# A7512DB

# 1 Ch 12 kV/20 µA Digital Controlled Power Supply Module for MRPC

## Features

- Single Desktop HV channel
- 0 ÷ 12 kV output voltage
- 20 µA maximum output current
- Available with positive or negative polarity
- LEMO HV output connector
- 200 mV voltage monitor resolution
- 500 pA current monitor resolution
- Digital output voltage control
- Internal memory for permanent storage of calibration and configuration
- RS485 digital control (allows to build daisy chain network of A75xxDB modules)
- LEMO 00 connector for preamplifier power supply
- Interlock logic for Module enable
- SMART HV command interface

## Description

The **A7512DB** Power Supply Module is a compact desktop solution to provide stable and noiseless power supply for single and multi-gap Resistive Plate Chamber (RPC) detectors.

The module houses a digital controlled high voltage channel that provides a 12 kV maximum voltage with 200 mV monitor resolution The maximum output current is 20 µA, with 500 pA monitor resolution. It is available with either positive or negative output voltage. HV output is delivered through LEMO HV connector.

The following channel parameters can be programmed

- Output voltage: 0 ÷ 12 kV step: 200 mV
- Current limit 0 ÷ 20 µA step: 1 nA
- Voltage Ramp up/down: 1 ÷ 500 V/sec step: 1 V/sec
- TRIP parameter

Power supply control can be performed remotely, via RS485, that allows to build a daisy chain network of A75xxDB modules.
A7512DB houses also bias output through LEMO 00 connector for preamplifiers power supply. Three different options are available: 2.8 V / 3.3 V / 5 V (maximum output power: 3 W).

**Safety features include:**

- Overcurrent detection: if the channel attempts to draw a current larger than Iset, the output voltage is automatically adjusted to keep the current below Iset limit. Under this condition, the channel behaves as a current generator.
- The Module can be enabled or disabled through the interlock logic.

## Technical Specifications

### Packaging

Custom CarrierW=63 mm ; L=170 mm ; H=36 mm

### Output Connector

Lemo Connector HV FFB.3S.415.CLLC10

### COMM connector

15 Pin Male HD-Sub Connector VGA 5749768-1

### Operating temperature

-20° C ÷ +45° C

### Storage temperature

-55° C ÷ +85° C

### Voltage Supply (Vin)

+12 V ± 20%

### Output Voltage (Vout)

0 ÷ 12000 V

### Output polarity

Positive/Negative

### Maximum Output Current (Iout)

20µA

### VSet Resolution

0.2V

### VMon Resolution

0.1V

### Current Set Resolution

1nA

### Current Monitor Resolution

500pA

### Aux PWS preamp

Default: ~ 2.8V Iout max 1 Amp (it is required a bulk capacitor on the preamplifier input, >470µF); 3.3V and 5V on request

**Power requirement**

~ 2.5W @ 12000 V (Rload ≈ 1000 MΩ) only HV CH~ 6W @ 12000 V + (Rload ≈ 1000 MΩ) HV CH+ Aux

**Output Ripple**

Typical <30mVpp; Maximum 50mVpp (10KV working)Typical <50mVpp; Maximum 80mVpp (12KV working)

**VMon vs. VOut Accuracy**

typical: ± 0.3% ± 0.5 V max: ± 0.3% ± 2 V

**VSet vs. VMon Accuracy**

typical: ± 0.3% ± 0.5 V max: ± 0.3% ± 2 V

**IMon vs. IOut Accuracy 2**

2% ±200nA ±50ppm/°C with output current from 10% to 100% f.s.

**Vout vs. Vset Integral Non Linearity**

<±0.035% (at 25° C)

**Electromagnetic compatibility**

Weak emission of electromagnetic impulse and RF; one- piece metal shielding with several ground connections

**Uniformity of a lot**

< 0.5 %

**Protection**

Over current short circuit, sparks and humidity

## Ordering Options

| Code | Description | |
|---|---|---|
| WA7512DBNXAA | A7512DBN -12kV 20µA HV Power Supply Module - BOXED | RoHS |
| WA7512DBPXAA | A7512DBP +12kV 20µA HV Power Supply Module - BOXED | RoHS |
| WPERS7512V33 | A7512DB Customization preamplifier power stage 3.3V | RoHS |
| WPERS7512V50 | A7512DB Customization preamplifier power stage 5V | RoHS |

## Related Products

### A7504C


1 Ch 4 kV/100 µA High Efficiency HV Power Supply Module

### A7505


1 Ch 1600 V/500 µA High Efficiency HV Power Supply Module

### A7526DB

1 Ch 2.6 kV/500 µA Digital Controlled Power Supply Module

### A7502


1 Ch 2100 V/100 µA High Efficiency HV Power Supply Module (5V in)

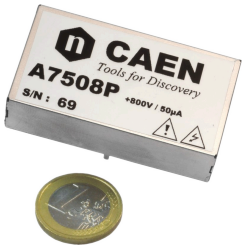
### A7501


1 Ch 2100 V/100 µA High Efficiency HV Power Supply Module

## A7511


1 Ch 1100 V/1000 µA High Efficiency HV Power Supply Module

## A7508




1 Ch 800 V/50 µA High Efficiency HV Power Supply Module (5V in)

## Gallery

**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**