

DN9652 Dual Network Bridge



Architect's & Engineer's Specification

The Dual Network Bridge shall provide bidirectional asynchronous sample rate conversion of up to seventy-two (72) simultaneous channels of 24-bit resolution digital audio, between two third party network module interfaces in a standard 1U high 19" rack mount chassis.

The Dual Network Bridge shall have one (1) Ethernet Control Port for the purposes of remote configuration from a computer web browser interface and the updating of internal software.

The Dual Network Bridge shall have two clock domains (identified as A & B), one for each third Party Network, separated by an Asynchronous Sample Rate Converter (ASRC). The Sample Rate Converter shall have a Bypass option with the facility to lock one of the clock domains to the other.

Each Network Clock domain shall support clock synchronisation to incoming clock via third party network module, Word Clock Input or Video Black Burst Input which shall support incoming video synchronisation signals in PAL/SECAM/NTSC formats in Standard Definition (SD) and High Definition (HD) resolutions, as well as optionally slaving to the other clock domain if the Sample Rate Converter is bypassed.

The Word Clock Output shall be capable of being derived from either clock domain or the Word Clock Input.

The Dual Network Bridge shall have a precision clock reference provided by a temperature-controlled crystal oscillator (TCXO) with 1 part-per-million (1 ppm) stability.

The Dual Network Bridge shall have user-selectable functions for both clock domains to stop an output clock if the corresponding input clock fails, to propagate network failures across the ASRC for the purposes of automatic or manual redundancy switchover.

The Dual Network Bridge shall support data format word length truncation and dithering on data received and transmitted via the third party network module interfaces.

The unit shall be capable of operating from a 100 to 240V $\pm 10\%$, 50 to 60Hz AC power source.

The Dual Network Bridge shall be the Klark Teknik DN9652 and no alternative option is available.

There are many different multichannel digital audio protocols available today. Some are well established and have been in common use for several years, others have appeared recently, and all are vying for recognition and market share. Interfacing different protocols can be difficult and expensive, often requiring the use of inflexible, proprietary hardware. Connecting different audio networks together, which often have differing sample rates and clock domains can be a difficult and expensive process. The DN9652 Dual Network Bridge has been designed to allow two dissimilar digital audio networks to interface simply and reliably.

Currently available interfaces include:-

- Audinate Dante
- Aviom A-Net
- Cirrus Logic CobraNet
- Digigram EtherSound
- MADI (AES10)

The DN9652 Dual Network Bridge supports network modules designed and manufactured by Cirrus Logic, Inc., Lab X Technologies, LLC, and Audinate Pty Ltd.

DN9652 Dual Network Bridge features include:-

- Two network interfaces each supporting up to 72 bidirectional channels of 24-bit 96 kHz audio
- 1:1 channel mapping between Network Module interfaces
- Bidirectional Asynchronous Sample Rate Conversion (ASRC) on every channel with Bypass facility
- User-selectable bidirectional Stop Output Clock facility if Input Clock fails function, to propagate network failures across ASRC for automatic or manual redundancy switchover
- Data format word length truncation and dithering
- Ultra-high stability reference-grade 1 part-per-million (1 ppm) temperature-controlled clock oscillator
- Supports operation at 44.1 kHz, 48 kHz and 96 kHz sampling frequencies
- Flexible third party interface clock synchronisation options:-
 - Network Module Incoming and Outgoing Clocks
 - Word Clock Input
 - Word Clock Output
 - Video Black Burst In (PAL/SECAM/NTSC formats in Standard Definition (SD) and High Definition (HD) resolutions)
- Platform-independent web browser configuration interface software hosted on integrated Linux web server
- Ethernet Control port for remote computer connection (web browser configuration and software updating)
- 100V-240V universal power supply
- 1U High 19" rackmount

Clock Synchronisation

The DN9652 clock synchronisation scheme is divided into two domains (A & B) for each of the two network module interfaces.

Each Network Clock Domain may select from:-

- External Network Clock
- External Network Clock with Word Clock In Synchronisation
- DN9652 Onboard Oscillator
- Network Module Onboard Clock
- Clock selection from other Network Module
- Word Clock In
- Video Black Burst In

Note: Selection from above options may be limited by feature set of Third Party Module fitted.

Front panel description

- 1 x Inlet Air Vent
- 1 x ETHERNET CONTROL Activity LED (Green)
- 1 x Pair of green/red Network A Clock Status LED indicators (OK, ERROR)
- 1 x Asynchronous Sample Rate Converter ASRC ENABLED LED indicator
- 2 x Network Output "STOP OUTPUT CLOCK IF INPUT FAILS" yellow and red LED indicators (ENABLED, STOPPED)
- 1 x Pair of green/red Network B Clock Status LED indicators (OK, ERROR)
- 1 x Backlit Alphanumeric LCD Display (16 characters x 2 Lines)
- 1 x Klark Teknik Tufflex label roundel label with Blue LED illumination

Rear panel description

- 1 x Ethernet Control Port - Neutrik EtherCon with LED status indication
- 1 x Third Party Network Module Interface (NETWORK MODULE A)
- 1 x Reset Switch (recessed)
- 1 x Word Clock Input - Neutrik BNC with 75 ohm termination
- 1 x Word Clock Output - Neutrik BNC (no termination)
- 1 x Video Black Burst Input - Neutrik BNC with 75 ohm termination
- 1 x Third Party Network Module Interface (NETWORK MODULE B)
- 1 x mains inlet with integral fuseholder and switch
- 1 x 40 mm fan outlet with finger guard
- Electrical Safety Earthing Point

Power Requirements

Voltage 100V a.c. to 240V a.c. $\pm 10\%$
Frequency 50Hz to 60Hz
Consumption <50W

Dimensions

Height 44.45 mm (1.75"), 1U high
Width 482.0 mm (19.0")
Depth 410.0 mm (16.1")

Weight

Net 5.5kg
Shipping 7.5kg



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