CELTO

SD / SQ SERIES

1U Professional Switching Amplifiers

User Manual

CONTENT

1. INTRODUCTION

Congratulations on the purchase of your new **S Series** amplifier and sincere **THANK YOU** for your confidence on **CELTO**. This premium piece of equipment was designed with power density, quality, performance and reliability in mind. We hope it will become an enjoyable companion for many years.

CELTO S Series amplifiers feature innovative solutions, not found in any other products like our proprietary **TrueSound** high-current high-resolution class D output stage and our 2nd Generation LLC Resonant **PULSAR** Switch Mode Power Supply with Active PFC. We also have spent countless hours to tune the Pre-amp with Studio grade Zero Attack J-FET limiters, low distortion OP-Amps, optimized PCB layout with short signal path, independent ground planes, and audiophile MUSE® Fine Gold capacitors for pristine sound quality.

Where 1U format amplifiers are usually associated with thin and peaky bass response, **CELTO S Series** amplifiers reproduce intense and warm deep bass tones, comparable to an old school toroidal class H design, but with the efficiency and compactness needed in modern applications. When **SD10000** is paired with our class leading **SU221** touring subwoofer, a new level of low frequencies performance is achieved, yet the system remains portable and compact for the sonic pleasure and usefulness of all rental companies.

2. FEATURES AT A GLANCE

- Up to 12kW RMS Output Power in compact 1U 19” rack format
- 2nd Generation LLC Resonant **PULSAR** SMPS with Active PFC
- Class Leading Low Frequency Extension and Reproduction
- Transparent Zero-Attack J-FET Limiters
- Proven Circuit with outstanding reliability
- **TrueSound** Class D with High-Speed High-Current MOSFETs
- Studio Grade PreAmp with MUSE® Fine Gold capacitors
- Long Life Japanese Electrolytic Capacitors in all stages
- Genuine parts exclusively from World Class suppliers
- Lightweight and shallow depth Touring grade chassis

PULSAR

TrueSound
High-Current High-Resolution Class D amplifier

3. SAFETY PRECAUTIONS

Caution!

Keep this device away from rain and moisture!

Health hazard

By operating and amplifying system, you can produce excessive sound pressure levels that may lead to permanent hearing loss.

This device has left our premises in perfect condition. In order to maintain this state and to ensure a safe operation, it is necessary for the user to follow the safety instructions and warning notes written in this user manual.

Damages caused by the disregard of this user manual are not subject to warranty.

Unpacking

- Please make sure that there are no obvious transport damages. Should you notice any damages on the connection panel or on the casing, do not take the device into operation and immediately consult your local dealer.
- Keep the packaging. To protect the device against vibration, dust and moisture during transport or storage, use the original packaging, or better use it inside a rack.

Protection Class

- This device falls under protection class I. The power plug must only be plugged into a protection class I outlet. The voltage and frequency must be the same as stated on the device. Wrong voltages or power outlets can lead to destruction of the device and to mortal electrical shock.

Power Cord

- Always plug in the power plug last. Make sure that the plug is tightly connected with the outlet. Never let the power cord come into contact with other cables! Handle the power cord and all connections with the mains with particular caution! Never touch them with wet hands, as this could lead to mortal electrical shock. Never modify, bend, strain mechanically, put pressure on, pull or heat up the power cord.
- Never operate next to sources of heat or cold. Disregard can lead to power damages, fire or mortal electrical shock.
- The cable insert or the female part in the device must never be strained. There must always be sufficient cable to the device.
- Make sure that the power cord is never crimped or damaged by sharp edges. Check the device and the power cord from time to time.
- If extension cords are used, make sure that the cord diameter is sufficient for the required power consumption of the device. All warnings concerning the power cords are also valid for possible extension cords.
- Always disconnect from the mains, when the device is not in use or before cleaning it. Only handle the power cord by the plug. Never pull out the plug by tugging he power cord. Otherwise, the cable or plug can be damaged, leading to mortal electrical shock. If the power cord or the power switch is not accessible, the device must be disconnected via the mains.

