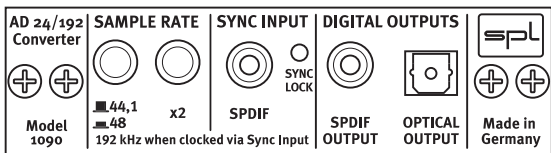




# Manual



## 24/192 AD Converter

Model 1090

Internal, dual-channel AD converter module for SPL units

Version 1.0 – 1/2011

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This manual contains a description of the product. It in no way represents a guarantee of particular characteristics or results of use. The information in this document has been carefully compiled and verified and, unless otherwise stated or agreed upon, correctly describes the product at the time of packaging with this document.

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## Safety Instructions

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- Please refer to the safety instructions in the manual of the unit in which you will be installing the converter.
- When installing the converter, carefully follow the instructions beginning on page 5. If you are uncertain, please ask a qualified technician or your SPL dealer for assistance.

## Product Features

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The Analog/Digital Converter Module 1090 is an optional digital output for compatible SPL units with a plug-and-play design for easy installation. It offers an S/P-DIF output with both coaxial and optical connectors in parallel.

The heart of the module is a 24-bit converter with a variable sample rate of up to 192 kHz. Highly accurate quartz oscillators ensure a clean, low-jitter master clock.

The internal sample rate can be switched between 44.1, 48, 88.2 and 96 kHz. Other sample rates (32, 176,4 and 192 kHz are set by external synchronization.

The converter can be synced to other digital devices via a S/P-DIF input.

The internal oscillators are automatically disabled when an external clock signal is present to prevent interference.

An extremely effective voltage stabilizing circuit ensures that the converter continuously receives sufficient and stable voltage – an important prerequisite for clean, transparent audio.

The compact design of the input stage guarantees the shortest possible signal path to the converter. Overdimensioned grounding surfaces on both sides of the circuit board effectively reduce interference and ensure optimal separation between analog and digital components.

- AD Converter Module 1090
- Two each M3 screws, nuts and washers
- Adaptor plate
- Manual

### General Instructions/Adaptor Plate

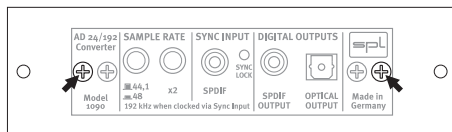
### Installation

The AD Converter Module 1090 is designed strictly as an option for compatible SPL devices. If you are not a technician or do not have sufficient experience with electronic repairs or modifications, we highly recommend that you ask a technician or your SPL dealer for assistance.

- Before installing the module, discharge any static electricity by deactivating the ground lift switch on the rear panel of the respective SPL device and touching the unit's casing.
- Disconnect the power cable as well as any other cables from the SPL unit.
- Handle the converter module with care, avoiding contact with the components. Hold the module by the panel or the edges of the circuit board only. Avoid any force or pressure when connecting the module to the device.

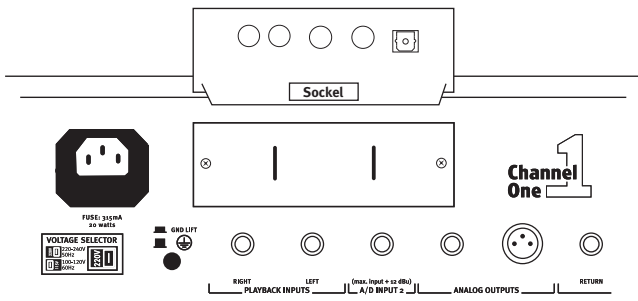
### Adaptor Plate

In some cases the module must be attached to the adaptor plate using the included M3 screws, washers and nuts before it can be mounted in the rear-panel option slot on an SPL device.

