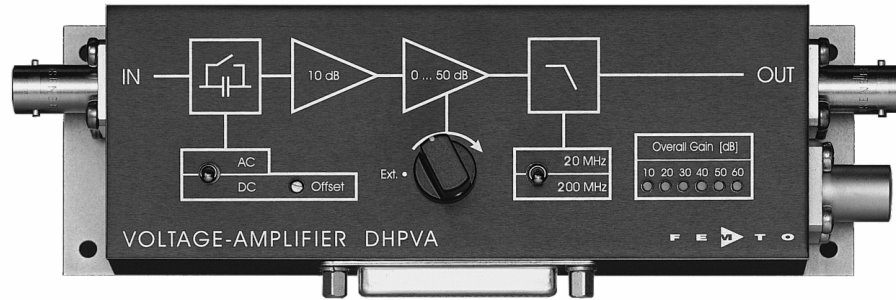


Datasheet

DHPVA-200

Variable Gain 200 MHz Wideband Voltage Amplifier



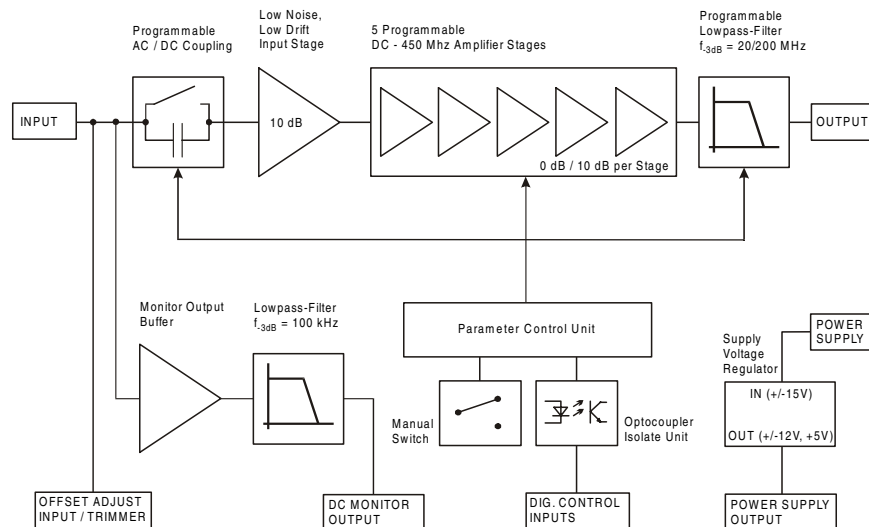
Features

- **Variable Gain 10 to 60 dB, Switchable in 10 dB Steps**
- **Bandwidth DC ... 200 MHz, Switchable to 20 MHz**
- **Built-In Temperature Compensation for Low Drift of 0.6 $\mu\text{V}/\text{K}$**
- **2.5 nV/ $\sqrt{\text{Hz}}$ Input Noise**
- **Switchable AC/DC-Coupling**
- **Bandwidth, Frequency- and Pulse Response Independent of Gain Setting**
- **Local and Remote Control**
- **DC Monitor Output**

Applications

- **Oscilloscope and Transient-Recorder Preamplifier**
- **Photomultiplier and Microchannel-Plate Amplifier**
- **Signal-Booster for Optical Receivers and Current Amplifiers**
- **Time-Resolved Pulse and Transient Measurements**
- **Automated Measurement Systems**
- **Integration in Compact Systems**

