



MTCA.4 Series

HV-PANDA

High Voltage Positive And Negative
 Double-Width AMC

The HV-PANDA is a full-size standard AMC board that houses 4 High Voltage channels as a MTCA.4 carrier.

High Voltage channels with different output ratings – i.e. 6kV, 4kV and 500V – and factory-selectable polarity.

Infrastructure for management of Rear Transition Module (RTM) boards.

Features

- Double-width AMC board
- MTCA.4 carrier
- 4 High Voltage (HV) channels per board
- Output Ratings up to 6kV@1mA
- Different output voltage ratings available
- Polarity factory-selectable
- Provides interconnections between CPU unit and HV channels
- Communication through FAT PIPE using PCI-e 1x standard
- Provides infrastructure for management of Rear Transition Module (RTM) boards

Applications

- Semiconductor Detectors
- Gaseous Detectors
- Vacuum Photomultipliers
- Micro Channel Plates (MCP)
- Drift Chambers

The HV-PANDA (High Voltage Positive And Negative Double-width AMC) is an AMC board designed as MTCA.4 carrier. The board houses four different High Voltage (HV) channels that are inherited from the widespread and well-known CAEN VME technology.

The HV modules can be configured with different output ratings and polarity, ranging from 500V to 6kV and from 1.5W to 7W.

The HV channels have a floating return per pair of channels, rated up to $\pm 20V$ with respect to Protective Earth (PE).

Semiconductor detectors, gaseous detectors, vacuum photomultipliers, MCPs, silicon and germanium detectors as well as drift chambers are typical fields of application of such rated HV channels.

Each HV channel has a nominal voltage

accuracy better than 0.5 per mil of Full-Scale (FS) and a ppm-level peak-to-peak output voltage ripple.

The current and voltage limits can be changed real-time by the user as well as the behavior of the channels when the current limit threshold is exceeded; the module can switch off or can continue to operate in current-source mode.

The ramp speed can be configured with a 1 V/s resolution and can range from 1 V/s to 500 V/s.

Output voltage and current digital readbacks are also accessible by the user with a resolution of 0.01% of the FS value.

The module communication is performed through FAT PIPE using the PCI-e 1x standard and provides interconnection between the CPU unit and the High Voltage channels.

About CAENels

CAEN ELS is a leading company in the design of power supplies and state-of-the-art complete electronic systems for the Physics research world, having its main focus on dedicated solutions for the particle accelerator community.

- Magnet Power Supply Systems
- Beamline Electronic Instrumentation
- Precision Current Transducers
- MTCA.4 – MicroTCA for Physics

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Bring the widespread and well-known CAEN VME High Voltage module technology to the MTCA platform

The HV-PANDA provides also the infrastructure for management of optional Rear Transition Module (RTM) board. Zone 3 connections are carried according to DESY guidelines for Digital uRTM – Class D1.1

Please check the MTCA.4 section on the website www.caenels.com in order to check for news, updates and additional information on the HV-PANDA modules and other MTCA.4 products.

Technical Specifications

Technical Specifications		HV-PANDA	
Board Size	Full-Size		
Number of HV Channels	4		
AMC Board Type	PICMG - AMC.0 R.2		
Output Voltage Rating	6kV@6W 4kV@7W 500V@1.5W		
Polarity	Positive or Negative (Factory-selectable)		
RTM Support	Yes		
High-Voltage Return	Floating (per pair of channels) ±20V to PE		
Nominal Voltage Accuracy	< 0.05 %		
Output Voltage Ripple @ max P _{OUT}	up to 4 kV up to 6 kV	< 3 ppm _{PK-PK} /FS < 4 ppm _{PK-PK} /FS	
Voltage/Current Readback Accuracy	< 0.05 %		
Voltage/Current Readback Resolution	0.01 %		
Ramp Slew Rate	from 1 to 500 V/s		
Ramp Slew Rate Step Size	1 V/s		
Stand-by Voltage Set Resolution	1 % of FS		
Current Limit Value Accuracy	< 4 % of FS		
Output Current Threshold Behaviour	Switch-off Current-source mode		
Output Voltage Connectors	SHV-type		



HV-PANDA Board

Ordering Options

HVPANDA6KPXA	HVPANDA6KP	HV-PANDA - 4-channel HV Full-size AMC Board (6kV@6W channel) - Positive polarity
HVPANDA6KNXA	HVPANDA6KN	HV-PANDA - 4-channel HV Full-size AMC Board (-6kV@6W channel) - Negative polarity
HVPANDA4KPXA	HVPANDA4KP	HV-PANDA - 4-channel HV Full-size AMC Board (4kV@7W channel) - Positive polarity
HVPANDA4KNXA	HVPANDA4KN	HV-PANDA - 4-channel HV Full-size AMC Board (-4kV@7W channel) - Negative polarity
HVPANDA05PXA	HVPANDA05P	HV-PANDA - 4-channel HV Full-size AMC Board (500V@1.5W channel) - Positive polarity
HVPANDA05NXA	HVPANDA05N	HV-PANDA - 4-channel HV Full-size AMC Board (-500V@1.5W channel) - Negative polarity

Cooperation with DESY in the Helmholtz Validierungsfond project «MTCA.4 for Industry» (HVF-0016)