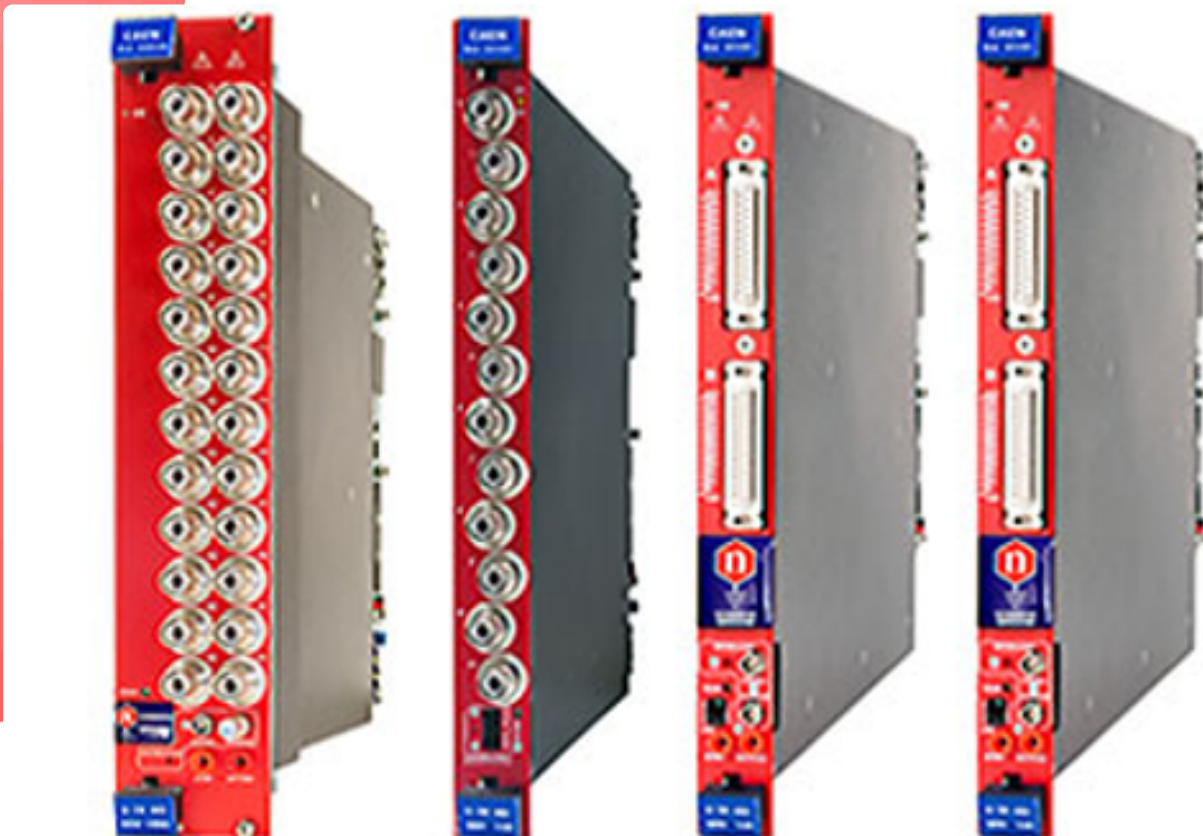
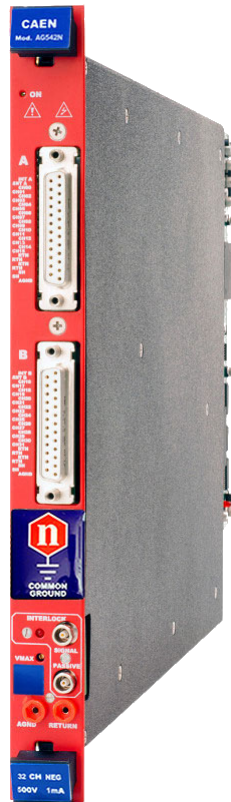


## AG542

### 12/24/32 Channel 500 V/1 mA Common Ground Boards



## Features



- 12 / 24 / 32 independently controllable High Voltage channels
- Output voltage: 0 ÷ 500 V
- Maximum output current: 1 mA
- Available with Negative / Positive / Mixed Polarity
- SHV / DB25 connectors
- **Floating Type:** Common Ground
- Low ripple
- Under/over-voltage alert, overcurrent and max. voltage protection
- Interlock logic for unit enable
- Software Tools for easy channel management

## Description

The power supplies of the AG542 Family house 12 / 24 / 32 independent high voltage channels.

