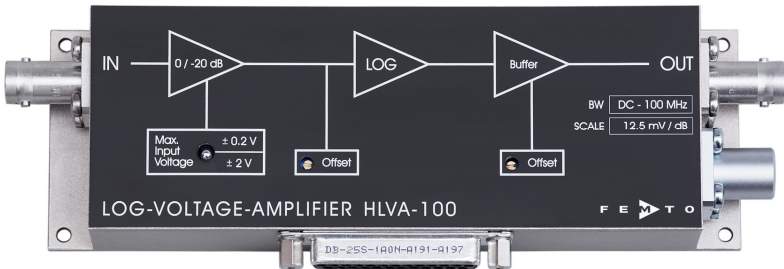


Datasheet

HLVA-100

Logarithmic Wideband
Voltage Amplifier



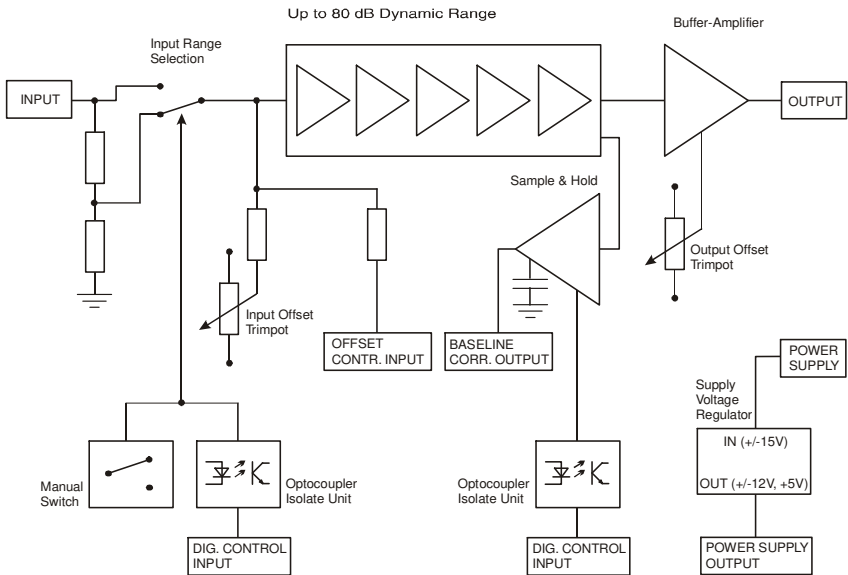
Features

- Wide Dynamic Range typ. 60 dB, max. 80 dB,
- 5 ns Rise/Fall Time @ 40 dB step
- Accuracy $\pm 1\text{ dB}$ @ pulse width of min. 20 ns
- Switchable Input Range $\pm 20\text{ }\mu\text{V}$... $\pm 200\text{ mV}$ or $\pm 200\text{ }\mu\text{V}$... $\pm 2\text{ V}$
- DC coupled input
- Local and Remote Control
- Integrated Sample & Hold Baseline Correction

Applications

- LIDAR systems
- Signal Compression, Pulse Measurements
- Time-Resolved Pulse and Transient Measurements
- Mass Spectroscopy
- Particle Detection

