



Low Cost Low Power Instrumentation Amplifier

FEATURES

-Pin-to-pin compatible with industry standard AD620

EASY TO USE

- Gain Set with One External Resistor :
 $G = 1 + (49,4 \text{ k}\Omega / R_G)$ (Gain Range 1 to 1000)
- Wide Power Supply Range ($\pm 2.3 \text{ V}$ to $\pm 18 \text{ V}$)
- Higher Performance than Three Op Amp IA Designs
- Available in 8-Lead SOIC Packaging
- Low Power

EXCELLENT DC PERFORMANCE ("B GRADE")

- 50 μV max, Input Offset Voltage
- 0.6 $\mu\text{V}/^\circ\text{C}$ max, Input Offset Drift
- 0,8 nA max, Input Bias Current
- 100 dB min Common-Mode Rejection Ratio ($G = 10$)

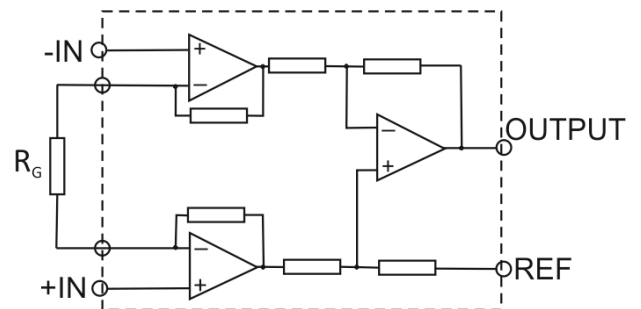
LOW NOISE

- 9 nV/Hz^{0,5}, @ 1 kHz, Input Voltage Noise
- 0.28 μV p-p Noise (0.1 Hz to 10 Hz)

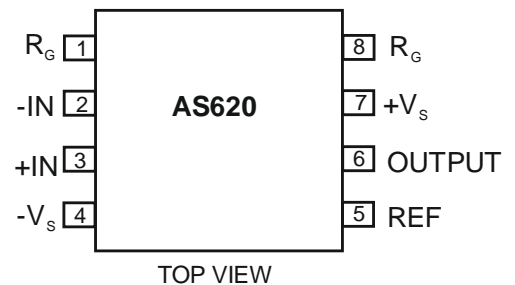
APPLICATIONS

- Weigh Scales
- ECG and Medical Instrumentation
- Transducer Interface
- Data Acquisition Systems
- Industrial Process Controls
- Battery Powered and Portable Equipment

Block diagram AS620



CONNECTION DIAGRAM
DIP-8, SOIC-8 Packages



AS620AR, AS620BR: SOIC-8
AS620AN, AS620BN: DIP-8



SPECIFICATION

Table 1. $V_s = \pm 16.5\text{ V}$, $V_{REF} = 0\text{ V}$, $T_A = +25^\circ\text{C}$, $G = 1$, $R_L = 2\text{ k}\Omega$, unless otherwise noted.

Parameter, Unit	Symbol	Conditions	AS620A		AS620B	
			Min	Max	Min	Max
GAIN Gain Range, V/V Gain Error ¹⁾ G=1 ,% Overtemperature G=10, G=100 ,% Overtemperature G=1000 ,% Overtemperature Gain Nonlinearity G=1, G=10 G=100 G=1000	G= 1 + (49,4 kΩ/R _G) GEO GE1, GE2 GE3 DL	T = +25°C V _{OUT} = ±10 V, V _s = ±15 V T = +25°C T = -45°C to +85°C T = +25°C T = -45°C to +85°C T = +25°C T = -45°C to +85°C V _{OUT} = -10 V to +10 V V _s = ±15 V R _L = 2 kΩ R _L = 2 kΩ R _L = 10 kΩ				
			1	1000	1	1000
				0,1		0,02
				0,2		0,12
				0,3		0,15
				0,8		0,5
				0,7		0,5
				1,2		1,0
			15		15	
			30		30	
			95		40	
VOLTAGE OFFSET Input Offset, μV Overtemperature Average TC, μV/°C Output Offset, μV Overtemperature Average TC, μV/°C Offset RTI vs. Supply, dB G=1 G=10 G=100, G=1000	Total Vos = Vos1 + Vos0/G Vos1 Vos01 Vos02 PSR	V _s = ±4,5 V to ± 16,5 V T = -45°C to +85°C V _s = ± 16,5 V V _s = ±4,5 V V _s = ±4,5 V to ± 16,5 V V _s = ±2,3 V to ± 18 V				
				125		50
				185		85
				1		0,6
				1000		500
				1500		750
				2000		1000
				15		7
				80		80
	95		100			
	110		120			
INPUT CURRENT Input Bias Current, nA Overtemperature Input Offset Current, nA Overtemperature	I _{BIAS} I _{OS}	T = +25°C T = -45°C to +85°C T = +25°C T = -45°C to +85°C				
				1,5		0,8
				2,5		1,5
				1,0		0,5
Input Voltage Range, V ²⁾ Overtemperature Overtemperature	IVR	V _s = ±2,3 V to ± 4,5 V T = -45°C to +85°C V _s = ±4,5 V to ± 16,5 V T = -45°C to +85°C	-V _s + 1,9	+V _s - 1,2	-V _s + 1,9	+V _s - 1,2
			-V _s + 2,1	+V _s - 1,3	-V _s + 2,1	+V _s - 1,3
			-V _s + 1,9	+V _s - 1,4	-V _s + 1,9	+V _s - 1,4
			-V _s + 2,1	+V _s - 1,4	-V _s + 2,1	+V _s - 1,4
REFERNCE INPUT Reference Input Current, μA Voltage Range, V Gain to Output Error, ppm	I _{IN} VR G _{tO}	V _{IN+} , V _{REF} = 0		60		60
			-V _s + 1,6	+V _s - 1,6	-V _s + 1,6	+V _s - 1,6
				200		100