Liquids

- There must never enter any liquid into power outlet, extension cords or any holes in the housing of the device. If you suppose that even a minimal amount of liquid have entered the device, it must be immediately disconnected. This is also valid, if the device was exposed to high humidity. In any doubt, it must be checked by a specialist if the liquid has reduced any insulation. Reduced insulation can cause mortal electrical shock.

Foreign Objects

- There must never be any objects entering into the device. Malfunction or short-circuits caused by metal parts may cause mortal injuries.

3. SAFETY PRECAUTIONS (CONTINUED)

Avoiding Hum

- Never install the amplifier next to highly sensitive devices like tape-decks, as the strong magnetic field of the amplifier can produce hum in these devices.

Ambient Conditions

- The ambient temperature must be always be between -5°C and +45°C. Keep away from direct insulation (particularly in cars) and heaters. The relative humidity must not exceed 50% with an ambient temperature of 45°C.
  This device must only be operated in an altitude between -20 and 2000 meters over NN.
- Never use the device during thunderstorms if the power line is not protected. Over voltage could destroy the device.
- This device must never be operated or stockpiled in surroundings where splash water, rain, moisture or fog may harm the device.

Cleaning and Maintenance

- Disconnect from mains before cleaning. Never use solvents or aggressive detergents in order to clean the device! Rather use a soft and damp cloth.
- They are no serviceable parts inside the device. Maintenance and service operations are only to be carried out by authorized dealers. Should you need any spare parts, please use genuine parts.
- Please note that damages caused by manual modification on the device or unauthorized operation by unqualified persons are not subject to warranty.

Serial Number

- Never remove the serial number from the device as this would make the guarantee void.

WEEE Directive

When to be definitively put our of operation, take the unit to a local recycling plant for a disposal which is not harmful to the environment. Do not dispose of as municipal waste. Contact your retailer or local authorities for more information.

4. INSTALLATION

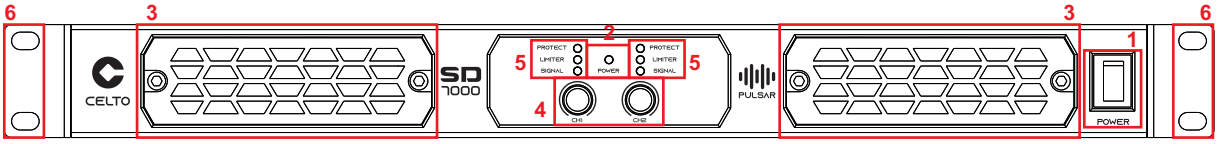
This amplifier is built for 19” racks (483mm) but can also be used as a tabletop unit. In order to ensure sufficient cooling of the amplifier, air must always be able to flow freely through all air vents. For rack installation, the amplifier requires 1U. If several units are to be installed, set the heaviest units into the lower part of the rack. For extra cooling performance, you can leave 1 unit space between each amplifier.
Be aware that fastening the unit with 4 screws on the front panel may not be enough. In order to ensure safety (especially in touring application), additional fastening on the back is necessary.

S Series amplifiers have front-to-back cooling airflow. Make sure the hot air can evacuate at the back of the rack, otherwise heat will accumulate in the rack, which can damage the amplifier and the other equipments in the rack. In case of insufficient heat dissipation, install a ventilation unit and/or fan(s) into the rack. It is recommended to reserve 20cm or more of free space between the back of the amplifiers and the closest wall.

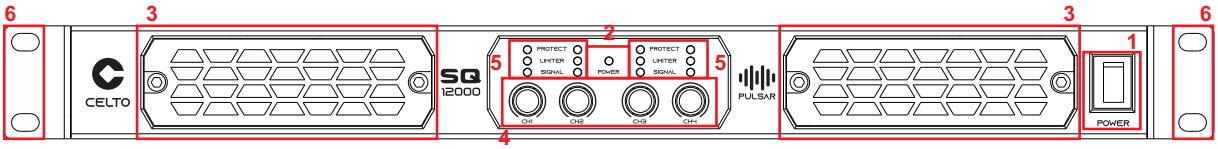
5. FUNCTIONS

5.1 Front panel

SD7000 / SD10000



SQ8800 / SQ12000



1. Power Switch
The power switch turns the amplifier ON and OFF. The amplifier is equipped with Soft-start that gradually increases the output voltage when power is first applied to the circuit, which limits the inrush current. The amplifier is muted during this phase.

