

Hybrid IC Isolation Amplifiers 20 Series

ISOLATION AMPLIFIER

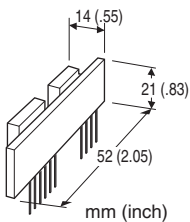
(input isolation)

Functions & Features

- Being used for printed wiring board installation
- Up to 2.3 kV isolation between input to output or power input
- Small stray capacitance between input and output
- Small installation area in printed wiring board
- Gain adjustable range, $\times 1$ to $\times 10$
- Power 11.5 - 16 V DC

Typical Applications

- Isolating the field and input circuit of microprocessor to reduce noise from field
- Available for manufacturers of small-lot products to omit the development of isolation circuit



MODEL: 20VS1B-7W7W-U

ORDERING INFORMATION

- Code number: 20VS1B-7W7W-U

INPUT / OUTPUT

7W7W: -7.5 - +7.5 V DC (Input resistance 1 M Ω min.)
/ -7.5 - +7.5 V DC (Load resistance 5 k Ω min.)

POWER INPUT

DC Power
U: 15 V DC

GENERAL SPECIFICATIONS

Construction: Hybrid IC
Isolation: Input to output or power

INPUT SPECIFICATIONS

■ **DC Voltage**
Input : -7.5 - +7.5 V DC
Input resistance: ≥ 1 M Ω (10 k Ω in power failure)

Overload input voltage: ± 30 V DC continuous
Input offset voltage: ± 30 mV
Input bias current: 0.5 nA TYP. (@25°C)

OUTPUT SPECIFICATIONS

■ **DC Voltage:** -7.5 - +7.5 V DC
Load resistance: ≥ 5 k Ω
Output impedance: ≤ 1 Ω

REFERENCE VOLTAGE SOURCE

Output voltage:
 ± 15 V DC TYP. (+15 V power supply)
 ± 11 V DC TYP. (+11.5 V power supply)
Load current: ≤ 2 mA

INSTALLATION

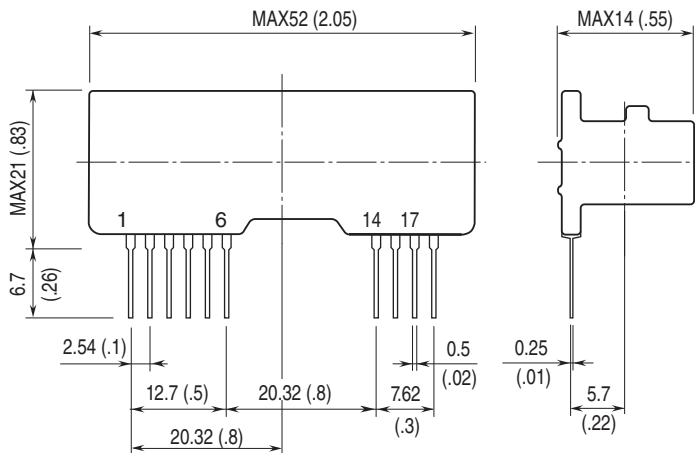
Power input

- **DC:**
Operational voltage range 11.5 - 16 V;
ripple 2 %p-p max.; approx. 7 mA with no load
Operating temperature: -10 to +70°C (14 to 158°F)
Operating humidity: 30 to 90 %RH (non-condensing)
Mounting: Soldering to the printed wiring board
Weight: 10g (0.35 oz)

PERFORMANCE in percentage of span

Linearity: ± 0.05 %
Temp. coefficient:
Offset drift 50 ppm/°C @G = 1
Span drift 50 ppm/°C @G = 1
Frequency characteristics: 1 kHz, 3 dB
Response time: ≤ 450 microsec.
Conversion gain: $\times 0.95 \pm 5$ %
Gain adjustable range: $\times 1$ to $\times 10$
Line voltage effect: ± 0.2 % over voltage range
Insulation resistance: ≥ 100 M Ω with 500 V DC
Dielectric strength: 2300 V AC @1 minute (input or reference voltage source to output or power)
CMRR: ≥ 100 dB (500 V AC 50/60 Hz)

