HIVOLTA (DT1415ET)

8 Ch Reversible 1 kV/1 mA Desktop HV Power Supply High Accuracy Module (USB/Ethernet/T.screen)

The CAEN DT1415ET HiVolta is an 8-channel reversible desktop high-voltage power supply, AC powered at 110/220 V. Each independent floating channel provides up to 1 kV and 1 mA (0.6 W), with positive or negative polarity, 1 nA current-monitor resolution and 100 pA with x10 Imon-Zoom. SHV outputs and bridged returns support channel stacking up to 5 kV, with floating returns insulated up to 5 kV. Low ripple, programmable overcurrent/TRIP operation, VMAX protection, voltage alerts, interlock and individual channel kill support safe operation. Local control uses a 2.8″ color touchscreen; USB2.0 and Ethernet provide remote control.

Overview

Product Highlights

- 8 independent channels in a Desktop package (110/220V AC Powered)
- Floating Channels
- Floating return up to 5kV
- Low Ripple
- Interlock logic for board enable and Individual channel kill
- 2.8″ color touch screen display
- Software Tools for easy channel management
- 1 kV / 1 mA (0.6W) output range
- SHV coaxial output connectors
- Stacking channels capability: up to 5kV output
- Under/Over Voltage alert, overcurrent and max. voltage protection
- 1 nA Current monitor resolution (with x10 Imon-Zoom: 100 pA)
- Local and Remote control (USB2.0/Ethernet)

Product Description

The CAEN **Mod. DT1415ET (HiVolta)** provides **8** independent high voltage channels in a desktop package (110/220 V AC powered). Each channel delivers up to **1 kV** and **1 mA**, with a maximum output power of 0.6 W.

Each channel can be operated with either positive or negative polarity, independently of the others. The channels have independent floating returns, insulated from one another up to 5 kV (*full floating channels*). Each channel provides one connector for the positive output and two “bridged” connectors for the negative one, allowing two or more adjacent channels to be “stacked”. The HV outputs are delivered through Radiall R317580 SHV coaxial connectors; for further technical information, consult our connectors reference page.

The module can be controlled **locally**, through a **2.8″ color touchscreen LCD display**, or **remotely** via **USB** or **Ethernet**. A complete set of **software tools** is available to control the unit, and users can freely download low-level libraries, the LabVIEW driver and graphical application software.

The module also includes dedicated safety features that allow it to operate as a current generator. An overvoltage and undervoltage warning is issued when the output voltage differs from the programmed value by more than ±1% ±2 V of the set value. When a channel attempts to exceed its programmed current limit (Iset), it is flagged as being in “overcurrent” and enters TRIP status: the output current is adjusted to keep it 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 generator. A hardware VMAX limit can be set via a front panel potentiometer to the same common value for all channels of the board, and its value can be read out via software. Finally, a common safety board interlock logic enables or disables the channels, while individual input signals provide a kill function for each channel.

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Technical Specifications

Packaging	Desktop package (255 x 140 x 330 mm); Weight: ~5.2 kg
No. of Channels	8
Output Voltage	1 kV
Polarity	Floating 5 kV Max.
Output Current	1 mA Max.
Channel Power	0.6W
Voltage Set/Monitor Resolution	20 mV
Current Set Resolution	20 nA
Current Monitor Resolution	High Power: 1 nA High Resolution: 100 pA
Ramp Up/Down	1÷100 Volt/sec, 1 Volt/sec step, settable for each channel
Trip	Max. time an “overcurrent” is allowed to last (seconds). A channel in “overcurrent” works as a current generator; output voltage varies to keep the output current lower than the programmed value. “Overcurrent” lasting more than set value, causes the channel to “trip”. Output voltage will drop to zero at the Ramp-down rate; in this case 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
“Zero” current	Zero Current Detect channel parameter allows to sample the present IMon value; this value (IMonZero) can be then subtracted via the Zero Current Adjust parameter ENABLE, from the monitored current (IMon), to compensate the current offset; if ZCAdjust = Enabled, then the IMon value is compensated. After the IMonZero value is sampled, Zero Current Detect, returns to Off. Allowed IMonZero values are from 0 to full scale. If Zero Current Adjust is DISABLED, the IMonZero compensation is neglected.

Voltage Ripple

Differential mode:
- 0 ÷ 1000 Hz: Typical: <10 mVpp / Maximum: <15 mVpp
- 1 ÷ 20000 kHz: Typical: <5 mVpp / Maximum: <10 mVpp

Common Mode:
- Typical: <10 mVpp / Maximum: <15 mVpp

Voltage Monitor vs. Output Voltage Accuracy	±0.2% of VSet ± 0.2V from 10% to 100% f.s. ±0.2% of VSet ± 0.5V from 3% to 10% f.s.
Voltage Set vs. Output Voltage Accuracy	±0.2% of VSet ± 0.2V from 10% to 100% f.s. ±0.2% of VSet ± 0.5V from 3% to 10% f.s.
Iset vs Output current accuracy	±0.5% of ISet ± 0.5µA from 3% to 100% f.s.
Imon vs Output current accuracy	±0.5% ±5 nA ±50 ppm/°C with output current from 10% to 100% f.s. and constant voltage ±2% ±5 nA ±50 ppm/°C with output current from 1% to 10% f.s. and constant voltage
Power requirements	100-240 Vac; 50/60 Hz; 0.8A rms max; fuse: 2xT1A 6.3×32 250 Vac
Humidity range	0 ÷ 80% non condensing
Operating temperature	0 ÷ 45°C
Storage temperature	-10 ÷ 70°C

MTBF

28000 hours

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Technical Specifications (continued)

Temperature coefficient	±50 ppm/°C
Stability	< 150 mV (Vset = 750V; No Load; one day after 1 hour warm up)
Long term stability	< 200 mV (Vset = 750V; No Load; one week after 1 hour warm up)
Load regulation	< 0.2% (Vset = 600V, Iout from 60 µA to 850 µA)
EMC qualification	CE Standards
Safety Standard	ROHS

Ordering Information

ORDERING CODE	DESCRIPTION
WDT1415ETXAA	DT1415ET – 8Ch Floating Reversible 1kV/1mA (600 mW) Desktop HV Power Supply Module for MPGD

1. Ordering codes and descriptions are reproduced from the product record. Availability is confirmed at order entry.

Accessories

A148x — Inhibit - Kill Signal BNC Adapter for HV Power Supply Modules

A1481 — Kill Signal Adapter for N14XX series

HV CABLES — High Voltage Cable Assemblies

Software & Control Tools

GECO2020 — GEneral COntrol Software for CAEN HV Power Supplies

LabVIEW Driver (PSM – Power Supply Modules) — LabVIEW Instrument Driver for Power Supply Modules

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