

wRisk Assessment Form

Title of Risk Assessment	High voltage stand risk assessment	Date of assessment	20 May 2024	
Department	Physics	Date review due	21 May 2025	
Description of Task/Process	Operating photomultiplier tubes and a photodetector with hi	igh voltage boards.		
Assessment carried out by	Evgenii Zhemchugov			

Additional information	This risk assessment covers the specific risks associated with operating the high voltage stand in lab P4.49.
	All users must have read/signed and comply with the P449 General Lab risk assessment and rules:
	P449 Lab RA:
	https://livewarwickac.sharepoint.com/:w:/s/EPPLaboratory/ER9wm28GoPNMirkYRnZ0cYsBb7Eb0VEiCQoLzj3EOdTsag?e=db
	GYgV
	P449 Lab Rules:
	https://livewarwickac.sharepoint.com/:w:/s/EPPLaboratory/ERbtb4TKwU1AkkCzelHMSCABhrAPQjm7wSJ1Y55Bzll TA?e=hH
	<u>6Ld1</u>
	High voltage (HV) is provided by boards CAEN V6534P (positive) and CAEN V6533N (negative) housed in a Versa Module
	Eurocard (VME) crate CAEN <u>NV8020A</u> . V6534P can provide up to 1 mA of direct current (DC) with voltage up to 6 kV,
	V6533N up to 3 mA and 4 kV. The boards do not have external controls (except for hardware voltage and current limits)
	and are programmed via a VME bridge CAEN <u>V3/18</u> also installed in the crate.

Hazards and how they may cause harm	Who may be at Risk?	Existing <u>Control Measures</u>	Current <u>Risk Level</u> (VL,L,M,H,VH)	Where current risk is M, H or VH, what additional <u>Control</u> <u>Measures</u> are required?	Action required by whom & by when?	Final <u>Risk Level</u>
Hazard: high voltage	User	Users must discuss their setup with				
Harmy electrocution		Benjamin Richards or Evgenii				
Harm: electrocution		Zhemchugov before connecting to				
		HV boards.				
		The boards have integrated hardware limits on voltage and current levels in form of trimmers "VMAX" and "IMAX" on their front panels. The boards also have software limits on voltage, see the	L			L

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		SVMAX register. Users must familiarize themselves with these controls and should use them accordingly. Cables and safe high voltage (SHV)				
		connectors available in P449 are rated for 5 kV and 5 A DC. Should higher voltage be required, appropriately rated cables must be used.				
		Users are advised not to touch cables or connectors when the voltage is applied (indicated by red lights next to the board outputs).				
		Software operating the HV boards must have some quickly available means of emergency shutdown immediately powering off the boards.				

Work should not be carried out until the assessment is completed and all required control measures are in place.

Overall Final Risk Rating (Highest level in final column above)



Additional Comments from Risk Assessor (e.g. funding or practical implications)	

Position

Approved By	
Date	

Please print a copy, sign it and keep for your records

Document History

Version	Date	Reviewer	Comments

University of Warwick Risk Assessment Form

Name	Signature	Date

	Severity				
Likelihood	Superficial	Minor	Serious	Major	Extreme
Unlikely	Very low	Very low	Low	Low	Moderat e
Possible	Very low	Low	Low	Moderate	High
Likely	Low	Low	Moderate	High	Very high
Very likely	Low	Moderat e	High	Very high	Very high
Extremely likely	Moderate	High	Very high	Very high	Very high

	Risk Level
Very low	Acceptable risk - no action required
Low	Tolerable risk - further control measures not required, but status must be monitored
Moderate	Further control measures required to reduce risk as far as is reasonably practical
High	Urgent action required to allow activity to continue
Very high	Risk intolerable - activity must cease until the risk has been reduced

See '<u>Matrix for risk evaluation</u>' for further guidance.