Utah Sandar AS

User Manual & Installation Guide

# UTAH-100/X00AA

**16x16/8x8 Audio Stereo Routers with/without Control Panel**

UTAH-100/X16AA, UTAH-100/X16AACP,
UTAH-100/X8AA, UTAH-100/X8AACP

# CONTENTS

# INTRODUCTION

Thank you for choosing a Utah Sandar product.
We are convinced that your choice will prove to be a wise and worthy decision for many years to come.

Your Utah Sandar product has been tested for performance at the factory according to the specifications given for the system in this manual. However, before putting the device into operation we kindly ask you to read this manual, and act according to the information given.

All information given in this document is property of Utah Sandar. To the knowledge of Utah Sandar there are no errors in the manual. Should any errors be discovered, please notify Utah Sandar. Utah Sandar will under no circumstances accept responsibility neither for errors in this manual, nor consequences of such errors.

Utah Sandar

**Utah Sandar AS**
Thorøyaveien 11
N-3209 Sandefjord,
Norway
Tel.: +47 33 52 27 00
Fax: +47 33 52 27 01

# WARRANTY

This Utah Sandar product is warranted against defects in materials and workmanship for a period of two (2) years from the date of invoice. During the warranty period, Utah Sandar will, at its option, either repair or replace products that prove to be defective.

The warranty shall not apply to defects resulting from improper or inadequate installation or maintenance by buyer, buyer-supplied software or interfacing, unauthorized modification or misuse, operation outside of the environmental specifications for the product, or improper site preparation or maintenance.

If a product needs to be returned for service, please first contact the Utah Sandar Helpdesk to obtain a Return Material Authorization (RMA) number. Make sure the packaging provides sufficient protection against ESD and mechanical damage. Please enclose a note with the RMA, return address, contact person details and a failure symptom description.

# DOCUMENT REVISION HISTORY

| Rev. | Date | Description |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| 1.0 | 2009-10-26 | Updated document |
| B | 2009-08-27 | Changed product name and company name |
| A | 2008-08-07 | Preliminary |

# SAFETY & ENVIRONMENT

## General

This product and related documentation must be reviewed for familiarization with safety markings and instructions before operation. This product has been designed and tested in accordance with the relevant international standards.

## Safety Symbols

Indicates hazardous voltages.

Indicates earth (ground) terminal.

The **CAUTION** sign denotes a hazard. It calls attention to an operating procedure, practice, or the like, which if not correctly performed or adhered to could result in damage to or destruction of part or all of the product. Do not precede beyond a CAUTION sign until the indicated conditions are fully understood and met.


The **WARNING** sign denotes a hazard. It calls attention to a procedure, practice, or the like, which, if not performed or adhered to could result in personal injury. Do not proceed beyond a WARNING sign until the indicated conditions are fully understood and met.

## Safety Earth Ground

This is a Safety Class 1 product (a protective earth terminal (Ch) is provided).
An uninterrupted safety earth ground must be provided from the main power source to the product input wiring terminals, power, cord, or supplied power cord set. Whenever it is likely that the protection has been impaired, the product must be made inoperative and secured against any unintended operation.

## Environment

**WEEE**: All Utah Sandar products will comply with the EU Directive 2002/96/EC on Waste from Electrical and Electronic Equipment aka WEEE directive. Please contact your local Utah Sandar sales representative for information about returning these products for safe disposal/recycling. Utah Sandar equipment that complies with the directive will be marked with a WEEE-compliance emblem.


**RoHS**: All Utah Sandar products will comply with the EU Directive 2002/95/EC on Restriction of Hazardous Substances aka RoHS directive. Thereby not containing above the limits specified in the said directive of any of the banned substances. Utah Sandar equipment that complies with the directive will be marked with a RoHS-compliance emblem.
Exempt: Spare/Expansion parts for older systems are exempt from the directive.

