

(2) TSP, 22 AWG  
6 CONTACT CONNECTOR

FILAMENT POWER/  
HV RETURN/  
XRF HEAD GND DETECT  
CONNECTOR  
**P2**

SINGLE HV CONTACT  
CONNECTOR

HVPS SUPPLY  
CONNECTOR  
ULTRAVOLT  
B200-0.187/AT22  
**P1**

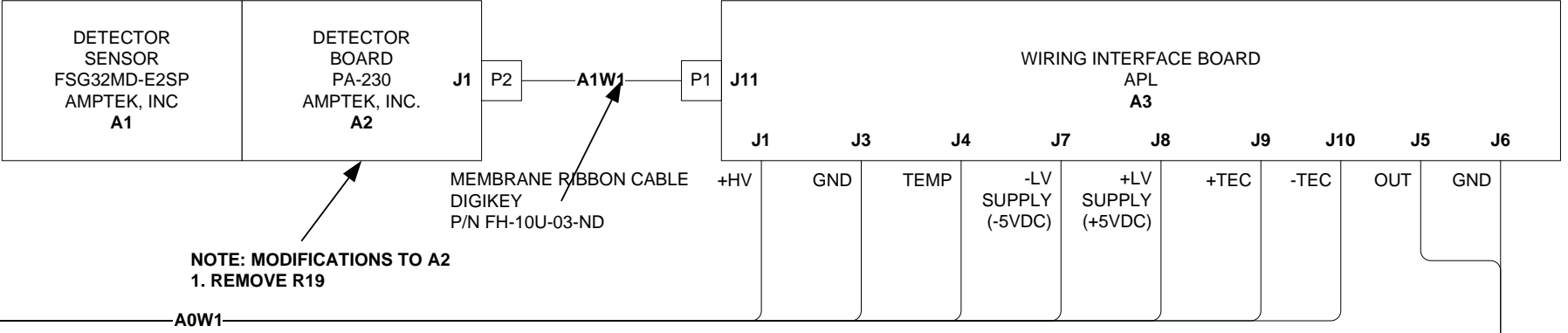
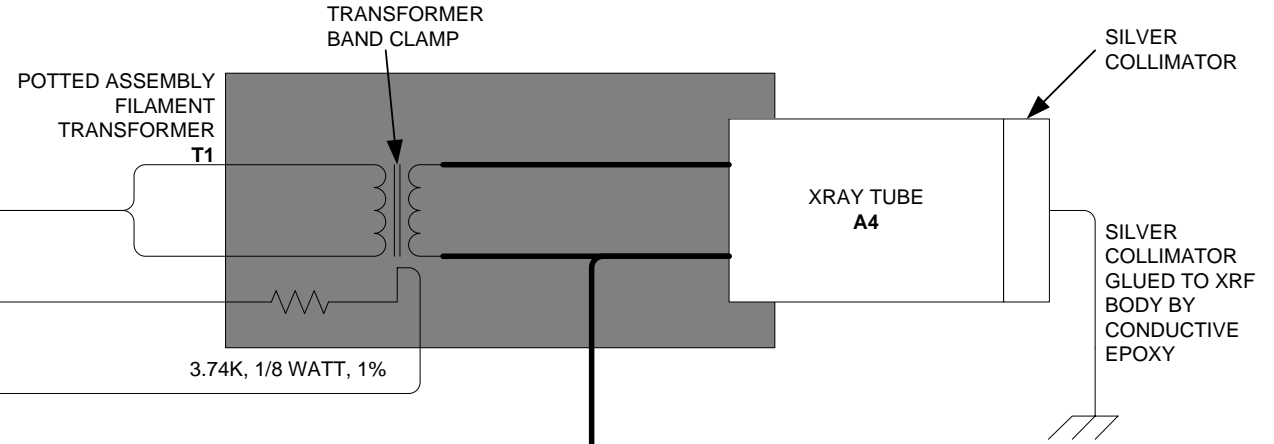
6 CONDUCTOR AWG 24, SHIELDED  
7 CONTACT CONNECTOR