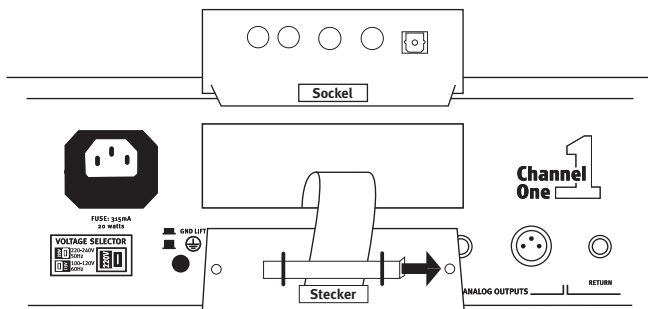


## Installation

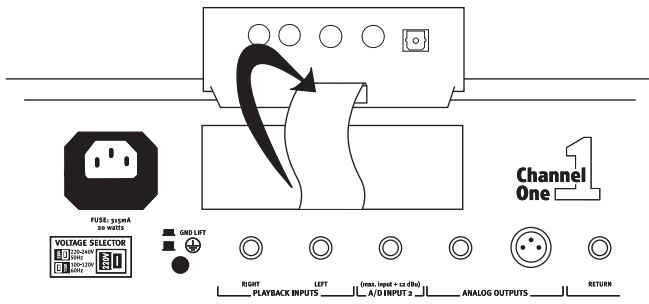
**Step 1:** Place the converter module on the top of the device as illustrated. Remove the screws and then the cover of the option slot on the device's rear panel.



**Step 2:** Remove the strap holding the cable from the inside of the slot cover. You may have to (carefully) cut through the silicone drop.

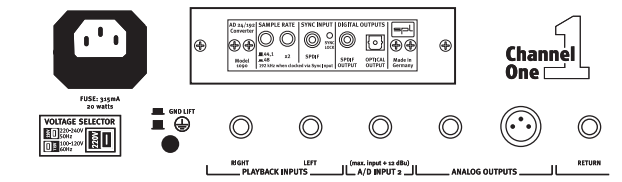


**Step 3:** Carefully and without twisting it, plug the cable from the device into the slot on the converter module. The plug only fits in one way into the slot.



**Step 4:** Without turning it, insert the module into the device (circuit board upwards) and fasten it using the screws from the optional slot cover.

Your new converter module is now ready for operation.



## Connections & Operation

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### SYNC INPUT

The SYNC input allows you to feed an external signal into the converter to control the sample rate. Please note that it is not an audio signal input – an AD converter cannot be used for DA conversions.

Connect an S/P-DIF output from your master source (sound card, interface) to the SYNC INPUT. The sync signal is always present, also if no audio signal is present at the S/P-DIF output.

The 1090 is not equipped to accept Word Clock for synchronization.

If a valid signal is present, the converter automatically conforms to the sample rate received at the SYNC input. A yellow LED illuminates to display a valid sync signal. The internal oscillators are automatically disabled when an external clock signal is present to prevent interference.

If the sync signal is no longer present (e.g. in the case of a dropout), the converter automatically reverts to the sample rate that was previously selected.

### Sample Rate Selection

The AD Converter Module 1090 allows you to select one of the following internal sample rates: 44.1, 48, 88.2 and 96 kHz.

The “44.1/48” button serves to choose between 44.1 and 48 kHz (not actuated: 44.1 kHz; actuated: 48 kHz). The “x2” button doubles one of the sample rates that were selected with the “44.1/48” button – this way you can select 88.2 or 96 kHz respectively.

Other sample rates (32, 176,4 and 192 kHz) can only be used via external sync signals (see above, SYNC INPUT).



### **Double S/P-DIF output: RCA and optical**

The converted signal is routed to both the RCA and optical output. Both outputs can be used simultaneously.

The digital signal is transferred in professional S/P-DIF format. If the receiving device does not connect properly with the AD converter module 1090, check if the receiving device supports professional format (some consumer units for example do not).

### **Additional input with single-channel devices**

If the AD Converter Module 1090 is installed in a single-channel SPL device such as the GainStation 1, Frontliner, ChannelOne or TrackOne, the second channel of the stereo converter can be used via the additional analog AD converter input on the device's rear panel. This allows you to route two preamps or channel strips through one converter, or route any other single-channel analog signal to the converter's second channel. For additional information please see the manual for the SPL device you are upgrading.

## Technical Specifications

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Internal sample rates:	44.1, 48, 88.2, 96 kHz
External sample rates:	32 kHz, 176,4 kHz and 192 kHz
Dynamic range:	112 dB (A-weighted)
THD+N (@-1 dBFS/1 kHz):	0,0007%
Frequency response (48 kHz):	10 Hz-22kHz, $\pm 0.2$ dB
Jitter (average; 700 Hz-100 kHz):	$< 300$ ps
Stop band attenuation:	-105 dB @48 kHz; -102 dB @96 kHz
0 dBFS:	= +15 dBu
Power consumption +15 V:	max. 115 mA
Power consumption -15 V:	max. 17 mA
Dimensions (W x H x D):	100 x 27 x 76 mm (3.94 x 1.06 x 3 in.)
Weight:	68 g (2.39 oz.)

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