Block Diagram

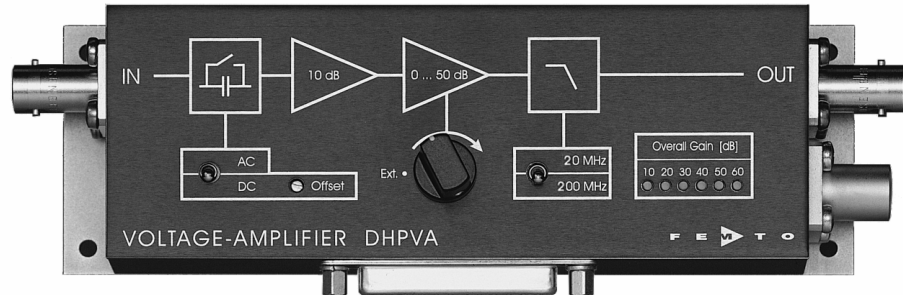


BS01-0541-17

Datasheet

DHPVA-200

Variable Gain 200 MHz Wideband Voltage Amplifier



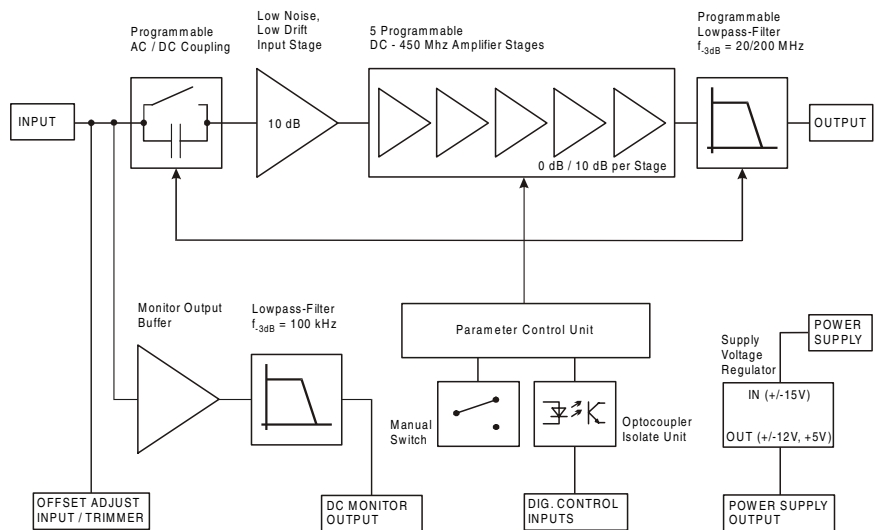
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Block Diagram



8501-0541-17

Variable Gain 200 MHz Wideband Voltage Amplifier

Specifications	<i>Test Conditions</i>	<i>V_s = ± 15 V, T_a = 25°C, System Impedance = 50 Ω</i>
Gain	Gain Values Gain Accuracy	10, 20, 30, 40, 50, 60 dB ± 0.15 dB (between settings) ± 0.3 dB (overall)
Frequency Response	Lower Cut-Off Frequency Upper Cut-Off Frequency Upper Cut-Off Frequency Roll-off	DC / 10 Hz 200 MHz, switchable to 20 MHz (approx. Bessel filter characteristic for clear pulse response) 40 dB/Oct.
Time Response	Rise / Fall Time (10% - 90%)	1.8 ns (@ 200 MHz) 18 ns (@ 20 MHz)
Input	Input Impedance Input Voltage Drift Equivalent Input Voltage Noise Equivalent Input Current Noise 1/f-Noise Corner Input BIAS Current Input Offset Voltage	50 Ω // 5 pF 0.6 μV/K 2.5 nV/√Hz (@ 30 – 60 dB Gain) 3.0 pA/√Hz 15 kHz < 200 nA - 10 mV ... + 10 mV, adjustable by offset-trimmer and external control voltage
Output	Output Impedance Output Voltage Range Output Power (max.) Output Current (max.) THD	50 Ω (terminate with 50 Ω load for best performance) 2 V _{pp} (for linear amplification) + 10 dBm 70 mA < 0.5 % (@ 20 MHz, 1 V _{pp})
Monitor Output	Monitor Output Gain Monitor Output Voltage Range Monitor Output Current Monitor Output Bandwidth	1 ± 5 V ± 10 mA DC ... 100 kHz
Indicator LED	Function	gain setting
Digital Control	Control Input Voltage Range Control Input Current Gain Control Switching Time	Low: - 0.8 ... + 0.8 V High: + 1.8 ... + 12 V, TTL / CMOS compatible 0 mA @ 0V, 1.5 mA @ + 5 V, 4.5 mA @ + 12V 5 ms
Ext. Offset Control	Control Voltage Range Offset Control Input Impedance	± 10 V, corresponds to ± 10 mV input offset 200 kΩ
Power Supply	Supply Voltage Supply Current Stabilized Power Supply Output	± 15 V ± 120 mA typ. (depends on operating conditions recommended power supply capability minimum 250 mA) ± 12 V / max. 100 mA, + 5V / max. 50 mA
Case	Weight Material	350 g (0.81 lbs) AlMg4.5Mn, nickel-plated
Temperature Range	Storage Temperature Operating Temperature	- 40 °C ... + 100 °C 0 °C ... + 60 °C