2. Power LED (green)
The Power LED turns ON when the amplifier is ON.

3. Removable Panels, Airflow and Fans behavior
The amplifier is equipped with 2 removable panels, attached to the chassis by M4 Allen head screws (can be tool-free operated). Behind it, a dust filter avoids particles to enter the device. It is recommended to clean the filter at least once a year, more if the unit is used in a dusty place.

Note: The airflow goes from front (air intake) to back (air exit). In other words, cool air is pulled from front panel vents and is expelled out by the rear fans. This device is equipped with variable speed controlled fans. Fans work at full speed for 3 seconds when the amplifier is POWER ON to clean the internals from dust and particles. Then and until the temperature reaches 50°C, fans work at minimum speed for a quiet operation. Fan's speed increases linearly until 95°C where the thermal shutdown protection circuit enters into action. During temperature overload (above 95ºC), the protection circuit mutes the amplifier and the fans work at full speed to decrease the temperature as fast as possible. The amplifier returns automatically into working condition when the temperature goes below 85ºC.

4. Gain Control
Depending on the model, there are two (on SD7000 and SD10000) or four (on SQ8800 and SQ12000) independent gain knobs. Fully turned to the right, the amplifier is at its nominal gain of 34dB (50 times voltage). It is good practice to set your gain to maximum in order to minimize the risk of overloading the input stage. Setting the gain to a lower level WILL NOT limit nor protect your amplifier or loudspeaker.

5. Status LEDs
- PROTECT (red): Turns ON when protective circuit is active. Cause may be DC, temperature or overload.
- LIMITER (orange): Turns ON when the limiter enters into action
- SIGNAL (green): Turns ON when -40dB input signal is present
- CONTROL (green): Internal LEDs that turn ON when the modules are ready to work

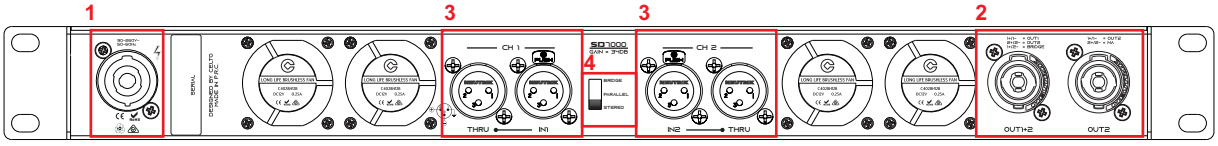
6. Rack Mount Holes
Four rack mount holes are provided to install the device in industry standard 19" rack case.

Note: It is recommended to use M6 cage nuts, machine screws and plastic washers to avoid scratching the face plate.

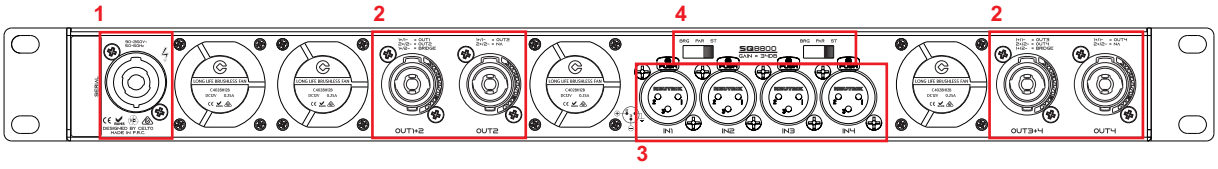
5. FUNCTIONS (CONTINUED)

5.2 Rear Panel

SD7000 / SD10000



SQ8800 / SQ12000



1. SEETRONIC® Power lock input
Thanks to the active PFC circuit, the amplifier accepts AC voltages from 90 to 260 V. A removable power cord is included with country dependant plug. The cable follows international standards and is wired as below:

Cable	Pin	International
Brown	Live	L
Blue	Neutral	N
Yellow/Green	Earth	⏚

The earth has to be connected! The device must only be connected with an electric installation carried out in compliance with the IEC standards. The electric installation must be equipped with a Residual Current Device (RCD) with a maximum fault current of 30 mA.

