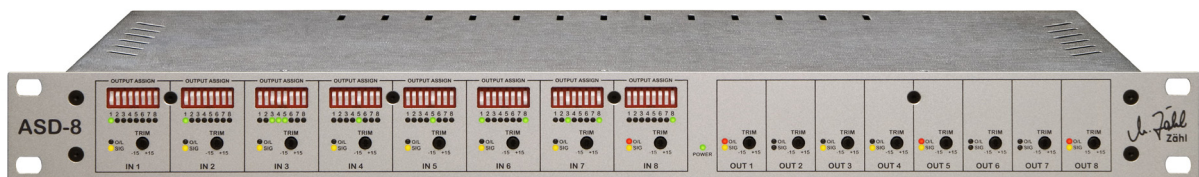


# ASD-8

## Analogue Audio Switching/Summing Matrix

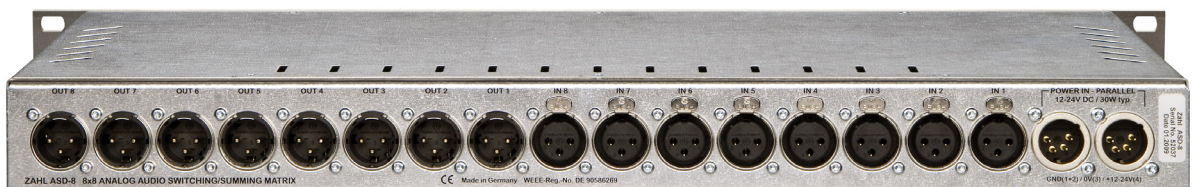


ASD-8 is an analogue 8 x 8 switching/summing matrix for a wide range of audio applications: summing & distribution, adapting & balancing, buffering & driving lines. Perfect for setting up additional I/Os for studio, on-site or OB-Van, adapt consumer to professional equipment, build sums in communication systems etc.

ASD-8 is designed for professional use in audio and video studios, mobile broadcast and recording setups, communication systems, public address systems and related applications.

- high audio quality • all transformer I/O • maximum level +22 dBu • +/-15dB I/O trim
- easy operation and clear status indication on front panel • XLR connectors

An external, universal input power supply unit is provided. An additional power inlet may be used for redundant supply.



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## 1. Important Notes and Safety Instructions

Before unpacking and operating the equipment read these Notes and Safety Instructions carefully.

More notes and instructions can be found in the following chapters of this manual. Follow all notes and instructions.

The term „equipment“ stands for the ASD-8 unit as well as the provided power supply.

- 1.1. The equipment must only be used for the purpose described in this manual.
- 1.2. Keep the manual for further reference. When passing the equipment on, enclose the manual.
- 1.3. Do not operate the equipment at
  - very high air humidity (>85% relative humidity)
  - high ambient temperature (>40°C) or in the vicinity of heat radiating equipment or objects
  - places which are exposed to solar radiation
  - at very low temperatures (<5°C)
- 1.4. Ensure appropriate air ventilation.
- 1.5. Do not block the ventilation slots of the equipment. Keep free a minimum of 20mm around the equipment.
- 1.6. When rack-mounting the unit, always provide slide bars to prevent excessive strain of the front panel by transport shocks or cable & connector weight.
- 1.7. Do not store the equipment at temperatures below -20°C or above +50°C.
- 1.8. Do never expose the equipment to environmental conditions which can lead to the incidence of condensation water.
- 1.9. Do not expose the equipment to mechanical stress or shock.
- 1.10. Ensure that liquids cannot get into the equipment.
- 1.11. Ensure that foreign objects cannot get into the equipment.
- 1.12. Only clean the equipment with smooth cleaning tissues and soft detergents.
- 1.13. Never open the equipment.
- 1.14. Only operate the unit with the provided power supply. When operating with other power supplies, warranty will be void.
- 1.15. In case the equipment has been dropped or there is any external or functional damage, do not continue to operate the equipment. Have the equipment checked at your dealer's workshop or a person who is qualified to do such checks.
- 1.16. Only connect the equipment to a legally approved, earthed, mains power supply.
- 1.17. In case of any damage of mains cable or power supply there is the risk of a perilous electrical shock! Replace the mains cable immediately. Have the power supply checked or replace it. Regularly check mains cable and power supply for any damage.
- 1.18. When shipping, use a package which protects the equipment from environmental impact such as mechanical shock or humidity.
- 1.19. The equipment applies to EU directives RoHS and WEEE. Disposal has to be carried out according to WEEE. As this equipment is classified as professional equipment for industrial use (B2B), manufacturer and purchaser conclude the following agreement: According to ElektroG §10 Abs. 2 Satz 3 (ref. to German/EU law) the manufacturer takes over the disposal if the purchaser sends back the equipment at his own expense. Alternatively the purchaser disposes of the equipment according to WEEE at his own expense. In case the purchaser passes on or sells the equipment, this agreement has to be passed on. Manufacturer WEEE register number: DE 90586269

