

DIGITAL-AUDIO COMPONENTS

XET AES/EBU-OUTPUT BOARD

4/8-CHANNEL AES/EBU AND S/PDIF OUTPUT BOARD

- 4 stereo channels
- Transmits 24/20/16-bit audio
- Either XLR, RCA coaxial, TOSLINK optical, RJ45, D-Sub, or BNC ports
- Additional parallel outputs (option) implementing other port types
- DSP built-in
- High-quality re-quantization to 16-bit or 20-bit formats
- Re-quantization with dithering and noise shaping
- Transparent forwarding of all bits in AES/EBU format
- Sample-rate converters
- Legacy mode supported
- OptoXler power-supply module (option)
- Officially certified by Dolby® for Dolby E signal transmission

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The NEXUS XET output board provides 4×2 AES/EBU or S/PDIF-compliant channels. The board is available in various versions with different ports (XLR, RCA coaxial, BNC, and TOSLINK optical). RJ45 or D-Sub terminals where all signals are transferred over a single port are also available for increased installation-friendliness.

In addition, the XET-OR version provides both TOSLINK optical and electrical outputs (RJ45). The XET standard version can also be equipped with additional XET-S front-panel modules providing extra output ports. For example, implementing an XET-S option allows parallel optical outputs to be added to the XLR version.

The four stereo channels can also be configured as mono channels and be routed freely and separately on the NEXUS system.

The board also supports the legacy mode where a single-channel audio signal with double sample rate is transferred over an AES/EBU standard port.

DSP FOR NOISE SHAPING AND DITHERING

The 24-bit NEXUS audio signal can be output to external downstream units with 16-bit or 20-bit resolution. To maintain optimum audio quality, the resolution is converted by the internal DSP using a dithering algorithm. This efficiently minimises the inevitable signal inaccuracies and deterioration of S/N ratio and THD+N.

In addition, a selectively engaged noise-shaping function moves the noise energy up to frequency ranges less perceivable to the human ear. The noise reduction achieved in the range below 1 kHz is approximately 15 dB and about 10 dB in the critical range around 3 kHz. Noise-shaping is computed on the integrated DSP using a 5th-order algorithm.

The signal processor implemented on the board also allows for phase inversion, gain, and output limiting. The respective parameters can be set using the service software.

FREE SAMPLE RATES SUPPORTED

The XET board is equipped with sample-rate converters to handle external appliances not in sync with the system clock or using different sample rates. For this purpose, the board includes a precision clock generator for the standard rates (32, 44.1, and 48 kHz). In addition, double or fourfold of the selected rate can be selected individually for each output. The optional XOSC generator module allows a free system-independent clock rate to be configured. The XOSC board supports a variety of system-specific clock rates.

The board also provides an input for external wordclock signals, which the sample-rate converters can synchronise to.

This input can also be used for synchronisation to a neighbouring XER AES/EBU input board independently of the system clock. Using flexible circuit boards this even allows for cascading multiple boards.

To achieve identical latencies and signal phases at the various outputs, the board's sample-rate converters can be synchronised to each other; this is reasonable, for example, when connecting multitrack recorders fed via AES/EBU inputs. When using the same rates, the converters are auto-synchronised.

