

## RSYNC SYNCHRONISATION BOARD

### VIDEO, WCLK, AND AES/EBU SYNC-INPUT BOARD FOR THE NEXUS STAR

- Video, wordclock and AES/EBU inputs
- Automatic detection of video formats
- Input filter for restoring analogue video signals
- Video-sync input (BNC) for bi-level and tri-level sync signals
- Wordclock and AES/EBU outputs

The RSYNC board for the NEXUS STAR was designed for connecting to external studio systems and devices. It provides three inputs used to synchronise the NEXUS system remotely: video, wordclock, and AES/EBU. The synchronisation source is selected using the NEXUS control program.

#### SYNC INPUTS

**AES/EBU** The NEXUS can synchronise to an external AES/EBU signal. The synchronising signal is applied either to a standard AES/EBU input on the system (e.g. on a XER board) or to the RSYNC directly. For space-saving purposes, the RSYNC front panel provides a BNC port as well as a D-Sub port. Both the BNC and D-Sub ports are balanced; the BNC port has an 75-ohm impedance, and the AES inputs have a standard impedance of 110 ohm. Changeover between the two ports occurs automatically. Both inputs are galvanically isolated and balanced.

**Video** External video signals are applied to a BNC standard port. It is galvanically isolated and unbalanced (as specified by the format). The video input handles a number of formats: It accepts not only composite, component, and HDTV video but also new HD formats including tri-level sync information as sync sources. The RSYNC detects the applied formats automatically, so manual switchover is unnecessary. It incorporates a composite filter, selectively enabled, for suppressing analogue interference (noise, voltage peaks).

**Wordclock** The wordclock input is implemented as an isolated BNC port. The input port is balanced and galvanically isolated and accepts TTL signals. The nominal input impedance of 75 ohm can be changed to approx. 500 ohm. This enables a single source to feed multiple destinations.

#### SYNC OUTPUTS

The (externally applied or internally generated) NEXUS system clock is made available to external units on one TTL wordclock output and two AES/EBU outputs. All outputs are balanced and are galvanically isolated.

Just like the inputs, the AES/EBU outputs are implemented as BNC and D-Sub ports. The D-Sub port has a 110-ohm impedance.

#### COMPATIBILITY

The RSYNC boards can be used on first generation NEXUS STAR routers as well as on current-generation routers incorporating a redundant RCX/backplane configuration.

Thus, the RSYNC is compatible with the RCPU/RMX and RCX controller boards as well as with the RBP and RBPR backplanes.

#### INDICATION AND ERROR DETECTION

The RSYNC detects and indicates sync-signal failure.

#### HOT SWAP

As is usual with NEXUS components, the RSYNC board can be removed and installed during operation. If necessary, the NEXUS switches automatically to the next available internal or external sync source.



RSYNC SPECIFICATIONS	
Video input	Port: BNC
	Galvanic isolation
	Sensitivity: 1 V (nom., 0.5 to 2 V <sub>pp</sub> )
	Impedanz: 75 ohm
	Required stability: < ±100 ppm (±50 ppm typ., compliant with AES 11, Grade 2)
	SD formats (NTSC, PAL):
	<ul style="list-style-type: none"> <li>• 525 lines interlaced, 59,94/60 Hz (NTSC)</li> <li>• 525 lines progressive, 59,94/60 Hz</li> <li>• 625 lines interlaced, 50 Hz (PAL)</li> <li>• 625 lines progressive, 50 Hz (PAL)</li> </ul>
	HD formats (SMPTE 296M):
	<ul style="list-style-type: none"> <li>• 720 lines progressive, 50; 59,94 and 60 Hz</li> </ul>
	HD formats (SMPTE 274M, SMPTE 260M):
Wordclock in	Port: BNC
	Balanced, galvanic isolation
	Sensitivity: TTL, 1 to 5 V
	Impedance: 75/500 ohm (jumper-configurable)
	Frequency: 44.1, 48, 88.2, and 96 KHz
	Required stability: < ±150 ppm (±50 ppm typ., compliant with AES 11, Grade 2)
Wordclock out	Port: BNC
	Balanced, galvanic isolation
	AC/DC coupling: jumper-configurable
	Level: ≥ 2.4 V on R <sub>L</sub> = 75 ohm
	Impedance: 75 ohm
	Frequency: 44.1, 48, 88.2, and 96 KHz
AES/EBU input	NEXUS frequency stability min. ±10 ppm, typ. ±5 ppm (when using internal generator)
	Port: BNC and D-Sub, 15-pin, female
	Balanced, galvanic isolation
	Ground connection: configurable on D-Sub port
	Input voltage: ±0.2 to 7 V
	Impedance: 75 ohm (BNC), 110 ohm (D-Sub)
AES/EBU output	Frequency: 44.1, 48, 88.2, and 96 KHz
	Required stability: < ±150 ppm (typ. ±50 ppm, compliant with AES 11, Grade 2)
	Port: BNC and D-Sub, 15-pole, female
	Balanced, galvanic isolation
	Ground connection: configurable on D-Sub port
	Impedance: 75 ohm (BNC), 110 ohm (D-Sub)
Power supply	Level:
	<ul style="list-style-type: none"> <li>• 1 V<sub>pp</sub> (nom.) on R<sub>L</sub> = 75 ohm (BNC output)</li> <li>• &gt; 2 V<sub>pp</sub> on R<sub>L</sub> = 110 ohm (D-Sub output)</li> </ul>
	Frequency: 44.1, 48, 88.2, and 96 KHz
	Frequency stability: min. ±10 ppm, typ. ±5 ppm (when using internal generator)
	Operating voltage: +4.75 to 5.25 V
	Power consumption: approx. 0.4 A
Operating conditions	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 properties	Front panel: 6 U × 4 HP (approx. 20 mm × 262 mm)
	Slots: 1