# INSTALLATION

## *Initial Inspections*

Check the contents of the shipment for completeness and possible transport damage.
If the contents are incomplete or damaged, contact Utah Sandar AS immediately for repairing or replacement parts of the equipment.


## *ESD Handling*

This product may contain Electrostatic Sensitive Devices (ESD).
Precautions to minimise the risk of damage, due to electrostatic discharge during handling, are recommended. For guidance, refer to British Standard BS CECC 00015, Part 1: BASIC SPECIFICATION FOR PROTECTION OF ELECTROSTATIC SENSITIVE DEVICES


## *Before Applying Power*

Verify that the product is configured to match the available main power source per the input power configuration instructions provided in this manual and product marking.

## *Service*


Servicing, adjustments, maintenance or repair of this product may be performed by qualified personnel only. Adjustments described in this manual may be performed with power supplied to the product while protective covers are removed. Energy available at many points may, if contacted, result in personal injury. Capacitors inside this product may still be charged even when disconnected from their power source.

# GENERAL DESCRIPTION

This User manual is a general description for:
**UTAH-100/X16AA** 16x16 Audio Stereo Router
**UTAH-100/X16AA-CP** 16x16 Audio Stereo Router with Control panel
**UTAH-100/X8AA** 8x8 Audio Stereo Router
**UTAH-100/X8AA-CP** 8x8 Audio Stereo Router with Control Panel

The description refers to UTAH-100/X16AA.

UTAH-100/X16AA Audio Stereo Router is a high-density frame for switching of twisted pair analogue audio formats. It is designed with two 16x16 matrix modules that can be operated independently, or as a:

- 16x16 (8X8) stereo routers for analogue audio.
- Dual 16x16 (8X8) mono routers for analogue audio.

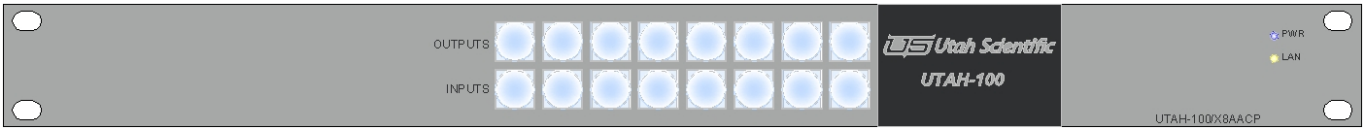
It is also possible to order the unit factory configured to operate as a quad 8x8 or 32x16 router. Contact Utah Sandar AS for more information for available cables & software.

The 19" wide, 1RU high and 67 millimetres deep frame houses the matrix, DC-DC power and a control module. The frame thereby offers 32 channels of audio switching as well as a complete dual, redundant power supply solution, Ethernet and Serial port interfacing to external control systems or control panels.

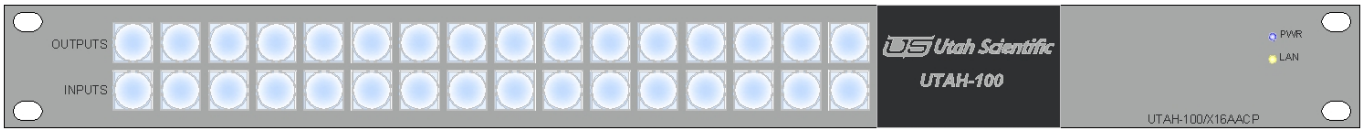
Because of the broadband nature of the UTAH-100/X16AA Audio Stereo Router, it will handle several formats:

- Analogue audio (Twisted Pair Signals)
- Time code signals (SMPTE/EBU LTC)