- 1.20. Manufacturer's warranty covers the equipment to be free from defects of quality at the time of delivery for a period of 24 month presumed that
- the equipment was treated properly according to its intended use
  - all information and safety instructions given in this manual have been followed
  - the equipment shows no external damage
  - the equipment is shipped to the manufacturer or to an authorised repair-shop free of charge
  - a proof of purchase is supplied
  - a detailed failure description is supplied
- The manufacturer takes over cost of parts and labour incurred by repair.  
Any other costs including shipping and packaging will be charged.
- 1.21. We expressly exclude any liability for incidental or consequential damages which might arise from operating the equipment, including failure of the equipment.
- 1.22. All information in this manual has been carefully reviewed. It has been updated at the time of passing for press. Nevertheless we do not take over any liability for sufficiency or errors.
- 1.23. EEC Declaration of Conformity: The equipment applies to applicable EMC rules 89/336/EEC.



## **2. Scope of Delivery**

- 2.1. Unit ASD-8
- 2.2. Power Supply
- 2.3. Mains Cable (not for all countries)
- 2.4. Manual

### 3. Connection

#### 3.1. Power Supply

3.1.1. Plug the 4pole XLR connector which is mounted to the cable fixed to the power supply into one of the 4pole XLR connectors designated "POWER IN" on the rear panel of the ASD-8 unit.

3.1.2. Connect the power supply to a correctly earthed mains power socket. You may connect the power supply to 100-240VAC at 47-63Hz mains voltage without the need of selecting a voltage range.

**Important Note:** Always connect the power supply in the order described above. Otherwise there is a risk of damaging the power supply and/or the unit.

3.1.3. ASD-8 units provide two power inputs. You may connect two power supplies at the same time in order to ensure a fail-safe operation. If power at one of the inputs fails, the other one will take over.

3.1.4. 12V-24V regulated DC is allowed at the power inputs. We deliver power supplies within this voltage range. You can connect power supplies with differing voltages at the same time. The one with the higher voltage supplies the unit. If it fails, the one with the lower voltage will take over.

3.1.5. A green LED display, marked POWER, in the centre area of the front panel lights up when the unit is powered.

#### 3.2. Audio

**Note:** A complete register of technical data, connector-pinout and -functions can be found in chapters 6 and 7 of this manual.

##### 3.2.1. Inputs

Inputs are transformer balanced, suitable for levels up to +22 dBu.

Pinout of the XLR connectors:

wire function	XLR input ASD-8
signal + / a / hot	Pin 2
signal - / b / cold	Pin 3
ground / c / shield	Pin 1

In case you need to connect an unbalanced source to an input, follow the table below:

unbalanced source	XLR input ASD-8
signal	Pin 2
ground	Pin 3
ground	Pin 1, connection optional, check in the field if convenient

For connecting equipment with RCA/phono connectors the use of adapters may be convenient, e.g. Neutrik Type NA2MPMF (3-pole XLR male – RCA/phono socket).

Neutrik produces similar adapters for XLR-Jack and XLR-BNC conversion ([www.neutrik.com](http://www.neutrik.com)).