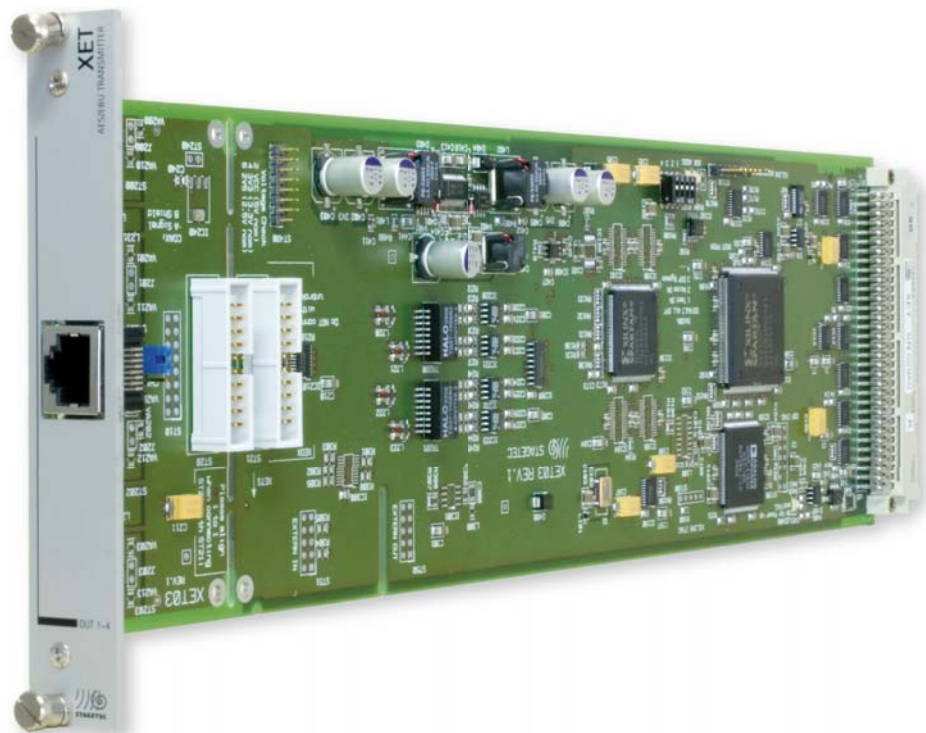
They can be enabled separately for each stereo pair using the control software.

ANCILLARY INFORMATION

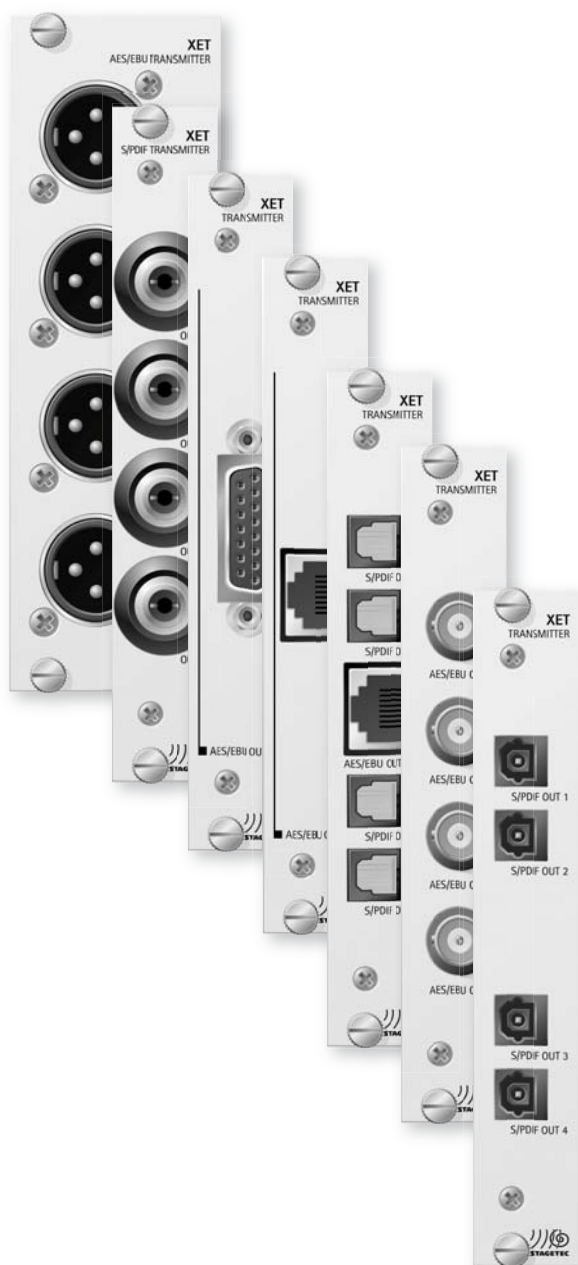
AES/EBU ancillary data is transparently forwarded on the NEXUS system or can be regenerated. The channel status can be set to either professional or consumer format.

