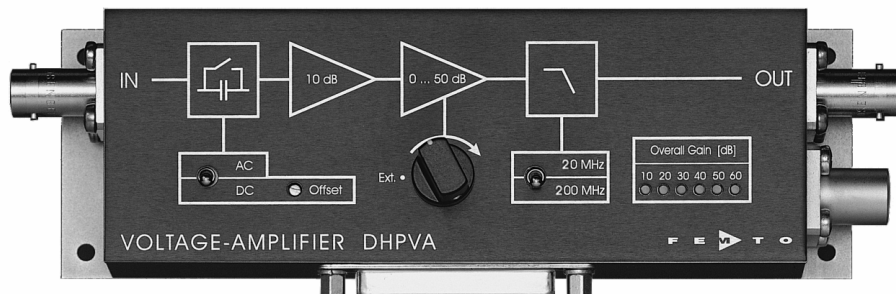


# Variable Gain 200 MHz Wideband Voltage Amplifier



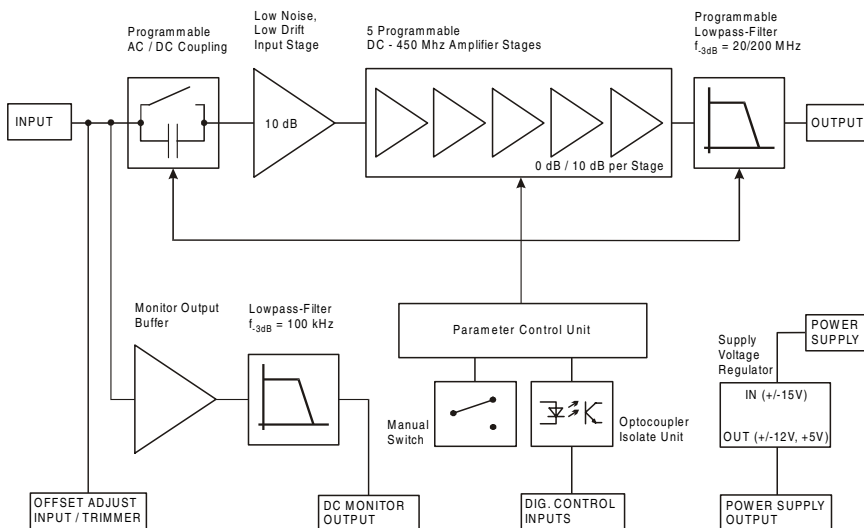
Features

- **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  $\mu$ V/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

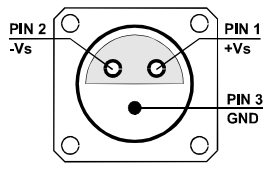


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## Variable Gain 200 MHz Wideband Voltage Amplifier

