



AMU1-CHD
AUDIO MONITORING
UNIT

Handbook

TSL
Vanwall Road, Maidenhead, Berkshire, SL6 4UB
Telephone +44 (0)1628 676200, FAX +44 (0)1628 676299

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EC DECLARATION OF CONFORMITY

Application of Council Directives Nos:
EC Low Voltage Directive (73/23/EEC)(OJ L76 26.3.73)(LVD).
Amendment: (93/68/EEC) (OJ L220 30.8.93).
Conformity Standards Declared:
EN 60950
EMC Directive: 89/336/EEC, Amended 92/31/EEC.
Conformity Standards Declared:
EN 50081-1: 1992- EMC- Generic Emissions, Part 1.
EN50082-1: 1997- EMC- Generic Immunity, Part 1.
EN61000-3-2: 1995- Current Harmonic Emissions.
EN61000-3-3: 1995- Voltage Fluctuations & Flicker.

Manufacturer's Name: Television Systems Ltd
Manufacturer's Address: Vanwall Road
Maidenhead SL6 4UB
England
United Kingdom

Type of Equipment: Audio Monitoring Unit

Model No: AMU1-CHD

Part Number: TSLP- AMU1-CHD

Date CE Mark Affixed: 10/7/06

I, the undersigned, declare that the equipment specified above conforms to the quoted Directives and Standards.

Place: Maidenhead, England

Signature: _____

Date: _____

Print: R CHAMBERS

Position: PRODUCT MANAGER

SAFETY

Installation.

Unless otherwise stated TSL equipment may be installed at any angle or position within an operating temperature range of 5° - 30°C.

All TSL equipment conforms to the EC Low Voltage Directive:

EC Low Voltage Directive (73/23/EEC)(OJ L76 26.3.73)(LVD). Amendment: (93/68/EEC) (OJ L220 30.8.93).

In all cases the frame of the equipment must be earthed on installation.

This unit requires an external earth bond to the case as it offers a functional earth via the earth pin of the IEC (Class 3). All metal panels are bonded together.

Check that the voltage selector setting (if fitted) and the fuse rating is correct for the local mains supply.

Due consideration for cooling requirements must be given when mounting the equipment. It is recommended that a 1RU of rack space, or a vent panel, should be left above and below the unit.

WARRANTY, MAINTENANCE AND REPAIR

All TSL equipment is guaranteed for one year from the date of delivery to the customer's premises. If the equipment is to be stored for a significant period, please contact TSL concerning a possible extended warranty period.

Failure during warranty

If any TSL product should fail or become faulty within the warranty period, first please check the PSU fuses.

All maintenance work must be carried out by trained and competent personnel.

If equipment has to be returned to TSL for repair or re-alignment, please observe the following overleaf:

TSL Returns Procedure

Please telephone +44 (0)1628 676200 (Fax: +44 (0)1682 676299) and ask for Sales who will provide a Returns Number. This will enable us to track the unit effectively and will provide some information prior to the unit arriving. Please do **NOT** return faulty equipment without first obtaining a returns number as this is likely to result in a delay in the repair of the equipment.

For each item, this unique Returns Number must be included with the Fault Report sent with the unit.

A contact name and telephone number are also required with the Fault Report sent with the unit.

Fault report details required.

- Company:
- Name:
- Address:
- Contact Name:
- Telephone No:
- Returns Number:
- Symptoms of the fault (to include switch setting positions, input signals etc):

Packing

Please ensure that the unit is well packed as all mechanical damage is chargeable. TSL recommends that you insure your equipment for transit damage.

The original packaging, when available, should always be used when returning equipment..

If returned equipment is received in a damaged condition, the damage should be reported both to TSL and the carrier immediately.

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1.0 Introduction

The AMU1-CHD is a 1RU x 340mm deep Audio Monitoring Unit with two 26 segment bargraphs for audio level measurement.

The following features are standard:

- Two switch selectable stereo analogue inputs.
 - Two AES /EBU inputs
 - One HD/SDV auto sensing input.
 - Out-of-phase error indication.
 - VU and PPM metering scales.
 - Decoded PAL/NTSC composite
 - Re-clocked serial output of the input.
 - Integral loudspeaker system.
 - 24 Watt total.
 - Headphone outputs with LS muting.
 - 240V mains (IEC) and 12V DC inputs.
 - Fixed or variable line output.
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2.0 Front Panel Controls and Indicators

2.1 Input and Meter Selection Switches

Channel	Analogue I/Ps. A1 (Left Channel) is fed to the left bargraph and A2 (Right Channel) is fed to the right bargraph.
Phase	Momentary phase reverse between A1 and A2 pairs. A non latching push switch with Red/Green LED indicates phase. Push to reverse.
Source Select	Selects between Analogue, AES, HD/SDV group 1, 2,3 and 4
Volume Control	Allows the audio level to be varied.

2.3 Rear Panel Controls

LF Control

This allows the level of low frequency present on the monitored signal to be altered according to the installation acoustics.