Datasheet**DHPVA-200**

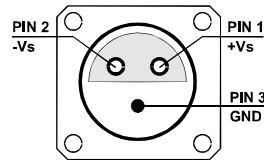
Variable Gain 200 MHz Wideband Voltage Amplifier

Absolute Maximum Ratings

Power Supply Voltage	$\pm 20\text{ V}$
Signal Input Voltage	$\pm 5\text{ V}$
Digital Control Input Voltage	$+ 16\text{ V} / - 5\text{ V}$

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**

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:	monitor output
Pin 6, 7:	NC
Pin 8:	offset control voltage input
Pin 9:	DGND (ground f. digital control Pin 10 - 25)
Pin 10:	digital control input: gain, LSB
Pin 11:	digital control input: gain
Pin 12:	digital control input: gain, MSB
Pin 13:	digital control input: AC/DC
Pin 14:	digital control input: 200 MHz/20 MHz
Pin 15 - 25:	NC

Variable Gain 200 MHz Wideband Voltage Amplifier

Remote Control Operation

General

Remote control input bits are opto-isolated and connected by logical OR to local switch setting. For remote control a switch setting, set the corresponding local switch to "Ext.", "AC" or "20 MHz" and select the wanted setting via a bit-code at the corresponding digital inputs. Mixed operation, e.g. local gain setting and remote controlled bandwidth setting is also possible.

Gain Setting

Gain	Pin 10	Pin 11	Pin 12
10 dB	low	low	low
20 dB	high	low	low
30 dB	low	high	low
40 dB	high	high	low
50 dB	low	low	high
60 dB	high	low	high

AC/DC Setting

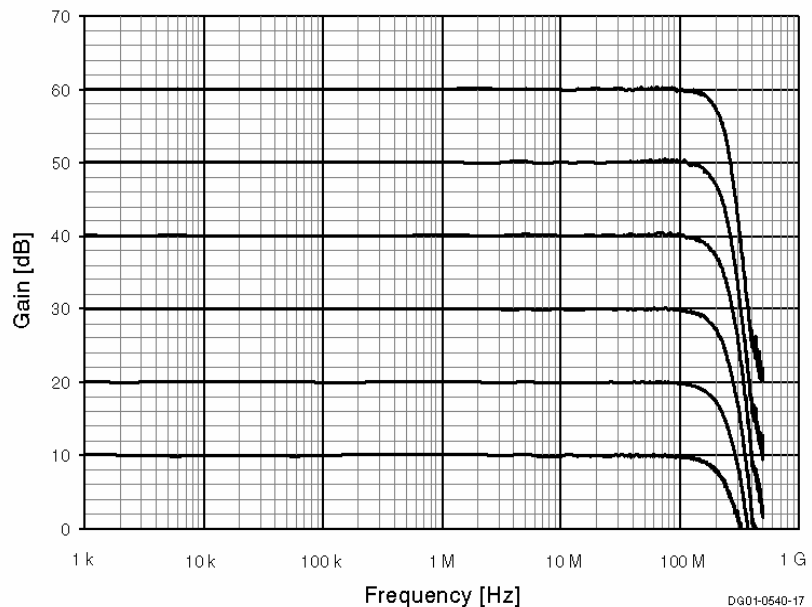
Coupling	Pin 13
AC	low
DC	high

Bandwidth Setting

Bandwidth	Pin 14
20 MHz	low
200 MHz	high

Typical Performance Characteristics

Frequency Response (Logarithmic)

