

DAQ Specifications

to MAST	General	Power Requ.	Inputs	Outputs	Physical	Env.	Notes
ectors (4)	ORTEC CU-014- 050-100-S Silicon Sur- face Barrier Detector	(+)50 V bias voltage provided through SHV input on preamplifier		BNC female connector on bottom of detector can	fits inside of diagnostic	bakeable to 200°C	Does MAST have resources to connect the non- terminated end of our detector cable to the custom male connector for the MAST RP? ¹
mplifiers	Model 2003BT Silicon Sur- face Barrier Detector Preamplifier	(+)24Vdc 10mA (-)24Vdc 4ma (+)12Vdc 30mA (-)12Vdc 6ma ²	HV input- SHV male; signal input- BNC female; power input- Amphenol 17-20090 male ³	Energy output- BNC fe- male ⁴	7.6x5.1x3.8cm 0.2kg Can we place these inside the linkbox?	operating temp- 0°-50°C; operating humidity- 0-80%	Is there a BNC con- nection to connect them to the end of the MAST RP?
mplifiers	Canberra 2111 Tim- ing Filter Amplifier	(+)24Vdc 55mA (-)24Vdc 80ma (+)12Vdc 170mA (-)12Vdc 150ma ⁵	signal input- BNC female; power input- Amphenol 17-10070 female	signal output- BNC fe- male ⁶	3.43x22.12cm ⁷ 0.9kg	operating temp- 0°-50°C; operating humidity- 0-80%	Can MAST provide a NIM-BIN?

a quote for a UHV shielded cable (bakeable to 250°C) with a BNC male connector and non-terminated end (one cable for each detector).
connects to the rear panel of our amplifiers, or an appropriate connection on a NIM-BIN.

ntly have one 3m male-female Amphenol connector cable. We should shortly have four (I will verify this by August 14th).

n an appropriate quote for shielded/ super screened cables, we will need to estimate the distance from our preamps to our amps.

panel has a connection to draw its power from a standard NIM-BIN.

n an appropriate quote for shielded/ super screened cables, we will need to estimate the distance from our amps to our digitizer/PCI extensi
standard single-width NIM module.

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Digitizer (1)	National Instruments PCI-5105 8-Channels	installed inside Adnaco PCI Extension box	signal input-SMB male		fits inside Adnaco PCI extension box	signal initially stored in 512 MB onboard memory	Digitizer requires external trigger input- SMB male
exten- (1)	Adnaco S2 Fiber Optic PCI Bus Extender	SFX12V 3.0 complaint, active PFC, universal input ⁸	signal input-digitizer through PCI	signal output-LC SFP connector ⁹	13.6x37x32.9cm 6.1kg	operating temp- 0°-55°C; operating humidity- 10-85%	
computer	SuperMicro 50161 MTF 1U Rack-mount Server	280W AC power supply with PFC ¹⁰	Keyboard, monitor and mouse input- 6 USB ports, 1 serial COM port, 1 VGA port, PS/2 ports	Data output ¹¹	4.3x43.7x50.3cm 17.2kg	operating temp- 10°-35°C; operating humidity- 8-90%	Can MAST provide a mouse, keyboard, and monitor? The computer can be rack mounted.

the power cord and 50m fiber optic cable, I will verify the power cord length by August 14th.

is transferred to the computer through a 50m fiber optic cable (LC, multi-mode, duplex, 50/125 μ m, duplex 2.5 Gbps link).

the power cord, I will verify the length by August 14th.

8 data channels will be used. Sample rates up to 60 MHz will be used to take up to 1 second of data per shot

0.5s for typical MAST shot length). Data files are written to the disk; there are 150GB of storage on the computer. The maximum output f is +/- 5V; similar to the MAST RP data acquisition system, the typical signal voltage inputs to the data acquisition system are within +/-