HV-D150 High-Voltage Differential Probe

Test Methods

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Evidence-driven specs — Docs & test methods.

Document control

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Model	HV-D150
Revision	v1.0
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Applies to	All units unless otherwise noted.

Change summary (fill in each release):

- Initial release.

Support: support@isosentry.com

Contents

1 Purpose

This document describes the test setups and methods used to measure key performance metrics for HV-D150. The goal is repeatability and transparency.

2 Test setup overview

2.1 General guidance

- Record ambient temperature/humidity and equipment identifiers.
- Use consistent cable routing and fixtures to reduce variation.
- Document scope settings (bandwidth limit, sample rate, probes, termination).

2.2 Recommended equipment (fill)

TODO: list scope, signal generator, fixtures, HV source, resistive divider, etc.

3 Methods

3.1 Bandwidth (-3 dB)

Canonical spec: 150 MHz (-3 dB)

3.1.1 Setup (fill)

TODO: Describe signal source, termination, fixture, and oscilloscope settings.

3.1.2 Procedure (fill)

1. TODO
2. Sweep frequency or use a step response method.
3. Determine the -3 dB point relative to the low-frequency gain.

3.1.3 Reporting

Report the measured -3 dB bandwidth and include the plot.

3.2 Noise

3.2.1 Setup (fill)

TODO: Define input shorting method, bandwidth limit, sample rate, and measurement window.

3.2.2 Procedure (fill)

1. TODO
2. Measure RMS noise over a defined bandwidth.
3. Repeat across ranges (50X/500X).

3.2.3 Reporting

Report RMS noise and the measurement bandwidth used.

3.3 CMRR

3.3.1 Setup (fill)

TODO: Describe common-mode injection method, fixture, and frequency points.

3.3.2 Procedure (fill)

1. TODO
2. Apply known common-mode signal and measure residual output.
3. Compute CMRR vs frequency.

3.3.3 Reporting

Include a CMRR vs frequency plot and list key points.

3.4 Input impedance

Canonical spec:

- Each input to ground: 8 MΩ —— 3 pF
- Differential: 16 MΩ —— 1.5 pF

3.4.1 Setup (fill)

TODO: Describe impedance analyzer or frequency response method and fixture parasitics.

3.4.2 Procedure (fill)

1. Measure each-input-to-ground impedance vs frequency.
2. Measure differential impedance vs frequency.
3. Correct for fixture parasitics (document the method).

3.4.3 Reporting

Report impedance magnitude/phase (or R——C model) and specify frequency range.

3.5 Over-voltage alarm

Canonical spec: 1800 Vpeak nominal (tolerance: 1750–1850 Vpeak)

3.5.1 Setup (fill)

TODO: Describe HV source, ramp rate, measurement points, and how alarm is detected.

3.5.2 Procedure (fill)

1. Ramp differential voltage upward under controlled conditions.
2. Record the voltage at which the alarm triggers.
3. Repeat N times and across units to characterize tolerance band.

3.5.3 Reporting

Report nominal trigger point and tolerance band. Include histogram/summary statistics.

3.6 Uncertainty and limitations (fill)

TODO: Describe key sources of measurement uncertainty:

- Instrument accuracy (generator, scope, DMM, HV source)
- Fixture parasitics and cabling
- Temperature / humidity effects
- Repeatability and operator variation

State limitations clearly and avoid overstating results.

4 Test record template

Record

Item	Value
Unit serial number	
Date	
Ambient temperature / humidity	
Operator	
Equipment list (model + SN)	
Firmware / hardware revision	
Notes	

Results (fill)

TODO: add a table for each metric you verify (gain, bandwidth, noise, CMRR, alarm threshold, etc.).