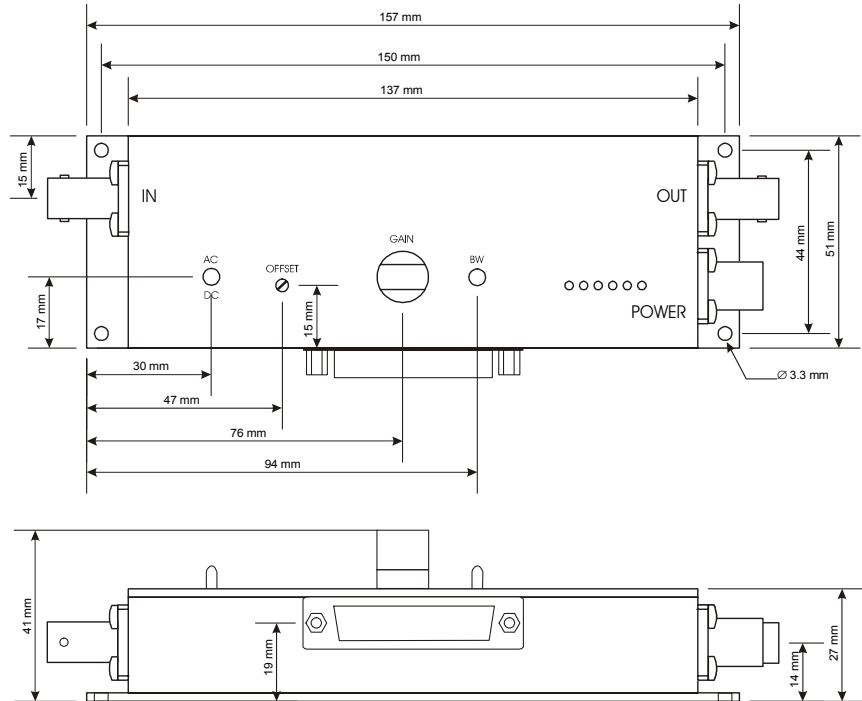


Datasheet

DHPVA-200

Variable Gain 200 MHz Wideband Voltage Amplifier

Dimensions



D201-0540-17

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SOPHISTICATED TOOLS FOR SIGNAL RECOVERY





Datasheet

LUCI-10

USB to D-Sub Control Interface for FEMTO Amplifiers



<p>Features</p>	<ul style="list-style-type: none"> • Compact Digital I/O Interface for USB Remote Control of FEMTO Amplifiers • Supports Opto-Isolation of Amplifier Signal Path from PC USB Port • 16 Digital Outputs, 3 Opto-Isolated Digital Inputs • Bus-Powered Operation • System Driver, Application Software and VI's for use with LabVIEW™ Included 																								
<p>Applications</p>	<ul style="list-style-type: none"> • Remote Control of FEMTO® Amplifiers and Photoreceivers Directly from a PC 																								
<p>Block Diagram</p>	<p style="text-align: right;">BS-LUCI-10_R1</p>																								
<p>Hardware Specifications</p>	<table border="0"> <tr> <td data-bbox="264 1619 475 1650">General Characteristics</td> <td data-bbox="548 1619 727 1675">Bus Interface</td> <td data-bbox="857 1619 1040 1650">USB 2.0 (full-speed)</td> </tr> <tr> <td></td> <td data-bbox="548 1650 727 1707">Digital I/O Channels</td> <td data-bbox="857 1650 1089 1707">16 output lines 3 opto-isolated input lines</td> </tr> <tr> <td></td> <td data-bbox="548 1707 613 1738">Supply</td> <td data-bbox="857 1707 1284 1764">PC USB port, + 5 V, typ. 100 mA, bus-powered (no auxiliary power supply required)</td> </tr> <tr> <td></td> <td data-bbox="548 1764 651 1795">Connectors</td> <td data-bbox="857 1764 959 1795">USB type A</td> </tr> <tr> <td></td> <td data-bbox="548 1795 602 1827">Cable</td> <td data-bbox="857 1795 1062 1852">D-Sub, 25 pin, male AWG 28, length 1.8 m</td> </tr> <tr> <td data-bbox="264 1875 329 1906">Output</td> <td data-bbox="548 1875 732 1911">Number of Channels</td> <td data-bbox="857 1875 1357 1932">16 output lines, supporting opto-isolation inside FEMTO amplifiers and photoreceivers</td> </tr> <tr> <td></td> <td data-bbox="548 1932 743 1963">Output Voltage Range</td> <td data-bbox="857 1932 1365 1988">LOW bit: 0 ... + 0.5 V (@ 0 ... 2 mA output current) HIGH bit: + 4 ... + 5.5 V (@ 0 ... 2 mA output current)</td> </tr> <tr> <td></td> <td data-bbox="548 1988 667 2045">Max. Current Writing Rate</td> <td data-bbox="857 1988 1149 2045">6 mA per channel max. 800 operations per second</td> </tr> </table>	General Characteristics	Bus Interface	USB 2.0 (full-speed)		Digital I/O Channels	16 output lines 3 opto-isolated input lines		Supply	PC USB port, + 5 V, typ. 100 mA, bus-powered (no auxiliary power supply required)		Connectors	USB type A		Cable	D-Sub, 25 pin, male AWG 28, length 1.8 m	Output	Number of Channels	16 output lines, supporting opto-isolation inside FEMTO amplifiers and photoreceivers		Output Voltage Range	LOW bit: 0 ... + 0.5 V (@ 0 ... 2 mA output current) HIGH bit: + 4 ... + 5.5 V (@ 0 ... 2 mA output current)		Max. Current Writing Rate	6 mA per channel max. 800 operations per second
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USB to D-Sub Control Interface for FEMTO Amplifiers

