MINERνA
Temporary Rack
Electrical Documentation

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Location: MINOS Near Detector Hall

The MINERνA experiment is currently being constructed in the MINOS Underground Hall. A temporary electronics rack has been installed to facilitate the migration from a Windows operating system to a Linux based system. The experiment requests pORC approval for unattended operation of this temporarily installed electronics rack.

Contents

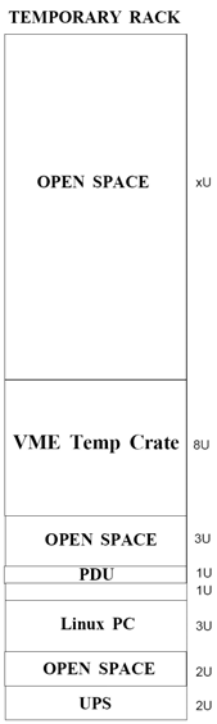
MINERνA Temporary Rack

1 Introduction

The MINERνA installation for the second half of the detector is underway. A temporary electronics rack has been installed on the upper deck which is located above the Light Injection (LI), DAQ, and Veto racks. The purpose of the Temporary rack is to migrate from a Windows based operating system to a Linux based system. This process is expected to take several months. The experiment seeks pORC approval to operate the Temporary rack unattended. A request for pORC approval of the Veto rack will occur in the near future.

All documentation regarding this MINERνA pORC request can be found at http://www-ppd.fnal.gov/EEDOffice-w/Projects/CMS/Minerva/ORC_Index.html.

2 Temporary Rack Layout



The Temporary electronics rack, shown in Figure 1, contains commercially available equipment consisting of a CAEN 8011 VME crate, an AP7900 Power Distribution Unit (PDU), a SC833T-650B Linux PC, and a SUA2200RM2U Uninterruptable Power Supply (UPS). The specifications for each component can be found at the following links.

CAEN 8011 VME Crate: http://www-ppd.fnal.gov/EEDOffice-w/Projects/CMS/Minerva/Elect/VME8011.pdf

AP7900 PDU: http://www-ppd.fnal.gov/EEDOffice-w/Projects/CMS/Minerva/Elect/PDU.pdf

SC833T-650B PC: http://www-ppd.fnal.gov/EEDOffice-w/Projects/CMS/Minerva/Elect/SC833T-650.pdf

SUA2200RM2U UPS: http://www-ppd.fnal.gov/EEDOffice-w/Projects/CMS/Minerva/Elect/UPS.pdf

Figure 1: Temporary Rack Layout

3 AC Distribution

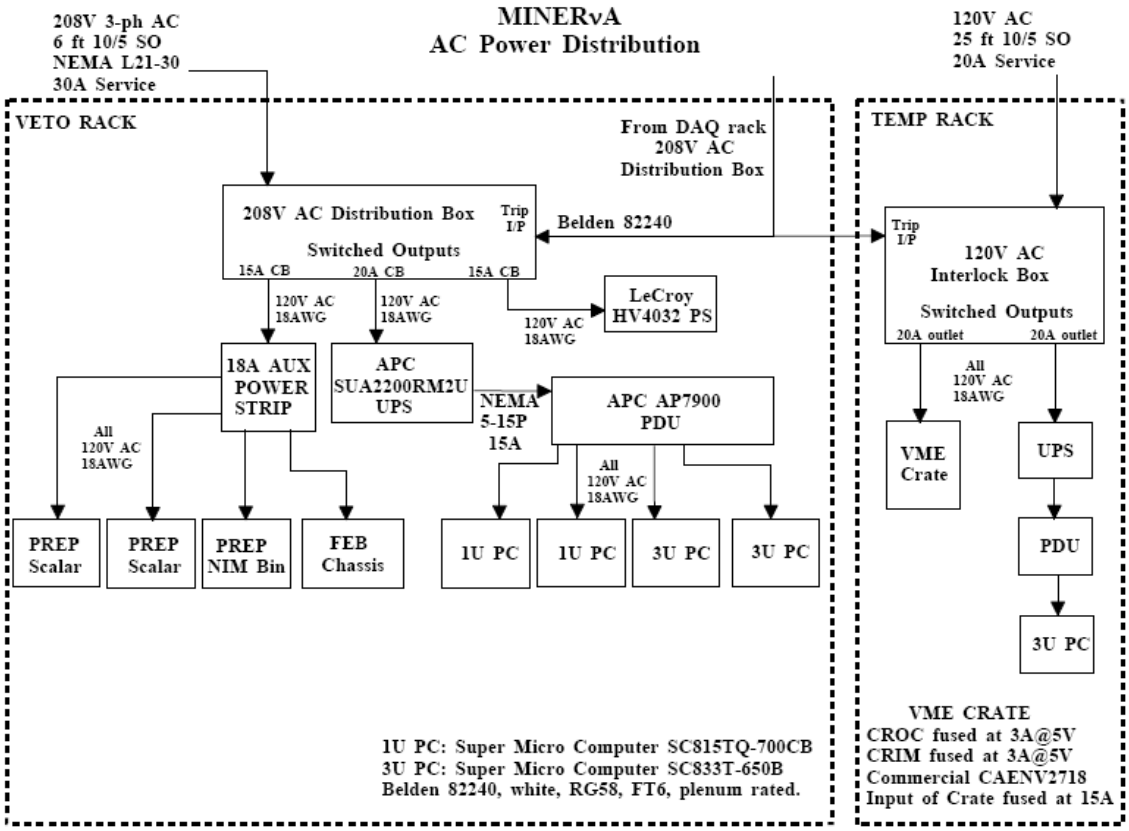


Figure 2: Temporary and VETO Rack AC Distribution

The Temporary rack AC Distribution is shown in Figure 2. All AC Power cords are 18 AWG. The electronics are powered by a 20A service with circuit breaker protection. The 120V AC Interlock Box schematic is shown in Figure 3.

