

## 1992 Digital Equipment

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### Philips/Micromega CD-R Writer

With the input control at maximum, *peak level for full 16 bit modulation* corresponds to a level of + 10 dB (i.e. 2 dB above the usual 'peak' level of a BBC peak programme meter or PPM).

The machine features a remote control using RC5 protocol. Since this is also used by CD players it is possible to achieve a 'synchronised start' for one CD player and a number of CD-R machines.

Operation is as follows:-

Record Standby: used for 'rehearsal' and setting of levels

Play: to start recording

Press 'Ident' to mark track IDs 'on the fly' OR

Record Pause: get ready or 'rehearse' for next track

Play: to start recording with track ID inserted.

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### Yamaha DMP7 and DMP7D Mixers

These 8-channel mixers employ digital signal processing. The **D version** has digital inputs and outputs. There's also a good quality **Monitor** output, the level of which is set using the adjacent control.

The **Cascade** input and output is applied to, and taken from, the main fader. These circuits (together with mono **Send 3** and stereo **Returns** on the 'D' version) are in 'Yamaha' format. Connections can be made directly to an SPX1000 effects unit or from a FMC1 Format Converter, the latter accepting AES/EBU or S/PDIF (CD/DAT) inputs.

On the DMP7D the 'bit shift' switches only operate in conjunction with the SDIF2 outputs.

The DMP7 will 'free run' on its internal clock but the DMP7D requires a feed via one of the following:-

- a) Input multiway connector
- b) BNC Word Clock input
- c) Cascade input

Any *disruption of the clock* will cause the mixer to **shut down** and go through its 'switch on' sequence.

The **Word Clock** must *not* be wired via a BNC 'splitter'. Note that any signal applied to the **AES/EBU or S/PDIF (CD/DAT) inputs** of a DMP7D *overrides the clock*: these inputs are best avoided!

Applying a signal to the **Cascade** input of a DMP7 *overrides* its internal clock. DMP7s 'free run' at **44.1 k** but *can* be driven at 48 k, with **no benefit** and a *shift in the equalisation settings*.

**The DMP7 Cascade output is pre-emphasised and cannot be switched.** For this reason your studio may have to operate with pre-emphasis throughout!

*The DMP7D emphasis switch merely sets the 'flags' in the AES/EBU and S/PDIF outputs.* For optimum performance the 44.1/48 k switches on the rear of DMP7D should be set correctly.

The **DMP7D input** (in Yamaha mode) only accepts the *left hand* channel from a Cascade signal. Hence a *Custom Interface Unit* (CIU) is required to connect the output of four DMP7s to a DMP7D. The **clock signal** is fed **from the DMP7D** (via the multiway connector) to a set of buffers in the CIU: these then feed the DMP7s via modified Yamaha cables. Note that the 'master' DMP7D must obtain a **separate** clock via the Cascade or Word Clock inputs. The CIU converts the Cascade outputs from the DMP7s into eight 'mono' Yamaha format signals which are applied to the input of the DMP7D. The CIU also includes '*bit shift*' switches which trim the clock timing to suit any delays introduced by cabling. The **cables** to *all four mixers* should be short and of similar length.

An IFUD2 may be used to convert AES/EBU signals (e.g. from an Akai DD1000) into suitable form for the DMP7D.

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## **Yamaha AD2X**

This is a two-channel analogue to digital convertor.

*Inputs:* balanced (XLR). Rotary gain controls are on front panel with bar-graph metering. These accept +4 dB signals (maximum +23 dB): no extra gain is provided.

*Outputs:* Yamaha MEL2 (8 pole DIN), AES/EBU (XLR), CD/DAT (RCA coax - with switch). *Word Clock:* (BNC) can be switched to be *either* input or output (75Ω input termination switch is internal).

*Rear panel switches:* emphasis, 44.1 or 48 kHz internal clock.

*Front panel indicators:* emphasis, 44.1 or 48 kHz, external clock.

*Size:* 1U (45.3 mm) high, 278 mm deep, 480 mm wide. Attached 3 core mains cable.

*Note:* this is a 20 bit device: the MSB trim preset of 'receiving' 16 bit equipment may need adjustment to eliminate noise modulation 'buzz'.

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### **Yamaha AD8X**

This is an 8-channel analogue to digital convertor.

*Inputs:* balanced (XLR). Rotary gain controls are on front panel with bargraphs. They accept +4 dB signals (maximum +23 dB): no extra gain is provided.

*Outputs:* Yamaha (25 way D connector)

*Size:* 3U

*Note:* this is a 20 bit device: the MSB trim preset of 'receiving' 16 bit equipment may need adjustment to eliminate noise modulation 'buzz'.

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### **Yamaha DA202**

This is an 18-bit processing 2 channel D to A convertor.

*Inputs:* AES/EBU (XLR) or CD/DAT (RCA coax) with rear panel switch.

*Digital Thru Outputs:* AES/EBU (XLR) and CD/DAT (simultaneously).

*Audio Outputs:* balanced (XLR), +4 dB, 600Ω.

*Front panel indicators:* emphasis, PLL. Emphasis switching is automatic

*Size:* 1U (45.3 mm) high, 212 mm deep, 480 mm wide. Attached 2 core mains cable.

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### **Yamaha FMC1:**

This is a digital Format convertor.

*Input:* MEL2 (8 pole DIN) 'Cascade In'.

*Outputs:* AES/EBU (XLR), CD/DAT (RCA coax), SDIF (3 BNC: L, R and Word Clock): all outputs are simultaneous.

*Supplementary Output:* MEL2 (8 pole DIN) 'Cascade Out': CLOCK ONLY.

Rear panel switch to select 44.1 or 48 kHz.

*Size:* 1U (45.3 mm) high, 217 mm deep, 480 mm wide. Attached 3 core mains cable.

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### **Audio Digital Technology DIF fader - 2 channel mixer:**

Fader and balance trim for each 'path' plus master fader

*Inputs:* AES/EBU, S/PDIF, SDIF switchable on both paths.

*Outputs:* AES/EBU, S/PDIF, SDIF both paths, simultaneously. Monitor AES/EBU output can be switched between paths.

*Flags:* may be stripped or added (emphasis, copy, consumer)

Mix mode is optional. Integral oscillator.

*Path A:* Channel reversal. High pass filter. Optional 11.5  $\mu$ s (at 44.1 kHz) delay for equipment with single D to A convertor. Phase inversion (either leg). 20 or 16 bit output switch. Dither switch.

*Size:* 1U plus control box

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### **Audio and Design Digital Fader**

This strips out DAT ID codes, which makes it useless, so it was sent back.

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Ray White, 1992