**Important Note:** Connecting DC exceeding 1V is not allowed and can lead to damages inside the unit.

### 3.2.2. Outputs

Outputs, transformer balanced, deliver levels up to +22 dBu.

Pinout of the XLR connectors:

XLR output ASD-8	wire function
Pin 2	signal + / a / hot
Pin 3	signal - / b / cold
Pin 1	ground / c / shield

In case you need to feed an unbalanced input from an ASD-8 output, follow the table below:

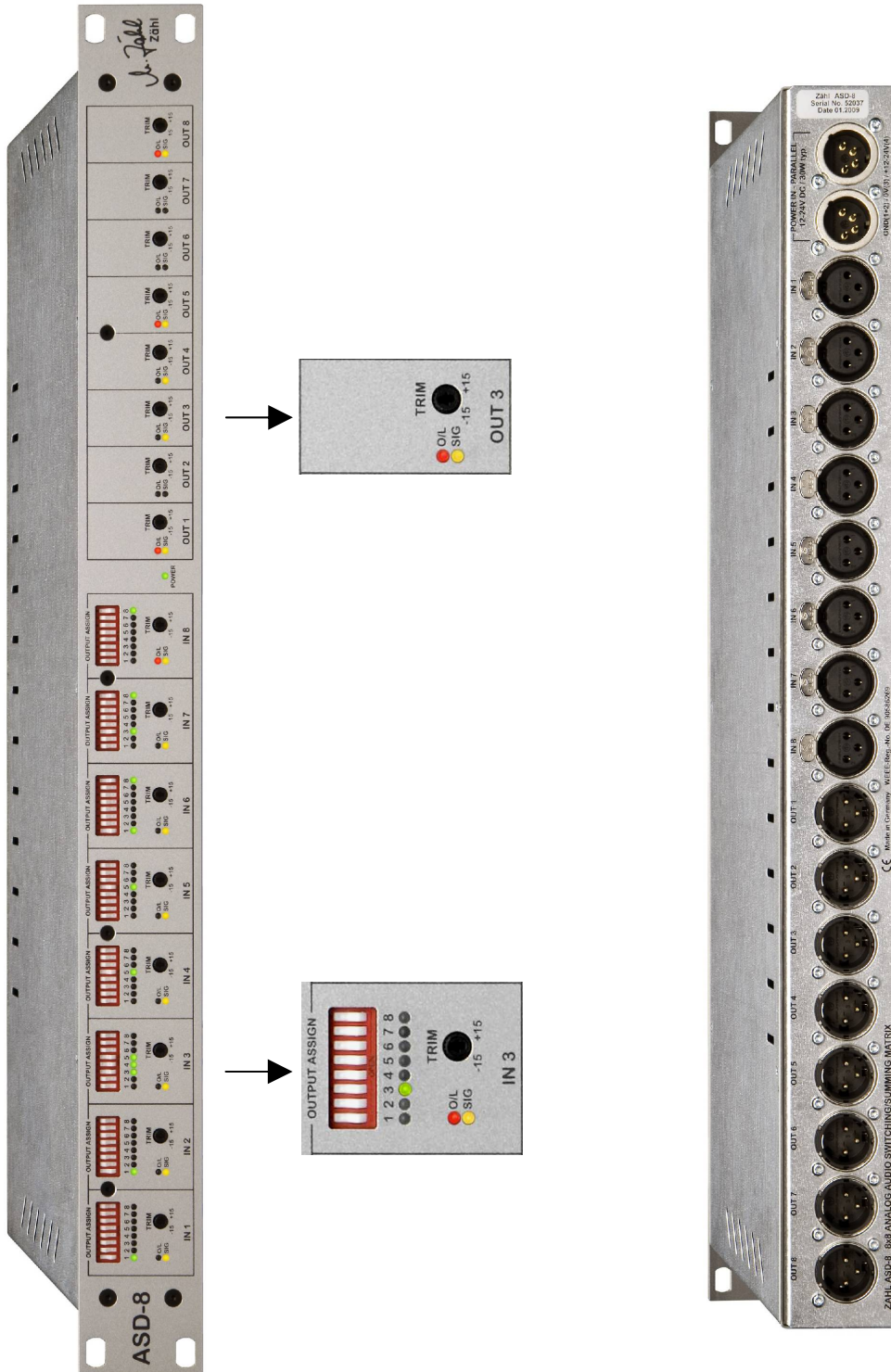
XLR output ASD-8	input of unbalanced equipment
Pin 2	signal
Pin 3	ground
Pin 1	ground, connection optional, check in the field if convenient