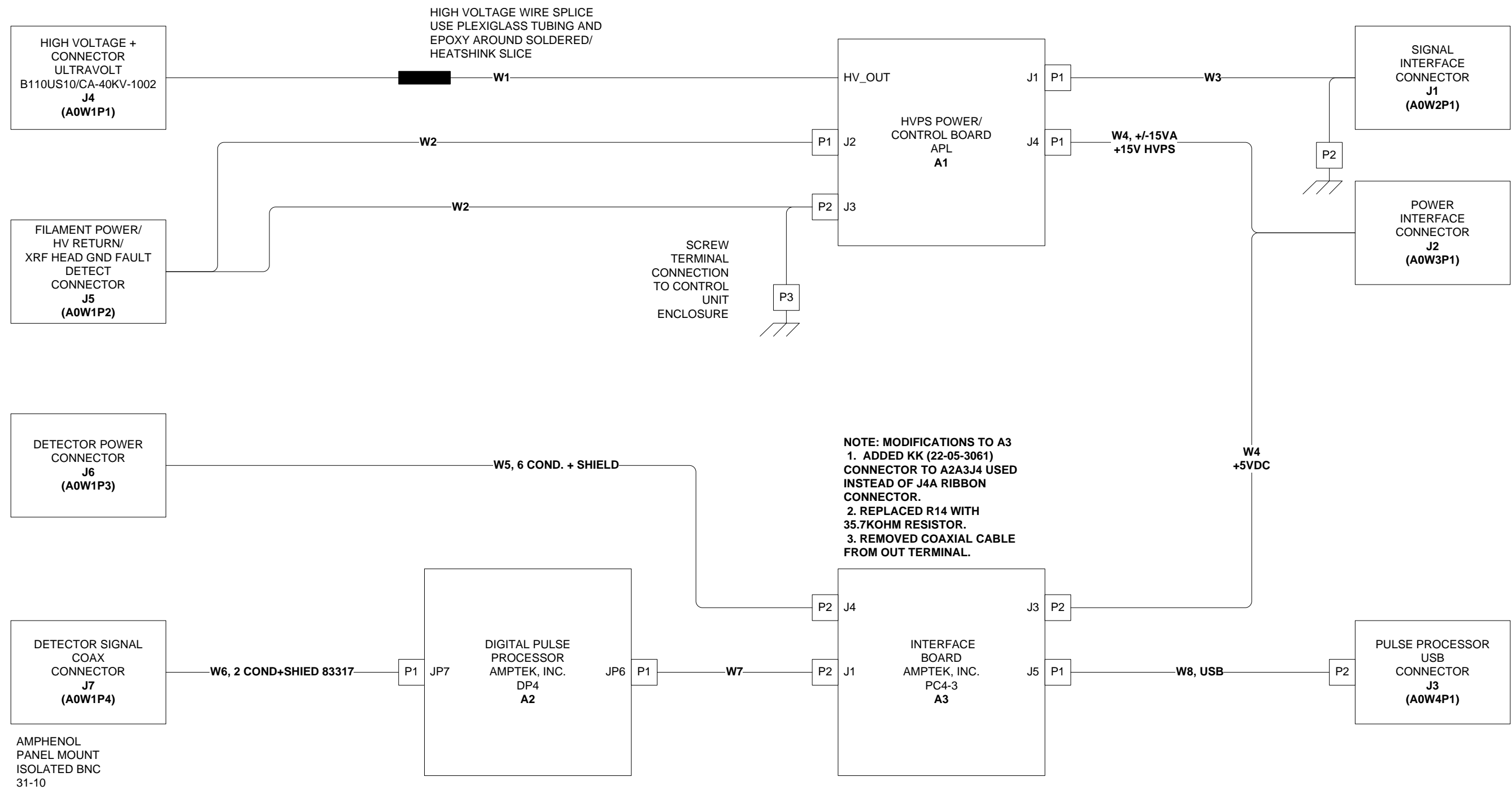
DETECTOR  
POWER  
CONNECTOR  
**P1**

RG-178U/B  
BNC CONNECTOR

DETECTOR  
SIGNAL  
COAX  
CONNECTOR  
**P4**

### XRF HEAD BODY

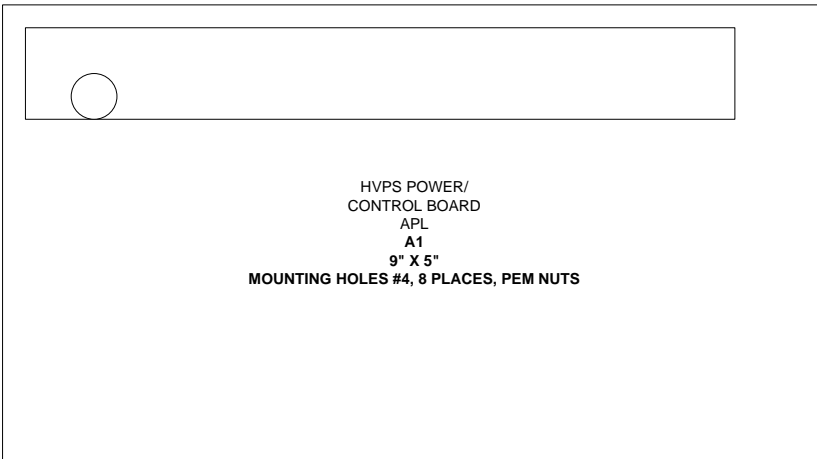




HOFFMAN ENCLOSURE A12614SC  
 16" X 14" X 6"  
 HOFFMAN PANEL A16P14

ULTRAVOLT  
 B110US10/CA-40KV-1002