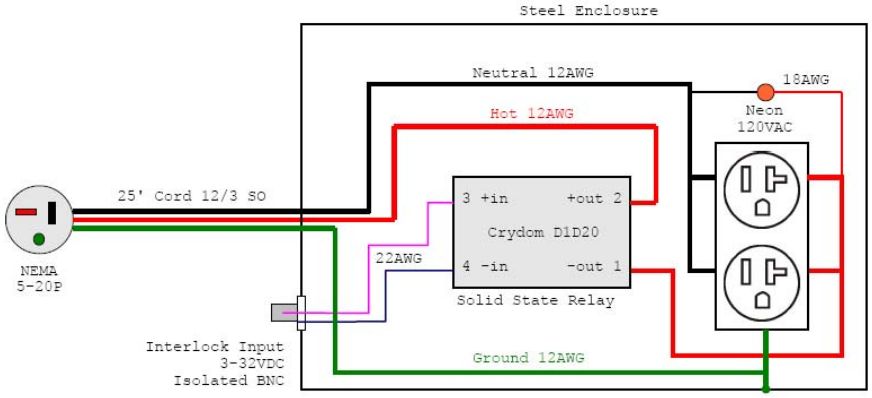


Figure 3: 120V 20A AC Interlock Box

4 Rack Protection

The Temporary rack is part of the rack protection system of all other Minerva electronics racks. Figure 4 is the schematic for the smoke protection circuit. Cables used in the smoke detection system are plenum, FT6 grade. Each smoke detector has been tested for proper operation.

The specifications for the 1412 smoke detector used throughout the system are here http://www-ppd.fnal.gov/EEDOffice-w/Projects/CMS/Minerva/VETO_ORC/VETO_Rack/I56-0280.pdf

The equipment in the LI and DAQ racks has been approved for unattended operation in a previous pORC request.

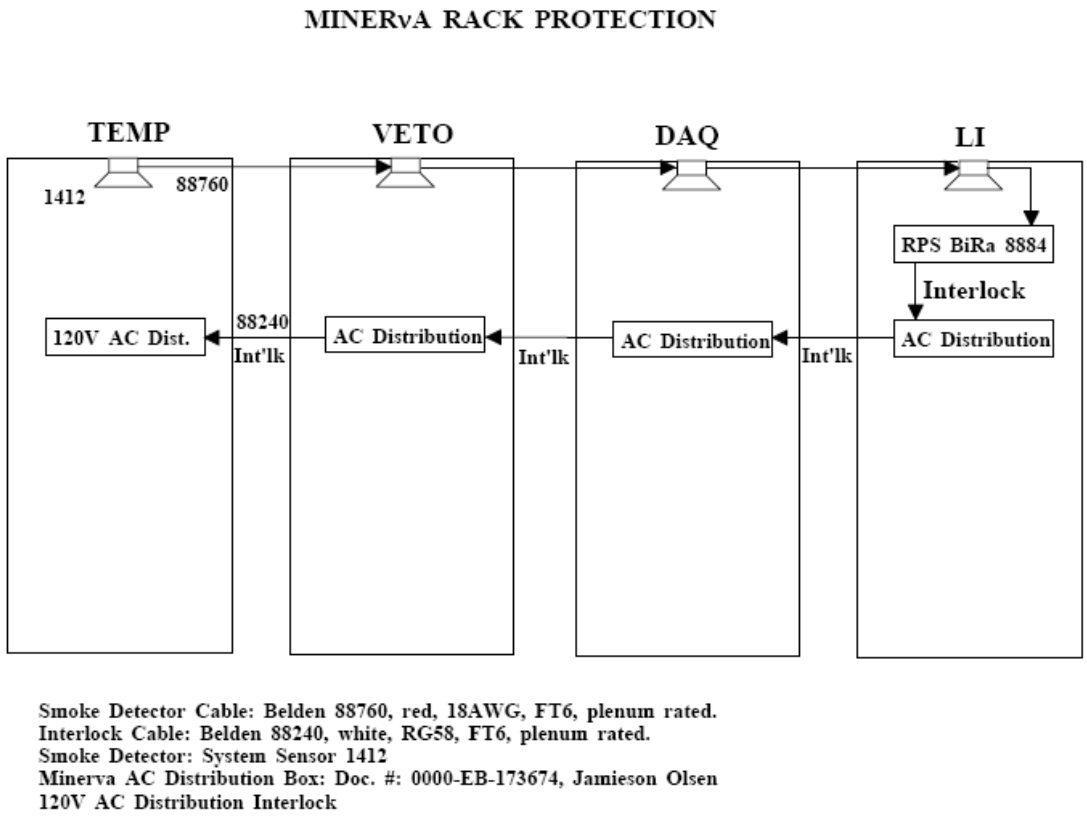


Figure 4: Rack Protection Schematic