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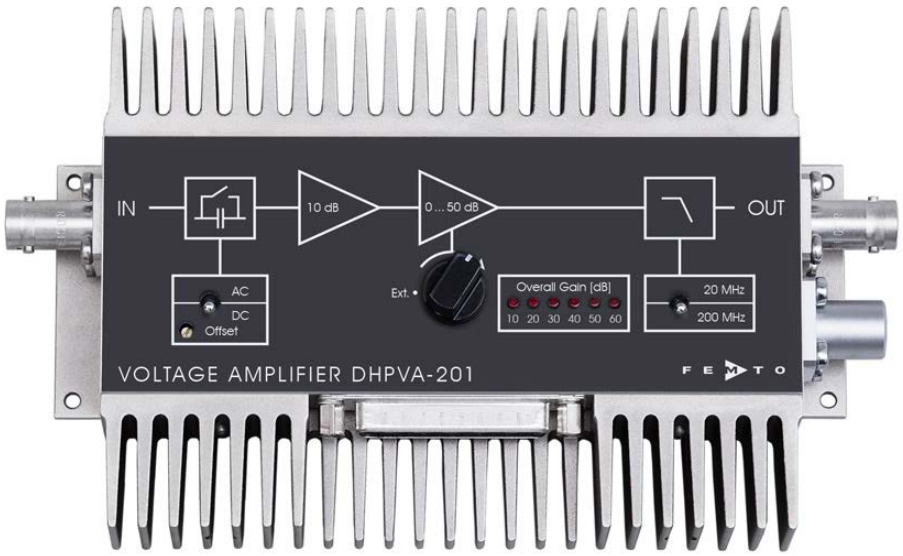
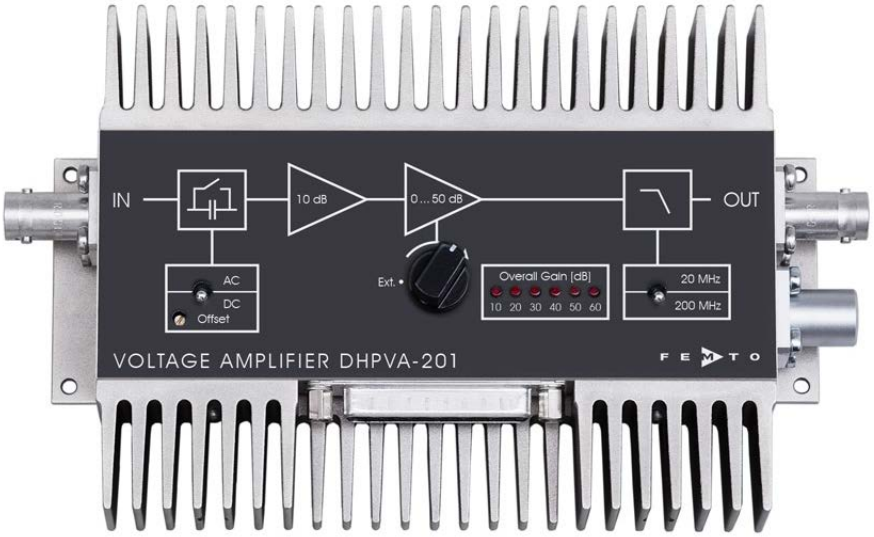
FEMTO®

VOLTAGE AMPLIFIERS

Variable Gain Wideband Amplifiers



DHPVA Series 100/200 MHz Wideband Voltage Amplifiers



- Bandwidth DC to 100 or 200 MHz independent of chosen gain setting
- Variable gain from 10 to 60 dB (× 3 to × 1,000)
- Input noise 2.3 nV/√Hz
- DC drift only 0.3 µV/°C
- True DC coupling, switchable to AC
- Switchable 10 or 20 MHz low pass filter for minimizing wide band noise
- Local and remote control

APPLICATIONS

Oscilloscope and transient recorder preamplifier | Photomultiplier amplifier | Signal booster for optical receivers and current amplifiers | Time-resolved pulse and transient measurements | Automated measurement systems

HVA Series Wideband Voltage Amplifiers

- Bandwidth DC to 10, 200 or 500 MHz
- Fixed or variable gain up to 60 dB (× 1,000)
- Noise down to 0.9 nV/√Hz
- True DC coupling, switchable to AC
- 50 Ω bipolar or 1 MΩ FET input stage

APPLICATIONS

Oscilloscope and transient recorder preamplifier | Photomultiplier and microchannel plate amplifier | Time-resolved pulse and transient measurements | Amplification of digital signals (no baseline shift at any digital code)

DLPVA Series Low-Frequency Voltage Amplifiers

- Bandwidth DC to 100 kHz
- Variable gain up to 100 dB (× 100,000)
- Input noise down to 0.4 nV/√Hz
- DC-drift down to 0.5 µV/°C
- True DC coupling, switchable to AC
- Input impedance up to 1 TΩ
- Local and remote control

APPLICATIONS

Universal low-frequency amplifier | Automated measurements | Industrial sensors | Detector preamplifier | Integrated measurement systems

For detailed information about DHPVA-, HVA-, and DLPVA-series see next page!