Remark:
SD7000 and SQ8800 amplifiers are equipped with an internal T15A fuse (5x20/250V)
SD10000 and SQ12000 models are equipped with an internal T20A fuse (5x20/250V)
DO NOT attempt to bypass the fuse in any manner!

2. NEUTRIK® SpeakON® outputs
Speaker outputs are done by NEUTRIK® SpeakON® lock-on connectors.

3. NEUTRIK® XLR Inputs
The input section of the amplifier offers electronically balanced NEUTRIK® XLR connectors. The 2 channel models (SD7000 and SD10000) have additional feed-through outputs.

4. Mode Selector
Select the operating mode: Stereo, Parallel or Bridge. In Parallel and bridge mode, only channels 1 and 3 inputs are operative.

SpeakON® Wiring		
OUT1+2	▶ Ch1 on 1+/1-	Ch2 on 2+/2-
OUT2	▶ Ch2 on 1+/1-	
OUT3+4	▶ Ch3 on 1+/1-	Ch4 on 2+/2-
OUT4	▶ Ch4 on 1+/1-	

Process for setting up your amplifier:
- Always make input connections prior to applying power to the amplifier.
- Connect the outputs from the signal sources (e.g. preamplifier, mixer) to the XLR inputs.
- For parallel connection of further amplifiers, the feed-through XLR Links can be used.
- Connect the speakers to the SpeakON® connectors. When connecting multiple speakers, always insure correct polarity and total load impedance of at least 2Ω per channel (4Ω in bridge mode).
- Finally connect the amplifier to the mains with the included power cord.
- Always make sure that power amplifiers are the last items turned ON and the first turned OFF.

6. TECHNICAL SPECIFICATIONS

Power supply	Switch mode with active PFC (Universal AC input from 90 to 260V)			
	Up to 3 transformers in interleave mode (model dependant)			
Output stage	Proprietary High-Speed High-Current 4th generation discrete Class D			
Model	**SQ8800**	**SQ12000**	**SD7000**	**SD10000**
RMS Output Power	4x 1300W / 8Ω	4x 1800W / 8Ω	2x 2000W / 8Ω	2x 2800W / 8Ω
(1kHz, 1% THD, EIA standard)	4x 2200W / 4Ω	4x 3000W / 4Ω	2x 3500W / 4Ω	2x 5000W / 4Ω
	4x 2000W / 2Ω	4x 2600W / 2Ω	2x 4000W / 2Ω	2x 5300W / 2Ω
Frequency response	6~20,000Hz (-1dB)			
Typical THD (1W, 20Hz~20kHz, 8Ω / 400W, 1kHz, 8Ω)	<0.03% / <0.09%			
Signal to Noise Ratio	>107dB(A)			
Crosstalk (1kHz)	>75dB			
Input Impedance	20 kΩ (Balanced)			
Maximum input	+20dBu			
Amplifier slew rate	>60V/us			
Amplifier damping factor (8 ohms, 500Hz)	>800 (internal)			
Preamp	Ultra low distortion opamps with audiophile MUSE® Fine Gold capacitors			
Nominal Voltage Gain	x50 (34dB) on all models			
Cooling	Temperature regulated long life brush-less fans, front to back airflow			
Protections	Short-circuit, Over and Under-voltage, Over-current, Over-load, Temperature			
Input connectors	4 Balanced NEUTRIK® XLR			
Output connectors	4 NEUTRIK® SpeakON® NL4MP			
Power connector	SEETRONIC® Power Lock 20A			
Operating Voltage	90~260V AC			
Model	**SQ8800**	**SQ12000**	**SD7000**	**SD10000**
Size (WxHxD)	482x45x281mm	482x45x421mm	482x45x281mm	482x45x326mm
Weight	6kg net	10kg net	6kg net	8kg net
	7.5kg gross	12.5kg gross	7.5kg gross	10kg gross

