



ArgonCube 2x2

Rack Protection and AC Distribution

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ArgonCube 2x2 Electronics and Readout Integration

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Rack Protection: BiRa 8884



- Operations manual
<https://docs.dunescience.org/cgi-bin/private/ShowDocument?docid=20490>
- Has provisions for detecting
 - Water
 - Smoke
 - Air
 - DC Voltage
 - External I/P
 - AC Voltage
 - Fan
- Far more functionality than what we need but the price is right—free.

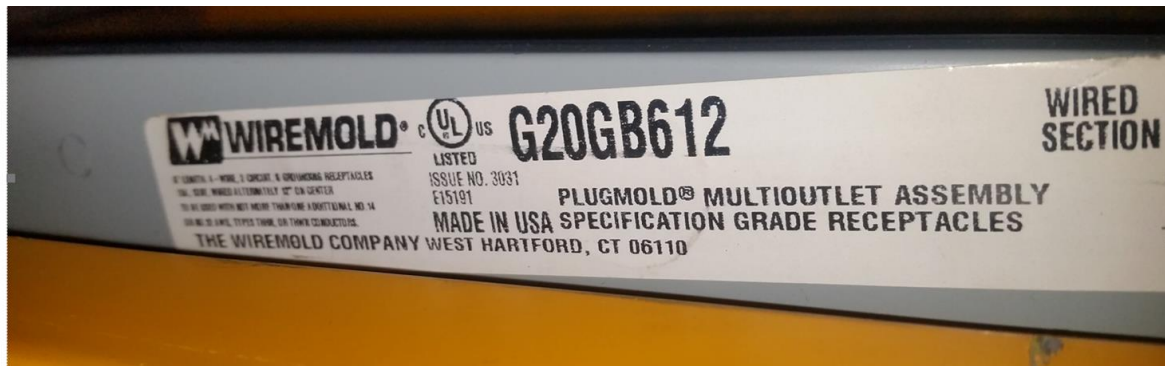
Rack Protection: BiRa 8880-208/120



- Relay unit provides:
 - Inputs:
 - Input 1: 120V/20A service
 - Input 2: 208V/20A service (single phase)
 - Outputs:
 - Output 1: duplex receptacle for a 120V/20A service
 - Output 2: Hubble HBL 2326 receptacle for 208V/20A service.
 - Requires DC Control
 - Need to understand mechanism for SSR DC control
 - Commercial AC/DC converter (in house)
 - Commercial Cryogenic control type interface

Rack PDU (Power Distribution Unit)

- 2 detector power racks (120V/15A PDU-12A max)
 - Light and Charge



Description

WIREMOLD G20GB612 : PLUGMOLD 6FT.SINGLE CRT 12IN.OC 2000 GRAY

Technical Description

2-Piece Type; Steel Raceway, Thermoplastic Receptacle Material; Gray Painted Enamel Finish; 6 ft; 1-9/32 Inch; 3/4 Inch; UL (Canada and Us) Approval; (6) Single Receptacle Outlet Type; 6 Outlet(S); 125 V 15 Ampere, NEMA 5-15R Outlet Rating

UPC: 78677609191

Part Number G20GB612

Manufacturer WIREMOLD  

- 1 HV Drift (need to know power selected 120V or 208V)

<https://docs.dunescience.org/cgi-bin/private/RetrieveFile?docid=18300&filename=SLMAN%20Control.pdf&version=1>

Short rack 1U PDU option

- Surge-X, 120V/20A service, 16A continuous, interlockable
- 6 switched outlets, 2 unswitched, FP curtesy outlet



- 120V/15A service, 12A continuous



RS-1215

[Data](#)

Digi-Key Part Number	TL213-ND
Manufacturer	Tripp Lite
Manufacturer Part Number	RS-1215
Description	POWER STRIP 15A 12OUT 19"RACKMNT

Rack Builds

- Rack builds include all equipment in a given rack.
- Requires:
 - System block diagram
 - Specifications sheet for equipment
- Used to determine XFMR size