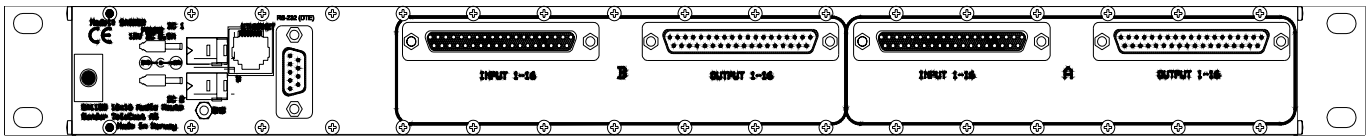
FRONT UTAH-100/X16AA / UTAH-100/X8AA



FRONT UTAH-100/X8AACP




FRONT UTAH-100/X16AACP




REAR

### *External Power Supply*

The external Power Supply is an AC/DC Switch Mode desktop power supply module with compact design. The power supply has a universal input voltage, with 3 pins IEC 320 connector. The output voltage is 13.2 VDC and is short circuit proof and deliver up to 40W. One secondary cable with the modular connector in the one end connects to the power supply and the other end with a 5.5/2.1mm jack connects to the UTAH-100/XHDA frame. Utah Sandar recommends the Power Supply 9920 from Mascot A/S, but other types of Power Supplies may be used with similar specifications. ***Mains cord is not included.***
Mounting bracket is available.

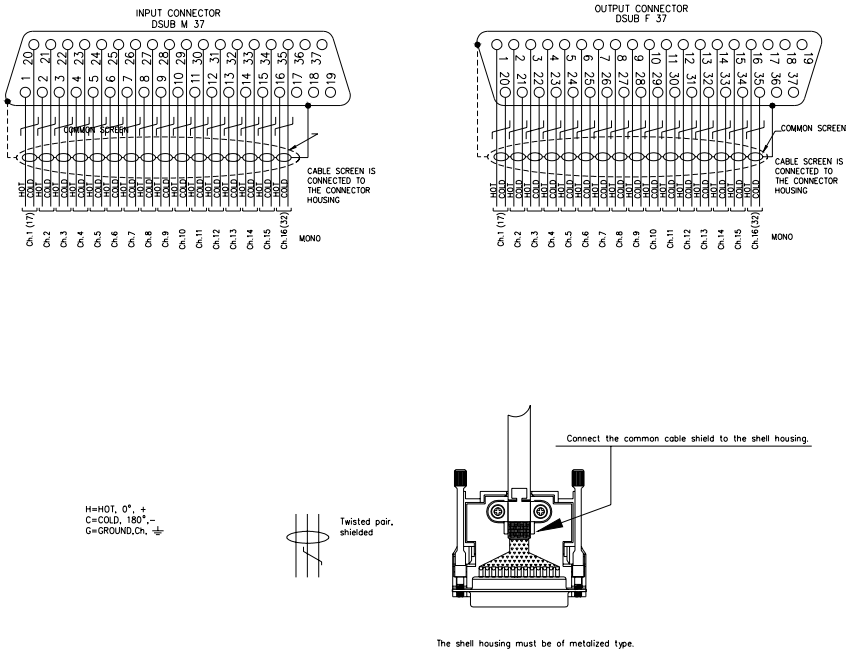
## UTAH-100 CONTROL SOFTWARE:

- For Quick Start Guide see the attached document in the delivery.
- UTAH-100 Control Software see the document file: UTAH-100-ControlSoftware10.pdf attached in the user manual CD.

# PINOUT

## *Audio Cable Connections*

### Cable Connections




| | | | | | | |
|---|---|---|---|---|---|---|
| | | Drawn: | 2008-08-07/HD | Page: | | Utah Sandar |
| | | Cheked: | | of: | | |
| | | UTAH-100/X16AA<br>16x16 AUDIO STEREO ROUTING SWITCHER,19",1U<br>AUDIO CONNECTIONS | | | | 3212-04 |
| 01 | 2009-08-27/HD | | | | | Utah Sandar AS |
| Rev.No | Date/Sign | | Part No: | | Ref. | Proj. |

## Power Connection

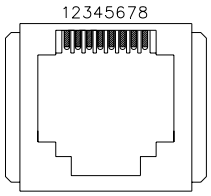
The SA1100 units have two 2.1mm DIN 12VDC connector with + at centre.