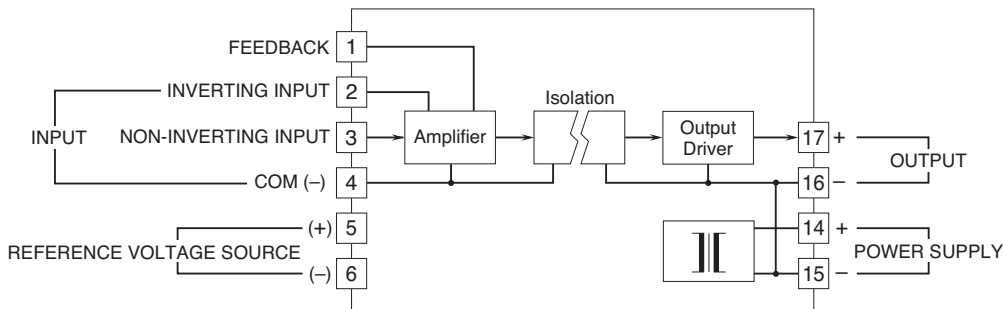
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)



PIN ASSIGNMENT

1	FEEDBACK
2	INVERTING INPUT
3	NON-INVERTING INPUT
4	COM (-)
5	REFERENCE VOLTAGE SOURCE (+)
6	REFERENCE VOLTAGE SOURCE (-)
14	POWER SUPPLY (+)
15	POWER SUPPLY (-)
16	OUTPUT (-)
17	OUTPUT (+)

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

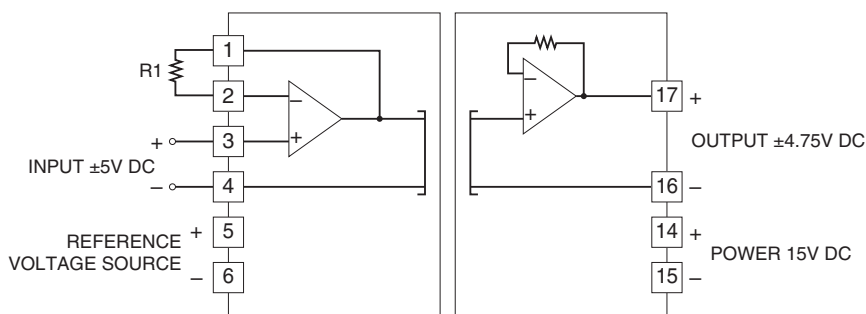


Note. The reference voltage source is common to the COM (-), terminal 4.

APPLICATION EXAMPLE

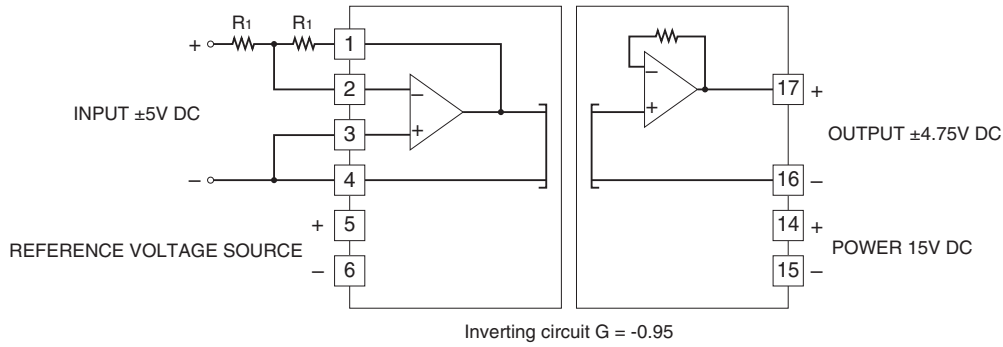
The series resistance of the amplifier, R1 + R2 must be between 10 kΩ and 200 kΩ.