Block Diagram



Logarithmic Wideband Voltage Amplifier

Specifications	Test Conditions	$V_s = \pm 15\text{ V}$, $T_a = 25^\circ\text{C}$, System Impedance = $50\ \Omega$
Dynamic Performance	Dynamic Range	typ. 60 dB (for accurate amplitude measurements) max. 80 dB (signal detection)
	Input Voltage Range	$\pm 20\ \mu\text{V} \dots \pm 200\ \text{mV}$ / $\pm 200\ \mu\text{V} \dots \pm 2\ \text{V}$ switchable
	Scaling	12.5 mV/dB equals 250 mV/ decade (@ $50\ \Omega$ Load)
	Linearity	$\pm 1\ \text{dB}$ (for pulse of min. 20 ns pulse width)
Pulse Response	Rise/Fall time	5 ns @ 40 dB step
Input	Input Impedance	$50\ \Omega$
	Input Voltage Drift	$0.6\ \mu\text{V/K}$
	Equivalent Input Voltage Noise	$2\ \text{nV}/\sqrt{\text{Hz}}$
	Input BIAS Current	$< 4\ \mu\text{A}$
	Input Offset Voltage	$\pm 2.5\ \text{mV}$, adjustable by Offset-Trimpot and external Control Voltage
Output	Output Impedance	$50\ \Omega$
	Output Voltage Range	$+50 \dots +1075\ \text{mV}$ typ. (@ $50\ \Omega$ Load) (if Output is adjusted to 1V at 100mV Input)
	Output Offset Voltage Range	$\pm 500\ \text{mV}$, adjustable by Offset-Trimmer
Digital Control	Control Input Voltage Range	Low: $-0.8 \dots +0.8\ \text{V}$ High: $+3 \dots +12\ \text{V}$, TTL / CMOS compatible
	Control Input Current	Low: 0 mA High: $+1.5\ \text{mA}$ @ $+5\ \text{V}$ (Input Range Control) $+7\ \text{mA}$ @ $+5\ \text{V}$ (Baseline Correction Control)
Baseline Correction	Acquisition Time	$30\ \mu\text{s}$ (min. sample pulse width)
	Baseline Hold Droop Rate	$1\ \mu\text{V/s}$ (typ. @ 25°C)
	Loop cut-off frequency	1.5 kHz
Ext. Offset Control	Control Voltage Range	$\pm 10\ \text{V}$ (for $\pm 2.5\ \text{mV}$ Offset Control)
	Offset Control Input Impedance	$100\ \text{k}\Omega$
Power Supply	Supply Voltage	$\pm 15\ \text{V}$
	Supply Current	$+90 / -120\ \text{mA}$ typ.
	Stabilized Power Supply Output	$\pm 12\ \text{V}$ / max. 100 mA, $+5\ \text{V}$ / max. 50 mA
Case	Weight	320 gr. (0.74 lbs)
	Material	AlMg4.5Mn, nickel-plated
Temperature Range	Storage Temperature	$-40 \dots +100\ ^\circ\text{C}$
	Operating Temperature	$0 \dots +60\ ^\circ\text{C}$
Absolute Maximum Ratings	Power Supply Voltage	$\pm 20\ \text{V}$
	Signal Input Voltage	$\pm 3\ \text{V}$ @ $\pm 2\ \text{V}$ Input Range Setting $-3\ \text{V} / +300\ \text{mV}$ @ $\pm 200\ \text{mV}$ Input Range Setting
	Digital Control Input Voltage	$+16\ \text{V} / -5\ \text{V}$