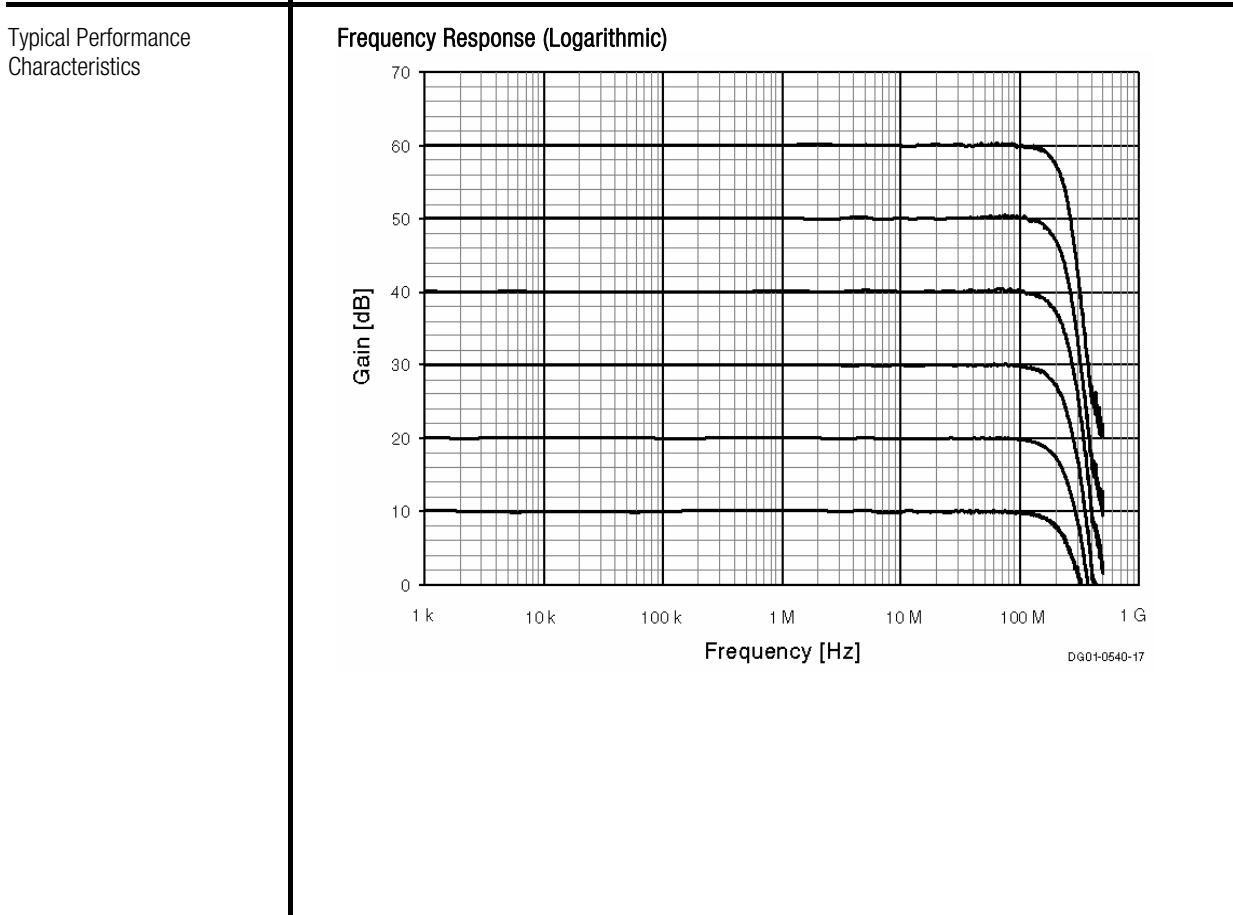
Specifications	<i>Test Conditions</i>	<i>V<sub>s</sub> = ± 15 V, T<sub>a</sub> = 25°C, System Impedance = 50 Ω</i>
Gain	Gain Values Gain Accuracy	10, 20, 30, 40, 50, 60 dB ± 0.15 dB (between settings) ± 0.3 dB (overall)
Frequency Response	Lower Cut-Off Frequency Upper Cut-Off Frequency  Upper Cut-Off Frequency Rolloff	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 <sub>pp</sub> (for linear amplification) + 10 dBm 70 mA < 0.5 % (@ 20 MHz, 1 V <sub>pp</sub> )
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