HIGH VOLTAGE  
 +  
 CONNECTOR  
**J4**

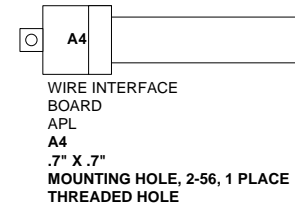


AMPHENOL  
 97-3102A-14S-6S  
 10-40450-16 FLAT GASKET

FILAMENT POWER/  
 HV RETURN/  
 XRF HEAD GND FAULT  
 DETECT  
 CONNECTOR  
**J5**

AMPHENOL  
 97-3102A-16S-1S  
 10-40450-14 FLAT GASKET

DETECTOR  
 POWER  
 CONNECTOR  
**J6**



AMPHENOL  
 ISOLATED BNC  
 31-10

DETECTOR  
 SIGNAL  
 COAX  
 CONNECTOR  
**J7**

SIGNAL  
 INTERFACE  
 CONNECTOR  
**J1**

AMPHENOL  
 97-3102A-24-28S  
 10-40450-24 FLAT GASKET

POWER  
 INTERFACE  
 CONNECTOR  
**J2**

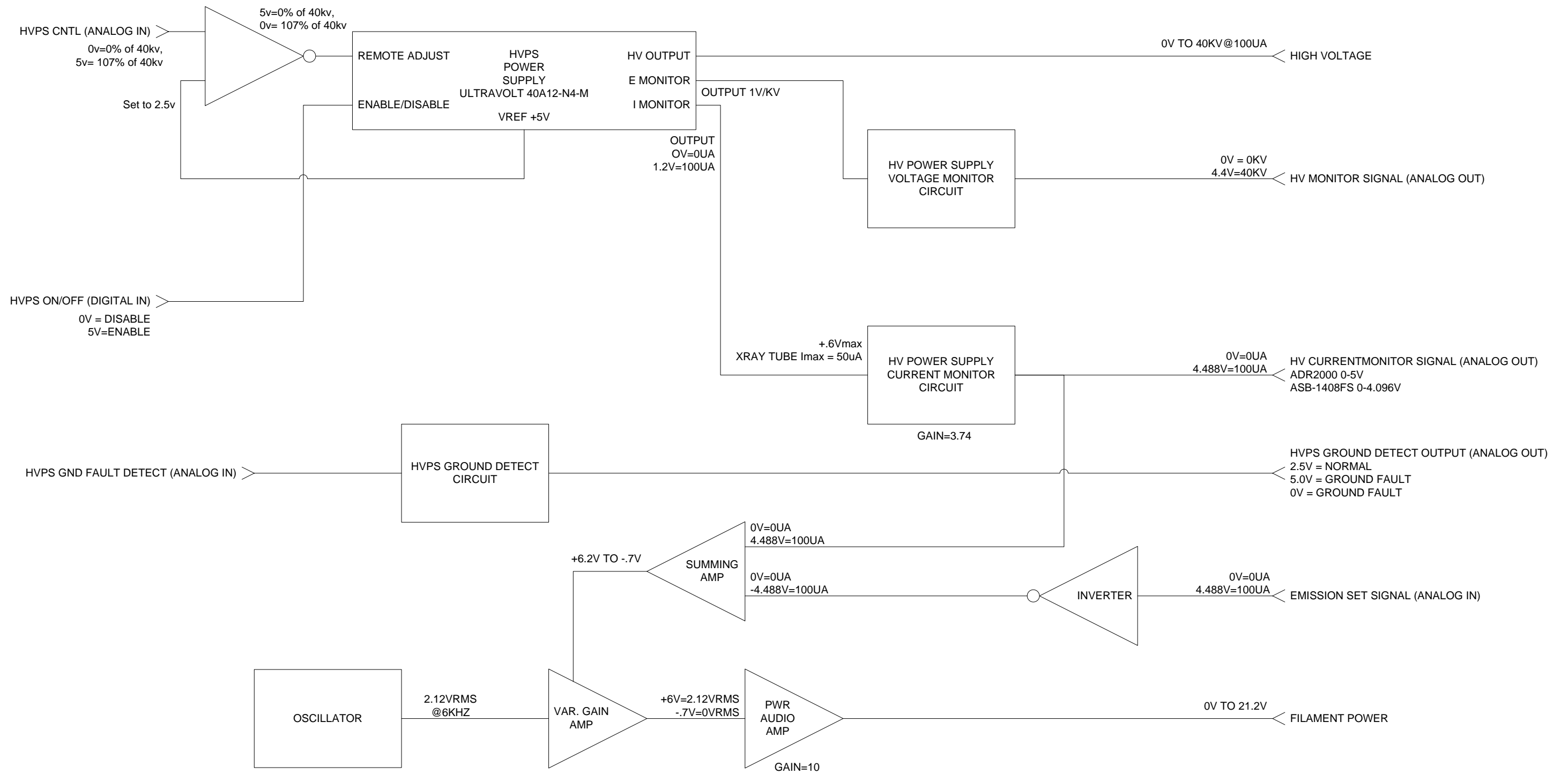
AMPHENOL  
 97-3102A-24-28P  
 10-40450-24 FLAT GASKET