7. CONNECTIONS

7.1 Signal Input

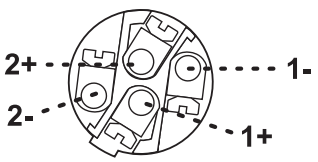
Balanced use with XLR connectors

INPUT **THRU**

Note: For unbalanced use, Pin 1 and 3 have to be bridge

7.2 Speaker Output

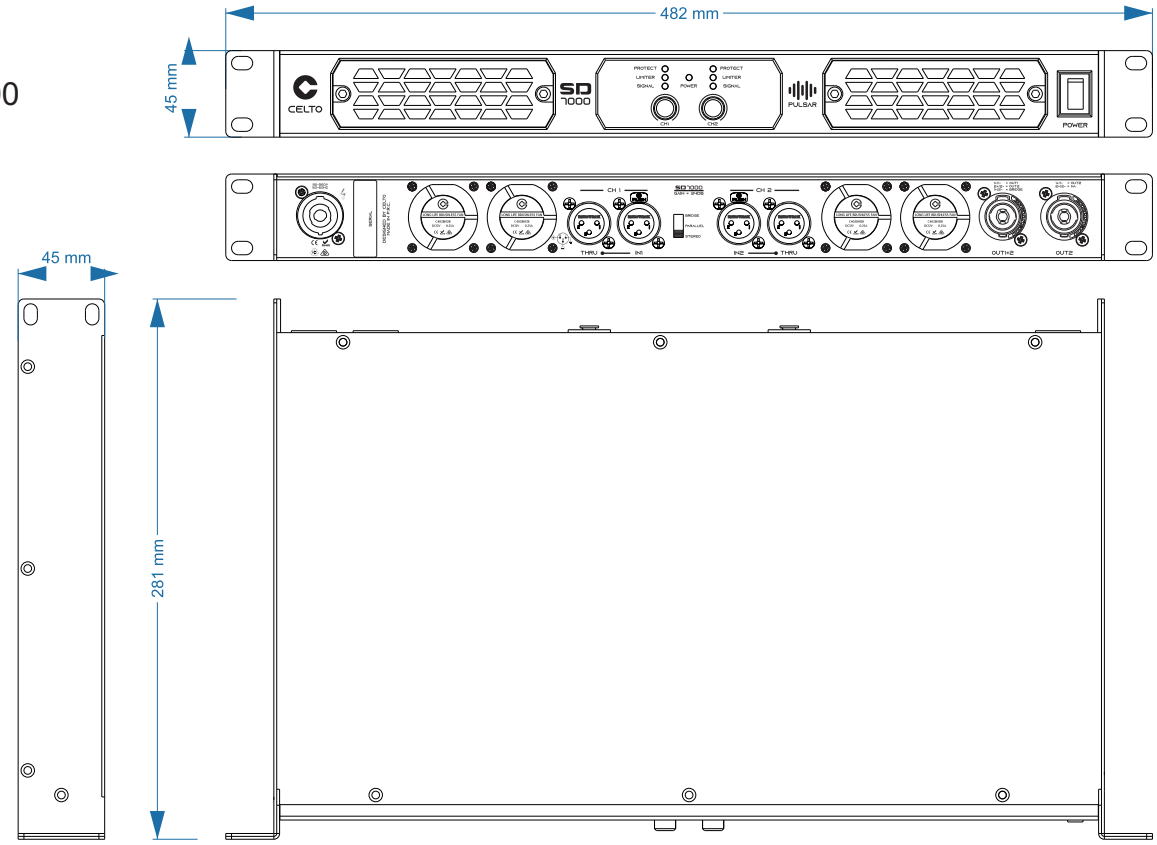
NEUTRIK® SpeakON® connector wiring diagram



