

A7042

48 Channel 500 V / 500 μ A Common Floating Return Boards



Features



- 48 independently controllable High Voltage channels
- Output voltage: 0 ÷ 500 V
- Maximum output current: 500 µA
- Available with Negative / Positive Polarity
- Radial 52 / DB37 connectors
- **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

The CAEN Mod A7042 is a single width board (5 TE wide) that houses 48 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 **Radiall 52 / DB37** connectors. Consult our **connectors reference page** for technical information.

The output voltage range is **0 ÷ 500 V**, with **1 mV** monitor resolution. The maximum output current is **500 µA**, with **1 nA** monitor resolution.

Independently programmable for each channel:

Output voltage:	0 ÷ 500 V	Step: 10 V
Current limit (Iset):	0 ÷ 500 µA	Step: 10 nA
V Ramp up/down:	1 ÷ 100 V/s	Step: 1 V/sec
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.
- **Safety Board Interlock:** this protection allows to disable the primary HV generation when the HV outputs are not connected to their loads.

To create cables compatible with versions equipped with Radiall 52 connectors, CAEN provides two accessories: the Mate cable connector (Model A996) and the corresponding insertion/extraction tool (Model A995).

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

48 (Common Floating Return)

Output Voltage

0÷500 V

Polarity

Positive / Negative depending on purchased version

Max. Output Current

500 μ A

Voltage Set Resolution

10 mV

Voltage Monitor Resolution

1 mV

Current Set Resolution

10 nA

Current Monitor Resolution

1 nA

VMAX hardware

0÷500V common for all the board channels

VMAX hardware resolution

1 V

VMAX hardware accuracy

\pm 1% of FSR

VMAX software

0÷500V settable for each channel

VMAX software resolution

1 V

IMAX hardware

0÷500 μ A common for all the board channels

IMAX hardware resolution

1 μ A

IMAX hardware accuracy

$\pm 1\%$ of FSR

Ramp Up/Down

1÷100 Volt/sec, 1 Volt/sec step settable for each channel

Voltage Ripple

< 5 mVpp typical

Voltage Monitor vs. Output Voltage Accuracy

typical: $\pm 0.3\% \pm 50$ mV max: $\pm 0.3\% \pm 200$ mV

Voltage Set vs. Output Voltage Accuracy

typical: $\pm 0.3\% \pm 50$ mV max: $\pm 0.3\% \pm 200$ mV

Current Monitor vs. Output Current Accuracy

typical: $\pm 1\% \pm 10$ nA max: $\pm 1\% \pm 100$ nA

Maximum output power

75 W

Ordering Options

Code	Description	
WA7042ANXAA4	A7042AN - SYx527 H.V. channels -500V/500 μ A - DB37 Conn. common floating (48 ch)	RoHS
WA7042APXAA4	A7042AP - SYx527 H.V. channels +500V/500 μ A - DB37 Conn. common floating (48 ch)	RoHS

Accessories

HV CABLES



High Voltage Cable Assemblies

A995



Insertion/extraction tool for A996

R648



48 Channel Radiall to SHV connector Adapter (Max: 3 kV - 19' Rack)

A648



36-48 Channel Multipin Radiall to SHV connector Adapter (Max: 3 kV - Desktop)

A996



52 pin cable connector

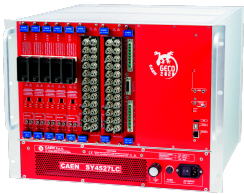
Related Products

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)

SY5527LC



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

SY5527



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



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