PULSE  
 PROCESSOR  
 USB  
 CONNECTOR  
**J3**

BULGIN  
 PX0842/B



KEYSTONE  
 OVAL HANDLE  
 PN 7186

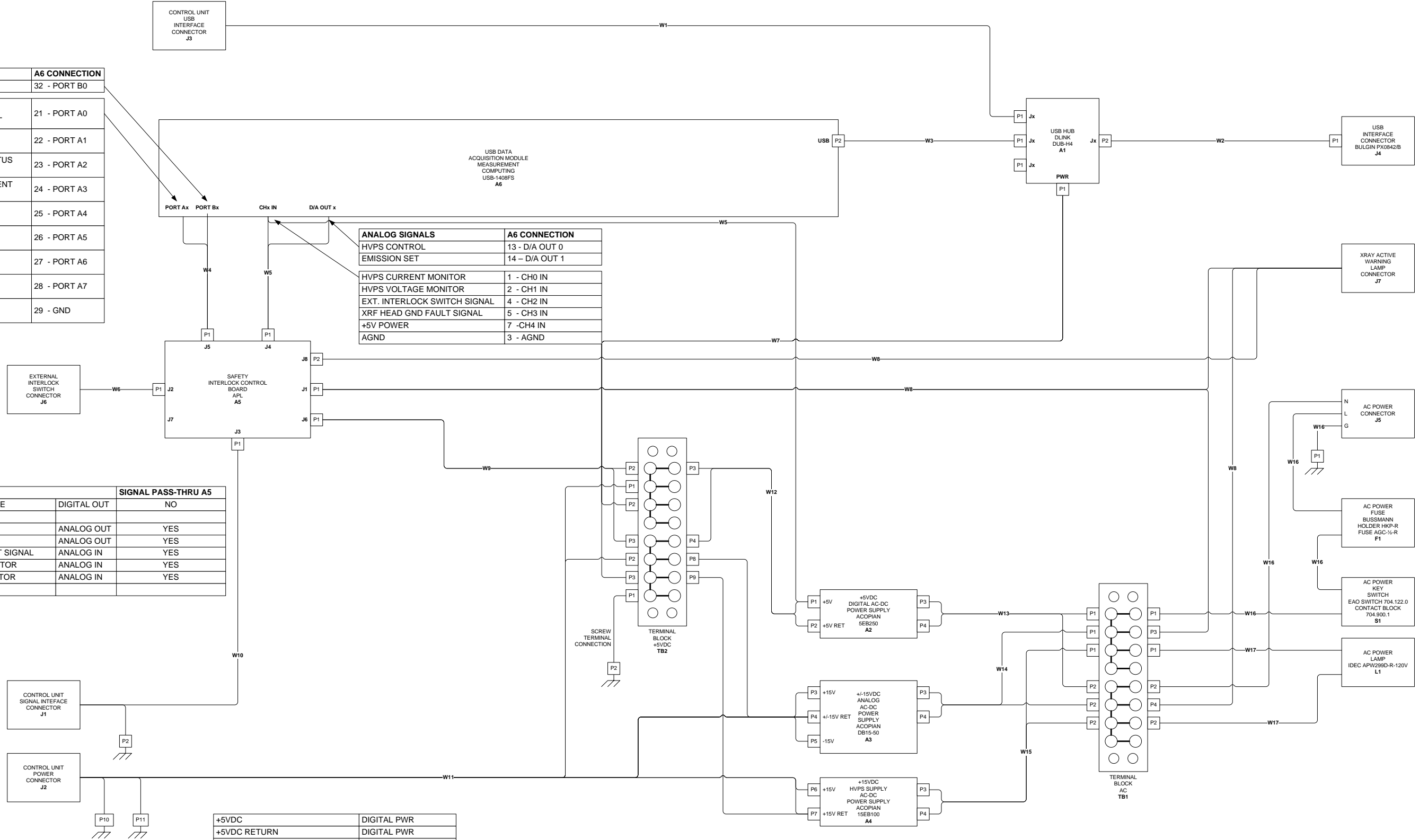


DIGITAL SIGNALS	A6 CONNECTION
XRAY ON/OFF CMD	32 - PORT B0
SAFETY INTERLOCK MICROCONTROLLER FAIL STATUS	21 - PORT A0
XRAY ACTIVE LAMP CONNECTION STATUS	22 - PORT A1
XRAY ACTIVE LAMP STATUS	23 - PORT A2
EXCESSIVE HVPS CURRENT	24 - PORT A3
XRF HEAD GND FAULT	25 - PORT A4
EXT INTERLOCK SWITCH FAILURE STATUS	26 - PORT A5
EXT INTERLOCK SWITCH CONNECTION STATUS	27 - PORT A6
EXT INTERLOCK SWITCH STATUS	28 - PORT A7
SYSTEM GND	29 - GND

