

A1580H

8 Channel 8 kV/20 μ A Common Floating Return Board



Features



- 8 independently controllable High Voltage channels
- Output voltage: 0 ÷ 8000 V
- Maximum output current: 20 μ A
- Available with Negative / Positive / Mixed Polarity
- SHV connectors
- Channels with individual enable
- **Floating Type:** Common Floating Return
- Low ripple
- Under/over-voltage alert, overcurrent and max. voltage protection
- Interlock logic for unit enable
- Software Tools for easy channel management

Description

A1580H is a single width board (5 TE wide) that houses 8 independent high voltage channels equipped with **individual hardware enable**.

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, negative or mixed output polarity. Channels are delivered with **SHV** connectors. Consult our **connectors reference page** for technical information.

The output voltage range is **0 ÷ 8000 V**, with **10 mV** monitor resolution. The maximum output current is **20 µA**, with **50 pA** monitor resolution.

Independently programmable for each channel:

Output voltage:	0 ÷ 8000 V	Step: 200 mV
Current limit (Iset):	0 ÷ 20 µA	Step: 500 pA
V Ramp up/down:	1 ÷ 500 V/s	Step: 1 V/s
TRIP parameter:	0 ÷ 999.9 s; 1000 s = Infinite	Step: 0.1 s

Safety features include:

- **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.
- **Remote Enable/Disable:** front panel independent contacts available for all channels.

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.
- **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 (Common Floating Return)

Output Voltage

0÷8 kV

Polarity

Positive, Negative or Mixed depending on purchased version

Max. Output Current

20 μ A

Voltage Set Resolution

200 mV

Voltage Monitor Resolution

10 mV

Current Set Resolution

500 pA

Current Monitor Resolution

50 pA

VMAX hardware

0÷8 kV common for all the board channels

VMAX hardware accuracy

\pm 2% of FSR

VMAX software

0÷8 kV settable for each channel

VMAX software resolution

1 V

Ramp Up/Down

1÷500 Volt/sec, 1 Volt/sec step

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

$\pm 0.3\% \pm 0.5 \text{ V}$

From 1% to 100% of Full Scale Range (A1560H; AG560H), From 10% to 90% of Full Scale Range (A1580H; AG580H)

Voltage Set vs. Output Voltage Accuracy

$\pm 0.3\% \pm 2 \text{ V}$

During operation in Overcurrent or when VMAX Hardware is reached (and/or exceeded), VMON values have to be assumed as "indication"; possible monitor drifts are caused by the different regulation mode.

Current Monitor vs. Output Current Accuracy

$\pm 2\% \pm 1 \text{ nA}$

During operation in Overcurrent or when VMAX Hardware is reached (and/or exceeded), VMON values have to be assumed as "indication"; possible monitor drifts are caused by the different regulation mode.

Current Set vs. Current Monitor Accuracy

$\pm 2\% \pm 10 \text{ nA}$

During operation in Overcurrent or when VMAX Hardware is reached (and/or exceeded), VMON values have to be assumed as "indication"; possible monitor drifts are caused by the different regulation mode.

Ordering Options

Code	Description	
WA1580HDMEAA	A1580HDME - SYx527 H.V. (4ch +8KV 20 μ A, 4ch -8KV 20 μ A) (50pA res) Ind EN - SHV Conn. comm floating	RoHS
WA1580HDNEAA	A1580HDNE - SYx527 H.V. -8 KV 20 μ A (50pA res) Individual Enable - SHV Conn. common floating (8 ch)	RoHS
WA1580HDPEAA	A1580HDPE - SYx527 H.V. +8 KV 20 μ A (50pA res) Individual Enable - SHV Conn. common floating (8 ch)	RoHS

Accessories

HV CABLES



High Voltage Cable Assemblies

A996



52 pin cable connector

A995



Insertion/extraction tool for A996

Related Products

SY5527LC



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

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)



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