

Differential Preamplifier

ADA400A Datasheet



ADA400A

The ADA400A Differential Preamplifier allows direct oscilloscope measurements of very low amplitude voltages and signals which are not ground referenced. The high impedance of both inputs eliminates the need to add additional ground points in the DUT, thereby avoiding circulating currents which disturb the measurement or the circuit.

Key performance specifications

- 10 $\mu\text{V}/\text{div}$ sensitivity
- Typically 100 dB CMRR DC to 10 kHz

Key features

- Active differential preamplifier
- Integral probe power with TEKPROBE™ BNC

Connectivity

- The ADA400A is powered directly from TDS400, TDS500, TDS600, TDS700, TDS5000, TDS7000 (TEKPROBE), TDS7000 (TekConnect) w/ TCA-1MEG Series oscilloscopes.
- The ADA400A may also be powered by a 1103 Probe Power Supply.

Applications

- Mechanical analysis
- Audio design
- Biomedical research (not certified for patient connection)
- Medical equipment (not certified for patient connection)

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The high gain and extremely high common mode rejection of the ADA400A Differential Preamplifier provide usable measurements of voltages as low as 5 μV , even in high-noise environments. Selectable bandwidth limiting reduces normal mode noise from digital logic, switch mode power supplies, and line frequency sources. Adjustable differential offset allows the user to null out transducer bridge bias and galvanic potential from the test setup. An "infinite impedance" mode can be selected in the two highest gain ranges allowing accurate measurements of signals with high source impedance.

Specifications

All specifications are guaranteed unless noted otherwise. All specifications apply to all models unless noted otherwise.

Gain settings	100x, 10x, 1x, 0.1x			
CMRR	≥100,000: 1 DC - 10 kHz			
Signal ranges	Gain setting	Common Mode signal range	Differential signal range ¹	Max offset
	100x	±10 V	0.1 V	±1.0 V
	10x	±10 V	1 V	±1.0 V
	1x	±40 V	10 V	±40 V
	0.1x	±40 V	80 V	±40 V
Bandwidth limits	100 Hz, 3 kHz, 100 kHz, full (≥1 MHz)			
Input impedance	1 MΩ ~ 55 pF (infinity Ω selectable in 100x and 10x gains)			
Noise	Typically ≤30 μV _{RMS} at 100x gain (referred to input)			

¹ For higher voltages, attenuating probes may be used, but CMRR performance will be degraded.

Ordering information

Models

ADA400A	Differential Preamplifier
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Standard accessories

Instruction manual	070-9164-XX
Spare input fuses (2)	159-0024-XX

Recommended accessories

P6101B 1x passive probe	2 recommended
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Options

Service options

Opt. C3	Calibration Service 3 Years
Opt. C5	Calibration Service 5 Years
Opt. D1	Calibration Data Report
Opt. D3	Calibration Data Report 3 Years (with Opt. C3)
Opt. D5	Calibration Data Report 5 Years (with Opt. C5)
Opt. R5	Repair Service 5 Years (including warranty)
Opt. SILV200	Standard warranty extended to 5 years

CE Marking Not Applicable.



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ASEAN / Australasia (65) 6356 3900
Belgium 00800 2255 4835*
Central East Europe and the Baltics +41 52 675 3777
Finland +41 52 675 3777
Hong Kong 400 820 5835
Japan 81 (3) 6714 3010
Middle East, Asia, and North Africa +41 52 675 3777
People's Republic of China 400 820 5835
Republic of Korea +822 6917 5084, 822 6917 5080
Spain 00800 2255 4835*
Taiwan 886 (2) 2656 6688

Austria 00800 2255 4835*
Brazil +55 (11) 3759 7627
Central Europe & Greece +41 52 675 3777
France 00800 2255 4835*
India 000 800 650 1835
Luxembourg +41 52 675 3777
The Netherlands 00800 2255 4835*
Poland +41 52 675 3777
Russia & CIS +7 (495) 6647564
Sweden 00800 2255 4835*
United Kingdom & Ireland 00800 2255 4835*

Balkans, Israel, South Africa and other ISE Countries +41 52 675 3777
Canada 1 800 833 9200
Denmark +45 80 88 1401
Germany 00800 2255 4835*
Italy 00800 2255 4835*
Mexico, Central/South America & Caribbean 52 (55) 56 04 50 90
Norway 800 16098
Portugal 80 08 12370
South Africa +41 52 675 3777
Switzerland 00800 2255 4835*
USA 1 800 833 9200

* European toll-free number. If not accessible, call: +41 52 675 3777

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Tektronix®

CalPlus GmbH
Zentrale Berlin
Heerstraße 32 • 14052 Berlin
Tel.: 030 214982-0 • Fax: 030 214982-50
office@calplus.de • www.calplus.de

CalPlus GmbH
Niederlassung ScopeShop
Normannenweg 30 • 20537 Hamburg
Tel.: 040 3039595-0 • Fax: 040 3039595-50
scopeshop@calplus.de • www.calplus.de