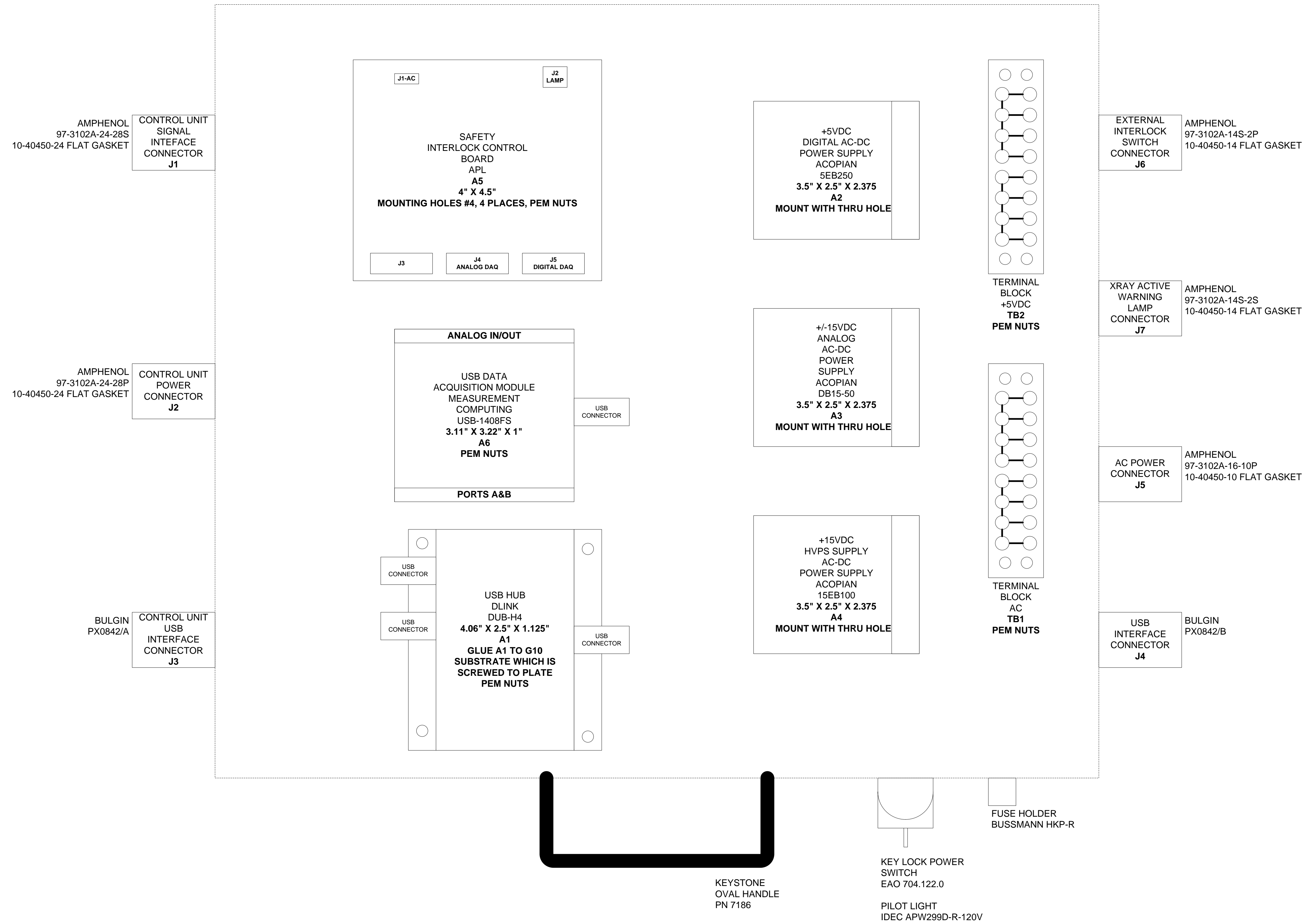
ANALOG SIGNALS	A6 CONNECTION
HVPS CONTROL	13 - D/A OUT 0
EMISSION SET	14 - D/A OUT 1
HVPS CURRENT MONITOR	1 - CH0 IN
HVPS VOLTAGE MONITOR	2 - CH1 IN
EXT. INTERLOCK SWITCH SIGNAL	4 - CH2 IN
XRF HEAD GND FAULT SIGNAL	5 - CH3 IN
+5V POWER	7 - CH4 IN
AGND	3 - AGND

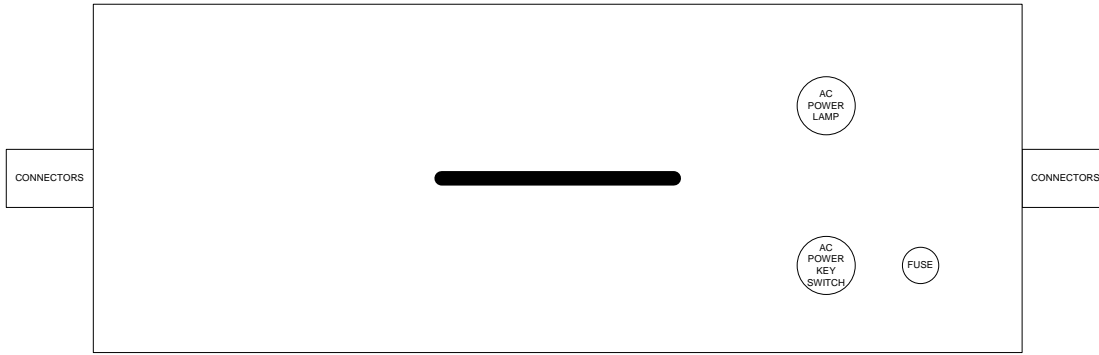
SIGNALS REL TO A5		SIGNAL PASS-THRU A5	
HVPS ENABLE/DISABLE	DIGITAL OUT		NO
SYSTEM GND			
HVPS CONTROL	ANALOG OUT		YES
EMISSION SET	ANALOG OUT		YES
XRF HEAD GND FAULT SIGNAL	ANALOG IN		YES
HVPS CURRENT MONITOR	ANALOG IN		YES
HVPS VOLTAGE MONITOR	ANALOG IN		YES
AGND			

