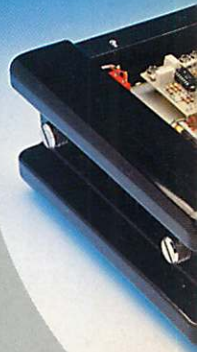


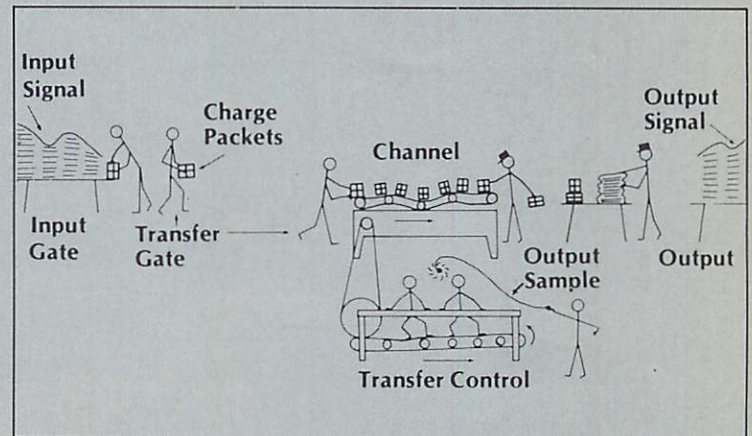
These two new H/H units, compact and portable echo delay systems, made to studio standard, will add the most exciting dimensions to the sound capability of your H/H P.A. system, Mixers and Amplifiers.



Space-age technology

To give the widest range and variations of sound effects possible, at the highest standard required by discerning sound engineers, the H/H research team called upon space-age technology. How was it done?

During the 1970's semiconductor research took a major step forward in the field of analogue data processing. The outcome is an integrated circuit device capable of storing and hence delaying audio signals. H/H Electronic worked closely with a major semiconductor manufacturer to specify an integrated circuit device capable of meeting the high standards of audio performance required by discerning sound engineers. That device, unique to H/H, is called the HHCC 100D.



Briefly, this is how it works:

When an audio signal is received by the HHCC 100D, the first function is to change the increasing/decreasing amplitude of the signal into many charge packets which are representative of the input signal: this is carried out by the input gate.

These charge packets are then coupled to a silicon channel by a transfer gate. The transfer gate works in synchronism with the input gate so that no build-up of packets occur which could lead to the uneven transfer of information.

Once this function has been carried out and each charge packet transferred to the channel, they are then controlled by the transfer section. Its function is to move the charge packets continuously along the channel thus maintaining an even flow of charge to the output gate. Because of the charge selection process at the input gate, there will be very little chance of charge loss or interaction during this transfer operation.

Having accomplished the transfer operation, the next step is to derive from each charge packet a sample equivalent in amplitude to the original signal: this function is carried out by the output sample/gate. These two again work in synchronism - the output sample taking charge packets from the silicon channel, whilst the output gate converts these back into a voltage representative of the original input.

The time taken for each charge packet to pass through the channel results in a time delay. When this delayed signal is re-mixed with the original audio signal the result, in audio terms, is echo.

Digital Multi Echo Unit

This entirely new unit will produce an exceptional variety of sound effects.

• ADT

Automatic Double Tracking. Essential for today's vocals.

• Echo

A wide selection of Echo sounds with variable delay times and repeat combinations - all at your fingertips - 8 independent push buttons can give you up to 240 combinations of amazing sounds - add subtle variations with the Echo Volume, Rate Control, and Repeat Volume controls.

• Reverb

An additional feature is the introduction of an Accutronics spring line reverb. This is driven by the latest electronic techniques which ensure that a high quality reverb sound is reproduced.

• Versatility

The Digital Multi Echo Unit has an extraordinary variety of sounds available.

ADT

Echo/Repeat, single or multiple

Echo/Repeat + Reverb

Reverb

Echo

Probably the most versatile echo system ever produced, the Digital Multi Echo Unit is particularly designed for such applications as:

Echo for high quality

P.A. systems

Special effects for guitar

Special effects synthesizer for the production of electronic music.

Echo Equalization

Is provided by bass and treble controls which affect the echo signals only, but do not affect the clean feed signals.

Stereo connection

Two independent output sockets on the front panel, Echo Out (Echo signal only) and Output (Clean feed signal) can be connected to two separate power amplifiers. This method of connecting the Digital Multi-Echo, or Digital Echo Unit, splits the clean-feed and echo into separate component signals. The resultant sound is a very exciting full stereo image, with clean-feed produced by the stage amplifier and delayed echo signal delivered through the main P.A. System. Of course it is now possible to vary the tone or effects settings on either amplifiers and produce totally different sounds for echo and clean feed signals. In this way it is possible to reproduce, on stage, sounds which were previously only possible in a recording studio.

The new H/H Digital Multi-Echo Unit, built to the highest electronics specifications, will produce, for you, in any situations, a varied range of space-age, esoteric sound effects and give a totally new, sophisticated dimension to your music.

Comes complete with tough vinyl cover, connecting leads and User Handbook.

Digital Echo Unit

The Digital Echo Unit is a carefully engineered product designed to produce a quality echo sound to exceptionally high standard.

By turning a single control 'Mode select' you will be able to obtain 6 switched Echo/Repeat effects:

- ADT - Automatic Double Tracking
- Short Echo plus 2 repeats
- Medium Echo plus 3 repeats
- Long Echo plus long repeats
- Special effects I (single echo multiple repeats)
- Special effects II (multiple echoes repeats)

To these sound effects, ranging from fast reverberation to very slow echo repeat, add a touch of sophistication with the Echo volume and Repeat volume controls.