# of racks	Location	Rack Name	Rack Components	Network	Light Readout						
					Voltage (V)	Current (A)	Power (VA)	Space (U)	120V/15A	120V/20A	208V/20A
1	Mezz.	Light	Rack Protection (RPS)		120	1		1		1	
			Space					1			
			Switch Box					2			
			Space					1			
			SurgeX		120			1			
			Space					1			
			Power Supply (Caen 1527)		120			8			
			Space					2			
			VME crate					6			
			Fan Tray		120	2	240	1	1		
			Space					2			
			Network switch					6			
			Space					2			
			Elec. Box PS					4			
			Space					1			
			Top Plate								
			Electronics Box								
			Total	0		3	240	39	1	1	0

Impedance Monitor and Inductor status

- Impedance Monitor chassis is assembled.
 - Testing begins this week.
- Saturable inductor has arrived.
 - Enclosure assembly in progress.
 - Response curves after assembly

Impedance Monitor (GIZMO)



Saturable Inductor Module

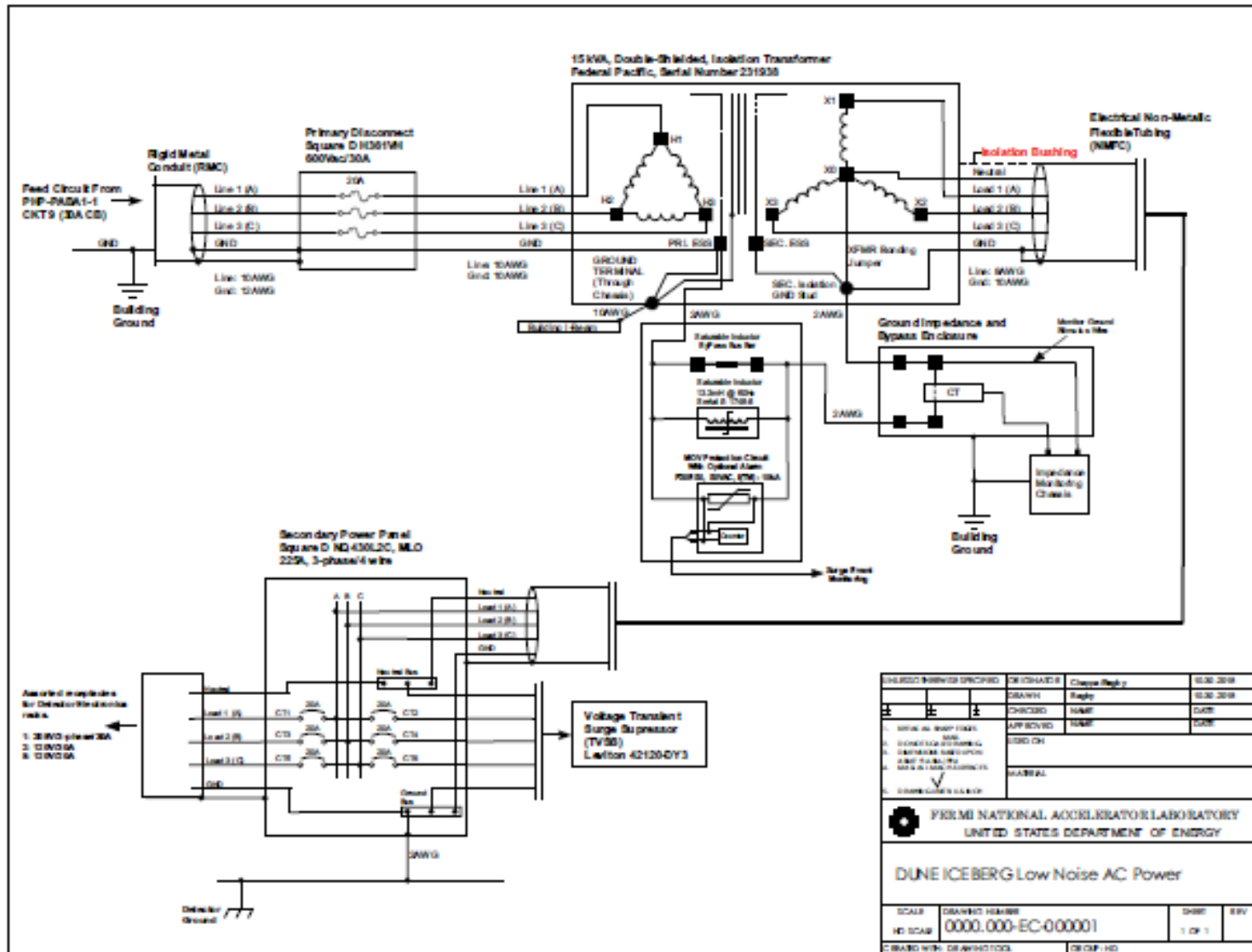


Summary

- Using BiRa rack protection system for detector electronics racks.
- Have options for ‘short’ rack PDUs.
- Rack builds are in progress to determine XFMR size and verify PDUs are appropriate.
- Impedance monitor is assembled and being tested.
- Saturable inductor being assembled—response curves next.