DHPVA Series Reference Class from DC to 200 MHz

Model	DHPVA-101	DHPVA-201
Lower Cut-Off Frequency	DC/10 Hz, switchable	DC/10 Hz, switchable
Upper Cut-Off Frequency	10/100 MHz, switchable	20/200 MHz, switchable
Gain [dB]	10/20/30/40/50/60, switchable	10/20/30/40/50/60, switchable
Input Voltage Noise	2.3 nV/√Hz	2.3 nV/√Hz
Input Voltage Drift	0.3 µV/°C	0.3 µV/°C
Input/Output	50 Ω, BNC	50 Ω, BNC
Input Return Loss S11	–31 dB @ 100 MHz	–22 dB @ 200 MHz
Output Return Loss S22	–35 dB @ 100 MHz	–30 dB @ 200 MHz
Output Voltage	±1 V @ 50 Ω	
Monitor Output	DC - 100 kHz monitor output at D-Sub connector, gain of 1	
Digital Control	5 opto-isolated digital inputs, TTL/CMOS compatible	
Power Requirements	±15 V, ±120 mA typ.	
Dimensions	175 x 105 x 45 mm (L x W x H), weight 560 g (1.24 lbs)	

Offset adjustable by trimpot or external control voltage. Indication of selected gain setting by LEDs. Output short-circuit protected. Power supply via 3-pin Lemo® socket. A mating connector is provided with the device. Optional power supply series PS-15 available. For further information please see the datasheet.

The new improved models DHPVA-101 and DHPVA-201 replace the previous models DHPVA-100 and DHPVA-200. They are fully compatible delivering at least the same or better electrical performance. The heatsinks may be removed if adequate alternative cooling is provided like mounting the amplifier to a sufficiently large case/rack system.

HVA Series True DC-Coupling with Zero Output Offset

Model	HVA-10M-60-B	HVA-10M-60-F	HVA-200M-40-B	HVA-200M-40-F	HVA-500M-20-B
Lower Cut-Off Frequency	DC/1 kHz	DC/1 Hz	DC/1 kHz	DC/1 Hz	DC
Upper Cut-Off Frequency	10 MHz	10 MHz	200 MHz	200 MHz	500 MHz
Gain [dB]	40/60	40/60	20/40	20/40	20
Input Voltage Noise	0.9 nV/√Hz	4.7 nV/√Hz	1.2 nV/√Hz	4.5 nV/√Hz	3.0 nV/√Hz
Input Voltage Drift	1 µV/°C	2 µV/°C	1 µV/°C	5 µV/°C	10 µV/°C
Input	50 Ω, BNC	1 MΩ, BNC	50 Ω, BNC	1 MΩ, BNC	50 Ω, BNC
Output	50 Ω, BNC	50 Ω, BNC	50 Ω, BNC	50 Ω, BNC	50 Ω, BNC
Output Voltage	±3.5 V @ 50 Ω	±3.5 V @ 50 Ω	±1 V @ 50 Ω	±1 V @ 50 Ω	±1 V @ 50 Ω
Power Requirements	±15 V, ±70 mA typ.				
Dimensions	112 x 51 x 33 mm (L x W x H), weight 200 g (0.5 lbs)				

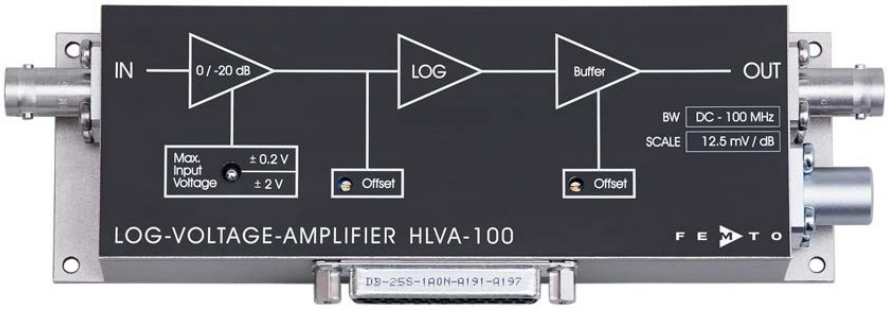
Offset adjustable by trimpot. Output short-circuit protected. Power supply via 3-pin Lemo® socket. A mating connector is provided with the device. Optional power supply PS-15 available. For further information please view the datasheet.