TEST TONE GENERATOR

For test purposes, the board features a generator capable of producing sine signals as well as low-amplitude noise.



| VERSIONS FOR XET-S | |
|--------------------|--|
| XET-S-X | 4 × XLR-3 ports (male) |
| XET-S-BNC | 4 × BNC ports |
| XET-S-C | 4 × RCA coaxial ports |
| XET-S-O | 4 × TOSLINK optical / DNP ports |
| XET-S-RJ | 1 × RJ45 terminal |
| XET-S-OR | 4 × TOSLINK optical / DNP ports and 1 × RJ45 terminal |



| XET03 SPECIFICATIONS | | |
|------------------------------|--|---|
| | All relevant specifications comply with the following standards: AES 3-1992/97, IEC 60985, EIAJ CP-1201, und AES 11-1997. | |
| Data formats | AES/EBU Professional and Consumer formats (complying with AES 3-1992/95, AES 11-1997, ANSI S4.40-1985; S/PDIF: IEC 958 or IEC 60958, EIAJ CP-340, EIAJ CP-1201) | |
| Audio data | 24 bits (16/20 bits after re-quantization) | |
| Sample rates | w/o SRC: 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz; w SRC: 22 to 200 kHz | |
| Features (per out- put) | 16/20 resolution after re-quantization with dithering and noise shap- ing, shiftable sample-rate converter; adjustable gain, phase reverse, limiter (using a special service software) | |
| XET-X, XET-BNC outputs | 4 stereo channels (8 mono channels) per board | |
| | XLR-3 male ports or BNC | |
| | balanced, ground-free transformer isolation, 110-ohm impedance (BNC: 75 Ohm) | |
| | ground connection detachable (using jumpers) | |
| XET-O outputs | 4 stereo channels (8 mono channels) per board | |
| | TOSLINK optical / DNP (EIAJ RCZ 6901-compliant), 100 kHz max. | |
| XET-C outputs | 4 stereo channels (8 mono channels) per board | |
| | RCA-RCA coaxial, gold-plated contacts | |
| | galvanically isolated, 75-ohm impedance | |
| XET-RJ, XET-DSUB outputs | 4 stereo channels (8 mono channels) per board | |
| | RJ45 or 15-pole D-Sub (male) | |
| | balanced, ground-free transformer isolation, 110-ohm impedance | |
| | ground connection detachable (using jumpers) | |
| XET-OR output | combo ports (see XET-O and XET-RJ) | |
| Propagation delay | 7 Samples (0.7 ms when using SRC) | |
| Power supply | Voltage | +4.75 to 5.25 V |
| | Current | 300 mA |
| Operating condi- tions | Temperature range | 0 to +50 °C / 32 to 122 °F |
| | Humidity | 90% (max.), non-condensing |
| Storage conditions | Temperature range | -35 to +70 °C / -31 to 158 °F |
| | Humidity | 90% (max.), non-condensing |
| Physical specifica- tions | General | board for 19" module frame; 3 U, 340 mm / 13.39" |
| | Front panel | 4 HP (20.02 × 128.5 mm / 0.8 × 5.06"); XLR version: 8 HP (40.2 mm / 1.58") |
| | Required space | 1 |
| | Weight | 0.26 kg |

| VERSIONS FOR XET | |
|------------------|--|
| XET-X | 4 × XLR-3 ports (male) |
| XET-BNC | 4 × BNC ports |
| XET-C | 4 × RCA coaxial ports |
| XET-O | 4 × TOSLINK optical / DNP ports |
| XET-DSUB | 1 × D-Sub terminal (male, 15-pole) |
| XET-RJ | 1 × RJ45 terminal |
| XET-OR | 4 × TOSLINK optical/DNP ports and 1 × RJ45 terminal |
| SRCs X4SRC | versions featuring SRCs |
| XOSC | generator module for system-independent sample rates (various rates supported as requested) |