Echo Equalization

Is produced by Bass and Treble controls, different settings change the sound of the Echo signal only, and do not affect the clean feed signals.

Stereo Connection

As with the Digital Multi Echo Unit an output socket on the front panel provides connection to the input of an amplifier, additionally an 'echo out' socket gives the echo signal only, (without the original clean feed).

The result is an exciting stereo image which can now be reproduced on stage.

Inputs

Two input channels with independent volume controls enable mixing of two independent input signals, i.e. two microphones or guitar and microphones etc.

On the back panel of the Echo units, 'output' and 'input' sockets are fitted to provide connection to 'echo send' and 'echo return' sockets on H/H amplifiers.

Footswitch

With both the Digital Multi Echo and the Digital Echo Unit, a stereo jack socket enables the H/H Electronic S1 Footswitch to be used. This provides remote control of Echo - or reverb for the Digital Multi Echo.

The unique H/H electroluminescent front panel illuminates when the unit is in use - essential in low ambient light areas, makes the controls easy to see.

Each echo unit is hand-built and wired to standards of workmanship that are the best in the industry.

Whatever instruments you play - whatever your music - impress your audience with the most exciting range of sound effects ever heard.

Comes complete with a tough vinyl carrying cover, connecting leads and User Handbook.

Technical Specification

Digital Multi Echo

Clean Feed

Input Impedance: 100K ohm MIC and LINE
Channels 1 & 2

Gain, with channel MIC + 25dB LINE + 10dB

Volume at No. 10

Normal input level MIC 10mV LINE 70mV
with Volume at No. 10

Output

Minimum load impedance 600 ohms, normal output level 200mV.
Noise level - 76dBm 10Hz to 10kHz, channel volume maximum.

Delayed Feed Control

Input to Delay Chain: Continuously variable with switched input impedance.

Output: Minimum load impedance 600 ohms, normal output level 200mV.

Noise level: -58dBm 10Hz to 11kHz

Treble: +8dB, -8dB at 10kHz

Bass: +10dB, -10dB at 100Hz

Bass and Treble controls operate in echo mode only and not in clean feed or reverb.

Echo Volume: Gives continuously variable control of selected Echo outputs.

Repeat Volume: Controls the amount of selected repeats which are fed back into the Delay Chain.

Reverb Volume: Gives continuously variable control of reverb output.

Echo/Reverb Footswitch: S1 footswitch enables remote selection of Reverb only or Echo only but not both.

Echo Rate: A control giving continuously variable echo rate of selected echo switches. 5:1 control range.

Delay Times:

	Max.	Min.	Units
1	73	21.5	ms
2	200	58	ms
3	256	77	ms
4	312	92	ms

Frequency Response: **Delay time** **Response measured at 3dB point**

312ms 30Hz - 3.5kHz

230ms 30Hz - 5kHz

56ms 30Hz - 5kHz

Rear Panel

Echo Send: 100mv source impedance 1K ohm.

Echo Return: Input from external effects.

Rated Input Level: 100mv

Input Impedance: 10K ohm

Mains Power: AC Mains 50-60Hz, 220-115 volts

Power Requirements: 2VA

Mains Fuse: 500mA quick acting

Weight: 6kg. (13lbs)

Dimensions: 292 × 114 × 502mm overall
11 1/2" × 4 1/2" × 19 3/4" overall)

Digital Echo Unit

Clean Feed

Input Impedance: 100K ohm MIC, 100K ohm LINE. Both switched.
Channels 1 & 2

Gain, with channel MIC + 25dB LINE + 10dB

Volume at No. 10

Normal input level MIC 10mV LINE 70mV
with Volume at No. 10

Output

Minimum load impedance 600 ohms, normal output level 200mV.
Noise level - 76dBm 10Hz to 10kHz, channel volume maximum.

Delayed Feed Controls

Input to Delay: Continuously variable with switched input impedance.

Output: Minimum load impedance 600 ohms, normal output level 200mV.

Noise level: -58dBm 10Hz to 6kHz

Treble: +8dB, -8dB at 10kHz

Bass: +10dB, -10dB at 100Hz

Bass and Treble controls affect echo only and not clean feed or reverb.

Echo Volume: Gives continuously variable control of selected Echo outputs.

Repeat Volume: Controls the amount of selected repeats which are fed back into the Delay Chain.

Echo: S1 Footswitch enables remote selection of clean feed only or Echo.

Delay times: Pre-set internally and selected by 'Mode' switch.

	Echo	Repeat
ADT	34ms	42ms
Short Echo	66ms	74ms
Medium Echo	185ms	193ms
Long Echo	208ms	216ms

All above times are approximate.

Frequency response: ADT 30Hz to 5kHz
Long Echo 30Hz to 3.5kHz
Special effect II 30Hz to 5kHz

Rear Panel

Echo Send: 100mV source impedance 1K ohm

Echo Return: Input from external effects

Rated Input level: 100mV

Input Impedance: 10K ohm

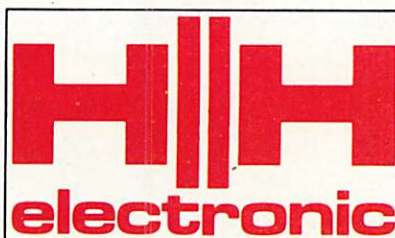
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