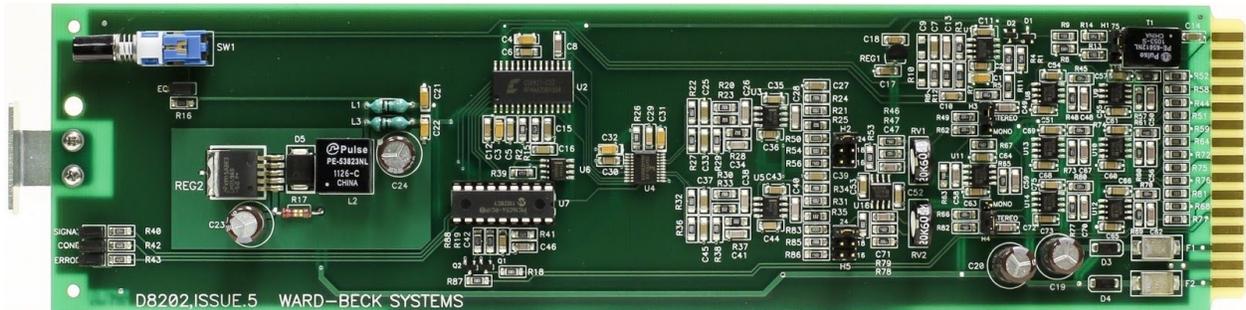


D8202

8200 SERIES DISTRIBUTION SYSTEM DIGITAL TO ANALOG CONVERTER



by Ward-Beck Systems

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D8202 AES/EBU DIGITAL TO ANALOG CONVERTER

GENERAL

The D8202 is an AES/EBU digital to analog converter featuring the latest in 24 bit conversion technology. The digital input is transformer balanced while the analog stereo and mono outputs are actively balanced. A convenient digital output on a ¼ inch jack at the front edge of the card may be used to monitor the incoming digital signal, using a WBS Audio Bit Buddy™ or POD 11, or to route the signal to another destination.

The D8202 can receive and convert digital audio signals conforming to AES/EBU specifications transmitted over 75Ω coaxial cable (BELDEN 8281 or equivalent) or over 110 Ω shielded, twisted pair cable (DELCO 009035 or equivalent). On board equalization allows signals transmitted over distances of 1500 metres of coaxial cable, and 600 metres of twisted pair cable, to be reliably recovered. Lock, Confidence and No Lock LED tallies are located on the front edge of the amplifier card. Confidence and No Lock alarms may be brought out via the rear connector.

The D8202 provides three balanced analog stereo outputs of the converted digital input signal. The third stereo output may be configured as two mono sum (L+R) outputs by setting the appropriate jumpers on the printed circuit board. The D8202 mounts in any standard Ward-Beck MF82 rack-mounting frame, is fully compatible with other products in the 8200 Distribution Series and can be installed in any position within the frame.

The TB8205P rear termination is available for connection to the D8202 digital to analog converter. Please refer to the Terminal Option diagrams in this manual. The TB8205P mounts on the rear of the MF82 frame directly behind the D8202 module.

SETUP AND INSTALLATION

Input Termination

The input impedance of the D8202 is jumper selectable for 110 Ohm, or 75 Ohm. Unless specified otherwise, the unit is shipped with the input impedance jumper set for 110Ω. To change the input impedance please refer to Fig. 1.1 The two position Berg header labelled INPUT TERMINATION is marked 110, 75 and HiZ. Ensure that the transmission line is properly terminated to avoid reflections due to impedance mismatches.

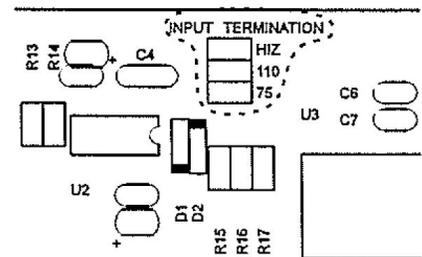
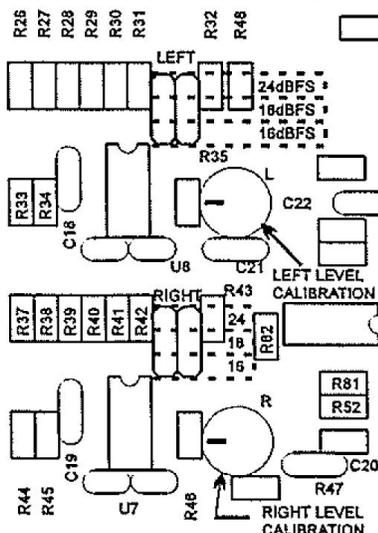


