EU General Product Safety Regulation (GPSR) Risk Assessment

Product Name: Joulescope JS320
Manufacturer: Jetperch LLC (www.joulescope.com)
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1. Introduction

This risk assessment evaluates the Joulescope JS320 to ensure compliance with the EU General Product Safety Regulation. The document identifies potential risks, assesses their severity and likelihood, and proposes mitigations to ensure product safety.

2. Product Description

Functionality: Precision DC energy analyzer for monitoring and analyzing power consumption.

Key Features: Measures current, voltage, power, and energy in real-time; supports dynamic range switching; USB interface.

Intended Use: Laboratory, educational, and development environments for electronics and IoT systems testing.

User Demographics: Trained professionals, researchers, and engineers.

Operational Environment: Indoor use; non-hazardous, non-condensing environments.

3. Hazard Identification

Hazard Type	Description
Electrical Shock	Potential risk due to incorrect use with high voltages.
Overheating	Risk of overheating during prolonged or high-power operation.
Fire	Associated with electrical faults, overheating, or incorrect use of the device.
Mechanical Damage	Risk of sharp edges or loose components leading to physical injury.
Data Integrity / Safety	Risk of misleading readings due to incorrect operation or faulty calibration.
USB Interface	Potential for improper connection causing damage to the host device or Joulescope JS320.
Hazardous Materials	Risk of exposure to harmful substances.

4. Risk Assessment Table

Hazard	Likelihood	Severity	Risk Level	Mitigation Measures
Electrical Shock	Low	High	Low	Low voltage design: product does not produce or measure high voltages. Ensure insulation and grounding are per standards. Provide warnings and safety instructions in Quick Start Guide and User's Guide indicating sensing is limited to ±15 V and ± 10 A with a maximum of ± 48 V relative to USB ground.
Overheating	Low	Medium	Low	Product incorporates overcurrent detection and shutoff on USB power supply. Product incorporates a soft-fuse on the sensor current terminals.
Fire	Low	High	Low	Low voltage design. Ensure components meet flame-retardant standards (UL94).
Mechanical Damage	Low	Low	Low	Aluminum extrusion edges are covered by bumpers. No sharp edges exposed.
Data Integrity	Medium	Low	Low	Each unit is individually tested and calibrated in the factory using NIST-traceable equipment. Joulescope JS320 User's Guide describes the correct operation in detail.
USB Interface	Low	Medium	Low	Compliant to USB 2 standard, except for suspend mode current consumption. Includes ESD, over-voltage, under-voltage, and over-current protective circuitry.
Hazardous Materials	Low	High	Low	The product is EU RoHS3 and REACH compliant. Conduct material testing. Include safety data in product documentation. Manufacturing documents specify lead-free solder.

5. Residual Risk Evaluation

After implementing the mitigations above, the residual risks are deemed acceptable for the intended use and user demographic. Additional risk mitigation will be applied if new hazards are identified during production or customer feedback.

6. Conformity Declaration

The Joulescope JS320 complies with the applicable standards and regulations, ensuring safety and performance under the conditions of intended use. Compliance testing and certification include:

Electrical Safety: IEC 61010-1

EMC Compliance: EN 61326-1, IEC 61000-4, and CISPR 11:2015

RoHS2 and RoHS3 Compliance: Directive 2011/65/EU and Directive 2015/863

7. Conclusion

This document will be updated periodically to reflect changes in product design, usage, and safety standards. Regular reviews will ensure continued compliance with the EU GPSR.

8. References

EU General Product Safety Regulation (GPSR)

IEC 61010-1 (Safety requirements for electrical equipment for measurement, control, and laboratory use)

EN 61326-1 (EMC requirements for electrical equipment)

IEC 61000-4-2:2008: (Electromagnetic compatibility)

CISPR 11:2015, Limits and methods of measurement of electromagnetic disturbance characteristics of industrial, scientific and medical (ISM) radio-frequency equipment, Amendment 1:2016

Product documentation: Joulescope JS320 User's Guide

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