DLPVA Series High Gain up to 100 dB

Model	DLPVA-100-BUN-S	DLPVA-100-BLN-S	DLPVA-100-B-S	DLPVA-100-B-D	DLPVA-100-F-S	DLPVA-100-F-D
Input stage	Single ended, bipolar	Single ended, bipolar	Single ended, bipolar	True diff., bipolar	Single ended, FET	True diff., FET
Input	1 kΩ, BNC	1 MΩ, BNC	1 MΩ, BNC	1 MΩ, Lemo®	1 TΩ, BNC	1 TΩ, Lemo®
Typical Source Impedance	<50 Ω	<100 Ω	<1 kΩ	<1 kΩ	<1 GΩ	<1 GΩ
Lower Cut-Off Frequency	1.5 Hz (AC only)	DC/1.5 Hz	DC/1.5 Hz	DC/1.5 Hz	DC/1.5 Hz	DC/1.5 Hz
Upper Cut-Off Frequency	1/100 kHz	1/100 kHz	1/100 kHz	1/100 kHz	1/100 kHz	1/100 kHz
Gain [dB]	40/60/80/100	40/60/80/100	20/40/60/80	20/40/60/80	20/40/60/80	20/40/60/80
Input Voltage Noise	0.4 nV/√Hz	0.7 nV/√Hz	2.4 nV/√Hz	3.6 nV/√Hz	5.5 nV/√Hz	6.9 nV/√Hz
Input Voltage Drift	-	0.5 µV/°C	0.7 µV/°C	0.7 µV/°C	1.3 µV/°C	1.3 µV/°C
CMRR	-	-	-	120 dB max.	-	120 dB max.
Output	<100 Ω, BNC (terminate with > 10 kΩ load for best performance)					
Output Voltage	±10 V (@ > 10 kΩ load)					
Digital Control	3 or 4 digital inputs and 1 digital output, opto-isolated, TTL/CMOS compatible					
Power Requirements	±15 V, ±75 mA typ.					
Dimensions	175 x 51 x 34 mm (L x W x H), weight 320 g (0.7 lbs)					

Offset adjustable by trimpot or external control voltage. Indication of selected gain setting by LED. Output short-circuit protected. Power supply via 3-pin Lemo® socket. A mating connector is provided with the device. Optional power supply PS-15 available. For further information please view the datasheet.

HLVA-100 Logarithmic Wideband Voltage Amplifier



- Wide dynamic range up to 80 dB
- DC coupled, rectifying* input
- Switchable input range from ±20 µV to ±200 mV and from ±200 µV to ±2 V
- Rise/fall time 5 ns
- Input noise 2 nV/√Hz
- Local and remote control
- Integrated sample and hold baseline correction

APPLICATIONS

LIDAR systems | Signal compression | Time-resolved pulse and transient measurements | Mass spectroscopy | Particle detection

Model	HLVA-100	
Input Voltage Range	from ±20 µV to ±200 mV and from ±200 µV to ±2 V, switchable	
Dynamic Range	Typ. 60 dB (for accurate amplitude measurement) Max. 80 dB (for signal detection)	
Scaling	12.5 mV/dB, 250 mV/decade (@ 50 Ω load)	
Linearity	±1 dB (for pulse of min. 20 ns pulse width)	
Input Voltage Noise	2 nV/√Hz	
Input Voltage Drift	0.6 µV/°C	
Input/Output	50 Ω, BNC	
Rise/Fall Time	5 ns @ 40 dB step	
Output Voltage Range	+50 to +1075 mV typ. @ 50 Ω load (if output is adjusted to 1 V at 100 mV input)	
Output Offset Voltage Range	±500 mV, adjustable by offset-trimpot	
Baseline Correction	Acquisition time	30 µs (min. sample pulse width)
	Baseline hold droop rate	1 µV/s (typ. @ 25°C)
	Loop cut-off frequency	1.5 kHz
Digital Control	2 opto-isolated digital inputs, TTL/CMOS compatible	
Power Requirements	±15 V, +90 mA/–120 mA typ.	
Dimensions	171 x 57 x 34 mm (L x W x H), weight 320 g (0.7 lbs)	

Offset adjustable by trimpot or external control voltage. Power supply via 3-pin Lemo® socket. A mating connector is provided with the device. Optional power supply PS-15 available. For further information please view the datasheet.

*The logarithm of a negative number is not defined as real number. Therefore the negative part of an input signal is rectifyed prior to applying the logarithmic amplification.