SPECTRUM
SYSTEMENTWICKLUNG MICROELECTRONIC GMBH

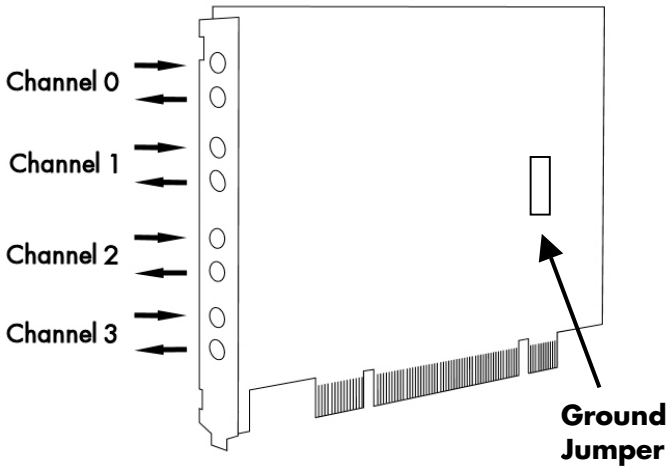
Option Output Amplifier for the MI.6xxx Series

- **±10 V output voltage**
- **1, 2 and 4 channel version**
- **30 MHz bandwidth**

General

The amplifier option adds ±10 V output level to existing arbitrary waveform generators. The additional card is available with 1, 2 or 4 channels.
The amplifier modules are able to enhance the output levels of the existing arbitrary waveform generators of the 60xx and 61xx series from ±3 V to ±10 V. The amplifiers are available as 1, 2 or 4 channel version. Due to the high bandwidth of 30 MHz the options match all versions of the fast arbitrary waveform generators.

Placement



Technical data

Channels	1, 2 or 4	
Bandwidth	≥ 30 MHz	
Max. Input Voltage	±3 V	
Max. Output Voltage	±10 V	(at high Impedance)
	±5 V	(into 50 Ohm)
Analog ground to PC system ground impedance	10 kOhm, when ground jumper is unplugged, 0 Ohm, when jumper is plugged	
Output Impedance	50 Ohm	
Gain Error	≤ ±1 %	
Offset Error	≤ ±50 mV	
Power consumption	max. 2.5 A @ +5 V	(1 and 2 channel version)
	max. 5.0 A @ +5 V	(4 channel version)

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Order Information

Order No	Description
MI.6xxx-1 Amp	Option ±10 V output amplifier with 1 channel incl. connection cable
MI.6xxx-2 Amp	Option ±10 V output amplifier with 2 channel incl. connection cables
MI.6xxx-4 Amp	Option ±10 V output amplifier with 4 channel incl. connection cables

Avoiding ground problems

The analog ground of the amplifier card is completely isolated from the computers ground. Under normal circumstances and in usual computers this is the best solution to avoid unwanted ground loops. If for any reasons you appear to have problems like oscillation on of the outputs, please try to plug the "ground connect" jumper first (see placement drawing for the jumpers position).

Software

Installed Feature

The SPC_PCIFEATURE register informs you if the additional calibration settings are available on the generator board.

Register	Value	Direction	Description
SPC_PCIFEATURE	2120	r	PCI feature register. Holds the installed features and options as a bitfield.
PCIBIT_AMPLIFIER	16384	Is set if the additional calibration settings are available	

Amplifier Mode

In order to compensate the offset and gain errors of the output amplifier, an additional set of calibration settings is stored in the generator board.
To select the proper set of settings, the driver has to be told whether the generator board is used with or without the output amplifier. This selection has to be done with the SPC_AMP_MODE register, as described in the table below.

Register	Value	Direction	Description
SPC_AMP_MODE	207000	r/w	„0“: without output amplifier, „1“: with output amplifier

Independent of the amplifier mode the voltage levels for amplitude and offset always relate to the output voltage of the generator card. For example to generate an output amplitude of ±10 V the SPC_AMPx register has to be written with the value 3000, where x stands for the desired analog output channel.