

Data Acquisition (DAQ) Specifications

Ship to MAST	General	Power Requ.	Inputs	Outputs	Physical	Env.	Notes
Detectors (4)	ORTEC CU-014-050-100-S Silicon Surface Barrier Detector	(+) 0 - 50 V bias Voltage power supply connected to preamplifier with SHV input	Similar to the MAST RP DAQ, the typical signal voltage inputs to our DAQ are within +/- 5 V	BNC female connector on bottom of detector can	These fit inside of the diagnostic to be attached to the end of the MAST RP	bakeable to 200°C	1) We have a quote for 4 UHV cables (bakeable to 250°C, BNC male connector and non-terminated end). 2) MAST technicians will connect the non-terminated end of our detector cables to the custom male connector for the MAST RP. 3) Can MAST supply four separate power supplies for the 0- 50V bias Voltage?
Preamplifiers (4)	Model 2003BT Silicon Surface Barrier Detector Preamplifier	12 V DC and 24 V DC; We currently have 4, 3m, male-female Amphenol power cables to connect to the rear panel of the amplifiers	bias Voltage input- SHV male; signal input- BNC female; power input- Amphenol 17-20090 male	signal output- BNC female	7.6x5.1x3.8cm 0.2kg; We can place these inside the RP linkbox	operating temp- 0°-50°C; operating humidity- 0-80%	1) We will have a quote for air-side cables (BNC male connector and non-terminated end). 2) MAST technicians will connect the non-terminated end of cable to the MAST RP. 3) We will order 12m power cables for the preamplifiers.
Amplifiers (4)	Canberra 2111 Timing Filter Amplifier	12V DC and 24 V DC; The rear panel has a connection to draw its power from a standard NIM-BIN	signal input- BNC female; power input- Amphenol 17-10070 female	signal output- BNC female	3.43x22.12cm 0.9kg; This is a standard single-width NIM module.; The amplifiers will be stored in cubicle MD05	operating temp- 0°-50°C; operating humidity- 0-80%	1) MAST will provide a NIM BIN and 240 V AC power supply for the NIM BIN. 2) At FIU we use the TC 911 NIM Power Supply which uses 234 V AC to power a TENNELEC TB 3 NIM BIN.
Digitizer (1)	National Instruments PCI-5105 8-Channels	Installed inside Adnaco PCI Extension box	signal input- SMB male	signal initially stored in 512 MB onboard memory	Installed inside Adnaco PCI extension box		1) The digitizer requires trigger input (SMB male). 2) 4 out of 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 (will use 0.5s for typical MAST shot length).
PCI extension (1)	Adnaco S2 Fiber Optic PCI Bus Extender	230 V AC; We have the 1.8m power cord (NEMA 5-15 P connector to IEC320C13 connector)	signal input- digitizer through PCI	signal output- LC SFP connector	13.6x37x 32.9cm 6.1kg; Will be stored in cubicle MD05	operating temp- 0°-55°C; operating humidity- 10-85%	We have the 50m fiber optic cable (LC, multi-mode, duplex, 50/125μm, duplex) to connect the PCI extension box to the computer.
Computer (1)	SuperMicro 50161 MTF 1U Rack-mount Server	240 V AC; We have the 1.2m power cord (NEMA 5-15 P connector to IEC320C13 connector)	6 USB ports, 1 RJ45 LAN port, 1 RJ45 Dedicated IPMI LAN port	data stored in HDF files	4.3x43.7x 50.3cm 17.2kg; Will be stored in cubicle MD05	operating temp- 10°-35°C; operating humidity- 8-90%	1) MAST will provide a cable for network connection. 2) Data files are written to the disk; data files will be written/ converted to adhere to MAST data protocols.