For connecting equipment with RCA/phono connectors the use of adapters may be convenient, e.g. Neutrik Type NA2FPMF (3-pole XLR female – RCA/phono socket).

Neutrik produces similar adapters for XLR-Jack and XLR-BNC conversion ([www.neutrik.com](http://www.neutrik.com)).

**Important Note:** Connecting DC exceeding 1V is not allowed and can lead to damages inside the unit.

## 4. Front Panel & Rear Panel Overview

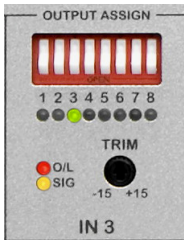




## 5. Functions

### 5.1. Audio Inputs

Audio input signals are fed from the XLR inputs marked „IN 1“ through to „IN 8“ on the rear panel to the respective input sections on the front panel.



Via the OUTPUT ASSIGN switches audio signals can be assigned to any of the 8 output sections. Multiple assignments are possible, as all signals pass a summing stage.

The rocker switches are off, when they are actuated to the lower position; they are on, when they are actuated to the upper position.



A green LED displays below each switch lights up, when a switch is ON.

+/- 15 dB gain can be set on the GAIN TRIMMER. In centre position gain is 0 dB nominal.

To the left of the GAIN TRIMMER there are two LED displays for level indication.

The yellow LED marked „SIG“ lights up, when level exceeds -25 dBu (+/- 2 dB). It monitors the presence of a “significant” audio signal. Level detection is post GAIN TRIMMER. GAIN TRIMMER position affects the indication.

The red LED marked „O/L“ lights up, when level is less than 3 dB from clipping. As maximum level is +22 dBu, it will be triggered when level exceeds +19 dBu (+/- 0,5 dB). Level is evaluated pre and post GAIN TRIMMER thus ensuring correct indication at any GAIN TRIMMER position. In order to clearly display short level peaks, indication is stored for approx. 0,3 sec.

### 5.2. Audio Outputs

Each output section provides a summing amplifier, so signals can be fed from any number of input sections.



+/- 15 dB gain can be set on the GAIN TRIMMER. In centre position gain is 0 dB nominal.

To the left of the GAIN TRIMMER there are two LED displays for level indication.

