DCR822

TECHNICAL DATA

Compact Dual Channel Digital Receiver

DCR822-A1B1, DCR822-B1C1, DCR822-941, DCR822-961

- **Dual independent channels, compact design**
- **Vector Diversity with 2 RF front ends per channel for superior performance**
- **24 bit/48 kHz digital for flawless audio**
- **AES 256-bit, CTR mode encryption, with 4 different key policies available**
- **High IP3 performance of +15 dBm for tough RF environments**
- **Analog and AES3 digital audio outputs**
- **4 AA internal batteries or external DC powering options**
- **On-board recording via microSDHC card**

The DCR822 digital receiver provides the highest level of RF and audio performance available with a versatile feature set in a compact design for field and location production. Settings can be made from the front panel with tactile buttons and LCD interface, making the unit ideal for use in portable bag systems and on sound carts. An RF spectrum analyzer and SmartTune are built into the receiver to alleviate interference problems in an increasingly congested RF spectrum.

The mechanical design of the receiver fits into the same dimensions as the older UCR411A and combines field-proven features developed over many years of experience in motion picture and television production. To decrease weight, the DCR822 provides a dual channel receiver in one unit powered by 4 AA Lithium batteries or external DC. The receiver is also equipped with both an IR port and microSD card slot for data transfer. The machined aluminum housing and panels are surfaced with a hard-anodized finish with laser etched markings to withstand the rigors of field production.

The RF gain stages in the front end use a newly developed design to provide low noise RF amplification, excellent sensitivity and extremely low susceptibility to intermodulation and de-sensitization.

Vector Diversity

An ideal diversity system constructively combines all the energy available at both antennas. Traditional “true diversity” or “ratio diversity” methods use two complete receivers and blend the audio. This works well for FM and Digital Hybrid systems, but falls short of the ideal for today’s all-digital modes. The DCR822’s Vector Diversity subsystem smoothly and continuously combines RF signals from two receiver front ends per channel, with differing phase angles in order to obtain maximum energy. Not only does this method deliver clean, artifact-free performance in all modes, it is actually able to take two signals compromised by multipath interference and reassemble them into a usable signal.

Compatibility

The DCR822 offers compatibility with the D-Squared and Duet digital transmitters, including the DBu, DHu, DPr, DCHT, and M2T, and backward compatibility with any Digital Hybrid Wireless® transmitters including the SM and SMWB series, WM, HM Series, MM400 Series, HH Series, LT, LMb, UM400 Series, and SSM.

SmartNR™

With a noise floor at -120 dBV and a frequency response to 20 kHz, high frequency noise in the source audio is more apparent than in conventional wireless systems. The Smart NR algorithm has three mode. When OFF, no noise reduction is performed. When NORMAL is selected, enough noise reduction is applied to remove most of the hiss from the mic preamp and some of the hiss from lavaliere microphones. When FULL is selected, enough noise reduction is applied to remove most of the hiss from nearly any signal source of reasonable quality, assuming levels are set correctly at the transmitter.

Recording Function

The DCR822 can record received audio on a microSD card, in the industry standard .wav (BWF) file format, at 24 bits, 48 kHz for compatibility with any audio or video editing software.

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Specifications and Features

Receiver

Operating Frequencies (MHz):

Model A1/B1:	470.100 - 614.375
Model B1/C1:	537.600 - 691.175
941:	941.525 - 959.825
961:	961.100 - 1014.900

NOTE: It's the user's responsibility to select the approved frequencies for the region where the transmitter is operating.

Frequency Selection Steps:	25 kHz
Frequency Response:	25 Hz to 20 kHz (+0/-3 dB)
Frequency Stability:	±0.001 %
Front end bandwidth:	±5.5 MHz, @ -3 dB
Sensitivity:	20 dB Sinad: 0.9 uV(-108 dBm), A weighted
	60 dB Quieting: 1.12 uV (-105 dBm), A weighted
AM rejection:	>60 dB, 2 uV to 1 Volt
Modulation acceptance:	85 kHz
Spurious rejection:	85 dB
Third order intercept:	+15 dBu
Diversity method:	Vector Diversity
Antenna inputs:	Dual SMA female jacks; 50 Ohm impedance
Audio output:	Rear panel 2 TA3M connectors; can drive 600 Ohm, adjustable from -50 to +5 dBu in 1 dB steps (into nominal 10 k bal. load)

Audio Performance (overall system):

THD: 0.2% (typical)

SNR at receiver output (dB):

SmartNR	No Limiting	w/Limiting
OFF	103.5	108.0
NORMAL	107.0	111.5

Note: The dual envelope "soft" limiter provides exceptionally good handling of transients using variable attack and release time constants. Once activated, the limiter compresses 30+ dB of transmitter input range into 4.5 dB of receiver output range, thus reducing the measured figure for *SNR without limiting* by 4.5 dB

Input Dynamic Range:	125 dB (with full Tx limiting)
Overall Latency (time delay):	1.4 ms with digital source, <2.9 ms with Hybrid TX
Audio Test Tone:	1 KHz, -50 to +5 dBu, <1%THD
Controls:	
Front Panel:	• LCD display
	• Menu/Sel, Pwr/Back, Up/Down Arrow
Buttons	
	• SD Card Reader
	• IR Port
Rear Panel:	• Analog/AES audio output jack (2)
	• External DC input
	• Battery compartment
	• USB port
External Power:	Minimum 9 Volts to maximum 17 VDC 2.5 W; 170 mA at 12 VDC
Battery Life:	6 hrs. continuous, w/ 4 disposable, 1.5VDC AA Lithium batteries (recommended)
Weight:	408 grams with batteries (14.4 oz.)
Dimensions:	3.23" wide x 1.23" high x 4.75" deep 82.042 wide x 31.242 high x 120.650 deep mm

Recorder

Storage media:	microSDHC memory card
File format:	.wav files (BWF)
A/D converter:	24-bit
Sampling rate:	48 kHz
Recording modes/Bit rate:	24 bit - 144 kbytes/s per channel (up to 4)
Audio Performance:	
Frequency response:	25Hz to 20 kHz; +0/-3 dB
Dynamic range:	110 dB (A), before limiting
Distortion:	< 0.035%
Operating temperature range:	
Celsius:	-20 to 50
Fahrenheit:	-5 to 122

Specifications subject to change without notice.

Available Recording Time

Using a microSDHC memory card, the approximate recording times are as follows. The actual time may vary slightly from the values listed in the tables.

Card Size	1 Track Hrs:Min	2 Tracks Hrs:Min	3 Tracks Hrs:Min	4 Tracks Hrs:Min
8 GB	15.30	7.45	5.10	3.53
16 GB	31.00	15.30	10.20	7.45
32 GB	62.00	31.00	20.40	15.30

**microSDHC Logo is a trademark of SD-3C, LLC*

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