3.0 Pin-out Details

3.1 Analogue XLR Connectors

C	PIN	FUNCTION
ANALOG 1	1	GND
ANALOG 1	2	1 IN+
ANALOG 1	3	1 IN-
ANALOG 2	1	GND
ANALOG 2	2	2 IN+
ANALOG 2	3	2 IN-

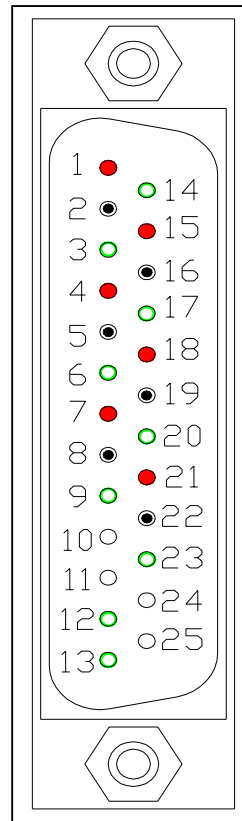
3.2 AES XLR Connectors

C	PIN	FUNCTION
AES1	1	GND
AES 1	2	1 IN+
AES 1	3	1 IN-
AES 2	1	GND
AES 2	2	2 IN+
AES 2	3	2 IN-



3.3 Auxiliary Connector – D25 Socket Pinout

D 25 PLUG ON AMU	AUDIO OUTPUTS
PIN NO	FUNCTION
1	GND
14	Analogue CH1-
2	Analogue CH1+
15	GND
3	Analogue CH2-
16	Analogue CH2+
4	GND
17	Analogue CH3-
5	Analogue CH3+
18	GND
6	Analogue CH4-
19	Analogue CH4+
7	GND
20	NC
8	NC
21	NC
9	RS232 Rx
22	NC
10	RS232 Tx
23	Analogue AES 1-
11	Analogue AES 1+
24	GND
12	Analogue AES 2-
25	Analogue Aes2 +
13	GND



3.4 Configuration Switch Functions (S/W Release X05 up)

SWITCH SECTION	FUNCTION
1	PPM – down / VU – up
2	0dBFS – down / -8dBFS - up
3	0dBFS – down / +4dBFS - up
4	0dBFS – down / +2dBFS - up
5	0dBFS – down / +1dBFS - up
6	Not Used
7	Not Used
8	Fixed Line Out–down/Variable - up

The level configuration switches on the HDC board operate in a “2’s complement” manner to set the relation between the dBfs level setting in the digital domain and the dBu level setting in the analogue domain. The “zero” position with all switches in the down position is designed to give 0dBu out for a level of –18dBFS in digital space.

Setting these switches appropriately allows a range of ± 6 dB around the –18dB level, equivalent to alignment levels of –12dBFS to –24dBFS for 0dBu out.

The switch coding operates as:

SW2	SW3	SW4	SW5	FUNCTION
DN	UP	UP	DN	-24dBFS
DN	UP	DN	UP	-23dBFS
DN	UP	DN	DN	-22dBFS
DN	DN	UP	UP	-21dBFS
DN	DN	UP	DN	-20dBFS
DN	DN	DN	UP	-19dBFS
DN	DN	DN	DN	-18dBFS
UP	UP	UP	UP	-17dBFS
UP	UP	UP	DN	-16dBFS
UP	UP	DN	UP	-15dBFS
UP	UP	DN	DN	-14dBFS
UP	DN	UP	UP	-13dBFS
UP	DN	UP	DN	-12dBFS

(See Notes 4.0)

4.0 Notes

There are no user adjustable assemblies/components within this unit.

This unit requires rear support when rack mounted.

In order to affect status changes of the unit using the rear DIP switch, the unit will require re powering before the changes take effect.

Output analogue levels are adjustable over the following range:

0dBm = 0.775V into 600Ω i.e. 1mW power dissipation.

0dBu = 0.775V RMS = PPM 4.

Nominally, -18 dB ref 0FS = 0dBu output.

European line up : -18 dBu

American line: -20 dBu

Adjustment of ± 6 dB about the -18 dB line up level is possible.

5.0 General Notes

Please note that some American equipment has the function of the XLR pins 2 & 3 reversed.

TSL product is wired to the European standard

6.0 AMU1- CHD Technical Specifications

Power Supply

Supply Voltage	100 -240V AC @ 50Hz/60Hz +/- 10% or 12V DC Class 3 (Functional earth)
Power Consumption	50 watts.

Physical Dimensions

Height	44mm (1RU)
Width	483mm (19")
Depth	340mm
Weight	6900gm

Analogue Inputs 1 - 2

Connector Type	XLR Female 3 pin. Pin 1 Gnd, Pin 2 hot, Pin 3 cold.
Signal	Balanced line level audio.
Frequency Response	30Hz to 25kHz
Impedance	>20k Ω

Inputs AES 1, AES2

Connector Type	XLR Female 3 pin. Pin 1 Gnd, Pin 2 hot, Pin 3 cold.
Standard	AES3 (1994) at 48kHz, 44.1kHz or 32kHz
Impedance	75 ohm unbalanced or 110 ohm – balanced.

Input, HD/SDV

Connector Type	BNC.
Standard	SMPTE 259M 4:2:2 component 525/60 or 625/50 with Embedded 48kHz audio.
Impedance	75ohm

Line Output.

Connector	XLR 3 pin Male
Impedance	50 Ω
Output Levels	Through level control with 0dB gain.
Fixed/variable Line O/P	Available on D25 (selectable)

Headphone Output.

Connector	Stereo Jack socket type A
Impedance	50 Ω
Output Levels	Through level control with 0dB gain.

De embedded output

Connector	25 way D type
Impedance	
Output	Groups 1, 2, 3 and 4

Video Output

Connector	BNC
Impedance	
Output	Composite video

Re-clocked Output

Connector
Impedance
Output

BNC

Re-clocked serial output of the input – HD/SDV

AES Output

Connector
Impedance
Output

Auxiliary, 25 way D type (See section 3.3 for details)

Selected SDI group.

HD Standards Supported

1080i/50
1080i/59.94
1080i/60
720p/50
720p/59.94
720p/60

Performance

Response

70Hz to 20KHz

Electrical Distortion

Better than 0.1%

Hum and noise

Better than -80dB

SPL

>98dB at 0.6 m

Amplifier Output

24 watts total power output

Digital Sample Rate

32 to 48KHz auto select