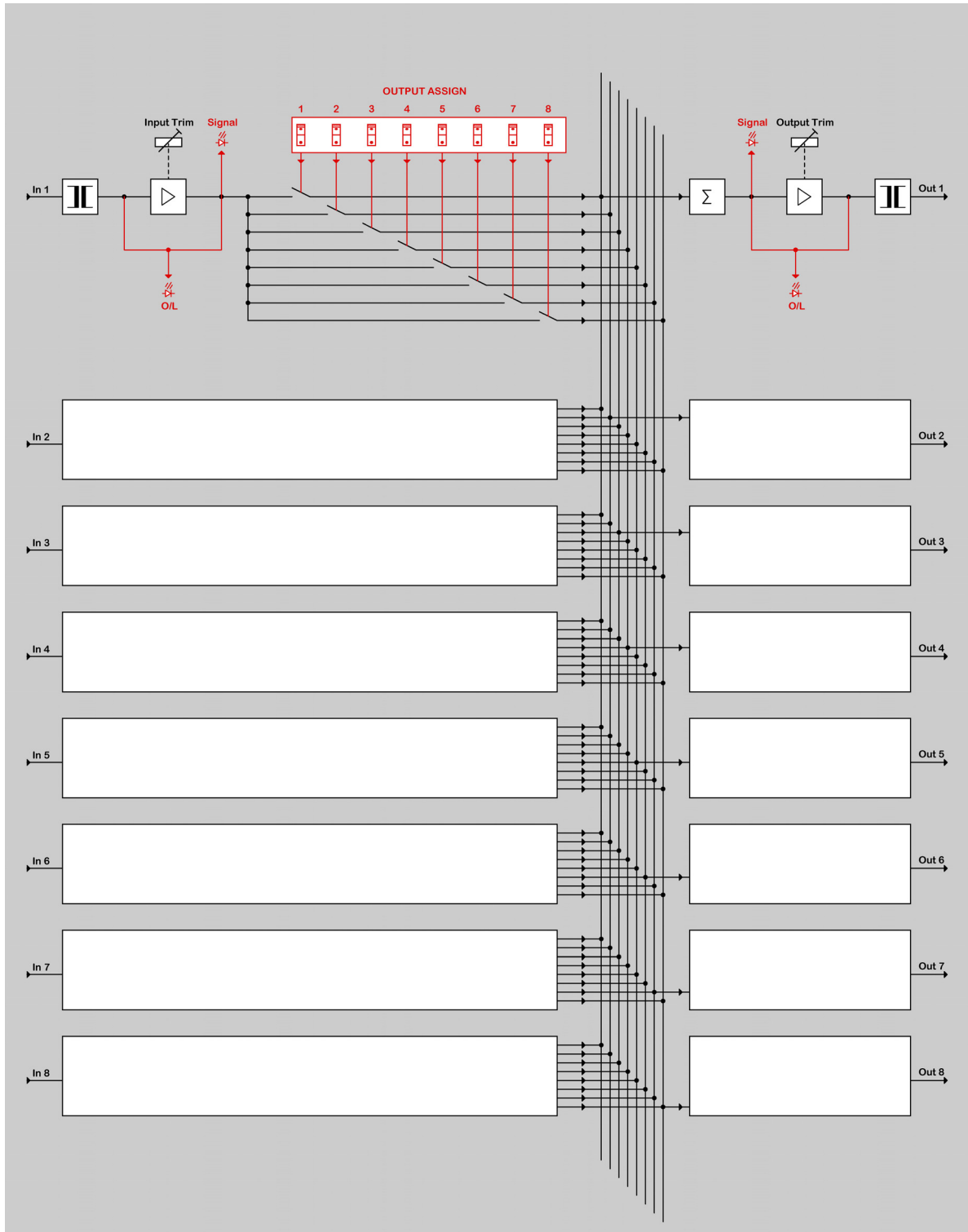
The yellow LED marked „SIG“ lights up, when level exceeds -25 dBu (+/- 2 dB) at the output summing stage. It monitors the presence of a “significant” audio signal. Level detection is pre GAIN TRIMMER. GAIN TRIMMER position does not affect the indication.

The red LED marked „O/L“ lights up, when level is less than 3 dB from clipping. As maximum level is +22 dBu, it will be triggered when level exceeds +19 dBu (+/- 0,5 dB). Level is evaluated pre and post GAIN TRIMMER thus ensuring correct indication at any GAIN TRIMMER position. In order to clearly display short level peaks, indication is stored for approx. 0,3 sec.

Output signals are fed to the XLR connectors marked „OUT 1“ through to „OUT 8“ on the rear panel.



## 6. Block Diagram



## 7. Connectors/Pinout

### 7.1.1. XLR connectors female 3-pole, audio inputs

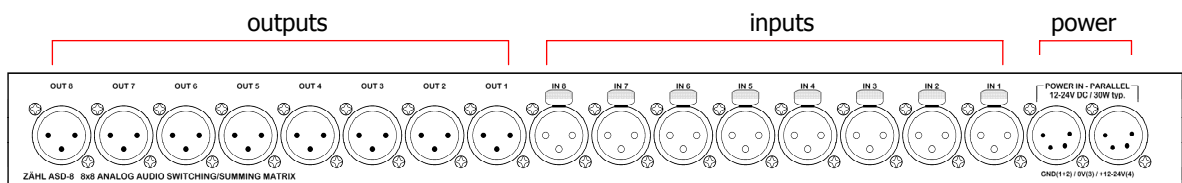
Pin 1	ground / shield
Pin 2	+ / hot
Pin 3	- / cold