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Absolute Maximum Ratings	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Power Supply Voltage</td> <td style="padding: 2px; text-align: right;"><math>\pm 20\text{ V}</math></td> </tr> <tr> <td style="padding: 2px;">Signal Input Voltage</td> <td style="padding: 2px; text-align: right;"><math>\pm 5\text{ V}</math></td> </tr> <tr> <td style="padding: 2px;">Digital Control Input Voltage</td> <td style="padding: 2px; text-align: right;"><math>+ 16\text{ V} / - 5\text{ V}</math></td> </tr> </table>	Power Supply Voltage	$\pm 20\text{ V}$	Signal Input Voltage	$\pm 5\text{ V}$	Digital Control Input Voltage	$+ 16\text{ V} / - 5\text{ V}$		
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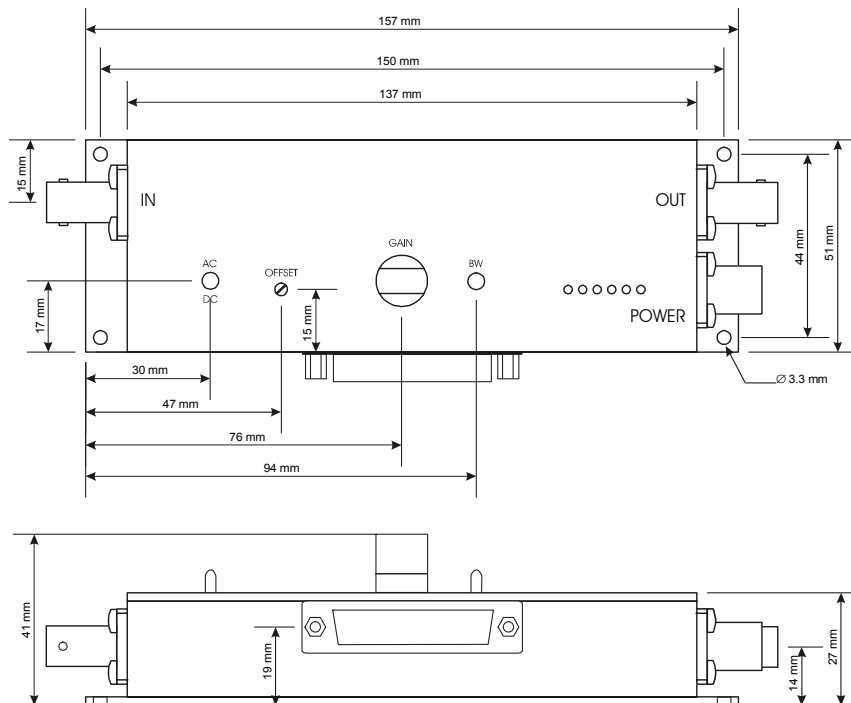
## Variable Gain 200 MHz Wideband Voltage Amplifier

Remote Control Operation	<p><b>General</b></p> <p>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.</p>																																			
	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"><b>Gain Setting</b></td> <td style="border-bottom: 1px solid black; text-align: center;">Gain</td> <td style="border-bottom: 1px solid black; text-align: center;">Pin 10</td> <td style="border-bottom: 1px solid black; text-align: center;">Pin 11</td> <td style="border-bottom: 1px solid black; text-align: center;">Pin 12</td> </tr> <tr> <td></td> <td>10 dB</td> <td style="text-align: center;">low</td> <td style="text-align: center;">low</td> <td style="text-align: center;">low</td> </tr> <tr> <td></td> <td>20 dB</td> <td style="text-align: center;">high</td> <td style="text-align: center;">low</td> <td style="text-align: center;">low</td> </tr> <tr> <td></td> <td>30 dB</td> <td style="text-align: center;">low</td> <td style="text-align: center;">high</td> <td style="text-align: center;">low</td> </tr> <tr> <td></td> <td>40 dB</td> <td style="text-align: center;">high</td> <td style="text-align: center;">high</td> <td style="text-align: center;">low</td> </tr> <tr> <td></td> <td>50 dB</td> <td style="text-align: center;">low</td> <td style="text-align: center;">low</td> <td style="text-align: center;">high</td> </tr> <tr> <td></td> <td>60 dB</td> <td style="text-align: center;">high</td> <td style="text-align: center;">low</td> <td style="text-align: center;">high</td> </tr> </table>	<b>Gain Setting</b>	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
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# Variable Gain 200 MHz Wideband Voltage Amplifier

Dimensions



D201-0540-17

FEMTO Messtechnik GmbH  
 Klosterstr. 64  
 D-10179 Berlin · Germany  
 Tel.: +49-(0)30-280 4711-0  
 Fax: +49-(0)30-280 4711-11  
 e-mail: info@femto.de  
 http://www.femto.de

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