■ Non-inverting amplifier circuit: Basic example of G = 0.95

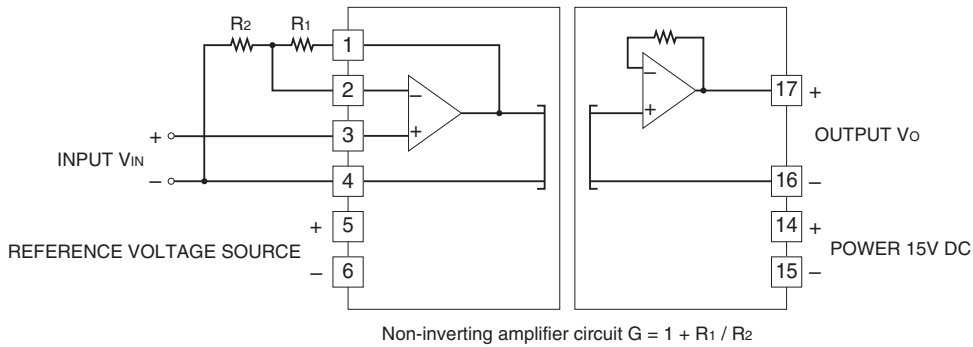


Non-inverting circuit G = 0.95

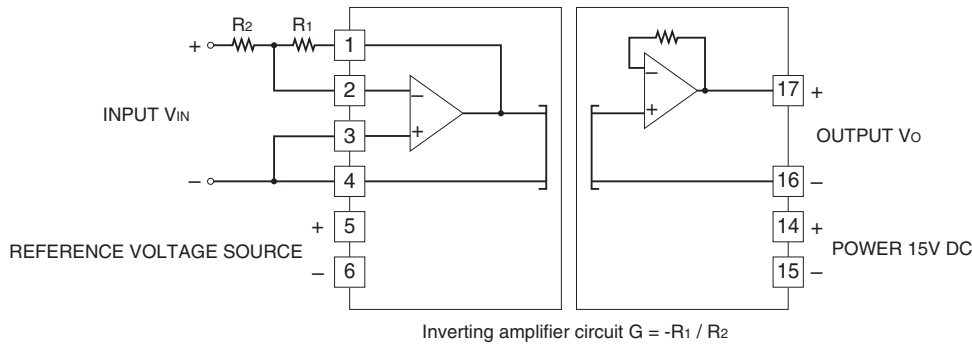
■ Inverting amplifier circuit: Basic example of $G = -0.95$ (output inverted to the input)



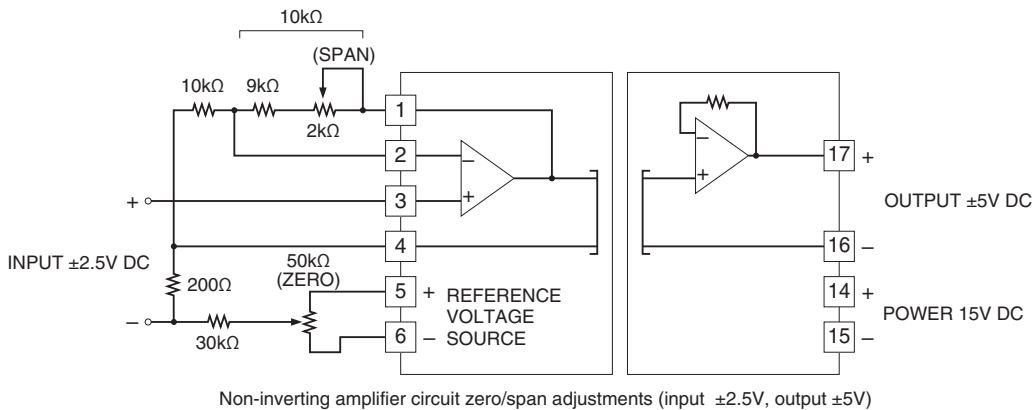
■ Non-inverting amplifier circuit: Example of $G = 1 + R_1 / R_2$