### 7.1.2. XLR connectors male 3-pole, audio outputs

Pin 1	ground / shield
Pin 2	+ / hot
Pin 3	- / cold

### 7.1.3. XLR connectors male 4-pole, power inputs

Pin 1	Ground / Protective Earth
Pin 2	Ground / Protective Earth
Pin 3	0 V DC
Pin 4	+12 V DC ... +24 V DC



## 8. Technical Data

### 8.1. General

*Typical operating condition: source 50  $\Omega$ , load 5 k $\Omega$ , reference level +6dBu*

Frequency response 20 Hz ... 20 kHz -0,5 dB typ.

THD at reference level 20 Hz < 0,1 %, 40 Hz < 0,03, 60 Hz ... 20 kHz < 0,015 %

Crosstalk between any two channels 1 kHz > 100 dB, 20 kHz > 90 dB

Noise unweighted 20 Hz ... 20 kHz, RMS, gain 0 dB

- one input assigned to one output < -96 dBu
- eight inputs assigned to one output < -90 dBu

### 8.2. Line Inputs

Transformer balanced floating

Input impedance > 10 k $\Omega$

CMRR 50 Hz > 80 dB, 15 kHz > 50 dB

Maximum input level +22 dBu

THD +22 dBu, source 50  $\Omega$  20 Hz < 0,1 %, 40 Hz ... 20 kHz < 0,05 %

### 8.3. Line Outputs

Transformer balanced floating

Output impedance typ. 50  $\Omega$

CMRR 50 Hz > 80 dB, 15 kHz > 40 dB

Maximum output level +22 dBu (40 Hz ... 20 kHz)

Maximum load at +22 dBu 600  $\Omega$  \*

THD +22 dBu 600  $\Omega$  40 Hz < 0,3 %, 1 kHz < 0,1 % \*

\* *Note on "22 dBu 600  $\Omega$ ": Output is set to +22 dBu without load, then loaded with 600  $\Omega$*

### 8.4. Power Inputs

ASD-8 requires well regulated DC in a range of 12-24V. A maximum of 27V DC must not be exceeded even by short voltage spikes.

A stable mains protective earth (PE) on the power supply mains inlet is mandatory.

The 0V pins of both ASD-8 power inputs are short circuited inside the unit. The positive pins of the power supply inputs are decoupled by diodes. I.e. both inputs may be operated at the same time.

If both power supplies deliver the same voltage, load is shared. If they deliver different voltages, the one with the higher voltage is loaded only.

Power consumption is typically 12W ... 25W, but for short periods of time these values may be exceeded substantially. The power supply we deliver with ASD-8 has been selected to be capable for such operation. Hence we assume that the unit is operated with this power supply. In case ASD-8 is operated with other power supplies we do not guarantee for correct function of the unit or any damage. Furthermore warranty will be void.

**Note:** All data are typical values under normal operating conditions. Different values may apply, especially when equipment is exposed to extreme temperature, shocks/vibrations, high electro-magnetic fields etc.

## 9. Measures and Weights

### 9.1. ASD-8 Unit

Case	19" 1 HU, anodised aluminium/zinc-coated steel
Overall measure W x H x D	483 mm x 44,5 mm x 226 mm
Thickness of front panel	3 mm
Insertion depth	222 mm
Weight	approx. 3,4 kg

### 9.2. Power Supply

Measure L x W x H	120 mm x 55 mm x 37 mm
Weight	0,4 kg
Length of fixed cable (DC to unit)	approx. 1,6 m
Length of mains cable	1,5 m - 2,0 m

### 9.3. Delivery form

Cardboard box	approx. 610 mm x 410 mm x 170 mm
Gross weight	approx. 5,3 kg