, EN 60065, UL 6500 and  
 CSA E60065, CSA file # LR 108093

#### Sample Rate Conversion

Type: Asynchronous  
 Dynamic Range: 120 dB  
 THD+N: -106 dB 44.1 to 48 kHz @ 1 kHz, -2 dBFS  
 Input Rate Range: 31 kHz to 49 kHz

#### Environment

Operating Temperature: 0° C to 50° C (32° F to 122° F)  
 Storage Temperature: -30° C to 70° C (-22° F to 167° F)  
 Humidity: Max. 90% non-condensing

#### Analog Inputs

Connectors: XLR balanced (pin 2 hot)  
 Impedance: 20 kohm (balanced)  
 Max. Input Level: +27 dBu (balanced)  
 Min. Input Level (for 0 dBFS): -4 dBu (balanced)  
 A to D Conversion: 24 bit (1 bit, 128 times oversampling)  
 A to D Delay: 0.8 ms @ 48 kHz  
 Dynamic Range: >103 dB (unweighted), >106 dB(A)  
 THD: -95 dB (0.0018 %) @ 1 kHz, -6 dBFS (FS @ +18 dBu)  
 Frequency Response: 10 Hz to 20 kHz: +0/-0.2 dB  
 Crosstalk: < -80 dB, 10 Hz to 20 kHz, typical -100 dB @ 1 kHz

#### PCMCIA Interface

Connector: PC Card, 68 pin type 1 cards  
 Standards: PCMCIA 2.0, JEIDA 4.0  
 Card Format: Supports up to 2 MB SRAM

#### Control Interface

RS485/RS422: 5 Pin DIN  
 GPI, Pedal, Fader: 1/4" phone jack

#### Analog Outputs

Connectors: XLR balanced (pin 2 hot)  
 Bypass: Through relay  
 Impedance: 40 Ohm (balanced)  
 Max. Output Level: +26 dBu (balanced)  
 Full Scale Output Range: -4 dBu to +26 dBu (balanced)  
 D to A Conversion: 24 bit (1 bit, 128 times oversampling)  
 D to A Delay: 0.57 ms @ 48 kHz  
 Dynamic Range: >100 dB (unweighted), >104 dB(A)  
 THD: -86 dB (0.005 %) @ 1 kHz, -6 dBFS (FS @ +18 dBu)  
 10 Hz to 20 kHz: +0/-0.5 dB

#### General

Finish: Anodized aluminum face and top plate  
 Plated and painted steel chassis  
 LCD: 56 x 128 dot graphic LCD-display  
 Dimensions: 483 x 44 x 208 mm (19" x 1.75" x 8.2")  
 Weight: 2.35 kg (5.2 lb.)  
 Mains Voltage: 100 to 240 VAC, 50 to 60 Hz (auto-select)  
 Power Consumption: < 20 W  
 Backup Battery Life: > 10 years

#### Warranty

Parts and labor: 1 year

**Note:** Due to continuous development and standardization all specifications are subject to change without notice

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