FIG 1.1 INPUT TERMINATION

FIG 1.2 ANALOG LEVEL



Output Analog Audio Level

The D8202 provides three balanced stereo outputs or two balanced stereo outputs and two summed (L+R) mono outputs. The output level of the left and right channels may be adjusted separately; please refer to Fig 1.2. for the location of the trim controls. Place the Berg jumper in the appropriate position and using the trim potentiometer, adjust the analog output to the nominal plant level, eg. +4dBu. Unless otherwise specified, the D8202 is factory set with a nominal -20 dBFS digital input

signal for a +4dBu analog output level.

Mono Outputs

The third stereo output of the D8202 may be configured to provide two summed (L+R) mono outputs. Two three pin Berg headers are provided for programming the left and right channels of stereo output 3. Please refer to Fig 1.3. The jumpers are normally in positions 1,2 for stereo. To provide two mono outputs, place both programming jumpers in the 2,3 position. Please note that adjusting the left and right trim controls will affect mono outputs one and two respectively.

Equalization

For most applications, the D8202 only requires installation in the appropriate mounting frame and connection of input and output wiring. Factory calibrated, the D8202 can recover digital audio signals conforming to AES/EBU specifications and transmitted over 110Ω, shielded twisted pair cable up to 250 metres (750 ft) long. For cables lengths in excess of 250 metres we recommend that the input equalization be activated.

To activate the cable equalization, simply press the button located on the front edge of the card. The green LED located on the bottom of the LED array will illuminate to indicate that cable equalization is activated. NOTE: In installations with consistently long digital audio runs, consideration should be given to using 75 Ohm coaxial cable.

External Alarms

The controls that trigger two LED status indicators on the front edge of the amplifier's card, CONFIDENCE (yellow) and NO LOCK (red), are brought out via the rear connector to activate external alarms. These controls are open collector outputs.

STATUS TALLIES AND MONITOR

Status

The D8202 is equipped with four LED status tallies located on the front edge of the card, above the handle. The function of these tallies are:

GREEN LED	LOCK - Indicates that the receiver is locked to the incoming AES/EBU signal.
YELLOW LED	CONFIDENCE - Indicates an eye pattern violation. It is a warning that the incoming signal is approaching the limits beyond which reliable recovery may be jeopardized. This is typically caused by the band limiting effects of long cable runs. To eliminate confidence errors, it may be necessary to activate the equalizer and adjust the gain in order to optimize the performance of the receiver.
RED LED	NO LOCK - Indicates that the receiver cannot lock to the incoming signal. This may mean that there is no signal or the signal is beyond the recoverable range of the receiver and may require equalization.
GREEN LED	EQUALIZER - Indicates that the cable equalization has been enabled.

Monitor

A digital output is provided on a ¼ inch jack located on the front edge of the card, below the handle. This

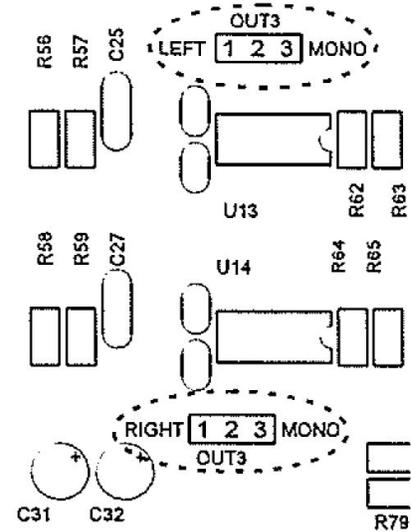


FIG 1.3 MONO JUMPERS

output may be used to monitor the AES/EBU signal, using a WBS Audio Bit Buddy™ or POD 11, or as a "quick patch point" to route the signal to another destination.

SPECIFICATIONS

DIGITAL INPUT

Input Impedance	Selectable 75Ω, 110Ω, and Hi (Transformer balanced)
Input Level	0.2-7 V p-p
Sampling Frequency Range	30 kHz to 50 kHz
Equalization	2000 ft twisted pair 110Ω digital audio cable 5000 ft 75Ω coaxial cable
Conversion	24 bit

ANALOG OUTPUT

Frequency Response	± 0.3 dB, 20Hz to 20kHz
Noise	less than 84 dBu, 20Hz to 20kHz
THD+Noise	less than 0.005 %, 20Hz to 20kHz @ +24 dBu
Stereo Separation	greater than 80 dB, 20Hz to 20kHz
Output Impedance	60 Ohm balanced
Maximum Output Level	+24 dBu into 600 Ohm

