A1592

8 Channel 9 kV/200-20 µA Individual Floating Channel Dual Range Board

8	9000 V	200 / 20 µA selectable
No. of Channels	Max Output V	Max Output I

A1592 is an 8-channel high-voltage board with independently controllable, individually floating outputs rated from 0 ÷ 9000 V. Each channel provides dual-range current operation: up to 200 µA with 1 nA monitor resolution or up to 20 µA with 50 pA monitor resolution. Positive or negative polarity versions are available, with CPE HV connectors and low ripple. Protection and monitoring include under-/over-voltage alerts, overcurrent and maximum-voltage protection, plus interlock logic for unit enable. It is intended for high-voltage biasing of particle detectors.

CAEN
Tools for Discovery

Overview

Product Highlights

- 8 independently controllable High Voltage channels
- Dual range current:
  - High Power: 200 µA (1 nA monitor resolution)
  - High resolution: 20 µA (50 pA monitor resolution)
- CPE HV connectors
- Low ripple
- Interlock logic for unit enable
- Output voltage:0 ÷ 9000 V
- Available with Negative / Positive Polarity
- Floating Type: Individual Floating
- Under/over-voltage alert, overcurrent and max. voltage protection
- Software Tools for easy channel management

Product Description

AT A GLANCE	
No. of Channels	**8**
Max Output V	**9000 V**
Max Output I	**200 / 20 µA selectable**
Vset/Vmon Resolution	**200 mV**
Iset/Imon Resolution	**Iset: 4 nA Imon: 1 nA / 50 pA**
Max. Ramp Up/Down Rate	**500 V/s**

The CAEN Mod A1524 is a double width board (10 TE wide) that houses 6 independent high voltage channels.

The channels share a Common Floating Return, which is insulated from the chassis/crate ground. This feature may help to minimize problems of ground-loops. The board is available with positive or negative output polarity Channels are delivered with **CPE HV** connectors. Consult our connectors reference page for technical information.

The output voltage range is **0 ÷ 12000 V**, with **1000 mV** monitor resolution. The maximum output current is **0.1 mA**, with **10 nA** monitor resolution.

Independently programmable for each channel:

Output voltage:	0 ÷ 12000 V	Step: 1000 V
Current limit (Iset):	0 ÷ 0.1 mA	Step: 10 nA
V Ramp up/down:	1 ÷ 500 V/s	Step: 1 V/sec
TRIP parameter:	0 ÷ 999.9 s; 1000 s = Infinite	Step: 0.1 s

Safety features include:

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- **Channels:** can be enabled or disabled through the Global Interlock logic.
- **Overvoltage and Undervoltage warning:** when the output voltage differs from the programmed value.
- **Overcurrent detection:** when a channel attempts to exceed the programmed current limit, it signals an “overcurrent” condition and enters TRIP status. The output voltage is adjusted to keep the current below the programmed limit for a programmable TRIP time, after which the channel is switched off. If TRIP is set to “constant current mode”, the channel behaves as a current source.
- **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.

To create cables compatible with the CPE HV connectors on this board, CAEN provides the mate cable connector (Model A997).

CAEN provides a complete software range to control, monitor and configure its Power Supply products.

- **GECO2020 GEneral COntrol Software**
- **CAEN HV Wrapper Library**
- **HiVoCS web tool**
- **OPC Server for CAEN Power Supplies**
- **EPICS Service**

These tools, which support the most used operating systems, ranging from low level libraries (**CAEN HV Wrapper Library**), to be used as a source for customer designed software, to the WEB interface (**HIVOCS**) available on each mainframe, up to the all-inclusive Control Software (**GECO2020**) with user friendly graphical interfaces, to meet any application needs.

Advanced control via OPC Server (**CAEN OPC Server**) and EPICS (**EPICS IOC**) is supported, to easily include CAEN power supplies within existing setups featuring such standards.

- **All tools are available for free download**.

Universal Multichannel Power Supply Systems (Mainframes)

Universal Multichannel Power Supply Systems, or Mainframes, are modular systems designed to house and control High Voltage (HV) and Low Voltage (LV) boards, providing power for particle detectors and their associated electronics in standard 19” racks. CAEN offers four mainframe versions:

- **SY4527:** A large experimental system. This 19” wide / 8U high mainframe can house **up to 16 HV/LV boards**. It offers a power output from 600W up to a maximum of **4200W**, depending on installed Power Supply Units and display type. Local control is optionally available via a 10.4” or 5.7” LCD Touchscreen.
- **SY5527:** A more compact laboratory version. This 19” wide / 4U high mainframe can house **up to 6 HV/LV boards**. Its power output ranges from 600W up to a maximum of **1800W**, depending on Power Supply Units. Optional local control is available via a 5.7” LCD Touchscreen.

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Overview (continued)

- **SY4527LC:** A cost-effective alternative with a shorter depth (~20cm compared to standard SYx527). This 19” wide / 8U high mainframe houses **up to 10 boards** and includes a **600W power supply**. It does not include an LCD display. It is fully compatible with SY4527 and SY5527 boards.
- **SY5527LC:** Also a cost-effective, shorter depth alternative (~20cm compared to standard SYx527). This 19” wide / 4U high mainframe houses **up to 4 boards** and includes a **400W power supply**. It does not include an LCD display. It is fully compatible with SY4527 and SY5527 boards.

All systems offer modular design for simplified upgrades and maintenance and can be controlled remotely via Ethernet.

Technical Specifications

No. of Channels	8 Individual Floating (±50V isolation)
Output Voltage	10÷9 kV
Polarity	Positive, Negative depending on purchased version
Max. Output Current	Dual range: • High Power: 200 µA • High Resolution: 20 µA
Voltage Set Resolution	200 mV
Voltage Monitor Resolution	200 mV
Current Set Resolution	4 nA
Current Monitor Resolution	• High Power: 1 nA • High Resolution: 50 pA
VMAX hardware	0÷9 kV common for all the board channels
VMAX hardware accuracy	± 2% of FSR
VMAX software	0÷9 kV settable for each channel
VMAX software resolution	1 V
Ramp Up/Down	1÷500 Volt/sec, 1 Volt/sec step
Maximum output power	1.8 W per channel
Voltage Ripple	• 20 ÷ 1000 Hz: Typ <5 mVpp; Max <10 mVpp • 1 ÷ 20000 kHz: Typ <3 mVpp; Max <5 mVpp
Voltage Monitor vs. Output Voltage Accuracy	± 0.3% ± 0.5 V typical
Voltage Set vs. Output Voltage Accuracy	± 0.3% ± 0.5 V typical
Current Monitor vs. Output Current Accuracy	• High Power: ± 1% ± 20 nA typical • High Resolution: ± 1% ± 2 nA typical
Current Set vs. Output Current Accuracy	• High Power: ± 1% ± 20 nA typical • High Resolution: ± 1% ± 2 nA typical

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Ordering Information

ORDERING CODE	DESCRIPTION
WA1592XNAAAA	A1592N – individual floating 8 ch -9 kV/0.2 mA board
WA1592XPAAAA	A1592P – individual floating 8 ch +9 kV/0.2 mA board

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

Accessories

A997 — HV coaxial cable connector for A1526

HV CABLES — High Voltage Cable Assemblies

Related Products

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

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

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

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

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