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VHQ

VME High Voltage PSU

Description

The VHQ are a series of dual channel hgih voltage power supplies built to operate on the VME (VERSA module eurocassette) bus. The units are packaged in a standard 6U, 2 slot cassette. Typical applications include medical, nuclear and particle physics along with vacuum technology. The output polarity can be switched and the voltage ramp time adjusted via computer interface after switch on. The VHQ is available in two versions. The standard range offers a measurement resolution of 1V and up to 100nA. The high precision offers superior voltage and current resolution with high stability. Both versions offer adjustment of the output voltage ramp, switchable polarity and a higher power version (M-h).

- High precision & standard models available
- VME high voltage module in 2 slot width
- LCD display for voltage & current
- SHV connector on front side
- Full control via VME bus
- Switchable polarity

Technical Summary Contents

The mainframes listed below are designed to house & power the high voltage modules when they are built as Eurocassettes. These rack mounting mainframes simplify system integration with their various intergrated interfaces.

19” Mainframes

	Backplane	+5V	+12V	-12V
VME 6023/6021-620	VME/VME64	115A	46A	46A
VME 6023/6021-620	VME/VME64	230A	46A	46A
VME 6023/6021-620	VME/VME64	345A	46A	–
VME 6023/6021-620	VME/VME64	45A	23A	23A

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VHQ

High Precision Model

Selection Table

Part Number	Maximum Power (Each Channel)	Output Voltage	Output Current	Interface Type	Number of Channels
VHQ 222M	6W	0 - 2 kV	0 - 3 mA	VME	Dual
VHQ 222M-h	12W	0 - 2 kV	0 - 6 mA	VME	Dual
VHQ 223M	6W	0 - 3 kV	0 - 2 mA	VME	Dual
VHQ 223M-h	12W	0 - 3 kV	0 - 4 mA	VME	Dual
VHQ 224L	4W	0 - 4 kV	0 - 1 mA	VME	Dual
CHQ 224L-h	12W	0 - 4 kV	0 - 3 mA	VME	Dual
VHQ 225L	5W	0 - 5 kV	0 - 1 mA	VME	Dual
VHQ 225L-h	10W	0 - 5 kV	0 - 2 mA	VME	Dual

Different output ranges and application/user specific options are possible. Please contact ET to discuss your requirements.

Technical Data

Ripple & noise (02M, 02M-h, 03M 03M-h, 04L, 04M-h)	$2mV_{p-p}$
Ripple & noise (05L, 05M-h)	$5mV_{p-p}$
Resolution of voltage measurement (Display)	1V
Resolution of voltage measurement (via Interface)	100mV
Resolution of current measurement (Range)	I_{NOM} (option 104 = 100µA)
Resolution of current measurement (Display)	1µA
Resolution of current measurement (via Interface)	100nA
Voltage accuracy (for one year)	± (0.05% V_O + 0.02% V_{NOM} + 1 digit)
Current accuracy (for one year)	± (0.05% I_O + 0.02% of range + 1 digit)
Stability (?V_O/?V_{IN})	< 3 x 10^{-5} x V_{NOM}
Stability load no load (?V_O)	< 5 x 10^{-5} x V_{NOM}
Temperature coefficient	< 3 x 10^{-5}/K
LCD display	4 digit for voltage or current
Voltage setting	Manual: 10 turn potentiometer DAC: via VME Interface (selectable)
Ramp speed at HV On/Off	Hardware ramp: 500V/s
Ramp speed at Interface	Software ramp: 2 - 255V/s
Protection	Separate current & voltage limit, INHIBIT, current trip
INHIBIT	Per channel (TTL Low)
Power requirements V_{IN}	± 12V (< 850mA)
Power Requirements V_{IN}	+ 5V (< 300mA)

Options Table

Code	Description
/104	100µA current range with resolution of 10nA via display and 1nA via interface
/2MA	2 current measurement ranges with automatic crossover
/2MM	2 current measurement ranges with manual selection

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VHQ

Standard Model

Selection Table

Part Number	Maximum Power (Each Channel)	Output Voltage	Output Current	Interface Type	Number of Channels
VHQ 202M	6W	0 - 2 kV	0 - 3 mA	VME	Dual
VHQ 202M-h	12W	0 - 2 kV	0 - 6 mA	VME	Dual
VHQ 203M	6W	0 - 3 kV	0 - 2 mA	VME	Dual
VHQ 203M-h	12W	0 - 3 kV	0 - 4 mA	VME	Dual
VHQ 204L	4W	0 - 4 kV	0 - 1 mA	VME	Dual
CHQ 204L-h	12W	0 - 4 kV	0 - 3 mA	VME	Dual
VHQ 205L	5W	0 - 5 kV	0 - 1 mA	VME	Dual
VHQ 205L-h	10W	0 - 5 kV	0 - 2 mA	VME	Dual

Different output ranges and application/user specific options are possible. Please contact ET to discuss your requirements.

Technical Data

Ripple & noise (02M, 02M-h, 03M 03M-h, 04L, 04M-h)	$2mV_{p-p}$
Ripple & noise (05L, 05M-h)	$5mV_{p-p}$
Resolution of voltage measurement (Display)	1V
Resolution of voltage measurement (via Interface)	1V
Resolution of current measurement (Range)	I_{NOM} (option 104 = 100µA)
Resolution of voltage measurement (Display)	1µA
Resolution of voltage measurement (via Interface)	1µA
Voltage accuracy (for one year)	± (0.05% V_O + 0.02% V_{NOM} + 1 digit)
Current accuracy (for one year)	± (0.05% V_O + 0.02% of range + 1 digit)
Stability load ($?V_O/?V_{IN}$)	< 5 x 10^{-5} x V_{NOM}
Stability no load ($?V_O$)	< 5 x 10^{-5} x V_{NOM}
Temperature coefficient	< 5 x 10^{-5}/K
LCD display	4 digit for voltage or current
Voltage setting	Manual: 10 turn potentiometer DAC: via VME Interface (selectable)
Ramp speed at HV On/Off	Hardware ramp: 500V/s
Ramp speed at Interface	Software ramp: 2 - 255V/s
Protection	Separate current & voltage limit, INHIBIT, current trip
INHIBIT	Per channel (TTL Low)
Power requirements V_{IN}	± 12V (< 850mA) (option /OH = <1.6A)
Power requirements V_{IN}	+ 5V (< 300mA)

Options Table

Code	Description
/104	100µA current range with resolution of 10nA via display and 1nA via interface
/2MA	2 current measurement ranges with automatic crossover
/2MM	2 current measurement ranges with manual selection
/OH	Output current is doubled