



## Technical Data Sheet

### LEVEL LIMITED HEADPHONES

- 54-302** CANFORD LEVEL LIMITED HEADPHONES HD480 93dBA, BBC split-feed, B-gauge plug
- 54-303** CANFORD LEVEL LIMITED HEADPHONES HD480 93dBA, stereo, with B-gauge plug
- 54-304** CANFORD LEVEL LIMITED HEADPHONES HD480 93dBA, stereo, with A-gauge plug
- 54-305** CANFORD LEVEL LIMITED HEADPHONES HD480 93dBA, stereo, with 3.5mm 3 pole plug
- 54-306** CANFORD LEVEL LIMITED HEADPHONES HD480 93dBA, stereo, with A-gauge plug, s/s cable
- 54-308** CANFORD LEVEL LIMITED HEADPHONES HD480 93dBA, split-feed, B-gauge plug, s/s cable
- 54-311** CANFORD LEVEL LIMITED HEADPHONES HD480 93dBA, stereo, A-gauge plug, s/s coiled cable
- 54-313** CANFORD LEVEL LIMITED HEADPHONES HD480 93dBA, split-feed, B-gauge plug, s/s coiled cable
- 54-314** CANFORD LEVEL LIMITED HEADPHONES HD480 93dBA, split-feed, Neutrik B-gauge plug, s/s coiled cable
- 54-315** CANFORD LEVEL LIMITED HEADPHONES HD480 93dBA, wired stereo, with Bantam plug, s/s cable
- 54-4010** CANFORD LEVEL LIMITED HEADPHONES HD480 88dBA, without cable
- 54-4011** CANFORD LEVEL LIMITED HEADPHONES HD480 88dBA, stereo, with 3.5mm 3 pole plug
- 54-4012** CANFORD LEVEL LIMITED HEADPHONES HD480 88dBA, stereo, with A-gauge plug
- 54-4013** CANFORD LEVEL LIMITED HEADPHONES HD480 88dBA, stereo, with B-gauge plug
- 54-4015** CANFORD LEVEL LIMITED HEADPHONES HD480 88dBA, BBC split-feed, B-gauge plug
- 54-4022** CANFORD LEVEL LIMITED HEADPHONES HD480 88dBA, stereo, with A-gauge plug, s/s cable
- 54-4024** CANFORD LEVEL LIMITED HEADPHONES HD480 88dBA, stereo, Bantam plug, s/s cable
- 54-4032** CANFORD LEVEL LIMITED HEADPHONES HD480 88dBA, 3.5mm/A-gauge plug, s/s coiled cable
- 54-4033** CANFORD LEVEL LIMITED HEADPHONES HD480 88dBA, stereo, A-gauge plug, s/s coiled cable
- 54-4035** CANFORD LEVEL LIMITED HEADPHONES HD480 88dBA, wired split-feed, B-gauge plug, s/s coiled cable
- 54-4036** CANFORD LEVEL LIMITED HEADPHONES HD480 88dBA, split-feed, Neutrik B-gauge, s/s coiled cable
- 54-4037** CANFORD LEVEL LIMITED HEADPHONES HD480 88dBA, wired stereo, Neutrik B-gauge, s/s coiled cable
- 54-4133** CANFORD LEVEL LIMITED HEADPHONES HD480 85dBA, stereo, A-gauge plug, s/s coiled cable
- 54-4137** CANFORD LEVEL LIMITED HEADPHONES HD480 85dBA, wired stereo, Neutrik B-gauge, s/s coiled cable

### DESCRIPTION

Under Health and Safety regulations, employers are required to reduce the risk of damage to the hearing of employees from exposure to noise to the lowest level reasonably practicable. Noise is generally defined as unwanted sound and regulations concentrate on the control of noise. There are, sounds which are not unwanted however that can be at such a level, sometimes unwittingly, as to present a risk of exceeding an individual's daily personal noise exposure recommended level. Such a situation can arise from the use of headphones worn for long continuous spells whilst generating high sound levels.

One BBC designed solution to this problem is the Headphone Limiter. These small units are designed to protect headphone users from the effects of harmful sound levels.

The headphone limiters are powered from the incoming audio signal and may usually be set to limit the Sound Pressure Level in the range 85-110dBA. The BBC types are usually fitted in-line on the headphone cable.

Having gained experience in the supply and use of headphone limiters and having resolved a number of issues, Canford have introduced a range of popular broadcast use headphones with limiters built into the headphone capsules.



One range introduced is the Sennheiser HD480 headphone with 1700 ohm capsules as listed on this datasheet.

In order to distinguish these headphones from standard non-protected versions, they are distinctively marked. The 93dBA limited HD480 headphones have a thin blue trim ring, Canford Logo and limit level (93dBA) label. The 88dBA limited HD480 headphones have a thin red trim ring, Canford logo and appropriate label, (see note 1). Standard connector options are available and because the limiter is within the capsule, it is possible to use spare replacement leads as for standard versions. All types utilise steel cable for longer life, (unlike standard HD480's which have copper cables).

As with in-line limiters, each headphone is individually calibrated and as each capsule has its own individually calibrated limiter. Spare limited capsules are available.

## OPERATION

Once assembled, headphones equipped with the limiter are used as normal. The limiter will operate when the level of program audio reaches a sustained level greater than that to which the limiter is set. The highest level at which the headphones may be sensibly used is with an average program volume sound level from the headphones typically 6-8dB below the limiter setting, (the figure will depend on the peak-to-mean ratio of the program material). This has been designed into the circuitry and cannot be adjusted.

The limiter allows short-term peaks to pass through the limiter undistorted for maximum subjective effect. Nevertheless, excessive levels which may be damaging in the short term are clipped instantaneously.

A network with a response similar to A-weighting is included in the side chain to allow higher levels of low frequencies to pass without operating the limiter.

## NOTES:

- 1 See Canford Audio data sheet 02-160 Earphone Limiters Questions and Answers.
- 2 Due to the enclosed circuitry, the sensitivity and presented impedance of these headphones is different from standard, (non-limiting), versions.
- 3 Limiter manufactured under license from the BBC.

## TECHNICAL SPECIFICATION

Type:	Closed
Frequency response:	20-20000Hz
Input impedance:	2 x 1200 ohms
Sensitivity:	91dB for 1mW
Cable:	3m
Weight:	140g