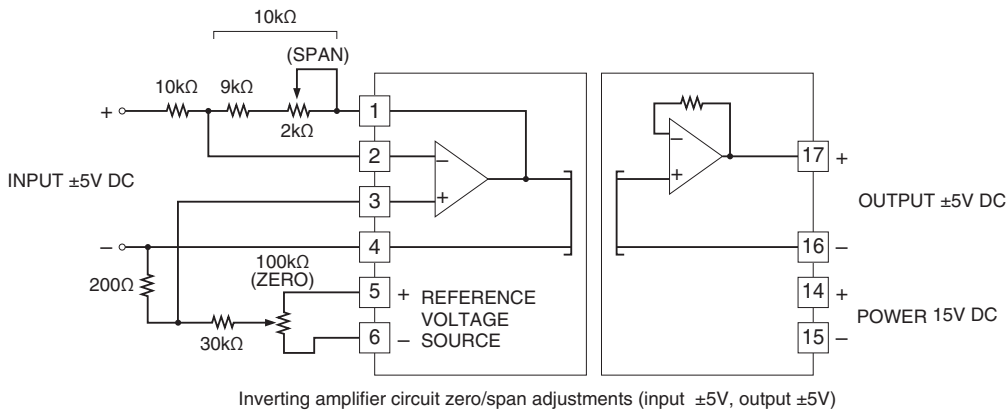
■ Inverting amplifier circuit: Example of $G = -R_1 / R_2$ (output inverted to the input)



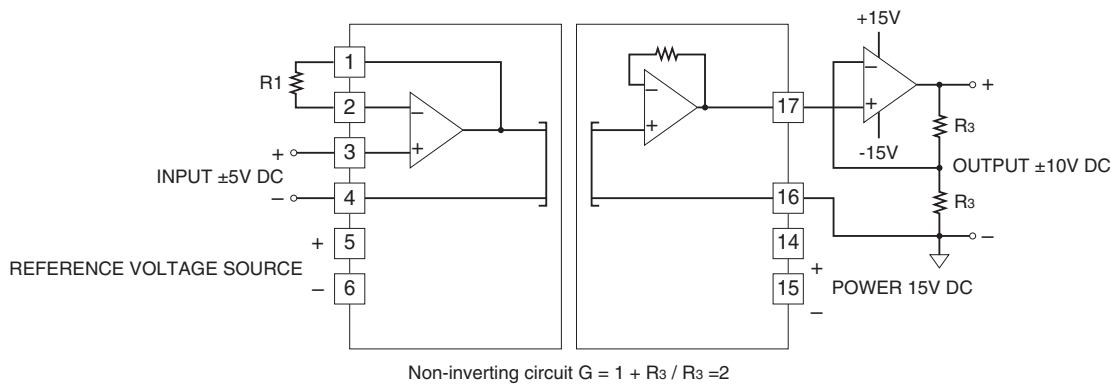
■ Non-inverting amplifier's circuit with external adjustments: Example of $G = 2$



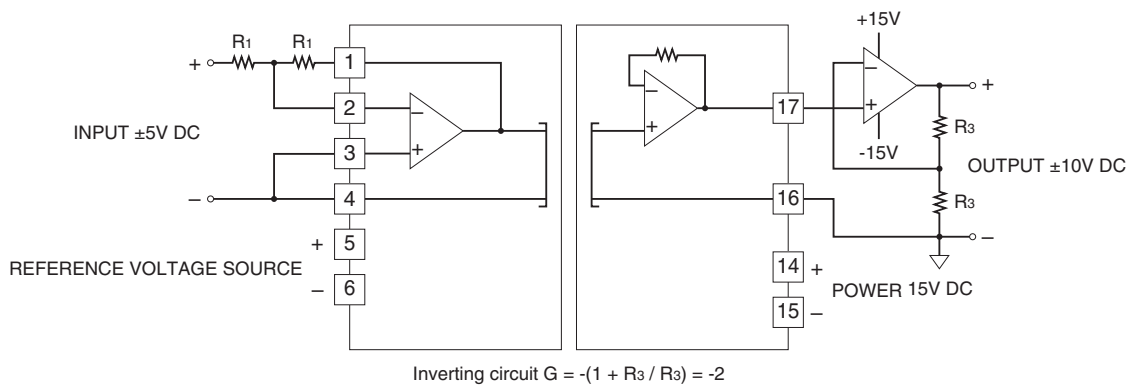
■ Inverting amplifier's circuit with external adjustments: Example of $G = -1$ (output inverted to the input)



■ Non-inverting amplifier circuit: Example of ±10V DC output (±10V DC to the input ±5V DC)



■ Inverting amplifier circuit: Example of ±10V DC output (output inverted to the input)



Specifications are subject to change without notice.