The power unit supplied with the SA1100 is a 13.2 VDC with a max rating of 3A (40W)

## Port Pin Orientation

**Ethernet Port**

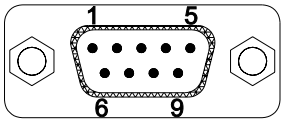
The Ethernet port is an 8-pin RJ-45 jack meeting the requirements of ISO 8877 for 10/100Base-T.

| Ethernet Pin Assignment | | |
|---|---|---|
| **Pin** | **Signal Name** | **Figure RJ-45** |
| 1 | TxD+ (Transmit Data) |  |
| 2 | TxD- (Transmit Data) | |
| 3 | RxD+ (Receive Data) | |
| 4 | Not used | |
| 5 | Not used | |
| 6 | RxD- (Receive Data) | |
| 7 | Not used | |
| 8 | Not used | |



**RS-232 Port**

Serial port, RS-232 is a DSUB9pin (male) connector. Use the following figure and tables for pin orientation and pin assignment information.



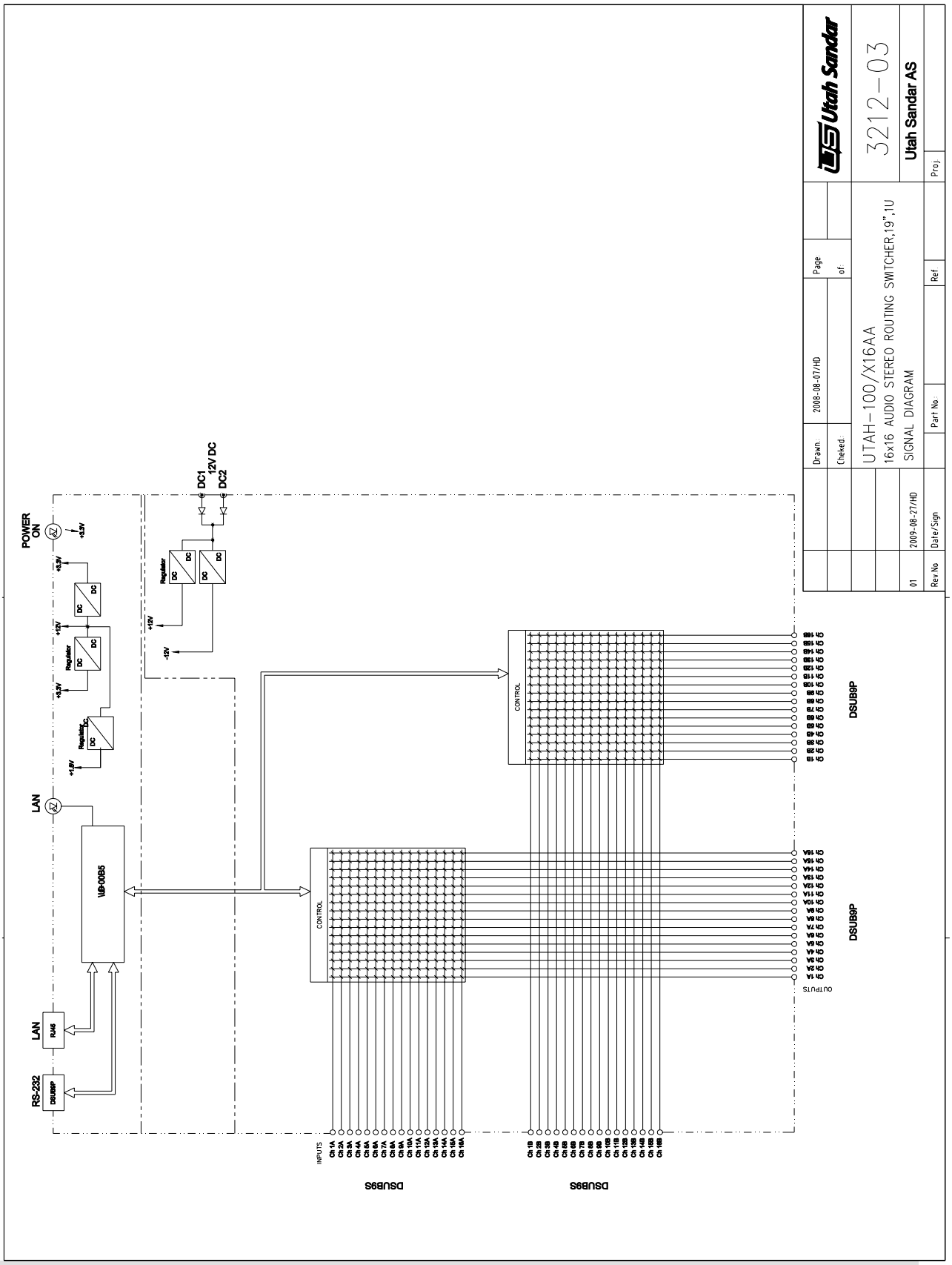

| Serial Pin Assignment | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Port** | **Signal Pin1** | **Signal Pin 2** | **Signal Pin3** | **Signal Pin4** | **Signal Pin5** | **Signal Pin6** | **Signal Pin7** | **Signal Pin 8** | **Signal Pin 9** |
| **RS-232** | Not connected | RxD | TxD | Not connected | GND | Not connected | Not connected | Not connected | Not connected |