AS "ALFA RPAR"

AS620

Riga, Latvia www.alfarzpp.lv; alfa@alfarzpp.lv

OUTPUT Output Swing, V Overtemperature Overtemperature Overtemperature	Osw1	RL=10 kΩ, Vs=±2,3 V T = -45°C to +85°C	-Vs + 1,1	+Vs - 1,2	-Vs + 1,1	+Vs - 1,2
	Osw2	RL=10 kΩ, Vs =±4,5 V T = -45°C to +85°C	-Vs + 1,4	+Vs - 1,3	-Vs + 1,4	+Vs - 1,3
	Osw3	RL=10 kΩ, Vs=±18 V T = -45°C to +85°C	-Vs + 1,1	+Vs - 1,2	-Vs + 1,1	+Vs - 1,2
			-Vs + 1,4	+Vs - 1,3	-Vs + 1,4	+Vs - 1,3
			-Vs + 1,2	+Vs - 1,4	-Vs + 1,2	+Vs - 1,4
			-Vs + 1,6	+Vs - 1,5	-Vs + 1,6	+Vs - 1,5
Common-Mode Rejection Ratio DC to 60 Hz with 1 kΩ Source Imbalance G=1 G=10 G=100, G=1000	CMRR	VCM = 0 V to ± 10 V VCM = 0 V to ± 10 V VCM = 0 V to ± 10 V				
			73		80	
			93		100	
			110		120	
NOISE Voltage Noise, 1 kHz Input Voltage Noise, nV/√Hz Output Voltage Noise, nV/√Hz RTI, μV p-p G=1 G=10 G=100÷1000	Total RTI Noise = $\sqrt{(e^2_{ni})+(e_{no}/G)^2}$					
	eni			13		13
	eno			100		100
		f = 0,1 Hz to 10 Hz		6,0		6,0
		f = 0,1 Hz to 10 Hz		0,8		0,8
		f = 0,1 Hz to 10 Hz		0,4		0,4
Slew Rate, V/μs	SR		0,75		0,75	
POWER SUPPLY Operating Range, V Quiescent Current, mA Overtemperature	Icc+, Icc-					
			± 2,3	± 18	± 2,3	± 18
				1,6		1,6
			1,9		1,9	

¹) Does not include effects of external resistor R_G.

²) One input grounded. G= 1.

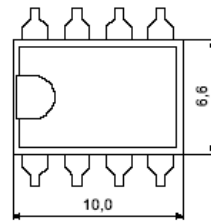
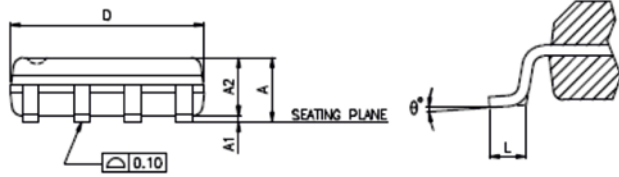
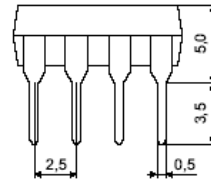
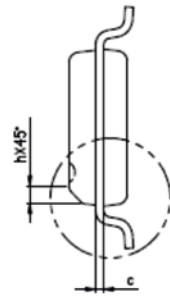
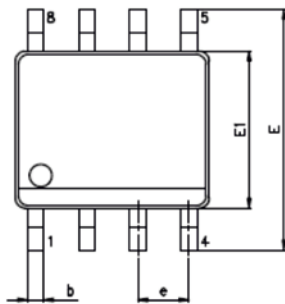


AS "ALFA RPAR"

AS620

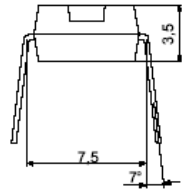
Riga, Latvia www.alfarzpp.lv; alfa@alfarzpp.lv

SOIC-8



UNIT - mm

DIP-8



SYMBOLS	MIN.	MAX.
A	—	1.75
A1	0.10	0.25
A2	1.25	—
b	0.31	0.51
c	0.10	0.25
D	4.90 BSC	
E	6.00 BSC	
E1	3.90 BSC	
e	1.27 BSC	
L	0.40	1.27
h	0.25	0.50
θ°	0	8