Logarithmic Wideband Voltage Amplifier

Connectors	Input BNC Output BNC Power Supply LEMO Series 1S, 3-pin fixed Socket Pin 1: + 15V Pin 2: - 15V Pin 3: GND Control Port Sub-D 25-pin, female, Qual. Class 2 Pin 1: +12V (Stabilized Power Supply Output) Pin 2: -12V (Stabilized Power Supply Output) Pin 3: AGND (Analog Ground) Pin 4: +5V (Stabilized Power Supply Output) Pin 5 - 6: NC Pin 7: Baseline Correction Output Pin 8: Offset Control Voltage Input Pin 9: DGND (Ground f. Digital Control Pin 10 - 25) Pin 10: Digital Control Input: Input Voltage Range Pin 11: Digital Control Input: Baseline Correction Pin 12 - 25: NC												
Remote Control Operation	Input Range Setting Remote control input is opto-isolated and connected by logical OR to local switch setting. For remote control the switch setting, set the local switch to " $\pm 2\text{ V}$ " and select the wanted setting via a bit-code at the digital input. <table> <tr> <th>Input Range</th><th>Pin 10</th></tr> <tr> <td>$\pm 2\text{ V}$</td><td>Low</td></tr> <tr> <td>$\pm 200\text{ mV}$</td><td>High</td></tr> </table> Baseline Correction The integrated auto-null function can be performed by remote digital control only. The input is opto-isolated by a ultra-fast opto-coupler. Please note the min. pulse width. <table> <tr> <th>Function</th><th>Pin 11</th></tr> <tr> <td>Hold previous value</td><td>Low</td></tr> <tr> <td>Null Output</td><td>High</td></tr> </table>	Input Range	Pin 10	$\pm 2\text{ V}$	Low	$\pm 200\text{ mV}$	High	Function	Pin 11	Hold previous value	Low	Null Output	High
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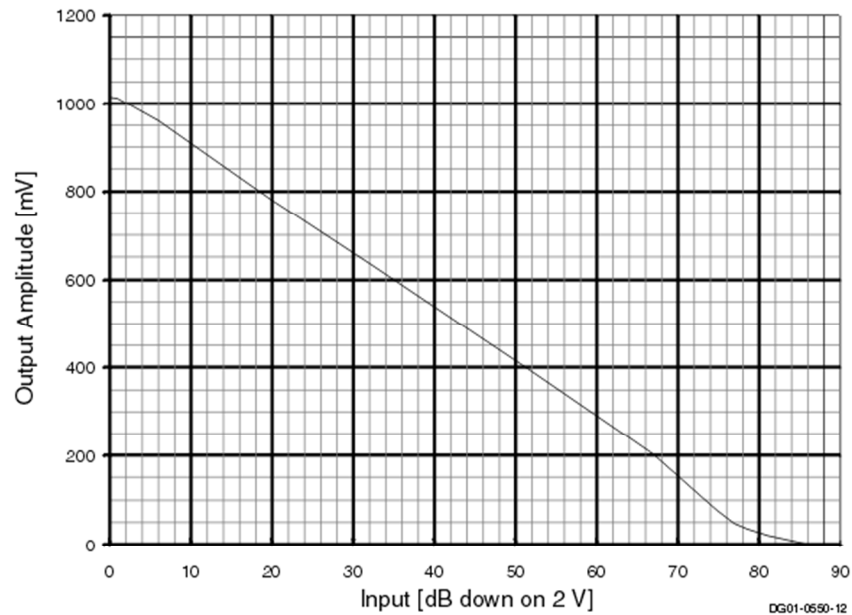
Datasheet

HLVA-100

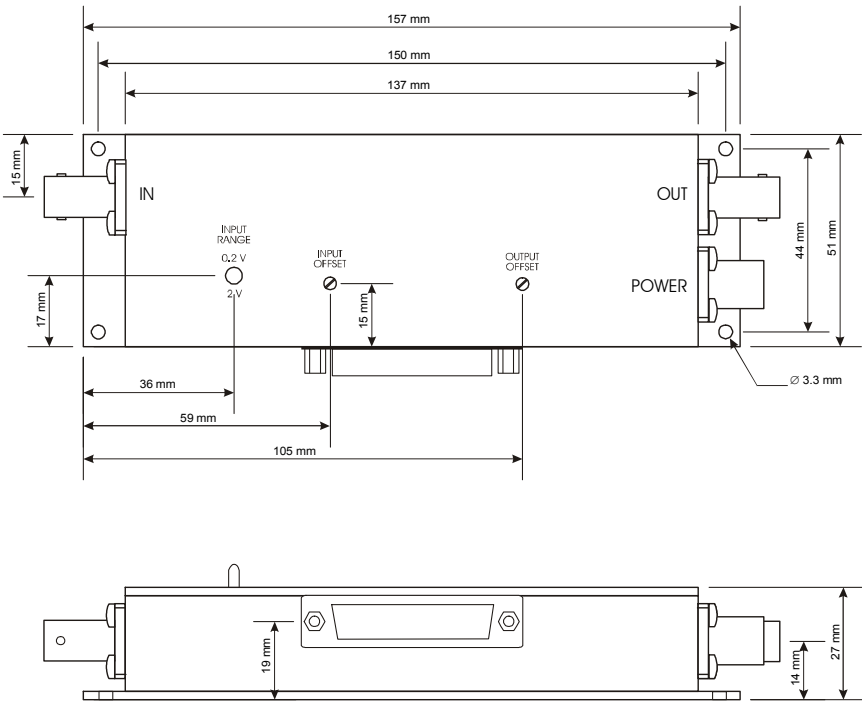
Logarithmic Wideband
Voltage Amplifier

Typical Performance
Characteristics

Logarithmic Response (@ ± 2 V Input Range Setting)



Dimensions



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