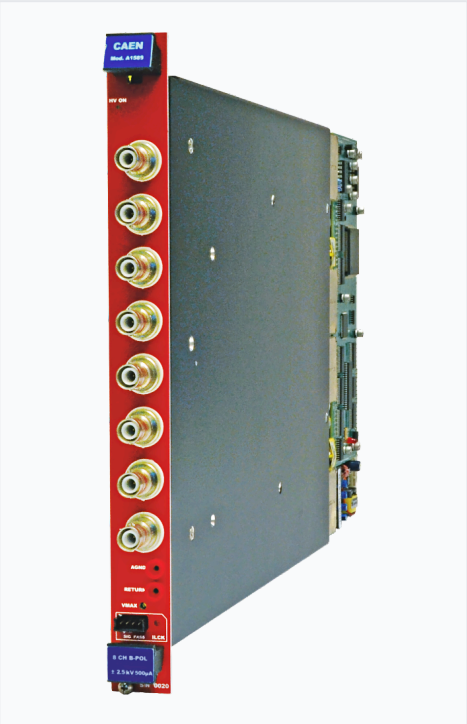
A1589

8 Channel ± 2.5 kV/500 µA 4 Quadrant Bipolar Board

The CAEN A1589 is an 8-channel bipolar high-voltage board for the SY1527, SY2527, SY4527 and SY5527 Universal Multichannel Power Supply Systems. Its independent differential channels provide ±2.5 kV through SHV coaxial connectors, with a common floating return insulated from crate earth up to ±50 V. Four-quadrant operation supports sourcing or sinking current. Voltage stability is within 10 mVpp with 100 mV setting resolution; ramp rates are selectable from 1 ÷ 500 V/s. Each channel offers 0 ÷ 15 mA current limiting in 250 nA steps, over/undervoltage warnings, overcurrent trip, VMAX protection and global interlock control.



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Tools for Discovery

Overview

Product Highlights

- 8 independently controllable High Voltage channels
- SHV coaxial connector
- Low ripple
- Under/over-voltage alert, overcurrent and max. voltage protection
- Software Tool for easy channel management
- Four-quadrant bipolar channels
- Common floating return shared by all channels
- Excellent long-term output stability
- Interlock logic for unit enable

Product Description

The CAEN **Mod.A1589** board contains 8 independent channels providing high-voltage through SHV connectors; it is compatible with the CAEN Universal Multichannel Power Supply System (SY1527, SY2527, SY4527, SY5527).

The A1589 is a single-width (5 TE) board that delivers its 8 HV outputs through 8 SHV coaxial connectors, one per channel. All outputs share a common floating return, insulated from the crate earth up to ±50 V. Consult our connectors reference page for technical information.

All channels are differential and can operate in the so called four-quadrant regimes supplying or operating as resistive load. It can provide, with an excellent long term output stability. It ensures a voltage stability within 10 mVpp, with 100 mV setting resolution. Moreover, the channels share a common floating return, which allows on-detector grounding reducing the noise level; the floating return is insulated from the crate earth up to ±50 V (with a 65V hardware limit). The board is provided with both current and voltage protections. The HV Ramp-up and Ramp-down rates may be selected independently for each channel in the 1 ÷ 500 V/s range (1 V/s step).

Safety features allows the module to perform as a current generator and includes:

Channels	can be enabled or disabled through the Global Interlock logic.
Overvoltage and Undervoltage warning	when the output voltage differs from the programmed value. For each channel, it is also possible to set an output current limit in the 0 ÷ 15 mA range, in 250 nA steps.
Overcurrent detection	when a channel attempts to exceed the programmed current limit, it signalled to be in “overcurrent” and enter in a TRIP status. The output voltage is varied to keep the current below the programmed limit for a programmable TRIP time, then the channel is switched off. If TRIP is set to “constant current mode”, the channel behaves like a current generator.
Hardware VMAX	maximum output voltage can be set via front panel potentiometer, at the same common value for all the board channels. VMAX value can be read out via software.

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Technical Specifications

No. of Channels	8 (Common Floating Return)
Polarity	Four-quadrant bipolar
Max. Output Current	500 µA
Voltage Set Resolution	100 mV
Voltage Monitor Resolution	100 mV
Current Set Resolution	100 nA
Current Monitor Resolution	100 nA
Ramp Up / Down	1 ÷ 500 Volt/sec, 1 Volt/sec step
VMAX hardware	2.5 kV
VMAX hardware accuracy	± 2% of FSR
VMAX software	2.5 kV
VMAX software Resolution	1 V
Ripple	< 10 mVpp (Typical; common mode; 10 Hz ÷ 20 MHz range)
Voltage Set vs. Output Voltage Accuracy	±0.02% of setting ± 0.03% of Max Output Voltage
Voltage Monitor vs. Output Voltage Accuracy	±0.02% of setting ± 0.03% of Max Output Voltage
Current Monitor vs. Output Current Accuracy	±0.02% of reading ±50 nA
Current Set vs. Output Current Accuracy	±0.02% of setting ±50 nA
Max Power per Channel	1.25 W
Long Term Stability (24h)	< 50 ppm * FSR
Vout / Temperature coefficient	< 50 ppm /°C

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Ordering Information

ORDERING CODE	DESCRIPTION
WA1589XAAAAA	A1589 – SYx527 4 Quadrant Bipolar 8 HV Ch's ±2.5kV/500µA – SHV Conn

1. Ordering codes and descriptions are reproduced from the product record. Availability is confirmed at order entry.

Accessories

HV CABLES — High Voltage Cable Assemblies

Related Products

SY4527 — Universal Multichannel Power Supply System / 19"wide, 8U-high (16 slot)

SY5527 — Universal Multichannel Power Supply System / 19"wide, 4U-high (6 slot)

SY4527LC — Universal Multichannel Power Supply System Low Cost / 19"wide, 8U-high (10 slot)

SY5527LC — Universal Multichannel Power Supply System Low Cost / 19"wide, 4U-high (4 slot)

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