A7435

12/24 Channel, 3.5 kV, 3.5/0,35 mA (9W) Common Floating Return Dual Range Boards

12 / 24	3500 V	3.5 / 0.35 mA selectable
No. of Channels	Max Output V	Max Output I

he power supplies of the A7435 Family house 12 / 24 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 / REDEL 51 / SHV connectors. Consult our connectors reference page for technical information.

The output voltage range is **0 ÷ 3500 V**, with **5 mV** monitor resolution. The output channels offer **dual current ranges** (software selectable):

High Power:	0 ÷ 3 mA
I set resolution: 10 nA	
I mon resolution: 10 nA	
High Resolution:	0 ÷ 0.35 mA
I set resolution: 10 nA	
I mon resolution: 1 nA	

Independently programmable for each channel:

Output voltage:	0 ÷ 3500 V	Step: 5 V
Current limit (Iset):	0 ÷ 3.5 / 0.35 mA selectable	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

CAEN Tools for Discovery

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 signalled to be in “overcurrent” and enter in a TRIP status. The output voltage is varied to keep the current below the programmed limit for a programmable TRIP time, then the channel is switched off. If TRIP is set to “constant current mode”, the channel behaves like a current generator.
- **Hardware VMAX and IMAX** Maximum output voltage and maximum current value can be fixed, via front panel potentiometer, at the same common value for all the board channels. IMAX and VMAX values can be read out via software.
- **Safety Board Interlock** This protection disables the HV generation when the HV outputs are not connected to their loads (only for Multipin Connector versions).

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, spread 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 need.

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 CAEN Control Software 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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- **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.

Product Highlights

- 12 / 24 independently controllable High Voltage channels
- Dual range current:
  - High Power: 3 mA (10 nA monitor resolution)
  - High resolution: 0.35 mA (1 nA monitor resolution)
- Radiall 52 / REDEL 51 / SHV connectors
- Low ripple
- Interlock logic for unit enable
- Maximum output voltage: 3500 V
- Available with Negative / Positive Polarity
- Floating Type: Common Floating Return
- Under/over-voltage alert, overcurrent and max. voltage protection
- Software Tool for easy channel management

Technical Specifications

No. of Channels	12 or 24 (Common Floating Return)
Output Voltage	0÷3.5 kV
Polarity	Positive / Negative depending on purchased version
Max. Output Current	Dual range: • High Power: 3.5 mA • High Resolution: 350 µA
Voltage Set Resolution	5 mV
Voltage Monitor Resolution	5 mV
Current Set Resolution	10 nA
Current Monitor Resolution	High Power: 10 nA High Resolution: 1 nA
VMAX hardware	0÷3.5 kV common for all the board channels
VMAX hardware accuracy	± 1% of FSR
VMAX software	0÷3.5 kV settable for each channel
VMAX software resolution	1 V
IMAX hardware	0÷3.5 mA common for all the board channels
IMAX hardware accuracy	± 1% of FSR
Ramp Up/Down	1÷500 Volt/sec, 1 Volt/sec step settable for each channel
Voltage Ripple	10 ÷ 1000 Hz: < 7 mVpp (typ); < 15 mVpp (max) 1 ÷ 20000 kHz: <7 mVpp (typ); < 10 mVpp (max)
Voltage Monitor vs. Output Voltage Accuracy	±0.01% of reading ± 0.03% of Max Output Voltage
Voltage Set vs. Output Voltage Accuracy	±0.01% of setting ± 0.03% of Max Output Voltage

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Current Monitor vs. Output Current Accuracy	High Power: ± 0.02% ± 5 µA High Resolution: ± 0.02% ± 1 µA
Current Set vs. Output Current Accuracy	• High Power: ± 0.02% ± 5 µA • High Resolution: ± 0.02% ± 1 µA
Maximum output power	9 W per channel (software safety limit)
Consumption @ full power	24 channels (A7435, A7435S): 300 W 12 channels (A7435D): 155 W

Ordering Information

ORDERING CODE	DESCRIPTION
WA7435DNXAA1	A7435DN – SYx527 H.V. channels -3.5kV 3.5mA (9W) – SHV Conn. common floating (12 ch)
WA7435DPXAA1	A7435DP – SYx527 H.V. channels +3.5kV 3.5mA (9W) – SHV Conn. common floating (12 ch)
WA7435NXAAA2	A7435N – SYx527 H.V. channels -3.5kV 3.5mA (9W) – Multipin Conn. common floating (24 ch)
WA7435NXAAR2	A7435NR – SYx527 H.V. channels -3.5kV 3.5mA (9W) – Redel Conn. common floating (24 ch)
WA7435PXAAA2	A7435P – SYx527 H.V. channels +3.5kV 3.5mA (9W) – Multipin Conn. common floating (24 ch)
WA7435PXAAR2	A7435PR – SYx527 H.V. channels +3.5kV 3.5mA (9W) – Redel Conn. common floating (24 ch)
WA7435SNXAA2	A7435SN – SYx527 H.V. channels -3.5kV 3.5mA (9W) – SHV Conn. common floating (24 ch,10TE)
WA7435SPXAA2	A7435SP – SYx527 H.V. channels +3.5kV 3.5mA (9W) – SHV Conn. common floating (24 ch,10TE)

Accessories

A647 — 24 Channel Multipin Radiall to SHV connector Adapter (Max: 8 kV - Desktop)

A995 — Insertion/extraction tool for A996

A996 — 52 pin cable connector

HV CABLES — High Voltage Cable Assemblies

R647 — 24 Channel Multipin Radiall to SHV connector Adapter (Max: 8 kV - 19" Rack)

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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