

A7040

48 Channel 100V / 1mA Common Floating Return Board



Features



- 48 independently controllable High Voltage channels
- Output voltage: 0 ÷ 100 V
- Maximum output current: 1 mA
- Available with Negative / Positive Polarity
- 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 A7040 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 **DB37** connectors. Consult our **connectors reference page** for technical information.

The output voltage range is **0 ÷ 100 V**, with **0.2 mV** monitor resolution. The maximum output current is **1 mA**, with **2 nA** monitor resolution.

Independently programmable for each channel:

Output voltage:	0 ÷ 100 V	Step: 2 V
Current limit (Iset):	0 ÷ 1 mA	Step: 20 nA
V Ramp up/down:	1 ÷ 50 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.

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

Output Connector

DB37

Polarity

Pos. / Neg. depending on purchased version; common floating RTN $\pm 30V$

Output Voltage

0 ÷ 100 V

Max. Output Current

1 mA

VSet Resolution

2 mV

VMon Resolution

0.2 mV

Current Set Resolution

20 nA

Current Monitor Resolution

2 nA

IMAX hardware

0÷1 mA

IMAX hardware resolution

1 μA

IMAX hardware accuracy

< 2% of FSR

VMAX hardware

0 ÷ 100 V common for all channels

VMAX hardware resolution

1 V

VMAX hardware accuracy

< $\pm 1\%$ of FSR

VMAX software

0 ÷ 100 V settable for each channel

Ramp Up / Ramp Down

Max. time an "overcurrent" is allowed to last (seconds); common to all channels. A channel in "overcurrent" works as a current generator; output voltage varies in order to keep output current lower than the programmed value. "Overcurrent" lasting more than set value, causes the channel to "trip". Output voltage will drop to zero either at Rampdown rate or at the fastest available rate, depending on Power Down setting; in both cases the channel is put in the off state. *If trip= INFINITE, "overcurrent" lasts indefinitely. TRIP range: 0 ÷ 999.9 s; 1000 s = Infinite. Step = 0.1 s*

Voltage Ripple

- 20 ÷ 1000 Hz <3 mVpp typical; 5 mVpp max
- 1 ÷ 20000 kHz <3 mVpp typical; 5 mVpp max

Accuracy

VMon vs. VOut

- typical: $\pm 0.1\% \pm 10 \text{ mV}$
- max: $\pm 0.1\% \pm 50 \text{ mV}$

IMon vs. IOut

- typical: $\pm 0.5\% \pm 10 \text{ nA}$
- max: $\pm 0.1\% \pm 50 \text{ mV}$

VSet vs. VOut

- typical: $\pm 0.1\% \pm 10 \text{ mV}$
- max: $\pm 0.1\% \pm 50 \text{ mV}$

IOut vs. ISet

- typical: $\pm 0.5\% \pm 100 \text{ nA}$
- max: $\pm 0.5\% \pm 1 \mu\text{A}$

Channel maximum output power

0.1 W

Max power consumption

60 W

Load regulation

<0.01% (VSet = 90V, IOut 90 μA ÷ 900 μA)

Operating temperature

0 ÷ 45°C

Storage temperature

-10 ÷ 70°C

Humidity

0 - 80% non-condensing

Altitude

2000m

Safety Standard- ROHS - Halogen free

ROHS

MTBF

Base: 120000 hours; Channel: 2400000 hours; TOT: 35000 hours

Ordering Options

Code	Description	
WA7040ANXAA4	A7040AN - SYx527 H.V. channels -100V/1mA - DB37 Conn. common floating (48 ch)	RoHS
WA7040APXAA4	A7040AP - SYx527 H.V. channels +100V/1mA - DB37 Conn. common floating (48 ch)	RoHS

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)

Gallery



This document, or parts thereof, may not be reproduced in any form or by any means without written permission from Caen S.p.A. Although every effort has been made to ensure the accuracy of information presented in this catalog, Caen S.p.A reserves the right to modify its products specifications without giving any notice; for up to date information please visit www.caen.it © Caen S.p.A - 2024

CAEN S.p.A.

Via Vetraia 11
55049 - Viareggio
Italy

Phone +39.0584.388.398

Fax +39.0584.388.959

info@caen.it

www.caen.it

CAEN GmbH

Brunnenweg 9
64331 Weiterstadt, Germany

Phone +49 (0)212.254.4077

Mobile +49 (0)151.16.548.484

info@caen-de.com

www.caen-de.com

CAEN Technologies, Inc.

1 Edgewater Street - Suite 101
Staten Island, NY 10305
USA

Phone +1.718.981.0401

Fax +1.718.556.9185

info@caentechnologies.com

www.caentechnologies.com

CAENspa India Private Limited

B205, BLDG42, B Wing,
Azad Nagar Sangam CHS,
Mhada Layout, Azad Nagar, Andheri West
Mumbai, Maharashtra 400053, India

info@caen-india.in

www.caen-india.in

