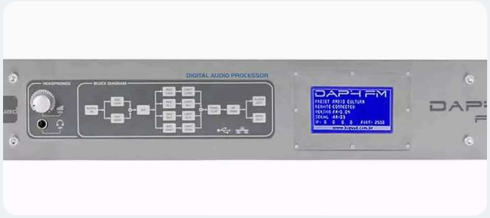
DAP4 FM

Digital Audio Processor



PRODUCT DESCRIPTION

Innovation as your station's competitive edge.

The DAP4 FM processes audio intelligently, with extremely rigorous control of high-frequency peaks, delivering a comfortable sense of sonic dynamics together with powerful bass impact.

The digital stereo generator offers greater channel separation than comparable equipment. Its software also provides separate adjustment of pilot level and audio level, along with a wide range of additional signal-processing resources, allowing the user to shape the sound to suit the character of each station.

HARDWARE

- 19-inch rack-mount chassis with analogue audio, digital audio and PC communication connections.
- 3-inch touch-screen display for quick access to key functions, including preset selection and VU meter viewing.

SOFTWARE

- Supplied with the product and installable on Windows XP, Vista and Windows 7.
- Provides full access to all audio-processing parameter controls, as well as the creation of new presets.
- Password protection for the equipment.
- Access via USB or Ethernet, enabling control of the processor blocks when the software is active.
- The software is highly intuitive and easy to use, graphically representing the product's block diagram and making each applied adjustment easier to understand.

REAR CHASSIS

Rear chassis view included using the newly supplied image.

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TECHNICAL SPECIFICATIONS

1. SYSTEM

- Delay: maximum signal delay at the analogue and digital outputs relative to the input signal is less than 6 ms.
- Digital processing: Analog Devices ADSP Blackfin BF532, 400 MHz clock, 800 MMAC, 32-bit, with four DSP boards on the main board.
- CPU: NXP ARM-7 LPC2387, 72 MHz clock, 64 KB SRAM and 512 KB Flash, 32-bit.
- Storage memory: Flash type with 4 Mbit capacity.
- Display: graphical monochrome display with blue background, white text and touch-screen function, 128 × 64 pixels, 3-inch size.
- Frequency response: 1 Hz to 40 kHz ±0.1 dB in bypass mode.
- Noise: 100 dB on analogue inputs and outputs; 120 dB on digital inputs and outputs.
- System harmonic distortion: <0.01% from 20 Hz to 1 kHz; <0.04% from 1 kHz to 15 kHz; <0.02% SMPTE IM.
- Remote PC interface: Windows 2000 SP3 or later, XP, Vista or Windows 7.
- Configuration: TCP/IP protocol, directly connected by USB cable or via Ethernet.
- USB connection: USB 2.0, 480 Mbps, female type-B connector.
- Ethernet connection: RJ-45 female, 10/100 Mbps using CAT5 or compatible cable.
- Power consumption: 36 W.

2. ANALOGUE AUDIO INPUT L/R

- Configuration options: stereo; mono from left channel; mono from right channel; mono from summed channels.
- Filters: selectable high-pass filter off/30/40/50/60 Hz and selectable low-pass filter 16/25 kHz.
- Impedance: 10 kΩ.
- Connectors: female XLR with EMI suppression.
- Nominal input level: adjustable in software from -10 to +20 dBu.

4. ANALOGUE AUDIO OUTPUT (MONITOR)

- Configuration: stereo; mono from left channel; mono from right channel; mono from summed channels.
- Operating modes: processed with pre-emphasis; processed with pre-emphasis and de-emphasis; processed flat; bypass mode.
- Filter: FIR low-pass filter with selectable cut-off at 16 or 25 kHz.
- Impedance: 50 Ω source, electronically balanced with servo control; minimum acceptable load 600 Ω or greater.
- Output level: adjustable from -11 dBu to +18 dBu for 100% peak modulation.
- Signal-to-noise ratio: ≥100 dB unweighted in bypass mode, 30 Hz to 15 kHz.
- Crosstalk: ≤-85 dB, 30 Hz to 15 kHz.
- Harmonic distortion: <0.04% THD in bypass mode, 30 Hz to 15 kHz.
- Connectors: male XLR with EMI suppression.
- D/A converter: PCM1796 Burr-Brown, 24-bit, 96 kHz, 256× oversampled with RFI filter.

5. DIGITAL AUDIO OUTPUT (MONITOR)

- Same characteristics as the analogue monitor output, except for format-specific differences.
- Impedance: 110 Ω balanced and transformer-isolated.
- Output level: adjustable from -20 dBFS to 0 dBFS for 100% peak modulation.
- Signal-to-noise ratio: ≥120 dB unweighted in bypass mode, 30 Hz to 15 kHz.
- Crosstalk: ≤-120 dB, 30 Hz to 15 kHz, stereo mode.
- Harmonic distortion: ≤0.01% THD in bypass mode, 30 Hz to 15 kHz.
- Resolution and sampling rate: 24-bit / 96 kHz.
- Connectors: male XLR with EMI suppression.

6. ANALOGUE AUDIO OUTPUT (TX)

- A/D converter: AD1871, 24-bit, 96 kHz, 256× oversampled with RFI filter.

3. DIGITAL AUDIO INPUT, AES-3 STANDARD

- Same characteristics as the analogue audio input, except for format-specific differences.
- Impedance: 110 Ω balanced and transformer-isolated.
- Sampling rate: 32, 44.1, 48, 88.1 and 96 kHz, selected automatically.
- Connectors: female XLR with EMI suppression.
- Nominal input level: adjustable in software from -18 dBFS to 0 dBFS.
- Maximum input level: 0 dBFS.

- Two outputs with levels controlled independently via software.
- Balanced MPX output and unbalanced MPX output with individually controlled levels.
- Maximum output level: +18 dBu (17.5 Vpp); minimum output level: -12 dBu (0.69 Vpp).
- Pilot level: adjustable from 5% to 15% in software.
- Pilot stability: 19 kHz, ±0.5 Hz from 10 to 40 °C.
- D/A converter: PCM1796 Burr-Brown, 24-bit, 192 kHz, 128× oversampled.
- Signal-to-noise ratio: ≥85 dB unweighted in bypass mode with 75 µs de-emphasis.
- Stereo separation: ≥60 dB, 50 Hz to 15 kHz.
- 38 kHz suppression: ≥70 dB; 76 kHz and sideband suppression: ≥80 dB.
- 57 kHz RDS/RBDS protection: ≥50 dB relative to 4% secondary signal injection.
- Connectors: balanced and unbalanced BNC outputs with EMI suppression.

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