+5VDC	DIGITAL PWR
+5VDC RETURN	DIGITAL PWR
+15V ANALOG	ANALOG PWR
-15 ANALOG	ANALOG PWR
+/-15 ANALOG RETURN	ANALOG PWR
+15V HVPS	ANALOG PWR
+15V HVPS RETURN	ANALOG PWR



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 HOFFMAN PANEL A16P14

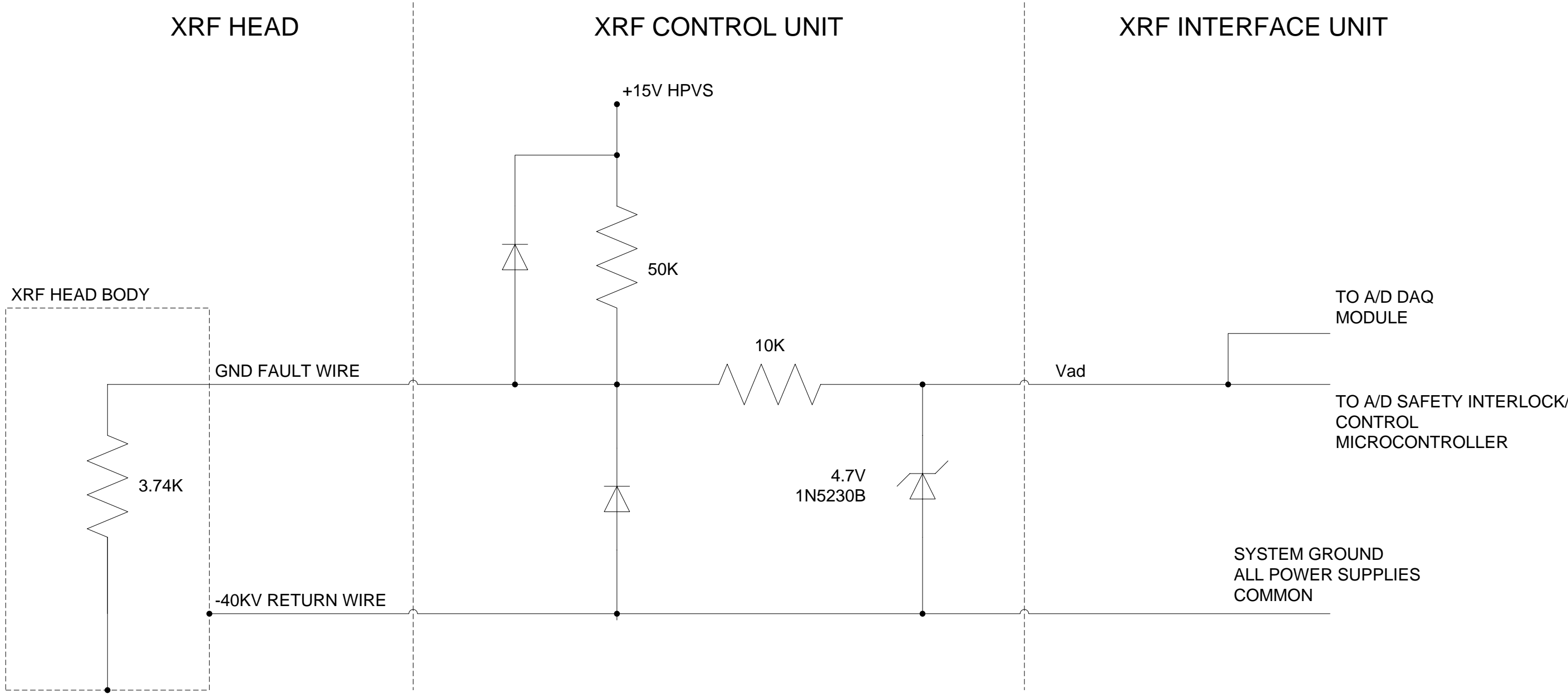




FRONT VIEW



# BOREHOLE XRF – SIMPLIFIED SCHEMATIC OF XRF HEAD GROUND FAULT DETECT CIRCUIT



**CONDITIONS:**

- 1) NORMAL,  $V_{ad} \approx 1V_{dc}$
- 2) -40KV RETURN WIRE OPEN IN CABLE OR XRF HEAD,  $V_{ad} \approx 4.7V_{dc}$
- 3) GND FAULT WIRE OPEN IN CABLE OR XRF HEAD,  $V_{ad} \approx 4.7V_{dc}$

XRF INTERFACE UNIT A0A3