Software Specifications

Software
(included on CD)

Device Driver	dynamic link library (DLL) for integration in Microsoft Windows® operating system for use with C/C++, LabWindows™ /CVI™ or LabVIEW™
Application Software	GUI (graphical user interface) programs for simple remote control of FEMTO amplifiers and photoreceivers provided as executable programs and LabVIEW projects
LabVIEW Programs	sample programs to control and test the LUCI-10 hardware (including front panel and block diagram)
LabVIEW Library	special VI toolkit for integration in LabVIEW development environment

Note: A National Instruments LabVIEW™ license is not included in this software package. For use of the GUI application programs the LabVIEW Run-Time Engine is required. If not detected on the host PC during the installation process the LabVIEW Run-Time Engine will be installed automatically from the CD.

System Requirements

Operating System	Microsoft Windows XP with Service Pack 2, or higher
Processor	Intel Pentium III or AMD Athlon, or better
System Memory	512 MB of RAM, or more
Hard Disk Space	about 200 MB
Interface Port	USB 1.1 or USB 2.0
Supported FEMTO Modules	any standard FEMTO amplifier or photoreceiver with 25 pin D-Sub socket, except model HLVA-100

Optional Requirements

For development of own application programs an additional development environment like LabVIEW Version 8 (or higher) or C/C++ is required.

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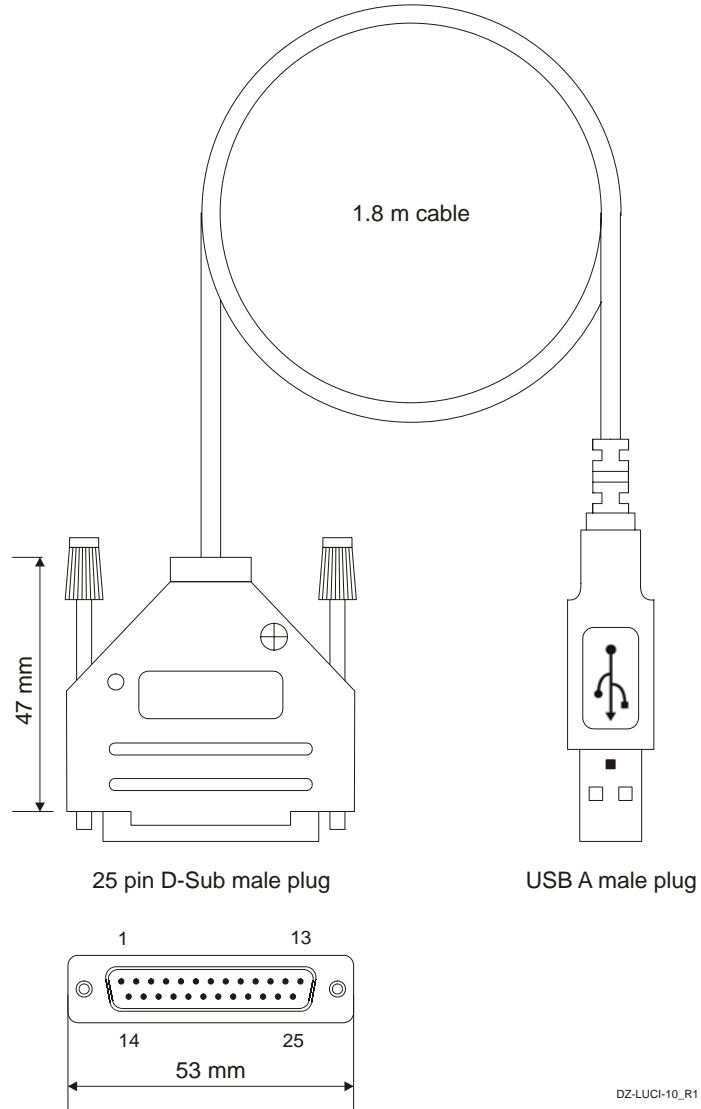
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USB to D-Sub Control Interface for FEMTO Amplifiers

Dimensions



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