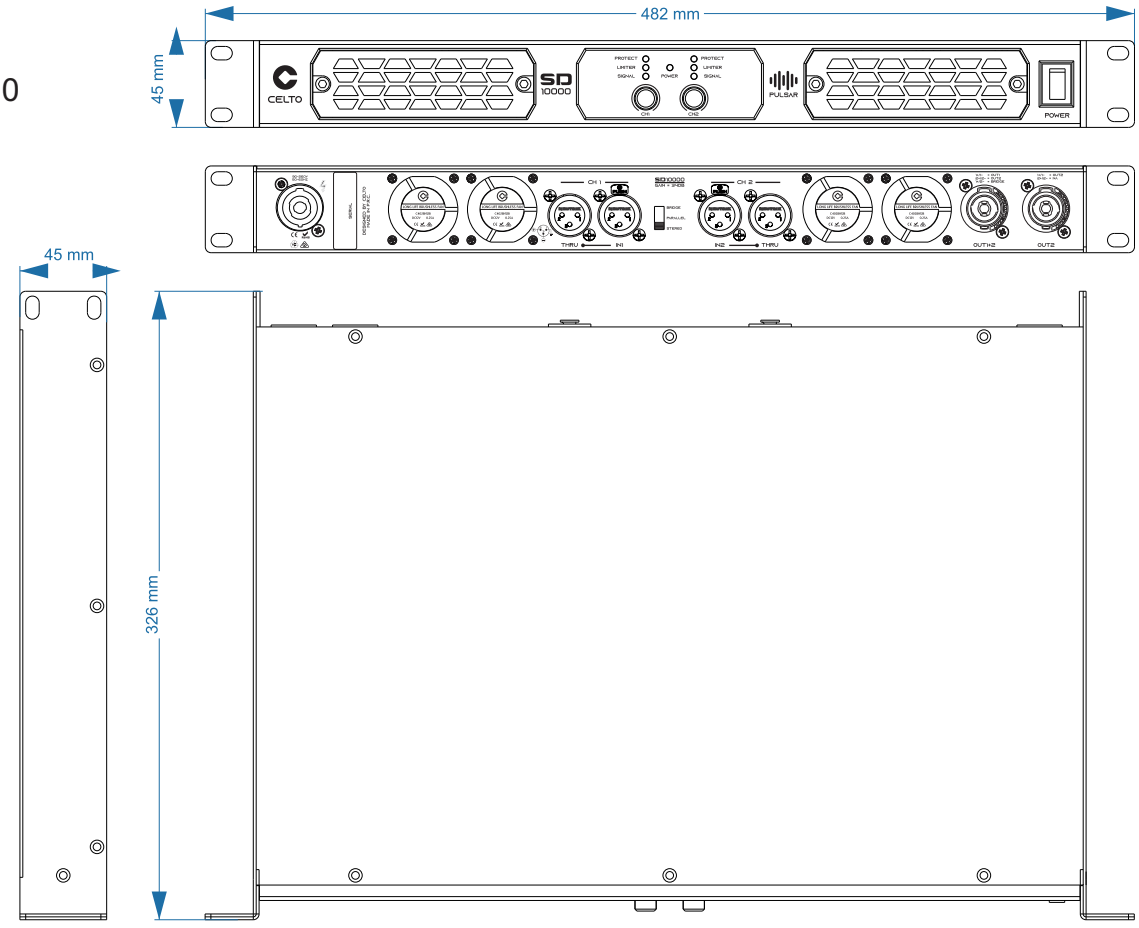
1+ and 2+ = positive pole
1– and 2– = negative pole