Backups

Example: AC Schematic for Detector electronics



System Components

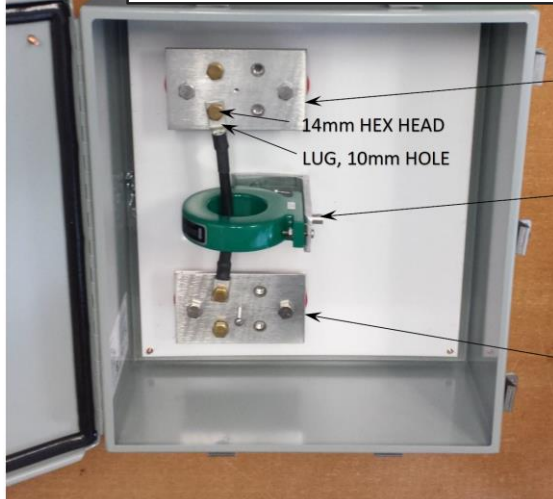
15kVA
XFMR



Saturable Inductor Module



Current Transformer



FLAG CONNECTION TO
DETECTOR GROUND

14mm HEX HEAD
LUG, 10mm HOLE

PEARSON 2100
CURRENT TRANSFORMER

FLAG CONNECTION TO
SATURABLE INDUCTOR

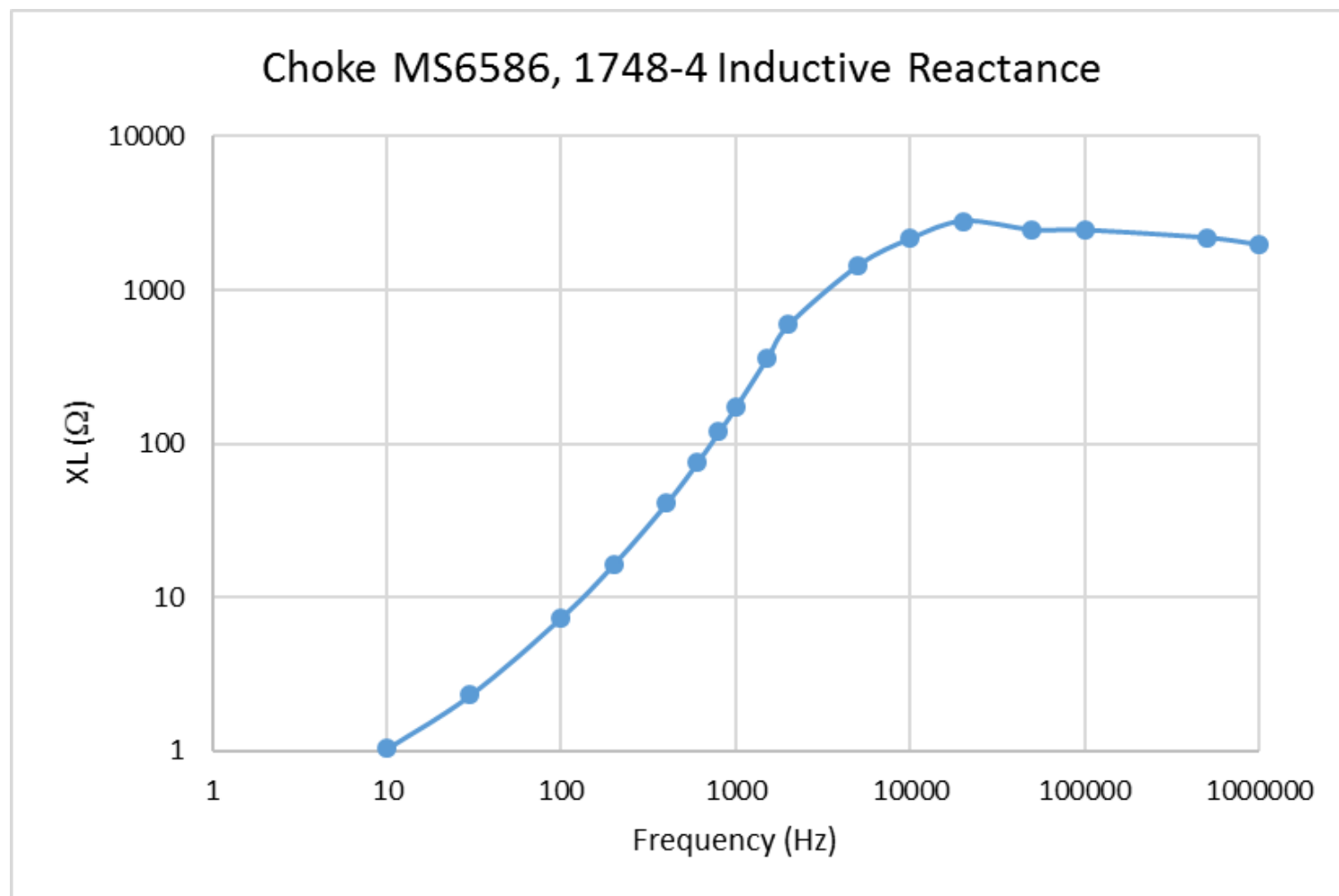
IMPEDANCE MONITOR



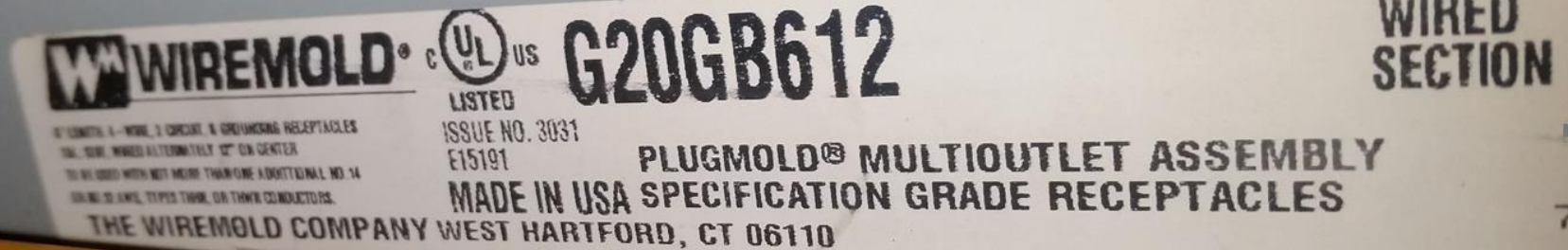
Impedance Monitor (GIZMO)



Saturable Inductor Reactance



Rack 120V/15A PDU



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