

# Precision Stereodecoder MSDC

◆ 30 Hz to 75 kHz

- High-grade decoding of multiplex signals
- Very high channel separation: typically 64 dB
- Extremely low intrinsic distortion

MSDC 2



The **Precision Stereodecoder MSDC 2** is used to measure and monitor stereo multiplex signals. Its performance far exceeds the requirements set by ARD in all significant points. Thus the MSDC 2 can be employed as a reference standard in the development and production of stereo coders and decoders, as well as in transmitter networks to ensure high transmission quality.

**Input** The input of the MSDC 2 is balanced; common-mode rejection exceeds 60 dB for the lower frequencies. The input amplifier handles frequencies from about 0.1 Hz to 1 MHz without introducing distortion. Amplitude and phase errors thus remain so small that high channel separation is achieved (same values as for MSC, see diagram on page 428).

The **decoder** uses a time-division-multiplex decoding technique. The stereo signal is connected alternately at a rate of 38 kHz to the right and left channels. This circuit arrangement provides a carrier suppression of more than 40 dB.

To obtain the specified channel separation, it is essential that switching is in exact synchronism with the pilot tone. For frequency deviations up to  $\pm 2$  Hz and level variations up to  $+6/-12$  dB the time shift of the squarewave switching voltage referred to the 19-kHz pilot tone may not exceed 50 ns.

**Outputs** The signals of the left and right channels, the centre signal  $M = (L+R)/2$  and the side information  $S = (L-R)/2$  are delivered with extremely low distortion at separate outputs. Apart from the S-signal output they are balanced. Toroidal core transformers are used, giving distortion of less than 0.1%, even at a frequency of 30 Hz and a signal level 6 dB above nominal.

**Indication** A selector switch allows the levels of the output signals and of the pilot tone to be indicated on the panel meter. The measurement range for the output signals ( $-66$  to  $+18$  dBm) is large enough to permit even the intrinsic error of the MSDC 2 or a coder working directly into the MSDC 2 to be measured. The pilot-tone voltage can be measured over a range of  $-7.5$  to  $-17$  dB relative to the setting of the input attenuator. This permits exact level adjustment, even with an unknown stereo multiplex signal.

## Specifications

### Stereo multiplex input

Frequency range	30 Hz to 75 kHz
Input impedance	$\geq 40$ k $\Omega$ bal., $\geq 20$ k $\Omega$ unbal.
Common-mode rejection	$\geq 58$ dB at $<150$ Hz $\geq 46$ dB at 150 Hz to $<15$ kHz $\geq 36$ dB at 15 to $<100$ kHz
Input level	$-12$ to $+12$ dBm (0 dBm = 0.775 V into 600 $\Omega$ )
Setting	6-dB steps, $\pm 3$ dB continuous
Overdrive limit	$\geq 6.5$ dB

### AF outputs

L, R, M signal outputs (balanced)	$+6$ dBm, $Z_s \leq 20$ $\Omega$ , $Z_L \geq 200$ $\Omega$
S signal output (unbalanced)	$+6$ dBm, $Z_s \leq 500$ $\Omega$

### Linear distortions

Frequency response flatness at the outputs, relative to 500 Hz	$\leq \pm 0.15$ dB for 30 Hz to 15 kHz
Deemphasis	50 $\mu$ s $\pm 2\%$ / 75 $\mu$ s $\pm 2\%$ / off

### Linear crosstalk

M/S channels	$\geq 46$ dB (typ. 50 dB)
L/R channels, 100 Hz to 5 kHz	$\geq 60$ dB (typ. 64 dB)
30 Hz to 15 kHz	$\geq 58$ dB (typ. 60 dB)

### Nonlinear distortions

Harmonic distortion at 6 and 12.5 dBm	$\leq 0.1\%$
Intermodulation distortion to DIN 45 403 at 12.5 dBm	$d_2 \leq 0.05\%$ , $d_3 \leq 0.1\%$

### Weighted and unweighted noise

(with 50- $\mu$ s deemphasis) relative to $+6$ dBm at 1 kHz	
Unweighted S/N ratio, rms measurement	$\geq 80$ dB (30 Hz to 100 kHz)
Weighted S/N ratio, peak-value measurement (CCIR)	$\geq 78$ dB
peak-value measurement (DIN)	$\geq 80$ dB
Pilot-tone suppression	$\geq 90$ dB
SCA suppression (SCA level $-16$ dB relative to multiplex signal)	$\geq 76$ dB (56 to 96 kHz)

### Meter indication

L, R, M, S or pilot-tone level	
Indicating error	$\leq 0.2$ dB of rdg $+1.5\%$ of fsd
Pilot-tone indication	$-7.5$ to $-17$ dB
AF indication (10-dB steps)	$+18$ to $-66$ dBm

### General data

Rated temperature range	$+5$ to $+45$ $^{\circ}$ C
Rear connectors	30-contact male
Power supply	115/125/220/235 V $\pm 10\%$ / $-15\%$ , 47 to 63 Hz (12 VA)
Dimensions, weight	
19" bench model	492 mm $\times$ 116 mm $\times$ 392 mm, 6.7 kg
19" rackmount	483 mm $\times$ 88 mm $\times$ 384 mm, 4.5 kg

## Ordering information

<b>Order designation</b> (19" rackmount)	► Precision Stereodecoder MSDC 2
	281.0514.03
Paneling	085.1313.00