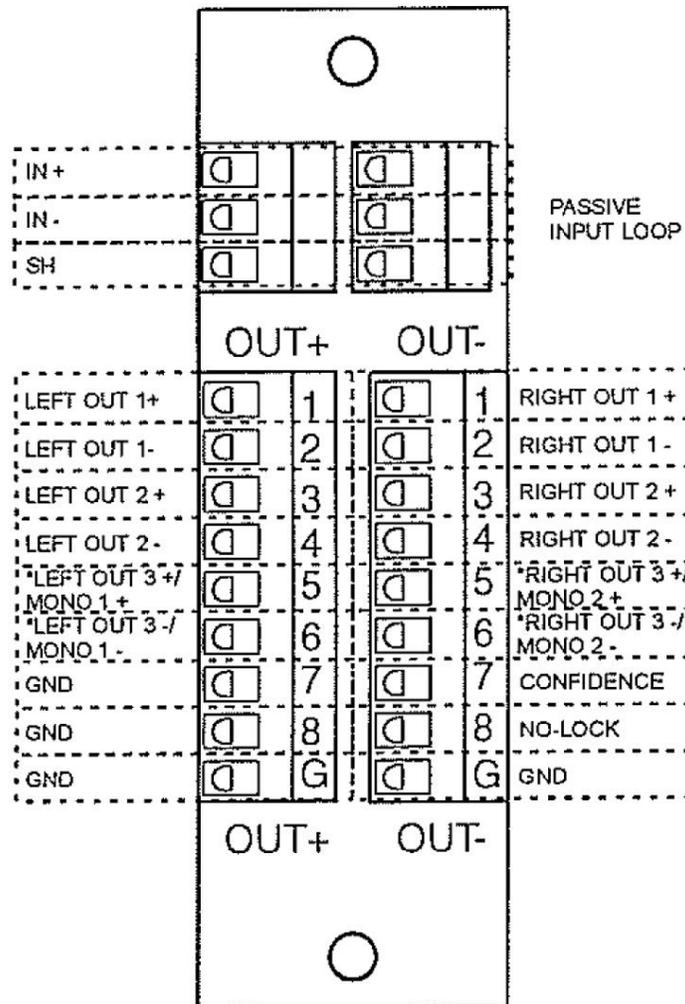
GENERAL

O.C. Outputs	10 Ohm 60 mA MAX 30 V MAX
Power Requirements	+20 V, 177 mA, MAX - 20 V, 150 mA, MAX
Dimensions	approx. 1" wide x 2.75" high x 10.06" deep (25.4 mm x 70 mm x 270 mm)
Weight	approx. 0.262 lbs (119 grams)

Ward-Beck Systems Inc. reserves the right to change performance specifications without prior notice.

D8202 Terminal Options

TB8205P PLUGGABLE SCREW TERMINAL



* This output is jumper selectable for a third stereo output or two mono sum outputs.

WARRANTY

All Ward-Beck Systems Inc. products are warranted against defective materials and workmanship for a period of one year from the date of shipment.

Ward-Beck Systems Inc. will repair or replace, at its option and without charge, all said products or parts thereof which upon factory inspection prove to be defective during the warranty period, provided that:

1. The original serial numbers are intact and have not been tampered with.
2. The purchaser shall return any equipment or parts thereof to Ward-Beck Systems Inc. only after obtaining prior authorization and shipping instructions from the factory. (Ward-Beck Systems Inc. reserves the right to inspect or repair equipment on the purchaser's premises).
3. The purchaser assumes the obligation for all expenses in connection with the shipping and return of such goods, once authorization has been obtained.

This warranty does not cover items normally considered expendable, such as fuses and lamps.

This warranty does not cover damages caused by misuse, accident, neglect, unauthorized alteration, repair by unauthorized personnel, or damage caused by an act of God, war, or civil insurrection.

In no event shall Ward-Beck Systems Inc. be liable for consequential damages. Ward-Beck Systems Inc. shall have the rights to final determination as to the application of this warranty.

Ward-Beck Systems Inc. reserves the right, at any time and without notice, to make changes in its equipment, components, specifications or designs, as may be warranted by progress in state-of-the-art technology.

Ward-Beck Systems Inc. reserves the right to make design changes, additions to, and improvements in its products, without obligation to install such revisions in products previously manufactured.

The warranty set forth herein is in lieu of all other warranties expressed or implied, including the warranties of merchantability and fitness.

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