# SPECIFICATIONS

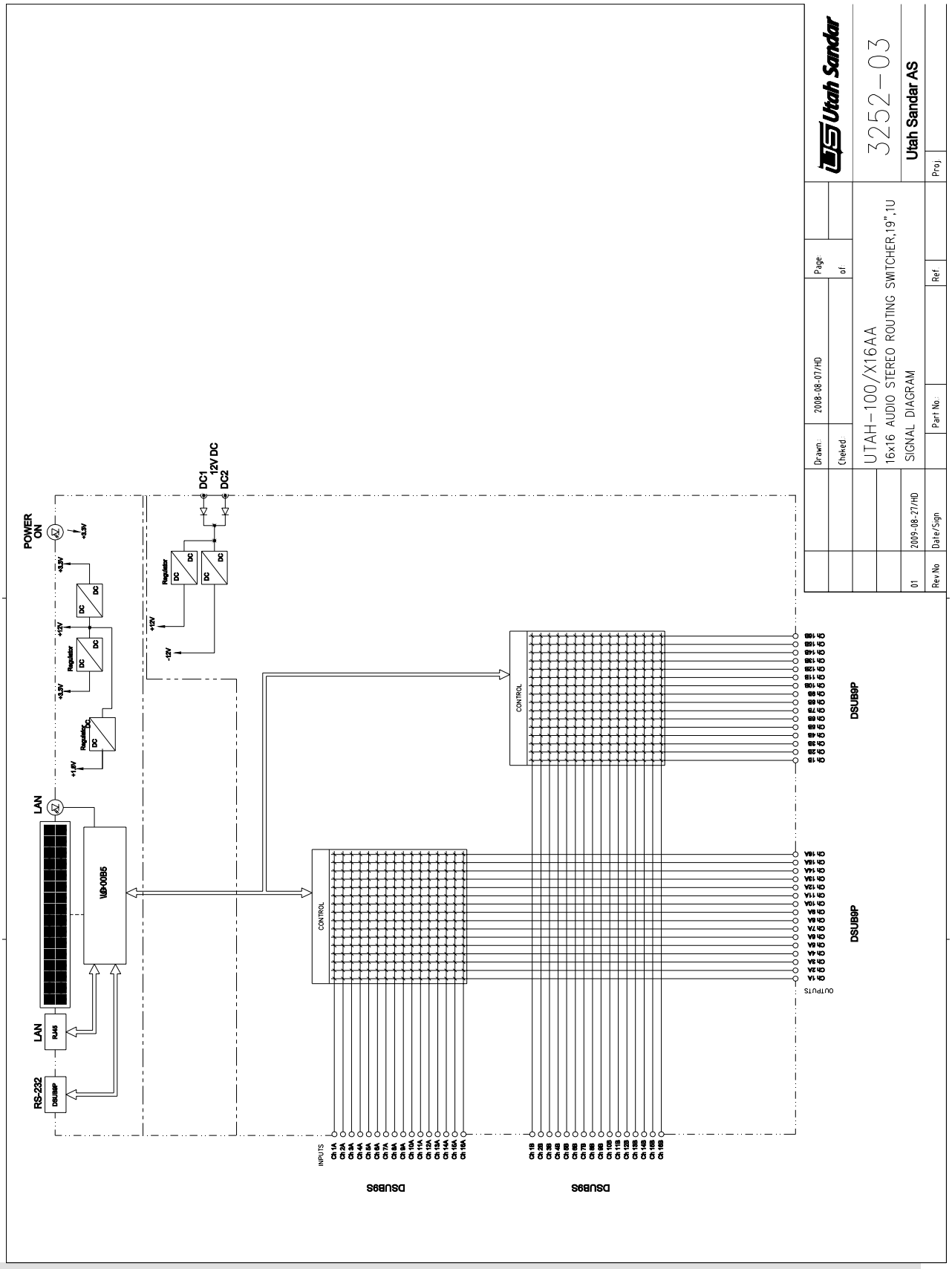
| | |
|---|---|
| **Type** | Analogue Audio |
| Number of Inputs | 16 el. balanced |
| Impedance Inputs | <20KΩ |
| CMRR 20-20000Hz | >70dB |
| | |
| Number of Outputs | 16 el. balanced |
| Impedance Outputs | <50Ω |
| Output symmetry | >60dB |
| | |
| **Performance** | |
| System gain, 600Ω load | 0dB, -0,8dB |
| System gain, 10kΩ load | 0dB, -0,2dB |
| Gain difference two Ch. 1kHz | ±0.2dB |
| Frequency range ±0.1dB | 20-20000Hz |
| Bandwidth 20Hz-200kHz | -0,3dB |
| Phase between two Ch. | < 1° |
| THD+noise, +6dB into 600Ω | < 0.002% |
| THD+noise, +22dB into 600Ω | < 0.005% |
| Max level, 10KΩ load | +22dBu (<0,003%THD+N @ 1kHz) |
| Max level, 10KΩ load | +22dBu(<0,005%THD+N 20-20000Hz) |
| Noise, 50Ω source (Q-Pk) | < -87dBu |
| Click noise | > 85dBqp |
| Crosstalk, 20-20000Hz | > 85dBr |
| | |
| **Ethernet** | |
| Type | 10/100 Base T |
| Standard | IEEE 802.3 |
| Connector | RJ45 |
| **RS-232** | |
| Type | RS-232(DTE) |
| Connector | DSUB 9 PIN |
| **Electrical** | |
| DC input Nominal | 12 VDC |
| DC Input Range | 10 - 15 VDC |
| DC Connector | DC Jack 2.1mm |
| DC Power | 13.2 W |
| Operating Temperature Range | 0 °C - +40 °C |
| Humidity | 90 % non condensing |
| External Power Supply | Universal 90-250VAC, 50/60Hz |
| **Mechanical** | |
| Dimensions | W: 482.6mm (19”) H: 43.6mm (1U) D: 52mm + Connectors |
| Weight | 0.7 kg |

*Utah Sandar AS reserves the right to change specifications without prior notice.*