8. CAD DRAWINGS

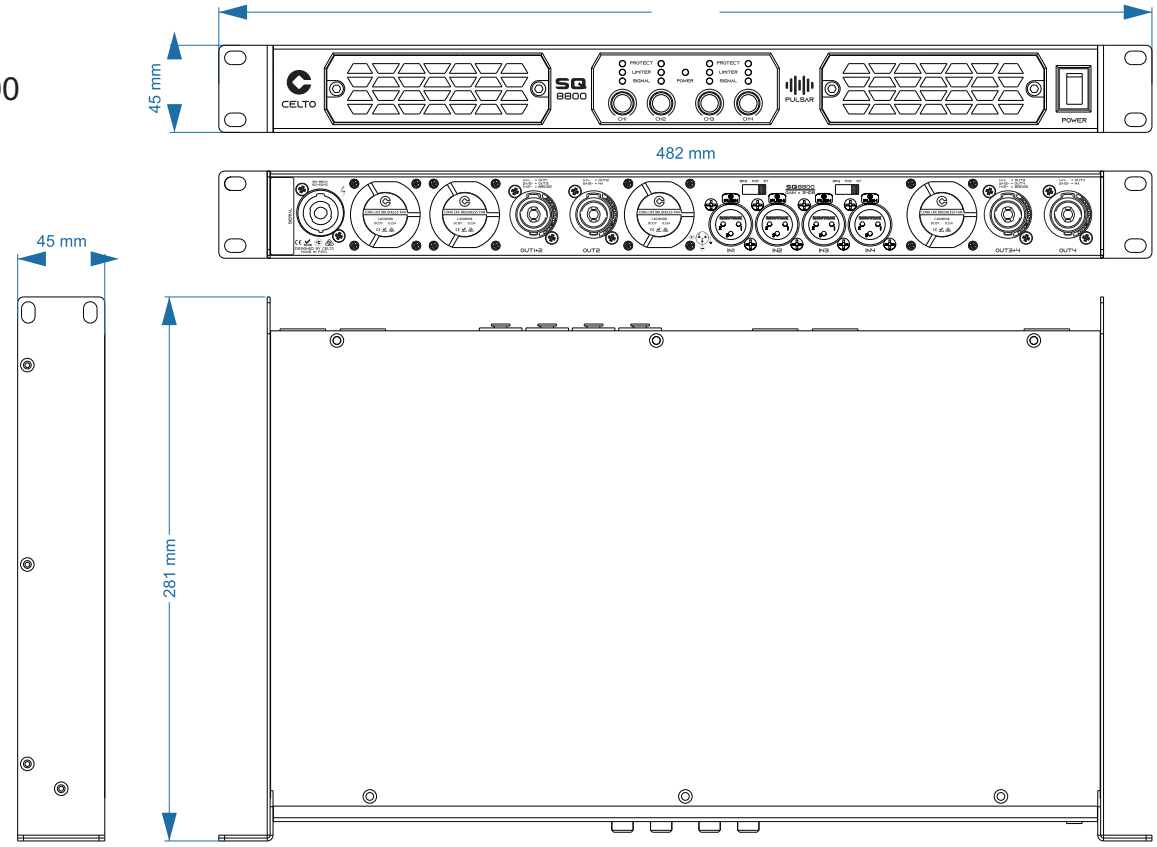
SD7000



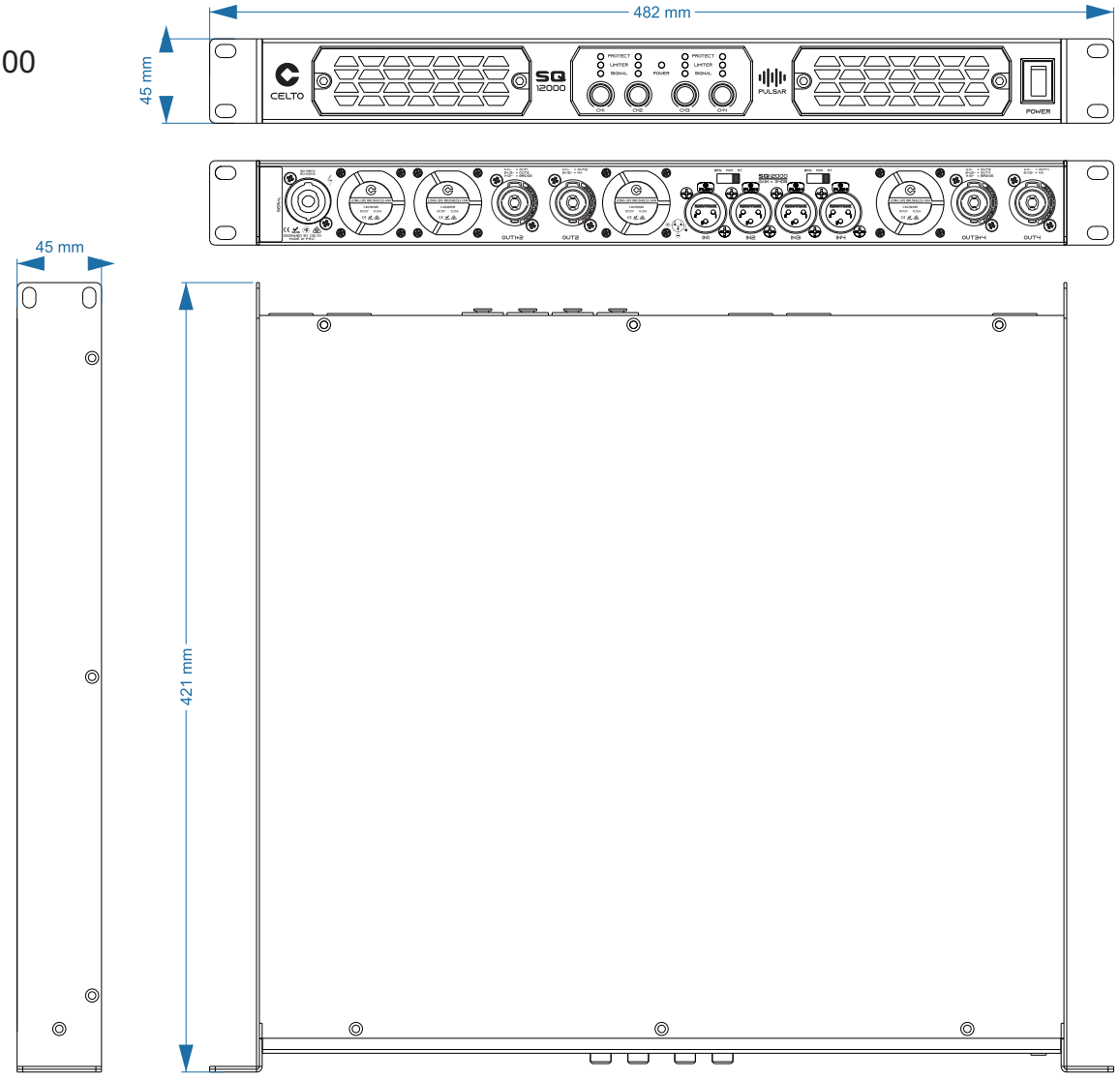
SD10000

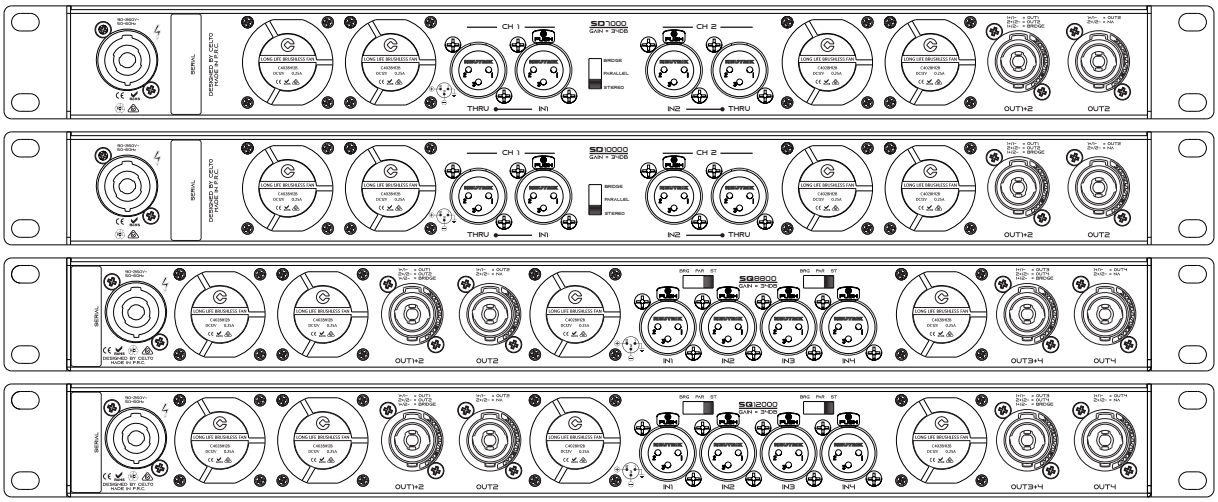


SQ8800



SQ12000





For more information and technical support
contact us at support@celtogroup.com

CELTO S Series user manual version 1.0 published on 2024-07

For product updates, documentation, software and support, please visit celtopro.com

The contents of this document are subject to revision without notice due to continued progress in methodology, design and manufacturing.
CELTO Acoustique shall have no liability for any error or damage of any kind resulting from the use of this document.