The channels share a Common Ground, with all output returns hardwired to the chassis/crate ground. The board is available with positive, negative or mixed output polarity. Channels are delivered with **SHV / DB25** 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 **1 mA**, with **1 nA** monitor resolution.

Independently programmable for each channel:

<b>Output voltage:</b>	0 ÷ 500 V	Step: 10 V
<b>Current limit (Iset):</b>	0 ÷ 1 mA	Step: 10 nA
<b>V Ramp up/down:</b>	1 ÷ 100 V/s	Step: 1 V/sec
<b>TRIP parameter:</b>	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

### No. of Channels

12 / 24 / 32 (Common Ground)

### Output Voltage

0÷500 V

### Polarity

Positive / Negative / Mixed depending on purchased version

### Max. Output Current

1 mA

### Voltage Set Resolution

10 mV

### Voltage Monitor Resolution

1 mV

### Current Set Resolution

20 nA

### Current Monitor Resolution

1 nA

### VMAX hardware

0÷500 V common for all the board channels

### VMAX hardware accuracy

1 V

### VMAX software

0÷500 V settable for each channel

### VMAX software resolution

1 V

### Ramp Up/Down

1÷100 Volt/sec, 1 Volt/sec step

### Voltage Ripple

- < 5mVpp (Max)
- < 3mVpp (Typ)

### Vmon vs. Vout accuracy

$\pm 0.02\% \pm 50\text{ mV}$

### Vset Vs. Vout accuracy

$\pm 0.02\% \pm 50\text{ mV}$

### Imon vs. Iout accuracy

$\pm 2\% \pm 1\ \mu\text{A}$

### Iset vs. Iout accuracy

$\pm 2\% \pm 1\ \mu\text{A}$

### Maximum output power

0.5 W per channel

### TRIP parameter

TRIP range: 0 ÷ 999 s; 1000 s = Infinite, current generator mode. Step = 1 s

### Power consumption

- AG542: 32 W @ full power
- AG542L, AG542S: 24 W @ full power
- AG542D: 12 W @ full power

## Ordering Options

Code	Description	
WAG542DXAAAA	AG542DN - SYx527 H.V. channel -500 V 1 mA - SHV Conn. common ground (12 ch)	RoHS
WAG542DXMAAA	AG542DM - SYx527 H.V. channel (6ch +500V 1mA, 6ch -500V 1mA) - SHV common ground	RoHS
WAG542DXPAAA	AG542DP - SYx527 H.V. channel +500 V 1 mA - SHV Conn. common ground (12 ch)	RoHS
WAG542LXAAAA	AG542LN - SYx527 H.V. channel -500 V 1 mA - Multipin Conn. common ground (24 ch)	RoHS
WAG542LXPAAA	AG542LP - SYx527 H.V. channel +500 V 1 mA - Multipin Conn. common ground (24 ch)	RoHS
WAG542SXAAAA	AG542SN - SYx527 H.V. channel -500 V 1 mA - SHV Conn. common ground (24 ch 10TE wide)	RoHS
WAG542SXMAAA	AG542SM - SYx527 H.V. channel (12ch +500V 1mA, 12ch -500V 1mA) - SHV common ground (10TE wide)	RoHS
WAG542SXPAAA	AG542SP - SYx527 H.V. channel +500 V 1 mA - SHV Conn. common ground (24 ch 10TE wide)	RoHS
WAG542XAAAAA	AG542N - SYx527 H.V. channel -500 V 1 mA - Multipin Conn. common ground (32 ch)	RoHS
WAG542XPAAAA	AG542P - SYx527 H.V. channel +500 V 1 mA - Multipin Conn. common ground (32 ch)	RoHS

## Accessories

### HV CABLES



High Voltage Cable Assemblies

---

## Related Products

### **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)

---

### **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)

---

# 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](http://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**