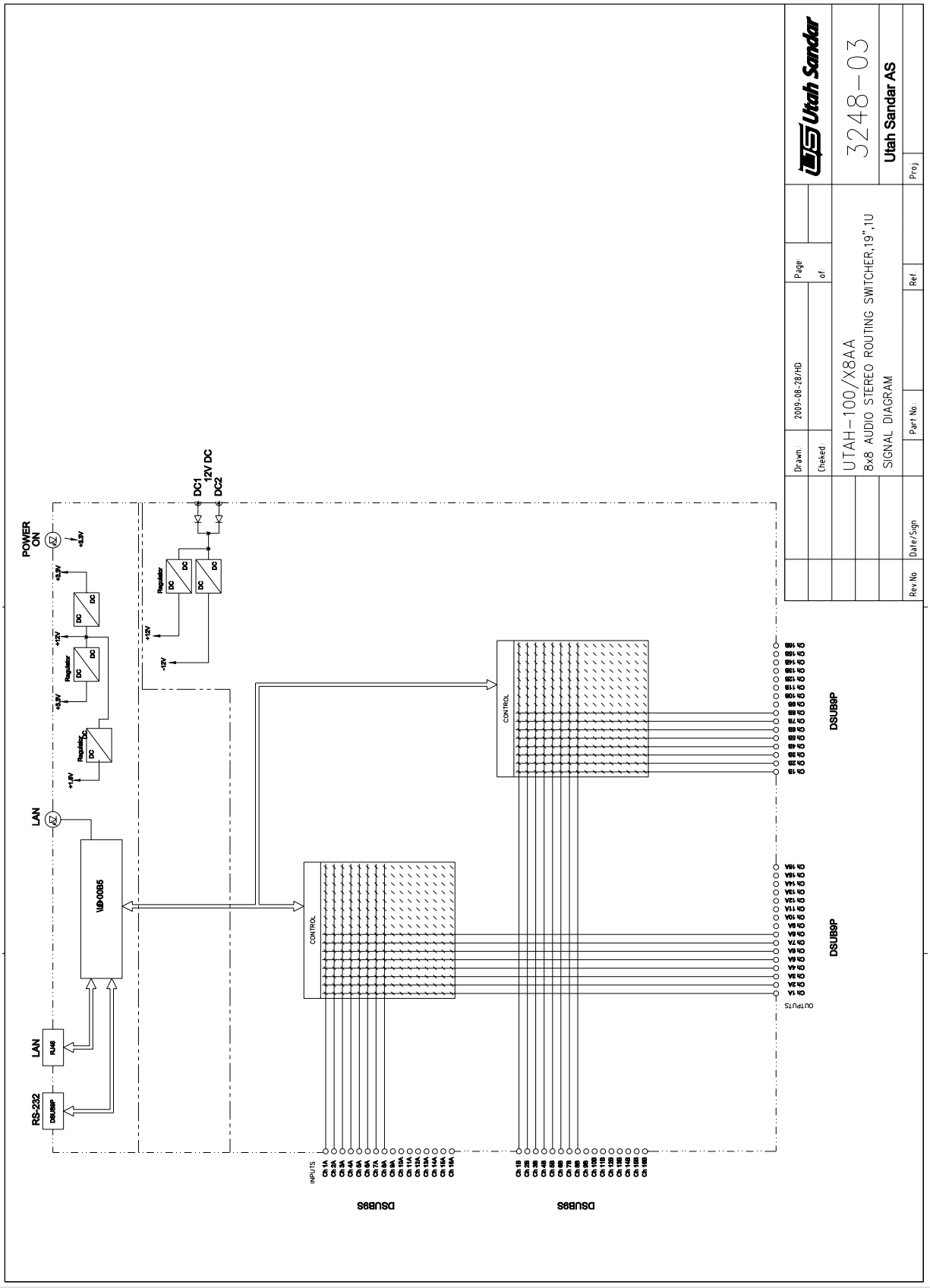
# DRAWING - SIGNAL DIAGRAM 16X16



# DRAWING - SIGNAL DIAGRAM 16X16 W/CONTROL PANEL



# DRAWING - SIGNAL DIAGRAM 8X8



# DRAWING - SIGNAL DIAGRAM 8X8 WITH CONTROL PANEL